Surface Water Supply of the United States 1952

Part 8. Western Gulf of Mexico Basins

Prepared under the direction of J. V. B. WELLS, *Chief, Surface Water Branch*

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1242

Prepared in cooperation with the States of Colorado, Louisiana, New Mexico, and Texas and with other agencies

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1954

UNITED STATES DEPARTMENT OF THE INTERIOR

Douglas McKay, *Secretary*

GEOLOGICAL SURVEY

W. E. Wrather, *Director*

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. - Price $1.25 (paper cover)

PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Colorado, Louisiana, New Mexico, and Texas, and with other agencies, by personnel of the Water Resources Division, C. G. Paulsen, chief, under the general direction of J. V. B. Wells, chief, Surface Water Branch, and B. J. Peterson, chief, Annual Reports Section.

The data were computed under supervision of district engineers, Surface Water Branch, as follows:

F. M. Bell----------Denver, Colo.
C. E. Ellsworth----------Austin, Tex.
F. N. Hansen----------Baton Rouge, La.
Berkeley Johnson----------Santa Fe, N. Mex.

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ILLUSTRATIONS

SURFACE WATER SUPPLY OF WESTERN GULF OF MEXICO BASINS, 1952

SCOPE OF WORK

This volume is one of a series of 18 reports presenting measurements of stage, discharge, and content of streams, lakes, and reservoirs in the United States during the water year ending September 30, 1952. Since 1888, when the United States Geological Survey first studied streamflow in relation to problems of irrigation, similar measurements have been made at more than 12,600 gaging stations in the 48 States and at many others in the Territories of Alaska and Hawaii. On September 30, 1952, the Geological Survey and cooperating organizations were maintaining 6,700 gaging stations, including those in Alaska and Hawaii. Miscellaneous discharge measurements were made at many other points in the 1952 water year.

COOPERATION

Many State, municipal, and private organizations have cooperated with the Geological Survey in this work by either furnishing or helping to collect data. Organizations that supplied data are acknowledged in station descriptions, and organizations that assisted in the collection of data through cooperative agreements with the Survey are:

Colorado: Office of the State engineer, M. C. Hinderlider, and Colorado Water Conservation Board, C. H. Stone, director.

Louisiana: State Department of Public Works, J. L. White, director, succeeded by R. T. Sessums.

New Mexico: Office of the State engineer, J. H. Bliss; Interstate Stream Commission, J. H. Bliss, secretary; Pecos River Commission, J. H. Bliss, commissioner; and State Highway Department, B. G. Dwyre, State highway engineer.

Texas: State Board of Water Engineers, consisting of H. A. Beckwith, chairman, A. P. Rollins, and J. S. Guleke; Red Bluff Water Power Control District; Pecos River Commission, J. C. Wilson, commissioner, and H. L. Woodworth, Interstate Compact commissioner, State of Texas.

Assistance in the form of funds or services was given by the Corps of Engineers, Department of the Army, in collecting records published herein for 86 gaging stations, of which 1 was in Colorado, 4 in Louisiana, 8 in New Mexico, and 73 in Texas.

Assistance was also furnished by the Office of Indian Affairs of the United States Department of the Interior in the operation of gaging stations on the Indian Pueblo lands in New Mexico, by the Fish and Wildlife Service and the Bureau of Reclamation of the United States Department of Interior, the Soil Conservation Service of the United States Department of Agriculture, and the Weather Bureau of the United States Department of Commerce.

The following organizations aided in collecting records:

New Mexico: Middle Rio Grande Conservancy District and Public Service Company of New Mexico.

Texas: Dallas County; the cities of Abilene, Breckenridge, Corpus Christi, Dallas, Houston, Longview, San Angelo and Tyler; Tarrant County Water Control and Improvement District No. 1; Lower Colorado River Authority; Brazos River Conservation and Reclamation District; Pecos County Water Improvement District No. 1; Reeves County Water

Improvement District No. 1; Dow Chemical Co.; Texas Highway Department; San Jacinto River Authority; Texas Electric Service Co.; Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1; Brown County Water Improvement District No. 1; City Water Board of San Antonio; Colorado River Municipal Water District; Guadalupe-Blanco River Authority; Harris County Flood Control District; Lower Neches Valley Authority; and the Lower Nueces River Water Supply District.

DIVISION OF WORK

The stream gaging was done by the Water Resources Division of the Geological Survey, Carl G. Paulsen, chief hydraulic engineer, under the direction of Joseph V. B. Wells, chief of the Surface Water Branch. The data for stations in the several States were collected and prepared for publication under the supervision of the district engineers at the offices listed below. The records were reviewed and the manuscript prepared for publication under the direction of B. J. Peterson, chief, Annual Reports Section.

State	District office	Address
Colorado a/	Denver	Federal Center.
Louisiana b/	Baton Rouge	850 North Fifth Street.
New Mexico c/	Santa Fe	224 United States Courthouse.
Texas d/	Austin	302 West Fifteenth Street.

a/ The work was done in collaboration with M. C. Hinderlider, State engineer, and L. T. Burgess, State chief hydrographer.
b/ Except for Sabine River at Logansport.
c/ Except for Delaware River near Red Bluff and Pecos River near Red Bluff.
d/ Including Sabine River at Logansport, La., Delaware River near Red Bluff, N. Mex., and Pecos River near Red Bluff, N. Mex.

Information of a more detailed nature than that published for most of the gaging stations given in this report is on file in the district offices listed above. Provisional records of discharge prior to publication, and other unpublished data concerning the gaging station records may usually be obtained from the district office.

DEFINITION OF TERMS AND ABBREVIATIONS

The terms of streamflow and other hydrologic data, as used in this report, are defined as follows:

Cubic foot per second (cfs) is the rate of discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

Cubic feet 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.

Runoff in inches is the depth to which an area would be covered if all the water draining from it in a given period were uniformly distributed on its surface. The term is used for comparing runoff with rainfall, which is also usually expressed in inches.

Acre-foot is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet. The term is commonly used in relation to storage for irrigation.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.983471 acre-feet, or 646,317 gallons, and represents a runoff of 0.0372 inch from 1 square mile.

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel, expressed as volume per unit of time.

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

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

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

DOWNSTREAM ORDER OF LISTING GAGING STATIONS

Beginning with the series of reports for the water year ending September 30, 1951, the order of listing gaging-station records was changed. In this report, in a downstream direction along the main stem all stations on a tributary entering above a main-stem station are listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indention in the listing of gaging stations in the table of contents of this report represents one rank. This downstream order and system of indention show which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

The order of listing used before the publication of the 1951 report listed first all stations on the main stem from headwaters toward mouth, then all stations on the uppermost tributary to the main stem from the tributary's source to mouth, and then all stations from source to mouth of the uppermost tributary to the tributary.

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of fluctuations. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge. Typical structures in use at gaging stations are shown in figure 1.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, 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, and by other methods), velocity-area studies, and logarithmic plotting. The application of the daily mean gage height to those rating tables

A, SABINE RIVER NEAR GLADEWATER, TEX.

B, PECOS RIVER AT RED BLUFF, N. MEX.

C, COLORADO RIVER NEAR SAN SABA, TEX.

FIGURE 1.—GAGING-STATION STRUCTURES.

gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. 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 determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is essentially the shifting-control method.

At some 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 determining discharge. Information requisite for determining 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. If so, the rate of change of stage is used as a factor in the determination of discharge.

At most gaging stations in the northern part of the United States and at some in the mountainous regions of other parts the stage-discharge relation is affected by ice during the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and engineers, and comparable records of discharge for other stations in the same or nearby basins. If the stage-discharge relation is affected by ice, this information is given in a note to the table. No mention is made of occasional days of ice effect if the degree of accuracy of daily records is not changed.

The data herein presented generally comprise a description of the station, a skeleton rating table, and a table showing the daily discharge and monthly and yearly discharge and runoff of the stream.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, general remarks, and notations of revisions of the previously published record. The location of the gaging station and the drainage area 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 unless otherwise noted. Under "Gage" are given the type of gage currently in use and the datum of the present gage above mean sea level, and a condensed history of the types of gages, locations, and datums of previous gages for which discharge records are generally equivalent to those at the present site. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than five complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height (unless it is of no importance). Unless otherwise qualified, the maximum discharge corresponds to the crest-stage obtained by use of a water-stage recorder, a crest-stage indicator, or a non-

recording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and conditions which affect the natural flow at the gaging station is given under "Remarks."

Previously published records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual reports. In order to make it easier to find such revised records, a paragraph headed "Revisions (water years)" 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 report number, "W" means water-supply paper. In listing the water years only one number is given; for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If no daily, monthly, or annual figures of discharge are concerned in the revision, that 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; and "(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.

Skeleton rating tables are published for all stations except those at which the daily discharge for the greater part of the open-water period was determined by the shifting-control method, the slope method, or other special methods involving an equivalent adjustment to the gage height of more than one-tenth foot.

For stations equipped with water-stage recorders, except those on streams subject to sudden or rapid fluctuation, the daily table gives the discharge corresponding to the daily mean gage height. For stations subject to such fluctuation the daily mean gage height may not indicate the true daily mean discharge, which must be obtained by averaging the discharge for parts of the day or by using the discharge integrator, an instrument for obtaining the daily mean discharge from a continuous gage-height graph and containing, as an essential element, a curve representing the stage-discharge relation at the station. For stations equipped with nonrecording gages, the table of daily discharge gives the discharge corresponding to once-daily readings of the gage, or to the mean of twice-daily readings, or to the mean gage height determined from gage-height graphs based on gage readings. For periods of rapidly changing stage, the daily mean discharge is determined from gage-height graphs based on gage readings, the frequency of which is stated in the station description.

In the table of daily discharge, the values for the maximum day and the minimum day for each month are underlined. If the value is repeated, it is underlined only on the first day of its occurrence.

In the monthly summary below the daily table, the line headed "Total" gives the sum of the daily values; it is the total cfs-days for the month. The line headed "Mean" gives the average flow in cubic feet per second during the month. Runoff for the month 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"). Values for cubic feet per second per square mile and runoff, in inches, are omitted 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 values of maximum are the maximum daily discharges, not the momentary discharges when the water was at crest stage. Likewise, the minimums in this summary are the minimum daily discharges.

Peak discharges and the times of their occurrence and corresponding gage heights of most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man.

Footnotes to the table of daily discharge indicate periods when discharge was computed or estimated by unusual or special methods during periods of no gage-height record and ice effect, or by other effects that reduce the degree of accuracy of the records. Days on which discharge measurements were made are indicated by asterisk and footnote unless they were made at frequent regular intervals, in which instance the general frequency of discharge measurements is given under "Remarks" in the station description.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is usually given in the first report in which data for the reservoir are published, but it is omitted from succeeding reports.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of streamflow 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 states the degree of accuracy of the records. "Excellent" indicates that, in general, the error in the daily records is believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably more than 15 percent. The records of monthly and yearly mean discharge and runoff are, in general, more nearly accurate than the daily records.

Runoff at some stations, as indicated by the monthly mean, may vary widely from natural runoff, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, values of cubic feet per second per square mile and runoff, in inches, are not published unless storage or diversion records are included to indicate the extent of the regulation or diversion, or unless satisfactory adjustments can be made for changes in contents of reser-

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voirs or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur when relatively large negative adjustments are made or when evaporation is large in comparison with the observed discharge.

Many gaging stations on streams in the irrigated areas of the United States are situated above most of the diversions from those streams, and therefore the discharge recorded does not actually show the water supply available at the stations for further development, because water must first be supplied to existing irrigation systems.

PUBLICATIONS

To facilitate publication of the annual series of reports, the area of the United States is divided into 14 parts whose boundaries coincide with certain natural drainage lines. Formerly, the results of streamflow measurements were published in 14 volumes, one for each of the 14 parts. Beginning with the reports for 1951, the records are published in 18 volumes, there being 2 volumes each for Parts 1, 2, 3, and 6. The boundaries of the various parts are indicated by the following list and the map in figure 2.

Part 1. North Atlantic slope basins, in two volumes:
  A, North Atlantic slope basins, Maine to Connecticut.
  B, North Atlantic slope basins, New York to York River.
2. South Atlantic slope and eastern Gulf of Mexico basins, in two volumes:
  A, South Atlantic slope basins, James River to Savannah River.
  B, South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River.
3. Ohio River basin, in two volumes:
  A, Ohio River basin except Cumberland and Tennessee River basins.
  B, Cumberland and Tennessee River basins.
4. St. Lawrence River basin.
5. Hudson Bay and upper Mississippi River basins.
6. Missouri River basin, in two volumes:
  A, Missouri River basin above Sioux City, Iowa.
  B, Missouri River basin below Sioux City, Iowa.
7. Lower Mississippi River basin.
8. Western Gulf of Mexico basins.
9. Colorado River basin.
10. The Great Basin.
11. Pacific slope basins in California.
12. Pacific slope basins in Washington and upper Columbia River basin.
13. Snake River basin.
14. Pacific slope basins in Oregon and lower Columbia River basin.

Water-supply papers and other publications of the Geological Survey containing data on the water resources of the United States may be purchased or consulted as follows:

1. Copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., who will, on application, furnish lists giving prices. A list of Geological Survey publications may also be obtained by applying to the Director, Geological Survey, Washington, D. C.

2. Sets of the reports may be consulted in the libraries of the principal cities in the United States.

3. Sets are available for consultation in the offices of the Water Resources Division of the Geological Survey. Addresses of the offices in the area covered by this report are given on page 2.

Early records of the flow of streams in the United States are published in the reports listed below. In many of these reports records for years earlier than those indicated have been included for some streams.

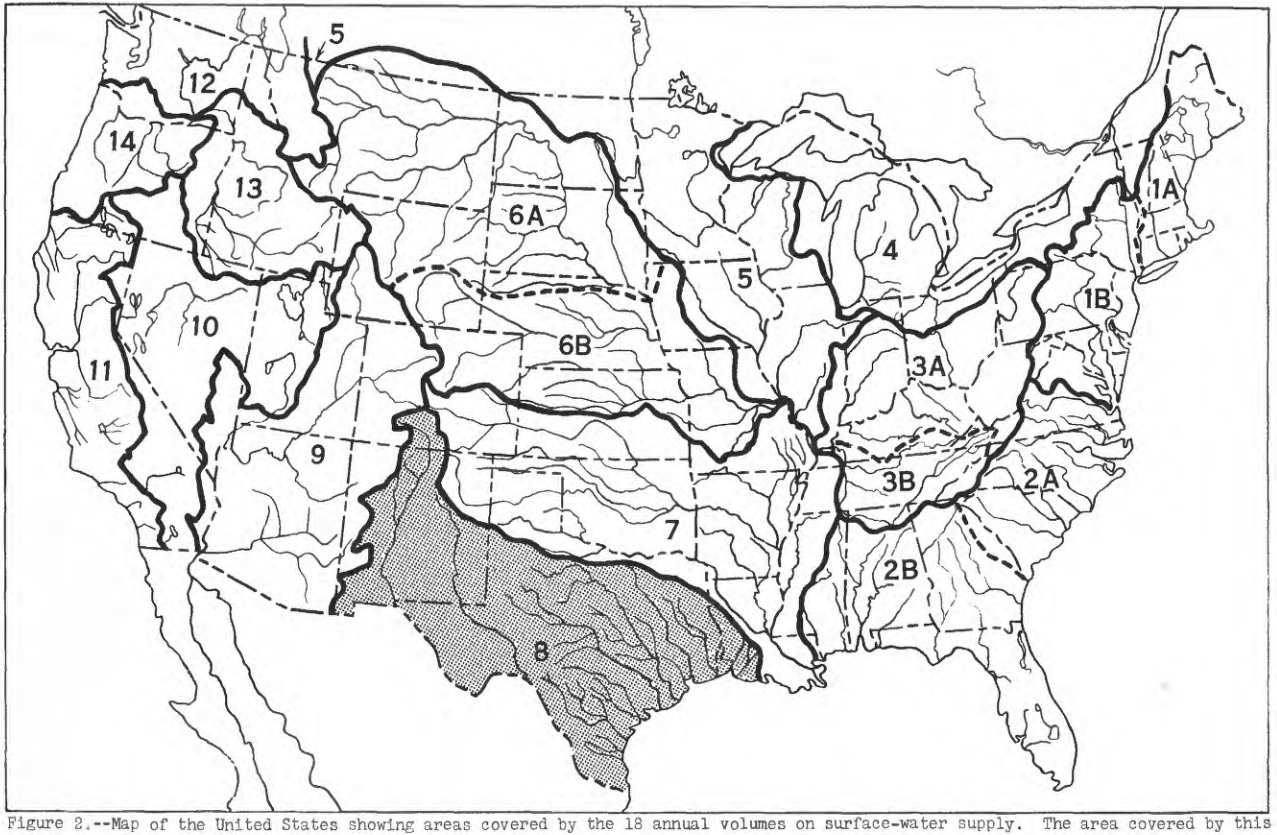

Figure 2.--Map of the United States showing areas covered by the 18 annual volumes on surface-water supply. The area covered by this report is shaded.

Streamflow data for the years 1884-1901, in reports of the Geological Survey

(A = Annual Report; B = Bulletin; W = Water-Supply Paper)

Report	Character of data	Year
10th A, pt. 2	Descriptive information only.	
11th A, pt. 2	Monthly discharge and descriptive information.....	1884 to September 1890.
12th A, pt. 2	....do.....	1884 to June 30, 1891.
13th A, pt. 3	....do.....	1884-92.
14th A, pt. 2	Monthly discharge.....	1888-93.
B 131.....	Descriptions, measurements, gage heights, and ratings.....	1893-94.
16th A, pt. 2	Descriptive information only.	
B 140.....	Descriptions, measurements, gage heights, ratings, and monthly discharge.	1895.
W 11.....	Gage heights.....	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge..	1895-96.
W 15.....	Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River.	1897.
W 16.....	Descriptions, measurements, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries above Kansas River.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge.	1897.
W 27.....	Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries.	1898.
W 28.....	Measurements, ratings, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries.	1898.
20th A, pt. 4	Monthly discharge.....	1898.
W 35 to 39...	Descriptions, measurements, gage heights, and ratings.....	1899.
21st A, pt. 4	Monthly discharge.....	1899.
W 47 to 52...	Descriptions, measurements, gage heights, and ratings.....	1900.
22d A, pt. 4.	Monthly discharge.....	1900.
W 65, 66.....	Descriptions, measurements, gage heights, and ratings.....	1901.
W 75.....	Monthly discharge.....	1901.

Reports on surface-water supply containing records from 1899 to date for drainage basins in this report are listed below. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained.

Numbers of water-supply papers containing results of stream measurements in Western Gulf of Mexico basins, 1899-1952

Year	W.S.P.	Year	W.S.P.	Year	W.S.P.	Year	W.S.P.	Year	W.S.P.
1899	37	1911	308	1923	568	1933	748	1943	978
1900	50	1912	328	1924	588	1934	763	1944	1008
1901	66,75	1913	358	1925	608	1935	788	1945	1038
1902	84	1914	388	1926	628	1936	808	1946	1058
1903	99	1915	408	1927	648	1937	828	1947	1088
1904	132	1916	438	1928	668	1938	858	1948	1118
1905	174	1917	458	1929	688	1939	878	1949	1148
1906	210	1918	477	1930	703	1940	898	1950	1178
1907-8	248	1919-20	508	1931	718	1941	928	1951	1212
1909	268	1921	528	1932	733	1942	958	1952	1242
1910	288	1922	548						

The records at most of the stations discussed in these reports extend over many years. Miscellaneous measurements at many points other than regular gaging stations have been made each year and are published under "Miscellaneous discharge measurements" at the end of each report. The streams and points of measurement are listed in the same order as the streams and gaging stations in the body of the report. An index of the records obtained before 1904 has been published in Water-Supply Paper 119.

Each of the reports on the surface-water supply for the year 1939 (Water-Supply Paper 878 for Western Gulf of Mexico basins) contains, for the area included in that report, a summary of yearly discharge at gaging stations at which 10 or more complete years of record had been collected. These summaries were reprinted separately.

Reports also have been published that are compilations of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which may have been revised), as well as some records not contained in the annual series of water-supply papers. The following table lists reports of this type for Western Gulf of Mexico basins.

Reports containing compilations of records of discharge by States and drainage basins

Water-Supply Paper	Period	Report
74.....	1884-1900	Water resources of Colorado.
358.....	1888-1913	Water resources of Rio Grande basin (Colo., N. Mex., Tex.).
850.....	1898-1937	Summary of records of surface waters of Texas.

Records of discharge have been published also in State reports. Some of these are not contained in the publications of the Geological Survey or are revisions of records previously published in its water-supply papers. The following table contains a list of these reports for the area covered by this report.

State reports containing compilations of records of discharge

State	Period	Report	Issued by
Colorado.....	1881-1935	Water resources of Colorado, Appendix 2, Data on stream-gaging stations of Colorado.a/	State Planning Commission, Water Conservation Board, State engineer.
Do.....	1881-1938	Water resources of Colorado, Appendix 3, vols. 1 and 2, Stream-flow data of Colorado.	Do.
Louisiana.....	1903-38	Geol. Bull. 16, Surface water supply of Louisiana.	Department of Conservation.
New Mexico....	1888-1925	Surface water supply of New Mexico.....	Office of the State Engineer.

a/ Contains records of yearly discharge only.
Note.--In addition to the records contained in the reports listed above, the States of Colorado and New Mexico have issued annual or biennial reports in which are contained records of discharge.

The reports listed in the foregoing tables contain the customary records of discharge collected during the systematic operation of gaging stations. Detailed information on the stage and discharge of many streams during major floods has been included in special reports on these floods published by the Geological Survey. The more recent of these special reports also contain other pertinent hydrologic information and analyses and compilations of data relating to earlier notable floods. The following list gives the numbers and titles of these reports:

Water-Supply Paper	Title
147.....	Destructive floods in the United States in 1904.
162.....	Destructive floods in the United States in 1905.
488.....	The flood in central Texas in September 1921.
771.....	Floods in the United States, frequency and magnitude.
796-G.....	Major Texas floods of 1935.
816.....	Major Texas floods of 1936.
842.....	Floods in Canadian and Pecos River basins of New Mexico, May and June 1937.
847.....	Maximum discharges at stream-measurement stations through September 1938.
914.....	Texas floods of 1938 and 1939.
997.....	Floods in Colorado.
1046.....	Texas floods of 1940.
1260-A.....	Central Texas floods of 1952 in Colorado and Guadalupe River basins.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The table below contains a list of gaging stations for the area covered by this report, at which records of discharge were collected during the water year October 1951 to September 1952 by agencies other than the Geological Survey. The records of these stations are not contained in publications of the Geological Survey except as noted in footnotes to the table.

Records of discharge collected by agencies other than the Geological Survey

Stream	Location	Period	Collected by	Remarks
Alamito Creek...	Near Presidio, Tex.....	1932-52	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
Arrey Canal.....	Near Arrey, N. Mex.....	1918, 1920-52	Bureau of Reclamation.	Unpublished.
Arroyo Las Vacas	Near Villa Acuna, Coahuila, Mexico.	1938-52	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.

Records of discharge collected by agencies other than the Geological Survey--Continued

Stream	Location	Period	Collected by	Remarks
Devils River....	Near Del Rio, Tex.....	1931-52†	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
East Side Canal.	At Mesilla Dam, near Mesilla Park, N. Mex.	1916-18, 1920-52	Bureau of Reclamation.	Unpublished.
Goodenough Springs.	Near Comstock, Tex.....	1931-52†	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
Hagerman Canal..	Near Roswell, N. Mex...	1942-52	Hagerman Irrigation Co.	Unpublished.
Larendo sewage outfall.	At Larendo, Tex.....	1950-52	Texas State Health Department.	Published in bulletins of International Boundary & Water Commission.
Leasburg Canal..	At head, at Selden, N. Mex.	1917-18, 1920-52	Bureau of Reclamation.	Unpublished.
Maverick Canal..	At powerplant near Eagle Pass, Tex.	1950-52	Central Power & Light Co.	Published in bulletins of International Boundary & Water Commission.
Pecos River.....	Near Comstock, Tex.....	1931-52†	International Boundary & Water Commission.	Do.
Pinto Creek.....	Near Del Rio, Tex.....	1931-52†	....do.....	Do.
Rio Alamo.....	At Mier, Tamaulipas, Mexico.	1924-52	....do.....	Do.
Rio Conchas.....	At Cuchillo Parado, Chihuahua, Mexico.	1945-52	....do.....	Do.
Do.....	Near Ojinaga, Chihuahua, Mexico.	1900-14, 1924-52	....do.....	Do.
Rio Escondido...	At Villa de Fuente, Coahuila, Mexico.	1922-52	....do.....	Records for 1923-24 and 1928 published in H. Doc. 359, 71st Cong., 2d sess., as Rio San Antonio above Fuente; records for 1932-52 published in bulletins of International Boundary & Water Commission.
Rio Grande.....	Below American Dam, near El Paso, Tex.	1938-52	....do.....	Published in bulletins of International Boundary & Water Commission.
Do.....	At lower Brownsville station, Tex.	1934-52	....do.....	Do.
Do.....	At County-line station near El Paso, Tex.	1938-52	....do.....	Do.
Do.....	Near Del Rio, Tex.....	1931-52†	....do.....	Do.
Do.....	At Eagle Pass, Tex.....	1931-52†	....do.....	Do.
Do.....	At El Paso, Tex.....	1931-52†	....do.....	Do.
Do.....	At Fort Quitman, Tex...	1931-52†	....do.....	Do.
Do.....	At Island station, near El Paso, Tex.	1938-52	....do.....	Do.
Do.....	At Johnson Ranch, Tex..	1936-52	....do.....	Do.
Do.....	At Juarez, Chihuahua, Mexico.	1938-52	....do.....	Do.
Do.....	At Langtry, Tex.....	1931-52†	....do.....	Do.
Do.....	At Laredo, Tex.....	1924-52†	....do.....	Do.
Do.....	At Leasburg Dam, at Selden, N. Mex.	1919-52	Bureau of Reclamation.	Unpublished.
Do.....	At Matamoros, Tamaulipas, Mexico.	1931-52‡	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
Do.....	At upper Presidio station, Tex.	1926-52†	....do.....	Do.
Do.....	At lower Presidio station, Tex.	1926-52†	....do.....	Do.
Do.....	Near Rio Grande City, Tex.	1924-52	....do.....	Do.
Do.....	At Roma, Tex.....	1931-52	....do.....	Do.
Do.....	Near Zapata, Tex.....	1932-52	....do.....	Do.
Rio Salado.....	Near Guerrero, Tamaulipas, Mexico.	1924-52†	....do.....	Do.
Rio San Diego...	Jimenez, Coahuila, Mexico.	1924-52	....do.....	Records for 1924-28 published in H. Doc. 359, 71st Cong., 2d sess.; records for 1931-52 published in bulletins of International Boundary & Water Commission.
Rio San Juan....	Above Rio Grande City, Tex.	1946-52	....do.....	Published in bulletins of International Boundary & Water Commission.
Do.....	Below Rio Grande City, Tex.	1946-52	....do.....	Do.

† Records for earlier years published in Geological Survey water-supply papers.
‡ Records for earlier years published in Geological Survey water-supply papers as Rio Grande near Brownsville, Tex.

Records of discharge collected by agencies other than the Geological Survey--Continued

Stream	Location	Period	Collected by	Remarks
Rio San Rodrigo.	Near El Moral, Coahuila, Mexico.	1922-52	International Boundary & Water Commission.	Records for 1923-24 and 1927-28 published in H. Doc. 359, 71st Cong., 2d sess.; records for 1932-52 published in bulletins of International Boundary & Water Commission.
San Felipe Creek	Near Del Rio, Tex.....	1931-52	....do.....	Published in bulletins of International Boundary & Water Commission.
Terlingua Creek.	Near Terlingua, Tex....	1932-52	....do.....	Do.
West Side Canal.	At Mesilla Dam, near Mesilla Park, N. Mex.	1916-18, 1920-52	Bureau of Reclamation.	Unpublished.

Note.--In addition to the gaging stations listed above, the International Boundary & Water Commission collects and publishes records of discharge in floodways in the lower Rio Grande Valley and records of diversions from the Rio Grande for irrigation and municipal use.

The Soil Conservation Service of the United States Department of Agriculture has been collecting records of runoff from 3 areas of less than 200 acres each near Waco, Tex., beginning in 1938. These records are in the files of the Soil Conservation Service.

HYDROLOGIC CONDITIONS

Drought conditions persisted for long periods in the 1952 water year in the Western Gulf of Mexico basins except in the extreme western part of the area where drought conditions early in the water year were relieved by flows somewhat above normal for the remainder of the year. The drought was most persistent in central Texas although floods in September brought relief to a small part of this area. Floods in the Colorado and Guadalupe River basins in central Texas during September are described in Water-Supply Paper 1260-A. For two key gaging stations in the area covered by this report, a comparison of the monthly and yearly mean discharge during the 1952 water year with the median discharge for the 25-year period 1921-45 is shown in figure 3 on the following page.

HYDROLOGIC CONDITIONS

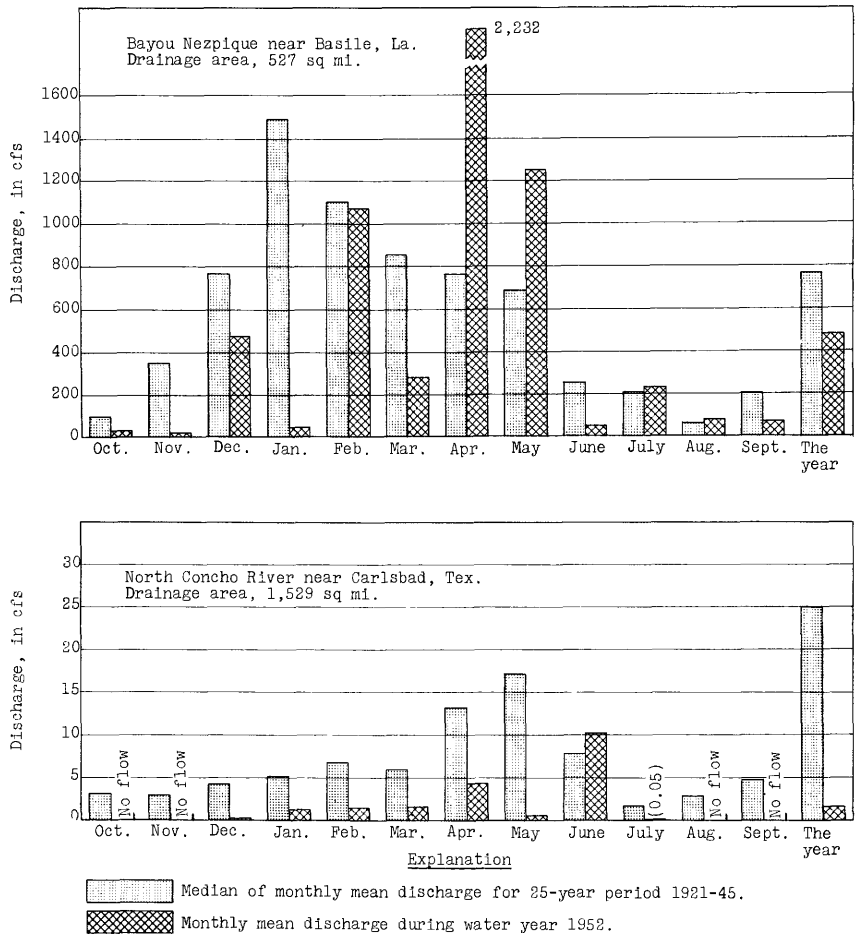

Figure 3.--Comparison of discharge at two key gaging stations during 1952 water year with median discharge for 25-year period.

MERMENTAU RIVER BASIN

Bayou des Cannes near Eunice, La.

Location.--Lat 30°29'00", long. 92°29'25", in SW¼SE¼ sec. 32, T. 6 S., R. 1 W., Louisiana meridian, on left bank at downstream side of bridge on U. S. Highway 190, 3 miles downstream from New Orleans, Texas & Mexico Railway bridge and 4 miles west of Eunice.

Drainage area.--131 sq mi.

Records available.--October 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 14.84 ft above mean sea level, datum of 1929 (Louisiana Geodetic Survey benchmark; levels by Corps of Engineers). Prior to Jan. 17, 1940, wire-weight gage at same site and datum. Auxiliary water-stage recorder 1.8 miles downstream. Oct. 1, 1943, to Nov. 1, 1950, auxiliary staff gage at same site and datum.

Average discharge.--14 years, 259 cfs.

Extremes.--Maximum discharge during year, 2,460 cfs Feb. 4 (gage height, 16.43 ft); minimum, 2.3 cfs Jan. 20, 21; minimum gage height, 1.20 ft Oct. 22, 23, 25, Dec. 1. 1938-52: Maximum discharge, 10,000 cfs July 7, 1946 (gage height, 21.15 ft); no flow May 7, 10-18, July 10, 1939, June 23-27, 30, July 1, 1948.

Remarks.--Records good except those below 10 cfs and those for periods of no auxiliary gage-height record, which are poor. Station is above all known diversions for irrigation.

Revisions.--The peak discharge for June 3, 1950 (11:30 p.m.) has been revised to 2,320 cfs.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	10	4.6	15	128	41	204	19	57	7.2	284	36
2	38	22	6.0	11	855	26	246	13	42	8.6	275	36
3	31	48	6.8	8.9	1,680	18	120	10	31	8.9	243	35
4	28	56	7.6	7.5	2,260	15	314	9.5	24	9.3	170	29
5	20	45	7.7	6.8	1,470	11	596	9.3	31	38	96	29
6	15	*32	11	6.2	969	8.6	770	7.7	44	52	66	31
7	13	34	26	5.6	518	6.7	828	8.0	51	26	59	32
8	11	38	28	5.2	147	5.6	620	7.9	49	*13	53	33
9	*9.8	24	a150	5.2	47	5.0	226	9.3	38	8.6	53	31
10	9.1	15	a450	5.0	21	29	278	8.9	44	11	66	29
11	8.3	12	a540	4.6	15	129	592	6.5	80	150	96	27
12	7.1	9.8	a460	4.5	16	166	755	5.6	83	298	78	31
13	6.4	8.6	a220	4.9	95	106	944	6.5	67	243	66	47
14	5.7	7.7	a110	4.5	131	60	1,040	6.4	44	110	74	57
15	5.5	7.6	a400	3.7	280	37	979	5.9	26	55	98	53
16	6.0	7.6	a620	3.2	516	21	725	6.4	18	146	94	*52
17	5.7	7.0	a720	3.0	549	*13	314	5.0	12	332	74	53
18	5.6	6.5	*633	2.5	441	88	72	18	9.6	410	62	55
19	5.3	6.0	559	2.4	*213	370	24	581	8.9	414	*53	57
20	5.3	5.6	517	2.4	79	364	14	960	8.6	404	41	53
21	5.0	5.5	456	2.3	41	204	9.8	1,530	8.6	335	38	47
22	4.6	5.1	338	*3.5	136	84	7.9	1,420	8.4	218	39	49
23	4.9	4.7	172	62	568	38	*547	1,030	8.9	106	45	53
24	5.0	4.7	76	44	751	22	959	686	6.2	62	49	44
25	5.5	4.7	44	19	673	15	1,540	503	5.9	41	52	35
26	9.1	4.7	29	10	787	9.3	1,470	418	4.5	31	60	31
27	7.7	4.9	21	7.2	524	6.8	1,040	280	4.1	27	66	32
28	6.7	5.0	37	36	211	5.6	610	152	4.9	21	60	27
29	5.7	4.9	60	142	74	4.6	193	*89	6.5	18	52	23
30	5.3	4.7	41	102	-	4.0	45	87	5.2	29	42	22
31	5.2	-	24	60	-	35	-	78	-	203	39	-
Total	356.5	451.3	6,774.7	600.1	14,195	1,948.2	16,082.7	7,976.9	831.3	3,835.6	2,643	1,169
Mean	11.5	15.0	219	19.4	489	62.8	536	257	27.7	124	85.3	39.0
Cfsm	0.088	0.115	1.67	0.148	3.73	0.479	4.09	1.96	0.211	0.947	0.651	0.298
In.	0.10	0.13	1.92	0.17	4.03	0.55	4.57	2.26	0.24	1.09	0.75	0.33
Ac-ft	707	895	13,440	1,190	28,160	3,860	31,900	13,820	1,650	7,610	5,240	2,320

Calendar year 1951: Max 2,040 Min 0.1 Mean 116 Cfsm 0.885 In. 12.05 Ac-ft 84,270
Water year 1951-52: Max 2,260 Min 2.3 Mean 155 Cfsm 1.18 In. 16.14 Ac-ft 112,800

* Discharge measurement made on this day.
a No auxiliary gage-height record; discharge estimated on basis of gage-height records for base gage and records for Bayou Nezpique near Basile.

Long Point Gully near Crowley, La.

Location.--Lat 30°18'42", long. 92°23'49", on line between secs. 31 and 32, T. 8 S., R. 1 E., Louisiana meridian, near center of span on downstream side of bridge on State Highway 26, 2¾ miles upstream from mouth and 7 miles north of Crowley.

Drainage area.--25.7 sq mi.

Records available.--April 1949 to September 1952.

Gage.--Water-stage recorder. Prior to Aug. 16, 1949, wire-weight gage at same site and datum.

Extremes.--Maximum discharge during year, 1,300 cfs Feb. 2 (gage height, 12.42 ft); no flow May 15-17; minimum gage height, 2.57 ft May 18, June 19.
1949-52: Maximum discharge, 1,540 cfs Jan. 6, 1950 (gage height, 12.83 ft); no flow at times; minimum gage height, that of May 18, June 19, 1952.

Remarks.--Records fair except those below 1 cfs, which are poor Diversions above station for irrigation by several tractor-operated pumps.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 8 to Dec. 8, June 12 to July 12, Sept. 15-30)

2.6	0	4.0	14	10.0	332
2.7	.1	6.0	56	10.5	435
2.8	.2	7.0	78	11.0	590
2.9	.4	8.0	110	12.0	1,080
3.1	1.2	8.5	142	12.5	1,360
3.3	2.6	9.0	194		
3.6	6.3	9.5	259		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	54	0.2	1.1	68	3.2	288	2.2	16	6.2	127	2.3
2	2.4	104	.1	1.0	1,140	1.5	124	2.1	5.8	4.4	134	1.5
3	4.1	46	.2	1.1	457	1.2	26	2.5	4.6	2.5	91	1.7
4	1.7	16	.3	1.3	135	1.3	683	.4	2.4	2.6	34	5.0
5	.9	9.4	.5	1.1	37	1.4	750	.7	1.4	11	18	7.0
6	.8	84	.4	1.0	24	1.1	173	1.6	5.8	9.8	13	5.8
7	1.4	184	.7	.8	17	.7	37	2.3	23	7.0	11	2.8
8	2.1	76	19	.8	7.5	.4	8.2	1.5	18	*4.4	22	1.7
9	*2.7	*16	457	.7	3.6	.3	3.4	1.0	37	5.1	26	3.0
10	2.1	4.8	310	.8	2.0	1.2	292	1.0	30	7.3	20	5.6
11	1.4	3.3	120	.7	1.3	14	397	5.0	14	6.8	15	7.8
12	1.3	2.0	34	.7	1.0	7.7	269	3.4	5.8	16	34	3.7
13	1.3	1.3	14	.6	.9	9.4	489	.7	2.1	45	37	3.2
14	1.0	1.1	35	.6	1.4	4.2	156	.1	.8	21	30	66
15	.5	1.0	249	.5	64	1.4	37	0	1.1	12	20	61
16	.9	.6	129	.6	116	.7	10	0	4.0	284	16	*31
17	1.7	.3	37	.8	71	.3	4.1	0	.8	516	10	17
18	1.9	.2	*78	.8	18	34	2.1	1.5	.2	237	4.0	12
19	.7	.2	97	.8	*7.0	*78	1.3	425	.1	96	*40	25
20	.2	.1	136	.7	3.4	20	1.0	552	.8	38	21	23
21	.1	.2	113	.7	2.0	6.0	1.2	170	.9	20	14	16
22	3.8	.3	38	.9	147	3.2	*1.5	40	3.3	16	20	8.0
23	94	.3	13	.9	412	1.9	602	16	4.6	11	22	5.4
24	240	.2	6.8	*.7	172	1.2	680	132	2.9	9.6	20	5.0
25	98	.2	4.1	.4	60	.8	174	150	1.2	14	12	4.1
26	21	.2	3.4	1.1	50	.5	39	155	.4	13	7.2	3.4
27	6.0	.2	3.7	4.7	26	.4	11	80	.2	16	7.2	2.7
28	2.9	.3	2.4	153	11	.3	5.0	52	2.6	18	11	6.2
29	1.4	.3	1.6	118	7.2	.2	1.5	*275	14	30	10	4.1
30	1.2	.2	1.4	28	-	.2	.9	149	14	34	4.3	4.4
31	1.3	-	1.2	9.0	-	162	-	45	-	100	1.6	-
Total	500.2	606.7	1,906.0	333.9	3,062.3	358.7	5,267.2	2,267.0	217.8	1,613.7	852.3	345.4
Mean	16.1	20.2	61.5	10.8	106	11.6	176	73.1	7.26	52.1	27.5	11.5
Ac-ft	992	1,200	3,780	662	6,070	711	10,450	4,500	432	3,200	1,690	685

Calendar year 1951: Max 976 Min 0 Mean 32.4 Ac-ft 23,400
Water year 1951-52: Max 1,140 Min 0 Mean 47.4 Ac-ft 34,370

Peak discharge (base, 700 cfs).--Feb. 2 (11 a.m.) 1,300 cfs (12.42 ft); Apr. 4 (9:30 p.m.) 1,220 cfs (12.24 ft); Apr. 23 (10 p.m.) 1,200 cfs (12.19 ft); May 19 (11:30 p.m.) 920 cfs (11.68 ft).

* Discharge measurement made on this day.

Bayou Nezpique near Basile, La.

Location.--Lat 30°28'50", long. 92°37'55", in NE¼NW¼ sec. 1, T. 7 S., R. 3 W., near left bank on downstream side of bridge on U. S. Highway 190, a quarter of a mile downstream from New Orleans, Texas & Mexico Railway bridge and 2 miles west of Basile.

Drainage area.--527 sq mi.

Records available.--October 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 3.39 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to July 17, 1947, wire-weight gage at same site and datum. Since Apr. 10, 1945, auxiliary staff gage 7½ miles downstream.

Average discharge.--14 years, 812 cfs.

Extremes.--Maximum discharge during year, 4,970 cfs Apr. 26; maximum gage height, 21.25 ft Apr. 27; minimum discharge, 1.0 cfs Nov. 30 to Dec. 2; minimum gage height, 1.24 ft Nov. 29, 30.

1938-52: Maximum discharge, 22,900 cfs Aug. 11, 1940 (gage height, 31.08 ft); minimum, 0.1 cfs June 7-13, 1943, June 22-29, 1948; minimum gage height, 1.00 ft June 28, 1948.

Remarks.--Records good except those below 10 cfs, which are fair. Station is above all known diversions for irrigation.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	223	10	1.0	62	357	366	66	2,680	326	20	74	51
2	161	22	1.0	50	1,150	220	103	2,130	189	21	86	46
3	112	68	1.6	42	1,910	162	158	1,240	148	21	109	44
4	81	68	2.1	34	2,550	112	649	479	114	27	127	44
5	62	58	1.6	30	2,730	82	1,500	160	85	30	98	42
6	50	*57	1.3	26	2,530	68	1,960	98	60	35	70	36
7	40	51	1.2	24	2,310	60	2,180	70	49	33	52	32
8	29	43	7.5	21	1,960	50	2,060	54	41	25	38	31
9	*22	36	181	19	1,430	42	1,830	42	45	*23	35	33
10	17	31	659	17	776	52	1,790	33	46	71	38	30
11	13	26	672	16	340	224	2,050	25	40	251	43	27
12	10	23	522	14	160	699	2,370	19	39	152	45	27
13	9.3	19	371	13	127	619	2,910	13	41	78	52	25
14	9.3	17	363	12	102	742	3,140	13	32	63	146	50
15	7.0	14	974	10	194	594	3,300	14	24	70	175	183
16	4.8	11	1,410	9.3	460	350	3,210	7.3	21	411	150	*210
17	3.7	9.1	1,560	8.1	631	*203	2,870	4.9	18	870	111	174
18	2.8	7.2	1,480	7.0	682	222	2,470	18	15	986	83	147
19	2.3	5.7	*1,210	6.3	*456	572	2,020	1,000	15	858	70	140
20	1.8	4.8	972	9.3	285	880	1,220	2,120	12	729	*60	130
21	1.7	4.0	894	19	185	793	602	2,920	11	579	58	114
22	1.5	3.6	856	*14	338	510	*229	3,460	7.5	493	67	102
23	1.7	3.4	735	9.1	1,060	286	1,300	3,560	5.3	440	80	96
24	1.7	3.0	548	5.5	1,500	178	2,880	3,410	4.6	369	82	88
25	1.7	2.4	345	4.2	1,890	112	3,940	3,160	7.3	243	88	74
26	5.0	2.0	220	5.1	1,680	78	4,720	2,960	8.2	140	93	63
27	8.8	1.8	152	5.3	1,400	60	4,660	2,720	6.0	78	90	52
28	9.3	1.4	168	21	1,010	48	4,080	2,340	3.2	47	85	46
29	10	1.2	147	189	623	38	3,590	*2,120	9.7	31	72	40
30	9.8	1.0	103	306	-	31	3,110	1,250	21	24	67	37
31	8.8	-	78	273	-	33	-	710	-	36	60	-
Total	921.0	604.6	14,637.3	1,281.2	30,826	8,686	66,967	38,831.2	1,443.8	7,254	2,504	2,214
Mean	29.7	20.2	472	41.3	1,063	280	2,232	1,253	48.1	234	80.8	73.8
Cfsm	0.056	0.038	0.896	0.078	2.02	0.531	4.24	2.38	0.091	0.444	0.153	0.140
In.	0.06	0.04	1.03	0.09	2.18	0.61	4.73	2.74	0.10	0.51	0.18	0.16
Ac-ft	1,830	1,200	29,030	2,540	61,140	17,230	132,800	77,020	2,860	14,390	4,970	4,390

Calendar year 1951: Max 3,390 Min 0.5 Mean 323 Cfsm 0.613 In. 8.31 Ac-ft 233,900
Water year 1951-52: Max 4,720 Min 1.0 Mean 481 Cfsm 0.913 In. 12.43 Ac-ft 349,400

* Discharge measurement made on this day.

Calcasieu River near Glenmora, La.

Location.--Lat 30°59'45", long. 92°40'25", in SE¼SE¼ sec. 4, T. 1 S., R. 3 W., Louisiana meridian, on right bank on downstream side of bridge on State Highway 113, 1.0 mile upstream from Prairie Branch and 4.6 miles northwest of Glenmora.

Drainage area.--499 sq mi.

Records available.--August 1943 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 110.77 ft above mean sea level (Louisiana Geodetic Survey benchmark). Prior to Nov. 19, 1949, wire-weight gage at same site and datum.

Average discharge.--9 years, 848 cfs.

Extremes.--Maximum discharge during year, 33,000 cfs Apr. 25 (gage height, 19.02 ft); minimum, 20 cfs Sept. 27-30; minimum gage height, 4.26 ft Sept. 30.
1943-52: Maximum discharge, that of Apr. 25, 1952; minimum, 19 cfs Oct. 8-10, 12-15, 1948; minimum gage height, 4.26 ft Oct. 10, 1948, Sept. 30, 1952.

Remarks.--Records good except those for periods of no gage-height record, which are fair.

Revisions (water years).--W 1118: 1944-47.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 7		Dec. 8 to Sept. 30			
4.4	22	4.3	20	12.0	1,400
4.7	36	4.5	27	12.5	1,820
5.0	50	5.0	50	13.0	2,610
6.0	106	6.0	106	13.5	3,850
		7.0	178	14.0	5,610
		9.0	375	15.0	10,600
		10.0	565	17.0	21,800
		11.0	860	19.0	33,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	32	34	128	720	640	211	1,510	1,680	40	75	24
2	79	31	37	122	1,680	565	202	976	1,470	40	75	24
3	65	52	37	115	2,080	500	186	482	1,340	39	72	23
4	56	67	38	112	2,820	412	696	295	1,300	39	63	23
5	48	65	39	122	4,310	a370	1,020	242	1,040	39	52	23
6	42	54	40	139	3,710	a350	1,040	211	552	40	46	23
7	39	48	46	166	3,300	a340	1,120	186	272	39	42	22
8	36	45	81	*186	2,720	a330	1,210	162	186	38	41	22
9	34	45	203	182	2,080	a330	*1,210	142	146	40	41	22
10	31	48	375	170	1,510	a500	1,270	128	128	40	40	22
11	31	46	*480	150	888	a900	1,100	122	115	38	40	21
12	29	43	565	132	*510	*1,040	900	122	103	38	43	21
13	28	42	565	118	480	922	1,070	*210	94	37	42	21
14	27	42	533	109	530	720	1,120	325	88	36	41	23
15	26	39	1,100	100	640	540	1,240	375	82	47	38	23
16	26	37	1,070	94	768	430	1,400	320	74	49	35	22
17	26	35	880	91	900	330	1,550	220	*68	51	32	22
18	26	33	820	88	922	305	1,590	162	64	96	30	22
19	25	32	678	88	840	565	1,440	352	61	220	31	23
20	24	32	490	88	678	720	940	615	58	295	30	23
21	24	31	382	88	602	802	458	530	55	345	29	23
22	23	31	315	91	652	820	285	540	54	340	27	22
23	24	31	275	88	840	802	794	628	52	*219	27	*22
24	26	31	238	85	968	735	7,210	900	50	122	29	22
25	26	32	206	86	1,040	590	31,300	1,210	48	88	26	21
26	25	32	186	88	1,100	398	19,000	1,370	46	72	*26	21
27	24	32	162	88	1,020	290	6,750	1,400	44	70	26	21
28	24	32	150	168	840	234	3,850	1,510	43	60	26	20
29	25	33	142	352	720	194	2,720	1,720	42	53	26	20
30	*25	33	132	470	-	170	2,080	2,080	41	46	26	20
31	25	-	128	565	-	162	-	1,940	-	50	25	-
Total	1,072	1,186	10,427	4,671	39,868	16,006	94,962	20,985	9,396	2,768	1,202	661
Mean	34.6	39.5	336	151	1,375	516	3,165	677	313	89.3	38.8	22.0
Cfsm	0.069	0.079	0.673	0.303	2.76	1.03	6.34	1.36	0.627	0.179	0.078	0.044
In.	0.08	0.09	0.78	0.35	2.97	1.19	7.08	1.56	0.70	0.21	0.09	0.05
Ac-ft	2,130	2,350	20,680	9,260	79,080	31,750	188,400	41,620	18,640	5,490	2,380	1,310

Calendar year 1951: Max 15,300 Min 23 Mean 573 Cfsm 1.15 In. 15.58 Ac-ft 414,500
Water year 1951-52: Max 31,300 Min 20 Mean 555 Cfsm 1.11 In. 15.15 Ac-ft 403,100

Peak discharge (base, 4,000 cfs).--Feb. 5 (9 a.m.) 4,470 cfs (13.72 ft); Apr. 25 (11 a.m.) 33,000 cfs (19.02 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for other streams in basin.

Calcasieu River near Oberlin, La.

Location.--Lat 30°38'25", long. 92°48'50", in NW¼NE¼ sec. 7, T. 5 S., R. 4 W., near right bank on downstream side of bridge on State Highway 52, 3 miles northwest of Oberlin and 15 miles upstream from Whiskey Chitto Creek.

Drainage area.--753 sq mi.

Records available.--August 1922 to January 1925, September 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 39.43 ft above mean sea level, datum of 1929 (Louisiana Geodetic Survey benchmark). August 1922 to January 1925, water-stage recorder at same site at datum about 2½ ft higher. September 1938 to Aug. 17, 1939, wire-weight gage at same site and datum.

Average discharge.--16 years (1922-24, 1938-52), 1,299 cfs.

Extremes.--Maximum discharge during year, 28,200 cfs Apr. 27 (gage height, 20.83 ft); minimum, 40 cfs Sept. 29, 30; minimum gage height, 2.97 ft Sept. 30.
1922-25, 1938-52: Maximum discharge, 33,200 cfs Feb. 16, 1950 (gage height, 21.54 ft); minimum, 40 cfs Aug. 24, Oct. 17, 1948, Sept. 29, 30, 1952.
Flood of June 1886 reached a stage of between 22 and 23 ft, present datum.

Remarks.--Records good. Paper mill at Elizabeth pumps about 5 cfs from wells which is later discharged into Mill Creek, 20 miles above station. This discharge is continuous and fairly constant.

Revisions (water years).--W 1178: 1923(M).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 22 to July 16)

2.9	34	14.0	4,060
3.0	42	15.0	5,050
4.0	135	16.0	6,760
5.0	286	17.0	9,630
6.0	540	19.0	17,500
10.0	1,870	20.5	26,200
12.0	2,730		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	148	63	64	215	659	1,300	350	4,510	2,030	92	176	64
2	147	70	64	208	2,220	1,160	362	3,530	2,150	90	133	64
3	132	80	66	196	2,730	1,030	338	2,840	2,190	88	124	62
4	118	78	68	191	2,950	907	1,020	2,310	2,110	82	125	62
5	108	69	73	194	3,070	814	1,690	1,760	1,870	78	118	60
6	99	74	73	193	2,950	721	2,440	1,160	1,690	76	113	60
7	90	*86	73	208	2,840	630	3,070	752	1,580	74	105	59
8	84	87	82	224	3,400	600	2,440	570	1,450	72	99	58
9	80	82	172	224	3,670	585	1,720	469	1,030	*70	92	57
10	*76	78	378	232	3,460	708	1,720	414	645	70	89	56
11	74	75	469	232	3,070	1,410	2,230	350	441	70	88	56
12	71	75	455	224	2,630	1,660	2,440	306	350	74	85	56
13	70	76	427	208	2,230	1,580	3,460	276	296	79	84	56
14	68	75	677	193	1,890	1,580	3,600	267	258	80	83	56
15	66	75	1,200	179	1,160	1,440	3,140	286	232	77	83	60
16	65	71	1,130	167	938	1,270	2,500	350	208	304	83	64
17	64	68	1,100	158	938	1,030	1,910	455	187	387	81	*55
18	63	66	1,300	149	1,060	907	1,660	526	171	286	77	51
19	61	66	1,360	145	1,160	*907	1,620	1,790	157	232	74	49
20	60	66	*1,270	140	*1,200	845	1,690	2,890	147	173	*72	60
21	60	65	1,200	136	1,200	876	1,760	2,500	137	181	76	60
22	59	64	1,030	*134	1,200	907	1,720	1,720	131	232	88	55
23	61	64	814	134	1,300	938	*2,680	1,380	124	296	83	49
24	60	64	630	132	1,270	969	3,530	1,270	116	350	78	46
25	60	64	497	131	1,340	1,000	3,010	1,660	114	338	77	44
26	60	64	427	130	1,410	969	4,180	1,990	109	240	80	43
27	59	64	362	133	1,410	907	24,200	1,910	105	177	76	42
28	58	65	306	232	1,380	783	21,800	1,870	100	151	72	41
29	57	64	267	306	1,380	585	11,600	2,110	97	136	69	41
30	57	64	249	350	-	441	6,500	*2,150	97	135	66	40
31	57	-	232	455	-	362	-	1,990	-	232	65	-
Total	2,392	2,122	16,535	6,153	55,915	29,819	120,380	46,361	20,322	5,022	2,814	1,626
Mean	77.2	70.7	533	198	1,928	962	4,013	1,496	677	162	90.8	54.2
Ac-ft	4,740	4,210	32,800	12,200	110,900	59,150	238,800	91,960	40,310	9,960	5,580	3,230

Calendar year 1951: Max 10,600 Min 49 Mean 727 Ac-ft 526,700
Water year 1951-52: Max 24,200 Min 40 Mean 846 Ac-ft 613,800

Peak discharge (base, 8,000 cfs).--Apr. 27 (7:30 p.m.) 28,200 cfs (20.83 ft).
* Discharge measurement made on this day.

Tenmile Creek near Elizabeth, La.

Location.--Lat 30°50'11", long. 92°52'26", in NW¼SW¼ sec. 34, T. 2 S., R. 5 W., near left bank on downstream side of bridge on State Highway 151, 0.3 mile downstream from Carter Branch and 5.3 miles southwest of Elizabeth.

Drainage area.--91.5 sq mi.

Records available.--October 1949 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 100 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,940 cfs Feb. 3 (gage height, 13.30 ft); minimum, 15 cfs Oct. 20-23, Sept. 30; minimum gage height, 2.18 ft Oct. 20-23.
1949-52: Maximum discharge, 4,810 cfs Apr. 30, 1950 (gage height, 15.32 ft), from rating curve extended above 1,500 cfs by velocity-area studies; minimum, 15 cfs Oct. 1, 2, 1949, Aug. 17, Oct. 20-23, 1951, Sept. 30, 1952; minimum gage height, 2.18 ft Aug. 17, Oct. 20-23, 1951.

Remarks.--Records good.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	21	20	36	243	69	61	64	122	21	46	19
2	19	23	20	33	945	57	106	60	82	20	41	20
3	19	39	21	32	1,660	48	71	58	62	19	33	19
4	18	25	21	32	1,420	45	584	55	51	19	29	19
5	18	20	22	45	1,000	49	634	50	45	20	27	19
6	17	19	22	81	479	52	775	45	40	20	26	19
7	17	19	23	86	147	41	674	40	39	19	26	19
8	16	18	110	*60	100	35	*191	37	36	18	25	18
9	16	19	400	46	81	33	88	34	34	17	25	18
10	16	19	373	39	69	153	123	34	33	17	25	18
11	16	19	*378	34	61	356	203	34	31	30	25	17
12	16	19	150	32	*57	*454	298	33	30	33	24	17
13	16	19	64	29	80	523	373	34	29	32	24	17
14	16	19	184	27	98	260	382	34	28	28	23	18
15	16	18	466	25	88	110	267	32	27	23	23	19
16	16	18	911	24	106	81	108	*31	26	270	23	19
17	16	18	1,180	23	185	64	76	29	*25	265	22	19
18	16	18	785	23	168	76	60	48	25	274	21	19
19	16	18	326	23	96	197	50	413	24	205	21	18
20	16	19	257	22	78	284	44	508	24	98	21	18
21	15	19	155	21	108	152	41	493	23	60	21	20
22	15	19	120	20	149	88	40	260	23	44	21	19
23	16	19	88	19	212	71	509	95	22	*35	23	*18
24	17	19	64	17	277	63	999	266	22	30	39	17
25	18	19	55	17	191	53	1,460	375	21	27	28	16
26	16	19	51	16	128	45	1,000	466	20	26	*23	16
27	16	20	51	18	133	40	547	478	20	27	21	16
28	16	20	59	84	118	36	152	210	24	24	20	16
29	16	19	52	199	86	33	100	172	26	22	20	16
30	*16	20	42	168	-	31	75	280	21	93	20	15
31	16	-	38	80	-	30	-	253	-	162	19	-
Total	510	600	6,508	1,411	8,543	3,629	10,091	5,021	1,035	1,998	785	538
Mean	16.5	20.0	210	45.5	295	117	336	162	34.5	64.5	25.3	17.9
Cfsm	0.180	0.219	2.30	0.497	3.22	1.28	3.67	1.77	0.377	0.705	0.277	0.196
In.	0.21	0.24	2.65	0.57	3.47	1.48	4.10	2.04	0.42	0.81	0.32	0.22
Ac-ft	1,010	1,190	12,910	2,800	16,940	7,200	20,020	9,960	2,050	3,960	1,560	1,070

Calendar year 1951: Max 1,180 Min 15 Mean 77.6 Cfsm 0.85 In. 11.53 Ac-ft 56,210
Water year 1951-52: Max 1,660 Min 15 Mean 111 Cfsm 1.21 In. 16.53 Ac-ft 80,670

Peak discharge (base, 500 cfs).--Dec. 16 (11:30 p.m.) 1,360 cfs (12.55 ft); Feb. 3 (2 p.m.) 1,940 cfs (13.30 ft); Mar. 13 (1 p.m.) 539 cfs (10.23 ft); Apr. 7 (1 a.m.) 820 cfs (11.38 ft); Apr. 24 (11:30 p.m.) 1,800 cfs (13.14 ft); May 19 (8 p.m.) 523 cfs (10.07 ft); May 27 (8 a.m.) 508 cfs (9.97 ft).

* Discharge measurement made on this day.

Whiskey Chitto Creek near Oberlin, La.

Location.--Lat 30°41'55", long. 92°53'35", in NE¼NE¼ sec. 20, T. 4 S., R. 5 W., near left bank on downstream side of bridge on State Highway 52, 1 mile downstream from Tenmile Creek, 8 miles upstream from Bundick Creek, and 10 miles northwest of Oberlin.

Drainage area.--510 sq mi.

Records available.--January 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 46.24 ft above mean sea level (Louisiana Geodetic Survey benchmark). Prior to Oct. 19, 1944, wire-weight gage at same site and datum.

Average discharge.--13 years, 875 cfs.

Extremes.--Maximum discharge during year, 14,400 cfs Apr. 25 (gage height, 20.84 ft); minimum, 137 cfs Sept. 30 (gage height, 3.74 ft).
1939-52: Maximum discharge, 35,000 cfs Aug. 9, 1940 (gage height, 23.42 ft); minimum observed, 102 cfs Sept. 19, 1939; minimum gage height, 3.70 ft Sept. 1, 1951.
Maximum stage known, 25.7 ft in June 1886, from floodmarks preserved by local residents.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	275	164	175	351	633	467	288	642	1,280	184	514	171
2	246	166	173	333	2,840	418	427	570	801	184	423	173
3	229	246	169	324	3,840	380	467	582	594	186	345	166
4	214	304	169	333	4,620	360	1,020	558	514	186	290	166
5	203	229	175	342	4,950	380	2,480	536	453	186	263	166
6	197	184	176	389	4,040	457	2,460	473	413	195	254	164
7	190	*162	195	498	2,360	398	2,060	433	393	236	236	162
8	180	153	237	457	962	351	1,450	403	364	202	234	161
9	180	184	a600	389	650	324	849	383	345	*178	231	158
10	*175	203	a1,000	360	565	382	678	364	326	168	227	155
11	171	184	a1,200	342	498	1,410	1,010	345	308	164	220	152
12	169	169	a1,300	333	467	1,500	1,330	360	299	254	214	150
13	166	162	a1,100	324	447	1,130	2,280	573	290	236	213	150
14	164	160	a800	306	467	932	2,140	500	281	193	209	156
15	160	157	a1,300	306	553	686	1,780	393	263	180	204	157
16	157	151	a2,000	297	508	457	1,290	354	254	300	198	152
17	153	148	a2,600	297	675	398	717	326	245	1,050	198	*159
18	151	148	2,840	297	755	389	570	438	236	1,340	195	168
19	149	146	2,100	297	589	*764	503	2,330	229	1,520	191	161
20	148	148	*1,490	306	*487	1,060	453	3,010	223	1,450	*186	168
21	149	149	964	297	530	932	423	2,630	213	860	186	169
22	153	149	728	*288	701	589	413	2,340	209	503	184	161
23	160	151	625	279	901	447	*1,510	1,580	202	393	182	156
24	162	151	519	270	1,100	408	3,960	1,460	196	345	a190	152
25	157	153	457	270	996	380	12,200	2,380	196	308	a250	150
26	157	153	427	261	755	351	7,280	2,340	193	281	a230	147
27	158	157	408	261	650	324	4,950	2,460	186	409	a210	144
28	160	157	418	324	625	306	3,280	2,290	186	317	191	143
29	158	155	418	672	542	288	1,190	1,520	186	263	182	138
30	153	160	389	670	-	279	770	*1,450	187	263	178	138
31	149	-	360	690	-	279	-	1,480	-	517	175	-
Total	5,393	5,103	25,512	11,363	37,706	17,226	60,228	35,503	10,065	13,051	7,203	4,713
Mean	174	170	823	367	1,300	556	2,008	1,145	336	421	232	157
Cfsm	0.341	0.333	1.61	0.720	2.55	1.09	3.94	2.25	0.659	0.825	0.455	0.308
In.	0.39	0.37	1.86	0.83	2.75	1.26	4.39	2.59	0.73	0.95	0.53	0.34
Ac-ft	10,700	10,120	50,600	22,540	74,790	34,170	119,500	70,420	19,960	25,890	14,290	9,350

Calendar year 1951: Max 2,840 Min 110 Mean 437 Cfsm 0.857 In. 11.61 Ac-ft 316,200
Water year 1951-52: Max 12,200 Min 138 Mean 637 Cfsm 1.25 In. 16.99 Ac-ft 462,300

Peak discharge (base, 3,000 cfs).--Feb. 5 (2 a.m.) 5,370 cfs (16.80 ft); Apr. 25 (6:30 a.m.) 14,400 cfs (20.84 ft); May 20 (10 a.m.) 3,010 cfs (12.83 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for other stations in basin.

Bundick Creek near Dry Creek, La.

Location.--Lat 30°40'55", long. 93°02'15", on line between NE¼ and NW¼ sec. 25, T. 4 S., R. 7 W., near right bank on downstream side of bridge on State Highway 251, 1 mile northeast of town of Dry Creek and 8 miles upstream from mouth.

Drainage area.--238 sq mi.

Records available.--January 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 56.92 ft above mean sea level (Louisiana Geodetic Survey benchmark). Prior to Nov. 20, 1943, wire-weight gage at same site at datum 7.16 ft lower. Nov. 20, 1943, to Oct. 19, 1944, wire-weight gage at present site and datum.

Average discharge.--13 years, 413 cfs.

Extremes.--Maximum discharge during year, 18,100 cfs Apr. 24 (gage height, 18.50 ft), from rating curve extended above 10,000 cfs by velocity-area method; minimum, 56 cfs Sept. 30 (gage height, 2.70 ft).
1939-52: Maximum discharge, 22,500 cfs Feb. 14, 1950 (gage height, 19.23 ft), from rating curve extended above 10,000 cfs by velocity-area method; minimum, 49 cfs for many days in September and October 1939; minimum gage height, 2.53 ft, present datum, Sept. 24, 25, 1939.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	191	a70	78	125	525	178	129	228	a600	87	497	68
2	133	a75	78	121	1,870	161	201	211	a300	88	270	68
3	110	a90	78	121	2,220	149	191	201	222	92	a160	67
4	96	a100	79	121	2,860	149	554	a200	186	92	a120	68
5	89	a90	88	133	2,410	157	977	a190	169	106	a100	68
6	85	a86	88	178	1,780	165	977	a180	169	89	a95	67
7	81	a82	96	186	838	157	634	a170	186	86	a90	67
8	77	*81	110	165	296	141	313	a160	161	a82	a90	66
9	a76	88	540	141	233	129	182	a150	149	a79	a86	66
10	a74	92	878	125	206	248	292	a140	137	*77	a84	66
11	*72	89	960	121	191	501	518	a140	129	78	a82	65
12	71	78	1,060	117	178	259	694	a150	121	76	a80	65
13	a71	75	1,040	114	173	201	1,120	a250	117	80	a79	65
14	a70	74	523	110	169	173	1,080	a200	114	83	a78	66
15	a70	74	1,200	106	173	149	1,080	a170	110	80	a78	65
16	a69	72	1,280	106	191	137	938	a140	106	100	a77	64
17	a69	71	1,400	106	245	129	392	a130	103	174	a77	63
18	a68	71	1,540	106	245	149	216	a150	100	542	a76	*65
19	a68	70	1,180	110	201	468	182	a1,000	100	814	a76	66
20	a67	70	*570	114	*185	*415	165	a1,500	100	761	*76	66
21	a67	70	375	110	251	290	157	a1,400	96	378	75	66
22	a70	71	283	106	251	201	161	a1,000	96	191	94	66
23	a75	71	211	*103	361	157	1,380	a600	92	143	93	65
24	a72	71	178	100	417	141	10,300	a500	92	119	84	63
25	a70	72	157	100	348	133	*8,070	a800	89	111	79	63
26	a68	72	149	96	298	125	3,030	a1,200	89	106	76	61
27	a68	73	145	96	257	117	1,980	a1,200	88	225	74	60
28	a70	72	149	248	233	114	1,400	a1,000	88	181	73	59
29	a68	72	145	533	206	114	438	a800	87	143	71	59
30	a66	75	137	459	-	110	276	*a760	87	a200	70	57
31	a66	-	129	316	-	110	-	a750	-	623	68	-
Total	2,467	2,317	14,924	4,793	17,809	5,827	38,027	15,670	4,283	6,086	3,228	1,940
Mean	79.6	77.2	481	155	614	188	1,268	505	143	196	104	64.7
Cfsm	0.334	0.324	2.02	0.651	2.58	0.790	5.33	2.12	0.601	0.824	0.437	0.272
In.	0.39	0.36	2.33	0.75	2.78	0.91	5.94	2.45	0.67	0.95	0.50	0.30
Ac-ft	4,890	4,600	29,600	9,510	35,320	11,560	75,430	31,080	8,500	12,070	6,400	3,850

Calendar year 1951: Max 1,540 Min 52 Mean 198 Cfsm 0.832 In. 11.28 Ac-ft 143,100
Water year 1951-52: Max 10,300 Min 57 Mean 321 Cfsm 1.35 In. 18.33 Ac-ft 232,800

Peak discharge (base, 1,500 cfs).--Dec. 18 (1 p.m.) 1,540 cfs (12.45 ft); Feb. 4 (2:30 p.m.) 3,000 cfs (14.37 ft); Apr. 24 (6:30 a.m.) 18,100 cfs (18.50 ft); May 20 (time and discharge unknown).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 1 discharge measurement, recorded range in stage, weather records, and records for Whiskey Chitto Creek near Oberlin.

Calcasieu River near Kinder, La.

Location.--Lat 30°30'10", long. 92°54'55", in NW¼SE¼ sec. 30, T. 6 S., R. 5 W., on left bank on downstream side of bridge on U. S. Highway 190, 0.5 mile downstream from Whiskey Chitto Creek and 4 miles west of Kinder.

Drainage area.--1,700 sq mi.

Records available.--August 1922 to January 1925, October 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 12.02 ft above mean sea level, datum of 1929 (Louisiana Geodetic Survey benchmark). August 1922 to January 1925, water-stage recorder at site 400 ft downstream at datum 1.77 ft lower. October 1938 to July 9, 1939, wire-weight gage at present site and datum.

Average discharge.--16 years (1922-24, 1938-52), 2,883 cfs.

Extremes.--Maximum discharge during year, 30,900 cfs Apr. 28 (gage height, 19.53 ft); minimum, 243 cfs Sept. 10; minimum gage height, 2.45 ft Oct. 31.
1922-25, 1938-52: Maximum discharge, 68,000 cfs Dec. 23, 1923 (gage height, 21.69 ft, datum then in use, or about 23.5 ft, present datum), from rating curve extended above 40,000 cfs; maximum gage height, 24.7 ft Aug. 11, 1940 (discharge, 64,400 cfs); minimum discharge, 166 cfs Aug. 17, 1951 (gage height, 1.99 ft).
Flood in 1913 reached a stage about 0.3 ft higher than that of Aug. 11, 1940.

Remarks.--Records good. Paper mill at Elizabeth pumps about 5 cfs from wells which is later discharged into Mill Creek 36 miles above station. This discharge is continuous and fairly constant. Water is diverted during period April to September at points just above station and 5 miles above station for the irrigation of about 7,500 acres of rice, part of which is below station. The maximum rate of withdrawal is about 100 cfs and this diversion results in marked regulation of the low-water flow.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Rate of change in stage used as a factor Feb. 1-15, Apr. 4-19, Apr. 23 to May 6, May 19 to June 5)

Oct. 1 to Dec. 18

2.4	274	7.0	1,870
3.0	444	9.0	2,850
5.0	1,080		

Note.--Same as following table above 9.0 ft.

Dec. 19 to July 19

2.9	314	14.0	6,900
3.0	343	15.0	8,990
5.0	1,020	17.0	16,600
9.0	2,850	19.5	30,900
13.0	5,750		

July 20 to Sept. 30

2.6	262
3.0	374
5.0	1,020

Note.--Same as preceding table above 5.0 ft.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	750	337	318	798	1,820	2,130	888	8,310	4,020	432	1,370	332
2	656	335	329	762	5,840	1,900	907	6,130	3,580	396	1,290	324
3	549	340	335	727	9,210	1,720	1,090	4,730	3,150	417	910	310
4	489	444	343	710	10,500	1,540	2,070	3,900	2,820	463	706	298
5	444	489	346	710	11,000	1,410	4,040	3,200	2,550	432	535	315
6	415	*430	354	762	11,200	1,370	5,120	2,500	2,280	349	446	301
7	386	383	363	834	9,560	1,330	5,500	1,850	2,080	326	418	298
8	372	372	415	926	6,480	1,170	5,150	1,450	1,980	340	388	310
9	357	369	896	852	4,780	1,090	3,920	1,250	1,720	*320	371	298
10	*346	386	1,940	780	4,430	1,170	3,450	1,130	1,330	323	374	284
11	337	386	2,630	727	4,160	2,260	4,120	1,060	1,090	323	403	287
12	329	360	2,850	710	3,770	3,510	5,000	1,020	944	340	374	284
13	321	349	2,850	675	3,380	3,450	7,140	981	834	417	349	287
14	318	340	2,460	658	2,850	2,970	8,320	1,130	762	378	357	312
15	315	329	3,210	624	2,330	2,630	7,350	1,020	727	349	346	321
16	309	321	4,760	608	1,940	2,190	5,970	926	675	872	338	310
17	307	315	5,000	591	1,760	1,820	4,480	907	608	1,600	352	*290
18	301	309	5,090	574	1,940	1,650	3,180	981	591	2,230	343	293
19	298	307	*5,360	574	1,980	1,740	2,500	3,200	591	2,530	343	315
20	293	307	5,180	558	*1,900	2,280	2,280	6,860	526	2,680	340	360
21	293	304	3,870	558	1,800	2,330	2,230	8,090	494	2,300	*340	432
22	293	304	2,790	558	2,130	2,030	2,230	6,840	463	1,360	368	371
23	312	301	2,100	526	2,730	1,670	5,250	5,650	448	946	363	343
24	323	298	1,620	*526	2,970	1,540	9,130	4,620	432	840	388	324
25	301	298	1,330	510	2,970	1,490	*18,300	5,120	396	756	388	315
26	293	301	1,170	510	2,850	1,450	24,800	5,600	390	722	388	310
27	293	304	1,090	510	2,580	1,370	19,400	5,500	375	1,020	388	304
28	296	307	981	710	2,380	1,290	29,600	5,600	387	910	329	298
29	293	307	944	1,210	2,280	1,130	24,700	5,650	402	642	321	293
30	293	309	907	1,670	-	981	13,800	5,290	417	722	338	290
31	290	-	834	1,670	-	907	-	*4,420	-	903	332	-
Total	11,172	10,241	62,665	23,118	123,520	55,518	231,915	114,915	37,062	26,638	14,296	9,409
Mean	360	341	2,021	746	4,259	1,791	7,730	3,707	1,235	859	461	314
Ac-ft	22,160	20,310	124,300	45,850	245,000	110,100	460,000	227,900	73,510	52,840	28,360	18,660

Calendar year 1951: Max 9,500 Min 168 Mean 1,397 Ac-ft 1,012,000
Water year 1951-52: Max 29,600 Min 284 Mean 1,968 Ac-ft 1,429,000

* Discharge measurement made on this day.

Beckwith Creek near De Quincy, La.

Location.--Lat 30°28'10", long. 93°21'50", in NW¼ sec. 11, T. 7 S., R. 10 W., on right bank at upstream side of bridge on State Highway 7, a quarter of a mile upstream from New Orleans, Texas & Mexico Railway bridge, 2½ miles upstream from unnamed tributary, and 4 miles northeast of De Quincy.

Drainage area.--148 sq mi.

Records available.--August 1945 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 25.29 ft above mean sea level, datum of 1929. Prior to Oct. 29, 1950, wire-weight gage at same site and datum.

Average discharge.--7 years, 216 cfs.

Extremes.--Maximum discharge during year, 5,830 cfs July 17 (gage height, 20.94 ft); minimum, 1.4 cfs Sept. 30 (gage height, 1.42 ft).
1945-52: Maximum discharge, 8,930 cfs Feb. 14, 1950 (gage height, 22.40 ft); minimum, 0.2 cfs Oct. 9, 10, 1948 (gage height, 1.05 ft).

Remarks.--Records good except those below 5 cfs, which are fair.

Revisions (water years).--W 1118: 1946, 1947(M).

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to May 28

1.4	2.5	7.0	299
1.6	4.0	11.0	738
2.0	8.8	15.0	1,330
2.5	18	18.0	2,090
3.0	32	19.0	3,050
4.0	78	20.0	4,330
5.0	140		

May 29 to Sept. 30

1.4	1.3	2.0	8.7
1.6	2.9	2.5	18
1.8	5.6		

Note.--Same as preceding table above 2.5 ft.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	208	4.2	5.2	26	552	45	86	60	117	10	155	3.7
2	104	5.7	4.8	24	2,180	36	90	43	*74	6.2	268	3.7
3	40	6.4	5.0	23	1,930	31	70	35	48	4.9	382	3.8
4	22	4.7	5.3	25	2,000	27	116	30	34	4.6	370	3.4
5	16	4.1	24	102	1,940	27	186	28	27	4.3	109	3.2
6	12	4.6	81	81	1,360	29	214	28	23	4.3	43	2.9
7	10	*4.2	43	59	878	28	214	25	24	4.5	29	2.9
8	8.7	4.0	35	53	350	25	206	21	40	5.0	22	2.7
9	7.5	4.0	308	43	105	22	92	19	41	5.6	19	2.7
10	6.9	4.1	353	33	73	182	269	16	94	*4.6	16	2.6
11	*6.2	4.0	335	28	59	152	265	15	164	3.9	15	2.4
12	5.8	3.8	353	24	50	66	574	15	73	3.4	14	2.4
13	5.4	3.7	382	22	47	60	1,080	20	33	4.3	13	2.4
14	5.1	3.7	532	20	46	52	614	16	23	4.3	16	2.4
15	5.0	3.8	965	19	44	39	455	14	18	4.2	17	2.4
16	4.6	3.8	777	19	47	32	477	12	15	344	11	2.3
17	4.4	3.5	712	19	56	27	466	11	13	3,030	9.4	2.3
18	4.2	3.3	764	22	60	*119	202	19	11	3,510	8.2	*2.4
19	4.0	3.1	816	22	58	246	78	705	11	2,090	8.2	2.3
20	3.9	2.9	738	22	52	198	58	973	9.6	2,000	12	2.4
21	3.8	3.0	*422	21	*46	147	48	777	8.5	1,540	*18	2.4
22	3.7	3.1	190	20	84	87	46	829	7.9	1,050	12	2.3
23	3.8	3.1	111	*18	114	52	2,770	881	7.4	527	7.9	2.0
24	3.9	3.4	72	16	102	38	*2,350	980	6.6	94	6.4	1.9
25	4.0	3.4	52	15	96	32	3,470	1,020	6.2	45	6.2	1.8
26	3.9	3.7	42	14	105	27	2,720	844	5.8	32	5.8	1.8
27	3.7	4.0	45	27	84	24	1,600	554	5.2	36	5.0	1.7
28	3.4	4.0	40	442	67	22	1,010	718	5.2	108	4.5	1.6
29	3.4	4.0	34	353	56	20	448	1,320	5.5	158	4.2	1.6
30	3.4	5.4	31	263	-	18	99	744	17	126	3.9	1.5
31	3.3	-	28	202	-	22	-	223	-	163	3.8	-
Total	524.0	118.7	8,305.3	2,077	12,641	1,932	20,373	10,995	967.9	14,927.1	1,614.5	73.9
Mean	16.9	3.96	268	67.0	436	62.3	679	355	32.3	482	52.1	2.46
Cfsm	0.114	0.027	1.81	0.453	2.95	0.421	4.59	2.40	0.218	3.26	0.352	0.017
In.	0.13	0.03	2.09	0.52	3.18	0.49	5.12	2.76	0.24	3.75	0.41	0.02
Ac-ft	1,040	235	16,470	4,120	25,070	3,830	40,410	21,810	1,920	26,610	3,200	147

Calendar year 1951: Max 965 Min 1.6 Mean 76.1 Cfsm 0.514 In. 6.98 Ac-ft 55,070
Water year 1951-52: Max 3,510 Min 1.5 Mean 204 Cfsm 1.38 In. 18.74 Ac-ft 147,900

Peak discharge (base, 1,600 cfs).--Feb. 2 (5 p.m.) 2,610 cfs (18.59 ft); Apr. 25 (3:30 p.m.) 4,330 cfs (19.98 ft); July 17 (8:30 p.m.) 5,830 cfs (20.94 ft).
* Discharge measurement made on this day.

Hickory Branch at Kernan, La.

Location.--Lat 30°30'05", long. 93°16'45", in NW¼ sec. 34, T. 6 S., R. 9 W., on right bank at upstream side of bridge on State Highway 7, 120 ft upstream from New Orleans, Texas & Mexico Railway bridge, 0.7 mile southwest of Kernan, 3 miles upstream from Cowpen Creek, and 10 miles northeast of De Quincy.

Drainage area.--82.2 sq mi.

Records available.--August 1945 to September 1952.

Gage.--Water-stage recorder. Prior to Mar. 3, 1949, wire-weight gage at same site and datum.

Average discharge.--7 years, 136 cfs.

Extremes.--Maximum discharge during year, 4,610 cfs Apr. 23 (gage height, 23.09 ft); minimum, 0.2 cfs Sept. 28-30.
1945-52: Maximum discharge, 5,950 cfs June 21, 1947 (gage height, 26.0 ft, from graph based on gage readings), from rating curve extended above 3,400 cfs by logarithmic plotting; no flow Oct. 7-10, 1948, July 12-24, 1951.

Remarks.--Records good except those below 5 cfs, which are fair.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 15				Dec. 16 to May 20				May 21 to Sept. 30			
2.3	0.3	2.9	13	2.6	1.6	5.0	174	2.3	0.2	2.9	14
2.4	.5	3.0	18	2.7	3.3	7.0	390	2.4	.5	3.0	21
2.5	.9	3.5	53	2.8	6.8	9.0	642	2.5	.9	3.5	56
2.6	1.6	4.0	93	2.9	11	11.0	967	2.6	1.6	4.0	93
2.7	3.6	5.0	183	3.0	17	15.0	1,860	2.7	3.6	5.0	183
2.8	7.7	7.0	390	3.5	48	21.0	3,740	2.8	8.0	7.0	390
Note.--Same as following table above 7.0 ft.				4.0	84			Note.--Same as preceding table above 7.0 ft.			

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	2.6	0.4	14	953	17	64	16	46	a1.0	204	a0.6
2	16	1.3	.4	13	3,500	15	62	14	*28	a.9	96	a.6
3	12	1.5	.5	12	2,210	11	33	12	19	a.8	37	a.8
4	8.7	1.0	.9	22	700	9.5	191	11	12	a.7	18	a.7
5	6.8	1.3	6.4	173	136	8.5	335	9.5	9.2	a.7	12	a.6
6	5.9	2.2	14	102	64	7.7	125	8.5	7.0	a.7	8.0	a.6
7	3.9	*1.2	20	47	41	6.7	41	8.1	8.0	a.7	5.6	a.5
8	3.1	.9	78	29	30	6.4	20	5.6	13	a1.3	4.8	a.5
9	2.4	.9	590	23	24	6.0	14	4.4	12	5.6	3.6	a.5
10	2.0	.9	324	19	20	372	417	3.8	16	*8.6	2.2	a.5
11	*1.5	.8	174	16	18	390	426	3.5	22	4.4	2.0	a.4
12	1.4	.7	56	14	16	98	865	2.8	13	a1.8	2.2	a.4
13	1.3	.7	26	11	16	52	1,140	2.6	7.5	a1.2	1.9	a.4
14	1.2	.7	653	9.9	15	33	418	3.0	5.2	a1.0	1.7	a.4
15	1.2	.6	1,560	9.5	15	23	158	4.4	3.2	a1.2	1.7	a.4
16	1.0	.6	884	9.5	16	17	50	3.8	2.2	468	1.6	a.4
17	1.0	.5	321	9.0	17	14	28	2.6	1.9	2,140	1.6	a.3
18	1.0	.5	304	8.5	20	*76	19	5.7	a1.7	2,180	1.5	a.4
19	.9	.4	313	8.1	16	179	15	1,050	a1.6	661	15	*a.4
20	.8	.4	135	7.2	14	114	13	1,110	a1.5	253	39	a.4
21	.8	.4	*86	6.8	*12	53	11	608	a1.4	58	*20	a.4
22	.7	.4	56	6.4	49	26	14	166	a1.3	29	7.5	a.4
23	1.4	.4	35	*5.2	78	19	3,670	54	a1.2	19	2.8	a.3
24	1.3	.4	25	4.4	64	14	*3,480	644	a1.1	13	1.8	a.3
25	.9	.4	20	4.1	56	10	1,140	579	a1.0	9.8	1.5	a.3
26	.8	.4	19	3.8	70	8.5	208	393	a.9	7.5	a1.4	a.3
27	.9	.4	31	13	49	6.7	62	139	a.9	10	a1.2	a.3
28	.9	.4	24	619	33	5.6	36	149	a.9	152	a1.0	a.2
29	.9	.4	18	403	24	4.8	25	546	a1.0	121	a.8	a.2
30	.8	.5	16	180		4.1	20	219	a1.2	231	a.7	a.2
31	.7	-	15	57	-	6.4	-	97	-	343	.7	-
Total	115.2	23.8	5,805.6	1,859.4	8,276	1,613.9	13,100	5,875.3	240.9	6,725.9	498.8	12.7
Mean	3.72	0.79	187	60.0	285	52.1	437	190	8.03	217	16.1	0.42
Cfsm	0.045	0.0096	2.27	0.730	3.47	0.634	5.32	2.31	0.098	2.64	0.196	0.0051
In.	0.05	0.01	2.63	0.84	3.74	0.73	5.93	2.66	0.11	3.04	0.23	0.006
Ac-ft	228	47	11,520	3,690	16,420	3,200	25,980	11,650	478	13,340	989	25

Calendar year 1951: Max 1,560 Min 0 Mean 53.6 Cfsm 0.652 In. 8.85 Ac-ft 38,830
Water year 1951-52: Max 3,670 Min .2 Mean 121 Cfsm 1.47 In. 19.98 Ac-ft 87,570

Peak discharge (base, 2,000 cfs).--Feb. 2 (12:30 p.m.) 3,660 cfs (20.79 ft); Apr. 23 (6 p.m.) 4,610 cfs (23.09 ft); July 17 (7 p.m.) 3,220 cfs (19.62 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of precipitation records and records for Beckwith Creek near De Quincy.

Sabine River near Mineola, Tex.

Location.--Lat 32°36'45", long. 95°20'10", near left bank on downstream side of pier of bridge on U. S. Highway 69, 3.2 miles south of Mineola, Wood County, 4.5 miles upstream from International-Great Northern Railroad bridge, and at mile 461.

Drainage area.--1,445 sq mi.

Records available.--May 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 304.16 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 1,174 cfs.

Extremes.--Maximum discharge during year, 16,000 cfs Apr. 26 (gage height, 18.28 ft); no flow Aug. 25 to Sept. 30.
1939-52: Maximum discharge, 76,000 cfs Apr. 1, 1945; maximum gage height, 24.37 ft June 8, 1943; no flow at times.
Maximum stage known since at least 1915, that of June 8, 1943.

Remarks.--Records good except those below 2 cfs, which are poor.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 27 to Feb. 14, Mar. 15 to Apr. 5, June 15 to Aug. 31)

1.0	0	2.5	12	12.0	1,160
1.1	.1	3.0	19	14.0	1,850
1.2	.3	3.5	34	16.0	3,160
1.3	.4	4.0	63	17.0	5,800
1.4	1.0	5.0	129	18.0	13,600
1.6	2.0	6.0	204	19.0	22,300
1.8	3.5	8.0	436		
2.0	5.6	10.0	728		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.6	*81	25	21	23	324	34	*2,090	4,260	6.2	1.0	
2	3.2	45	32	22	56	224	30	888	3,250	6.0	.9	
3	2.9	26	30	26	59	239	26	262	2,630	5.9	.7	
4	*2.6	19	*26	*114	38	475	29	126	2,160	5.8	.6	
5	2.1	18	24	249	28	528	68	90	1,400	5.7	.5	
6	1.9	24	23	300	24	449	471	73	*572	5.7	.4	
7	1.6	23	22	300	21	259	728	59	300	5.6	.4	
8	1.2	22	61	224	19	200	600	49	738	5.5	.4	
9	1.1	19	157	140	18	160	276	39	1,060	5.6	.3	
10	1.0	17	115	80	17	242	140	32	1,160	12	.3	(*)
11	1.0	16	56	51	17	728	90	24	1,160	79	.3	
12	1.0	15	33	36	*20	800	812	19	1,160	36	.2	
13	1.0	15	25	29	26	728	1,950	17	787	17	.3	
14	1.0	16	23	26	53	632	2,220	15	254	13	.3	
15	1.1	16	21	24	214	501	2,490	14	70	11	.3	
16	1.2	17	19	22	244	294	2,770	12	31	10	.3	
17	1.2	17	18	22	214	150	3,340	11	21	*15	.3	
18	1.2	17	18	21	150	*115	4,160	22	18	33	**.2	
19	1.2	17	18	20	157	143	3,950	100	16	20	.2	
20	1.3	17	19	20	219	188	3,000	513	13	22	.2	
21	1.4	16	19	19	154	312	2,100	860	12	17	.1	
22	1.5	16	18	21	94	372	2,490	1,130	11	13	.1	
23	3.8	17	19	22	73	384	4,170	1,850	10	11	.1	
24	6.0	18	19	20	74	288	8,960	3,220	9.6	8.9	.1	
25	6.4	19	20	19	87	176	13,200	4,120	9.1	7.8	0	
26	5.6	19	20	20	219	115	15,200	4,700	7.9	6.2	0	
27	8.3	22	20	34	270	73	11,600	5,620	7.3	4.4	0	
28	21	22	20	33	259	52	8,160	9,920	6.5	3.2	0	
29	20	20	20	27	348	39	5,440	9,360	6.3	2.4	0	
30	120	19	20	24	-	35	3,440	7,200	6.2	1.8	0	
31	150	-	20	21	-	37	-	5,680	6.2	1.3	0	-
Total	376.4	645	980	2,007	3,195	9,262	101,944	58,115	21,145.9	397.0	8.5	0
Mean	12.1	21.5	31.6	64.7	110	299	3,398	1,875	705	12.8	0.27	0
Cfsm	0.0084	0.015	0.022	0.045	0.076	0.207	2.35	1.30	0.488	0.0089	0.00019	0
In.	0.01	0.02	0.03	0.05	0.08	0.24	2.62	1.50	0.54	0.01	0.0002	0
Ac-ft	747	1,280	1,940	3,980	6,340	18,370	202,200	115,300	41,940	787	17	0

Calendar year 1951: Max 8,080 Min 0.4 Mean 367 Cfsm 0.254 In. 3.46 Ac-ft 265,800
Water year 1951-52: Max 15,200 Min 0 Mean 541 Cfsm 0.374 In. 5.10 Ac-ft 392,900

Peak discharge (base, 11,000 cfs).--Apr. 26 (7 a.m.) 16,000 cfs (18.28 ft); May 28 (2 p.m.) 11,200 cfs (17.68 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.

Lake Fork Sabine River near Quitman, Tex.

Location.--Lat 32°46', long. 95°28', near center of main channel at upstream side of bridge on State Highway 37, half a mile downstream from Dry Creek, and 2.5 miles south of Quitman, Wood County.

Drainage area.--586 sq mi.

Records available.--June 1924 to April 1926, February 1939 to September 1952.

Gage.--Wire-weight gage, read twice daily, oftener during floods. Datum of gage is 317.42 ft above mean sea level, datum of 1929. June 27, 1924, to Apr. 30, 1926, staff gage at site 1,000 ft downstream at same datum.

Average discharge.--14 years (1924-25, 1939-52), 481 cfs.

Extremes.--Maximum discharge during year, 17,900 cfs Apr. 23 (gage height, 20.36 ft, from graph based on gage readings); no flow Oct. 1-27, Aug. 5 to Sept. 30.
1924-26, 1939-52: Maximum discharge, 75,600 cfs Mar. 30, 1945 (gage height, 29.85 ft, from floodmark), from rating curve extended above 49,000 cfs; no flow at times.
Maximum stage known since at least 1895, that of Mar. 30, 1945. Flood of July 1895 reached a stage of about 25.9 ft, from information by local resident.

Remarks.--Records good.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 1 to Feb. 14, Apr. 29 to Aug. 6)

2.4	0	5.0	80
2.5	.3	7.0	216
2.6	.9	9.0	430
2.7	1.8	11.0	800
2.8	3.5	13.0	1,330
3.0	7.7	15.0	2,540
3.3	15	16.0	3,840
3.6	23	17.0	6,100
4.0	35	19.0	12,300
4.5	56	21.0	20,500

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	*8.6	2.1	4.9	23	138	78	100	1,450	5.9	0.2	
2	0	12	10	5.1	45	106	72	80	679	3.7	.2	
3	0	16	35	47	57	220	78	68	288	2.3	.1	
4	*0	33	*10	*310	47	402	124	55	146	1.4	.1	
5	0	37	3.5	430	42	336	304	46	*65	.9	0	
6	0	20	3.3	462	36	224	512	41	70	.7	0	
7	0	13	6.2	530	31	135	680	34	124	.5	0	
8	0	9.9	66	436	26	91	575	28	200	.4	0	
9	0	7.9	94	226	23	80	246	23	184	.3	0	
10	0	5.9	91	120	21	209	112	19	112	.3	0	(*)
11	0	3.9	88	60	20	602	118	16	75	.8	0	
12	0	2.3	65	46	*23	602	577	15	53	1.2	0	
13	0	1.6	41	39	95	548	2,380	14	37	1.3	0	
14	0	1.3	28	35	230	461	5,990	12	26	1.1	0	
15	0	.9	19	33	360	228	4,570	11	20	.9	0	
16	0	.7	11	31	430	109	2,280	9.9	17	.8	0	
17	0	.6	9.7	30	291	80	1,430	8.8	14	1.6	0	
18	0	.5	7.9	28	200	*100	598	14	12	4.7	*0	
19	0	.4	6.8	28	264	196	224	68	10	*15	0	
20	0	.4	6.6	27	186	256	202	286	9.0	6.6	0	
21	0	.3	6.6	27	109	360	859	880	7.7	4.5	0	
22	0	.3	6.4	25	85	512	4,360	1,370	6.8	3.7	0	
23	0	.3	6.2	30	132	620	15,800	1,130	5.5	3.0	0	
24	0	.4	6.2	187	85	512	13,500	1,260	4.3	2.5	0	
25	0	.4	5.9	184	65	402	5,800	3,160	3.2	2.1	0	
26	0	.5	5.7	91	146	264	2,690	5,940	2.5	1.8	0	
27	0	.8	5.7	56	156	188	1,580	3,100	1.8	1.5	0	
28	.5	1.3	5.5	36	216	103	761	2,740	1.4	1.2	0	
29	.2	1.6	5.3	30	240	72	290	3,220	1.1	.8	0	
30	.1	2.0	5.1	27	-	68	*135	2,360	.9	.6	0	
31	.2	-	4.9	23	-	68	-	1,980	-	.4	0	-
Total	1.0	183.8	667.6	3,644	3,684	8,292	66,925	28,088.7	3,626.2	72.5	0.6	0
Mean	0.03	6.13	21.5	118	127	267	2,231	906	121	2.34	0.02	0
Cfsm	0.000051	0.010	0.037	0.201	0.217	0.456	3.81	1.55	0.206	0.0040	0.000034	0
In.	0.00006	0.01	0.04	0.23	0.23	0.53	4.25	1.78	0.23	0.005	0.00004	0
Ac-ft	2.0	365	1,320	7,230	7,310	16,450	132,700	55,710	7,190	144	1.2	0

Calendar year 1951: Max 4,900 Min 0 Mean 138 Cfsm 0.235 In. 3.19 Ac-ft 99,900
Water year 1951-52: Max 15,800 Min 0 Mean 315 Cfsm 0.537 In. 7.31 Ac-ft 228,400

Peak discharge (base, 6,600 cfs).--Apr. 14 (4 p.m.) 7,420 cfs (17.50 ft); Apr. 23 (5:40 p.m.) 17,900 cfs (20.36 ft); May 26 (4 a.m.) 7,140 cfs (17.40 ft).
* Discharge measurement made on this day.

Big Sandy Creek near Big Sandy, Tex.

Location (revised).--Lat 32°36', long. 95°06', near center of channel on downstream side of pier of bridge on State Highway 155, 0.8 mile upstream from St. Louis Southwestern Railroad bridge, 1.3 miles northeast of Big Sandy, Upshur County, and 7.1 miles upstream from mouth.

Drainage area.--236 sq mi (revised).

Records available.--February 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 278.38 ft above mean sea level, datum of 1929, supplementary adjustments of 1942. Prior to Oct. 5, 1940, wire-weight gage at site 0.7 mile upstream at datum 3.00 ft higher. Oct. 5, 1940, to Nov. 26, 1951, water-stage recorder at site 0.7 mile upstream at datum 3.00 ft higher.

Average discharge.--13 years, 232 cfs.

Extremes.--Maximum discharge during year, 4,620 cfs Apr. 24 (gage height, 17.27 ft); minimum daily, 12 cfs Aug. 26, 27, Sept. 3-11, 16, 17.

1939-52: Maximum discharge, 38,000 cfs Mar. 31, 1945 (gage height, 22.4 ft, from floodmark), from rating curve extended above 5,000 cfs on basis of study of rainfall and runoff for this and adjoining basins during storm of March 1945; minimum observed, 7.7 cfs Sept. 30, 1939.

Maximum stage known since at least 1905, that of Mar. 31, 1945. Flood of January 1938 reached a stage of 20.4 ft (probably affected by backwater from Sabine River).

Remarks.--Records good. No large diversions above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 24 to Sept. 17)

Oct. 1 to Nov. 14		Nov. 15 to Sept. 30			
5.0	16	2.5	11	10.0	435
5.2	21	3.0	19	11.0	680
5.5	30	4.0	40	13.0	1,320
6.0	46	5.0	75	15.0	2,260
7.0	90	6.0	125	16.0	3,100
		7.0	179	17.0	4,200
		9.0	301		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	50	52	50	86	157	162	250	1,220	25	18	13
2	*28	50	52	50	174	146	138	208	830	29	17	13
3	25	51	52	68	168	162	122	174	515	28	17	12
4	23	50	54	*102	168	157	115	140	345	26	17	12
5	22	50	54	105	146	162	112	115	262	23	17	12
6	22	70	54	108	120	184	118	98	*202	23	20	12
7	21	65	55	108	110	202	115	85	152	21	18	12
8	21	72	59	110	100	208	112	75	115	21	18	12
9	21	66	59	120	90	214	122	67	95	21	18	12
10	21	61	52	128	80	226	174	63	80	21	18	*12
11	21	55	50	125	75	226	184	59	75	20	17	12
12	21	50	50	112	*92	184	339	57	71	19	16	13
13	21	47	50	98	100	174	635	54	61	19	16	14
14	21	45	59	85	102	174	860	49	54	19	14	14
15	21	g39	59	78	100	190	1,220	44	48	19	15	13
16	21	g36	55	73	105	208	1,140	43	42	*20	15	12
17	21	35	52	69	112	214	800	40	38	28	15	12
18	21	35	52	67	115	*202	480	50	35	34	14	14
19	22	g35	50	65	110	184	332	73	33	39	*14	16
20	21	35	54	65	130	157	274	82	32	39	14	16
21	22	g35	55	63	152	146	268	85	30	40	15	14
22	22	36	52	69	196	138	324	75	29	40	14	14
23	32	g38	50	67	238	135	*629	114	28	34	14	14
24	39	46	49	63	208	132	3,570	274	27	30	13	14
25	39	g59	54	61	179	128	3,080	345	26	27	13	14
26	37	g54	59	61	190	128	1,340	403	25	25	12	14
27	35	*59	55	61	168	157	830	332	24	22	12	14
28	46	61	52	61	168	190	552	373	23	21	14	14
29	49	59	50	59	168	190	388	680	24	20	15	14
30	50	55	50	55	-	174	*301	830	23	19	15	14
31	*47	-	50	55	-	179	-	1,430	-	18	13	-
Total	867	1,501	1,650	2,461	3,950	5,428	18,836	6,767	4,564	790	478	398
Mean	28.0	50.0	53.2	79.4	136	175	628	218	152	25.5	15.4	13.3
Cfsm	0.119	0.212	0.225	0.336	0.576	0.741	2.66	0.924	0.644	0.108	0.065	0.056
In.	0.14	0.24	0.26	0.39	0.62	0.86	2.97	1.07	0.72	0.12	0.08	0.06
Ac-ft	1,720	2,980	3,270	4,880	7,830	10,770	37,360	13,420	9,050	1,570	948	789

Calendar year 1951: Max 1,480 Min 15 Mean 113 Cfsm 0.481 In. 6.49 Ac-ft 81,500
Water year 1951-52: Max 3,570 Min 12 Mean 130 Cfsm 0.551 In. 7.53 Ac-ft 94,590

Peak discharge (base, 1,500 cfs).--Apr. 24 (7 p.m.) 4,620 cfs (17.27 ft); May 31 (4 p.m.) 1,550 cfs (13.62 ft).

* Discharge measurement made on this day.

g Computed from once-or twice-daily wire-weight gage readings.

Note.--No gage-height record Nov. 17, 18, 20, 22, 24, Aug. 24 to Sept. 9 and Sept. 11-17; discharge estimated on basis of recorded range in stage and weather records.

Sabine River near Gladewater, Tex.

Location.--Lat 32°32', long. 94°57', on right bank on downstream side of pier of bridge on U. S. Highway 271, half a mile downstream from Glade Creek, 1 mile southwest of Gladewater, Gregg County, and at mile 398.

Drainage area.--2,846 sq mi.

Records available.--October 1932 to September 1952.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 243.85 ft above mean sea level (Texas Reclamation Department benchmark based on Geological Survey datum). Prior to Oct. 13, 1933, chain gage at same site and datum.

Average discharge.--20 years, 2,115 cfs.

Extremes.--Maximum discharge during year, 20,000 cfs Apr. 29 (gage height, 35.08 ft); minimum, 13 cfs Sept. 14, 15.

1932-52: Maximum discharge, 138,000 Apr. 2, 1945 (gage height, 44.16 ft, from floodmark), from rating curve extended above 91,000 cfs; minimum, 5.6 cfs Aug. 16, 1939.

Maximum stage known since at least 1914, that of Apr. 2, 1945. Flood of May 1914 reached a stage of about 41.7 ft (discharge, 71,100 cfs), from information by local resident.

Remarks.--Records good. Small diversions above station for oil-field operations and municipal supply.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 12-27, May 1-9, May 24 to June 14, Sept. 14-30)

4.0	13	12.0	1,560
4.2	20	16.0	2,540
4.5	38	20.0	3,710
4.9	79	24.0	5,000
5.4	150	28.0	6,600
6.0	256	32.0	10,800
7.0	452	34.0	16,000
9.0	880	36.0	24,600

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	117	191	227	249	382	1,080	726	14,800	8,860	81	50	20
2	92	252	211	252	616	1,030	660	12,600	10,400	87	46	20
3	77	252	322	274	682	1,140	572	10,200	10,600	87	42	16
4	68	213	342	422	638	1,320	532	8,630	10,400	81	37	14
5	63	211	332	512	616	1,300	482	7,020	9,370	74	34	14
6	57	312	312	532	512	1,420	472	4,920	8,520	75	33	15
7	53	292	283	748	432	1,490	532	3,530	7,490	74	34	16
8	48	274	274	902	382	1,460	880	2,430	6,120	68	32	16
9	45	274	265	990	352	1,280	1,250	1,700	4,450	64	30	16
10	44	242	254	1,010	322	1,380	1,540	854	3,010	60	29	15
11	42	209	292	946	322	1,750	1,610	442	2,200	57	29	15
12	41	186	372	770	512	1,780	2,380	362	1,840	58	28	17
13	40	166	362	532	616	1,850	3,800	322	1,560	54	26	22
14	40	150	342	422	748	1,900	4,230	292	1,420	69	24	15
15	40	139	342	372	792	1,870	4,390	256	1,250	105	23	14
16	40	126	312	342	682	1,850	4,580	234	836	118	22	17
17	40	117	274	322	792	1,730	4,900	218	442	111	22	18
18	40	112	243	312	968	1,490	5,140	238	283	117	21	18
19	39	108	229	302	1,030	1,190	5,460	322	224	140	21	20
20	37	107	231	292	968	924	5,760	402	189	173	22	23
21	37	104	242	302	946	836	6,080	482	166	189	20	23
22	37	107	242	322	1,100	858	6,400	759	147	175	19	20
23	48	112	229	342	1,120	968	6,960	1,240	132	161	19	20
24	66	156	218	342	946	1,120	7,200	2,410	121	144	19	20
25	77	292	227	312	858	1,210	7,910	3,320	111	123	18	20
26	81	274	292	311	1,010	1,250	10,600	3,950	103	108	18	20
27	85	283	292	452	1,080	1,230	15,800	4,480	96	90	18	20
28	115	292	274	442	1,170	1,140	19,200	5,040	91	77	17	20
29	140	274	256	432	1,170	968	19,600	5,560	90	67	16	20
30	161	247	240	422	-	770	18,100	6,250	89	65	16	20
31	186	-	243	362	-	704	-	7,340	-	56	17	-
Total	2,096	6,074	8,576	14,544	21,764	40,288	167,746	110,603	90,610	3,008	802	544
Mean	67.6	202	277	469	750	1,300	5,592	3,568	3,020	97.0	25.9	18.1
Cfsm	0.024	0.071	0.097	0.165	0.264	0.457	1.97	1.25	1.06	0.034	0.0091	0.0064
In.	0.03	0.08	0.11	0.19	0.28	0.53	2.19	1.45	1.18	0.04	0.01	0.007
Ac-ft	4,160	12,050	17,010	28,850	43,170	79,910	332,700	219,400	179,700	5,970	1,590	1,080

Calendar year 1951: Max 6,600 Min 22 Mean 802 Cfsm 0.282 In. 3.82 Ac-ft 580,000
Water year 1951-52: Max 19,600 Min 14 Mean 1,275 Cfsm 0.448 In. 6.10 Ac-ft 925,600

Sabine River near Tatum, Tex.

Location.--Lat 32°22', long. 94°28', near right bank on downstream side of pier of bridge on State Highway 43, 5 miles upstream from Potter Creek, 5.2 miles northeast of Tatum, Rusk County, 7 miles downstream from Cherokee Bayou, and at mile 339.

Drainage area.--3,586 sq mi.

Records available.--January 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 204.18 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 21, 1945, wire-weight gage at same site and datum.

Average discharge.--13 years, 3,073 cfs.

Extremes.--Maximum discharge during year, 13,400 cfs May 5 (gage height, 24.50 ft); minimum, 18 cfs Sept. 11, 12, 15.

1939-52: Maximum discharge, 123,000 cfs Apr. 4, 1945 (gage height, 33.80 ft, from graph based on gage readings), from rating curve based on extension of ratings of main channel above 40,000 cfs and measured overflow at gage height, 31.5 ft; minimum observed, 9.1 cfs Oct. 9, 1939.

Maximum stage known since at least 1884, that of Apr. 4, 1945. Flood of May 1884 reached a stage of 32 ft, from information by local residents.

Remarks.--Records good. Several small diversions above station for oil-field operations and municipal supply. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 23 to July 17, Sept. 17-30)

1.8	17	5.0	580
2.0	28	7.0	1,150
2.2	42	10.0	2,350
2.5	70	13.0	3,820
3.0	137	16.0	5,620
3.5	225	20.0	8,550
4.0	333	25.0	14,300

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	225	190	356	404	1,180	1,820	1,180	9,100	4,890	174	139	24
2	195	*210	322	392	1,360	1,660	1,150	10,900	5,080	160	111	26
3	*163	235	356	404	1,740	1,580	1,090	*12,200	5,410	158	96	25
4	140	266	516	466	1,700	1,900	970	13,100	5,830	150	82	20
5	121	284	*712	*567	1,430	2,120	910	13,400	6,320	143	71	19
6	108	286	632	685	1,220	1,940	850	13,300	*6,810	134	56	21
7	95	404	542	739	1,030	1,820	794	12,800	7,300	124	53	22
8	85	492	479	766	910	1,820	766	12,100	7,750	115	61	22
9	78	404	429	910	794	1,780	910	11,000	8,140	108	59	20
10	72	344	416	1,000	712	1,780	1,320	9,600	8,220	99	61	19
11	68	322	392	1,060	718	3,370	1,780	7,230	8,060	94	58	*18
12	64	299	368	1,060	2,070	3,720	3,630	3,930	7,520	88	52	18
13	61	264	380	970	*3,620	3,470	5,830	1,700	6,460	80	47	19
14	59	237	454	850	4,830	3,020	6,460	1,060	4,590	77	47	19
15	58	216	492	712	3,770	2,620	6,250	850	2,770	*81	44	18
16	57	197	504	619	2,620	2,440	5,480	712	1,820	91	41	19
17	56	181	454	554	1,900	2,260	4,890	593	1,360	137	38	22
18	56	168	429	529	1,580	2,220	4,540	504	970	225	36	24
19	57	156	404	504	1,500	2,170	4,425	593	685	245	36	23
20	57	151	380	479	2,300	*1,900	4,370	739	529	210	*36	22
21	57	150	368	504	2,300	1,580	4,540	766	429	210	35	22
22	56	148	392	632	2,260	1,430	4,830	766	368	221	33	22
23	60	147	356	910	2,170	1,400	5,480	880	322	231	34	22
24	64	151	333	910	2,080	1,400	6,040	1,780	279	219	34	22
25	76	156	333	766	1,900	1,430	6,320	2,920	247	206	32	22
26	91	181	464	685	2,120	1,460	6,390	3,370	221	193	29	22
27	107	322	712	2,060	2,350	1,540	6,460	3,570	202	186	31	23
28	124	429	645	2,580	2,220	1,540	6,460	3,820	197	217	31	23
29	156	466	542	2,300	1,990	1,500	*6,670	4,260	179	179	27	22
30	156	416	492	1,820	-	1,380	7,380	4,590	168	160	27	22
31	179	-	442	1,400	-	1,260	-	4,710	-	193	27	-
Total	3,001	7,872	14,096	28,237	56,374	61,310	118,165	166,843	103,126	4,908	1,564	642
Mean	96.8	262	455	911	1,944	1,978	3,939	5,382	3,438	158	50.5	21.4
Cfsm	0.027	0.073	0.127	0.254	0.542	0.552	1.10	1.50	0.959	0.044	0.014	0.0060
In.	0.03	0.08	0.15	0.29	0.58	0.64	1.23	1.73	1.07	0.05	0.02	0.007
Ac-ft	5,950	15,610	27,960	56,010	111,800	121,600	234,400	330,900	204,500	9,730	3,100	1,270

Calendar year 1951: Max 6,320 Min 40 Mean 1,031 Cfsm 0.288 In. 3.91 Ac-ft 746,700
Water year 1951-52: Max 13,400 Min 18 Mean 1,547 Cfsm 0.431 In. 5.88 Ac-ft 1,123,000

* Discharge measurement made on this day.

Sabine River at Logansport, La.

Location.--Lat 31°58', long. 94°00', near center of span on upstream side of bridge on U. S. Highway 84, 200 ft upstream from Texas & New Orleans Railroad bridge at Logansport, De Soto Parish, 3 miles upstream from Bayou Castor, and at mile 267.

Drainage area.--4,858 sq mi.

Records available.--July 1903 to September 1952 (January 1907 to September 1923, monthly records only in Water-Supply Paper 850). Gage-height records collected at same site since 1903 are contained in reports of United States Weather Bureau; used by Geological Survey 1903-5, corrected to datum of Geological Survey gage.

Gage.--Wire-weight gage read twice daily. Datum of gage is 147.72 ft above mean sea level, datum of 1929. July 1, 1903, to Aug. 23, 1934, chain gage at same site and datum, and Aug. 24, 1934, to Feb. 14, 1941, chain gage 200 ft downstream from present site at same datum.

Average discharge.--46 years (1903-19, 1922-52), 3,270 cfs.

Extremes.--Maximum discharge during year, 13,000 cfs Feb. 17 (gage height, 24.00 ft); minimum, 36 cfs Sept. 26.

1903-52: Maximum discharge, 92,000 cfs Apr. 8, 1945 (gage height, 44.07 ft, from floodmark); minimum observed during periods of daily records, 16 cfs Sept. 26-28, Oct. 3, 4, 1939.

Maximum stage known since at least 1884, that of Apr. 8, 1945. Flood of May 1884 reached a stage of 39.4 ft.

Remarks.--Records good except those for periods of backwater or no gage-height record, which are fair. Small diversions above station.

Cooperation.--Gage-height record collected in cooperation with United States Weather Bureau.

Revisions (water years).--W 850: 1903-6 (monthly and annual means).

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	106	130	476	a628	5,100	4,310	1,970	8,740	a6,140	304	198	a49
2	103	157	494	628	3,990	a3,860	1,940	8,290	5,840	265	174	47
3	113	168	512	588	3,460	3,550	1,900	8,080	5,680	251	a166	46
4	204	a180	628	568	3,380	3,810	1,830	8,080	5,570	a240	157	44
5	198	204	810	548	3,330	3,990	1,800	8,360	5,570	230	135	42
6	168	251	958	588	2,960	3,990	1,630	*8,820	5,680	223	125	41
7	a140	280	1,010	762	2,340	3,810	1,450	9,300	5,790	210	174	a41
8	127	*304	1,060	858	1,830	3,380	1,280	*9,860	c6,020	204	230	41
9	119	352	a1,280	906	1,510	a3,120	1,200	10,500	*6,260	204	162	*40
10	99	449	c1,370	932	a1,310	ac3,460	1,170	11,100	6,620	192	132	38
11	97	458	c1,170	1,010	1,170	c5,200	1,340	11,600	6,860	168	113	38
12	83	431	c880	1,110	c2,190	c6,980	c2,190	12,100	7,170	162	*100	38
13	77	395	*c650	1,170	c5,460	*c7,870	c5,200	12,300	7,450	a157	90	38
14	76	360	c570	1,140	c7,800	8,980	c7,660	12,000	7,660	*152	85	a38
15	73	328	c760	1,060	c9,620	9,300	9,540	10,600	7,590	140	82	39
16	70	288	c980	958	11,800	9,060	10,500	6,820	7,100	a151	75	38
17	69	258	c1,060	858	12,800	7,520	*11,600	3,060	5,460	162	a72	38
18	69	a234	1,040	762	12,500	5,620	12,200	a1,830	3,210	210	70	46
19	66	210	762	714	a11,000	4,270	12,000	1,480	1,860	237	68	47
20	65	192	714	670	9,540	3,810	11,200	1,340	1,230	a282	66	45
21	65	180	858	628	a8,500	3,550	9,940	1,170	932	328	66	a44
22	65	168	c1,010	628	a7,940	3,120	8,660	1,140	a858	344	74	42
23	66	162	c1,310	714	7,590	2,800	8,820	1,230	628	312	75	40
24	70	162	a1,170	1,060	a7,660	2,720	9,700	2,010	548	304	a72	38
25	70	162	762	*1,280	a7,380	2,640	9,780	ac2,580	476	265	68	38
26	68	162	692	1,200	6,380	2,490	9,460	c3,120	422	258	62	36
27	67	174	648	a1,310	5,570	2,410	a9,300	c3,420	377	a240	59	37
28	70	180	628	3,900	5,050	2,300	9,540	c3,900	352	223	56	a38
29	77	244	a628	5,680	4,750	2,190	9,460	c5,100	328	210	53	38
30	89	377	a628	6,320	-	a2,110	9,140	c5,620	304	198	51	38
31	104	-	a628	6,020	-	2,040	-	6,440	-	210	51	-
Total	2,933	7,600	26,146	45,198	173,910	134,260	193,400	199,970	119,985	7,036	3,161	1,223
Mean	94.6	253	843	1,458	5,997	4,331	6,447	6,451	4,000	227	102	40.8
Cfsm	0.019	0.052	0.173	0.300	1.23	0.891	1.33	1.33	0.823	0.047	0.021	0.0084
In.	0.02	0.06	0.20	0.35	1.33	1.03	1.48	1.53	0.92	0.05	0.02	0.009
Ac-ft	5,820	15,070	51,860	89,650	344,900	266,300	383,600	396,600	238,000	13,960	6,270	2,430

Calendar year 1951: Max 7,590 Min 59 Mean 1,396 Cfsm 0.287 In. 3.88 Ac-ft 1,011,000
Water year 1951-52: Max 12,800 Min 36 Mean 2,500 Cfsm 0.514 In. 7.00 Ac-ft 1,814,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records.
c Backwater from Bayou Castor.

Tenaha Creek near Shelbyville, Tex.

Location.--Lat 31°46', long. 94°05', near center of span at downstream side of bridge on U. S. Highway 96, 1 mile northwest of Shelbyville, Shelby County, 4.2 miles upstream from Gulf, Colorado & Santa Fe Railway bridge, and 6.5 miles upstream from Bell Creek.

Drainage area.--87.0 sq mi.

Records available.--March to September 1952.

Gage.--Wire-weight gage read twice daily. Datum of gage is 469 ft above mean sea level (State Highway Department bridge plans).

Extremes.--Maximum discharge during period, 2,180 cfs Apr. 24 (gage height, 10.10 ft); no flow Sept. 1-6, 8, 16, 17.

Remarks.--Records good except those for period of no gage-height record, which are poor. Diversion above station for municipal supply.

Discharge, in cubic feet per second, March to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						a30	30	29	39	4.9	1.0	0
2						a40	30	28	26	4.3	.7	0
3						a50	*26	27	20	3.5	.8	0
4						a90	44	25	17	3.5	.8	0
5						a70	44	20	16	5.5	.7	0
6						*51	29	19	12	4.9	.8	0
7						41	25	16	12	4.1	19	.1
8						36	23	14	12	3.5	14	0
9						33	20	14	12	3.9	4.3	**.1
10						236	24	13	9.9	5.5	2.7	.4
11						819	33	12	9.6	5.5	1.8	.4
12						*685	*438	11	*8.5	3.9	*1.6	.4
13						298	1,170	10	7.5	3.0	1.0	.4
14						94	666	10	6.5	*2.7	.7	.4
15						65	*234	9.9	5.7	2.6	.5	.4
16						52	68	9.3	5.5	3.5	.4	0
17						45	48	9.0	5.1	37	.4	0
18						138	38	17	4.3	52	.3	.4
19						130	34	*74	4.1	18	.3	1.6
20						65	37	43	3.9	9.0	.4	1.3
21						50	94	26	3.8	5.9	.3	1.1
22						87	72	15	3.5	4.3	.2	.7
23						97	1,120	14	3.5	4.3	.2	.5
24						56	1,750	338	3.5	3.5	.2	.4
25						44	632	354	3.2	3.2	.2	.4
26						37	166	130	3.0	3.0	.4	.3
27						33	68	37	2.7	2.5	.3	.3
28						32	50	68	2.6	2.5	.2	.2
29						32	40	369	3.5	2.1	.1	.3
30						30	34	338	5.9	2.1	.1	.3
31						31	-	112	-	1.8	.1	-
Total						3,597	7,087	2,211.2	271.8	216.0	54.5	10.4
Mean						116	236	71.3	9.06	6.97	1.76	0.35
Cfsm						1.33	2.71	0.819	0.104	0.080	0.020	0.0040
In.						1.54	3.03	0.94	0.12	0.09	0.02	0.004
Ac-ft						7,130	14,060	4,390	539	428	108	21

Calendar year	: Max	Min	Mean	Cfsm	In.	Ac-ft
Water year	: Max	Min	Mean	Cfsm	In.	Ac-ft

Peak discharge (base, 800 cfs).--Mar. 11 (10 p.m.) 1,090 cfs (9.70 ft); Apr. 13 (4 a.m.) 1,700 cfs (9.79 ft); Apr. 24 (5 a.m.) 2,180 cfs (10.10 ft).

* Discharge measurement made on this day.

** Field estimate made on this day.

a No gage-height record; discharge estimated on basis of weather record.

Bayou San Patricio near Noble, La.

Location.--Lat 31°43'15", long. 93°42'25", in lot 38, T. 9 N., R. 13 W., near right bank on downstream side of bridge on U. S. Highway 171, 1.6 miles downstream from Kansas City Southern Railroad bridge and 2.5 miles northwest of Noble.

Drainage area.--154 sq mi.

Records available.--October 1951 to September 1952.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily.

Extremes.--Maximum discharge during year, 1,380 cfs Apr. 14 (gage height, 10.82 ft); minimum, 0.1 cfs Oct. 14-16, 19, Sept. 4-17, 22-30; minimum gage height, 2.70 ft Sept. 11-15, 28-30.

Remarks.--Records fair except those for periods of no gage-height record, which are poor.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 11 to July 4, July 7-17)

Oct. 1 to Dec. 26

2.7	0.1	3.4	6.1
2.8	.5	3.7	12
2.9	1.1	4.0	23
3.1	2.5	4.5	48

Note.--Same as following table above 4.5 ft.

Dec. 27 to July 18

2.8	0.5	5.0	75
2.9	1.1	6.0	134
3.1	2.6	7.0	201
3.3	5.2	8.0	294
3.5	9.2	9.0	425
3.7	14	9.5	530
4.0	25	10.0	750
4.5	48	10.8	1,380

July 19 to Sept. 30

2.7	0.1	3.5	10
2.8	.6	3.7	16
2.9	1.2	4.0	26
3.1	3.2	4.5	48
3.3	6.2		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a3	0.6	1.9	20	475	69	41	41	191	0.8	6.6	0.4
2	a2	.6	1.6	17	440	53	39	87	54	.8	4.9	.2
3	a1.5	.6	8.7	15	440	70	34	43	29	.8	4.6	.2
4	a1	.5	38	13	455	159	87	27	20	16	4.3	.1
5	a1	.5	15	14	344	194	75	22	15	77	4.0	.1
6	a.8	.9	9.8	13	114	125	67	18	12	16	4.0	.1
7	a.6	1.8	14	13	64	69	48	15	9.4	4.9	4.6	.1
8	a.4	1.1	16	14	48	51	32	13	7.9	2.8	4.6	.1
9	a.3	.8	33	14	39	41	25	11	6.5	1.7	4.3	.1
10	.2	.7	25	*11	36	178	*27	9.7	5.7	1.4	4.3	.1
11	.2	3.1	64	9.4	32	411	29	8.5	5.2	1.2	4.9	.1
12	.2	2.4	38	8.3	220	530	527	7.7	4.6	.8	7.2	.1
13	.2	5.8	*15	7.2	383	*750	950	7.0	4.2	.6	5.9	.1
14	.1	3.7	13	7.2	*455	645	1,380	6.6	3.7	.6	4.9	.1
15	.1	1.7	58	7.0	500	369	1,290	*6.3	3.4	.6	4.6	.1
16	.1	1.2	18	7.0	500	110	1,030	5.9	3.1	3.3	4.0	.1
17	.2	.9	16	7.0	352	67	622	5.9	2.4	42	3.8	.1
18	.2	.9	13	7.4	104	212	206	9.7	1.9	84	3.5	.9
19	.1	.9	15	7.7	69	369	69	58	*1.9	30	3.5	.7
20	.2	.9	36	8.3	155	440	56	39	1.7	17	*14	.4
21	.2	.8	81	8.3	272	475	81	32	1.7	*9.5	7.3	.2
22	.2	.8	93	9.2	294	475	108	22	1.6	7.0	4.5	.1
23	.2	.9	75	17	180	343	810	18	1.6	6.0	4.0	.1
24	.3	.9	40	20	166	306	1,030	216	1.4	5.6	3.3	*.1
25	.3	1.0	59	25	173	187	1,110	330	1.2	4.9	3.0	.1
26	.3	1.3	503	18	152	98	1,110	178	.9	4.6	2.5	.1
27	.3	2.5	322	102	166	72	780	60	.8	4.3	2.4	.1
28	.2	2.9	136	411	146	58	418	180	.8	3.9	1.9	.1
29	.2	2.6	61	455	98	48	94	455	.8	3.8	1.6	.1
30	.3	2.2	36	*600	-	46	56	397	.8	17	.9	.1
31	*.3	-	25	*560	-	43	-	383	-	26	.7	-
Total	15.2	45.5	1,880.0	2,446.0	6,872	7,063	12,231	2,712.3	394.2	394.9	135.6	5.3
Mean	0.49	1.52	60.6	78.9	237	228	408	87.5	13.1	12.7	4.37	0.18
Cfsm	0.0032	0.0099	0.394	0.512	1.54	1.48	2.65	0.568	0.085	0.082	0.028	0.0012
In.	0.004	0.01	0.45	0.59	1.66	1.71	2.95	0.66	0.10	0.10	0.03	0.001
Ac-ft	30	90	3,730	4,850	13,630	14,010	24,260	5,380	782	783	269	11

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 1,380 Min 0.1 Mean 93.4 Cfsm 0.606 In. 8.26 Ac-ft 67,820

Peak discharge (base, 600 cfs).--Dec. 26 (8 a.m.) 600 cfs (9.68 ft); Jan. 30 (3 p.m.) 600 cfs (9.72 ft); Mar. 13 (8 a.m.) 750 cfs (9.98 ft); Apr. 14 (1 p.m.) 1,380 cfs (10.82 ft); Apr. 26 (8 a.m.) 1,200 cfs (10.62 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for other stations in basin.

Bayou San Miguel near Zwolle, La.

Location.--Lat 31°39'10", long. 93°39'10", in NE¼NW¼ sec. 25, T. 8 N., R. 13 W., near right bank on downstream side of bridge on U. S. Highway 171, 1¾ miles northwest of Zwolle and 3½ miles upstream from Bayou Scie.

Drainage area.--113 sq mi.

Records available.--September 1948 to September 1952.

Gage.--Water-stage recorder. Prior to Mar. 4, 1949, staff gage at same site and datum.

Extremes.--Maximum discharge during year, 1,870 cfs Apr. 14 (gage height, 10.84 ft); no flow for many days.
1948-52: Maximum discharge, 15,000 cfs June 3, 1950 (gage height, 15.75 ft), from rating curve extended above 3,200 cfs by velocity-area studies; no flow at times each year.

Remarks.--Records good except those between 300 and 1,000 cfs and those below 5 cfs, which are poor.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-9, July 20 to Aug. 10)

Oct. 1 to Mar. 12

1.9	0	2.7	3.5
2.0	.1	3.0	7.1
2.1	.2	3.5	16
2.3	.8	4.0	26
2.5	1.9	5.0	52

Note.--Same as following table above 5.0 ft.

Mar. 13 to Sept. 30

1.9	0	2.7	5.9	7.0	115
2.0	.1	3.0	10	8.5	210
2.1	.5	3.5	18	9.5	470
2.2	1.0	4.0	28	10.0	699
2.3	1.7	5.0	52	10.5	1,160
2.5	3.6	6.0	82	11.0	2,240

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1		0	13	147	38	23	21	32	0.1	0.3	
2	.8		0	10	368	27	21	22	19	.1	.2	
3	.7		0	8.2	470	34	19	29	13	0	.1	
4	.5		1.2	7.4	441	88	46	18	9.0	.1	.1	
5	.4		.6	6.4	166	136	68	13	6.8	.5	0	
6	.3		.4	5.7	66	68	58	11	5.2	.4	0	
7	.2		.3	6.3	36	38	32	9.2	4.2	1.3	.1	
8	.1		2.0	5.1	26	26	21	7.9	3.3	1.7	.1	
9	0		3.0	4.3	20	20	17	6.8	2.6	.9	.1	
10	0		1.8	*3.7	16	69	*25	5.8	2.2	.5	0	
11	0		5.7	3.3	16	354	30	4.9	1.8	.3	0	
12	0		3.8	3.0	72	501	224	4.4	1.6	.2	0	
13	0		*2.2	3.0	298	*490	750	3.9	1.2	.1	0	
14	0		4.0	2.7	*397	166	1,560	3.4	.9	.1	0	
15	0		4.7	2.5	205	71	950	*3.0	.8	0	0	
16	0		6.8	2.4	81	42	457	2.6	.7	.4	0	
17	0		10	2.4	44	31	125	2.3	.6	5.9	0	
18	0		4.9	2.4	31	95	54	9.0	.4	11	0	
19	0		4.1	2.3	25	320	36	18	*.4	16	0	
20	0		6.7	2.2	46	381	31	11	.3	9.0	*0	
21	0		14	2.3	149	171	38	9.8	.3	*4.2	0	
22	0		53	2.7	144	143	60	8.9	.2	2.5	0	
23	0		35	2.7	73	321	370	7.9	.1	1.7	0	
24	0		16	2.6	59	338	635	78	.1	1.2	0	(*)
25	0		18	3.0	58	144	838	153	.1	.8	0	
26	0		348	3.0	56	65	652	182	.1	.6	0	
27	0		424	36	74	44	174	80	.1	.5	0	
28	0		305	278	83	35	67	46	.1	.4	0	
29	0		100	441	54	31	35	261	.1	.3	0	
30	0		32	*509	-	27	27	224	.1	.4	0	
31	*0		19	220	-	24	-	85	-	.3	0	
Total	4.1	0	1,426.2	1,596.6	3,721	4,338	7,443	1,341.8	107.3	61.5	1.0	0
Mean	0.13	0	46.0	51.5	128	140	248	43.3	3.58	1.98	0.03	0
Cfsm	0.0012	0	0.407	0.456	1.13	1.24	2.19	0.383	0.032	0.018	0.00027	0
In.	0.001	0	0.47	0.53	1.22	1.43	2.45	0.44	0.04	0.02	0.003	0
Ac-ft	8.1	0	2,830	3,170	7,380	8,600	14,760	2,660	213	122	2.0	0

Calendar year 1951: Max 3,810 Min 0 Mean 58.9 Cfsm 0.521 In. 7.07 Ac-ft 42,680
Water year 1951-52: Max 1,560 Min 0 Mean 54.8 Cfsm 0.485 In. 6.60 Ac-ft 39,750

Peak discharge (base, 800 cfs).--Apr. 14 (10 a.m.) 1,870 cfs (10.84 ft); Apr. 25 (3 p.m.) 910 cfs (10.30 ft).
* Discharge measurement made on this day.

Sabine River near Milam, Tex.

Location.--Lat 31°28', long. 93°45', near right bank 104 ft upstream from bridge on State Highway 21, 2.8 miles downstream from Patroon Bayou, 6.5 miles northeast of Milam, Sabine County, 7.2 miles upstream from Palo Gaucho Creek, and at mile 195.

Drainage area.--6,543 sq mi.

Records available.--October 1923 to August 1925, (published as "at Sabinetown"), January 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 97.96 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Oct. 9, 1923, to Aug. 31, 1925, staff gage 7.4 miles downstream at different datum. Jan. 19, 1939, to Dec. 21, 1945, wire-weight gage 104 ft downstream from present site at present datum.

Average discharge.--13 years (1939-52), 6,178 cfs.

Extremes.--Maximum discharge during year, 17,000 cfs Apr. 25 (gage height, 30.12 ft); minimum, 53 cfs Sept. 30.

1923-25, 1939-52: Maximum discharge, 83,400 cfs Apr. 12, 1945 (gage height, 48.87 ft); minimum observed, 32 cfs Oct. 15, 22,,1939.

Maximum stage known since at least 1884, that of Apr. 12, 1945. Flood of about July 28, 1933, reached a stage of 48 ft, from information by former observer. Flood of 1884 reached a stage about 2 ft lower than that of 1945 at ferry about 10 miles upstream, from information by local resident.

Remarks.--Records good. No large diversions above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

5.7	49	11.0	1,850
6.0	91	14.0	3,480
6.2	125	18.0	6,200
6.5	196	22.0	9,450
7.0	337	26.0	13,100
8.0	660	30.0	17,000
9.0	1,000		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	191	136	256	1,670	8,430	5,980	2,400	11,700	8,600	447	316	90
2	175	144	362	1,280	9,900	5,310	2,300	10,500	7,750	431	322	85
3	165	146	512	1,000	9,110	4,890	2,250	9,720	7,110	405	316	82
4	148	170	728	882	6,950	4,890	2,620	9,020	6,500	380	287	79
5	156	193	762	796	5,600	5,100	2,960	8,600	6,050	374	272	75
6	199	225	813	745	4,890	5,100	2,570	8,340	5,750	374	261	73
7	217	244	900	745	4,100	4,890	2,250	8,340	5,600	377	256	72
8	217	*264	1,040	813	3,240	4,560	1,950	8,520	5,680	368	244	69
9	183	295	1,200	935	2,570	4,040	1,720	8,770	5,750	340	322	69
10	163	319	1,670	970	2,050	3,970	1,670	9,110	5,980	313	409	66
11	148	415	1,950	970	1,760	6,360	1,670	9,450	6,120	304	362	65
12	136	528	1,760	1,000	2,050	8,600	3,400	9,720	6,350	316	278	*62
13	125	495	1,440	1,080	4,230	*9,450	9,360	9,990	6,650	281	228	62
14	118	447	*1,160	1,160	7,190	10,100	12,100	10,400	6,800	270	*196	62
15	112	402	1,000	1,200	8,860	10,600	12,700	10,500	7,030	264	173	62
16	107	377	970	1,160	9,630	10,800	12,500	*10,600	7,110	380	160	62
17	104	346	1,240	1,080	10,200	10,700	*12,300	9,990	*7,110	745	151	62
18	101	316	1,360	1,000	10,600	10,700	12,200	6,720	6,350	1,320	142	65
19	97	295	1,160	900	11,100	10,800	12,200	3,480	4,300	900	133	72
20	96	272	1,000	830	11,400	9,020	12,100	2,460	2,520	711	127	73
21	94	250	935	779	11,700	6,650	12,000	1,950	1,670	594	127	73
22	91	235	1,080	745	11,300	5,900	11,800	1,620	1,320	512	118	73
23	99	228	1,580	728	10,500	6,120	14,400	1,490	1,000	479	112	72
24	94	217	1,800	745	9,630	5,450	16,400	2,520	848	463	116	68
25	94	209	1,540	*900	8,940	4,490	17,000	4,890	728	418	120	65
26	94	217	2,710	1,160	8,770	3,900	16,200	5,240	644	384	121	62
27	97	225	4,040	1,750	8,520	3,360	15,200	4,750	578	390	120	59
28	99	225	3,540	4,280	7,750	3,010	14,400	5,520	528	368	111	57
29	101	228	2,680	6,650	6,720	2,790	13,600	9,360	495	343	102	56
30	104	230	2,350	7,350	-	2,620	12,700	9,900	463	331	96	54
31	107	-	2,050	7,750	-	2,520	-	9,280	-	384	94	-
Total	4,032	8,293	45,588	53,053	217,690	192,670	266,920	232,450	133,384	13,966	6,192	2,046
Mean	130	276	1,471	1,711	7,507	6,215	8,897	7,498	4,446	451	200	68.2
Cfsm	0.020	0.042	0.225	0.261	1.15	0.950	1.36	1.15	0.679	0.069	0.031	0.010
In.	0.02	0.05	0.26	0.30	1.24	1.09	1.52	1.32	0.76	0.08	0.04	0.01
Ac-ft	8,000	16,450	90,420	105,200	431,800	382,200	529,400	461,100	264,600	27,700	12,280	4,060

Calendar year 1951: Max 15,800 Min 84 Mean 1,955 Cfsm 0.299 In. 4.06 Ac-ft 1,416,000
Water year 1951-52: Max 17,000 Min 54 Mean 3,214 Cfsm 0.491 In. 6.69 Ac-ft 2,333,000

* Discharge measurement made on this day.

Palo Gaucho Bayou near Hemphill, Tex.

Location.--Lat 31°23', long. 93°50', near center of span at downstream side of bridge on State Highway 87, 0.2 mile upstream from Boregas Creek, 3.6 miles north of Hemphill, Sabine County, 4.2 miles downstream from Sandy Creek, and about 13 miles upstream from Sabine River.

Drainage area.--121 sq mi.

Records available.--March to September 1952.

Gage.--Wire-weight gage read twice daily.

Extremes.--Maximum discharge during period, 1,400 cfs Apr. 14; maximum gage height, 18.40 ft Apr. 24, affected by backwater; minimum daily discharge, 0.1 cfs Sept. 10-17, 29, 30. Maximum stage known since at least 1907, 26.6 ft in July 1933, from information by local resident. Flood of June 1950 reached a stage of 23.0 ft, from information by State Highway Department.

Remarks.--Records good except those affected by backwater, which are poor.

Rating table, Mar. 7 to Sept. 30, 1952 (gage height, in feet, and discharge, in cubic feet per second)

2.0	0	2.9	7.7	8.0	278
2.1	.1	3.2	15	10.0	465
2.2	.3	3.6	29	12.0	680
2.3	.7	4.0	44	14.0	936
2.4	1.3	5.0	84	16.0	1,260
2.5	2.1	6.0	129		
2.7	4.4	7.0	198		

Discharge, in cubic feet per second, March to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	80	92	116	58	20	0.5
2						-	72	88	96	25	9.7	.4
3						-	*62	92	82	15	9.5	.3
4						-	*276	82	70	11	7.7	.3
5						-	295	70	64	9.9	6.8	.3
6						-	110	60	56	28	6.4	.2
7						*94	84	54	54	26	12	.2
8						84	72	48	48	7.3	60	.2
9						78	68	44	44	5.9	54	.2
10						183	123	40	40	5.0	20	.1
11						559	147	40	37	6.3	14	.1
12						*262	580	36	34	5.0	10	**.1
13						144	*1,150	32	29	4.3	8.1	.1
14						113	*1,160	29	23	3.9	*6.3	.1
15						98	386	*26	21	3.6	5.3	.1
16						88	*172	23	20	14	3.9	.1
17						80	132	20	19	216	3.1	.1
18						286	113	27	16	*495	2.5	1.1
19						515	100	227	14	143	2.1	.3
20						214	96	168	12	64	1.9	.2
21						126	106	78	11	43	1.4	.2
22						194	108	54	9.9	31	1.2	.5
23						246	*c810	54	9.5	24	1.2	.4
24						135	c880	386	8.6	19	1.5	.3
25						100	c920	752	7.5	16	**1.1	.3
26						90	339	312	6.6	14	.8	.2
27						86	186	118	5.6	12	1.0	.2
28						82	144	328	5.0	11	1.0	.2
29						82	118	*978	4.4	9.9	.7	.1
30						76	104	708	26	17	.5	.1
31						74	-	194	-	54	.5	-
Total						-	8,993	5,260	989.1	1,397.1	274.2	7.5
Mean						-	300	170	33.0	45.1	8.85	0.25
Cfsm						-	2.48	1.40	0.273	0.373	0.073	0.0021
In.						-	2.76	1.62	0.30	0.43	0.08	0.002
Ac-ft						-	17,840	10,430	1,980	2,770	544	15

Calendar year	: Max		Min		Mean		Cfsm	In.	Ac-ft
Water year	: Max		Min		Mean		Cfsm	In.	Ac-ft

* Discharge measurement made on this day.
** Field estimate made on this day.
c Backwater from Sabine River.

Bayou Anacoco near Leesville, La.

Location.--Lat 31°09'35", long. 93°21'05", in NW¼NW¼ sec. 13, T. 2 N., R. 10 W., near left bank on downstream side of bridge on State Highway 21, 2¾ miles upstream from Prairie Creek and 5½ miles west of Leesville.

Drainage area.--114 sq mi.

Records available.--September 1948 to September 1952.

Gage.--Water-stage recorder.

Extremes.--Maximum discharge during year, 4,720 cfs Apr. 24 (gage height, 15.32 ft); minimum, 6.1 cfs Sept. 30; minimum gage height, 2.62 ft Oct. 20.
1948-52: Maximum discharge, 20,000 cfs June 3, 1950 (gage height, 18.13 ft), from rating curve extended above 4,000 cfs by velocity-area studies and logarithmic plotting; minimum, 5.9 cfs Sept. 29, 1948; minimum gage height, 2.50 ft Sept. 1, 2, 1951.

Remarks.--Records good.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 22 to Jan. 8, Sept. 6-30)

Oct. 1 to Jan. 8			Jan. 9 to Sept. 30		
2.7	11	3.2	4.9	9.0	417
2.8	13	3.3	7.3	12.0	828
3.0	16	3.5	13	13.5	1,150
3.5	28	4.0	33	14.0	1,510
4.0	46	5.0	86	14.5	2,270
5.0	96	7.0	231	15.0	3,590

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	16	18	32	179	67	53	76	147	15	34	8.7
2	17	15	18	32	683	56	56	70	98	21	21	9.0
3	16	15	18	32	780	70	51	70	79	20	18	9.3
4	15	14	31	35	385	196	441	69	59	15	16	9.3
5	14	14	46	56	165	162	533	56	50	15	15	9.0
6	13	16	42	54	112	91	200	48	44	14	14	9.0
7	13	19	32	40	86	65	105	42	38	13	18	9.0
8	12	18	32	33	74	55	76	37	34	12	15	8.1
9	12	16	74	*30	65	50	*61	32	31	11	13	8.1
10	12	15	90	27	60	73	175	44	28	10	13	8.1
11	12	15	51	26	56	235	346	188	26	12	12	7.9
12	11	15	*36	24	165	198	411	161	24	12	11	7.6
13	11	16	31	24	*392	*108	750	72	22	12	11	7.3
14	11	15	44	24	204	80	739	48	20	12	11	7.3
15	11	15	66	24	116	65	259	*39	19	12	10	7.6
16	11	14	58	24	95	54	136	33	18	33	11	7.6
17	11	13	43	26	98	48	98	29	16	210	9.5	7.1
18	11	13	44	27	80	228	80	39	*15	301	9.3	6.8
19	11	13	51	27	69	608	69	248	15	172	9.5	7.1
20	11	14	50	26	159	475	64	365	14	73	9.5	7.9
21	11	14	50	24	223	166	83	187	13	54	*9.3	7.9
22	11	15	48	24	144	119	135	92	13	*37	9.3	7.9
23	11	15	41	24	116	126	2,330	106	13	28	9.0	7.6
24	11	16	36	23	105	116	3,280	672	13	22	10	*6.8
25	12	16	34	22	92	80	1,040	780	13	19	11	6.8
26	12	16	34	21	102	66	315	436	12	17	10	7.1
27	12	17	52	57	144	58	190	207	11	39	9.5	7.1
28	11	19	69	370	108	54	140	153	12	51	9.3	7.3
29	12	19	44	367	80	50	112	675	13	26	9.0	7.1
30	12	18	36	170	-	48	92	817	13	26	8.7	6.6
31	*13	-	33	92	-	46	-	336	-	43	8.7	-
Total	381	466	1,352	1,817	5,137	3,913	12,420	6,227	923	1,357	384.6	234.0
Mean	12.3	15.5	43.6	58.6	177	126	414	201	30.8	43.8	12.4	7.80
Cfsm	0.108	0.136	0.382	0.514	1.55	1.11	3.63	1.76	0.270	0.384	0.109	0.068
In.	0.12	0.15	0.44	0.59	1.68	1.28	4.05	2.03	0.30	0.44	0.13	0.08
Ac-ft	756	924	2,680	3,600	10,190	7,760	24,630	12,350	1,830	2,690	763	464

Calendar year 1951: Max 6,630 Min 9.6 Mean 142 Cfsm 1.25 In. 16.93 Ac-ft 103,000
Water year 1951-52: Max 3,280 Min 6.6 Mean 94.6 Cfsm 0.83 In. 11.29 Ac-ft 68,640

Peak discharge (base, 900 cfs).--Apr. 24 (1:30 a.m.) 4,720 cfs (15.32 ft).
* Discharge measurement made on this day.

Bayou Anacoco near Rosepine, La.

Location.--Lat 30°57'10", long. 93°21'10", on line between secs. 25 and 26, T. 1 S., R. 10 W., near center of span on downstream side of bridge on road from Rosepine to Evans, just downstream from Pocosin Creek, 4.8 miles northwest of Rosepine.

Drainage area.--360 sq mi.

Records available.--October 1951 to September 1952.

Gage.--Wire-weight gage and crest-stage indicator; gage read twice daily.

Extremes.--Maximum discharge during year, 23,800 cfs Apr. 24 (gage height, 23.61 ft); minimum, 16 cfs Sept. 5, 6, 8, 9; minimum gage height, 3.28 ft Oct. 31.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 5				Apr. 6 to Sept. 30			
3.3	18	6.0	368	3.3	14	18.0	3,500
3.5	34	8.0	730	3.5	28	19.0	4,080
4.0	77	10.0	1,110	4.0	70	20.0	5,200
4.5	133	12.0	1,500	4.5	121	20.5	6,350
5.0	201			5.0	187	21.0	8,250
				8.0	710	23.5	23,100
				12.0	1,500		

Note.--Same as following table above 12.0 ft.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a140	98	31	104	731	263	140	435	940	57	139	21
2	a130	98	28	109	2,180	231	127	383	615	42	99	19
3	a120	72	31	109	2,300	216	121	349	471	39	84	17
4	a110	39	32	115	1,680	280	754	315	349	34	79	17
5	a110	35	48	140	1,072	332	1,186	283	267	42	70	16
6	a100	41	51	146	730	297	940	235	219	42	51	16
7	a95	47	47	146	458	247	634	203	187	39	70	17
8	a90	42	131	133	231	216	435	172	158	36	66	16
9	82	34	548	*121	314	a200	*332	152	139	34	61	24
10	77	31	280	109	263	a450	525	269	127	33	54	30
11	72	28	104	98	231	a660	748	729	121	32	50	40
12	68	28	*72	87	231	*a410	1,020	653	116	37	45	40
13	68	27	59	87	*350	a280	1,750	417	104	58	42	30
14	64	26	85	82	620	a230	1,550	*315	94	61	39	31
15	64	26	332	77	602	a190	1,220	235	84	59	38	31
16	57	24	216	82	440	180	862	187	74	298	40	44
17	57	21	98	87	404	173	579	165	74	1,680	37	61
18	57	20	98	92	297	314	417	534	*66	1,520	32	61
19	54	21	109	87	263	620	315	1,080	60	960	29	52
20	50	22	104	87	332	730	267	1,060	56	634	30	51
21	50	22	98	87	458	692	283	748	52	435	30	50
22	52	23	104	82	548	548	442	561	49	*299	*28	47
23	52	24	104	77	638	314	14,300	417	47	219	27	52
24	52	24	98	72	494	314	22,000	1,600	46	158	28	*53
25	49	24	98	68	422	263	11,900	1,950	44	116	29	50
26	36	27	98	68	404	231	4,390	1,750	41	116	30	37
27	28	29	104	193	386	201	2,400	1,180	39	133	25	40
28	20	32	98	*656	350	173	1,140	940	36	99	25	42
29	20	32	98	863	297	152	729	1,220	29	99	25	40
30	20	31	104	692	-	146	561	1,340	54	121	24	66
31	*18	-	104	530	-	140	-	1,220	-	180	23	-
Total	2,060	1,048	3,612	5,486	17,726	9,693	72,067	21,097	4,758	7,712	1,449	1,111
Mean	66.5	34.9	117	177	611	313	2,402	681	159	249	46.7	37.0
Cfsm	0.185	0.097	0.325	0.492	1.70	0.869	6.67	1.89	0.442	0.692	0.130	0.103
In.	0.21	0.11	0.37	0.57	1.83	1.00	7.44	2.18	0.49	0.80	0.15	0.11
Ac-ft	4,090	2,080	7,160	10,880	35,160	19,230	142,900	41,850	9,440	15,300	2,870	2,200

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 22,000 Min 16 Mean 404 Cfsm 1.12 In. 15.26 Ac-ft 293,200

Peak discharge (base, 1,500 cfs).--Feb. 2 (3 p.m.) 2,340 cfs (15.24 ft); Apr. 13 (12 m.) 1,800 cfs (13.18 ft); Apr. 24 (4 a.m.) 23,800 cfs (23.61 ft); May 26 (4 a.m.) 2,000 cfs (14.03 ft); July 18 (1 a.m.) 2,530 cfs (15.78 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of 1 discharge measurement, weather records, and records for station near Leesville.

Sabine River near Bon Wier, Tex.

Location.--Lat 30°45'00", long. 93°36'30", near center of main channel at upstream side of bridge on U. S. Highway 190, 0.7 mile upstream from Quicksand Creek, 2.0 miles east of Bon Wier, Newton County, 2.4 miles upstream from Caney Creek, and at miles 98.

Drainage area.--8,323 sq mi.

Records available.--October 1923 to September 1934, January 1939 to September 1952. Gage-height records collected in this vicinity since 1913 are contained in reports of the United States Weather Bureau.

Gage.--Wire-weight gage read twice daily. Datum of gage is 46.42 ft above mean sea level, datum of 1929. Oct. 6, 1923, to July 7, 1931, chain gage at site 0.8 mile downstream at same datum. July 8, 1931, to Sept. 30, 1934, chain gage at present site and datum.

Average discharge.--24 years (1923-34, 1939-52), 7,896 cfs.

Extremes.--Maximum discharge during year, 33,200 cfs Apr. 25 (gage height, 20.72 ft); minimum, 296 cfs Oct. 29, 30.

1923-34, 1939-52: Maximum discharge, 75,500 cfs Apr. 17, 18, 1945; maximum gage height, 23.35 ft June 6, 1950; minimum discharge observed, 185 cfs Sept. 11, 22, 24, 1925.

Maximum stage known since at least 1833, 29.3 ft Apr. 23 or 24, 1913, from information by Gulf, Colorado & Santa Fe Railway Co. and local residents. Flood of May 1884 reached a stage of about 26 ft and that of May 1935, 23.4 ft.

Remarks.--Records good. Small diversions above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second second)
(Shifting-control method used Feb. 15 to Mar. 8)

Oct. 1 to Apr. 30				May 1 to Sept. 30			
0.6	260	5.0	3,310	1.0	298	5.0	2,650
.8	350	8.0	6,200	1.3	394	7.0	4,550
1.0	450	12.0	11,200	1.6	508	9.0	6,800
1.5	730	16.0	18,400	2.0	670	11.0	9,500
2.0	1,040	20.0	29,900	3.0	1,170	13.0	12,600
3.0	1,740	21.0	35,300	4.0	1,840	16.0	18,400

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	880	410	483	2,900	8,630	9,280	3,830	16,500	13,100	1,140	1,260	401
2	748	*566	483	2,580	13,200	8,020	3,650	15,900	11,600	1,090	1,090	401
3	682	642	494	2,260	15,900	6,970	3,480	13,400	10,100	1,030	1,000	387
4	632	494	554	1,960	15,300	6,530	4,200	12,100	8,800	1,060	875	363
5	593	461	802	1,820	12,700	6,530	5,800	11,200	*7,840	1,000	805	360
6	560	461	1,040	1,660	9,540	6,640	5,800	10,200	7,060	925	782	354
7	516	522	1,200	1,520	7,420	6,310	5,300	9,500	6,680	875	782	347
8	478	604	1,310	1,420	6,100	6,000	4,400	9,220	6,320	828	805	344
9	478	549	2,340	1,380	5,200	5,700	*3,740	9,080	6,200	782	738	338
10	461	538	3,140	1,340	4,300	5,400	3,560	9,220	6,200	828	692	334
11	440	566	2,820	1,380	3,560	5,200	4,200	10,100	6,320	850	670	334
12	461	593	2,500	1,450	3,140	6,200	5,200	10,700	6,440	782	738	341
13	435	637	2,500	1,480	3,140	8,380	8,760	*10,600	6,560	715	738	334
14	425	706	*2,420	1,480	4,600	9,540	13,000	10,600	6,680	782	692	334
15	405	778	2,660	*1,520	6,970	10,100	14,900	10,700	6,930	805	628	347
16	390	742	2,500	1,630	9,150	10,500	15,100	10,800	7,060	1,030	548	334
17	370	664	1,960	1,660	10,400	10,800	14,500	11,000	7,190	3,600	540	341
18	328	604	1,740	1,660	11,100	11,100	13,800	11,300	7,190	12,200	520	367
19	350	582	1,960	1,630	11,500	12,600	13,300	12,900	6,930	9,800	508	*367
20	346	554	2,040	1,560	*12,100	14,000	13,000	11,600	*5,980	6,090	488	347
21	336	532	1,890	1,450	12,900	13,500	12,900	7,710	4,450	3,850	476	334
22	336	532	1,740	1,340	13,700	10,900	13,000	5,210	3,280	2,470	457	334
23	336	516	1,630	1,280	14,000	8,500	24,300	3,950	2,560	1,870	449	334
24	328	483	1,630	1,200	14,000	7,660	31,600	6,420	2,060	1,550	438	334
25	328	483	2,040	1,170	13,000	7,300	32,600	10,200	1,760	1,290	438	331
26	328	483	2,190	1,170	12,100	6,420	32,100	10,700	1,550	*1,170	*434	328
27	328	483	2,260	1,450	11,500	5,600	29,900	10,100	1,420	1,260	419	322
28	318	483	3,310	2,680	10,900	5,000	26,300	8,240	1,290	1,290	408	316
29	300	505	4,200	5,100	10,400	4,500	22,000	9,220	1,230	1,060	408	313
30	300	494	3,830	7,300	-	4,100	18,400	12,800	1,200	1,090	405	313
31	323	-	3,140	8,020	-	3,830	-	13,800	-	1,320	405	-
Total	13,539	16,667	62,806	66,450	286,450	243,110	402,620	324,970	171,980	64,432	19,636	10,334
Mean	437	556	2,026	2,144	9,878	7,842	13,420	10,480	5,733	2,078	633	344
Cfsm	0.052	0.067	0.243	0.257	1.19	0.942	1.61	1.26	0.689	0.250	0.076	0.041
In.	0.06	0.07	0.28	0.30	1.28	1.09	1.80	1.45	0.77	0.29	0.09	0.05
Ac-ft	26,850	33,060	124,600	131,800	568,200	482,200	798,600	644,600	341,100	127,800	38,950	20,500

Calendar year 1951: Max 23,300 Min 260 Mean 3,332 Cfsm 0.400 In. 5.43 Ac-ft 2,412,000
Water year 1951-52: Max 32,600 Min 300 Mean 4,598 Cfsm 0.552 In. 7.53 Ac-ft 3,338,000

* Discharge measurement made on this day.

Big Cow Creek near Newton, Tex.

Location.--Lat 30°49'10", long. 93°47'05", near center of span at downstream side of bridge on State Highway 87, 2.6 miles southwest of Newton, Newton County, 5.0 miles downstream from Bishop Creek, and 8.0 miles upstream from Whitecak Creek.

Drainage area.--141 sq mi.

Records available.--April to September 1952.

Gage.--Wire-weight gage, read twice daily. Datum of gage is 134 ft above mean sea level (State Highway Department bridge plans).

Extremes.--Maximum discharge during period, 1,790 cfs Apr. 24 (gage height, 14.93 ft); minimum observed, 23 cfs Sept. 29.
Maximum stage known at least 1907, 27.5 ft in April 1922, from information by local resident.

Remarks.--Records good.

Rating table, Apr. 16 to Sept. 30, 1952 (gage height, in feet, and discharge, in cubic feet per second)

5.4	22	10.0	382
6.0	45	12.0	630
6.5	70	14.0	1,170
7.0	103	15.0	1,890
8.0	187		

Discharge, in cubic feet per second, April to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	72	94	134	82	27
2							-	73	79	66	48	26
3							-	103	70	48	41	27
4							-	142	65	42	38	26
5							-	82	62	39	37	26
6							-	66	61	41	37	25
7							†82	60	62	39	39	25
8							-	56	203	37	40	26
9						†54	-	*54	122	37	41	25
10							-	58	76	39	39	25
11							-	72	68	38	36	25
12							-	93	60	36	34	25
13							-	60	55	39	33	25
14							-	53	51	38	32	26
15							†128	50	48	36	29	25
16							100	48	46	70	28	27
17							86	46	45	236	28	27
18							74	104	43	492	29	25
19							68	459	*43	*302	29	27
20							69	*332	41	142	29	28
21							76	138	40	77	29	29
22							77	80	41	60	30	27
23							*1,060	82	41	53	31	27
24							*1,260	856	40	48	32	25
25							355	784	39	45	30	24
26							160	302	37	44	*29	24
27							114	187	36	80	27	23
28							100	129	35	72	27	24
29							86	*470	38	46	27	23
30							78	262	95	42	27	23
31							-	134	-	52	26	-
Total							-	5,507	1,836	2,570	1,064	767
Mean							-	178	61.2	82.9	34.3	25.6
Cfsm							-	1.26	0.434	0.588	0.243	0.182
In.							-	1.45	0.48	0.68	0.28	0.20
Ac-ft							-	10,920	3,640	5,100	2,110	1,520

Calendar year	: Max	Min	Mean	Cfsm	In.	Ac-ft
Water year	: Max	Min	Mean	Cfsm	In.	Ac-ft

* Discharge measurement made on this day.
† Result of discharge measurement.

Cypress Creek near Buna, Tex.

Location.--Lat 30°25'45", long. 93°54'20", near center of span at downstream side of bridge on Farm Road 253, 1.0 mile downstream from unnamed tributary, 3.2 miles east of Buna, Jasper County, and about 10 miles upstream from Little Cypress Creek.

Drainage area.--63.4 sq mi.

Records available.--March to September 1952.

Gage.--Wire-weight gage read twice daily. Datum of gage is 46 ft above mean sea level (State Highway Department bridge plans).

Extremes.--Maximum discharge during period, 3,800 cfs Apr. 23 (gage height, 11.93 ft, from graph based on gage readings); no flow June 26-29, July 8-10, Aug. 5 to Sept. 30.

Remarks.--Records good except those between 25 and 700 cfs, which are fair.

Rating table, Mar. 11 to Sept. 30, 1952 (gage height, in feet, and discharge, in cubic feet per second)

1.5	0	3.0	10	8.0	360
1.6	.1	3.5	19	9.0	575
1.7	.4	4.0	36	10.0	1,220
1.8	.7	4.5	58	11.0	2,350
2.0	1.5	5.0	83	12.0	3,880
2.2	2.5	6.0	142		
2.5	4.7	7.0	226		

Discharge, in cubic feet per second, March to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	12	9.4	44	3.1	0.1	
2						-	10	7.5	17	.8	.1	
3						-	6.8	*18	9.5	.5	.1	
4						-	4.4	11	*6.0	.3	.1	
5						-	*2.5	8.7	4.1	.1	0	(*)
6						-	1.8	6.2	2.8	.3	0	
7						-	1.4	3.9	2.8	.2	0	
8						-	1.0	2.6	10	0	*0	
9						-	1.0	2.1	5.7	0	0	
10						-	4.0	1.6	2.6	0	0	
11						*5.9	86	1.3	2.1	**.6	0	
12						5.0	231	1.0	1.7	.3	*0	
13						4.3	705	.7	1.2	.2	0	
14						3.9	520	.6	.9	.1	0	
15						3.1	369	.5	.7	.2	0	
16						2.4	189	.5	.6	4.8	0	
17						2.1	45	.4	.5	19	0	
18						9.2	16	94	.4	94	0	
19						28	11	1,840	.3	65	0	
20						23	7.5	*1,960	.3	17	0	
21						12	7.5	*950	.2	3.2	0	
22						6.8	57	605	.2	1.5	0	
23						4.7	*2,910	396	.2	.9	0	
24						3.8	2,140	*625	.1	.5	0	
25						2.8	1,040	790	.1	.4	0	
26						2.2	605	730	0	.3	0	
27						1.8	396	575	0	.2	0	
28						1.6	138	369	0	.1	0	
29						1.5	34	206	0	.1	0	
30						1.3	15	130	.2	.1	0	
31						1.7	-	86	-	.1	0	-
Total						-	9,566.9	9,432.0	114.2	213.9	0.4	0
Mean						-	319	304	3.81	6.90	0.01	0
Cfsm						-	5.03	4.79	0.060	0.109	0.00016	0
In.						-	5.61	5.53	0.07	0.13	0.0002	0
Ac-ft						-	18,980	18,710	227	424	0.8	0

Calendar year	: Max		Min		Mean		Cfsm	In.	Ac-ft
Water year	: Max		Min		Mean		Cfsm	In.	Ac-ft

* Discharge measurement made on this day.
** Field estimate made on this day.

Sabine River near Ruliff, Tex.

Location.--Lat 30°18'10", long. 93°44'40", near right bank at downstream side of bridge on State Highway 235, 2.4 miles north of Ruliff, Newton County, 4.2 miles upstream from Kansas City Southern Railway Bridge, 4.5 miles downstream from Cypress Creek, and at mile 40.

Drainage area.--9,440 sq mi.

Records available.--October 1924 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4.08 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Mar. 1, 1941, staff gage at Kansas City Southern Railway bridge 4.2 miles downstream at 2.02 ft lower datum. Mar. 1, 1941, to Dec. 8, 1948, wire-weight gage at present site and datum.

Average discharge.--28 years, 9,048 cfs.

Extremes.--Maximum discharge during year, 49,300 cfs Apr. 27 (gage height, 15.57 ft); minimum, 430 cfs Sept. 29, 30.

1924-52: Maximum discharge, 85,300 cfs Apr. 22, 1945; maximum gage height, 17.9 ft May 24, 25, 1935, present site and datum; minimum discharge observed, 338 cfs Sept. 25-27, Oct. 2, 3, 22-24, 1939.

Maximum stage known since at least 1835, about 22.2 ft in May or June 1884 (adjusted to present site and datum on basis of slope of flood of June 8, 9, 1950), from information by local resident.

Remarks.--Records good. No large diversion above station. Record of chemial analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,340	695	960	4,490	8,490	13,800	6,020	29,500	13,800	1,970	2,280	590
2	1,820	*712	980	4,090	13,200	13,000	5,560	*24,200	14,200	1,970	2,440	572
3	1,500	765	980	3,730	17,700	12,500	5,160	21,000	14,800	1,970	2,340	555
4	1,340	1,020	1,000	3,400	20,400	11,500	4,930	19,200	14,800	1,870	2,070	538
5	1,180	1,100	1,060	3,090	*21,000	10,400	4,930	18,200	14,200	1,770	1,870	*520
6	1,100	1,020	1,140	2,810	21,800	9,300	5,860	16,200	13,200	1,720	1,680	a515
7	1,020	960	1,380	2,620	21,000	8,700	7,020	15,000	12,000	1,590	1,500	a509
8	960	922	1,680	2,500	18,600	8,700	7,540	14,000	10,700	1,500	*1,420	a504
9	905	*1,000	2,120	2,390	15,600	8,400	7,020	13,200	10,000	1,420	1,420	a498
10	852	1,100	2,620	2,220	12,800	8,100	6,200	12,500	9,300	1,420	1,380	a493
11	835	1,060	3,820	2,170	9,650	7,800	5,700	11,500	9,000	*1,380	1,300	a487
12	835	1,020	4,180	2,120	7,540	7,280	6,020	11,500	8,700	1,340	1,260	a482
13	818	1,020	3,820	2,170	5,860	7,280	8,400	11,500	8,700	1,340	1,220	a476
14	800	1,060	3,730	2,170	5,040	7,800	9,650	11,500	8,700	1,300	1,260	a471
15	782	1,100	*4,600	*2,170	5,860	8,700	11,500	12,000	8,700	1,260	1,260	a465
16	782	1,180	5,280	2,220	6,380	9,650	13,500	12,000	8,700	1,380	1,140	460
17	765	1,220	5,700	2,280	7,800	10,700	14,800	12,500	8,700	1,920	1,060	460
18	765	1,220	5,420	2,340	9,000	11,500	15,600	12,500	8,700	3,640	980	460
19	748	1,140	4,380	2,390	10,000	*12,500	16,200	14,000	9,000	6,930	905	460
20	748	1,100	3,910	2,390	10,700	12,800	16,200	15,600	9,000	9,650	870	475
21	730	1,060	3,730	2,340	11,500	13,200	16,200	19,700	8,700	11,500	852	490
22	730	1,020	3,400	2,220	12,500	14,000	15,900	21,800	8,100	11,500	800	475
23	730	1,000	3,090	2,120	13,000	14,800	20,400	19,200	6,580	9,000	765	460
24	712	980	2,810	2,020	13,500	14,800	28,600	16,200	4,710	5,930	748	460
25	712	980	2,620	1,970	14,000	14,000	36,700	14,200	3,480	3,820	730	460
26	695	960	2,740	1,920	14,500	12,500	47,500	14,500	2,880	2,810	712	445
27	695	940	2,950	1,870	14,800	11,100	47,500	15,300	2,560	2,440	695	445
28	712	905	3,090	2,120	14,500	9,300	43,900	16,600	2,340	2,340	678	445
29	712	905	3,480	2,740	14,200	8,400	38,500	16,600	2,120	2,560	625	430
30	695	922	4,380	4,580	-	7,020	34,000	15,300	2,020	2,390	608	430
31	678	-	4,820	6,580	-	6,380	-	14,000	-	2,170	590	-
Total	28,696	30,086	95,870	84,240	370,920	325,910	507,010	491,000	258,390	103,800	37,458	14,530
Mean	926	1,003	3,093	2,717	12,790	10,510	16,900	15,840	8,613	3,348	1,208	484
Cfsm	0.098	0.106	0.328	0.288	1.35	1.11	1.79	1.68	0.912	0.355	0.128	0.051
In.	0.11	0.12	0.38	0.33	1.46	1.28	2.00	1.93	1.02	0.41	0.15	0.06
Ac-ft	56,920	59,670	190,200	167,100	735,700	646,400	‡1,006	973,900	512,500	205,900	74,300	28,820

Calendar year 1951: Max 26,800 Min 415 Mean 4,349 Cfsm 0.461 In. 6.24 Ac-ft 3,148,000
Water year 1951-52: Max 47,500 Min 430 Mean 6,415 Cfsm 0.679 In. 9.25 Ac-ft 4,657,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge estimated on basis of recorded range in stage.

Cow Bayou near Mauriceville, Tex.

Location.--Lat 30°11'05", long. 93°54'40", near center of span at downstream side of bridge on State Highway 235, half a mile upstream from Kansas City Southern Railway bridge, and 3 miles southwest of Mauriceville, Orange County.

Drainage area.--127 sq mi.

Records available.--March to September 1952.

Gage.--Wire-weight gage read twice daily. Datum of gage is 4.7 ft above mean sea level (State Highway Department bridge plans).

Extremes.--Maximum discharge during period, 3,380 cfs Apr. 24 (gage height, 15.16 ft, from graph based on gage readings); no flow Aug. 15-18, Sept. 11-13, 16, 17, 21-29.

Remarks.--Records good. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Rating tables, Mar. 11 to Sept. 30, 1952 (gage height, in feet, and discharge, in cubic feet per second)

Mar. 10 to May 3				May 4 to Sept. 30			
2.2	0.8	4.0	63	1.7	0	2.3	6.0
2.3	1.6	4.5	106	1.8	.1	2.5	11
2.4	3.0	5.0	165	1.9	.2	2.7	16
2.5	5.5	6.0	295	2.0	.7	3.0	25
2.6	8.6	8.0	564	2.1	2.0	3.5	42
2.8	15	11.0	1,010	2.2	3.8	4.0	63
3.0	22	13.0	1,520				
3.5	41	15.0	3,100				

Note.--Same as preceding table above 4.0 ft.

Discharge, in cubic feet per second, March to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					-	-	53	165	58	0.2	3.8	0.1
2					-	-	29	85	37	.2	2.0	.1
3					†1,770	-	17	*60	24	.3	1.0	.1
4					†1,940	-	26	38	*16	.2	.6	.1
5					†1,560	-	17	36	10	.2	.3	**.1
6					†1,180	-	10	38	6.7	.2	.2	.1
7					-	-	8.3	33	4.2	.3	.2	.1
8					†446	-	5.5	24	3.3	.2	**.1	.1
9					-	-	5.5	16	2.4	.2	.1	.1
10					-	4.5	85	10	2.0	.2	.1	.1
11					-	*4.8	76	7.9	1.5	**.2	.1	0
12					-	4.5	322	6.5	1.2	.2	*.1	0
13					-	3.2	673	4.7	.7	.2	.1	0
14					-	2.6	618	4.0	.6	.2	.1	.1
15					-	3.0	523	3.1	.6	.2	0	.1
16					-	2.0	429	2.7	.4	109	0	0
17					-	1.4	302	2.4	.4	673	0	0
18					-	16	184	2.0	.4	564	0	.1
19					†12	13	90	99	.4	402	.1	.1
20					-	7.4	49	191	.4	276	.1	.1
21					-	5.5	34	217	.3	243	.1	0
22					-	4.0	45	348	.3	224	.1	0
23					-	2.9	1,360	388	.3	165	.1	0
24					-	2.7	*2,410	375	.3	71	.1	0
25					-	3.0	2,840	295	.2	33	.1	0
26					-	2.9	2,150	236	.2	18	.1	0
27					-	2.6	1,560	230	.2	12	.1	0
28					-	1.9	1,080	321	.2	11	.1	0
29					-	1.3	591	288	.2	7.9	.1	0
30					-	1.1	334	198	.2	7.0	.1	.1
31					-	12	-	122	-	5.3	.1	-
Total					-	-	15,926.3	3,846.3	172.6	2,824.4	10.1	1.6
Mean					-	-	531	124	5.75	91.1	0.33	0.05
Cfsm					-	-	4.18	0.976	0.045	0.717	0.0026	0.00039
In.					-	-	4.66	1.13	0.05	0.83	0.003	0.0005
Ac-ft					-	-	31,590	7,630	342	5,600	20	3.2

Calendar year	: Max		Min		Mean	Cfsm	In.	Ac-ft
Water year	: Max	-	Min	-	Mean	- Cfsm	In.	Ac-ft

* Discharge measurement made on this day.
† Result of discharge measurement.
** Field estimate made on this day.

Neches River near Neches, Tex.

Location.--Lat 31°54', long. 95°26', near left bank on downstream side of pier of bridge on U. S. Highway 79, half a mile donwstream from International-Great Northern Railroad bridge, 1 mile downstream from Walnut Creek, 4.4 miles northeast of Neches, Anderson County, and at mile 333.

Drainage area.--1,129 sq mi.

Records available.--February 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 263.93 ft above mean sea level, datum of 1929. Prior to Oct. 27, 1945, wire-weight gage at same site and datum.

Average discharge.--13 years, 858 cfs.

Extremes.--Maximum discharge during year, 6,700 cfs Apr. 27 (gage height, 15.88 ft); minimum, not determined.

1939-52: Maximum discharge, 45,500 cfs Apr. 2, 1945 (gage height, 22.07 ft); no flow Oct. 3-5, 1939.

Flood of May 1908 reached a stage of 24.3 ft, from information by local resident. Flood of May 1884 was probably higher.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No large diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.3	3.3	8.0	380
1.6	7.2	9.0	485
2.0	14	10.0	615
2.5	26	11.0	785
3.0	43	12.0	1,060
3.5	63	13.0	1,620
4.0	87	14.0	2,780
5.0	146	15.0	4,400
6.0	215	16.0	7,200
7.0	295		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46	63	178	215	463	935	452	3,000	1,910	39	a21	5.0
2	46	74	178	207	452	881	463	2,300	1,660	36	a19	4.8
3	50	79	192	207	485	881	441	1,800	1,400	35	a18	4.5
4	50	79	255	223	533	905	463	1,400	1,200	35	a16	4.3
5	45	76	279	239	545	905	441	1,140	1,020	a37	a15	4.0
6	38	112	279	255	509	905	410	935	833	a36	a14	3.9
7	33	178	263	263	463	*905	380	747	660	a34	a14	3.7
8	28	162	255	271	441	857	362	559	497	32	a13	3.7
9	25	133	255	287	420	785	344	430	390	30	a13	
10	23	106	255	303	400	809	410	327	319	a29	a12	
11	22	97	247	303	371	965	485	271	279	a28	a12	
12	20	103	223	295	371	1,020	656	239	247	27	a11	
13	19	103	199	271	463	1,140	1,020	207	223	35	*11	a3.7
14	18	100	185	255	601	1,240	1,200	185	192	26	10	
15	17	89	185	239	766	1,240	1,340	*165	172	23	10	
16	17	79	185	231	905	1,200	*1,340	152	149	24	9.9	
17	*17	74	192	223	995	1,100	1,300	139	133	32	9.6	
18	17	67	192	215	965	1,060	1,340	158	115	48	9.2	*4.5
19	16	65	192	207	935	1,020	1,490	263	*100	54	8.9	4.6
20	16	*65	*192	199	965	935	1,660	303	89	67	a8.6	4.8
21	16	65	199	215	1,140	833	1,710	279	79	67	a8.2	5.8
22	16	65	192	287	1,200	728	1,620	255	69	61	a8.1	6.6
23	17	65	185	*311	1,200	645	1,660	279	63	56	a7.5	6.9
24	21	67	178	279	1,100	587	1,710	779	56	52	a7.1	10
25	26	74	178	271	965	533	1,800	1,060	51	48	a6.8	13
26	25	81	192	271	965	485	2,790	1,100	47	43	a6.2	13
27	25	121	199	311	965	452	6,060	1,140	43	37	5.8	12
28	31	165	199	441	935	430	6,060	1,100	39	32	5.5	11
29	42	172	199	559	935	410	4,800	1,220	a39	28	5.4	9.7
30	49	178	199	630	-	400	3,800	1,460	42	25	5.3	8.7
31	54	-	207	573	-	410	-	1,800	-	a23	5.2	-
Total	885	2,957	6,508	9,056	21,453	25,601	48,007	25,192	12,116	1,179	326.3	177.8
Mean	28.5	98.6	210	292	740	826	1,600	813	404	38.0	10.5	5.93
Cfsm	0.025	0.087	0.186	0.259	0.655	0.732	1.42	0.720	0.358	0.034	0.0093	0.0053
In.	0.03	0.10	0.21	0.30	0.71	0.84	1.58	0.83	0.40	0.04	0.01	0.006
Ac-ft	1,760	5,870	12,910	17,960	42,550	50,780	95,220	49,970	24,030	2,340	647	353

Calendar year 1951: Max 1,620 Min 6.2 Mean 267 Cfsm 0.236 In. 3.20 Ac-ft 193,400
Water year 1951-52: Max 6,060 Min - Mean 419 Cfsm 0.371 In. 5.06 Ac-ft 304,400

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of rate of change in stage and weather records.

Neches River near Alto, Tex.

Location.--Lat 31°34', long. 95°10', near left bank on downstream side of pier of bridge on State Highway 21, 600 ft downstream from Bowles Creek, 7½ miles southwest of Alto, Cherokee County, and at mile 274.

Drainage area.--1,903 sq mi.

Records available.--January 1944 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 198.29 ft above mean sea level, datum of 1929, supplementary adjustment of 1937.

Average discharge.--8 years, 1,405 cfs.

Extremes.--Maximum discharge during year, 5,280 cfs May 4 (gage height, 17.44 ft); minimum, 5.5 cfs Sept. 27-30.
1944-52: Maximum discharge, 42,800 cfs Apr. 4, 1945 (gage height, 26.85 ft); minimum, that of Sept. 27-30, 1952.
Maximum stage known since at least 1861, 28.2 ft in May 1884, from information by local residents.

Remarks.--Records good. No large diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 28 to June 12)

1.2	5.5	8.0	605
1.4	13	10.0	880
1.6	23	12.0	1,260
2.0	43	14.0	1,840
2.5	73	16.0	2,920
3.0	109	17.0	4,280
4.0	193	18.0	6,800
6.0	385		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	94	66	211	315	579	1,700	852	2,920	1,770	109	55	12
2	82	74	224	325	740	1,600	810	3,930	1,700	100	51	11
3	76	82	265	355	928	1,600	768	5,180	1,700	98	48	9.4
4	73	86	425	365	978	1,660	796	5,180	1,740	92	45	8.3
5	69	104	465	375	852	1,660	866	4,700	1,770	86	40	7.6
6	68	238	425	365	768	1,540	880	3,930	1,800	81	37	6.9
7	68	202	375	355	754	1,430	880	3,230	1,770	76	34	6.6
8	66	220	365	355	726	*1,360	866	2,750	1,740	74	32	6.2
9	65	202	365	365	698	1,310	810	2,400	1,600	71	32	6.2
10	56	193	355	365	657	1,380	880	2,060	1,410	70	30	6.2
11	51	202	345	365	618	1,740	1,070	1,660	1,130	69	29	6.2
12	46	193	335	375	754	1,800	1,410	1,260	852	66	*28	6.2
13	42	166	335	385	978	1,840	2,150	880	670	63	26	5.8
14	40	141	335	395	1,050	1,740	2,400	657	542	59	24	5.8
15	38	133	325	395	896	1,630	*2,400	530	465	*56	22	5.8
16	36	125	305	385	810	1,570	2,200	*455	405	65	21	6.6
17	34	121	285	375	810	1,540	2,060	405	365	100	19	7.2
18	*33	117	265	365	838	1,540	1,980	395	*325	141	18	9.8
19	32	*113	256	355	912	1,600	1,940	496	285	141	16	*9.0
20	30	109	*275	345	1,410	1,570	1,910	554	256	145	16	8.6
21	30	101	325	335	1,630	1,540	2,060	530	229	149	16	11
22	28	100	325	355	1,600	1,540	2,200	507	206	129	16	9.8
23	28	100	325	355	1,540	1,600	2,920	518	184	117	14	8.6
24	28	101	305	*355	1,480	1,630	3,770	1,250	166	113	14	8.0
25	28	105	315	365	1,510	1,540	3,930	2,050	153	105	14	6.9
26	30	113	530	385	1,770	1,410	3,480	2,240	141	95	14	6.2
27	34	141	475	475	1,940	1,240	3,120	1,980	129	88	16	6.2
28	40	170	395	605	1,910	1,110	2,830	1,880	117	80	16	5.5
29	47	202	345	670	1,800	1,030	2,670	1,880	117	72	15	5.5
30	54	202	325	579	-	960	2,600	1,880	113	66	14	7.2
31	59	-	315	542	-	896	-	1,800	-	60	13	-
Total	1,505	4,222	10,516	12,301	31,936	46,306	57,508	60,087	23,850	2,836	785	228.3
Mean	48.5	141	339	397	1,101	1,494	1,917	1,938	975	91.5	25.3	7.54
Cfsm	0.025	0.074	0.178	0.209	0.579	0.785	1.01	1.02	0.418	0.048	0.013	0.0040
In.	0.03	0.08	0.21	0.24	0.62	0.90	1.12	1.17	0.47	0.06	0.02	0.004
Ac-ft	2,990	8,370	20,860	24,400	63,340	91,850	114,100	119,200	47,310	5,630	1,560	449

Calendar year 1951: Max 1,570 Min 7.2 Mean 387 Cfsm 0.203 In. 2.76 Ac-ft 280,000
Water year 1951-52: Max 5,180 Min 5.5 Mean 689 Cfsm 0.362 In. 4.92 Ac-ft 500,100

* Discharge measurement made on this day.

Neches River near Diboll, Tex.

Location.--Lat 31°08', long. 94°48', near center of main span on upstream side of bridge on U. S. Highway 59, 630 ft downstream from Texas & New Orleans Railroad bridge, 2.9 miles downstream from Alabama Creek, 3.8 miles south of Diboll, Angelina County, and at mile 204.

Drainage area.--2,670 sq mi.

Records available.--November 1923 to August 1925, March 1939 to September 1952.

Gage.--Wire-weight gage read twice daily. Datum of gage is 134.46 ft above mean sea level, datum of 1929. Prior to July 10, 1925, chain gage at site 630 ft upstream at same datum. July 10, 1925, to Aug. 31, 1925, chain gage at site 500 ft upstream at same datum.

Average discharge.--14 years (1924-25, 1939-52), 1,949 cfs.

Extremes.--Maximum discharge during year, 6,040 cfs Apr. 24 (gage height, 13.67 ft); minimum, 6.7 cfs Sept. 16, 17.

1923-25, 1939-52: Maximum discharge, 49,900 cfs May 4, 1944 (gage height, 18.70 ft); no flow Aug. 15-22, 1925.

Maximum stage known, about 21.0 ft, present site, in May 1884, from information by local residents.

Remarks.--Records fair. No large diversion above station.

Correction.--Corrected figures of discharge in acre-feet, superseding those published in Water-Supply Papers 1178 and 1212, are given herewith.

January 1950	244,500
Water year 1949-50	1,700,000
Calendar year 1950	1,504,000

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.9	4.2	9.0	1,330
1.1	10	10.0	1,650
1.3	20	11.0	2,165
2.0	76	12.0	3,195
3.0	176	13.0	4,500
4.0	301	14.0	7,000
6.0	630		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	160	39	170	468	940	2,250	1,580	3,810	2,020	148	103	15
2	160	50	192	418	940	2,340	1,480	3,680	1,960	139	94	15
3	148	52	223	378	918	2,340	1,420	3,680	1,960	134	86	14
4	131	58	249	356	940	2,340	1,420	3,550	1,900	137	79	14
5	109	62	262	363	964	2,340	1,330	3,430	1,900	143	69	13
6	94	84	314	402	964	2,250	1,250	3,200	1,860	130	62	13
7	85	*93	386	418	940	2,250	1,160	3,200	1,810	117	57	12
8	76	103	450	418	940	2,160	1,190	3,310	1,860	114	53	11
9	71	143	468	418	918	2,160	1,010	3,310	1,860	127	49	9.8
10	68	192	468	402	940	2,420	1,010	3,550	1,810	119	45	8.8
11	66	210	468	394	896	3,080	1,040	3,810	1,770	112	43	8.0
12	63	210	*434	386	896	3,430	1,250	3,810	1,730	107	48	8.0
13	62	198	418	388	896	3,430	1,650	3,680	1,690	101	49	7.4
14	58	198	386	386	918	3,200	1,720	3,430	1,650	98	53	7.4
15	55	198	378	386	1,010	2,850	1,960	3,200	1,580	96	44	7.0
16	50	187	370	402	1,060	2,620	1,960	2,850	1,420	94	41	6.7
17	45	170	363	402	1,110	*2,340	1,960	2,520	1,190	98	40	6.7
18	42	160	370	402	1,140	2,250	1,960	2,160	852	102	37	7.4
19	39	148	356	394	1,140	2,160	1,960	1,960	630	117	32	8.0
20	37	143	335	394	1,190	2,020	2,020	1,810	486	133	30	7.7
21	34	133	321	386	1,220	1,960	*2,160	1,650	418	154	27	8.0
22	34	129	308	378	1,330	1,960	2,250	1,390	349	182	24	8.0
23	32	127	301	370	1,520	1,900	4,120	*1,110	301	187	22	8.4
24	31	125	314	*363	1,580	1,860	5,730	1,890	275	187	20	*8.8
25	32	123	342	370	1,650	1,810	5,600	3,040	249	170	20	8.4
26	32	128	378	378	1,770	1,770	5,220	4,220	*230	160	21	8.4
27	30	132	418	402	1,910	1,720	5,100	4,360	198	148	20	7.7
28	31	135	522	522	2,160	1,720	4,670	3,680	182	135	18	7.0
29	32	137	612	770	2,250	1,690	4,360	3,080	170	*129	17	7.0
30	31	148	594	874	-	1,650	4,080	2,420	154	119	17	7.0
31	32	-	558	918	-	1,650	-	2,100	-	113	*16	-
Total	1,970	4,015	11,728	13,704	35,050	69,920	73,620	92,890	34,464	4,050	1,336	278.6
Mean	63.5	134	378	442	1,209	2,255	2,454	2,996	1,149	131	43.1	9.29
Cfsm	0.024	0.050	0.142	0.166	0.453	0.844	0.919	1.12	0.430	0.049	0.016	0.0035
In.	0.03	0.06	0.16	0.19	0.49	0.97	1.03	1.29	0.48	0.06	0.02	0.004
Ac-ft	3,910	7,960	23,260	27,180	69,520	138,700	146,000	184,200	68,360	8,030	2,650	553

Calendar year 1951:	Max	2,960	Min	14	Mean	447	Cfsm	0.167	In.	2.28	Ac-ft	324,000
Water year 1951-52:	Max	5,730	Min	6.7	Mean	937	Cfsm	0.351	In.	4.78	Ac-ft	680,300

* Discharge measurement made on this day.

Neches River near Rockland, Tex.

Location.--Lat 31°01'45", long. 94°23'50", on left bank 2,100 ft upstream from Texas & New Orleans Railroad bridge, 2,200 ft downstream from bridge on U. S. Highway 69, 1 mile north of Rockland, Tyler County, 3.6 miles downstream from Billams Creek, and at mile 158.

Drainage area.--3,539 sq mi.

Records available.--July 1903 to September 1952. (July 1903 to September 1923, monthly records only, in Water-Supply Paper 850.) Gage-height records collected in this vicinity since 1903 are contained in reports of United States Weather Bureau.

Gage.--Staff gage read twice daily. Datum of gage is 91.41 ft above mean sea level, datum of 1929. Prior to July 1, 1933, staff gages at various sites in this vicinity at same datum.

Average discharge.--46 years (1903-10, 1913-52), 2,482 cfs.

Extremes.--Maximum discharge during year, 8,120 cfs May 27 (gage height, 13.78 ft); minimum observed, 9.5 cfs Sept. 27-30.
1903-52: Maximum discharge, 49,800 cfs May 6, 1944 (gage height, 31.84 ft); minimum observed during period of daily records, 3.0 cfs Oct. 15, 1931.
Maximum stage known, 34.9 ft in May 1884, from information by local resident.

Remarks.--Records good. No large diversion above station.

Revisions (water years).--W 878: 1926-27.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 24 to June 1)

-1.1	7.0	1.0	376
-1.0	12	2.0	765
-.8	28	4.0	1,800
-.5	60	10.0	5,100
0	142	15.0	8,300

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	188	56	137	568	1,180	2,130	1,740	5,820	4,500	206	131	24
2	178	49	146	528	1,960	2,130	1,690	6,190	3,940	190	122	21
3	178	45	166	490	1,860	2,180	1,690	6,120	3,340	178	111	18
4	182	44	204	422	1,520	2,400	1,910	5,220	2,680	170	106	18
5	176	55	326	390	1,300	2,570	2,020	4,550	2,240	168	96	18
6	160	*95	282	376	1,180	2,460	2,020	4,110	2,130	168	88	17
7	137	93	290	365	1,080	2,400	1,910	3,720	1,960	164	84	17
8	117	100	365	399	1,020	2,300	1,740	3,450	1,960	158	80	17
9	101	106	471	415	1,000	2,240	1,470	3,230	1,960	146	74	17
10	93	108	610	422	976	2,350	1,580	3,120	1,910	138	70	17
11	85	137	490	412	976	2,740	1,360	3,010	1,910	128	64	17
12	79	186	*454	396	953	2,960	2,740	3,010	1,860	122	59	17
13	77	209	454	388	953	3,010	4,280	3,010	1,800	111	55	17
14	77	211	454	388	1,080	3,120	4,330	3,060	1,740	110	53	16
15	74	202	454	388	1,020	3,120	4,110	3,180	1,690	106	49	13
16	71	194	438	388	976	3,180	3,560	3,230	1,640	108	49	13
17	67	188	412	390	1,000	3,180	3,120	3,230	1,580	152	49	14
18	61	184	390	399	1,020	*4,000	2,740	3,340	1,470	170	49	19
19	58	176	385	405	1,080	4,000	2,520	4,220	1,300	138	44	19
20	53	160	373	412	1,150	3,890	2,350	4,160	953	126	41	18
21	52	152	365	412	1,280	3,500	2,240	3,890	720	126	39	17
22	48	144	354	408	1,470	3,010	*2,180	3,450	528	137	37	16
23	50	142	321	399	1,740	2,570	3,720	3,010	438	150	34	13
24	49	137	321	388	1,860	2,400	4,720	6,710	373	174	31	12
25	48	135	329	376	1,910	2,180	5,580	7,490	*337	184	29	*11
26	46	135	351	*376	2,180	2,080	6,580	7,750	298	188	27	10
27	44	137	359	422	2,350	1,960	6,900	*8,020	265	190	*25	9.5
28	42	138	370	788	2,350	1,910	6,840	7,360	246	168	24	9.5
29	41	135	402	1,050	2,240	1,860	6,580	6,260	231	*152	24	9.5
30	41	135	490	906	-	1,800	6,190	5,280	213	142	24	9.5
31	41	-	547	930	-	1,740	-	4,880	-	137	24	-
Total	2,714	3,988	11,510	14,796	40,664	81,370	100,410	143,080	46,212	4,705	1,792	464.0
Mean	87.5	133	371	477	1,402	2,625	3,347	4,615	1,540	152	57.8	15.5
Cfsm	0.025	0.038	0.105	0.135	0.396	0.742	0.946	1.30	0.435	0.043	0.016	0.0044
In.	0.03	0.04	0.12	0.16	0.43	0.86	1.06	1.50	0.49	0.05	0.02	0.005
Ac-ft	5,380	7,910	22,830	29,350	80,660	161,400	199,200	283,800	91,660	9,330	3,550	920

Calendar year 1951: Max 4,380 Min 13 Mean 536 Cfsm 0.151 In. 2.05 Ac-ft 388,100
Water year 1951-52: Max 8,020 Min 9.5 Mean 1,234 Cfsm 0.349 In. 4.76 Ac-ft 896,000

* Discharge measurement made on this day.

Lake Tyler near Whitehouse, Tex.

Location.--Lat 32°14'30", long. 95°10'30", at intake tower of pump house, 2.0 miles north of Whitehouse Dam on Prairie Creek, 3.2 miles northeast of Whitehouse, Smith County, and 4.3 miles upstream from Mud Creek.

Drainage area.--69 sq mi.

Records available.--April 1949 to September 1952.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (city of Tyler bench-mark). Prior to May 3, 1949, staff gage at dam at same datum. May 3, 1949, to July 10, 1951, staff gage at pump house 660 ft shoreward at same datum.

Extremes.--Maximum contents during year, 44,840 acre-ft Feb. 12 (elevation, 376.1 ft); minimum, 36,920 acre-ft Sept. 30 (elevation, 372.6 ft).
1949-52: Maximum contents, that of Feb. 12, 1952; minimum since first appreciable storage, 12,580 acre-ft Sept. 9-16, 1949 (elevation, 58.4 ft).

Remarks.--Lake is formed by rolled earth-fill dam, 4,708 ft long. Spillway is concrete flume, 200 ft wide, located about 800 ft to left of dam. Storage began Jan. 8, 1949, and dam completed May 13, 1949. Total capacity, 43,400 acre-ft (elevation, 375.5 ft, top of spillway). Usable capacity, 39,000 acre-ft between elevations 375.5 and 350.0 ft (bottom of lowest sluice gates). Dead storage, 4,400 acre-ft. Water used for municipal supply for city of Tyler.

Monthly elevation and contents, water year October 1951 to September 1952

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	373.7	39,340	-
Oct. 31	373.6	39,120	-220
Nov. 30	373.8	39,560	+440
Dec. 31	374.1	40,220	+660
Calendar year 1951	-	38,240	+1,980
Jan. 31	374.8	41,760	+1,540
Feb. 29	375.5	43,400	+1,640
Mar. 31	375.5	43,400	0
Apr. 30	375.5	43,400	0
May 31	375.5	43,400	0
June 30	(a)	41,980	-1,420
July 31	374.4	40,880	-1,100
Aug. 31	373.5	38,900	-1,980
Sept.30	g372.6	36,920	-1,980
Water year 1951-52	-	-	-2,420

† Elevations at 12 p.m.
a No gage-height record; contents estimated.
g From graph based on once-daily gage readings.

Mud Creek near Jacksonville, Tex.

Location.--Lat 31°58'40", long. 95°09'40", on right bank on downstream side of pile bent of bridge on U. S. Highway 79, 0.6 mile downstream from Caney Creek, 3.9 miles downstream from another Caney Creek, 4 miles downstream from International-Great Northern Railroad bridge, and 6.9 miles east of Jacksonville, Cherokee County.

Drainage area.--382 sq mi.

Records available.--May 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 271.64 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 317 cfs.

Extremes.--Maximum discharge during year, 3,850 cfs Feb. 15 (gage height, 8.86 ft); no flow Aug. 19 to Sept. 30.

1939-52: Maximum discharge, 23,400 cfs May 3, 1944 (gage height, 14.09 ft); no flow at times.

Maximum stage known occurred in May 1884; maximum stage known since May 1884, about 20 ft in May 1908 and December 1913, from information by local residents.

Remarks.--Records good. Flow slightly regulated by Lake Tyler on Prairie Creek (see preceding page). No large diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 25 to Dec. 3)

0.95	0	2.1	20
1.0	.2	3.0	49
1.1	.8	5.0	183
1.2	1.2	6.0	283
1.3	2.2	7.0	670
1.4	3.6	8.0	2,190
1.7	9.7	9.0	4,160

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	15	36	55	630	720	212	208	208	18	1.8	
2	13	14	30	51	590	630	232	172	148	18	1.7	
3	8.5	11	48	51	460	555	237	155	106	17	1.7	
4	5.9	9.5	124	62	344	460	227	138	84	16	1.5	
5	4.2	10	127	73	332	415	176	124	67	14	1.5	
6	3.4	21	130	80	312	438	158	106	61	12	2.3	
7	2.7	46	116	83	259	520	144	92	139	11	2.0	
8	2.2	47	96	71	176	*520	124	78	222	10	1.2	
9	2.0	41	74	62	134	438	113	68	283	9.0	1.0	
10	1.8	28	61	56	120	682	169	61	312	8.3	.8	
11	1.7	20	55	52	110	770	208	55	244	7.8	.7	
12	1.7	18	50	50	175	555	686	57	116	23	*.6	
13	1.6	17	46	48	276	590	1,450	53	76	9.5	.8	
14	1.6	17	44	47	1,340	770	1,610	46	57	6.7	1.0	
15	1.6	16	44	48	3,400	770	1,940	43	46	4.9	.9	
16	1.7	16	44	48	2,020	630	*1,450	*41	40	*4.2	.6	
17	1.6	15	48	49	1,290	460	975	39	36	8.7	.4	
18	*1.6	15	52	49	900	344	670	43	*34	16	.2	
19	1.5	14	48	48	770	290	490	86	31	21	0	(*)
20	1.5	*14	*47	47	975	265	415	120	29	25	0	
21	1.4	14	48	48	770	259	520	130	27	26	0	
22	1.6	14	49	49	86	770	283	490	102	25	21	0
23	1.7	14	49	*158	1,050	271	835	99	23	17	0	
24	1.9	16	49	141	1,050	227	835	232	21	13	0	
25	2.8	17	48	127	975	208	720	290	18	8.7	0	
26	5.5	19	49	102	975	176	770	304	16	5.7	0	
27	5.7	24	57	102	835	162	770	368	15	4.4	0	
28	5.7	36	73	204	770	162	590	438	14	3.7	0	
29	8.3	41	80	265	770	172	421	438	20	2.8	0	
30	8.3	42	69	374	-	180	282	314	21	2.4	0	
31	13	-	59	555	-	187	-	248	-	2.2	0	-
Total	133.7	641.5	1,950	3,292	22,578	13,109	17,919	4,748	2,539	367.0	20.7	0
Mean	4.31	21.4	62.9	106	779	423	597	153	84.6	11.8	0.67	0
Cfsm	0.011	0.056	0.165	0.278	2.04	1.11	1.56	0.401	0.221	0.031	0.0018	0
In.	0.01	0.06	0.19	0.32	2.20	1.28	1.74	0.46	0.25	0.04	0.002	0
Ac-ft	265	1,270	3,870	6,530	44,780	26,000	35,540	9,420	5,040	728	41	0

Calendar year 1951: Max 770 Min 0 Mean 82.4 Cfsm 0.216 In. 2.91 Ac-ft 59,660
Water year 1951-52: Max 3,400 Min 0 Mean 184 Cfsm 0.482 In. 6.55 Ac-ft 133,500

Peak discharge (base, 1,400 cfs).--Feb. 15 (5 a.m.) 3,850 cfs (8.86 ft); Apr. 15 (3 a.m.) 2,090 cfs (7.94 ft).

* Discharge measurement made on this day.

Angelina River near Lufkin, Tex.

Location.--Lat 31°27'40", long. 94°43'35", near right bank at downstream side of pile bent of bridge on U. S. Highway 59, 400 ft upstream from Procella Creek, half a mile downstream from Little Loco Bayou, 1.5 miles upstream from Texas & New Orleans Railroad bridge, and 8 miles north of Lufkin, Angelina County.

Drainage area.--1,575 sq mi.

Records available.--October 1923 to September 1934, July 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 164.72 ft above mean sea level, datum of 1929. Oct. 29, 1923, to Jan. 17, 1926, chain gage at Texas & New Orleans Railroad bridge 1.5 miles downstream at datum 1.39 ft lower; Jan. 18, 1926, to Sept. 30, 1934, chain gage at Lufkin-Nacogdoches highway bridge 1,400 ft upstream at present datum.

Average discharge.--24 years (1923-34, 1939-52), 1,339 cfs.

Extremes.--Maximum discharge during year, 4,270 cfs Apr. 24 (gage height, 11.34 ft); minimum, 3.4 cfs Sept. 14-16.
1923-34, 1939-52: Maximum discharge, 38,200 cfs Feb. 24, 1932; maximum gage height, 18.55 ft May 7, 1944; minimum discharge, 2.3 cfs Oct. 12, 1939.
Maximum stage known, about 26.5 ft in May 1884, from information by local residents.

Remarks.--Records good. No large diversion above station.

Revisions (water years).--W 718: 1924, 1926.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.2	3.4	5.0	254
.4	6.0	6.0	398
.7	11	7.0	650
1.0	19	8.0	1,010
1.5	35	9.0	1,550
2.0	55	10.0	2,340
3.0	104	11.0	3,640
4.0	171	12.0	6,100

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	113	33	119	336	755	3,060	1,110	2,490	1,080	80	90	6.8
2	110	33	132	307	660	2,920	990	2,490	1,040	72	84	6.5
3	95	36	160	287	950	2,990	912	2,540	990	68	53	6.2
4	84	40	182	287	1,040	3,060	878	2,540	950	70	37	5.7
5	77	45	226	307	1,110	2,990	825	2,390	912	80	33	5.3
6	70	54	264	321	1,110	2,920	808	2,120	842	80	31	4.9
7	61	*68	300	328	1,080	2,780	808	1,760	720	70	36	4.6
8	55	110	328	336	1,060	2,540	790	1,310	585	59	32	4.4
9	50	107	369	352	1,060	2,340	808	950	486	53	27	4.1
10	44	92	398	344	1,060	2,660	860	720	420	49	24	4.0
11	39	101	378	321	1,010	3,130	878	570	369	46	22	3.8
12	36	119	344	300	1,010	2,720	1,060	486	336	44	20	3.6
13	33	122	*328	287	1,060	2,490	1,340	431	328	41	22	3.5
14	30	119	328	281	1,080	2,300	1,460	369	328	39	20	3.5
15	29	116	328	275	1,080	2,120	1,550	336	344	38	18	3.5
16	27	110	314	270	1,060	1,990	1,580	300	360	59	16	3.6
17	25	107	287	259	1,040	*2,030	1,580	287	360	64	15	3.9
18	24	101	270	249	1,080	2,200	1,660	307	321	80	14	4.2
19	24	95	264	244	1,160	2,390	1,800	270	264	101	13	4.7
20	23	87	275	240	1,370	2,490	2,070	453	213	116	12	5.4
21	22	82	281	240	1,550	2,540	2,440	431	182	116	11	5.7
22	22	80	281	244	1,830	2,540	2,780	409	164	122	10	5.4
23	21	77	281	249	2,200	2,390	3,980	*469	142	116	9.9	5.0
24	21	77	275	*259	2,440	2,200	4,180	1,240	128	113	9.0	*5.0
25	23	77	287	264	2,600	1,990	3,980	1,400	116	104	8.4	5.0
26	22	82	369	270	2,920	1,830	3,800	1,340	101	90	8.1	4.7
27	22	95	542	352	3,060	1,660	3,410	1,140	92	75	7.8	4.4
28	23	104	585	585	3,060	1,520	2,990	1,040	84	*66	*6.6	4.1
29	24	110	486	702	3,130	1,430	2,720	1,040	80	57	6.6	4.2
30	25	113	398	632	-	1,310	2,540	1,110	*80	52	6.6	4.9
31	28	-	360	668	-	1,240	-	1,080	-	66	*6.6	-
Total	1,302	2,592	9,739	10,396	43,825	72,770	56,587	33,818	12,417	2,286	709.6	140.6
Mean	42.0	86.4	314	335	1,511	2,347	1,886	1,091	414	73.7	22.9	4.69
Cfsm	0.027	0.055	0.199	0.213	0.959	1.49	1.20	0.693	0.263	0.047	0.015	0.0030
In.	0.03	0.06	0.23	0.25	1.03	1.72	1.34	0.80	0.29	0.05	0.02	0.003
Ac-ft	2,580	5,140	19,320	20,620	86,930	144,300	112,200	67,080	24,630	4,530	1,410	279

Calendar year 1951: Max 3,890 Min 4.7 Mean 398 Cfsm 0.253 In. 3.43 Ac-ft 288,300
Water year 1951-52: Max 4,180 Min 3.5 Mean 674 Cfsm 0.428 In. 5.82 Ac-ft 489,000

* Discharge measurement made on this day.

Attoyac Bayou near Chireno, Tex.

Location.--Lat 31°30'15", long. 94°18'15", on left bank just downstream from bridge on State Highway 21, 3 miles northeast of Chireno, Nacogdoches County, and 7 miles downstream from Arenoso Creek.

Drainage area.--502 sq mi.

Records available.--January 1924 to August 1925, July 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 169.95 ft above mean sea level, datum of 1929. Jan. 24, 1924, to Aug. 29, 1925, chain gage at same site and datum.

Average discharge.--13 years (1939-52), 528 cfs.

Extremes.--Maximum discharge during year, 1,680 cfs Apr. 26 (gage height, 15.63 ft); minimum, 8.7 cfs Sept. 10-13.

1924-25, 1939-52: Maximum discharge, 31,900 cfs Nov. 24, 1940 (gage height, 25.97 ft); minimum observed, 7.0 cfs Aug. 27, 1925.

Maximum stage known, 29.9 ft in June 1912 (result of local storm), from information by local residents.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No large diversion above station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a58	a38	78	252	428	482	204	a870	1,000	40	27	11
2	a49	a44	72	204	536	392	196	a756	906	37	47	12
3	a42	a53	78	180	581	348	204	a888	622	36	37	12
4	a37	a80	171	176	500	428	300	a782	292	34	29	12
5	a33	a90	212	180	446	446	292	a456	a196	37	a24	11
6	a30	a83	228	164	374	428	220	a244	a150	45	a22	9.7
7	a28	a76	176	154	276	410	212	a172	a126	37	21	9.5
8	a27	*72	188	150	212	340	204	a143	a111	32	26	9.5
9	a25	66	268	146	188	260	188	a126	a100	30	38	9.2
10	a24	61	383	136	172	351	160	a114	a92	32	29	9.0
11	a24	57	340	126	160	608	212	108	a85	32	26	8.7
12	a23	53	244	114	244	743	558	100	a80	32	a24	8.7
13	a22	48	*160	114	419	795	924	a92	a75	30	23	8.7
14	a22	44	117	114	446	*888	1,020	a82	a70	26	20	9.0
15	a22	43	126	114	491	1,000	1,060	a75	a66	24	17	9.2
16	a21	42	146	111	509	1,000	980	a70	*61	29	16	9.2
17	a21	38	136	111	455	906	960	a82	58	77	15	9.5
18	a21	37	126	111	324	769	*906	a129	53	146	14	11
19	a21	36	117	108	236	572	782	300	50	132	13	16
20	a21	36	114	108	308	410	446	410	47	114	12	19
21	a22	38	236	106	437	340	366	308	44	90	12	15
22	a22	39	348	132	536	446	403	228	41	*70	12	17
23	a22	42	276	126	590	455	1,140	238	40	56	12	*18
24	a23	44	252	*111	618	357	1,230	818	38	49	12	17
25	a24	48	212	111	638	284	1,520	980	36	41	17	15
26	a25	61	401	108	668	260	1,630	1,040	33	35	17	14
27	a26	92	688	246	658	228	1,570	a980	31	31	17	13
28	a27	108	840	581	678	220	1,420	a1,060	31	28	*15	13
29	a29	98	825	699	536	212	1,230	a1,300	41	25	13	12
30	a32	82	769	648	-	212	a1,040	1,300	47	24	12	11
31	a35	-	464	527	-	204	-	1,140	-	24	12	-
Total	858	1,749	8,791	6,268	12,664	14,794	21,557	15,391	4,622	1,475	631	358.9
Mean	27.7	58.3	284	202	437	477	719	496	154	47.6	20.4	12.0
Cfsm	0.055	0.116	0.566	0.402	0.871	0.950	1.43	0.988	0.307	0.095	0.041	0.024
In.	0.06	0.13	0.65	0.46	0.94	1.10	1.60	1.14	0.34	0.11	0.05	0.03
Ac-ft	1,700	3,470	17,440	12,430	25,120	29,340	42,760	30,530	9,170	2,930	1,250	712

Calendar year 1951: Max 1,830 Min 10 Mean 175 Cfsm 0.349 In. 4.73 Ac-ft 126,900
Water year 1951-52: Max 1,630 Min 8.7 Mean 244 Cfsm 0.486 In. 6.61 Ac-ft 176,900

Peak discharge (base, 1,900 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage and weather records.

Angelina River near Zavalla, Tex.

Location.--Lat 31°13', long. 94°18', near right bank on downstream side of pier of bridge on State Highway 147, just downstream from Harvey Bayou, 3 miles downstream from Attoyac Bayou, and 8½ miles northeast of Zavalla, Angelina County.

Drainage area.--2,803 sq mi.

Records available.--October 1951 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 104.48 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 6,450 cfs Apr. 28, 29; maximum gage height, 18.54 ft Apr. 28; minimum discharge, 31 cfs Sept. 15, 16, 17.

Remarks.--Records good. No large diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.9	27	4.0	525
1.1	40	6.0	1,040
1.5	75	9.0	2,000
2.0	143	12.0	3,150
2.5	221	15.0	4,520
3.0	310	19.0	6,800

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		*96	246	1,300	1,720	3,450	2,070	6,100	3,670	195	142	43
2		95	230	1,210	2,380	3,490	1,930	5,900	3,150	203	134	41
3		90	238	1,010	2,180	3,630	1,790	5,840	2,810	197	137	39
4		94	273	770	2,000	3,950	2,000	5,150	2,570	192	148	37
5		103	273	645	1,900	3,860	1,930	4,280	2,380	186	160	36
6		116	349	597	1,820	3,810	1,790	3,540	2,100	175	140	36
7		114	434	585	1,760	3,720	1,580	3,230	1,820	167	118	33
8		118	502	573	1,650	3,630	1,390	3,020	1,390	166	99	32
9		152	645	573	1,580	3,580	1,270	2,860	1,270	166	86	32
10		176	670	573	1,520	3,670	*1,270	2,650	1,120	166	83	33
11		183	720	573	1,460	4,330	1,240	2,380	984	161	86	32
12		187	*745	573	1,620	4,230	2,420	1,790	848	156	92	32
13		181	770	549	2,070	4,330	4,810	1,300	720	154	86	32
14		176	695	525	2,140	4,470	4,090	1,010	645	150	89	32
15		176	645	514	2,000	4,570	3,720	822	573	148	75	31
16	a80	175	561	502	1,900	4,570	3,360	695	537	149	70	*32
17		172	537	490	1,820	4,470	3,070	621	525	152	66	32
18		168	549	479	1,820	*4,620	2,900	655	514	155	62	39
19		164	525	468	1,790	4,810	2,810	1,900	514	207	59	35
20		161	502	456	1,900	4,570	2,770	1,790	502	300	55	35
21		160	479	456	2,070	4,330	2,810	1,520	468	310	54	34
22		158	525	445	2,040	4,040	2,810	1,300	412	291	52	34
23		155	621	445	2,350	3,810	4,810	1,220	349	273	50	37
24		152	695	456	2,490	3,670	5,450	4,430	310	246	50	39
25		150	670	456	2,530	3,540	5,500	5,450	*282	224	46	38
26		154	645	*445	2,940	3,320	5,900	5,200	255	208	46	39
27		156	822	549	3,230	*3,070	6,310	*4,900	233	192	47	39
28		164	1,240	1,210	3,280	2,860	6,450	4,660	213	179	45	37
29		192	1,300	1,460	3,360	2,650	6,450	4,570	203	164	46	36
30		230	1,240	1,520	-	2,460	6,310	4,280	197	152	46	36
31		-	1,270	1,520	-	2,240	-	3,990	-	*148	44	-
Total		2,480	4,568	19,616	21,927	61,320	117,750	101,010	97,053	31,364	5,932	2,513	1,063
Mean		80	152	633	707	2,114	3,798	3,367	3,131	1,045	191	81.1	35.4
Cfsm		0.029	0.054	0.226	0.252	0.754	1.36	1.20	1.12	0.373	0.068	0.029	0.013
In.		0.03	0.06	0.26	0.29	0.81	1.56	1.34	1.29	0.42	0.08	0.03	0.01
Ac-ft		4,920	9,060	38,910	43,490	121,600	233,600	200,400	192,500	62,210	11,770	4,980	2,110

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 6,450 Min 31 Mean 1,278 Cfsm 0.456 In. 6.18 Ac-ft 925,600

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for station near Lufkin.

Dam B Reservoir at Town Bluff, Tex.

Location.--Lat 30°47'47", long. 94°10'52", near right bank 560 ft upstream from outlet structure of Dam B on Neches River, about 0.4 mile north of Town Bluff, Tyler County, and at mile 114.
Drainage area.--7,407 sq mi.
Records available.--April 1951 to September 1952.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, Galveston-Houston supplementary adjustment.
Extremes.--Maximum contents during year, 105,837 acre-ft Mar. 18 (elevation, 83.81 ft); minimum, 348 acre-ft Sept. 21 (elevation, 57.61 ft).
1951-52: Maximum contents, that of Mar. 18, 1952; minimum since first appreciable storage, 12 acre-ft Sept. 1-2, 1951 (elevation, 51.57 ft).
Remarks.--Reservoir is formed by earth-fill dam with a concrete section having six 40x35 ft taintor gates. Total length of dam, 6,867 ft. There is a 6,100 ft uncontrolled emergency spillway on left bank with crest at elevation 85.0 ft. Sill of taintor gates at elevation 50.0 ft. Capacity of service spillway, 80,000 cfs with pool level at 85.0 ft. Total spillway capacity, 218,300 cfs at elevation 93.0 ft, maximum design level. Dam completed in April 1951 and storage begun Apr. 16, 1951. Water used for industrial, municipal, and irrigation supplies.
Data regarding dam are shown in the following table.

	Elevation (feet)	Capacity (acre-feet)
Maximum design level	93.0	306,400
Uncontrolled spillway	85.0	124,700
Normal operating level	83.0	94,200
Sill, 2 hydraulic slide gates	52.0	20
Sill, 6 taintor gates	50.0	0

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, at 8 a.m., water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,190	4,121	12,115	11,654	12,660	10,510	89,279	84,257	69,130	68,370	48,965	3,465
2	3,269	4,502	12,568	12,568	15,076	11,939	82,136	86,162	69,566	67,081	47,600	2,637
3	3,191	4,682	13,042	12,599	7,180	12,660	77,659	84,131	67,830	65,601	45,845	2,078
4	3,634	4,765	14,197	12,144	11,486	14,339	81,398	82,136	68,803	64,144	43,969	1,622
5	4,025	4,813	15,229	11,598	11,216	14,852	83,628	80,787	72,680	62,811	42,142	1,238
6	4,380	5,108	15,732	11,570	9,144	16,251	82,507	80,178	75,081	61,299	39,907	967
7	4,813	5,521	16,211	11,164	11,486	17,039	81,153	80,299	71,443	59,717	38,112	768
8	5,108	5,900	16,415	11,853	12,506	16,620	80,057	83,503	68,370	57,971	35,797	584
9	5,390	6,184	12,353	12,174	11,164	15,497	79,331	85,906	68,046	56,730	33,708	420
10	5,401	6,417	8,028	11,853	11,486	24,751	82,755	83,628	67,938	55,133	31,629	457
11	5,369	6,703	8,277	11,297	9,083	40,439	83,128	78,135	69,566	53,751	29,635	461
12	5,390	7,030	10,271	11,514	9,991	55,881	86,290	78,016	71,332	52,482	27,302	378
13	5,369	7,211	11,997	11,654	14,268	69,021	87,840	78,611	73,019	51,143	25,375	350
14	5,358	7,350	12,914	11,682	13,605	82,013	80,787	81,521	75,313	50,003	23,317	427
15	5,390	7,445	12,977	11,766	9,567	94,250	77,659	81,521	77,305	48,793	21,630	488
16	5,412	7,605	10,730	11,738	8,941	92,343	75,081	82,136	78,611	48,450	19,938	480
17	5,390	7,959	11,270	12,537	10,413	99,417	79,452	82,136	79,815	48,793	18,689	469
18	5,316	8,205	12,055	12,115	12,055	103,323	81,275	82,136	79,694	51,320	17,467	457
19	5,242	8,535	11,910	10,559	14,268	91,670	80,057	83,503	78,611	53,660	16,211	374
20	5,170	8,803	11,710	9,946	10,048	90,336	77,069	80,057	77,659	55,693	15,001	357
21	5,108	9,103	11,570	10,510	9,589	80,057	76,362	78,016	78,135	56,540	13,744	348
22	5,057	9,395	11,034	11,112	10,681	83,253	76,362	78,891	78,373	57,300	12,506	376
23	5,037	9,677	11,060	11,598	10,390	80,057	82,879	67,295	78,135	57,875	11,654	389
24	5,098	9,946	11,486	11,738	11,190	79,091	83,128	79,211	77,069	58,452	10,805	390
25	4,968	10,200	11,910	11,882	10,881	80,057	83,253	75,313	76,128	58,355	9,946	383
26	4,813	10,510	11,910	12,085	10,390	80,665	81,031	70,115	74,504	57,395	9,165	372
27	4,645	10,906	11,164	11,570	10,583	80,665	81,275	69,895	73,361	56,540	8,349	528
28	4,467	11,164	11,738	12,629	11,997	79,573	81,153	70,888	72,003	54,578	7,381	537
29	4,295	11,486	12,629	12,755	11,324	85,268	81,275	68,912	70,777	52,482	6,417	549
30	4,138	11,738	13,140	9,923	-	91,536	80,057	70,115	69,785	50,177	5,326	562
31	3,993	-	13,572	10,956	-	93,155	-	68,478	-	50,527	4,346	-

Monthly elevation and contents, water year October 1951 to September 1952

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	70.38	7,460	-
Oct. 31	67.28	3,993	-3,467
Nov. 30	72.39	11,738	+7,745
Dec. 31	72.98	13,572	+1,834
Calendar year 1951	-	-	-
Jan. 31	72.10	10,956	-2,616
Feb. 29	72.24	11,324	+368
Mar. 31	82.92	93,155	+81,831
Apr. 30	81.90	80,057	-13,098
May 31	80.89	68,478	-11,579
June 30	81.01	69,785	+1,307
July 31	79.05	50,527	-19,258
Aug. 31	67.71	4,346	-46,181
Sept.30	59.01	562	-3,784
Water year 1951-52	-	-	-6,898

† Elevation at 8 a.m.

Neches River at Town Bluff, Tex.

Location.--Lat 30°47'36", long. 94°10'28", on right bank about 2,000 ft downstream from Dam B, half a mile northeast of Town Bluff, Tyler County, about 8 miles downstream from Wolf Creek, and at mile 113.

Drainage area.--7,407 sq mi.

Records available.--March 1951 to September 1952.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, Galveston-Houston supplementary adjustment.

Extremes.--Maximum discharge during year, 21,400 cfs May 25 (gage height, 73.00 ft); minimum daily, 83 cfs Sept. 26.

1951-52: Maximum discharge, that of May 25, 1952; minimum daily, that of Sept. 26, 1952.

Maximum stage known, 86.8 ft in May 1884 (discharge, 120,000 cfs), from information by Corps of Engineers.

Remarks.--Records fair. Flow regulated by Dam B Reservoir (see preceding page) up to a reservoir stage of 85.0 ft. No large diversion above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 24, May 28 to Aug. 12)

Oct. 1 to May 23				May 24 to Sept. 30			
50.8	215	59.0	4,980	49.8	78	55.0	2,180
51.0	260	63.0	8,180	50.0	106	58.0	4,350
52.0	550	67.0	12,300	50.5	200	63.0	8,900
53.0	920	70.0	16,000	51.0	328	68.0	14,600
54.0	1,380	70.7	16,900	52.0	640	73.0	21,400
56.0	2,630			53.0	1,060		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,480	255	284	1,950	4,440	6,020	7,620	12,100	10,400	1,450	1,250	640
2	1,090	*260	282	1,710	9,040	5,620	6,900	13,400	*9,700	1,350	1,160	570
3	308	260	284	1,890	8,350	5,700	4,980	14,700	8,300	1,350	1,180	*505
4	301	255	294	1,770	5,380	6,180	5,060	14,100	5,460	1,300	1,160	460
5	296	248	390	1,380	4,820	6,660	5,460	12,200	4,110	1,300	1,200	*430
6	284	251	550	1,230	3,900	6,740	5,700	9,780	5,310	1,300	1,250	372
7	239	251	602	1,000	2,900	6,740	5,140	7,700	7,040	1,300	1,350	345
8	228	246	1,800	840	3,100	6,740	4,180	5,620	5,280	1,300	1,300	337
9	279	251	4,340	1,060	3,290	5,510	*3,460	6,580	4,270	*1,300	1,350	265
10	318	248	2,650	1,230	3,860	924	3,380	8,540	3,410	1,130	1,350	228
11	303	248	*1,070	1,060	2,980	339	3,700	8,450	2,500	975	1,350	216
12	294	306	725	980	1,570	817	6,730	5,620	2,500	930	1,110	216
13	284	390	860	980	2,260	1,670	14,400	*4,340	1,670	908	1,040	193
14	267	435	1,280	980	4,660	1,570	16,400	3,780	1,620	840	975	178
15	253	414	1,890	980	4,460	5,460	14,300	4,420	1,730	715	885	*178
16	267	277	1,530	820	4,220	6,650	11,100	4,260	1,790	640	775	174
17	284	279	940	900	2,420	3,910	7,620	4,740	2,040	605	695	178
18	282	279	1,060	1,380	1,980	12,400	7,380	5,860	2,710	605	695	202
19	274	284	1,180	1,380	3,220	15,200	7,380	9,380	2,570	490	675	191
20	265	284	1,180	960	4,970	14,000	7,060	9,880	1,710	415	675	180
21	262	277	1,180	708	*3,380	12,600	6,180	8,990	1,250	369	675	168
22	260	274	1,140	742	3,860	10,200	5,140	9,480	1,250	325	605	152
23	267	277	880	800	4,900	8,270	11,000	6,120	1,500	320	570	152
24	308	279	880	840	5,300	6,820	15,100	12,900	1,450	403	552	150
25	334	282	1,060	840	5,620	6,260	16,100	21,100	1,540	749	552	150
26	329	282	1,280	980	5,860	6,180	16,500	20,300	1,560	1,020	552	83
27	326	289	1,040	1,430	5,940	6,100	16,200	18,000	1,450	1,250	588	90
28	326	289	1,000	2,260	6,340	4,420	15,800	17,500	1,500	1,560	622	129
29	321	286	1,380	3,490	6,580	1,480	15,200	16,700	1,560	1,500	695	127
30	318	286	1,590	3,340	-	2,060	14,100	14,600	1,500	1,400	675	125
31	301	-	2,210	2,160	-	5,700	-	12,900	-	1,450	658	-
Total	10,948	8,542	36,731	42,070	129,600	188,940	279,270	324,040	98,680	30,549	28,169	7,384
Mean	353	285	1,185	1,357	4,469	6,095	9,309	10,450	3,289	985	909	246
Cfsm	0.048	0.038	0.160	0.183	0.603	0.823	1.26	1.41	0.444	0.133	0.123	0.033
In.	0.05	0.04	0.18	0.21	0.65	0.95	1.40	1.63	0.50	0.15	0.14	0.04
Ac-ft	21,720	16,940	72,850	83,440	257,100	374,800	553,900	642,700	195,700	60,590	44,870	14,650

Calendar year 1951: Max - Min - Mean - Cfsm - In. - Ac-ft -
Water year 1951-52: Max 21,100 Min 83 Mean 3,237 Cfsm 0.437 In. 5.94 Ac-ft 2,350,000

* Discharge measurement made on this day.

Note.--Discharge for June 20-22, June 27 to Sept. 2 and Sept. 9-30 computed from once-daily staff gage readings.

Neches River at Evadale, Tex.

Location.--Lat 30°21', long. 94°05', near left bank on downstream side of pier of bridge on U. S. Highway 96, 200 ft upstream from Gulf, Colorado & Santa Fe Railway bridge at Evadale, Jasper County, 600 ft downstream from Mill Creek, 15 miles upstream from Village Creek, and at mile 55.

Drainage area.--7,908 sq mi.

Records available.--July 1904 to December 1906, October 1923 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 8.25 ft above mean sea level, datum of 1929, Galveston-Houston supplementary adjustment of 1936. July 1, 1904, to Dec. 31, 1906, reference point on Gulf, Colorado & Santa Fe Railway bridge at datum 5.5 ft lower; Oct. 1, 1923, to July 12, 1934, staff gages at site about 70 ft downstream at same datum; July 13, 1934, to Dec. 7, 1948, staff gage at same site and datum.

Average discharge.--31 years (1904-6, 1923-52), 6,600 cfs.

Extremes.--Maximum discharge during year, 19,500 cfs May 29, 30; maximum gage height, 15.55 ft May 29; minimum discharge, 165 cfs Sept. 29, 30.
1904-6, 1923-52: Maximum discharge, 92,100 cfs May 11, 1944 (gage height, 23.58 ft, from floodmark); minimum observed, about 148 cfs Sept. 10, 1925.
Maximum stages known, 26.2 ft in May 1884 (discharge, about 175,000 cfs) and 24.5 ft in August 1915 (discharge, about 102,000 cfs), from rating curve extended above 72,000 cfs by logarithmic plotting. Stages by Gulf, Colorado & Santa Fe Railway Co.

Remarks.--Records good. No large diversion above station. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Revisions (water years).--W 718: 1929.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,740	402	355	2,000	4,600	7,160	3,800	15,700	17,500	1,690	1,600	765
2	1,740	390	355	2,440	6,540	7,440	5,650	14,900	15,700	1,640	1,800	735
3	1,620	335	365	2,270	8,580	7,160	6,900	13,800	*13,000	1,550	1,420	720
4	1,170	315	378	2,220	10,600	6,900	7,030	13,000	11,200	1,500	1,330	630
5	695	325	415	2,220	10,900	6,780	6,300	13,400	9,540	1,460	1,330	574
6	502	335	440	2,050	8,940	7,030	5,970	13,400	7,160	1,460	1,330	535
7	440	335	515	1,790	7,030	7,440	5,970	13,000	5,750	1,420	*1,370	496
8	402	335	540	1,600	5,550	7,440	5,970	11,800	6,080	1,420	1,420	448
9	355	335	958	1,290	4,340	7,590	5,550	9,340	6,660	1,420	1,460	424
10	335	325	2,600	1,210	4,180	7,590	4,960	7,300	5,970	*1,460	1,460	412
11	335	315	*3,520	1,420	4,180	5,910	4,420	7,030	5,050	1,420	1,460	345
12	365	315	2,780	1,460	4,340	2,940	4,690	7,740	4,020	1,330	1,460	303
13	378	305	1,600	1,370	3,660	1,370	5,750	7,740	3,310	1,250	1,460	293
14	355	325	1,370	1,290	2,720	1,640	7,740	6,780	2,780	1,210	1,290	293
15	355	415	1,550	1,290	3,590	2,050	10,200	5,350	2,270	1,210	1,250	264
16	345	478	1,940	*1,290	4,870	2,920	12,700	4,690	2,050	1,210	1,130	*228
17	325	502	2,270	1,250	5,250	5,210	14,100	4,600	2,100	1,370	1,010	220
18	315	415	1,890	1,090	4,690	5,860	13,400	5,140	2,160	2,000	940	237
19	335	345	1,500	1,290	3,660	6,300	10,400	8,400	2,440	1,890	855	*246
20	335	335	1,550	1,640	3,310	*8,760	8,760	10,900	2,780	1,690	825	246
21	335	335	1,600	1,640	*4,420	11,400	7,900	12,400	2,600	1,290	825	264
22	325	335	1,550	1,250	4,960	13,800	7,440	12,400	1,940	975	810	255
23	325	335	1,500	1,010	4,780	14,100	9,740	11,800	1,550	810	780	237
24	325	335	1,330	975	5,050	13,000	10,200	11,400	1,550	720	735	220
25	325	335	1,170	1,050	5,650	10,900	12,000	10,200	1,600	660	690	212
26	345	345	1,170	1,090	6,190	8,940	14,100	11,200	1,600	690	660	212
27	378	345	1,370	1,170	6,540	7,590	15,300	14,900	1,640	888	645	212
28	378	355	1,500	1,550	6,780	7,030	15,700	18,500	1,640	1,090	645	204
29	378	355	1,330	2,270	7,030	6,660	16,200	19,500	1,600	1,330	675	174
30	378	355	1,370	3,040	-	5,040	*15,700	19,500	1,640	1,550	705	172
31	*378	-	1,690	3,800	-	3,100	-	19,000	-	1,600	750	-
Total	16,312	10,612	42,471	51,325	162,930	217,050	274,540	354,810	144,880	41,203	33,920	10,576
Mean	526	354	1,370	1,656	5,618	7,002	9,151	11,450	4,829	1,329	1,094	353
Cfsm	0.067	0.045	0.173	0.209	0.711	0.886	1.16	1.45	0.611	0.168	0.138	0.045
In.	0.08	0.05	0.20	0.24	0.77	1.02	1.29	1.67	0.68	0.19	0.16	0.05
Ac-ft	32,350	21,050	84,240	101,800	323,200	430,500	544,500	703,800	287,400	81,720	67,280	20,980

Calendar year 1951: Max 15,300 Min 222 Mean 1,960 Cfsm 0.248 In. 3.36 Ac-ft 1,419,000
Water year 1951-52: Max 19,500 Min 172 Mean 3,718 Cfsm 0.470 In. 6.40 Ac-ft 2,699,000

* Discharge measurement made on this day.
Note.--No recorder record July 17 to Aug. 6; discharge computed from once-daily staff gage readings.

Village Creek near Kountze, Tex.

Location.--Lat 30°24', long. 94°16', on left bank at downstream side of pier of bridge on Kountze-Silsbee county highway, 1.2 miles upstream from Gulf, Colorado & Santa Fe Railway bridge, 3.2 miles northwest of Kountze, Hardin County, and 4½ miles downstream from Beech Creek.

Drainage area.--837 sq mi.

Records available.--May 1924 to November 1929 (October 1927 to November 1929, discharge measurements only), April 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 25.12 ft above mean sea level, datum of 1929. Prior to Apr. 30, 1939, inverted chain gage at site 1.2 miles downstream at different datum.

Average discharge.--16 years (1924-27, 1939-52), 980 cfs.

Extremes.--Maximum discharge during year, 8,390 cfs Apr. 25 (gage height, 16.92 ft); minimum, 40 cfs Sept. 28-30.

1924-27, 1939-52: Maximum discharge, 67,200 cfs Nov. 26, 1940 (gage height, 27.6 ft, from floodmark), from rating curve extended above 35,000 cfs by logarithmic plotting; minimum, 32 cfs Sept. 28, 1939.

Maximum stage known, about 34 ft in August 1915, present site and datum. Flood of May 27, 1929, reached a stage of about 32 ft, present site and datum. Above stages were determined on basis of information by engineers of Gulf, Colorado & Santa Fe Railway for site 1.2 miles downstream.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.5	38	7.0	870
2.0	69	9.0	1,340
2.5	109	11.0	1,960
3.0	158	13.0	2,950
4.0	289	15.0	5,040
5.0	458	17.0	8,600

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	312	102	152	220	240	300	320	848	1,450	152	122	51
2	238	98	142	230	320	270	362	694	1,050	181	132	50
3	199	96	137	220	510	240	378	610	*782	187	137	49
4	175	96	142	210	830	240	336	570	590	147	164	*48
5	152	102	175	200	960	310	378	550	494	132	132	48
6	142	108	266	190	830	380	804	494	431	122	114	49
7	132	108	304	220	650	350	1,050	440	387	127	*104	49
8	124	118	320	230	510	300	958	378	378	137	97	48
9	117	158	628	220	430	270	673	328	378	137	94	47
10	111	169	*936	210	390	270	460	296	431	*132	102	45
11	104	147	*782	200	360	270	360	274	404	127	100	45
12	102	132	570	200	340	300	400	266	362	147	94	44
13	98	119	449	190	320	310	780	274	312	132	87	43
14	96	113	344	180	300	300	1,000	259	282	127	82	42
15	94	109	296	180	300	280	890	238	252	124	76	43
16	91	107	282	170	300	260	610	218	224	154	73	48
17	*91	104	312	*164	320	240	400	199	199	560	70	47
18	90	99	328	160	360	240	320	803	187	1,650	68	45
19	90	96	344	150	320	570	270	5,530	169	1,690	66	44
20	87	93	336	150	290	1,110	240	6,320	158	1,420	64	45
21	86	91	312	140	290	1,310	370	6,140	152	968	62	47
22	85	90	280	140	340	1,190	630	3,800	142	494	62	48
23	86	91	260	130	460	848	3,160	2,600	137	344	61	50
24	88	93	250	120	550	570	7,040	2,120	137	266	59	49
25	95	96	240	120	490	476	8,000	2,600	132	212	58	47
26	106	100	240	120	530	404	7,600	3,420	125	181	57	44
27	117	105	240	120	490	*353	5,330	3,910	122	158	56	48
28	111	111	230	170	440	336	3,600	4,020	118	142	54	40
29	104	122	220	320	360	312	*2,400	3,090	118	137	53	40
30	100	147	220	380	-	304	1,310	2,400	122	126	52	40
31	*96	-	220	270	-	296	-	1,890	-	125	51	-
Total	3,719	3,320	9,957	5,924	12,810	13,209	50,429	55,579	10,225	10,738	2,603	1,383
Mean	120	111	321	191	442	426	1,681	1,793	341	346	84.0	46.1
Cfsm	0.143	0.133	0.384	0.228	0.528	0.509	2.01	2.14	0.407	0.413	0.100	0.055
In.	0.17	0.15	0.44	0.26	0.57	0.59	2.24	2.47	0.45	0.48	0.12	0.06
Ac-ft	7,380	6,590	19,750	11,750	25,410	26,200	100,000	110,200	20,280	21,300	5,160	2,740

Calendar year 1951: Max 3,080 Min 41 Mean 274 Cfsm 0.327 In. 4.46 Ac-ft 198,400
Water year 1951-52: Max 8,000 Min 40 Mean 492 Cfsm 0.588 In. 8.00 Ac-ft 356,800

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 22 to Jan. 16, Jan. 18 to Mar. 19, Apr. 10-28, Aug. 29 to Sept. 3; discharge estimated on basis of weather records and records for station at Neches River near Rockland.

Bridgeport Reservoir above Bridgeport, Tex.

Location.--Lat 33°13'20", long. 97°50'10", at left end of Bridgeport Dam on West Fork Trinity River, 2.0 miles west of Bridgeport, Wise County, 5.8 miles upstream from Big Sandy Creek, and at mile 626.
Drainage area.--1,114 sq mi.
Records available.--April 1932 to September 1952.
Gage.--Staff gage read once daily. Datum of gage is 0.06 ft above mean sea level, datum of 1929. Prior to Jan. 26, 1944, staff gages at various sites in vicinity of present gage at present datum.
Extremes.--Maximum contents observed during year, 142,700 acre-ft Oct. 1-3 (gage height, 811.4 ft); minimum observed, 58,900 acre-ft Sept. 28-30 (gage height, 797.0 ft).
1932-52: Maximum contents observed, 407,600 acre-ft Apr. 29, 30, 1942 (gage height, 836.2 ft); minimum observed at monthly intervals since appreciable storage began, 2,200 acre-ft Dec. 31, 1933.
Remarks.--Reservoir formed by a rolled-fill earthen-type dam, containing a concrete service spillway with three 20-ft bays, two of which are equipped with vertical lift gates, and the other left open. There are two emergency spillways of natural ground. Dam completed Dec. 15, 1931; storage began Apr. 1, 1932. Capacity 270,300 acre-ft (based on revised capacity table), between gage heights 751.4 ft (bottom of three 48-inch outlet conduits) and 826.1 ft (top of service spillway). Dead storage is negligible. Reservoir used for flood control and municipal supply for city of Fort Worth. Figures given herein represent total contents. Capacity figures for current year are based on a redetermination of reservoir capacity during fall of 1952.
Cooperation.--Capacity curve and records of daily gage heights furnished by Tarrant County Water Control and Improvement District No. 1.
Revisions.--W 1148: Drainage area.

Contents, in acre-feet, at 7 a.m., water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	142,700	128,000	116,600	108,300	106,400	105,800	99,120	96,170	100,300	92,690	87,050	67,080
2	142,700	128,000	116,600	108,300	106,400	106,400	99,120	96,760	100,300	92,690	85,400	66,620
3	142,700	128,000	116,600	108,300	106,400	106,400	99,120	97,940	100,300	92,120	83,750	66,160
4	142,000	127,300	116,600	108,300	106,400	106,400	99,120	99,120	99,710	92,120	82,140	65,700
5	142,000	127,300	116,600	107,700	106,400	106,400	99,120	99,710	99,710	92,120	81,610	65,240
6	142,000	127,300	116,000	107,700	106,400	106,400	98,530	100,300	99,710	92,120	80,550	64,780
7	142,000	127,300	116,000	107,700	105,800	106,400	98,530	100,300	99,710	92,120	80,550	64,320
8	142,000	127,300	116,000	107,700	105,800	106,400	98,530	100,300	99,710	92,120	80,020	63,860
9	142,000	127,300	116,000	107,700	105,800	106,400	98,530	100,300	99,710	92,120	80,020	63,400
10	140,500	127,300	116,000	107,700	105,800	106,400	98,530	100,300	99,710	92,690	80,020	62,940
11	139,100	127,300	116,000	107,700	105,800	106,400	98,530	99,710	99,710	92,690	79,490	62,480
12	137,700	127,300	116,000	107,000	105,800	106,400	97,350	99,710	99,120	92,690	78,960	62,020
13	135,600	125,900	116,000	107,000	105,800	106,400	96,760	99,120	99,120	92,690	78,960	61,560
14	134,200	124,600	116,000	107,000	105,800	106,400	95,580	99,120	99,120	92,690	78,430	61,100
15	133,500	122,600	116,000	107,000	105,800	106,400	93,830	99,120	98,530	91,550	77,900	60,660
16	133,500	121,200	116,000	107,000	105,800	106,400	92,690	99,120	98,530	90,980	76,880	60,220
17	133,500	119,900	115,300	106,400	105,800	106,400	91,550	99,120	98,530	90,410	75,860	60,220
18	133,500	118,600	115,300	106,400	105,800	106,400	91,550	99,120	98,530	89,840	74,840	59,780
19	133,500	116,600	114,600	106,400	105,800	106,400	91,550	99,120	97,940	89,840	74,330	59,780
20	133,500	116,600	113,400	106,400	105,800	105,800	92,690	99,120	97,940	89,840	73,310	59,780
21	133,500	116,600	112,100	106,400	105,800	105,800	93,260	99,710	96,760	89,840	72,800	59,780
22	133,500	116,600	110,800	106,400	105,800	105,800	94,400	99,710	96,170	89,840	72,310	59,780
23	133,500	116,600	109,600	106,400	105,800	105,800	94,400	99,710	95,580	89,270	71,820	59,780
24	133,500	116,600	108,300	106,400	105,800	105,800	94,400	100,300	94,990	89,270	71,330	59,780
25	133,500	116,600	108,300	106,400	105,800	105,800	95,580	100,300	93,830	88,700	70,370	59,340
26	133,500	116,600	108,300	106,400	105,800	105,800	95,580	100,300	93,260	88,700	69,890	59,340
27	132,100	116,600	108,300	106,400	105,800	104,600	95,580	100,300	93,260	88,700	69,410	59,340
28	132,100	116,600	108,300	106,400	105,800	103,400	95,580	100,300	92,690	88,700	68,940	58,900
29	130,700	116,600	108,300	106,400	105,800	102,100	95,580	100,300	92,690	88,150	68,470	58,900
30	129,400	116,600	108,300	106,400	-	100,900	95,580	100,300	92,690	88,150	68,000	58,900
31	128,000	-	108,300	106,400	-	99,710	-	100,300	-	88,150	67,540	-

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30.....	811.4	*142,700	-
Oct. 31.....	809.3	128,000	-14,700
Nov. 30.....	807.6	116,600	-11,400
Dec. 31.....	806.3	108,300	-8,300
Calendar year 1951.....	-	-	*-60,100
Jan. 31.....	806.0	106,400	-1,900
Feb. 29.....	805.9	105,800	-600
Mar. 31.....	804.9	99,710	-6,090
Apr. 30.....	804.2	95,580	-4,130
May 31.....	805.0	100,300	+4,720
June 30.....	803.7	92,690	-7,610
July 31.....	802.9	88,150	-4,540
Aug. 31.....	798.9	67,540	-20,610
Sept.30.....	797.0	58,900	-8,640
Water year 1951-52.....	-	-	-83,800

* Based on revised capacity table.
† Gage height at 7 a.m.

Big Sandy Creek near Bridgeport, Tex.

Location.--Lat 33°13', long. 97°41', on downstream side of bridge on State Highway 24, 1.9 miles upstream from Turkey Creek, 4.4 miles upstream from mouth, and 5 miles east of Bridgeport, Wise County.

Drainage area.--332 sq mi.

Records available.--October 1936 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 727.44 ft above mean sea level, datum of 1929.

Average discharge.--15 years (1937-52), 104 cfs; median of yearly mean discharges, 66 cfs.

Extremes.--Maximum discharge during year, 675 cfs May 29 (gage height, 8.45 ft); no flow at times.

1936-52: Maximum discharge, 53,000 cfs June 10, 1941 (gage height, 15.69 ft, from floodmark), from rating curve extended above 22,000 cfs by logarithmic plotting; no flow at times.

Maximum stage known, that of June 10, 1941.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No diversion above station.

Revisions.--W 1148: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	8.3		0	0.3	0.8	1.5	281	114	25		
2	.8	a1.0		0	6.5	1.6	1.2	211	365	a.8		
3	.5	a.7		0	3.1	13	1.1	39	37	a.5		
4	.4	a.6		0	1.0	8.2	1.5	16	9.0	0		
5	.4	a.5		.2	.8	2.1	1.6	8.3	4.6	0		
6	.2	.4		.4	.6	1.4	1.2	5.9	2.5	0		
7	0	.3		.3	.5	1.2	1.1	4.5	1.8	0		
8	0	.2		.1	.5	1.1	1.0	3.8	1.8	0		
9	0	.1		.1	.5	1.1	1.0	3.0	1.8	0		
10	0	.1		.1	.6	22	1.0	2.7	1.6	0		
11	0	0		.1	.6	8.9	1.0	2.5	1.5	0		
12	0	0		0	1.6	2.8	37	1.9	1.4	0		
13	0	0	(*)	0	1.0	2.2	8.4	1.6	1.2	0		
14	0	0		.2	.8	1.6	2.3	1.4	1.0	0		
15	0	0		*.3	.7	1.2	2.0	1.0	.9	0	(*)	
16	*0	*0		.3	.8	1.1	1.8	.9	.7	0		
17	0	0		.3	1.0	1.2	1.8	.8	.5	0		
18	0	0		.3	1.0	*29	*1.7	526	.4	0		
19	0	0		.3	*1.0	6.9	11	68	.2	0		
20	0	0		.3	.9	2.2	129	20	*0	0		
21	0	0		.3	.8	1.7	132	*6.6	0	0		
22	0	0		.3	.8	1.6	30	4.0	0	0		
23	0	0		.3	.8	1.4	15	18	0	0		(*)
24	0	7.4		.3	.8	1.1	7.0	28	0	0		
25	0	1.6		.2	.8	1.2	4.5	8.2	0	*0		
26	0	.3		.2	.9	1.2	3.9	3.9	0	0		
27	66	0		.3	.9	1.2	3.2	2.6	0	0		
28	49	0		.3	.8	1.5	2.8	254	0	0		
29	6.4	0		.3	.8	1.8	2.6	554	0	0		
30	a3.0	0		.2	-	1.6	2.6	91	1.4	0		
31	a2.0	0		.2	-	1.6	-	15	-	0		-
Total	130.1	21.5	0	6.2	31.2	125.5	411.8	2,184.6	548.3	26.3	0	0
Mean	4.20	0.72	0	0.20	1.08	4.05	13.7	70.5	18.3	0.85	0	0
Ac-ft	258	43	0	12	62	249	817	4,330	1,090	52	0	0

Calendar year 1951: Max 3,000 Min 0 Mean 47.7 Ac-ft 34,560
Water year 1951-52: Max 554 Min 0 Mean 9.52 Ac-ft 6,910

Peak discharge (base, 1,600 cfs).--No peak above base.
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records.

West Fork Trinity River near Boyd, Tex.

Location.--Lat 33°04'30", long. 97°32'20", on right bank at downstream side of bridge on State Highway 114, 0.8 mile downstream from Deep Creek, 1.2 miles east of Boyd, Wise County, 1.5 miles upstream from Little Blue Creek, 2.1 miles upstream from Chicago, Rock Island & Pacific Railway bridge, and at mile 600.

Drainage area.--1,739 sq mi.

Records available.--January 1947 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 655.09 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 231 cfs.

Extremes.--Maximum discharge during year, 817 cfs Oct. 28 (gage height, 10.17 ft); no flow July 26-31, Sept. 25-30.
1947-52: Maximum discharge, 6,650 cfs July 28, 1950 (gage height, 18.20 ft); no flow at times.
Maximum stage known, about 21.7 ft in April 1942, from information by local resident.

Remarks.--Records fair. Flow largely regulated by Bridgeport Reservoir, 23 miles upstream.

Revisions.--W 1148: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	336	3.0	3.4	1.1	3.0	313	73	42	a3.8	170	227
2	6.3	29	2.6	3.1	2.2	5.4	24	251	189	12	630	227
3	4.2	16	2.4	3.3	1.9	8.9	12	193	330	7.4	646	227
4	16	11	2.2	3.8	3.6	7.7	8.8	57	73	4.3	662	227
5	15	9.2	2.0	3.1	4.0	12	7.7	28	28	a3.6	662	227
6	5.4	8.0	1.8	2.8	2.6	7.0	7.2	18	17	a3.1	651	227
7	3.0	7.2	1.4	2.5	2.2	4.4	5.9	13	12	a2.9	144	227
8	2.0	6.5	1.2	2.4	1.9	77	4.9	10	10	a2.5	12	227
9	1.4	6.2	1.2	2.1	1.6	20	4.2	8.6	8.2	a2.1	5.7	227
10	340	5.7	1.0	2.0	1.4	9.2	3.8	7.0	7.2	a1.6	3.6	227
11	662	5.4	1.0	1.9	1.7	14	4.2	86	6.3	a1.2	2.5	227
12	678	5.1	1.1	1.9	2.6	17	411	18	5.5	26	1.4	227
13	678	582	*1.3	1.8	1.7	7.7	678	9.6	4.9	14	1.0	227
14	678	726	1.4	1.8	1.6	5.5	662	7.4	a4.3	4.3	.3	227
15	219	728	1.6	*1.8	2.8	4.3	646	6.0	a3.7	135	*46	221
16	*18	*742	1.3	1.8	3.4	3.6	646	5.4	a3.3	257	221	221
17	10	742	1.3	1.7	2.9	3.3	646	5.1	a2.9	263	227	118
18	7.5	742	1.6	1.6	2.5	*4.9	*136	43	a2.6	270	227	19
19	5.9	726	383	1.4	*2.4	20	20	66	135	94	227	5.2
20	4.9	185	694	1.3	2.4	14	76	79	*276	11	227	3.1
21	4.2	23	710	1.3	2.5	7.0	245	*28	282	4.9	227	2.0
22	4.0	12	710	1.3	2.5	4.3	329	14	289	2.5	227	1.1
23	7.7	9.0	710	1.1	2.5	3.1	81	12	289	a1.3	227	*.5
24	14	9.0	694	1.0	2.4	2.8	34	18	289	a.6	233	.1
25	8.0	7.4	157	1.2	2.6	2.5	21	31	201	**.1	233	0
26	5.4	7.9	15	1.2	3.0	2.2	15	14	22	0	227	0
27	537	8.0	8.2	1.2	2.9	497	13	9.9	7.0	0	227	0
28	790	5.7	6.3	1.1	2.6	662	11	115	a5.1	0	227	0
29	758	4.2	5.2	1.0	1.8	662	9.4	281	a4.9	0	227	0
30	710	3.3	4.6	1.0	-	662	8.2	457	a4.4	0	227	0
31	710	-	4.0	1.0	-	662	-	137	-	0	227	0
Total	6,914.9	5,705.8	4,130.7	57.9	69.3	3,415.8	5,083.3	2,101.0	2,554.3	1,128.2	7,275.5	3,769.0
Mean	223	190	133	1.87	2.39	110	169	67.8	85.1	36.4	235	126
Ac-ft	13,720	11,320	8,190	115	137	6,780	10,080	4,170	5,070	2,240	14,430	7,480

Calendar year 1951: Max 2,020 Min 0.2 Mean 193 Ac-ft 139,600
Water year 1951-52: Max 790 Min 0 Mean 115 Ac-ft 83,730

Peak discharge (base, 2,000 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate on this day.
a No gage-height record; discharge estimated on basis of weather records and records for stations on nearby streams.

Eagle Mountain Reservoir above Fort Worth, Tex.

Location.--Lat 32°52'35", long. 97°28'15", at right end of main dam on West Fork Trinity River, 3.0 miles downstream from Ash Creek, 4.1 miles downstream from Walnut Creek, 14.6 miles northwest of Fort Worth, Tarrant County, and at mile 583.

Drainage area.--1,974 sq mi.

Records available.--February 1934 to September 1952.

Gage.--Staff gage read once daily. Datum of gage is at mean sea level, datum of 1929. Prior to Feb. 24, 1943, staff gages at several sites within 1 mile of present site and datum.

Extremes.--Maximum contents observed during year, 170,200 acre-ft Dec. 26-28 (elevation, 647.6 ft); minimum observed, 135,000 acre-ft Sept. 29-30 (elevation, 643.0 ft).
1934-52: Maximum contents observed, 333,500 acre-ft Apr. 26, 1942 (elevation, 659.9 ft); minimum observed at monthly intervals since appreciable storage began, 9,320 acre-ft June 30, 1934.

Remarks.--Reservoir is formed by a composite rolled-fill and hydraulic-fill earthen-type dam, containing a concrete service spillway with four 25-foot bays, three of which are equipped with vertical lift gates, and the other left open. There is an emergency spillway of natural ground. Dam completed Oct. 24, 1932, and storage began Feb. 28, 1934. Capacity, 182,600 ac-ft (based on revised capacity table), between elevations 599.9 ft (bottom of four 48-inch outlet conduits) and 649.1 ft (top of service spillway). Dead storage is negligible. Reservoir used for flood control and to maintain level of Lake Worth from which city of Fort Worth derives its municipal supply. Figures given herin represent total contents. Capacity figures for current year are based on redetermination of reservoir capacity during fall of 1952.

Cooperation.--Capacity curve and records of daily elevations furnished by Tarrant County Water Control and Improvement District No. 1.

Revisions.--W 1148: Drainage area.

Contents, in acre-feet, at 8 a.m., water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	165,300	166,900	168,600	169,400	163,700	159,000	158,200	167,800	166,100	152,000	137,900	137,200
2	165,300	167,800	168,600	169,400	163,700	159,000	158,200	167,800	166,900	151,200	137,900	136,400
3	165,300	166,900	168,600	169,400	163,700	159,000	158,200	168,600	166,900	150,500	138,600	135,700
4	164,500	166,900	168,600	169,400	163,700	159,000	158,200	168,600	166,900	149,700	140,000	136,400
5	164,500	166,900	169,400	169,400	163,700	159,000	158,200	168,600	166,900	149,700	140,000	136,400
6	164,500	166,900	169,400	169,400	163,700	159,000	158,200	168,600	166,100	149,000	140,800	137,200
7	164,500	166,900	168,600	169,400	163,700	159,000	158,200	168,600	166,100	148,200	141,500	137,200
8	164,500	166,100	168,600	169,400	163,700	159,000	158,200	168,600	165,300	147,400	140,800	137,200
9	164,500	166,100	168,600	168,600	162,900	159,000	158,200	168,600	164,500	147,400	140,000	136,400
10	163,700	166,100	168,600	166,900	162,900	159,000	158,200	168,600	164,500	146,700	140,000	136,400
11	164,500	166,100	168,600	166,100	162,900	158,200	158,200	167,800	163,700	146,700	140,000	136,400
12	165,300	166,100	168,600	165,300	162,900	158,200	159,000	167,800	163,700	146,700	139,300	136,400
13	165,300	166,100	168,600	165,300	162,900	158,200	159,800	166,900	162,900	146,000	138,600	136,400
14	165,300	166,100	168,600	165,300	162,900	158,200	161,400	166,900	162,900	145,200	138,600	135,700
15	165,300	166,100	168,600	165,300	162,900	158,200	162,100	166,900	162,100	145,200	137,900	135,700
16	165,300	166,100	167,800	165,300	162,100	157,400	162,100	166,100	162,100	144,400	137,900	136,400
17	165,300	166,100	166,900	165,300	162,100	156,600	162,100	166,100	161,400	144,400	137,200	136,400
18	165,300	166,100	166,100	165,300	161,400	156,600	162,100	166,900	161,400	144,400	137,200	137,200
19	165,300	166,900	166,100	165,300	161,400	156,600	162,100	166,900	160,600	143,700	137,200	137,200
20	165,300	167,800	166,100	165,300	160,600	156,600	162,900	166,900	159,000	143,000	137,200	137,200
21	165,300	167,800	166,100	166,100	160,600	156,600	162,900	166,900	157,400	143,000	137,900	137,200
22	165,300	168,600	166,100	166,100	159,800	156,600	165,300	166,900	154,300	142,200	137,900	136,400
23	165,300	168,600	166,900	166,100	159,800	156,600	166,900	166,900	154,300	142,200	137,900	136,400
24	165,300	168,600	168,600	166,100	159,000	156,600	166,900	167,800	154,300	142,200	137,200	136,400
25	165,300	168,600	169,400	166,100	159,000	156,600	167,800	167,800	154,300	142,200	135,700	136,400
26	165,300	168,600	170,200	165,300	159,000	156,600	166,900	167,800	154,300	141,500	135,700	136,400
27	164,500	168,600	170,200	165,300	159,000	156,600	166,900	166,900	153,600	141,500	136,400	135,700
28	165,300	168,600	170,200	164,500	159,000	156,600	166,900	166,900	152,800	141,500	136,400	135,700
29	165,300	168,600	169,400	164,500	159,000	157,400	166,900	166,100	152,800	140,800	137,200	135,000
30	166,100	168,600	169,400	163,700	-	157,400	166,900	166,100	152,000	140,000	137,200	135,000
31	166,100	-	169,400	163,700	-	157,400	-	166,100	-	138,600	137,200	-

Monthly elevation and contents, water year October 1951 to September 1952

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	647.1	166,100	-
Oct. 31	647.1	166,100	0
Nov. 30	647.4	168,600	+2,500
Dec. 31	647.5	169,400	+800
Calendar year 1951	-	-	*+1,600
Jan. 31	646.8	163,700	-5,700
Feb. 29	646.2	159,000	-4,700
Mar. 31	646.0	157,400	-1,600
Apr. 30	647.2	166,900	+9,500
May 31	647.1	166,100	-800
June 30	645.3	152,000	-14,100
July 31	643.5	138,600	-13,400
Aug. 31	643.3	137,200	-1,400
Sept.30	643.0	135,000	-2,200
Water year 1951-52	-	-	-31,100

† Elevation at 8 a.m.
* Based on revised capacity table.

Clear Fork Trinity River near Aledo, Tex.

Location.--Lat 32°38'25", long. 97°33'50", on left bank 3 miles downstream from Turkey Creek, 3½ miles upstream from bridge on U. S. Highway 377, 4 miles southeast of Aledo, Parker County, and 11.8 miles upstream from Benbrook Dam.

Drainage area.--246 sq mi.

Records available.--August 1947 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 723.33 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark).

Average discharge.--5 years, 51.1 cfs.

Extremes.--Maximum discharge during year, 1,840 cfs Apr. 22 (gage height, 9.13 ft); no flow Oct. 6-22, June 26 to Sept. 30.
1947-52: Maximum discharge, 12,400 cfs May 17, 1949 (gage height, 25.00 ft), from rating curve extended above 7,300 cfs by logarithmic plotting; no flow at times.
Maximum stage known since 1858, about 34 ft between Apr. 25 and May 9, 1922, from information by local resident.

Remarks.--Records good. No diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 4-16)

2.1	0	2.9	15
2.2	.2	3.1	29
2.3	.6	3.3	49
2.4	1.0	3.6	96
2.5	1.9	4.0	180
2.6	3.4	4.5	305
2.7	6.4	5.0	445
2.8	10	6.0	725

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	1.5	2.5	2.8	4.6	3.7	4.0	149	a4.6			
2	.6	1.5	2.5	2.8	4.0	4.0	3.7	54	a4.0			
3	.4	1.4	*2.5	3.1	3.7	6.4	*4.0	21	a3.7	(*)		
4	.2	1.6	2.5	3.4	3.2	8.8	15	16	*3.2		(*)	
5	.2	*1.8	2.4	4.3	2.8	7.2	8.4	13	4.0			
6	0	2.6	2.4	4.0	2.5	5.5	5.2	*10	3.7			
7	0	2.8	2.4	4.0	2.4	4.9	4.0	8.8	3.0			
8	0	2.8	2.2	4.0	2.6	4.9	3.2	8.0	2.8			(*)
9	0	3.0	2.2	4.3	3.0	4.9	3.4	7.2	2.5			
10	0	3.1	2.2	4.0	3.1	5.8	4.0	7.2	2.0			
11	0	3.2	2.2	4.0	3.2	5.8	5.1	5.8	2.0			
12	0	3.2	2.4	3.7	3.4	5.8	26	5.5	1.9			
13	0	4.0	2.4	4.3	3.2	4.9	20	5.2	1.6			
14	0	5.2	2.6	4.3	3.2	4.3	8.4	4.6	1.4			
15	0	5.5	2.4	4.3	3.2	4.3	5.5	3.7	1.2			
16	0	6.1	2.2	3.7	4.0	4.3	4.6	3.2	1.0			
17	0	6.4	2.4	3.7	4.3	4.6	4.3	66	1.0			
18	0	6.8	2.5	3.7	4.3	7.6	4.6	241	.9			
19	0	7.2	2.6	3.4	5.2	11	5.2	27	.8			
20	0	7.6	2.6	3.4	4.0	5.8	17	13	.6			
21	0	7.6	2.6	3.7	3.4	4.9	57	9.2	.5			
22	0	7.2	2.5	3.7	3.4	4.6	638	7.2	.4			
23	18	3.1	2.5	3.4	3.7	4.0	150	15	.2			
24	6.4	2.8	2.6	3.4	4.3	4.0	28	18	.1			
25	2.0	3.0	2.8	3.2	4.9	4.3	18	10	.1			
26	1.2	3.1	2.8	3.7	4.9	4.3	14	7.2	0			
27	1.2	3.2	2.8	3.7	4.9	4.6	11	6.1	0			
28	2.0	3.1	*2.6	*3.4	4.0	4.9	10	a5.5	0			
29	12	2.8	3.0	3.2	*3.7	5.2	8.8	a5.2	0			
30	3.1	2.6	3.1	3.4	-	5.2	9.5	a4.9	0			
31	2.4	-	3.0	3.2	-	4.6	-	a4.6	-			-
Total	52.7	115.8	78.4	113.2	107.1	165.1	1,099.9	762.1	47.2	0	0	0
Mean	1.70	3.86	2.53	3.65	3.69	5.33	36.7	24.6	1.57	0	0	0
Ac-ft	104	230	156	224	212	327	2,180	1,510	94	0	0	0

Calendar year 1951: Max 950 Min 0 Mean 21.6 Ac-ft 15,670
Water year 1951-52: Max 638 Min 0 Mean 6.94 Ac-ft 5,040

Peak discharge (base, 3,000 cfs).--No peak above base.
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for station near Benbrook.

Clear Fork Trinity River near Benbrook, Tex.

Location.--Lat 32°39'54", long. 97°26'30", on left bank 1½ miles downstream from Benbrook Dam, 1.7 miles southeast of Benbrook, Tarrant County, and 2.9 miles upstream from Marys Creek.

Drainage area.--435 sq mi.

Records available.--July 1947 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 604.22 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark).

Average discharge.--5 years, 105 cfs.

Extremes.--Maximum discharge during year, 2,710 cfs May 18 (gage height, 8.47 ft); no flow at times.
1947-52: Maximum discharge, 82,900 cfs May 17, 1949 (gage height, 28.72 ft), from rating curve extended above 11,000 cfs on basis of velocity-area studies and slope-area determination of peak flow; no flow at times.
Maximum stage known since at least 1922, that of May 17, 1949.

Remarks.--Records good. Flow regulated by Benbrook Reservoir (capacity, 164,800 acre-ft); prior to Sept. 28, 1952, this reservoir acted only as a detention basin but on Sept. 29, 1952, permanent storage began.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.5	0	3.2	57
2.6	1.3	3.4	96
2.7	3.5	3.7	194
2.8	7.2	4.0	344
2.9	16	5.0	844
3.0	27	6.0	1,360

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	3.3	7.8	3.0	31	4.3	4.6	178	28	1.1	0.2	0
2	.4	1.7	7.2	3.3	25	4.6	4.3	94	27	1.1	.2	0
3	.9	1.5	6.0	3.8	5.2	5.6	*4.3	37	22	*.9	.1	0
4	1.1	1.5	6.0	4.0	4.6	6.6	4.3	22	*16	.9	*8.9	0
5	.7	*1.3	5.6	3.8	4.3	10	21	16	15	.9	1.3	0
6	.4	1.5	5.6	4.0	3.8	7.2	6.6	*14	14	.9	.4	0
7	.3	1.5	4.9	4.3	3.3	4.6	4.6	11	13	1.3	.3	0
8	.3	1.5	5.2	3.8	3.0	4.3	3.3	10	12	1.1	.3	*0
9	.3	1.9	5.2	3.5	3.0	4.3	3.0	7.8	10	.9	.3	0
10	.3	2.4	5.6	3.5	3.5	6.0	3.0	8.4	9.2	.7	.4	0
11	.3	2.8	5.2	3.5	3.8	6.0	7.0	6.6	7.8	.7	.4	0
12	.4	3.3	4.6	3.3	4.0	5.6	19	5.2	6.6	.5	.3	0
13	.4	3.3	4.6	3.3	4.0	5.6	38	5.2	6.0	.4	.3	0
14	.4	3.0	4.9	4.0	4.0	4.6	15	4.3	5.2	.4	.1	0
15	.3	3.0	4.6	3.8	4.3	4.0	7.2	3.8	4.6	.4	.1	0
16	.2	2.6	4.6	4.0	4.9	4.0	4.6	3.3	4.0	.5	.1	0
17	.1	1.9	4.6	4.0	4.9	4.7	4.3	253	3.3	.7	.1	0
18	.1	2.4	4.0	3.5	4.9	6.0	4.0	1,140	3.0	.9	.1	0
19	.1	3.5	3.8	3.8	5.6	8.6	4.0	112	2.6	.7	.1	0
20	.1	3.8	3.5	4.0	5.6	13	15	54	2.4	.5	.1	0
21	.1	4.3	3.5	4.9	4.9	5.6	55	37	2.2	.4	0	.4
22	.8	5.6	3.5	4.0	4.3	4.6	631	28	1.9	.3	0	.2
23	1.8	11	3.5	3.3	4.3	3.8	502	292	1.5	.3	0	0
24	.4	10	3.5	3.3	4.9	3.8	32	691	1.3	.3	0	0
25	1.9	7.8	3.0	3.0	7.8	3.3	.3	169	1.1	.3	0	0
26	3.0	7.2	2.4	3.0	7.8	3.5	0	70	1.1	.2	0	0
27	2.2	8.4	2.6	3.0	6.0	4.0	0	52	1.1	.2	0	0
28	2.2	8.4	*3.0	*3.5	5.2	4.6	49	47	1.1	.2	0	0
29	6.4	8.4	2.6	3.5	*4.6	4.6	37	49	1.1	.1	0	0
30	9.0	8.4	2.8	3.3	-	4.6	11	44	.9	.1	0	0
31	4.6	-	3.0	3.3	-	5.2	-	37	-	.2	0	-
Total	39.9	127.2	136.9	112.3	182.5	167.2	1,494.4	3,501.6	225.0	18.1	14.1	0.6
Mean	1.29	4.24	4.42	3.62	6.29	5.39	49.8	113	7.50	0.58	0.45	0.02
Ac-ft	79	252	272	223	362	332	2,960	6,950	446	36	28	1.2

Calendar year 1951: Max 1,590 Min 0.1 Mean 29.6 Ac-ft 21,400
Water year 1951-52: Max 1,140 Min 0 Mean 16.4 Ac-ft 11,940

Peak discharge (base, 3,900 cfs).--No peak above base.
* Discharge measurement made on this day.

Clear Fork Trinity River at Fort Worth, Tex.

Location.--Lat 32°44', long. 97°21', near right bank on downstream side of right pier of bridge on Vickery Boulevard at Fort Worth, Tarrant County, 100 ft upstream from East-West Expressway bridge, 310 ft downstream from Texas & Pacific Railway bridge, 3 miles upstream from mouth, and 5 miles downstream from Marys Creek.

Drainage area.--526 sq mi.

Records available.--March 1924 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 532.91 ft above mean sea level, datum of 1929. Prior to June 23, 1925, staff gage at site 338 ft upstream at datum 8.37 ft higher. June 23, 1925, to Dec. 7, 1938, water-stage recorder at site 88 ft upstream at present datum.

Average discharge.--28 years, 113 cfs; median of yearly mean discharges, 78 cfs.

Extremes.--Maximum discharge during year, 3,190 cfs May 18 (gage height, 6.32 ft); no flow at times.

1924-52: Maximum discharge, 107,000 cfs May 17, 1949 (gage height, 28.20 ft), from rating curve extended above 16,000 cfs on basis of contracted-opening determination of peak flow; no flow at times.

Maximum stage known since at least 1900, that of May 17, 1949. Flood of Apr. 25, 1922, reached a stage of 27.5 ft, present datum (discharge, 74,300 cfs, by slope-area determination of peak flow, data furnished by city engineer of Fort Worth).

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flood flow since August 1950 largely regulated by Benbrook Reservoir (capacity, 164,800 acre-ft, revised) located 10 miles upstream. During the year reservoir acted only as detention basin and no water was permanently stored. Texas & Pacific Railway Co. diverts small amount of water from pool in which gage is located. Records of chemical analyses and water temperatures for water year 1952 are given in Water-Supply Paper 1252.

Revisions.--W 1148: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.5	0	3.2	181
2.6	4.8	3.5	332
2.7	19	4.0	740
2.8	43	5.0	1,680
2.9	73		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	2.0	4.8	103	a9.0	7.1	186	30	0.9	0	0
2		0	2.0	2.0	67	a10	5.9	146	25	.6	0	0
3		0	2.0	4.8	9.7	a11	*23	46	19	0	0	0
4		0	2.0	3.8	9.7	a12	9.7	19	19	0	28	0
5		*0	1.3	2.8	13	a11	15	13	21	0	2.8	0
6		0	*1.3	2.0	9.7	*10	13	*14	14	0	*0	0
7		0	1.3	*2.8	*9.5	8.4	8.4	13	14	0	0	0
8		0	1.3	3.8	7.1	7.1	7.1	13	11	.6	1.2	*0
9		0	1.3	3.8	7.1	8.4	8.4	11	*11	.2	0	0
10		0	.7	3.8	8.4	13	4.8	16	9.7	0	0	0
11		0	1.3	3.8	8.4	8.4	39	9.7	8.4	0	0	0
12		0	2.0	3.8	7.1	8.4	70	8.4	8.4	0	0	0
13		0	2.8	3.8	8.4	7.1	40	8.4	7.1	0	0	0
14		.1	3.8	3.8	9.7	7.1	24	8.4	5.9	*0	0	0
15	(*)	.8	2.8	4.8	13	7.1	11	8.4	4.8	0	0	0
16		0	3.8	5.9	11	8.4	9.7	7.1	3.8	0	0	0
17		0	4.8	5.9	7.1	17	8.4	54	3.8	0	0	0
18		0	4.8	5.9	7.1	15	8.4	1,560	3.1	.7	0	0
19		0	5.9	5.9	8.4	7.1	8.4	166	1.4	0	0	0
20		0	4.9	5.9	9.7	14	57	55	1.3	0	0	0
21		0	5.9	12	11	14	153	30	.2	0	0	0
22		0	4.8	8.4	9.7	11	618	19	.2	0	0	0
23		0	4.8	7.1	8.4	11	696	217	.1	0	0	0
24		0	7.1	7.1	8.4	11	67	813	0	0	0	0
25		0	7.1	8.4	a12	11	9.7	237	0	0	0	.7
26		1.6	3.7	11	a11	11	7.1	80	0	0	0	.7
27		1.3	.2	11	a10	13	4.8	58	0	0	0	1.3
28		.7	.7	9.7	a9.0	14	17	61	0	0	0	1.3
29		.7	3.8	11	a9.0	11	68	46	0	0	0	2.0
30		.7	3.8	11	-	11	24	43	0	0	0	.9
31		-	4.8	11	-	8.4	-	35	-	0	0	-
Total	0	5.9	98.8	191.6	422.6	325.9	2,042.9	4,001.4	222.2	3.0	32.0	6.9
Mean	0	0.20	3.19	6.18	14.6	10.5	68.1	129	7.41	0.10	1.03	0.23
Ac-ft	0	12	196	380	838	646	4,050	7,940	441	6.0	63	14

Calendar year 1951: Max 1,950 Min 0 Mean 33.8 Ac-ft 24,510
Water year 1951-52: Max 1,560 Min 0 Mean 20.1 Ac-ft 14,590

Peak discharge (base, 3,900 cfs).--No peak above base.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records, records for station near Benbrook, and records for West Fork Trinity River at Fort Worth.

West Fork Trinity River at Fort Worth, Tex.

Location.--Lat 32°46', long. 97°20', on left bank in old pumphouse of Texas Electric Service Co., 100 ft upstream from Texas Electric Service Co's concrete dam, 150 ft upstream from Paddock Viaduct (Main Street) at Fort Worth, Tarrant County, 0.2 mile downstream from Clear Fork, and at mile 559.

Drainage area.--2,627 sq mi.

Records available.--October 1920 to September 1952. Gage-height records collected in this vicinity since 1910 are contained in reports of United States Weather Bureau.

Gage.--Water-stage recorder and concrete control. Datum of gage is 519.24 ft above mean sea level, datum of 1929 (Texas Reclamation Department benchmark based on Coast and Geodetic Survey datum).

Average discharge.--32 years, 457 cfs.

Extremes.--Maximum discharge during year, 2,830 cfs May 18 (gage height, 4.52 ft); minimum, 13 cfs July 23, Aug. 2 (gage height, 1.08 ft).
1920-52: Maximum discharge, 85,000 cfs Apr. 25, 1922 (gage height, 23.95 ft), by slope-area method, by city engineer of Fort Worth; maximum gage height, 25.91 ft May 17, 1949 (discharge, 64,300 cfs); no flow at times.
Maximum stage known since at least 1900, that of May 17, 1949.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow largely regulated by Bridgeport Reservoir since 1932 (see p. 57), Eagle Mountain Reservoir since 1934 (see p. 60), and by Lake Worth (capacity, 33,300 acre-ft). Benbrook Reservoir (capacity, 164,800 acre-ft) acted as detention reservoir during the year. During the year the city of Fort Worth diverted 47,200 acre-ft of water from Lake Worth for municipal use and returned 33,700 acre-ft of sewage effluent below station. Several small diversions above station.

Revisions.--W 1148: Drainage area.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 26		Nov. 27 to Sept. 30			
1.2	30	1.1	16	2.5	702
1.4	90	1.2	37	3.0	1,100
		1.4	98	3.5	1,550
		1.7	205	4.0	2,160
		2.0	356		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	45	48	45	180	51	45	306	a70	48	25	48
2	57	45	48	45	202	60	45	218	a66	45	25	76
3	54	51	48	66	60	82	95	101	a66	42	30	35
4	54	60	48	54	57	51	60	72	a64	48	109	30
5	54	*48	48	48	54	51	51	63	a60	35	60	30
6	57	42	*48	*48	54	*54	54	a60	a54	45	28	32
7	57	42	45	48	*51	48	45	a60	a51	37	28	37
8	57	42	45	48	48	48	*42	a60	a51	57	28	*37
9	57	42	48	48	45	54	51	a60	a50	48	28	37
10	57	42	45	48	45	66	48	a57	*51	45	37	40
11	60	42	45	45	45	48	88	a54	51	45	*42	40
12	57	48	48	45	45	48	261	*51	51	42	30	37
13	57	39	48	48	42	45	92	a51	48	40	25	40
14	60	36	48	45	42	45	82	a51	45	40	25	40
15	57	36	42	45	51	45	63	a50	45	*37	25	40
16	57	33	45	45	63	45	54	a48	45	45	25	32
17	57	33	45	45	48	60	57	a200	42	51	28	37
18	54	36	45	45	45	82	60	a1,800	51	57	25	42
19	54	36	45	45	45	48	63	a300	51	40	23	37
20	57	36	45	51	45	48	227	a90	42	40	21	37
21	60	36	45	69	42	51	355	a60	40	30	23	63
22	69	39	42	48	48	45	806	a100	42	30	21	57
23	84	39	45	45	42	45	797	a250	40	23	28	54
24	63	45	45	45	51	45	142	a900	40	25	28	48
25	57	48	45	45	92	45	66	a160	35	25	21	45
26	51	51	45	48	66	45	54	a80	37	28	23	45
27	54	72	45	48	48	48	54	a70	37	30	23	45
28	63	51	45	48	48	48	60	a150	42	21	23	45
29	60	48	45	51	45	48	128	a80	37	25	28	45
30	51	45	45	54	-	48	95	a75	37	25	30	45
31	57	-	45	51	-	48	-	a72	-	23	30	-
Total	1,803	1,308	1,419	1,509	1,749	1,595	4,140	5,749	1,441	1,172	945	1,276
Mean	58.2	43.6	45.8	48.7	60.3	51.4	138	185	48.0	37.8	30.5	42.5
Ac-ft	3,580	2,590	2,810	2,990	3,470	3,160	8,210	11,400	2,860	2,320	1,870	2,530

Calendar year 1951: Max 1,970 Min 33 Mean 135 Ac-ft 98,050
Water year 1951-52: Max 1,800 Min 21 Mean 65.9 Ac-ft 47,790

Peak discharge (base, 4,000 cfs).--No peak above base.
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage, records for Clear Fork Trinity River at Fort Worth and for station at Grand Prairie.

West Fork Trinity River at Grand Prairie, Tex.

Location.--Lat 32°46', long. 96°59', on right bank 440 ft downstream from bridge on Grand Prairie-Sowers-Irving highway, 1 mile northeast of Grand Prairie, Dallas County, 6 miles upstream from Mountain Creek, and at mile 515.

Drainage area.--3,070 sq mi.

Records available.--March 1925 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 412.98 ft above mean sea level, datum of 1929. Prior to Dec. 6, 1933, chain gage at site 440 ft upstream at same datum.

Average discharge.--27 years, 611 cfs.

Extremes.--Maximum discharge during year, 3,720 cfs Apr. 23 (gage height, 12.57 ft); minimum, 55 cfs Sept. 22 (gage height, 1.65 ft).
1925-52: Maximum discharge, 62,000 cfs May 17, 1949 (gage height, 28.00 ft), from rating curve extended above 36,000 cfs by logarithmic plotting; minimum observed, 3.2 cfs June 6, 1925.
Maximum stage known since at least 1900, about 30.6 ft in 1908 (probably May), from information by local resident. Flood of April 1922 reached a stage of 29 ft, from floodmarks.

Remarks.--Records good. Flow largely regulated by Bridgeport, Eagle Mountain, and Benbrook Reservoirs, and Lake Worth (combined capacity, 691,800 acre-ft, revised). Cities of Fort Worth and Grand Prairie discharge sewage effluent between station at Fort Worth and this station. Several diversions above Fort Worth for municipal and other uses.

Revisions (water years).--W 628: 1925. W 1148: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 26 to June 5)

1.6	57	3.5	410
1.8	76	4.0	546
2.1	109	5.0	840
2.4	154	6.0	1,170
2.7	214	8.0	1,870
3.0	283	10.0	2,610

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	118	94	89	98	105	96	172	151	88	72	64
2	96	108	96	89	668	107	*96	346	*134	102	71	72
3	97	96	93	96	366	118	98	288	137	101	70	122
4	96	95	94	116	137	154	148	169	132	94	66	78
5	96	97	97	114	116	124	160	124	128	88	128	74
6	96	104	97	97	114	110	99	117	146	85	132	73
7	95	98	97	92	110	110	95	110	126	81	81	71
8	89	96	96	95	103	110	96	105	117	92	76	66
9	94	96	93	98	105	107	95	103	109	99	75	*69
10	95	98	88	97	104	104	101	101	112	98	70	74
11	95	95	93	96	97	136	108	99	114	94	*65	73
12	95	89	96	96	101	122	384	93	112	89	74	73
13	95	94	98	95	104	108	385	96	112	85	74	75
14	95	97	98	93	103	105	137	95	108	80	71	69
15	90	*94	99	95	102	103	130	93	99	83	69	64
16	95	93	93	97	110	99	113	92	94	*85	68	69
17	*97	92	89	*97	134	96	105	110	99	89	67	73
18	98	89	94	98	104	116	102	1,850	99	104	62	71
19	97	87	*95	96	104	163	104	1,600	103	103	66	73
20	96	89	96	95	107	112	131	333	107	87	71	71
21	96	95	95	92	105	104	380	195	98	79	70	66
22	93	96	94	118	105	105	1,400	154	93	79	68	87
23	107	92	92	101	107	97	2,500	318	87	77	70	114
24	152	93	87	95	105	90	707	1,880	93	76	70	86
25	109	97	87	96	108	94	241	889	95	76	66	83
26	105	113	86	97	196	95	151	373	93	75	68	80
27	107	108	89	94	*167	96	119	229	92	71	70	81
28	116	139	92	89	122	97	110	369	93	67	69	79
29	124	109	92	90	113	103	109	*371	90	72	72	72
30	117	101	94	95	-	98	159	212	86	74	71	75
31	112	-	89	98	-	93	-	173	-	74	70	-
Total	3,140	2,968	2,893	3,006	4,115	3,401	8,657	11,259	3,259	2,647	2,292	2,297
Mean	101	98.9	93.3	97.0	142	110	289	363	109	85.4	73.9	76.6
Ac-ft	6,230	5,890	5,740	5,960	8,160	6,750	17,170	22,330	6,460	5,250	4,550	4,560

Calendar year 1951: Max 4,060 Min 86 Mean 226 Ac-ft 163,300
Water year 1951-52: Max 2,500 Min 62 Mean 136 Ac-ft 99,050

Peak discharge (base, 5,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Elm Fork Trinity River near Sanger, Tex.

Location.--Lat 33°23'09", long. 97°04'59", on left bank on downstream side of pier of bridge on Sanger-Pilot Point county road, 4.1 miles downstream from Spring Creek, 5.0 miles upstream from Isle du Bois Creek, and 5.4 miles northeast of Sanger, Denton County.

Drainage area.--379 sq mi.

Records available.--April 1949 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 553.93 ft above mean sea level, datum of 1929, supplementary adjustment of 1942 (Corps of Engineers benchmark).

Extremes.--Maximum discharge during year, 2,710 cfs Apr. 22 (gage height, 18.28 ft); no flow July 12-20, July 25 to Sept. 30.

1949-52: Maximum discharge, 20,100 cfs Sept. 14, 1950 (gage height, 27.15 ft), from rating curve extended above 11,000 cfs by logarithmic plotting; no flow at times.

Maximum stage known since at least 1903, about 30.7 ft in 1908, from information by local residents. Flood of May 18, 1935, reached a stage of 29.7 ft, from floodmarks.

Remarks.--Records good.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 5, June 10 to July 20)

Oct. 1 to Mar. 2

1.28	0.4	2.0	12
1.3	.5	2.5	22
1.4	1.5	3.0	34
1.5	3.2	3.5	51
1.7	6.8	4.5	106

Mar. 3 to Sept. 30

0.8	0	1.5	6.0	7.0	430
.9	.1	1.7	10	10.0	777
1.0	.3	2.0	20	13.0	1,220
1.1	.8	2.5	41	16.0	1,990
1.2	1.6	3.0	70		
1.3	2.7	4.0	143		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	51	3.2	2.2	2.4	2.0	3.9	12	13	0.1		
2	1.0	14	3.0	2.4	2.9	3.4	3.8	17	8.1	.1		
3	.9	6.4	2.5	2.5	2.2	209	3.6	14	6.0	.2		
4	.6	4.6	2.5	3.2	3.4	137	3.3	11	4.7	.2		
5	.5	3.6	2.5	*6.1	*2.9	*31	3.2	7.9	18	.2		
6	.5	3.0	2.4	4.3	2.2	13	3.0	6.0	4.2	.1		
7	.5	2.5	2.2	3.6	2.4	8.3	3.0	5.8	3.8	.1		
8	.5	2.2	2.2	3.2	2.9	6.1	*3.0	5.3	3.8	.1		
9	.5	2.2	2.2	2.7	2.5	6.0	3.0	4.4	4.0	.1		
10	.5	2.2	2.4	2.4	2.2	144	3.0	4.2	3.4	.1		
11	.5	2.2	2.2	2.4	2.0	142	4.3	3.9	3.3	.1		
12	.5	1.7	2.0	2.5	102	34	196	*3.8	*2.8	0		
13	.4	1.2	2.2	2.5	25	15	73	3.3	1.8	0		
14	.5	1.5	2.4	2.7	8.2	9.5	20	2.7	2.2	0		
15	.5	1.3	2.2	2.7	4.8	7.0	10	2.4	2.2	0		
16	.4	1.2	2.2	2.7	3.9	6.0	6.1	2.3	1.5	0		
17	.5	.8	2.2	2.5	3.2	5.5	5.3	2.4	1.4	0		
18	*.4	1.2	2.2	2.5	3.2	19	4.7	67	1.3	0		
19	.5	1.3	2.2	2.5	2.5	31	14	16	.9	0		
20	.5	1.5	2.4	2.7	2.0	17	476	5.5	.7	0		
21	.5	3.2	2.2	2.7	1.8	9.5	905	4.9	.7	.3		
22	.5	4.6	2.2	2.5	1.0	6.1	1,760	4.2	.6	*.2		
23	1.1	2.5	2.2	2.5	1.5	5.3	1,000	298	.6	.1		
24	1.5	2.7	2.4	2.4	1.5	4.6	158	435	.4	.1		
25	1.4	3.2	2.5	2.5	1.7	4.0	83	72	.3	0		
26	1.4	*3.4	2.4	2.5	1.8	3.9	52	21	*.3	0	(*)	
27	23	3.7	2.4	2.5	2.4	3.9	34	10	.2	0		
28	64	3.6	2.4	2.5	2.5	3.9	25	318	.2	0		
29	11	3.6	2.2	2.5	2.2	4.0	19	177	.2	0		
30	5.7	3.4	2.0	2.4	-	4.2	14	59	.1	0		
31	4.5	-	2.2	2.0	-	4.0	-	23	-	0		
Total	125.7	139.5	72.4	85.3	199.2	699.2	4,892.2	1,619.0	90.7	2.1	0	0
Mean	4.05	4.65	2.34	2.75	6.87	29.0	163	52.2	3.02	0.07	0	0
Ac-ft	249	277	144	169	395	1,780	9,700	3,210	180	4.2	0	0

Calendar year 1951: Max 2,580 Min 0.4 Mean 44.1 Ac-ft 31,940
Water year 1951-52: Max 1,760 Min 0 Mean 22.2 Ac-ft 16,110

Peak discharge (base, 4,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Isle du Bois Creek near Pilot Point, Tex.

Location.--Lat 33°24'53", long. 97°00'00", on left bank on downstream side of pier of highway bridge, 1.4 miles downstream from Wolf Creek, 2.2 miles downstream from Indian Creek, 2.5 miles northwest of Pilot Point, Denton County, and 7.3 miles upstream from mouth.

Drainage area.--261 sq mi.

Records available.--April 1949 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 559.70 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942 (Corps of Engineers benchmark).

Extremes.--Maximum discharge during year, 3,130 cfs Apr. 23 (gage height, 21.05 ft); no flow at times.
1949-52: Maximum discharge, 23,300 cfs Sept. 13, 1950 (gage height, 26.35 ft), from rating curve extended above 4,600 cfs on basis of slope-area determination of peak flow; no flow at times.
Maximum stage known since at least 1900, about 29.3 ft in 1908, from information by local residents.

Remarks.--Records good above 5 cfs and fair below.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1.6	0.2	0.3	0.2	0	1.2	8.3	16	0.1		
2	0	31	.1	.3	.3	15	.8	7.6	10	.1		
3	0	9.3	.1	.3	.4	65	.7	6.6	7.5	.1		
4	0	4.1	.2	.3	.3	262	.6	5.9	5.5	0		
5	0	1.4	1.0	*.3	*.2	*55	.3	5.3	4.7	0		
6	0	.3	.5	.3	.1	19	.4	4.5	17	0		
7	0	.1	.2	.3	.1	10	.6	3.8	76	0		
8	0	0	.2	.3	.1	5.9	*.4	3.4	16	.1		
9	0	0	.1	.3	.1	5.3	.4	2.6	8.0	.6		
10	0	0	.1	.3	.1	25	1.4	2.1	4.0	.8		
11	0	0	.1	.4	.1	107	4.2	1.4	2.3	.5		
12	0	0	.1	.5	25	42	569	*1.0	*1.0	.3		
13	0	0	.2	.3	114	17	721	.8	.7	.2		
14	0	0	.2	.4	32	9.4	80	.6	.6	.1		
15	0	0	.1	.5	12	6.3	21	.4	.4	0		
16	0	0	.1	.6	7.2	4.2	12	.3	.4	0		
17	0	0	0	.4	4.5	3.2	7.9	2.0	.3	.2		
18	*0	0	.1	.4	2.9	12	6.0	65	.3	.3		
19	0	0	.1	.4	2.8	34	4.6	52	.3	.2		
20	0	0	.2	.3	1.4	34	235	15	.2	.1		
21	0	0	.2	.5	.4	15	636	6.6	.2	.1		
22	0	0	.1	.5	.1	8.6	1,640	4.1	.2	**0		
23	0	0	.2	.6	0	5.9	2,650	378	.2	0		
24	0	1.3	.2	.5	0	4.2	649	506	.1	0		
25	0	2.8	.2	.5	0	2.9	46	68	**.1	0		
26	0	*1.4	.2	.6	.2	2.3	27	28	.1	0	(*)	
27	11	2.6	.2	.6	.2	1.9	19	18	.1	0		
28	12	1.4	.2	.6	.2	1.8	14	503	.1	0		
29	43	.4	.2	.4	.2	1.4	12	776	.1	0		
30	9.8	.2	.2	.2	-	1.6	9.8	162	.1	0		
31	3.4	-	.3	.2	-	1.6	-	33	-	0		
Total	79.2	57.9	6.1	12.4	205.1	778.5	7,370.3	2,671.3	172.5	3.8	0	0
Mean	2.55	1.93	0.20	0.40	7.07	25.1	246	86.2	5.75	0.12	0	0
Ac-ft	157	115	12	25	407	1,540	14,620	5,300	342	7.5	0	0

Calendar year 1951: Max 2,890 Min 0 Mean 53.6 Ac-ft 38,890
Water year 1951-52: Max 2,650 Min 0 Mean 31.0 Ac-ft 22,530

Peak discharge (base, 2,500 cfs).--Apr. 23 (11 a.m.) 3,130 cfs (21.05 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.

Lake Dallas near Lake Dallas, Tex.

Location.--Lat 33°07', long. 96°59', in gatehouse at Garza Dam on Elm Fork Trinity River, 1.6 miles upstream from Little Elm Creek and 2.0 miles southeast of town of Lake Dallas, Denton County.

Drainage area.--1,165 sq mi.

Records available.--December 1928 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 0.08 ft above mean sea level, datum of 1929. Prior to Jan. 6, 1943, staff gages at several sites in vicinity of present gage at same datum.

Extremes.--Maximum contents during year, 87,750 acre-ft May 31 (gage height, 517.5 ft); minimum, 28,240 acre-ft Sept. 30 (gage height, 506.4 ft).
1928-52: Maximum contents not determined; maximum gage height, 534.0 ft Apr. 25, 1942, from floodmark (all gates were open during passing of crest through lake); minimum contents observed, that of Sept. 30, 1952.

Remarks.--Reservoir is formed by earthen hydraulic-fill dam, consisting of 567 ft of concrete service spillway and two dikes. There are two emergency earthen spillways beyond right end of dam. Dam completed in November 1927 and storage began Feb. 16, 1928. Capacity, 156,600 (revised) acre-ft (gage height, 525.0 ft, top of service spillway). Water can be withdrawn through one 18-inch outlet gate (gage height of bottom of gate, 474.0 ft), four 48-inch outlet gates (gage height of bottom of gate, 463.0 ft), and one 6-inch gate (gage height of bottom of gate, 474.0 ft). Dead storage is negligible. Water is used by city of Dallas for municipal supply. Figures given herein represent total contents. Capacity figures for the current year based on redetermination of lake capacity during the fall of 1952.

Cooperation.--Capacity table furnished by city of Dallas.

Revisions.--W 1148: Drainage area.

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	517.2	‡85,650	-
Oct. 31	515.4	73,350	-12,300
Nov. 30	514.3	66,270	-7,080
Dec. 31	513.1	58,950	-7,320
Calendar year 1951	-	-	-
Jan. 31	512.1	53,440	-5,510
Feb. 29	511.4	49,800	-3,640
Mar. 31	510.9	47,270	-2,530
Apr. 30	516.4	80,050	+32,780
May 31	517.5	87,750	+7,700
June 30	515.9	76,600	-11,150
July 31	513.3	60,150	-16,450
Aug. 31	509.8	42,000	-18,150
Sept.30	*506.4	28,240	-13,760
Water year 1951-52	-	-	-57,410

* Gage height from staff-gage reading.
† Gage height at 12 p.m.
‡ Based on revised capacity table.

Elm Fork Trinity River near Lewisville, Tex.

Location.--Lat 33°02'45", long. 96°57'40", on left bank at downstream side of pier of bridge on State Highway 121, 1.8 miles east of Lewisville, Denton County, 1.9 miles downstream from Garza-Little Elm Dam, now under construction, 2.0 miles downstream from Hickory Creek, and 8.3 miles upstream from Denton Creek.

Drainage area.--1,671 sq mi.

Records available.--March 1949 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 432.39 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Jan. 6, 1950, wire-weight gage read once daily, 0.6 mile upstream at datum 3.26 ft lower.

Extremes.--Maximum discharge during year, 6,180 cfs Apr. 23 (gage height, 25.63 ft); minimum daily, 72 cfs Nov. 6, 7.
1949-52: Maximum discharge, 21,700 cfs Sept. 15, 1950 (gage height, 30.75 ft); minimum daily, 70 cfs at times.
Maximum stage known since at least 1907, 33.8 ft in 1908, present site and datum, from floodmarks.

Remarks.--Records good. Flow largely regulated by Lake Dallas (see preceding page).

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	236	88	112	112	76	76	94	100	126	188	202	226
2	236	79	112	112	76	79	94	97	109	188	236	231
3	236	76	112	116	76	91	100	97	100	188	231	231
4	236	76	112	85	76	91	*79	94	97	188	231	226
5	236	76	112	*76	79	*124	76	91	*94	184	231	216
6	236	73	*112	76	*76	97	76	88	97	184	236	157
7	236	72	109	76	76	88	76	*85	94	184	236	153
8	*236	97	109	76	76	212	76	85	88	184	231	208
9	231	*103	109	76	76	185	79	120	101	184	188	*221
10	231	103	109	76	76	79	79	112	149	184	188	221
11	221	103	109	76	76	76	79	109	149	184	194	216
12	184	109	109	79	76	76	315	109	149	184	243	216
13	184	109	112	79	76	76	522	112	149	184	241	211
14	184	109	112	79	76	79	279	112	145	184	241	211
15	184	109	112	82	76	76	113	112	145	184	241	211
16	184	109	112	79	79	73	91	112	145	184	236	211
17	188	109	112	79	76	73	82	116	167	177	236	202
18	184	109	112	79	76	88	76	218	170	126	236	174
19	184	112	112	79	76	101	76	157	170	126	236	134
20	184	112	112	76	76	137	109	130	170	126	236	134
21	184	112	112	79	76	83	415	120	170	138	236	134
22	188	112	112	76	76	76	3,140	120	170	170	236	134
23	188	112	112	79	76	76	*5,230	290	170	170	231	134
24	184	112	112	79	76	76	1,700	1,040	170	170	231	134
25	184	112	112	79	79	76	209	380	170	170	231	130
26	184	116	112	76	79	76	122	105	170	170	231	130
27	188	116	112	76	76	76	137	120	186	170	231	130
28	188	112	112	76	76	76	123	649	188	170	231	130
29	197	112	112	76	76	94	112	932	188	170	231	145
30	155	112	112	76	-	97	106	750	188	170	231	182
31	85	-	112	76	-	97	-	168	-	170	231	-
Total	6,156	3,061	3,454	2,516	2,216	2,880	13,865	6,930	4,384	5,353	7,101	5,393
Mean	199	102	111	81.2	76.4	92.9	462	224	146	173	229	180
Ac-ft	12,210	6,070	6,850	4,990	4,400	5,710	27,500	13,750	8,700	10,620	14,080	10,700

Calendar year 1951: Max 4,750 Min 70 Mean 249 Ac-ft 180,500
Water year 1951-52: Max 5,230 Min 72 Mean 173 Ac-ft 125,600

Peak discharge (base, 7,800 cfs).--No peak above base.
* Discharge measurement made on this day.

Denton Creek near Justin, Tex.

Location.--Lat 33°07', long. 97°18', on right bank at downstream side of bridge on State Farm Highway 156, 100 ft upstream from Gulf, Colorado & Santa Fe Railway bridge, 2.2 miles north of Justin, Denton County, 3.0 miles upstream from Olivers Creek, 12.9 miles upstream from Harriet Creek, and 32.9 miles upstream from Grapevine Dam.

Drainage area.--409 sq mi.

Records available.--October 1949 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 606.66 ft above mean sea level, datum of 1929, supplementary adjustment of 1942.

Extremes.--Maximum discharge during year, 872 cfs Apr. 22 (gage height, 7.61 ft); no flow at times.

1949-52: Maximum discharge, 6,210 cfs May 1, 1950 (gage height, 15.67 ft); no flow at times.

Maximum stage known, 21.6 ft in May 1908, which was about 1 ft higher than flood of May 1935 at site 1,500 ft above gage, from floodmarks, from information by local residents.

Remarks.--Records good.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 7 to Mar. 2)

1.1	0	2.2	37
1.2	.3	2.5	58
1.3	1.5	3.0	99
1.4	3.0	3.5	149
1.5	5.1	4.0	200
1.7	11	5.0	318
1.9	20		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.5	2.2	2.4	18	39			
2				0	.9	3.4	2.0	53	68			
3				0	1.6	13	1.3	116	149			
4				0	1.8	9.4	*.8	74	125			
5	(*)	(*)		*0	2.6	*6.8	.2	30	63			
6				0	*1.8	5.1	1.8	14	32			
7				1.4	1.0	4.5	1.8	7.3	18			
8				1.3	.4	3.4	1.4	4.9	13			
9				1.0	.2	3.8	.9	*3.2	7.3			
10				.8	.2	4.3	.4	2.2	4.3			
11				.9	.2	4.5	.5	1.6	*2.6			
12				1.0	.9	12	5.4	1.3	1.1			
13				1.0	1.0	11	25	.9	.2			
14				.9	1.1	7.9	16	.4	0			
15				1.3	1.1	4.9	8.5	.2	0			
16				1.6	1.1	3.6	5.7	0	0			
17				1.8	1.0	2.7	4.5	0	0			
18				1.5	2.2	2.7	3.6	8.8	0			
19				1.5	2.4	7.9	3.4	5.3	0			
20				1.5	1.8	13	5.7	18	0			
21				1.5	2.0	7.1	150	20	0			
22				1.0	2.0	4.3	274	11	0	(*)		
23				.8	1.8	3.0	112	65	0			
24				1.4	1.8	2.4	49	10	0			
25				1.6	2.2	2.0	23	40	0			
26		(*)		1.5	2.6	1.8	13	66	*0		(*)	
27				1.3	2.8	1.8	8.5	37	0			
28				.8	3.0	1.5	6.2	28	0			
29				1.0	2.6	1.4	4.7	28	0			
30				.8	-	2.1	3.8	131	0			
31				.8	-	2.6	-	102	-			
Total	0	0	0	30.0	44.6	156.1	735.5	897.1	522.5	0	0	0
Mean	0	0	0	0.97	1.53	5.04	24.5	28.9	17.4	0	0	0
Ac-ft	0	0	0	60	88	310	1,460	1,780	1,040	0	0	0

Calendar year 1951: Max 1,160 Min 0 Mean 33.9 Ac-ft 24,570
Water year 1951-52: Max 274 Min 0 Mean 6.52 Ac-ft 4,740

Peak discharge (base, 3,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Denton Creek near Roanoke, Tex.

Location.--Lat 33°02', long. 97°12', on right bank 1,100 ft downstream from bridge (relocated) on U. S. Highway 377, 1,200 ft downstream from Texas & Pacific Railway bridge (relocated), and 2.5 miles northeast of Roanoke, Denton County, and 8.5 miles downstream from Olivers Creek.

Drainage area.--621 sq mi.

Records available.--October 1923 to December 1927, March 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 523.55 ft above mean sea level, datum of 1929. Oct. 12, 1923, to Dec. 31, 1927, chain gage at site 240 ft downstream and at same datum.

Average discharge.--16 years (1924-27, 1939-52), 186 cfs; median of yearly mean discharges, 140 cfs.

Extremes.--Maximum discharge during year, 4,060 cfs Apr. 22 (gage height, 15.74 ft); no flow at times.

1923-27, 1939-52: Maximum discharge, 49,700 cfs Apr. 20, 1942 (gage height, 30.20 ft), from rating curve extended above 32,000 cfs on basis of velocity-area studies; no flow at times.

Maximum stage known, 31 ft in May 1908, from floodmarks pointed out by local residents.

Remarks.--Records good except those for the period Mar. 20 to Apr. 21, which are fair.

Revisions (water years).--W 850: 1926 (July mean). W 898: 1924(M). W 1148: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 20 to Apr. 21)

2.3	0	3.1	40	6.0	920
2.4	.6	3.4	82	7.0	1,300
2.5	2.2	3.7	138	8.0	1,680
2.6	6.0	4.0	204	10.0	2,440
2.7	11	4.5	363		
2.9	22	5.0	545		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.3	0	0	0	1.4	0.6	136	148			
2	0	0	0	0	15	1.7	.8	206	88			
3	0	0	0	.1	4.3	4.2	1.4	296	345			
4	0	0	**0	.2	.9	8.4	*1.4	280	363			
5	*0	**0	0	**.1	.4	*6.5	1.2	129	206			
6	0	0	0	.1	*.4	6.0	.5	57	99			
7	0	0	0	.1	.4	3.7	.1	25	44			
8	0	0	0	.1	.4	3.7	0	14	23			
9	0	0	0	.1	.4	3.3	0	*6.5	15			
10	0	0	0	.1	.4	3.3	1.1	3.0	7.0			
11	0	0	0	.1	.4	3.3	2.3	1.4	*3.7			
12	0	0	0	.1	4.5	3.0	52	.8	1.9			
13	0	0	.5	.1	1.2	8.5	28	.5	.8			
14	0	0	1.6	.1	.5	10	55	.3	.4			
15	0	0	3.0	.1	.4	8.5	31	.1	.1			
16	0	0	2.6	.1	.4	5.6	17	.1	0			
17	0	0	.9	.1	.3	4.5	12	2.3	0			
18	0	0	.4	.1	.2	4.9	14	180	0			
19	0	0	1.2	.1	.2	4.1	12	54	0			
20	0	0	.6	0	.2	2.6	48	20	0			
21	0	0	.3	0	.2	5.0	433	44	0			
22	.6	0	.2	0	.2	6.5	2,170	33	0	(*)		
23	1.1	0	.1	0	.2	2.2	610	319	0			
24	2.0	0	.1	0	.2	1.6	254	139	0			
25	1.7	.1	.1	0	.9	1.4	136	49	0			
26	.2	**.1	.1	0	1.2	1.1	75	174	*0		(*)	
27	0	.1	0	0	1.1	.9	40	134	0			
28	.2	.1	0	0	1.1	.8	24	134	0			
29	.1	.1	0	0	1.1	1.4	17	135	0			
30	0	.1	0	0	-	1.4	12	234	0			
31	.4	-	0	0	-	.9	-	336	-			
Total	6.3	0.9	11.7	1.8	37.1	120.4	4,049.4	3,143.0	1,344.9	0	0	0
Mean	0.20	0.03	0.38	0.06	1.28	3.88	135	101	44.8	0	0	0
Ac-ft	12	1.8	23	3.6	74	239	8,030	6,230	2,670	0	0	0

Calendar year 1951: Max 2,010 Min 0 Mean 47.2 Ac-ft 34,170
Water year 1951-52: Max 2,170 Min 0 Mean 23.8 Ac-ft 17,280

Peak discharge (base, 7,200 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.

Denton Creek near Grapevine, Tex.

Location.--Lat 32°59'15", long. 97°00'45", on left bank at downstream side of left pier of bridge on State Highway 121, 1.3 miles downstream from Bakers Branch, 4.3 miles downstream from Grapevine Dam, 5.0 miles northeast of Grapevine, Tarrant County, and 6.1 miles upstream from mouth.

Drainage area.--694 sq mi.

Records available.--October 1947 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 439.13 ft above mean sea level, unadjusted.

Average discharge.--5 years, 140 cfs.

Extremes.--Maximum discharge during year, 1,460 cfs Apr. 23 (gage height, 16.82 ft); no flow for several periods.
1947-52: Maximum discharge, 13,900 cfs Feb. 26, 1948 (gage height, 30.38 ft), from rating curve extended above 6,000 cfs by conveyance-slope method; no flow at times.
Maximum stage known occurred in May 1908 and was slightly higher than flood of April 1942, which reached a stage of 35.9 ft, from floodmarks, from information by local resident.

Remarks.--Records fair. From Oct. 1 to June 30 flow somewhat regulated by channel dams inside Grapevine Reservoir area. From July 1, flow regulated by Grapevine Reservoir (capacity, 434,000 acre-ft).

Revisions.--W 1148: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0.1	0.2	0.1	0	19	108		0	
2				.1	.3	.1	0	47	46		0	
3				.2	.3	.2	.1	79	46		0	
4			(*)	.2	.2	.2	*.1	105	138		0	
5	(*)			**.2	.2	*.1	0	86	*126		0	
6				.2	**.2	.1	0	43	64		*0	
7				.2	.2	.1	0	*29	31		0	
8	(*)			.2	.2	.1	0	21	19		0	
9		(*)		.2	.2	.1	0	17	12		0	
10				.2	.2	.1	0	15	8.8		3.4	
11				.2	5.9	.1	.1	13	6.2		1.6	
12				.2	1.4	.1	27	11	5.0		0	
13				.2	.3	0	.6	9.5	3.5		0	
14				.2	.2	0	.8	8.8	2.5		0	
15				.2	.2	0	3.8	8.9	2.0	(*)	0	
16				.2	.2	0	5.6	7.6	1.5		0	
17			(*)	.2	.2	.1	4.8	6.4	1.0		0	
18				.2	.2	.2	3.8	38	.6		0	
19				.2	.2	.2	2.9	65	.2		0	
20				.2	.2	.1	9.6	31	0		0	
21				.2	.1	.1	58	19	0		0	
22				.2	.1	.1	709	19	0		0	
23				.2	.1	.1	1,360	47	0		0	
24				.2	.1	.1	856	182	0		0	
25				.2	.2	0	367	54	0		0	
26				.2	.2	0	104	26	*0		0	
27				.2	.2	0	48	52	0		0	
28				.2	.1	0	32	40	0		0	
29				.2	.1	0	25	56	0		0	
30				.2	-	0	21	45	0		0	
31				.2	-	0	-	105	-		0	
Total	0	0	0	6.0	12.4	2.4	3,639.2	1,305.2	621.3	0	5.0	0
Mean	0	0	0	0.19	0.43	0.08	121	42.1	20.7	0	0.16	0
Ac-ft	0	0	0	12	25	4.8	7,220	2,590	1,230	0	9.9	0

Calendar year 1951: Max 1,800 Min 0 Mean 55.1 Ac-ft 39,860
Water year 1951-52: Max 1,360 Min 0 Mean 15.3 Ac-ft 11,090

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.

Elm Fork Trinity River near Carrollton, Tex.

Location.--Lat 32°52'25", long. 96°55'50", on left bank at downstream side of bridge on State Highway 114, 100 ft downstream from Hackberry Creek, 0.8 mile upstream from California Dam, and 5.5 miles southwest of Carrollton, Dallas County.

Drainage area.--2,534 sq mi.

Records available.--January 1907 to September 1920 (monthly records only, in Water-Supply Paper 850), October 1920 to March 1923, August 1923 to September 1952. Prior to November 1923, published as "near Dallas."

Gage.--Water-stage recorder and concrete control. Datum of gage is 410.46 ft above mean sea level, datum of 1929. Prior to November 1923, staff gage at site 7 miles downstream at different datum. Nov. 1, 1923, to Nov. 13, 1934, staff gage and Nov. 14, 1934, to July 6, 1938, water-stage recorder at site 8.5 miles upstream at datum 22.94 ft higher. July 7, 1938, to Apr. 14, 1939, staff gage at site 0.8 mile downstream at same datum.

Average discharge.--44 years (1907-22, 1923-52), 858 cfs.

Extremes.--Maximum discharge during year, 5,740 cfs Apr. 24 (gage height, 10.84 ft); minimum, 16 cfs Mar. 29 (gage height, 0.98 ft).
1907-52: Maximum gage height, about 28 ft May 25, 1908, present site and datum, from floodmarks, furnished by State Reclamation Department (discharge not determined); maximum discharge subsequent to 1908, 90,700 cfs Apr. 26, 1942 (gage height, 21.05 ft); no flow at times.

Remarks.--Records good. Flow regulated by Lake Dallas (capacity, 194,000 acre-ft), see page 68. Beginning in April, the city of Dallas diverted 23,600 acre-ft above station for municipal supply.

Revisions (water years).--W 788: 1924. W 1148: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.0	19	2.0	410
1.1	33	3.0	1,020
1.3	80	5.0	2,500
1.5	149	7.0	3,800
1.7	239	10.0	5,320

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	250	96	106	106	83	83	48	64	201	106	109	138
2	250	90	106	106	83	83	99	54	*130	109	138	145
3	250	80	106	119	77	90	109	96	75	*106	127	149
4	250	90	*106	109	75	96	93	130	108	123	119	149
5	250	90	96	93	75	112	72	138	166	116	127	149
6	244	80	96	93	75	109	72	93	138	119	*127	106
7	244	77	96	90	75	62	72	62	93	116	130	80
8	244	*77	99	72	75	41	75	33	72	109	134	83
9	*244	80	96	72	77	92	77	33	44	106	102	*157
10	244	83	96	*72	77	86	80	44	66	112	90	145
11	244	86	96	72	83	50	80	46	90	112	93	142
12	205	86	96	72	96	59	281	41	127	109	130	142
13	196	90	99	75	80	70	560	39	123	109	145	134
14	191	93	102	75	77	72	421	37	86	112	134	134
15	191	102	102	80	77	75	156	37	67	112	138	142
16	191	96	106	83	77	75	112	39	67	109	138	145
17	191	96	106	83	77	62	93	37	70	119	134	149
18	196	93	116	83	*79	54	68	174	99	102	142	127
19	191	93	112	83	75	70	39	202	99	77	130	80
20	191	96	109	83	75	106	59	112	99	72	134	70
21	196	96	109	83	77	*116	*176	70	83	72	130	72
22	196	99	109	83	80	75	2,650	62	83	93	134	77
23	205	99	109	83	80	70	5,340	365	86	102	138	70
24	201	99	106	83	83	70	4,690	1,290	80	99	138	72
25	201	99	106	83	90	67	911	679	86	102	127	72
26	201	99	102	83	86	57	277	149	80	106	127	72
27	210	102	102	83	83	54	149	86	86	90	130	70
28	210	102	106	83	83	26	96	394	112	102	134	64
29	210	102	106	83	83	22	77	955	112	106	127	57
30	210	106	106	83	-	39	80	1,020	119	109	134	83
31	119	-	106	83	-	39	-	326	-	106	149	-
Total	6,616	2,777	3,214	2,634	2,313	2,182	17,112	6,907	2,947	3,242	3,989	3,275
Mean	213	92.6	104	85.0	79.8	70.4	570	223	98.2	105	129	109
Ac-ft	13,120	5,510	6,370	5,220	4,590	4,330	33,940	13,700	5,850	6,430	7,910	6,500

Calendar year 1951: Max 5,760 Min 77 Mean 319 Ac-ft 231,300
Water year 1951-52: Max 5,340 Min 22 Mean 156 Ac-ft 113,500

Peak discharge (base, 8,100 cfs).--No peak above base.
* Discharge measurement made on this day.

Trinity River at Dallas, Tex.

Location.--Lat 32°47', long. 96°48', on left bank on downstream side of left pier of Commerce Street viaduct at Dallas, Dallas County, 5¼ miles downstream from confluence of West and Elm Forks, and at mile 500.

Drainage area.--6,120 sq mi.

Records available.--October 1898 to December 1899 (gage heights only), July 1903 to September 1952 (January 1907 to September 1920, monthly records only, in Water-Supply Paper 850). Gage-height records collected in this vicinity since 1903 are contained in reports of United States Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 368.14 ft above mean sea level, unadjusted. Oct. 1, 1898, to Dec. 31, 1899, sliding pointer at site 2 miles upstream at different datum. July 1, 1903, to July 20, 1930, chain gage at present site and datum. July 21, 1930, to Sept. 30, 1932, chain gage at site 6 miles downstream at datum 3.08 ft lower.

Average discharge.--49 years (1903-52), 1,557 cfs; median of yearly mean discharges, 1,400 cfs.

Extremes.--Maximum discharge during year, 7,570 cfs Apr. 23; maximum gage height, 29.18 ft Apr. 23; minimum discharge, 59 cfs Sept. 22 (gage height, 11.92 ft); minimum daily, 66 cfs July 29, Sept. 22.

1903-52: Maximum discharge, 184,000 cfs May 25, 1908 (gage height, 52.6 ft), from rating curve extended above 109,000 cfs; minimum observed for periods 1903-6, 1920-52, 6.8 cfs Sept. 11, 1924.

Maximum stage known since at least 1898, that of May 25, 1908. Flood of 1866 reached about same stage.

Remarks.--Records good except those for rapidly changing stage, which are fair. Flow regulated by Bridgeport Reservoir since 1932 (see p.), Eagle Mountain Reservoir since 1934 (see p.), Lake Dallas since 1928 (see p.), and several smaller reservoirs, all of which have a combined capacity of 757,000 acre-ft. During the year the city of Dallas diverted 82,100 acre-ft of water above the station for municipal use and returned 36,800 acre-ft of sewage effluent below station.

Revisions (water years).--W 850: 1903-6 (monthly and annual means). W 1148: Drainage area.

Rating table, water year 1951-52, except periods when rate of change in stage was a factor (gage height, in feet, and discharge, in cubic feet per second)

11.9	56	15.0	990	23.0	3,450
12.2	110	17.0	1,600	25.0	4,420
13.0	296	19.0	2,070	27.0	5,580
14.0	600	21.0	2,650	29.0	7,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	242	175	143	117	117	114	*106	*191	334	90	83	83
2	230	159	143	132	375	125	108	338	*284	132	76	76
3	235	130	141	177	570	179	142	386	186	*119	79	170
4	230	125	117	161	193	163	207	304	177	125	88	139
5	233	121	141	159	123	170	223	261	258	119	123	123
6	230	119	134	128	114	172	139	191	286	114	233	108
7	254	121	130	121	117	125	112	143	223	104	145	88
8	245	*114	136	106	104	114	110	130	175	134	*123	81
9	233	106	141	114	102	123	125	114	128	170	110	*74
10	242	108	132	110	104	192	114	121	108	147	83	85
11	240	130	119	108	96	139	152	143	121	125	72	86
12	218	132	128	104	102	145	640	139	132	117	72	100
13	198	119	132	110	110	117	1,000	98	132	110	88	108
14	202	123	139	117	102	110	569	104	119	102	77	102
15	195	*112	132	98	106	104	294	98	110	77	76	90
16	186	112	139	*104	136	104	195	96	100	92	74	90
17	*195	114	128	106	154	98	147	192	94	168	79	123
18	198	121	121	106	130	167	130	2,100	102	302	72	150
19	195	123	*130	106	110	193	125	k2,490	100	233	67	136
20	202	117	134	102	121	152	209	778	108	191	76	85
21	202	123	125	134	110	119	674	373	106	134	79	77
22	205	130	130	121	110	114	k3,140	306	104	96	77	66
23	261	139	132	123	112	112	k7,200	1,000	90	119	74	144
24	278	132	132	106	125	104	k5,890	k4,280	86	90	81	98
25	249	152	128	106	195	92	k2,280	k2,690	98	83	83	88
26	237	170	130	110	223	102	583	846	96	77	69	83
27	301	182	112	106	*216	104	321	339	90	86	76	81
28	326	188	128	104	150	108	235	434	90	76	74	92
29	271	166	130	90	128	108	188	1,280	98	66	76	79
30	257	150	123	96	-	117	191	1,260	92	77	76	70
31	287	-	128	104	-	119	-	646	-	79	77	-
Total	7,277	4,013	4,058	3,586	4,455	4,005	25,549	21,871	4,227	3,754	2,738	2,975
Mean	235	134	131	116	154	129	852	706	141	121	88.3	99.2
Ac-ft	14,430	7,960	8,050	7,110	8,840	7,940	50,680	43,380	8,380	7,450	5,430	5,900

Calendar year 1951: Max 8,700 Min 106 Mean 479 Ac-ft 346,700
Water year 1951-52: Max 7,200 Min 66 Mean 241 Ac-ft 175,600

Peak discharge (base, 11,000 cfs).--No peak above base.
* Discharge measurement made on this day.
k Computed by using rate of change in stage as a factor.

East Fork Trinity River near McKinney, Tex.

Location.--Lat 33°12'15", long. 96°35'41", on right bank at downstream side of bridge on State Highway 24, 1.2 miles northeast of McKinney, Collin County, 1.9 miles downstream from Clemons Creek, 2.8 miles downstream from Honey Creek, 7.2 miles upstream from Wilson Creek, and 16.5 miles upstream from Lavon Dam (under construction).

Drainage area.--188 sq mi.

Records available.--August 1949 to September 1952.

Gage.- Water-stage recorder. Datum of gage is 511.69 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 3,660 cfs Apr. 23 (gage height, 15.65 ft); no flow Sept. 5-7.
1949-52: Maximum discharge, 8,800 cfs June 11, 1950 (gage height, 17.23 ft), from rating curve extended above 5,000 cfs by logarithmic plotting; no flow Sept. 5-7, 1952.
Maximum stage known since at least 1913, about 21.0 ft in April 1942, from information by local residents.

Remarks.--Records fair. Flow affected by sewage inflow above and immediately below gage.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.1	0.9	1.2	1.5	1.4	2.0	36	31	0.8	0.7	0.4
2	.9	.8	.8	1.1	1.5	2.1	2.5	35	27	.8	.5	.6
3	1.0	.8	.9	1.6	1.2	13	2.7	36	24	.8	.3	*.2
4	1.1	.7	1.2	1.5	1.2	40	2.1	32	21	.7	.4	.2
5	1.1	.8	1.2	1.3	1.5	19	2.2	28	70	.5	.6	*0
6	1.2	.9	1.0	1.2	1.5	10	3.0	26	169	.5	.6	0
7	.9	.9	1.0	1.1	1.6	6.2	1.5	22	27	.8	*.6	0
8	.8	1.0	1.0	1.4	1.6	4.2	1.1	20	22	.9	.6	.1
9	.9	1.0	.8	1.4	1.5	3.2	1.4	19	19	.6	.5	.2
10	.9	1.0	.9	1.6	1.2	4.2	15	17	17	.7	.4	.2
11	.9	.8	1.0	1.5	1.2	4.1	12	14	15	.8	.7	.2
12	.9	.9	1.1	1.4	2.6	8.0	452	13	13	.7	.6	*.2
13	.9	1.0	1.2	1.2	7.6	6.0	119	13	12	.5	.6	.2
14	.8	1.0	1.3	1.4	3.9	3.6	29	11	10	.6	.5	.2
15	.8	1.1	.9	1.6	1.9	2.2	22	8.4	9.8	.8	.6	.3
16	.9	1.2	.7	1.7	1.8	1.5	19	6.9	8.9	.8	.4	.3
17	1.0	1.2	*.9	1.8	1.2	1.4	16	6.0	7.9	1.0	.3	*.3
18	1.0	1.0	.9	1.7	1.2	2.7	14	27	7.3	.9	.4	.3
19	1.1	1.0	.9	1.5	1.8	4.9	13	30	6.1	.8	.6	.3
20	1.0	*.8	1.2	1.2	1.0	8.4	40	18	5.1	.5	.6	.2
21	.8	.9	1.1	*1.3	1.0	5.2	171	13	3.8	.5	.6	.2
22	*1.0	.8	1.0	1.8	.8	3.0	1,390	10	2.8	.6	.6	.1
23	2.0	.8	1.1	1.8	.7	1.8	2,300	321	2.8	.4	.5	*.1
24	1.0	.9	1.0	1.9	.6	*1.3	158	*452	2.4	.6	.4	.1
25	1.0	.9	.9	1.8	*.8	1.2	84	46	*2.0	.7	.4	.1
26	1.1	1.1	.9	1.7	.8	1.0	67	31	1.4	.5	.6	.1
27	2.8	1.1	1.2	1.4	.7	1.0	56	33	1.0	.4	.6	.1
28	1.0	.8	1.3	1.3	.8	1.0	*48	230	.8	.4	.6	.1
29	.9	.8	1.3	1.6	.9	.9	42	548	.5	.6	.5	.1
30	1.0	.9	1.2	1.7	-	1.1	39	61	.6	.6	.5	.1
31	2.3	-	1.0	1.7	-	1.8	-	38	-	.6	.3	-
Total	33.7	28.0	31.8	46.4	45.6	165.4	5,124.5	2,201.3	540.2	20.4	16.1	5.5
Mean	1.09	0.93	1.02	1.50	1.57	5.34	171	71.0	18.0	0.66	0.52	0.18
Ac-ft	67	56	63	92	90	328	10,160	4,370	1,070	40	32	11

Calendar year 1951: Max 4,500 Min 0.7 Mean 74.2 Ac-ft 53,740
Water year 1951-52: Max 2,300 Min 0 Mean 22.6 Ac-ft 16,380

Peak discharge (base, 1,200 cfs).--Apr. 23 (5 a.m.) 3,660 cfs (15.65 ft).
* Discharge measurement made on this day.

Sister Grove Creek near Princeton, Tex.

Location.--Lat 33°12', long. 96°29', on right bank at downstream side of highway bridge, 1.4 miles northeast of Princeton, Collin County, 3.6 miles downstream from Stiff Creek, 8.5 miles upstream from mouth, and 20.2 miles upstream from Lavon Dam (now under construction).

Drainage area.--115 sq mi.

Records available.--September 1949 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 487.52 ft above mean sea level, unadjusted (Corps of Engineers benchmark).

Extremes.--Maximum discharge during year, 1,440 cfs Apr. 23 (gage height, 14.34 ft); no flow Oct. 1 to Feb. 13, June 30 to Sept. 30.
1949-52: Maximum discharge, 4,360 cfs May 2, 1950 (gage height, 15.77 ft), from rating curve extended above 2,000 cfs by logarithmic plotting; no flow at times.
Maximum stage known since at least 1865, about 22 ft in July 1913, from information by local residents.

Remarks.--Records fair.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					0	0.7	6.4	38	24			
2					0	1.1	3.9	34	20			
3					0	1.6	3.5	32	18			
4					0	26	2.9	28	16			
5					0	23	4.8	24	18			
6					0	6.1	4.9	22	30			
7					0	2.9	2.6	20	34		(*)	
8					0	2.0	1.8	18	15			
9					0	1.6	1.7	17	12			
10					0	2.1	2.3	16	11			
11					0	2.3	13	14	9.8			
12					0	2.9	345	13	8.9			
13					0	3.4	229	13	7.8			
14					21	2.8	35	12	6.9			
15					.4	2.2	19	11	5.8			
16					.2	1.7	16	11	5.3			
17			(*)		.3	1.5	13	11	4.8			(*)
18	(*)				.6	2.0	12	96	4.1			
19		(*)			.8	1.7	11	46	3.6			
20					1.8	7.7	27	18	3.0			
21				(*)	1.7	5.4	117	14	2.6			
22	(*)				1.2	4.0	563	12	2.2			
23					1.1	2.9	1,110	263	1.7			
24					.8	*2.1	309	*274	1.3			
25					*1.1	1.8	99	62	*1.1			
26					.9	1.6	75	30	.9			
27					.9	1.4	61	24	.6			
28					.9	1.5	*54	26	.3			
29					.8	1.6	50	230	.1			
30					-	1.8	46	59	0			
31		-			-	4.2	-	30	-	(*)		-
Total	0	0	0	0	34.7	123.6	3,238.8	1,518	268.8	0	0	0
Mean	0	0	0	0	1.20	3.99	108	49.0	8.96	0	0	0
Ac-ft	0	0	0	0	69	245	6,420	3,010	533	0	0	0

Calendar year 1951: Max 1,880 Min 0 Mean 50.4 Ac-ft 36,510
Water year 1951-52: Max 1,110 Min 0 Mean 14.2 Ac-ft 10,280

Peak discharge (base, 1,800 cfs).--No peak above base.
* Discharge measurement made on this day.

East Fork Trinity River near Rockwall, Tex.

Location.--Lat 32°55'25", long. 96°30'20", near center of span on downstream side of bridge on State Farm Highway 7 (renumbered), 3 miles southwest of Rockwall, Rockwall County, and 8 miles upstream from Muddy Creek.

Drainage area.--840 sq mi.

Records available.--November 1923 to September 1952.

Gage.--Chain gage read twice daily. Datum of gage is 404.32 ft above mean sea level, datum of 1929.

Average discharge.--29 years, 500 cfs.

Extremes.--Maximum discharge during year, 7,050 cfs Apr. 24 (gage height, 14.18 ft); no flow at times.

1923-52: Maximum discharge, 64,800 cfs June 16, 1935 (gage height, 23.39 ft), by slope-area determination of peak flow; maximum gage height, 24.82 ft Apr. 20, 1942, while levees were breaking; no flow at times.

Maximum stage known since construction of levees in 1920, that of Apr. 20, 1942. Flood of April 1922 reached a stage of 24.6 ft, from floodmarks. Levees also broke during this flood.

Remarks.--Records good. No diversion above station.

Revisions.--W 1148: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0.7	0.8	1.1	4.8	168	316	0.8		
2			0	.6	.9	1.5	24	148	176	.5		
3			0	.7	.9	2.0	22	132	128	.4		
4			0	.9	.9	2.7	19	116	98	.2		
5			0	.8	.8	2.6	16	108	83	.1		
6			0	.8	.8	4.8	14	87	524	0		
7			.2	.8	.8	9.1	12	73	387	0	(*)	
8			.1	.8	.8	12	9.4	61	168	0		
9			0	.7	.8	12	12	52	102	0		
10			.1	.6	.8	10	12	45	68	0		
11			.1	.8	.8	8.2	9.7	38	52	0		
12			0	.7	15	15	492	33	43	0		
13			.7	.8	8.2	19	620	30	36	0		
14			.5	.9	5.2	14	882	27	31	0		
15			.5	.6	4.0	13	422	25	28	0		
16			.5	.5	3.7	11	128	22	24	0		
17			.4	.4	6.6	9.7	72	22	20	0		(*)
18			*.4	.3	6.0	12	52	898	18	0		
19			.3	.3	5.0	11	40	750	16	0		
20		(*)	.2	.2	4.8	9.1	39	417	14	0		
21			.2	.4	3.6	7.0	223	188	13	0		
22	(*)		.2	*.3	2.8	7.0	1,310	84	11	0		
23			.3	.2	2.3	7.3	2,340	627	9.4	0		
24			.4	.2	2.0	10	6,160	2,750	*7.0	0		
25			.3	.9	2.3	*9.7	5,340	2,540	5.4	0		
26			.3	.8	*3.1	7.0	2,920	2,160	3.6	0		
27			.4	.7	3.1	5.8	949	*884	2.7	0		
28			.6	1.1	2.3	4.8	387	428	2.1	0		
29			.7	.9	1.7	4.2	*257	828	1.5	0		
30			.8	.9	-	3.7	202	1,160	1.1	0		
31		-	.8	.8	-	3.6	-	967	-	*0		-
Total	0	0	9.0	19.9	90.8	249.9	22,989.9	15,868	2,388.8	2.0	0	0
Mean	0	0	0.29	0.64	3.13	8.06	766	512	79.6	0.06	0	0
Ac-ft	0	0	18	39	180	496	45,600	31,470	4,740	4.0	0	0

Calendar year 1951: Max 12,400 Min 0 Mean 356 Ac-ft 257,400
Water year 1951-52: Max 6,160 Min 0 Mean 114 Ac-ft 82,550

Peak discharge (base, 6,100 cfs).--Apr. 24 (12 m.) 7,050 cfs (14.18 ft).
* Discharge measurement made on this day.

East Fork Trinity River near Crandall, Tex.

Location.--Lat 32°38', long. 96°29', on right bank at downstream side of bridge on U. S. Highway 175, 4,500 ft downstream from Mustang Creek, 1.8 miles northwest of Crandall, Kaufman County, 2.9 miles upstream from Little Buffalo Creek, and 14 miles upstream from mouth.

Drainage area.--1,257 sq mi.

Records available.--June 1949 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 343.71 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. (Subject to correction after office adjustment.)

Extremes.--Maximum discharge during year, 4,800 cfs Apr. 26 (gage height, 15.32 ft); no flow Oct. 8-26, July 31 to Sept. 30.
1949-52: Maximum discharge, 24,000 cfs May 4, 1950 (gage height, 22.12 ft); no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are fair.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	2.5	2.6	2.2	2.3	9.5	9.7	a400	1,010	4.2		
2	.6	1.8	2.8	2.4	2.1	8.1	9.1	a300	1,020	3.7		
3	.5	1.7	2.4	3.0	2.0	7.7	9.5	a220	393	3.1		
4	.2	2.8	2.0	3.0	2.6	6.5	17	a200	192	2.8		
5	.2	2.4	1.9	2.5	2.6	7.9	30	a180	158	2.6		
6	.2	1.7	1.8	3.0	2.8	11	28	a160	1,100	2.4		
7	.1	1.4	1.7	5.0	2.6	9.7	26	a150	1,960	2.3		
8	0	1.1	1.6	4.2	2.4	18	20	a140	1,160	2.1		
9	0	1.0	1.6	3.6	2.3	29	16	a130	349	1.9		
10	0	1.0	1.6	2.8	2.5	20	14	a120	174	1.6		
11	0	1.0	1.6	2.5	2.4	53	18	a110	123	1.4		
12	0	1.0	1.9	2.4	108	66	216	a100	96	1.3		
13	0	.9	1.9	2.5	286	25	685	a90	78	1.1		
14	0	.9	1.7	2.5	77	22	660	a85	65	1.0		
15	0	.8	1.5	2.2	24	26	685	a80	56	1.0		
16	0	.8	1.4	2.3	13	21	620	a75	47	.9		
17	0	.7	1.5	2.3	10	16	269	a70	39	.9		(*)
18	0	.6	*1.6	2.3	8.9	17	138	a1,000	36	1.3		
19	0	.6	1.6	3.8	8.9	28	93	a2,500	29	1.8		
20	0	*.5	1.9	3.1	7.9	41	77	a4,000	26	1.7		
21	0	.5	1.9	3.0	8.1	20	109	a3,000	21	1.4		
22	*0	.5	1.8	*2.0	7.7	17	867	*559	18	1.9		
23	0	.6	1.7	2.3	7.1	14	1,520	705	15	2.2		
24	0	.7	1.8	3.7	6.7	12	2,400	2,400	13	2.0		
25	0	1.0	2.3	3.8	6.7	*11	2,400	3,540	11	1.7		
26	0	1.4	2.4	5.1	*7.7	12	4,160	3,200	8.7	1.4		
27	.2	1.5	2.2	3.4	7.9	13	4,320	2,700	*7.7	1.3		
28	.4	1.4	2.3	2.6	14	13	3,060	2,760	6.7	1.0		
29	7.3	1.5	2.2	2.3	11	12	*2,020	2,700	5.5	.6		
30	9.7	2.3	2.3	2.1	-	11	a1,100	1,900	4.8	.2		
31	4.8	-	2.4	2.2	-	10	-	1,070	-	*0		-
Total	24.9	36.6	59.9	90.1	647.2	587.4	25,596.3	34,644	8,222.4	52.8	0	0
Mean	0.80	1.22	1.93	2.91	22.3	18.9	853	1,118	274	1.70	0	0
Ac-ft	49	73	119	179	1,280	1,170	50,770	68,720	16,310	105	0	0

Calendar year 1951: Max 12,500 Min 0 Mean 490 Ac-ft 354,900
Water year 1951-52: Max 4,320 Min 0 Mean 191 Ac-ft 138,800

Peak discharge (base, 6,100 cfs).--No peak above base.
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records, records for station near Rockwall, and records for Trinity River at Dallas and near Rosser.

Trinity River near Rosser, Tex.

Location.--Lat 32°25'40", long. 96°27'50", on left bank at downstream side of left pier of bridge on State Highway 34, 1.4 miles downstream from Texas & New Orleans Railroad bridge, 1.9 miles downstream from East Fork, 2.5 miles south of Rosser, Kaufman County, and at mile 451.

Drainage area.--8,162 sq mi.

Records available.--July 1924 to September 1925 (October 1924 to September 1925, gage heights only), November 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 302.65 ft above mean sea level, datum of 1929. July 25, 1924, to Sept. 30, 1925, staff gage at site 1.7 miles upstream at datum 6.94 ft higher.

Average discharge.--13 years (1939-52), 3,294 cfs.

Extremes.--Maximum discharge during year, 11,100 cfs May 24 (gage height, 27.95 ft); minimum, 130 cfs Sept. 2 (gage height, 3.89 ft).

1924, 1938-52: Maximum discharge not determined but occurred Apr. 23 or 24, 1942, following numerous breaks in levee system on both banks; maximum gage height, 41.55 ft Apr. 22, 1942, just prior to levee breaks; minimum discharge, 34 cfs Sept. 8-11, 1924.

Flood of May 1908 reached a stage of about 33 ft, present site and datum, from information by Corps of Engineers (discharge believed to have been approximately the same as that of Apr. 23 or 24, 1942).

Remarks.--Records good. Some regulation by reservoirs above Dallas, some of which are under construction. Levee system constructed in 1916. Cities of Fort Worth and Dallas divert considerable water for municipal supply, of which about 60 percent is returned as sewage. Several small diversions on West Fork above Fort Worth.

Revisions.--W 1148: Drainage area.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 27 to Mar. 10)

Oct. 1 to May 25

4.4	153	13.0	2,210
5.0	240	16.0	3,380
6.0	406	19.0	4,880
7.0	586	22.0	6,600
9.0	1,020	25.0	8,600
11.0	1,560	27.0	10,100

May 26 to Sept. 30

3.9	131	5.0	262
4.2	164	6.0	408
4.6	211	7.0	586

Note.--Same as preceding table above 7.0 ft.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	328	514	232	181	167	195	188	1,330	2,200	181	158	136
2	304	386	218	195	202	177	195	694	1,530	181	158	132
3	288	256	202	195	357	188	181	666	1,450	199	158	142
4	296	218	218	245	812	296	230	706	911	211	148	170
5	296	188	202	296	406	255	388	586	548	205	148	238
6	296	188	202	248	218	240	354	514	724	199	175	205
7	296	188	210	210	178	225	285	433	1,710	187	*262	181
8	296	195	210	181	173	210	210	346	1,930	187	268	164
9	312	188	202	188	171	181	195	312	1,510	199	211	148
10	296	178	202	177	159	202	242	288	740	256	187	153
11	304	173	202	177	154	522	304	312	441	236	164	148
12	304	171	195	177	154	362	540	280	376	217	140	153
13	296	188	195	174	228	312	1,650	272	368	199	142	158
14	264	195	202	168	328	248	1,590	225	338	187	153	170
15	256	188	210	177	232	218	1,500	210	310	181	153	170
16	256	181	202	181	188	218	1,180	202	275	181	148	158
17	248	174	202	170	232	202	972	195	249	175	142	164
18	256	177	*202	175	202	218	621	2,370	a242	211	138	*175
19	256	174	195	178	210	398	362	6,240	a236	404	135	217
20	256	*181	202	177	181	337	312	6,240	a230	507	141	223
21	256	188	202	171	175	337	536	4,470	a223	331	139	193
22	264	188	202	*191	178	240	4,020	2,570	a217	249	148	153
23	*288	195	195	195	168	210	7,610	1,800	a211	205	148	135
24	433	195	195	202	166	195	7,340	9,440	a211	193	148	153
25	362	210	195	178	177	*188	7,970	9,360	a205	193	136	193
26	354	210	188	174	328	181	7,620	*8,720	a199	175	136	164
27	328	240	188	175	*406	181	6,120	6,480	*193	164	*148	153
28	413	320	188	173	320	195	5,820	4,710	187	153	142	148
29	550	264	181	163	248	202	4,410	6,060	187	153	148	142
30	415	264	195	164	-	202	*2,610	5,160	181	153	148	142
31	371	-	195	156	-	195	-	3,670	-	*153	142	-
Total	9,738	6,575	6,229	5,812	7,118	7,530	65,555	84,861	18,332	6,625	4,912	4,979
Mean	314	219	201	187	245	243	2,185	2,737	611	214	158	166
Ac-ft	19,320	13,040	12,360	11,530	14,120	14,940	130,000	168,300	36,360	13,140	9,740	9,880

Calendar year 1951: Max 18,600 Min 171 Mean 1,164 Ac-ft 843,100
Water year 1951-52: Max 9,440 Min 132 Mean 624 Ac-ft 452,700

Peak discharge (base, 13,000 cfs).--No peak above base.
* Discharge measurement made on this date.
a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

Cedar Creek near Mabank, Tex.

Location.--Lat 32°19'45", long. 96°10'05", on right bank at downstream side of bridge on State Farm Highway 85, 2 miles downstream from Lacys Fork and 5½ miles southwest of Mabank, Kaufman County.

Drainage area.--734 sq mi.

Records available.--December 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 285.50 ft above mean sea level, unadjusted.

Average discharge.--13 years (1939-52), 505 cfs.

Extremes.--Maximum discharge during year, 18,600 cfs Apr. 23 (gage height, 19.32 ft); no flow at times.

1938-52: Maximum discharge, 44,800 cfs Mar. 30, 1945 (gage height, 25.43 ft), from rating curve extended above 13,000 cfs on basis of slope-area determination at gage height 23.5 ft, at site 12 miles downstream; no flow at times.

Maximum stage known since at least 1900, that of Mar. 30, 1945. Flood of Sept. 29, 1936, reached a stage of about 23.5 ft, from floodmarks at site 12 miles downstream (discharge, 35,400 cfs, by slope-area determination).

Remarks.--Records good.

Revisions.--W 1148: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	18		0	0.8	36	5.0	21	862	0		
2	0	9.2		0	1.0	19	4.4	15	100	0		
3	0	15		4.5	1.0	63	4.2	9.6	50	0		
4	0	11		104	.9	426	4.1	11	30	0		
5	0	5.8		226	.8	415	228	11	19	0		
6	0	7.8		123	.8	128	217	7.5	29	0		
7	0	67		52	.7	52	61	6.0	770	0		
8	0	15		25	.7	26	27	4.9	828	1.8		
9	0	5.4		13	.7	16	15	4.5	145	0		
10	0	2.9		7.7	.8	215	10	4.2	53	53		
11	0	1.7		5.0	.8	422	6.9	3.2	31	35		
12	0	1.1		3.8	.8	347	387	2.5	18	7.9		
13	0	.6		3.1	.8	126	1,480	2.1	11	2.7		
14	0	.3		2.5	.8	56	2,020	1.7	6.6	1.4		
15	0	.2		2.1	4.0	30	1,560	1.5	4.7	.6		
16	0	.2		1.7	7.7	19	236	1.1	3.2	.4		
17	0	.2		1.5	4.8	13	57	1.0	2.3	.4		
18	0	.1		1.2	3.7	44	32	162	1.7	.4		(*)
19	0	0	(*)	1.0	4.3	325	20	950	1.2	.4		
20	0	0		.9	6.0	250	33	1,350	a.8	.4		
21	0	*0		1.0	6.0	90	510	1,180	a.4	.4		
22	0	0		1.0	5.0	47	8,400	177	a.3	.6		
23	*0	0		*1.0	4.3	31	18,100	295	a.3	1.1		
24	12	0		.9	3.6	31	11,800	3,030	a.2	.6		
25	48	0		1.0	4.1	20	6,070	*8,850	a.2	.4		
26	11	0		1.4	35	*14	2,230	*8,100	**.1	a.2		
27	4.9	0		1.4	*130	10	736	4,110	a.1	a.2	(*)	
28	222	0		1.1	173	8.2	173	1,590	a.1	a.2		
29	533	0		.9	74	6.6	48	2,630	0	a.2		
30	140	0		.8	-	5.8	*28	3,220	0	**.1		
31	40	-		.8	-	5.4	-	2,861	-	a.1		-
Total	1,010.9	161.5	0	589.3	476.9	3,297.0	54,502.6	38,612.0	2,968.2	108.5	0	0
Mean	32.6	5.38	0	19.0	16.4	106	1,817	1,246	98.9	3.50	0	0
Ac-ft	2,000	320	0	1,170	946	6,540	108,100	76,590	5,890	215	0	0

Calendar year 1951: Max 3,720 Min 0 Mean 152 Ac-ft 110,100
Water year 1951-52: Max 18,100 Min 0 Mean 278 Ac-ft 201,800

Peak discharge (base, 5,300 cfs).--Apr. 23 (3 p.m.) 18,600 cfs (19.32 ft); May 25 (9 p.m.) 12,300 cfs (18.00 ft).

* Discharge measurement made on this day.

** Field estimate made on this day.

a No gage-height record; discharge estimated on basis of 2 discharge measurements and weather records.

Chambers Creek near Corsicana, Tex.

Location.--Lat 32°06'30", long. 96°22'15", on right bank at downstream side of bridge on State Highway 31, 500 ft upstream from St. Louis Southwestern Railway bridge, 6 miles east of Corsicana, Navarro County, and 17 miles upstream from Richland Creek.

Drainage area.--971 sq mi.

Records available.--March 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 294.26 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 527 cfs.

Extremes.--Maximum discharge during year, 26,000 cfs Apr. 23 (gage height, 24.80 ft); no flow at times.
1939-52: Maximum discharge, 48,000 cfs May 3, 1944 (gage height, 27.19 ft); no flow at times.
Maximum stage known since at least 1913, about 27.5 ft in December 1913, from information by local residents.

Remarks.--Records good except those for periods of no gage-height record, which are fair. City of Corsicana diverts water for municipal supply from pool in which gage is located.

Revisions (water years).--W 1148: 1941, drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0				0	7.9	0	30	173	0.4		
2	0				10	1.0	0	27	132	0		
3	0				34	33	0	38	102	0		
4	0				35	109	.5	109	80	0		
5	0				9.9	29	0	48	66	0		
6	0				0	20	0	31	58	0		
7	0				0	13	0	22	64	0		
8	0				0	3.8	0	17	56	0		
9	0				0	0	.2	13	a45	0		
10	0				0	242	4.8	11	a35	0		
11	0				0	195	2.9	6.3	a30	0		
12	0				137	30	201	2.1	a25	0		
13	0				231	19	299	.2	a20	0		
14	0				64	10	78	0	a15	0		
15	0				12	1.6	38	.6	a12	0		
16	0				.7	0	28	0	a8	0		
17	0				0	1.3	17	0	a4	0		
18	0				0	3.3	8.5	484	a1	0		(*)
19	0		(*)		0	36	9.4	2,060	0	0		
20	0				0	24	29	1,680	0	0		
21	0	(*)			0	15	34	619	0	0		
22	0				0	10	*12,600	91	0	7.6		
23	*0			(*)	25	2.2	*18,100	213	0	8.2		
24	0				30	0	12,800	5,520	0	4.5		
25	0				21	0	3,130	10,300	0	3.3		
26	0				33	*0	468	*4,690	*0	1.8		
27	0				*31	0	3,270	1,190	0	.1		
28	0				18	0	64	331	2.6	0		
29	0				13	0	43	1,730	4.8	0		
30	0				-	0	*35	623	1.4	*0		
31	8.4	-			-	0	-	249	-	0		-
Total	8.4	0	0	0	704.6	806.1	51,260.3	30,135.2	934.8	25.9	0	0
Mean	0.27	0	0	0	24.3	26.0	1,709	972	31.2	0.84	0	0
Ac-ft	17	0	0	0	1,400	1,600	101,700	59,770	1,850	51	0	0

Calendar year 1951: Max 5,540 Min 0 Mean 81.0 Ac-ft 58,650
Water year 1951-52: Max 18,100 Min 0 Mean 229 Ac-ft 166,400

Peak discharge (base, 13,000 cfs).--Apr. 23 (10 p.m.) 26,000 cfs (24.80 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records.

Richland Creek near Richland, Tex.

Location.--Lat 31°57', long. 96°25', on left bank at downstream side of bridge on U. S. Highway 75, 750 ft downstream from Texas & New Orleans Railroad bridge, 1 mile north of Richland, Navarro County, and 3.5 miles downstream from Pinoak Creek.

Drainage area.--737 sq mi.

Records available.--December 1924 to February 1925 (discharge measurements only), March 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 299.12 ft above mean sea level, datum of 1929, supplementary adjustment of 1942. Dec. 11, 1924, to Feb. 11, 1925, chain gage at site 750 ft upstream at same datum.

Average discharge.--13 years (1939-52), 418 cfs.

Extremes.--Maximum discharge during year, 13,500 cfs Apr. 23 (gage height, 21.52 ft); no flow at times.

1939-52: Maximum discharge, 58,900 cfs May 12, 1948 (gage height, 24.16 ft); no flow at times.

Maximum stage known since at least 1899, 25.5 ft in December 1913, from information by Texas & New Orleans Railroad.

Remarks.--Records good except those above 3,500 cfs, which are fair.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					0	10	1.6	*24	84	a0.3		
2					0	4.9	.9	19	67	.2		
3					276	82	.7	95	54	.2		
4					74	493	.7	87	45	.2		
5					22	126	.5	29	41	5.8		
6					11	32	.6	21	34	104	(*)	
7					5.7	15	.8	11	29	12		
8					3.0	19	.6	7.3	28	3.6		
9					1.7	50	.6	5.1	26	.9		
10					1.1	549	.6	3.4	21	.3		
11					.8	1,330	.4	2.0	19	.3		
12					57	194	393	1.2	16	.2		
13					449	72	1,140	.8	14	.1		
14					227	40	203	.6	13	.1		
15					42	28	55	.5	12	0		
16					16	22	22	.4	10	0		
17					8.3	27	8.5	.3	8.3	0		
18					4.6	55	3.7	.7	7.2	0		(*)
19			(*)		4.1	132	1.2	323	6.0	0		
20					47	86	2.2	338	5.3	0		
21		(*)			51	40	43	70	a4.4	0		
22					13	24	*2,430	24	a3.6	0		
23	(*)			(*)	5.3	17	*9,440	243	a2.8	0		
24					80	12	7,020	*3,550	a2.0	0		
25					55	5.3	2,220	*10,800	a1.3	0		
26					292	*1.6	212	*5,280	*.8	0		
27					143	1.0	98	*679	a.6	0		
28					*44	1.0	60	189	a.5	0		
29					19	3.7	41	474	a.4	0		
30					-	5.1	32	298	a.3	*0		
31		-				3.2	-	123	-	0		-
Total	0	0	0	0	1,952.6	3,480.8	23,432.6	22,699.3	556.5	128.2	0	0
Mean	0	0	0	0	67.3	112	781	732	18.6	4.14	0	0
Ac-ft	0	0	0	0	3,870	6,900	46,480	45,020	1,100	254	0	0

Calendar year 1951: Max 2,450 Min 0 Mean 54.6 Ac-ft 39,520
Water year 1951-52: Max 10,800 Min 0 Mean 143 Ac-ft 103,600

Peak discharge (base, 12,000 cfs).--Apr. 23 (12 m.) 13,500 cfs (21.52 ft); May 25 (9 a.m.) 12,100 cfs (21.27 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for Chambers Creek near Corsicana.

Trinity River near Oakwood, Tex.

Location (revised).--Lat 31°38'50", long 95°47'20", on left bank at downstream side of bridge on U. S. Highways 79 and 84, 1½ miles upstream from International-Great Northern Railroad bridge, 6 miles northeast of Oakwood, Leon County, and at mile 313.

Drainage area.--12,912 sq mi.

Records available.--January 1905 to September 1952 (January 1905 to September 1923, monthly discharge and yearly summaries only, in Water-Supply Papers 850 and 878; figures below 500 cfs in these publications and minimum daily discharge for water year 1924, published in Water-Supply Paper 878, have been found to be in error). Gage-height records collected in this vicinity since 1904 are contained in reports of the United States Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 175.03 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. Prior to July 15, 1932, chain gage at site 1½ miles downstream at datum 1.06 ft lower. July 15, 1932, to Oct. 7, 1934, chain gage at present site and datum.

Average discharge.--29 years (1923-52), 5,110 cfs.

Extremes.--Maximum discharge during year, 25,800 cfs Apr. 30 (gage height, 41.35 ft); minimum, 133 cfs Aug. 20.
1923-52: Maximum discharge, 153,000 cfs Apr. 29, 1942 (gage height, 51.64 ft); minimum observed for period 1924-52, 22 cfs Aug. 18, 1934.
Flood of June 4, 1908, reached a stage of about 52.2 ft, present site and datum, from information by United States Weather Bureau (discharge, about 164,000 cfs).

Remarks.--Records good. Flow largely regulated by reservoirs above Dallas. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Revisions.--W 1148: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 11 to Feb. 1, Apr. 24 to May 4, May 12-20, June 30 to Aug. 24)

4.3	131	25.0	7,740
5.0	212	30.0	11,400
7.0	504	35.0	15,500
10.0	1,150	39.0	20,000
15.0	2,730	41.0	25,800
20.0	4,910		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	345	931	345	274	375	1,260	345	*24,300	20,800	230	188	176
2	316	732	390	274	522	1,080	352	20,000	20,400	236	182	176
3	338	540	368	316	504	907	375	14,900	18,300	248	182	176
4	368	504	360	368	453	817	504	7,630	14,100	248	176	176
5	360	522	360	375	421	861	470	2,500	7,340	248	148	170
6	345	405	360	390	558	1,260	390	1,320	3,060	224	142	164
7	330	g330	352	405	861	*1,520	375	1,150	1,670	218	190	164
8	309	g302	330	615	774	1,230	558	955	1,180	224	g224	188
9	288	g281	316	634	558	861	732	817	1,600	230	g170	236
10	295	g274	323	522	437	1,180	753	692	2,730	274	g176	230
11	309	g309	323	437	375	1,230	615	596	2,760	302	g230	218
12	316	g281	316	390	577	2,350	1,410	504	1,920	421	g218	206
13	323	g230	316	368	390	3,090	2,280	437	1,180	352	*188	188
14	323	g254	330	345	470	2,380	3,800	437	795	330	194	182
15	309	g242	330	309	1,030	1,520	4,510	*453	634	281	188	182
16	288	*242	338	309	1,050	1,050	4,310	437	540	274	176	182
17	*281	248	345	330	839	774	*4,080	421	487	*261	170	194
18	288	248	345	323	692	653	3,620	405	470	248	170	*206
19	288	242	345	g309	692	596	2,480	577	*437	254	148	212
20	281	218	345	g302	753	558	1,550	1,710	405	254	133	206
21	281	212	338	316	712	558	1,100	5,900	375	242	164	200
22	268	236	323	405	653	931	1,680	8,130	345	268	170	206
23	254	248	316	*368	653	955	5,760	8,580	302	470	170	230
24	261	254	302	345	653	732	10,400	10,800	288	437	170	236
25	288	274	281	330	634	596	13,000	12,600	288	330	148	218
26	309	261	281	345	884	487	14,900	13,900	295	274	134	182
27	352	295	309	405	1,000	453	16,700	15,100	288	236	135	164
28	405	309	309	405	1,210	437	19,100	16,000	281	200	164	164
29	405	309	309	390	1,320	405	23,700	17,200	268	188	176	194
30	375	316	309	368	-	390	25,400	18,400	242	194	176	188
31	545	-	295	368	-	352	-	19,700	-	200	182	-
Total	10,043	10,069	10,209	11,640	20,050	31,473	165,249	226,551	103,780	8,396	5,382	5,814
Mean	324	336	329	375	691	1,015	5,508	7,308	3,459	271	174	194
Ac-ft	19,920	19,970	20,250	23,090	39,770	62,430	327,800	449,400	205,800	16,650	10,680	11,530

Calendar year 1951: Max 14,600 Min 212 Mean 1,655 Ac-ft 1,198,000
Water year 1951-52: Max 25,400 Min 133 Mean 1,663 Ac-ft 1,207,000

Peak discharge (base, 17,000 cfs).--Apr. 30 (11 a.m.) 25,800 cfs (41.35 ft); June 1 (8 p.m.) 20,800 cfs (39.42 ft).

* Discharge measurement made on this day.
g Computed from once-daily wire-weight gage readings.

Trinity River near Midway, Tex.

Location.--Lat 31°04'40", long. 95°42'00", near center of channel and on upstream side of bridge on State Highway 21, 5 miles northeast of Midway, Madison County, 8.5 miles downstream from Boggy Creek, and at mile 230.

Drainage area.--14,484 sq mi.

Records available.--April 1939 to September 1952.

Gage.--Wire-weight gage read twice daily. Datum of gage is 117.63 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 6,839 cfs.

Extremes.--Maximum discharge during year, 20,600 cfs May 4 (gage height, 29.80 ft); minimum observed, 152 cfs Aug. 30.
1939-52: Maximum discharge, 146,000 cfs May 1, 1942 (gage height, 48.58 ft); minimum observed, 100 cfs Oct. 4, 1939.
Maximum stage known prior to construction of levees in 1916, about 45.0 ft in May 1890 (discharge not determined), from information by local residents. Flood of June 9, 1908, reached a stage of 44.3 ft, from floodmarks and from information by local residents. Flood of May 27, 1930, reached a stage of 46.7 ft, from floodmark (flow confined within levees).

Remarks.--Records good. Flow partly regulated by reservoirs above Dallas.

Revisions.--W 1148: Drainage area.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 12-22, May 7-14, June 8 to July 25)

Oct. 1 to May 5				May 6 to Sept. 30			
2.7	255	6.0	1,600	2.6	141	10.0	3,650
3.0	347	8.0	2,700	3.0	231	12.0	5,050
3.5	520	10.0	3,900	3.5	366	14.0	6,600
4.0	710	12.0	5,200	4.0	521	16.0	8,200
5.0	1,140	14.0	6,600	5.0	887	20.0	11,500
				6.0	1,330	25.0	16,000
Note.--Same as following table above 14.0 ft.				8.0	2,400	30.0	20,800

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	468	485	432	450	630	2,220	770	*18,400	17,100	349	236	189
2	468	630	432	610	830	2,050	710	19,600	17,500	315	248	189
3	415	932	610	502	955	2,000	670	20,400	18,000	296	246	193
4	387	770	1,400	450	1,040	2,220	650	20,200	18,200	290	238	189
5	373	650	955	485	870	1,800	690	17,200	17,500	298	231	186
6	422	670	750	520	790	*1,550	790	8,680	13,800	323	221	193
7	394	710	670	538	750	1,600	730	2,700	7,080	312	212	189
8	384	610	572	520	910	1,850	630	1,830	2,700	290	193	184
9	373	485	502	590	1,090	1,750	610	1,480	1,830	264	202	175
10	357	412	485	730	870	1,500	978	1,330	1,580	264	221	189
11	325	367	485	750	750	2,000	1,550	1,010	2,280	282	221	231
12	321	328	485	630	730	2,520	3,280	809	2,760	320	217	256
13	344	341	485	572	1,500	3,000	6,110	714	2,400	366	261	241
14	364	364	485	485	1,550	3,720	5,620	*676	1,680	489	*279	217
15	367	*315	468	426	1,220	3,480	5,270	*676	1,240	475	251	219
16	*367	303	422	432	1,220	2,640	5,760	659	968	442	229	207
17	360	303	443	415	1,550	1,900	*5,620	678	828	*457	236	*200
18	328	291	*450	398	1,400	1,450	5,340	696	714	411	219	209
19	321	288	394	404	1,220	1,220	4,780	752	659	396	202	221
20	328	300	436	418	1,650	1,090	3,600	887	*623	384	202	238
21	328	297	415	398	2,220	978	2,400	1,240	571	372	193	241
22	328	276	446	*404	2,160	932	2,160	4,210	521	360	173	241
23	328	264	412	468	2,460	1,090	5,970	7,880	489	343	169	226
24	321	291	468	538	1,850	1,400	8,200	13,700	457	315	184	221
25	291	328	520	468	2,160	1,270	10,300	16,000	396	489	193	231
26	303	341	590	502	3,480	1,020	11,500	16,400	381	505	193	256
27	334	394	670	1,220	3,000	890	13,100	15,400	372	426	184	251
28	370	415	630	1,750	2,580	810	14,300	15,600	369	357	171	226
29	408	436	538	1,500	2,280	770	15,600	16,100	375	309	156	205
30	485	443	485	790	-	770	17,100	16,400	340	274	156	189
31	485	-	404	650	-	770	-	16,700	-	234	177	-
Total	11,447	13,039	16,939	19,013	43,715	52,260	154,788	259,007	133,713	11,005	6,514	6,402
Mean	369	435	546	613	1,507	1,686	5,160	8,355	4,457	355	210	213
Ac-ft	22,700	25,860	33,600	37,710	86,710	103,700	307,000	513,700	265,200	21,830	12,920	12,700

Calendar year 1951: Max 13,500 Min 264 Mean 1,724 Ac-ft 1,248,000
Water year 1951-52: Max 20,400 Min 156 Mean 1,989 Ac-ft 1,444,000

Peak discharge (base, 20,000 cfs).--May 4 (1 a.m.) 20,600 cfs (29.80 ft).
* Discharge measurement made on this day.

Trinity River at Riverside, Tex.

Location.--Lat 30°52', long. 95°24', near center of channel on upstream side of bridge on State Highway 45, 1,200 ft upstream from International-Great Northern Railroad bridge, 0.5 mile north of Riverside, Walker County, three-quarters of a mile downstream from Harmon Creek, and at mile 182.

Drainage area.--15,619 sq mi.

Records available.--January 1903 to December 1906, October 1923 to September 1952. Gage-height records collected in this vicinity since 1903 are contained in reports of United States Weather Bureau.

Gage.--Wire-weight gage read twice daily. Datum of gage is 89.86 ft above mean sea level, datum of 1929, Galveston-Houston supplementary adjustment of 1936. Prior to May 6, 1941, chain, staff, or wire-weight gage at railroad bridge 1,200 ft downstream. Prior to July 1, 1903, at datum 7.7 ft lower.

Average discharge.--32 years (1903-6, 1923-52), 6,913 cfs.

Extremes.--Maximum discharge during year, 21,900 cfs May 5 (gage height, 21.86 ft); minimum observed, 188 cfs Aug. 30 to Sept. 1.
1903-6, 1923-52: Maximum discharge, 121,000 cfs May 5, 1942 (gage height, 52.75 ft, from floodmark); minimum observed, 70 cfs Aug. 20-26, Sept. 8-13, 1925, Sept. 29 to Oct. 4, 1931.
Maximum stage known since at least 1908, that of May 5, 1942. Flood of June 11, 1908, reached a stage of 50.1 ft, present site and datum (discharge, 100,000 cfs).

Remarks.--Records good. Flow largely regulated by reservoirs above Dallas.

Cooperation.--Gage-height record collected in cooperation with United States Weather Bureau.

Revisions (water years).--W 828: 1935 (yearly mean only). W 1148: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	495	515	440	510	1,010	2,660	804	18,500	18,400	367	270	190
2	485	530	465	530	1,380	2,020	786	*19,800	18,500	337	260	210
3	470	660	480	640	1,660	2,210	744	20,900	18,900	320	260	212
4	425	902	620	600	1,350	2,280	1,670	21,600	19,300	310	265	215
5	398	795	1,320	510	1,150	2,210	1,270	20,900	19,300	312	260	215
6	402	848	1,100	560	985	1,950	1,020	16,100	17,900	331	255	212
7	411	720	820	575	848	1,620	960	8,000	12,600	385	250	220
8	402	720	770	590	820	1,690	816	3,240	6,660	343	240	220
9	384	635	695	620	985	2,020	714	2,190	3,510	305	230	215
10	370	520	540	640	1,100	3,980	900	1,790	2,350	288	225	215
11	357	420	500	770	958	3,460	1,340	1,440	2,110	282	250	220
12	322	375	510	795	820	2,600	4,650	1,240	3,150	280	258	230
13	314	334	520	720	930	2,860	9,100	1,080	3,330	290	250	252
14	339	*357	520	650	1,560	3,000	8,600	*930	2,750	361	*270	255
15	362	366	505	580	1,470	3,560	7,900	798	1,830	425	298	235
16	*366	339	520	550	1,180	3,210	7,500	720	1,340	445	288	220
17	375	302	540	530	1,320	2,540	6,570	682	1,050	473	265	*210
18	366	290	*515	490	1,560	1,950	*6,120	1,020	930	*501	265	238
19	339	290	515	470	1,410	1,560	5,670	2,910	804	441	255	220
20	322	290	495	490	1,690	1,320	5,040	2,110	*698	489	240	220
21	322	306	475	495	2,140	1,200	3,870	1,480	599	441	232	235
22	318	302	490	*495	2,340	1,070	4,540	2,270	582	376	230	235
23	388	294	500	500	2,400	985	18,400	6,120	572	361	215	235
24	357	278	510	535	2,470	1,200	14,100	14,800	515	343	200	222
25	334	290	515	590	2,470	1,440	13,800	19,900	465	328	205	215
26	314	435	525	580	3,910	*1,290	14,700	20,700	417	429	220	220
27	314	455	670	915	4,260	1,110	14,200	19,900	376	497	225	235
28	352	460	745	2,400	3,630	960	14,500	18,200	355	441	218	238
29	393	470	695	2,140	3,210	840	15,600	17,900	355	361	210	225
30	430	470	620	1,590	-	810	17,000	18,200	367	320	188	210
31	505	-	540	1,230	-	810	-	18,500	-	290	188	-
Total	11,731	13,968	18,675	23,290	51,016	60,415	202,884	303,920	160,015	11,472	7,485	6,694
Mean	378	466	602	751	1,759	1,949	6,763	9,804	5,334	370	241	223
Ac-ft	23,270	27,710	37,040	46,200	101,200	119,800	402,400	602,800	317,400	22,750	14,850	13,280

Calendar year 1951: Max 13,700 Min 278 Mean 1,824 Ac-ft 1,321,000
Water year 1951-52: Max 21,600 Min 188 Mean 2,381 Ac-ft 1,729,000

Peak discharge (base, 24,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Trinity River at Romayor, Tex.

Location.--Lat 30°25'30", long. 94°51'05", near right bank on downstream side of pier of bridge on State Highway 105, 1.9 miles south of Romayor, Liberty County, 2.0 miles downstream from Gulf, Colorado & Santa Fe Railway bridge, 4.1 miles downstream from Big Creek, and at mile 94.

Drainage area.--17,192 sq mi.

Records available.--May 1924 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 35.92 ft above mean sea level, datum of 1929. Prior to September 1943, chain gage at railroad bridge 2.0 miles upstream, all readings were negative (distance below base of rail), datum of gage was 89.49 ft above mean sea level, datum of 1929.

Average discharge.--28 years, 7,758 cfs.

Extremes.--Maximum discharge during year, 28,300 cfs Apr. 24 (gage height, 20.64 ft); minimum, 185 cfs Sept. 4, 5.
1924-52: Maximum discharge, 111,000 cfs May 9, 1942 (gage height, 35.8 ft, from floodmarks, present site and datum); minimum observed, 132 cfs Aug. 21, 22, 1925.

Remarks.--Records good. Flow largely regulated by reservoirs above Dallas. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Revisions.--W 1148: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	595	472	542	765	2,300	3,920	925	16,700	18,500	595	452	212
2	560	508	542	705	2,810	3,260	900	*18,300	18,500	630	420	202
3	542	525	578	665	2,900	2,810	875	19,700	18,500	578	373	*192
4	525	525	612	648	2,720	2,540	900	20,700	18,900	542	343	190
5	525	612	808	705	2,220	2,630	2,120	21,100	19,100	542	334	192
6	508	830	925	745	1,770	2,810	2,220	20,700	19,300	490	325	198
7	472	900	1,280	665	1,440	2,460	1,600	16,900	18,100	490	325	198
8	448	875	1,250	665	1,190	2,060	1,310	10,500	14,100	490	316	198
9	452	808	1,080	685	1,050	1,770	1,160	4,970	8,400	490	304	205
10	452	745	1,020	685	975	1,910	*1,140	3,440	4,970	508	292	215
11	438	725	925	665	1,080	5,630	1,080	2,630	3,630	472	*280	212
12	420	648	785	685	1,160	6,260	3,140	2,060	2,900	430	268	205
13	406	578	725	765	1,050	4,010	10,800	1,700	2,900	406	258	198
14	396	525	705	830	950	3,440	12,200	1,440	3,260	406	262	192
15	379	490	705	*808	1,110	3,170	10,300	1,220	3,080	*416	271	215
16	385	472	705	745	1,560	3,630	8,860	*1,080	2,380	448	268	250
17	399	455	705	685	1,500	3,720	7,620	975	1,910	560	274	260
18	410	448	705	665	1,340	3,720	6,730	975	1,500	630	292	301
19	410	434	705	685	1,470	3,720	5,930	3,580	1,250	665	286	301
20	406	420	685	612	1,700	2,720	5,490	4,970	*1,080	685	268	292
21	399	416	665	595	1,840	1,980	5,070	3,820	950	595	268	289
22	*382	416	665	595	2,060	1,630	4,480	2,460	875	560	274	*277
23	399	416	648	595	2,630	1,400	17,900	1,770	830	542	260	262
24	416	424	630	578	2,990	1,220	26,800	8,080	785	508	242	265
25	434	430	648	595	2,990	1,140	20,900	21,500	725	472	240	271
26	434	*434	665	612	3,260	1,310	17,300	22,800	685	444	240	271
27	410	472	705	745	*4,480	1,440	16,100	22,000	665	420	238	262
28	392	542	725	1,140	5,170	1,340	15,000	20,500	630	455	230	258
29	379	560	745	1,790	4,680	1,160	14,800	19,100	612	542	222	255
30	382	560	830	2,990	-	1,050	15,600	18,300	578	525	222	271
31	406	-	808	2,460	-	950	-	18,500	-	472	220	-
Total	13,561	16,665	23,721	26,773	62,395	80,810	239,250	332,470	189,595	16,008	8,867	7,109
Mean	437	556	765	864	2,152	2,607	7,975	10,720	6,320	516	286	237
Ac-ft	26,900	33,050	47,050	53,100	123,800	160,300	474,500	659,400	376,100	31,750	17,590	14,100

Calendar year 1951: Max 15,000 Min 379 Mean 2,078 Ac-ft 1,504,000
Water year 1951-52: Max 26,800 Min 190 Mean 2,779 Ac-ft 2,018,000

Peak discharge (base, 24,000 cfs).--Apr. 24 (4 a.m.) 28,300 cfs (20.64 ft).
* Discharge measurement made on this day.

Trinity River at Liberty, Tex.

Location.--Lat 30°03'25", long. 94°49'05", near center of channel on upstream side of bridge on U. S. Highway 90, in Liberty, Liberty County, 450 ft downstream from Texas & New Orleans Railroad bridge, and at mile 40.

Drainage area.--17,539 sq mi.

Records available.--October 1938 to September 1940 (gage heights, discharge measurements, and some records of daily discharge), October 1940 to September 1952 (high-water records only). Gage-height records collected in this vicinity since 1903 are contained in reports of United States Weather Bureau.

Gage.--Wire-weight gage read once daily. Datum of gage is 2.22 ft below mean sea level, datum of 1929. Prior to June 24, 1942, staff gage at same site and datum.

Extremes.--Maximum discharge during year, 24,300 cfs Apr. 25 (gage height, 25.20 ft); minimum not determined (affected by tides); minimum gage height observed, 3.41 ft Sept. 16.
1938-52: Maximum discharge, 114,000 cfs May 12, 1942 (gage height, 29.38 ft); minimum not determined (affected by tides); minimum gage height observed, 2.5 ft Nov. 4, 1939.
Maximum stage known since at least 1903, that of May 12, 1942. Flood of May 8-11, 1922, reached a stage of 28.6 ft, present datum, from observation by United States Weather Bureau at chain gage on railroad bridge upstream.

Remarks.--Records fair. Discharge not computed below gage height 10 ft because tides affect the stage-discharge relation. Flow largely regulated by reservoirs above Dallas.

Cooperation.--Gage-height record furnished by United States Weather Bureau.

Revisions.--W 1148: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

10.0	4,000	23.0	19,200
12.0	5,320	24.0	21,000
15.0	7,700	25.0	23,500
18.0	11,400	25.2	24,300
21.0	15,900		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					-	4,910	-	17,000	19,900			
2					5,250	4,200	-	17,500	19,700			
3					6,050	-	-	18,500	19,600			
4					5,460	-	-	19,600	19,600			
5					4,720	-	-	20,300	19,700			
6					-	-	-	20,600	19,700			
7					-	-	-	20,300	19,700			
8					-	-	-	18,000	18,900			
9					-	-	-	12,800	15,900			
10					-	-	-	7,220	10,800			
11					-	-	-	5,040	6,820			
12					-	6,280	-	-	4,980			
13					-	5,820	6,520	-	-			
14					-	4,520	13,400	-	-			
15					-		12,900	-	-			
16					-	-	11,400	-	-			
17					-	4,130	9,920	-	-			
18					-	4,260	8,560	-	-			
19					-	4,320	7,500	4,390	-			
20					-	4,200	6,820	6,580	-			
21					-	-	6,280	6,740	-			
22					-	-	5,750	5,320	-			
23					-	-	8,960	4,260	-			
24					-	-	21,300	4,830	-			
25					-	-	23,500	14,100	-			
26					-	-	21,400	20,100	-			
27					-	-	19,700	21,400	-			
28					4,840	-	18,500	21,600	-			
29					5,320	-	17,300	21,000	-			
30					-	-	16,900	20,500	-			
31					-	-	-	20,100	-			
Total					-	-	-	-	-			
Mean					-	-	-	-	-			
Ac-ft					-	-	-	-	-			

Calendar year 1951: Max 14,700 Min - Mean - Ac-ft -
Water year 1951-52: Max 23,500 Min - Mean - Ac-ft -

Peak discharge (base, 22,000 cfs).--Apr. 25 (7:30 a.m.) 24,300 cfs (25.20 ft).

West Fork San Jacinto River near Conroe, Tex.

Location.--Lat 30°15', long. 95°28', near right bank at downstream side of pier of bridge on U. S. Highway 75, 285 ft upstream from International-Great Northern Railroad bridge, 3½ miles downstream from Lake Creek, and 4¼ miles south of Conroe, Montgomery County.

Drainage area.--832 sq mi.

Records available.--May 1924 to September 1927, July 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 100.06 ft above mean sea level, datum of 1929, supplementary adjustments of 1936 and 1943. May 7, 1924, to Sept. 30, 1927, inverted staff gage (zero at base of rail) at railroad bridge 285 ft downstream at datum 25.10 ft higher.

Average discharge.--16 years (1924-27, 1939-52), 615 cfs.

Extremes.--Maximum discharge during year, 9,150 cfs Apr. 25 (gage height, 15.30 ft); minimum, 5.2 cfs Sept. 9.

1924-27, 1939-52: Maximum discharge, 110,000 cfs Nov. 25, 1940 (gage height, 25.85 ft), from rating curve extended above 43,000 cfs on basis of velocity-area studies; minimum, that of Sept. 9, 1952.

Maximum stage known since at least December 1913, that of Nov. 25, 1940. Flood of December 1913 reached a stage of 25.2 ft, present site and datum, from information by International-Great Northern Railroad (discharge, 101,000 cfs, from rating curve extended as indicated above).

Remarks.--Records good. No large diversion above station.

Revisions (water years).--W 1058: 1926.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Feb. 2, May 1-18)

0.9	4.0	4.0	474
1.0	10	5.0	762
1.1	18	7.0	1,580
1.2	26	9.0	2,650
1.5	51	12.0	4,400
2.0	104	15.0	8,100
2.5	174	16.0	12,200
3.0	258		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	15	34	40	105	326	68	206	746	30	22	10
2	24	16	32	39	585	206	67	174	513	28	20	9.4
3	22	16	33	38	902	157	66	149	296	27	18	8.8
4	21	17	34	38	779	132	69	124	185	28	16	8.2
5	19	21	39	38	582	118	68	107	142	30	15	7.6
6	18	31	50	39	367	128	60	96	125	29	14	7.0
7	17	26	56	39	214	143	56	*84	121	29	*14	6.4
8	16	25	86	39	146	128	54	76	136	34	13	5.8
9	14	21	81	38	117	111	*52	70	222	*34	13	11
10	14	20	91	37	98	114	58	63	180	30	12	*14
11	14	19	74	36	92	182	57	57	149	26	12	13
12	14	20	63	34	86	320	1,630	53	*115	24	12	13
13	14	20	56	34	85	902	*3,690	49	87	24	11	13
14	14	19	56	34	84	1,540	3,420	46	72	24	11	12
15	14	18	56	33	82	999	2,710	43	62	22	10	13
16	13	17	50	*32	82	308	1,730	39	55	24	9.4	13
17	13	16	45	32	81	185	730	38	48	38	9.4	11
18	12	15	43	32	78	312	346	122	44	36	8.8	14
19	12	15	42	32	79	389	240	436	41	29	8.2	12
20	11	15	43	32	206	198	214	500	39	29	7.6	10
21	11	16	42	33	222	150	214	474	38	28	10	9.4
22	11	18	40	34	431	131	205	367	35	34	14	9.4
23	*20	18	40	34	*714	110	2,710	222	35	39	13	8.8
24	21	18	39	33	356	100	3,740	727	33	39	12	8.8
25	16	19	40	33	214	91	7,520	1,580	30	35	12	8.2
26	16	23	41	33	*296	84	5,980	2,210	30	28	14	8.2
27	15	26	42	84	400	75	3,080	2,100	29	24	14	8.2
28	14	*27	44	110	500	71	1,070	1,780	27	26	12	7.6
29	15	30	42	104	487	67	276	1,310	29	22	12	7.6
30	14	33	42	84	-	64	258	902	30	23	11	7.6
31	14	-	42	80	-	64	-	848	-	34	11	-
Total	489	610	1,518	1,378	8,470	7,905	40,438	15,052	3,694	907	391.4	296.0
Mean	15.8	20.3	49.0	44.5	292	255	1,348	486	123	29.3	12.6	9.87
Cfsm	0.019	0.024	0.059	0.053	0.351	0.307	1.62	0.584	0.148	0.035	0.015	0.012
In.	0.02	0.03	0.07	0.06	0.38	0.35	1.81	0.67	0.17	0.04	0.02	0.01
Ac-ft	970	1,210	3,010	2,730	16,800	15,680	80,210	29,860	7,330	1,800	776	587

Calendar year 1951: Max 1,640 Min 7.0 Mean 57.4 Cfsm 0.069 In. 0.95 Ac-ft 41,550
Water year 1951-52: Max 7,520 Min 5.8 Mean 222 Cfsm 0.267 In. 3.63 Ac-ft 160,900

Peak discharge (base, 4,300 cfs).--Apr. 25 (6 p.m.) 9,150 cfs (15.30 ft).
* Discharge measurement made on this day.

Spring Creek near Spring, Tex.

Location.--Lat 30°06'35", long. 95°26'10", near left bank on downstream side of pier of bridge on U. S. Highway 75, 4,500 ft upstream from International-Great Northern Railroad bridge, 2.4 miles northwest of Spring, Harris County, and 4 miles downstream from Willow Creek.

Drainage area.--400 sq mi.

Records available.--April 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 78.10 ft above mean sea level, datum of 1929. Prior to Jan. 5, 1946, wire-weight gage at present site and datum.

Average discharge.--13 years, 274 cfs.

Extremes.--Maximum discharge during year, 4,130 cfs Apr. 14 (gage height, 16.55 ft); minimum, 6.8 cfs July 12.
1939-52: Maximum discharge, 42,700 cfs Nov. 25, 1940 (gage height, 28.60 ft, from graph based on gage readings); minimum, that of July 12, 1952.
Maximum stage known since about 1879, 29.3 ft May 30, 1929, from floodmarks identified by local residents (discharge, 48,300 cfs).

Remarks.--Records good. Occasional diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 5 to Jan. 27, Apr. 12-15, 24-26, May 1-18, July 22 to Aug. 8)

0.4	7.8	4.0	243
.6	14	6.0	472
.8	22	9.0	970
1.0	30	13.0	2,000
1.5	54	15.0	2,900
2.0	82	17.0	4,200
3.0	154		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	14	17	17	243	44	25	72	142	32	64	10.0
2	23	14	17	17	862	36	30	66	98	36	70	9.8
3	20	12	22	17	542	33	27	60	79	29	33	9.5
4	17	12	42	17	374	30	26	59	64	26	23	9.2
5	16	13	29	17	145	29	24	58	55	24	19	9.2
6	15	51	22	17	79	27	22	54	52	22	17	9.2
7	14	64	24	16	55	26	22	*48	52	21	17	9.2
8	13	37	36	17	44	25	22	44	68	20	*16	9.5
9	12	22	25	17	38	24	*22	41	79	20	14	10
10	12	16	23	16	34	26	25	38	69	*20	14	*12
11	12	14	24	15	33	27	26	36	56	18	13	12
12	11	14	22	15	31	30	1,180	33	*47	17	13	12
13	11	13	18	16	30	34	*3,140	32	42	31	13	12
14	11	13	18	16	31	34	3,850	30	38	23	12	11
15	11	13	17	16	31	29	1,920	30	34	20	12	14
16	11	12	16	*16	30	26	419	29	32	22	12	11
17	11	11	19	16	28	25	162	28	30	32	12	10
18	11	11	19	16	27	47	116	148	30	28	12	29
19	11	11	17	16	25	67	95	650	29	26	12	12
20	11	11	17	15	26	98	92	754	28	38	11	12
21	11	12	17	16	45	67	98	598	27	88	12	11
22	11	13	16	15	42	44	145	184	26	44	12	9.8
23	15	14	16	14	40	31	924	95	25	31	12	9.5
24	*18	14	16	14	36	26	1,700	174	25	25	12	9.2
25	17	14	18	15	38	24	2,350	360	25	22	12	9.0
26	15	15	18	15	*60	23	992	556	24	20	12	8.7
27	13	17	17	23	102	22	240	379	23	18	13	8.7
28	13	*18	17	80	88	22	138	327	23	18	14	8.4
29	12	18	17	72	58	22	106	528	23	17	13	8.4
30	12	17	18	62	-	22	85	542	22	18	11	8.4
31	12	-	18	43	-	23	-	301	-	45	11	-
Total	432	530	632	694	3,217	1,043	18,023	6,354	1,367	851	543	323.7
Mean	13.9	17.7	20.4	22.4	111	33.6	601	205	45.6	27.5	17.5	10.8
Cfsm	0.035	0.044	0.051	0.056	0.278	0.084	1.50	0.512	0.114	0.069	0.044	0.027
In.	0.04	0.05	0.06	0.06	0.30	0.10	1.68	0.59	0.13	0.08	0.05	0.03
Ac-ft	857	1,050	1,250	1,380	6,380	2,070	35,750	12,600	2,710	1,690	1,080	642

Calendar year 1951: Max 259 Min 6.9 Mean 25.1 Cfsm 0.063 In. 0.86 Ac-ft 18,180
Water year 1951-52: Max 3,850 Min 8.4 Mean 92.9 Cfsm 0.232 In. 3.17 Ac-ft 67,460

Peak discharge (base, 1,600 cfs).--Apr. 14 (11 a.m.) 4,130 cfs (16.55 ft); Apr. 25 (11 a.m.) 2,650 cfs (14.17 ft).
* Discharge measurement made on this day.

Cypress Creek near Westfield, Tex.

Location.--Lat 30°02'08", long. 95°25'43", near left bank at downstream side of pile bent of bridge on U. S. Highway 75, 0.9 mile upstream from Senger Gully, 1.8 miles northwest of Westfield, Harris County, 2.0 miles upstream from International-Great Northern Railroad bridge, and 11.0 miles upstream from mouth.

Drainage area.--262 sq mi.

Records available.--July 1944 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 63.89 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Prior to Mar. 17, 1951, water-stage recorder at upstream side of bridge at datum 12.00 ft higher.

Average discharge.--8 years, 191 cfs.

Extremes.--Maximum discharge during year, 5,270 cfs Apr. 12 (gage height, 21.58 ft); minimum, 0.7 cfs Aug. 16, 17.

1944-52: Maximum discharge, 22,100 cfs Oct. 8, 1949 (gage height, 33.44 ft, present datum), from rating curve extended above 11,000 cfs by logarithmic plotting; minimum, no flow Aug. 3-11, Aug. 19 to Sept. 4, Nov. 2-15, 1948.

Maximum stage known since about 1875, 34 ft (present datum) in May 1929, from information by local resident. Flood of November 1940 reached a stage of about 32.2 ft (present datum), from information by State Highway Department.

Remarks.--Records good.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Feb. 25, May 2-18)

Oct. 1 to Feb. 1				Feb. 2 to Sept. 30			
5.5	0.4	6.3	26	5.9	0.6	7.0	51
5.6	1.0	6.6	48	6.0	1.2	7.5	120
5.7	2.4	7.0	87	6.1	2.2	8.0	218
5.8	4.4	7.5	152	6.2	3.8	9.0	438
5.9	7.0	8.0	237	6.3	5.6	10.0	690
6.1	14	9.5	560	6.4	8.4	12.0	1,280
				6.6	16	14.0	2,000
				6.8	30	18.0	3,650

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	12	1.1	1.7	*478	14	7.3	22	93	1.1	14	9.1
2	21	4.4	1.3	1.7	*898	9.5	4.5	17	48	*1.0	5.4	7.0
3	18	6.0	55	2.1	496	6.7	7.0	11	25	1.0	4.7	4.7
4	15	4.2	77	1.7	258	5.1	17	11	16	1.0	5.1	3.8
5	16	4.0	*105	1.6	106	3.6	6.2	8.1	11	1.2	3.3	5.9
6	12	16	80	1.3	40	3.0	4.2	6.4	13	3.8	1.7	9.1
7	9.1	18	47	1.3	17	2.7	3.2	*6.7	186	2.7	1.6	7.0
8	8.8	36	25	1.3	9.5	2.2	2.4	6.2	252	1.8	*1.6	4.7
9	7.0	30	18	1.3	5.9	2.0	*3.2	4.7	212	1.8	2.0	11
10	6.0	16	51	1.0	4.0	2.8	19	4.2	120	*1.7	2.7	*14
11	5.7	9.8	40	1.0	3.3	2.5	40	3.3	63	1.5	1.9	24
12	7.4	6.5	23	1.0	2.5	1.9	*3,310	2.7	*42	1.2	1.4	18
13	6.5	4.7	15	1.1	2.1	1.8	*2,840	2.5	20	2.0	1.2	12
14	4.7	3.2	14	1.1	1.7	1.6	2,680	2.1	15	2.2	1.0	8.1
15	3.4	2.4	10	1.3	1.6	1.5	*1,620	2.0	10	1.6	.9	6.7
16	2.8	2.0	7.4	*1.3	1.7	1.3	852	1.9	5.9	1.8	.8	5.4
17	2.6	1.4	4.9	2.0	1.4	1.2	534	1.9	4.0	22	.8	5.1
18	2.3	1.0	7.7	2.4	1.4	196	*282	1,250	3.8	8.8	1.0	56
19	2.0	1.0	5.2	1.7	1.6	61	86	1,400	3.5	5.2	1.8	14
20	1.7	2.1	5.2	1.4	52	29	55	612	2.1	5.6	1.4	24
21	1.6	1.8	3.6	1.3	19	26	36	315	2.8	22	1.7	21
22	1.3	1.8	3.6	1.1	72	14	319	122	2.4	24	1.6	14
23	5.5	2.1	3.6	.9	36	8.8	1,920	58	1.8	6.4	1.6	9.5
24	*4.7	1.6	4.7	.8	32	5.6	1,480	462	1.4	3.2	1.2	7.6
25	8.8	1.4	5.7	1.0	40	4.3	964	392	1.5	2.2	1.3	7.0
26	8.4	1.3	4.2	1.3	*86	3.5	638	258	1.6	1.9	8.1	5.9
27	5.7	1.4	2.8	8.0	139	3.3	462	141	1.9	1.4	5.9	5.2
28	5.2	*1.4	2.4	22	85	2.8	243	495	1.6	1.2	3.8	5.2
29	5.2	1.1	2.1	40	33	2.2	77	*510	1.5	1.2	4.2	5.1
30	4.7	1.0	1.8	37	-	2.4	32	359	1.2	14	4.3	4.0
31	4.0	-	1.7	20	-	3.5	-	203	-	133	5.9	-
Total	237.1	195.6	629.0	162.7	2,925.7	425.8	18,544.0	6,690.7	1,163.0	279.5	93.9	334.1
Mean	7.65	6.52	20.3	5.25	101	13.7	618	216	38.8	9.02	3.03	11.1
Cfsm	0.029	0.025	0.077	0.020	0.386	0.052	2.36	0.824	0.148	0.034	0.012	0.042
In.	0.03	0.03	0.09	0.02	0.42	0.06	2.63	0.95	0.17	0.04	0.01	0.05
Ac-ft	470	388	1,250	323	5,800	845	36,780	13,270	2,310	554	186	663

Calendar year 1951: Max 427 Min 0.1 Mean 17.1 Cfsm 0.065 In. 0.89 Ac-ft 12,380
Water year 1951-52: Max 3,310 Min 0.8 Mean 86.6 Cfsm 0.331 In. 4.50 Ac-ft 62,840

Peak discharge (base, 1,000 cfs).--Feb. 2 (3:30 p.m.) 1,210 cfs (11.82 ft); Apr. 12 (2:30 p.m.) 5,270 cfs (21.58 ft); Apr. 23 (8 a.m.) 2,360 cfs (14.90 ft); May 18 (8 p.m.) 3,650 cfs (18.03 ft).

* Discharge measurement made on this day.

West Fork San Jacinto River near Humble, Tex.

Location.--Lat 30°01'35", long. 95°15'30", on right bank at downstream side of bridge on U. S. Highway 59, 1,160 ft upstream from Texas & New Orleans Railroad bridge, about half a mile downstream from Spring Creek, and 2½ miles north of Humble, Harris County.

Drainage area.--1,811 sq mi.

Records available.--October 1928 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 30.53 ft above mean sea level, datum of 1929. Oct. 23, 1928, to July 16, 1933, chain gage at site 3,000 ft downstream at same datum. July 17, 1933, to Mar. 5, 1939, chain gage at present site and datum.

Average discharge.--24 years, 1,133 cfs.

Extremes.--Maximum discharge during year, 10,000 cfs Apr. 12 (gage height, 11.46 ft); minimum, 23 cfs Sept. 4, 5, 6.

1928-52: Maximum discharge, 187,000 cfs May 31, 1929, Nov. 25, 26, 1940; maximum gage height, 32.7 ft May 31, 1929, Nov. 26, 1940, present site and datum (flood of Nov. 26, 1940, affected by backwater from East Fork, and it is believed flood of May 31, 1929, occurred under similar conditions); minimum discharge, 11 cfs Aug. 31, Sept. 1, 2, 1951.

Remarks.--Records good. No diversion above station.

Revisions (water years).--W 898: 1929(M).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 3 to Apr. 12, May 1-18)

1.9	24	5.0	1,000
2.1	42	6.0	1,710
2.3	64	7.0	2,660
2.6	110	8.0	3,860
3.0	190	10.0	7,000
3.5	320	12.0	11,000
4.0	500		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	119	58	62	65	818	558	151	432	1,090	84	138	29
2	107	60	63	64	2,840	396	147	364	855	83	107	29
3	88	48	99	65	2,260	302	147	305	590	77	91	27
4	80	47	147	67	1,710	252	170	258	413	72	64	26
5	72	48	198	64	1,220	220	166	222	326	75	54	24
6	68	78	155	62	780	198	143	198	285	74	*49	26
7	63	124	124	64	527	200	132	181	326	81	45	28
8	56	119	112	64	371	212	124	*172	399	*67	42	*26
9	53	107	124	64	288	195	124	160	420	67	41	34
10	50	81	126	64	242	186	158	149	436	67	38	42
11	48	70	153	63	215	186	*151	141	*338	65	37	44
12	47	63	128	63	200	258	4,640	132	285	59	35	43
13	47	58	105	63	181	510	9,200	124	238	58	34	37
14	47	57	102	*63	170	1,190	8,800	117	200	120	32	33
15	44	54	92	62	172	1,400	6,640	114	177	74	30	30
16	42	51	91	62	175	712	3,380	110	153	71	30	35
17	41	47	83	62	166	364	1,710	107	139	114	30	30
18	40	46	78	63	160	475	880	1,120	128	124	29	98
19	39	46	75	63	155	658	554	3,040	121	102	28	70
20	37	47	71	62	187	468	432	1,710	114	84	29	54
21	37	48	68	63	347	347	448	1,470	108	107	30	57
22	37	50	67	63	392	278	459	940	105	147	33	47
23	57	51	65	62	680	232	5,840	612	96	107	34	40
24	*60	56	64	60	730	205	7,000	1,060	91	91	30	34
25	57	53	71	62	*448	188	7,600	1,840	88	81	30	31
26	56	52	71	63	420	170	9,200	2,310	84	72	34	30
27	51	56	67	72	612	160	4,720	2,660	81	67	35	28
28	49	62	64	196	705	151	1,980	3,140	80	58	30	27
29	47	60	65	232	680	147	855	2,660	83	57	28	27
30	46	*60	65	198	-	141	572	1,980	80	59	28	26
31	45	-	64	162	-	147	-	1,470	-	170	27	-
Total	1,730	1,857	2,919	2,502	17,851	11,106	76,523	29,298	7,929	2,634	1,322	1,112
Mean	55.8	61.9	94.2	80.7	616	358	2,551	945	264	85.0	42.6	37.1
Cfsm	0.031	0.034	0.052	0.045	0.340	0.198	1.41	0.522	0.146	0.047	0.024	0.020
In.	0.04	0.04	0.06	0.05	0.37	0.23	1.57	0.60	0.16	0.05	0.03	0.02
Ac-ft	3,430	3,680	5,790	4,960	35,410	22,030	151,800	58,110	15,730	5,220	2,620	2,210

Calendar year 1951: Max 2,500 Min 12 Mean 128 Cfsm 0.071 In. 0.98 Ac-ft 92,690
Water year 1951-52: Max 9,200 Min 24 Mean 428 Cfsm 0.236 In. 3.22 Ac-ft 311,000

Peak discharge (base, 8,900 cfs).--Apr. 12 (11 p.m.) 10,000 cfs (11.46 ft); Apr. 26 (6 p.m.) 9,800 cfs (11.44 ft).

* Discharge measurement made on this day.

East Fork San Jacinto River near Cleveland, Tex.

Location.--Lat 30°20', long. 95°07', near left bank at downstream side of pier of bridge on old State Highway 105, 83 ft downstream from Gulf, Colorado & Santa Fe Railway bridge, 1,800 ft upstream from new bridge on State Highway 105, 1½ miles west of Cleveland, Liberty County, and 4 miles downstream from Winter Creek.

Drainage area.--330 sq mi.

Records available.--April 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 112.98 ft above mean sea level, datum of 1929, Galveston-Houston supplementary adjustment.

Average discharge.--13 years, 279 cfs.

Extremes.--Maximum discharge during year, 2,480 cfs Apr. 25 (gage height, 8.70 ft); minimum, 1.2 cfs (temporary regulation) Aug. 21.

1939-52: Maximum discharge, 77,500 cfs Nov. 24, 1940 (gage height, 20.37 ft), from rating curve extended above 14,000 cfs by logarithmic plotting; minimum, that of Aug. 21, 1952.

Maximum stage known since 1900, that of Nov. 24, 1940. Flood of May 5, 1935, reached a stage of 19.9 ft, from information by local residents (discharge, 69,500 cfs, from rating curve mentioned above).

Remarks.--Records good. No large diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.1	4.8	1.5	226
.2	11	2.0	338
.3	20	3.0	580
.5	41	5.0	1,100
.7	69	7.0	1,750
1.0	124	9.0	2,640

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	16	18	22	60	68	33	71	108	18	31	6.8
2	16	13	18	22	294	53	32	68	79	19	19	6.1
3	15	11	21	22	555	48	31	69	64	18	16	7.4
4	15	11	26	23	361	50	33	66	56	17	14	7.4
5	14	15	39	24	126	46	40	60	51	19	12	6.8
6	14	18	56	24	76	42	32	53	48	27	11	6.8
7	13	35	50	22	57	41	27	48	44	17	*11	6.8
8	12	28	36	21	49	40	27	*44	44	*19	10	6.8
9	11	18	28	21	42	38	27	41	46	16	10	*9.4
10	11	16	28	21	40	39	*28	39	54	15	9.4	11
11	11	16	25	20	39	106	35	35	*50	14	8.8	13
12	11	15	24	19	39	174	350	34	45	13	8.1	12
13	11	14	22	21	41	136	1,100	31	39	13	8.1	11
14	11	14	23	22	39	79	1,600	28	34	12	7.4	10
15	11	13	36	*22	35	54	*965	28	30	12	7.4	10
16	11	11	36	21	35	44	205	27	28	12	7.4	9.4
17	11	11	27	21	34	38	104	27	25	18	7.4	10
18	11	10	25	22	32	89	74	48	25	26	7.4	21
19	11	10	24	22	31	384	63	251	24	30	7.4	49
20	11	11	26	22	175	213	58	630	21	27	7.4	28
21	11	12	27	22	445	86	74	432	21	22	6.8	19
22	11	14	26	22	90	60	144	140	21	19	12	16
23	*15	13	23	22	58	49	1,270	69	19	16	11	15
24	16	13	22	20	54	41	1,790	272	19	14	10	11
25	20	16	23	19	51	36	2,280	1,210	18	12	9.4	10
26	17	17	27	20	94	34	1,870	1,990	16	10	14	9.4
27	16	19	28	28	*199	32	379	885	16	11	16	9.4
28	16	21	24	182	99	32	148	259	16	11	10	9.4
29	15	*20	22	163	*91	32	99	372	16	11	9.4	8.8
30	15	20	22	66	-	32	81	315	16	12	8.8	9.4
31	15	-	22	50	-	32	-	184	-	22	8.1	-
Total	415	471	854	1,048	3,341	2,250	12,999	7,826	1,093	522	335.7	364.1
Mean	13.4	15.7	27.5	33.8	115	72.6	433	252	36.4	16.8	10.8	12.1
Cfsm	0.041	0.048	0.083	0.102	0.348	0.220	1.31	0.764	0.110	0.051	0.033	0.037
In.	0.05	0.05	0.10	0.12	0.38	0.25	1.46	0.88	0.12	0.06	0.04	0.04
Ac-ft	823	934	1,690	2,080	6,630	4,460	25,780	15,520	2,170	1,040	666	722

Calendar year 1951: Max 783 Min 6.1 Mean 33.1 Cfsm 0.100 In. 1.37 Ac-ft 23,960
Water year 1951-52: Max 2,280 Min 6.1 Mean 86.1 Cfsm 0.261 In. 3.55 Ac-ft 62,520

Peak discharge (base, 2,500 cfs).--No peak above base.
* Discharge measurement made on this day.

Peach Creek at Splendora, Tex.

Location.--Lat 30°14', long. 95°10', at right bank on downstream side of pile bent of bridge on county road between Splendora and Conroe, about 1,500 ft west of depot at Splendora, Montgomery County, 2.5 miles upstream from Texas & New Orleans Railroad bridge, 2.5 miles upstream from bridge on U. S. Highway 59, and 9.7 miles upstream from Caney Creek.

Drainage area.--120 sq mi.

Records available.--December 1943 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 86.61 ft above mean sea level, datum of 1929, Galveston-Houston supplementary adjustment of 1936.

Average discharge.--8 years (1944-52), 98.8 cfs.

Extremes.--Maximum discharge during year, 1,130 cfs Apr. 23 (gage height, 8.28 ft); minimum, 7.0 cfs Sept. 8.

1943-52: Maximum discharge, 28,500 cfs Oct. 8, 1949 (gage height, 17.73 ft), from rating curve extended above 8,000 cfs on basis of slope-area determination of peak flow; minimum, unregulated, 6.7 cfs Sept. 3, 4, 1951.

Maximum stage known since about 1895, that of Oct. 8, 1949. Flood of November 1940 reached a stage of 17.3 ft (adjusted to present site and datum), from information by local residents.

Remarks.--Records good.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 1 to Feb. 1, Apr. 13-22)

0.6	5.6	3.0	87
.8	9.0	4.0	148
1.0	13	5.0	235
1.5	25	6.0	368
2.0	42	7.0	608
2.5	63	8.0	985

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a12	14	17	19	69	29	23	43	42	16	32	7.9
2	a12	12	16	18	194	27	23	40	33	18	25	7.9
3	a12	11	16	18	141	26	22	40	29	21	15	7.9
4	a12	11	17	18	102	26	23	46	26	18	12	7.7
5	a12	12	20	20	56	30	22	36	24	17	12	7.4
6	a12	16	30	22	38	27	24	31	22	15	11	7.4
7	a12	18	44	20	31	24	21	*28	22	14	12	7.4
8	a12	29	27	19	29	22	19	25	23	14	11	7.0
9	a12	20	20	18	27	22	18	24	24	*20	10	*7.6
10	a12	15	19	18	26	22	*19	22	22	16	10	8.5
11	a11	13	20	18	26	24	20	21	*20	14	*9.9	8.6
12	a11	13	19	18	26	43	428	20	19	13	9.5	9.7
13	a11	13	18	17	29	33	484	20	18	13	9.5	9.4
14	a11	13	18	18	28	26	*262	19	18	13	9.4	8.8
15	a11	13	18	*18	26	24	154	18	16	12	9.4	8.5
16	a11	13	32	18	25	22	74	18	16	12	9.0	8.6
17	a11	12	26	18	24	21	56	17	15	14	9.0	8.3
18	a11	12	21	18	24	64	48	52	15	18	8.8	9.5
19	a11	12	19	18	23	72	42	234	14	22	8.8	12
20	a11	12	20	17	23	70	41	102	14	21	8.6	19
21	a11	12	20	18	48	39	48	72	14	17	9.5	16
22	a11	13	20	17	48	30	71	42	13	14	10	11
23	*11	14	20	17	28	27	818	32	13	13	10	9.5
24	12	14	18	17	28	25	920	162	13	12	9.5	9.0
25	13	16	18	16	28	23	428	159	13	12	9.4	8.5
26	16	18	19	15	34	22	168	134	13	12	10	8.3
27	13	18	22	18	58	22	92	72	12	12	9.5	8.1
28	13	19	22	39	51	22	70	94	12	11	9.2	7.9
29	12	*20	20	60	*34	22	56	105	12	11	9.2	7.9
30	12	19	19	60	-	22	48	94	13	11	8.5	7.9
31	12	-	18	29	-	22	-	58	-	14	8.3	-
Total	366	447	653	694	1,324	930	4,542	1,880	560	460	345	273.2
Mean	11.8	14.9	21.1	22.4	45.7	30.0	151	60.6	18.7	14.8	11.1	9.11
Cfsm	0.098	0.124	0.176	0.187	0.381	0.250	1.26	0.505	0.156	0.123	0.092	0.076
In.	0.11	0.14	0.20	0.22	0.41	0.29	1.41	0.58	0.17	0.14	0.11	0.08
Ac-ft	726	887	1,300	1,380	2,630	1,840	9,010	3,730	1,110	912	684	542

Calendar year 1951: Max 189 Min 6.1 Mean 21.5 Cfsm 0.179 In. 2.42 Ac-ft 15,560
Water year 1951-52: Max 920 Min 7.0 Mean 34.1 Cfsm 0.284 In. 3.86 Ac-ft 24,750

Peak discharge (base, 900 cfs).--Apr. 23 (3 p.m.) 1,130 cfs (8.28 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of discharge measurement, recorded range in stage, weather records, and records for stations on nearby streams.

Caney Creek near Splendora, Tex.

Location.--Lat 30°16', long. 95°18', near right bank at downstream side of pile bent of county road bridge, 4 miles downstream from Gulf, Colorado & Santa Fe Railway bridge and 8 miles west of Splendora, Montgomery County.

Drainage area.--104 sq mi.

Records available.--January 1944 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 123.44 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Average discharge.--8 years, 87.5 cfs.

Extremes.--Maximum discharge during year, 1,630 cfs May 25 (gage height, 10.54 ft); minimum, 8.3 cfs Sept. 4-6.

1944-52: Maximum discharge, 14,900 cfs Apr. 1, 1945 (gage height, 18.19 ft), from rating curve extended above 6,000 cfs by logarithmic plotting; minimum, that of Sept. 4-6, 1952.

Maximum stage known since about 1885, 22.0 ft in November 1940, present site and datum, from information by local resident. Flood of May 1935 reached a stage of 19.3 ft, present site and datum, from information by local resident.

Remarks.--Records good. No diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

-0.6	7.7	2.0	137
-.3	14	3.0	222
0.0	22	5.0	460
.5	42	7.0	780
1.0	68	9.0	1,200

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	12	15	16	34	25	18	34	40	51	14	8.9
2	12	12	15	15	307	23	18	32	34	48	13	8.9
3	12	12	16	16	303	24	17	33	30	21	12	8.7
4	11	12	16	17	58	25	18	31	28	19	11	8.5
5	11	13	28	16	37	24	18	28	26	16	11	8.3
6	11	20	78	16	30	21	16	26	25	19	11	8.5
7	11	21	26	15	27	20	16	*24	25	17	11	8.7
8	11	16	19	15	25	20	16	23	24	16	10	8.5
9	11	14	19	17	24	20	*16	22	24	*14	10	*9.5
10	11	14	18	16	24	21	17	21	22	14	10	10
11	11	14	17	16	24	92	20	21	*21	13	10	9.9
12	11	13	16	16	23	50	320	20	20	13	*10	9.1
13	11	13	16	16	22	29	1,110	20	20	13	10	8.9
14	11	14	17	16	22	25	146	19	19	13	10	8.9
15	11	13	23	*16	21	22	68	19	18	12	10	8.9
16	11	13	19	16	21	21	50	18	17	13	10	9.1
17	11	13	17	16	21	20	41	18	17	15	9.9	8.9
18	11	13	17	16	20	49	36	50	16	16	9.9	14
19	11	14	17	15	20	160	33	195	16	15	9.9	15
20	11	14	17	15	207	45	33	106	16	14	9.7	11
21	11	14	17	15	74	29	51	47	15	13	10	10
22	11	14	16	15	37	24	90	30	15	12	11	9.7
23	*12	15	16	14	29	22	866	26	15	12	10	9.3
24	14	16	16	14	27	20	824	198	14	12	10	9.1
25	13	16	17	14	27	19	121	1,100	14	12	11	8.9
26	12	16	18	14	80	19	74	119	14	12	11	8.7
27	12	18	17	22	*74	19	57	64	13	12	10	8.9
28	12	17	16	69	37	19	48	123	13	12	9.7	8.7
29	12	*16	18	40	29	18	42	190	14	11	8.9	8.9
30	12	16	16	23	-	18	37	73	14	12	8.9	8.7
31	12	-	16	19	-	18	-	50	-	14	8.9	-
Total	356	438	607	576	1,684	961	4,237	2,780	599	506	321.8	283.1
Mean	11.5	14.6	19.6	18.6	58.1	31.0	141	89.7	20.0	16.3	10.4	9.44
Cfsm	0.111	0.140	0.188	0.179	0.559	0.298	1.36	0.862	0.192	0.157	0.100	0.091
In.	0.13	0.16	0.22	0.21	0.60	0.34	1.52	0.99	0.21	0.18	0.12	0.10
Ac-ft	706	869	1,200	1,140	3,340	1,910	8,400	5,510	1,190	1,000	638	562

Calendar year 1951: Max 468 Min 9.6 Mean 19.9 Cfsm 0.191 In. 2.60 Ac-ft 14,380
Water year 1951-52: Max 1,110 Min 8.3 Mean 36.5 Cfsm 0.351 In. 4.78 Ac-ft 26,480

Peak discharge (base, 1,300 cfs).--Apr. 13 (1 p.m.) 1,600 cfs (10.45 ft); Apr. 24 (3 a.m.) 1,560 cfs (10.27 ft); May 25 (11:30 a.m.) 1,630 cfs (10.54 ft).

* Discharge measurement made on this day.

San Jacinto River near Huffman, Tex.

Location.--Lat 29°59'40", long. 95°08'00", near center of channel on downstream side of pier of Beaumont, Sour Lake & Western Railway bridge, 0.4 mile downstream from confluence of East and West Forks, 3.4 miles southwest of Huffman, Harris County, and at mile 38.

Drainage area.--2,791 sq mi.

Records available.--October 1936 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1.93 ft above mean sea level, datum of 1929. Prior to July 10, 1941, wire-weight gage at same site and datum.

Average discharge.--16 years, 1,995 cfs.

Extremes.--Maximum discharge during year, 15,100 cfs Apr. 13 (gage height, 22.06 ft); minimum daily, 56 cfs Sept. 4-7.

1936-52: Maximum discharge observed, 253,000 cfs Nov. 26, 1940 (gage height, 51.2 ft); minimum observed, 49 cfs Sept. 1, 1939, and Sept. 13, 14, 1940.

Maximum stage known since at least 1876, that of Nov. 26, 1940. Flood of May 31, 1929, reached a stage of 50.3 ft, from information by Beaumont, Sour Lake & Western Railway Co. (discharge, 237,000 cfs); flood of April 1876 reached a stage about 1½ ft lower, from information by local resident.

Remarks.--Records good except those for periods of no gage-height record, which are poor. No large diversion above station. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 26 to Apr. 12)

Oct. 1 to Apr. 15				Apr. 16 to Sept. 30			
7.6	70	11.0	1,450	7.7	50	10.0	680
8.0	120	13.0	3,020	8.0	76	11.0	1,300
8.5	230	16.0	6,000	8.5	156	12.0	2,080
9.0	400	19.0	10,100	9.0	280	14.0	3,900
9.5	605	22.0	14,900	9.5	450		
10.0	840						

Note.--Same as preceding table above 14 ft.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	227	109	127	142	1,350	765	222	730	2,070	185	178	60
2	182	125	125	138	5,890	582	207	580	1,480	193	133	58
3	158	107	216	134	4,900	432	197	530	1,060	200	115	57
4	140	96	274	138	3,630	334	217	470	755	185	104	56
5	127	96	303	133	2,620	278	225	445	580	169	96	56
6	120	134	270	133	1,490	257	209	410	498	167	*94	56
7	112	199	292	134	865	239	202	380	490	*167	92	56
8	100	199	298	138	628	245	185	*367	605	169	90	*59
9	92	197	264	133	468	227	180	337	605	171	85	60
10	86	169	236	125	382	225	264	310	*655	163	81	76
11	82	146	260	125	334	209	*254	289	530	154	78	86
12	80	124	236	127	309	302	4,740	269	458	152	75	88
13	80	116	204	129	278	540	14,600	252	390	147	72	80
14	82	109	207	*127	248	1,150	14,100	238	346	143	69	75
15	81	103	185	125	251	1,680	12,000	219	307	149	66	72
16	80	91	180	125	254	1,030	7,620	*207	277	142	64	70
17	79	82	192	125	199	468	3,540	200	252	156	64	110
18	100	90	194	125	217	412	1,680	1,100	238	207	63	165
19	82	91	171	131	202	840	960	7,760	230	263	63	180
20	79	92	165	125	214	1,000	705	5,340	217	269	64	170
21	79	95	152	127	484	815	680	4,200	205	258	66	155
22	*78	99	148	125	790	560	630	3,060	196	272	70	135
23	122	102	148	119	840	412	7,220	1,640	189	241	74	120
24	122	106	148	119	918	326	13,600	2,170	185	219	76	110
25	100	110	152	124	*628	270	13,100	3,880	178	200	78	98
26	102	109	152	122	540	257	13,900	5,450	171	187	76	86
27	106	113	144	131	672	230	11,100	5,780	165	178	73	78
28	117	124	146	219	945	217	4,840	6,360	158	174	70	74
29	105	129	150	432	918	192	1,880	5,230	154	167	68	68
30	99	*127	146	520	-	194	1,060	3,900	149	149	65	66
31	98	-	142	412	-	204	-	2,880	-	193	61	-
Total	3,297	3,589	6,027	5,062	31,464	14,892	130,317	64,983	13,793	5,789	2,523	2,680
Mean	106	120	194	163	1,085	480	4,344	2,096	460	187	81.4	89.3
Cfsm	0.038	0.043	0.070	0.058	0.389	0.172	1.56	0.751	0.165	0.067	0.029	0.032
In.	0.04	0.05	0.08	0.07	0.42	0.20	1.74	0.87	0.18	0.08	0.03	0.04
Ac-ft	6,540	7,120	11,950	10,040	62,410	29,540	258,500	128,900	27,360	11,480	5,000	5,320

Calendar year 1951: Max 4,400 Min 52 Mean 235 Cfsm 0.084 In. 1.15 Ac-ft 169,800
Water year 1951-52: Max 14,600 Min 56 Mean 777 Cfsm 0.278 In. 3.80 Ac-ft 564,200

Peak discharge (base, 14,000 cfs).--Apr. 13 (12 m.) 15,100 cfs (22.06 ft); Apr. 26 (2:30 p.m.) 14,400 cfs (21.70 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Apr. 30 to May 7, Aug. 2-5, Aug. 7 to Sept. 7, Sept. 9-30; discharge estimated on basis of weather records and records for nearby stations.

Barker Reservoir near Addicks, Tex.

Location.--Lat 29°46'05", long. 95°38'45", at dam on Buffalo Bayou 45 ft upstream from reservoir outlet works, 1,160 ft upstream from Addicks-Howell county road, 1.1 miles south of Addicks, Harris County, and 1.2 miles upstream from South Mayde Creek. Upper gage, lat 29°43'10", long. 95°44'00", on Buffalo Bayou, 2.8 miles west of Clodine, Fort Bend County, 4.8 miles (2.7 miles by reservoir) upstream from Mason Creek, and 9.0 miles (6.4 miles by reservoir) upstream from reservoir outlet works.

Drainage area.--150 sq mi at outlet works; 105 sq mi at upper gage.

Records available.--August 1945 to September 1952.

Gage.--Water-stage recorders. Datum of both gages is 0.33 ft below mean sea level, datum of 1929, Galveston-Houston supplementary adjustment and Houston supplementary adjustment of 1943.

Extremes.--Maximum gage height at dam during year, 81.8 ft Apr. 13 (contents, 116 acre-ft). Maximum at upper gage, 96.9 ft Apr. 13.

1945-52: Maximum gage height at dam, 90.4 ft Aug. 30, 1945 (contents, 11,240 acre-ft); maximum at upper gage, 98.6 ft Aug. 28, 1945.

Maximum stage known near site of upper gage prior to construction of reservoir, 98.1 ft in December 1935, from floodmark about 1,100 ft to right of and 1,100 ft downstream from upper gage.

Remarks.--Reservoir is formed by rolled-fill earthen-type dam 72,844 ft long. Dam completed Feb. 3, 1946, but was first used for flood control in spring of 1945. Reservoir is operated for flood protection of city of Houston. It is a detention reservoir with no provision for permanent storage. Outlet works consist of five concrete conduits, two of which are uncontrolled. The middle conduit is controlled by two vertical-lift steel gates; the two outer conduits are controlled by single vertical lift steel gates. All gates remain closed except during recession of large floods or during emergencies. Capacity, 127,900 acre-ft between gage heights 75.0 ft (bottom of conduits) and 101.9 ft (top of design flood pool). No constructed emergency spillways; runoff considerably in excess of designed capacity will be discharged around ends of dam. Gage heights and contents not published for floods that do not produce a gage height of 82.0 ft (top of outlet structure) or higher at dam.

Cooperation.--Capacity table and gage-height record at dam furnished by Corps of Engineers.

Addicks Reservoir near Addicks, Tex.

Location.--Lat 29°47'30", long. 95°37'25", at dam on South Mayde Creek, 65 ft upstream from reservoir outlet works, 2,700 ft upstream from U. S. Highway 90, 1.2 miles east of Addicks, Harris County, and 1.4 miles upstream from mouth. Auxiliary gages: lat 29°48'05", long. 95°41'30", on South Mayde Creek at Groeschke Road Bridge, 3.2 miles west of Addicks, 4.6 miles (3.5 miles by reservoir) upstream from Langham Creek, and 5.5 miles (4.2 miles by reservoir) upstream from reservoir outlet works; lat 29°50'10", long. 95°37'35", on Langham Creek at Clay Road Bridge, 3.6 miles north of Addicks, 4.4 miles (2.7 miles by reservoir) upstream from mouth, and 5.3 miles (3.1 miles by reservoir) upstream from reservoir outlet works.

Drainage area.--129 sq mi at outlet works; 30 sq mi at gage on South Mayde Creek; and 49 sq mi at gage on Langham Creek.

Records available.--June 1948 to September 1952.

Gage.--Water-stage recorders. Datum of all gages is mean sea level, datum of 1929, Galveston-Houston supplementary adjustment and the Houston supplementary adjustment of 1943.

Extremes.--Maximum elevation at dam during year; 86.4 ft Apr. 13 (contents, 366 acre-ft); maximum at gage on South Mayde Creek, 106.8 ft Apr. 12; maximum at gage on Langham Creek, 101.4 ft Apr. 12.

1948-52: Maximum elevation at dam, 90.5 ft Oct. 8, 9, 1949; maximum at gage on South Mayde Creek, 106.8 ft Apr. 22, 1949, Apr. 12, 1952; maximum at gage on Langham Creek, 101.9 ft Oct. 8, 1949.

Maximum stage known, 89.9 ft in December 1935 at bridge on U. S. Highway 90, 2,700 ft downstream from outlet works, from information by Corps of Engineers. This flood, from floodmarks, from information by local residents, reached a stage of 109.3 ft, 0.2 mile downstream, and 0.1 mile to right of gage on South Mayde Creek; and a stage of 104.5 ft, 1,900 ft to left and 700 ft upstream from gage on Langham Creek.

Remarks.--Reservoir is formed by rolled-fill earthen type dam 61,166 ft long. Dam completed in fall of 1948. Reservoir is operated for flood protection of city of Houston. It is a detention reservoir with no provision for permanent storage. Outlet works consist of five concrete conduits, two of which are uncontrolled. The middle conduit is controlled by two vertical lift gates; the two outer conduits are controlled by single vertical lift steel gates. All gates will remain closed except during recession of large floods or during emergencies. Capacity, 188,030 acre-ft between gage heights 73.0 ft (bottom of conduits) and 113.0 ft (top of design flood pool). No constructed emergency spillways; runoff considerably in excess of designed capacity will be discharged around ends of dam. Elevations and contents not published for floods that do not produce an elevation of 79.0 ft (top of outlet structure) or higher at dam.

Cooperation.--Capacity table and gage-height record at dam furnished by Corps of Engineers.

Elevation and contents, at indicated time when flood runoff was partially stored in reservoir, during period in April 1952

Date	Time	Elevation on South Mayde Creek (feet)	Elevation on Langham Creek (feet)	Elevation at dam (feet)	Contents (acre-feet)
Apr. 12	5 a.m.	97.2	92.4	-	-
12	7 a.m.	100.4	96.8	76.0	7
12	12 m.	106.8	101.4	78.7	29
12	6 p.m.	106.7	101.2	79.9	45
12	11:30 p.m.	106.5	101.0	84.4	151
13	1:30 a.m.	106.4	100.9	84.0	135
13	3 a.m.	106.3	100.9	85.8	274
13	10 a.m.	105.9	100.6	86.4	366
13	12 p.m.	103.9	100.2	85.0	189
14	12 m.	101.6	99.7	81.4	70
14	6 p.m.	100.8	99.1	79.5	39
14	12 p.m.	100.1	98.5	78.3	25
15	12 m.	99.2	96.8	76.9	13
15	12 p.m.	98.5	95.6	75.5	5
16	5 a.m.	98.4	95.5	75.2	4
23	4 a.m.	104.2	99.3	75.5	5
23	12 m.	106.2	100.6	78.6	28
23	6 p.m.	105.8	100.5	79.3	36
23	12 p.m.	105.2	100.3	80.6	55
24	9 a.m.	103.8	99.8	81.3	68
23	12 m.	103.2	99.6	78.8	30
23	3 p.m.	102.6	99.3	77.7	19
23	8 p.m.	101.8	98.5	79.0	33
25	9 a.m.	100.2	96.4	77.9	21
23	12 m.	100.0	96.1	75.7	6
23	3 p.m.	99.7	95.9	75.2	4
23	6 p.m.	99.5	95.7	76.3	9
26	3 p.m.	98.4	94.8	75.2	4

Buffalo Bayou near Addicks, Tex.

Location.--Lat 29°45'44", long. 95°36'21", near right bank at downstream side of pile bent of bridge on Dairy-Ashford road over rectified channel, 1.8 miles downstream from South Mayde Creek, 2.6 miles southeast of Addicks, Harris County, 3.0 miles downstream from outlet of Addicks Reservoir, and 3.2 miles downstream from outlet works of Barker Reservoir.

Drainage area.--310 sq mi.

Records available.--August 1945 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 0.31 ft below mean sea level, datum of 1929, Galveston-Houston supplementary adjustment of 1943. Prior to Feb. 2, 1948, water-stage recorder, at bridge on natural channel 1,200 ft to right at same datum. Feb. 2 to May 21, 1948, staff gage at present site and datum.

Average discharge.--7 years, 187 cfs.

Extremes.--Maximum discharge during year, 2,670 cfs Apr. 13 (gage height, 60.77 ft); minimum, 0.1 cfs Nov. 20-23.

1945-52: Maximum discharge, 11,200 cfs Aug. 29, 1945 (gage height, 81.23 ft); no flow at times.

Maximum stage known since 1896, 85.6 ft in December 1935, present datum (adjusted to former site from floodmark half a mile downstream, on basis of slope of flood of Aug. 29, 1945), from information by local resident.

Remarks.--Records good. Flood flow regulated by Barker and Addicks Reservoirs (see pp. 96, 97).

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-5, Oct. 17 to Feb. 17, May 5-22, May 27 to June 1)

Oct. 1 to Apr. 12				Apr. 13 to Sept. 30			
50.1	0	51.3	51	49.95	0.2	51.5	93
50.2	.2	51.6	83	50.0	.5	52.0	156
50.3	.8	52.0	136	50.1	1.9	52.5	240
50.4	2.5	52.5	216	50.2	4.5	53.0	340
50.5	5.0	53.0	312	50.3	7.7	54.0	565
50.6	8.0	54.0	560	50.5	16	56.0	1,090
50.8	16	55.0	850	50.7	26	58.0	1,700
51.0	28	56.0	1,170	51.0	45	61.0	2,740

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	8.0	0.7	1.8	237	17	*89	58	81	4.2	37	18
2	43	*6.8	.7	2.0	*380	11	90	36	41	2.9	27	16
3	34	4.2	2.0	1.5	292	7.7	58	20	25	1.6	23	a16
4	38	2.8	14	*1.1	232	5.3	37	13	16	4.8	17	a18
5	29	6.6	*63	.8	136	*4.8	23	7.7	13	49	16	a18
6	22	77	42	.7	54	3.8	13	6.1	26	232	17	a18
7	22	37	27	.8	24	3.0	8.4	*4.5	212	255	16	a22
8	20	29	17	1.1	14	2.8	5.3	3.9	278	93	16	a30
9	14	15	14	1.3	9.2	2.5	4.0	1.9	203	39	16	a60
10	12	11	18	.6	5.9	2.3	31	1.4	105	24	17	*58
11	10	10	21	.6	5.6	1.8	52	.8	53	32	16	77
12	15	5.3	13	1.1	4.5	2.0	1,020	.7	31	22	12	*75
13	10	3.2	8.8	1.0	3.5	2.0	*2,490	.5	20	14	13	61
14	9.6	2.0	7.7	.8	2.2	2.8	*2,380	.2	*13	9.2	13	48
15	8.4	1.3	5.6	1.3	4.2	2.2	*1,510	2.6	8.5	*9.2	13	45
16	6.8	.7	5.0	1.6	5.9	1.5	*982	4.2	8.1	7.8	20	39
17	4.0	.7	4.8	1.5	4.8	1.8	742	2.4	6.4	42	14	39
18	2.3	.6	4.2	1.1	3.2	53	565	45	7.4	116	14	39
19	1.6	.3	4.2	1.1	2.5	114	427	341	15	137	*8.8	66
20	.7	.1	3.8	1.8	47	86	212	*237	7.4	103	6.7	60
21	.4	.1	3.8	2.0	38	32	115	94	5.8	80	6.1	45
22	.3	.1	4.2	1.3	23	14	83	39	3.9	48	7.7	36
23	6.3	.1	4.2	.8	58	8.4	648	21	2.9	30	15	36
24	12	.4	3.8	.8	49	5.3	*1,290	48	2.9	18	17	37
25	9.6	.8	3.5	.8	82	4.0	982	64	2.9	14	21	*47
26	5.0	.7	2.8	1.0	157	3.8	820	28	1.7	11	20	51
27	13	.6	2.3	2.8	140	4.0	716	34	1.7	8.1	21	47
28	21	.5	2.0	2.5	92	3.8	565	402	3.1	6.1	19	39
29	20	.4	1.8	4.5	39	8.8	372	*462	2.6	4.2	17	37
30	16	.7	1.6	15	-	6.5	*118	361	3.1	3.4	17	36
31	11	-	1.5	12	-	6.5	-	193	-	37	18	-
Total	476.0	226.0	308.0	67.1	2,145.5	424.4	16,447.7	2,532.9	1,200.4	1,457.5	511.3	1,234
Mean	15.4	7.53	9.94	2.16	74.0	13.7	548	81.7	40.0	47.0	16.5	41.1
Cfsm	0.050	0.024	0.032	0.0070	0.239	0.044	1.77	0.264	0.129	0.152	0.053	0.133
In.	0.06	0.03	0.04	0.008	0.26	0.05	1.97	0.30	0.14	0.17	0.06	0.15
Ac-ft	944	448	611	133	4,260	842	32,620	5,020	2,380	2,890	1,010	2,450

Calendar year 1951: Max 850 Min 0 Mean 24.6 Cfsm 0.079 In. 1.09 Ac-ft 17,800
Water year 1951-52: Max 2,490 Min 0.1 Mean 73.9 Cfsm 0.238 In. 3.24 Ac-ft 53,610

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of record for station at Houston.

Buffalo Bayou at Houston, Tex.

Location.--Lat 29°45'42", long. 95°23'52", near left bank of low-water channel at downstream side of pier of Waugh Drive Bridge in Houston, Harris County, 0.41 mile upstream from Texas & New Orleans Railroad bridge, and 3.1 miles upstream from Whiteoak Bayou.

Drainage area.--362 sq mi.

Records available.--May 1936 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4.08 ft below mean sea level, datum of 1929. Prior to June 19, 1936, reference point on upstream side of bridge at same datum.

Average discharge.--16 years, 276 cfs.

Extremes.--Maximum discharge during year, 2,380 cfs Apr. 14 (gage height, 19.91 ft); minimum, 4.0 cfs Jan. 7.
1936-52: Maximum discharge, 10,900 cfs Aug. 30, 1945 (gage height, 34.23 ft); minimum daily, 1.3 cfs May 24, 1939, Nov. 5, 1950.
Maximum stage known since 1835, 54.4 ft Dec. 9, 1935, present site and datum (discharge, 40,000 cfs, furnished by engineer for Harris County). Flood of May 31, 1929, reached a stage of 48.9 ft, present site and datum (discharge, 19,000 cfs at bridge on Capitol Avenue, 2 miles downstream, from rating curve extended above 15,300 cfs, stage-discharge relation materially affected by interference of bridge; furnished by city of Houston).

Remarks.--Records good. Flood flow regulated by Barker and Addicks Reservoirs (see pp. 96, 97). Extreme low flow maintained by industrial waste water.

Revisions.--W 1038: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 2 to Mar 19, Apr. 13, 14)

7.2	3.5	9.0	101
7.3	6.2	10.0	200
7.5	13	11.0	330
7.7	21	13.0	660
8.0	34	16.0	1,300
8.5	62	20.0	2,440

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*78	18	7.8	6.5	866	48	27	*124	153	*8.7	53	22
2	56	*12	7.4	7.2	1,040	31	*88	77	*77	9.0	48	*23
3	48	10	15	*11	480	*28	88	84	50	10	38	21
4	44	9.0	*13	5.7	*274	19	75	43	35	12	32	23
5	43	15	12	5.4	200	12	46	33	25	11	*24	24
6	32	31	62	5.1	106	9.3	32	27	58	87	21	22
7	22	64	56	4.6	50	8.1	21	22	108	323	21	24
8	19	43	37	5.1	31	6.2	15	17	212	238	22	32
9	19	35	27	5.1	21	6.2	22	16	254	106	19	59
10	16	48	19	5.1	15	11	40	14	188	57	20	57
11	12	21	22	5.4	12	7.8	32	12	103	185	20	72
12	11	16	30	5.4	13	5.9	1,020	11	60	61	26	72
13	12	11	29	5.1	10	4.8	*1,780	11	42	39	18	71
14	12	8.1	35	5.1	9.9	4.8	2,290	11	28	29	16	60
15	10	7.4	19	5.9	24	4.6	2,200	9.3	20	24	16	50
16	10	6.8	12	5.7	23	4.8	1,590	9.0	16	114	16	48
17	8.7	5.9	13	5.4	12	5.9	1,110	a9.6	12	208	20	44
18	8.4	5.1	12	7.4	7.4	37	830	a183	11	98	20	52
19	6.8	5.4	9.6	6.2	6.5	66	624	a570	11	163	18	44
20	5.7	5.9	9.0	5.4	9.6	106	416	a516	18	163	15	63
21	5.4	6.2	8.4	5.9	39	80	200	a236	16	124	12	60
22	4.8	6.2	8.1	5.9	60	42	157	a138	11	95	11	49
23	15	8.1	7.4	5.4	39	22	714	a77	9.6	62	11	39
24	7.1	7.4	8.1	7.1	58	14	1,230	44	8.4	46	16	39
25	11	6.5	8.7	9.6	92	9.3	1,510	73	7.4	34	22	39
26	15	6.8	8.4	5.1	101	7.4	1,160	63	7.4	27	26	47
27	10	7.4	7.8	23	163	6.5	982	50	7.4	23	26	50
28	8.7	7.1	7.1	13	133	6.8	810	185	6.8	18	29	48
29	24	7.4	6.5	8.4	89	5.9	588	534	6.5	53	25	42
30	24	7.8	6.5	6.2	-	7.5	298	432	9.6	14	23	42
31	22	-	6.5	12	-	37	-	302	-	38	21	-
Total	620.6	448.5	532.3	219.4	3,984.4	664.8	19,995	3,932.9	1,571.1	2,477.7	705	1,338
Mean	20.0	15.0	17.2	7.08	137	21.4	666	127	52.4	79.9	22.7	44.6
Cfsm	0.055	0.041	0.048	0.020	0.378	0.059	1.84	0.351	0.145	0.221	0.063	0.123
In.	0.06	0.05	0.05	0.02	0.41	0.07	2.05	0.40	0.16	0.25	0.07	0.14
Ac-ft	1,230	890	1,060	435	7,900	1,320	39,660	7,800	3,120	4,910	1,400	2,650

Calendar year 1951: Max 1,600 Min 2.2 Mean 39.3 Cfsm 0.109 In. 1.47 Ac-ft 28,470
Water year 1951-52: Max 2,290 Min 4.6 Mean 99.7 Cfsm 0.275 In. 3.73 Ac-ft 72,380

Peak discharge (base, 1,200 cfs).--Feb. 1 (11:30 a.m.) 1,510 cfs (16.90 ft); Apr. 14 (10:30 p.m.) 2,380 cfs (19.91 ft); Apr. 25 (6:30 a.m.) 1,620 cfs (17.17 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of record for station near Addicks.

Whiteoak Bayou at Houston, Tex.

Location.--Lat 29°46'31", long. 95°23'54", near right bank at downstream side of pier of Yale Street Bridge, in Houston, Harris County, 80 ft downstream from Texas & New Orleans Railroad bridge, 2.5 miles upstream from Little Whiteoak Bayou, and 4.1 miles upstream from mouth.

Drainage area.--92.0 sq mi.

Records available.--May 1936 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4.08 ft below mean sea level, datum of 1929. Prior to June 17, 1936, reference point at same site and datum.

Average discharge.--16 years, 78.5 cfs.

Extremes.--Maximum discharge during year, 835 cfs Feb. 1 (gage height, 25.79 ft); minimum, 0.2 cfs Oct. 30, 31.

1936-52: Maximum discharge, 8,600 cfs Nov. 2, 1943 (gage height, 42.45 ft); minimum, 0.1 cfs Aug. 16, Sept. 2, 1951.

Maximum stage known, 51.5 ft Dec. 9, 1935, present site and datum (discharge, 14,750 cfs, furnished by engineer for Harris County). Flood of May 31, 1929, reached a stage of 47.0 ± 0.5 ft, present site and datum (discharge, 9,360 cfs), computed on basis of current-meter measurement at stage 1 ft below crest, made at bridge 1 block downstream from gage; furnished by city of Houston.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Revisions.--W 1038: Drainage area.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-5, Feb. 19 to Mar. 20, Apr. 17-22, May 22 to June 13)

Oct. 1 to Feb. 1				Feb. 2 to Sept. 30			
18.9	0.2	19.6	28	18.2	0.4	19.3	22
19.0	.3	19.8	52	18.3	.9	19.6	41
19.1	1.1	20.0	78	18.4	1.7	20.0	78
19.2	2.6	20.5	150	18.5	2.7	21.0	185
19.3	5.2	22.0	312	18.7	5.4	23.0	430
19.4	9.4	24.0	567	19.0	12	25.0	715
19.5	16						

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*6.5	2.2	1.6	1.4	*439	4.6	18	6.3	14	2.2	2.1	1.4
2	5.2	*2.4	1.4	1.7	715	3.7	5.1	*5.1	*8.7	3.7	*2.0	*2.8
3	2.6	1.7	3.6	*2.6	347	*4.0	3.9	48	5.6	2.8	.6	3.1
4	1.2	1.1	*10	3.1	*63	3.4	9.1	12	4.0	5.9	15	.6
5	.9	3.5	15	2.0	30	3.2	5.4	5.0	4.5	24	6.6	.5
6	.9	24	11	1.2	20	3.1	4.6	4	4.4	33	.4	.5
7	1.0	16	8.6	1.2	14	2.9	3.9	4	38	156	5.0	.6
8	1.0	6.9	4.9	1.2	11	2.8	3.7	3	25	19	9.3	.8
9	1.0	3.9	2.9	1.4	8.9	2.7	4.0	3	14	16	8.7	20
10	1.1	3.6	2.2	1.1	7.2	3.5	*20	3	10	9.3	10	15
11	1.1	3.4	2.0	1.1	6.7	4.8	*7.6	2	8.2	26	7.6	4.6
12	1.1	2.4	1.7	1.4	7.4	3.7	487	2	6.1	36	9.4	3.1
13	1.4	2.2	1.6	1.4	6.7	3.5	*567	2	3.8	11	9.8	5.8
14	1.4	1.7	6.0	1.4	6.3	3.2	352	2	3.5	6.4	4.6	.6
15	1.1	2.2	6.5	1.4	14	2.9	100	2	3.0	14	1.9	11
16	1.0	1.7	2.4	1.6	18	2.8	38	3	5.2	16	1.6	6.3
17	2.0	1.0	1.7	1.6	6.3	2.7	24	8	3.9	62	1.5	.6
18	1.8	.7	1.8	1.7	5.0	14	16	30	3.6	39	2.2	19
19	1.0	.7	2.2	2.0	4.2	9.6	12	185	3.5	34	.5	11
20	1.4	.9	1.8	1.6	18	6.1	12	109	3.5	26	.5	7.7
21	1.7	1.1	1.6	1.6	17	4.2	*12	36	3.9	20	1.5	12
22	1.1	1.4	1.2	1.7	16	3.5	11	22	3.9	18	9.5	11
23	4.4	1.7	1.2	1.4	12	3.1	263	14	3.8	16	2.5	16
24	6.9	2.9	1.1	1.6	12	2.9	340	12	3.9	11	1.5	12
25	3.1	1.8	1.2	1.7	17	3.1	75	15	4.2	6.7	1.3	9.6
26	2.3	1.4	1.4	1.7	20	3.4	40	16	5.0	3.8	1.1	7.6
27	1.8	1.8	1.2	3.1	15	3	28	12	5.6	4.6	1.0	5.2
28	1.8	2.0	1.4	9.4	11	3	18	28	4.5	2.8	.8	3.4
29	1.4	1.6	1.6	5.2	6.8	3	11	55	2.8	2.6	.8	2.9
30	.3	1.6	1.7	3.4	-	3	7.8	28	*1.8	2.4	1.0	3.5
31	.2	-	1.7	2.6	-	14	-	18	-	2.3	2.0	-
Total	59.7	99.5	104.2	65.5	1,874.5	133.4	2,499.1	704.4	211.9	632.7	122.3	198.2
Mean	1.93	3.32	3.36	2.11	64.6	4.30	83.3	22.7	7.06	20.4	3.95	6.61
Cfsm	0.021	0.036	0.037	0.023	0.702	0.047	0.905	0.247	0.077	0.222	0.043	0.072
In.	0.02	0.04	0.04	0.03	0.76	0.05	1.01	0.28	0.09	0.26	0.05	0.08
Ac-ft	118	197	207	130	3,720	265	4,960	1,400	420	1,250	243	393

Calendar year 1951: Max 567 Min 0.2 Mean 10.8 Cfsm 0.117 In. 1.59 Ac-ft 7,820
Water year 1951-52: Max 715 Min 0.2 Mean 18.3 Cfsm 0.199 In. 2.71 Ac-ft 13,300

Peak discharge (base, 820 cfs).--Feb. 1 (7:30 p.m.) 835 cfs (25.79 ft); Apr. 12 (5:30 p.m.) 820 cfs (25.72 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 6-10, Mar. 27-30, May 6-17, June 15, 18-20, 23, 26, 28, 29, July 29 to Aug. 1, Aug. 20, 21, Sept. 5-8; discharge estimated on basis of records for nearby stations and after Apr. 21 on basis of auxiliary gage readings.

Brays Bayou at Houston, Tex.

Location.--Lat 29°42'08", long. 95°24'08", near left bank at downstream side of pile bent of Old Main Street Bridge in southwest section of Houston, Harris County, 0.8 mile upstream from Harris Gully and 10.8 miles upstream from Buffalo Bayou.

Drainage area.--100 sq mi.

Records available.--May 1936 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 3.90 ft below mean sea level, datum of 1929. Prior to June 20, 1936, reference point on bridge at present site and datum.

Average discharge.--16 years, 94.7 cfs.

Extremes.--Maximum discharge during year, 1,850 cfs Feb. 1 (gage height, 38.79 ft); minimum, 2.3 cfs Jan. 10.

1936-52: Maximum discharge, 8,120 cfs Nov. 2, 1943; maximum gage height, 51.70 ft Aug. 28, 1945; minimum discharge, 0.1 cfs Oct. 10-13, 1937.

Maximum stage known since 1911, 56.0 ft in June 1919, present site and datum, from information by engineer for city of Houston. Flood of May 31, 1929, reached a stage of 50.4 ft, present site and datum (discharge, 11,095 cfs), from current-meter measurement at Lawndale Avenue Bridge, about 12 miles downstream from gage; furnished by city of Houston.

Remarks.--Records fair. Low flow partly maintained by sewage effluent from Houston suburbs.

Revisions.--W 1038: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-5, Apr. 12-15, Apr. 22 to June 16)

27.8	3.6	30.0	86
28.0	6.6	31.0	168
28.3	12	32.0	276
28.6	20	34.0	611
29.0	34	36.0	1,080
29.5	56		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*12	6.1	6	5.3	758	9.2	15	*10	16	*11	27	6.6
2	6.4	*5.5	12	5.9	459	8.1	10	10	9.2	7.3	12	*6.9
3	5.6	5.6	*19	*6.7	112	*9.6	6.9	22	*8.5	6.4	9.0	6.6
4	6.3	5.3	7	5.0	*44	6.9	20	9.4	8.3	6.3	*8.5	6.6
5	7.7	15	10	5.0	22	6.3	6.6	9.8	9.2	6.6	7.4	6.4
6	7.2	35	16	4.7	14	6.1	5.5	8.7	28	5.8	7.8	6.3
7	4.9	65	5	5.0	9.6	6.0	6.3	8.7	16	7.4	8.1	6.3
8	5.3	32	5	4.9	8.3	5.8	6.0	8.9	11	9.6	8.5	7.3
9	5.0	50	5	4.7	9.1	5.8	15	9.6	9.4	11	7.8	54
10	4.9	40	5.3	4.7	6.9	9.2	43	10	8.1	6.9	8.7	21
11	4.9	20	4.7	4.7	6.9	6.3	11	9.1	7.8	15	8.3	11
12	5.0	11	5.0	5.0	6.9	6.1	*959	9.6	8.1	8.7	26	8.3
13	5.3	8	5.0	4.9	5.8	5.8	*548	9.1	8.0	6.8	18	6.6
14	5.3	7	18	5.2	11	5.8	162	8.9	7.4	7.4	13	6.6
15	5.5	6	7.6	4.9	27	5.8	48	8.7	7.4	7.6	15	7.6
16	5.2	5	5.3	4.9	16	5.6	20	9.6	9.2	172	20	7.3
17	5.5	4	6.3	4.7	7.6	6.1	11	9.6	8.0	85	12	6.9
18	5.6	4	6.0	5.8	8.3	36	8.3	30	7.4	15	8.0	43
19	5.3	4	5.3	5.6	6.9	7.3	8.0	33	7.6	8.1	6.9	16
20	5.0	4	5.3	5.0	6.1	6.0	10	11	7.8	6.4	6.9	14
21	5.0	4	5.8	5.3	11	6.0	10	9.8	6.9	7.6	7.8	13
22	6.0	4	5.5	5.2	54	7.1	22	8.5	6.8	7.6	6.9	19
23	22	4	5.0	4.9	75	5.2	*597	8.5	7.3	7.4	6.8	12
24	7.1	4	5.0	5.6	50	6.0	238	8.9	7.1	7.6	7.1	11
25	5.3	4	5.2	5.3	85	6.3	75	8.0	6.9	7.8	9.3	10
26	5.8	4	5.3	5.3	96	7.3	30	8.3	7.1	7.3	9.2	9.2
27	6.0	5	5.2	16	42	6.4	16	26	6.8	7.4	8.0	8.3
28	5.3	5	5.3	8.1	20	6.3	12	304	6.4	8.1	6.9	8.0
29	5.8	5	5.3	5.2	12	9.1	9.8	210	6.3	8.1	6.6	9.2
30	6.1	6	4.9	4.9	-	7.2	9.1	73	13	8.5	6.3	10
31	6.3	-	5.3	7.4	-	*29	-	32	-	36	6.1	-
Total	198.6	377.5	216.6	175.8	1,990.4	259.7	2,938.5	942.7	277.0	523.7	319.9	365.0
Mean	6.41	12.6	6.99	5.67	68.6	8.38	97.9	30.4	9.23	16.9	10.3	12.2
Cfsm	0.064	0.126	0.070	0.057	0.686	0.084	0.979	0.304	0.092	0.169	0.103	0.122
In.	0.07	0.14	0.08	0.07	0.74	0.10	1.09	0.35	0.10	0.19	0.12	0.14
Ac-ft	394	749	430	349	3,950	515	5,830	1,870	549	1,040	635	724

Calendar year 1951: Max 643 Min 4 Mean 17.5 Cfsm 0.175 In. 2.37 Ac-ft 12,680
Water year 1951-52: Max 959 Min 4 Mean 23.5 Cfsm 0.235 In. 3.19 Ac-ft 17,040

Peak discharge (base, 1,300 cfs).--Feb. 1 (1 p.m.) 1,850 cfs (38.79 ft); Apr. 12 (10 a.m.) 1,620 cfs (37.74 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 5 to Dec. 9; discharge estimated on basis of weather records and records for nearby stations.

Clear Creek near Pearland, Tex.

Location.--Lat 29°35' 50", long. 95°17'12", near left bank at downstream side of pile bent of bridge on State Highway 35, 0.7 mile downstream from Gulf, Colorado & Santa Fe Railway bridge, 1.2 miles upstream from Hickory Slough, 2.3 miles north of Pearland, Brazoria County, and about 30 miles upstream from Clear Lake.

Records available.--July to October 1944, March to October 1946 (low-water records during irrigation season), April 1947 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 29.93 ft (revised) above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. July 28, 1944, to June 9, 1948, staff gage and June 10, 1948, to Apr. 22, 1952, water-stage recorder at datum 5.80 ft higher.

Average discharge.--5 years (1947-52), 35.2 cfs.

Extremes.--Maximum discharge during year, 673 cfs July 17 (gage height, 7.86 ft); no flow at times.
1944, 1946: Maximum discharge not determined; no flow at times.
1947-52: Maximum discharge, 1,840 cfs Oct. 8, 1949 (gage height, 13.18 ft); no flow at times.
Maximum stage known since 1932, that of Oct. 8, 1949.

Remarks.--Records poor. Large area of rice land above station is irrigated with water from Brazos River. Low flow April to October is largely drainage from irrigated lands. Diversions for irrigation above station.

Rating tables, water year 1951-52, except periods of no gage height record (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-3, Apr. 25 to June 5, June 15-20, Sept. 10)

Oct. 1 to Apr. 22				Apr. 23 to Sept. 30			
0.13	0	1.0	10	0.8	0.2	3.0	50
.2	.1	1.5	24	.9	.9	3.5	87
.3	.4	2.0	40	2.0	2.2	4.0	132
.4	1.1	3.0	85	2.1	4.6	5.0	242
.5	1.9	4.0	145	2.2	8.0	6.0	380
.6	3.0	5.0	220	2.4	17	7.0	530
.8	6.2	6.0	300	2.7	32		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	0.4	0	0.1	60	2	5	2.7	6.6	22	3.8	1
2	16	.6	0	.1	220	2	*0	6.0	4.4	20	20	1
3	16	.2	*0	.1	30	2	0	3.9	1.8	14	19	1
4	14	.2	0	.1	6	2	10	3.4	.4	8.4	18	1
5	15	.9	0	**.1	2	2	12	2.9	*62	3.9	17	1
6	16	7.5	0	.1	.2	1	8	4.9	147	1.2	15	1
7	14	6.7	0	.1	.2	1	5	5.3	248	*14	13	1
8	7.6	3.3	.9	.1	.2	1	2	2.7	196	22	11	2
9	5.4	1.6	2.3	.1	.2	1	*1	*1.8	57	22	9	193
10	12	1.0	1.7	.1	.2	1	*75	1.6	34	8.2	8	*182
11	14	1.6	.8	.1	.2	1	*40	1.6	23	4.4	6	*94
12	14	2.5	.4	.1	.2	1	280	1.8	18	4.6	4	62
13	13	1.5	.3	.1	.2	1	260	3.4	13	.4	*1.9	46
14	8.0	1.3	.3	.1	.2	1	*80	3.6	10	5.6	1.3	43
15	5.7	.7	1.0	.1	.2	1	20	3.6	7.3	2.8	5.3	36
16	3.9	.3	.9	.1	.2	1	5	3.4	3.4	18	2.7	*30
17	2.4	.2	.8	0	.2	1	2	4.6	1.2	252	1.0	30
18	1.7	.1	.7	0	.2	1	*1	17	.6	94	3.9	37
19	.8	.1	1.3	0	.2	1	2	24	.6	48	3.4	36
20	1.0	.1	3.0	0	.7	1	**3	23	*1.0	29	1.9	31
21	1.9	0	.5	0	2	0	2	18	1.0	20	1.3	30
22	1.4	0	.2	0	11	0	**1	16	1.0	10	1.4	32
23	*7.7	0	.2	0	12	0	*300	13	**1.0	3.6	2.2	33
24	18	0	.2	0	13	0	126	10	.6	2.8	.5	26
25	11	0	.2	0	24	0	54	5.3	*.3	.9	1	20
26	6.2	0	.2	0	24	0	24	3.4	*4.4	1.0	10	20
27	3.9	0	.2	3	16	0	13	13	.9	2.0	5	20
28	2.8	0	.1	9	8	0	2.0	425	.2	10	2	20
29	2.0	*0	.1	5	2	0	2.2	160	4.1	6.0	1	22
30	1.3	0	.1	3	-	0	*2.0	55	28	3.3	1	20
31	.8	-	.1	2	-	10	-	16	-	1.4	1	-
Total	254.5	30.8	16.5	23.6	433.5	35	1,337.2	855.9	876.8	655.5	191.6	1,072
Mean	8.21	1.03	0.53	0.76	14.9	1.13	44.6	27.6	29.2	21.1	6.18	35.7
Ac-ft	505	61	33	47	860	69	2,650	1,700	1,740	1,300	380	2,130

Calendar year 1951: Max 244 Min 0 Mean 8.84 Ac-ft 6,400
Water year 1951-52: Max 425 Min 0 Mean 15.8 Ac-ft 11,480

Peak discharge (base, 600 cfs).--July 17 (5 p.m.) 673 cfs (7.86 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--No gage-height record, due to channel rectification and other causes, Nov. 25 to Dec. 3, Jan. 6 to Apr. 22, June 21-25, July 2-7, Aug. 7-12, Aug. 25 to Sept. 9; discharge estimated on basis of recorded range in stage, weather records, and records for nearby stations. Discharge Apr. 23 to June 20 computed from twice-daily staff gage readings.

Chocolate Bayou near Alvin, Tex.

Location.--Lat 29°22'19", long. 95°19'14", near center of span at downstream side of pile bent of highway bridge 5½ miles southwest of Alvin, Brazoria County, and 6½ miles upstream from State Highway 35.

Records available.--August to October 1944, March to December 1946 (low-water records during irrigation season), January 1947 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 13.31 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Prior to Nov. 26, 1949, staff gage at site 40 ft downstream at same datum. Nov. 26, 1949, to June 11, 1952, staff gage at present site and datum.

Average discharge.--5 years (1947-52), 104 cfs.

Extremes.--Maximum discharge during year, 2,250 cfs Apr. 1 (gage height, 16.33 ft); minimum, 0.3 cfs Nov. 19-24, Jan. 26.

1944, 1946, 1947: Maximum discharge not determined; minimum observed, 1.0 cfs Oct. 31, 1944.

1948-52: Maximum discharge, 7,400 cfs Oct. 8, 1949 (gage height, 18.80 ft, from floodmark), from rating curve extended above 4,000 cfs by logarithmic plotting; no flow at times in 1951.

Maximum stage known in recent years, 19.9 ft July 14, 1939, present site and datum (adjusted from floodmark 2,600 ft to right and 250 ft downstream from gage, on basis of slope of flood of Oct. 8, 1949), from information by local residents.

Remarks.--Records good. Large area of rice land above station is irrigated with water from Brazos River. Low flow April to October is largely drainage from the irrigated lands. Diversions for irrigation above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.9	0.3	2.0	18	8.0	405
1.0	.8	2.5	34	10.0	610
1.2	2.4	3.0	54	13.0	980
1.4	4.6	4.0	103	15.0	1,330
1.6	7.8	5.0	165	16.0	1,900
1.8	12	6.0	235	17.0	3,080

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	3.8	0.4	1.2	180	28	*1,810	18	a307	31	45	37
2	44	8.5	.7	1.2	545	a18	*1,140	46	67	38	49	37
3	37	4.5	5.1	1.2	a221	13	*442	95	a44	29	52	36
4	39	2.7	24	1.4	103	10	291	86	*42	18	49	34
5	42	1.8	12	*1.4	50	7.1	139	70	36	20	44	30
6	36	3.5	6.4	a1.2	*26	5.4	59	58	117	23	36	33
7	34	3.8	5.0	.9	12	4.0	29	45	342	*41	35	39
8	30	3.1	7.1	.8	7.8	3.9	26	*39	396	38	34	41
9	22	2.8	7.1	.9	6.4	3.9	28	34	207	43	34	122
10	20	2.5	4.6	.9	5.7	3.9	277	31	124	41	35	243
11	19	1.8	3.2	.9	5.2	3.9	275	34	82	40	31	193
12	19	1.4	2.5	.8	4.9	3.9	356	40	63	46	26	145
13	16	1.2	1.9	.7	4.6	3.3	677	44	52	46	*24	121
14	14	1.1	2.2	.7	4.4	2.9	299	39	58	47	23	130
15	11	.9	2.0	.7	4.6	2.1	151	35	52	46	23	130
16	6.9	.8	a2.0	.7	6.0	1.9	63	35	50	48	30	*115
17	5.0	.6	2.0	.7	a6.0	1.4	34	43	47	262	39	109
18	4.0	a.4	2.8	.7	4.7	2.6	22	54	45	351	38	112
19	a3.4	.3	4.4	.7	3.9	2.6	21	89	40	207	34	121
20	2.8	.3	3.8	.7	3.6	2.2	22	127	48	133	36	112
21	3.3	.3	2.8	.7	3.5	1.9	26	84	48	98	48	103
22	4.9	.3	2.4	.8	42.0	2.6	36	50	49	76	43	100
23	*7.8	.3	a2.3	.6	235	a3.4	1,120	42	47	57	35	109
24	8.9	.3	a2.2	.5	a133	3.1	1,330	38	36	50	39	103
25	6.7	a.4	a2.0	.4	193	5.4	588	46	28	48	46	100
26	5.6	.5	a2.0	.3	291	10	133	a79	21	46	65	98
27	4.2	.4	1.7	.7	151	5.7	a54	121	22	44	52	68
28	a3.5	.4	1.5	3.4	76	3.2	34	1,230	26	42	45	58
29	3.5	*.4	1.4	2.0	42	3.2	24	2,050	20	42	40	57
30	2.8	.4	a1.3	.9	-	48	20	1,440	19	40	37	53
31	2.6	-	1.2	.8	-	713	-	985	-	47	40	-
Total	516.9	49.5	120.0	29.5	2,371.3	923.5	9,526	7,227	2,535	2,138	1,207	2,789
Mean	16.7	1.65	3.87	0.95	81.8	29.8	318	233	84.5	69.0	38.9	93.0
Ac-ft	1,030	98	238	59	4,700	1,830	18,890	14,330	5,030	4,240	2,390	5,530

Calendar year 1951: Max 902 Min 0.3 Mean 51.7 Ac-ft 37,430
Water year 1951-52: Max 2,050 Min 0.3 Mean 80.4 Ac-ft 58,360

Peak discharge (base, 800 cfs).--Apr. 1 (11 a.m.) 2,250 cfs (16.33 ft); Apr. 23 (11 p.m.) 2,200 cfs (16.30 ft); May 29 (2 a.m.) 2,150 cfs (16.25 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and recorded range in stage.

Oyster Creek near Angleton, Tex.

Location.--Lat 29°09'25", long. 95°28'35", near left bank on upstream side of bridge on State Highway 35, 2¾ miles west of Angleton, Brazoria County, 4.0 miles upstream from Missouri Pacific Railroad bridge, 4½ miles downstream from another Missouri Pacific Railroad bridge, and about 45 miles upstream from Gulf of Mexico.

Records available.--October 1944 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1.31 ft below mean sea level, datum of 1929.

Average discharge.--7 years (1945-52), 142 cfs.

Extremes.--Maximum discharge during year, 753 cfs Apr. 24 (gage height, 18.46 ft); minimum, 32 cfs Feb. 7.

1944-52: Maximum discharge, 2,320 cfs Oct. 12, 1949 (gage height, 28.92 ft); minimum, 3.2 cfs Nov. 21, 1948.

Flood of December 1913 reached a stage of about 32 ft, from information by State Highway Department; flood of Dec. 5, 1940, reached a stage of 30.7 ft, from levels to floodmark on bridge to which gage is attached. At extreme high stages the Brazos River overflows into Oyster Creek above this station, and there may be some relation between stage of Brazos River at East Columbia and stage at this station.

Remarks.--Records fair. Diversions above station for irrigation. A large part of flow is water released from Harris Reservoir for industrial use below station. Harris Reservoir is supplied with water diverted from the Brazos River during periods of flood flow.

Rating table, water year 1950-51 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 24 to Sept. 30)

8.9	32	12.0	240
9.0	43	14.0	370
9.5	82	16.0	524
10.0	116	19.0	808

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	74	109	80	98	189	86	605	162	460	77	78	69
2	80	109	81	92	516	102	710	156	415	77	76	69
3	49	102	95	88	430	102	608	150	363	81	76	80
4	*43	86	112	88	276	89	492	134	314	82	76	81
5	57	81	116	80	147	81	392	112	*264	83	86	74
6	56	81	116	73	*56	78	294	95	216	84	86	83
7	55	78	144	75	36	70	216	*83	204	86	86	83
8	56	*80	147	76	71	62	168	79	180	92	89	76
9	56	81	120	75	88	67	137	78	168	*112	92	85
10	56	80	109	75	80	71	174	86	156	106	92	98
11	60	92	98	75	81	66	222	83	147	92	92	92
12	65	102	86	102	88	61	270	81	137	73	92	66
13	70	109	76	137	92	61	408	77	126	73	*92	72
14	75	109	75	144	92	58	392	76	120	72	89	84
15	77	109	92	140	95	58	321	76	102	72	88	85
16	70	109	112	130	98	57	264	74	92	71	88	*88
17	69	98	120	95	98	56	228	76	86	82	88	95
18	72	83	123	84	98	56	198	77	81	116	88	95
19	69	77	123	82	98	56	174	78	77	102	88	88
20	67	75	120	84	95	55	150	80	76	95	89	82
21	66	74	98	86	95	54	140	79	75	92	89	83
22	66	74	86	86	147	56	130	80	74	76	85	83
23	98	74	81	85	246	55	468	81	73	80	82	74
24	109	74	78	85	222	55	731	81	72	75	84	65
25	112	88	78	86	192	*63	626	80	73	73	85	69
26	112	106	78	86	210	74	500	81	73	74	76	78
27	134	109	77	89	162	72	400	89	74	74	67	78
28	156	109	*76	92	83	70	314	242	74	72	65	78
29	137	95	89	89	54	69	252	500	74	72	72	78
30	116	82	98	85	-	74	204	516	76	72	72	72
31	109	-	98	83	-	183	-	492	-	80	71	-
Total	2,491	2,735	3,082	2,845	4,235	2,217	10,188	4,234	4,522	2,568	2,579	2,403
Mean	80.4	91.2	99.4	91.8	146	71.5	340	137	151	82.8	83.2	80.1
Ac-ft	4,940	5,420	6,110	5,640	8,400	4,400	20,210	8,400	8,970	5,090	5,120	4,770

Calendar year 1951: Max 460 Min 18 Mean 82.9 Ac-ft 60,010
Water year 1951-52: Max 731 Min 36 Mean 120 Ac-ft 87,470

Peak discharge (base, 920 cfs).--No peak above base.
* Discharge measurement made on this day.

Double Mountain Fork Brazos River near Aspermont, Tex.

Location.--Lat 33°00', long. 100°11', near right bank on downstream side of pier of bridge on U. S. Highway 83, 8 miles downstream from Mountain Creek and 10 miles south of Aspermont, Stonewall County.

Drainage area.--7,980 sq mi, approximately, of which 6,470 sq mi is probably noncontributing.

Records available.--December 1923 to September 1934, June 1939 to September 1952.

Gage.--Water-stage recorder and movable wire-weight gage. Wire-weight gage read once daily. Altitude of gage is 1,628 ft (by barometer). Dec. 3, 1923, to Sept. 30, 1934, chain gage at site 90 ft downstream at same datum.

Average discharge.--23 years (1924-34, 1939-52), 162 cfs.

Extremes.--Maximum discharge during year, 7,130 cfs May 28 (gage height, 6.08 ft); no flow at times.

1923-34, 1939-52: Maximum discharge, 52,000 cfs Oct. 15, 1926 (gage height, 18.14 ft, from floodmark), from rating curve extended above 25,000 cfs on basis of slope-area determination of peak flow; no flow at times.

Maximum stage known since at least 1899, that of Oct. 15, 1926; flood of June 1, 1935, reached a stage of 16.8 ft, from information by local residents.

Remarks.--Records fair. Daily discharge published only to show distribution of runoff. No large diversions above station. Records of chemical analyses, water temperatures, and suspended sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Revisions (water years).--W 733: 1927(M).

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*0	0.2				0	0	295	*64	0	0	2.3
2	0	.1				0	*0	*123	28	*0	*.4	.2
3	0	0				*0	0	32	8.7	0	.2	0
4	0	0		(*)		0	0	5.2	3.0	0	.2	*0
5	0	0				0	0	.4	.1	0	.1	0
6	0	0			(*)	0	0	.1	153	0	0	0
7	0	*0	(*)			0	0	0	36	0	0	0
8	0	0				0	0	0	2.0	0	0	0
9	0	0				0	0	0	.2	0	0	0
10	0	0				0	0	0	*0	*0	0	.4
11	0	0				0	0	0	0	0	6.3	**.1
12	0	0				0	0	*0	0	0	*237	0
13	0	0				0	0	0	0	0	86	0
14	0	0				0	0	0	0	*.4	16	0
15	0	0				0	0	0	0	*228	*1.2	.1
16	0	0				0	0	0	0	1,070	.2	**.1
17	0	0				.4	*0	0	*0	*372	.1	0
18	0	0				3.2	*41	31	0	105	.1	0
19	0	0				2.6	13	*1.2	0	28	0	0
20	0	0				.8	99	0	0	747	0	0
21	0	0				0	*20	0	0	*228	*0	0
22	0	0				0	3.6	0	0	96	0	*171
23	*0	0				0	45	*2.1	*0	56	.1	*52
24	0	0				0	31	0	0	24	0	18
25	0	0				0	11	0	0	8.2	0	5.6
26	0	0				0	3.0	0	0	2.1	0	.8
27	0	0				0	.7	*62	0	.4	0	0
28	0	0				0	.3	4,030	0	*0	0	0
29	*0	0				0	.2	1,130	0	0	*0	0
30	1.6	0			-	0	.2	190	0	0	66	0
31	*8.5	-			-	0	-	104	-	0	36	-
Total	10.1	0.3	0	0	0	7.0	268.0	6,006.0	295.0	2,965.1	449.9	250.6
Mean	0.33	0.01	0	0	0	0.23	8.93	194	9.83	95.6	14.5	8.35
Ac-ft	20	0.6	0	0	0	14	532	11,910	585	5,880	892	497

Calendar year 1951: Max 4,490 Min 0 Mean 61.8 Ac-ft 44,750
Water year 1951-52: Max 4,030 Min 0 Mean 28.0 Ac-ft 20,330

Peak discharge (base, 8,800 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.

Salt Fork Brazos River near Aspermont, Tex.

Location.--Lat 33°20', long. 100°14', near left bank on downstream side of pier of bridge on U. S. Highway 83, 5½ miles downstream from Dove Creek and 13.2 miles northwest of Aspermont, Stonewall County.

Drainage area.--4,830 sq mi, approximately, of which 2,770 sq mi is probably noncontributing.

Records available.--December 1923 to August 1925, June 1939 to September 1952.

Gage.--Water-stage recorder and movable wire-weight gage. Wire-weight gage read once daily. Datum of gage is 1,588.70 ft above mean sea level, datum of 1929. Dec. 5, 1923, to Aug. 29, 1925, chain gage at site 6.8 miles downstream at different datum.

Average discharge.--13 years (1939-52), 143 cfs.

Extremes.--Maximum discharge during year, 6,390 cfs July 16 (gage height, 6.55 ft); no flow at times.
1923-25, 1939-52: Maximum discharge, 27,400 cfs May 16, 1947 (gage height, 11.35 ft); no flow at times.
Maximum stage since 1900, 14.4 ft in December 1913. Flood of November 1934 reached a stage of 13.7 ft. Stages from information by local residents.

Remarks.--Records fair. Daily discharge published only to show distribution of runoff.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*0.2	0.6	0.3	0.2	0.3	0.3	0.1	0.5	*3.2	*0.2	0.1	0.1
2	.1	4.4	.3	.8	.3	.4	*.1	*.4	1.2	.2	*.1	.1
3	.1	3.7	.3	1.9	.4	*.3	.1	.5	.8	.2	.2	.1
4	.2	1.9	.2	*4.0	.4	.3	.1	.5	.5	.2	.1	*.1
5	.2	.8	.1	3.5	.3	.3	.1	.4	.4	.2	.1	.1
6	.2	.4	.2	1.2	*.3	.3	.1	.4	.5	.2	.1	.1
7	.2	*.4	*.2	1.0	.3	.3	0	.4	.4	.2	.1	0
8	.2	.3	.2	.9	.2	.3	0	.3	.2	.5	.1	.1
9	.2	.3	.2	.8	.2	.3	.2	.2	.2	101	0	0
10	.2	.3	.2	.6	.2	.2	.2	1.0	*.2	*122	.1	.3
11	.2	.3	.2	.6	1.5	.2	.2	.7	.2	31	.1	.2
12	.2	.2	.2	.5	.8	0	.2	*.4	.3	18	*.1	.2
13	.2	.1	.2	.5	.3	.2	.2	.4	.3	27	0	.2
14	.2	.1	.2	.5	.2	.2	.2	.3	.2	*69	0	.1
15	.2	.2	.2	.4	.5	.2	.2	.2	.2	259	*0	.2
16	.2	.2	.2	.5	1.0	.2	.1	.2	.2	*2,480	.3	*6.6
17	.2	.2	.2	.4	.9	1.1	*.4	2.3	*.2	*454	.2	.3
18	.2	.2	.2	.4	.7	.9	6.8	8.1	.2	155	.1	.2
19	.3	.2	.2	.5	.4	.5	2.7	*3.0	.2	75	.1	.1
20	.2	.2	.2	.6	.4	.2	80	1.2	.2	83	.1	.1
21	.2	.2	.2	.6	.4	0	*64	.5	.2	*30	*.1	0
22	.2	.2	.2	.5	.4	0	504	.2	.2	21	.1	.3
23	*.2	.2	.2	.4	.4	.1	153	20	*.2	6.8	.1	.2
24	.3	.2	.2	.3	.5	.1	58	5.4	.1	3.5	.1	.2
25	.4	.2	.2	.3	.6	.1	27	1.4	.2	*1.0	.1	.1
26	.9	.3	.2	.3	.6	.1	13	1.0	.2	.6	.1	.1
27	7.2	.3	.2	.3	.5	.2	4.0	*158	.1	.5	.1	.1
28	3.2	.3	.2	.3	.4	.2	2.7	168	.2	.4	.1	.1
29	*1.0	.3	.2	.3	.3	.1	1.1	25	.2	.4	*.1	.1
30	.6	.3	.2	.3	-	.1	.8	32	.2	.2	.2	.1
31	.7	-	.2	.3	-	0	-	17	-	.2	.2	-
Total	18.8	17.5	6.4	23.7	13.7	7.7	919.6	449.9	11.6	3,940.5	3.3	10.5
Mean	0.61	0.58	0.21	0.76	0.47	0.25	30.7	14.5	0.39	127	0.11	0.35
Ac-ft	37	35	13	47	27	15	1,820	892	23	7,820	6.5	21

Calendar year 1951: Max 2,640 Min 0 Mean 59.9 Ac-ft 43,350
Water year 1951-52: Max 2,480 Min 0 Mean 14.8 Ac-ft 10,760

Peak discharge (base, 12,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Brazos River at Seymour, Tex.

Location.--Lat 33°34', long. 99°16', near left bank on downstream side of pier of bridge on U. S. Highways 277 and 283, three-quarters of a mile upstream from Wichita Valley Railway bridge, 1 mile southwest of courthouse in Seymour, Baylor County, and at mile 832.

Drainage area.--14,490 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--November 1923 to September 1952.

Gage.--Water-stage recorder and movable wire-weight gage. Wire-weight gage read twice daily. Datum of gage is 1,258.68 ft above mean sea level (Texas State Highway benchmark).

Average discharge.--28 years (1924-52), 431 cfs.

Extremes.--Maximum discharge during year, 7,180 cfs May 28 (gage height, 4.80 ft); no flow at times.
1923-52: Maximum discharge, 95,400 cfs Oct. 16, 1926 (gage height, 15.16 ft, from floodmarks), from rating curve extended above 48,000 cfs on basis of slope-area determination of peak flow; no flow at times.
Maximum stage known, about 21.0 ft about 1906.

Remarks.--Records good. No large diversion above station.

Revisions (water years).--W 808: 1924-29.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 1-24)

Oct. 1 to May 27				May 28 to Sept. 30			
0.1	0	0.6	27	0.5	0	1.3	142
.2	.1	.8	58	.6	1.0	1.6	292
.3	2.6	1.0	101	.7	5.2	2.0	565
.4	7.8	1.2	160	.8	15	2.5	1,100
.5	16	1.5	290	.9	28	3.0	1,970
				1.0	46	3.6	3,440
				1.1	70		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	10	3.6	1.7	3.1	3.1	1.7	80	402	*0	1.3	0
2	1.4	12	3.1	2.3	3.1	5.7	1.4	43	243	0	.4	*0
3	.3	6.8	2.3	3.6	3.1	10	1.1	14	138	0	0	0
4	**.1	3.6	2.3	4.7	3.6	5.2	.7	24	*89	0	0	0
5	0	2.3	*1.7	*5.7	3.1	3.1	.1	*70	63	0	0	0
6	0	2.0	1.1	6.8	2.3	*2.6	0	41	53	0	0	0
7	0	1.7	.5	6.6	*2.3	2.3	*0	23	42	0	0	0
8	0	*1.4	.5	5.7	1.7	2.3	0	15	46	0	0	0
9	0	.9	.7	4.7	2.0	2.3	.1	4.7	86	19	0	0
10	0	.9	.7	4.2	2.3	2.0	0	4.2	73	14	0	18
11	0	1.1	.9	4.7	15	2.3	0	2.3	39	1.6	0	0
12	0	1.1	1.4	3.6	117	2.3	.1	.5	27	.1	0	0
13	0	.5	1.7	4.2	41	.3	.7	.1	20	51	0	0
14	0	.1	2.0	4.2	14	.5	.7	**.1	13	*46	0	0
15	0	.1	2.0	3.1	10	.3	.5	0	5.2	246	*19	0
16	0	.1	2.0	3.6	12	.1	.1	0	*1.9	156	12	0
17	0	.1	2.6	3.6	12	2.2	.1	70	1.0	*1,840	18	0
18	0	.1	2.6	4.2	10	41	6.8	235	.2	*937	4.1	0
19	0	.1	3.6	4.7	7.3	71	12	147	0	422	.7	0
20	0	.1	3.1	3.6	6.2	20	58	87	0	298	0	0
21	0	.5	2.6	4.7	5.7	7.8	58	40	0	213	0	0
22	0	.7	2.3	4.2	*5.7	5.2	*35	17	0	382	0	0
23	0	.7	2.6	3.6	4.2	4.2	53	66	0	254	0	0
24	*0	.9	3.1	5.2	5.2	3.1	120	64	*0	*147	0	0
25	0	2.6	2.6	4.7	5.2	2.6	117	24	0	99	0	0
26	0	2.6	2.6	3.1	5.7	2.6	87	10	0	65	0	0
27	0	3.1	2.6	2.6	6.2	3.6	64	13	0	42	*0	0
28	0	3.1	2.6	2.6	3.6	4.7	43	*2,480	0	30	0	0
29	0	3.1	2.6	2.6	3.1	5.2	33	3,320	0	13	0	0
30	0	3.6	2.6	2.6	-	6.2	22	1,380	0	7.6	0	0
31	0	-	3.6	3.6	-	4.2	-	585	-	*4.1	0	-
Total	4.1	65.9	68.2	127.0	315.7	228.0	716.1	8,859.9	1,342.3	5,287.4	55.5	18
Mean	0.13	2.20	2.20	4.10	10.9	7.35	23.9	286	44.7	171	1.79	0.60
Ac-ft	8.1	131	135	252	626	452	1,420	17,570	2,660	10,490	110	36

Calendar year 1951: Max 4,200 Min 0 Mean 152 Ac-ft 110,400
Water year 1951-52: Max 3,320 Min 0 Mean 46.7 Ac-ft 33,890

Peak discharge (base, 11,000 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.

Fort Phantom Hill Reservoir near Nugent, Tex.

Location.--Lat 32°37', long. 99°40', at outlet gate tower near right shore and 120 ft above dam on Elm Creek, 4 miles upstream from Clear Fork Brazos River, and 5 miles south of Nugent, Jones County.

Drainage area.--478 sq mi.

Records available.--July 1940 to September 1952.

Gage.--Staff gage read once daily. Datum of gage is 1,580.00 ft above mean sea level.

Extremes.--Maximum contents observed during year, 43,450 acre-ft Oct. 1-3 (gage height, 45.3 ft); minimum observed, 24,400 acre-ft Sept. 21-23 (gage height, 36.9 ft).
1940-52: Maximum contents observed, 80,900 acre-ft Oct. 17, 1941 (gage height, 56.8 ft); minimum observed, 20,290 acre-ft Aug. 12, 13, 1940 (gage height, 34.7 ft).

Remarks.--Reservoir is formed by earth-fill dam with rock riprap face; dam completed and storage began in October 1938. Capacity, 69,550 acre-ft between gage heights 1.6 ft (sill of lowest outlet gate) and 54.0 ft (crest of spillway). Dead storage, 450 acre-ft. Records given herein represent total contents. Water is used for municipal supply. Lake Abilene on Elm Creek, Lake Kirby on Cedar Creek, and Lytle Lake on Lytle Creek (combined capacity, 18,300 acre-ft) are smaller reservoirs above station in Elm Creek basin. During the period May to September the city of Abilene diverted 547 acre-ft of water into the reservoir by pumping from Clear Fork Brazos River at a site above the station at Nugent.

Cooperation.--Gage-height record and capacity table furnished by city of Abilene.

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	45.2	43,200	-
Oct. 31	44.7	41,950	-1,250
Nov. 30	44.2	40,700	-1,250
Dec. 31	43.1	38,040	-2,660
Calendar year 1951	-	-	-3,410
Jan. 31	42.8	37,320	-720
Feb. 29	42.4	36,360	-960
Mar. 31	41.8	34,920	-1,440
Apr. 30	41.7	34,680	-240
May 31	41.7	34,680	0
June 30	40.6	32,040	-2,640
July 31	39.6	29,800	-2,240
Aug. 31	38.6	27,800	-2,000
Sept.30	37.2	25,000	-2,800
Water year 1951-52	-	-	-18,200

† Gage height at 8 a.m.

Clear Fork Brazos River at Nugent, Tex.

Location.--Lat 32°41', long. 99°40', on right bank 7 ft upstream from pier of county road bridge in Nugent, Jones County, 4 miles upstream from Deadman Creek.

Drainage area.--2,220 sq mi.

Records available.--February 1924 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 1,543 ft (by barometer). Prior to Dec. 12, 1933, staff gage at site 575 ft downstream at same datum.

Average discharge.--28 years, 135 cfs.

Extremes.--Maximum discharge during year, 920 cfs May 24 (gage height, 5.00 ft); no flow at times.

1924-52: Maximum discharge observed, 47,000 cfs Sept. 8, 1932 (gage height, 27.05 ft, site then in use), from rating curve extended above 25,000 cfs; no flow at times.

Maximum stage known, about 30.0 ft in 1876, from information by local residents. Floods in 1900 and May 1923 reached stages of about 24 and 24.5 ft, respectively, from information by local residents.

Remarks.--Records good. Flow slightly regulated by reservoirs in Elm Creek basin (see p. 108) and Lakes Sweetwater and Trammel in Sweetwater Creek basin, which have a combined capacity of about 105,000 acre-ft. Diversions above station for municipal supply and oil-field operation materially affect low flow. During the period May to September the city of Abilene diverted 547 acre-ft of water into Fort Phantom Hill Reservoir from the river above station. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-27)

1.2	0	2.0	56
1.3	.2	2.3	107
1.4	.7	2.6	168
1.5	2.2	3.0	270
1.6	7.2	4.0	570
1.7	16	5.0	920
1.8	27		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	13	1.7	1.1	1.4	1.3	*0.9	71	*55	0	0	0
2	**.1	5.8	1.4	1.3	1.4	1.9	.9	35	1.6	0	*.4	*0
3	.1	3.6	1.7	*2.8	1.4	1.7	.9	33	1.0	0	.4	0
4	.1	3.6	1.4	3.6	1.4	1.7	.8	6.5	18	0	.2	56
5	.1	2.5	*1.4	3.2	1.4	*1.7	.7	2.5	32	0	.1	303
6	0	*1.7	2.2	2.8	*1.7	1.7	.6	1.3	2.8	0	.1	16
7	0	1.4	1.4	2.8	1.7	1.7	.6	.8	1.1	0	.1	16
8	0	1.3	221	2.5	1.4	1.7	.7	*.5	131	0	.2	16
9	0	.9	259	1.9	1.4	2.2	.6	.4	15	0	.1	16
10	0	.9	66	1.9	1.7	1.7	.6	.3	4.6	0	.1	18
11	*0	1.0	56	1.9	1.7	1.3	.6	.2	1.1	0	0	13
12	0	1.1	28	1.9	1.4	1.1	.6	.2	.6	0	0	.5
13	0	1.0	21	2.2	1.4	1.0	.6	.2	.5	0	0	.2
14	0	1.0	27	2.8	1.7	1.0	.7	.2	.4	0	*0	.1
15	0	1.0	21	2.5	1.9	1.1	.7	.2	.2	.1	0	.1
16	0	1.0	1.9	3.2	2.5	1.1	.7	.2	.1	.5	0	.1
17	0	1.0	1.0	3.2	2.2	1.4	.8	.2	.1	.2	0	0
18	0	1.0	.8	3.2	1.9	2.5	.8	28	*0	.1	0	0
19	0	1.0	1.0	2.5	1.9	1.7	.8	54	0	.1	0	0
20	0	1.0	.8	1.9	1.9	1.9	2.8	14	0	.1	0	0
21	0	1.1	.7	2.5	1.9	1.0	117	2.8	0	0	0	0
22	0	1.1	.6	1.9	1.9	.6	98	1.0	0	0	0	38
23	0	1.1	.6	1.9	1.9	.6	56	83	0	0	0	171
24	0	1.1	1.0	1.9	1.9	.6	10	658	0	0	0	149
25	0	1.3	1.0	1.9	1.3	.6	3.2	136	0	0	0	120
26	0	1.7	1.0	1.7	1.3	.6	1.7	66	0	0	*0	4.5
27	.1	1.9	.9	1.7	.9	.6	1.3	60	0	0	0	.4
28	.6	1.9	.9	1.7	1.1	.9	1.0	9.9	0	*0	0	.2
29	*5.9	1.9	.9	1.7	1.0	1.0	1.0	.8	0	0	0	.1
30	89	1.9	.9	1.7	-	1.0	5.0	73	*0	0	0	.1
31	27	-	1.0	1.7	-	1.0	-	25	-	0	0	-
Total	123.1	59.8	725.2	69.5	47.2	39.9	310.6	1,364.2	265.1	1.1	1.7	938.3
Mean	3.97	1.99	23.4	2.24	1.63	1.29	10.4	44.0	8.84	0.04	0.05	31.3
Ac-ft	244	119	1,440	138	94	79	616	2,710	526	2.2	3.4	1,860

Calendar year 1951: Max 1,820 Min 0 Mean 45.0 Ac-ft 32,570
Water year 1951-52: Max 658 Min 0 Mean 10.8 Ac-ft 7,830

Peak discharge (base, 2,300 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.

Clear Fork Brazos River at Fort Griffin, Tex.

Location.--Lat 32°56', long. 99°13', on right bank just downstream from pier of bridge on old Fort Griffin-Throckmorton road, half a mile northeast of Fort Griffin, Shackleford County, 5,100 ft upstream from bridge on U. S. Highway 283 (renumbered), and 1.3 miles upstream from Mill Creek.

Drainage area.--3,974 sq mi.

Records available.--December 1923 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,174.09 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. Prior to June 23, 1932, chain gage at same site and datum.

Average discharge.--28 years (1924-52), 249 cfs.

Extremes.--Maximum discharge during year, 1,300 cfs June 2 (gage height, 5.58 ft); no flow at times.
1923-52: Maximum discharge, 33,600 cfs Sept. 10, 1932 (gage height, 35.09 ft); no flow at times.
Maximum stage known, about 38.0 ft in 1900, from information by local residents.

Remarks.--Records good. Flow slightly regulated by reservoirs above Nugent. Diversions above station for irrigation, municipal supply, and oil-field operations materially affect low flow.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.6	0	2.1	15	2.8	97
1.7	.2	2.2	22	3.0	130
1.8	1.2	2.3	31	3.5	240
1.9	4.4	2.4	42	4.0	420
2.0	9.0	2.6	67	5.0	1,010

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							(*)	282	18			(*)
2	(*)							121	*758			
3				(*)				62	362			
4								57	*136			
5						(*)		41	72			
6		(*)	(*)		(*)			26	148			
7								21	80			
8								*13	28			
9								5.8	14			
10								3.7	7.2			
11								2.1	6.5			
12								1.2	28			
13								.8	17			
14								.4	9.0			
15								.2	4.9		(*)	
16								.1	3.0			
17								0	1.2			
18								0	.8			
19								.1	.5			
20								100	.2			
21								57	.1			
22								26	0			
23								15	0			
24								8.1	*0			
25								4.4	0			
26								312	0			
27								138	0			
28								112	0			
29								38	0			
30					-			40	*0	(*)		
31		-			-			30	-			-
Total	0	0	0	0	0	0	0	1,517.9	1,694.4	0	0	0
Mean	0	0	0	0	0	0	0	49.0	56.5	0	0	0
Ac-ft	0	0	0	0	0	0	0	3,010	3,360	0	0	0

Calendar year 1951: Max 2,950 Min 0 Mean 88.5 Ac-ft 64,080
Water year 1951-52: Max 758 Min 0 Mean 8.78 Ac-ft 6,370

Peak discharge (base, 3,900 cfs).--No peak above base.
* Discharge measurement made on this day.

Brazos River near South Bend, Tex.

Location.--Lat 33°01'30", long. 98°38'50", near left bank on left side of pier of bridge on State Highway 67, 0.3 mile upstream from Wichita Falls & Southern Railroad bridge, 1.6 miles downstream from Clear Fork Brazos River, 2.0 miles northeast of South Bend, Young County, and at mile 758.

Drainage area.--21,600 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--September 1938 to September 1952.

Gage.--Water-stage recorder and movable wire-weight gage. Wire-weight gage read once daily. Datum of gage is 1,002.98 ft above mean sea level, datum of 1929. Prior to Feb. 23, 1939, wire-weight gage at same site and datum.

Average discharge.--14 years, 902 cfs.

Extremes.--Maximum discharge during year, 3,540 cfs May 30 (gage height, 8.17 ft); no flow at times.

1938-52: Maximum discharge, 87,400 cfs May 4, 1941 (gage height, 27.35 ft); no flow at times.

Maximum stage known, 36.2 ft in 1876, from information by State Highway Department and Corps of Engineers. Flood of Sept. 24, 1900, reached a stage of about 29.5 ft and flood of June 16, 1930, reached a stage of about 35.5 ft, from information by local residents.

Remarks.--Records good. Slight regulation by reservoirs in Elm Creek basin (see p. 108) and Lakes Sweetwater and Trammel in Sweetwater Creek basin, which have a combined capacity of about 105,000 acre-ft. Many small diversions above station for municipal supply and oil-field operations.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-12, 25, 26, Nov. 6-11, May 18-25, July 21 to Aug. 16)

2.9	0	3.6	34	5.5	715
3.0	.8	3.8	59	6.0	1,070
3.1	3.0	4.0	96	7.0	1,980
3.2	6.5	4.3	168	8.0	3,220
3.3	11	4.6	265		
3.4	17	5.0	440		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	*3.0	1.7	0	0.6	3.7	0.6	754	691	1.0	21	(*)
2	15	24	1.7	*0	.3	7.0	.4	464	465	447	15	
3	*11	36	1.5	.4	.4	8.3	.3	293	*746	367	11	
4	9.6	23	.8	1.2	.3	7.8	0	145	734	96	7.8	
5	7.8	16	.7	.8	**.2	*6.2	0	*109	325	36	6.2	
6	6.5	13	*.6	1.5	.1	5.1	0	74	240	20	4.0	
7	5.8	10	.2	2.1	.1	4.0	0	58	392	15	2.8	
8	5.1	7.8	.1	1.9	0	2.8	0	38	591	11	1.5	
9	4.0	5.8	.3	1.9	0	2.8	0	45	200	7.0	.6	
10	3.4	4.4	.3	1.7	0	2.8	0	31	116	5.1	.6	
11	2.3	2.8	.3	1.0	.2	2.8	0	27	78	5.1	.6	
12	1.2	3.0	.2	.8	0	2.6	0	19	62	4.4	.4	
13	.8	2.3	.2	1.2	0	1.5	0	15	80	3.7	.4	
14	.7	1.7	.4	1.5	0	.8	0	12	56	2.3	*.2	
15	.6	1.5	.3	1.2	0	.8	*0	8.3	34	4.0	0	
16	.6	.7	.5	1.7	21	.6	0	7.0	*26	3.7	0	
17	.5	.7	.3	1.7	24	.8	0	13	20	3.7	0	(*)
18	.4	.6	.4	1.5	18	1.2	0	69	16	*770	0	
19	.3	.6	.2	1.5	14	1.0	0	80	13	*828	0	
20	.4	.6	.2	1.2	10	1.2	39	*203	10	480	0	
21	.6	.6	.2	2.1	8.3	1.0	100	180	8.3	321	0	
22	.4	.6	.2	1.5	7.8	.5	48	125	6.2	223	0	
23	.5	.6	.1	1.0	7.0	.4	748	132	4.8	*171	0	
24	*.4	.7	.2	1.0	6.5	6.2	128	188	3.7	293	0	
25	.5	1.0	.2	.7	6.5	4.8	52	188	2.6	207	0	
26	.6	1.5	.2	.7	6.5	3.0	40	86	1.9	147	0	
27	2.3	2.8	.2	.6	5.8	2.6	73	120	1.7	100	*0	
28	5.4	2.6	.2	.6	4.4	3.4	73	696	1.2	71	0	
29	8.3	2.1	.1	.6	7.0	2.6	49	*2,090	1.2	49	0	
30	5.4	1.7	.2	.5	-	2.3	64	2,600	*1.0	*35	0	
31	2.8	-	0	.4	-	*1.5	-	1,310	-	27	0	-
Total	122.2	171.7	12.7	34.5	149.0	92.1	1,415.3	10,179.3	4,927.6	4,754.0	72.1	0
Mean	3.94	5.72	0.41	1.11	5.14	2.97	47.2	328	164	153	2.33	0
Ac-ft	242	341	25	68	296	183	2,810	20,190	9,770	9,430	143	0

Calendar year 1951: Max 12,600 Min 0 Mean 367 Ac-ft 265,800
Water year 1951-52: Max 2,600 Min 0 Mean 59.9 Ac-ft 43,500

Peak discharge (base, 11,000 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.

Possum Kingdom Reservoir near Graford, Tex.

Location.--Lat 32°52', long. 98°26', in powerhouse at dam on Brazos River, 2.6 miles upstream from Loving Creek, 11.3 miles southwest of Graford, Palo Pinto County, and at mile 687.

Drainage area.--22,550 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--March 1941 to September 1952.

Gage.--Mercury U-tube gage. Datum of gage is 0.10 ft above mean sea level, datum of 1929 (levels by Brazos River Conservation and Reclamation District).

Extremes.--Maximum contents observed during year, 506,900 acre-ft Oct. 1 (gage height, 987.2 ft); minimum observed, 285,200 acre-ft Sept. 29, 30 (gage height, 968.3 ft).
1941-52: Maximum contents observed, 743,900 acre-ft Oct. 5, 1941 (gage height, 1,001.0 ft); minimum observed, that of Sept. 29, 30, 1952.

Remarks.--Reservoir is formed by reinforced concrete dam of flat slab deck, massive buttress type, with nine roof-weir (modified bear-trap) type gates, two bulkhead sections, and earthen dike section. Dam completed and storage began Mar. 21, 1941. Total capacity, 724,700 acre-ft (gage height, 1,000.0 ft, top of closed roof-weir gates). Usable capacity for power development, 698,900 acre-ft between gage heights 911.5 ft (sill of powerhouse penstock) and 1,000.0 ft (top of closed roof-weir gates). Water below gage height 911.5 ft can be withdrawn through high pressure outlet down to gage height 874.8 ft. Figures given herein represent total contents. Water used for power development, industry, and irrigation.

Cooperation.--Records of daily gage height and capacity table furnished by Brazos River Conservation and Reclamation District.

Contents, in acre-feet, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	506,900	483,000	467,900	453,100	433,400	427,000	421,900	419,400	430,900	391,200	342,600	291,000
2	505,500	483,000	467,900	451,800	433,400	427,000	421,900	421,900	433,400	390,100	340,400	291,000
3	504,100	481,500	467,900	450,400	433,400	427,000	420,600	421,900	433,400	385,500	338,400	291,000
4	502,700	481,500	466,500	450,400	432,200	427,000	420,600	421,900	433,400	383,300	335,200	290,000
5	499,900	480,100	466,500	450,400	432,200	427,000	420,600	423,200	436,600	382,200	332,000	290,000
6	498,500	478,700	465,200	449,100	432,200	427,000	420,600	423,200	436,600	378,900	328,900	290,000
7	498,500	478,700	465,200	447,800	430,900	427,000	420,600	423,200	436,600	375,600	325,800	290,000
8	497,000	477,300	463,800	446,500	430,900	427,000	418,100	423,200	436,600	372,300	322,600	289,000
9	497,000	475,900	463,800	446,500	430,900	427,000	415,500	423,200	437,300	370,100	320,500	289,000
10	497,000	475,900	463,800	445,200	430,900	427,000	414,200	423,200	437,300	371,100	319,500	289,000
11	497,000	475,900	462,500	445,200	430,900	427,000	413,000	423,200	436,600	370,100	315,300	289,000
12	495,600	475,900	462,500	443,900	429,600	427,000	413,000	421,900	434,700	369,000	313,200	289,000
13	494,200	475,900	461,200	443,900	429,600	425,800	413,000	421,900	434,700	369,000	310,100	289,000
14	494,200	474,600	461,200	443,900	429,600	425,800	413,000	421,900	433,400	367,900	307,000	288,100
15	494,200	474,600	459,800	442,600	428,300	425,800	413,000	420,600	433,400	365,700	302,800	288,100
16	494,200	473,200	459,800	441,200	428,300	425,800	413,000	420,600	432,200	362,500	300,800	287,200
17	492,800	471,900	459,800	439,900	428,300	425,800	413,000	419,400	430,900	361,400	299,800	287,200
18	492,800	471,900	458,500	439,900	428,300	425,800	413,000	420,600	428,300	360,400	298,800	287,200
19	491,400	471,900	457,100	439,900	428,300	425,800	413,000	420,600	427,000	360,400	298,800	287,200
20	491,400	470,500	457,100	438,600	428,300	424,500	413,000	420,600	425,800	360,400	297,800	287,200
21	491,400	470,500	455,800	438,600	428,300	424,500	413,000	420,600	424,500	361,400	296,800	287,200
22	490,000	469,200	455,800	437,300	428,300	423,200	416,800	419,400	421,900	361,400	295,900	286,200
23	490,000	469,200	454,500	437,300	427,000	423,200	418,100	419,400	419,400	362,500	295,900	286,200
24	488,600	469,200	454,500	436,600	427,000	423,200	418,100	419,400	415,500	361,400	295,900	286,200
25	488,600	469,200	454,500	436,600	427,000	423,200	419,400	419,400	411,700	359,400	294,900	286,200
26	487,200	469,200	454,500	436,600	427,000	421,900	419,400	420,600	408,000	357,200	293,900	286,200
27	487,200	469,200	454,500	436,600	427,000	421,900	419,400	420,600	404,300	355,200	292,900	286,200
28	485,800	469,200	453,100	436,600	427,000	421,900	419,400	420,600	401,900	352,000	292,900	286,200
29	485,800	469,200	453,100	436,600	427,000	421,900	419,400	420,600	399,400	349,900	291,900	285,200
30	485,800	467,900	453,100	436,600	-	421,900	419,400	423,200	394,700	348,800	291,900	285,200
31	483,000	-	453,100	434,700	-	421,900	-	428,300	-	345,700	291,900	-

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	987.3	508,300	-
Oct. 31	985.5	483,000	-25,300
Nov. 30	984.4	467,900	-15,100
Dec. 31	983.3	453,100	-14,800
Calendar year 1951	-	-	-120,500
Jan. 31	981.9	434,700	-18,400
Feb. 29	981.3	427,000	-7,700
Mar. 31	980.9	421,900	-5,100
Apr. 30	980.7	419,400	-2,500
May 31	981.4	428,300	+8,900
June 30	978.7	394,700	-33,600
July 31	974.2	345,700	-49,000
Aug. 31	969.0	291,900	-53,800
Sept.30	968.3	285,200	-6,700
Water year 1951-52	-	-	-223,100

† Gage heights at 12 p.m.

Brazos River near Palo Pinto, Tex.

Location.--Lat 32°51'45", long. 98°18'10", on right bank 35 ft upstream from bridge on Palo Pinto-Graford highway, 300 ft downstream from Dark Valley Creek, 6½ miles north of Palo Pinto, Palo Pinto County, 20 miles downstream from Possum Kingdom Dam, and at mile 667.

Drainage area.--22,760 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--January 1924 to September 1952. Published as "near Mineral Wells" 1924-33.

Gage.--Water-stage recorder. Datum of gage is 831.23 ft above mean sea level, datum of 1929. Prior to Nov. 15, 1933, chain gage at site 19 miles downstream at different datum.

Average discharge.--28 years (1924-52), 1,165 cfs.

Extremes.--Maximum discharge during year, 2,690 cfs June 26, Aug. 8 (gage height, 4.42 ft); minimum, 14 cfs Sept. 9 (gage height, 0.02 ft).
1924-52: Maximum discharge, 95,600 cfs June 16, 1930 (gage height, 28.43 ft, site and datum then in use); no flow at times.
Maximum stage known was reached by flood of 1876, according to data by Corps of Engineers, and was several feet higher than any subsequent flood. Flood of June 1930 reached a stage of about 24 ft, present site and datum, from information by local residents.

Remarks.--Records good. Flow since 1941 largely regulated by Possum Kingdom Reservoir (see preceding page) and several smaller reservoirs above Nugent in Clear Fork basin, having a combined capacity of 830,000 acre-ft. Many small diversions above station for irrigation, municipal supply, and oil-field operation.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0	8.0	1.5	365
.1	15	2.0	620
.3	33	2.5	950
.5	61	3.0	1,340
.8	127	3.5	1,760
1.0	182		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	72	430	130	33	309	27	19	68	19	1,520	1,180	*29
2	506	243	106	*73	173	21	20	38	19	1,520	1,180	21
3	*762	244	60	498	128	21	105	27	*17	1,470	1,210	17
4	998	222	212	398	72	25	48	22	17	1,490	*1,120	16
5	866	*76	238	187	*73	23	166	21	16	1,480	1,410	18
6	508	286	*216	324	84	*33	56	*20	216	1,480	1,360	16
7	150	192	259	345	87	40	29	18	66	1,500	1,360	15
8	64	250	234	480	304	27	189	17	114	1,500	1,580	15
9	50	316	125	490	80	23	960	296	222	1,510	1,400	*14
10	138	158	81	280	55	*24	899	77	472	524	280	36
11	134	116	202	252	33	23	174	34	450	94	670	33
12	160	64	219	382	125	21	63	25	412	43	1,580	25
13	70	162	246	215	112	131	39	21	402	30	1,530	21
14	79	321	262	87	89	95	*27	253	324	21	1,480	18
15	67	268	153	344	104	59	*23	52	68	703	1,510	*17
16	56	378	246	556	130	32	21	29	106	1,480	1,250	381
17	188	180	241	409	67	24	164	48	626	1,180	247	238
18	326	204	383	222	34	27	66	196	524	382	*63	206
19	230	72	254	256	43	59	33	362	437	80	*262	65
20	92	98	300	238	84	138	41	236	842	37	354	30
21	231	195	277	131	61	122	41	55	892	23	421	23
22	248	208	158	276	29	72	39	31	776	18	220	23
23	400	65	108	486	20	51	37	31	1,020	16	82	24
24	185	178	64	254	19	30	35	32	1,400	359	43	24
25	296	120	30	134	18	36	33	27	1,470	1,140	22	23
26	234	86	28	156	18	91	33	23	1,510	1,170	395	22
27	350	214	112	66	28	80	31	21	1,550	1,140	265	21
28	300	228	142	35	33	59	30	33	*1,460	1,100	72	21
29	88	209	111	44	50	33	27	39	1,470	1,160	31	20
30	320	289	153	214	-	26	185	26	1,550	1,200	21	25
31	943	-	74	246	-	*21	-	20	-	1,180	17	-
Total	9,111	6,072	5,424	8,111	2,462	1,494	3,633	2,198	18,467	26,550	22,615	1,455
Mean	294	202	175	262	84.9	48.2	121	70.9	616	856	730	48.5
Ac-ft	18,070	12,040	10,760	16,090	4,880	2,960	7,210	4,360	36,630	52,660	44,860	2,890

Calendar year 1951: Max 2,170 Min 23 Mean 539 Ac-ft 390,200
Water year 1951-52: Max 1,580 Min 14 Mean 294 Ac-ft 213,400

* Discharge measurement made on this day.
Note.--No gage-height record Apr. 20 to May 5; discharge estimated on basis of recorded range in stage and record of releases from Possum Kingdom Reservoir.

Brazos River near Glen Rose, Tex.

Location.--Lat 32°15'40", long. 97°41'50", on left bank 2 miles upstream from Paluxy Creek, 2.4 miles downstream from bridge on U. S. Highway 67, 4 miles northeast of Glen Rose, Somervell County, and at mile 509.

Drainage area.--24,840 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--October 1923 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 567.82 ft above mean sea level, datum of 1929. Prior to May 7, 1931, combination staff and inclined gage at site 300 ft downstream at same datum. Since Apr. 27, 1950, auxiliary water-stage recorder as flood gage 2.4 miles upstream at bridge on U. S. Highway 67.

Average discharge.--29 years, 1,546 cfs.

Extremes.--Maximum discharge during year, 27,900 cfs May 24 (gage height, 14.19 ft); minimum, 11 cfs Sept. 16, 17 (gage height, 0.40 ft).

1923-52: Maximum discharge, 97,600 cfs May 18, 1935 (gage height, 23.68 ft), from rating curve extended above 68,000 cfs; no flow at times prior to construction of Possum Kingdom Dam.

Maximum stage known, about 30.0 ft May 8 or 9, 1922, from information by local residents.

Remarks.--Records good. Flow largely regulated by Possum Kingdom Reservoir (see p. 112) except during major floods, and by several smaller reservoirs in Clear Fork basin (see p. 108). Many small diversions above station for irrigation, municipal supply, and oilfield operation.

Revisions (water years).--W 1058: 1932.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.4	11	1.8	1,070
.5	30	2.2	1,630
.6	55	3.0	2,750
.8	127	4.0	4,150
1.0	237	6.0	7,300
1.4	595	8.0	11,200

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	832	404	167	99	177	74	68	244	147	1,430	966	189
2	595	344	152	84	157	71	55	303	123	1,460	992	132
3	471	237	225	132	132	74	74	237	107	1,550	1,020	95
4	303	576	219	157	107	61	71	219	91	1,590	*1,060	74
5	237	532	274	162	*152	58	65	189	81	1,500	1,020	61
6	266	352	213	147	259	52	55	195	77	1,480	1,040	50
7	658	281	167	115	213	50	48	167	77	1,460	1,110	38
8	*797	252	142	*267	177	55	40	127	68	1,460	1,140	32
9	740	231	137	344	157	58	35	103	61	1,460	1,250	28
10	553	207	*189	244	142	*68	32	74	52	1,480	1,210	32
11	336	207	219	288	115	65	48	65	42	1,490	1,280	24
12	231	213	259	424	99	*52	142	52	42	1,450	1,410	20
13	177	237	318	500	133	45	534	42	52	1,040	856	18
14	147	*295	231	404	189	42	*639	32	74	508	452	16
15	115	213	183	336	147	40	452	26	219	310	750	12
16	111	177	162	327	123	45	288	40	327	*213	1,290	*11
17	132	147	213	361	103	50	201	74	*281	172	1,310	*14
18	147	137	252	281	91	*74	157	250	281	137	1,340	24
19	123	204	266	219	107	61	123	2,230	183	255	1,280	24
20	103	274	219	360	123	50	137	3,590	132	1,170	820	18
21	87	327	219	511	115	84	463	*1,100	104	808	433	14
22	87	244	294	352	119	77	1,100	542	436	471	266	162
23	206	225	318	274	119	71	801	4,320	424	288	183	195
24	244	213	281	266	103	61	568	9,290	740	189	189	157
25	*219	172	303	259	95	50	295	1,220	705	142	352	111
26	488	147	288	219	95	45	336	1,180	694	107	252	119
27	500	237	231	352	95	61	231	628	1,150	81	195	107
28	378	237	195	344	95	123	177	378	1,410	61	147	74
29	310	189	162	288	81	115	142	281	1,430	59	111	52
30	336	189	142	219	-	95	122	225	1,480	916	87	42
31	361	-	115	172	-	81	-	183	-	940	97	-
Total	10,290	7,700	6,755	8,507	3,820	2,008	7,499	27,606	11,089	25,677	23,908	1,945
Mean	332	257	218	274	132	64.8	250	891	370	828	771	64.8
Ac-ft	20,410	15,270	13,400	16,870	7,580	3,980	14,870	54,760	21,990	50,930	47,420	3,860

Calendar year 1951: Max 5,300 Min 61 Mean 627 Ac-ft 453,900
Water year 1951-52: Max 9,290 Min 11 Mean 374 Ac-ft 271,300

* Discharge measurement made on this day.

Paluxy Creek at Glen Rose, Tex.

Location.--Lat 32°13'50", long. 97°46'30", on left bank at downstream side of pier of bridge on U. S. Highway 67, 1 mile upstream from Cross Branch, 1.2 miles southwest of Glen Rose, Somervell County, and 4.7 miles upstream from mouth.

Drainage area.--399 sq mi.

Records available.--October 1923 to September 1925, May 1947 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 609.66 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. Oct. 27, 1923, to Sept. 30, 1925, chain gage at bridge 1.8 miles downstream at datum 13.62 ft lower.

Average discharge.--6 years (1924-25, 1947-52), 52.6 cfs.

Extremes.--Maximum discharge during year, 28,300 cfs May 23 (gage height, 21.59 ft), from rating curve extended above 8,000 cfs on basis of slope-area determination at gage height 25.1 ft; no flow Aug. 25 to Sept. 9, Sept. 13-16.

1923-25, 1947-52: Maximum discharge, 38,300 cfs May 17, 1949 (gage height, 25.1 ft, from floodmark), from rating curve extended above 8,000 cfs by slope-area determination of peak flow; no flow at times.

Maximum stage known, 27.2 ft Apr. 17, 1908, present site and datum. Flood of May 21, 1922, reached a stage of 26.0 ft, present site and datum. Flood of November 1918 reached about same stage as flood of May 21, 1922, from information by local resident.

Remarks.--Records good.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 26 to Sept. 9)

2.15	0	3.0	97
2.2	.1	3.5	270
2.3	.4	4.0	520
2.4	1.3	5.0	1,090
2.5	5.5	6.0	1,740
2.6	15	8.0	3,300
2.7	31	10.0	5,510

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	3.8	5.0	6.8	8.3	7.5	8.3	257	37	6.1	1.4	0
2	.3	2.8	5.0	6.8	11	8.3	7.5	*859	33	13	1.4	0
3	.3	3.8	5.0	7.5	8.3	10	7.5	120	28	8.3	1.3	0
4	.3	3.3	5.0	8.3	7.5	9.1	6.8	51	26	6.8	1.4	*0
5	.3	2.8	5.0	7.5	*7.5	8.3	6.8	28	24	11	8.5	0
6	.2	2.4	5.5	7.5	6.8	7.5	6.8	22	24	6.1	8.3	0
7	.2	2.4	5.5	7.5	6.8	7.5	6.8	21	21	5.5	5.0	0
8	*.2	2.4	5.5	*6.8	6.8	7.5	6.1	19	21	5.0	3.8	0
9	.2	2.4	5.5	7.5	6.8	7.5	6.1	18	19	5.0	2.0	0
10	.2	2.4	*5.5	7.5	6.8	*10	6.1	16	19	5.0	2.0	.4
11	.1	2.4	5.5	7.5	6.8	9.1	7.5	15	18	4.4	1.7	.2
12	.1	2.8	5.5	7.5	6.8	8.3	18	12	16	4.4	1.2	.1
13	.1	3.3	5.0	7.5	6.8	7.5	31	12	16	4.4	1.0	0
14	.1	*2.8	5.5	7.5	6.8	7.5	*19	11	16	3.8	.7	0
15	.1	2.8	5.5	7.5	6.8	6.8	14	10	15	3.8	.5	0
16	.1	2.8	5.5	7.5	7.5	6.8	11	9.1	14	3.3	.4	*0
17	.2	2.8	5.5	7.5	7.5	7.5	9.1	8.3	*12	*2.8	.3	.5
18	.3	3.3	5.5	7.5	7.5	11	8.3	248	12	3.3	.2	.7
19	.3	3.8	5.5	7.5	7.5	8.3	9.1	82	11	3.3	.2	.3
20	.3	3.8	6.1	7.5	7.5	10	18	24	11	3.3	*.1	.2
21	.3	4.4	6.1	7.5	7.5	9.1	569	*16	10	2.8	.1	.1
22	.4	4.4	6.1	7.5	7.5	7.5	464	12	9.1	2.4	.1	.5
23	1.3	4.4	6.1	7.5	7.5	6.8	95	5,200	8.3	2.4	.1	.3
24	1.2	4.4	6.1	7.5	7.5	6.8	37	4,940	8.3	2.4	.1	.2
25	1.3	4.4	6.1	8.3	9.1	6.8	28	223	7.5	2.0	0	.4
26	1.2	4.4	6.1	8.3	9.1	6.8	26	112	7.5	2.0	0	1.0
27	1.4	5.0	6.1	8.3	8.3	8.3	26	75	6.8	1.7	*0	1.0
28	2.0	5.0	6.1	8.3	8.3	10	26	66	7.5	1.7	0	1.0
29	3.3	5.0	6.1	7.5	7.5	11	26	118	6.8	1.7	0	.9
30	3.3	5.0	6.1	7.5	-	10	26	64	6.8	1.4	0	.8
31	5.0	-	6.1	8.3	-	9.1	-	45	-	1.4	0	-
Total	24.9	105.5	174.7	235.2	220.4	258.2	1,536.8	12,693.4	471.6	130.5	41.8	8.6
Mean	0.80	3.52	5.64	7.59	7.60	8.33	51.2	409	15.7	4.21	1.35	0.29
Ac-ft	49	209	347	467	437	512	3,050	25,180	935	259	83	17

Calendar year 1951: Max 1,680 Min 0 Mean 20.4 Ac-ft 14,780
Water year 1951-52: Max 5,200 Min 0 Mean 43.4 Ac-ft 31,540

Peak discharge (base, 2,500 cfs).--Apr. 21 (4:30 p.m.) 4,460 cfs (9.06 ft); May 2 (6 a.m.) 2,550 cfs (7.08 ft); May 23 (11 p.m.) 28,300 cfs (21.59 ft).

* Discharge measurement made on this day.

Nolands River at Blum, Tex.

Location.--Lat 32°09'02", long. 97°24'10", on right bank 30 ft upstream from bridge on county road from Blum to Rio Vista, 0.5 mile downstream from Gulf, Colorado & Santa Fe Railway bridge, 0.6 mile northwest of Blum, Hill County, 2.8 miles downstream from Mustang Creek, and 3.2 miles upstream from Rock Creek.

Drainage area.--276 sq mi.

Records available.--July 1924 to September 1925, November 1947 to September 1952.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 551.48 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. July 29, 1924, to Sept. 30, 1925, and Aug. 18, 1947, to May 28, 1949, staff gage at railway bridge 0.5 miles upstream at datum 5.0 ft higher.

Average discharge.--5 years (1924-25, 1948-52), 59.7 cfs.

Extremes.--Maximum discharge during year, 7,360 cfs Apr. 21 (gage height, 11.85 ft); no flow July 31 to Sept. 25.

1924-25, 1947-52: Maximum discharge, 25,000 cfs May 17, 1949 (gage height, 24.0 ft, from floodmark), from rating curve extended above 16,000 cfs by logarithmic plotting; no flow at times.

Maximum stage known since 1887, 35.0 ft, present site and datum, May 8, 1922, from information by local resident.

Remarks.--Records good.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	10	1.5	1.4	82	2.4	2.2	98	14	0.2		0
2	.8	3.0	1.4	1.1	17	2.6	1.8	51	13	0		0
3	.6	2.6	1.4	1.2	4.5	8.0	1.7	23	12	0		*0
4	.6	1.6	1.4	1.8	3.2	6.2	1.7	18	11	0		0
5	.7	.6	1.1	4.0	2.0	3.7	1.8	14	67	.1	(*)	
6	.6	.4	1.1	2.2	1.7	2.2	1.4	12	11	.2		0
7	.6	.3	1.2	1.7	*1.5	1.7	1.5	11	4.5	0		0
8	.6	.2	1.1	1.2	1.7	1.7	1.7	9.8	4.2	3.0		0
9	.5	.4	.9	1.1	1.8	1.8	2.2	9.4	3.2	6.9		0
10	*.5	.6	1.0	*1.1	1.8	4.6	2.8	9.4	2.4	3.0		0
11	.4	.5	1.2	1.1	4.2	10	3.5	9.0	2.4	1.8		0
12	.6	1.0	*1.2	1.1	4.8	*3.7	117	8.3	2.2	1.4		0
13	.7	.9	1.2	1.2	1.7	2.4	19	8.7	1.5	1.0		0
14	.8	.3	1.4	1.4	1.4	1.8	5.8	7.6	1.2	.7		0
15	.8	.2	1.2	1.4	1.8	1.7	3.2	8.0	1.0	.5		0
16	.8	*.2	1.2	1.2	2.0	1.7	*2.2	7.6	.8	.2		0
17	.8	.2	1.4	1.1	3.0	1.8	2.4	48	.7	23		0
18	.8	.3	1.4	1.2	3.2	27	2.4	1,090	.6	6.9		*0
19	.8	.8	1.4	1.2	2.4	10	2.4	117	.4	2.6		0
20	.8	1.0	1.2	1.4	1.8	4.2	4.0	*36	*.3	1.5		0
21	.8	.9	1.2	1.2	1.7	2.8	1,130	20	.3	1.1	(*)	0
22	.8	1.1	1.2	1.2	2.0	2.8	2,490	14	.2	*.8		0
23	3.3	1.4	1.7	1.1	1.8	1.7	219	1,710	.4	.6		0
24	4.0	1.4	1.8	1.1	.6	1.4	48	1,460	.4	.4		0
25	2.6	1.8	1.8	1.1	.6	1.4	26	*75	.6	.4		0
26	1.8	1.2	1.8	1.1	2.4	1.4	22	36	.9	.4		.2
27	1.5	1.7	1.5	1.1	.6	2.6	18	26	.5	.4		.6
28	.8	6.6	1.5	1.2	7.0	3.0	16	30	.3	.4		.6
29	1.5	3.0	1.5	1.2	2.8	4.8	14	21	.3	.2		.7
30	2.6	1.7	4.2	1.1	-	3.2	14	18	.3	.2		.8
31	16	-	2.4	1.1	-	2.4	-	17	-	0		-
Total	49.5	45.9	45.5	41.6	163.0	126.7	4,179.7	5,022.8	157.6	57.9	0	2.9
Mean	1.60	1.53	1.47	1.34	5.62	4.09	139	162	5.25	1.87	0	0.10
Ac-ft	98	91	90	83	323	251	8,290	9,960	313	115	0	5.8

Calendar year 1951: Max 4,150 Min 0.1 Mean 37.0 Ac-ft 26,820
Water year 1951-52: Max 2,490 Min 0 Mean 27.0 Ac-ft 19,620

Peak discharge (base, 5,000 cfs).--Apr. 21 (6:30 p.m.) 7,360 cfs (11.85 ft); May 23 (6:30 p.m.) 6,880 cfs (11.42 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 24 to Nov. 15; discharge computed on basis of records obtained at former site.

Whitney Reservoir near Whitney, Tex.

Location.--Lat 31°52', long. 97°22', on State Highway 22, in intake structure of Whitney Dam on Brazos River, 2.4 miles upstream from Coon Creek, 4.0 miles upstream from Iron Creek, 7.4 miles southwest of Whitney, Hill County, and at mile 442.
Drainage area.--26,170 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.
Records available.--December 1951 to September 1952.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).
Extremes.--Maximum contents during period December 1951 to September 1952, 129,376 acre-ft June 2 (elevation, 495.04 ft); minimum, 5,649 acre-ft Dec. 12 (elevation, 449.74 ft).
Remarks.--Reservoir is formed by concrete gravity and rolled-earth dam. Dam completed in December 1950 and storage began Dec. 10, 1951. Total capacity, 2,017,500 acre-ft (elevation, 571.0 ft, top of taintor gates), of which 387,000 acre-ft (elevation, 520.0 ft) is allocated as base for power production and silt catchment and 1,630,500 acre-ft (elevation, 571.0 ft) is allocated for flood-control storage. Capacity at spillway crest, 642,200 acre-ft (elevation, 533.0 ft). Flood-control outlet works consist of sixteen 5- by 9-foot conduits, gates controlled, with sills at elevation 448.83 ft. There are two 16-foot diameter penstocks with inverts at elevation 476.0 ft. Reservoir designed for flood control and power development.
Cooperation.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Prepared by Corps of Engineers from maps of the Brazos River Conservation and Reclamation District)

449.0	5,236	500.0	164,244
445.0	9,328	510.0	255,319
460.0	14,161	520.0	387,024
470.0	29,333	530.0	574,274
480.0	55,908	534.0	666,039
490.0	99,713		

Contents, in acre-feet, at 12 p.m., December 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			-	6,431	12,168	11,318	8,779	51,470	129,312	119,367	112,929	81,482
2			-	6,243	12,604	11,224	8,731	52,675	129,312	119,246	112,695	79,192
3			-	6,064	12,677	11,177	8,661	54,272	129,183	119,246	112,462	77,038
4			-	5,871	12,594	11,083	8,637	54,745	128,990	119,610	112,403	74,842
5			-	5,753	12,482	10,972	8,513	54,983	129,312	119,793	111,996	72,650
6			-	5,712	12,359	10,833	8,451	55,119	129,248	119,671	111,474	70,384
7			-	5,712	12,339	10,696	8,374	55,221	129,183	119,610	111,127	68,092
8			-	5,701	12,502	10,542	8,260	55,255	128,991	119,671	110,205	65,821
9			-	5,637	12,584	10,404	8,260	55,358	128,862	120,281	109,975	64,302
10			5,712	5,949	12,604	10,310	8,125	55,290	128,540	122,371	109,345	64,302
11			5,660	6,101	12,604	10,196	8,057	55,153	128,285	124,174	108,832	64,302
12			5,735	6,236	12,563	10,143	8,290	55,017	128,030	125,554	108,547	64,263
13			5,800	6,559	12,451	10,030	8,459	54,847	127,774	126,756	108,149	64,225
14			5,937	7,241	12,329	9,909	8,763	54,644	127,519	127,264	106,738	64,148
15			5,967	7,742	12,298	9,764	10,082	54,542	127,264	126,123	104,729	64,110
16			5,895	8,057	12,339	9,604	10,953	54,339	127,391	124,237	104,065	64,032
17			5,841	8,260	12,309	9,519	11,558	54,712	127,519	123,114	103,790	64,187
18			5,788	8,598	12,228	9,469	11,909	57,690	127,264	123,301	103,514	64,149
19			5,853	8,802	12,178	9,403	12,108	59,516	127,264	123,301	103,349	64,071
20			5,925	8,930	12,048	9,345	12,329	65,624	127,009	123,737	102,746	63,956
21			5,973	8,986	11,929	9,287	25,937	69,847	126,819	125,114	101,873	63,917
22			5,973	9,670	11,870	9,140	44,588	70,799	126,692	126,059	100,789	63,802
23			6,022	10,178	11,792	9,018	47,966	83,350	126,059	125,617	99,285	63,726
24			6,261	10,407	11,732	8,962	49,379	119,428	124,111	123,987	97,691	63,994
25			6,418	10,569	11,742	8,898	50,099	122,990	122,618	122,185	96,063	64,225
26			6,572	10,769	11,675	8,826	50,287	124,988	121,322	120,342	94,505	64,302
27			6,762	10,906	11,568	8,802	50,510	126,692	120,342	118,579	92,558	64,302
28			6,861	10,962	11,472	8,739	50,638	128,221	119,915	116,714	90,539	64,341
29			6,827	11,395	11,386	8,645	50,701	128,477	119,610	114,812	88,356	64,341
30			6,742	11,674	-	8,684	50,733	128,991	119,488	113,513	86,067	64,302
31			6,617	11,870	-	8,763	-	129,183	-	113,222	83,632	-

Monthly gage height and contents, December 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Dec. 31, 1951	451.31	6,617	-
Jan. 31, 1952	457.82	11,870	+5,253
Feb. 29	457.32	11,386	-484
Mar. 31	454.30	8,763	-2,623
Apr. 30	478.44	50,733	+41,970
May 31	495.01	129,183	+78,450
June 30	493.46	119,488	-9,695
July 31	492.41	113,222	-6,266
Aug. 31	486.81	83,632	-29,590
Sept.30	482.30	64,302	-19,330

† Gage height at 12 p.m.

Brazos River near Whitney, Tex.

Location.--Lat 31°50'30", long. 97°19'30", on right bank 3,000 ft upstream from Iron Creek, 1.0 mile downstream from Coon Creek, 3.4 miles downstream from Whitney Dam, 7.5 miles south of Whitney, Hill County, and at mile 439.

Drainage area.--26,190 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--October 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 417.39 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Nov. 29, 1938, chain gage and Nov. 29, 1938, to Sept. 30, 1948, wire-weight gage at site 8.3 miles upstream at datum 14.67 ft higher.

Average discharge.--14 years, 1,698 cfs.

Extremes.--Maximum discharge during year, 4,720 cfs Apr. 21 (gage height, 9.43 ft); minimum daily, 36 cfs Sept. 25.
1938-52: Maximum discharge, 71,800 cfs May 18, 1949 (gage height, 31.03 ft); minimum observed, 2.0 cfs Oct. 31, Nov. 1, 1939.
Maximum stage known since 1853, about 45 ft May 9, 1922, from information by local residents.

Remarks.--Records good. Flow largely regulated by Whitney Reservoir (see p. 117) and Possum Kingdom Reservoir (see p. 112) on Brazos River, and several smaller reservoirs in Clear Fork basin. Many small diversions above station for irrigation, municipal supply, and oil-field operations. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 12-17, Aug. 28 to Sept. 30)

Oct. 1 to Apr. 21		Apr. 22 to July 17				July 18 to Sept. 30			
4.6	80	4.5	37	5.5	370	4.4	25	6.0	538
4.8	140	4.7	67	6.0	695	4.6	50	6.5	830
5.0	213	4.9	114	6.5	1,080	4.8	87	7.0	1,210
5.5	445	5.2	223	7.0	1,490	5.1	167	7.5	1,710
6.0	770					5.5	315		
6.5	1,140								

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	480	430	221	226	270	134	97	60	46	1,240	930	1,210
2	792	385	194	202	154	130	100	57	45	1,240	930	1,210
3	732	390	194	183	147	130	97	55	44	1,240	965	*1,210
4	554	365	175	179	147	124	94	55	44	1,240	1,040	1,210
5	440	314	172	172	147	130	91	55	44	1,240	*1,160	1,210
6	332	500	213	172	*147	130	88	53	45	1,240	1,160	1,210
7	238	489	251	161	150	127	86	53	44	1,240	1,260	1,210
8	251	390	255	161	154	124	91	53	45	1,240	1,400	1,210
9	*599	318	202	*150	154	121	91	53	44	1,010	1,400	1,020
10	725	282	147	157	154	121	88	47	44	65	1,350	69
11	667	260	*150	230	154	*124	91	46	44	*156	1,350	52
12	500	234	144	179	231	121	108	45	44	425	1,350	49
13	360	209	186	202	150	118	91	45	44	425	1,350	47
14	264	217	234	209	147	114	91	41	44	431	1,350	47
15	205	*226	273	221	150	108	*102	40	44	812	1,300	46
16	161	282	242	221	150	108	97	40	44	1,200	1,300	45
17	134	230	205	205	147	118	94	55	97	971	1,300	*45
18	111	183	179	205	147	130	94	129	*320	*96	1,300	42
19	102	161	183	209	147	108	97	*45	133	89	1,300	40
20	108	140	221	194	147	108	102	42	127	89	1,300	38
21	114	144	238	183	144	108	980	41	78	89	*1,040	38
22	108	226	213	172	147	105	311	41	44	89	*965	38
23	105	304	202	161	150	102	136	438	*351	363	965	37
24	111	282	230	164	150	100	104	94	*1,240	862	1,000	37
25	*134	242	251	168	154	100	98	52	*1,320	882	1,000	36
26	205	234	230	168	144	97	96	50	1,280	888	1,080	41
27	238	213	226	164	144	100	93	49	1,240	895	*1,160	57
28	435	183	242	164	144	*102	88	47	1,240	895	1,160	57
29	494	190	247	164	131	100	67	49	1,240	895	1,210	57
30	415	238	234	150	-	97	57	46	*1,240	930	1,210	57
31	440	-	217	144	-	94	-	46	-	930	1,210	-
Total	10,554	8,261	6,571	5,640	4,502	3,533	3,920	2,022	10,659	23,407	36,795	11,675
Mean	340	275	212	182	155	114	131	65.2	355	755	1,187	389
Ac-ft	20,930	16,390	13,030	11,190	8,930	7,010	7,780	4,010	21,140	46,430	72,980	23,160

Calendar year 1951: Max 9,540 Min 95 Mean 746 Ac-ft 540,000
Water year 1951-52: Max 1,400 Min 36 Mean 349 Ac-ft 253,000

* Discharge measurement made on this day.

Aquilla Creek near Aquilla, Tex.

Location.--Lat 31°51', long. 97°12', on right bank just upstream from pier of bridge on Abbot-Aquilla county road, three-quarters of a mile upstream from Palls Branch and 1 mile southeast of Aquilla, Hill County.

Drainage area.--309 sq mi.

Records available.--December 1924 to August 1925, December 1938 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 450 ft (by barometer). Dec. 9, 1924, to Aug. 31, 1925, chain gage at same site and datum.

Average discharge.--13 years (1939-52), 121 cfs.

Extremes.--Maximum discharge during year, 12,000 cfs Apr. 22 (gage height, 27.97 ft); no flow at times.

1924-25, 1938-52: Maximum gage height, 30.84 ft May 2, 1944 (discharge not determined); no flow at times.

Maximum stage known, 34 ft Aug. 31, 1887, from information by local resident. Flood of Sept. 27, 1936, reached a stage of about 33 ft, from floodmark. Peak discharge of this flood as determined about 9 miles downstream from station, 84,500 cfs, by slope-area determination (drainage area, 370 sq mi).

Remarks.--Records good. No large diversions above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 1 to Feb. 1)

2.2	0	5.0	160
2.3	.1	7.0	390
2.4	.5	9.0	680
2.5	1.2	12.0	1,220
2.6	2.4	17.0	2,470
2.8	6.4	22.0	4,250
3.0	13	25.0	5,700
3.2	21	26.0	6,400
3.5	38	27.0	8,500
4.0	72		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	4.7	0.4	0.3	0.3	0.5	0.6	7.8	17.0	0.5		
2	0	1.1	.4	.3	161	.5	.4	26	14	.3		
3	0	.5	.3	.4	5.6	57	.4	19	13	.2		
4	0	.3	.4	.5	1.6	13	.4	11	12	.2		
5	0	.1	.4	.6	1.0	2.9	.3	6.2	9.9	.1	(*)	
6	0	.1	.3	.4	.8	1.6	.2	4.1	56	.1		
7	0	0	.3	.3	*.5	.8	.4	3.2	21	.1		
8	0	0	.3	.3	.4	.5	.3	2.7	13	0		
9	0	0	.3	.3	.3	.3	.3	2.3	10	0		
10	*0	0	.3	*.2	.4	.8	1.0	1.7	7.2	0		
11	0	0	.2	.2	11	1.2	2.3	1.4	5.5	1.2		
12	0	0	**.2	.3	93	*.9	166	1.6	4.1	.5		
13	0	0	.2	.3	63	.4	23	1.1	2.9	.3		
14	0	0	.2	.3	3.2	.3	6.4	1.4	2.2	.1		
15	0	0	.3	.3	1.4	.2	2.6	.8	1.7	0		
16	0	*0	.3	.3	.8	.2	*1.3	.6	1.4	0		
17	0	0	.3	.3	.7	1.8	.7	3.2	1.1	0		
18	0	0	.4	.3	.8	98	.6	866	1.0	**20		(*)
19	0	0	.4	.3	.6	9.1	.5	*484	*.8	8.0		
20	0	0	.3	.3	.4	2.9	1.7	44	.8	2.2		
21	0	.1	.3	.3	.8	1.3	1,170	18	.6	.9	(*)	
22	0	.1	.3	.3	11	.8	7,630	16	.6	.4		
23	0	.2	.3	.3	24	.4	2,220	2,020	.4	.3		
24	0	.4	.4	.3	3.6	.4	92	*5,720	.3	.1		
25	0	.6	.4	.3	3.4	.5	41	*466	.3	0		
26	0	.6	.3	.3	5.7	.2	24	62	.1	0		
27	0	1.0	.3	.3	3.2	.3	18	39	.1	0	(*)	
28	5.2	1.0	.3	.1	1.8	1.1	14	82	.1	0		
29	9.2	.9	.3	.3	.8	2.2	10	75	.1	0		
30	1.6	.5	.3	.3	-	1.2	8.6	35	.5	0		
31	24	-	.3	.3	-	.8	-	22	-	0		-
Total	40.0	12.2	9.7	9.6	401.1	202.1	11,437.0	10,043.1	197.7	35.5	0	0
Mean	1.29	0.41	0.31	0.31	13.8	6.52	381	324	6.59	1.15	0	0
Ac-ft	79	24	19	19	796	401	22,680	19,920	392	70	0	0

Calendar year 1951: Max 7,130 Min 0 Mean 47.1 Ac-ft 34,130
Water year 1951-52: Max 7,630 Min 0 Mean 61.2 Ac-ft 44,400

Peak discharge (base, 7,000 cfs).--Apr. 22 (5 a.m.) 12,000 cfs (27.97 ft); May 24 (2 a.m.) 7,550 cfs (26.61 ft).

* Discharge measurement made on this day.

** Field estimate made on this day.

North Bosque River near Clifton, Tex.

Location.--Lat 31°48', long. 97°35', on right bank 730 ft upstream from Gulf, Colorado & Santa Fe Railway bridge and 1.4 miles northwest of Clifton, Bosque County.

Drainage area.--974 sq mi.

Records available.--November 1923 to September 1952.

Gage.--Staff gage read twice daily and oftener during floods. Datum of gage is 622.67 ft above mean sea level, datum of 1929.

Average discharge.--29 years, 207 cfs.

Extremes.--Maximum discharge observed during year, 35,400 cfs May 24 (gage height, 21.60 ft); no flow at times.
1923-52: Maximum discharge, 39,000 cfs Apr. 22, 1945 (gage height, 23.2 ft, from floodmark); no flow at times.
Maximum stage since 1887, 25 ft May 9, 1922, from information by local resident.

Remarks.--Records good.

Revisions (water years).--W 788: 1924-33. W 1058: 1945(M).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.2	0	1.2	166
.3	.2	1.5	354
.4	.9	2.0	780
.5	3.0	3.0	2,000
.6	10	4.0	3,610
.7	24	6.0	7,690
.8	43	9.0	13,400
1.0	98	12.0	18,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.4	1.3	1.1	1.1	0.8	56	48	1.3	0.1	
2		0	1.4	1.4	1.6	1.3	.7	20	35	1.3	0	
3		0	1.3	1.4	1.6	1.3	.6	379	28	1.3	0	
4		2.8	1.4	1.3	1.3	1.3	1.1	80	23	1.3	0	
5		2.0	1.3	1.1	1.1	1.3	1.1	41	341	2.8	**.1	
6		1.6	1.1	1.3	*1.1	1.3	.8	32	269	2.3	.1	
7		1.6	.8	1.4	.9	.9	.7	18	30	1.8	0	
8	(*)	1.3	.7	1.4	.8	.8	.6	13	23	9.2	0	
9		.9	.7	*1.4	.8	.7	.4	8.3	20	7.5	0	(*)
10		.9	.6	1.1	.8	.7	.4	5.2	14	5.2	0	
11		.8	*.6	1.1	.8	*.7	6.0	4.7	11	3.6	0	
12		.7	.7	.8	.8	.6	117	4.7	11	2.5	0	
13		.8	.7	.6	.8	.6	48	4.7	10	1.8	0	
14		.8	.6	.6	.9	.5	8.3	4.7	9.2	1.6	0	
15		*.7	.6	.6	.9	.4	*3.6	4.7	7.5	1.1	0	
16		.6	.6	.6	1.6	.3	2.3	4.7	7.5	.8	0	
17		.6	.6	.7	1.8	.4	1.8	4.7	6.6	*.8	0	(*)
18		.6	.6	.7	1.4	1.4	1.6	274	*4.7	.9	0	
19		.5	.8	.8	1.3	1.1	1.4	107	3.6	.9	0	
20		.5	.8	.8	1.3	1.1	2.0	*41	2.8	.9	*0	
21		.4	.8	.7	1.1	.9	1,880	28	2.8	.8	0	
22		.3	.8	.7	1.1	.8	4,810	23	2.8	.6	0	
23		.4	.8	.7	1.1	.8	614	377	2.5	.5	0	
24		.6	.9	.8	1.1	.8	159	*17,900	2.3	.4	0	
25		.8	.9	.8	1.3	.8	86	*780	1.4	.3	0	
26		1.1	.9	.8	1.4	.8	58	218	1.3	.3	0	
27		.8	.8	.9	1.6	1.1	37	117	1.3	.3	0	
28		1.3	.8	.9	1.1	1.4	34	83	1.3	.3	0	
29		1.6	1.1	1.1	1.1	1.3	30	63	1.3	.2	0	
30		1.6	1.3	1.3	-	.9	20	63	1.3	.1	0	
31		-	1.1	1.3	-	.8	-	56	-	.1	0	-
Total	0	26.6	27.5	30.4	33.6	28.2	7,927.2	20,815.4	923.2	52.8	0.3	0
Mean	0	0.89	0.89	0.98	1.16	0.91	264	671	30.8	1.70	0.01	0
Ac-ft	0	53	55	60	67	56	15,720	41,290	1,830	105	0.6	0

Calendar year 1951: Max 1,450 Min 0 Mean 22.4 Ac-ft 16,200
Water year 1951-52: Max 17,900 Min 0 Mean 81.6 Ac-ft 59,240

Peak discharge (base, 8,300 cfs).--Apr. 21 (11:30 p.m.) 11,900 cfs (8.10 ft); May 24 (6:15 p.m.) 35,400 cfs (21.60 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.

Brazos River at Waco, Tex.

Location.--Lat 31°33'40", long. 97°07'45", on right bank at downstream side of pier of Washington Avenue Bridge in Waco, McLennan County, 2½ miles downstream from Bosque River and at mile 404.

Drainage area.--28,500 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--September 1898 to September 1952 (January 1912 to September 1914, monthly records only, in Water-Supply Paper 850). Gage-height records collected in this vicinity since 1900 are contained in reports of United States Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 356.80 ft above mean sea level, datum of 1929, supplementary adjustment of 1942. Sept. 14, 1898, to Mar. 28, 1918, May 6, 1922, to Feb. 12, 1934, staff or chain gages at several sites within about 350 ft of present site and at same datum. Mar. 28, 1918, to May 5, 1922, Feb. 13, 1925, to Sept. 29, 1934, water-stage recorder at site about 300 ft downstream at same datum.

Average discharge.--54 years, 2,593 cfs.

Extremes.--Maximum discharge during year, 25,500 cfs May 25 (gage height, 18.13 ft); minimum, 42 cfs Sept. 27, 28.

1898-1952: Maximum discharge, 246,000 cfs Sept. 27, 1936 (gage height, 40.90 ft, levee on left bank was overtopped and broken by flood); minimum discharge for periods of daily records, 1898-1911, 1914-52, no flow Aug. 20, 21, 1918, and probably for several days in August 1923.

Maximum stage, 1854-97, 34.2 ft May 28, 1885. A stage of 39.7 ft was reached Dec. 3, 1913, when levee on left bank was broken by flood, from information by United States Weather Bureau.

Remarks.--Records good. Flow largely regulated by Possum Kingdom and Whitney Reservoirs on Brazos River (see pp. 112,117), and several small reservoirs in Clear Fork basin, and Lake Waco on Bosque River near Waco (capacity, 22,000 acre-ft). A siltation survey of Lake Waco by the Soil Conservation Service of the United States Department of Agriculture in December 1947 indicates a 44.07 percent capacity loss from siltation since storage began in April 1930. Many small diversions above station for municipal supply, irrigation, and oil-field operation do not appreciably affect flow.

Revisions (water years).--W 850: (monthly and yearly summaries only, 1899-1905, 1907-10).

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 21, 22, May 23 to June 21, June 25, 26, July 24 to Sept. 11, Sept. 19-30)

Oct. 1 to Apr. 22				Apr. 23 to Sept. 30			
3.7	75	7.0	2,340	3.8	40	7.0	1,860
4.0	155	9.0	4,400	4.0	88	8.0	2,950
4.3	260	11.0	6,970	4.3	168	10.0	5,280
4.6	400	13.0	9,950	4.6	258	12.0	7,900
5.0	630	15.0	14,600	5.0	400	14.0	11,800
6.0	1,400			6.0	950	17.0	21,200

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	318	516	252	232	149	149	98	217	135	1,160	918	1,190
2	518	510	252	236	288	149	90	202	130	1,160	918	1,170
3	872	450	245	240	371	186	98	188	130	1,150	894	1,170
4	781	450	220	210	173	236	108	208	124	1,230	910	*1,170
5	606	428	206	188	161	158	90	217	124	1,200	990	1,160
6	477	341	188	188	*167	143	88	199	907	1,170	*1,090	1,150
7	360	558	220	185	158	143	82	165	160	1,160	1,090	1,140
8	278	582	260	176	158	137	78	146	119	1,150	1,170	1,120
9	*260	466	264	170	167	134	135	143	98	1,140	1,270	1,120
10	662	370	220	*164	167	225	185	132	93	*822	1,270	892
11	809	314	176	149	173	*152	105	a85	91	194	1,260	220
12	747	292	*152	240	228	137	416	a72	96	119	1,250	106
13	582	269	152	210	553	131	482	a72	91	404	1,250	78
14	422	232	192	210	293	125	149	a78	70	419	1,240	65
15	310	236	224	240	173	120	*112	a67	65	419	1,240	53
16	240	*232	282	232	179	118	110	a67	a62	867	1,240	44
17	199	282	274	236	167	*115	105	a72	a55	1,200	1,240	92
18	167	269	236	224	164	174	98	1,700	a49	866	1,230	*141
19	140	346	199	210	167	286	105	1,610	*256	214	1,230	88
20	131	188	192	224	158	131	134	*427	188	140	1,220	65
21	134	167	216	213	149	118	809	157	165	111	*1,220	58
22	143	158	248	192	152	108	*13,100	111	165	*91	950	53
23	143	210	244	179	232	102	*10,300	1,280	104	80	870	51
24	125	314	210	161	199	102	*1,680	*21,000	*338	299	878	49
25	*122	314	232	170	260	102	450	*14,300	1,470	934	894	47
26	137	300	260	176	236	102	351	*575	1,520	942	886	47
27	210	274	240	179	170	110	306	306	1,340	942	1,050	44
28	256	240	240	167	155	120	282	757	1,260	942	1,140	53
29	498	206	244	164	152	110	258	847	1,200	934	1,170	83
30	576	199	260	167	-	102	229	226	*1,160	934	1,200	83
31	482	-	252	158	-	102	-	162	-	926	1,200	-
Total	11,705	9,713	7,052	6,090	5,919	4,327	30,633	45,788	11,765	23,319	34,378	12,802
Mean	378	324	227	196	204	140	1,021	1,477	392	752	1,109	427
Ac-ft	23,220	19,270	13,990	12,080	11,740	8,580	60,760	90,820	23,340	46,250	68,190	25,390

Calendar year 1951: Max 15,400 Min 110 Mean 844 Ac-ft 610,700
Water year 1951-52: Max 21,000 Min 44 Mean 556 Ac-ft 403,600

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of estimated gage heights.

Leon River near Hasse, Tex.

Location (revised).--Lat 31°57', long. 98°28', on left bank at downstream side of bridge on U. S. Highways 67 and 377, 800 ft upstream from Gulf, Colorado & Santa Fe Railway bridge, 0.4 mile upstream from Walnut Creek, 2.1 miles northeast of Hasse, Comanche County, and 2.2 miles downstream from Copperas Creek.

Drainage area.--1,276 sq mi.

Records available.--January 1939 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,115.01 ft (revised) above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Average discharge.--13 years, 171 cfs.

Extremes.--Maximum discharge during year, 50,000 cfs May 24 (gage height, 21.49 ft); no flow at times.

1939-52: Maximum discharge, that of May 24, 1952; no flow at times.

Maximum stage known since at least 1858, about 27 ft (revised) in May 1908, from information by local resident. At location about 2½ miles upstream, flood of May 1908 was 9.1 ft higher than that of May 1952, from floodmarks, pointed out by local resident.

Remarks.--Records good except those above 15,000 cfs, which are poor. No large diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used May 20-23)

3.0	0	6.0	516
3.1	1.4	9.0	1,010
3.2	4.9	11.0	1,460
3.3	10	12.0	1,940
3.4	18	13.0	3,000
3.6	38	14.0	4,700
3.8	67	15.0	7,000
4.1	130	17.0	14,300
4.5	230	19.0	26,000
5.0	344		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	42	0	0.2	0.8	0.6	1.7	4.1	36	0		0
2	0	17	0	.3	.8	.8	1.4	9.3	29	0		0
3	0	7.9	0	.3	.6	.8	1.2	73	24	0		0
4	0	5.4	0	.1	.6	.8	1.2	34	20	0		0
5	0	4.9	0	0	.6	.6	.8	21	18	0		0
6	0	4.1	0	.2	.6	.8	.8	9.0	71	.2		0
7	0	3.7	0	.3	.6	.4	.6	4.1	60	1.0		0
8	0	2.9	0	.2	.4	.4	1.0	2.3	22	.1		0
9	0	2.3	0	.2	.4	.3	1.4	1.7	15	0		0
10	0	2.3	0	**.1	.3	.8	1.2	1.0	13	0		0
11	0	2.0	0	0	.4	.8	1.4	.3	11	0		0
12	0	1.0	0	0	1.0	*.8	2.6	0	9.6	0		0
13	0	.3	0	0	.8	.8	18	0	7.9	0		0
14	0	0	0	0	.8	.8	16	0	6.4	0		0
15	0	0	0	0	*.7	.8	7.9	0	4.9	0		0
16	0	0	0	0	.6	.6	*3.7	0	3.7	0		0
17	0	0	0	0	.6	.8	2.0	0	3.3	0		0
18	0	0	0	0	.6	1.0	1.2	449	2.3	0		51
19	0	0	0	0	.8	3.7	1.4	606	2.3	0		130
20	0	0	0	0	.8	2.3	2.9	408	2.0	0		34
21	0	0	0	0	.6	1.4	25	*74	1.4	0		6.6
22	0	0	0	.1	.6	1.2	156	33	1.0	0		1.0
23	28	0	0	.3	.8	.8	291	5,880	.6	0		0
24	*14	0	0	.4	.8	.6	174	*23,100	*.4	0		0
25	0	0	0	.3	.8	.6	52	*2,170	.3	0		0
26	0	0	0	.4	1.0	.8	23	*630	.2	0	(*)	0
27	0	0	0	.4	1.2	1.2	12	*324	.1	0		0
28	0	*0	0	.4	.6	2.3	7.9	132	0	0		0
29	0	0	0	.6	.6	2.3	5.4	89	0	0		0
30	110	0	0	.8	-	2.3	3.7	60	0	*0		*0
31	191	-	.1	.8	-	2.0	-	45	-	0		-
Total	343	95.8	0.1	6.4	19.8	34.2	818.4	34,159.8	365.4	1.3	0	222.6
Mean	11.1	3.19	0.003	0.21	0.68	1.10	27.3	1,102	12.2	0.04	0	7.42
Ac-ft	680	190	0.2	13	39	68	1,620	67,750	725	2.6	0	442

Calendar year 1951: Max 1,380 Min 0 Mean 30.9 Ac-ft 22,370
Water year 1951-52: Max 23,100 Min 0 Mean 98.5 Ac-ft 71,530

Peak discharge (base, 2,800 cfs).--May 24 (3 a.m.) 50,000 cfs (21.49 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.

Leon River at Gatesville, Tex.

Location.--Lat 31°26'05", long. 97°45'35", on right bank just downstream from pier of bridge on U. S. Highway 84, in Gatesville, Coryell County, 0.1 mile below Dodds Creek and 5.3 miles upstream from Cottonwood Creek.

Drainage area.--2,313 sq mi.

Records available.--October 1950 to September 1952.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 723.85 ft above mean sea level, datum of 1929. Prior to Feb. 8, 1951, wire-weight gage, at same site and datum.

Extremes.--Maximum discharge during year, 7,230 cfs May 28 (gage height, 24.79 ft); no flow Oct. 3-24.
1950-52: Maximum discharge, that of May 28, 1952; no flow at times.
Maximum stage known since at least 1854, 35 ft in May 1908; flood of December 1913 (stage unknown) was the second highest, from information by local residents.

Remarks.--Records good. Small diversion above station for irrigation, municipal supply, and oil-field operation.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 25 to May 17, May 29, 30, Sept. 20-30)

2.6	0	4.0	114
2.7	.2	4.5	200
2.8	.8	5.0	304
2.9	2.3	6.0	550
3.0	5.0	8.0	1,090
3.1	9.8	12.0	2,240
3.2	17	16.0	3,460
3.4	35	20.0	4,800
3.7	72	24.0	6,460

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.1	0.2	0.4	0.4	0.3	0.4	70	200	8.7	0.8	0.2
2	.1	.1	.2	.4	.5	.4	.5	64	157	7.6	.6	.2
3	0	.1	.2	.5	.4	.6	.5	147	126	7.6	.6	.2
4	0	.1	.1	.5	.2	.5	.5	57	106	7.6	.5	.2
5	0	.1	.1	.6	.2	.4	.4	54	111	7.6	.4	.2
6	0	.1	.1	.5	.2	.4	.6	28	90	5.8	.4	.2
7	0	.1	.1	.5	.2	.3	.5	24	76	6.6	.4	.2
8	0	.2	.1	.5	.2	.3	.6	*37	67	730	.3	.2
9	0	.2	.1	.5	.3	.4	.6	31	60	765	.3	.2
10	0	.2	.1	*.5	.3	.6	.6	19	58	84	.3	.3
11	0	.2	.2	.5	.3	.5	.6	15	90	25	.2	.3
12	0	.2	.2	.5	.3	.4	2.8	12	66	15	.2	.2
13	0	.2	.2	.6	.3	.3	.6	8.7	a51	9.8	.2	.2
14	0	.2	.2	.6	**.3	.3	.4	6.6	a42	7.6	.2	.2
15	0	.2	.1	.6	.4	.3	.3	5.4	a37	6.2	.2	.2
16	0	.2	.1	.6	.4	.3	.2	4.7	a34	5.0	.2	.2
17	0	.2	.2	.6	.4	.5	.3	52	a29	4.4	.2	.2
18	0	.3	.2	.6	.4	.7	.4	1,740	a26	4.1	.2	.5
19	0	.3	.2	.6	.4	.6	.6	553	a23	4.1	.2	.3
20	0	.4	.2	.6	.4	.4	1.2	222	*23	4.1	.2	.2
21	0	.4	.2	.6	.4	.4	250	432	21	3.5	.2	.2
22	0	.4	.2	.6	.8	.3	1,220	498	19	3.3	.2	.2
23	*0	.4	.2	.5	.5	.3	*1,830	360	17	2.8	.2	.2
24	0	.4	.2	.5	.4	.3	*550	2,500	15	2.5	.2	.2
25	.1	.4	.2	.5	.6	.3	266	*2,100	13	*1.9	.2	.2
26	.1	*.4	.2	.5	.4	.4	252	*2,990	12	1.8	.2	.2
27	.1	.4	.3	.5	.3	*.7	206	*5,170	10	1.8	**.2	.2
28	.1	.3	.3	.5	.3	.6	108	*6,220	9.8	1.4	.2	.2
29	.1	.2	.4	.4	.3	.5	66	*1,080	9.2	1.4	.2	.2
30	.1	.2	.4	.3	-	.4	43	410	8.7	1.3	.2	.2
31	.1	-	.4	.3	-	.4	-	262	-	.9	.2	-
Total	0.9	7.2	6.1	15.9	10.5	13.1	4,803.6	25,172.4	1,606.7	1,739.5	8.8	6.6
Mean	0.03	0.24	0.20	0.51	0.36	0.42	160	812	53.6	56.1	0.28	0.22
Ac-ft	1.8	14	12	32	21	26	9,530	49,930	3,190	3,450	17	13

Calendar year 1951: Max 1,380 Min 0 Mean 42.1 Ac-ft 30,480
Water year 1951-52: Max 6,220 Min 0 Mean 91.2 Ac-ft 66,240

* Discharge measurement made on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

Leon River near Belton, Tex.

Location.--Lat 31°04'15", long. 97°26'30", on left bank 1,400 ft upstream from bridge on U. S. Highway 81, 2 miles east of Belton, Bell County, and about 2 miles upstream from Nolan Creek.

Drainage area.--3,547 sq mi.

Records available.--October 1923 to September 1952.

Gage.--Water-stage recorder above concrete dam. Datum of gage is 476.89 ft above mean sea level, datum of 1929. Prior to May 21, 1931, staff gage at same site and datum.

Average discharge.--29 years, 671 cfs.

Extremes.--Maximum discharge during year, 9,290 cfs Apr. 22 (gage height, 8.53 ft); no flow at times.
1923-52: Maximum discharge, 70,600 cfs Apr. 22, 1945 (gage height, 24.41 ft), from rating curve extended above 45,000 cfs; no flow at times.
Maximum stage known, 25 ft in December 1913; flood of September 1921 reached a stage of 21 ft, from information by local residents.

Remarks.--Records good except those for period June 28 to July 12, which are fair. Small diversion above station for irrigation, municipal supply, and oil-field operation. City of Temple diverts an average of about 5 cfs from gage pool for municipal use.

Rating table, water year 1951-52, except for period when control was raised with sand bags (gage height, in feet, and discharge, in cubic feet per second
(Shifting-control method used July 10 to Aug. 5)

1.6	0	2.6	52
1.7	.2	2.7	92
1.8	.4	2.8	141
1.9	.8	3.0	262
2.0	1.3	3.3	478
2.1	1.8	3.6	727
2.2	2.4	4.0	1,150
2.3	3.2	5.0	2,400
2.4	6.5	6.0	3,870
2.5	23	7.0	5,740

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.5					0	0.4	121	566	14		
2	3.6					0	**.3	97	410	13		
3	2.7					0	.3	566	323	13		
4	1.8					0	.3	187	256	12		
5	1.1					0	.3	153	212	10		
6	.5					0	.2	97	1,100	10		
7	.1					0	.2	60	736	30		
8	0					0	.2	56	269	35		
9	0					0	.3	39	176	40		
10	0			(*)		211	1.1	28	131	686		
11	0					77	3.2	26	116	542		
12	0					13	297	28	102	56		
13	0				(*)	17	160	23	97	3.3		
14	0					12	64	17	107	2.1		
15	0					5.6	48	10	88	1.6		
16	0					3.3	23	10	68	1.4		
17	0					2.9	13	9.0	60	1.4		
18	0					3.3	9.0	2,860	*52	1.8		
19	*0					4.3	4.8	2,010	42	1.6		
20	0					3.4	12	1,440	39	1.4		
21	0					2.9	885	624	33	1.2		
22	0					2.2	4,640	303	30	.9		
23	0					1.6	2,980	518	26	.9		
24	0					1.3	1,820	3,340	23	.7		
25	0					.9	1,430	2,460	19	**.4		
26	0	(*)				.6	641	2,340	17	.3		
27	0					.4	330	2,420	17	.1	(*)	
28	0					.4	269	*3,710	16	.1		
29	0					.4	269	4,190	16	0		
30	0					.4	*164	4,620	15	0		
31	0	-			-	.5	-	1,650	-	0		
Total	16.3	0	0	0	0	364.4	14,065.6	34,012.0	5,162	1,480.2	0	0
Mean	0.53	0	0	0	0	11.8	469	1,097	172	47.7	0	0
Ac-ft	32	0	0	0	0	723	27,900	67,460	10,240	2,940	0	0

Calendar year 1951: Max 2,000 Min 0 Mean 70.7 Ac-ft 51,190
Water year 1951-52: Max 4,640 Min 0 Mean 151 Ac-ft 109,300

Peak discharge (base, 11,000 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--Sand bags on control and stage-discharge relation indefinite June 28 to July 9; discharge estimated on basis of discharge measurement, weather records, and records for stations on Leon River at Gatesville and Little River near Cameron.

Lampasas River at Youngsport, Tex.

Location.--Lat 30°57', long. 97°43', on left bank 500 ft upstream from county road bridge and half a mile southeast of Youngsport, Bell County.

Drainage area.--1,242 sq mi.

Records available.--February 1924 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is about 640 ft (from topographic map). Prior to Mar. 14, 1931, combined inclined and staff gage at same site and datum.

Average discharge.--28 years, 284 cfs.

Extremes.--Maximum discharge during year, 19,000 cfs Apr. 22 (gage height, 16.84 ft); no flow Aug. 15 to Sept. 11.

1924-52: Maximum discharge, 53,200 cfs Sept. 28, 1936 (gage height, 33.5 ft, from floodmarks), from rating curve extended above 40,000 cfs; no flow at times in 1925, 1934, 1950-52.

Flood of September 1873 reached a stage of 44.2 ft and that of Dec. 2, 1913, reached a stage of 33.6 ft, from information by local residents.

Remarks.-- Records good. Small diversions above station for municipal use.

Revisions (water years).--W 788: 1926, 1928, 1931.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 15 to Mar. 10)

2.5	0	3.5	218
2.6	1.1	4.0	484
2.7	5.0	4.5	845
2.8	11	5.0	1,330
2.9	21	6.0	2,620
3.0	42	7.0	4,180
3.2	102	8.0	6,140

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.4	6.6	9.0	7.7	7.2	6.6	9.7	*63	146	19	1.8	0
2	7.2	5.0	8.4	7.7	7.2	6.6	*8.4	185	116	15	1.4	0
3	5.5	5.0	8.4	7.7	7.2	7.2	6.6	274	109	13	1.4	0
4	4.1	5.5	8.4	7.7	6.1	7.2	7.2	209	127	11	1.1	0
5	4.1	7.2	8.4	7.7	6.1	6.6	7.7	83	165	9.7	.8	0
6	3.7	6.6	8.4	7.7	5.5	6.6	7.2	48	1,030	9.7	.5	0
7	2.5	6.1	7.7	7.7	5.0	6.6	6.1	32	214	8.4	.4	0
8	2.1	6.1	7.2	7.7	5.5	6.1	6.6	25	116	7.7	2.5	0
9	1.8	6.6	7.2	7.7	5.5	6.1	8.4	20	83	652	3.7	0
10	2.1	6.6	7.2	*7.2	5.5	209	10	20	62	124	2.5	0
11	2.1	7.2	7.2	7.2	6.1	82	13	17	56	56	1.4	0
12	2.1	7.7	7.2	7.2	6.6	19	23	15	48	30	.7	6.9
13	2.5	7.7	7.7	7.2	7.2	13	26	14	42	21	.3	17
14	2.5	8.4	8.4	7.2	*7.2	9.0	23	13	35	16	.1	15
15	2.8	8.4	8.4	7.2	6.6	8.4	15	12	30	13	0	9.7
16	1.4	8.4	8.4	7.2	6.6	7.7	11	11	26	10	0	6.1
17	1.1	8.4	8.4	7.2	6.6	7.2	7.2	11	25	9.7	0	5.0
18	1.8	8.4	9.0	7.2	6.6	9.0	9.7	3,640	23	10	0	5.0
19	2.1	9.0	9.0	7.2	7.2	7.7	10	655	*20	9.0	0	4.1
20	2.5	9.0	9.0	7.2	7.2	8.4	12	214	19	8.4	0	3.7
21	2.5	9.7	8.4	7.2	6.6	8.4	2,890	102	17	7.7	0	4.6
22	2.5	9.7	9.0	6.1	6.6	7.7	4,630	62	15	7.2	0	5.5
23	*5.5	9.7	8.4	6.1	6.6	6.6	995	57	14	6.6	0	4.6
24	4.1	9.7	8.4	6.6	7.2	6.1	226	5,150	13	6.1	0	3.7
25	4.1	9.7	8.4	7.2	12	6.1	109	1,710	12	5.5	0	3.2
26	5.0	10	8.4	7.2	9.7	6.6	67	281	12	4.6	0	2.8
27	6.1	12	8.4	7.2	9.0	7.2	50	1,030	10	4.1	*0	3.2
28	5.5	9.7	8.4	7.2	7.7	9.7	40	3,260	11	*3.7	0	3.2
29	6.1	9.0	8.4	7.2	7.2	10	32	647	11	3.2	0	2.8
30	6.6	*9.0	8.4	7.2	-	10	28	291	14	2.1	0	2.8
31	6.1	-	7.7	7.2	-	12	-	193	-	1.8	0	-
Total	116.5	242.1	255.3	224.9	201.3	530.4	9,294.8	18,344	2,621	1,105.2	18.6	108.9
Mean	3.76	8.07	8.24	7.25	6.94	17.1	310	592	87.4	35.7	0.60	3.63
Ac-ft	231	480	506	446	399	1,050	18,440	36,380	5,200	2,190	37	216

Calendar year 1951: Max 1,030 Min 0 Mean 19.0 Ac-ft 13,760
Water year 1951-52: Max 5,150 Min 0 Mean 90.3 Ac-ft 65,580

Peak discharge (base, 8,300 cfs).--Apr. 22 (1:30 a.m.) 19,000 cfs (16.84 ft); May 18 (2:30 p.m.) 11,500 cfs (11.17 ft); May 24 (12:30 p.m.) 12,000 cfs (11.54 ft).

* Discharge measurement made on this day.

San Gabriel River at Georgetown, Tex.

Location.--Lat 30°39'10", long. 97°39'20", on left bank 100 ft downstream from Missouri-Kansas-Texas Railroad bridge, 1¼ miles downstream from confluence of North and South Forks, and 1¾ miles northeast of Georgetown, Williamson County.

Drainage area.--415 sq mi.

Records available.--February 1924 to August 1925, July 1934 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 643.71 ft above mean sea level, datum of 1929. Feb. 27, 1924, to Aug. 31, 1925, staff gage 1 mile upstream at different datum.

Average discharge.--18 years (1934-52), 144 cfs.

Extremes.--Maximum discharge during year, 11,000 cfs May 28 (gage height, 9.85 ft); minimum, 0.7 cfs Apr. 8-9.

1924-25, 1934-52: Maximum discharge, 37,500 cfs June 6, 1944 (gage height, 19.49 ft), from rating curve extended above 24,000 cfs; minimum, 0.2 cfs July 31, Aug. 1, 29, 30, 1942.

Maximum stage known, 39.36 ft in September 1921, present site and datum (discharge, 160,000 cfs by slope-area determination of peak flow), from information by Missouri-Kansas-Texas Railroad Co.

Remarks.--Records good. Several small diversions have some effect on low flow which is also regulated at times by gates in recreation dam 3,000 ft upstream.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.8	0.6	2.5	155
.9	2.1	3.0	294
1.0	5.7	3.5	544
1.1	11	4.0	930
1.3	25	4.5	1,440
1.6	49	5.0	2,100
2.0	88	6.0	3,640

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.1	6.2	4.1	3.7	4.1	11	5.7	25	106	49	3.4	1.7
2	3.7	5.3	4.1	3.7	4.5	11	4.9	43	59	32	3.4	1.7
3	3.7	4.9	4.1	3.7	4.9	12	*4.5	47	47	23	3.1	1.7
4	3.7	4.5	3.7	4.1	5.3	11	4.1	47	55	20	3.1	1.7
5	3.4	4.5	3.7	4.1	5.3	9.4	3.7	37	58	17	3.1	1.7
6	3.4	4.1	3.4	4.1	5.3	7.2	3.7	10	66	18	3.1	1.7
7	3.4	4.1	3.4	4.1	4.9	5.3	3.7	18	69	13	3.1	1.7
8	3.1	3.7	3.4	4.1	4.9	4.9	2.1	17	66	12	2.7	1.9
9	3.1	3.7	3.4	3.7	4.1	4.5	.9	*16	58	11	2.7	1.9
10	2.7	3.4	3.1	3.1	3.1	144	2.1	22	51	11	2.7	2.7
11	2.7	3.7	3.4	*2.7	3.1	94	3.9	14	48	10	2.7	3.1
12	2.7	4.1	3.4	2.7	3.4	31	35	13	47	9.4	2.4	3.1
13	2.7	4.1	3.7	2.7	6.7	17	35	13	43	8.8	2.4	3.1
14	2.7	4.1	3.7	2.7	12	13	22	11	39	7.7	2.1	3.1
15	2.7	4.1	3.4	2.7	13	11	19	11	36	6.7	2.1	3.1
16	2.4	2.7	3.4	3.1	13	10	14	11	32	6.2	2.1	3.1
17	*2.4	2.4	3.1	3.1	11	10	12	11	30	6.2	2.1	3.1
18	2.1	2.4	3.4	3.1	8.2	13	12	610	*28	6.7	2.1	3.1
19	1.9	2.4	3.4	2.7	4.9	8.8	11	239	27	7.2	2.1	3.1
20	1.9	2.4	3.4	2.7	4.5	7.7	36	63	25	7.7	2.1	3.1
21	1.9	2.7	3.4	19	*4.1	6.7	404	40	23	8.2	2.1	3.1
22	1.9	3.1	3.4	5.7	7.7	5.3	2,440	31	22	7.7	2.1	3.1
23	3.1	3.1	3.4	4.9	11	4.1	934	26	20	6.7	1.9	3.1
24	11	a3.2	3.4	4.5	11	4.1	128	1,150	19	6.2	1.9	3.1
25	12	a3.3	3.4	4.1	20	4.1	69	306	17	5.3	1.9	3.1
26	11	a3.5	3.7	4.1	47	4.9	50	70	15	4.9	1.9	3.1
27	9.4	a3.6	3.7	4.1	27	5.3	47	190	15	4.1	1.9	3.1
28	8.8	a3.8	3.7	4.1	16	8.8	33	3,360	14	*3.7	*1.9	2.7
29	8.8	a3.9	3.7	3.7	13	7.2	29	436	14	3.7	1.7	2.7
30	7.7	*4.1	3.7	3.7	-	7.2	28	200	55	3.7	1.7	2.7
31	6.7	-	3.7	3.7	-	6.7	-	138	-	3.7	1.7	-
Total	140.8	111.1	109.9	128.2	283.0	500.2	4,397.3	7,225	1,204	340.5	73.3	79.2
Mean	4.54	3.70	3.55	4.14	9.76	16.1	147	233	40.1	11.0	2.36	2.64
Ac-ft	279	220	218	254	561	992	8,720	14,330	2,390	675	145	157

Calendar year 1951: Max 726 Min 0.5 Mean 7.76 Ac-ft 5,620
Water year 1951-52: Max 3,360 Min 0.9 Mean 39.9 Ac-ft 28,940

Peak discharge (base, 3,600 cfs).--Apr. 22 (9 p.m.) 10,300 cfs (9.46 ft); May 24 (7 p.m.) 5,130 cfs (6.92 ft); May 28 (1:30 p.m.) 11,000 cfs (9.85 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge interpolated.

Little River at Cameron, Tex.

Location.--Lat 30°50', long. 96°57', on right bank at site of old McCowan Bridge, 2,020 ft upstream from bridge on U. S. Highway 77, 1 mile upstream from Gulf, Colorado & Santa Fe Railway bridge, and 2 miles southeast of Cameron, Milam County.

Drainage area.--7,034 sq mi.

Records available.--November 1916 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 281.89 ft above mean sea level (levels by Corps of Engineers). Nov. 2, 1916, to Sept, 30, 1922, staff gage 1¾ miles upstream at different datum. Oct. 1, 1922, to Apr. 8, 1926, chain gage at McCowan Bridge 30 ft downstream, at same datum. Apr. 9, 1926, to Oct. 9, 1933, chain gage at bridge on U. S. Highway 77 (State Highway 36), 2,020 ft downstream at datum 1.58 ft lower.

Average discharge.--35 years (1917-52), 1,831 cfs.

Extremes.--Maximum discharge during year, 13,200 cfs Apr. 24 (gage height, 28.53 ft); minimum, 0.8 cfs Sept. 2, 3.

1916-52: Maximum discharge, 647,000 cfs Sept. 10, 1921 (gage height, 53.2 ft, present datum, from floodmark), by slope-area method; minimum, 0.8 cfs Aug. 27, 1951, Sept. 2, 3, 1952.

Maximum stage known, that of Sept. 10, 1921; flood of 1852 reached about the same stage. Flood of December 1913 reached a stage of 49.0 ft. Stages based on information by local resident.

Remarks.--Records good. Many small diversions for irrigation and municipal supply affect very low flows. Slight regulation by pumping above station.

Revisions (water years).--W 718: 1918-22.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 2-5, June 10 to July 2, Sept. 17-30)

1.7	0.9	4.0	174
1.8	1.8	4.5	304
1.9	2.7	5.0	480
2.0	3.8	6.0	840
2.1	5.2	8.0	1,580
2.3	10	11.0	2,750
2.6	19	15.0	4,750
2.9	34	20.0	7,720
3.2	58	27.0	12,200
3.6	106		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	86	14	32	21	24	63	44	355	3,270	103	4.9	1.4
2	57	13	33	21	26	51	42	900	1,280	107	12	1.1
3	44	14	55	22	26	45	36	1,060	*988	79	12	1.1
4	35	13	39	*24	46	41	39	988	786	62	12	1.0
5	28	15	24	25	47	37	40	768	660	56	9.7	.9
6	22	15	23	24	40	36	27	516	1,190	58	7.9	.9
7	18	16	22	24	31	36	24	*365	4,020	50	8.2	1.1
8	16	14	21	24	24	33	22	233	2,500	49	7.9	1.1
9	14	14	21	24	23	32	22	176	1,170	46	6.7	1.4
10	12	14	20	24	21	32	30	154	*642	41	6.5	*1.4
11	11	14	19	24	19	71	42	125	502	194	5.6	1.5
12	9.5	14	18	23	19	606	493	106	422	804	*6.1	1.4
13	9.2	14	18	23	*23	324	877	90	372	372	6.5	1.4
14	9.7	13	19	24	23	156	696	86	328	180	6.1	1.4
15	9.7	12	19	24	64	102	270	80	294	116	6.1	1.5
16	9.2	11	19	25	44	82	145	68	266	86	5.2	2.2
17	9.2	12	19	26	36	66	120	60	225	65	5.2	2.7
18	8.4	12	20	28	30	56	90	171	*194	56	5.2	4.6
19	7.7	12	19	28	31	51	70	4,640	176	63	4.8	4.8
20	7.9	11	20	26	30	48	60	7,130	156	56	4.4	3.7
21	9.0	11	21	28	29	49	204	2,780	138	63	4.1	3.4
22	*9.0	11	21	26	30	47	420	1,100	123	54	3.9	2.5
23	13	12	20	24	29	39	8,410	678	113	46	3.8	2.6
24	19	13	20	24	34	34	12,000	1,900	102	*38	3.8	2.8
25	14	21	21	34	38	31	4,470	6,910	92	32	3.8	2.9
26	10	21	21	30	91	28	2,110	8,670	82	26	3.1	2.9
27	19	23	21	32	126	*27	1,060	3,980	75	23	*3.1	2.5
28	18	22	21	29	93	31	696	4,000	72	21	3.0	2.2
29	15	*28	21	26	82	32	502	10,400	79	18	2.5	1.8
30	15	32	22	23	-	31	455	10,100	79	16	2.0	1.5
31	14	-	22	22	-	33	-	5,800	-	12	1.8	-
Total	578.5	461	711	782	1,179	2,350	33,516	74,389	20,396	2,992	177.9	61.7
Mean	18.7	15.4	22.9	25.2	40.7	75.8	1,117	2,400	680	96.5	5.74	2.06
Ac-ft	1,150	914	1,410	1,550	2,340	4,660	66,480	147,500	40,450	5,930	353	122

Calendar year 1951: Max 4,800 Min 0.9 Mean 184 Ac-ft 133,200
Water year 1951-52: Max 12,000 Min 0.9 Mean 376 Ac-ft 272,900

Peak discharge (base, 11,000 cfs).--Apr. 24 (9 a.m.) 13,200 cfs (28.53 ft); May 29 (11 p.m.) 12,300 cfs (27.09 ft).

* Discharge measurement made on this day.

Brazos River near Bryan, Tex.

Location.--Lat 30°37', long. 96°29', on left bank 2.4 miles downstream from Little Brazos River, 5 miles downstream from Texas and New Orleans Railroad bridge, 9 miles southwest of Bryan, Brazos County, and at mile 285.

Drainage area.--38,430 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--February 1918 to September 1952, in reports of Geological Survey. August 1899 to December 1902, in United States Department of Agriculture, Office of Experiment Stations, Bulletins Nos. 104, 119, and 133. Prior to September 1925, published as Brazos River near College Station.

Gage.--Water-stage recorder. Datum of gage is 192.33 ft above mean sea level, datum of 1929. Feb. 23, 1918, to Sept. 17, 1925, staff or chain gage at site 7½ miles downstream at different datum. Sept. 11, 1925, to Oct. 24, 1932, chain gage at site 3,000 ft upstream at same datum.

Average discharge.--33 years (1918-25, 1926-52), 5,587 cfs.

Extremes.--Maximum discharge during year, 33,500 cfs May 26 (gage height, 19.24 ft); minimum, 131 cfs Sept. 30.
1925-52: Maximum gage height, 46.1 ft May 20, 1930, present site and datum (discharge not determined); minimum discharge, 87 cfs Aug. 24, 1934.
Maximum stage 1899-1917, about 54.0 ft Dec. 5, 1913, present site and datum.

Remarks.--Records good. Flow largely regulated by reservoirs above Waco (see Brazos River at Waco). Many small diversions above station for irrigation, municipal supply, and oilfield operation do not appreciably affect flow.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 2 to June 28)

2.5	125	6.0	2,450
2.7	185	8.0	5,000
3.0	285	11.0	10,600
3.5	490	15.0	21,100
4.0	735	19.0	33,200
5.0	1,450		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	819	396	352	328	274	558	264	1,210	6,260	1,250	855	1,140
2	735	530	336	320	268	445	236	1,060	3,860	1,210	862	1,140
3	630	540	320	336	260	388	229	1,210	1,970	1,250	862	1,140
4	540	490	380	344	250	344	240	1,730	1,450	1,210	862	1,140
5	540	535	418	348	254	356	236	1,540	1,170	1,250	855	1,140
6	771	558	392	344	340	392	236	*1,250	1,170	1,210	843	1,140
7	730	472	340	340	348	432	257	990	2,660	1,330	855	1,140
8	635	458	310	313	288	404	292	819	4,860	1,210	914	1,140
9	553	436	302	*292	260	328	250	730	3,650	1,170	990	*1,140
10	476	454	288	278	246	313	243	625	2,020	1,170	1,020	1,140
11	418	548	299	274	236	452	264	558	1,140	1,170	*1,100	1,100
12	376	522	324	271	*226	1,410	947	508	894	1,140	1,170	1,100
13	481	468	332	271	416	1,540	2,400	468	759	1,370	1,170	843
14	655	418	313	271	575	1,170	3,030	418	670	900	1,170	530
15	660	388	285	268	384	713	2,620	380	615	610	1,170	376
16	585	356	264	299	418	522	1,590	356	566	562	1,170	299
17	494	336	264	296	517	422	900	340	*530	759	1,170	264
18	*427	316	271	299	392	360	610	435	490	675	1,170	299
19	380	313	306	313	324	324	486	836	440	955	1,170	254
20	340	316	340	313	299	302	418	6,160	400	1,210	1,170	288
21	316	348	336	328	271	292	372	7,680	368	955	1,170	302
22	296	352	313	310	268	320	523	4,000	336	585	1,170	257
23	285	328	292	310	306	352	8,120	2,070	372	436	1,170	212
24	376	316	285	400	351	299	27,000	2,720	368	*364	1,140	188
25	388	306	306	340	508	268	18,400	22,700	328	313	955	173
26	324	296	324	310	526	*260	7,360	30,200	302	278	*907	158
27	302	316	320	336	990	254	4,300	*14,500	276	260	900	152
28	292	*384	310	292	681	260	2,670	6,900	882	676	894	146
29	271	388	310	274	730	264	1,870	7,200	1,210	619	900	137
30	274	380	328	271	-	268	1,450	13,000	1,210	843	1,020	134
31	316	-	332	274	-	274	-	10,600	-	849	1,100	-
Total	14,685	12,264	9,892	9,563	11,406	14,286	87,813	143,193	41,228	27,989	31,874	18,612
Mean	474	409	319	308	393	461	2,927	4,619	1,374	903	1,028	620
Ac-ft	29,130	24,330	19,620	18,970	22,620	28,340	174,200	284,000	81,770	55,520	63,220	36,920

Calendar year 1951: Max 14,800 Min 242 Mean 1,146 Ac-ft 829,600
Water year 1951-52: Max 30,200 Min 134 Mean 1,155 Ac-ft 838,600

Peak discharge (base, 41,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Yegua Creek near Somerville, Tex.

Location.--Lat 30°19', long. 96°30', near center of span at downstream side of bridge on State Highway 36, 760 ft downstream from Gulf, Colorado & Santa Fe Railway bridge, 2 miles south of Somerville, Burleson County, and 5 miles upstream from Davidson Creek.

Drainage area.--990 sq mi.

Records available.--May 1924 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 199.29 ft above mean sea level, datum of 1929. Prior to Jan. 30, 1934, inverted chain gage at railway bridge 760 ft upstream, at datum 34.30 ft higher.

Average discharge.--28 years, 297 cfs.

Extremes.--Maximum discharge during year, 5,410 cfs July 19 (gage height, 9.80 ft); no flow at times.
1924-52: Maximum discharge, 56,800 cfs July 1, 1940 (gage height, 19.27 ft); no flow at times.
Maximum stage known, about 22.0 ft Dec. 5, 1913, present site and datum, from information by Gulf, Colorado & Santa Fe Railway Co.

Remarks.--Records good.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 18 to Apr. 9)

Oct. 1 to Nov. 5		Nov. 6 to Sept. 30					
1.2	0	1.0	0	2.0	6.1	5.0	210
1.3	.2	1.1	.2	2.3	11	5.5	380
		1.2	.4	2.7	21	6.0	620
		1.3	.7	3.0	31	7.0	1,340
		1.4	1.1	3.5	53	8.0	2,440
		1.6	2.2	4.0	81	9.0	3,890
		1.8	3.9	4.5	121	10.0	5,830

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0	0.1	0	0.2	13	0.6	20	93	0.4	1.5	0
2	0	0	0	0	.2	6.9	.5	14	68	.3	1.2	0
3	.1	0	0	0	.2	6.2	.3	9.9	44	.2	1.0	0
4	.2	0	0	0	.5	8.9	.3	7.7	29	.2	.8	0
5	.1	0	0	0	.5	6.9	.2	6.5	20	.1	.6	0
6	0	1.5	0	0	.3	5.0	.2	*8.2	16	.1	.4	0
7	0	15	0	0	.2	3.7	.1	6.0	17	.3	.3	0
8	0	9.9	0	*0	.1	2.8	0	5.0	86	.5	.2	0
9	0	3.6	0	0	.1	2.1	0	6.7	64	.5	.2	*0
10	0	4.1	0	0	0	39	1.2	6.4	56	.4	.1	0
11	0	3.1	0	0	0	76	1.6	4.8	88	.3	*0	0
12	0	1.9	0	0	*0	38	125	3.9	114	.2	0	0
13	0	1.6	0	0	0	13	336	2.9	117	.2	0	0
14	0	1.2	0	0	0	5.6	326	2.4	76	.1	0	0
15	0	.9	0	0	0	3.1	360	2.1	35	0	0	0
16	0	.6	0	0	0	2.0	216	1.7	*20	0	0	0
17	0	.3	0	0	0	1.4	182	1.3	12	29	0	0
18	*0	.2	0	0	0	1.1	164	37	8.4	1,950	0	0
19	0	.1	0	0	0	.9	140	385	6.0	4,520	0	0
20	0	0	0	0	71	.7	75	560	4.5	2,100	0	0
21	0	0	0	0	84	.9	39	160	3.4	692	0	0
22	0	0	0	0	28	1.8	38	36	2.6	150	0	.1
23	0	0	0	0	8.9	1.8	214	21	2.1	*39	0	1.1
24	0	0	0	0	4.2	1.6	166	1,170	1.7	18	0	1.4
25	0	.1	0	0	27	1.4	74	1,730	1.4	10	0	1.2
26	0	.9	0	0	110	*1.2	62	1,430	1.0	33	*0	.8
27	0	1.8	0	0	50	1.0	76	716	.7	4.7	0	.5
28	0	*.9	0	0	35	.9	84	710	.7	3.5	0	.3
29	0	.4	0	0	29	.8	58	926	.6	2.7	0	.2
30	0	.2	0	.2	-	.7	33	656	.6	2.2	0	.1
31	0	-	0	.2	-	.7	-	239	-	1.9	0	-
Total	0.6	48.3	0.1	0.4	449.4	249.1	2,773.0	8,885.5	988.7	9,559.8	6.3	5.7
Mean	0.02	1.61	0.003	0.01	15.5	8.04	92.4	287	33.0	308	0.20	0.19
Ac-ft	1.2	96	0.2	0.8	891	494	5,500	17,620	1,960	18,960	12	11

Calendar year 1951: Max 722 Min 0 Mean 13.8 Ac-ft 9,990
Water year 1951-52: Max 4,520 Min 0 Mean 62.8 Ac-ft 45,550

Peak discharge (base, 1,400 cfs).--May 24 (11 p.m.) 1,950 cfs (7.62 ft); July 19 (3:30 a.m.) 5,410 cfs (9.80 ft).
* Discharge measurement made on this day.

Navasota River near Easterly, Tex.

Location.--Lat 31°10'10", long. 96°17'55", near center of span at downstream side of bridge on U. S. Highway 79, 1 mile upstream from Missouri Pacific Railroad bridge and 6 miles northeast of Easterly, Robertson County.

Drainage area.--949 sq mi.

Records available.--March 1924 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 276.42 ft above mean sea level, datum of 1929. Prior to June 11, 1932, inverted staff gage at railroad bridge 1 mile downstream at datum 24.86 ft lower.

Average discharge.--28 years, 419 cfs.

Extremes.--Maximum discharge during year, 6,800 cfs May 27 (gage height, 15.82 ft); minimum, 0.2 cfs Sept. 4, 5.
1924-52: Maximum discharge, 60,300 cfs May 2, 1944 (gage height, 22.13 ft); no flow at times.
Maximum stage known since about 1867, about 24.0 ft in 1900, from information by local residents (discharge, about 71,000 cfs).

Remarks.--Records good.

Revisions (water years).--W 898: 1924, 1926-27, 1928(M), 1929-30, 1931(M).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 6-26)

0.1	0.2	3.0	84
.2	.5	4.0	154
.3	.8	5.0	242
.5	1.7	6.0	372
.7	3.4	8.0	740
.9	6.2	11.0	1,430
1.2	12	13.0	2,060
1.6	20	14.0	2,820
2.0	34	15.0	4,300
2.5	56	16.0	7,800

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.7	2.8	4.3	4.4	9.4	69	19	59	114	2.9	1.0	0.3
2	5.8	3.0	4.3	4.3	9.4	41	19	46	83	2.8	.9	.3
3	4.4	2.3	76	5.8	9.2	46	18	41	62	2.3	.9	.3
4	3.4	1.9	45	7.6	10	72	16	34	48	2.1	.8	.2
5	2.8	3.2	24	7.5	8.0	124	15	40	38	2.9	.8	.2
6	2.3	6.0	13	7.2	6.7	128	38	69	32	3.7	.8	.3
7	2.0	2.3	8.2	6.4	5.8	74	82	*54	27	2.3	.7	.3
8	1.8	1.8	6.2	6.0	5.2	43	43	38	20	2.0	.7	.3
9	1.6	1.7	5.2	*5.8	6.2	28	28	27	18	1.8	.6	.3
10	1.5	1.7	4.6	5.0	6.4	188	39	20	15	1.7	.6	.4
11	1.4	2.0	4.2	5.9	5.9	1,020	38	16	14	1.6	.6	.3
12	1.4	2.3	4.2	6.5	173	1,170	623	13	12	1.6	.5	.3
13	1.4	2.3	4.3	6.0	*579	643	1,380	11	10	1.6	.5	.3
14	1.4	2.2	4.8	5.9	198	315	1,430	9.4	8.7	1.5	.5	.3
15	1.4	2.1	4.7	5.8	57	142	915	8.2	7.3	1.4	.4	.3
16	1.3	1.7	4.2	5.8	28	90	293	7.2	6.4	1.4	.4	.3
17	1.2	1.6	4.0	5.6	18	66	142	7.0	*5.8	1.5	.5	.3
18	1.2	1.6	4.0	5.4	14	56	93	8.5	5.3	1.9	.5	.5
19	*1.2	1.7	4.0	5.3	13	50	69	13	4.8	3.7	.6	.5
20	1.2	1.7	4.4	5.0	64	43	56	51	4.3	3.3	.4	.5
21	1.2	1.9	4.6	5.6	68	36	51	106	3.9	4.8	.4	.4
22	1.2	2.2	4.4	7.0	51	108	100	70	3.5	3.4	.4	.4
23	2.6	2.8	4.6	31	190	106	721	48	3.2	2.3	.3	.3
24	2.2	3.1	4.7	18	166	103	1,170	639	3.0	*2.0	.3	.3
25	1.8	3.7	7.0	27	209	51	1,330	1,510	2.6	2.0	.3	.3
26	1.6	3.8	7.3	25	791	32	1,290	2,130	2.4	1.8	**.3	.3
27	1.7	5.6	5.3	17	907	*27	1,330	6,020	2.2	1.6	.3	.3
28	1.8	5.4	4.7	37	391	25	631	5,200	2.1	1.4	.3	.3
29	1.7	*4.3	4.7	18	136	24	120	3,380	2.3	1.3	.3	.3
30	1.6	3.9	4.6	12	-	23	80	1,580	3.0	1.2	.3	.3
31	1.8	-	4.6	9.1	-	21	-	212	-	1.1	.3	-
Total	66.6	82.6	290.1	323.9	4,135.2	4,964	12,179	21,467.3	563.8	66.9	16.2	9.7
Mean	2.15	2.75	9.36	10.4	143	160	406	692	18.8	2.16	0.52	0.32
Ac-ft	132	164	575	642	8,200	9,850	24,160	42,580	1,120	133	32	19

Calendar year 1951: Max 660 Min 0 Mean 23.3 Ac-ft 16,880
Water year 1951-52: Max 6,020 Min 0.2 Mean 121 Ac-ft 87,610

Peak discharge (base, 3,100 cfs).--May 27 (4:30 p.m.) 6,800 cfs (15.82 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.

Navasota River near Bryan, Tex.

Location.--Lat 30°52'10", long. 96°11'25", on right bank just downstream from pier of bridge on U. S. Highway 190, 2.5 miles upstream from Shepherd Creek and 17 miles northeast of Bryan, Brazos County.

Drainage area.--1,194 sq mi.

Records available.--January 1951 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 227.4 ft above mean sea level (State Highway Department Survey).

Extremes.--Maximum discharge during year, 3,900 cfs May 31 (gage height, 12.52 ft); no flow Aug. 22 to Sept. 30.
1951-52: Maximum discharge, that of May 31, 1952; no flow Aug. 29 to Sept. 15, 1951, Aug. 22 to Sept. 30, 1952.

Remarks.--Records good. No diversions above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 4-12, Mar. 19 to Apr. 10, June 14-30)

3.1	0	5.0	32
3.2	.1	5.5	49
3.3	.2	6.0	70
3.4	.5	7.0	134
3.5	1.0	8.0	245
3.6	1.8	9.0	450
3.8	4.2	10.0	840
4.0	7.4	11.0	1,550
4.3	13	12.0	2,900
4.6	20	13.0	5,700

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	3.2	17	20	37	650	50	413	3,240	7.4	2.1	
2	14	3.1	15	19	33	276	46	172	2,160	7.4	2.0	
3	12	3.1	14	19	34	131	42	104	900	8.7	1.9	
4	10	3.5	13	19	28	94	47	78	304	8.8	1.7	
5	8.3	4.5	32	20	39	85	57	66	152	9.2	1.5	
6	6.9	11	100	24	37	118	50	*56	454	8.8	1.3	
7	5.4	16	88	28	33	138	43	51	180	8.7	1.2	
8	4.5	9.2	56	*27	28	130	43	61	82	7.9	1.0	
9	3.8	8.3	37	25	24	91	68	61	94	6.9	.8	
10	3.2	10	25	22	21	70	174	50	63	6.4	.7	(*)
11	2.7	9.6	20	20	19	68	185	41	43	6.4	**.6	
12	2.5	7.6	16	18	19	267	553	34	34	5.9	.5	
13	2.3	6.0	14	16	*20	630	1,030	28	29	5.1	.5	
14	2.1	5.1	13	15	101	840	890	24	26	4.2	.4	
15	2.1	4.6	13	16	382	840	1,030	20	22	3.6	.4	
16	2.1	3.4	13	17	337	519	1,330	19	20	3.2	.3	
17	2.0	2.2	14	18	154	228	1,330	17	*18	*2.8	.2	
18	*1.9	2.2	15	18	70	134	890	23	16	2.9	.2	
19	1.9	2.5	14	18	49	94	382	47	14	3.2	.1	
20	1.8	2.9	14	18	59	75	206	41	13	3.6	.1	
21	1.8	3.5	13	18	52	70	143	44	12	4.6	.1	
22	1.7	4.4	13	18	67	66	137	57	11	5.9	0	
23	1.8	5.1	14	17	179	57	414	88	10	*6.0	0	
24	1.9	5.9	14	18	134	86	359	670	9.2	5.6	0	
25	2.0	7.4	14	22	259	138	590	750	8.5	5.2	0	
26	2.1	9.4	14	36	468	*118	795	730	7.9	5.1	*0	
27	2.5	13	15	44	420	75	940	1,000	7.2	4.8	0	
28	4.1	15	20	54	630	55	1,030	1,370	6.7	4.2	0	
29	3.9	*16	29	45	772	49	1,060	1,950	6.6	3.5	0	
30	3.6	18	29	42	-	47	940	3,340	7.2	2.8	0	
31	3.4	-	24	45	-	48	-	3,900	-	2.4	0	
Total	136.3	215.7	742	756	4,515	6,287	14,854	15,305	7,950.3	171.2	17.6	0
Mean	4.40	7.19	23.9	24.4	156	203	495	494	265	5.52	0.57	0
Ac-ft	270	428	1,470	1,500	8,960	12,470	29,460	30,360	15,770	340	35	0

Calendar year 1951: Max 795 Min 0 Mean 45.1 Ac-ft 32,650
Water year 1951-52: Max 3,900 Min 0 Mean 139 Ac-ft 101,100

Peak discharge (base, 4,600 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.

Brazos River near Hempstead, Tex.

Location.--Lat 30°07'25", long. 96°11'00", near center of span at bridge on U. S. Highway 290, 4,500 ft upstream from Texas & New Orleans Railroad bridge, 6.5 miles northwest of Hempstead, Waller County, 8 miles upstream from Caney Creek, and at mile 196.

Drainage area.--42,670 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--October 1938 to September 1952. Gage-height records collected in this vicinity at intermittent periods since 1903 are contained in reports of United States Weather Bureau.

Gage.--Wire-weight gage read twice daily, oftener during floods. Datum of gage is 117.99 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Prior to Nov. 1, 1940, chain gage at railroad bridge 4,500 ft downstream at datum 5.97 ft lower.

Average discharge.--14 years, 7,048 cfs.

Extremes.--Maximum discharge during year, 32,200 cfs May 27 (gage height, 21.89 ft); minimum, 255 cfs Sept. 29, 30.

1938-52: Maximum discharge, 116,000 cfs Nov. 30, 1940 (gage height, 44.04 ft); minimum, 254 cfs Nov. 8, 1939.

Maximum stage known since at least 1899, 56.1 ft Dec. 8, 1913, present site and datum, from information by Texas & New Orleans Railroad, obtained at bridge 4,500 ft downstream. Flood of July 4, 1899, reached a stage of 53.6 ft, present site and datum, from information by Texas & New Orleans Railroad.

Remarks.--Records good. Flow largely regulated by reservoirs above Waco. Many small diversions above station for irrigation, municipal supply, and oil-field operations do not appreciably affect flow.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,250	360	490	385	670	1,730	460	3,060	14,600	1,310	1,000	1,080
2	*900	348	475	385	810	1,550	435	2,720	10,500	1,310	1,000	1,130
3	832	360	475	385	950	1,380	410	*2,300	7,810	1,380	1,000	1,160
4	770	490	580	398	810	1,280	410	2,220	5,630	1,380	1,000	1,160
5	690	550	*900	398	632	*1,220	385	2,460	4,820	1,380	*1,000	1,160
6	615	565	925	410	*490	1,160	372	2,540	4,720	1,380	1,000	1,160
7	580	*650	710	398	422	1,080	372	2,140	4,720	1,340	1,000	1,160
8	710	750	580	*410	422	900	372	1,580	5,210	1,340	1,000	1,160
9	770	650	475	410	475	790	*372	1,220	7,040	1,410	1,000	1,190
10	690	580	435	385	448	832	422	1,000	7,160	1,340	1,020	1,190
11	615	550	435	372	422	2,300	490	855	5,110	1,340	1,100	1,190
12	565	520	*448	372	398	2,380	3,040	790	3,510	1,250	1,130	1,160
13	505	565	448	385	385	2,140	6,440	730	2,460	1,250	1,190	1,130
14	460	580	460	385	360	2,220	4,720	670	1,990	1,250	1,220	1,130
15	460	550	435	360	385	2,060	5,110	615	1,550	1,340	1,250	925
16	580	490	422	360	550	1,730	4,920	565	1,310	1,020	1,250	690
17	710	460	422	360	550	1,310	4,340	520	1,160	832	1,250	535
18	650	435	410	348	505	1,160	3,330	565	1,020	750	1,250	535
19	565	422	398	360	650	1,190	2,630	878	950	975	1,280	580
20	520	398	385	372	1,250	1,190	2,300	1,380	855	2,040	1,280	435
21	475	398	372	398	1,340	1,130	2,060	4,120	750	3,780	1,250	398
22	435	385	398	398	975	900	2,060	8,480	690	3,690	1,280	372
23	448	385	422	398	790	710	6,360	6,320	650	2,200	1,280	385
24	422	422	410	410	632	580	11,500	5,210	615	950	1,250	385
25	410	422	398	398	598	565	25,600	9,990	598	650	1,280	348
26	435	460	385	435	1,090	520	19,100	25,600	598	535	1,190	303
27	490	650	372	475	1,580	475	11,200	29,600	580	460	1,050	283
28	448	598	398	460	1,520	460	7,810	*21,500	565	422	975	264
29	422	490	398	520	1,730	460	5,630	14,000	535	*398	975	*255
30	410	490	385	565	-	475	4,060	*12,700	*923	535	*950	255
31	398	-	372	615	-	505	-	*16,700	-	878	975	-
Total	18,230	14,973	14,618	12,710	21,839	36,382	136,710	183,028	98,629	40,115	34,675	23,108
Mean	588	499	472	410	753	1,174	4,557	5,904	3,288	1,294	1,119	770
Ac-ft	36,160	29,700	28,990	25,210	43,320	72,160	271,200	363,000	195,600	79,570	68,780	45,830

Calendar year 1951: Max 12,700 Min 348 Mean 1,317 Ac-ft 953,600
Water year 1951-52: Max 29,600 Min 255 Mean 1,735 Ac-ft 1,260,000

Peak discharge (base, 50,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Brazos River near San Felipe, Tex.

Location.--Lat 29°46'20", long. 96°02'10", near center of span at right side of pier of bridge on U. S. Highway 90, 200 ft downstream from Missouri-Kansas-Texas Railroad bridge, 1.3 miles downstream from Irons Creek, 5.0 miles southeast of San Felipe Post Office, Austin County, and at mile 142.

Drainage area.--43,690 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--December 1938 to September 1952 (gage heights only since October 1945).

Gage.--Water-stage recorder. Datum of gage is 79.32 ft above mean sea level, datum of 1929.

Average discharge.--6 years (1939-45), 10,900 cfs.

Extremes.--Maximim gage height during year, 19.55 ft May 27; minimum, not determined.
1938-52: Maximum gage height, 41.10 ft Nov. 25, 1940 (discharge, 152,000 cfs); minimum recorded, 6.57 ft Oct. 9, 1939.
Maximum stage known, 49.0 ft Dec. 9, 1913, from information by local resident.

Remarks.--Discharge not computed. Flow largely regulated by reservoirs above Waco. Many small diversions above station for irrigation, municipal use, and oil-field operation do not appreciably affect flow.

Gage height, in feet, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.81	-	-	-	7.69	8.48	7.57	10.01	15.21	-	8.07	8.20
2	8.31	-	-	-	8.14	8.48	-	9.68	13.83	8.04	8.17	8.27
3	-	-	7.14	-	8.04	8.40	-	9.50	12.62	8.10	8.14	8.35
4	-	-	7.36	-	7.98	8.25	-	9.29	11.67	8.16	8.11	8.37
5	-	-	7.27	-	7.81	8.15	-	9.17	10.74	8.17	8.09	8.40
6	-	-	7.39	-	7.53	8.09	-	9.30	10.36	8.18	8.11	8.40
7	-	7.22	7.67	-	7.29	8.04	-	9.35	10.43	8.19	8.12	8.40
8	-	7.28	7.47	e7.00	7.14	7.95	e6.73	9.10	10.46	8.17	8.13	8.40
9	-	7.49	7.28	-	-	7.72	6.84	8.77	10.75	8.16	8.11	8.44
10	-	7.40	7.14	-	-	7.70	6.88	8.45	11.59	8.20	8.10	8.46
11	-	7.30	-	-	-	7.72	7.01	8.18	11.35	8.18	8.24	8.45
12	-	7.21	-	-	-	8.70	10.54	8.01	10.40	8.13	8.36	8.44
13	-	7.15	-	-	-	8.92	13.93	7.86	9.56	8.11	8.40	8.43
14	-	7.14	-	-	-	8.76	12.25	7.74	9.05	8.12	8.44	8.41
15	-	7.23	-	-	-	8.85	10.63	-	8.83	8.13	8.50	8.40
16	-	7.15	-	-	-	8.78	10.47	-	-	8.33	8.50	8.26
17	-	7.06	-	-	7.18	8.54	10.35	-	-	8.27	8.51	7.94
18	-	-	-	-	7.26	8.35	10.01	-	-	7.98	8.51	7.74
19	-	-	-	-	7.20	8.27	9.55	8.06	-	7.92	8.52	7.60
20	-	-	-	-	7.54	8.20	9.22	8.31	-	8.16	8.51	7.67
21	-	-	-	-	8.29	8.19	9.02	8.37	-	8.92	8.51	7.49
22	-	-	-	-	8.47	8.10	8.91	10.16	-	9.82	8.53	7.34
23	-	-	-	-	8.19	7.94	10.09	11.78	-	9.74	8.53	7.23
24	-	-	-	-	7.88	7.71	12.60	11.01	-	9.02	8.51	-
25	-	-	-	-	7.69	7.47	16.79	11.09	-	8.22	8.53	-
26	-	-	-	-	8.33	7.38	17.28	14.90	-	7.84	8.55	-
27	-	-	-	-	8.32	7.31	14.59	18.96	-	7.67	8.50	-
28	-	7.21	-	7.52	8.44	-	12.63	19.08	-	7.55	8.37	-
29	-	7.31	-	7.31	8.38	-	11.54	16.56	-	7.40	8.24	e6.95
30	-	7.16	-	7.23	-	-	10.65	14.16	-	7.29	8.22	-
31	-	-	-	7.30	-	7.56	-	14.39	-	7.48	8.20	-

e Wire-weight gage reading by engineer.
Note.--No gage-height record Oct. 3 to Nov. 6, Nov. 18-27, Dec. 1, 2, Dec. 11 to Jan. 7, Jan 9-27, Feb. 9-16, Mar. 28-30, Apr. 2-7, May 15-18, June 16 to July 1, Sept. 24-28, 30; stage below 9.0 ft and generally below 7.5 ft.

American Canal Co.'s canal near Fulshear, Tex.

Location.--Lat 29°39', long. 95°54', near center of channel at downstream side of bridge, 1 mile downstream from point of diversion and 3 miles south of Fulshear, Fort Bend County.

Records available.--October 1931 to September 1952.

Gage.--Water-stage recorder.

Average discharge.--21 years, 87.2 cfs.

Extremes.--1931-52: Maximum daily discharge, 460 cfs June 9, 22, 1951; no flow for several months each year.

Remarks.--Records good. Station above all diversions from canal. Flow controlled by pumping plant located on left bank of Brazos River 18 miles above Richmond. Figures of discharge represent water actually pumped from river for irrigation in the vicinity of Sugarland.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	66						0	132	71	394	370	394
2	118						0	232	222	394	382	406
3	118						0	348	406	406	382	406
4	118						0	222	406	406	382	*406
5	118						0	161	418	406	*382	406
6	91						0	117	*442	406	382	406
7	.3						0	222	430	406	382	406
8	0						0	184	454	406	382	406
9	0						0	152	430	406	382	359
10	0						0	148	382	*406	382	298
11	0						0	180	382	406	382	*306
12	0						0	*281	394	394	275	337
13	0						0	326	454	382	386	326
14	0						0	337	430	359	*394	276
15	0						0	370	418	348	406	272
16	0						0	406	394	337	406	237
17	0						0	382	370	161	406	*227
18	0						0	406	418	1.8	406	227
19	0						0	337	418	0	406	222
20	0						0	315	406	150	406	222
21	0						0	315	406	359	*406	222
22	0						0	282	406	418	406	232
23	0						0	272	406	430	406	260
24	0						0	262	406	430	406	180
25	0						0	252	394	406	394	175
26	0						0	262	394	394	394	135
27	0						0	262	394	382	392	123
28	0						1.6	11	394	370	*394	162
29	0						178	0	370	370	394	175
30	0						*198	0	394	370	394	207
31	0						-	0	-	370	406	-
Total	629.3	0	0	0	0	0	377.6	7,176	11,709	10,873.8	12,063	8,416
Mean	20.3	0	0	0	0	0	12.6	2.31	390	351	389	281
Ac-ft	1,250	0	0	0	0	0	749	14,230	23,220	21,570	23,930	16,690

Calendar year 1951: Max 460 Min 0 Mean 164 Ac-ft 118,700
Water year 1951-52: Max 454 Min 0 Mean 140 Ac-ft 101,600

* Discharge measurement made on this day.

Richmond Irrigation Co.'s canal near Richmond, Tex.

Location.--Lat 29°34', long. 95°47', on left bank 600 ft downstream from crossing of U. S. Highway 59, 1½ miles downstream from point of diversion and 1½ miles west of Richmond, Fort Bend County.

Records available.--October 1931 to September 1952.

Gage.--Water-stage recorder.

Average discharge.--21 years, 39.6 cfs.

Extremes.--1931-52: Maximum daily discharge, 234 cfs June 5, 6, 1938; no flow for several months each year.

Remarks.--Records good. Water for irrigation is diverted by pumping from right bank of Brazos River 6 miles upstream from Richmond. Figures of discharge represent water pumped from river.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0					0	25	113	0	160	154	88
2	0					0	97	113	0	154	160	93
3	23					0	122	113	50	154	160	95
4	23					0	46	110	120	154	165	*95
5	23					0	0	108	120	160	*160	95
6	0					0	0	115	120	154	165	95
7	0					0	0	118	120	160	160	98
8	0					0	0	95	130	165	171	98
9	0					0	11	95	*130	165	171	100
10	0					0	0	93	131	*171	171	110
11	0					0	0	85	144	181	171	*108
12	0					0	.1	103	149	181	171	108
13	0					0	0	110	139	181	165	103
14	0					0	0	118	139	181	*160	100
15	0					0	0	115	144	181	165	105
16	0					0	0	107	*160	138	165	98
17	0					0	0	107	44	0	160	*88
18	0					0	0	103	76	0	160	40
19	0					0	0	55	171	0	160	0
20	0					0	0	20	165	0	154	0
21	0					0	0	32	160	33	*160	0
22	0					0	0	44	154	176	160	0
23	0					0	0	120	144	165	160	51
24	0					0	0	120	139	154	160	85
25	0					0	0	95	133	165	91	78
26	0					0	0	120	144	176	93	78
27	0					0	36	120	149	171	93	29
28	0					0	*123	0	149	160	*98	0
29	0					20	126	0	149	149	98	0
30	0					86	120	0	149	149	98	53
31	0					0	-	0	-	154	93	-
Total	69	0	0	0	0	106	706.1	2,647	3,722	4,292	4,572	2,091
Mean	2.23	0	0	0	0	3.42	23.5	85.4	124	138	147	69.7
Ac-ft	137	0	0	0	0	210	1,400	5,250	7,380	8,510	9,070	4,150

Calendar year 1951: Max 203 Min 0 Mean 53.8 Ac-ft 38,920
Water year 1951-52: Max 181 Min 0 Mean 49.7 Ac-ft 36,110

* Discharge measurement made on this day.

Brazos River at Richmond, Tex.

Location.--Lat 29°35', long. 95°45', near right bank on downstream side of pier of bridge on U. S. Highway 59 in Richmond, Fort Bend County, 925 ft downstream from Texas & New Orleans Railroad bridge and at mile 93.

Drainage area.--44,050 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--January 1903 to June 1906 and October 1922 to September 1952 in reports of Geological Survey. Published as "at Rosenberg" October 1922 to September 1931 and equivalent except for diversion by Richmond Irrigation Co's canal. June to November 1901 and June to September 1902 in United States Department of Agriculture, Office of Experiment Stations, Bulletins Nos. 119 and 133. Gage-height records collected in this vicinity since 1914 are contained in reports of United States Weather Bureau.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 40.84 ft above mean sea level, datum of 1929. June to November 1901, June to September 1902, and January 1903 to June 1906, various types of nonrecording gages at railroad bridge 925 ft upstream at different datums. Oct. 1, 1922, to Sept. 30, 1931, chain gage at Rosenberg 7.6 miles upstream at datum about 4 ft higher.

Average discharge.--32 years (1903-5, 1922-52), 7,564 cfs.

Extremes.--Maximum discharge during year, 34,400 cfs May 28 (gage height, 15.75 ft); minimum, 139 cfs Aug. 1.

1903-6, 1931-52: Maximum discharge, 117,000 cfs Nov. 28, 1940 (gage height, 38.40 ft); minimum, 33 cfs Aug. 23, 24, 1934.

Maximum stage known since at least 1884, 48.2 ft Dec. 10, 1913, present datum, from floodmarks on right bank 1,000 ft upstream from gage. From information by Southern Pacific Railroad other floods at railroad bridge, present datum, are as follows: May 1884, stage 43.7 ft; June 13, 1885, stage 44.7 ft; July 1899, stage 45.6 ft; May 2, 1915, stage 43.3 ft; May 9, 1922, stage 40.9 ft. Flood of June 6, 1929, reached a stage of 40.6 ft, present site and datum, from floodmarks (discharge, 120,000 cfs).

Remarks.--Records good. Flow largely regulated by reservoirs above Waco. Considerable water diverted above station for irrigation and municipal supply. See records of American Canal Co.'s canal near Fulshear (see p. 134) and Richmond Irrigation Co.'s canal near Richmond (see preceding page). Records of chemical analyses and water temperatures for water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,370	520	694	540	960	1,510	1,110	4,550	14,500	234	176	570
2	1,800	505	628	535	1,110	1,550	1,020	3,470	14,100	202	331	555
3	1,370	480	618	525	1,240	1,590	782	2,770	10,800	565	515	580
4	1,050	455	634	*525	1,200	1,510	672	2,550	8,580	782	530	*650
5	900	465	700	525	1,140	1,400	640	2,290	6,750	840	*520	689
6	870	505	716	520	1,080	1,300	601	2,240	4,970	870	510	711
7	870	612	700	535	930	1,270	575	2,240	4,270	870	500	728
8	840	678	870	545	782	1,240	550	2,290	4,270	870	485	738
9	755	684	840	550	694	1,170	520	*2,090	*4,130	870	470	782
10	750	782	750	545	618	1,110	590	1,720	4,970	*870	465	870
11	840	810	678	550	590	1,020	560	1,440	6,450	870	455	*930
12	840	733	618	550	612	990	2,450	1,200	5,700	870	460	870
13	782	678	575	540	596	1,640	11,600	960	3,860	840	550	870
14	728	645	580	525	565	2,040	12,800	870	2,440	840	*570	870
15	689	628	580	520	560	1,900	*9,120	755	1,800	840	596	900
16	645	656	580	515	545	1,990	*6,000	672	1,400	870	640	900
17	606	645	596	510	505	1,940	5,400	590	1,240	1,270	678	*840
18	634	606	596	505	545	1,760	4,690	575	1,110	1,440	700	728
19	744	565	580	500	689	1,510	3,860	612	900	1,140	706	640
20	755	540	570	490	*656	1,400	3,110	694	782	990	716	540
21	722	530	545	490	749	1,340	2,500	1,300	700	840	*716	530
22	667	520	525	490	1,400	1,300	2,190	1,340	623	1,140	711	495
23	662	*510	520	500	1,720	1,270	4,270	5,180	555	2,440	716	310
24	*601	500	525	500	1,400	1,170	6,600	7,750	480	2,600	722	268
25	575	495	550	515	1,270	1,050	16,800	6,420	420	1,670	810	264
26	575	510	560	515	1,170	870	26,100	8,640	355	960	810	264
27	560	540	555	535	1,370	662	18,100	25,500	304	565	840	322
28	545	550	545	555	1,440	*650	11,500	*33,800	282	425	*810	355
29	601	612	530	733	1,510	601	7,900	*26,200	282	322	711	290
30	606	722	520	755	-	550	6,000	16,000	*336	234	618	222
31	555	-	530	689	-	612	-	*12,600	-	*176	580	-
Total	24,507	17,681	19,008	16,827	27,646	39,915	168,610	179,308	107,359	28,315	18,617	18,281
Mean	791	589	613	543	953	1,288	5,620	5,784	3,579	913	601	609
Ac-ft	48,610	35,070	37,700	33,380	54,840	79,170	334,400	355,700	212,900	56,160	36,930	36,260

Calendar year 1951: Max 10,600 Min 117 Mean 1,232 Ac-ft 891,900
Water year 1951-52: Max 33,800 Min 176 Mean 1,820 Ac-ft 1,321,000

Peak discharge (base,39,000 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--Discharge July 17-31 and Aug. 2-4, computed from once-daily wire-weight gage readings.

Brazos River near Juliff, Tex.

Location.--Lat 29°26', long. 95°32', on left bank just downstream from South Texas Water Co. pumping plant, 3½ miles west of Juliff, Fort Bend County, 5½ miles downstream from Gulf, Colorado and Santa Fe Railway bridge, and at mile 67.

Drainage area.--44,130 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--May 1949 to September 1952.

Gage.--Two water-stage recorders. Datum of gage is at mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Extremes.--Maximum discharge during year, 32,100 cfs May 28 (gage height, 39.02 ft); no flow at times due to pumping.

1949-52: Maximum discharge, 48,500 cfs Feb. 15, 1950; maximum gage height, 43.26 ft Feb. 16, 1950; no flow at times due to pumping.

Maximum stage known since at least 1884, 64.0 ft about Dec. 11, 1913, present datum, from floodmark 4 miles to left of gage, from information by local resident. From same source and at same site and datum, other floods as follows: About May 10, 1922, stage 61.0 ft; about June 7, 1929, stage 61.0 ft; about Nov. 29, 1940, stage 61.5 ft. Flood of July 1899 was probably exceeded only by flood of 1913.

Remarks.--Records good. Flow largely regulated by reservoirs above Waco. Considerable water diverted above station for irrigation and municipal supply. See record of American Canal Co's canal near Fulshear (p. 134) and Richmond Irrigation Co.'s canal near Richmond (p. 135). The Briscoe Irrigation Co. and the South Texas Water Co. have permits to divert a maximum of 600 and 400 cfs, respectively, above station for irrigation, industrial and municipal supply.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 11 to Jan. 7, Jan. 30 to Feb. 27, Apr. 26-28, May 14-16, 19, 20, May 27 to June 3, July 6-27, Aug. 4)

16.5	0	18.0	215	25.0	5,650
16.7	6.0	18.5	390	28.0	9,950
16.8	10	19.0	615	32.0	17,500
17.0	24	20.0	1,200	35.0	24,400
17.2	42	21.0	1,900	38.0	32,400
17.5	88	23.0	3,530		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,020	615	475	547	1,110	1,660	687	4,670	14,100	0	0	0
2	1,080	590	488	547	1,550	1,660	720	3,440	15,100	0	0	0
3	1,340	565	506	547	1,300	1,690	524	2,780	11,400	0	0	0
4	1,340	552	529	547	1,240	1,660	354	2,460	8,420	0	3.7	*0
5	1,020	538	565	*547	1,050	1,580	227	2,220	*6,300	0	*0	0
6	930	538	590	547	960	1,520	206	1,980	4,350	20	0	0
7	900	534	615	538	870	1,410	414	1,860	3,710	29	0	0
8	840	538	665	*538	704	1,340	390	*1,980	3,530	32	0	0
9	720	560	698	547	575	1,300	354	1,860	3,530	*41	0	56
10	605	595	762	534	480	1,240	475	1,580	3,800	24	0	99
11	565	610	804	506	493	1,200	547	1,270	4,670	18	0	*140
12	590	650	810	382	480	1,110	948	990	5,150	34	0	132
13	625	665	720	374	484	1,270	8,010	645	3,710	56	*0	79
14	650	670	635	350	462	1,900	13,700	370	2,380	0	0	61
15	682	660	585	332	444	1,940	*10,300	261	1,580	0	0	67
16	704	645	560	329	462	1,940	*6,860	128	1,020	70	0	100
17	650	635	556	366	565	1,980	5,390	*0	682	526	0	126
18	480	625	565	484	610	1,980	4,790	0	488	1,240	0	*55
19	538	615	580	488	744	1,830	4,070	13	209	1,240	0	18
20	704	600	605	480	*726	1,520	3,440	132	31	960	0	8.2
21	792	570	605	475	828	1,440	2,860	565	0	537	*0	0
22	738	556	595	470	1,050	1,200	2,540	704	0	346	0	53
23	*750	547	580	466	1,830	1,170	3,440	1,780	0	1,160	.1	25
24	762	538	570	480	1,830	1,080	5,270	5,150	0	1,720	0	4.1
25	726	524	565	498	1,580	*990	10,700	4,790	0	1,200	2.3	12
26	704	511	565	506	1,580	704	19,900	4,560	0	485	13	4.9
27	687	498	565	511	1,340	630	19,000	16,000	0	44	1.4	12
28	676	493	565	516	1,660	520	13,000	*30,200	0	0	*6.4	38
29	650	*462	570	556	1,660	516	9,170	28,900	0	0	1.1	49
30	645	448	565	810	-	484	6,440	*19,000	*0	0	0	12
31	645	-	556	756	-	418	-	*13,500	-	0	0	-
Total	23,758	17,147	18,614	15,574	28,667	40,882	154,726	153,788	94,160	9,782	28.0	1,151.2
Mean	766	572	600	502	989	1,319	5,158	4,961	3,139	316	0.90	38.4
Ac-ft	47,120	34,010	36,920	30,890	56,860	81,090	306,900	305,000	186,800	19,400	56	2,280

Calendar year 1951: Max 9,630 Min 0 Mean 928 Ac-ft 671,900
Water year 1951-52: Max 30,200 Min 0 Mean 1,525 Ac-ft 1,107,000

* Discharge measurement made on this day.

Note.--Discharge Dec. 14-18, Feb. 17 to Mar. 2, Mar. 13 to Apr. 6, May 1-8, June 6-10, computed from once-daily staff gage readings.

Big Creek near Needville, Tex.

Location.--Lat 29°28'35", long. 95°48'45", near center of stream at downstream side of bridge on State Highway 36, 1.5 miles downstream from Coon Creek, 5½ miles north of Needville, Fort Bend County, and 10½ miles upstream from Fairchild Creek.

Drainage area.--37.6 sq mi.

Records available.--May 1947 to June 1950; March to September 1952.

Gage.--Water-stage recorder and concrete low-water control. Datum of gage is 69.39 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. May 20, 1947, to June 30, 1950, wire-weight gage at present site and datum.

Extremes--Maximum discharge during period March to September 1952, 1,440 cfs Apr. 23 (gage height, 11.64 ft); no flow at times.
1947-50, 1952: Maximum discharge, 2,660 cfs Oct. 8, 1949 (gage height, 12.99 ft); no flow at times.
Maximum stage known since about 1913, 14.4 ft in August 1945, from information by local resident.

Remarks.--Records good. No diversions above station.

Revisions (water years).--W 1148: 1947.

Rating table, Mar. 15 to Sept. 30, 1952 (gage height, in feet, and discharge, in cubic feet per second)

2.2	0	3.0	7.3	7.0	178
2.3	.2	3.5	16	8.0	290
2.4	.8	4.0	26	9.0	460
2.5	1.8	5.0	58	10.0	690
2.7	3.7	6.0	105	11.0	1,080

Discharge, in cubic feet per second, March to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	9.6	3.1	25	2.2	3.8	0
2						-	1.8	2.2	13	1.9	2.5	0
3						-	.8	1.6	7.4	1.5	2.4	0
4						-	3.1	1.1	4.6	2.0	2.5	0
5						-	1.2	.6	3.0	3.5	2.5	0
6						-	.8	.4	*2.2	6.8	2.5	0
7						-	.4	.2	7.4	6.5	1.9	0
8						-	**.2	.1	44	2.7	2.3	0
9						-	.1	*0	34	1.9	3.3	0
10						-	91	0	22	*2.5	2.6	0
11						-	26	0	15	2.8	1.9	0
12						-	572	0	10	1.8	1.2	0
13						-	762	0	8.4	1.7	1.0	0
14						-	233	0	5.6	.7	*1.0	0
15						0	52	0	3.9	1.4	.4	0
16						0	20	0	3.0	1.9	.1	0
17						0	9.0	0	2.3	14	.1	.2
18						0	4.9	0	2.2	12	.3	*3.1
19						.6	3.3	1.8	1.8	8.1	.3	3.2
20						1.0	2.9	3.5	1.0	12	.1	2.5
21						.5	2.3	1.9	.4	7.2	0	1.8
22						.3	6.3	.7	.2	3.8	0	1.1
23						.1	1,050	.2	.1	2.5	0	1.0
24						0	615	0	0	1.5	0	.8
25						0	164	0	0	1.1	0	1.2
26						0	57	0	0	.6	0	1.9
27						0	26	78	0	.4	0	1.2
28						0	*13	958	0	.3	0	.9
29						0	7.0	581	.6	.4	0	1.0
30						0	4.2	159	2.2	.6	0	1.0
31						7.9	-	56	-	1.7	0	-
Total						-	3,738.9	1,849.4	219.3	108.0	32.7	20.9
Mean						-	125	59.7	7.31	3.48	1.05	0.70
Ac-ft						-	7,420	3,670	435	214	65	41

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

Peak discharge (base, 500 cfs).--Apr. 12 (9:30 p.m.) 1,200 cfs (11.26 ft); Apr. 23 (11:30 a.m.) 1,440 cfs (11.64 ft); May 28 (1 p.m.) 1,100 cfs (11.07 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.

Fairchild Creek near Needville, Tex.

Location.--Lat 29°26'45", long. 95°45'40", near center of span at downstream side of pile bent of county road bridge, 3.0 miles upstream from mouth and 5½ miles northeast of Needville, Fort Bend County.

Drainage area.--24.9 sq mi.

Records available.--May 1947 to September 1952.

Gage.--Staff gage and crest-stage indicator; gage read twice daily. Datum of gage is 60.42 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Average discharge.--5 years, 14.7 cfs.

Extremes.--Maximum discharge during year, 1,160 cfs May 28 (gage height, 10.11 ft, from floodmark); no flow at times.
1947-52: Maximum discharge, 1,800 cfs Oct. 8, 1949 (gage height, 11.46 ft, from floodmarks); no flow at times.
Maximum stage since about 1910, 12.5 ft in August 1945, from floodmark 195 ft downstream and 520 ft to left of gage, from information by local resident.

Remarks.--Records fair.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 6-22, Mar. 1-6, July 5-16)

0.75	0	2.5	23
.8	.1	3.0	40
.9	.4	3.5	67
1.0	.8	4.0	102
1.2	1.8	5.0	202
1.4	3.4	6.0	342
1.7	6.9	7.0	515
2.0	12	9.0	900

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	1.1	0		370	1.8	45	1.0	5.9	0.8		
2	1.2	.6	0		220	1.1	4.2	.8	3.4	2.6		
3	.7	.3	0		21	.8	1.1	.5	2.0	1.1		
4	.3	0	.2		4.6	.5	1.1	.3	1.4	.3		
5	.1	1.6	0		2.0	.2	.7	.1	1.0	0		
6	0	3.2	0		1.1	0	.4	0	*.8	0		
7	0	1.8	0		.7	0	0	0	.7	14		
8	0	1.2	0		.4	0	*0	0	.7	2.8		
9	0	.8	0		**.2	0	0	*0	.7	.8		
10	0	.2	0		.1	0	21	0	.6	**.2		
11	0	0	0		.1	0	5.0	0	.2	0		
12	0	0	0		0	0	439	0	0	4.3		
13	0	0	0		0	0	419	0	0	4.3		
14	0	0	0		0	*0	32	0	0	1.4	(*)	
15	0	0	0		0	0	9.0	0	0	.5		
16	0	0	0		2.3	0	3.5	0	0	1.0		
17	0	0	0		1.8	0	1.5	0	0	49		
18	0	0	0		.8	0	1.0	0	0	25		(*)
19	0	*0	0		.4	0	.7	0	0	23		
20	0	0	0		.3	0	.7	0	0	48		
21	0	0	0		.1	0	.6	0	0	9.7		
22	0	0	0		205	0	.7	0	0	4.3		
23	0	0	0		122	0	610	0	0	1.6		
24	*0	0	0		124	0	219	0	0	.5		
25	0	0	0		155	0	34	0	0	.1		
26	0	0	0		83	0	12	0	0	0		
27	198	0	0		14	0	6.2	0	0	0		
28	111	0	*0		5.0	0	3.6	828	0	0		
29	10	0	0	(*)	2.6	0	1.9	276	0	0		
30	3.6	0	0		-	0	1.3	40	0	0		
31	1.8	-	0		-	11	-	13	-	0		-
Total	328.6	10.8	0.2	0	1,336.5	15.4	1,874.2	1,159.7	17.4	195.3	0	0
Mean	10.6	0.36	0.01	0	46.1	0.50	62.5	37.4	0.58	6.30	0	0
Ac-ft	652	21	0.4	0	2,650	31	3,720	2,300	35	387	0	0

Calendar year 1951: Max 528 Min 0 Mean 7.92 Ac-ft 5,740
Water year 1951-52: Max 828 Min 0 Mean 13.5 Ac-ft 9,800

Peak discharge (base, 500 cfs).--Feb. 1 (5 p.m.) 700 cfs (7.96 ft); Apr. 13 (1 a.m.) 700 cfs (8.01 ft); Apr. 23 (2:30 p.m.) 820 cfs (8.60 ft); May 28 (10 a.m.) 1,160 cfs (10.11 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.

Brazos River at East Columbia, Tex.

Location.--Lat 29°09', long. 95°37', near center of span at upstream side of bridge on State Highway 35 at East Columbia, Brazoria County, 1 mile downstream from Yarners Creek and at mile 31.

Drainage area.--44,540 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--Gage heights: October 1938 to September 1940, February 1942 to September 1952. Discharge measurements: October 1939 to September 1948. Daily discharge above 8,000 cfs: October 1939 to September 1940, February 1942 to September 1949.

Gage.--Wire-weight gage read twice daily. Datum of gage is 2.95 ft below mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Extremes.--Maximum gage height observed during year, 20.70 ft May 28, from graph based on gage readings; minimum observed, 1.48 ft Nov. 2.
1938-52: Maximum gage height observed, 34.12 ft Dec. 5, 1940 (discharge not determined); minimum, 1.03 ft Dec. 30, 1948 (affected by tides).
Maximum stage known, 35.3 ft Dec. 11 or 12, 1913. Flood of 1899 reached a stage of 35.0 ft. Stages from information by local residents.

Remarks.--Discharge not computed. Flow largely regulated by reservoirs above Waco. Considerable water diverted above station for irrigation, industrial use, and municipal supply.

Gage height, in feet, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.32	3.65	3.36	3.46	3.97	3.57	3.88	6.20	12.10	3.47	3.26	3.65
2	5.17	2.65	3.53	3.32	4.02	4.40	3.88	5.18	13.05	2.86	3.14	3.76
3	5.50	2.86	3.46	3.22	4.04	4.22	3.74	4.26	12.00	2.92	3.44	4.02
4	4.54	3.74	3.51	2.86	3.29	3.32	3.23	3.72	9.65	3.06	3.37	4.27
5	4.26	3.91	3.62	3.16	3.47	4.02	2.37	3.74	8.15	4.96	3.32	3.99
6	3.79	1.92	4.36	2.86	2.62	4.02	3.12	3.60	6.75	3.68	3.62	3.40
7	3.06	2.28	3.44	3.42	3.08	4.26	3.44	3.76	6.45	3.22	3.62	4.09
8	3.64	3.15	3.66	4.21	3.24	3.43	3.86	3.79	6.14	3.18	3.46	4.16
9	3.68	3.75	3.34	3.21	2.57	4.72	4.06	4.12	5.68	3.14	3.72	4.70
10	3.45	3.56	3.52	2.88	3.38	4.67	3.38	4.96	5.60	3.24	2.64	4.24
11	3.38	4.44	3.42	3.88	3.16	4.00	3.49	3.69	5.23	2.84	2.80	4.78
12	3.24	4.54	3.41	3.48	3.55	4.24	5.19	3.62	5.74	3.10	2.81	4.62
13	3.60	4.30	3.60	3.60	3.51	4.27	4.60	2.67	5.23	2.80	2.81	4.52
14	4.14	4.26	4.14	4.04	4.52	4.66	9.95	2.36	4.70	4.17	2.81	4.27
15	4.04	3.79	2.66	3.61	3.84	4.19	10.00	2.95	3.71	3.34	3.42	3.90
16	4.35	3.06	3.63	3.86	3.04	4.87	8.20	3.39	3.09	4.82	3.62	3.92
17	4.73	2.04	3.69	3.40	2.80	4.96	6.95	4.06	3.17	6.73	3.08	3.84
18	4.83	2.41	3.31	3.30	3.50	3.84	6.30	3.98	3.10	5.32	3.07	3.70
19	3.53	2.78	4.62	3.80	3.81	3.62	5.62	3.68	3.06	5.89	3.56	3.63
20	4.26	3.18	3.62	3.32	3.52	4.48	5.76	3.76	3.42	5.06	3.53	3.70
21	4.52	3.64	3.36	3.34	3.52	4.32	5.30	3.88	4.17	5.19	3.16	4.34
22	3.92	4.10	2.89	2.77	4.82	3.00	5.29	4.05	3.50	4.41	3.27	3.67
23	3.76	4.17	3.44	3.52	3.94	3.32	4.68	4.08	3.46	3.70	3.00	4.04
24	4.34	3.92	3.63	3.76	4.74	4.00	5.47	4.22	3.46	3.86	2.62	3.50
25	4.36	3.89	3.86	3.62	5.12	4.52	7.05	6.11	3.31	3.58	3.24	3.66
26	4.20	3.94	2.95	3.54	3.08	4.67	12.70	5.75	3.12	3.72	3.80	3.59
27	4.36	3.16	3.06	3.61	2.90	4.48	15.20	8.20	3.06	4.00	4.44	3.91
28	4.18	3.66	3.54	3.20	3.62	3.98	12.70	18.30	2.92	3.42	4.44	4.16
29	4.35	3.62	2.80	3.54	3.29	4.10	9.95	19.95	2.97	2.79	3.82	3.71
30	4.37	3.57	3.29	3.91	-	3.64	7.85	17.55	2.62	3.32	4.29	3.64
31	4.06	-	3.92	3.76	-	3.78	-	13.80	-	3.46	4.14	-

Colorado River near Ira, Tex.

Location.--Lat 32°32', long. 101°03', on right bank 530 ft downstream from bridge on State Highway 350, 3¼ miles upstream from Willow Creek, 3¼ miles downstream from Bluff Creek, 4.4 miles southwest of Ira, Scurry County, and at mile 825.

Drainage area.--3,617 sq mi, of which 2,590 sq mi is probably noncontributing.

Records available.--October 1947 to September 1952 (monthly records only since September 1950), discontinued.

Gage.--Water-stage recorder. Datum of gage is 2,136 ft above mean sea level, datum of 1929. Oct. 1-30, 1947, staff gage at site 75 ft upstream at same datum.

Average discharge.--5 years, 50.5 cfs.

Extremes.--Maximum discharge during year, 466 cfs Aug. 11 (gage height, 4.11 ft); no flow at times.

1947-52: Maximum discharge, 20,500 cfs July 6, 1948 (gage height, 21.35 ft), from rating curve extended above 9,600 cfs by conveyance-slope method; no flow at times.

Maximum stage known, about 32 ft June 16, 1913, from levels to a point about 255 ft upstream from gage, from information by local resident. Flood of May 1947 reached a stage of 25.1 ft, from floodmark at site of former bridge 269 ft upstream from gage.

Remarks.--Records poor. Flow regulated since July 1952 by Lake J. B. Thomas (capacity, 204,000 acre-ft).

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5.4	-	0	0.17	11
November	2.9	-	0	.10	5.8
December	12.0	-	-	.39	24
Calendar year 1951	15,689.6	3,920	0	43.0	31,120
January	17.5	-	-	.56	35
February	11.2	-	-	.39	22
March	6.4	-	-	.21	13
April	4.5	-	0	.15	8.9
May	.4	-	0	.01	.8
June	0	0	0	0	0
July	0	0	0	0	0
August	69.1	59	0	2.23	137
September	121.6	56	0	4.05	241
Water year 1951-52	251.0	59	0	.69	498

Peak discharge (base, 1,500 cfs).--No peak above base.

Colorado River at Colorado City, Tex.

Location.--Lat 32°23'33" (revised), long. 100°52'42" (revised), on right bank at Colorado City, Mitchell County, 3,517 ft upstream from bridge on U. S. Highway 80, 4,100 ft upstream from Texas & Pacific Railway bridge, 1.6 miles upstream from Lone Wolf Creek, and at mile 796.

Drainage area.--4,082 sq mi, of which 2,590 sq mi is probably noncontributing.

Records available.--November 1923 to August 1925, May 1946 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,030.16 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. Nov. 28, 1923, to Aug. 31, 1925, chain gage at site 1.4 miles downstream at different datum. May 9, 1946, to Aug. 5, 1946, staff gage at site 185 ft upstream at present datum.

Average discharge.--6 years (1946-52), 85.4 cfs.

Extremes.--Maximum discharge during year, 2,740 cfs July 16 (gage height, 5.84 ft); no flow at times.

1923-25, 1946-52: Maximum discharge, 24,900 cfs July 6, 1948 (gage height, 22.37 ft, from floodmark); no flow at times.

Maximum stage known 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 cfs, by slope-area determination of peak flow at site 2.5 miles upstream from gage).

Remarks.--Records good. Flow slightly regulated since July 1952 by Lake J. B. Thomas (capacity, 204,000 acre-ft). Records of chemical analyses for the water year 1952 are given in Water-Supply Paper 1252.

Revisions.--W 1118: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.5	0	3.0	59
2.6	2.0	3.2	136
2.7	6.2	3.4	238
2.8	14	3.7	430
2.9	31		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.8	0.4	0.6	1.0	0.4	0	*309	6.6	0	0	0
2	0	.6	.4	.6	.8	1.2	0	56	3.6	0	0	0
3	*0	.2	.2	.6	1.0	1.2	*0	12	1.7	0	0	0
4	0	.1	.2	1.2	1.2	.8	0	6.9	1.0	0	0	0
5	0	*0	.1	1.2	.6	*.4	0	3.6	.4	0	0	*0
6	0	0	*0	1.0	.6	.2	0	2.3	.1	0	0	0
7	0	0	0	.8	.2	.2	0	*1.2	0	0	0	0
8	0	0	0	1.2	**.2	.2	0	.4	0	1.4	0	0
9	0	0	0	*1.2	.6	.1	0	0	0	.4	0	0
10	0	0	0	.8	.6	.6	0	0	*0	0	0	0
11	0	0	0	1.0	.4	.1	0	0	0	*0	0	0
12	0	0	0	1.2	.2	0	0	0	0	0	*0	0
13	0	0	0	1.2	.1	0	0	0	0	0	21	0
14	0	0	.6	1.2	.2	*0	0	0	0	0	6.4	0
15	0	0	.2	1.2	1.0	0	0	0	0	0	2.6	0
16	0	0	.1	1.0	1.0	0	0	0	0	376	1.2	0
17	0	0	.1	1.4	1.2	0	0	0	0	44	.1	0
18	0	0	.1	1.4	1.2	0	0	0	0	9.1	0	0
19	0	0	0	1.4	1.2	0	.9	0	0	4.0	0	0
20	0	0	.2	1.4	1.0	0	4.0	0	0	2.3	0	0
21	0	0	.1	1.4	.6	0	1.2	0	0	1.0	0	0
22	0	0	0	1.4	1.0	0	1.4	0	0	.2	0	162
23	0	0	0	1.2	1.2	0	2.6	9.1	0	0	0	179
24	0	0	.1	1.0	1.2	0	2.9	9.5	0	0	0	90
25	0	0	0	1.2	1.2	0	1.7	6.9	0	0	0	34
26	0	0	.1	1.2	.8	0	1.0	2.9	0	0	0	14
27	0	.2	.1	1.0	.8	0	.8	17	0	0	0	8.3
28	2.5	.6	.2	.8	.8	0	.6	68	0	0	2.4	4.0
29	2.6	.6	.8	1.0	.6	0	8.8	29	0	0	3.1	2.3
30	1.4	.6	.6	1.0	-	0	4.7	6.9	0	0	.4	1.4
31	1.2	-	.4	1.0	-	0	-	3.6	-	0	0	-
Total	7.7	3.7	5.0	33.8	22.5	5.4	30.6	544.3	13.4	438.4	37.2	495.0
Mean	0.25	0.12	0.16	1.09	0.78	0.17	1.02	17.6	0.45	14.1	1.20	16.5
Ac-ft	15	7.3	9.9	67	45	11	61	1,080	27	870	74	982

Calendar year 1951: Max 3,440 Min 0 Mean 47.6 Ac-ft 34,410
Water year 1951-52: Max 376 Min 0 Mean 4.47 Ac-ft 3,250

Peak discharge (base, 4,000 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.

Lake Colorado City near Colorado City, Tex.

Location.--Lat 32°20'40" (revised), long. 100°55'10" (revised), on left bank at municipal water-intake structure, 1.7 miles upstream from Lake Colorado City Dam on Morgan Creek, 2.2 miles downstream from Texas & Pacific Railway bridge, 2.5 miles upstream from mouth, and 4.0 miles southwest of Colorado City, Mitchell County.

Drainage area.--267 sq mi.

Records available.--April 1949 to September 1952.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to Aug. 23, 1950, staff gages at or near powerplant about 0.7 mile downstream at same datum.

Extremes.--Maximum contents during year, 15,600 acre-ft Oct. 1, 2 (elevation, 2,059.01 ft); minimum, 9,900 acre-ft Sept. 22 (elevation, 2,052.50 ft).
1949-52: Maximum contents, 22,780 acre-ft Sept. 20-27, 1950 (elevation, 2,065.23 ft); minimum since first appreciable storage, 5,800 acre-ft Apr. 11-13, 1950 (elevation, 2,045.72 ft).

Remarks.--Reservoir is formed by a rolled-fill earthen dam, 4,800 ft long; storage began in April 1949; dam completed in September 1949. Reservoir is operated by Texas Electric Service Co. for cooling purposes in operation of steam powerplant. Colorado City diverts water for municipal supply (see table below).
Service spillway is of cloverleaf design, located 100 ft upstream from dam, having two uncontrolled openings 10 by 12 ft, designed to discharge a total of 5,000 cfs. An emergency spillway, 1,200 ft wide and designed to discharge 150,000 cfs directly into the Colorado River, is located 600 ft upstream and to left of dam. Capacity of reservoir, 37,700 acre-ft at elevation 2,073.7 ft (top of emergency spillway), 30,800 acre-ft at elevation 2,070.3 ft (top of service spillway), and 200 acre-ft dead storage at elevation 2,024.3 ft (bottom of service outlet conduit). Water for municipal supply can be withdrawn down to elevation 2,045 ft.

Cooperation.--Capacity curve prepared and furnished by Freese & Nichols, consulting engineers. Record of diversions for municipal use furnished by Colorado City.

Monthly elevation and contents, water year October 1951 to September 1952

Date	Elevation (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)	Diversions for municipal use (acre-feet)
Sept.30	2,059.01	15,600	-	-
Oct. 31	2,058.42	15,000	-600	55
Nov. 30	2,058.03	14,600	-400	56
Dec. 31	2,057.65	14,240	-360	65
Calendar year 1951	-	-	-6,240	876
Jan. 31	2,057.39	14,060	-180	67
Feb. 29	2,057.00	13,700	-360	60
Mar. 31	2,056.46	13,250	-450	71
Apr. 30	2,056.10	12,890	-360	72
May 31	2,055.98	12,800	-90	63
June 30	(a)	11,900	-900	100
July 31	2,054.12	11,180	-720	92
Aug. 31	2,053.10	10,380	-800	99
Sept.30	2,058.35	15,000	+4,620	72
Water year 1951-52	-	-	-600	872

a No gage-height record; contents interpolated.

Champlin Creek near Colorado City, Tex.

Location.--Lat 32°19', long. 100°49', on right bank 600 ft downstream from South Fork, 5 miles southeast of Colorado City, Mitchell County, and 5½ miles upstream from mouth.

Drainage area.--158 sq mi.

Records available.--October 1947 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 2,047.2 ft above mean sea level, datum of 1929 (State Highway Department Survey). Prior to July 5, 1949, staff gage at same site and datum.

Average discharge.--5 years, 12.1 cfs.

Extremes.--Maximum discharge during year, 729 cfs Sept. 22 (gage height, 3.04 ft); no flow June 16 to July 1, Aug. 12-22, Sept. 1-4.

1947-52: Maximum discharge, 10,200 cfs Oct. 25, 1947 (gage height, 10.40 ft, from floodmark), from rating curve extended above 2,400 cfs on basis of slope-area determinations at gage heights 8.88 and 10.40 ft; no flow June 16 to July 1, Aug. 12-22, and Sept. 1-4, 1952.

Maximum stage known since at least 1898, about 18.5 ft July 7 or 8, 1945, from floodmarks on left bank opposite gage.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.5	0	1.1	39
.6	.2	1.4	86
.7	2.0	1.8	180
.8	8.5	2.2	313
.9	17		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.3	0.2	0.6	1.2	0.9	0.6	1.2	0.1	0	0.1	0
2	.1	.2	.3	.6	1.2	1.2	.5	.5	.1	11	.1	0
3	*.1	.2	.3	.6	.9	.9	*.4	.5	.1	.1	.1	0
4	.1	.2	.4	.6	1.2	.9	.4	.5	.1	.1	.1	0
5	.2	*.2	.4	.9	1.2	*.9	.4	.4	.1	.1	.1	**.1
6	.1	.2	*.4	.9	1.2	.9	.4	.4	.1	.1	.1	.1
7	.1	.2	.4	.9	1.2	.6	.4	*.4	.1	.1	.1	.1
8	.2	.2	.4	.9	*1.2	.6	.4	.3	.1	.1	.1	.1
9	.2	.2	.4	*.9	1.2	.6	.4	.2	.1	.1	.1	.1
10	.1	.2	.4	.9	.1.2	.9	.4	.2	*.1	.1	.1	.2
11	.1	.2	.4	.9	1.2	.9	.4	.2	.1	**.1	.1	.1
12	.2	.2	.4	.9	1.2	.6	.4	.2	.1	.1	*0	.1
13	.2	.2	.4	.9	1.2	.6	.4	.2	.1	.2	0	.1
14	.2	.2	.4	1.2	1.2	.6	.4	.2	.1	.2	0	.1
15	.2	.2	.4	.9	1.4	.6	.4	.2	.1	.2	0	.1
16	.2	.2	.4	.9	1.4	.9	.3	.2	0	.2	0	.1
17	.2	.1	.4	.9	1.4	.9	.3	.2	0	.1	0	.1
18	.2	.1	.4	.9	1.4	.9	.3	.4	0	.1	0	.1
19	.2	.1	.4	.9	1.4	.9	.3	.4	0	.2	0	.1
20	.2	.1	.4	.9	1.2	.6	.3	.3	0	.2	0	.1
21	.2	.1	.4	1.2	1.2	.6	.3	.2	0	.1	0	.1
22	.2	.1	.4	.9	1.2	.6	.3	.2	0	.1	0	164
23	.2	.1	.4	.9	1.2	.6	.3	292	0	.1	.1	18
24	.2	.1	.4	.9	1.2	.6	.2	7.1	0	.1	.1	1.2
25	.2	.1	.4	.9	1.2	.6	.2	.3	0	.1	.1	.3
26	.2	.2	.6	.9	1.2	.6	.2	.2	0	.1	.1	.2
27	.3	.2	.6	.9	1.2	.6	.2	.1	0	.1	.1	.1
28	.3	.2	.6	.9	.9	.9	.2	.2	0	.1	.1	.1
29	.4	.2	.6	.9	.9	1.2	.2	.1	0	.1	.1	.1
30	.4	.2	.6	.9	-	.9	.2	.1	0	.1	.1	.1
31	.3	-	.6	1.2	-	.6	-	.1	-	.1	.1	-
Total	6.2	5.2	13.2	27.6	34.9	23.7	10.1	307.7	1.5	14.5	2.0	185.9
Mean	0.20	0.17	0.43	0.89	1.20	0.76	0.34	9.93	0.05	0.47	0.06	6.20
Ac-ft	12	10	26	55	69	47	20	610	3.0	29	4.0	369

Calendar year 1951: Max 1,930 Min 0.1 Mean 15.5 Ac-ft 11,230
Water year 1951-52: Max 292 Min 0 Mean 1.73 Ac-ft 1,250

Peak discharge (base, 2,000 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--No gage-height record Oct. 25 to Nov. 4, Nov. 11 to Dec. 5, Dec. 7 to Jan. 9 and Apr. 7 to May 6, June 7-9; discharge estimated on basis of recorded range in stage, discharge measurements, and weather records.

Colorado River at Robert Lee, Tex.

Location.--Lat 31°53'05", long. 100°28'45", near left bank at downstream side of pier of bridge on State Highway 208 in Robert Lee, Coke County, half a mile upstream from Mountain Creek and at mile 712.

Drainage area.--15,770 sq mi, approximately, of which 11,600 sq mi is probably noncontributing.

Records available.--September 1915 to September 1920 (October 1918 to September 1920, gage heights only), October 1923 to December 1927, April 1939 to September 1952. Published as "near Bronte" 1915-20 and as "near Robert Lee" 1923-27.

Gage.--Water-stage recorder. Datum of gage is 1,771.70 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation). Sept. 19, 1915, to Sept. 30, 1920, chain gage at site 16 miles downstream at different datum; Oct. 23, 1923, to Dec. 31, 1927, at site 9 miles downstream at different datum.

Average discharge.--19 years (1915-18, 1924-27, 1939-52), 192 cfs.

Extremes.--Maximum discharge during year, 2,760 cfs Apr. 22 (gage height, 6.46 ft); no flow at times.

1915-20, 1923-27, 1939-52: Maximum discharge, 31,700 cfs June 22, 1939 (gage height, 21.70 ft, from graph based on gage readings), from rating curve extended above 26,000 cfs on basis of slope-area determination of peak flow; no flow at times.

Maximum stage known since at least 1907, about 25.5 ft in April 1922, from information by local residents.

Remarks.--Records good. About 2,200 acres irrigated above station. Flow slightly regulated by Lake Colorado City (see p. 143), and since July 1952 by Lake J. B. Thomas (capacity 204,000 acre-ft).

Revisions.--W 1118: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.0	0	2.7	71
2.1	.6	3.0	142
2.2	2.0	3.5	285
2.3	7.0	4.0	520
2.4	16	4.5	870
2.5	30		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.6					0	0.4	178			0
2	0	0					0	.2	33			0
3	0	0					*0	.2	10			0
4	0	0					0	.1	2.6			0
5	0	0	(*)			(*)	0	31	1.1			*0
6	0	*0					0	15	25			0
7	0	0					0	5.0	27			0
8	0	0			(*)		0	1.7	1.4			0
9	0	0		(*)			0	.8	.4			0
10	0	0					0	.5	*.2			0
11	0	0					0	.4	0	(*)		0
12	0	0					0	.2	0		(*)	0
13	0	0					0	0	0			0
14	0	0					0	0	0			0
15	0	0					0	0	0			0
16	0	0					0	0	0			0
17	*0	0					0	0	0			0
18	0	0					0	0	0			0
19	0	0					0	.2	0			0
20	0	0					0	.4	0			0
21	0	0					0	.2	0			0
22	0	0					445	0	0			0
23	0	0					5.9	.3	0			0
24	0	0					.8	75	0			831
25	0	0					.4	177	0			362
26	0	0					.2	65	0			134
27	0	0					.2	28	0			81
28	.2	0					0	12	0			47
29	0	0					0	4.3	0			20
30	.1	0					*.1	1.7	0			8.6
31	1.0	-			-		-	169	-			-
Total	1.3	0.6	0	0	0	0	452.6	588.6	278.7	0	0	1,483.6
Mean	0.04	0.02	0	0	0	0	15.1	19.0	9.29	0	0	49.5
Ac-ft	2.6	1.2	0	0	0	0	898	1,170	553	0	0	2,940

Calendar year 1951: Max 2,910 Min 0 Mean 74.9 Ac-ft 54,210
Water year 1951-52: Max 831 Min 0 Mean 7.67 Ac-ft 5,560

Peak discharge (base, 7,700 cfs).--No peak above base.
* Discharge measurement made on this day.

Colorado River at Ballinger, Tex.

Location.--Lat 31°43'50", long. 99°56'25", near left bank on downstream side of pier of bridge on U. S. Highway 83 in Ballinger, Runnels County, 2,000 ft upstream from Elm Creek and at mile 659.

Drainage area.--16,840 sq mi, approximately, of which 11,600 sq mi is probably noncontributing.

Records available.--June 1907 to September 1952 (June 1907 to November 1915, monthly records only in Water-Supply Paper 850). Gage-height records collected in this vicinity from 1903-29 are contained in reports of United States Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 1,593.74 ft above mean sea level, datum of 1929. Prior to Nov. 29, 1930, staff, chain, or Mott gages at several sites upstream within 1 mile of present site at various datums.

Average discharge.--45 years, 382 cfs.

Extremes.--Maximum discharge during year, 7,700 cfs June 1 (gage height, 8.92 ft); maximum gage height, 9.20 ft Sept. 10 (backwater from Elm Creek); no flow at times.
1907-52: Maximum discharge, 75,400 cfs Sept. 18, 1936 (gage height, 28.6 ft); no flow at times.
Maximum stage since at least 1882, about 36 ft in 1884, present site and datum, from information by local residents. Flood of Aug. 6, 1906, reached a stage of about 32.0 ft, present site and datum, from floodmarks (backwater from Elm Creek).

Remarks.--Records good except those for period of no gage-height record and those for the periods of backwater effect from Elm Creek, which are fair. Small diversions above station for irrigation affect low flow. Flow slightly regulated by Lake Colorado City (see p. 143), and since July 1952 by Lake J. B. Thomas (capacity, 204,000 acre-ft).

Revisions (water years).--W 850: 1916-17. W 1118: Drainage area.

Rating table, water year 1951-52, except periods of backwater from Elm Creek (gage height, in feet, and discharge, in cubic feet per second)

0.9	0	1.6	60
1.0	.2	1.9	148
1.1	.7	2.4	358
1.2	3.2	3.0	720
1.3	7.2	4.0	1,690
1.4	17	5.5	3,430

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	**0.2	1.4	0.5	0.2	0.4	0.3	0.1	c261	3,440			0
2	.1	.6	.5	.2	.4	.3	.1	69	271			0
3	.2	.6	.5	.3	.4	.4	.1	78	91			0
4	.4	.6	.4	.6	.2	.2	.1	31	*39			0
5	.4	.6	.4	.6	.2	.3	0	13	19			0
6	.4	.5	*.3	.6	.2	*.4	0	6.3	15			0
7	.4	*.4	.3	.6	.3	.4	0	3.6	791			0
8	.5	.4	.4	.5	.3	.3	0	*1.9	133			0
9	.6	.4	.4	.6	.2	.2	*0	1.2	50			0
10	.5	.4	.4	.5	.2	.2	0	.6	21			c670
11	.5	.4	.4	.4	*.2	.2	0	.4	11			307
12	.4	.4	.4	.4	.2	0	0	.4	6.3			79
13	.4	.3	.4	.5	.2	0	0	.2	3.6			19
14	.4	.2	.5	*.5	.2	0	0	.2	2.2			6.8
15	.4	.2	.4	a.5	.4	0	0	.1	1.1			3.2
16	.4	.1	.4	.4	.5	0	0	0	.4	(*)		2.2
17	.4	.1	.4	a.3	.4	0	0	.1	.2			5.7
18	.2	.1	.5	a.4	.2	.1	0	4.3	.1			5.6
19	0	.1	.6	a.3	.3	.1	0	2.2	0			*2.2
20	0	.1	.6	a.2	.1	.1	0	1.4	0			1.1
21	0	.3	.5	a.2	.1	.1	6.0	.9	0			.6
22	.1	.4	.3	a.2	.4	.1	2,060	.5	0			.4
23	.2	.6	0	a.1	.5	.1	915	12	0			.3
24	.3	.6	0	a.2	.5	0	131	3.2	0			.4
25	.2	.9	.2	a.2	.4	0	48	1.9	0			313
26	.3	1.2	.2	a.2	.4	0	23	56	0		(*)	275
27	.4	.6	0.	a.2	.4	0	10	78	0			132
28	.6	.6	.1	a0	.3	.1	5.9	44	0			76
29	3.8	.6	.2	.1	.3	.1	3.2	27	0			46
30	2.6	.6	.2	.1	-	.1	201	16	0			27
31	1.6	-	.2	.2	-	.1	-	482	-			-
Total	16.9	14.3	10.6	10.3	8.8	4.2	3,403.5	1,196.4	4,894.9	0	0	1,972.5
Mean	0.55	0.48	0.34	0.33	0.30	0.14	113	38.6	163	0	0	65.8
Ac-ft	34	28	21	20	17	8.3	6,750	2,370	9,710	0	0	3,910

Calendar year 1951: Max 4,910 Min 0 Mean 118 Ac-ft 85,500
Water year 1951-52: Max 3,440 Min 0 Mean 31.5 Ac-ft 22,870

Peak discharge (base, 8,900 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage and weather records.
c Backwater from Elm Creek.

Elm Creek at Ballinger, Tex.

Location.--Lat 31°45'00", long. 99°56'50", on right bank 1,000 ft upstream from storage dam at Ballinger, Runnels County, and 1¼ miles upstream from mouth.

Drainage area.--458 sq mi.

Records available.--April 1932 to September 1952.

Gage.--Water-stage recorder and concrete dam control. Datum of gage is 1,617.72 ft above mean sea level, datum of 1929.

Average discharge.--20 years, 46.2 cfs.

Extremes.--Maximum discharge during year, 8,600 cfs Sept. 10 (gage height, 7.36 ft); no flow at times.

1932-52: Maximum discharge, 29,200 cfs May 14, 1946 (gage height, 10.84 ft), from rating curve extended above 15,000 cfs; no flow at times.

Flood of August 1906 reached a stage of about 14.6 ft, affected by backwater from Colorado River, from information by local residents.

Remarks.--Records good except those for period of no gage-height record, which are fair. Stage-discharge relation during period of low flow affected by wind action and occasional accumulation of drift on dam. Small diversion by Ballinger city pumping plant.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

3.8	0	4.3	365
3.9	11	4.5	645
4.0	67	5.0	1,450
4.1	144	6.0	3,710

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	(*)						0	*a656	7.0			0
2							0	7.0	15			0
3							0	1.5	7.0			0
4							0	1.0	2.5			0
5							0	1.0	1.0			0
6			(*)			(*)	0	.2	286			0
7		(*)					0	0	378			0
8							0	*0	95			0
9							*0	0	55			0
10							0	0	37			3,430
11					(*)		0	0	20			836
12							0	0	*7.0			135
13							0	0	7.0			55
14				(*)			0	0	4.5			31
15							0	0	1.5			11
16							0	0	1.0	(*)		4.5
17							0	0	.1			7.0
18							0	0	0			4.5
19							0	0	0			*2.5
20							0	0	0			1.5
21							0	0	0			1.0
22							334	0	0			.4
23							43	66	0			.1
24							a4.5	170	0			.1
25							a.6	81	0			.1
26							a0	37	0		(*)	0
27							a0	25	0			0
28							a0	11	0			0
29							a0	7.0	0			0
30					-		a175	7.0	0			0
31		-			-		-	4.5	-			-
Total	0	0	0	0	0	0	557.1	1,075.2	924.6	0	0	4,519.7
Mean	0	0	0	0	0	0	18.6	34.7	30.8	0	0	151
Ac-ft	0	0	0	0	0	0	1,100	2,130	1,830	0	0	8,960

Calendar year 1951: Max 5,380 Min 0 Mean 39.4 Ac-ft 28,560
Water year 1951-52: Max 3,430 Min 0 Mean 19.3 Ac-ft 14,020

Peak discharge (base, 2,100 cfs).--May 1 (time unknown) 3,980 cfs (6.19 ft); Sept. 10 (2 p.m.) 8,600 cfs (7.36 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of range in stage and weather records.

South Concho Irrigation Co.'s canal at Christoval, Tex.

Location.--Lat 31°13', long. 100°30', on right bank at Christoval, Tom Green County, 85 ft downstream from point of diversion and 100 ft downstream from bridge on U. S. Highway 277.

Records available.--November 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 2,017.02 ft above mean sea level, datum of 1929.

Average discharge.--12 years (1940-52), 10.3 cfs.

Extremes.--Maximum daily diversion for irrigation during year (excluding flood flow), 7.6 cfs Jan. 14; minimum daily, 3.0 cfs Apr. 11-14.
1939-52: Maximum daily diversion for irrigation (excluding flood flow), 21 cfs June 27, 28, 1941, Sept. 18, 21, 1942; minimum daily, 2.7 cfs Dec. 12, 1941.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Canal diverts water for irrigation from right bank of South Concho River, 600 ft upstream from station at Christoval. Water Service Report to the State Board of Water Engineers indicates 1,250 acres irrigated during the current year.

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	6.8	5.8	6.34	390
November	7.2	6.5	6.84	407
December	7.1	6.4	6.73	414
Calendar year 1951	9.7	3.9	6.68	4,840
January	7.6	6.6	7.17	441
February	7.4	6.2	6.88	396
March	6.4	4.4	5.57	343
April	7.1	3.0	4.16	248
May	6.5	4.2	5.36	330
June	6.9	4.3	5.47	325
July	6.6	4.9	5.63	346
August	4.7	4.2	4.44	273
September	5.4	3.6	4.47	266
Water year 1951-52	7.6	3.0	5.75	4,180

South Concho River at Christoval, Tex.

Location.--Lat 31°13', long. 100°30', near center of stream on downstream side of center pier of Panhandle & Santa Fe Railway bridge at Christoval, Tom Green County, 12 miles upstream from Lake Nasworthy.

Drainage area.--434 sq mi.

Records available.--February 1930 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,010.22 ft above mean sea level, datum of 1929. Prior to July 17, 1930, staff gage at same site and datum.

Average discharge.--22 years, 38.4 cfs.

Extremes.--Maximum discharge during year, 45 cfs Apr. 23 (gage height, 2.11 ft); minimum, 0.7 cfs Aug. 19-21.

1930-52: Maximum discharge, 100,000 cfs July 23, 1938 (gage height, 21.95 ft, from floodmarks), from rating curve extended above 9,000 cfs on basis of slope-area determination at gage height 20.5 ft; minimum, that of Aug. 19-21, 1952.

Maximum stage known since at least 1882, about 23 ft Aug. 6, 1906, from information by local residents.

Remarks.--Records good. Low flow materially affected by diversion 600 ft above station to South Concho Irrigation Co.'s canal (see preceding page).

Revisions (water years).--W 1118: 1943(M).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.65	0.4
1.7	1.2
1.8	5.1
1.9	13
2.0	25

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.6	3.6	3.1	3.6	2.7	2.7	4.6	7.6	5.1	1.0	1.2	1.2
2	3.6	3.6	3.1	3.6	2.7	3.1	5.1	7.6	4.6	1.0	1.2	1.2
3	3.6	3.6	3.1	3.6	2.4	3.1	5.1	6.9	4.6	*1.0	1.0	1.2
4	4.0	3.6	3.1	3.6	2.4	3.1	5.1	6.3	4.6	1.0	1.0	1.4
5	4.0	3.6	3.1	3.6	2.4	3.1	5.1	*6.3	4.6	1.0	1.2	1.4
6	4.0	3.6	3.6	3.6	2.4	3.1	5.1	5.7	4.6	1.0	1.0	1.4
7	4.0	3.1	3.6	3.6	2.4	3.1	5.1	5.1	5.1	.8	1.0	1.4
8	4.0	*3.1	3.6	3.6	2.4	3.1	*5.1	5.1	5.1	1.0	1.0	1.4
9	*4.0	3.1	3.6	3.6	2.4	3.1	5.1	5.1	5.1	.8	1.0	1.4
10	4.0	3.1	*3.6	3.6	2.4	3.1	5.1	4.6	5.1	.8	1.0	1.7
11	4.0	3.1	3.1	3.1	2.4	*3.1	5.7	4.6	*5.1	.8	*1.0	1.4
12	4.0	3.1	3.1	3.6	*2.4	3.1	4.6	4.6	5.1	1.0	1.0	1.4
13	4.0	3.1	3.1	3.6	2.4	3.1	4.0	4.0	4.6	.8	1.0	1.2
14	4.0	3.1	3.6	3.6	2.4	3.1	3.6	4.0	4.6	1.0	1.0	1.2
15	4.0	3.1	4.0	*3.6	2.4	3.1	3.1	3.6	4.6	1.0	1.0	*1.1
16	4.0	3.1	3.6	3.1	2.4	3.6	3.6	3.6	4.0	1.0	1.0	1.0
17	4.0	3.1	3.6	3.1	2.4	3.6	3.6	4.0	4.0	1.0	1.0	1.0
18	4.0	3.1	3.6	3.1	2.4	3.1	3.6	5.1	4.0	1.4	1.0	1.0
19	4.0	3.1	3.6	3.1	2.4	3.6	4.6	5.1	4.0	1.4	.8	1.0
20	4.0	3.1	3.1	3.1	2.4	3.6	8.0	5.1	4.0	1.4	.8	1.2
21	4.0	3.1	2.7	3.1	2.4	3.1	5.1	5.1	4.0	1.4	.8	1.2
22	4.0	3.1	3.1	2.7	2.7	3.1	12	4.6	4.0	1.4	1.2	1.0
23	4.0	3.1	3.1	2.7	2.7	3.6	23	4.6	3.6	1.4	1.2	1.2
24	4.0	3.1	3.1	2.7	2.7	3.6	10	4.6	3.6	1.4	1.2	1.2
25	4.0	3.1	3.1	2.7	2.7	4.0	7.6	4.6	3.6	1.4	1.2	1.2
26	4.0	3.6	3.1	2.7	2.7	4.0	7.6	4.6	2.7	1.0	1.7	1.2
27	3.6	3.6	3.1	2.7	2.7	4.0	7.6	5.1	1.0	1.0	1.2	1.4
28	3.6	3.1	3.1	2.7	2.7	4.6	6.9	6.3	1.0	1.0	1.2	1.7
29	3.6	3.1	4.0	2.7	2.7	4.6	6.9	5.7	1.0	1.2	1.2	1.2
30	3.6	3.1	4.0	2.7	-	4.6	6.9	5.1	1.0	1.0	1.2	1.2
31	3.6	-	4.0	2.7	-	4.6	-	5.1	-	1.2	1.2	-
Total	120.8	97.0	104.3	99.1	72.6	107.4	188.5	159.4	118.0	33.6	33.5	37.7
Mean	3.90	3.23	3.36	3.20	2.50	3.46	6.28	5.14	3.93	1.08	1.08	1.26
Ac-ft	240	192	207	197	144	213	374	316	234	67	66	75

Calendar year 1951: Max 863 Min 1.8 Mean 7.32 Ac-ft 5,300
Water year 1951-52: Max 23 Min 0.8 Mean 3.20 Ac-ft 2,320

Peak discharge (base, 160 cfs).--No peak above base.
* Discharge measurement made on this day.

Middle Concho River near Tankersly, Tex.

Location.--Lat 31°22'35", long. 100°36'50", on downstream side of left pier of bridge on U. S. Highway 67, 3 miles northeast of Tankersly, Tom Green County, and 9.5 miles upstream from Spring Creek.

Drainage area.--1,280 sq mi, of which 152 sq mi is probably noncontributing.

Records available.--February 1930 to September 1952.

Gage.--Water-stage recorder and masonry control. Datum of gage is 1,919.51 ft above mean sea level, datum of 1929.

Average discharge.--22 years, 40.7 cfs.

Extremes.--Maximum discharge during year, 4,480 cfs May 28 (gage height, 12.68 ft); no flow at times.

1930-52: Maximum discharge, 35,900 cfs Sept. 26, 1946 (gage height, 24.30 ft, from floodmark), from rating curve extended above 11,000 cfs on basis of computed flow over Nasworthy Dam, 12 miles downstream, corrected for inflow and storage for flood of Sept. 26, 1936; no flow at times.

Maximum stage known, about 27.2 ft in April 1922, from information by State Highway Department.

Remarks.--Records good. Small diversions for irrigation above station affect low flow.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.91	0	3.4	89
2.0	.9	3.6	141
2.1	1.9	4.0	265
2.3	4.6	4.5	480
2.5	8.4	5.0	685
2.7	15	6.0	1,050
3.0	31	7.0	1,380
3.2	52		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								0	0			
2								0	0			
3			(*)			(*)		0	0			
4				(*)				0	0			
5		(*)						0	0			
6								0	0			
7					(*)		(*)	0	5.9			
8	(*)							0	3.3			
9								0	.2			
10								0	*0			
11								0	0			
12								0	0			
13								*0	0			
14								0	0			
15								0	0	(*)		(*)
16								0	0			
17								0	0			
18								0	0			
19								0	0			
20								0	0			
21								0	0			
22								0	0			
23								0	0			
24								0	0			
25								0	0		(*)	
26								0	0			
27								0	0			
28								1,200	0			
29								*51	0			
30					-			5.4	0			
31		-			-		-	.7	-			-
Total	0	0	0	0	0	0	0	1,237.1	9.4	0	0	0
Mean	0	0	0	0	0	0	0	39.9	0.31	0	0	0
Ac-ft	0	0	0	0	0	0	0	2,450	19	0	0	0

Calendar year 1951: Max 1,300 Min 0 Mean 6.06 Ac-ft 4,380
Water year 1951-52: Max 1,200 Min 0 Mean 3.41 Ac-ft 2,470

Peak discharge (base, 1,700 cfs).--May 28 (1:30 a.m.) 4,480 cfs (12.68 ft).
* Discharge measurement made on this day.

Dove Creek Spring near Knickerbocker, Tex.

Location.--Lat 31°11', long. 100°44', at W. G. Rawls ranch house, 200 ft downstream from spring, 300 ft upstream from confluence with Dove Creek, 1.8 miles upstream from Stilson Dam, and 8½ miles southwest of Knickerbocker, Tom Green County.
Records available.--April 1944 to September 1952 (discharge measurements only).
Extremes.--Maximum discharge measured during year, 7.29 cfs June 10; minimum measured, 4.21 cfs Sept. 15.
1944-52: Maximum discharge measured, 17.2 cfs Aug. 23, 1944; minimum measured, that of Sept. 15, 1952.
Remarks.--Discharge measurements represent total flow of springs. Flow emerges from limestone outcrop at left bank of draw that extends upstream from about 1 mile, and responds to rainfall on Edwards Plateau. Water used for irrigation below station.

Discharge measurements, in cubic feet per second, water year October 1951 to September 1952

Oct. 18	6.55	Apr. 7	5.90
Nov. 8	6.95	May 5	5.26
Dec. 7	6.55	June 10	7.29
Jan. 15	5.61	July 8	5.07
Feb. 12	5.94	Aug. 25	4.35
Mar. 5	5.21	Sept. 15	4.21

Spring Creek near Tankersly, Tex.

Location.--Lat 31°21'30", long. 100°32'05", on right bank 2.8 miles upstream from mouth and 6.5 miles east of Tankersly, Tom Green County.
Drainage area.--734 sq mi.
Records available.--February 1930 to September 1952.
Gage.--Water-stage recorder and concrete control. Datum of gage is 1,874.61 ft above mean sea level, datum of 1929.
Average discharge.--22 years, 33.0 cfs.
Extremes.--Maximum discharge during year, 2,590 cfs May 28 (gage height 7.76 ft); no flow at times.
1930-52: Maximum discharge, 26,900 cfs Aug. 23, 1942 (gage height, 21.37 ft), from rating curve extended above 18,000 cfs; no flow at times.
Maximum stage known, about 26.0 ft in 1882, from information by local residents.
Remarks.--Records good. Many small diversions above station for irrigation.
Revisions (water years).--W 928: 1936.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								0	1.0			
2								0	*.8			
3			(*)			(*)		0	1.0			
4								0	1.5			
5		(*)						0	2.3		(*)	
6								0	3.4			
7							(*)	0	.6			
8	(*)							0	.4			(*)
9								0	.2			
10								0	.1			
11								0	0			
12								0	0			
13					(*)			*0	0			
14								0	0			
15				(*)				0	0	(*)		(*)
16								0	0			
17								0	0			
18								0	0			
19								0	0			
20								0	0			
21								0	0			
22								0	0			
23								0	0			
24								0	0			
25								0	0			
26								0	0			
27								0	0			
28								*867	0			
29								*114	0			
30					-			*16	0			
31		-			-			1.7	-			-
Total	0	0	0	0	0	0	0	998.7	11.3	0	0	0
Mean	0	0	0	0	0	0	0	32.2	0.38	0	0	0
Ac-ft	0	0	0	0	0	0	0	1,980	22	0	0	0

Calendar year 1951: Max 182 Min 0 Mean 1.13 Ac-ft 816
Water year 1951-52: Max 867 Min 0 Mean 2.76 Ac-ft 2,000

Peak discharge (base, 300 cfs).--May 28 (5 a.m.) 2,590 cfs (7.76 ft).
* Discharge measurement made on this day.

Lake Nasworthy near San Angelo, Tex.

Location.--Lat 31°23'15", long. 100°28'40", on left bank 250 ft upstream from Nasworthy Dam on South Concho River, 0.5 mile downstream from Middle Concho River, and 6 miles southwest of San Angelo, Tom Green County.

Drainage area.--2,659 sq mi, of which 152 sq mi is probably noncontributing.

Records available.--March 1930 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,840.00 ft above mean sea level, datum of 1929.

Extremes.--Maximum contents during year, 6,900 acre-ft May 29 (gage height, 26.82 ft); minimum, 1,310 acre-ft Sept. 11 (gage height, 16.57 ft).
1930-52: Maximum contents, 26,900 acre-ft Sept. 15, 1936 (gage height, 38.36 ft); minimum contents since lake filled, 594 acre-ft Oct. 14, 1936 (gage height, 12.6 ft).

Remarks.--Lake is formed by 5,480-foot dam containing a 3,780-foot earthen section, two emergency spillways, 300 and 600 ft in length, and a concrete service spillway having a bank of fifteen 25-foot taintor gates and one collapsible floodgate. Dam completed and storage began Mar. 28, 1930. Total and usable capacity, 14,040 acre-ft between gage heights -4.0 ft (bottom of two 36-inch gates) and 32.4 ft (top of collapsible floodgate). Figures of contents shown herein represent total contents of lake and are unadjusted for siltation. A siltation survey made by the United States Department of Agriculture, Soil Conservation Service, indicates a 10 percent capacity loss from siltation in 8.2 years (1930-39). Water used for San Angelo municipal supply.

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	26.2	6,220	-
Oct. 31	24.3	4,540	-1,680
Nov. 30	23.4	3,940	-600
Dec. 31	23.3	3,880	-60
Calendar year 1951	-	-	-6,380
Jan. 31	23.3	3,880	0
Feb. 29	22.4	3,400	-480
Mar. 31	21.5	2,950	-450
Apr. 30	21.0	2,700	-250
May 31	26.6	6,660	+3,960
June 30	23.9	4,240	-2,420
July 31	21.4	2,900	-1,340
Aug. 31	18.2	1,760	-1,140
Sept.30	16.7	1,340	-420
Water year 1951-52	-	-	-4,880

† Gage height at 12 p.m.

South Concho River at San Angelo, Tex.

Location.--Lat 31°26'45", long. 100°25'30", near right bank on downstream side of pier of Lone Wolf Bridge on county road, 0.5 mile south of San Angelo, Tom Green County, 1 mile upstream from confluence with North Concho River, and 7,470 ft downstream from bridge on U. S. Highways 87 and 277.

Drainage area.--2,687 sq mi, of which 152 sq mi is probably noncontributing.

Records available.--October 1931 to September 1952.

Gage.--Water-stage recorder above San Angelo waterworks concrete dam. Datum of gage is 1,802.94 ft above mean sea level, datum of 1929.

Average discharge.--21 years, 117 cfs.

Extremes.--Maximum discharge during year, 17 cfs Mar. 28 (gage height, 2.12 ft); no flow at times.
1931-52: Maximum discharge, 111,000 cfs Sept. 17, 1936 (gage height, 23.4 ft, of which about 2.4 ft was caused by backwater from North Concho River), by slope-area method; no flow at times.
Maximum stage known since at least 1854, 29.7 ft Aug. 6, 1906 (not affected by backwater), from information by local residents.

Remarks.--Records good. Diversions above station for irrigation and fish hatcheries. The city of San Angelo diverted 5,200 acre-ft just above control for municipal use during the current water year. Flow largely regulated by Lake Nasworthy (see preceding page).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.78	0
1.8	.1
1.9	1.0
2.0	4.0
2.1	14

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0					0						
2	0					0		(*)				
3	0					0						
4	0		(*)	(*)		0						
5	0	(*)				0						
6	0					0						
7	0				(*)	0						
8	0					0						
9	*0					0						
10	0					0	(*)					
11	0					0			(*)			
12	0					*0						
13	0					0						
14	0					0						
15	0					0				(*)	(*)	
16	0					0						(*)
17	0					0						
18	0					0						
19	.4					0						
20	0					0						
21	0					0						
22	0					0						
23	0					0						
24	0					0						
25	0					0						
26	0					0						
27	0					0						
28	0					5.8						
29	0					1.7						
30	0				-	0						
31	0	-			-	0	-		-			-
Total	0.4	0	0	0	0	7.5	0	0	0	0	0	0
Mean	0.01	0	0	0	0	0.24	0	0	0	0	0	0
Ac-ft	0.8	0	0	0	0	15	0	0	0	0	0	0

Calendar year 1951: Max 23 Min 0 Mean 0.36 Ac-ft 259
Water year 1951-52: Max 5.8 Min 0 Mean 0.02 Ac-ft 16

Peak discharge (base, 6,100 cfs).--No peak above base.
* Discharge measurement made on this day.

North Concho River at Sterling City, Tex.

Location.--Lat 31°50', long. 100°59', on right bank at downstream side of Sterling City-Big Lake highway bridge, 0.3 mile south of Sterling City, Sterling County, 3.5 miles downstream from Lacy Creek, and 4 miles upstream from Sterling Creek.

Drainage area.--690 sq mi, of which 75 sq mi is probably noncontributing.

Records available.--September 1939 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,242.36 ft above mean sea level, datum of 1929. Prior to Dec. 6, 1939, chain gage at same site and datum.

Average discharge.--13 years, 11.7 cfs.

Extremes.--Maximum discharge during year, 2,280 cfs May 31 (gage height, 15.62 ft); no flow at times.
1939-52: Maximum discharge, 26,000 cfs July 6, 1948 (gage height, 23.70 ft), from rating curve extended above 2,800 cfs on basis of slope-area determination at gage height 23.52 ft; no flow at times.
Maximum stage known since at least 1891, that of July 6, 1948.

Remarks.--Records good. Small diversions above station for irrigation.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 21 and June 1)

1.86	0	2.4	4.5	3.5	54
2.0	.2	2.5	7.6	4.0	81
2.1	.6	2.6	11	5.0	148
2.2	1.2	2.8	20	6.0	226
2.3	2.5	3.0	30	7.0	309

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	0	53			
2							0	0	*2.3			(*)
3							0	1.0	.6			
4							0	.7	.1			
5							0	.1	0			
6							0	0	0			
7							0	0	0			
8							0	0	0			
9							0	0	0			
10							0	0	0			
11							0	0	0			
12							0	0	0			
13							0	0	0			
14							0	0	0			
15							0	0	0			
16							0	0	0			
17							0	0	0			
18							0	0	0			
19							0	0	0			
20							*171	0	0			
21							*5.0	0	0			
22							1.4	0	0			
23							.7	0	0			
24							.3	0	0			
25							.3	0	0			
26							.3	0	0			
27							.2	0	0			
28						(*)	.1	0	0			
29			(*)		(*)		.1	0	0			
30		(*)			-		*0	0	*0			(*)
31	(*)	-		(*)	-		-	272	-	(*)		-
Total	0	0	0	0	0	0	179.4	273.8	56.0	0	0	0
Mean	0	0	0	0	0	0	5.98	8.83	1.87	0	0	0
Ac-ft	0	0	0	0	0	0	356	543	111	0	0	0

Calendar year 1951: Max 7.4 Min 0 Mean 0.34 Ac-ft 249
Water year 1951-52: Max 272 Min 0 Mean 1.39 Ac-ft 1,010

Peak discharge (base, 300 cfs).--Apr. 20 (3:30 a.m.) 1,010 cfs (12.19 ft); May 31 (8 p.m.) 2,280 cfs (15.62 ft).
* Discharge measurement made on this day.

North Concho River near Carlsbad, Tex.

Location.--Lat 31°36', long. 100°40', near left bank and attached to upstream side of left wingwall of State Sanatorium dam, 1.5 miles downstream from Live Oak Creek and 2 miles upstream from Carlsbad, Tom Green County.

Drainage area.--1,529 sq mi, of which 123 sq mi is probably noncontributing.

Records available.--March 1924 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,000.78 ft above mean sea level, datum of 1929. Prior to Feb. 4, 1925, and from Sept. 29, 1936, to Feb. 7, 1937, staff gage at same site and datum.

Average discharge.--28 years, 47.6 cfs.

Extremes.--Maximum discharge during year, 1,050 cfs June 1 (gage height, 6.73 ft); no flow at times.
1924-52: Maximum discharge, 94,600 cfs Sept. 26, 1936 (gage height, 16.0 ft, from floodmarks), by slope-area method; no flow at times.
Maximum stage known since at least 1853, that of Sept. 26, 1936.

Remarks.--Records good. Diversions by pumping above station affect low flow (combined capacity of pumps, 40 cfs). Low flow slightly regulated by small reservoir above station.

Revisions (water years).--W 748: 1930(M).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

3.7	0	4.3	9.9
3.8	.2	4.4	22
3.9	.3	4.5	38
4.0	.6	4.7	78
4.1	1.2	5.0	157
4.2	2.9	5.5	310

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	1.1	1.3	1.7	1.7	2.4	253	0.1		
2			0	.9	1.4	2.0	1.8	2.7	*31	.1		(*)
3			0	1.0	1.1	1.6	1.7	2.4	8.8	.1		
4			0	1.1	1.2	1.6	1.7	1.8	4.0	.1		
5			0	1.2	1.3	1.7	1.7	1.5	2.7	.1		
6			0	1.5	1.5	1.7	1.7	1.2	1.9	.1		
7			0	1.3	1.6	1.7	1.7	.9	1.3	.1		
8			0	1.2	1.6	1.7	1.8	.7	.7	.1		
9			0	1.5	1.9	1.7	1.7	.6	.4	.1		
10			0	2.0	1.9	1.4	1.7	.6	.3	.1		
11			.1	2.3	1.5	1.4	1.7	.5	.2	.1		
12			.1	2.0	1.3	1.4	1.7	.4	.2	.1		
13			.1	1.4	1.2	1.4	1.8	.4	.2	.1		
14			.1	1.4	1.1	1.5	1.8	.3	.2	.1		
15			.1	1.4	1.2	1.6	1.8	.2	.2	.1		
16			.1	1.4	1.4	1.8	1.8	.2	.2	0		
17			.1	1.4	1.5	2.0	1.5	.2	.2	0		
18			.1	1.4	1.7	1.5	1.3	.2	.2	0		
19			.1	1.4	1.7	1.6	1.5	.2	.2	0		
20			.1	1.3	1.7	1.8	23	.2	.2	0		
21			.2	1.3	1.7	1.7	*42	.3	.1	0		
22			.3	1.2	1.6	1.5	14	.4	.1	0		
23			.4	1.2	1.5	1.6	6.2	.4	.1	0		
24			.8	1.2	1.6	1.7	4.0	.3	.1	0		
25			1.0	1.2	1.6	1.7	2.7	.3	.1	0		
26			1.0	1.3	1.6	1.7	2.4	.3	.1	0		
27			1.0	1.3	1.6	1.4	2.1	.2	.1	0		
28			1.1	1.3	1.6	1.7	1.9	.2	.1	0		
29			*1.1	1.3	1.6	2.0	1.9	.2	.1	0		
30		(*)	1.2	1.5	-	1.7	*1.9	.2	**.1	0		(*)
31	(*)	-	1.1	*1.5	-	*1.6	-	.2	-	*0		-
Total	0	0	10.2	42.5	43.5	51.1	134.2	20.6	307.1	1.5	0	0
Mean	0	0	0.33	1.37	1.50	1.65	4.47	0.66	10.2	0.05	0	0
Ac-ft	0	0	20	84	86	101	266	41	609	3.0	0	0

Calendar year 1951: Max 969 Min 0 Mean 5.54 Ac-ft 4,010
Water year 1951-52: Max 253 Min 0 Mean 1.67 Ac-ft 1,210

Peak discharge (base, 1,500 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--Stage below crest of dam Dec. 11-20, May 16-20, 27-31, June 11 to July 15; discharge is estimated seepage under dam.

North Concho River at San Angelo, Tex.

Location.--Lat 31°27'56", long. 100°26'51", near left bank on downstream side of pier of Sixth Street Bridge in San Angelo, Tom Green County, 3.2 miles upstream from confluence with South Concho River.

Drainage area.--1,795 sq mi, of which 123 sq mi is probably noncontributing.

Records available.--October 1915 to September 1931, July 1947 to September 1952.

Gage.--Water-stage recorder. Concrete dam control since July 1947. Datum of gage is 1,813.42 ft above mean sea level, datum of 1929. Prior to Sept. 1, 1920, staff gage and Sept. 1, 1920, to Feb. 11, 1929, water-stage recorder at site 1.6 miles downstream at datum 11.02 ft lower. Feb. 12, 1929, to Sept. 30, 1931, water-stage recorder at site 1.6 miles downstream at datum 13.02 ft lower.

Average discharge.--18 years (1916-27, 1929-31, 1947-52), 52.3 cfs.

Extremes.--Maximum discharge during year, 286 cfs Aug. 1 (gage height, 2.68 ft); no flow at times.
1915-31, 1947-52: Maximum discharge, about 47,000 cfs June 13, 1930 (gage height, 22.52 ft, site and datum then in use); no flow at times.
Flood of Sept. 17, 1936, reached a stage of 34.6 ft, from floodmarks (discharge, 184,000 cfs, by slope-area method).

Remarks.--Records good. Beginning Feb. 1, flow completely regulated by San Angelo Reservoir.

Revisions (water years).--W 568: 1916-22.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.4	0	1.9	2.8
1.5	.1	2.0	4.5
1.6	.4	2.1	13
1.7	.9	2.2	44
1.8	1.7		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0			0	4.0			29	
2			0	0			0	*2.0			3.6	
3			0	0			0	.5			.5	
4			0	0			0	.2			.1	
5			*0	0			0	0			0	
6		(*)	0	0			0	0			0	
7			0	0			0	0			0	
8			0	0	(*)		0	0			0	
9			0	0			0	0			0	
10			0	0			*0	0			0	
11			0	0			0	0	(*)		0	
12			0	0		(*)	0	0			0	
13			0	0			0	0			0	
14			0	0			0	0			0	
15	(*)		0	0			0	0		(*)	0	
16			0	*0			0	0			0	(*)
17			0	0			0	0			0	
18			0	0			0	0			0	
19			0	0			0	0			0	
20			0	0			0	0			0	
21			0	.1			0	0			0	
22			.1	.1			0	0			0	
23			0	.1			0	0			0	
24			0	0			0	0			0	
25			0	0			0	0			0	
26			0	0			0	0			0	
27			0	0			0	0			0	
28			0	0			0	.1			0	
29			0	0			0	.2			0	
30			0	0	-		.1	.1			0	
31		-	0	0	-		-	0	-		0	-
Total	0	0	0.1	0.3	0	0	0.1	7.1	0	0	33.2	0
Mean	0	0	0.003	0.01	0	0	0.003	0.23	0	0	1.07	0
Ac-ft	0	0	0.2	0.6	0	0	0.2	14	0	0	66	0

Calendar year 1951: Max 1,460 Min 0 Mean 9.11 Ac-ft 6,600
Water year 1951-52: Max 29 Min 0 Mean 0.11 Ac-ft 81

Peak discharge (base, 900 cfs).--No peak above base.
* Discharge measurement made on this day.

Concho River near San Angelo, Tex.

Location.--Lat 31°27'10", long. 100°24'40", on right bank 0.5 mile downstream from confluence of North Concho and South Concho Rivers and 1.8 miles southeast of San Angelo, Tom Green County.

Drainage area.--4,492 sq mi, of which 725 sq mi is probably noncontributing.

Records available.--September 1915 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,776.79 ft above mean sea level, datum of 1929. Prior to Aug. 11, 1917, staff gage at same site and datum.

Average discharge.--37 years, 165 cfs.

Extremes.--Maximum discharge during year, 174 cfs May 1 (gage height, 1.99 ft); no flow Sept. 14, 16-22, 28-30.

1915-52: Maximum discharge, 230,000 cfs Sept. 17, 1936 (gage height, 46.6 ft, from floodmarks), from rating curve extended above 51,000 cfs on basis of slope-area determinations at gage heights 42.6 and 46.6 ft; no flow Nov. 29, 1921, Sept. 14, 16-22, 28-30, 1952.

Maximum stage known since 1854, 47.5 ft Aug. 6, 1906 (discharge, about 246,000 cfs), from information by local resident.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Many diversions above station for irrigation and municipal supply. Flow slightly regulated by Lake Nasworthy on South Concho River (see p. 152), and by San Angelo Reservoir on the North Concho River since Feb. 1, 1952.

Revisions (water years).--W 568: 1915-22. W 588: Drainage area. W 1148: 1616-22(M), 1924(M), 1925-26, 1929(M), 1930-32, 1935-37.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.5	0	0.9	8.2
.6	.5	1.0	14
.7	1.5	1.2	28
.8	4.0	1.4	48

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	1.8	1.3	1.6	1.9	0.9	1.8	43	1.8	1.5	1.6	0.4
2	1.0	1.9	1.3	2.1	1.6	1.2	1.6	16	.9	1.3	3.1	.3
3	1.0	1.9	1.6	2.8	1.5	1.8	1.2	8.6	.6	1.4	1.9	.3
4	1.0	1.8	*1.5	*2.6	1.3	1.4	.6	5.2	.5	1.8	1.1	.3
5	.9	*1.5	1.1	2.1	1.6	1.4	.5	2.8	.6	1.8	.7	.3
6	1.1	1.5	1.1	2.1	1.5	1.4	.7	1.9	.9	1.3	.5	.3
7	1.2	1.8	1.0	2.6	1.4	1.2	1.0	1.9	1.3	1.3	.7	.4
8	1.2	1.8	1.1	2.1	*1.2	1.0	.7	1.5	1.4	6.9	1.2	.4
9	1.2	1.5	1.4	1.9	1.2	1.2	.5	.9	1.2	6.3	1.3	.5
10	1.1	1.5	1.8	1.9	1.1	1.9	*.6	.9	1.2	2.1	1.1	2.4
11	1.0	1.9	1.8	2.1	1.2	1.3	.9	1.0	*1.1	1.8	.8	1.2
12	1.1	1.8	1.6	1.9	1.4	*1.2	1.3	1.1	1.0	1.3	.7	.7
13	1.1	1.5	2.8	1.9	1.4	.6	.8	.8	.8	1.2	.6	.4
14	1.1	1.3	3.2	2.6	1.2	.5	.8	.8	a.5	1.0	.5	0
15	1.3	1.4	1.6	2.7	2.8	.5	.9	*.7	a.5	*.7	.4	.1
16	1.3	1.2	1.6	4.8	2.3	.5	.7	.5	a.4	a.5	.3	*0
17	*1.2	1.2	1.9	4.4	1.6	2.6	.8	.7	a.6	.7	.2	0
18	1.0	1.4	1.5	4.4	1.6	3.0	1.0	6.9	a.6	1.2	.4	0
19	1.1	1.5	1.6	3.5	1.5	1.4	1.2	4.8	a.5	2.2	.4	0
20	1.3	1.9	1.6	1.6	1.9	1.1	6.6	2.1	a.4	2.1	.4	0
21	1.3	1.6	1.4	1.5	1.4	.7	1.9	1.2	a.4	1.3	.4	0
22	1.2	1.4	1.8	1.6	1.6	.6	9.3	1.0	a.4	1.0	.4	0
23	1.3	1.3	1.6	1.6	1.3	1.2	4.8	1.0	a.4	.8	.4	.2
24	1.3	1.1	1.8	1.6	1.3	2.3	2.6	1.1	a.4	.9	.4	.2
25	1.4	1.7	1.8	1.6	1.2	2.1	1.6	.6	a.4	.7	.4	.2
26	1.5	2.9	1.8	1.6	1.0	2.1	1.3	.5	a.4	.5	*.6	.2
27	1.9	2.3	1.8	1.6	.9	3.4	1.1	.7	a.4	.4	.4	.1
28	4.1	1.6	1.8	1.5	.9	10	1.1	*3.4	.9	.4	.5	0
29	3.2	1.5	1.8	2.5	.9	6.8	1.0	.9	1.1	.5	.6	0
30	2.1	1.4	1.8	4.8	-	3.2	8.8	.5	1.2	.8	.4	0
31	1.6	-	1.8	2.8	-	2.6	-	.7	-	1.5	.4	-
Total	43.2	48.9	51.6	74.4	41.7	61.1	57.7	113.7	22.8	47.2	22.8	8.9
Mean	1.39	1.63	1.66	2.40	1.44	1.97	1.92	3.67	0.76	1.52	0.74	0.30
Ac-ft	86	97	102	148	83	121	114	226	45	94	45	18

Calendar year 1951: Max 1,990 Min 0.8 Mean 14.6 Ac-ft 10,570
Water year 1951-52: Max 43 Min 0 Mean 1.62 Ac-ft 1,180

Peak discharge (base, 5,700 cfs).--No peak above base.

* Discharge measurement made on this day.

** Field estimate made on this day.

a No gage-height record; discharge estimated on basis of fragmentary gage-height record, weather records, and engineers' notes.

Concho River near Paint Rock, Tex.

Location.--Lat 31°31', long. 99°55', near left bank on downstream side of pier of bridge on U. S. Highway 83, 0.2 mile north of Paint Rock, Concho County, and 2 miles downstream from Kickapoo Creek.

Drainage area.--5,538 sq mi, of which 275 sq mi is probably noncontributing.

Records available.--September 1915 to September 1952.

Gage.--Water-stage recorder and masonry dam control. Datum of gage is 1,574.43 ft above mean sea level, datum of 1929. Prior to Sept. 16, 1920, staff gage and Sept. 17, 1920, to Sept. 17, 1936, water-stage recorder at site 1.4 miles upstream at datum 13.16 ft higher. Oct. 2, 1936, to May 18, 1938, staff gage at site 1,000 ft downstream at same datum. May 19, 1938, to Jan. 14, 1940, wire-weight gage at same site and datum.

Average discharge.--37 years, 222 cfs.

Extremes.--Maximum discharge during year, 5,080 cfs May 31 (gage height, 16.16 ft); no flow at times.

1915-52: Maximum discharge, 301,000 cfs Sept. 17, 1936 (gage height, 43.4 ft, from floodmarks), from rating curve extended above 85,000 cfs on basis of slope-area determinations at gage heights 35.8 and 43.4 ft; no flow at times.

Flood of August 1882 reached a stage of about 39.9 ft, and flood of August 1906 reached a stage of 39.5 ft, from information by local resident.

Remarks.--Records good except those for periods when stage was below crest of dam, which are fair. Many diversions above station for irrigation and municipal supply. Flow slightly regulated by Lake Nasworthy on South Concho River (see p. 152), and by San Angelo Reservoir on North Concho River since Feb. 1, 1952.

Revisions.--W 588: Drainage area.

Rating table, water year 1951-52, except periods when stage was below crest of control (gage height, in feet, and discharge, in cubic feet per second)

11.65	0	12.2	37
11.7	.2	12.3	65
11.8	2.0	12.5	140
11.9	6.0	13.0	400
12.0	12	13.5	826
12.1	22	14.0	1,410

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2			0	0.9	0.4	0.1	494	1,330	0.1		0
2	.2			0	.7	.4	.1	173	85	.1		0
3	.2			0	.6	.4	0	74	24	.1		0
4	.2			0	.5	.3	0	35	14	.1		0
5	.2			0	.5	.3	0	20	8.5	.1		0
6	.2		(*)	0	.5	*.3	0	13	5.0	.1		0
7	.1	(*)		.1	.5	.3	0	8.4	3.5	.1	(*)	0
8	.1			.1	.5	.3	0	6.4	2.3	.1		0
9	.1			.1	.4	.3	*0	4.9	1.6	0		0
10	.1			.1	.4	.3	0	3.6	1.2	0		406
11	.1			.1	**.4	.3	0	2.4	.8	0		102
12	.1			.1	.4	.2	0	1.7	*.5	0		19
13	0			.1	.4	.2	0	1.2	.3	0		7.6
14	0			**.1	.4	.2	0	*.8	.2	0		5.1
15	0			.1	1.5	.2	0	.6	.2	0		3.9
16	*0			.1	3.9	.2	0	.4	.2	*0		2.9
17	0			.1	3.6	.2	0	551	.2	0		2.3
18	0			.1	3.3	.2	0	282	.2	0		1.9
19	0			.2	2.4	.2	0	48	.2	0		**1.4
20	0			.2	1.7	.2	0	20	.2	0		1.1
21	0			.2	1.4	.2	0	9.4	.2	0		.8
22	0			.2	1.2	.2	380	5.4	.2	0		.6
23	0			.2	1.0	.1	48	9.2	.1	0		.5
24	0			.2	1.0	.1	14	53	.1	0		.4
25	0			.4	.7	.1	6.9	12	.1	0		.4
26	0			.5	.6	.1	4.4	5.9	.1	0		.4
27	0			.7	.7	.1	3.3	30	.1	0		.4
28	0			.7	.7	.1	2.4	36	.1	0		.3
29	0			.7	.5	.1	1.9	15	.1	0		.3
30	0			.7	-	.1	17	7.9	.1	0		.3
31	0	-		.9	-	.1	-	518	-	0		-
Total	1.8	0	0	7.0	31.3	6.7	478.1	2,422.2	1,479.3	0.8	0	557.6
Mean	0.06	0	0	0.23	1.08	0.22	15.9	78.1	49.3	0.03	0	18.6
Ac-ft	3.6	0	0	14	62	13	948	4,800	2,930	1.6	0	1,110

Calendar year 1951: Max 1,370 Min 0 Mean 16.6 Ac-ft 12,050
Water year 1951-52: Max 1,330 Min 0 Mean 13.6 Ac-ft 9,880

Peak discharge (base, 4,600 cfs).--May 31 (10:30 p.m.) 5,080 cfs (16.16 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--Stage below crest of control Oct. 1 to Jan. 23, Mar. 6 to Apr. 21, June 15 to Sept. 9, Sept. 20-30; discharge estimated on basis of discharge measurements.

Colorado River at Winchell, Tex.

Location.--Lat 31°28'05", long. 99°09'45", near left bank on downstream side of pier of bridge on U. S. Highway 377 (renumbered), 0.3 mile south of Winchell, Brown County, 6.2 miles upstream from Home Creek, and at mile 561.

Drainage area.--24,580 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--November 1923 to September 1934 (published as "near Milburn"), January 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,264.86 ft above mean sea level, datum of 1929. November 1923 to September 1934 at site 4.2 miles downstream, at datum 10.14 ft lower. Jan. 13, 1939, to Mar. 24, 1940, wire-weight gage at present site and datum.

Average discharge.--23 years (1924-34, 1939-52), 693 cfs.

Extremes.--Maximum discharge during year, 44,000 cfs Sept. 11 (gage height, 38.92 ft); no flow at times.

1923-34, 1939-52: Maximum discharge, 76,100 cfs Oct. 15, 1930 (gage height, 51.8 ft, present site and datum); no flow at times.

Maximum stage known, 62.2 ft Sept. 19, 1936, present site and datum, from information by Gulf, Colorado & Santa Fe Railway at railway bridge 1,000 ft upstream.

Remarks.--Records good. Diversions above station for irrigation and municipal supply. Flow slightly regulated by Lake Nasworthy on South Concho River (see p. 152) and by Lake Colorado City on Morgan Creek (see p. 143), after Feb. 1, 1952, by San Angelo Reservoir on North Concho River and after July 1952 by Lake J. B. Thomas on Colorado River (capacity, 204,000 acre-ft).

Revisions.--W 1118: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.2	0	4.5	390
2.3	2.2	5.0	600
2.4	7.0	6.0	1,160
2.5	14	8.0	2,530
2.6	22	11.0	5,100
2.8	41	15.0	8,940
3.0	65	19.0	13,000
3.3	112	25.0	20,000
3.6	168	33.0	31,700
4.0	252		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	9.1					0	14,800	1,120	0.9		0
2	10	5.1					0	2,240	4,210	.2		0
3	7.0	3.2					0	858	979	0		0
4	6.0	2.2					0	370	444	0		0
5	5.1	2.0					0	243	245	0		0
6	3.6	1.5					0	168	614	0		0
7	2.7	1.3					0	107	709	0		0
8	2.0	1.1					0	73	929	0		0
9	1.8	1.1					0	51	592	0		0
10	1.5	1.1					0	38	305	0		8,810
11	1.5	1.1		(*)		(*)	0	30	192	0		30,900
12	1.3	1.1					0	24	126	0		2,660
13	1.1	1.1					0	20	82	0		916
14	.9	.7			(*)		0	15	58	0		430
15	.7	.4					0	13	44	0		246
16	.7	.4					0	9.8	34	0		158
17	.2	.2					*0	28	26	0		112
18	.2	0					309	6,380	21	0		299
19	.2	0					1,600	2,640	16	0		143
20	0	0					379	760	13	0		69
21	0	0					717	306	7.0	0		52
22	0	0					3,620	*164	6.5	0		52
23	.9	0					3,750	372	5.1	0		40
24	1.1	0					1,690	6,890	3.6	0		31
25	.9	0					614	1,060	*3.2	0		25
26	16	0					284	408	2.7	0		20
27	29	*0					164	275	1.8	0	(*)	16
28	19	0					104	653	1.5	0		184
29	13	0					73	438	1.1	*0		*201
30	10	0			-		1,110	268	1.1	0		132
31	12	-			-		-	176	-	0		-
Total	162.4	32.7	0	0	0	0	14,414	39,877.8	10,792.6	1.1	0	45,496
Mean	5.24	1.09	0	0	0	0	480	1,286	360	0.04	0	1,517
Ac-ft	322	65	0	0	0	0	28,590	79,100	21,410	2.2	0	90,240

Calendar year 1951: Max 15,000 Min 0 Mean 279 Ac-ft 202,300
Water year 1951-52: Max 30,900 Min 0 Mean 303 Ac-ft 219,700

Peak discharge (base, 9,200 cfs).--May 1 (3:30 a.m.) 23,700 cfs (27.73 ft); May 18 (1 p.m.) 10,100 cfs (16.20 ft); May 24 (1:30 p.m.) 11,700 cfs (17.84 ft); Sept. 11 (8 a.m.) 44,000 cfs (38.92 ft).

* Discharge measurement made on this day.

Hords Creek Reservoir near Valera, Tex.

Location.--Lat 31°50'00", long. 99°33'35", at outlet-works structure near right end of dam on Hords Creek, 5.3 miles northwest of Valera, Coleman County, and 8.8 miles west of Coleman.

Drainage area.--48 sq mi, approximately.

Records available.--April 1948 to September 1952.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is at mean sea level, datum of 1929.

Extremes.--Maximum contents during year, 5,769 acre-ft Oct. 1 (elevation, 1,893.40 ft); minimum, 3,893 acre-ft Sept. 8 (elevation, 1,887.40 ft).
1948-52: Maximum contents, 7,012 acre-ft (revised) June 16-17, 1951 (elevation, 1,896.55 ft, revised); minimum since first appreciable storage, 1,218 acre-ft (revised) Oct. 9, 1948 (elevation, 1,873.38 ft, revised).

Remarks.--Reservoir is formed by a rolled-fill earthen-type dam 6,284 ft long; gates closed Apr. 7, 1948; dam completed June 10, 1948. Reservoir is operated for flood control and municipal supply for city of Coleman.
Outlet works consist of three concrete conduits, two of which are controlled by Pekrul slide gates at elevation 1,856.0 ft. The third conduit, elevation, 1,900.0 ft (service spillway), is uncontrolled. In addition, there is a 500-foot emergency earthen spillway (elevation, 1,920.0 ft) located to right of dam. Capacity, 25,310 acre-ft (top of emergency spillway) and 8,635 acre-ft (top of service spillway). Water can be withdrawn for municipal use down to elevation, 1,876.5 ft. Dead storage is negligible.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,758	5,699	5,549	5,406	5,290	5,134	4,969	5,082	5,022	4,703	4,353	3,968
2	5,747	5,691	5,545	5,399	5,287	5,131	4,963	5,078	5,012	4,690	4,341	3,957
3	5,732	5,684	5,542	5,399	5,273	5,128	4,950	5,072	5,002	4,681	4,327	3,943
4	5,725	5,677	5,538	5,395	5,270	5,121	4,943	5,065	4,996	4,674	4,321	3,933
5	5,713	5,666	5,527	5,392	5,256	5,118	4,937	5,055	4,986	4,662	4,307	3,923
6	5,699	5,659	5,517	5,385	5,250	5,108	4,927	5,045	4,996	4,650	4,301	3,912
7	5,691	5,652	5,510	5,381	5,247	5,101	4,921	5,032	4,989	4,631	4,293	3,904
8	5,684	5,644	5,499	5,378	5,240	5,098	4,912	5,019	4,983	4,619	4,279	3,893
9	5,673	5,640	5,492	5,368	5,237	5,098	4,900	5,002	4,973	4,607	4,264	3,915
10	5,666	5,637	5,489	5,364	5,233	5,085	4,893	4,989	4,963	4,595	4,250	4,498
11	5,655	5,637	5,485	5,360	5,230	5,082	4,890	4,979	4,959	4,586	4,236	4,527
12	5,644	5,633	5,479	5,357	5,227	5,068	4,881	4,966	4,946	4,575	4,222	4,525
13	5,633	5,629	5,479	5,357	5,217	5,065	4,868	4,953	4,934	4,563	4,211	4,516
14	5,622	5,622	5,472	5,350	5,210	5,055	4,862	4,937	4,918	4,551	4,194	4,513
15	5,615	5,608	5,468	5,350	5,207	5,052	4,852	4,921	4,906	4,542	4,180	4,507
16	5,604	5,597	5,462	5,350	5,204	5,045	4,846	4,912	4,896	4,530	4,166	4,501
17	5,597	5,587	5,458	5,346	5,200	5,055	4,837	4,999	4,887	4,522	4,155	4,507
18	5,590	5,580	5,455	5,346	5,197	5,042	4,833	5,022	4,871	4,516	4,144	4,498
19	5,587	5,577	5,451	5,343	5,194	5,032	4,849	5,042	4,859	4,504	4,132	4,489
20	5,580	5,569	5,448	5,343	5,190	5,025	4,852	5,042	4,846	4,492	4,115	4,483
21	5,577	5,569	5,445	5,343	5,184	5,012	4,852	5,032	4,830	4,474	4,103	4,471
22	5,747	5,566	5,441	5,336	5,181	5,006	5,131	5,022	4,815	4,462	4,095	4,456
23	5,743	5,566	5,430	5,333	5,177	5,002	5,124	5,085	4,799	4,450	4,081	4,459
24	5,736	5,562	5,427	5,329	5,171	4,992	5,115	5,085	4,781	4,436	4,073	4,456
25	5,728	5,562	5,423	5,325	5,161	4,986	5,108	5,078	4,765	4,424	4,059	4,450
26	5,725	5,569	5,420	5,318	5,157	4,983	5,101	5,065	4,753	4,409	4,045	4,444
27	5,725	5,566	5,413	5,315	5,151	4,989	5,091	5,055	4,740	4,397	4,031	4,438
28	5,725	5,559	5,413	5,311	5,148	4,986	5,082	5,049	4,725	4,391	4,023	4,433
29	5,721	5,555	5,413	5,308	5,138	4,986	5,078	5,042	4,715	4,374	4,013	4,424
30	5,721	5,552	5,410	5,301	-	4,983	5,082	5,035	4,706	4,362	4,000	4,418
31	5,710	-	5,406	5,298	-	4,976	-	5,032	-	4,365	3,986	-

Monthly elevation and contents, water year October 1951 to September 1952

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30.....	1,893.38	5,761	-
Oct. 31.....	1,893.24	5,710	-51
Nov. 30.....	1,892.80	5,552	-158
Dec. 31.....	1,892.38	5,406	-146
Calendar year 1951....	-	-	+2,872
Jan. 31.....	1,892.07	5,298	-108
Feb. 29.....	1,891.59	5,138	-160
Mar. 31.....	1,891.10	4,976	-162
Apr. 30.....	1,891.42	5,082	+106
May 31.....	1,891.27	5,032	-50
June 30.....	1,890.24	4,706	-326
July 31.....	1,889.10	4,365	-341
Aug. 31.....	1,887.75	3,986	-379
Sept.30.....	1,889.28	4,418	+432
Water year 1951-52....	-	-	-1,343

† Elevations at 12 p.m.

Hords Creek at Coleman, Tex.

Location.--Lat 31°51', long. 99°26', near right bank at downstream side of pier of bridge on U. S. Highways 84 and 283 and State Highway 206, 1 mile north of Coleman, Coleman County, 2.5 miles downstream from Batchelor Creek, and 12 miles downstream from Hords Creek Dam.

Drainage area.--107 sq mi, of which 48 sq mi is above Hords Creek Dam.

Records available.--October 1940 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,676.83 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. Prior to May 23, 1946, staff gage at site 3,700 ft downstream at datum 6.38 ft lower.

Average discharge.--12 years, 8.85 cfs.

Extremes.--Maximum discharge during year, 1,890 cfs May 17 (gage height, 7.17 ft); no flow most of year.

1940-52: Maximum discharge, 10,600 cfs June 26, 1941 (gage height, 18.60 ft), from rating curve extended above 4,800 cfs on basis of slope-area determination at gage height 16.67 ft at site then in use; no flow at times each year.

Maximum stage known since at least 1876, 13.8 ft in June or September 1900, present datum, at a point near municipal light and powerplant about 6,000 ft downstream from gage, from information by local residents.

Remarks.--Records good. Flow largely regulated by Hords Creek Reservoir (see p. 160) from which city of Coleman obtains part of its municipal supply.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 20 to June 10, Sept. 11-13)

1.0	0	1.9	20
1.1	.1	2.1	38
1.2	.4	2.4	79
1.3	1.4	2.7	138
1.4	3.0	3.0	220
1.5	5.0	3.4	355
1.7	10		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0						0	0	0			0
2	0						0	0	0			0
3	0						0	0	0			0
4	0						0	0	0			0
5	0						0	0	0			0
6	0						0	0	1.8			0
7	0						0	0	.2			0
8	0						0	0	0			0
9	0						0	0	0			0
10	0			(*)			0	0	0			0
11	0					(*)	0	0	0			12
12	0						0	0	0			*2.0
13	0						0	0	0			0
14	0						0	0	0			0
15	0						*0	0	0			0
16	0						0	0	0			0
17	0						0	351	0			*0
18	0				(*)		0	97	0			0
19	0						0	14	0			0
20	0						0	*3.6	0			0
21	0						0	.4	0			0
22	0						22	.1	0			0
23	*24						5.7	0	*0			0
24	2.0						.6	1.8	0			0
25	**.1						0	1.0	0			
26	0						0	.8	0		(*)	0
27	0						0	.1	0			0
28	0						0	0	0			0
29	0	(*)					0	0	0	(*)		0
30	0				-		0	0	0			0
31	0	-			-		-	0	-			-
Total	26.1	0	0	0	0	0	28.3	469.8	2.0	0	0	14.0
Mean	0.84	0	0	0	0	0	0.94	15.2	0.07	0	0	0.47
Ac-ft	52	0	0	0	0	0	56	932	4.0	0	0	28

Calendar year 1951: Max 1,900 Min 0 Mean 12.9 Ac-ft 9,310
Water year 1951-52: Max 351 Min 0 Mean 1.48 Ac-ft 1,070

Peak discharge (base, 480 cfs).--May 17 (4:30 p.m.) 1,890 cfs (7.17 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.

Brownwood Reservoir near Brownwood, Tex.

Location.--Lat 31°50', long. 99°00', at outlet structure for irrigation canal just upstream from right end of dam on Pecan Bayou, a quarter of a mile downstream from Jim Ned Creek and 8 miles north of Brownwood, Brown County.
Drainage area.--1,535 sq mi.
Records available.--July 1933 to May 1941, November 1944 to September 1952.
Gage.--Staff gage read once daily. Datum of gage is 0.50 ft below mean sea level, datum of 1929. July 1933 to May 31, 1941, and Nov. 21, 1944, to Sept. 30, 1949, staff gages or water-stage recorder at various sites at dam at same datum.
Extremes.--Maximum contents observed during year, 125,600 acre-ft June 7-11 (gage height, 1,423.4 ft); minimum observed, 89,950 acre-ft Apr. 19 (gage height, 1,417.5 ft).
1933-41, 1944-52: Maximum contents observed, 185,400 acre-ft Sept. 10, 1935 (gage height, 1,429.4 ft); minimum observed, 11,900 acre-ft July 15, 1934 (gage height, 1,389.5 ft).
Remarks.--Reservoir first filled during flood of July 3, 4, 1932. Dam completed in 1933 and operation began July 1933. Total capacity, 137,300 acre-ft, gage height, 1,425.1 ft (crest of emergency spillway). Reservoir is formed by earth-fill dam, 1,580 ft long. Uncontrolled emergency spillway, consisting of broad-crested weir 476 ft long, located 800 ft to left of dam. Reservoir can be drained by two 12-foot (horseshoe-shaped) reinforced concrete conduits with bottom of invert at gage height 1,330.0 ft. Water withdrawn through a 5 foot circular concrete conduit with bottom at gage height 1,406.0 ft. Water used for irrigation and for municipal and industrial supply for city of Brownwood. (See records for Brown County Water Improvement District No. 1 canal near Brownwood).
Cooperation.--Record of daily gage height furnished by Brown County Water Improvement District No. 1. Capacity table furnished by Corps of Engineers.
Revisions (water years).--W 1212: 1948-50.

Contents, in acre-feet, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	111,400	107,000	104,000	101,100	98,780	95,960	92,600	98,200	113,200	119,000	110,700	101,100
2	111,400	107,000	104,000	101,100	98,200	95,960	92,600	98,200	113,200	119,000	110,100	101,100
3	110,700	107,000	103,400	101,100	98,200	95,960	92,600	97,640	113,200	119,000	110,100	100,500
4	110,700	106,400	103,400	101,100	98,200	95,960	92,070	97,640	113,200	118,400	109,500	100,500
5	110,700	106,400	103,400	101,100	98,200	95,960	92,070	97,640	112,600	118,400	109,500	99,940
6	110,100	106,400	103,400	100,500	98,200	95,400	92,070	97,640	112,600	118,400	109,500	99,940
7	110,100	106,400	103,400	100,500	98,200	95,400	92,070	97,080	125,600	117,700	108,900	99,360
8	110,100	105,800	102,800	100,500	98,200	95,400	92,070	97,080	125,600	117,700	108,900	99,360
9	109,500	105,800	102,800	100,500	97,640	95,400	91,540	97,080	125,600	117,000	108,300	99,940
10	109,500	105,800	102,800	100,500	97,640	95,400	91,540	96,520	125,600	117,000	108,300	99,940
11	108,900	105,800	102,800	100,500	97,640	95,400	91,540	96,520	125,600	116,400	108,300	99,940
12	108,900	105,800	102,800	100,500	97,640	95,400	91,540	96,520	124,900	116,400	107,700	99,940
13	108,900	105,200	102,800	99,940	97,640	95,400	91,010	96,520	124,900	115,800	107,700	99,940
14	108,300	105,200	102,800	99,940	97,640	94,840	91,010	95,960	124,900	115,800	107,000	99,940
15	108,300	105,200	102,300	99,940	97,640	94,840	90,480	95,960	124,200	115,100	107,000	99,940
16	108,300	105,200	102,300	99,940	97,080	94,840	90,480	95,960	124,200	115,100	106,400	99,940
17	107,700	105,200	102,300	99,940	97,080	94,280	90,480	95,400	123,600	114,500	106,400	99,360
18	107,700	104,600	102,300	99,940	97,080	94,280	90,480	108,300	123,600	114,500	105,800	99,360
19	107,700	104,600	102,300	99,940	97,080	94,280	89,950	109,500	122,900	113,900	105,800	99,360
20	107,700	104,600	102,300	99,940	97,080	93,720	91,010	109,500	122,900	113,900	105,200	99,360
21	107,000	104,600	102,300	99,940	97,080	93,720	93,160	108,900	122,200	113,900	105,200	99,360
22	108,300	104,600	102,300	99,940	97,080	93,720	97,080	108,900	122,200	113,200	104,600	98,780
23	108,300	104,600	101,700	99,940	96,520	93,720	98,200	112,600	121,600	113,200	104,600	98,780
24	108,300	104,600	101,700	99,940	96,520	93,160	98,200	113,200	121,600	112,600	104,000	98,780
25	108,300	104,000	101,700	99,940	96,520	93,160	98,200	113,900	121,000	112,600	104,000	98,780
26	108,300	104,000	101,700	99,360	96,520	93,160	98,200	113,900	121,000	112,000	103,400	98,780
27	107,700	104,000	101,700	99,360	96,520	93,160	98,200	113,200	120,300	112,000	103,400	98,780
28	107,700	104,000	101,700	99,360	95,960	93,160	98,200	113,200	120,300	111,400	102,800	98,780
29	107,700	104,000	101,100	99,360	95,960	93,160	98,200	113,200	119,600	111,400	102,300	98,200
30	107,700	104,000	101,100	98,780	-	93,160	98,200	113,200	119,600	111,400	101,700	98,200
31	107,700	-	101,100	98,780	-	92,600	-	113,200	-	110,700	101,700	-

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	1,421.2	111,400	-
Oct. 31	1,420.6	107,700	-3,700
Nov. 30	1,420.0	104,000	-3,700
Dec. 31	1,419.5	101,100	-2,900
Calendar year 1951	-	-	+1,740
Jan. 31	1,419.1	98,780	-2,320
Feb. 29	1,418.6	95,960	-2,820
Mar. 31	1,418.0	92,600	-3,360
Apr. 30	1,419.0	98,200	+5,600
May 31	1,421.5	113,200	+15,000
June 30	1,422.5	119,600	+6,400
July 31	1,421.1	110,700	-8,900
Aug. 31	1,419.6	101,700	-9,000
Sept.30	1,419.0	98,200	-3,500
Water year 1951-52	-	-	-13,200

† Gage heights at 6 p.m.

Brown County Water Improvement District No. 1 canal near Brownwood, Tex.

Location.--Lat 31°50', long. 99°00', on right bank 100 ft upstream from bridge on county road from Brownwood to Brownwood Dam, 6,000 ft downstream from Brownwood Dam, and 7 miles north of Brownwood, Brown County.

Records available.--March 1950 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,403.96 ft above mean sea level, datum of 1929.

Extremes.--Maximum daily discharge during year, 66 cfs June 17, 18; minimum daily, 2.4 cfs May 21.
1950-52: Maximum daily discharge, that of June 17, 18, 1952; minimum daily, 1.7 cfs May 5, 1950.

Remarks.--Records good. Small amount of water pumped from canal upstream from gage for recreational area. Canal diverts from Brownwood Reservoir on right bank of Pecan Bayou. About 4,760 acre-ft of water passing gage during year was used for municipal and industrial supply. According to records furnished the Texas Board of Water Engineers by the Brown County Water Improvement District No. 1, 3,695 acres were irrigated during 1952.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	6.2	17	20	18	21	28	24	9.4	62	60	60
2	41	11	17	20	15	17	33	25	11	62	60	62
3	34	18	22	20	15	23	36	23	14	62	47	64
4	42	18	28	20	22	23	28	16	17	62	56	61
5	42	18	29	20	27	23	28	10	19	64	61	60
6	43	18	27	20	27	20	28	8.8	22	52	60	58
7	32	18	24	20	27	33	38	25	23	59	60	51
8	45	22	23	20	27	30	53	31	24	61	60	54
9	51	22	15	20	26	24	56	41	31	60	58	48
10	46	22	20	20	20	21	48	47	50	64	46	30
11	41	22	27	*20	25	18	46	27	55	62	54	22
12	36	25	27	20	33	18	35	42	57	62	59	15
13	35	31	31	20	42	29	20	59	58	50	59	11
14	22	33	22	20	*42	30	25	64	54	60	58	10
15	40	24	17	20	37	29	27	62	30	59	58	10
16	45	24	16	20	25	18	30	58	60	62	55	9.9
17	40	29	19	20	25	36	*32	54	66	62	50	5.3
18	44	24	20	20	30	40	32	33	66	61	58	5.1
19	41	24	20	20	32	39	30	22	65	53	58	13
20	36	24	19	20	28	43	18	*17	65	32	58	13
21	31	29	15	22	23	43	18	2.4	64	45	56	20
22	46	22	15	33	19	44	19	7.6	54	51	56	17
23	32	27	14	34	18	23	18	26	61	52	56	10
24	*24	34	14	28	19	39	5.3	18	*62	58	56	10
25	17	28	14	21	21	43	2.5	16	64	60	58	9.6
26	17	23	15	21	17	47	11	9.2	64	55	59	8.8
27	17	17	15	21	22	40	24	9.0	64	46	*61	8.8
28	17	*17	22	21	33	25	3.1	9.0	64	55	62	8.8
29	17	17	20	21	30	17	22	9.0	62	60	62	8.9
30	6.8	17	14	21	-	11	23	9.2	62	*60	62	22
31	4.5	-	18	21	-	17	-	9.3	-	60	56	-
Total	1,016.3	664.2	616	664	745	884	816.9	813.5	1,417.4	1,773	1,779	786.2
Mean	32.8	22.1	19.9	21.4	25.7	28.5	27.2	26.2	47.2	57.2	57.4	26.2
Ac-ft	2,020	1,320	1,220	1,320	1,480	1,750	1,620	1,610	2,810	3,520	3,530	1,560

Calendar year 1951: Max 62 Min 3.0 Mean 28.4 Ac-ft 20,570
Water year 1951-52: Max 66 Min 2.4 Mean 32.7 Ac-ft 23,760

* Discharge measurement made on this day.

Pecan Bayou at Brownwood, Tex.

Location.--Lat 31°44'10", long. 98°58'30", on left bank at downstream side of pier of Gulf, Colorado & Santa Fe Railway bridge, 1 mile north of Brownwood, Brown County, 6 miles downstream from Salt Creek, and 10 miles downstream from Brownwood Reservoir.

Drainage area.--1,614 sq mi.

Records available.--May 1917 to June 1918, October 1923 to September 1952.

Gage.--Water-stage recorder above spillway of city dam. Datum of gage is 1,318.58 ft above mean sea level, datum of 1929. May 25, 1917, to June 4, 1917, staff gage at dam 2,000 ft downstream at datum 2.45 ft lower. June 8, 1917, to June 30, 1918, and Oct. 16, 1923, to July 10, 1929, staff gage at site 1,300 ft downstream at different datums.

Average discharge.--27 years (1924-28, 1929-52), 171 cfs.

Extremes.--Maximum discharge during year, 2,690 cfs May 23 (gage height, 3.81 ft); minimum, 0.1 cfs at times.

1917-18, 1923-52: Maximum discharge, 52,700 cfs Oct. 14, 1930 (gage height, 16.92 ft), from rating curve extended above 38,000 cfs; no flow at times.

Maximum stage known, 21.7 ft in September 1900, from information by Gulf, Colorado & Santa Fe Railway Co. Flood of July 3, 1932, probably the greatest known, reached a discharge of about 235,000 cfs as it entered Brownwood Reservoir (computed from rate of change of contents in reservoir; data furnished by engineers of Brown County Water Improvement District No. 1).

Remarks.--Records good. Flow largely regulated by Brownwood Reservoir (see p. 162). Diversion at Brownwood Reservoir, 10 miles upstream (see records for Brown County Water Improvement District No. 1 canal on preceding page).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.35	0.1	1.0	26
.4	.3	1.1	59
.5	1.2	1.3	130
.6	2.8	1.6	270
.7	4.8	2.0	570
.8	7.3	2.2	744
.9	12		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	6.2	0.2	0.1	0.2	0.4	0.4	0.4	0.6	1.3	0.2	0.5
2	.2	2.5	.2	.1	.2	.5	.4	.4	.6	.8	.1	.5
3	.2	1.1	.2	.1	.2	.5	.4	.3	.4	.8	.1	.6
4	.2	.6	.2	.1	.2	.4	.4	.3	.4	.9	.1	.6
5	.2	.4	.2	.1	.2	.4	.4	.3	.4	1.1	.1	.5
6	.2	.4	.2	.1	.2	.4	.3	.2	.4	1.0	.1	.4
7	.2	.3	.2	.1	.2	.4	.3	.2	.3	1.0	.1	.4
8	.2	.3	.2	.1	.2	.4	.3	.2	.3	.8	.1	.5
9	.2	.2	.2	.1	.2	.3	.3	.5	.3	.7	.1	.6
10	.2	.2	.2	.1	.2	.5	.3	.4	.3	.6	.1	1.8
11	.1	.2	.2	**.1	.2	.4	.4	.6	.3	.5	.1	4.3
12	.1	.2	.2	.1	.2	**.3	.6	1.0	.3	.5	.1	2.2
13	.1	.2	.2	.2	.7	.3	.6	.9	.2	.4	.1	1.0
14	.1	.2	.2	.2	*.6	.3	.5	.6	.2	.3	.1	.6
15	.1	.2	.2	.2	.9	.3	.4	.7	.2	.3	.1	.4
16	.1	.2	.2	.2	.8	.2	.4	.5	.3	.3	.1	.3
17	.1	.2	.2	.3	.4	.3	*.4	204	.4	6.3	.1	.3
18	.1	.2	.2	.4	.4	.4	.4	405	.4	14	.1	.3
19	.1	.2	.2	.3	1.2	.4	.4	45	.3	2.8	.1	.3
20	.1	.2	.1	.3	1.0	.4	.6	*9.0	.3	.9	.1	.3
21	.1	.2	.1	.3	.6	.4	.6	*3.7	.3	.4	.1	.2
22	.1	.2	.1	.3	.4	.4	28	1.8	.3	.2	.1	.2
23	.1	.2	.1	.2	.4	.4	17	735	*.2	.2	.1	.2
24	.1	.2	.1	.2	.3	.3	4.5	112	.2	.5	.1	.2
25	**.1	.2	.1	.2	.3	.5	2.1	15	.3	.7	.1	.2
26	.1	.2	.1	.2	.3	.5	1.0	5.6	.4	.8	57	.2
27	.1	.2	.1	.2	.3	.7	.7	3.2	.6	.6	*7.7	.2
28	.1	**.2	.1	.2	.3	.6	.4	2.4	.4	.3	2.1	.2
29	.1	.2	.1	.2	.4	.5	.4	1.8	.4	.5	.8	.2
30	.1	.2	.1	.2	-	.4	.4	1.1	1.3	*.5	.4	**.2
31	3.2	-	.1	.2	-	.4	-	.7	-	.3	.4	-
Total	7.2	16.2	5.0	5.7	11.7	12.6	63.3	1,552.8	11.3	40.3	71.0	18.4
Mean	0.23	0.54	0.16	0.18	0.40	0.41	2.11	50.1	0.38	1.30	2.29	0.61
Ac-ft	14	32	9.9	11	23	25	126	3,080	22	80	141	36

Calendar year 1951: Max 17,400 Min 0 Mean 160 Ac-ft 116,000
Water year 1951-52: Max 735 Min 0.1 Mean 4.96 Ac-ft 3,600

* Discharge measurement made on this day.
** Field estimate made on this day.

Noyes Canal at Menard, Tex.

Location.--Lat 30°55', long. 99°47', on right bank at intersection of Canal and Gay Streets in Menard, Menard County, 4½ miles downstream from headgates.

Records available.--March 1924 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,878.06 ft above mean sea level, datum of 1929. Prior to July 23, 1940, staff gage at site 2,000 ft upstream at datum 4.99 ft higher.

Average discharge.--28 years, 14.6 cfs.

Extremes.--1924-52: Maximum daily discharge (exclusive of times canal submerged by waters of San Saba River), 50 cfs Apr. 15, 1925 (probably affected by local runoff between point of diversion and station); no flow at times.

Remarks.--Records good. Discharge represents flow diverted from San Saba River not including local runoff between point of diversion and station. Canal diverts water from right bank of San Saba River 4 miles upstream from Menard for irrigation near Menard; 10 acres irrigated from canal above station.

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	17	9.7	13.3	821
November	20	16	18.0	1,070
December	22	19	20.3	1,250
Calendar year 1951	25	0	13.5	9,820
January	12	0	.41	25
February	20	0	8.95	515
March	20	12	18.0	1,110
April	19	13	15.9	948
May	20	0	3.12	192
June	10	0	4.61	275
July	11	4.9	8.29	510
August	12	.3	7.17	441
September	13	0	7.86	468
Water year 1951-52	22	0	10.5	7,620

San Saba River at Menard, Tex.

Location.--Lat 30°55', long. 99°48', on right bank at bridge on U. S. Highway 83 in Menard, Menard County, 0.7 mile downstream from Las Moras Creek.

Drainage area.--1,151 sq mi.

Records available.--September 1915 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,863.05 ft above mean sea level, datum of 1929. Sept. 14, 1915, to May 12, 1924, chain gage at site 635 ft downstream at datum 2.60 ft lower. May 13, 1924, to Feb. 21, 1939, staff gage at site 1,000 ft upstream at datum 2.00 ft higher. Feb. 22, 1939, to Jan. 25, 1940, chain gage at same site and datum.

Average discharge.--37 years, 65.2 cfs.

Extremes.--Maximum discharge during year, 535 cfs Sept. 10 (gage height, 5.81 ft); no flow at times.

1915-52: Maximum discharge, 117,000 cfs July 23, 1938 (gage height, 22.2 ft, present site and datum, from floodmark), from rating curve extended above 60,000 cfs on basis of slope-area determinations at gage heights 21.0 and 22.2 ft; no flow at times caused by diversions to Noyes Canal.

Maximum stage known, 23.3 ft June 5 or 6, 1899, present site and datum, from information by local resident.

Remarks.--Records good. Low flow during irrigation season regulated by diversions to Noyes Canal, 4 miles upstream. Records of the Texas Board of Water Engineers show permits have been granted to irrigate 3,338 acres above station. See record for Moyes Canal at Menard on preceding page.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 17 to June 11)

1.7	0	2.4	8.4
1.8	.2	2.6	16
1.9	1.0	3.0	36
2.0	2.0	3.5	66
2.1	3.2	4.0	102
2.2	4.5		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	1.4	2.0	2.6	25	2.8	2.6	8.4	18			0
2	.1	2.6	2.4	21	26	3.0	2.4	21	16			0
3	.1	3.6	3.2	26	28	3.0	2.0	21	16			0
4	.1	2.7	2.8	28	24	2.5	2.8	19	15			0
5	0	2.7	2.1	28	23	2.6	2.7	*17	16			0
6	0	1.8	2.0	28	23	2.2	2.7	17	18			0
7	0	1.7	2.6	24	20	2.1	3.0	15	20			0
8	0	2.7	3.1	26	5.3	2.4	2.4	13	19			0
9	0	3.2	3.2	24	3.0	3.2	1.6	13	19			0
10	0	3.0	3.3	25	3.2	3.6	1.9	14	16			85
11	0	3.5	3.2	25	3.1	3.2	2.6	13	6.4			11
12	0	3.6	2.6	26	2.5	3.2	2.6	9.6	4.8			3.6
13	0	3.8	2.0	26	2.2	2.7	2.2	2.9	4.0			*2.2
14	.1	3.8	2.6	26	2.7	2.2	2.6	.7	3.5			1.6
15	.3	3.0	2.7	26	2.6	1.6	2.2	.2	2.5			1.2
16	.1	2.4	3.3	26	3.0	2.1	3.1	.1	1.5			.9
17	.2	2.4	3.5	25	3.2	2.4	2.2	0	1.2			.7
18	.1	2.7	3.0	25	3.2	1.9	1.8	6.1	.4			.4
19	.7	3.3	2.7	26	2.8	1.8	2.1	13	.1			.1
20	1.5	3.0	2.5	26	2.6	1.9	2.5	80	.1			.2
21	2.7	2.7	2.5	23	2.5	2.4	3.6	41	0	(*)		.2
22	*2.0	2.4	3.3	24	2.5	3.1	6.6	26	0			.2
23	.5	2.1	3.5	*22	2.6	3.2	5.4	20	*0		(*)	.6
24	1.7	1.9	3.3	22	3.3	3.0	5.0	15	0			.7
25	2.2	1.7	3.6	22	3.7	2.5	4.5	16	0			.4
26	2.5	*1.8	3.3	20	3.7	2.6	3.8	15	0			*3.1
27	2.1	1.7	*3.0	22	*3.0	3.2	3.6	21	0			9.7
28	2.1	1.5	2.2	22	2.2	*3.8	3.3	*54	0			12
29	2.1	2.0	1.8	20	2.2	3.8	3.3	24	0			14
30	1.7	2.1	2.1	20	-	4.4	3.3	21	0			14
31	1.4	-	2.7	22	-	3.7	-	18	-			-
Total	24.4	76.8	86.1	728.6	234.1	86.1	90.4	555.0	197.5	0	0	161.8
Mean	0.79	2.56	2.78	23.5	8.07	2.78	3.01	17.9	6.58	0	0	5.39
Ac-ft	48	152	171	1,450	464	171	179	1,100	392	0	0	321

Calendar year 1951: Max 950 Min 0 Mean 9.43 Ac-ft 6,830
Water year 1951-52: Max 85 Min 0 Mean 6.12 Ac-ft 4,450

Peak discharge (base, 670 cfs).--No peak above base.
* Discharge measurement made on this day.

Brady Creek at Brady, Tex.

Location.--Lat 31°08'15", long. 99°19'55", on left bank just upstream from bridge on U. S. Highway 377 (renumbered) on North Bridge Street in Brady, McCulloch County, 0.4 mile downstream from Live Oak Creek.

Drainage area.--575 sq mi.

Records available.--May 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,646.50 ft above mean sea level, datum of 1929. Prior to July 9, 1940, staff gage at site 3,600 ft upstream at datum 8.24 ft higher.

Average discharge.--13 years, 18.6 cfs.

Extremes.--Maximum discharge during year, 39,100 cfs Sept. 10 (gage height, 24.80 ft); no flow at times.
1939-52: Maximum discharge, that of Sept. 10, 1952; no flow at times.
Maximum stage known, 29.1 ft July 23, 1938, present site and datum (discharge at site 5 miles downstream, 86,000 cfs, by slope-area determination of peak flow).

Remarks.--Records excellent except those for period Sept. 12-30, which are fair.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 11-30)

3.4	0	4.5	7.7	8.5	695
3.5	.1	5.0	16	9.0	1,150
3.6	.3	5.5	29	10.0	2,340
3.7	.6	6.0	46	11.0	3,640
3.8	1.0	6.5	73	13.0	7,200
3.9	1.6	7.0	111	15.0	12,000
4.0	2.4	7.5	184	17.0	17,100
4.2	4.2	8.0	350	19.0	22,500

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0	0	699	79		(*)	0
2						0	0	38	86			0
3						.2	0	9.3	*22			0
4						.1	0	2.8	9.4			0
5						.1	0	.8	5.1			0
6						.1	0	.4	224			0
7						.1	0	1.2	83			0
8						0	0	.4	13			0
9	(*)					0	0	.2	4.7			1.6
10						.1	0	.1	2.2			*21,100
11						0	0	.1	1.0			*6,740
12						0	.1	.1	.5			117
13						0	.1	0	.2			31
14						0	0	0	.3			11
15						0	*0	0	.2			5.0
16						0	0	0	.1			4.4
17						0	0	539	.1			*71
18						0	0	*1,130	.1			155
19						0	.3	369	.1			9.4
20						0	1.2	69	0			4.9
21						0	.5	18	.1			3.7
22						0	1.1	*8.3	.1			2.4
23	(*)					0	.4	4.8	0			1.8
24				(*)		0	.2	3.2	*0			1.8
25						0	.1	1.5	0			1.7
26						*0	.1	.5	0			1.2
27		(*)				0	0	2.8	0		(*)	.9
28			(*)		(*)	.1	0	1,040	0			.5
29						.1	0	105	0			.4
30					-	.1	22	26	0			.3
31		-			-	.1	-	10	-			-
Total	0	0	0	0	0	1.1	26.1	4,079.5	531.2	0	0	28,265.0
Mean	0	0	0	0	0	0.04	0.87	132	17.7	0	0	942
Ac-ft	0	0	0	0	0	2.2	52	8,090	1,050	0	0	56,060

Calendar year 1951: Max 1,630 Min 0 Mean 7.95 Ac-ft 5,760
Water year 1951-52: Max 21,100 Min 0 Mean 89.9 Ac-ft 65,250

Peak discharge (base, 2,400 cfs).--May 17 (10:30 p.m.) 5,030 cfs (11.92 ft); May 28 (6 a.m.) 3,120 cfs (10.60 ft); Sept. 10 (12 m.) 39,100 cfs (24.80 ft).
* Discharge measurement made on this day.

San Saba River at San Saba, Tex.

Location.--Lat 31°12'10", long. 98°42'15", on left bank at downstream side of pier of bridge on San Saba-Chadwick Mill Highway, three-quarters of a mile northeast of San Saba, San Saba County, and 15 miles upstream from mouth.
Drainage area.--3,046 sq mi.
Records available.--December 1904 to December 1906, September 1915 to September 1952. Published as "near San Saba" December 1904 to December 1906, September 1915 to August 1930.
Gage.--Water-stage recorder. Datum of gage is 1,153.32 ft above mean sea level, datum of 1929. December 1904 to December 1906 reference point on bridge at site 4½ miles upstream at different datum. September 1915 to August 29, 1930, staff gage at site 4½ miles upstream at datum 14.8 ft higher.
Average discharge.--37 years (1915-52), 254 cfs.
Extremes.--Maximum discharge during year, 70,400 cfs Sept. 11 (gage height, 36.90 ft, from floodmark), from rating curve extended above 41,000 cfs on basis of slope-area determination at gage height, 45.18 ft; minimum, 0.5 cfs Aug. 3 (gage height, 2.62 ft).
1904-6, 1915-52: Maximum discharge, 203,000 cfs July 23, 1938 (gage height, 45.18 ft, from floodmarks at highest stage known), from rating curve extended above 41,000 cfs on basis of slope-area determination of peak flow; no flow Aug. 9, 10, 1918, July 17-20, 31, 1930.
Maximum stage known since at least 1899, that of July 23, 1938. Flood of June 6, 1899, reached a stage of 42.6 ft, from information by local resident.
Remarks.--Records good except those above 20,000 cfs and those for periods of no gage-height record, which are poor. Diversions above station for irrigation and municipal uses affect low flow.
Revisions (water years).--W 458: 1915-16. W 718: 1922.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 14 to Dec. 31, Sept. 11-30)

2.6	.6	4.0	131	20.0	4,650
2.7	1.8	4.5	205	25.0	8,100
2.8	4.2	5.0	284	28.0	12,500
2.9	9.2	6.0	460	32.0	24,000
3.0	16	8.0	878	33.0	27,800
3.2	34	11.0	1,680	34.0	33,000
3.5	65	15.0	2,880	35.0	42,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	14	12	34	33	22	36	38	212	*17	*2.8	3.0
2	14	21	32	31	24	32	316	162	14	1.6	*4.0	3.7
3	12	15	24	31	27	29	326	157	11	.7	3.7	4.2
4	11	16	24	31	31	30	26	190	170	8.7	3.2	4.7
5	11	16	22	31	31	30	24	120	132	9.2	3.5	4.7
6	11	16	19	30	31	28	22	82	645	9.9	3.2	3.5
7	9.2	16	19	32	33	26	23	67	257	11	2.5	4.2
8	9.2	16	20	31	34	23	24	60	392	8.7	1.7	9.2
9	8.2	16	19	28	36	24	24	40	205	7.2	2.0	12
10	9.2	14	20	30	36	30	22	34	132	8.7	3.7	g2,130
11	9.9	14	20	36	36	30	22	30	99	11	6.2	*36,300
12	11	15	20	38	36	27	24	28	82	9.9	4.2	*3,840
13	13	16	21	38	33	24	24	25	76	21	2.3	799
14	14	17	21	38	34	20	24	20	65	12	1.3	436
15	14	17	21	38	31	18	*23	19	58	11	1.1	295
16	15	19	21	38	31	19	21	18	52	8.7	1.4	*a200
17	13	20	26	36	30	20	18	50	46	7.2	1.3	a650
18	14	20	31	38	28	19	18	7,050	36	6.7	1.8	1,510
19	15	20	30	38	25	20	20	*3,640	29	15	3.5	903
20	14	22	28	36	24	18	24	*832	25	15	3.2	344
21	15	22	29	36	22	16	29	*350	28	17	*2.0	194
22	14	19	31	34	20	13	335	*212	28	15	1.4	228
23	*14	20	31	34	20	15	323	156	29	9.9	1.1	*a132
24	13	20	30	*50	22	16	266	964	24	9.2	3.7	a126
25	12	20	27	36	24	16	132	272	20	7.7	5.7	a119
26	13	20	27	36	25	*16	84	141	22	6.7	5.7	a112
27	14	*20	26	36	25	16	47	1,280	20	6.2	4.7	a106
28	14	20	*26	34	*22	21	47	728	17	9.2	3.7	a100
29	14	20	27	30	21	30	36	2,760	16	7.2	3.7	a93
30	14	16	28	33	-	36	34	553	20	5.2	3.2	a86
31	14	-	31	34	-	36	-	310	-	5.7	2.8	-
Total	394.7	530	752	1,077	832	710	1,813	20,711	3,256	321.9	88.9	48,751.5
Mean	12.7	17.7	24.3	34.7	28.7	22.9	60.4	668	109	10.4	2.87	1,625
Ac-ft	783	1,050	1,490	2,140	1,650	1,410	3,600	41,080	6,460	638	176	96,700

Calendar year 1951: Max 5,700 Min 4.4 Mean 58.2 Ac-ft 42,150
Water year 1951-52: Max 36,300 Min 0.7 Mean 216 Ac-ft 157,200

Peak discharge (base, 4,500 cfs).--May 18 (12 m.) 11,700 cfs (26.53 ft); May 29 (3:30 a.m.) 4,750 cfs (20.17 ft); Sept. 11 (6 a.m.) 70,400 cfs (36.90 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of fragmentary gage-height record and weather records.
g Computed from several daily staff-gage readings.

9

Colorado River near San Saba, Tex.

Location.--Lat 31°13'05", long. 98°33'50", on left bank at downstream side of pier of bridge on U. S. Highway 190, 5.2 miles downstream from San Saba River, 9.2 miles east of San Saba, San Saba County, and at mile 474.
Drainage area.--30,600 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.
Records available.--October 1915 to October 1922 (published as "near Chadwick"), October 1923 to December 1934 (published as "near Tow"), August 1930 to September 1952.
Gage.--Water-stage recorder. Datum of gage is 1,096.22 ft above mean sea level, datum of 1929. October 1915 to October 1922, staff gage at site 1.2 miles upstream at datum 1.92 ft higher. October 1923 to December 1934, water-stage recorder at site 44 miles downstream at different datum. Aug. 30, 1930, to Mar. 21, 1940, water-stage recorder and Mar. 21, 1940, to May 23, 1940, staff gage at site 2,230 ft downstream at same datum.
Average discharge.--34 years (1916-19, 1920-22, 1923-52), 1,482 cfs.
Extremes.--Maximum discharge during year, 69,000 cfs Sept. 11 (gage height, 38.36 ft); minimum, 0.1 cfs Aug. 21, 22.
1915-22, 1923-52: Maximum discharge, 224,000 cfs July 23, 1938 (gage height, 63.2 ft, present site, based on floodmarks at site then in use); minimum, that of Aug. 21, 22, 1952.
Maximum stage known since at least 1878, that of July 23, 1938. Flood of Sept. 25, 1900, reached a stage of 58.4 ft, present site, from floodmarks at former site (discharge, 184,000 cfs).
Remarks.--Records good. Diversions above station for irrigation and municipal use. Flow slightly regulated by four reservoirs in the Colorado and Concho River basins above Winchell and by two reservoirs in the Pecan Bayou basin; combined capacity, 786,000 acre-ft (revised). Records of chemical analyses, water temperatures, and suspended sediment loads for the water year 1952 are given in Water-Supply Paper 1252.
Revisions (water years).--W 858: 1900(M), 1922(M), 1936(M). W 1118: Drainage area.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second
(Shifting-control method used Feb. 1 to Apr. 20, Apr. 30, May 1, 6-17, Sept. 15-30)

Oct. 1 to Jan. 31

1.7	14	1.0	0	2.0	100	9.0	6,640
1.8	31	1.1	.5	2.3	190	12.0	11,300
1.9	52	1.2	2.5	2.6	310	18.0	21,200
2.0	75	1.3	5.8	3.0	500	24.0	33,000
2.1	102	1.4	12	4.0	1,070	32.0	52,000
		1.5	20	5.0	1,880		
		1.7	45	7.0	4,050		

Feb. 1 to Sept. 30

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	75	35	44	46	45	30	44	1,740	585	*27	*5.1	4.7
2	61	58	39	44	44	31	54	12,100	1,110	26	4.7	*4.0
3	52	97	39	44	42	35	42	3,500	3,640	21	4.4	4.0
4	42	70	42	42	40	32	36	1,100	1,210	19	4.0	5.1
5	35	59	42	42	41	32	35	644	765	18	3.1	5.8
6	29	44	37	39	42	30	33	*420	1,080	15	3.1	6.3
7	21	42	31	39	42	27	30	302	850	16	2.8	6.3
8	21	39	28	39	44	26	26	246	1,210	16	3.1	5.8
9	21	37	33	39	45	26	27	169	940	14	3.4	28
10	19	35	33	35	45	28	25	120	880	11	3.1	429
11	17	33	33	42	46	30	24	93	595	10	2.8	*51,200
12	16	33	33	48	46	27	30	74	445	10	3.1	*36,600
13	14	29	37	54	46	26	22	62	342	11	4.4	20,100
14	16	26	42	54	46	22	21	52	270	17	5.1	1,920
15	19	26	42	54	46	19	25	42	214	17	4.0	1,030
16	21	22	42	52	45	18	28	40	169	12	3.1	718
17	21	22	42	52	44	21	26	179	140	10	2.0	617
18	21	24	44	52	42	25	22	5,530	112	9.7	1.3	2,240
19	21	28	50	52	42	22	21	*13,600	91	8.2	1.0	1,560
20	24	28	48	52	40	20	1,100	4,210	74	10	.4	748
21	24	29	44	50	36	18	792	1,340	65	14	*.2	485
22	24	33	46	48	33	17	5,080	792	58	15	.2	856
23	*24	39	48	46	33	15	4,910	585	56	*14	.4	420
24	22	42	46	*46	33	14	3,930	4,150	52	9.7	1.0	238
25	21	44	46	64	35	17	1,780	10,000	45	7.7	1.3	206
26	22	44	42	50	35	19	850	1,840	40	6.8	1.1	180
27	28	*42	39	48	33	20	535	4,110	36	6.3	1.1	169
28	46	42	*42	46	32	21	342	2,600	35	5.8	1.8	149
29	48	37	42	46	32	22	234	3,520	32	6.3	*3.4	134
30	46	39	44	44	-	28	158	1,360	30	6.3	4.0	131
31	42	-	46	44	-	37	-	792	-	5.8	4.7	-
Total	913	1,178	1,266	1,453	1,175	755	20,282	75,312	15,171	395.6	83.2	120,200.0
Mean	29.5	39.3	40.8	46.9	40.5	24.4	676	2,429	506	12.8	2.68	4,007
Ac-ft	1,810	2,340	2,510	2,880	2,330	1,500	40,230	149,400	30,090	785	165	238,400

Calendar year 1951: Max 22,100 Min 7.0 Mean 574 Ac-ft 415,300
Water year 1951-52: Max 51,200 Min 0.2 Mean 651 Ac-ft 472,400

Peak discharge (base, 19,300 cfs).--Sept. 11 (2:30 p.m.) 69,000 cfs (38.36 ft).
* Discharge measurement made on this day.

Buchanan Reservoir near Burnet, Tex.

Location.--Lat 30°45'05", long. 98°25'00", in powerhouse at Buchanan Dam on Colorado River, 1 mile upstream from bridge on State Highway 29, 10 miles west of Burnet, Burnet County, and at mile 413.

Drainage area.--31,250 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--May 1937 to September 1952.

Gage.--Selsyn indicator. Datum of gage is 0.48 ft above mean sea level, datum of 1929 (levels by Lower Colorado River Authority).

Extremes.--Maximum contents observed during year, 637,400 acre-ft June 8-11 (gage height, 1,002.8 ft); minimum observed, 340,800 acre-ft Sept. 8-10 (gage height, 983.4 ft).
1937-52: Maximum contents, 1,004,000 acre-ft July 27, 1938 (gage height, 1,020.5 ft; several taintor gates were open); minimum after filling of reservoir in July 1938, that of Sept. 8-10, 1952.

Remarks.--Reservoir is formed by two reinforced concrete multiple-arch sections, three banks of taintor gates, and a 1,088-foot reinforced concrete spillway section. Dam completed and storage began May 20, 1937. Total capacity, 992,000 acre-ft (gage height, 1,020.0 ft, top of spillway section). Usable capacity for power development, 955,000 acre-ft between gage heights 937.0 ft (sill of powerhouse penstock) and 1,020.0 ft (top of spillway section). Water below gage height 937.0 ft can be withdrawn through two 5-foot Bunger gates (emergency) down to gage height 890.0 ft. Figures given herein represent total contents. Water used for power development and irrigation of rice on several districts below Columbus.

Cooperation.--Records of daily gage height and capacity table furnished by Lower Colorado River Authority.

Revisions.--W 1118: Drainage area.

Contents, in acre-feet, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	474,000	441,000	430,500	429,000	423,400	409,400	409,400	463,500	619,400	590,600	472,500	350,600
2	471,000	441,000	430,500	427,600	424,800	410,800	409,400	480,000	619,400	588,800	468,000	345,600
3	468,000	439,500	429,000	427,600	424,800	410,800	409,400	497,000	624,800	587,000	466,500	344,400
4	463,500	438,000	429,000	427,600	423,400	409,400	409,400	501,800	628,400	585,300	460,500	343,200
5	460,500	438,000	429,000	427,600	423,400	409,400	409,400	503,400	632,000	583,600	454,500	343,200
6	459,000	438,000	429,000	427,600	423,400	409,400	409,400	503,400	633,800	580,200	450,000	342,000
7	456,000	436,500	429,000	427,600	422,000	409,400	408,000	505,000	633,800	576,800	445,500	342,000
8	454,500	436,500	429,000	426,200	419,200	409,400	408,000	505,000	637,400	573,400	439,500	340,800
9	453,000	436,500	429,000	426,200	420,600	410,800	409,400	505,000	637,400	571,700	438,000	340,800
10	451,500	436,500	427,600	426,200	420,600	412,200	409,400	506,600	637,400	566,600	438,000	340,800
11	450,000	435,000	427,600	427,600	420,600	410,800	409,400	505,000	637,400	563,200	432,000	441,000
12	450,000	435,000	427,600	427,600	419,200	400,800	409,400	505,000	635,600	561,500	426,200	537,000
13	448,500	435,000	427,600	429,000	417,800	410,800	409,400	505,000	633,800	559,800	420,600	588,800
14	448,500	435,000	429,000	427,600	417,800	410,800	409,400	505,000	633,800	556,400	415,000	601,400
15	447,000	433,500	427,800	427,600	415,000	410,800	409,400	505,000	632,000	549,800	410,800	603,200
16	447,000	433,500	427,600	427,600	415,000	410,800	409,400	501,800	630,200	546,600	408,000	605,000
17	447,000	432,000	427,600	429,000	416,400	412,200	409,400	503,400	630,200	540,200	406,600	606,800
18	445,500	432,000	427,600	427,600	416,400	410,800	409,400	508,200	626,600	535,400	402,400	610,400
19	445,500	430,500	427,600	429,000	415,000	410,800	409,400	533,800	623,000	533,800	396,800	615,800
20	445,500	429,000	427,600	429,000	415,000	419,800	410,800	549,800	619,400	532,200	391,200	617,600
21	444,000	429,000	427,600	427,600	413,600	410,800	417,800	553,000	617,600	527,400	387,000	619,400
22	445,500	430,500	427,600	427,600	412,200	410,800	429,000	553,000	617,600	521,000	380,500	621,200
23	445,500	429,000	429,000	427,600	413,600	409,400	441,000	551,400	614,000	516,200	377,900	623,000
24	444,000	429,000	429,000	426,200	415,000	409,400	453,000	558,100	608,600	509,800	376,600	623,000
25	444,000	429,000	429,000	426,200	413,600	409,400	459,000	556,400	605,000	505,000	371,400	623,000
26	444,000	429,000	429,000	426,200	412,200	409,400	462,000	583,600	601,400	500,200	367,500	623,000
27	444,000	429,000	429,000	426,200	412,200	410,800	463,500	590,600	597,800	498,600	362,300	623,000
28	444,000	429,000	429,000	426,200	410,800	410,800	463,500	608,600	596,000	493,800	358,400	623,000
29	445,500	429,000	429,000	426,200	409,400	409,400	463,500	612,200	596,000	487,500	353,200	623,000
30	444,000	429,000	429,000	426,200	-	410,800	463,500	617,600	594,200	481,500	351,900	623,000
31	442,500	-	429,000	424,800	-	410,800	-	619,400	-	477,000	350,600	-

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	993.2	477,000	-
Oct. 31	990.9	442,500	-34,500
Nov. 30	990.0	429,000	-13,500
Dec. 31	990.0	429,000	0
Calendar year 1951	-	-	-290,800
Jan. 31	989.7	424,800	-4,200
Feb. 29	988.6	409,400	-15,400
Mar. 31	988.7	410,800	+1,400
Apr. 30	992.3	463,500	+52,700
May 31	1,001.8	619,400	+155,900
June 30	1,000.4	594,200	-25,200
July 31	993.2	477,000	-117,200
Aug. 31	984.2	350,600	-126,400
Sept.30	1,002.0	623,000	+272,400
Water year 1951-52	-	-	+146,000

† Average of 11 p.m. and 1 a.m. readings Oct. 1 to Apr. 13, and midnight thereafter.

North Llano River near Junction, Tex.

Location.--Lat 30°30', long. 99°47', on left bank about 1,000 ft upstream from remains of old Wilson Dam, 3 miles northwest of Junction, Kimble County, and 4 miles upstream from confluence with South Llano River.

Drainage area.--914 sq mi.

Records available.--September 1915 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,699.92 ft above mean sea level, datum of 1929. Prior to Aug. 1, 1925, chain gage at site 550 ft downstream at same datum. Aug. 1, 1925, to Sept. 16, 1936, water-stage recorder at site 520 ft downstream at same datum. Sept. 16, 1936, to June 22, 1940, staff gages at various sites at same datum.

Average discharge.--37 years, 65.9 cfs.

Extremes.--Maximum discharge during year, 2,860 cfs May 18 (gage height, 5.40 ft); no flow July 24-28, July 30 to Sept. 30.

1915-52: Maximum discharge, 94,800 cfs Sept. 16, 1936 (gage height, 29.2 ft, present site, based on gage-height relation curve), from rating curve extended above 68,000 cfs on basis of slope-area determination of peak flow; no flow at times.

Maximum stage known since at least 1875, that of Sept. 16, 1936; flood in 1889 reached a stage of about 27.2 ft, from information by local resident.

Remarks.--Records excellent. Diversions for irrigation materially affect low flow.

Revisions (water years).--W 568: 1915, 1918-20, 1922. W 763: 1923(M).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.75	0	1.6	36
.8	.1	1.8	66
.9	.6	2.0	116
1.0	2.0	2.3	208
1.1	3.9	2.6	325
1.2	7.0	3.0	550
1.4	18	3.5	900

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	0.4	0.3	0.7	4.2	5.9	5.6	21	16	1.0		
2	1.6	.6	.4	.7	4.2	6.3	5.2	*26	15	.6		
3	1.6	1.3	.6	.9	4.2	6.6	4.9	21	14	1.0		
4	1.0	1.2	.3	.9	3.9	6.3	4.9	18	12	1.2		
5	1.3	1.2	.3	.9	4.4	6.3	4.9	16	11	1.0		
6	1.2	1.0	.4	.7	4.4	6.3	4.9	13	10	.6		
7	1.6	1.0	.6	.7	4.4	6.3	4.7	12	9.8	.4		
8	1.4	1.0	.6	.7	4.4	6.3	4.7	11	8.8	.3		
9	1.3	1.0	.6	.7	4.4	6.3	4.7	9.8	7.9	.3		
10	1.0	1.0	.7	.7	4.4	6.3	4.4	8.8	7.5	.6		
11	1.0	1.2	.7	.9	4.4	5.9	4.2	7.9	7.5	.6		
12	.6	1.2	.7	1.0	4.4	5.6	4.4	7.0	6.8	.6		
13	.6	1.0	.9	1.4	4.4	5.2	4.2	6.3	5.6	.6		
14	.7	1.0	1.0	1.7	4.4	4.9	4.4	5.9	4.7	.6		
15	1.4	.9	.6	1.9	4.4	5.2	4.2	5.2	4.2	.4		
16	1.4	.9	.6	2.2	4.4	5.2	4.4	4.9	3.9	.2		
17	1.3	.7	.9	2.4	4.4	5.2	4.4	4.7	3.5	.2		
18	.9	.9	.7	2.6	4.4	5.6	4.4	792	3.1	.2		
19	.9	.9	.9	2.8	4.9	5.6	4.7	290	2.6	.2		
20	.6	.7	.7	2.8	4.7	4.9	4.9	122	2.0	.1		
21	.6	.7	.2	2.8	4.7	4.9	8.1	64	1.9	.2		
22	.9	.6	.4	2.6	4.9	4.7	167	45	1.7	**.2	(*)	
23	.7	.4	.6	*2.6	5.2	4.4	80	39	*2.0	.1		
24	**.3	.3	.5	2.8	5.9	4.4	32	33	1.9	0		
25	.3	.7	.6	3.5	5.9	4.4	22	31	1.7	0		
26	.4	*.7	.6	3.5	5.9	4.7	19	27	1.7	0		(*)
27	.7	.7	*.7	3.5	*6.3	*4.7	16	*28	1.3	0		
28	.7	.7	.7	3.5	6.3	4.9	14	28	1.3	0		
29	1.3	.6	.9	3.5	6.3	5.2	13	24	1.2	.1		
30	.6	.4	.7	3.5	-	5.6	12	20	1.4	0		
31	.4	-	.7	3.9	-	5.6	-	18	-	0		-
Total	29.7	24.9	19.1	63.0	139.1	169.7	476.2	1,759.5	171.8	11.3	0	0
Mean	0.96	0.83	0.62	2.03	4.80	5.47	15.9	56.8	5.73	0.36	0	0
Ac-ft	59	49	38	125	276	337	945	3,490	341	22	0	0

Calendar year 1951: Max 934 Min 0 Mean 9.53 Ac-ft 6,890
Water year 1951-52: Max 792 Min 0 Mean 7.83 Ac-ft 5,680

Peak discharge (base, 1,200 cfs).--May 18 (3 p.m.) 2,860 cfs (5.40 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.

Llano River near Junction, Tex.

Location.--Lat 30°30', long. 99°44', on right bank 250 ft north of old Kerrville-Junction road, about half a mile downstream from point where slough diverts floodwater from main channel, 3 miles east of Junction, Kimble County, 4 miles downstream from confluence of North Llano and South Llano Rivers, and 4½ miles upstream from Johnson Fork.

Drainage area.--1,762 sq mi.

Records available.--September 1915 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,630.32 ft above mean sea level, datum of 1929. Prior to Aug. 14, 1925, staff gage and Aug. 14, 1925, to May 17, 1940, water-stage recorder, at present site and datum. May 18, 1940, to Aug. 17, 1944, water-stage recorder at site 5,300 ft upstream at datum 6.0 ft higher (since Aug. 18, 1944, used as a supplementary gage above gage height 5.00 ft).

Average discharge.--37 years, 201 cfs.

Extremes.--Maximum discharge during year, 2,540 cfs May 18 (gage height, 4.07 ft; minimum, 13 cfs Aug. 25-27.

1915-52: Maximum discharge, 319,000 cfs June 14, 1935 (gage height, 43.3 ft, present site and datum, from floodmarks; 41.4 ft, auxiliary gage, from floodmarks), from rating curve extended above 54,000 cfs on basis of slope-area determinations at gage heights 32.2 and 43.3 ft; minimum, 13 cfs Aug. 23-28, 1918, and Aug. 25-27, 1952.

Maximum stage known since at least 1888, that of June 14, 1935.

Remarks.--Records good. Small diversions above station for irrigation.

Revisions (water years).--W 568: 1915-16, 1918-20, 1922, drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Feb. 10)

0.77	13	1.6	148
.8	14	1.8	238
.9	17	2.0	338
1.0	23	2.2	450
1.2	44	2.5	670
1.4	77		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	38	40	37	39	38	43	55	47	17	16	14
2	32	37	40	37	38	38	40	*57	43	18	18	15
3	31	38	40	38	37	40	39	57	39	22	18	*15
4	29	38	39	38	37	39	37	54	37	24	17	15
5	28	40	38	38	37	38	36	50	33	25	16	15
6	28	40	38	40	37	38	36	48	34	25	16	15
7	27	40	37	40	38	38	37	45	37	24	16	15
8	27	40	37	40	37	38	37	44	37	23	16	15
9	27	40	37	39	37	39	36	43	36	22	16	16
10	27	40	38	38	38	40	34	40	34	20	16	21
11	28	40	39	38	38	39	34	40	33	18	17	23
12	28	39	40	38	37	37	38	39	32	18	16	23
13	28	39	40	40	36	37	37	38	31	18	16	22
14	29	37	42	40	34	37	37	37	29	18	15	20
15	30	36	40	40	36	36	36	36	27	18	15	20
16	29	36	40	39	36	37	36	36	26	19	15	19
17	29	37	40	39	37	38	34	36	25	19	15	19
18	29	38	39	39	38	39	36	620	25	20	15	19
19	29	39	39	38	37	38	36	405	23	20	14	19
20	30	40	39	38	37	37	39	166	23	20	14	19
21	31	42	38	38	37	36	45	101	23	20	14	19
22	31	42	38	38	37	36	143	75	23	*20	*14	18
23	31	42	38	*37	36	36	141	65	*23	19	14	19
24	31	40	38	37	37	37	69	62	22	18	14	20
25	32	40	39	38	40	37	57	60	22	18	13	21
26	33	*40	38	39	40	38	57	55	20	17	13	*21
27	34	40	*38	39	*40	*39	55	*57	18	16	14	20
28	37	40	38	40	40	44	55	62	16	16	*14	20
29	40	39	38	39	39	47	54	60	16	16	14	19
30	42	40	38	38	-	47	51	55	16	16	*14	18
31	39	-	38	38	-	45	-	50	-	16	14	-
Total	960	1,177	1,201	1,195	1,087	1,203	1,465	2,648	850	600	469	554
Mean	31.0	39.2	38.7	38.5	37.5	38.8	48.8	85.4	28.3	19.4	15.1	18.5
Ac-ft	1,900	2,330	2,380	2,370	2,160	2,390	2,910	5,250	1,690	1,190	930	1,100

Calendar year 1951: Max 1,050 Min 15 Mean 49.7 Ac-ft 35,990
Water year 1951-52: Max 620 Min 13 Mean 36.6 Ac-ft 26,600

Peak discharge (base, 2,100 cfs).--May 18 (5:30 p.m.) 2,540 cfs (4.07 ft).

* Discharge measurement made on this day.

Note.--No gage-height record June 24 to July 21; discharge estimated on basis of recorded range in stage and weather records.

Llano River at Llano, Tex.

Location.--Lat 30°45', long. 98°40', on right bank in Llano, Llano County, 0.4 mile downstream from bridge on State Highway 16 and 7 miles upstream from Little Llano River.

Drainage area.--4,000 sq mi.

Records available.--September 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 970.01 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 283 cfs.

Extremes.--Maximum discharge during year, 232,000 cfs Sept. 10 (gage height, 32.6 ft, from floodmark), from rating curve extended above 129,000 cfs on basis of slope-area determination of peak flow; no flow Aug. 5-9, Aug. 27 to Sept. 9.
1939-52: Maximum discharge, that of Sept. 10, 1952; no flow Aug. 5-9, Aug. 27 to Sept. 9, 1952.
Maximum stage known, 41.5 ft June 14, 1935 (discharge, 380,000 cfs), from information by local resident.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Low flow regulated by powerplant half a mile upstream. No large diversions above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Sept. 10						Sept. 10 to Sept. 30			
1.3	0	2.1	14	5.0	1,870	3.1	59	7.0	3,190
1.4	.1	2.3	31	6.0	3,400	3.3	99	8.0	5,400
1.5	.3	2.5	62	7.0	5,600	3.6	178	9.0	8,600
1.6	.7	2.7	115	8.0	8,300	4.0	306	11.0	18,500
1.7	1.6	3.0	245	10.0	15,800	4.5	520	14.0	37,000
1.8	3.0	3.5	535	12.0	25,500	5.0	820	17.0	57,000
2.9	5.2	4.0	870	14.0	37,000	6.0	1,690		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	30	44	42	39	44	62	94	129	7.9	a0.4	0
2	19	31	44	42	37	45	59	114	91	6.9	a.3	0
3	19	31	45	45	35	44	57	236	71	6.2	a.2	0
4	18	32	44	44	34	41	54	136	59	6.2	a.1	*0
5	20	36	44	44	32	41	54	112	140	14	a0	0
6	20	30	44	42	31	41	48	91	395	21	0	0
7	18	31	41	42	31	38	42	*78	85	15	a0	0
8	17	31	38	44	30	37	37	69	59	11	a0	0
9	*16	34	38	44	30	38	36	62	106	8.3	a0	0
10	15	34	39	42	31	45	37	57	69	7.9	a.1	*52,000
11	14	37	39	44	34	41	38	52	52	6.6	**.1	*51,400
12	14	38	39	44	35	38	62	48	44	5.2	.1	*3,000
13	12	37	41	44	35	41	54	45	37	5.0	.1	*1,070
14	12	37	45	45	35	38	52	42	34	5.0	.1	582
15	12	37	45	45	38	38	*54	39	30	5.5	.1	*386
16	13	37	45	47	38	37	45	38	26	5.5	.1	288
17	14	34	47	48	38	38	42	41	24	8.2	.1	384
18	14	35	47	48	38	40	44	748	22	9.5	.1	*5,120
19	16	34	45	48	38	41	45	440	20	7.2	.1	915
20	15	35	48	48	37	38	84	330	18	5.5	.1	339
21	16	34	44	47	37	42	3,470	435	16	5.0	.1	224
22	18	35	44	45	38	37	*3,510	255	15	5.0	*.1	*164
23	20	38	44	*42	39	34	*1,400	168	*14	*8.8	.1	132
24	*20	41	44	41	44	34	*587	132	12	8.6	.1	137
25	22	44	44	39	60	35	322	106	10	6.6	.1	119
26	22	*48	44	39	55	*35	230	88	8.3	4.3	.1	114
27	22	47	44	39	*52	48	154	*126	7.6	3.2	0	112
28	22	45	*44	39	48	67	115	683	6.9	2.3	0	99
29	24	44	44	39	45	62	97	1,890	6.6	1.2	0	81
30	26	44	44	38	-	64	85	518	6.9	.8	0	72
31	27	-	44	38	-	71	-	230	-	.5	0	-
Total	559	1,101	1,346	1,338	1,114	1,333	10,978	7,503	1,614.3	3 213.9	2.7	116,738
Mean	18.0	36.7	43.4	43.2	38.4	43.0	366	242	53.8	6.90	0.09	3,891
Ac-ft	1,110	2,180	2,670	2,650	2,210	2,640	21,770	14,880	3,200	424	5.4	231,500

Calendar year 1951: Max 3,030 Min 0.2 Mean 65.2 Ac-ft 47,250
Water year 1951-52: Max 52,000 Min 0 Mean 393 Ac-ft 285,200

Peak discharge (base, 8,500 cfs).--Apr. 21 (4:30 p.m.) 11,600 cfs (9.01 ft); Sept. 10 (11 p.m.) 232,000 cfs (32.6 ft); Sept. 18 (7 a.m.) 11,500 cfs (9.66 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.
a No gage-height record; discharge interpolated or estimated on basis of one gage reading and one field estimate.
Note.--No recorder record Aug. 6, 16-31; discharge computed from once-daily staff gage readings.

Pedernales River near Johnson City, Tex.

Location (revised).--Lat 30°18', long. 98°24', on right bank at upstream side of pier of bridge on U. S. Highway 281, 0.2 mile downstream from Flat Creek, 1.2 miles northeast of Johnson City, Blanco County, and 3.5 miles downstream from Buffalo Creek.

Drainage area.--947 sq mi.

Records available.--May 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,096.70 ft (revised) above mean sea level, datum of 1929, supplementary adjustment of 1942. Prior to Sept. 14, 1939, wire-weight gage at same site and datum.

Average discharge.--13 years, 175 cfs.

Extremes.--Maximum discharge during year, 441,000 cfs Sept. 11 (gage height, 42.5 ft, from floodmark), from rating curve extended above 42,000 cfs on basis of slope-area determinations at gage heights 27.6 and 42.5 ft; no flow Aug. 14 to Sept. 9.
1939-52: Maximum discharge, that of Sept. 11, 1952; no flow Aug. 8 to Sept. 13, 1951, and Aug. 14 to Sept. 9, 1952.
Maximum stage known since at least July 1869, that of Sept. 11, 1952; flood of July 1869 reached a stage of about 33 ft, from information by local residents.

Remarks.--Records good except those above 45,000 cfs, which are fair.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan 13 to Feb. 25, Sept. 12-30)

1.6	0	2.4	12	5.0	1,730
1.7	.1	2.5	20	6.0	3,250
1.8	.2	2.7	50	8.0	6,810
1.9	.5	2.9	103	10.0	11,300
2.0	1.1	3.1	174	13.0	21,600
2.1	2.2	3.5	352	17.0	39,400
2.2	4.5	4.0	675	22.0	72,000
2.3	8.0	4.5	1,120	28.0	132,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*4.3	.5	5.6	7.0	3.3	7.6	9.8	125	82	1,490	0.5	0
2	2.0	.9	5.2	5.9	3.3	7.3	41	1,480	59	156	.5	0
3	1.1	.9	5.2	5.9	3.1	7.0	18	141	47	76	.4	0
4	.9	.9	5.2	5.9	3.3	*5.9	12	71	38	48	.3	0
5	.6	*.9	5.6	5.9	3.3	5.2	9.4	45	962	36	.3	0
6	.5	.9	4.8	5.6	3.1	4.8	7.6	33	673	26	.2	0
7	.4	.8	4.0	4.8	2.9	4.5	*6.6	25	256	20	.2	0
8	.3	.7	3.6	5.2	2.9	4.5	5.9	20	123	17	.1	0
9	.2	.7	3.6	5.2	2.9	4.5	5.9	17	82	16	.1	0
10	.2	.6	3.6	5.2	3.3	27	5.6	13	59	12	.1	54,300
11	.2	.6	3.8	4.5	3.8	98	5.6	12	50	12	.1	*129,000
12	.2	.5	4.3	4.5	4.0	40	24	*11	47	10	.1	2,190
13	.1	.6	4.8	4.3	4.3	23	92	9.8	40	9.4	.1	661
14	.1	1.0	5.9	4.3	4.5	16	44	8.4	32	8.0	0	387
15	.1	1.5	5.6	4.3	4.8	11	21	7.3	25	7.3	0	292
16	.1	2.0	5.2	4.5	5.6	8.4	15	6.6	*20	6.6	0	244
17	.1	2.2	*5.6	4.8	5.6	7.0	12	5.6	18	6.2	0	329
18	.1	2.4	5.6	4.8	6.2	7.0	11	726	17	6.6	0	962
19	.1	2.4	5.6	4.3	5.9	5.9	11	387	15	23	0	352
20	.1	2.4	5.6	4.8	5.6	4.8	511	141	12	11	0	*198
21	.1	2.7	5.9	*4.5	4.5	5.2	441	62	12	*7.3	0	156
22	.1	2.9	5.6	4.3	4.5	2.9	729	35	10	5.6	0	134
23	.2	3.1	5.6	4.0	4.5	1.9	803	25	9.4	4.3	0	123
24	.2	3.1	6.2	3.8	4.8	1.9	197	19	8.0	3.6	0	117
25	.2	3.1	6.6	3.6	19	2.4	100	18	7.3	3.1	0	103
26	.2	5.6	6.6	3.8	18	4.8	62	16	6.2	2.2	*0	97
27	.2	8.4	6.6	3.6	11	6.6	45	3,050	5.6	1.8	0	*88
28	.2	8.9	6.6	3.8	9.4	12	36	1,800	5.2	1.4	0	82
29	.2	8.0	6.6	3.6	8.9	11	29	465	4.5	1.1	0	76
30	.2	6.2	6.6	3.6	-	11	25	207	832	.9	0	68
31	.2	-	7.0	3.6	-	12	-	117	-	.7	0	-
Total	13.7	75.4	168.3	143.9	166.3	371.1	3,335.4	9,098.7	3,557.2	2,029.1	3.0	189,959
Mean	0.44	2.51	5.43	4.64	5.73	12.0	111	294	119	65.5	0.10	6,332
Ac-ft	27	150	334	285	330	736	6,620	18,050	7,060	4,020	6.0	376,800

Calendar year 1951: Max 1,910 Min 0 Mean 23.5 Ac-ft 17,030
Water year 1951-52: Max 129,000 Min 0 Mean 571 Ac-ft 414,400

Peak discharge (base, 8,300 cfs).--May 27 (5 p.m.) 13,500 cfs (10.68 ft); June 5 (9 p.m.) 9,230 cfs (9.18 ft); Sept. 11 (3 a.m.) 441,000 cfs (42.5 ft).
* Discharge measurement made on this day.
Note.--No recorder record Sept. 10-30; discharge computed on basis of twice-daily staff-gage readings.

Lake Travis near Austin, Tex.

Location.--Lat 30°23'20", long. 97°54'35", in powerhouse at Mansfield Dam on Colorado River, 7.3 miles downstream from Sandy Creek, 12 miles northwest of Austin, Travis County, and at mile 318.

Drainage area.--37,900 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--September 1940 to September 1952. Prior to October 1948, published as Marshall Ford Reservoir near Austin.

Gage.--Bailey indicator. Datum of gage is 0.12 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation). Prior to Dec. 26, 1940, staff gages on left bank near dam, datum at mean sea level (unadjusted). Dec. 26, 1940, to February 1942, mercury manometer in powerhouse with datum at mean sea level (unadjusted).

Extremes.--Maximum contents observed during year, 1,111,000 acre-ft Sept. 18 (gage height, 677.7 ft); minimum observed, 337,400 acre-ft June 30 (gage height, 614.8 ft).

1940-52: Maximum contents observed, 1,377,000 acre-ft Oct. 23, 1942 (gage height, 691.2 ft); minimum observed, 332,600 acre-ft Aug. 13, 14, 1951 (gage height, 614.2 ft).

Remarks.--Reservoir is formed by concrete gravity-type dam. Storage began Sept. 9, 1940; dam completed early in 1942. Total capacity, 1,950,000 acre-ft (gage height, 714.0 ft, top of spillway). Capacity between gage heights 681.0 and 714.0 ft is 778,000 acre-ft, and is reserved for flood control. Usable capacity, 1,144,000 acre-ft between gage heights 535.8 ft (bottom of twenty-four, 8½ foot diameter Paradox gates) and 681.0 ft (maximum power pool). Bottom of penstocks, gage height 552.0 ft. Figures given herein represent total contents. Water used for power development and for irrigation of rice in several districts below Columbus. For additional data on flood of September 1952 see Water-Supply Paper 1242, Floods of 1952, Part 8.

Cooperation.--Records of daily gage heights and capacity curve furnished by Lower Colorado River Authority.

Revisions.--W 1118: Drainage area.

Contents, in acre-feet, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	398,500	408,000	407,100	400,200	400,200	391,600	383,000	377,900	375,300	342,200	360,600	383,000
2	400,200	408,000	407,100	400,200	399,400	391,600	383,000	377,000	372,700	344,600	359,000	381,300
3	402,000	407,100	407,100	398,500	400,200	391,600	382,200	376,200	370,200	347,800	355,800	380,500
4	405,400	407,100	407,100	398,500	399,400	391,600	381,300	374,400	366,200	348,600	353,400	373,600
5	408,800	406,300	408,000	398,500	397,700	391,600	381,300	373,600	364,600	348,600	359,000	376,200
6	413,100	406,300	408,000	397,700	397,700	390,800	381,300	372,700	364,600	345,400	363,800	374,400
7	414,000	407,100	407,100	396,800	396,800	390,800	380,500	372,700	363,800	343,800	369,400	374,400
8	413,100	406,300	408,000	396,800	396,800	389,900	379,600	372,700	361,400	344,600	374,400	371,900
9	411,400	405,400	408,000	397,700	396,800	389,900	379,600	373,600	358,200	347,000	373,600	372,700
10	409,700	405,400	407,100	398,500	396,800	389,900	377,900	373,600	357,400	347,000	371,000	373,600
11	409,700	405,400	407,100	398,500	395,100	390,800	377,000	373,600	356,600	347,000	369,400	1,073,000
12	408,800	404,500	407,100	398,500	394,200	389,900	377,900	371,900	355,800	347,000	372,700	1,085,000
13	407,100	404,500	406,300	398,500	393,400	389,900	377,900	369,400	353,400	344,600	376,200	1,085,000
14	404,500	405,400	406,300	398,500	393,400	388,200	377,000	369,400	351,800	343,800	380,500	1,085,000
15	404,500	406,300	405,400	400,200	393,400	388,200	376,200	364,600	351,000	347,000	384,800	1,089,000
16	404,500	407,100	405,400	401,100	393,400	388,200	375,300	364,600	347,800	348,600	384,800	1,094,000
17	405,400	407,100	404,500	401,100	392,500	388,200	374,400	363,800	351,000	353,400	383,000	1,094,000
18	406,300	407,100	404,500	402,000	392,500	387,300	372,700	360,600	351,800	355,000	382,200	1,111,000
19	406,300	406,300	403,700	402,800	392,500	387,300	371,900	363,800	351,000	354,200	386,500	1,110,000
20	405,400	406,300	403,700	402,800	391,600	386,500	371,900	366,200	351,800	351,800	390,800	1,109,000
21	405,400	407,100	403,700	402,000	391,600	386,500	371,900	367,000	349,400	351,000	390,800	1,109,000
22	403,700	408,000	403,700	402,000	391,600	385,600	372,700	365,400	348,200	351,800	390,800	1,107,000
23	404,500	408,000	403,700	402,000	391,600	385,600	377,900	365,400	343,800	351,800	389,900	1,105,000
24	405,400	408,800	402,800	402,000	391,600	384,800	384,800	364,600	343,000	351,800	389,900	1,105,000
25	406,300	408,800	403,700	402,000	392,500	384,800	385,600	364,600	342,200	355,000	388,200	1,105,000
26	406,300	408,800	402,000	402,000	391,600	384,800	384,800	363,000	342,200	354,200	387,300	1,105,000
27	406,300	408,800	402,000	402,000	390,800	384,800	383,900	364,600	341,400	351,000	389,100	1,103,000
28	405,400	408,000	402,000	402,000	390,800	383,900	382,200	372,700	339,800	350,200	389,900	1,102,000
29	405,400	408,000	401,100	401,100	391,600	383,900	381,300	374,400	338,200	353,400	389,100	1,100,000
30	406,300	407,100	400,200	400,200	-	383,900	380,500	376,200	337,400	355,800	387,300	1,100,000
31	407,100	-	400,200	400,200	-	383,000	-	376,200	-	359,800	384,800	-

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	622.2	398,500	-
Oct. 31	623.2	407,100	+8,600
Nov. 30	623.2	407,100	0
Dec. 31	622.4	400,200	-6,900
Calendar year 1951	-	-	-46,200
Jan. 31	622.4	400,200	0
Feb. 29	621.4	391,600	-8,600
Mar. 31	620.4	383,000	-8,600
Apr. 30	620.1	380,500	-2,500
May 31	619.6	376,200	-4,300
June 30	614.8	337,400	-38,800
July 31	617.6	359,800	+22,400
Aug. 31	620.6	384,800	+25,000
Sept.30	677.1	1,100,000	+715,200
Water year 1951-52	-	-	+701,500

† Average of 11 p.m. and 1 a.m. readings Oct. 14 to Mar. 31; midnight readings only Oct. 1-13 and Apr. 1 to Sept. 30.

Barton Springs at Austin, Tex.

Location.--Lat 30°16', long. 97°46'. Springs issue from channel and along banks of Barton Creek for a distance of 1,000 ft in Zilker Park at Austin, Travis County. The main spring is near right bank of creek 500 ft upstream from concrete dam forming swimming pool, 1,800 ft upstream from bridge at entrance to Zilker Park, and 0.6 mile upstream from mouth of Barton Creek.

Records available.--November 1894 to September 1952 (discharge measurements only). Summary of all discharge measurements prior to October 1937 is contained in Water-Supply Paper 850. Daily discharge record of Barton Creek at Austin published for period April 1917 to September 1918, closely represents the flow of Barton Springs.

Extremes.--Maximum discharge measured during year, 46.6 cfs Sept. 25; minimum measured, 11.2 cfs Feb. 11.
1894-1952: Maximum discharge measured, 166 cfs May 10, 1941; minimum measured, that of Feb. 11, 1952.

Remarks.--Discharge measurements represent total flow of springs including Old Mill Spring which is on right bank and about 1,000 ft downstream from main spring. Springs emerge from Edwards limestone in Balcones fault zone and respond to rainfall on Edwards Plateau. Water used for recreational purposes. The additional head on the springs caused by the swimming pool at main spring being full has an appreciable effect on the flow of the springs.

Discharge measurements, in cubic feet per second, of Barton Creek and determination of discharge of Barton Springs, water year October 1951 to September 1952

Date	Barton Creek below springs	Barton Creek above springs	Barton Springs
1951			
Oct. 3	16.9	0	a16.9
31	14.8	0	a14.8
Dec. 19	16.4	0	16.4
31	15.1	0	15.1
1952			
Jan. 17	14.6	0	14.6
20	10.9	0	10.9
21	11.6	0	a11.6
22	11.8	0	a11.8
23	11.7	0	a11.7
25	11.8	0	a11.8
28	12.8	0	a12.8
29	12.9	0	a12.9
30	13.3	0	a13.3
Feb. 1	12.7	0	a12.7
4	13.2	0	a13.2
6	16.2	0	16.2
8	14.5	0	14.5
11	11.2	0	a11.2
Mar. 7	15.1	0	15.1
Apr. 4	13.2	0	a13.2
May 6	29.4	0	a29.4
23	29.6	0	a29.6
June 26	26.9	0	a26.9
Aug. 14	18.2	0	a18.2
Sept. 2	13.5	0	a13.5
16	30.2	0	a30.2
25	46.6	0	a46.6

a Swimming pool above measuring section full.

Colorado River at Austin, Tex.

Location.--Lat 30°14'40", long. 97°41'20", on right bank just upstream from Montopolis Bridge on U. S. Highway 183 (renumbered) at southeast edge of Austin, Travis County, 2.8 miles upstream from Walnut Creek, 3.8 miles downstream from Waller Creek, 5 miles downstream from Barton Creek, and at mile 290.

Drainage area.--38,160 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--February 1898 to September 1952. Gage-height records collected in this vicinity since 1903 are contained in reports of United States Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 407.28 ft above mean sea level, datum of 1929. Prior to June 18, 1915, combination staff and chain gages in the vicinity of Congress Avenue Bridge, 4.0 miles upstream, at datum 14.6 ft higher. June 18, 1915, to Apr. 21, 1918, water-stage recorder (pressure type) in basement near left end of Congress Avenue Bridge at datum 14.6 ft higher. Apr. 26, 1918, to June 19, 1939, water-stage recorder at Congress Avenue Bridge at datum 14.6 ft higher.

Average discharge.--54 years, 2,548 cfs.

Extremes.--Maximum discharge during year, 3,720 cfs Sept. 17 (gage height, 4.59 ft); minimum daily, 124 cfs Dec. 16.

1898-1952: Maximum discharge, 481,000 cfs June 15, 1935 (gage height, 45.0 ft, present site and datum, from floodmark); minimum, 13 cfs Aug. 18, 1918.

Maximum stage since at least 1843, 46.0 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.

Remarks.--Records good. Flow largely regulated by Buchanan Reservoir and Lake Travis (see pp. 170,175), and other smaller reservoirs having a combined capacity of 3,940,000 acre-ft (revised). About 36,000 acres irrigated above station. During year city of Austin diverted an average of about 34 cfs above station for municipal use and returned about 16 cfs of treated sewage below station. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Revisions (water years).--W 528: 1900(M). W 1118: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	536	285	g216	191	185	210	173	1,020	382	1,940	1,850	746
2	553	292	g240	241	207	203	180	1,070	1,290	1,720	1,820	*1,370
3	*531	288	g230	193	187	210	176	877	1,560	1,830	1,660	1,390
4	564	280	g216	172	193	203	*164	1,110	1,470	1,850	1,920	847
5	536	275	220	156	189	207	164	1,140	1,950	1,860	1,700	918
6	531	265	191	136	189	205	164	1,270	1,760	1,880	1,540	730
7	548	275	196	183	193	199	336	1,330	1,860	1,940	1,620	570
8	536	272	160	225	191	193	362	1,410	1,850	1,940	1,660	866
9	516	268	152	208	189	191	515	1,270	1,780	1,920	1,610	741
10	516	262	152	196	g182	221	484	1,310	1,760	1,870	1,760	484
11	493	262	156	182	g193	189	*492	1,240	1,810	1,690	2,030	1,820
12	484	242	168	168	g189	193	566	1,480	1,840	1,920	1,760	1,090
13	484	240	169	196	185	183	232	1,450	1,780	1,730	1,800	675
14	480	*226	174	171	191	182	414	1,430	1,740	1,790	1,720	363
15	447	224	157	196	195	176	502	1,330	1,720	1,890	1,750	1,010
16	290	282	124	g180	205	171	495	1,470	1,800	1,890	1,650	2,080
17	272	200	147	g186	197	182	493	*1,610	1,770	1,840	1,630	1,950
18	265	190	186	g186	205	187	496	1,190	*1,670	*1,800	1,640	1,830
19	242	191	*224	g172	195	*173	*554	946	1,910	1,700	2,100	1,870
20	254	193	248	g169	193	164	478	*818	1,870	1,650	2,140	1,480
21	262	218	214	*g179	182	162	544	*866	*1,790	1,710	1,850	710
22	*275	214	240	196	205	180	403	*1,110	1,780	1,790	1,860	920
23	278	212	191	174	234	162	478	1,100	1,790	1,820	*1,310	645
24	278	264	177	190	213	173	519	830	1,870	1,750	967	302
25	285	294	204	*187	301	173	552	325	1,890	1,690	1,720	276
26	288	g273	242	180	242	182	528	649	1,870	*1,720	2,190	269
27	288	g242	250	183	*216	194	568	1,010	1,830	1,660	2,060	235
28	285	g171	270	193	212	226	712	318	1,830	1,820	1,860	209
29	302	*g205	216	182	212	180	756	242	1,830	1,690	1,760	235
30	290	g218	189	175	-	178	952	262	1,940	1,740	1,140	402
31	*290	-	*222	189	-	185	-	232	-	1,790	839	-
Total	12,199	7,323	6,141	5,735	5,870	5,837	13,452	31,715	51,992	55,830	52,916	27,033
Mean	394	244	198	185	202	188	448	1,023	1,733	1,801	1,707	901
Ac-ft	24,200	14,520	12,180	11,380	11,640	11,580	26,680	62,910	103,100	110,700	105,000	53,620

Calendar year 1951: Max 2,390 Min 121 Mean 958 Ac-ft 693,400
Water year 1951-52: Max 2,190 Min 124 Mean 754 Ac-ft 547,500

* Discharge measurement made on this day.
g Computed from once-daily wire-weight gage readings.

Colorado River at Smithville, Tex.

Location.--Lat 30°01', long. 97°10', on right bank 360 ft below bridge on State Highway 71 in Smithville, Bastrop County, 850 ft downstream from Gazley Creek, 4 miles downstream from Alum Creek, and at mile 212.

Drainage area.--39,650 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--July 1930 to September 1952. Gage-height records collected in this vicinity since 1920 are contained in reports of United States Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 270.14 ft above mean sea level, datum of 1929. Prior to Apr. 9, 1931, staff gage at same site and datum.

Average discharge.--22 years, 2,889 cfs.

Extremes.--Maximum discharge during year, 3,510 cfs June 7 (gage height, 6.97 ft); minimum, 201 cfs Mar. 24.

1930-52: Maximum discharge, 305,000 cfs June 16, 1935 (gage height, 42.5 ft, from floodmarks), from rating curve extended above 50,000 cfs on basis of slope-area determination of peak flow; minimum, 76 cfs Nov. 2, 1934.

Maximum stage known since at least 1870, about 47.4 ft Dec. 4, 1913; flood of July 8, 1869, was several feet higher, from information by local residents.

Remarks.--Records good. Many diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin.

Revisions.--W 1118: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used June 11-19, Sept. 26-30)

1.6	185	4.0	1,100
2.0	275	5.0	1,810
2.5	425	6.0	2,690
3.0	600	7.0	3,920

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	600	354	265	252	240	240	245	702	478	1,850	1,770	1,200
2	600	342	255	232	225	230	235	770	418	1,930	1,810	952
3	600	333	280	250	223	235	228	925	372	1,890	1,850	770
4	582	330	268	248	223	235	228	1,040	644	1,770	1,810	952
5	582	345	280	245	225	228	223	898	1,510	1,810	1,700	1,160
6	582	354	278	245	225	225	223	1,010	1,820	1,810	1,850	870
7	582	348	252	*235	225	223	215	1,040	2,830	1,810	1,740	820
8	582	348	260	232	225	219	207	1,160	2,500	1,810	1,580	748
9	565	339	272	217	228	221	221	1,260	2,180	1,850	1,580	660
10	600	345	270	219	225	235	436	1,340	2,010	1,850	1,620	870
11	582	351	255	248	*225	258	512	1,300	1,850	1,850	1,580	1,160
12	582	348	245	252	223	248	925	1,340	1,740	1,810	1,660	725
13	582	345	245	238	221	250	1,510	1,300	1,740	1,700	1,810	1,130
14	582	348	250	238	219	235	745	1,440	1,700	1,810	1,700	1,040
15	582	342	260	238	225	228	428	1,510	1,580	1,740	1,700	845
16	582	342	255	230	225	221	339	1,550	*1,550	1,740	1,660	565
17	*582	318	260	221	223	217	439	1,510	1,550	1,850	1,700	582
18	530	309	255	228	223	219	453	1,740	1,700	1,930	1,620	1,400
19	464	342	238	228	225	215	456	1,970	1,700	1,890	1,550	1,740
20	411	309	235	240	235	219	460	1,810	1,740	1,850	1,580	1,440
21	384	292	255	260	240	225	488	1,230	1,890	1,700	1,890	1,550
22	363	285	255	240	238	219	495	1,070	1,850	*1,550	1,970	1,200
23	363	280	258	221	230	209	530	1,070	1,770	1,660	1,740	795
24	*354	285	245	215	223	203	620	1,340	1,770	1,770	1,770	725
25	360	288	248	219	255	*207	530	1,550	1,770	1,810	1,370	748
26	363	288	238	213	290	209	548	1,260	1,850	1,770	1,070	565
27	366	*300	219	270	280	219	548	925	1,850	1,740	1,440	470
28	372	300	221	285	280	238	512	952	1,850	1,740	1,850	436
29	366	285	240	290	260	245	*530	1,230	1,850	1,700	*1,770	400
30	372	280	252	252	-	255	600	925	1,850	1,810	1,660	*375
31	360	-	265	240	-	265	-	600	-	1,740	1,620	-
Total	15,377	9,675	7,874	7,441	6,804	7,095	14,129	37,767	49,912	55,540	52,020	26,893
Mean	496	322	254	240	235	229	471	1,218	1,664	1,792	1,678	896
Ac-ft	30,500	19,190	15,620	14,760	13,500	14,070	28,020	74,910	99,000	110,200	103,200	53,340

Calendar year 1951: Max 15,200 Min 219 Mean 1,026 Ac-ft 742,700
Water year 1951-52: Max 2,830 Min 203 Mean 794 Ac-ft 576,300

* Discharge measurement made on this day.

Dry Creek at Buescher Lake, near Smithville, Tex.

Location.--Lat 30°03', long. 97°09', on left bank 225 ft above dam in Bastrop-Buescher State Park, 1.9 miles upstream from mouth and 2.2 miles north of Smithville, Bastrop County.

Drainage area.--1.48 sq mi (area above dam).

Records available.--October 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 327.86 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 0.41 cfs.

Extremes.--Maximum inflow during year not determined, maximum gage height not determined; no inflow most of time.
1939-52: Maximum inflow, 1,870 cfs June 30, 1940; maximum gage height, 24.96 ft June 30, 1940 (outflow, 1,670 cfs); no inflow most of time.

Remarks.--Records poor. Records given herein represent flow into Buescher Lake. No runoff except during and immediately following precipitation. Discharge below gage height 22.27 22.27 ft (spillway crest) determined from change in contents of lake; that above gage height 22.27 ft determined by algebraic summation of flow over spillway and change in contents of lake (reduced to equivalent cfs). There was no flow over spillway during the 1952 water year. No adjustments made for evaporation or seepage losses. Capacity of lake, 255 acre-ft. No diversion above station or from lake.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0		0	0		0		
2				0	0		0	0		0		
3				0	0		0	0		0		
4				0	0		0	0		.1		
5				0	0		0	0		0		
6				0	0		0	0		0		
7				0	0		0	0		0		
8				0	0		0	0		0		
9				*0	0		0	0		0		
10				0	0		0	0		0		
11				0	*0		0	0		0		
12				0	0		.3	0		0		
13				0	0		0	0		0		
14				0	0		0	0		0		
15				0	0		0	0		0		
16				0	0		0	0	(*)	0		
17	(*)			0	0		0	0		0		
18				0	0		0	0		0		
19				0	0		0	0		0		
20				0	0		0	0		0		
21				0	0		0	0		0		
22				0	0		.1	0		*0		
23				0	0		0	0		0		
24				0	0		0	.1		0		
25				0	.4	(*)	0	0		0	(*)	
26				0	0		0	0		0		
27		(*)		.4	0		0	.1		0		
28				0	0		0	0		0		
29				0	0		*0	0		0		
30				0	-		0	0		0		(*)
31		-		0	-		-	0		0		-
Total	0	0	0	0.4	0.4	0	0.4	0.2	0	0.1	0	0
Mean	0	0	0	0.01	0.01	0	0.01	0.01	0	0.003	0	0
Ac-ft	0	0	0	0.8	0.8	0	0.8	0.4	0	0.2	0	0

Calendar year 1951: Max 1.4 Min 0 Mean 0.02 Ac-ft 16
Water year 1951-52: Max 0.4 Min 0 Mean 0.004 Ac-ft 3.0

* Discharge measurement made on this day.
Note.--No recorder record except from Jan. 9 to Feb. 10, Feb. 25-29; discharge for remainder of year computed on basis of weather records.

Colorado River at La Grange, Tex.

Location.--Lat 29°53'45", long. 96°52'15", near center of span at upstream side of bridge on U. S. Highway 77 in La Grange, Fayette County, 1.2 miles downstream from Buckner Creek and at mile 174.

Drainage area.--40,200 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--July and August 1938 (flood discharge measurements only), November 1938 to September 1952.

Gage.--Wire-weight gage read twice daily. Datum of gage is 211.23 ft above mean sea level, datum of 1929.

Average discharge.--13 years (1939-52), 2,604 cfs.

Extremes.--Maximum discharge during year, 10,100 cfs May 28 (gage height, 9.07 ft, from graph based on gage readings); minimum, 210 cfs Apr. 9.
1938-52: Maximum discharge observed, 200,000 cfs July 27, 1938 (gage height, 42.95 ft); minimum observed, that of Apr. 9, 1952.
Maximum stage known, about 56.7 ft probably July 9, 1869 (from marble high-water marker in La Grange). Stages of other floods are as follows: Dec. 5, 1913, 56.4 ft, from floodmarks; June 17, 1935, 50.84 ft, from floodmarks (discharge, 255,000 cfs, from rating curve extended as a straight line above 200,000 cfs).

Remarks.--Records good. Diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin.

Revisions.--W 1118: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	780	360	304	308	270	252	242	710	759	1,730	1,730	1,580
2	738	342	288	296	259	236	242	986	575	1,830	1,730	1,160
3	731	312	304	288	256	230	*233	944	476	1,780	1,730	895
4	710	312	320	276	242	224	230	1,160	430	1,780	1,730	855
5	696	324	288	284	239	215	224	1,180	401	1,830	1,730	1,250
6	689	360	284	273	236	224	227	1,060	1,350	1,780	1,630	1,160
7	654	342	284	288	230	221	221	1,170	3,200	1,780	1,730	871
8	640	338	266	284	233	221	212	1,250	3,030	1,780	1,630	745
9	614	338	252	270	233	224	212	1,390	2,560	1,730	1,480	696
10	647	324	365	236	233	273	248	1,480	2,080	1,830	1,480	766
11	647	316	245	242	*227	316	356	1,580	1,880	1,730	1,440	871
12	654	329	256	262	227	259	1,150	1,480	1,830	1,780	1,480	1,190
13	654	304	248	276	224	248	2,080	1,530	1,880	1,730	1,530	780
14	654	336	262	270	215	245	2,090	1,480	1,830	1,730	1,680	1,260
15	654	316	248	270	215	239	985	1,580	1,830	1,730	1,630	1,530
16	*654	320	252	262	221	230	545	1,680	*1,780	1,680	1,630	919
17	661	316	256	252	215	227	406	1,680	1,830	1,730	1,630	575
18	668	316	276	256	221	227	482	2,080	1,730	2,770	1,580	631
19	588	316	270	248	236	227	488	2,400	1,780	2,730	1,440	1,680
20	504	334	266	256	392	224	498	2,190	1,730	1,880	1,440	2,080
21	425	329	252	259	248	227	510	1,880	1,680	1,780	1,480	1,880
22	420	316	262	270	239	230	569	1,390	1,730	*1,680	1,880	2,030
23	406	334	280	252	230	227	682	1,240	1,780	1,630	1,980	1,450
24	*356	324	292	245	227	218	661	3,690	1,730	1,630	1,730	944
25	374	329	304	242	266	212	759	1,830	1,730	1,680	*1,730	738
26	370	360	316	242	338	218	647	1,630	1,680	1,680	1,280	788
27	383	*334	296	242	273	227	614	3,080	1,830	1,630	1,060	569
28	498	316	288	273	270	236	614	6,700	1,780	1,630	1,440	527
29	383	338	284	288	259	242	*575	1,750	1,830	1,630	1,880	445
30	360	320	288	304	-	248	594	1,300	1,880	1,630	1,830	*401
31	356	-	296	*300	-	259	-	1,060	-	1,780	1,730	-
Total	17,568	9,857	8,692	8,314	7,174	7,306	17,596	54,560	50,611	55,720	50,100	31,266
Mean	567	329	280	268	247	236	587	1,760	1,687	1,797	1,616	1,042
Ac-ft	34,850	19,550	17,240	16,490	14,230	14,490	34,900	108,200	100,400	110,500	99,370	62,020

Calendar year 1951: Max 14,700 Min 245 Mean 1,107 Ac-ft 801,400
Water year 1951-52: Max 6,700 Min 212 Mean 871 Ac-ft 632,200

* Discharge measurement made on this day.

Colorado River at Columbus, Tex.

Location.--Lat 29°42'20", long. 96°32'05", near right bank at downstream side of pier of bridge on U. S. Highway 90 at eastern edge of Columbus, Colorado County, 340 ft downstream from Texas & New Orleans Railroad bridge, 2.6 miles downstream from Cummins Creek, and at mile 135.

Drainage area.--40,840 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--January to December 1903 (gage heights and discharge measurements only), January 1904 to December 1911, May 1916 to November 1930, May 1939 to September 1952. September 1930 to June 1939 at site near Eagle Lake, 23 miles downstream. Gage-height records collected in this vicinity since 1903 are contained in reports of United States Weather Brueau.

Gage.--Water-stage recorder. Datum of gage is 155.52 ft above mean sea level, datum of 1929. Prior to May 1, 1919, various nonrecording gages at sites in the immediate vicinity at datum 3.00 ft lower. May 1, 1919, to Nov. 23, 1930, water-stage recorder at site about 300 ft downstream at datum 3.00 ft lower. May 17, 1939, to Nov. 14, 1939, wire-weight gage at same site and datum.

Average discharge.--34 years (1904-11, 1916-30, 1939-52), 3,063 cfs.

Extremes.--Maximum discharge during year, 15,000 cfs May 27 (gage height, 11.53 ft); minimum, 215 cfs Feb. 15.

1903-11, 1916-30, 1939-52: Maximum discharge, 152,000 cfs July 1, 1940 (gage height, 36.2 ft); minimum observed, about 80 cfs Sept. 9, 10, 1910.

Maximum stage known, 41.6 ft, present datum, in July 1869 and on Dec. 6, 1913, from information by local resident. River divided each time and left Columbus on an island. Data on other floods as follows: July 18, 1935, observed stage, 38.5 ft, present datum, furnished by United States Weather Bureau (discharge, 190,000 cfs, computed on basis of records for station near Eagle Lake, 23 miles downstream); July 29, 1938, observed stage, 38.4 ft, present datum, furnished by United States Weather Bureau (discharge, 175,000 cfs, computed on basis of records for station near Eagle Lake).

Remarks.--Records good. Diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin.

Revisions.--W 1118: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 29 to July 13, Aug. 24 to Sept. 4)

1.9	180	5.0	2,770
2.1	285	6.0	3,880
2.5	530	7.0	5,100
3.0	895	9.0	8,150
4.0	1,750	11.0	13,400

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	798	394	413	290	324	329	285	565	1,090	1,850	1,700	*1,610
2	*692	370	394	307	302	324	280	858	782	*1,700	1,660	1,520
3	656	352	446	312	280	307	268	895	614	1,700	1,660	1,220
4	649	358	*551	307	258	*285	258	*850	524	1,750	1,660	1,020
5	635	413	491	285	241	268	241	975	466	1,750	1,700	903
6	621	406	413	290	*236	268	230	1,050	630	1,750	1,660	1,060
7	600	*420	382	*290	236	263	*225	935	*1,800	1,700	1,610	1,180
8	579	400	364	285	236	258	220	991	3,090	1,660	1,660	983
9	586	382	340	290	236	252	225	1,020	2,510	1,660	1,560	959
10	572	376	324	268	236	274	274	1,100	2,300	1,660	1,470	991
11	572	376	334	258	236	302	258	1,180	2,000	1,700	1,470	911
12	579	370	346	246	230	394	2,590	1,220	1,900	1,700	1,470	1,080
13	586	376	340	263	225	329	2,570	1,180	1,850	1,660	1,520	1,260
14	586	376	329	296	220	307	*2,050	1,180	1,800	1,660	1,560	927
15	586	376	318	290	220	290	1,740	1,180	1,800	1,610	1,660	1,260
16	579	358	307	285	220	285	1,010	1,260	1,800	1,610	1,560	1,220
17	572	352	318	285	220	268	670	1,340	1,750	1,660	1,520	999
18	579	352	329	280	225	285	504	1,430	1,700	2,150	1,560	805
19	572	352	324	274	236	268	530	2,460	1,700	2,980	1,520	812
20	551	346	324	263	246	252	579	2,000	1,700	2,350	1,470	1,560
21	498	370	307	285	426	252	572	1,850	1,660	1,900	1,430	2,000
22	452	382	296	268	382	246	579	1,470	1,700	1,700	1,520	1,700
23	478	358	296	274	340	246	805	1,180	1,750	1,610	1,800	1,800
24	432	364	312	274	296	236	858	3,710	1,700	1,560	1,850	1,340
25	394	364	329	268	386	230	700	3,760	1,660	1,560	1,660	1,010
26	426	420	318	258	600	230	730	1,660	1,660	1,660	1,660	919
27	406	465	302	296	498	236	663	5,040	1,660	1,660	1,340	903
28	413	426	290	280	370	241	614	11,700	1,700	1,610	1,110	745
29	524	400	290	263	340	252	600	*4,600	1,750	1,610	1,470	614
30	426	406	285	296	-	268	572	*1,700	1,950	1,560	1,750	*537
31	394	-	280	324	-	285	-	*1,380	-	*1,610	1,700	-
Total	16,993	11,460	10,692	8,750	8,501	8,530	21,700	61,719	48,976	54,300	48,940	33,848
Mean	548	382	345	282	293	275	723	1,991	1,633	1,752	1,579	1,128
Ac-ft	33,710	22,730	21,210	17,360	16,860	16,920	43,040	122,400	97,140	107,700	97,070	67,140

Calendar year 1951: Max 13,400 Min 280 Mean 1,100 Ac-ft 796,600
Water year 1951-52: Max 11,700 Min 220 Mean 914 Ac-ft 663,300

* Discharge measurement made on this day.

Colorado River at Wharton, Tex.

Location.--Lat 29°18'30", long. 96°06'15", near center of span at downstream side of bridge on U. S. Highway 59 in Wharton, Wharton County, 1,000 ft downstream from Texas & New Orleans Railroad bridge, 12 miles upstream from Jones Creek, and at mile 67.

Drainage area.--41,150 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--July 1916 to September 1925, July and August 1938 (flood discharge measurements only), October 1938 to September 1952. June to November 1901 and May to September 1902, daily records published in United States 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 United States Weather Bureau.

Gage.--Wire-weight gage read twice daily. Datum of gage is 65.42 ft above mean sea level, datum of 1929. Prior to Mar. 19, 1919, staff gage and Mar. 19, 1919, to Sept. 30, 1925, water-stage recorder at site about 700 ft upstream at different datum.

Average discharge.--19 years (1919-21, 1922-25, 1938-52), 2,980 cfs.

Extremes.--Maximum discharge during year, 17,400 cfs May 29 (gage height, 12.95 ft, from graph based on gage readings); minimum, 36 cfs June 8.

1919-25, 1938-52: Maximum discharge observed, 100,000 cfs July 3, 1940 (gage height, 35.99 ft); no flow Aug. 6, 1925 (result of pumping).

Maximum stage known, 38.9 ft, present datum, Dec. 8, 1913, from information by local residents; below Wharton floodwater combined with floodwater of Brazos River. Flood of about July 12, 1869, reached about same height. Flood of June 20, 1935, reached a stage of 38.2 ft, present datum (discharge, 159,000 cfs, from rating curve extended above 145,000 cfs), furnished by United States Weather Bureau. Flood of July 30, 1938, reached a stage of 37.4 ft, present datum, observed by Geological Survey engineers (discharge, 145,000 cfs).

Remarks.--Records good except those for periods of no gage-height record, which are fair. Diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Cooperation.--Gage-height record collected in cooperation with United States Weather Bureau.

Revisions (water years).--W 878: 1938(M). W 1118: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 3-9, June 12 to July 19, July 24 to Aug. 4)

-0.8	68	2.0	1,340
-.6	106	4.0	2,890
-.3	179	6.0	4,740
0.0	275	8.0	7,200
.5	470	10.0	10,800
1.0	725	13.0	17,400

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,050	545	389	286	448	470	a300	470	2,460	*1,480	659	1,080
2	960	500	397	292	409	417	a310	405	1,800	1,280	870	1,020
3	*810	448	393	282	397	385	a310	397	1,050	990	810	990
4	752	417	*409	296	331	*381	a300	*676	615	960	900	780
5	725	438	413	331	317	353	296	736	405	840	a1,200	515
6	692	470	510	314	*296	331	282	725	250	990	a1,200	425
7	670	474	456	*310	296	331	264	780	*82	870	a1,000	425
8	659	*443	430	303	292	320	*230	670	351	840	900	373
9	648	452	361	310	289	317	168	555	2,140	810	810	385
10	632	443	353	300	289	324	211	515	2,380	780	752	475
11	626	425	342	300	292	324	275	580	1,660	730	626	900
12	620	430	331	292	296	331	856	703	1,410	742	575	1,050
13	615	421	334	289	289	338	5,310	720	1,180	769	520	1,050
14	637	413	353	275	292	401	4,140	670	960	780	535	1,220
15	637	409	338	289	292	365	2,550	615	930	769	550	1,080
16	637	401	317	314	314	338	2,300	580	870	676	670	990
17	626	397	320	306	296	324	1,480	632	930	810	752	1,220
18	620	389	342	300	296	361	1,020	698	870	1,150	686	1,050
19	615	389	334	310	296	345	698	1,080	720	1,550	648	780
20	626	389	334	303	296	324	615	1,660	698	2,380	664	686
21	610	389	320	310	320	317	615	2,140	703	2,460	626	870
22	585	385	331	306	565	300	605	1,620	659	1,690	570	1,340
23	545	405	310	300	642	a290	698	1,440	664	1,440	580	1,440
24	425	397	303	292	575	a280	708	1,080	670	1,150	736	1,410
25	409	401	314	317	461	a270	960	2,230	714	990	960	1,220
26	385	377	314	310	377	a260	900	3,870	642	900	960	930
27	461	377	338	303	600	a250	780	3,280	590	840	900	730
28	461	409	320	324	670	a250	840	12,300	555	810	840	664
29	385	434	300	320	555	a270	659	15,200	565	747	626	*626
30	393	409	300	314	-	a290	525	*6,040	1,150	*654	*565	502
31	535	-	292	314	-	a300	-	2,890	-	637	960	-
Total	19,051	12,676	10,898	9,412	11,088	10,157	29,205	65,957	28,673	32,514	23,650	26,226
Mean	615	423	352	304	382	328	974	2,128	956	1,049	763	874
Ac-ft	37,790	25,140	21,620	18,670	21,990	20,150	57,930	130,800	56,870	64,490	46,910	52,020

Calendar year 1951: Max 10,400 Min 292 Mean 821 Ac-ft 594,800
Water year 1951-52: Max 15,200 Min 82 Mean 764 Ac-ft 554,400

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for stations at Columbus and near Bay City.

Colorado River near Bay City, Tex.

Location.--Lat 28°58'26", long. 96°00'44", on right bank 6,300 ft downstream from bridge on State Highway 35, 7,100 ft downstream from Texas & New Orleans Railroad bridge, 2.8 miles west of Bay City, Matagorda County, and at mile 32.6.

Drainage area.--41,420 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--July 2-6, 1940 (in Water-Supply Paper 1946), April 1948 to September 1952. Gage-height records collected in this vicinity since 1946 are contained in reports of United States Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, supplementary adjustment of 1943. July 2-6, 1940, reference point at highway bridge 6,300 ft upstream at datum 30.60 ft lower.

Extremes.--Maximum discharge during year, 20,100 cfs May 29 (gage height, 29.07 ft); no flow June 23, 24, 27-30.

1940, 1948-52: Maximum discharge, 83,300 cfs July 4, 1940 (gage height, 48.2 ft, present datum) at bridge on State Highway 35, observed by Corps of Engineers (stage, 46.6 ft, adjusted to present site); no flow June 1-3, 1951, June 23, 24, 27-30, 1952.

Maximum stage known, about 56.1 ft Dec. 10, 1913. Flood of July 1869 probably reached about same stage. Stages 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, 53.4 ft; Aug. 2, 1938, 53.4 ft; Nov. 27, 1940, 47.6 ft. All above flood data from information by Texas & New Orleans Railroad and adjusted to present site.

Remarks.--Records good except those for periods of no recorder record, which are poor. Diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 2 to June 26
July 26 to Sept. 30)

13.7	0	15.5	350
13.8	.2	16.0	580
13.9	2.5	17.0	1,150
14.0	7.0	18.0	1,850
14.1	14	20.0	3,530
14.3	34	22.0	5,550
14.5	62	25.0	10,400
14.7	100	29.0	20,400
15.0	175		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,310	521	440	350	585	545	2,340	172	2,600	*345	155	762
2	1,080	480	436	342	930	472	1,910	170	1,780	422	148	752
3	*900	458	431	338	600	440	590	167	1,280	408	278	718
4	818	449	431	359	458	408	372	*193	550	260	290	655
5	740	440	*440	368	390	*390	314	342	193	235	318	480
6	718	485	490	377	*350	364	302	330	119	282	326	266
7	696	503	530	368	322	346	274	342	*278	330	377	
8	615	*472	494	*364	322	338	*213	310	114	382	302	90
9	640	454	449	364	310	330	151	242	328	318	205	
10	625	462	418	359	310	334	187	136	1,660	238	211	449
11	615	454	404	364	310	330	214	143	1,280	202	164	624
12	615	440	400	350	310	338	285	70	1,080	229		1,080
13	615	440	386	346	310	330	3,320	g67	691	199		1,020
14	615	431	400	334	310	359	5,400	g67	494	181		1,020
15	615	431	390	326	322	404	2,750	g19	372	220		1,220
16	615	422	400	330	314	377	2,090	1	294	220	50	1,020
17	615	413	390	346	318	364	1,620	1	208	247		1,020
18	615	413	395	346	314	364	930	14	164	692		1,050
19	610	408	390	338	310	359	620	164	56	960		790
20	600	408	390	338	302	364	585	386	50	1,620		640
21	605	408	382	334	302	338	565	1,060	g3.0	2,250		525
22	595	408	382	334	338	322	555	1,180	g5.4	1,580	217	917
23	590	408	377	322	550	306	701	990	g0	1,120	223	1,280
24	516	422	372	326	615	310	1,220	872	g0	762	226	1,250
25	449	422	372	322	570	278	605	560	g9.3	540	355	1,280
26	431	413	359	326	845	252	386	2,250	g3.6	390	585	990
27	436	400	368	330	752	246	278	2,480	0	263	595	843
28	472	408	382	346	708	229	223	7,750	0	226	590	680
29	444	449	372	334	660	229	196	18,700	0	170	503	670
30	386	462	359	346	-	238	181	*12,600	0	*143	359	*615
31	480	-	350	338	-	383	-	*4,950	-	*162	*372	-
Total	19,676	13,184	21,579	10,665	13,037	10,687	29,377	56,728	13,612.3	15,598	7,299	22,898
Mean	635	439	406	344	450	345	979	1,830	454	503	235	763
Ac-ft	39,030	26,150	24,950	21,150	25,860	21,200	58,270	112,500	27,000	30,930	14,480	45,420

Calendar year 1951: Max 10,100 Min 0 Mean 643 Ac-ft 465,400
Water year 1951-52: Max 18,700 Min 0 Mean 616 Ac-ft 446,900

* Discharge measurement made on this day.
g Computed from once-daily staff gage readings.
Note.--No gage-height record Apr. 18-22, Apr. 25 to May 3, Aug. 12-21, Sept. 7-9; discharge estimated on basis of weather records, records for station at Wharton, and records of nearby pumping plants.

Lavaca River at Hallettsville, Tex.

Location.--Lat 29°26', long. 96°57', at downstream side of bridge on U. S. Highway 77 in Hallettsville, Lavaca County, and 0.4 mile upstream from Texas & New Orleans Railroad bridge.

Drainage area.--101 sq mi.

Records available.--July 1939 to September 1952.

Gage.--Water-stage recorder for high stages, and movable wire-weight gage read twice daily for stages below about 100 cfs. Datum of gage is 186.72 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 44.1 cfs.

Extremes.--Maximum discharge during year, 12,800 cfs May 27 (gage height, 26.94 ft); minimum, 0.1 cfs Aug. 18, 21.

1939-52: Maximum discharge, 93,100 cfs June 30, 1940 (gage height, 40.60 ft, from floodmarks), from rating curve extended above 23,000 cfs on basis of slope-area determination of peak flow; minimum, 0.1 cfs June 11, Aug. 22, 1951, Aug. 18, 21, 1952.

Maximum stage known since about 1870, that of June 30, 1940; flood of July 16, 1936, reached a stage of 32.8 ft, from information by local resident.

Remarks.--Records fair. No known diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 28 to June 2, June 10 to Sept. 30)

5.2	0	7.0	97
5.3	.3	8.0	186
5.4	1.5	9.0	300
5.5	3.9	10.0	440
5.6	7.6	12.0	815
5.8	18	14.0	1,400
6.0	30	17.0	2,800
6.5	61		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	1.1	3.1	0.8	1.3	3.6	2.1	2.1	4.6	0.8	18	0.2
2	*1.1	*1.0	3.6	.7	1.0	2.8	2.1	1.7	4.6	.7	1.1	.2
3	.9	1.1	8.4	1.7	1.3	1.7	1.5	1.5	3.9	.8	.8	.2
4	.9	1.0	40	1.5	1.3	2.1	1.1	1.5	3.9	.8	.2	.2
5	.7	1.1	40	1.7	1.3	1.9	.9	1.5	*3.6	.8	.2	.2
6	.8	1.1	5.6	1.7	1.0	1.7	.7	1.5	131	2.1	.2	.2
7	.9	1.1	3.6	1.5	1.0	2.5	.7	*1.3	195	*2.1	.2	.2
8	.9	1.7	1.9	1.5	1.0	2.5	.4	1.0	94	1.7	.2	.2
9	.9	1.7	1.5	1.5	.8	1.7	.4	1.0	a20	1.1	.2	16
10	.9	1.5	1.5	1.4	1.0	2.1	115	1.0	56	1.1	.3	17
11	.9	1.7	1.3	1.3	1.0	1.7	58	1.0	a20	1.1	1.7	7.2
12	.9	1.7	*1.3	1.1	.9	1.9	995	1.0	a20	1.1	1.3	3.9
13	.9	1.7	1.3	1.1	.8	1.5	92	1.0	a19	1.1	.8	1.9
14	.9	1.5	1.3	*1.1	.8	1.4	39	.8	a19	1.1	.3	1.3
15	.9	1.5	1.3	1.1	1.1	1.3	25	.8	19	1.1	**,2	.8
16	.7	1.4	1.5	.9	1.4	1.4	13	.8	17	1.1	.2	.8
17	.7	1.4	3.3	.7	1.1	1.1	9.6	.8	15	4.2	.2	.5
18	.7	1.4	1.9	.7	1.1	3.9	8.6	20	13	4.2	.1	.5
19	.7	1.4	1.3	.4	*1.5	2.3	8.6	11	11	3.1	.2	.5
20	.7	1.4	1.0	.9	7.0	2.1	7.6	3.3	7.6	2.1	.2	.5
21	.7	1.4	1.0	.7	30	1.7	6.8	1.5	6.8	1.7	.1	.5
22	.8	1.4	1.0	.4	85	1.7	37	1.3	4.2	1.4	.2	.5
23	.9	1.4	.9	.4	27	1.7	311	1.0	1.0	1.1	.2	.5
24	1.0	1.4	.9	.4	5.3	*1.1	18	1.0	.5	1.1	.2	*.4
25	1.0	4.2	.9	.4	150	.9	8.6	.8	.2	1.1	.2	.5
26	2.3	10	.9	.7	43	.7	6.4	.5	.2	1.1	.5	.3
27	2.3	14	.9	1.5	10	27	4.6	2,660	.3	1.1	.3	.3
28	1.7	7.2	.9	1.9	6.4	3.9	2.3	*1,020	.8	.8	.2	.3
29	1.9	4.6	.9	1.3	4.9	2.5	2.3	*46	.8	.3	.2	.3
30	1.3	3.6	.9	1.0	-	4.2	1.9	9.0	.8	.5	.2	.3
31	.9	-	.9	1.0	-	2.5	-	4.6	-	20	.2	-
Total	32.7	76.7	134.8	33.0	389.3	89.1	1,780.2	3,800.3	692.8	62.4	29.1	56.4
Mean	1.05	2.56	4.35	1.06	13.4	2.87	59.3	123	23.1	2.01	0.94	1.88
Ac-ft	65	152	267	65	772	177	3,530	7,540	1,370	124	58	112

Calendar year 1951: Max 652 Min 0.1 Mean 8.65 Ac-ft 6,260
Water year 1951-52: Max 2,660 Min 0.1 Mean 19.6 Ac-ft 14,230

Peak discharge (base, 3,100 cfs).--Apr. 12 (1 p.m.) 4,220 cfs (19.30 ft); May 27 (5 p.m.) 12,800 cfs (26.94 ft).

* Discharge measurement made on this day.

** Field estimate made on this day.

a No gage-height record; discharge estimated on basis of weather records and record for station near Edna.

Lavaca River near Edna, Tex.

Location.--Lat 28°58', long. 96°42', near center of span at upstream side of bridge on U. S. Highway 59, 550 ft upstream from Texas & New Orleans Railroad bridge and 2.8 miles southwest of Edna, Jackson County.

Drainage area.--887 sq mi.

Records available.--August 1938 to September 1952.

Gage.--Wire-weight gage or staff gage read twice daily, oftener during floods. Datum of gage is 13.88 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 6, 1939, chain gage (property of Corps of Engineers) at same site and datum.

Average discharge.--14 years, 281 cfs.

Extremes.--Maximum discharge during year, 23,000 cfs May 29 (gage height, 26.54 ft); minimum observed, 3.4 cfs Sept. 8.
1938-52: Maximum discharge, 73,000 cfs July 1, 1940 (gage height, 32.51 ft); minimum observed, 0.1 cfs Aug. 19, 20, 1951.
Maximum stage known, 33.8 ft May 25, 1936 (discharge, 83,400 cfs), from information by local resident.

Remarks.--Records good. Diversions above station for irrigation.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 31 to Feb. 24, Apr. 15 to May 27; backwater from return of overbank flow May 31)

Oct. 1 to May 28				May 29 to Sept. 30			
2.4	1.6	4.0	139	1.9	2.8	5.0	289
2.5	4.5	5.0	286	2.0	5.6	6.0	446
2.6	8.5	6.0	446	2.1	9.8	8.0	800
2.8	19	8.0	800	2.3	21	11.0	1,440
3.0	32	10.0	1,200	2.6	41	15.0	2,810
3.3	57	12.0	1,720	3.0	70	19.0	4,740
3.6	89	15.0	2,810	3.5	112	23.0	9,000
				4.0	162	26.0	20,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	11	16	13	18	33	295	34	390	41	59	6.0
2	*15	15	15	12	11	27	78	32	267	39	94	5.3
3	13	*9.0	13	12	10	24	38	29	202	38	80	5.3
4	11	7.3	14	12	8.5	21	27	42	173	35	48	5.0
5	9.8	6.5	13	12	8.5	20	18	28	151	35	25	4.5
6	9.4	94	14	12	8.5	17	15	*27	*162	35	27	4.2
7	9.0	26	42	12	8.5	16	14	26	1,180	*34	23	3.9
8	8.1	13	22	12	8.5	16	13	21	1,310	a32	20	3.6
9	7.7	18	15	12	8.5	16	12	19	571	a31	18	9.0
10	6.9	14	13	11	8.5	17	47	18	226	a30	16	76
11	6.5	11	12	10	9.0	17	26	17	156	a29	15	53
12	6.5	10	*11	10	9.4	17	1,000	15	146	a29	*14	40
13	5.7	9.4	11	10	8.5	17	2,520	14	111	a27	13	37
14	5.7	8.5	12	10	9.0	17	652	13	92	a26	12	27
15	5.3	8.5	12	*11	9.4	15	188	12	82	25	11	22
16	4.9	8.1	12	11	10	14	114	12	76	a24	11	25
17	4.9	8.5	14	11	10	14	80	11	71	a24	9.8	27
18	4.9	7.3	13	11	10	15	61	12	67	a24	9.4	33
19	4.5	7.7	12	11	10	17	53	59	64	a24	9.4	23
20	4.9	7.3	13	11	*10	15	50	39	61	a32	9.0	17
21	4.2	8.1	13	12	10	15	45	30	59	*52	10	15
22	4.2	8.5	12	11	12	18	42	21	56	40	9.8	15
23	7.7	9.0	12	10	97	14	736	16	55	31	9.8	12
24	13	9.8	12	9.8	89	12	602	14	52	27	9.0	9.4
25	7.7	10	13	10	79	*12	204	11	49	27	8.5	*8.1
26	454	11	13	9.8	246	12	96	13	46	23	8.1	7.7
27	156	11	12	11	220	12	62	94	44	22	7.7	6.4
28	38	12	12	9.4	79	12	46	9,300	44	20	7.3	6.0
29	23	21	12	9.0	46	13	42	*20,000	43	19	7.7	6.0
30	15	20	12	9.4	-	21	36	*9,080	43	18	7.7	6.0
31	12	-	12	12	-	239	-	*1,090	-	18	7.3	-
Total	896.5	420.5	434	339.4	1,071.8	745	7,212	40,149	6,049	911	616.5	518.4
Mean	28.9	14.0	14.0	10.9	37.0	24.0	240	1,295	202	29.4	19.9	17.3
Ac-ft	1,780	834	861	673	2,130	1,480	14,300	79,630	12,000	1,810	1,220	1,030

Calendar year 1951: Max 2,640 Min 0.2 Mean 50.2 Ac-ft 36,340
Water year 1951-52: Max 20,000 Min 3.6 Mean 162 Ac-ft 117,700

Peak discharge (base, 4,100 cfs).--May 29 (8 a.m.) 23,000 cfs (26.54 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and one gage reading.

Navidad River near Ganado, Tex.

Location.--Lat 29°02', long. 96°33', on left bank near upstream side of bridge on U. S. Highway 59, 100 ft upstream from Texas & New Orleans Railroad bridge, a quarter of a mile downstream from Sandy Creek, and 2¼ miles southwest of Ganado, Jackson County.

Drainage area.--1,116 sq mi.

Records available.--May 1939 to September 1952.

Gage.--Staff and wire-weight gages read twice daily, oftener during floods. Datum of gage is 13.62 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--13 years, 498 cfs.

Extremes.--Maximum discharge during year, 17,000 cfs May 30 (gage height, 29.5 ft, from graph based on gage readings); minimum observed, 1.9 cfs Oct. 17-19, 21, 22, 26, Nov. 8.

1939-52: Maximum discharge, 64,500 cfs July 2, Nov. 26, 1940; maximum gage height, 36.54 ft July 2, 1940, from floodmark; minimum discharge observed, 1.1 cfs Aug. 12, 1950.

Maximum stage known since at least 1909, 39.8 ft May 27, 1936, from information by Texas & New Orleans Railroad (discharge, 94,000 cfs, from rating curve extended above 60,000 cfs).

Remarks.--Records good. Two small diversions for irrigation above station. Much of low flow during irrigation season is drainage from rice fields irrigated by water diverted from the Colorado River.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from return of overbank flow June 1-5; shifting-control method used June 6 to Sept. 9)

3.9	1.5	5.0	83	16.0	2,480
4.0	3.4	5.5	142	20.0	4,000
4.1	7.0	6.0	209	23.0	5,400
4.2	12	7.0	370	26.0	7,600
4.4	24	9.0	740	28.0	11,200
4.7	50	12.0	1,400	30.0	19,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	94	59	15	7.5	39	98	2,640	46	*3,160	30	61	19
2	*59	49	12	7.5	20	69	1,070	66	635	24	226	15
3	45	*24	9.8	6.6	15	44	337	162	310	24	209	11
4	30	12	7.5	7.5	12	33	181	110	195	22	122	26
5	26	9.4	7.9	8.9	10	20	61	47	*148	18	85	30
6	30	203	42	8.9	10	16	23	*33	230	13	62	8.9
7	21	66	83	8.4	10	15	20	26	496	*12	45	6.3
8	14	4.5	52	9.4	9.4	13	27	20	790	11	43	15
9	11	63	20	9.8	10	12	57	18	1,060	13	46	72
10	7.9	29	9.4	8.4	9.8	13	155	18	406	15	44	464
11	6.6	17	8.4	8.4	9.4	16	142	15	230	16	15	604
12	4.8	12	*8.9	9.4	10	16	875	11	*151	16	*9.8	568
13	3.8	8.4	8.4	8.9	8.4	13	5,600	11	101	20	16	451
14	3.0	6.3	8.4	9.8	8.4	11	6,770	8.4	71	21	21	293
15	2.4	5.2	6.6	*9.8	9.8	9.8	4,100	7.0	56	15	22	173
16	2.3	3.8	11	8.9	10	9.4	1,260	7.9	50	13	9.4	111
17	2.1	3.2	44	9.8	9.4	12	460	6.3	43	26	6.6	101
18	2.1	3.4	7.0	10	10	16	269	6.3	37	59	4.1	95
19	2.1	5.2	5.2	9.8	*10	17	181	19	32	184	3.4	82
20	2.4	5.9	4.1	9.4	9.8	15	155	120	28	230	2.8	82
21	2.1	5.2	8.4	10	11	16	134	113	22	181	2.3	68
22	1.9	6.6	13	9.4	29	24	129	42	22	141	2.1	59
23	7.0	6.3	11	9.8	59	15	718	18	20	106	3.2	38
24	4.5	7.0	8.4	10	291	9.8	860	13	19	85	7.5	35
25	2.8	6.3	8.9	9.4	318	*6.3	478	8.9	18	64	6.6	*46
26	165	7.5	7.9	7.9	618	4.5	209	5.2	15	56	8.4	36
27	1,050	11	7.0	9.8	760	5.2	122	154	14	45	27	28
28	485	11	7.9	9.8	400	7.0	84	*6,620	18	28	46	23
29	270	11	8.4	9.4	164	11	64	*15,000	21	11	39	25
30	160	16	8.4	9.8	-	15	51	15,800	27	8.9	36	40
31	92	-	8.4	11	-	775	-	*11,100	-	11	23	-
Total	2,609.8	677.2	468.3	283.4	2,890.4	1,357.0	27,232	49,632.0	8,425	1,518.9	1,254.2	3,625.2
Mean	84.2	22.6	15.1	9.14	99.7	43.8	908	1,601	281	49.0	40.5	121
Ac-ft	5,180	1,340	929	562	5,730	2,690	54,010	98,440	16,710	3,010	2,490	7,190

Calendar year 1951: Max 6,230 Min 1.8 Mean 137 Ac-ft 99,450
Water year 1951-52: Max 15,800 Min 1.9 Mean 273 Ac-ft 198,300

Peak discharge (base, 6,600 cfs).--Apr. 14 (5 a.m.) 7,600 cfs (26.0 ft); May 30 (1 to 3 a.m.) 17,000 cfs (29.5 ft).

* Discharge measurement made on this day.

Johnson Creek near Ingram, Tex.

Location.--Lat 30°05', long. 99°16', on right bank 1.3 miles upstream from Henderson Branch, 3 miles northwest of Ingram, Kerr County, 4.5 miles upstream from mouth, and 9.5 miles northwest of Kerrville.

Drainage area.--150 sq mi, approximately.

Records available.--September 1941 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,721.30 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 13.0 cfs.

Extremes.--Maximum discharge during year, 6,420 cfs June 5 (gage height, 8.65 ft); minimum, 2.2 cfs Sept. 6.

1941-52: Maximum discharge, 16,200 cfs June 23, 1947 (gage height, 11.76 ft), from rating curve extended above 1,800 cfs on basis of slope-area determination at gage heights 9.67 and 11.76 ft; minimum, that of Sept. 6, 1952.

Maximum stage known since at least 1852, about 35 ft July 2, 1932, from information by local resident; discharge, 138,000 cfs, by slope-area determination at point half a mile downstream from State Fish Hatchery and about 6 or 7 miles upstream from gage. Flood of June 14, 1935, reached a stage of about 31 or 32 ft, from information by local resident.

Remarks.--Records good. Small diversions above station for irrigation.

Revisions (water years).--W 1058: 1942-45.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Sept. 12-30)

1.5	2.2	2.7	125
1.6	4.0	3.0	195
1.8	11	3.5	320
2.0	22	4.0	480
2.2	43	4.5	700
2.4	71		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*4.9	6.3	6.3	5.7	6.0	5.4	7.3	8.0	3.8	12	3.3	2.6
2	4.9	6.0	6.3	6.3	6.0	6.0	7.3	8.8	3.6	9.5	3.5	2.6
3	4.6	5.4	8.0	6.6	5.7	6.3	6.9	8.0	5.4	8.8	3.5	2.6
4	4.3	5.4	6.9	6.0	5.7	*5.7	6.9	7.6	5.7	8.0	3.6	2.7
5	4.3	*5.4	6.0	6.0	5.7	6.0	6.6	7.3	562	8.0	3.6	2.7
6	4.3	5.4	5.4	5.4	6.0	5.7	6.0	6.9	82	7.3	3.5	2.4
7	4.3	5.2	5.2	5.7	6.0	6.3	6.0	6.9	38	6.6	3.1	2.7
8	4.3	5.2	5.2	5.7	6.0	5.7	*6.0	6.9	22	6.3	2.7	2.9
9	4.9	5.2	5.7	5.4	6.6	6.0	6.3	6.6	14	6.0	2.7	3.6
10	4.6	5.4	5.7	6.3	6.3	18	6.9	6.3	13	6.0	2.9	249
11	4.3	5.2	6.6	5.7	6.3	10	6.3	6.0	14	5.7	3.1	107
12	4.3	5.2	6.6	5.7	6.0	7.6	14	5.4	13	5.4	2.7	24
13	4.3	5.7	7.6	6.0	6.3	6.3	9.9	*5.2	11	5.4	2.7	11
14	4.3	5.7	7.6	6.6	6.0	6.0	7.3	4.9	9.1	4.9	2.7	8.4
15	4.3	5.4	7.6	7.3	6.0	5.7	6.9	4.6	8.8	5.2	2.7	6.6
16	4.6	5.2	6.9	6.6	6.3	5.7	6.3	4.6	*7.6	4.3	2.6	6.9
17	4.6	5.2	*7.3	6.3	6.0	6.0	6.6	5.2	7.3	4.0	2.6	7.3
18	4.3	4.9	8.8	6.3	5.7	6.3	6.6	6.9	6.9	7.3	2.7	72
19	4.0	5.2	7.3	6.0	5.7	6.0	8.0	8.8	6.9	9.5	2.7	22
20	4.0	5.7	6.6	6.0	5.4	5.7	14	7.6	6.6	6.9	2.7	17
21	3.8	6.0	6.6	*6.3	5.4	5.4	12	6.6	6.0	6.0	2.9	*15
22	4.0	6.6	7.3	6.3	5.4	5.4	17	5.7	5.7	*5.7	2.7	14
23	5.4	6.6	5.7	6.3	5.4	5.4	16	5.4	5.7	5.2	2.6	14
24	6.3	6.6	5.2	6.3	8.4	5.4	12	5.7	5.4	4.9	2.6	14
25	4.9	6.3	5.7	6.3	6.9	5.7	9.1	6.0	5.2	4.6	2.7	13
26	4.6	6.3	6.0	6.6	6.3	6.0	8.4	5.4	4.9	4.6	2.6	12
27	4.6	6.9	8.0	6.3	6.3	11	8.0	10	4.6	4.0	*2.7	9.9
28	6.0	7.6	6.9	6.3	6.0	16	7.6	15	4.6	4.0	2.9	9.1
29	8.0	6.6	5.7	6.0	5.7	10	8.0	12	4.9	4.0	2.9	8.4
30	6.6	6.3	5.7	6.0	-	8.4	8.0	8.8	6.6	3.8	2.9	8.8
31	6.3	-	5.7	6.0	-	7.6	-	6.6	-	3.5	2.7	-
Total	148.9	174.1	202.1	190.3	175.5	222.7	258.2	219.7	894.3	187.4	89.8	674.2
Mean	4.80	5.80	6.52	6.14	6.05	7.18	8.61	7.09	29.8	6.05	2.90	22.5
Ac-ft	295	345	401	377	348	442	512	436	1,770	372	178	1,340

Calendar year 1951: Max 237 Min 2.9 Mean 7.16 Ac-ft 5,180
Water year 1951-52: Max 562 Min 2.4 Mean 9.39 Ac-ft 6,820

Peak discharge (base, 1,000 cfs).--June 5 (6 p.m.) 6,420 cfs (8.65 ft); Sept. 10 (6 p.m.) 1,120 cfs (5.08 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Feb. 18 to Mar. 3; discharge estimated on basis of recorded range in stage and weather records.

Guadalupe River at Comfort, Tex.

Location.--Lat 29°58', long. 98°54', on left bank at downstream side of pier of bridge on U. S. Highway 87, a quarter of a mile downstream from Cypress Creek, half a mile east of Comfort, Kendall County, and at mile 397.

Drainage area.--990 sq mi, approximately.

Records available.--December 1917 to September 1932, May 1939 to September 1952. Published as "near Comfort" December 1917 to Septemb er 1932 (records equivalent except during periods of intense local storms).

Gage.--Water-stage recorder. Datum of gage is 1,372.03 ft above mean sea level, datum of 1929. Dec. 16, 1917, to Aug. 10, 1924, and Aug. 11, 1924, to Sept. 30, 1932, staff gages at sites 5 and 4 miles, respectively, upstream at different datums.

Average discharge.--23 years (1922-32, 1939-52), 144 cfs.

Extremes.--Maximum discharge during year, 38,600 cfs Sept. 10 (gage height, 25.44 ft, from floodmark), from rating curve extended above 13,000 cfs on basis of logarithmic plotting; no flow Aug. 31 to Sept. 9.

1917-32, 1939-52: Maximum discharge, 182,000 cfs July 1, 1932 (gage height, 38.4 ft, present site and datum, from floodmarks, from data furnished by Texas Highway Department), from rating curve extended above 13,000 cfs on basis of slope-area determination of peak flow (flood originated above Cypress Creek; no flow Aug. 31 to Sept. 9, 1952. Maximum stage since at least 1848, that of July 1, 1932; flood of July 16, 1900, reached about same stage, from information by local residents.

Remarks.--Records good except those above 3,000 cfs, which are poor. Small diversions above station for irrigation. Slight regulation at low flow by powerplants upstream.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 14-16, Aug. 26 to Sept. 1, Sept. 19, 21-30)

2.3	0	3.6	163
2.4	.5	4.0	273
2.5	1.9	4.5	430
2.6	7.5	5.0	600
2.7	18	7.0	1,300
2.8	29	9.0	2,040
3.0	54	12.0	3,880
3.3	100	15.0	8,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	25	34	28	29	35	54	50	102	34	19	0
2	*12	24	33	27	29	34	46	60	78	35	10	0
3	12	a23	36	29	29	34	42	54	68	36	8.5	0
4	12	a22	35	29	29	34	39	49	67	37	12	0
5	12	a21	31	28	28	*30	36	42	67	34	12	*0
6	10	*20	30	28	27	30	34	39	977	31	8.5	0
7	9.5	22	29	31	27	29	*34	37	380	33	6.8	0
8	7.5	24	28	31	27	28	33	35	229	26	4.1	0
9	7.5	24	26	28	27	28	31	34	161	26	2.8	0
10	7.5	26	26	28	28	35	35	33	123	26	1.9	6,900
11	8.5	27	26	28	28	57	35	31	108	16	1.5	*2,810
12	7.5	27	26	28	29	49	42	30	97	17	1.5	292
13	7.5	27	26	28	30	45	49	*29	83	19	1.4	a105
14	8.5	27	28	29	30	40	44	28	72	19	1.2	a65
15	9.5	27	28	29	28	37	41	28	62	22	.8	a55
16	10	28	28	29	29	34	42	30	57	19	a.8	a60
17	9.5	26	29	30	30	33	41	29	*54	18	a.7	a87
18	10	26	*30	31	31	33	39	30	49	21	a.7	176
19	10	28	30	31	33	33	40	35	46	28	a.6	149
20	12	28	31	30	31	31	308	37	45	31	a.6	97
21	12	28	33	30	30	30	198	36	44	31	a.6	80
22	14	30	31	*29	30	29	488	31	44	*29	a.5	*72
23	16	33	30	30	30	28	275	30	42	27	a.5	71
24	16	31	31	30	33	28	130	28	41	26	a.5	71
25	17	33	31	30	37	28	85	26	37	24	a.4	67
26	16	34	31	30	44	31	65	24	34	20	a.4	65
27	18	35	30	31	37	34	57	*1,300	34	19	a.3	65
28	21	33	29	33	39	62	50	*974	34	18	*.3	61
29	24	33	28	31	37	71	48	502	34	17	.2	60
30	25	34	28	30	-	72	48	244	33	18	.1	58
31	26	-	28	30	-	62	-	145	-	18	0	-
Total	402.0	826	920	914	896	1,184	2,509	4,080	3,302	775	99.2	11,466
Mean	13.0	27.5	29.7	29.5	30.9	38.2	83.6	132	110	25.0	3.20	382
Ac-ft	797	1,640	1,820	1,810	1,780	2,350	4,980	8,090	6,550	1,540	197	22,740

Calendar year 1951: Max 1,550 Min 2.3 Mean 50.9 Ac-ft 36,880
Water year 1951-52: Max 6,900 Min 0 Mean 74.8 Ac-ft 54,290

Peak discharge (base, 3,900 cfs).--Sept. 10 (6:30 p.m.) 38,600 cfs (25.44 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge interpolated or computed from estimated gage-height record.

Guadalupe River near Spring Branch, Tex.

Location.--Lat 29°51'40", long. 98°23'00", on right bank at downstream side of pier of bridge on county highway, 4 miles southeast of Spring Branch, Comal County, 6 miles downstream from Curry Creek, and at mile 334.

Drainage area.--1,432 sq mi.

Records available.--June 1922 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 948.13 ft above mean sea level, datum of 1929.

Average discharge.--30 years, 268 cfs.

Extremes.--Maximum discharge during year, 66,900 cfs Sept. 11 (gage height, 35.83 ft); no flow Aug. 29 to Sept. 9.

1922-52: Maximum discharge, 121,000 cfs July 3, 1932 (gage height, 42.10 ft), from rating curve extended above 70,000 cfs; no flow Aug. 19-21, Aug. 31 to Sept. 24, 1951, Aug. 29 to Sept. 9, 1952.

Maximum stage known since at least 1859, about 53 ft in 1869; flood of July 1900 reached a stage of about 49 ft, from information by local resident.

Remarks.--Records good. Small diversions above station for irrigation. Slight regulation by powerplants upstream.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.0	0	1.9	27	7.0	2,770
1.1	.2	2.1	48	10.0	5,400
1.2	.5	2.4	101	14.0	9,500
1.3	1.5	2.7	178	20.0	17,600
1.4	3.0	3.0	269	26.0	28,800
1.5	5.5	3.5	465	32.0	48,000
1.6	9.0	4.0	720		
1.7	14	5.0	1,300		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	16	28	32	32	38	72	77	266	44	22	0
2	7.6	16	27	32	32	38	62	115	213	43	21	0
3	*6.9	16	65	32	31	37	57	106	178	42	19	0
4	6.6	18	141	32	29	35	52	89	150	41	18	0
5	5.8	19	50	31	27	33	47	79	142	42	16	0
6	5.2	18	35	32	27	*33	46	70	199	42	15	0
7	4.2	*16	33	31	27	33	43	62	857	42	14	0
8	3.2	17	31	32	26	32	41	56	393	41	12	0
9	2.6	18	30	32	27	33	40	52	272	38	12	0
10	2.0	19	30	34	26	35	*38	48	219	38	12	*3,100
11	*2.2	19	30	33	28	33	36	43	187	36	12	*44,600
12	2.4	19	29	32	27	33	43	42	164	33	10	*10,900
13	2.4	19	29	32	27	44	50	40	150	32	8.3	892
14	2.4	20	29	32	26	46	46	*36	134	31	6.2	528
15	2.6	20	29	32	27	46	50	33	119	29	4.5	382
16	2.4	19	29	32	29	42	47	32	103	24	3.5	318
17	2.4	18	30	32	29	41	46	32	93	24	3.0	286
18	2.6	17	31	32	29	41	46	40	*85	44	2.2	414
19	2.6	18	*32	32	30	37	48	67	77	40	1.6	343
20	2.4	21	33	32	31	36	67	50	70	38	1.5	225
21	2.2	24	32	33	32	35	211	44	65	32	2.8	204
22	2.6	24	31	33	34	34	335	50	60	32	1.3	190
23	6.6	24	31	*32	34	32	693	47	57	*43	.7	184
24	14	24	32	32	34	32	334	46	56	42	.4	*175
25	14	25	33	32	44	32	204	42	54	40	.2	161
26	12	26	32	32	42	32	150	38	51	37	.2	150
27	12	32	32	32	40	38	119	3,470	51	32	.1	142
28	9.8	30	31	33	41	65	99	3,300	50	31	.1	132
29	9.8	29	32	31	41	67	91	1,120	47	30	*0	124
30	11	29	32	31	-	65	85	578	44	28	0	119
31	14	-	32	32	-	70	-	356	-	25	0	-
Total	183.1	630	1,121	994	909	1,248	3,298	10,260	4,606	1,116	219.6	63,569
Mean	5.91	21.0	36.2	32.1	31.3	40.3	110	331	154	36.0	7.08	2,119
Ac-ft	363	1,250	2,220	1,970	1,800	2,480	6,540	20,350	9,140	2,210	436	126,100

Calendar year 1951: Max 1,110 Min 0 Mean 52.4 Ac-ft 37,950
Water year 1951-52: Max 44,600 Min 0 Mean 241 Ac-ft 174,900

Peak discharge (base, 4,000 cfs).--May 27 (9:30 p.m.) 10,700 cfs (14.89 ft); Sept. 11 (4:30 a.m.) 66,900 cfs (35.83 ft).

* Discharge measurement made on this day.

Guadalupe River above Comal River at New Braunfels, Tex.

Location.--Lat 29°42'55", long. 98°06'40", on right bank, at New Braunfels, Comal County, 1.1 miles upstream from Comal River and at mile 281.

Drainage area.--1,666 sq mi.

Records available.--December 1927 to September 1952. March 1898 to December 1899, January 1915 to December 1927, at site 1 mile downstream from Comal River, published as "at New Braunfels"; records not equivalent owing to inflow of Comal River.

Gage.--Water-stage recorder and concrete control. Datum of gage is 586.65 ft above mean sea level, datum of 1929.

Average discharge.--24 years (1928-52), 376 cfs.

Extremes.--Maximum discharge during year, 72,900 cfs Sept. 11; maximum gage height, 30.70 ft Sept. 11 (backwater from Comal River); minimum discharge, 4.1 cfs Sept. 3 (gage height, 0.63 ft).

1927-52: Maximum discharge, 101,000 cfs June 15, 1935 (gage height, 32.95 ft); minimum, 3.9 cfs Sept. 12, 1951.

Maximum stage known, 38 ft in 1869 and in December 1913, from information by local residents.

Remarks.--Records good except those for period Sept. 11-13, which are poor. Small diversions above station for irrigation. Some regulation at low flow by small powerplants upstream.

Revisions (water years).--W 898: 1935.

Rating tables, water year 1951-52, except period of backwater from Comal River (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Sept. 10				Sept. 11 to Sept. 30			
0.5	3.0	1.9	166	1.9	282	6.0	5,320
.6	4.8	2.2	280	2.1	365	10.0	11,100
.7	7.6	2.6	580	2.5	630	15.0	19,500
.8	12	3.0	995	3.0	1,100	20.0	31,900
1.0	28	4.0	2,420	4.0	2,420	25.0	50,800
1.2	49	7.0	6,760				
1.6	104						

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.8	9.1	38	38	36	39	54	130	463	73	25	5.4
2	6.5	10	37	38	35	40	69	126	357	55	24	4.6
3	*6.2	10	36	38	35	42	71	118	280	54	22	4.3
4	6.2	9.6	39	38	34	41	68	161	241	51	20	4.6
5	6.5	9.6	40	38	33	40	81	126	217	48	18	4.8
6	6.8	11	40	38	32	*39	55	109	288	47	17	4.4
7	6.5	12	59	37	32	40	51	98	643	45	17	4.6
8	5.9	*14	56	37	31	38	48	90	794	41	15	4.6
9	5.9	15	51	37	32	38	55	81	495	42	15	9.0
10	6.2	17	49	37	31	41	*73	73	357	40	15	138
11	6.2	18	47	36	31	44	60	66	305	40	12	*46,500
12	5.9	19	44	36	32	39	75	60	270	38	11	*32,800
13	5.9	18	42	37	33	36	90	56	236	33	11	2,540
14	6.5	17	41	38	31	37	81	51	217	34	9.6	1,400
15	6.8	18	39	39	31	36	66	*47	199	32	*9.1	1,020
16	6.8	19	38	39	31	36	59	46	180	31	9.1	820
17	6.8	18	37	39	31	38	57	45	164	30	8.1	694
18	6.8	17	37	39	31	41	59	47	147	58	7.8	*751
19	6.8	20	*37	38	31	41	61	82	*132	74	7.8	843
20	6.8	21	38	39	31	41	77	54	118	66	7.0	698
21	7.3	27	38	39	32	40	91	60	108	54	6.5	630
22	8.6	30	39	39	33	38	156	65	98	50	6.5	536
23	9.6	29	38	*38	36	36	529	55	87	48	6.2	*472
24	7.0	29	39	37	38	38	713	51	78	*42	5.1	429
25	7.6	31	41	37	45	35	415	57	73	36	4.8	396
26	12	31	40	39	48	39	270	53	65	32	4.6	370
27	12	34	38	55	45	41	213	289	65	37	4.4	347
28	12	37	38	49	42	49	180	5,740	66	37	5.4	329
29	12	36	38	38	41	55	161	1,820	64	32	*5.1	*312
30	12	38	38	36	-	59	142	1,220	92	30	4.6	293
31	9.1	-	37	36	-	56	-	654	-	28	4.6	-
Total	238.0	624.3	1,269	1,199	1,004	1,271	4,160	11,710	6,899	1,358	337.9	92,364.1
Mean	7.68	20.8	4.09	38.7	34.6	41.0	139	378	230	43.8	10.9	3,079
Ac-ft	472	1,240	2,520	2,380	1,990	2,520	8,250	23,230	13,680	2,690	670	183,200

Calendar year 1951: Max 1,060 Min 4.1 Mean 61.3 Ac-ft 44,370
Water year 1951-52: Max 46,500 Min 4.3 Mean 335 Ac-ft 242,800

Peak discharge (base, 3,100 cfs).--May 28 (9:30 a.m.) 11,100 cfs(10.05 ft); Sept. 11 (1 p.m.) 72,900 cfs (30.65 ft, backwater).

* Discharge measurement made on this day.

c Backwater from Comal River.

Comal River at New Braunfels, Tex.

Location.--Lat 29°42'05", long. 98°07'10", on right bank 200 ft upstream from San Antonio Street viaduct in New Braunfels, Comal County, and 1.1 miles upstream from mouth.

Drainage area.--117 sq mi (revised). Ordinary flow of river comes from springs, drainage area of stream not applicable.

Records available.--1882 to September 1952. 1882 to November 1927 (discharge measurements only).

Gage.--Water-stage recorder. Datum of gage is 582.80 ft above mean sea level, datum of 1929.

Average discharge.--20 years (1932-52), 323 cfs.

Extremes.--Maximum discharge during year, 35,000 cfs Sept. 11 (gage height, 36.14 ft, from floodmark), from rating curve extended above 1,600 cfs on basis of slope-area determinations at gage heights 14.87 and 36.14 ft; minimum daily, 118 cfs Aug. 31.

1927-52: Maximum discharge, that of Sept. 11, 1952; minimum daily discharge, that of Aug. 31, 1952.

Maximum stage known since at least 1869, 37.65 ft, gage datum, Oct. 17, 1870, from floodmark about half a mile downstream (probably some backwater from Guadalupe River).

Remarks.--Records good except those for period Sept. 11-15, which are fair. Diurnal fluctuations from steam powerplant half a mile upstream. Entire flow of river from Comal Springs, about 1 mile upstream, except during periods of local rain.. Springs emerge from the Edwards limestone in the Balcones fault zone.

Rating tables, water year 1951-52, except period of backwater from Guadalupe River (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to June 30		July 1 to Sept. 30			
2.3	160	2.1	110	9.0	3,130
2.6	245	2.5	216	13.0	5,500
2.8	312	3.0	382	20.0	11,000
		4.0	712	23.0	14,000
		6.0	1,550		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	186	186	200	194	186	183	181	189	192		145	132
2	183	192	200	194	183	181	181	192	189		143	132
3	192	189	203	194	189	181	178	183	186		145	120
4	189	192	206	200	186	183	181	189	178		156	128
5	186	192	206	192	186	181	178	183	181		148	135
6	186	192	208	192	183	189	178	181	183	a170	145	130
7	183	*189	206	194	183	*189	181	183	186		143	120
8	183	192	203	197	183	183	181	178	189		143	135
9	186	192	200	194	181	189	189	178	189		128	145
10	183	189	206	197	181	189	178	176	181		135	177
11	181	192	203	200	183	186	189	176	181		156	*a13,900
12	181	192	208	192	183	186	194	183	183	156	138	cg988
13	181	192	200	192	183	183	189	170	186	153	140	cg202
14	183	186	200	194	181	183	186	173	178	166	132	g180
15	183	189	200	194	181	181	189	*173	178	156	*130	g192
16	183	189	197	192	181	181	181	178	181	156	128	g195
17	183	186	203	192	181	186	*186	173	178	153	122	*197
18	181	192	203	192	181	181	189	181	168	166	140	196
19	183	189	203	189	178	178	186	178	*176	166	130	205
20	181	189	*206	189	181	178	183	176	181	166	130	202
21	178	192	200	192	178	181	192	178	163	172	128	205
22	181	192	197	189	178	176	192	183	170	169	135	208
23	178	194	203	192	178	168	186	178		169	130	210
24	181	194	203	*192	178	181	192	173		*161	122	*210
25	181	197	203	192	181	178	194	173		153	140	213
26	183	197	203	183	181	168	192	192	a174	145	128	208
27	186	197	203	194	181	183	192	203		153	125	210
28	186	197	208	189	181	178	192	c203		169	128	210
29	186	197	203	192	183	181	186	c203		153	128	*208
30	189	197	200	189	-	178	183	203	277	156	128	205
31	186	-	200	186	-	186	-	192	-	143	118	-
Total	5,692	5,755	6,284	5,964	5,273	5,629	5,579	5,674	5,472	5,051	4,187	19,898
Mean	184	192	203	192	182	182	186	183	182	163	135	663
Ac-ft	11,290	11,410	12,460	11,830	10,460	11,160	11,070	11,250	10,850	10,020	8,300	39,470

Calendar year 1951: Max 390 Min 163 Mean 206 Ac-ft 148,900
Water year 1951-52: Max 13,900 Min 118 Mean 220 Ac-ft 159,600

Peak discharge (base, 1,100 cfs).--Sept. 11 (11 a.m.) 35,000 cfs (36.14 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated.
c Backwater from Guadalupe River.
g Computed from once- or twice-daily staff-gage readings.

Blanco River at Wimberley, Tex.

Location.--Lat 29°59', long. 98°04', on left bank 800 ft downstream from Cypress Creek, 1,200 ft upstream from bridge on State Highway 12, and a quarter of a mile south of Wimberley, Hays County.

Drainage area.--378 sq mi.

Records available.--August 1924 to September 1926, June 1928 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 802.23 ft above mean sea level, datum of 1929. Aug. 6, 1924, to Sept. 30, 1926, inclined and vertical staff gage at site 30 ft upstream at same datum.

Average discharge.--26 years (1924-26), 1928-52), 105 cfs.

Extremes.--Maximum discharge during year, 95,000 cfs Sept. 11 (gage height, 30.1 ft, from floodmark), from rating curve extended above 30,000 cfs on basis of slope-area determination of peak flow; minimum, 6.1 cfs Oct. 7-9, 20-22, Nov. 3, 4.

1924-26, 1928-52: Maximum discharge, 113,000 cfs May 28, 1929 (gage height, 31.10 ft, from floodmarks), from slope-area determination of peak flow; minimum, 2.9 cfs Oct. 5, 6, 1940.

Maximum stage known since at least 1869, that of May 28, 1929, from information by local residents.

Remarks.--Records good except those for Sept. 10-15, which are fair. No diversion above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from debris Sept. 11-15)

Oct. 1 to Sept. 10				Sept. 11-30			
0.4	4.5	1.2	150	0.7	90	4.0	2,600
.5	11	1.4	218	.9	145	5.0	3,850
.6	22	1.7	351	1.2	250	7.0	6,600
.7	37	2.0	518	1.5	380	9.0	9,800
.8	54	2.5	880	2.0	660	12.0	16,000
1.0	95			2.5	1,050	15.0	24,000
				3.0	1,500	20.0	40,500

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.1	6.6	11	7.9	6.6	8.7	11	36	86	31	16	
2	7.1	6.6	11	7.9	6.6	8.7	10	37	75	30	16	
3	7.1	6.6	15	7.9	6.6	8.7	10	31	67	28	15	
4	*7.1	6.6	13	7.9	6.6	7.9	9.4	30	64	26	15	
5	7.1	7.1	11	7.9	6.6	7.9	9.4	30	74	26	15	a7.5
6	7.1	7.1	10	7.9	6.6	7.9	8.7	30	413	25	15	
7	6.6	7.1	9.4	7.1	7.1	*7.9	8.7	30	230	25	14	
8	6.1	*7.1	8.7	7.1	7.1	7.9	8.7	30	196	25	12	
9	6.1	7.1	8.7	7.9	7.9	8.7	12	28	113	24	12	
10	6.6	7.1	8.7	7.1	8.7	10	16	25	91	24	12	*g168
11	7.1	7.1	8.7	7.1	8.7	9.4	*13	24	86	24	11	*g36,900
12	7.1	7.1	8.7	7.1	8.7	8.7	30	22	82	22	11	*g1,260
13	7.1	7.1	8.7	7.9	8.7	7.9	28	22	75	22	11	g658
14	7.1	7.1	8.7	7.9	8.7	7.9	22	21	67	21	10	g427
15	7.1	7.1	7.9	7.9	8.7	7.9	19	20	64	20	10	g330
16	7.1	6.6	7.1	7.9	8.7	7.9	16	*20	58	20	10	g266
17	6.6	6.6	7.9	7.9	7.9	7.9	15	20	54	22	9.4	g222
18	6.6	8.7	7.9	7.9	8.7	8.7	15	31	51	31	9.4	g332
19	6.6	9.4	7.9	7.9	8.7	7.9	16	28	49	30	9.4	*g279
20	6.6	10	7.9	7.9	8.7	7.9	20	25	*49	28	9.4	g196
21	6.1	13	*7.9	8.7	8.7	7.9	18	32	46	26	9.4	g182
22	6.1	12	7.1	7.9	9.4	7.9	21	32	42	25	9.4	g162
23	8.7	12	7.1	7.9	9.4	7.1	515	31	39	24	9.4	139
24	7.9	12	7.1	7.9	9.4	7.1	105	30	36	22	8.7	133
25	7.9	12	7.9	*7.9	15	7.1	62	30	34	*21	8.7	125
26	9.4	12	7.1	7.9	12	10	49	397	32	20	7.9	122
27	8.7	12	7.1	8.7	10	11	44	*790	31	20	7.9	116
28	7.1	12	7.1	8.7	9.4	18	39	765	31	20	7.9	108
29	7.1	11	7.1	7.1	8.7	13	36	226	31	19	7.9	103
30	7.1	11	7.9	6.6	-	12	32	138	31	18	*7.9	98
31	7.1	-	7.9	6.6	-	11	-	105	-	18	7.9	-
Total	220.2	264.8	269.2	239.9	248.6	278.5	1,218.9	3,116	2,397	737	335.6	42,393.5
Mean	7.10	8.83	8.68	7.74	8.57	8.98	40.6	101	79.9	23.8	10.8	1,413
Ac-ft	437	525	534	476	493	552	2,420	6,180	4,750	1,460	666	84,090

Calendar year 1951: Max 591 Min 5.1 Mean 14.3 Ac-ft 10,380
Water year 1951-52: Max 36,900 Min 6.1 Mean 141 Ac-ft 102,600

Peak discharge (base, 1,800 cfs).--Apr. 23 (4 a.m.) 2,110 cfs (3.60 ft); May 26 (10 p.m.) 4,660 cfs (5.56 ft); Sept. 11 (8:30 a.m.) 95,000 cfs (30.1 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of discharge measurement and weather records.

g Computed from twice-daily or more often readings of staff gage.

San Marcos River at Luling, Tex.

Location.--Lat 29°39'55", long. 97°39'05", on left bank 390 ft downstream from bridge on State Highway 80, 1 mile south of Luling, Caldwell County, and 8 miles upstream from Plum Creek.

Drainage area.--833 sq mi.

Records available.--April 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 322.05 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 328 cfs.

Extremes.--Maximum discharge during year, 57,000 cfs Sept. 12 (gage height, 34.95 ft); minimum daily, 58 cfs Oct. 21.
1939-52: Maximum discharge, that of Sept. 12, 1952; minimum daily, 43 cfs Aug. 12, 1951.
Maximum stage known, 40.4 ft in 1869 and 1870, from information by State Highway Department.

Remarks.--Records good. Regulation by powerplant 800 ft upstream. Discharge is mostly from large springs near San Marcos. No large diversion above station.

Revisions (water years).--W 958: 1940.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*84	87	84	81	84	77	80	114	235	491	95	92
2	79	*84	85	82	84	74	*80	114	200	133	97	84
3	76	83	86	86	83	84	77	114	177	112	92	84
4	79	64	96	82	87	85	77	108	167	99	98	82
5	82	97	98	82	81	82	73	108	*278	122	100	81
6	83	85	86	77	82	81	62	111	1,800	112	95	81
7	60	85	86	78	78	85	80	109	523	109	92	62
8	86	81	85	79	79	87	69	*105	356	100	91	96
9	76	82	78	79	79	76	75	107	315	107	93	109
10	78	84	82	73	74	108	120	110	226	98	88	*2,610
11	78	65	*85	77	82	96	94	104	188	*100	97	9,420
12	82	97	83	76	85	92	173	102	159	99	86	*25,000
13	81	89	102	76	83	89	142	103	141	100	93	*2,020
14	61	81	90	*84	78	93	95	101	134	100	87	930
15	87	79	87	81	77	97	86	100	126	98	*88	693
16	79	78	77	80	78	80	87	96	118	94	88	560
17	80	78	85	83	62	101	86	111	114	99	78	482
18	78	72	84	80	84	90	86	105	102	106	84	686
19	78	84	85	81	*70	90	95	115	106	112	87	620
20	77	90	85	82	88	88	105	108	100	107	83	482
21	58	89	84	80	77	83	76	105	91	112	88	401
22	89	84	80	74	83	86	97	104	83	84	86	362
23	92	85	81	78	87	75	118	103	82	116	86	*338
24	89	86	81	82	64	*78	131	102	88	98	72	312
25	81	86	76	79	108	75	242	103	88	96	93	299
26	84	88	93	76	97	79	178	108	79	94	88	283
27	87	92	81	114	81	86	138	2,000	86	92	89	273
28	68	86	77	178	78	102	125	*2,360	102	95	87	267
29	92	83	82	92	77	93	114	960	104	96	84	249
30	84	85	79	*84	-	77	113	414	250	94	87	242
31	82	-	83	83	-	86	-	300	-	96	76	-
Total	2,470	2,509	2,626	2,619	2,350	2,675	3,174	8,804	6,618	3,571	2,748	47,300
Mean	79.7	83.6	84.7	84.5	81.0	86.3	106	284	221	115	88.6	1,577
Ac-ft	4,900	4,980	5,210	5,190	4,660	5,310	6,300	17,460	13,130	7,080	5,450	93,820

Calendar year 1951: Max 5,010 Min 43 Mean 119 Ac-ft 86,250
Water year 1951-52: Max 25,000 Min 58 Mean 239 Ac-ft 173,500

Peak discharge (base, 2,900 cfs).--May 27 (8 p.m.) 4,540 cfs (23.41 ft); June 6 (5 a.m.) 3,020 cfs (19.30 ft); Sept. 12 (1:30 a.m.) 57,000 cfs (34.95 ft).
* Discharge measurement made on this day.

Plum Creek near Luling, Tex.

Location.--Lat 29°42', long. 97°37', near left bank on downstream side of pier of bridge on county road, 1 mile downstream from West Fork Plum Creek, 2 miles upstream from Texas & New Orleans Railroad bridge, and 3 miles northeast of Luling, Caldwell County.

Drainage area.--356 sq mi.

Records available.--March 1930 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 326.57 ft above mean sea level, datum of 1929.

Average discharge.--22 years, 94.1 cfs.

Extremes.--Maximum discharge during year, 2,950 cfs June 6 (gage height, 15.46 ft); no flow Aug. 12 to Sept. 8.
1930-52: Maximum discharge, 78,500 cfs July 1, 1936 (gage height, 25.7 ft, from floodmarks), from rating curve extended above 54,000 cfs; no flow Aug. 8-18, Sept. 3-12, 1951, Aug. 12 to Sept. 8, 1952.
Maximum stage known, that of July 1, 1936; flood of December 1913 reached about same stage, from information by local residents.

Remarks.--Records good except those for period of no gage-height record, which are fair. Slight regulation at low flow by oil-field operation above station. No diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

-0.1	0	0.5	19	4.0	375
0.0	.2	.6	30	6.0	564
.1	1.2	.8	61	9.0	904
.2	2.8	1.0	100	12.0	1,400
.3	6.2	1.5	172	15.0	2,550
.4	11	2.0	223		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*1.7	*2.5	2.8	2.8	3.5	3.5	4.2	2.8	4.8	46	0.2	0
2	1.5	1.2	3.1	2.8	3.5	3.5	3.1	2.8	2.6	9.7	.2	0
3	1.1	1.0	3.8	2.6	3.1	3.5	2.6	4.5	2.2	4.5	.2	0
4	.8	1.0	9.2	2.6	2.8	3.1	2.6	4.5	2.0	2.8	.2	0
5	.7	1.0	5.9	2.6	2.6	3.5	2.5	2.8	*72	2.6	.1	0
6	.6	1.0	4.2	2.6	2.6	3.5	2.5	2.3	2,390	2.6	.1	0
7	.4	1.0	2.8	2.6	2.8	3.5	2.3	2.0	434	2.3	.1	0
8	.3	1.0	2.8	2.5	2.8	3.1	2.3	*1.8	66	2.2	.1	0
9	.2	.9	2.6	2.5	2.8	3.8	2.5	1.7	22	2.0	.1	.4
10	.2	.9	2.6	2.5	3.1	4.5	11	1.5	12	2.0	.1	*496
11	.2	.8	*2.6	2.3	3.1	5.5	9.7	1.2	9.7	**1.7	.1	555
12	.2	.8	3.1	2.3	3.1	5.2	210	1.0	9.2	1.4	0	344
13	.2	.8	3.5	2.5	3.1	4.2	147	.9	9.2	1.4	0	25
14	.2	.8	4.8	*2.5	3.1	3.5	14	.8	6.7	1.4	0	13
15	.2	.7	4.8	2.8	3.1	3.5	8.7	.5	5.5	1.2	*0	7.8
16	.2	.7	4.2	2.8	3.1	3.1	5.2	.2	4.8	1.2	0	5.1
17	.2	.7	3.8	2.8	3.1	3.1	4.5	.2	4.8	1.1	0	3.9
18	.2	.7	3.5	2.8	3.5	3.1	3.8	1.2	4.2	43	0	319
19	.2	.7	3.1	2.8	*3.5	3.1	3.5	3.5	3.1	7.7	0	*237
20	.2	.6	3.1	3.1	3.5	2.8	4.8	2.2	3.1	5.9	0	26
21	.2	1.0	3.1	3.1	3.1	3.1	5.2	2.0	2.8	*2.6	*0	11
22	.1	1.2	2.8	2.8	3.8	2.8	5.5	1.2	2.6	2.0	0	6.7
23	1.5	.7	2.6	2.6	4.2	2.6	56	1.0	2.6	1.1	0	4.5
24	1.4	1.8	2.6	2.5	4.2	*2.3	19	.7	2.5	.9	0	3.1
25	2.8	3.5	2.8	2.5	7.2	2.2	8.2	.7	2.3	.7	0	2.5
26	2.6	8.7	2.6	2.5	7.2	2.5	5.2	1.1	2.3	.7	0	2.2
27	1.8	4.8	2.5	36	5.9	3.5	4.2	375	2.3	.6	0	2.0
28	1.7	3.5	2.6	24	4.2	6.2	3.8	*413	2.5	.4	0	1.8
29	2.2	3.1	2.5	8.2	3.8	6.7	3.5	*77	2.3	.2	0	1.8
30	2.2	3.1	2.5	*5.2	-	5.9	3.1	15	6.6	.2	0	1.7
31	1.7	-	2.6	4.2	-	4.8	-	7.2	-	.2	0	-
Total	27.7	50.2	105.5	146.4	105.4	115.2	560.5	932.3	3,096.7	152.3	1.5	2,069.5
Mean	0.89	1.67	3.40	4.72	3.63	3.72	18.7	30.1	103	4.91	0.05	69.0
Ac-ft	55	100	209	290	209	228	1,110	1,850	6,140	302	3.0	4,100

Calendar year 1951: Max 8,020 Min 0 Mean 40.6 Ac-ft 29,390
Water year 1951-52: Max 2,390 Min 0 Mean 20.1 Ac-ft 14,600

Peak discharge (base, 2,600 cfs).--June 6 (1 p.m.) 2,950 cfs (15.46 ft).
* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--No gage-height record Nov. 3-26; discharge computed on basis of weather records and recorded range in stage.

Guadalupe River at Victoria, Tex.

Location.--Lat 28°47', long. 97°01', on left bank just upstream from pier of bridge on U. S. Highway 59 in Victoria, Victoria County, 1,300 ft upstream from Texas & New Orleans Railroad bridge, 10 miles upstream from Coleto Creek, and at mile 51.

Drainage area.--5,311 sq mi.

Records available.--November 1934 to September 1952. Gage-height records collected in this vicinity since 1904 are contained in reports of United States Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 29.23 ft above mean sea level, datum of 1929.

Average discharge.--17 years (1935-52), 1,655 cfs.

Extremes.--Maximum discharge during year, 28,400 cfs Sept. 16 (gage height, 29.46 ft); minimum daily, 101 cfs Aug. 31.
1934-52: Maximum discharge, 179,000 cfs July 3, 1936 (gage height, 31.22 ft); minimum daily, 98 cfs Aug. 9, 1951.
Maximum stage known, that of July 3, 1936.

Remarks.--Records good except those below 200 cfs, which are poor. Many small diversions above station do not materially affect flow. Some regulation by powerplants above station. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Revisions.--W 1088: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	274	257	326	375	388	510	570	454	4,720	352	272	g123
2	*264	291	288	300	362	352	427	*496	2,300	375	333	g123
3	338	*214	243	303	344	339	510	482	1,850	617	236	g119
4	293	219	388	313	333	326	430	482	1,540	762	257	g117
5	240	328	414	388	375	352	284	468	1,030	440	207	g113
6	216	414	352	388	388	339	331	454	*1,140	375	231	g113
7	199	210	362	328	300	310	341	440	2,290	346	192	g121
8	257	444	359	375	210	339	252	401	5,130	*362	219	g121
9	203	595	323	341	284	328	303	362	4,910	344	233	g229
10	252	440	300	349	315	296	427	388	2,420	308	219	g417
11	203	260	243	245	305	354	279	401	1,470	388	*212	g1,110
12	243	281	*300	375	274	388	918	352	1,320	308	192	3,330
13	221	284	362	298	286	346	860	349	1,180	252	181	6,040
14	240	248	315	359	375	352	700	333	928	233	131	10,400
15	216	341	318	*308	284	291	928	318	894	310	210	16,400
16	224	333	284	320	328	291	700	315	700	196	185	*25,300
17	216	245	362	349	281	323	440	255	730	279	174	23,700
18	190	262	341	375	296	339	388	328	685	293	140	*9,550
19	216	252	328	310	359	318	401	286	640	564	155	*3,130
20	205	269	375	320	*305	305	427	320	566	1,390	159	2,640
21	214	274	331	318	296	362	388	339	566	1,180	131	2,840
22	190	262	310	359	331	308	375	375	496	1,290	174	2,140
23	201	313	388	352	503	293	746	274	482	998	157	1,900
24	210	328	388	328	610	296	625	414	460	552	119	1,740
25	183	333	240	298	610	*291	928	g344	401	352	115	*1,580
26	233	269	310	320	762	236	1,180	g339	352	357	148	1,430
27	323	354	303	284	762	293	1,180	g1,030	388	296	125	1,360
28	320	427	281	359	746	281	962	g9,640	349	284	155	1,250
29	252	333	336	326	625	354	778	6,200	303	216	g113	1,180
30	216	357	331	323	-	303	625	7,210	414	252	g113	1,180
31	331	-	308	440	-	555	-	8,000	-	352	g101	-
Total	7,383	9,437	10,109	10,426	11,637	10,370	17,703	41,849	40,654	14,623	5,589	119,796
Mean	238	315	326	336	401	335	590	1,350	1,355	472	180	3,993
Ac-ft	14,640	18,720	20,050	20,680	23,080	20,570	35,110	83,010	80,640	29,000	11,090	237,600

Calendar year 1951: Max 11,300 Min 98 Mean 522 Ac-ft 377,600
Water year 1951-52: Max 25,300 Min 101 Mean 819 Ac-ft 594,200

Peak discharge (base, 7,800 cfs).--May 28 (12 m.) 11,800 cfs (23.44 ft); May 31 (11 a.m.) 8,160 cfs (19.18 ft); Sept. 16 (7 p.m.) 28,400 cfs (29.46 ft).
* Discharge measurement made on this day.
g Computed from once-daily wire-weight gage readings furnished by U. S. Weather Bureau.

Coleto Creek near Victoria, Tex.

Location.--Lat 28°43', long. 97°08', near left bank on downstream side of pier of bridge on U. S. Highway 59, 100 ft upstream from Texas & New Orleans Railroad bridge, 1.1 miles downstream from Perdido Creek, and 9.4 miles southwest of Victoria, Victoria County.

Drainage area.--514 sq mi.

Records available.--June 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 49.18 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 88.4 cfs.

Extremes.--Maximum discharge during year, 17,300 cfs May 28 (gage height, 15.18 ft); no flow at times.

1939-52: Maximum discharge, 89,000 cfs Oct. 16, 1946 (gage height, 31.64 ft, from floodmark), from rating curve extended above 40,000 cfs on basis of slope-area determination of peak flow; no flow at times.

Maximum stage known since at least 1875, that of Oct. 16, 1946. Flood of July 1, 1936, reached a stage of 27.2 ft at railroad bridge 100 ft downstream, from information by railroad company.

Remarks.--Records fair.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	4.2	5.4	3.4	3.0	9.9	128	7.8	101	7.8	4.9	0
2	16	8.0	5.2	3.4	2.6	8.6	30	16	86	6.1	4.5	0
3	*12	*4.9	4.9	3.8	2.6	7.5	16	8.3	77	5.4	4.0	0
4	10	4.0	4.9	3.8	2.2	5.8	12	6.3	70	4.9	2.3	0
5	9.9	4.0	4.5	3.8	2.0	4.9	8.6	5.2	67	4.5	1.6	0
6	12	79	4.2	3.5	1.8	4.7	7.5	4.2	73	4.7	1.0	0
7	8.0	47	3.8	3.4	1.8	4.2	6.1	*4.0	*139	3.5	.7	0
8	6.6	22	3.5	3.4	1.8	3.7	5.4	3.7	77	*2.7	.5	0
9	5.8	14	3.2	3.4	1.9	3.8	6.6	3.5	64	3.2	.3	.1
10	5.2	10	3.0	2.9	2.1	4.5	17	3.2	55	2.6	.2	10
11	4.7	8.0	2.9	2.4	2.3	3.8	25	3.0	49	2.3	**.1	8,450
12	4.2	6.9	3.0	2.6	2.6	3.7	598	2.4	46	3.0	.1	5,710
13	4.0	6.3	*3.2	2.7	2.6	3.4	106	2.3	42	3.2	.1	527
14	3.8	5.6	3.8	2.9	2.4	3.2	36	2.1	39	2.6	0	293
15	3.8	5.2	3.8	3.0	2.4	3.0	20	2.0	36	2.1	0	226
16	3.7	4.2	3.4	*3.0	3.2	2.7	13	1.9	33	1.8	0	288
17	3.5	3.7	4.2	2.9	2.9	2.7	11	2.0	30	1.5	0	176
18	3.5	3.4	4.2	3.0	2.7	3.7	9.5	3.0	28	12	0	214
19	3.5	3.4	4.2	2.9	2.9	3.7	11	4.2	26	12	0	145
20	3.4	3.5	4.2	2.9	*2.7	3.0	11	3.7	24	6.9	0	93
21	3.2	4.5	3.5	2.9	2.9	2.9	8.9	3.2	22	4.7	0	68
22	3.0	4.5	3.0	2.7	12	2.3	102	2.6	20	3.4	0	54
23	22	4.5	3.0	2.4	16	2.1	603	2.2	18	3.0	0	44
24	10	4.5	3.4	2.2	11	2.0	94	2.1	16	2.3	0	36
25	7.8	4.5	3.7	2.4	18	*1.9	38	2.1	15	1.5	0	29
26	6.1	4.9	3.7	2.4	16	1.9	21	3.5	13	.9	0	*24
27	5.6	6.9	3.2	2.6	34	1.9	15	11	12	.8	0	22
28	4.7	6.6	3.0	2.6	21	2.1	11	*8,730	11	.6	0	21
29	4.2	5.6	3.0	2.3	14	2.1	8.9	*803	11	.4	0	20
30	3.8	5.6	3.2	2.1	-	2.2	8.0	*218	9.2	.4	0	17
31	3.5	-	3.4	2.4	-	275	-	*130	-	3.4	0	-
Total	218.5	299.4	115.6	90.1	193.4	386.9	1,987.5	9,996.5	1,309.2	114.2	20.3	16,467.1
Mean	7.05	9.98	3.73	2.91	6.67	12.5	66.2	322	43.6	3.68	0.65	549
Ac-ft	433	594	229	179	384	767	3,940	19,830	2,600	227	40	32,660

Calendar year 1951: Max 3,200 Min 0 Mean 35.4 Ac-ft 25,660
Water year 1951-52: Max 8,730 Min 0 Mean 85.2 Ac-ft 61,880

Peak discharge (base, 2,600 cfs).--May 28 (8:30 a.m.) 17,300 cfs (15.18 ft); Sept. 12 (2 a.m.) 13,800 cfs (13.71 ft).

* Discharge measurement made on this day.

** Field estimate made on this day.

San Antonio River at San Antonio, Tex.

Location.--Lat 29°24'35", long. 98°29'40", on right bank at downstream side of South Alamo Street bridge, in San Antonio, Bexar County, 2.1 miles upstream from San Pedro Creek.

Drainage area.--42 sq mi, approximately. Normal flow of river comes from springs; drainage area of stream not applicable.

Records available.--January 1915 to November 1929, February 1939 to September 1952. Estimated monthly ground-water discharge contained in Water-Supply Paper 773-B and Texas Board of Water Engineers Report for Bexar County dated May 1947.

Gage.--Water-stage recorder. Datum of gage is 612.26 ft above mean sea level, datum of 1929. Jan. 26, 1915, to Feb. 27, 1916, staff gage at site 2.2 miles upstream at different datum. Feb. 28, 1916, to Apr. 7, 1920, staff gage at site 1.9 miles upstream at different datum. Apr. 8, 1920, to Nov. 16, 1929, water-stage recorder at same site and datum.

Average discharge.--27 years (1915-29, 1939-52), 64.6 cfs.

Extremes.--Maximum discharge during year, 363 cfs Sept. 18 (gage height, 3.47 ft); minimum, 5.1 cfs Feb. 21; minimum daily, 12 cfs Mar. 8.
1915-29, 1939-52: Maximum discharge, 15,300 cfs Sept. 10, 1921 (gage height, 20.14 ft, from floodmark), from rating curve extended above 2,000 cfs by slope-area determination of peak flow; no flow at times because of regulation.
Maximum stage known since at least 1819, that of Sept. 10, 1911; flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921.

Remarks.--Records good. Flood flow regulated by Olmos flood-control reservoir (capacity, 15,500 acre-ft) about 8½ miles upstream. Dam completed in 1926. Normal flow of river formerly came from springs located about 8 miles upstream but now comes largely from artesian wells. Springs emerged from Edwards limestone in Balcones fault zone. Diurnal fluctuation caused by industrial pumping from wells (depleting the underground reservoir) above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-22, Mar. 3-27)

1.0	9.1
1.2	21
1.4	38
1.7	71
2.0	112

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	17	20	24	18	15	22	25	21	22	24	20
2	27	15	18	21	18	17	19	23	23	22	19	22
3	27	17	22	23	16	18	19	22	22	22	25	*21
4	27	16	21	13	17	15	17	18	22	20	24	21
5	27	17	19	17	19	15	18	20	42	21	22	21
6	27	14	21	15	17	16	14	17	46	19	17	21
7	22	17	18	17	15	19	14	19	26	24	20	18
8	26	16	17	18	17	12	15	19	24	21	20	22
9	26	18	16	19	19	32	65	20	*24	21	20	32
10	28	21	16	*14	18	15	24	18	24	21	20	94
11	28	18	16	17	21	15	25	17	41	25	21	38
12	18	20	16	18	*20	15	34	16	28	23	22	19
13	23	19	18	19	20	16	15	16	25	19	21	20
14	22	18	19	23	19	13	16	15	25	22	22	18
15	26	20	14	21	40	13	15	17	21	20	22	21
16	30	17	15	21	18	15	19	17	24	21	22	20
17	21	15	18	21	16	*17	17	18	22	50	18	23
18	25	15	17	21	18	17	20	24	23	82	22	77
19	*24	17	18	21	19	21	68	18	23	49	21	22
20	25	17	19	17	24	21	28	17	23	26	21	21
21	24	23	16	20	13	23	25	19	22	28	21	18
22	26	19	17	16	64	14	24	20	21	24	21	21
23	50	22	17	23	28	15	21	21	24	24	21	20
24	17	23	21	16	21	15	22	26	22	24	19	20
25	21	20	22	18	58	18	19	20	22	24	21	21
26	37	*21	18	19	17	21	19	22	22	24	21	21
27	18	19	19	25	17	49	17	26	31	23	20	21
28	17	18	20	15	17	40	19	72	26	24	22	18
29	18	18	20	15	19	22	*14	25	24	*23	21	21
30	19	19	19	14	-	23	23	22	38	29	21	21
31	18	-	24	16	-	24	-	23	-	24	20	-
Total	771	546	571	577	643	601	687	672	781	819	651	773
Mean	24.9	18.2	18.4	18.6	22.2	19.4	22.9	21.7	26.0	26.4	21.0	25.8
Ac-ft	1,530	1,080	1,130	1,140	1,280	1,190	1,360	1,330	1,550	1,620	1,290	1,530

Calendar year 1951: Max 551 Min 12 Mean 25.1 Ac-ft 18,170
Water year 1951-52: Max 94 Min 12 Mean 22.1 Ac-ft 16,030

* Discharge measurement made on this day.
Note.--No gage-height record Mar. 7-16; discharge estimated on basis of recorded range in stage and weather records.

Medina Lake near San Antonio, Tex.

Location.--Lat 29°32', long. 98°56', at gate operating platform, 576 ft from left end of Medina Dam on Medina River, 4 miles upstream from Medina diversion dam, 13 miles north of Castroville and about 28 miles west of San Antonio, Bexar County.

Drainage area.--587 sq mi.

Records available.--May 1913 to September 1952.

Gage.--Wire-weight gage read once daily when stage is changing materially, otherwise intermittently. Datum of gage is 7.5 ft below mean sea level (levels by Corps of Engineers). Prior to Sept. 30, 1948, staff gages at same site and datum.

Extremes.--Maximum contents observed during year, 26,170 acre-ft Sept. 23-27 (gage height, 996.4 ft); minimum observed, 8,120 acre-ft Feb. 13 (gage height, 973.7 ft).
1913-52: Maximum contents observed, 288,800 acre-ft Sept. 16, 1919 (gage height, 1,078.0 ft); minimum observed since reservoir filled, 780 acre-ft about Apr. 11, 1948 (gage height, 944.0 ft).

Remarks.--Reservoir is formed by gravity-type concrete dam. Dam completed and storage began May 7, 1913. Spillway section is located near right end of dam and is of natural rock, 880 ft long, with a 3-foot wide cut-off wall.
Total capacity, 254,000 acre-ft (gage height, 1,072.0 ft, top of spillway section). Water for irrigation is supplied by three 60-inch pipes equipped with vertical lift gates, at gage height 966.5 ft (capacity, 4,780 acre-ft). Reservoir can be emptied by two 30-inch sluice pipes equipped with vertical lift gates, at gage height 920.0 ft. Water used for irrigation of lands in the Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1, which has a permit from the Texas Board of Water Engineers to divert 300,000 acre-ft of water to irrigate 150,000 acres. No power developed.

Cooperation.--Gage heights and capacity table furnished by Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1.

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	-	a11,570	-
Oct. 31	976.7	10,080	-1,490
Nov. 30	-	a9,620	-460
Dec. 31	-	9,180	-440
Calendar year 1951	-	-	+5,220
Jan. 31	-	a9,020	-160
Feb. 29	-	a8,320	-700
Mar. 31	974.7	8,780	+460
Apr. 30	978.7	11,380	+2,600
May 31	981.8	13,460	+2,080
June 30	985.3	15,880	+2,420
July 31	984.4	15,260	-620
Aug. 31	-	a14,260	-1,000
Sept.30	996.3	26,060	+11,800
Water year 1951-52	-	-	+14,490

† Gage read at irregular intervals.
a No gage-height record. Contents interpolated.

Medina River near San Antonio, Tex.

Location.--Lat 29°15', long. 98°28', near left bank on downstream side of pier of bridge on U. S. Highway 281, 5.2 miles upstream from mouth and 9 miles south of San Antonio, Bexar County.

Drainage area.--1,225 sq mi (587 sq mi is above dam forming Medina Lake).

Records available.--October 1929 to December 1930, July 1939 to September 1952. October 1929 to December 1930 records below about 50 cfs in connection with seepage investigation (published as "at Losaya").

Gage.--Water-stage recorder. Datum of gage is 439.0 ft (revised) above mean sea level (levels by Corps of Engineers). October 1929 to December 1930, staff gage at Losoya, 1.5 miles downstream at different datum.

Average discharge.--13 years (1939-52), 108 cfs.

Extremes.--Maximum discharge during year, 801 cfs Sept. 12 (gage height, 9.11 ft); minimum daily, 4.3 cfs Sept. 4, 5.

1939-52: Maximum discharge, 31,800 cfs Aug. 29, 1946; maximum gage height, 41.57 ft Sept. 27, 1946 (backwater from San Antonio River); minimum daily discharge, that of Sept. 4, 5, 1952.

Maximum stage known, about 55 ft sometime prior to construction of Medina Dam in 1913, from information by State Highway Department.

Remarks.--Records good. Flow slightly regulated by Medina Lake (see preceding page), 60 miles upstream, and diversion dam reservoir (capacity, 4,500 acre-ft). Although the irrigation district has a permit to divert 300,000 acre-ft of water to irrigate 150,000 acres of land, there was no water available for irrigation during current year due to severe drought. A considerable part of low flow is sewage from San Antonio which is released from Mitchell Lake, and waste water from Kelly Field which enters via Leon Creek.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 23-27, Nov. 2, Nov. 27, Dec. 6, 11-15, 19-23, 26, Jan. 3 to Feb. 21)

1.5	1.9	2.6	48
1.6	4.9	3.0	73
1.7	8.0	4.0	156
1.8	11	5.0	248
2.0	18	7.0	478
2.3	31	8.0	625

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	19	14	14	18	22	20	18	12	8.0	5.8	5.5
2	14	14	14	14	17	20	19	19	12	8.0	7.1	*5.2
3	14	14	14	16	16	20	19	34	12	8.0	7.1	4.9
4	14	13	14	17	15	20	19	18	13	9.0	5.2	4.6
5	14	12	15	17	15	20	18	16	13	7.7	4.6	4.9
6	14	13	16	17	15	20	16	16	12	6.8	4.9	5.5
7	12	14	15	16	17	20	16	17	12	6.1	*6.4	6.1
8	12	14	15	17	15	20	18	16	12	7.1	7.1	7.1
9	13	14	15	18	16	18	33	18	*11	8.6	6.8	8.3
10	13	14	14	*17	18	20	41	17	11	8.6	8.6	76
11	14	14	15	19	*17	23	23	14	13	9.0	7.1	602
12	13	12	16	20	17	22	31	14	14	8.6	6.8	393
13	13	12	17	20	16	21	22	15	12	8.0	6.1	64
14	12	13	20	16	17	20	17	16	12	8.0	5.5	30
15	12	14	16	16	17	21	17	16	11	7.7	6.1	15
16	13	12	16	17	23	17	18	16	9.3	8.3	7.1	12
17	13	12	15	19	17	*17	18	17	9.3	8.6	7.4	12
18	13	12	15	18	16	19	19	17	8.3	13	7.1	18
19	*13	12	15	18	17	20	24	16	8.3	14	6.8	18
20	14	14	15	16	21	20	44	16	7.7	9.0	6.4	12
21	13	14	18	16	22	21	24	15	7.4	7.7	6.1	11
22	12	15	16	16	127	21	50	16	7.7	9.0	6.4	9.0
23	25	14	15	16	207	18	77	14	7.4	8.3	6.1	9.6
24	17	14	14	18	142	17	20	14	9.3	9.6	6.4	10
25	15	13	15	18	310	16	18	17	10	7.1	6.1	9.3
26	17	13	15	16	308	19	17	14	9.9	6.8	5.8	9.0
27	15	*15	14	17	201	22	15	15	8.6	6.8	5.8	8.6
28	14	14	14	18	74	154	*14	168	14	6.1	7.1	9.0
29	13	14	14	16	23	158	17	134	9.9	*6.1	7.1	7.4
30	14	14	14	16	-	89	18	17	7.4	6.8	5.8	8.0
31	14	-	14	18	-	19	-	13	-	6.1	5.8	-
Total	432	408	469	527	1,754	954	722	783	316.5	252.5	198.5	1,395.0
Mean	13.9	13.6	15.1	17.0	60.5	30.8	24.1	25.3	10.6	8.15	6.40	46.5
Ac-ft	857	809	930	1,050	3,480	1,890	1,430	1,550	628	501	394	2,770

Calendar year 1951: Max 1,460 Min 12 Mean 39.0 Ac-ft 28,220
Water year 1951-52: Max 602 Min 4.6 Mean 22.4 Ac-ft 16,290

Peak discharge (base, 1,500 cfs).--No peak above base.
* Discharge measurement made on this day.

San Antonio River near Falls City, Tex.

Location.--Lat 28°57'05", long. 98°03'55", on left bank 23 ft downstream from bridge on Farm to Market Highway 791, 0.9 mile upstream from Scared Dog Creek, and 3.6 miles southwest of Falls City, Karnes County.

Drainage area.--2,071 sq mi.

Records available.--April 1925 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 285.49 ft above mean sea level, datum of 1929.

Average discharge.--27 years, 313 cfs.

Extremes.--Maximum discharge during year, 2,100 cfs July 18 (gage height, 4.00 ft); minimum, 33 cfs Aug. 20.
1925-52: Maximum discharge, 47,400 cfs Sept. 29, 1946 (gage height, 33.80 ft, from floodmark); minimum, that of Aug. 20, 1952.
Maximum stage since at least 1875, that of Sept. 29, 1946, from information by local residents.

Remarks.--Records good. Flow slightly regulated by Medina Lake (see p. 198) and Olmos flood-control reservoir (combined capacity, 269,500 acre-ft). Storage began in Medina Reservoir in 1913, and Olmos Dam was completed in 1926. Water diverted above station from Medina River for irrigation in vicinity of Devine and Lytle and some water diverted for irrigation near San Antonio. Water used industrially in San Antonio.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.8	28	1.5	270
.9	52	2.0	528
1.0	82	2.5	850
1.2	151	3.0	1,200

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	105	126	119	115	119	178	206	140	144	76	95	73
2	105	151	122	119	115	144	144	133	126	64	92	70
3	105	167	129	119	119	133	144	122	108	67	89	61
4	108	126	129	115	115	126	137	126	102	55	82	61
5	108	119	126	112	112	133	129	133	105	52	76	64
6	112	112	126	119	105	129	119	126	108	52	79	67
7	122	*112	122	115	112	119	115	115	138	70	82	70
8	122	112	122	115	115	108	112	115	230	70	73	67
9	*108	112	122	105	115	102	115	112	*140	70	70	75
10	98	119	119	105	119	105	122	108	108	76	70	107
11	105	115	108	112	122	105	548	105	108	*73	50	522
12	112	112	105	119	115	147	334	105	108	64	42	813
13	108	102	108	122	108	137	198	95	122	73	35	845
14	105	105	115	126	115	115	250	89	137	76	*45	507
15	98	108	112	122	115	115	170	85	108	76	52	201
16	85	112	126	115	115	112	140	67	108	70	52	145
17	98	119	*126	122	133	112	133	61	95	212	52	122
18	95	119	119	*122	155	105	129	133	92	761	52	274
19	98	112	112	122	126	105	137	85	98	179	45	206
20	92	102	115	115	115	108	137	73	92	538	35	278
21	95	102	115	108	119	105	259	85	92	485	45	167
22	89	112	112	105	*147	105	270	70	85	258	55	126
23	112	119	105	105	274	98	674	89	82	163	55	112
24	156	126	105	105	528	102	1,060	92	82	137	58	112
25	230	115	105	98	516	95	347	92	79	126	64	115
26	147	126	102	102	353	98	190	129	76	119	61	115
27	200	129	102	105	629	102	159	119	61	112	58	115
28	234	122	105	105	438	*126	140	186	45	102	58	112
29	147	133	102	129	304	183	*133	176	61	92	67	112
30	133	133	105	126	-	384	129	450	102	89	73	108
31	115	-	108	119	-	295	-	268	-	95	79	-
Total	3,747	3,579	3,548	3,543	5,673	4,131	6,880	3,884	3,142	4,552	1,941	5,822
Mean	121	119	114	114	196	133	229	125	105	147	62.6	194
Ac-ft	7,430	7,100	7,040	7,030	11,250	8,190	13,650	7,700	6,230	9,030	3,850	11,550

Calendar year 1951: Max 2,150 Min 56 Mean 162 Ac-ft 117,000
Water year 1951-52: Max 1,060 Min 35 Mean 138 Ac-ft 100,000

Peak discharge (base, 1,800 cfs).--July 18 (1 p.m.) 2,100 cfs (4.00 ft).
* Discharge measurement made on this day.

Cibolo Creek near Bulverde, Tex.

Location.--Lat 29°43'35", long. 98°25'40", on left bank at William Classen ranch house, 1.8 miles downstream from bridge on U. S. Highway 281, 2 miles southeast of Bulverde, Comal County, and 4.7 miles upstream from Dripping Springs Creek.

Drainage area.--198 sq mi.

Records available.--April 1946 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is about 1,015 ft (from topographic map).

Average discharge.--6 years, 4.02 cfs.

Extremes.--Maximum discharge during year, 11,700 cfs Sept. 11 (gage height, 15.16 ft, from floodmark), from rating curve extended above 4,400 cfs on basis of slope-area determination of peak flow; no flow most of time.
1946-52: Maximum discharge, that of Sept. 11, 1952; no flow most of time.

Remarks.--Records good except those above 200 cfs, which are fair. The purpose of the station is to determine the streamflow losses during periods of medium and low flow. There are no surface diversions, but much of surface flow enters sink holes and caverns in Glen Rose limestone above the station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.4	0	2.2	14	5.0	700
1.5	.2	2.5	27	6.0	1,480
1.6	.5	2.8	53	7.0	2,440
1.7	1.0	3.2	108	8.0	3,500
1.8	2.4	3.6	178	10.0	5,700
1.9	4.6	4.0	275		
2.0	7.2	4.5	455		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												0
2												0
3												0
4	(*)											0
5						(*)						0
6		(*)										0
7												0
8							(*)					0
9												0
10												24
11												*4,720
12												319
13												60
14								(*)				15
15												2.4
16												.1
17									(*)			0
18			(*)									.2
19												0
20												0
21												0
22				(*)						(*)		0
23												*0
24												0
25												0
26												0
27												0
28											(*)	0
29												0
30												0
31		-					-		-			-
Total	0	0	0	0	0	0	0	0	0	0	0	5,140.7
Mean	0	0	0	0	0	0	0	0	0	0	0	171
Ac-ft	0	0	0	0	0	0	0	0	0	0	0	10,200

Calendar year 1951: Max 1.8 Min 0 Mean 0.006 Ac-ft 4.2
Water year 1951-52: Max 4,720 Min 0 Mean 14.0 Ac-ft 10,200

* Discharge measurement made on this day.

Cibolo Creek at Selma, Tex.

Location.--Lat 29°35'35", long. 98°18'40", on right bank 0.6 mile downstream from Missouri-Kansas-Texas Railroad bridge and 0.8 mile upstream from bridge on U. S. Highway 81 at Selma, Bexar County.

Drainage area.--280 sq mi.

Records available.--March 1946 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 728.34 ft above mean sea level, datum of 1929.

Average discharge.--6 years, 6.30 cfs.

Extremes.--Maximum discharge during year, 36,400 cfs Sept. 11 (gage height, 19.37 ft), from rating curve extended above 7,000 cfs on basis of slope-area determination of peak flow; no flow most of time.
1946-52: Maximum discharge, that of Sept. 11, 1952; no flow most of time.
Maximum stage known since at least 1869, about 26 ft in 1889; flood of 1913 was probably about 2 ft lower, from information by local residents.

Remarks.--Records good except those above 7,000 cfs, which are fair. There are no surface diversions, but part of flow enters Edwards limestone in Balcones fault zone which crosses basin between this station and station near Bulverde.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.5	0	4.0	147
2.6	.6	4.5	310
2.7	1.5	5.0	575
2.8	2.7	5.5	950
2.9	4.7	6.0	1,400
3.0	8.2	7.0	2,410
3.1	14	8.0	3,540
3.2	22	10.0	6,300
3.4	40	12.0	10,300
3.7	80		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1												0
2												0
3												0
4	(*)											0
5						(*)						0
6		(*)										0
7												0
8							(*)					0
9												0
10												0
11												*8,970
12												1,760
13												208
14								(*)				86
15												36
16												16
17									(*)			6.2
18			(*)									12
19												5.0
20												2.4
21												1.6
22				(*)								1.4
23										(*)		1.3
24												1.1
25												1.0
26												.9
27												.8
28											(*)	.8
29												.7
30												.6
31		-					-		-			-
Total	0	0	0	0	0	0	0	0	0	0	0	11,111.8
Mean	0	0	0	0	0	0	0	0	0	0	0	370
Ac-ft	0	0	0	0	0	0	0	0	0	0	0	22,040

Calendar year 1951: Max 154 Min 0 Mean 0.43 Ac-ft 312
Water year 1951-52: Max 8,970 Min 0 Mean 30.4 Ac-ft 22,040

Peak discharge (base, 1,000 cfs).--Sept. 11 (8 a.m.) 36,400 cfs (19.37 ft).
* Discharge measurement made on this day.

Cibolo Creek near Falls City, Tex.

Location.--Lat 29°01', long. 96°56', on right bank at downstream side of pier of bridge on State Highway 123, 5.5 miles northeast of Falls City, Karnes County, and 9 miles upstream from mouth.

Drainage area.--831 sq mi.

Records available.--November 1930 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 264.28 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Nov. 4, 1930, to Aug. 4, 1940, water-stage recorder at site 1,600 ft upstream at datum 0.56 ft higher. Aug. 5, 1940, to Sept. 13, 1940, wire-weight gage at same site and datum.

Average discharge.--21 years (1931-52), 121 cfs.

Extremes.--Maximum discharge during year, 18,200 cfs Sept. 11 (gage height, 27.93 ft); minimum, 4.4 cfs Aug. 15.
1930-52: Maximum discharge, 33,600 cfs July 6, 1942 (gage height, 34.45 ft); minimum, 4.0 cfs Aug. 22, 1948 (gage height, 0.86 ft).
Flood in October 1913 reached a stage about half a foot higher than that of July 6, 1942.

Remarks.--Records good. There are no surface diversions, but much of the surface flow of Cibolo Creek enters sink holes and caverns in Glen Rose limestone and in Edwards limestone in Balcones fault zone which crosses basin above station at Selma.

Revisions (water years).--W 733: 1931. W 1058: 1935.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.8	4.0	2.0	94	10.0	1,990
.9	8.3	3.0	218	13.0	3,150
1.0	13	4.0	362	16.0	4,820
1.3	33	6.0	780	19.0	6,850
1.6	57	8.0	1,320	22.0	9,900

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	11	14	15	16	17	19	15	32	12	8.3	4.9
2	11	12	14	16	14	16	17	14	22	9.3	7.9	6.2
3	11	12	14	15	14	16	20	14	17	8.8	7.0	6.6
4	11	11	15	15	14	16	17	14	13	9.3	7.4	6.2
5	9.8	11	16	15	13	15	15	13	12	8.8	8.3	5.3
6	10	27	14	15	13	15	15	14	60	9.3	7.4	5.3
7	9.8	*22	13	14	13	15	14	12	32	9.8	6.6	4.9
8	9.8	15	13	14	13	14	14	12	52	9.8	6.2	5.3
9	*9.3	12	13	15	13	15	14	12	*39	8.3	6.6	7.6
10	9.3	12	13	14	13	16	157	11	28	7.4	6.6	283
11	8.3	12	13	14	14	17	239	11	24	*7.0	6.2	9,380
12	8.3	12	13	14	14	16	61	11	17	7.9	7.0	7,440
13	9.3	12	13	14	14	16	32	11	15	7.9	6.6	4,790
14	8.8	12	14	15	14	15	36	9.8	14	7.9	*5.3	521
15	9.8	12	14	15	14	15	30	9.8	13	7.9	5.3	323
16	9.8	11	14	15	15	14	22	9.3	13	7.0	5.3	253
17	9.8	11	*14	15	14	14	20	9.8	12	8.6	5.3	108
18	9.8	11	15	*15	14	14	17	11	11	104	5.7	806
19	9.3	11	15	15	14	14	18	17	9.3	22	6.6	194
20	8.8	12	15	15	14	14	19	13	8.3	16	6.6	87
21	8.8	12	14	15	15	14	18	9.8	7.4	20	5.7	65
22	9.3	13	14	14	*47	14	133	9.8	7.9	10	5.7	51
23	12	13	14	14	72	13	232	9.8	7.9	9.3	5.7	43
24	12	14	14	14	79	13	62	9.8	8.3	11	5.3	39
25	12	15	16	14	212	13	44	11	6.6	9.8	5.7	35
26	14	16	16	14	51	14	25	22	6.2	8.3	7.0	34
27	14	16	15	16	25	15	18	118	6.2	7.4	6.6	32
28	12	14	14	15	23	*17	*16	411	6.2	7.9	6.2	31
29	12	14	14	14	20	18	14	769	6.2	7.4	5.7	30
30	12	13	14	16	-	18	16	142	9.3	7.0	5.3	30
31	12	-	14	16	-	24	-	55	-	7.4	4.9	-
Total	325.1	401	438	457	821	477	1,374	1,810.9	515.8	394.5	196.0	24,627.3
Mean	10.5	13.4	14.1	14.7	28.3	15.4	45.8	58.4	17.2	12.7	6.32	821
Ac-ft	645	795	869	906	1,630	946	2,730	3,590	1,020	782	389	48,850

Calendar year 1951: Max 2,860 Min 6.6 Mean 31.0 Ac-ft 22,470
Water year 1951-52: Max 9,380 Min 4.9 Mean 87.0 Ac-ft 63,150

Peak discharge (base, 4,400 cfs).--Sept. 11 (2 p.m.) 18,200 cfs (27.93 ft).
* Discharge measurement made on this day.

San Antonio River at Goliad, Tex.

Location.--Lat 28°39', long. 97°22', on right bank at upstream side of pier of bridge on U. S. Highway 183 (renumbered), 1.3 miles southeast of courthouse in Goliad, Goliad County, and 10 miles upstream from Manahuilla Creek.

Drainage area.--3,918 sq mi.

Records available.--June 1924 to March 1929, February 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 91.08 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Prior to Mar. 31, 1929, chain gage at Texas & New Orleans Railroad bridge 0.9 mile upstream at same datum.

Average discharge.--17 years (1924-28, 1939-52), 548 cfs.

Extremes.--Maximum discharge during year, 23,900 cfs Sept. 14 (gage height, 39.82 ft, from floodmark); minimum, 51 cfs Aug. 16, 17, 23, 24.
1924-29, 1939-52: Maximum discharge, 33,800 cfs July 9, 1942 (gage height, 44.9 ft); minimum observed, 44 cfs for several periods in 1927.
Floods of October 1913 and June 15, 1935, reached about same stage as that of July 9, 1942.

Remarks.--Records good except those for period of no gage-height records, which are poor. Diversions and regulations above station (see Remarks for San Antonio River near Falls City).

Rating table, water year 1951-52, except periods of backwater return from overbank storage (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Jan. 29, Apr. 25 to May 15, Sept. 15-18, 22-30)

2.4	44	10.0	1,540
2.6	74	15.0	2,900
3.0	148	22.0	5,260
3.5	230	28.0	9,130
4.0	303	35.0	16,200
5.0	469	40.0	24,200
7.0	860		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	202	161	170	130	154	410	452	209	541	71	113	81
2	179	195	170	136	*140	310	310	*268	334	105	117	86
3	*156	148	158	142	140	230	238	252	238	107	117	89
4	140	*169	158	148	134	195	187	195	206	91	113	82
5	142	190	163	148	132	184	181	182	181	93	105	79
6	142	159	165	136	130	174	172	181	167	88	102	69
7	144	163	161	136	126	179	163	182	*174	84	93	71
8	152	186	161	142	120	176	154	179	268	*79	88	74
9	150	194	158	140	126	165	152	165	230	89	91	80
10	150	161	156	136	132	158	159	161	275	98	86	a993
11	142	148	159	128	130	146	154	156	206	93	82	a8,070
12	128	150	154	126	136	144	342	152	182	96	*82	a15,200
13	128	146	*150	134	140	152	578	150	169	111	76	a21,100
14	132	140	146	146	132	181	334	148	154	102	63	a23,400
15	134	128	148	152	128	181	245	140	159	89	58	*15,800
16	130	124	148	*152	136	161	268	128	169	93	52	5,060
17	124	124	152	152	136	158	212	128	148	95	60	*946
18	107	130	159	150	136	158	182	117	140	104	66	860
19	117	142	170	152	142	154	174	118	130	269	66	1,840
20	117	150	156	150	*172	148	174	143	118	814	68	1,800
21	118	148	144	150	159	142	176	176	124	260	68	702
22	115	140	144	144	179	148	181	120	122	469	61	547
23	120	134	148	132	169	142	578	124	115	392	54	396
24	118	140	148	124	202	144	839	105	117	245	61	315
25	134	154	142	122	367	138	965	113	109	182	72	*275
26	184	176	132	122	616	*140	881	130	109	161	72	252
27	238	169	128	120	776	134	358	136	104	148	74	238
28	184	169	130	118	487	136	252	2,070	104	138	63	238
29	222	170	126	118	541	146	222	*5,960	91	134	60	230
30	238	161	130	126	-	161	203	*2,450	82	124	57	222
31	176	-	130	134	-	230	-	*721	-	118	58	-
Total	4,663	4,669	4,664	4,246	6,218	5,425	9,486	15,459	5,266	5,142	2,398	99,195
Mean	150	156	150	137	214	175	316	499	176	166	77.4	3,306
Ac-ft	9,250	9,260	9,250	8,420	12,330	10,760	18,820	30,660	10,440	10,200	4,760	196,800

Calendar year 1951: Max 7,580 Min 71 Mean 311 Ac-ft 225,300
Water year 1951-52: Max 23,400 Min 52 Mean 456 Ac-ft 331,000

Peak discharge (base, 2,200 cfs).--May 29 (1:30 p.m.) 6,490 cfs (24.17 ft); Sept. 14 (about 11 a.m.) 23,900 cfs (39.82 ft); Sept. 19 (11 p.m.) 2,590 cfs (13.91 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of floodmark and information from U. S. Weather Bureau.

Mission River at Refugio, Tex.

Location.--Lat 28°17', long. 97°17', near center of span on downstream side of bridge on U. S. Highway 77, 500 ft upstream from Missouri Pacific Railroad bridge and a quarter of a mile southwest of Refugio, Refugio County.

Drainage area.--643 sq mi.

Records available.--July 1939 to September 1952.

Gage.--Wire-weight gage read twice daily, oftener during floods. Datum of gage is 1.68 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 83.7 cfs.

Extremes.--Maximum discharge during year, 22,300 cfs Sept. 12 (gage height, 30.85 ft); minimum, 2.3 cfs May 21, 22, 25, 26.

1939-52: Maximum discharge, 41,700 cfs July 7, 1942 (gage height, 33.3 ft); minimum observed, 0.7 cfs Oct. 7, 9, 1940, Aug. 18-20, Sept. 5, 1945, Dec. 29, 31, 1949, Jan. 1, 1950.

Maximum stage known since about 1899, that of July 7, 1942. Floods in August 1914 and May 17, 1938, reached a stage of 32.3 ft, from information by local residents.

Remarks.--Records good. No large diversions above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 16 to Feb. 24, May 29 to June 1, Aug. 1 to Sept. 9, Sept. 16-30, backwater from return of overbank flow Sept. 12-15)

1.3	2.0	2.5	35	10.0	960
1.4	3.3	3.0	60	14.0	1,980
1.6	6.8	4.0	124	20.0	4,240
1.8	11	5.0	203	27.0	8,200
2.0	17	7.0	432	30.0	17,400

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	4.4	5.8	4.3	4.9	5.5	5.1	*5.5	80	5.8	12	3.8
2	25	4.4	6.0	4.6	3.0	6.4	5.5	6.6	48	6.4	8.8	4.4
3	*18	4.4	5.3	4.6	3.6	5.1	5.1	5.7	36	6.0	4.7	a4.0
4	14	*7.7	4.6	4.6	3.3	4.7	4.7	7.5	28	6.0	4.3	3.5
5	13	6.4	4.7	4.6	6.4	4.4	4.6	15	22	6.0	4.1	3.5
6	12	7.2	5.3	4.6	6.0	4.3	4.7	9.0	20	a6.2	3.9	3.3
7	11	5.7	5.1	4.7	5.8	4.1	4.7	6.8	18	a6.3	3.8	3.5
8	8.3	4.7	5.1	4.6	4.6	4.3	4.4	4.9	17	a6.4	3.8	3.5
9	7.7	3.8	4.7	4.6	4.1	a4.4	4.6	4.6	14	*6.6	3.8	36
10	7.7	4.1	4.4	4.6	3.9	4.4	5.5	4.3	14	a7.7	4.1	1,620
11	7.0	3.8	4.4	4.6	4.7	3.8	4.7	3.9	13	8.8	4.1	2,920
12	7.2	3.8	4.4	4.6	4.7	3.5	6.2	3.6	*12	7.9	*3.9	14,400
13	6.8	3.6	*5.3	4.7	4.6	2.9	5.8	3.2	11	7.2	4.1	3,810
14	6.8	3.2	5.7	4.9	4.6	3.8	5.1	2.8	11	a5.8	3.8	685
15	6.4	3.3	5.8	4.9	4.6	3.8	4.7	3.0	10	4.3	3.8	347
16	6.0	3.3	5.1	*5.1	4.3	3.5	3.9	3.0	9.2	a4.1	3.9	432
17	6.0	3.2	4.6	4.3	4.9	3.5	4.1	2.9	8.8	9.1	a3.8	320
18	6.0	3.5	4.6	3.6	4.9	4.1	4.1	5.2	8.6	18	3.8	a190
19	6.0	3.3	4.9	3.8	4.3	3.8	6.2	19	8.3	7.5	3.6	a124
20	6.0	3.5	5.3	3.5	*4.6	4.1	6.2	4.3	9.2	7.2	3.6	170
21	6.0	3.5	4.9	3.9	4.3	3.9	4.9	2.3	9.7	6.8	3.9	120
22	4.9	4.1	5.1	3.8	4.9	3.5	4.9	2.5	7.5	6.2	3.6	106
23	7.5	3.6	5.1	3.3	17	3.2	64	2.5	7.5	5.3	3.5	83
24	8.8	3.3	5.1	3.5	93	3.5	146	2.5	7.9	5.7	3.8	72
25	6.6	3.3	4.6	3.8	54	4.1	31	2.3	7.5	4.9	3.8	a66
26	5.8	4.1	a4.8	3.5	47	*4.4	48	2.3	a7.5	4.9	3.6	*61
27	6.0	5.1	5.1	3.8	26	4.4	11	2.6	7.5	4.6	3.8	53
28	5.3	4.9	4.6	3.8	10	4.1	7.7	4,380	7.0	4.9	3.5	48
29	4.6	4.4	4.7	3.6	7.2	4.1	6.4	*2,640	7.0	4.6	3.6	45
30	4.6	7.2	4.9	3.6	-	4.3	6.0	*515	6.8	4.1	3.5	43
31	4.7	-	4.9	3.9	-	5.1	-	168	-	18	3.6	-
Total	276.7	130.8	154.9	130.3	355.2	129.0	431.8	7,840.8	474.0	213.3	131.9	25,780.5
Mean	8.93	4.36	5.00	4.20	12.2	4.16	14.4	253	15.8	6.88	4.25	859
Ac-ft	549	259	307	258	705	256	856	15,550	940	423	262	51,130

Calendar year 1951: Max 4,380 Min 1.0 Mean 39.0 Ac-ft 28,220
Water year 1951-52: Max 14,400 Min 2.3 Mean 98.5 Ac-ft 71,500

Peak discharge (base, 2,500 cfs).--May 28 (12 p.m.) 6,100 cfs (23.80 ft); Sept. 12 (10 a.m.) 22,300 cfs (30.85 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge interpolated or estimated on basis of weather records.

Nueces River at Laguna, Tex.

Location.--Lat 29°25'45", long. 99°59'50", on right bank 0.5 mile downstream from Sycamore Creek, 1 mile northeast of Laguna, Uvalde County, and at mile 395.

Drainage area.--764 sq mi.

Records available.--October 1923 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,119.72 ft above mean sea level, datum of 1929. Prior to Dec. 15, 1924, staff gage at site 2 miles downstream at different datum.

Average discharge.--29 years, 134 cfs.

Extremes.--Maximum discharge during year, 4,680 cfs May 27 (gage height, 7.70 ft); minimum, 7.2 cfs Oct. 21, 22.

1923-52: Maximum discharge, 222,000 cfs July 13, 1939 (gage height, 26.40 ft), from rating curve extended above 40,000 cfs on basis of float measurement (at gage height 21.3 ft) and slope-area determination (at gage height 26.0 ft); minimum, that of Oct. 21, 22, 1951.

Flood in June 1913 reached a stage 2 or 3 ft higher than that of July 13, 1939, and was probably the highest since at least 1903; flood of Sept. 21, 1923, reached a stage of 26.5 ft (discharge, 226,000 cfs, based on rating curve mentioned above); from information by local resident.

Remarks.--Records good. No diversion above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1-17		Oct. 18 to Sept. 30			
1.1	7.5	0.75	6.9	1.8	137
1.2	15	.8	8.5	2.0	198
		1.0	17	2.5	364
		1.2	31	3.0	546
		1.4	53	4.0	1,030
		1.6	86		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	8.2	13	15	19	23	26	108	82	27	*20	11
2	10	8.2	14	15	19	23	26	100	73	26	19	11
3	9.6	8.5	14	16	20	23	26	93	67	26	18	11
4	9.6	8.5	14	16	19	23	26	86	63	24	17	10
5	9.6	8.5	14	16	20	23	26	80	59	23	16	10
6	9.6	8.5	13	16	20	23	25	75	56	23	16	*10
7	8.9	8.5	13	*16	20	23	25	71	53	23	16	10
8	8.9	8.9	13	16	20	23	26	69	52	23	16	10
9	8.9	9.6	14	16	20	24	26	66	49	22	16	12
10	8.9	10	15	16	21	26	26	63	48	34	15	12
11	*8.9	10	15	16	21	24	26	60	47	33	15	12
12	8.9	11	15	16	21	24	28	57	46	26	15	11
13	8.9	12	15	16	*21	23	27	54	45	23	14	10
14	8.9	12	15	16	21	23	27	53	*42	22	14	10
15	8.9	12	14	16	21	24	27	49	41	21	14	10
16	8.9	12	14	16	22	23	28	48	40	21	14	10
17	8.9	12	15	17	21	25	29	48	39	21	14	10
18	8.7	12	15	17	21	25	29	52	38	21	14	10
19	8.2	12	15	18	22	24	33	51	37	22	13	9.6
20	7.5	12	14	18	21	*24	38	49	35	21	13	9.6
21	7.5	13	14	18	21	25	33	47	34	20	13	9.6
22	7.5	13	14	18	23	24	46	47	33	19	13	9.6
23	7.9	13	14	18	23	24	577	47	31	18	12	9.6
24	7.5	13	14	18	24	25	306	47	30	18	12	9.2
25	7.5	13	15	18	25	25	204	47	30	18	12	9.2
26	7.5	13	14	18	24	25	163	45	30	17	12	9.2
27	7.5	13	14	19	23	27	140	1,010	29	16	*12	8.9
28	9.6	13	15	19	23	29	126	376	29	16	12	8.5
29	8.9	*13	14	18	23	28	121	*172	28	16	12	8.5
30	8.9	13	15	18	-	28	*110	121	27	16	11	8.5
31	8.5	-	15	19	-	27	-	96	-	19	11	-
Total	269.5	334.4	442	525	619	760	2,376	3,387	1,313	675	441	300.0
Mean	8.69	11.1	14.3	16.9	21.3	24.5	79.2	109	43.8	21.8	14.2	10.0
Ac-ft	535	663	877	1,040	1,230	1,510	4,710	6,720	2,600	1,340	875	595

Calendar year 1951: Max 65 Min 7.5 Mean 26.9 Ac-ft 19,440
Water year 1951-52: Max 1,010 Min 7.5 Mean 31.3 Ac-ft 22,700

Peak discharge (base, 1,200 cfs).--May 27 (11:30 a.m.) 4,680 cfs (7.70 ft).
* Discharge measurement made on this day.

Nueces River below Uvalde, Tex.

Location.--Lat 29°08', long. 99°54', on right bank, at Smyth Ranch, 4 miles upstream from bridge on U. S. Highway 83, 9 miles southwest of Uvalde, Uvalde County, 15 miles downstream from West Nueces River, and at mile 366.

Drainage area.--1,947 sq mi.

Records available.--April 1939 to September 1952. October 1927 to April 1939, published as "near Uvalde"; records equivalent except during periods of low flow when seepage inflow between sites is a material factor.

Gage.--Water-stage recorder. Datum of gage is 796.12 ft above mean sea level, datum of 1929. Oct. 4, 1927, to Apr. 30, 1939, water-stage recorder at site 4.5 miles upstream at different datum.

Average discharge.--13 years (1939-52), 44.2 cfs.

Extremes.--Maximum discharge during year, 5,020 cfs May 28 (gage height, 7.05 ft); no flow at times.

1939-52: Maximum discharge, 89,000 cfs July 13, 1939 (gage height, 19.25 ft), from rating curve extended on basis of discharge at former site; no flow at times in 1951, 1952.

Maximum stage known, 40.4 ft June 14, 1935, from floodmarks (discharge at former site, 616,000 cfs, by slope-area determination).

Remarks.--Records good. Part of flow of Nueces River enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.2	0	3.0	24
2.3	.1	3.2	59
2.4	.6	3.4	106
2.5	1.4	3.7	194
2.6	2.8	4.0	300
2.7	4.8	4.4	540
2.8	8.0	4.8	890
2.9	14	5.2	1,300

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	2.8						0	9.4	0		
2	0	2.5						*0	9.0	0		
3	0	2.2						0	9.4	0		
4	0	2.2						0	9.0	0		
5	0	2.2						0	9.0	0		
6	0	1.4						0	9.0	0		(*)
7	0	.5						0	8.5	0		
8	0	.1						0	6.5	0		
9	0	0		(*)				0	5.3	0		
10	0	0						0	4.8	0		
11	*0	0						0	*4.8	0		
12	0	0						0	4.6	0		
13	0	0						0	4.2	0		
14	0	0						0	3.8	0		
15	0	0			(*)			0	3.2	0		
16	0	0						0	2.8	0		
17	0	0						0	2.8	0		
18	0	0						0	2.4	0		
19	0	0						0	1.4	.5		
20	0	0				(*)		0	.3	1.1		
21	0	0						0	0	.9		
22	0	0						0	0	.7		
23	.6	0						0	0	.6		
24	2.0	0						0	0	.2		
25	1.8	0						0	0	0		
26	1.8	0						.1	0	0		
27	1.8	0						118	0	0		
28	2.5	0						1,300	0	0		
29	2.7	*0						*60	0	0		
30	2.5	0			-			16	0	*0		
31	2.1	-			-			11	-	0		-
Total	17.8	13.9	0	0	0	0	0	1,505.1	110.2	4.0	0	0
Mean	0.57	0.46	0	0	0	0	0	48.6	3.67	0.13	0	0
Ac-ft	35	28	0	0	0	0	0	2,990	219	7.9	0	0

Calendar year 1951: Max 25 Min 0 Mean 2.30 Ac-ft 1,660
Water year 1951-52: Max 1,300 Min 0 Mean 4.51 Ac-ft 3,280

Peak discharge (base, 1,000 cfs).--May 28 (2 a.m.) 5,020 cfs (7.05 ft).
* Discharge measurement or observation of no flow made on this day.

Nueces River near Asherton, Tex.

Location.--Lat 28°30', long. 99°42', on right bank just downstream from bridge on county road between Asherton and Brundage, 1.2 miles downstream from El Moro Creek, 5.5 miles northeast of Asherton, Dimmit County, and at mile 288.

Drainage area.--4,082 sq mi.

Records available.--October 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 470.92 ft above mean sea level, datum of 1929. Prior to Feb. 2, 1940, chain gage at present site and datum.

Average discharge.--13 years, 132 cfs.

Extremes.--Maximum discharge during year, 2,510 cfs May 28 (gage height, 17.11 ft); no flow at times.

1939-52: Maximum discharge, 24,000 cfs Sept. 2, 1944 (gage height, 30.40 ft); no flow at times.

Maximum stage known, about 33 ft June 17, 1935, present site and datum (based on relation determined from levels to floodmarks of June 17, 1935, and Sept. 2, 1944, floods, at farmhouse on left bank, 0.8 mile upstream from gage).

Remarks.--Records good. Part of flow of Nueces River and its headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Flow slightly regulated by several small reservoirs above station. Diversions above station for irrigation.

Revisions (water years).--W 1118: 1944.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.4	0	3.0	52
1.5	.1	4.0	110
1.6	.4	6.0	272
1.7	1.5	8.0	528
1.8	3.0	10.0	870
1.9	5.8	12.0	1,260
2.0	9.2	15.0	1,960
2.2	16	17.0	2,480
2.5	29		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.7	0.7						0	318	0.4		
2	1.4	.7						0	143	.4		
3	1.1	.7						0	86	.3		
4	1.0	.6						0	54	.3		(*)
5	.9	.6						0	35	.3		
6	.7	.5						0	22	.3		
7	.5	.5						0	13	.2		
8	.4	.4						0	8.2	.2		
9	.3	.4		(*)				0	5.5	.2		
10	*.3	.3						0	3.5	.2		
11	.2	.3						0	*2.5	.2		
12	.2	.2						0	1.6	.2		
13	.1	.2			(*)			0	1.0	.3		
14	.1	.1						0	.3	.3		
15	0	.1						0	.1	.3		
16	0	.1						0	.1	.3		
17	0	0						0	0	.2		
18	0	0				(*)		0	0	.2		
19	0	0						0	0	.2		
20	0	0						0	0	.1		
21	0	0						0	0	0		
22	.7	0						0	0	0		
23	70	0						0	.1	0		
24	53	0						61	.1	0		
25	26	0						1,040	.1	0		
26	7.5	0						1,050	.1	0		
27	2.8	*0						1,890	.1	0		
28	1.4	0						2,320	.1	0		
29	.8	0					(*)	1,860	.1	0		
30	.7	0			-			1,410	.2	*0		
31	.7	-			-		-	922	-	0		-
Total	173.5	6.4	0	0	0	0	0	10,553	694.7	5.1	0	0
Mean	5.60	0.21	0	0	0	0	0	340	23.2	0.16	0	0
Ac-ft	344	13	0	0	0	0	0	20,930	1,380	10	0	0

Calendar year 1951: Max 2,740 Min 0 Mean 39.8 Ac-ft 28,830
Water year 1951-52: Max 2,320 Min 0 Mean 31.2 Ac-ft 22,680

Peak discharge (base, 3,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Nueces River at Cotulla, Tex.

Location.--Lat 28°26', long. 99°16', near left bank on downstream side of bridge on U. S. Highway 81, at Cotulla, La Salle County, a third of a mile upstream from International-Great Northern Railroad bridge and at mile 236.
Drainage area.--5,260 sq mi.
Records available.--July 1915 to June 1918, October 1923 to September 1952. Published as "near Cotulla" 1915-18. Gage-height records collected in this vicinity, 1914-17 and since 1922, are contained in reports of United States Weather Bureau.
Gage.--Wire-weight gage read once daily. Datum of gage is 368.08 ft above mean sea level, datum of 1929. July 1, 1915, to June 13, 1918, staff gage at Hargus Dam, 4 miles upstream at different datum; Oct. 31, 1923, to Aug. 3, 1924, staff gage at approximate site of present gage at datum 7.28 ft higher; Aug. 4, 1924, to Nov. 19, 1934, staff gage at site 5,000 ft downstream at datum 8.42 ft higher; Nov. 20, 1934, to July 15, 1938, water-stage recorder at present site and datum.
Average discharge.--29 years (1923-52), 288 cfs.
Extremes.--Maximum discharge during year, 2,130 cfs May 31 (gage height, 12.14 ft); no flow at times.
1923-52: Maximum discharge, 82,600 cfs June 18, 1935 (gage height, 32.4 ft, from floodmarks), from rating curve extended above 41,000 cfs on basis of slope-area determination of peak flow; no flow at times.
Maximum stage known since 1899, that of June 18, 1935. Flood of June 19, 1899, reached a stage of 29.7 ft, from information by local residents.
Remarks.--Records good. Part of flow of Nueces River and its headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Low flow slightly regulated by small storage reservoirs above station; most of it is diverted above station by pumping.
Cooperation.--Gage-height record furnished by United States Weather Bureau.
Revisions.--W 568: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

7.4	0	8.5	173
7.5	.3	9.0	325
7.6	2.0	9.5	493
7.7	7.2	10.0	713
7.8	14	11.0	1,280
7.9	24	12.0	2,000
8.0	40	13.0	2,920
8.2	88		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	14						0	1,840			
2	0	8.6						0	1,500			
3	0	5.9						0	830			(*)
4	0	2.4						0	319			
5	0	1.7						0	233			
6	0	.6						0	562			
7	0	.4						0	444			
8	0	.3						0	288			
9	0	.1		(*)				0	119			
10	*0	0						0	*62			
11	0	0						0	44			
12	0	0			(*)			0	26			
13	0	0						0	16			
14	0	0						0	10			
15	0	0						0	10			
16	0	0						0	5.9			
17	0	0						0	2.8			
18	0	0				(*)		0	2.4			
19	0	0						0	1.4			
20	0	0						0	.4			
21	0	0						0	.2			
22	0	0						0	0			
23	0	0						0	0			
24	0	0						34	0			
25	0	0						1,010	0			
26	0	0						1,100	0			
27	20	*0						1,600	0			
28	108	0						1,680	0			
29	67	0					(*)	1,500	0			
30	38	0			-			1,840	0	(*)		
31	24	-			-		-	2,090	-			-
Total	257	34.0	0	0	0	0	0	10,854	6,316.1	0	0	0
Mean	8.29	1.13	0	0	0	0	0	350	211	0	0	0
Ac-ft	510	67	0	0	0	0	0	21,530	12,530	0	0	0

Calendar year 1951: Max - Min 0 Mean 40.9 Ac-ft 29,640
Water year 1951-52: Max 2,090 Min 0 Mean 47.7 Ac-ft 34,640

Peak discharge (base, 3,200 cfs).--No peak above base.
* Discharge measurement or observation of no flow made on this day.

Nueces River near Tilden, Tex.

Location.--Lat 28°18', long. 98°34', on left bank at downstream side of pier of bridge on State Highway 173, 2 miles upstream from Cow Creek, 10.5 miles south of Tilden, McMullen County, and at mile 141.

Drainage area.--8,192 sq mi.

Records available.--November 1942 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 183.5 ft (revised) above mean sea level, datum of 1929 (levels by Topographic Division).

Average discharge.--9 years (1943-52), 408 cfs.

Extremes.--Maximum discharge during year, 3,720 cfs June 2 (gage height, 17.27 ft); no flow at times.
1942-52: Maximum discharge, 57,500 cfs Oct. 11, 1946 (gage height, 26.46 ft), from rating curve extended above 30,000 cfs; no flow at times.

Remarks.--Records good. Part of flow of Nueces River and its headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Diversions for irrigation above station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	50	1.2	0.2	0	26	0	0	2,020	0		
2	25	35	1.1	.2	0	13	0	0	3,390	0		
3	15	22	1.1	.2	0	8.4	0	12	3,390	0		
4	*11	17	1.0	.2	0	5.8	0	7.8	2,660	0		
5	7.7	*15	1.0	.2	0	3.8	0	4.2	2,240	223		
6	5.9	14	.8	.2	0	3.2	0	2.2	2,120	11		
7	4.6	9.9	.7	.2	0	2.1	0	1.2	2,070	3.3		
8	3.7	7.5	.6	.2	0	2.0	0	.4	1,940	1.7		
9	3.2	6.4	.5	.2	0	1.6	0	0	1,780	3.2		
10	2.8	5.6	.3	.1	0	1.3	0	0	*2,240	*11		
11	2.5	3.9	.3	0	0	1.3	0	0	3,390	15		
12	2.3	3.4	.2	0	0	1.2	0	0	3,040	80		
13	2.1	2.8	.2	0	0	.9	0	0	1,620	206	(*)	
14	2.0	2.3	.2	0	0	.7	0	0	269	322		
15	1.9	2.1	.1	0	0	.5	0	0	130	175		
16	1.8	1.8	*0	0	0	.2	0	0	85	64		
17	1.6	1.6	0	*0	0	.1	0	0	44	27		
18	1.7	1.5	.1	0	0	0	0	0	19	14		
19	1.8	1.4	.1	0	0	0	0	0	9.2	7.5		
20	1.7	1.3	.1	0	0	0	0	0	5.8	3.9		
21	1.6	1.4	.2	0	*1.0	0	0	0	4.0	2.3		
22	1.5	1.2	.2	0	41	0	19	0	2.7	1.2		
23	659	1.2	.2	0	9.5	0	25	0	1.8	.6		
24	526	1.0	.2	0	5.6	0	5.8	0	1.3	.2		
25	596	1.0	.2	0	3.8	0	3.4	259	*.7	0		
26	772	1.1	.2	0	3.1	0	1.9	406	.4	0		
27	470	1.2	.1	0	6.3	*0	1.0	695	.1	0		
28	107	1.0	.1	0	12	0	.2	1,280	0	0		
29	44	.9	.1	0	39	0	0	1,420	0	0		
30	26	.9	.1	0	-	0	*0	1,470	0	0		
31	51	-	.1	0	-	0	-	1,560	-	0		
Total	3,392.4	215.4	11.3	1.9	121.3	72.1	56.3	7,117.8	32,473.0	1,171.9	0	0
Mean	109	7.18	0.36	0.06	4.18	2.33	1.88	230	1,082	37.8	0	0
Ac-ft	6,730	427	22	3.8	241	143	112	14,120	64,410	2,320	0	0

Calendar year 1951: Max 7,060 Min 0 Mean 168 Ac-ft 121,500
Water year 1951-52: Max 3,390 Min 0 Mean 122 Ac-ft 88,530

Peak discharge (base, 3,600 cfs).--June 2 (8 p.m.) 3,720 cfs (17.27 ft).
* Discharge measurement or observation of no flow made on this day.

Frio River at Concan, Tex.

Location.--Lat 29°29', long. 99°42', on left bank half a mile southeast of Concan post office, Uvalde County, and 15 miles upstream from Dry Frio River.

Drainage area.--485 sq mi.

Records available.--October 1923 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,203.71 ft above mean sea level, datum of 1929. Oct. 26, 1923, to July 28, 1924, staff gage at site 86 ft upstream at datum 5.08 ft lower. July 29, 1924, to Oct. 31, 1930, combination staff and chain gage and Oct. 4, 1930, to May 18, 1939, water-stage recorder, at site 130 ft downstream at present datum.

Average discharge.--27 years (1924-29, 1930-52), 96.2 cfs.

Extremes.--Maximum discharge during year, 906 cfs May 27 (gage height, 3.27 ft); minimum, 0.9 cfs Sept. 5, 6, 7, 8.
1923-52: Maximum discharge, 162,000 cfs July 1, 1932 (gage height, 34.44 ft, from floodmarks), from rating curve extended above 7,400 cfs on basis of slope-area determinations at gage heights 16.40 and 34.44 ft; minimum, that of Sept. 5, 6, 7, 8, 1952.
Maximum stage known since 1913, that of July 1, 1932. Flood of Sept. 18, 1923, reached a stage of 28.8 ft, from floodmarks.

Remarks.--Records excellent. Part of flow of Frio River enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde and below station. Most of low flow enters this formation.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.19	0.9	1.6	46
1.2	1.0	1.8	98
1.3	5.0	2.0	164
1.4	14	2.2	240
1.5	27		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	14	19	20	19	22	31	*35	44	19	8.6	1.8
2	11	13	19	20	19	20	31	35	40	18	10	1.4
3	11	13	19	20	18	20	29	31	38	15	8.6	1.4
4	11	14	19	20	18	19	29	31	36	15	7.7	1.0
5	11	15	19	20	18	19	27	31	35	14	6.8	*1.0
6	10	15	19	20	17	19	27	29	35	14	5.9	1.0
7	10	15	19	20	17	19	27	29	31	14	5.0	.9
8	9.5	15	19	*20	17	19	27	29	31	14	5.0	1.0
9	9.5	15	19	20	17	20	26	29	27	14	4.6	1.0
10	9.5	17	20	20	18	20	24	29	27	13	4.6	2.2
11	9.5	17	22	20	19	19	24	27	29	13	4.2	3.0
12	*9.5	17	20	20	19	19	27	27	31	12	4.2	2.6
13	9.5	17	20	20	19	19	26	27	29	12	4.2	2.6
14	9.5	17	22	22	*19	18	24	27	*27	12	3.8	2.2
15	9.5	17	22	22	20	18	24	27	27	12	3.8	1.8
16	9.5	17	20	22	20	18	24	27	27	11	3.8	1.4
17	9.5	17	20	22	20	19	24	27	26	11	3.4	1.4
18	9.5	17	22	22	20	20	24	31	26	13	3.4	2.2
19	9.5	17	20	22	20	*20	33	31	24	15	3.0	2.2
20	9.5	17	20	22	20	20	58	29	23	14	3.0	1.8
21	9.5	18	20	22	20	20	44	27	22	12	2.6	1.4
22	9.5	18	20	22	20	19	53	27	22	10	2.6	1.4
23	9.5	18	20	20	20	19	46	31	20	9.5	2.2	1.0
24	9.5	18	20	20	22	19	38	27	20	9.5	2.2	1.0
25	9.5	18	20	20	33	20	36	26	20	8.6	2.2	1.0
26	9.5	18	20	20	26	22	36	26	19	7.7	1.8	1.0
27	9.5	18	19	19	23	26	36	224	19	6.8	1.8	1.4
28	44	*18	20	19	22	66	35	167	18	6.8	1.4	1.4
29	24	18	20	19	22	44	35	73	18	6.8	1.4	1.4
30	18	18	20	19	-	36	35	56	19	6.8	*1.4	1.0
31	15	-	20	19	-	35	-	51	-	*6.8	1.8	-
Total	367.0	496	618	633	582	713	960	1,323	810	366.3	125.0	45.9
Mean	11.8	16.5	19.9	20.4	20.1	23.0	32.0	42.7	27.0	11.8	4.03	1.53
Ac-ft	728	984	1,230	1,260	1,150	1,410	1,900	2,620	1,610	727	248	91

Calendar year 1951: Max 1,440 Min 3.4 Mean 32.7 Ac-ft 23,650
Water year 1951-52: Max 224 Min 0.9 Mean 19.2 Ac-ft 13,960

Peak discharge (base, 750 cfs).--May 27 (5 p.m.) 906 cfs (3.27 ft).
* Discharge measurement made on this day.

Sabinal River near Sabinal, Tex.

Location.--Lat 29°30', long. 99°29', on right bank 470 ft upstream from low-water crossing on Sabinal-Utopia road, 3.5 miles downstream from Onion Creek and 12 miles north of Sabinal, Uvalde County.

Drainage area.--206 sq mi.

Records available.--October 1942 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 1,131.20 ft above mean sea level, datum of 1929.

Average discharge.--10 years, 22.6 cfs.

Extremes.--Maximum discharge during year, 2,370 cfs May 25 (gage height, 4.96 ft); no flow at times.
1942-52: Maximum discharge, 10,600 cfs May 15, 1951 (gage height, 11.09 ft); no flow at times.
Flood of July 2, 1932, reached a stage of about 29.9 ft, from information by local residents (discharge, 72,000 cfs, by slope-area determination, at Sabinal, 12 miles downstream from gage).

Remarks.--Records good. No diversion above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.1	0	1.5	43
1.2	1.5	1.7	93
1.3	9.2	2.0	182
1.4	24		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	*5.0	16	8.0	0.3	0
2							0	5.0	13	6.8	.3	0
3							0	5.0	10	5.8	.3	0
4							0	4.2	9.2	5.0	.3	0
5							0	3.5	14	4.2	.3	*0
6							0	3.5	113	4.2	.3	0
7							0	3.5	68	3.5	.2	0
8				(*)			0	3.5	50	3.5	.2	0
9							0	3.5	35	3.5	.2	0
10							0	2.9	28	11	.2	0
11	(*)						0	2.9	26	5.8	.2	0
12							0	2.4	26	4.2	.2	0
13							0	2.4	*21	3.5	.2	0
14					(*)		0	2.4	19	2.9	.2	0
15							0	2.4	16	2.9	.2	0
16							0	2.4	12	2.4	.2	0
17							0	2.9	12	1.9	.2	0
18							0	5.0	10	2.4	.2	0
19						(*)	0	4.2	10	2.9	.1	1.6
20							7.7	3.5	10	2.9	.1	0
21							9.2	2.9	9.2	2.4	.1	0
22							27	2.4	9.2	1.9	.1	0
23							35	63	9.2	1.5	.1	0
24							18	18	8.0	1.2	.1	0
25							10	79	8.0	1.2	.1	0
26							8.0	145	8.0	.9	.1	0
27							5.0	172	8.0	.6	.1	0
28		(*)					5.0	128	8.0	.4	.1	0
29							5.0	48	8.0	.3	.1	0
30					-		5.0	31	8.0	.3	.1	0
31		-			-		-	22	-	**.3	0	-
Total	0	0	0	0	0	0	134.9	781.4	601.8	98.3	5.4	1.6
Mean	0	0	0	0	0	0	4.50	25.2	20.1	3.17	0.17	0.05
Ac-ft	0	0	0	0	0	0	268	1,550	1,190	195	11	3.2

Calendar year 1951: Max 1,520 Min 0 Mean 10.1 Ac-ft 7,320
Water year 1951-52: Max 172 Min 0 Mean 4.44 Ac-ft 3,220

Peak discharge (base, 4,000 cfs).--No peak above base.
* Discharge measurement made on this day.
** Field estimate made on this day.
Note.--Discharge for period July 29 to Aug. 30 is estimated leakage through the control.

Leona River spring flow near Uvalde, Tex.

Location.--Lat 29°09', long. 99°44', on right bank at old road crossing on White's ranch, 3½ miles downstream from Cooks Slough and 4.6 miles southeast of Uvalde, Uvalde County.
Records available.--January 1939 to September 1952. Occasional discharge measurements since 1925 in connection with seepage investigations.
Gage.--Water-stage recorder. Datum of gage is 838.39 ft above mean sea level, datum of 1929.
Average discharge.--13 years, 11.5 cfs.
Extremes.--No spring discharge during year; maximum gage height, 8.25 ft May 27.
1939-52: Maximum daily spring discharge, 33 cfs Feb. 15-18, 1942; maximum gage height, 13.63 ft Aug. 30, 1944, from floodmark; no flow at times in 1948, 1949, 1951, 1952.
Remarks.--No flow since Mar. 5, 1951. Calendar year figures for 1951 are: maximum daily discharge, 0.9 cfs; mean, 0.04 cfs; runoff in acre-ft, 31. Discharge represents flow from several springs that enter river above station and below Uvalde. Surface runoff from precipitation is excluded. A few small diversions by pumping from river channel above station.

Frio River near Derby, Tex.

Location.--Lat 28°44'10", long. 99°08'45", near center of span at downstream side of pier of bridge on U. S. Highway 81, 150 ft upstream from International-Great Northern Railroad bridge, 750 ft downstream from Leona River, and 2.4 miles south of Derby, Frio County.
Drainage area.--3,493 sq mi.
Records available.--August 1915 to September 1952.
Gage.--Water-stage recorder and concrete control. Datum of gage is 449.31 ft above mean sea level, datum of 1929. Aug. 1, 1915, to Apr. 21, 1931, staff gage and Apr. 22, 1931, to Mar. 6, 1940, water-stage recorder at railroad bridge 150 ft downstream at same datum.
Average discharge.--37 years, 139 cfs.
Extremes.--Maximum discharge during year, 436 cfs S pt. 13 (gage height, 2.12 ft); no flow most of time.
1915-52: Maximum discharge, 230,000 cfs July 4, 1932 (gage height, 29.60 ft, present site, from floodmarks at former site), from rating curve extended above 46,000 cfs on basis of slope-area determination of peak flow; no flow at times.
Remarks.--Records good. Part of flow of Frio River and its headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Diversions above station for irrigation.
Revisions (water years).--W 568: 1915-16, 1918-22, drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0							0	37			0
2	0							0	9.4			0
3	0							0	1.4			*0
4	0							0	.3			0
5	0							0	.2			0
6	0							0	.3			0
7	0							0	.2			0
8	0							0	.1			0
9	0			(*)				0	0			0
10	*0							0	*5.7			0
11	0							0	13			0
12	0				(*)			0	4.6			1.1
13	0							0	.8			279
14	0							0	.2			47
15	0							0	.1			11
16	0							0	0			2.4
17	0							0	0			.3
18	0					(*)		0	0			.3
19	0							0	0			0
20	0							0	0			0
21	0							0	0			0
22	0							0	0			0
23	0							0	0			0
24	11							0	0			0
25	36							10	0			0
26	4.8							14	0			0
27	.7	(*)						6.2	0			0
28	.2							2.6	0			0
29	.1						(*)	11	0			0
30	0				-			63	0	(*)		0
31	0	-			-		-	71	-			-
Total	52.8	0	0	0	0	0	0	177.8	73.3	0	0	341.1
Mean	1.70	0	0	0	0	0	0	5.74	2.44	0	0	11.4
Ac-ft	105	0	0	0	0	0	0	353	145	0	0	677

Calendar year 1951: Max 20,500 Min 0 Mean 85.5 Ac-ft 61,900
Water year 1951-52: Max 279 Min 0 Mean 1.76 Ac-ft 1,280

Peak discharge (base, 1,100 cfs).--No peak above base.
* Discharge measurement made on this day.

Frio River at Calliham, Tex.

Location.--Lat 28°29'30", long. 98°20'45", on right bank at upstream side of bridge on Calliham-Whitsett highway, 1 mile north of Calliham, McMullen County, and 9.7 miles downstream from San Miguel Creek.

Drainage area.--5,491 sq mi.

Records available.--October 1924 to April 1926, April 1932 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 153.47 ft above mean sea level, datum of 1929. Prior to Mar. 8, 1925, staff gage at same site at datum 0.53 ft higher; Mar. 9, 1925, to Apr. 30, 1926, staff gage at same site and datum.

Average discharge.--21 years (1924-25, 1932-52), 251 cfs.

Extremes.--Maximum discharge during year, 2,180 cfs Feb. 22 (gage height, 12.86 ft); no flow at times.

1924-26, 1932-52: Maximum discharge, 109,000 cfs July 6, 1932 (gage height, 39.20 ft, from floodmarks), from rating curve extended above 15,000 cfs on basis of slope-area determination of peak flow; no flow at times.

Maximum stage known since 1870, that of July 6, 1932, from information by local resident.

Remarks.--Records good except those for period of no gage-height record, which are fair. Part of flow of Frio River and its headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Diversions above station for irrigation.

Revisions.--W 788: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.2	0	3.3	74
2.3	.2	3.8	127
2.4	1.4	4.0	232
2.5	4.0	4.5	400
2.6	8.5	5.0	540
2.7	14	6.0	800
2.8	21	8.0	1,270
3.0	38	11.0	1,800

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	101	24	2.4	1.7	2.4	34	560	3.5	337	0.2		0
2	67	31	2.4	1.4	2.4	22	148	4.0	73	.2		0
3	52	31	3.0	1.4	1.9	15	63	3.7	41	.1		0
4	*34	45	2.7	1.4	1.0	11	32	3.0	26	.6		0
5	23	*24	2.7	1.4	.9	8.5	20	3.2	44	8.6		0
6	17	15	2.7	1.7	.8	6.7	41	2.7	675	1.2		0
7	12	11	2.7	1.7	.6	4.9	20	1.9	207	.2		0
8	*22	9.6	2.7	1.4	.6	3.5	397	1.4	324	.1		0
9	11	7.2	2.7	1.4	.4	3.2	328	1.0	222	0		0
10	7.6	6.2	2.7	1.0	.4	3.0	155	.9	*123	*0		.8
11	6.2	5.4	2.7	1.0	.4	2.7	140	.7	*71	0		4.3
12	5.8	4.4	3.0	1.0	.4	1.9	59	.4	55	0		.8
13	4.4	4.0	3.2	1.7	.3	1.7	29	.2	49	.2	(*)	.2
14	4.0	4.0	2.4	1.7	.2	1.4	18	.2	31	2.4		.1
15	3.7	3.7	1.7	1.7	.2	1.3	10	.2	19	1.4		.1
16	3.5	3.2	*1.4	1.7	.2	1.2	7.6	.1	13	.8		.1
17	3.5	2.7	1.2	*1.7	.2	1.0	6.2	.1	9.6	.3		.1
18	3.5	2.4	1.3	2.2	.2	.9	6.2	.7	7.2	.2		14
19	3.5	2.2	1.3	1.9	.2	.9	5.8	4.9	5.8	.2		1.2
20	3.0	2.2	1.2	2.2	.3	.8	5.8	7.6	4.0	.1		.3
21	3.0	2.4	.9	2.2	*.4	.7	214	6.7	3.2	.1		.1
22	2.7	2.7	.9	2.2	476	.2	882	3.2	3.0	.1		.1
23	357	3.2	2.7	2.2	1,190	.2	239	1.9	1.9	0		.1
24	954	2.4	3.0	1.9	506	.2	103	1.0	1.2	0		0
25	986	2.7	2.7	1.9	502	.3	50	6.3	.8	0		0
26	274	4.4	2.2	1.9	363	.4	29	57	.7	0		0
27	116	11	1.9	1.9	268	*.3	18	160	.6	0		0
28	71	4.9	1.7	2.2	123	1.2	11	1,560	.4	0		0
29	44	3.2	1.7	1.9	58	19	7.6	1,780	.4	0		0
30	35	2.7	1.7	2.2	-	22	*4.4	1,710	.2	0		0
31	27	-	1.7	2.2	-	752	-	1,630	-	0		-
Total	3,237.4	277.8	67.2	54.0	3,500.4	922.1	3,607.6	6,956.5	2,349.0	17.0	0	22.3
Mean	104	9.26	2.17	1.74	121	29.7	120	224	78.3	0.55	0	0.74
Ac-ft	6,420	551	133	107	6,940	1,830	7,160	13,800	4,660	34	0	44

Calendar year 1951: Max 7,300 Min 0 Mean 215 Ac-ft 155,600
Water year 1951-52: Max 1,780 Min 0 Mean 57.4 Ac-ft 41,680

Peak discharge (base, 4,000 cfs).--No peak above base.

* Discharge measurement made on this day.

Note.--No gage-height record Mar. 28 to Apr. 29; discharge estimated on basis of partial recorder record and records for nearby stations.

Atascosa River near McCoy, Tex.

Location.--Lat 28°50'45", long. 98°20'10", on left bank 0.7 mile upstream from Liveoak Creek, 1.3 miles southwest of McCoy, Atascosa County, and 2.2 miles downstream from bridge on county road.
Records available.--July 1951 to September 1952.
Gage.--Water-stage recorder. Datum of gage is 243.1 ft above mean sea level, datum of 1929 (from plane table traverse by Topographic Division).
Extremes.--1951: Maximum discharge during period July to September not determined; no flow July 25 to Sept. 6, Sept. 12.
1951-52: Maximum discharge during water year not determined; no flow at times.
Remarks.--Records good except those for periods of no gage-height record, which are fair. Discharge not computed above 100 cfs.

Discharge, in cubic feet per second, 1951-52

1951

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1		*0	9		2.7	17		*24	25		9.0
2		0	10		.8	18	(*)	17	26		(e)
3	(*)	0	11		.2	19		14	27		(e)
4		0	12		0	20		12	28		(e)
5		0	13		(e)	21	(*)	10	29		22
6		0	14		(e)	22		9.8	30		15
7		6.1	15		(e)	23		9.4	31		-
8		2.4	16		45	24		9.2			
Total										0	-
Mean										0	-
Ac-ft										0	0

* Discharge measurement or observation of no flow made on this day.
e Stage above limits to which discharge is computed.

1951-52

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	6.2	5.8	5.3	4.7	6.9	12	6.2	7.7	1.1		0
2	10	7.0	5.9	5.5	4.7	6.6	7.7	6.1	8.1	.7		0
3	9.0	10	5.6	5.5	4.9	6.2	6.9	6.1	5.5	.5		0
4	8.1	6.7	5.6	5.5	4.7	6.1	7.0	6.1	5.3	.4		0
5	*7.6	5.9	5.5	5.8	4.6	6.1	6.7	5.8	4.7	.5		0
6	7.2	*27	5.3	5.9	4.6	6.1	6.6	5.6	4.6	.3		0
7	6.7	9.8	4.9	6.1	4.6	6.1	6.1	5.3	4.6	2.0		0
8	6.2	6.6	5.0	5.9	4.4	6.1	5.9	5.0	5.2	.4		0
9	6.1	5.8	4.9	5.9	4.7	6.1	5.9	4.9	4.9	.2		0
10	5.9	5.3	4.9	6.0	5.0	6.1	6.1	5.5	*4.4	*.4		(e)
11	5.8	5.3	5.0	6.0	5.0	6.1	(e)	5.0	5.2	.3		(e)
12	5.6	5.5	5.2	6.1	4.9	6.1	20	4.9	17	0		(e)
13	5.6	5.3	5.3	6.1	4.7	6.1	12	4.6	4.4	.2	(*)	(e)
14	5.5	5.2	5.3	6.2	4.6	6.1	9.2	4.4	4.1	.1		18
15	5.5	5.0	6.1	6.3	4.6	6.1	7.6	4.6	3.6	0		11
16	5.3	4.9	6.1	6.3	4.4	6.1	7.0	4.3	3.6	0		8.5
17	5.2	5.0	*5.8	6.4	4.4	6.1	6.7	4.3	3.5	8.4		7.6
18	5.0	5.3	5.9	*6.4	4.7	6.1	6.4	6.2	2.4	14		18
19	4.9	5.3	5.9	5.8	4.4	6.1	8.2	4.7	2.2	2.2		(e)
20	4.7	5.5	5.9	5.5	4.6	6.1	28	4.3	2.2	1.3		27
21	4.7	5.5	5.9	5.3	*4.7	6.1	12	4.3	1.8	1.7		7.7
22	4.6	5.6	6.1	5.3	4.9	6.1	8.3	4.1	1.8	1.7		5.8
23	9.6	5.8	5.8	5.2	(e)	6.1	(e)	3.6	1.7	1.1		5.2
24	(e)	5.5	5.5	5.0	30	6.1	(e)	3.6	2.0	1.0		4.9
25	26	5.2	5.8	5.2	(e)	6.1	12	4.3	1.8	.2		4.7
26	13	5.3	5.8	5.2	(e)	6.1	8.5	4.3	1.3	0		4.4
27	16	5.5	5.8	5.5	34	6.1	7.4	4.4	1.0	0		4.1
28	9.4	5.5	5.8	4.9	12	*25	6.9	28	.8	0		3.9
29	7.4	5.8	5.5	4.7	8.5	16	*6.6	(e)	.7	0		*3.9
30	6.7	5.9	5.2	4.7	-	9.8	6.4	35	.5	0		3.9
31	6.4	-	5.3	*4.6	-	(e)	-	11	-	0		-
Total	-	198.2	172.4	174.1	-	-	-	-	116.6	38.7	0	-
Mean	-	6.61	5.56	5.62	-	-	-	-	3.89	1.25	0	-
Ac-ft	-	393	342	345	-	-	-	-	231	76.8	0	-

Calendar year 1951: Max - Min 0 Mean - Ac-ft -
Water year 1951-52: Max - Min 0 Mean - Ac-ft -

* Discharge measurement or observation of no flow made on this day.
e Stage above limits to which discharge is computed.
Note.--No gage-height record Jan. 9-17, Feb. 24, Feb. 27 to Mar. 27; discharge interpolated or estimated on basis of weather records, known recorded range in stage and records for station at Whitsett.

Atascosa River at Whitsett, Tex.

Location.--Lat 28°37'20", long. 98°17'05", on right bank 1,600 ft upstream from bridge on Whitsett-Calliham county road, 0.9 mile west of Whitsett, Live Oak County, and 4 miles downstream from La Parita Creek.

Drainage area.--1,171 sq mi.

Records available.--September 1924 to May 1926, May 1932 to September 1952.

Gage.--Water-stage recorder and artificial control. Datum of gage is 159.04 ft above mean sea level, datum of 1929. Prior to May 8, 1926, chain gage at bridge 1,600 ft downstream at datum 1.38 ft higher.

Average discharge.--21 years (1924-25, 1932-52), 140 cfs.

Extremes.--Maximum discharge during year, 4,000 cfs Sept. 10 (gage height, 22.96 ft); minimum, 0.5 cfs July 12.
1924-26, 1932-52: Maximum discharge, 39,300 cfs July 7, 1942 (gage height, 38.3 ft, from floodmark), from rating curve extended above 12,000 cfs on basis of slope-area determination at gage height 38.0 ft; no flow at times.
Maximum stage known, that of July 7, 1942.

Remarks.--Records good except those for period of no gage-height record, which are fair. A considerable part of low flow during much of year resulted from flow of several artesian wells near Campbellton, which were drilled by the Lower Nueces River Water Supply District and turned into the river to supplement the supply for the city of Corpus Christi.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

3.5	0.3	5.0	93
3.6	.7	5.5	160
3.7	1.6	6.0	216
3.8	3.1	8.0	400
3.9	5.4	11.0	675
4.0	8.4	14.0	1,020
4.2	16	18.0	1,970
4.4	29	22.0	3,400
4.7	56		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	45	10	20	13	21	68	9.1	24	1.2	2.8	9.5
2	20	118	10	20	13	18	163	8.8	16	1.1	2.6	9.5
3	16	63	10	20	13	15	46	8.1	12	1.0	2.6	9.1
4	14	28	10	20	11	13	27	7.5	9.5	13	2.5	9.5
5	*13	16	10	20	13	13	22	7.2	8.1	33	2.4	9.1
6	12	*21	9.9	20	14	12	20	8.4	8.1	3.1	2.2	9.5
7	11	85	8.8	20	15	12	19	8.1	13	1.4	2.0	9.9
8	9.9	30	8.1	20	16	11	18	7.2	14	1.1	1.5	9.5
9	9.1	18	7.8	20	16	11	24	6.6	11	1.2	1.4	10
10	9.1	14	7.8	20	16	11	16	5.4	*9.1	7.4	1.3	929
11	8.8	12	7.8	20	16	11	33	6.3	10	1.4	1.2	3,020
12	15	11	7.8	20	16	12	78	5.2	9.9	.6	1.2	1,680
13	8.4	9.9	8.1	20	16	12	32	4.9	9.9	.9	*1.2	543
14	7.8	9.1	8.8	20	16	11	24	4.2	6.6	.9	4.3	107
15	7.5	8.8	8.8	20	16	11	20	4.0	5.7	5.1	7.8	44
16	7.5	8.1	15	20	16	9.5	18	4.2	4.7	8.1	7.5	29
17	7.2	7.2	*17	16	16	9.1	17	4.0	4.2	7.8	7.5	22
18	7.2	7.2	16	*16	16	9.5	16	8.8	3.8	610	11	314
19	7.5	7.5	16	16	18	9.5	19	100	3.0	1,880	11	299
20	7.2	7.5	16	15	18	9.9	32	44	2.4	771	11	140
21	6.9	8.4	16	15	*16	11	56	12	2.4	89	10	49
22	6.9	8.8	20	15	265	11	66	7.5	2.2	29	11	24
23	18	8.8	20	14	37	11	378	5.7	1.9	17	11	16
24	78	9.1	20	14	93	11	588	5.2	1.8	12	10	13
25	126	9.5	20	14	142	11	71	12	1.6	8.4	11	11
26	42	9.9	20	14	325	11	31	12	1.8	6.6	12	9.5
27	35	9.9	20	15	143	*12	20	34	1.4	5.2	12	8.4
28	31	9.5	20	15	53	19	15	408	1.6	4.2	12	7.8
29	21	9.5	20	14	29	50	13	226	1.6	3.6	12	7.5
30	15	10	20	14	-	44	13	180	1.4	3.1	12	6.9
31	12	-	20	16	-	29	-	50	-	2.6	11	-
Total	621.0	619.7	429.7	543	1,407	461.5	1,961	1,214.4	202.7	3,530.0	209.0	7,365.7
Mean	20.0	20.7	13.9	17.5	48.5	14.9	65.4	39.2	6.76	114	6.74	246
Ac-ft	1,230	1,230	852	1,080	2,790	915	3,890	2,410	402	7,000	415	14,610

Calendar year 1951: Max 5,600 Min 0.2 Mean 79.7 Ac-ft 57,720
Water year 1951-52: Max 3,020 Min 0.6 Mean 50.7 Ac-ft 36,820

Peak discharge (base, 1,500 cfs).--July 19 (9 p.m.) 2,210 cfs (18.83 ft); Sept. 10 (11 p.m.) 4,000 cfs (22.96 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Dec. 26 to Jan. 17; discharge estimated on basis of recorded range in stage and knowledge of inflow from wells upstream.

Nueces River near Three Rivers, Tex.

Location.--Lat 28°26'10", long. 98°11'10", on left bank 100 ft downstream from San Antonio, Uvalde & Gulf (Missouri Pacific) Railroad bridge, half a mile downstream from Frio River, 2 miles south of Three Rivers, Live Oak County, and at mile 103.

Drainage area.--15,600 sq mi.

Records available.--July 1915 to September 1952. United States Weather Bureau has collected gage-height records in this vicinity since 1922.

Gage.--Water-stage recorder and concrete control. Datum of gage is 101.16 ft above mean sea level, datum of 1929. Prior to Apr. 5, 1932, staff gage at railroad bridge 100 ft upstream at same datum.

Average discharge.--35 years (1915-18, 1920-52), 794 cfs.

Extremes.--Maximum discharge during year, 5,570 cfs May 29 (gage height, 22.51 ft); no flow Aug. 12-16.
1915-52: Maximum discharge observed, 85,000 cfs Sept. 18, 1919 (gage height, 46.0 ft), from rating curve extended above 55,000 cfs; no flow at times.
Maximum stage known, that of Sept. 18, 1919.

Remarks.--Records good. Part of flow of Nueces and Frio Rivers and their headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages, most of headwater flow enters this formation. Diversions above station for irrigation. During year some water from several artesian wells near Campbellton, which were drilled by the Lower Nueces River Water Supply District, was turned into the Atascosa River to supplement the supply for the city of Corpus Christi. Records of chemical analyses, water temperatures, and suspended sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Revisions (water years).--W 548: 1920, 1921.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.1	0	2.6	102
1.2	.5	3.0	172
1.3	2.0	4.0	355
1.4	4.5	6.0	745
1.5	7.0	9.0	1,390
1.7	13	12.0	2,200
2.0	26	16.0	3,420
2.3	55	21.0	5,060

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	336	105	14	19	16	91	73	19	2,350	1.8	2.5	7.3
2	168	156	13	19	14	88	688	16	1,700	1.4	1.8	7.6
3	117	176	13	18	13	60	183	13	2,140	1.1	1.6	7.0
4	*89	112	12	18	12	42	68	12	2,710	.6	1.2	7.0
5	62	83	12	18	11	34	43	11	2,830	17	1.0	7.0
6	47	*70	12	18	12	28	61	9.7	2,530	161	.4	6.8
7	38	109	12	18	14	23	42	10	2,920	49	.4	7.0
8	32	91	10	18	14	19	34	9.7	2,230	16	.3	7.6
9	34	44	9.4	19	16	18	31	7.9	2,090	*30	.2	8.2
10	29	33	8.8	18	15	16	548	6.8	1,810	9.5	.2	18
11	22	28	8.8	18	16	14	685	5.5	*1,810	5.2	.1	2,040
12	20	22	8.5	18	16	14	262	5.2	2,260	5.5	0	2,380
13	23	18	8.5	19	16	14	158	4.8	2,680	53	*0	1,130
14	16	15	9.4	18	15	14	73	4.2	2,280	176	0	270
15	14	14	10	18	16	13	45	3.8	516	271	0	81
16	14	12	*9.4	18	16	13	35	3.2	237	154	0	44
17	13	10	14	*19	15	12	28	3.2	140	76	4.7	32
18	16	10	17	17	15	11	23	3.8	91	130	5.5	203
19	24	11	17	17	15	10	25	26	56	1,100	7.4	326
20	17	10	16	17	16	11	29	92	38	1,480	8.8	215
21	14	11	15	16	*16	11	48	33	28	244	8.5	102
22	12	12	15	15	337	11	53	17	19	62	8.2	41
23	321	12	19	14	1,680	10	1,380	11	14	32	8.5	24
24	1,650	11	19	14	785	11	1,170	9.6	11	19	8.2	16
25	1,520	13	20	14	478	11	396	17	8.2	13	7.9	13
26	1,260	13	21	15	805	*11	94	146	5.8	9.4	7.9	12
27	985	29	20	15	565	11	54	507	4.5	7.0	7.6	10
28	564	26	19	14	304	13	38	3,540	4.0	5.2	7.6	8.8
29	204	18	19	14	133	19	29	4,990	3.5	4.2	7.6	8.2
30	121	16	20	14	-	54	*22	3,390	2.5	3.2	7.6	7.3
31	88	-	19	14	-	68	-	3,130	-	2.8	7.3	-
Total	7,870	1,290	440.8	521	5,396	775	6,418	16,057.4	33,518.5	4,139.9	123.0	7,046.8
Mean	254	43.0	14.2	16.8	186	25.0	214	518	1,117	134	3.97	235
Ac-ft	15,610	2,560	874	1,030	10,700	1,540	12,730	31,850	66,480	8,210	244	13,980

Calendar year 1951: Max 18,300 Min 0 Mean 564 Ac-ft 408,100
Water year 1951-52: Max 4,990 Min 0 Mean 228 Ac-ft 165,800

Peak discharge (base, 6,000 cfs).--No peak above base.
* Discharge measurement made on this day.

Atascosa, Frio, and Nueces Rivers seepage investigation

During January and April 1951, three series of discharge measurements were made on the Atascosa, Frio, and Nueces Rivers, Tex. The purpose was to determine seepage gains or losses along the river, and losses in transmission of water from artesian wells near Campbellton to the head of Lake Corpus Christi near Mathis. The channels of the Atascosa, Frio, and Nueces Rivers were used to transport the water. The Atascosa River is tributary to the Frio River and the Frio River is tributary to the Nueces River which flows into Lake Corpus Christi.

During the period Jan. 23-26, 1951, prior to drilling of artesian well at Campbellton, a seepage investigation of a reconnaissance nature was made from a point near Poteet to the head of Lake Corpus Christi. At this time measurements were made only at those points on main stream and tributaries which were easily accessible.

During period Apr. 19 to May 1, 1951, two series of measurements were made from Campbellton to head of Lake Corpus Christi. The first of these was made with one artesian well flowing into the river. All inflow and diversions were measured throughout the reach. The second was made of river and tributary flow after the artesian well was cut off. Additional measurements were made at miles 87.4, 96.4, and 103.8 as it was suspected that some well water was still present when the first ones were made (see table).

For complete report on transmission of well water from Campbellton to Lake Corpus Christi see Geological Survey Open File Release No. 42, October 1951, Austin, Texas (SW).

Discharge measurements, January to May 1951

Date	Stream or diversion	Location	Approximate distance (miles) below initial point	Discharge in cubic feet per second				
				Main stream	Tributary	Diversion	Gain or loss in section	Total gain or loss
Jan. 23	Atascosa River..	3.0 miles southwest of Poteet, Tex.	0	0	-		-	-
23	....do.....	1.3 miles south of Poteet, Tex.	2.9	.96	-		+0.96	+0.96
23	....do.....	2.0 miles southeast of Poteet, Tex.	5.1	2.73	-		+1.77	+2.73
23	....do.....	3.0 miles northwest of Pleasanton, Tex.	9.0	2.30	-		-.43	+2.30
23	....do.....	At Pleasanton, Tex.	15.0	3.35	-		+1.05	+3.35
23	Bonita Creek....	South edge of Pleasanton, Tex.	15.3	-	0.02		-	-
23	Galvan Creek....	2.0 miles northeast of Pleasanton, Tex.	17.0	-	0		-	-
23	Atascosa River..	At Coughran, Tex.....	21.0	3.82	-		+.45	+3.80
24	....do.....	0.5 mile east of McCoy, Tex.	35.1	3.84	-		+.02	+3.82
24	Unnamed creek...	4.0 miles northwest of Campbellton, Tex.	42.0	-	.20		-	-
24	Borrego Creek...	3.0 miles north of Campbellton, Tex.	46.0	-	.06		-	-
24	Atascosa River..	At Campbellton, Tex.....	47.1	4.38	-		+.28	+4.10
24	Lapan Creek.....	1.5 miles southeast of Campbellton, Tex.	52.5	-	.10		-	-
24	Matate Creek....	3.0 miles southwest of Campbellton, Tex.	-	-	.44		-	-
24	La Parita Creek.	5.0 miles southwest of Campbellton, Tex.	55.9	-	.39		-	-
25	Atascosa River..	At Whitsett, Tex.....	59.7	4.80	-		-.51	+3.59
25	Olmos Creek.....	1.0 mile southeast of Whitsett, Tex.	61.0	-	0		-	-
25	Merriman Hollow.	2.0 miles southeast of Whitsett, Tex.	-	-	.05		-	-
25	San Christoval Creek.	5.0 miles southeast of Whitsett, Tex.	-	-	0		-	-
25	Atascosa River..	4.5 miles north of Three Rivers, Tex.	71.4	4.32	-		-.53	+3.06
25	Frio River.....	1.0 mile above mouth of Atascosa River.	73.9	-	0		-	-
25	City of Three Rivers.	At water plant intake...	77.1	-	-	0.90†	-	-
25	Nueces River....	About 4.0 miles above Three Rivers, Tex.	80.3	-	0		-	-
25	....do.....	Near Three Rivers, Tex.	80.5	3.48	-		+.06	+3.12
25	Sulphur Creek...	At mouth near Oakville, Tex.	87.3	-	.10		-	-
25	Nueces River....	1.5 miles southwest of Oakville, Tex.	87.4	4.34	-		+.76	+3.88
25	....do.....	1.8 miles northeast of George West, Tex.	96.4	5.49	-		+1.15	+5.03
26	Spring Creek....	2.5 miles southwest of George West, Tex.	99.3	-	0		-	-
26	Nueces River....	0.8 mile north of Mikeska, Tex.	103.8	5.29	-		-.20	+4.83
Apr. 19	Atascosa River..	Highway bridge, at Campbellton, Tex. above well.	47.1	3.36	-		-	-
19	....do.....	Highway bridge, at Campbellton, Tex. below well.	47.6	5.65	-		+2.29	+2.29
19	Unnamed creek...	Below Campbellton, Tex.	47.9	-	.12		-	-
19	....do.....	Above Lapan Creek.....	52.1	-	0		-	-
19	Atascosa River..	....do.....	52.4	6.02	-		+.25	+2.54
19	Lapan Creek.....	At mouth.....	52.5	-	.30		-	-

† Superintendent of Water Department, City of Three Rivers, stated he was pumping 400 gpm. This water (about 0.9 cfs) is diverted from Frio River below mouth of Atascosa River.

Atascosa, Frio, and Nueces Rivers seepage investigation--Continued

Discharge measurements, January to May 1951--Continued

Date	Stream or diversion	Location	Approximate distance (miles) below initial point	Discharge in cubic feet per second				
				Main stream	Tributary	Diversion	Gain or loss in section	Total gain or loss
Apr. 19	Atascosa River..	Above La Parita Creek..	55.8	5.36	-		-0.96	+1.58
19	La Parita Creek.	At mouth.....	55.9	-	0.69		-	-
19	Unnamed creek...	0.2 mile below La Parita Creek.	56.1	-	0		-	-
19	....do.....	About 2.0 miles above Whitsett, Tex.	57.9	-	.10		-	-
19	Sulphur Well....	About 1.6 miles above Whitsett, Tex.	58.3	-	.01		-	-
19	Atascosa River..	At Whitsett, Tex. (recorder).	59.7	6.30	-		+.14	+1.72
20	Olmos Creek.....	At mouth.....	61.0	-	.08		-	-
20	Atascosa River..	Below Olmos Creek.....	61.1	5.56	-		-.82	+.90
20	Unnamed creek...	½ mile below Olmos Creek.	61.3	-	0		-	-
20	3 Unnamed creeks	Below Olmos Creek.....	-	-	0		-	-
20	Atascosa River..	At falls above Three Rivers, Tex.	69.0	5.61	-		+.05	+.95
20	....do.....	Recording gage No. 2 above Three Rivers, Tex.	71.4	5.43	-		-.18	+.77
20	....do.....	300 ft above mouth.....	73.9	4.88	-		-.55	+.22
20	Frio River.....	At mouth of Atascosa River.	73.9	-	0		-	-
21	City of Three Rivers.	At water plant intake..	77.1	-	-	0.56	-	-
20	Nueces River....	At mouth of Frio River.	80.3	-	0		-	-
21	....do.....	Near Three Rivers, Tex.	80.5	4.30	-		-.02	+.20
21	Sulphur Creek...	At mouth near Oakville, Tex.	87.3	-	.21		-	-
21	Nueces River....	500 ft below Sulphur Creek.	87.4	4.78	-		+.27	+.47
21	....do.....	About 3 miles below Sulphur Creek.	89.7	4.99	-		+.21	+.68
21	....do.....	Near George West, Tex.	96.4	6.12	-		+1.13	+1.81
21	Spring Creek....	Below George West, Tex.	99.3	-	.035		-	-
21	Nueces River....	Near Mikeska, recording gage No. 3.	103.8	4.06	-		-2.10	-.29
21	....do.....	Near Ruins Old Fort Merrill below Mikeska and just below Gilden Creek.	107.3	5.48	-		+1.42	+1.13
Apr. 27	Atascosa River..	At Campbellton, Tex....	47.6	1.94	-		-	-
27	Unnamed creek...	Below Campbellton, Tex.	47.9	-	.12		-	-
27	Lapan Creek.....	At mouth.....	52.5	-	.33		-	-
27	Atascosa River..	Above La Parita Creek..	55.8	1.86	-		-.53	-.53
27	La Parita Creek.	At mouth.....	55.9	-	.35		-	-
27	Unnamed creek...	About 2.0 miles above Whitsett, Tex.	57.9	-	.10		-	-
27	Atascosa River..	1.6 miles above Whitsett, Tex.	58.3	1.87	-		-.44	-.97
27	Sulphur Well....	1.55 miles above Whitsett, Tex.	58.3	-	.03		-	-
27	Atascosa River..	At Whitsett (recorder), Tex.	59.7	1.79	-		-.11	-1.08
28	....do.....	Above Olmos Creek.....	61.0	1.80	-		+.01	-1.07
28	Olmos Creek.....	At mouth.....	61.0	-	0		-	-
28	Atascosa River..	At falls above Three Rivers, Tex.	69.0	1.43	-		-.37	-1.44
28	....do.....	Recording gage No. 2, above Three Rivers, Tex.	71.4	1.52	-		+.09	-1.35
28	Frio River.....	At mouth of Atascosa River.	73.9	-	0		-	-
28	City of Three Rivers.	At water plant intake..	77.1	-	-	.56	-	-
28	Nueces River....	At mouth of Frio River.	80.3	-	0		-	-
28	....do.....	Near Three Rivers (recorder), Tex.	80.5	.46	-		-.50	-1.85
28	Sulphur Creek...	At mouth near Oakville, Tex.	87.3	-	.08		-	-
28	Nueces River....	600 ft below Sulphur Creek.		1.33	-		+.79	-1.06
30	....do.....	....do.....	87.4	.85	-		+.31	-1.54
28	....do.....	About 3 miles below Sulphur Creek.	89.7	1.88	-		+.55	-.51
28	....do.....	Near George West, Tex..		2.60	-		+.72	+.21
30	....do.....	....do.....	96.4	1.58	-		+.73	-.81
28	....do.....	Near Mikeska, recording gage No. 3.		3.10	-		+.50	+.71
May 1	....do.....	....do.....	103.8	1.87	-		+.29	-.52
1	....do.....	Near Old Fort Merrill below Mikeska, 1.4 miles above Gilden Creek.	105.9	2.17	-		+.30	-.22

Note.--All tributaries not shown were dry during the Apr. 19 to May 1 series of measurements.

Lake Corpus Christi near Mathis, Tex.

Location.--Lat 28°03', long. 97°52', near left end of Mathis Dam on Nueces River, three-quarters of a mile upstream from bridge on U. S. Highway 96, 4 miles southwest of Mathis, San Patricio County, and at mile 48.

Drainage area.--16,656 sq mi.

Records available.--September 1948 to September 1952. The Soil Conservation Service, United States Department of Agriculture, in cooperation with Texas Board of Water Engineers, has collected fragmentary gage-height records in connection with sedimentation studies since February 1942.

Gage.--Wire-weight gage read once daily. Datum of gage is 0.52 ft above mean sea level, datum of 1929. Prior to Sept. 10, 1948, a painted gage at same datum on left side of first buttress wall of left taintor gate was probably used.

Extremes.--Maximum contents observed during year, 44,500 acre-ft May 30, 31 (gage height, 75.00 ft); minimum observed, 27,850 acre-ft Sept. 11 (gage height, 71.54 ft).
1948-52: Maximum contents observed, 57,000 acre-ft Apr. 30, 1949 (gage height, 77.05 ft); minimum observed, 14,740 acre-ft May 5, 1951 (gage height, 67.10 ft).

Remarks.--Reservoir is formed by a rolled-fill earthen-type dam containing an unregulated concrete service spillway 1,048 ft long, and five taintor gates, each 35 ft wide. Dam completed and storage began July 24, 1934. Capacity, 39,400 acre-ft at gage height 74 ft (top of taintor gates and service spillway). Dead storage is negligible. Reservoir used for municipal supply for city of Corpus Christi. Water for city is released through sluice gate at gage height 43 ft. Figures given herein represent total storage. A siltation survey made by the Soil Conservation Service, United States Department of Agriculture, found original capacity of the reservoir to have been 54,000 acre-ft, and capacity as of March 1942 as 43,400 acre-ft at spillway crest. A resurvey by that agency completed Mar. 31, 1948, found capacity to be 39,400 acre-ft at spillway crest.

Cooperation.--Capacity curve furnished by the Soil Conservation Service, United States Department of Agriculture. Gage height record furnished by city of Corpus Christi.

Monthly gage height and contents, water year October 1951 to September 1952

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	74.65	42,460	-
Oct. 31	74.12	39,910	-2,550
Nov. 30	73.58	37,360	-2,550
Dec. 31	73.00	34,300	-3,060
Calendar year 1951	-	-	+9,450
Jan. 31	72.45	31,600	-2,700
Feb. 29	74.01	39,400	+7,800
Mar. 31	72.99	34,300	-5,100
Apr. 30	73.96	39,400	+5,100
May 31	74.99	44,500	+5,100
June 30	73.56	37,360	-7,140
July 31	73.63	37,360	0
Aug. 31	71.92	29,410	-7,950
Sept.30	73.65	37,360	+7,950
Water year 1951-52	-	-	-5,100

† Gage height at 8 a.m.

Nueces River near Mathis, Tex.

Location.--Lat 28°02', long. 97°52', on left bank 6 ft downstream from pier of bridge on U. S. Highway 59, 200 ft downstream from Texas & New Orleans Railroad bridge, 0.8 mile downstream from Lake Corpus Christi Dam, and 4 miles southwest of Mathis, San Patricio County, and at mile 47.

Drainage area.--16,660 sq mi.

Records available.--August 1939 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 27.53 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 899 cfs.

Extremes.--Maximum discharge during year, 4,600 cfs May 30 (gage height, 17.45 ft); minimum, 17 cfs Oct. 17.
1939-52: Maximum discharge, 49,400 cfs July 12, 1942 (gage height, 37.38 ft); minimum, 3.7 cfs Aug. 15, 1940; minimum daily, 6.8 cfs Aug. 15, 1940.
Maximum stage known, 39.9 ft in September 1919 (from floodmark) at railroad bridge, 200 ft upstream, from information by Texas & New Orleans Railroad.

Remarks.--Records good. Flow largely regulated by Lake Corpus Christi (see preceding page). Diversions above station for irrigation. Water for municipal and industrial use at Corpus Christi is released from Lake Corpus Christi above gage and is diverted from river at Calallen 36 miles downstream. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,060	281	30	38	49	146	46	*78	3,440	63	68	78
2	596	383	30	38	78	119	47	71	2,720	62	61	77
3	320	50	30	40	85	220	48	74	2,020	60	60	94
4	*181	*68	31	37	53	84	57	62	2,090	60	60	68
5	*144	82	30	37	44	51	101	57	2,530	61	65	65
6	100	274	29	36	40	64	55	56	3,020	64	69	66
7	204	37	32	43	40	70	55	56	3,400	64	70	66
8	68	32	38	49	40	78	56	56	3,360	64	70	66
9	54	34	58	48	44	67	59	56	2,760	*77	105	61
10	*44	34	76	47	50	178	77	76	2,410	217	79	58
11	48	34	31	47	50	54	58	56	*2,020	116	79	522
12	38	35	34	47	84	59	73	57	1,880	81	79	171
13	38	35	38	46	53	53	46	56	2,120	75	79	565
14	37	33	*44	46	53	53	44	56	2,570	65	*79	928
15	37	31	59	46	52	54	44	56	2,340	66	79	596
16	32	144	40	47	48	54	44	96	1,070	88	80	310
17	*69	97	40	*47	44	54	44	100	500	68	80	146
18	*41	27	40	48	44	136	44	91	250	183	81	146
19	31	27	40	47	44	54	46	83	145	183	81	149
20	25	27	40	48	44	54	46	70	98	530	81	213
21	25	26	46	48	*45	54	46	72	77	1,010	81	195
22	25	27	43	48	44	91	50	68	74	608	80	139
23	32	28	43	48	44	55	332	59	72	292	80	93
24	84	28	43	48	44	55	928	54	70	136	79	60
25	795	29	43	44	156	55	1,170	53	69	80	79	60
26	1,430	47	44	40	137	*53	592	60	67	73	77	57
27	1,400	40	43	40	44	63	158	68	64	72	77	55
28	1,200	27	43	41	60	54	158	91	64	71	78	55
29	827	28	41	41	108	55	108	2,030	63	71	78	53
30	454	30	38	45	-	55	85	4,400	63	70	78	50
31	266	-	38	48	-	51	-	4,040	-	69	77	-
Total	9,705	2,075	1,255	1,373	1,721	2,333	4,717	12,358	41,424	4,799	2,369	5,262
Mean	313	69.2	40.5	44.3	59.3	75.3	157	399	1,381	155	76.4	175
Ac-ft	19,250	4,120	2,490	2,720	3,410	4,630	9,360	24,510	82,160	9,520	4,700	10,440

Calendar year 1951: Max 15,100 Min 24 Mean 592 Ac-ft 428,200
Water year 1951-52: Max 4,400 Min 25 Mean 244 Ac-ft 177,300

* Discharge measurement made on this day.

Rio Grande at Thirtymile Bridge, near Creede, Colo.

Location.--Lat 37°43'30", long. 107°15'20", in sec. 13, T. 40 N., R. 4 W., on right bank 500 ft upstream from Squaw Creek, three-quarters of a mile downstream from Rio Grande Reservoir, and 20 miles southwest of Creede.

Drainage area.--163 sq mi.

Records available.--June 1909 to September 1913 and October 1933 to September 1952 in reports of Geological Survey. June 1909 to September 1923 and May 1925 to September 1952 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 9,300 ft (from topographic map). June 18, 1909, to Oct. 4, 1911, chain gage about a quarter of a mile downstream at different datum. Apr. 8, 1912, to Sept. 30, 1923, staff or chain gage 500 ft upstream at different datum. May 16, 1925, to Sept. 30, 1934, water-stage recorder at present site at datum 0.40 ft higher.

Average discharge.--39 years (1910-23, 1926-52), 228 cfs.

Extremes.--Maximum discharge during year, 1,690 cfs June 16 (gage height, 4.17 ft); minimum daily, 0.4 cfs Nov. 22 to Apr. 11.
1909-23, 1925-52: Maximum discharge, 7,500 cfs June 28, 1927 (gage height, 7.03 ft present datum); minimum daily, that of 1952.

Remarks.--Records excellent above 80 cfs and fair below except those for period of no gage-height record, which are poor. Flow regulated by Rio Grande Reservoir (capacity, 51,110 acre-ft) since 1912. Transmountain diversions from Colorado River basin to drainage area above station (see p. 240).

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1-18		Oct. 19 to Sept. 30			
1.0	26	0.1	0	2.0	226
1.2	44	.5	8.0	2.5	406
		.7	15	3.0	657
		1.0	32	3.5	1,000
		1.2	51	4.1	1,590
		1.6	120		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	44	41	0.4	0.4	0.4	0.4	0.4	308	820	1,370	312	91
2	39	26	.4	.4	.4	.4	.4	377	715	1,390	369	91
3	*43	32	.4	.4	.4	.4	.4	529	680	1,290	450	91
4	42	38	.4	.4	.4	.4	.4	630	686	1,170	493	91
5	43	41	.4	.4	.4	.4	.4	77	529	1,130	518	91
6	38	30	.4	.4	.4	.4	.4	5.8	*67	1,250	508	91
7	39	34	.4	.4	.4	.4	.4	20	16	1,380	479	91
8	40	35	.4	.4	.4	.4	.4	539	20	1,310	493	91
9	37	37	.4	.4	.4	.4	.4	544	70	1,120	498	91
10	36	31	.4	.4	.4	.4	.4	721	806	941	508	91
11	37	34	.4	.4	.4	.4	.4	856	1,190	856	513	64
12	36	34	.4	.4	.4	.4	50	*813	1,360	785	513	61
13	32	38	.4	.4	.4	.4	80	806	1,180	785	544	98
14	30	30	.4	.4	.4	.4	96	365	925	792	565	132
15	31	27	.4	.4	.4	.4	96	151	925	753	*597	*132
16	32	3.2	.4	.4	.4	.4	102	156	1,470	721	524	98
17	34	1.4	.4	.4	.4	.4	122	539	1,580	753	460	55
18	33	1.0	.4	.4	.4	.4	180	753	1,190	*753	432	39
19	33	*.6	.4	.4	.4	.4	212	635	1,120	753	390	40
20	33	.6	.4	.4	.4	.4	437	640	1,370	746	386	50
21	34	.6	.4	.4	.4	.4	539	635	1,310	759	349	67
22	28	.4	.4	.4	.4	.4	493	608	1,140	792	402	79
23	29	.4	.4	.4	.4	.4	464	539	1,080	799	441	54
24	31	.4	.4	.4	.4	.4	484	484	*997	827	373	47
25	42	.4	.4	.4	.4	.4	513	484	1,020	848	330	80
26	50	.4	.4	.4	.4	.4	524	493	1,210	863	330	132
27	38	.4	.4	.4	.4	.4	549	591	1,160	856	326	132
28	34	.4	.4	.4	.4	.4	503	740	1,090	820	326	132
29	*36	.4	.4	.4	.4	.4	419	902	1,120	669	235	132
30	38	.4	.4	.4	.4	.4	386	917	1,300	424	172	98
31	43	-	.4	.4	-	.4	-	848	-	280	122	-
Total	1,135	519.0	12.4	12.4	11.6	12.4	6,253.4	16,705.8	28,146	27,985	12,958	2,632
Mean	36.6	17.3	0.40	0.40	0.40	0.40	208	539	938	903	418	87.7
Ac-ft	2,250	1,030	25	25	23	25	12,400	33,140	55,830	55,510	25,700	5,220

Calendar year 1951: Max 1,380 Min 0.4 Mean 117 Ac-ft 84,450
Water year 1951-52: Max 1,580 Min 0.4 Mean 263 Ac-ft 191,200

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 24 to Apr. 13; discharge estimated on basis of leakage through closed gates of Rio Grande Reservoir.

Clear Creek below Continental Reservoir, Colo.

Location.--Lat 37°53', long. 107°12' (revised), in sec. 22, T. 42 N., R 3 W., on left bank 1,000 ft downstream from Continental Reservoir and 15 miles west of Creede. Prior to Oct. 2, 1951, at site 150 ft upstream.

Drainage area.--51.7 sq mi.

Records available.--October 1933 to September 1952 in reports of Geological Survey. May 1929 to September 1952 in reports of State engineer.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 10,500 ft. Prior to Oct. 2, 1951, at site 150 ft upstream at different datum.

Average discharge.--23 years (1929-52), 32.8 cfs.

Extremes.--Maximum discharge during year, 362 cfs May 8 (gage height, 3.66 ft), from rating curve extended above 120 cfs; minimum daily, 1.5 cfs Nov. 18 to Apr. 27. 1929-52: Maximum discharge, that of May 8, 1952; no flow June 22, 23, 1935.

Remarks.--Records fair prior to June 1, and good thereafter except those for period of no gage-height record, which are poor. Flow regulated by Continental Reservoir (capacity, 26,700 acre-ft).

Revisions.--W 1008: Drainage area.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.1	9.5	1.5	1.5	1.5	1.5	1.5	121	58	73	86	23
2	*6.9	9.5	1.5	1.5	1.5	1.5	1.5	140	58	61	115	21
3	7.8	9.5	1.5	1.5	1.5	1.5	1.5	249	60	44	128	17
4	11	9.5	1.5	1.5	1.5	1.5	1.5	253	64	41	128	15
5	11	9.5	1.5	1.5	1.5	1.5	1.5	174	64	43	136	15
6	10	9.5	1.5	1.5	1.5	1.5	1.5	192	*17	43	176	18
7	10	9.5	1.5	1.5	1.5	1.5	1.5	218	5.8	42	192	20
8	7.8	9.5	1.5	1.5	1.5	1.5	1.5	242	5.5	42	171	20
9	7.8	9.5	1.5	1.5	1.5	1.5	1.5	126	5.3	42	152	20
10	6.6	9.5	1.5	1.5	1.5	1.5	1.5	87	5.3	41	144	28
11	12	9.5	1.5	1.5	1.5	1.5	1.5	206	5.3	41	142	33
12	14	9.5	1.5	1.5	1.5	1.5	1.5	217	3.4	43	142	40
13	15	9.5	1.5	1.5	1.5	1.5	1.5	217	2.8	43	148	44
14	16	9.5	1.5	1.5	1.5	1.5	1.5	132	2.9	43	148	40
15	15	9.5	1.5	1.5	1.5	1.5	1.5	210	2.9	39	*128	*38
16	17	9.5	1.5	1.5	1.5	1.5	1.5	208	2.8	22	144	40
17	16	5.3	1.5	1.5	1.5	1.5	1.5	234	2.8	20	160	40
18	16	1.5	1.5	1.5	1.5	1.5	1.5	247	2.8	*20	156	35
19	16	1.5	1.5	1.5	1.5	1.5	1.5	247	2.8	21	156	33
20	17	1.5	1.5	1.5	1.5	1.5	1.5	240	2.9	20	142	24
21	16	1.5	1.5	1.5	1.5	1.5	1.5	240	2.9	72	47	26
22	15	1.5	1.5	1.5	1.5	1.5	1.5	232	2.9	107	25	18
23	16	1.5	1.5	1.5	1.5	1.5	1.5	230	19	99	50	19
24	15	1.5	1.5	1.5	1.5	1.5	1.5	232	*47	98	70	22
25	12	1.5	1.5	1.5	1.5	1.5	1.5	229	52	99	73	38
26	12	1.5	1.5	1.5	1.5	1.5	1.5	237	61	99	73	32
27	12	1.5	1.5	1.5	1.5	1.5	1.5	218	70	104	43	32
28	12	1.5	1.5	1.5	1.5	1.5	10	217	73	105	29	27
29	*11	1.5	1.5	1.5	1.5	1.5	19	212	73	113	29	23
30	11	1.5	1.5	1.5	-	1.5	19	210	73	86	30	24
31	11	-	1.5	1.5	-	1.5	-	107	-	73	28	-
Total	383.0	176.8	46.5	46.5	43.5	46.5	88.5	6,324	848.1	1,839	3,391	825
Mean	12.4	5.89	1.50	1.50	1.50	1.50	2.95	204	28.3	59.3	109	27.5
Ac-ft	760	351	92	92	86	92	176	12,540	1,680	3,650	6,730	1,640

Calendar year 1951: Max 171 Min - Mean 18.3 Ac-ft 13,280
Water year 1951-52: Max 253 Min 1.5 Mean 38.4 Ac-ft 27,890

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 2 to Apr. 28; discharge estimated on basis of gate openings at Continental Reservoir.

Willow Creek at Creede, Colo.

Location.--Lat 37°51'20", long. 106°55'40", in SE¼ sec. 25, T. 42 N., R. 1 W., on left bank at north city limits of Creede, 25 ft (revised) upstream from entrance to paved channel just downstream from Windy Gulch, half a mile downstream from confluence of East and West Willow Creeks, and 2½ miles upstream from mouth.

Drainage area.--35.3 sq mi.

Records available.--May 1951 to September 1952.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 8,880 ft (from topographic map).

Extremes.--Maximum discharge during year, 305 cfs June 6 (gage height, 4.32 ft); minimum daily, 3.0 cfs Mar. 17, 22, 23.
1951-52: Maximum and minimum discharges, those of 1952.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Diversions above station for municipal supply of Creede.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 8 to Sept. 30)

1.2	3.4	2.0	31
1.3	4.7	2.5	64
1.4	6.5	3.0	105
1.5	8.5	4.0	248
1.7	16		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.3	6.0	5.2	4.3	3.5	3.6	5.4	43	162	57	26	19
2	7.1	4.2	5.2	4.0	3.5	3.5	6.1	61	156	54	24	18
3	*7.3	6.1	5.2	3.9	3.6	3.4	6.5	86	154	51	22	18
4	7.1	6.1	5.2	3.8	3.7	3.3	7.3	114	155	49	22	17
5	7.3	6.0	5.4	3.7	3.6	3.3	9.1	144	189	51	21	17
6	7.1	5.2	5.2	3.8	3.5	3.4	11	148	215	54	*23	16
7	6.9	5.6	4.4	4.1	3.5	3.4	14	127	231	46	*22	16
8	6.9	5.8	4.6	4.3	3.4	3.4	18	127	228	42	20	16
9	6.5	6.0	4.6	4.2	3.5	3.5	18	*127	228	41	20	16
10	6.5	5.6	4.3	4.0	3.6	3.6	17	115	*231	41	20	16
11	6.7	6.0	a4.4	3.7	3.7	3.5	15	116	215	38	20	16
12	6.5	6.0	a4.7	3.7	3.7	3.4	14	130	193	35	20	16
13	6.5	5.6	a4.6	3.9	3.6	3.2	14	*161	177	33	20	16
14	6.3	5.6	a4.3	3.9	3.6	3.2	*17	182	172	32	22	16
15	6.3	5.4	a4.2	3.6	3.5	3.1	22	180	165	31	19	15
16	6.5	5.1	a4.1	3.6	3.4	3.1	26	159	141	30	17	16
17	6.5	5.8	a4.1	3.8	3.4	3.0	30	123	126	30	19	16
18	6.5	6.0	a4.1	3.8	3.6	3.1	36	99	115	29	20	a16
19	6.5	6.0	a4.3	3.6	3.6	3.2	44	89	111	30	19	a16
20	6.5	5.6	a4.4	3.5	3.4	3.2	42	85	107	27	27	a16
21	6.5	5.6	a4.0	3.5	3.4	3.1	36	78	99	27	27	a19
22	5.8	5.6	a3.8	3.6	3.5	3.0	29	72	94	26	29	a20
23	6.1	5.6	a3.8	3.6	3.6	3.0	27	66	88	26	30	a20
24	6.1	5.4	a3.8	3.6	3.6	*3.2	30	64	*83	26	26	*16
25	6.7	5.4	a4.0	3.6	*3.5	3.3	35	69	77	26	23	16
26	7.1	5.2	*4.0	3.5	3.5	3.4	39	70	74	26	22	16
27	6.7	*5.4	4.1	3.5	3.4	3.8	50	74	70	26	24	16
28	6.1	5.2	4.0	*3.5	3.6	4.2	54	93	64	27	24	16
29	*6.3	5.4	3.9	3.5	3.8	4.5	*47	114	63	25	22	16
30	6.3	5.2	4.0	3.5	-	4.9	40	140	60	26	21	16
31	6.5	-	4.3	3.4	-	4.8	-	138	-	34	20	-
Total	205.0	167.7	136.2	116.0	102.8	107.6	759.4	3,394	4,243	1,096	691	499
Mean	6.61	5.59	4.39	3.74	3.54	3.47	25.3	109	141	35.4	22.3	16.6
Ac-ft	407	333	270	230	204	213	1,510	6,730	8,420	2,170	1,370	990

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 231 Min 3.0 Mean 31.5 Ac-ft 22,850

Peak discharge (base, 120 cfs).--May 5 (7 p.m.) 182 cfs (3.59 ft); May 14 (6 p.m.) 231 cfs (3.90 ft); June 6 (8 p.m.) 305 cfs (4.32 ft).
* Discharge measurement made on this day.
a No gage-height record (stage-discharge relation affected by ice during part of period); discharge estimated on basis of weather records, recorded range in stage, and records for nearby stations. Stage-discharge relation affected by ice Dec. 7-10, Dec. 26 to Mar. 31.

Rio Grande at Wason, below Creede, Colo.

Location.--Lat 37°49'20", long. 106°53'10", in NE¼ sec. 8, T. 41 N., R. 1 E., on left bank at Wason, 300 ft downstream from bridge on State Highway 149, 1½ miles downstream from Willow Creek, and 3 miles southeast of Creede.

Drainage area.--705 sq mi.

Records available.--April 1907 to September 1913 and October 1933 to September 1952 in reports of Geological Survey. April 1907 to September 1952 in reports of State engineer. Prior to October 1914, published as "near Creede."

Gage.--Water-stage recorder. Altitude of gage is 8,550 ft. Prior to Sept. 23, 1910, staff or chain gage at highway bridge 300 ft upstream and Sept. 23, 1910, to Sept. 30, 1934, water-stage recorder 20 ft downstream at datum 0.25 ft higher.

Average discharge.--45 years (1907-52), 627 cfs.

Extremes.--Maximum discharge during year, 4,220 cfs June 12 (gage height, 4.42 ft); minimum daily, 62 cfs Dec. 15.
1907-52: Maximum discharge, 9,750 cfs June 28, 1927 (gage height, 7.65 ft, present datum), from rating curve extended above 4,400 cfs; minimum not determined.

Remarks.--Records excellent except those for periods of ice effect or no gage-height record, which are fair. Diversions above station for irrigation. Flow regulated by three reservoirs (total capacity, 122,900 acre-ft). Transmountain diversions to drainage area above station from Colorado River basin (see p. 240).

Revisions.--W 358: Drainage area.

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 12 to June 19)

Oct. 1 to Aug. 20				Aug. 21 to Sept. 30	
0.2	52	2.0	835	0.9	214
.5	112	3.0	1,760	1.3	384
1.0	268	4.0	3,220	1.7	615
1.5	501	5.0	5,100	2.2	1,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	155	80	89	80	84	108	828	2,340	2,200	1,030	360
2	130	103	79	86	80	82	110	992	2,390	2,230	1,070	326
3	130	125	78	80	80	78	122	1,270	2,540	2,080	1,080	317
4	138	147	*76	72	79	82	135	1,630	2,480	1,930	1,060	299
5	135	141	73	78	76	84	158	1,690	2,400	2,000	1,080	299
6	135	103	70	88	76	79	179	1,320	*2,330	2,200	1,130	286
7	133	105	72	87	78	82	218	1,240	2,460	2,220	1,140	282
8	133	128	70	82	80	86	288	1,670	2,430	2,120	1,140	278
9	130	138	68	*74	80	90	284	2,020	2,430	1,940	1,110	274
10	130	117	71	76	78	100	296	1,710	3,290	1,720	1,120	270
11	125	125	72	78	76	98	288	1,910	3,740	1,660	1,090	282
12	120	130	78	88	76	94	261	1,990	3,780	1,550	1,010	*282
13	110	117	76	86	74	90	276	*2,130	3,470	1,450	*1,020	326
14	103	*112	70	79	72	86	374	2,200	3,100	1,420	1,110	335
15	103	122	62	82	72	80	*428	1,800	3,020	1,400	1,020	350
16	103	80	68	82	76	80	474	1,700	3,350	1,400	924	340
17	105	84	66	84	78	82	530	1,670	3,380	1,390	883	317
18	105	90	*66	84	78	84	614	1,970	2,880	*1,400	859	254
19	105	94	74	80	78	80	676	1,670	2,540	1,400	828	232
20	105	100	74	78	80	80	820	1,560	2,900	1,370	883	228
21	105	108	74	72	84	99	974	1,590	2,710	1,370	974	317
22	97	96	77	77	88	*94	924	1,510	2,360	1,450	745	410
23	86	94	84	78	85	108	820	1,410	2,090	1,420	835	374
24	*94	86	90	82	76	101	875	1,280	*2,030	1,420	798	286
25	117	74	85	80	80	103	924	1,390	1,970	1,560	708	258
26	152	76	82	78	*82	90	966	1,410	2,110	1,560	678	294
27	167	77	84	76	88	90	1,040	1,460	2,220	1,600	738	304
28	135	78	89	74	86	90	1,140	1,690	1,990	1,610	671	299
29	130	78	94	*80	85	90	932	2,110	1,940	1,470	622	326
30	135	78	93	80	-	97	859	2,290	2,110	1,310	485	317
31	158	-	91	80	-	94	-	2,420	-	1,020	426	-
Total	3,798	3,161	2,386	2,490	2,301	2,757	16,093	51,530	78,780	50,870	28,267	9,122
Mean	123	105	77.0	80.3	79.3	88.9	536	1,662	2,626	1,641	912	304
Ac-ft	7,530	6,270	4,730	4,940	4,560	5,470	31,920	102,200	156,300	100,900	56,070	18,090

Calendar year 1951: Max 2,550 Min 62 Mean 289 Ac-ft 209,100
Water year 1951-52: Max 3,780 Min 62 Mean 687 Ac-ft 499,000

Peak discharge (base, 2,300 cfs).--May 14 (1 a.m.) 2,370 cfs (3.37 ft); June 12 (2 a.m.) 4,220 cfs (4.42 ft); June 27 (2:30 a.m.) 2,410 cfs (3.48 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 17-22, Nov. 25 to Mar. 16, 18 (no gage-height record Jan. 6-12; discharge estimated on basis of 1 discharge measurement, weather records, and records for nearby stations).

Rio Grande at Wagonwheel Gap, Colo.

Location.--Lat 37°46'00", long. 106°49'50", in NE¼ sec. 35, T. 41 N., R. 1 E., on right bank 250 ft upstream from road bridge, 0.2 mile upstream from Goose Creek, and 0.3 mile west of town of Wagonwheel Gap.

Drainage area.--780 sq mi.

Records available.--May 1951 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 8,440 ft (from topographic map).

Extremes.--Maximum discharge during year, 3,660 cfs June 12 (gage height, 4.85 ft); minimum daily, 70 cfs Jan. 22.
1951-52: Maximum and minimum discharges, those of 1952.

Remarks.--Records excellent except those for periods of ice effect or no gage-height record, which are fair. Flow regulated by three reservoirs (total capacity, 122,900 acre-ft). Diversions above station for irrigation. Transmountain diversions to drainage area above station from Colorado River basin (see p. 240).

Cooperation.--Four discharge measurements furnished by Bureau of Reclamation.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.2	92	3.0	1,110
1.5	170	4.0	2,360
2.0	368	4.9	3,740

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	146	155	92	86	82	90	150	900	2,290	2,140	1,020	368
2	135	118	90	86	82	88	170	1,050	2,300	2,150	1,060	330
3	*135	126	90	86	80	86	230	1,340	2,420	2,040	1,050	316
4	143	149	86	82	78	86	260	1,740	2,360	1,900	1,040	303
5	143	149	86	74	76	88	280	1,890	2,300	1,970	1,060	299
6	143	111	84	80	78	86	310	1,540	*2,230	2,140	*1,100	295
7	140	124	82	84	80	88	330	1,440	2,330	2,150	1,140	291
8	140	132	84	86	82	92	330	1,810	2,320	2,050	1,120	282
9	137	146	82	82	82	96	320	*2,190	2,320	1,910	1,090	278
10	135	126	82	80	82	100	334	1,900	*2,900	1,720	1,110	274
11	132	132	84	82	80	100	320	2,080	*3,280	1,660	1,080	278
12	126	137	88	84	76	100	295	2,160	3,360	1,540	1,030	286
13	126	129	*90	86	74	100	299	*2,290	*3,170	1,460	1,020	320
14	113	118	88	84	72	98	*408	2,360	2,870	1,420	1,100	320
15	111	110	82	80	*74	96	497	1,980	*2,760	1,380	1,040	334
16	113	100	84	82	76	94	539	1,840	2,990	1,390	948	334
17	116	92	88	84	80	98	616	1,710	3,000	1,380	916	316
18	116	88	88	82	78	100	712	2,010	2,660	1,380	892	270
19	116	92	82	80	78	100	772	1,710	2,400	1,380	868	239
20	118	96	86	76	80	100	892	1,580	2,640	1,370	916	239
21	116	100	84	78	82	98	1,200	1,600	2,520	1,360	1,020	307
22	109	100	82	70	88	94	1,040	1,510	2,260	1,440	796	396
23	102	96	80	*72	88	94	940	1,420	2,070	1,430	868	385
24	107	98	82	78	86	*96	972	1,260	*2,040	1,460	828	*299
25	126	96	86	84	*86	100	1,030	1,370	1,970	1,540	750	270
26	158	88	*86	82	90	105	1,060	1,400	2,070	1,550	712	286
27	173	*86	86	78	92	110	1,110	1,430	2,160	1,600	765	303
28	140	88	82	*76	96	115	1,190	1,660	1,980	1,610	705	299
29	*135	92	86	78	92	125	*1,010	2,040	1,910	1,480	652	320
30	127	92	88	78	-	135	940	2,190	2,050	1,320	504	320
31	155	-	88	80	-	140	-	2,320	-	1,030	438	-
Total	4,042	3,366	2,648	2,496	2,370	3,098	18,556	53,720	73,930	50,350	28,638	9,157
Mean	130	112	85.4	80.5	81.7	99.9	619	1,733	2,464	1,624	924	305
Ac-ft	8,020	6,680	5,250	4,950	4,700	6,140	36,810	106,600	146,600	99,870	56,800	18,160

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 3,360 Min 70 Mean 690 Ac-ft 500,600

Peak discharge (base, 2,300 cfs).--May 13 (12 p.m.) 2,480 cfs (4.08 ft); June 12 (4 a.m.) 3,660 cfs (4.85 ft); June 27 (3:30 a.m.) 2,330 cfs (3.98 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 15 to Apr. 6 (no gage-height record Dec. 17-25, Jan. 6-27, Feb. 7 to Mar. 23, Mar. 27-31, Apr. 3-6; discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations).

Goose Creek near Wagonwheel Gap, Colo.

Location.--Lat 37°41'20", long. 106°50'40", in NW¼ sec. 26, T. 40 N., R. 1 E., on left bank 100 ft downstream from highway bridge, 1 mile downstream from Lake Humphreys, 1½ miles downstream from Roaring Fork, and 5½ miles south of Wagonwheel Gap.

Drainage area.--53.6 sq mi.

Records available.--October 1924 to June 1926, October 1939 to September 1952 (no winter records 1942-47, 1950), discontinued.

Gage.--Water-stage recorder. Altitude of gage is 8,800 ft (from topographic map). Oct. 1, 1924, to June 30, 1926, staff gage on dam 1 mile upstream at different datum.

Average discharge.--7 years (1924-25, 1939-41, 1947-49, 1950-52), 64.8 cfs.

Extremes.--Maximum discharge during year, 833 cfs June 10 (gage height, 2.61 ft); minimum daily not determined.
1924-26, 1939-52: Maximum discharge, 1,170 cfs June 18, 1949, from rating curve extended above 750 cfs; maximum gage height, 2.99 ft June 23, 1941; minimum daily discharge recorded, 7.8 cfs Apr. 1, 5, 6, 1945.

Remarks.--Records good except those for periods of no gage-height record, which are poor. No diversions above station. Lake Humphreys (capacity, 842 acre-ft) has slight effect on flow.

Revisions.--W 1008: Drainage area.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to May 9				May 10 to Sept. 30			
0.7	7.0	1.2	47	1.1	26	1.8	197
.8	12	1.4	88	1.2	36	2.1	342
1.0	25	1.8	221	1.3	50	2.4	590
				1.5	95	2.7	950

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	16	17				17	83	278	210	72	43
2	18	11	16				19	*122	282	201	68	40
3	*19	16	16				23	158	326	181	60	37
4	18	16	16				25	186	298	178	54	36
5	18	16	17				27	209	320	236	50	33
6	17	13	17				30	213	418	206	50	34
7	17	13	17				35	198	590	181	50	33
8	17	16	16				50	190	512	166	52	31
9	16	16	15				48	180	542	151	50	30
10	16	15	15				46	168	612	141	52	30
11	16	16					45	160	656	148	50	30
12	16	16					44	175	601	131	58	*44
13	14	16	15				43	189	571	115	*52	46
14	14	15					49	214	571	107	56	35
15	14	16					52	249	612	95	49	33
16	15	12		12	11	13	61	236	485	*90	44	39
17	14	11					67	193	396	88	43	42
18	14	13					76	155	*369	85	43	35
19	14	*17					79	134	403	82	43	33
20	13	16					76	131	403	78	60	34
21	16	16					61	*127	356	70	88	60
22	16	17					56	121	304	68	66	68
23	16	17	13				52	110	278	68	60	60
24	17	18					63	101	259	70	54	50
25	17	17					72	112	259	68	54	46
26	21	17					81	127	254	62	50	43
27	19	17					102	141	231	70	56	42
28	16	17					99	174	210	90	58	40
29	*17	16					79	214	210	92	54	40
30	17	16			-		72	227	206	88	47	39
31	17	-			-		-	268	-	82	44	-
Total	507	464	445	372	319	403	1,649	5,265	11,612	3,698	1,687	1,206
Mean	16.4	15.5	14.4	12	11	13	55.0	170	394	119	54.4	40.2
Ac-ft	1,010	920	883	738	633	799	3,270	10,440	23,430	7,330	3,350	2,390

Calendar year 1951: Max 217 Min - Mean 30.0 Ac-ft 21,750
Water year 1951-52: Max 656 Min - Mean 76.0 Ac-ft 55,190

Peak discharge (base, 200 cfs).--May 6 (10 p.m.) 244 cfs (1.85 ft); May 15 (11 p.m.) 268 cfs (1.93 ft); June 10 (10 p.m.) 833 cfs (2.61 ft); July 5 (11:15 a.m.) 287 cfs (2.00 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Oct. 20, Dec. 7 to Apr. 15 (stage-discharge relation affected by ice during most of periods), Apr. 23, May 8-12; discharge estimated on basis of weather records and records for stations on nearby streams.

South Fork Rio Grande at South Fork, Colo.

Location.--Lat 37°39'40", long. 106°38'50", in sec. 4, T. 39 N., R. 3 E., on left bank near U. S. Highway 160, a quarter of a mile downstream from Church Creek, 1¼ miles upstream from mouth, and 1½ miles southwest of village of South Fork.

Drainage area.--216 sq mi.

Records available.--August 1910 to September 1913 and May 1936 to September 1952 in reports of Geological Survey. August 1910 to September 1922 and May 1936 to September 1952 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 8,221.79 ft above mean sea level, datum of 1929. Prior to 1936, staff or chain gage at bridges about 1 mile downstream at different datums.

Average discharge.--28 years (1910-22, 1936-52), 231 cfs.

Extremes.--Maximum discharge during year, 3,310 cfs June 10 (gage height, 6.68 ft); minimum daily, 27 cfs Nov. 2.
1910-22, 1936-52: Maximum discharge, 8,000 cfs Oct. 5, 1911 (gage height, 9.7 ft, from floodmarks, present site and datum), from rating curve extended above 1,500 cfs; minimum daily, 18 cfs Jan. 30, Feb. 1, 1951.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Transmountain diversions to drainage area above station from Colorado River basin (see p. 240). A few small diversions and several storage reservoirs above station for irrigation.

Revisions (water years).--W 898: 1911(M).

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 7-26, June 24 to July 1, July 11, 12)

Oct. 1-11, July 11 to Sept. 30		Oct. 12 to July 10			
1.1	32	0.9	23	3.0	457
1.5	85	1.1	42	4.0	895
2.0	169	1.5	96	5.0	1,500
2.5	277	2.0	184	6.0	2,460
3.0	425	2.5	300	6.7	3,340
3.5	610				

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	54	51	43	39	37	90	404	1,340	820	186	91
2	40	27	48	41	40	37	110	587	1,420	777	180	82
3	53	63	47	40	42	36	125	777	1,480	710	160	79
4	64	52	*46	39	43	35	*160	925	1,440	678	194	79
5	51	44	44	37	40	37	200	1,040	1,430	777	246	78
6	50	28	42	42	38	36	250	1,080	1,600	764	219	76
7	44	43	41	45	39	37	305	1,050	2,350	646	167	76
8	42	66	42	42	41	40	330	1,040	2,540	599	129	70
9	46	59	39	*40	42	45	316	1,000	2,470	567	142	69
10	41	54	39	42	42	48	298	810	2,740	511	148	66
11	40	50	41	43	43	49	280	805	*2,740	481	142	66
12	40	49	43	44	41	48	260	860	2,460	425	144	103
13	40	40	46	46	40	47	262	970	2,240	381	137	124
14	39	*53	39	42	37	45	298	1,090	2,140	351	151	91
15	41	53	31	40	35	44	363	*1,200	2,350	325	142	80
16	41	40	33	45	36	44	376	1,150	2,060	303	126	84
17	41	47	34	44	38	45	414	935	1,580	277	112	90
18	40	52	*33	42	40	48	443	736	1,390	260	110	70
19	41	56	36	42	36	48	453	620	1,370	246	105	*66
20	42	58	36	40	35	49	428	583	1,340	237	151	67
21	43	60	36	38	37	47	372	591	1,210	219	*215	149
22	40	56	37	35	40	*45	324	563	1,040	217	164	165
23	36	54	39	38	37	46	311	507	980	196	155	146
24	*40	52	44	43	36	48	372	476	990	*194	149	115
25	50	49	42	44	34	50	*401	539	1,060	186	155	102
26	71	47	41	40	*35	52	446	692	1,060	186	139	96
27	68	49	41	35	36	54	527	830	*995	186	151	90
28	44	52	44	33	37	60	511	975	880	210	136	85
29	49	52	48	*35	38	64	401	1,140	860	235	131	84
30	49	52	46	37	-	73	366	1,130	860	223	115	88
31	57	-	45	38	-	78	-	1,260	-	208	102	-
Total	1,424	1,511	1,274	1,255	1,117	1,470	9,792	26,385	48,415	12,395	4,703	2,727
Mean	45.9	50.4	41.1	40.5	38.5	47.4	326	850	1,614	400	152	90.9
Ac-ft	2,820	3,000	2,530	2,490	2,220	2,920	19,420	52,290	96,030	24,590	9,330	5,410

Calendar year 1951: Max 790 Min 18 Mean 107 Ac-ft 77,300
Water year 1951-52: Max 2,740 Min 27 Mean 307 Ac-ft 223,000

Peak discharge (base, 900 cfs).--May 6 (12:15 a.m.) 1,180 cfs (4.58 ft); May 15 (11:30 p.m.) 1,280 cfs (4.70 ft); June 10 (11 p.m.) 3,310 cfs (6.68 ft); June 25 (10 p.m.) 1,160 cfs (4.39 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 17 to Apr. 6 (no gage-height record Dec. 7 to Apr. 3; discharge estimated on basis of 5 discharge measurements, weather records, and records for nearby stations).

Rio Grande near Del Norte, Colo.

Location.--Lat 37°41'20", long. 106°27'30", in NW¼ sec. 29, T. 40 N., R. 5 E., on right bank 20 ft downstream from highway bridge, 5 miles upstream from Pinos Creek, and 6 miles west of Del Norte.

Drainage area.--1,320 sq mi, approximately.

Records available.--July 1889 to November 1906, April 1908 to September 1913, and October 1933 to September 1952 in reports of Geological Survey. July 1889 to September 1906 and April 1908 to September 1952 in reports of State engineer. May to September 1907, in files of State engineer.

Gage.--Water-stage recorder. Datum of gage is 7,982.21 ft above mean sea level, datum of 1929. Prior to May 16, 1908, staff gage at site 4 miles downstream at different datum. May 16, 1908, to Nov. 8, 1910, staff or chain gage on bridge at present site and datum.

Average discharge.--63 years (1889-1952), 953 cfs.

Extremes.--Maximum discharge during year, 7,050 cfs June 12 (gage height, 5.11 ft); minimum daily, 120 cfs Nov. 26, Jan. 22.
1889-1952: Maximum discharge, 18,000 cfs Oct. 5, 1911 (gage height, 6.80 ft), from rating curve extended above 6,000 cfs; minimum daily, 69 cfs Aug. 21, 1902.

Remarks.--Records excellent except those for periods of ice effect or no gage-height record, which are fair. Small diversions above station for irrigation. Flow regulated by three main reservoirs (total capacity, 122,900 acre-ft) and several smaller ones. Trans-mountain diversions to drainage area above station from Colorado River basin (see p. 240).

Revisions.--W 763: Drainage area.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 4-6, June 11-21)

0.6	110	2.5	1,570
.9	226	3.0	2,320
1.4	520	5.3	7,240
2.0	1,010		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	180	231	140	195	165	155	255	1,460	4,180	*3,150	1,320	568
2	169	176	145	185	*164	150	300	1,760	*4,430	3,140	1,330	507
3	*165	169	140	180	170	140	345	2,410	4,540	2,970	1,310	*481
4	189	221	*145	*172	180	130	*395	3,120	4,520	2,790	1,290	462
5	185	*221	140	125	175	135	419	*3,640	4,410	2,970	1,370	437
6	185	180	135	160	160	135	468	3,360	4,580	3,100	1,370	431
7	176	150	125	190	165	*133	*688	3,140	5,170	3,000	*1,330	425
8	176	173	130	170	175	140	848	3,310	5,280	2,820	1,280	407
9	173	212	123	155	180	150	804	*3,800	*5,210	2,680	1,260	395
10	169	212	125	140	180	165	754	3,190	5,900	*2,410	1,290	377
11	169	194	150	145	185	170	754	3,340	*6,540	2,300	1,260	371
12	*162	212	160	155	185	170	680	3,460	6,540	2,110	1,220	*413
13	162	208	170	170	180	165	649	3,700	6,110	1,900	1,190	500
14	154	189	150	160	165	160	762	4,070	5,670	1,830	1,280	462
15	150	165	133	140	150	155	946	3,920	5,600	1,770	1,240	462
16	147	147	140	150	150	150	1,030	3,740	5,950	1,760	1,120	• 468
17	147	125	150	170	160	155	1,120	3,190	5,350	1,700	1,060	468
18	143	128	*140	*155	170	160	1,250	3,360	4,740	1,690	1,030	395
19	143	132	165	150	160	160	1,350	2,860	4,340	1,670	1,020	341
20	154	*140	160	145	140	165	1,410	2,590	4,520	1,650	1,080	330
21	158	160	160	140	150	155	1,640	*2,590	*4,340	1,610	*1,350	455
22	158	150	170	120	160	*143	1,510	2,430	3,820	1,670	1,080	656
23	150	140	180	145	165	140	*1,370	2,260	3,460	1,660	1,130	634
24	*143	150	185	160	155	145	1,440	2,020	3,400	*1,690	1,080	*520
25	162	130	190	200	140	150	1,560	2,100	3,320	1,770	992	455
26	194	120	185	170	*155	155	1,640	2,430	3,340	1,800	919	443
27	253	130	175	150	160	160	1,780	2,570	3,440	1,810	983	468
28	208	135	185	135	165	165	1,980	2,950	3,080	1,920	928	455
29	180	140	205	140	165	180	1,660	3,600	2,950	1,870	901	462
30	189	140	210	150	-	200	1,460	3,760	3,040	1,710	745	474
31	208	-	200	160	-	200	-	4,140	-	1,440	656	-
Total	5,301	4,980	4,911	4,882	4,774	4,836	31,267	94,270	137,770	66,360	35,414	13,722
Mean	171	166	158	157	165	156	1,042	3,041	4,592	2,141	1,142	457
Ac-ft	10,510	9,880	9,740	9,680	9,470	9,590	62,020	187,000	273,300	131,600	70,240	27,220

Calendar year 1951: Max 3,540 Min 80 Mean 427 Ac-ft 309,200
Water year 1951-52: Max 6,540 Min 120 Mean 1,116 Ac-ft 810,200

Peak discharge (base, 3,200 cfs).--May 5 (9 p.m.) 3,780 cfs (3.71 ft); May 9 (6 a.m.) 3,990 cfs (3.85 ft); May 15 (2:30 a.m.) 4,280 cfs (3.98 ft); June 12 (4:30 a.m.) 7,050 cfs (5.11 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 15, Nov. 17 to Apr. 3 (no gage-height record Jan. 1 to Feb. 29; discharge estimated on basis of 4 discharge measurements, weather records, and records for nearby stations).

Pinos Creek near Del Norte, Colo.

Location.--Lat 37°35'20", long. 106°26'50", in sec. 29, T. 39 N., R. 5 E., on right bank just downstream from Bennett Creek, 8 miles southwest of Del Norte.

Drainage area.--53 sq mi, approximately.

Records available.--May 1936 to September 1952 in reports of Geological Survey. May 1919 to September 1924 and May 1936 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 8,350 ft (from topographic map). May 1, 1919, to Sept. 30, 1924, staff gages near present site at different datums.

Average discharge.--8 years (1940-41, 1943-47, 1949-52), 27.5 cfs.

Extremes.--Maximum discharge during year, 344 cfs July 27 (gage height, 3.27 ft); minimum not determined.
1919-24, 1936-52: Maximum daily discharge, 2,400 cfs June 3, 1922; minimum daily recorded, 1.8 cfs Sept. 26-28, 1951.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. One small diversion above station.

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 5		Nov. 6 to June 15				June 16 to Sept. 30			
0.1	1.8	0.1	2.0	1.0	52	0.2	7.0	1.0	59
.2	5.2	.3	9.5	2.0	161	.4	16	2.0	161
.3	10	.7	30	3.0	302	.7	35	3.0	302

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.5	b4.2					a11	46	156	79	37	13
2	2.5	b2.5					a12	70	157	73	a31	12
3	4.2	4.5					a13	113	186	70	a28	12
4	3.8	4.9					*a14	151	179	64	a19	12
5	3.8	*4.5					18	177	184	71	a20	12
6	3.8						20	188	207	62	a21	12
7	3.8						24	180	244	57	a20	12
8	3.8	a4.7					22	178	257	51	20	11
9	3.8						14	161	263	49	21	11
10	3.8						14	129	276	48	25	11
11	3.8						16	125	*281	48	20	11
12	*3.8						18	136	272	41	22	14
13	3.5	a4.5					19	154	258	35	23	15
14	3.2						27	171	256	33	23	12
15	3.2						34	*170	256	32	18	11
16	3.8		a4.5	a3.8	a3.6	a4.0	33	156	238	31	16	12
17	4.2						35	132	208	29	18	12
18	4.2	a4.4					40	103	196	28	19	11
19	4.2						43	83	196	26	21	*9.8
20	4.2						41	75	191	25	26	9.8
21	4.2	(*)					36	76	177	23	*29	17
22	3.5						30	69	157	24	22	20
23	2.8						31	65	138	29	19	14
24	3.8						37	60	125	*30	18	12
25	4.5						*42	70	119	32	18	12
26	6.2	a5.0					43	89	113	39	17	11
27	4.9						51	102	*107	54	20	11
28	3.8	(*)					58	108	98	54	20	11
29	4.9						50	117	92	34	17	11
30	4.2				-		46	132	86	32	15	11
31	4.9	-			-		-	141	-	34	14	-
Total	121.6	138.6	139.5	117.8	104.4	124.0	892	3,727	5,673	1,337	657	365.6
Mean	3.92	4.62	4.5	3.8	3.6	4.0	29.7	120	189	43.1	21.2	12.2
Ac-ft	241	275	277	234	207	246	1,770	7,390	11,250	2,650	1,300	725

Calendar year 1951: Max 81 Min 1.8 Mean 10.6 Ac-ft 7,710
Water year 1951-52: Max 281 Min - Mean 36.6 Ac-ft 26,560

Peak discharge (base, 120 cfs).--May 6 (5 p.m.) 206 cfs (2.34 ft); May 15 (8:30 p.m.) 201 cfs (2.31 ft); June 10 (9 p.m.) 312 cfs (3.07 ft); July 27 (4 p.m.) 344 cfs (3.27 ft).

* Discharge measurement made on this day.

a No gage-height record (stage-discharge relation affected by ice during part of period); discharge estimated on basis of 3 discharge measurements, weather records, and records for stations on nearby streams.

b Stage-discharge relation affected by ice.

Rio Grande near Monte Vista, Colo.

Location.--Lat 37°36'30", long. 106°08'50", at west line of sec. 19, T. 39 N., R. 8 E., on left bank 25 ft (revised) downstream from bridge on U. S. Highway 285, and 2 miles north of Monte Vista.

Drainage area.--1,590 sq mi, approximately.

Records available.--October 1933 to September 1952 in reports of Geological Survey. May 1926 to September 1952 in reports of State engineer (no winter records in earlier years).

Gage.--Water-stage recorder. Datum of gage is 7,654.54 ft above mean sea level, datum of 1929. Prior to July 23, 1927, staff gage and July 23, 1927, to Feb. 22, 1934, water-stage recorder near present site at datum 0.50 ft higher. Feb. 23, 1934, to Aug. 19, 1936, water-stage recorder at present site and datum. Aug. 20 to Dec. 30, 1936, water-stage recorder at site 75 ft downstream at present datum. Dec. 31, 1936, to Apr. 2, 1937, water-stage recorder at present site and datum. Apr. 3, 1937, to June 14, 1938, water-stage recorder at site 75 ft downstream at present datum.

Average discharge.--19 years (1933-52), 359 cfs.

Extremes.--Maximum discharge during year, 4,500 cfs June 13 (gage height, 6.75 ft); minimum daily, 14 cfs Nov. 8.
1926-52: Maximum discharge, 18,500 cfs June 30, 1927 (gage height, 8.35 ft, present datum); minimum daily, 4 cfs Apr. 18, 1927 (corrected).

Remarks.--Records good except those for period of ice effect, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

Revisions.--W 928: Drainage area.

Rating table, water year 1951-52, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.7	12	2.6	468
1.0	39	3.0	650
1.4	101	3.5	930
1.8	192	4.0	1,320
2.2	318	7.0	4,820

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	72	65	205	175	180	263	502	1,380	1,000	572	146
2	72	81	70	195	180	175	247	582	1,480	1,020	394	89
3	64	77	77	175	183	172	263	788	1,400	872	353	56
4	70	54	76	*142	185	172	207	1,080	1,720	794	204	40
5	77	43	69	132	190	184	201	1,560	1,510	1,060	141	43
6	82	30	77	130	179	173	302	1,260	1,550	1,190	228	44
7	81	19	120	165	175	181	350	847	2,300	993	216	36
8	86	14	133	190	182	181	440	690	2,880	853	143	30
9	87	16	137	185	190	178	436	1,260	2,740	847	89	21
10	87	18	130	165	190	198	*405	800	2,840	*778	101	19
11	87	18	133	160	195	222	160	685	3,440	725	124	28
12	87	18	*145	170	199	189	84	772	*3,670	615	137	50
13	81	*15	152	180	195	201	40	872	3,970	519	128	96
14	77	18	160	183	185	173	146	1,170	2,890	555	176	79
15	70	26	155	168	175	184	266	1,210	2,640	605	231	65
16	69	27	145	165	165	187	325	1,040	2,790	578	135	72
17	70	23	152	170	170	*192	428	705	2,580	506	126	82
18	70	24	162	180	178	189	409	865	1,950	436	120	64
19	70	25	155	170	180	192	394	1,120	1,380	417	61	38
20	72	27	166	160	170	207	417	*432	1,500	364	72	*39
21	82	29	170	155	162	189	568	675	1,580	305	436	77
22	94	31	175	148	170	178	350	625	1,670	228	342	256
23	96	89	180	145	180	176	137	555	930	181	250	238
24	*86	79	190	*150	176	187	360	472	1,140	146	325	153
25	82	56	195	170	170	187	464	405	1,210	160	259	86
26	94	53	198	190	*165	184	460	695	1,170	178	*250	64
27	84	51	193	178	175	198	542	937	1,200	228	292	70
28	92	*51	190	150	185	178	564	1,030	865	315	346	81
29	74	59	193	155	182	228	*322	1,060	917	502	325	74
30	62	69	200	165	-	244	424	979	884	*532	176	72
31	70	-	210	170	-	269	-	1,320	-	519	101	-
Total	2,445	1,214	4,573	5,166	5,206	5,948	9,974	26,993	58,176	18,021	6,853	2,308
Mean	78.9	40.5	148	167	180	192	332	871	1,939	581	221	76.9
Ac-ft	4,850	2,410	9,070	10,250	10,330	11,800	19,780	53,540	115,400	35,740	13,590	4,580

Calendar year 1951: Max 1,330 Min 6.4 Mean 160 Ac-ft 116,000
Water year 1951-52: Max 3,970 Min 14 Mean 401 Ac-ft 291,300

Peak discharge (base, 3,000 cfs).--June 13 (12 m.) 4,500 cfs (6.75 ft).
* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Dec. 10 to Mar. 4.

Rio Grande at Alamosa, Colo.

Location.--Lat 37°29', long. 105°53', in SE¼ sec. 4, T. 37 N., R. 10 E., on right bank a quarter of a mile northwest of city limits of Alamosa and 7 miles upstream from Alamosa Creek.

Drainage area.--1,710 sq mi, approximately.

Records available.--May 1912 to September 1913 and October 1933 to September 1952 in reports of Geological Survey. May 1912 to September 1952 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 7,532.66 ft above mean sea level, datum of 1929. Prior to Apr. 7, 1915, staff or chain gage and Apr. 7, 1915, to Nov. 5, 1935, water-stage recorder at railroad and highway bridge in Alamosa half a mile to 2 miles downstream at different datums. Nov. 6, 1935, to June 30, 1942, water-stage recorder at present site at datum 1.00 ft higher.

Average discharge.--40 years (1912-52), 306 cfs.

Extremes.--Maximum discharge during year, 2,820 cfs June 14 (gage height, 7.63 ft); minimum daily, 7.0 cfs Nov. 2.
1912-52: Maximum discharge, 14,000 cfs July 1, 1927; maximum gage height, 10.62 ft June 20, 1949; minimum daily discharge, 1.0 cfs May 19, 1950.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

Revisions.--W 928: Drainage area.

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 10-12, 14-19, July 25, 26)

Oct. 1 to Feb. 29		Mar. 1 to July 25				July 26 to Sept. 30	
0.7	7.0	1.0	17	3.0	317	0.6	14
.9	20	1.2	33	4.0	615	.9	30
1.3	55	1.5	63	6.0	1,470	1.4	75
1.8	109	2.0	127	8.0	2,930	2.0	146
2.3	185	2.5	208				

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	11	90	175	150	160	244	46	348	45	72	44
2	12	7.0	97	160	152	160	240	60	411	45	52	42
3	12	10	92	140	155	157	238	83	455	37	48	34
4	13	11	*99	130	160	155	242	203	491	23	39	30
5	13	*13	99	120	162	155	223	446	622	21	34	28
6	13	13	89	120	165	160	169	702	522	109	32	26
7	13	12	94	122	160	160	158	479	548	170	36	26
8	13	11	105	*125	155	164	190	268	1,050	99	57	26
9	13	10	120	140	160	164	227	167	1,390	*83	53	26
10	12	9.4	120	135	165	170	*242	381	1,370	88	48	24
11	13	9.4	122	132	168	180	231	174	1,450	83	32	22
12	13	9.4	125	130	170	185	135	106	*1,730	106	33	22
13	*13	8.8	129	135	172	190	90	87	2,160	96	41	22
14	13	7.6	135	140	175	198	68	95	*2,620	64	38	20
15	14	8.2	140	145	170	210	56	174	1,810	63	37	20
16	14	10	132	140	160	221	71	246	1,510	90	42	20
17	14	10	128	145	155	*218	77	212	1,520	68	34	19
18	13	13	*134	150	160	201	80	156	1,300	50	42	18
19	13	34	140	145	162	208	71	190	808	42	49	20
20	11	44	140	140	165	197	61	*87	443	35	38	*22
21	8.2	*51	145	135	165	199	67	54	464	27	35	22
22	7.6	51	150	130	155	169	128	85	405	17	110	24
23	7.6	40	155	135	160	170	114	121	219	20	137	54
24	7.6	40	160	140	165	175	61	57	120	28	95	64
25	7.6	45	165	145	158	180	56	42	116	33	*98	53
26	9.4	42	170	148	153	180	90	31	137	33	69	38
27	10	48	172	150	*150	183	92	69	112	49	65	41
28	10	61	175	145	155	183	100	183	119	74	55	47
29	10	84	175	*140	158	181	*110	170	63	*95	92	52
30	11	94	180	145	-	206	61	166	52	96	90	51
31	11	-	180	148	-	225	-	146	-	86	68	-
Total	357.0	817.8	4,157	4,330	4,660	5,664	3,992	5,486	23,365	1,975	1,771	957
Mean	11.5	27.3	134	140	161	183	133	177	812	63.7	57.1	31.9
Ac-ft	708	1,620	8,250	8,590	9,240	11,230	7,920	10,880	48,330	3,920	3,510	1,900

Calendar year 1951: Max 183 Min 7.0 Mean 64.0 Ac-ft 46,360
Water year 1951-52: Max 2,620 Min 7.0 Mean 160 Ac-ft 116,100

Peak discharge (base, 2,500 cfs).--June 14 (10 a.m.) 2,820 cfs (7.63 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Jan. 12 to Mar. 13, Mar. 24-26 (stage-discharge relation affected by ice during most of periods); discharge estimated on basis of 2 discharge measurements, weather records for nearby stations. Stage-discharge relation affected by ice Dec. 7 to Jan. 11, Mar. 14, 15.

Rock Creek near Monte Vista, Colo.

Location.--Lat 37°29'30", long. 106°15'40", in SE¼ sec. 36, T. 38 N., R. 6 E., on left bank 3 miles downstream from North Fork and 9 miles southwest of Monte Vista.

Drainage area.--33.6 sq mi.

Records available.--May 1935 to September 1952 in reports of Geological Survey. April 1919 to September 1924 and May 1935 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 8,280 ft (from topographic map). Apr. 1, 1919, to Apr. 4, 1922, staff gage and Apr. 5, 1922, to Sept. 30, 1924, water-stage recorder at site 1½ miles downstream at different datum.

Extremes.--Maximum discharge during year, 190 cfs Aug. 19 (gage height, 3.01 ft); minimum daily determined, 1.0 cfs Nov. 2.
1919-24, 1935-52: Maximum discharge, that of Aug. 19, 1952; minimum daily determined, that of Nov. 2, 1951.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. No diversions above station.

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 15, July 5 to Sept. 30		Nov. 16 to July 4			
0.1	0	0.2	1.0	0.8	17
.2	1.5	.3	2.5	1.1	32
.3	3.5	.4	4.5	1.6	65
.5	9.0	.6	10	2.1	105
.7	16				
.9	26				

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	2.1					a7.2	24	67	27	12	9.9
2	1.4	b1.0					a7.6	33	70	26	12	9.6
3	1.4	b1.7					a7.8	53	79	25	10	9.3
4	1.5	2.7					*a8.2	73	79	24	10	8.7
5	1.5	2.5					8.8	84	83	24	11	8.4
6	1.7	*b1.9					10	96	90	24	11	8.1
7	1.7	b2.1					12	99	99	25	10	7.5
8	1.9	b2.3					15	99	100	24	11	6.9
9	1.9	b2.1					12	93	99	24	11	6.9
10	1.7	b2.1					9.7	71	100	26	11	*6.6
11	1.9	2.1					9.4	58	101	26	9.9	6.6
12	1.9	1.9					9.4	59	99	21	12	7.2
13	1.7	b2.1					9.1	69	a87	20	16	7.2
14	1.7	b2.0					11	86	a82	18	*15	6.6
15	1.9	1.9	a2.0	a1.8	a1.7	a2.4	14	95	79	17	12	6.0
16	2.1						17	91	72	*16	11	6.9
17	1.9						18	75	62	15	11	6.9
18	1.9	a2.3					20	62	*59	15	13	6.0
19	1.9						19	52	57	14	16	5.8
20	1.9	(*)					22	*45	57	14	17	5.8
21	2.1						18	45	53	13	16	9.0
22	1.9						14	45	49	12	10	9.9
23	1.7	a2.4					12	42	45	12	10	7.8
24	*1.7						15	37	40	13	12	6.6
25	2.5						19	39	38	13	10	6.0
26	2.7						25	45	36	14	15	6.0
27	2.7	(*)					33	53	34	13	12	6.0
28	1.7	a2.2					36	55	32	12	14	6.0
29	2.1						*30	54	30	13	14	5.8
30	2.3				-		26	59	28	13	11	5.8
31	2.5	-			-		-	64	-	13	10	-
Total	58.8	65.0	62.0	55.8	49.3	74.4	475.2	1,955	2,006	566	375.9	215.8
Mean	1.90	2.17	2.0	1.8	1.7	2.4	15.8	63.1	66.9	18.3	12.1	7.19
Ac-ft	117	129	123	111	98	148	943	3,880	3,980	1,120	746	428

Calendar year 1951: Max 20 Min 1.0 Mean 3.88 Ac-ft 2,810
Water year 1951-52: Max 101 Min - Mean 16.3 Ac-ft 11,820

Peak discharge (base, 40 cfs).--May 8 (11 p.m.) 106 cfs (2.09 ft); May 15 (10 p.m.) 101 cfs (2.02 ft); June 10 (11:45 p.m.) 109 cfs (2.15 ft); Aug. 19 (12 m.) 190 cfs (3.01 ft).

* Discharge measurement made on this day.

a No gage-height record (stage-discharge relation affected by ice during part of periods); discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations.

b Stage-discharge relation affected by ice.

Closed basin in San Luis Valley, Colo.

Kerber Creek at Ashley Ranch, near Villa Grove, Colo.

Location.--Lat 38°15, long. 106°08, in sec. 7, T. 46 N., R. 8 E., on left bank at Ashley Ranch, 10 miles west of Villa Grove.

Drainage area.--38 sq mi, approximately.

Records available.--May 1936 to September 1952 in reports of Geological Survey. June 1923 to September 1926 (published as "near Villa Grove") and May 1936 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder.

Average discharge.--6 years (1940-51, 1947-52), 14.0 cfs.

Extremes.--Maximum discharge during year, 112 cfs June 7 (gage height, 2.50 ft); minimum daily determined, 1.2 cfs Nov. 2, 3.
1923-26, 1936-52: Maximum discharge, 407 cfs May 14, 1941, from rating curve extended above 160 cfs; maximum gage height, 5.04 ft May 11, 1947; minimum daily discharge recorded, 0.2 cfs Sept. 3, 1950.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. No diversion above station.

Rating tables, water year 1951-52, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 4, Aug. 24 to Sept. 30		Apr. 5 to Aug. 23			
1.3	0	1.4	3.6	2.0	42
1.4	2.1	1.5	6.7	2.3	80
1.5	4.9	1.6	11	2.6	128
1.6	8.5	1.7	17		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	2.9					a6.8	23	80	18	18	2.7
2	1.3	a1.2					a7.0	32	86	17	9.7	2.7
3	1.5	a1.2					a7.4	41	88	16	7.6	2.9
4	1.5	b2.4					a7.6	54	82	15	6.7	2.7
5	1.7	3.5					*a8.0	73	90	19	6.1	2.7
6	1.9	*a2.8					10	85	99	22	6.1	2.7
7	1.5	a1.8					12	79	109	16	5.8	2.7
8	1.7	a1.8					10	79	96	14	5.2	2.4
9	*1.7	a2.1					9.3	76	90	13	4.8	2.4
10	1.9	a2.0					9.3	69	86	19	5.5	*2.4
11	2.1						8.0	60	85	16	5.8	2.7
12	1.9						8.8	60	79	14	6.7	4.9
13	1.5						8.4	69	73	11	4.8	4.9
14	1.5						9.3	79	72	10	*6.7	3.8
15	1.5		a2.2	a3.2	a3.0	a4.0	9.3	86	69	9.7	6.1	3.8
16	1.5						11	90	62	8.4	6.1	4.1
17	1.5						13	79	52	*9.3	7.6	4.6
18	1.7						16	66	*48	8.0	9.7	3.8
19	1.7						18	54	45	7.6	8.0	3.2
20	1.5						18	*50	40	6.7	9.3	3.2
21	1.5	a2.8 (*)					16	49	38	6.7	11	7.1
22	3.2						15	44	35	5.8	8.4	5.3
23	2.9						16	41	31	6.1	6.1	3.5
24	2.9						19	38	29	6.1	5.6	3.2
25	1.9						22	38	28	7.6	4.9	3.2
26	4.1						22	40	27	9.3	4.9	3.2
27	3.2						23	40	27	7.1	4.9	2.9
28	2.9						27	43	23	23	4.9	2.9
29	2.7						*23	54	22	19	4.9	2.7
30	2.1				-		19	66	19	19	4.1	2.9
31	2.7	-			-		-	74	-	16	3.8	-
Total	62.5	77.7	68.2	99.2	87.0	124.0	409.2	1,831	1,810	395.4	209.8	102.2
Mean	2.02	2.59	2.2	3.2	3.0	4.0	13.6	59.1	60.3	12.8	6.77	3.41
Ac-ft	124	154	135	197	173	246	812	3,630	3,590	784	416	203

Calendar year 1951: Max 42 Min - Mean 5.55 Ac-ft 4,010
Water year 1951-52: Max 109 Min - Mean 14.4 Ac-ft 10,460

Peak discharge (base, 70 cfs).--May 6 (8 p.m.) 88 cfs (2.35 ft); May 16 (2 a.m.) 93 cfs (2.38 ft); June 7 (11 a.m.) 112 cfs (2.50 ft).

* Discharge measurement made on this day.

a No gage-height record (stage-discharge relation affected by ice during most of periods); discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations.

b Stage-discharge relation affected by ice.

Closed basin in San Luis Valley, Colo.

Saguache Creek near Saguache, Colo.

Location.--Lat 38°09', long. 106°19', in sec. 11, T. 45 N., R. 6 E., on left bank just upstream (revised) from Fork Creek, 10 miles northwest of Saguache.
Drainage area.--595 sq mi.
Records available.--August 1910 to September 1912 and October 1933 to September 1952 in reports of Geological Survey. August 1910 to September 1912 and June 1914 to September 1952 in reports of State engineer. (No winter records some years.)
Gage.--Water-stage recorder. Altitude of gage is 8,000 ft (revised). Prior to Apr. 9, 1934, at site three-quarters of a mile downstream at different datum.
Average discharge.--35 years (1910-12, 1914-36, 1940-42, 1943-52), 78.1 cfs.
Extremes.--Maximum discharge during year, 564 cfs June 12 (gage height, 1.68 ft); minimum not determined.

1910-12, 1914-52: Maximum discharge, 746 cfs June 15, 1921 (gage height, 3.45 ft, site and datum then in use), from rating curve extended above 500 cfs; minimum daily recorded, 8.2 cfs Dec. 22, 1950, Aug. 17, 1951.

Revisions.--The figures of maximum discharge for water years 1948 and 1949 have been revised to 738 cfs May 20, 1948 (gage height, 2.28 ft) and 696 cfs June 19, 1949 (gage height, 2.21 ft), superseding figures published in Water-Supply Papers 1118 and 1148, respectively.
Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.
Revisions.--Revised figures of discharge for high-water periods in water years 1948 and 1949, superseding those published in Water-Supply Papers 1118 and 1148, are given herewith.

Day (water year)	Discharge (cfs)	Day (water year)	Discharge (cfs)	Day (water year)	Discharge (cfs)	Day (water year)	Discharge (cfs)
1947-48		1947-48		1948-49		1948-49	
May 13	138	June 25	166	May 17	302	June 28	235
16	208	26	178	18	289	29	230
17	240	27	178	19	271	30	235
18	262	28	174	20	271	July 1	253
19	335	29	158	21	266	2	280
20	508	30	162	23	244	3	248
21	596	July 1	186	24	244	4	244
22	624	2	178	25	248	6	240
23	608	3	166	26	262	7	248
24	574	4	162	27	284	8	316
25	608	5	158	28	307	9	289
26	503	6	150	29	316	10	280
27	395	7	158	30	316	11	330
28	390	8	147	31	302	12	325
29	370	9	135	June 1	294	13	258
30	361	10	126	2	271	14	235
31	356	11	118	3	258	15	222
June 1	385	12	115	4	316	16	212
2	400	13	106	5	366	17	199
3	415			6	307	18	194
4	445	1948-49		7	348	19	204
5	476	Apr. 24	118	8	356	20	212
6	380	25	154	9	348	21	212
7	361	26	126	10	330	22	208
8	370	27	144	11	366	23	199
9	343	29	129	12	352	24	199
10	348	May 1	113	13	435	25	208
11	361	2	120	14	465	26	182
12	390	3	147	15	470	27	174
13	352	4	178	16	395	28	158
14	302	5	158	17	425	29	154
15	280	7	178	18	558	30	138
16	262	8	162	19	652	31	135
17	240	9	170	20	552	Aug. 1	123
18	226	10	170	21	445	2	120
19	217	11	199	22	420	3	126
20	222	12	235	23	370	4	126
21	212	13	276	24	370	5	113
22	222	14	244	25	334	6	108
23	199	15	280	26	253	7	106
24	174	16	307	27	240	8	106

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
May 1948	9,159	624	127	295	18,170
June	8,598	476	158	287	17,050
July	3,439	186	64	111	6,820
Water year 1947-48	35,945	624	11	98.2	71,290
Calendar year 1948	34,156	624	11	93.3	67,750
April 1949	2,215	154	35	73.8	4,390
May	7,278	316	113	235	14,440
June	10,996	652	230	367	21,810
July	7,004	330	135	226	13,890
August	2,546	126	46	82.1	5,050
Water year 1948-49	36,507	652	-	100	72,410
Calendar year 1949	37,001	652	-	101	72,860

Revised peak discharge.--1947-48: Apr. 19 (1:30 p.m.) 458 cfs (2.25 ft); Apr. 30 (6:15 p.m.) 284 cfs (1.67 ft); May 20 (11 p.m.) 738 cfs (2.28 ft); June 5 (3 a.m.) 608 cfs (2.05 ft); June 13 (1:30 a.m.) 420 cfs (1.70 ft); July 1 (3 a.m.) 199 cfs (1.22 ft).
1948-49: Apr. 26 (10:30 a.m.) 204 cfs (1.23 ft); May 4 (1 p.m.) 208 cfs (1.24 ft); May 16 (6 p.m.) 334 cfs (1.52 ft); May 30 (3 a.m.) 343 cfs (1.54 ft); June 5 (9:30 a.m.) 395 cfs (1.65 ft); June 15 (8 a.m.) 608 cfs (2.05 ft); June 19 (9 p.m.) 696 cfs (2.21 ft); July 2 (3:30 a.m.) 366 cfs (1.51 ft); July 8 (10:30 p.m.) 410 cfs (1.60 ft); July 12 (5 a.m.) 385 cfs (1.54 ft).

Closed basin in San Luis Valley, Colo.

Saguache Creek near Saguache, Colo.--Continued

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.2	13	0.8	103
.3	19	1.1	210
.5	42	1.6	507

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	19					36	60	206	108	108	60
2	19	18					44	72	215	101	106	53
3	20	27					39	98	272	94	82	51
4	20	28		(*)			42	122	283	94	72	49
5	20	27		20	27	27	52	151	261	106	70	51
6	21	*25					62	192	278	134	66	49
7	21	26	(*)				82	186	358	130	64	47
8	21	26					89	165	395	116	62	46
9	*21	30					94	174	395	119	58	44
10	21	26					74	170	*395	134	64	42
11	21	21					70	160	440	119	76	41
12	22	21					60	170	453	106	74	49
13	22	21	(*)				55	*188	402	92	68	60
14	21	20	16			28	55	206	346	82	74	49
15	21	19		25			*70	188	306	80	70	41
16	21	18					66	196	283	76	64	39
17	22	16				*26	68	196	256	72	64	47
18	23	17				26	70	192	230	68	80	44
19	23	18				26	78	170	230	74	87	38
20	24	20			28	26	82	165	230	68	94	38
21	22	*18				25	103	188	206	56	122	66
22	23	17				25	96	154	178	53	116	94
23	23	17				26	68	165	162	49	106	80
24	24	16		(*)		28	58	148	154	53	94	*64
25	24	15		27		*29	62	127	140	58	80	56
26	27	14				27	62	134	140	*68	*74	53
27	28	15				26	62	140	*134	70	82	51
28	21	16	19		(*)	30	87	127	125	127	94	49
29	18	*16				33	82	144	122	116	87	49
30	18	16			-	36	64	174	119	96	74	53
31	19	-			-	32	-	192	-	96	64	-
Total	672	603	514	747	802	859	2,032	4,916	7,714	2,815	2,496	1,553
Mean	21.7	20.1	16.6	24.1	27.7	27.7	67.7	159	257	90.8	80.5	51.8
Ac-ft	1,330	1,200	1,020	1,480	1,590	1,700	4,030	9,750	15,300	5,580	4,950	3,080

Calendar year 1951: Max 149 Min 8.2 Mean 30.4 Ac-ft 22,030
Water year 1951-52: Max 453 Min - Mean 70.3 Ac-ft 51,010

Peak discharge (base, 140 cfs).--May 6 (4:15 p.m.) 220 cfs (1.12 ft); May 14 (1:30 a.m.) 236 cfs (1.15 ft); June 12 (8 a.m.) 564 cfs (1.68 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 17-21, Dec. 6, 7, Dec. 9 to Mar. 16, Mar. 23, 24 (stage-discharge relation affected by ice during most of periods), Apr. 4-7, May 11-13; discharge estimated on basis of 7 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation affected by ice Nov. 15, 16, Nov. 22 to Dec. 5, Dec. 8, Mar. 21, 22.

Closed basin in San Luis Valley, Colo

North Crestone Creek near Crestone, Colo.

Location.--Lat 38°01', long. 105°41', in sec. 5, T. 43 N., R. 12 E., on right bank 1½ miles northeast of Crestone and 3 miles upstream from South Crestone Creek.

Drainage area.--10.7 sq mi.

Records available.--May 1936 to September 1952 (no winter records prior to 1948).

Gage.--Water-stage recorder. Altitude of gage is 8,300 ft.

Average discharge.--5 years (1947-52), 10.2 cfs.

Extremes.--Maximum discharge during year, 119 cfs June 6 (gage height, 1.95 ft); minimum daily not determined.
1936-52: Maximum discharge, 735 cfs Aug. 6, 1936 (gage height, 4.33 ft), from rating curve extended above 180 cfs on basis of slope-area determination of peak flow; minimum daily recorded, 0.4 cfs Apr. 3, 1945.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. No diversion above station.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.5	1.0	1.2	19
.6	1.7	1.4	33
.7	2.7	1.6	56
.8	4.5	1.9	100
1.0	10		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	2.1	2.0				1.6	10	55	18	15	4.3
2	1.6	1.6	2.1				1.8	14	52	18	14	4.1
3	2.2	2.1	1.9				2.1	25	54	17	13	4.1
4	2.2	2.1	1.9				2.3	33	55	16	12	4.1
5	2.1	2.0	2.0				2.5	38	69	17	12	3.4
6	2.1	*2.0	1.9				3.4	38	81	18	11	3.2
7	2.0	2.0	*a1.6				4.0	37	90	24	10	3.4
8	2.0	2.0	a1.7				3.8	34	86	21	9.4	3.2
9	*2.1	2.1	a1.5				2.6	30	78	18	9.1	3.1
10	2.1	2.0	a1.2				2.3	25	*81	16	8.8	2.9
11	2.0	1.9					2.2	23	74	16	9.7	2.9
12	2.0	1.9					2.4	23	65	15	8.8	3.2
13	1.9	1.9				a1.3	2.3	*29	60	13	8.8	6.0
14	1.9	2.2					2.3	34	59	12	11	5.0
15	1.8	2.0		a1.4	a1.3		*3.2	36	60	12	10	4.3
16	1.7	b2.0					4.1	34	52	11	9.1	4.1
17	1.7	b1.9					5.8	27	44	10	8.5	4.1
18	1.7	b1.9					7.0	23	40	10	8.8	4.1
19	1.7	b2.0					8.2	21	37	9.7	9.1	4.0
20	1.7	b2.1					8.2	18	37	9.1	8.5	3.8
21	1.7	*2.2	a1.6				6.8	18	33	8.5	8.5	7.6
22	1.6	2.2					5.8	18	28	8.5	8.2	7.6
23	1.6	2.2					5.5	16	24	8.2	7.9	7.6
24	1.7	2.2					6.8	16	22	8.8	7.3	*7.6
25	1.7	2.2				*a1.6	10	22	21	8.5	*6.8	7.3
26	2.2	2.1				1.6	14	30	21	*8.5	6.2	7.0
27	2.2	2.0				1.4	18	36	*20	9.1	5.8	7.0
28	2.1	2.1				1.6	17	44	18	18	5.8	6.2
29	2.2	*2.0				1.7	12	50	18	19	5.8	6.2
30	2.2	2.0			-	1.6	10	52	18	16	5.8	6.2
31	2.2	-			-	1.6	-	55	-	16	4.5	-
Total	59.5	61.0	51.4	43.4	37.7	42.3	178.0	909	1,452	429.9	279.2	147.6
Mean	1.92	2.03	1.66	1.4	1.3	1.36	5.93	29.3	48.4	13.9	9.01	4.92
Ac-ft	118	121	102	86	75	84	353	1,800	2,880	853	554	293

Calendar year 1951: Max 82 Min - Mean 6.54 Ac-ft 4,730
Water year 1951-52: Max 90 Min - Mean 10.1 Ac-ft 7,320

Peak discharge (base, 60 cfs).--June 6 (9:30 p.m.) 119 cfs (1.95 ft).
* Discharge measurement made on this day.
a No gage-height record (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 2 discharge measurements, weather records, and records for nearby stations.
b State-discharge relation affected by ice.

Closed basin in San Luis Valley, Colo.

Carnero Creek near La Garita, Colo.

Location.--Lat 37°51', long. 106°18', in sec. 26, T. 42 N., R. 6 E., on left bank 3 miles northwest of La Garita.

Drainage area.--117 sq mi.

Records available.--October 1933 to September 1952 in reports of Geological Survey. April 1919 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder. Altitude of gage is 8,200 ft (from topographic map). Prior to 1931, staff gage or water-stage recorder at same site and datum.

Average discharge.--7 years (1925-26, 1940-41, 1947-52), 13.7 cfs.

Extremes.--Maximum discharge during year, 70 cfs July 29 (gage height, 1.26 ft); minimum not determined.
1919-52: Maximum discharge, 1,600 cfs July 21, 1945 (gage height, 5.75 ft), from rating curve extended above 160 cfs; no flow July 12-18, Aug. 14-19, Sept. 14-17, 1951.

Remarks.--Records good above 10 cfs and fair below except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-20, Nov. 9-14)

0.0	0.5	0.4	5.0
.1	1.0	.6	11
.2	2.0	.8	21
.3	3.0	1.0	37

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	2.4					a4.0	18	22	7.4	15	15
2	.7	2.0					a7.0	20	23	6.5	12	12
3	.6	2.3					*a12	25	34	6.5	8.3	12
4	.6	2.9					b14	29	37	6.5	6.5	11
5	.6	*3.2					b16	33	31	7.1	6.2	11
6	.8	2.3					b16	37	28	7.7	5.6	11
7	1.3	2.3					b17	33	28	6.8	5.6	9.5
8	2.1	2.0					b18	32	27	6.5	5.0	9.2
9	*1.2	2.1					b16	32	27	5.9	5.0	8.9
10	1.2	2.0					b14	29	*27	6.2	9.5	8.3
11	1.3	1.9					14	28	24	8.3	13	8.0
12	1.4	1.9					17	27	23	6.8	9.8	9.5
13	1.5	1.8					15	28	21	5.0	10	10
14	1.4	1.2					17	28	20	4.0	13	8.6
15	1.2	b1.0					19	*29	19	3.6	9.5	8.0
16	1.4	b.8	a1.3	a1.0	a1.2	a1.6	16	28	16	3.6	6.8	8.3
17	1.7	b.7					17	29	16	3.0	5.9	8.0
18	1.7	b.7					16	31	14	2.9	8.9	6.5
19	1.9	b.8					15	31	14	3.8	10	*5.9
20	2.2	*b.8					17	28	13	3.6	15	5.9
21	2.4	b1.1					16	29	11	3.0	*28	8.6
22	2.2	b1.5					16	27	11	2.7	23	15
23	1.9	b1.7					13	25	10	2.6	22	11
24	2.0	a1.8					22	28	9.2	*4.0	21	8.6
25	2.8	a1.5					*21	25	8.6	4.4	19	7.1
26	3.0	a1.2					16	24	8.6	4.2	17	6.5
27	3.8	*a1.4					16	24	*8.0	7.4	23	6.5
28	2.8	a1.5					20	22	7.7	8.9	25	6.2
29	2.5	a1.5	-				16	22	7.1	24	24	5.9
30	2.3	a1.5			-		17	23	7.1	13	19	6.8
31	2.7	-			-		-	22	-	14	16	-
Total	54.0	49.8	40.3	31.0	34.8	49.6	470.0	846	552.3	199.9	417.6	268.8
Mean	1.74	1.66	1.3	1.0	1.2	1.6	15.7	27.3	18.4	6.45	13.5	8.96
Ac-ft	107	99	80	61	69	98	932	1,680	1,100	396	828	533

Calendar year 1951: Max 15 Min 0 Mean 2.77 Ac-ft 2,000
Water year 1951-52: Max 37 Min - Mean 8.24 Ac-ft 5,980

Peak discharge (base, 110 cfs).--No peak above base.
* Discharge measurement made on this day.
a No gage-height record (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 2 discharge measurements, weather records, and records for nearby stations.
b Stage-discharge relation affected by ice.

Closed basin in San Luis Valley, Colo.

La Garita Creek near La Garita, Colo.

Location.--Lat 37°49', long. 106°18', in sec. 10, T. 41 N., R. 6 E., on right bank 4 miles southwest of La Garita.

Drainage area.--61 sq mi, approximately.

Records available.--October 1933 to September 1952 in reports of Geological Survey. April 1919 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder. Altitude of gage is 7,970 ft (from topographic map). Apr. 1, 1919, to Apr. 8, 1928, staff gage and Apr. 9, 1928, to Nov. 13, 1935, water-stage recorder, at site a quarter of a mile downstream at different datum.

Average discharge.--7 years (1925-26, 1940-41, 1947-52), 17.0 cfs.

Extremes.--Maximum discharge during year, 236 cfs July 27 (gage height, 2.05 ft), from rating curve extended above 120 cfs; minimum daily determined, 0.8 cfs Nov. 2, 3.
1919-52: Maximum discharge, 457 cfs May 16, 1941 (gage height, 5.11 ft), from rating curve extended above 220 cfs; minimum daily recorded, 0.6 cfs Aug. 17, 1951.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Cooperation.--Sixteen discharge measurements furnished by Bureau of Reclamation.

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 3, 4, 27)

Oct. 1 to May 7, Aug. 9 to Sept. 30				May 8 to Aug. 8			
0.3	0.5	0.8	24	0.4	3.5	0.9	44
.4	3.5	1.0	43	.5	8.0	1.2	86
.6	11	1.2	76	.7	23		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	2.9	3.8				a7.5	22	53	14	26	12
2	2.0	.8	3.5				a7.5	32	60	14	20	12
3	2.0	.8	b2.9				*7.8	43	82	14	16	11
4	2.0	1.7	*2.6				11	61	*63	14	13	*11
5	1.7	*3.5	2.6				11	66	63	17	12	12
6	1.4	1.7	b2.2				11	72	65	15	9.4	11
7	1.4	1.7	b2.0				12	63	67	14	8.7	9.4
8	1.4	1.7		(*)	(*)		26	63	67	*12	7.6	8.6
9	*2.3	2.3					20	63	61	12	7.4	8.6
10	2.3	2.0				(*)	14	56	*58	13	7.8	7.8
11	2.3	2.0					16	56	54	13	10	7.8
12	2.6	2.3	(*)				12	*58	53	12	10	9.8
13	2.9	2.3					13	57	48	9.4	12	10
14	2.9	1.7					*17	61	45	10	16	8.2
15	3.2	b1.5		a2.8	a2.7	a3.9	20	*63	40	10	9.4	8.2
16	*2.6	b1.5					20	64	39	11	6.6	10
17	3.2	2.0					21	58	36	9.4	5.2	11
18	3.5	2.3					23	57	31	9.4	*6.6	8.6
19	3.5	3.5	a1.9				28	53	*30	a9.0	8.6	*7.8
20	3.8	*2.9					27	50	29	a8.5	16	7.0
21	3.8	3.5					21	53	28	a8.0	*27	11
22	4.2	b3.5					17	45	25	a7.5	30	17
23	2.9	2.9					14	42	24	a7.0	26	16
24	3.8	3.5					18	40	22	*6.6	23	11
25	5.2	3.2					21	43	21	8.7	19	8.6
26	6.0	2.3			(*)		20	40	20	16	16	7.4
27	5.6	*2.9	(*)				23	40	*17	30	23	6.6
28	2.9	2.9					28	43	17	15	20	6.3
29	2.3	*2.9					22	45	15	31	18	6.3
30	2.9	2.9			-		20	48	14	26	15	6.3
31	3.2	-			-		-	53	-	33	13	-
Total	92.1	71.6	65.2	86.8	78.3	120.9	528.8	1,610	1,247	429.5	458.3	288.3
Mean	2.97	2.39	2.10	2.8	2.7	3.9	17.6	51.9	41.6	13.9	14.8	9.61
Ac-ft	183	142	129	172	155	240	1,050	3,190	2,470	852	909	572

Calendar year 1951: Max 20 Min 0.6 Mean 4.02 Ac-ft 2,910
Water year 1951-52: Max 82 Min 0.8 Mean 13.9 Ac-ft 10,060

Peak discharge (base, 80 cfs).--May 5 (10:45 p.m.) 108 cfs (1.36 ft); June 3 (2:15 p.m.) 102 cfs (1.30 ft); July 27 (5:30 p.m.) 236 cfs (2.05 ft).

* Discharge measurement made on this day.

a No gage-height record (stage-discharge relation affected by ice during most of periods); discharge estimated on basis of 7 discharge measurements, weather records, and records for nearby stations.

b Stage-discharge relation affected by ice.

Transmountain diversions from Colorado River basin to Rio Grande basin

The following seven ditches, six of which are equipped with water-stage recorders, divert water from tributaries of Colorado River to tributaries of Rio Grande in Colorado. Records furnished by State engineer.

Raber-Lohr ditch diverts water from Rincon la Vaca Creek (tributary of Los Pinos River) through Weminuche Pass to Weminuche Creek (tributary of Rio Grande) in sec. 33, T. 40 N., R. 4 W.

Fuchs ditch diverts water from North Fork Los Pinos River through Weminuche Pass to Weminuche Creek (tributary of Rio Grande) in sec. 33, T. 40 N., R. 4 W.

Squaw Pass ditch diverts water from tributaries of Williams Creek through Squaw Pass to tributary of Rio Grande in sec. 10, T. 39 N., R. 3 W.

Tabor ditch diverts water from Cebolla Creek through Spring Creek Pass to tributary of Clear Creek in sec. 2, T. 42 N., R. 3 W.

Piedra Pass ditch diverts water from tributaries of Piedra River to South River (tributary of Rio Grande) in sec. 4, T. 38 N., R. 1 W.

Treasure Pass ditch diverts water from Wolf Creek through Wolf Creek Pass to tributary of South Fork Rio Grande in sec. 31, T. 38 N., R. 2 E.

Tarbell ditch diverts water from tributary of Cochetopa Creek to tributary of Saguache Creek in about sec. 17, T. 43 N., R. 2 E. Records are not available for this diversion.

Revisions.--Records for water year 1948-51 (no flow reported for all months) published in Water-Supply Papers 1118, 1148, 1178, and 1213, are in error. No records obtained for these years.

Inflow from transmountain diversions, in acre-feet, water year October 1951 to September 1952

Month	Raber-Lohr ditch	Fuchs ditch	Squaw Pass ditch	Tabor ditch	Piedra Pass ditch	Treasure Pass ditch	Tarbell ditch	Total
October	0	0	0	0	0	0	-	0
November	0	0	0	0	0	0	-	0
December	0	0	0	0	0	0	-	0
January	0	0	0	0	0	0	-	0
February	0	0	0	0	0	0	-	0
March	0	0	0	0	0	0	-	0
April	0	0	0	0	0	0	-	0
May	0	0	0	0	0	0	-	0
June	220	85	21	211	0	85	-	622
July	885	314	198	57	0	113	-	1,570
August	621	131	21	40	0	0	-	813
September	0	6	0	0	0	0	-	6
Water year	1,730	536	240	308	0	198	-	3,010

Alamosa Creek above Terrace Reservoir, Colo.

Location.--Lat 37°23', long. 106°21', in sec. 8, T. 36 N., R. 6 E., on left bank 3 miles upstream from Terrace Reservoir Dam and 15 miles northwest of Capulin.

Drainage area.--107 sq mi.

Records available.--September 1911 to June 1912 (published as Rio Alamosa near Monte Vista) and October 1934 to September 1952 in reports of Geological Survey. April 1915 to October 1919, October 1923 to September 1927, and October 1934 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder. Altitude of gage is 8,600 ft (from topographic map). Sept. 29, 1911, to June 4, 1912, staff gage at ranger station 1¼ miles upstream at different datum. Apr. 1 to May 6, 1915, staff gage and May 7, 1915, to Sept. 30, 1927, water-stage recorder, near present site at different datum.

Average discharge.--11 years (1923-24, 1940-41, 1943-52), 127 cfs.

Extremes.--Maximum discharge during year, 1,680 cfs June 10 (gage height, 4.12 ft); minimum daily, 7.2 cfs Oct. 24, 25.
1911-12, 1915-19, 1923-27, 1934-52: Maximum discharge, 5,200 cfs Oct. 5, 1911 (gage height, 11.0 ft, site and datum then in use, from floodmark), from rating curve extended above 1,000 cfs on basis of computation of peak flow over dam about 8 miles upstream; minimum not determined.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. No diversion above station.

Revisions (water years).--W 898: 1911(M).

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 27		Mar. 28 to July 10			July 11 to Sept. 30	
0.6	4.0	0.9	14	2.0	203	1.0	29
.7	8.0	1.1	27	2.5	410	1.3	67
.9	19	1.3	47	3.0	700	1.7	136
		1.6	94	4.0	1,560	2.2	275

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.0	12					16	203	872	450	161	62
2	8.5	10					18	324	888	430	161	56
3	8.5	12					20	498	856	395	128	54
4	10	10					35	617	819	370	119	50
5	10	8.0					44	*700	896	435	112	46
6	11	10				14	58	784	1,040	395	103	44
7	10	12	(*)				64	791	1,290	342	104	44
8	10	13	15				85	784	1,320	*333	115	*40
9	11	11				14	76	735	1,290	303	113	38
10	*11	11		(*)			73	575	1,330	275	126	38
11	11	9.5					*78	557	1,330	272	115	38
12	11	10					76	642	*1,220	249	*119	50
13	11	*11					73	735	1,140	230	106	78
14	10	10					89	805	1,120	215	128	52
15	10	11					122	904	1,150	198	110	44
16	9.5				14	16	143	833	1,100	187	94	41
17	9.6						175	635	888	*171	91	44
18	10						206	471	798	161	119	38
19	10		(*)				237	365	840	154	110	36
20	10	(*)					256	320	880	158	158	36
21	11	11					194	328	784	151	168	80
22	*11				13		155	320	668	147	130	104
23	9.0		14				140	287	606	143	110	99
24	7.2					14	163	271	569	134	99	75
25	7.2						181	328	593	138	103	64
26	10						206	*471	599	130	97	56
27	12						256	581	557	151	94	52
28	11	14				*14	279	642	471	154	94	50
29	10					16	220	735	460	149	93	47
30	10	(*)			-	17	197	784	460	181	78	48
31	12	-			-	17	-	840	-	163	69	-
Total	311.5	340.5	449	434	392	462	3,935	17,865	26,833	7,364	3,527	1,604
Mean	10.0	11.4	14.5	14	13.5	14.9	131	576	894	238	114	53.5
Ac-ft	618	675	891	861	778	916	7,800	35,430	53,220	14,610	7,000	3,180

Calendar year 1951: Max 680 Min 7.8 Mean 56.6 Ac-ft 40,970
Water year 1951-52: Max 1,330 Min 7.2 Mean 174 Ac-ft 126,000

Peak discharge (base, 670 cfs).--May 6 (11 p.m.) 864 cfs (3.23 ft); May 15 (11:30 p.m.) 984 cfs (3.38 ft); June 10 (11 p.m.) 1,680 cfs (4.12 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Oct. 17-22, Dec. 7 to Mar. 27 (stage-discharge relation affected by ice during most of period), Apr. 3-6; discharge estimated on basis of 4 discharge measurements; weather records, recorded range in stage, and records for nearby stations. Stage-discharge relation affected by ice Nov. 14 to Dec. 6.

Alamosa Creek below Terrace Reservoir, Colo.

Location.--Lat 37°21', long. 106°17', in sec. 23, T. 36 N., R. 6 E., on left bank half a mile downstream from Terrace Reservoir and 11 miles northwest of Capulin.

Drainage area.--116 sq mi.

Records available.--April 1909 to October 1912 (published as Rio Alamosa near La Jara) and October 1933 to September 1952 in reports of Geological Survey. April 1909 to October 1912, April to October 1915, February 1917 to October 1920, and April 1922 to September 1952 in reports of State engineer. (No winter records 1911, 1912.) November 1915 to January 1917 collected by Terrace Reservoir Co., available in files of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 8,400 ft (from topographic map). Prior to May 7, 1915, staff gage at sites within half a mile upstream at different datum. May 7, 1915, to Nov. 16, 1934, water-stage recorder at site 100 ft downstream at same datum.

Average discharge.--34 years (1909-10, 1915-18, 1922-52), 121 cfs.

Extremes.--Maximum discharge during year, 1,590 cfs June 11 (gage height, 5.76 ft); minimum daily, 8.8 cfs Oct. 1-9.
1909-12, 1915, 1917-20, 1922-52: Maximum discharge, that of June 11, 1952; no flow Oct. 12-15, 1911 (corrected).

Remarks.--Records good. Flow regulated by Terrace Reservoir (capacity, 17,700 acre-ft). No diversion above station.

Revisions.--W 788: Drainage area.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to June 7				June 8 to Sept. 30			
2.0	4.0	2.8	105	2.1	37	4.0	635
2.1	10	3.2	230	2.4	84	5.0	1,130
2.3	27	4.0	565	2.7	148	5.5	1,430
2.5	52	4.5	810	3.0	232		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.8	11	11	12	12	12	12	230	457	630	223	86
2	8.8	10	11	12	12	12	12	230	462	594	202	88
3	8.8	10	11	12	12	12	12	230	470	545	205	88
4	8.8	9.4	11	12	12	12	12	254	480	536	214	88
5	8.8	10	11	12	12	12	12	*416	498	532	211	86
6	8.8	11	11	12	12	12	12	574	552	518	211	79
7	8.8	11	12	12	12	12	13	670	565	509	208	66
8	8.8	11	12	12	12	12	13	745	1,140	*468	194	*61
9	8.8	12	12	12	12	12	13	725	1,260	448	182	60
10	*9.4	12	12	12	12	12	13	610	1,290	388	166	58
11	9.4	12	12	12	12	12	*19	606	1,350	368	174	52
12	9.4	12	12	12	12	12	51	606	*1,230	348	*174	50
13	9.4	*12	12	12	12	12	62	610	1,100	348	174	40
14	9.4	12	12	12	12	12	71	615	1,100	324	164	40
15	9.4	12	12	12	12	12	78	620	1,150	300	226	40
16	9.4	12	12	12	12	12	83	630	1,200	239	131	40
17	9.4	12	12	12	12	12	139	588	960	*252	126	40
18	10	12	12	12	12	12	170	493	860	286	156	40
19	10	12	*12	12	12	12	195	462	855	300	161	40
20	10	12	12	12	12	12	220	377	960	293	153	40
21	11	12	12	12	12	12	230	321	880	312	122	40
22	*11	11	12	12	12	12	230	317	712	308	114	40
23	11	11	12	12	12	12	230	293	635	290	103	40
24	11	11	12	12	12	12	230	244	586	272	99	40
25	11	11	12	12	12	12	230	248	604	262	101	40
26	11	11	12	12	12	12	226	*251	666	239	101	40
27	11	11	12	12	12	12	226	254	684	239	105	40
28	11	11	12	12	12	*12	226	273	738	235	105	40
29	11	11	12	12	12	12	226	369	720	248	105	40
30	11	*11	12	12	-	12	226	444	644	235	94	40
31	11	-	12	12	-	12	-	452	-	235	84	-
Total	305.4	338.4	366	372	348	372	3,492	13,757	24,808	11,101	4,788	1,582
Mean	9.85	11.3	11.8	12.0	12.0	12.0	116	444	827	358	154	52.7
Ac-ft	606	671	726	738	690	738	6,930	27,290	49,210	22,020	9,500	3,140

Calendar year 1951: Max 705 Min 8.8 Mean 56.2 Ac-ft 40,670
Water year 1951-52: Max 1,350 Min 8.8 Mean 168 Ac-ft 122,300

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 17-22, Dec. 19 to Mar. 28 (stage-discharge relation affected by ice during part of periods); discharge estimated on basis of 3 discharge measurements and gate openings at Terrace Reservoir.

La Jara Creek at Gallegos Ranch, near Capulin, Colo.

Location (revised).--Lat 37°12'10", long. 106°12'00", in sec. 10, T. 34 N., R. 7 E., on left bank 2¼ miles downstream from Canyon Del Rancho, 7½ miles southwest of Capulin, and 16 miles downstream from La Jara Reservoir.

Drainage area.--98 sq mi, approximately (revised).

Records available.--May 1936 to September 1952 in reports of Geological Survey. April 1916 to November 1917, April 1919 to November 1923, and May 1936 to September 1944 in reports of State engineer. (No winter records most years).

Gage.--Water-stage recorder. Altitude of gage is 8,100 ft, revised (from topographic map). Apr. 1, 1916, to Nov. 30, 1917, and Apr. 1, 1919, to Nov. 30, 1923, near present site at different datums.

Extremes.--Maximum discharge during year, 350 cfs May 4 (gage height, 4.26 ft); minimum daily, 2.2 cfs Nov. 6.
1916-17, 1919-23, 1936-52: Maximum discharge, 653 cfs Apr. 22, 1919, Apr. 15, 1937 (gage height, 5.94 ft, present site and datum); minimum daily recorded, that of Nov. 6, 1951.

Remarks.--Records good above 40 cfs and fair below except those for periods of ice effect or no gage-height record, which are poor. Small diversions above station for irrigation Flow regulated by La Jara Reservoir (capacity, 14,040 acre-ft).

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 5-8)

Oct. 1 to May 16				May 17 to Sept. 30			
1.5	0.7	2.5	68	1.6	7.0	2.5	76
1.6	3.7	3.0	134	1.7	11	3.0	146
1.8	12	4.0	303	2.1	37		
2.1	30						

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	5.6	6.8				14	131	65	21	43	7.4
2	6.0	3.1	7.2				14	165	66	21	32	7.8
3	6.0	4.5	8.9				15	216	89	19	22	8.2
4	5.3	6.4	6.8				16	244	77	21	22	8.2
5	5.6	6.4	*6.0				*18	*233	60	23	20	9.0
6	4.1	2.2					17	258	55	22	21	8.6
7	4.5	2.5					20	238	50	24	21	8.6
8	5.3	3.7					23	219	46	21	23	7.8
9	4.1	4.5					19	191	40	16	26	7.4
10	*4.5	6.4					19	168	37	18	21	7.0
11	4.5	5.6	6.2				*26	133	34	19	16	7.0
12	4.1	5.3					26	137	31	15	18	8.2
13	4.9	*5.6	(*)				29	154	29	12	18	8.6
14	5.6	2.8					39	162	26	11	17	7.8
15	6.4	5.3					48	157	24	11	16	7.8
16	5.6	5.3		6.0	6.0	9.0	49	148	23	11	15	*9.0
17	5.0	5.6					60	146	19	9.8	14	9.0
18	4.5	6.4					99	132	18	9.8	*14	8.6
19	4.5	8.0					142	107	17	*11	17	8.2
20	4.5	*8.5					123	92	21	9.8	22	8.6
21	4.0	8.0					87	89	*21	9.4	27	11
22	*3.4	7.6					67	82	22	9.0	24	15
23	3.1	8.0	5.6				74	74	21	24	31	11
24	3.4	8.0					105	69	21	34	19	9.8
25	4.5	11					162	69	29	49	16	9.4
26	5.3	8.0					173	*74	29	42	16	9.4
27	4.6	*6.4					184	82	30	47	19	8.6
28	4.9	5.3					162	82	31	43	27	7.8
29	4.9	5.6					124	80	30	51	19	12
30	5.3	5.6			-		133	77	24	52	11	11
31	6.4	-			-		-	72	-	58	7.4	-
Total	151.8	177.2	187.3	186.0	174.0	279.0	2,087	4,281	1,085	743.8	634.4	267.8
Mean	4.90	5.91	6.04	6.0	6.0	9.0	69.6	138	36.2	24.0	20.5	8.93
Ac-ft	301	351	372	369	345	553	4,140	8,490	2,150	1,480	1,360	531

Calendar year 1951: Max 80 Min 2.2 Mean 10.7 Ac-ft 7,740
Water year 1951-52: Max 258 Min 2.2 Mean 28.0 Ac-ft 20,340

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 17-21, Dec. 13 to Apr. 4 (stage-discharge relation affected by ice during most of period), May 21; discharge estimated on basis of 1 discharge measurement, weather records, and records for nearby stations. Stage-discharge relation affected by ice Dec. 6-12.

Rio Grande above mouth of Trinchera Creek, near La Sauses, Colo.

Location.--Lat 37°19' (revised), long. 105°45', in sec. 35, T. 36 N., R. 11 E., on right bank a quarter of a mile upstream from Trinchera Creek, 4 miles north of La Sauses, and 11 miles southeast of Alamosa.

Drainage area.--5,740 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo).

Records available.--May 1936 to September 1952.

Gage.--Water-stage recorder.

Average discharge.--16 years, 310 cfs.

Extremes.--Maximum discharge during year, 2,400 cfs June 15 (gage height, 6.71 ft); minimum daily, 16 cfs Nov. 1, 14.
1936-52: Maximum discharge, 5,470 cfs June 21, 1949 (gage height, 9.50 ft), from rating curve extended above 3,500 cfs; minimum daily, 0.4 cfs July 4, 1940.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 31, Nov. 4-9, May 7 to June 7, June 28 to July 23)

Oct. 1 to Feb. 29		Mar. 1 to Sept. 30			
0.7	12	1.2	64	4.0	890
1.0	34	1.6	118	5.0	1,370
1.5	85	2.0	203	7.0	2,630
2.0	166	3.0	507		
2.2	207				

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	16	b90	190	160	150	283	*176	514	196	152	217
2	22	20	b90	180	162	170	294	192	637	185	150	182
3	22	*26	*b93	175	165	155	283	250	702	173	152	173
4	22	21	b90	165	170	160	269	311	730	182	141	160
5	22	19	b92	160	175	170	275	468	822	210	137	150
6	22	19	b88	157	175	*155	215	702	810	196	124	143
7	22	20	b90	154	175	b155	160	818	758	192	122	128
8	22	20	b94	*150	165	b160	203	663	842	194	101	113
9	22	19	100	155	170	b150	266	532	1,180	178	217	108
10	22	18	110	165	175	b165	*332	600	1,380	182	165	104
11	*21	18	125	160	180	b190	314	630	1,380	*194	148	101
12	18	18	140	155	180	b220	300	444	1,580	185	129	105
13	18	17	135	150	185	b250	187	437	*1,820	189	124	115
14	25	b16	130	165	180	260	137	444	2,040	213	124	110
15	27	19	130	165	180	265	107	490	2,290	243	116	105
16	23	24	132	160	178	261	97	571	1,910	213	108	101
17	22	*28	*135	165	175	291	105	619	1,700	176	116	101
18	22	36	140	170	165	288	105	645	1,660	152	113	*99
19	22	41	145	170	160	277	110	694	1,460	139	115	98
20	22	45	150	168	160	*283	120	652	1,110	120	110	102
21	22	b50	145	165	160	240	176	564	922	105	102	112
22	20	b58	155	160	155	250	176	*493	898	94	99	122
23	18	53	160	165	145	260	237	479	738	86	178	131
24	18	47	170	170	145	255	205	406	542	81	220	165
25	19	b50	180	170	*135	250	145	348	444	79	*194	173
26	20	b58	180	172	140	250	133	367	357	77	213	154
27	20	b68	185	168	140	248	171	393	357	75	180	133
28	20	b88	190	*165	140	248	210	406	256	70	178	133
29	20	b85	195	155	145	230	227	420	222	71	167	137
30	20	b90	190	155	-	235	225	427	217	*90	217	141
31	20	-	195	155	-	264	-	546	-	120	237	-
Total	657	1,107	4,244	5,079	4,740	6,905	6,067	15,187	30,278	4,660	4,649	3,916
Mean	21.2	36.9	137	164	163	223	202	490	1,010	150	150	131
Ac-ft	1,300	2,200	8,420	10,070	9,400	13,700	12,030	30,120	60,060	9,240	9,220	7,770

Calendar year 1951: Max - Min 1.8 Mean 69.1 Ac-ft 50,000
Water year 1951-52: Max 2,290 Min 16 Mean 239 Ac-ft 173,500

Peak discharge (base, 3,000 cfs).--No peak above base.
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Nov. 1-3, 15-17, Dec. 9 to Mar. 6, Mar. 14, 15, 21-25 (stage-discharge relation affected by ice during most of periods); discharge estimated on basis of 7 discharge measurements, weather records, and records for nearby stations.

Trinchera Creek above Turners Ranch, near Fort Garland, Colo.

Location.--Lat 37°22', long. 105°19', in sec. 2, T. 31 S., R. 71 W., on right bank just downstream from confluence of North and South Forks, 1 mile upstream from Turners Ranch and 7 miles southeast of Fort Garland.

Drainage area.--45 sq mi, approximately.

Records available.--October 1933 to September 1952 in reports of Geological Survey. April 1923 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder.

Average discharge.--6 years (1927-28, 1947-52), 21.9 cfs.

Extremes.--Maximum discharge during year, 209 cfs June 6 (gage height, 3.37 ft); minimum not determined.
1923-52: Maximum discharge, 689 cfs May 27, 1942, from rating curve extended above 240 cfs; maximum gage height, 3.73 ft May 10, 1947; minimum daily discharge recorded, 3.0 cfs Oct. 3, 1942.

Remarks.--Records good except those for periods of no gage-height record, which are poor. No diversion or regulation above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 6-8)

Oct. 1 to Nov. 4		Nov. 5 to June 6				June 7 to Sept. 30			
2.1	4.0	2.2	6.0	2.9	58	1.8	5.0	2.3	34
2.2	6.0	2.3	8.5	3.2	115	1.9	8.5	2.6	75
2.4	14	2.5	17	3.5	213	2.1	18	3.3	220
		2.7	32						

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	8.0	7.8				8.5	30	135	56	24	11
2	5.6	4.8	7.5				9.6	42	143	52	20	11
3	5.2	6.0	7.2				9.6	63	160	49	19	11
4	5.2	9.6	7.5				11	83	166	48	18	9.8
5	5.4	9.6	7.5				12	100	177	46	18	9.4
				a7.6	a6.7	a7.4						
6	5.2	a7.6	7.8				16	109	205	48	17	9.8
7	5.4	a8.2	7.5				19	100	201	48	16	10
8	5.6	8.8	7.5				21	102	203	43	16	9.4
9	5.8	8.2	a7.4				17	92	*196	42	18	8.5
10	5.8	8.2	a7.0				14	81	174	42	18	7.8
11	5.8	8.2	a7.0				14	70	181	37	17	7.8
12	5.8	8.2	*7.2				13	72	178	34	16	8.2
13	5.8	7.5	7.0				12	86	170	32	15	12
14	6.0	*7.5	7.0				12	*102	165	31	14	9.4
15	6.4	7.5	a6.7				14	115	159	31	14	9.0
				a7.4	a7.0	a9.3						
16	6.4	6.2	a7.1				18	113	156	30	14	*10
17	6.4	5.8	a7.4				20	100	144	29	14	11
18	6.4	7.2	a7.5				21	84	133	29	14	10
19	6.0	8.2	*a7.7				26	73	119	27	14	9.4
20	5.8	a8.1	a7.8				26	66	111	24	*14	9.4
21	5.6	8.0	a7.8			a9.4	24	65	103	*24	14	14
22	5.6	8.0	a7.8			a9.0	21	63	100	23	14	14
23	*5.6	7.8	a8.0			a8.5	20	65	92	23	14	14
24	6.8	7.8	a8.2			*a8.2	*21	61	87	22	13	12
25	7.2	7.8	a8.0		a7.2	9.6	22	65	82	22	13	12
26	11	7.5	a7.7	a6.6		8.0	25	73	*73	23	12	11
27	11	8.2	a7.8			9.2	34	88	70	23	12	10
28	8.4	*8.0	a8.0			8.5	46	98	64	22	14	9.8
29	8.0	7.8	a8.2			9.2	35	111	62	22	14	9.8
30	8.0	7.5	a8.0		-	9.6	30	120	59	20	12	11
31	8.4	-	a7.8		-	*9.2	-	128	-	27	12	-
Total	201.6	231.8	234.4	222.6	201.8	265.4	591.7	2,620	4,068	1,029	474	311.5
Mean	6.50	7.73	7.56	7.18	6.96	8.56	19.7	84.5	136	33.2	15.3	10.4
Ac-ft	400	460	465	442	400	526	1,170	5,200	8,070	2,040	940	618

Calendar year 1951: Max 46 Min - Mean 10.3 Ac-ft 7,440
Water year 1951-52: Max 205 Min - Mean 28.6 Ac-ft 20,730

Peak discharge (base, 50 cfs).--May 5 (9 p.m.) 122 cfs (3.23 ft); May 15 (7 p.m.) 125 cfs (3.28 ft); June 6 (11:30 p.m.) 209 cfs (3.37 ft).
* Discharge measurement made on this day.
a No gage-height record (stage-discharge relation affected by ice during most of periods); discharge estimated on basis of 2 discharge measurements, weather records, and records for nearby stations.

Trinchera Creek above Mountain Home Reservoir, near Fort Garland, Colo.

Location.--Lat 37°24', long. 105°22' (revised), in sec. 31, T. 30 S., R. 71 W., on right bank 1½ miles upstream from Mountain Home Reservoir Dam and 4 miles southeast of Fort Garland.

Drainage area.--61 sq mi, approximately.

Records available.--October 1933 to September 1952 in reports of Geological Survey. May 1923 to September 1952 in reports of State engineer. (No winter records 1923-40, 1942-43.)

Gage.--Water-stage recorder and wooden control. Prior to Mar. 29, 1939, at site 500 ft downstream at different datum.

Average discharge.--10 years (1940-41, 1943-52), 19.1 cfs.

Extremes.--Maximum discharge during year, 160 cfs June 11 (gage height, 1.88 ft); minimum daily, 0.1 cfs Oct. 1-25.
1923-52: Maximum discharge, 421 cfs May 11, 1947 (gage height, 3.02 ft), from rating curve extended above 140 cfs; minimum daily, 0.1 cfs for many days during 1950 and 1951.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 25-29, Apr. 16-18, June 24-27, Sept. 29, 30)

Oct. 1 to Apr. 15				Apr. 16 to Sept. 30			
0.2	0.1	0.5	9.5	0.4	0.5	1.0	44
.3	1.5	.7	21	.5	2.5	2.0	180
.4	5.0			.6	8.0		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	3.2					4.0	22	95	40	19	4.2
2	.1	b2.3					3.6	29	101	35	18	4.2
3	.1	b3.0					3.6	41	107	33	15	4.2
4	.1	4.3					4.0	45	110	33	14	3.6
5	.1	5.9	(*)				4.6	56	104	33	14	3.6
			2.3	3.4	3.4							
6	.1	6.4					6.8	65	108	33	11	3.0
7	.1	3.2					9.5	62	118	33	11	3.6
8	.1	5.0		(*)			16	63	126	33	11	1.9
9	.1	5.4					15	67	*132	30	11	2.3
10	.1	5.0					12	59	140	30	12	3.0
						3.9						
11	.1	5.4					11	53	147	27	10	3.6
12	.1	5.4	(*)				10	52	138	25	10	4.2
13	.1	5.4			3.8		9.0	56	131	24	9.6	7.4
14	.1	*4.3					7.7	*66	118	21	9.6	5.8
15	.1	3.2					7.2	78	114	21	9.6	4.7
			2.6									
16	.1	2.8					7.4	84	112	21	8.0	*4.2
17	.1	2.6					10	79	98	20	6.9	5.2
18	.1	3.0		3.3			13	71	92	20	6.9	4.7
19	.1	3.2					15	62	86	20	6.9	5.2
20	.1	3.2					19	56	78	17	*6.9	6.4
21	.1	3.0				4.0	20	54	76	*15	6.9	14
22	.1	b3.0			3.9	4.0	18	51	72	14	6.9	15
23	*.1	b2.9				4.0	17	52	67	14	7.4	14
24	.1	2.8				*4.2	*14	48	62	14	6.9	11
25	.1	2.6				5.0	14	50	58	14	5.8	11
			3.1									
26	.9	2.5				5.4	13	53	*55	14	5.2	11
27	6.8	2.5			(*)	5.0	17	60	52	18	4.7	10
28	3.2	*2.3		(*)		5.4	32	67	47	19	5.8	9.6
29	3.2	2.3		3.1		9.0	30	76	46	18	7.4	7.4
30	2.2	2.3			-	9.0	24	86	44	18	6.4	8.0
31	2.2	-			-	*6.8	-	91	-	20	4.7	-
Total	21.0	108.4	83.1	102.1	107.6	139.8	387.4	1,854	2,834	727	288.5	196.0
Mean	0.68	3.61	2.68	3.29	3.71	4.51	12.9	59.8	94.5	23.5	9.31	6.53
Ac-ft	42	215	165	203	213	277	768	3,680	5,620	1,440	572	389

Calendar year 1951: Max 26 Min 0.1 Mean 3.92 Ac-ft 2,840
Water year 1951-52: Max 147 Min 0.1 Mean 18.7 Ac-ft 13,580

Peak discharge (base, 40 cfs).--May 9 (3 a.m.) 70 cfs (1.19 ft); May 16 (5 p.m.) 86 cfs (1.32 ft); June 11 (3:30 a.m.) 160 cfs (1.88 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Nov. 15-21, Nov. 24 to Mar. 24 (stage-discharge relation affected by ice during most of periods); discharge estimated on basis of 7 discharge measurements, weather records, and records for nearby stations.

Sangre de Cristo Creek near Fort Garland, Colo.

Location.--Lat 37°26', long. 105°24', in sec. 23, T. 30 S., R. 72 W., on right bank 15 ft downstream from bridge on county road (corrected), 1½ miles east of Fort Garland, and 6 miles (revised) upstream from Ute Creek.

Drainage area.--187 sq mi.

Records available.--October 1933 to September 1952 in reports of Geological Survey. February to October 1916 and May 1923 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder. Feb. 16 to Oct. 31, 1916, staff gage and cippoletti weir near present site at different datum.

Average discharge.--8 years (1940-41, 1945-52), 26.1 cfs.

Extremes.--Maximum discharge during year, 297 cfs May 7 (gage height, 7.00 ft); no flow Oct. 1 to Dec. 31, Sept. 9-11.
1916, 1923-52: Maximum discharge, 1,520 cfs Aug. 31, 1936, from rating curve extended above 70 cfs on basis of slope-area determinations at gage heights 3.53 and 6.10 ft; maximum gage height, 7.65 ft May 10, 1942, from floodmarks; no flow at times during many years.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. A few diversions above station for irrigation.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 12 to May 4)

Oct. 1 to May 5				May 6 to Sept. 30			
3.5	0	5.1	45	4.1	0	4.9	23
3.7	1.0	5.5	75	4.2	.5	5.3	46
3.9	3.0	6.0	125	4.3	2.2	5.6	68
4.2	8.0	6.5	195	4.4	4.3	6.0	110
4.5	16	7.0	297	4.6	10	7.0	297
4.8	28						

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							16	107	127	18	19	2.8
2							16	118	121	17	11	1.7
3							17	146	123	16	9.4	1.4
4							20	200	111	16	7.3	1.2
5			(*)				24	263	103	17	5.4	.5
6				1.1	4.2	5.5	30	286	95	18	5.1	.2
7							34	267	87	18	5.1	.2
8							44	*248	79	18	4.8	.1
9				(*)			36	229	*73	18	6.5	0
10							30	202	66	20	5.8	0
11							30	172	60	16	5.6	0
12			(*)				30	142	56	13	6.0	.1
13							28	138	51	11	6.0	1.4
14		(*)					28	*152	47	9.7	5.9	2.0
15					4.3		34	172	42	12	4.8	1.4
16				2.2		7.2	43	176	38	12	3.9	*1.2
17							49	176	36	9.1	3.8	1.0
18							55	157	35	8.2	3.7	1.0
19			(*)				66	149	34	7.6	3.2	.8
20							78	134	32	6.7	*3.2	.7
21						8.0	84	133	28	*6.2	4.1	3.2
22						9.0	69	134	26	5.4	5.1	7.9
23	(*)					10	63	147	26	4.8	4.3	6.7
24						*15	*66	153	25	7.0	3.0	4.6
25					4.4	14	73	142	21	6.7	2.8	3.9
26				3.2		14	78	149	*21	7.9	2.6	3.0
27					(*)	15	96	152	20	9.4	2.4	3.0
28		(*)		(*)		16	126	147	18	9.1	2.2	2.6
29						19	116	139	17	8.8	5.4	2.6
30					-	21	106	134	18	9.7	4.6	2.8
31		-			-	*18	-	128	-	14	3.5	-
Total	0	0	0	68.2	124.7	286.0	1,585	5,192	1,636	370.3	165.5	58.0
Mean	0	0	0	2.20	4.30	9.23	52.8	167	54.5	11.9	5.34	1.93
Ac-ft	0	0	0	135	247	567	3,140	10,300	3,240	734	328	115

Calendar year 1951: Max 29 Min 0 Mean 4.28 Ac-ft 3,100
Water year 1951-52: Max 286 Min 0 Mean 25.9 Ac-ft 18,810

Peak discharge (base, 75 cfs).--Apr. 21 (4 a.m.) 94 cfs (5.53 ft); Apr. 28 (6 p.m.) 131 cfs (5.84 ft); May 6 (4 a.m.) 297 cfs (7.00 ft); May 17 (7 a.m.) 183 cfs (6.46 ft); May 24 (2 a.m.) 177 cfs (6.43 ft).

* Discharge measurement or observation of no flow made on this day.

Note.--No gage-height record Jan. 1 to Mar. 24 (stage-discharge relation affected by ice during most of period). Mar 26, 27, Aug. 5, 10-13, 17, Aug. 30 to Sept. 2, Sept. 9-11; discharge estimated on basis of 5 discharge measurements, weather records, and records for nearby stations.

Ute Creek near Fort Garland, Colo.

Location.--Lat 37°28', long. 105°24', in sec. 2, T. 30 S., R. 72 W., on left bank 2½ miles north of Fort Garland and 6 miles upstream from mouth.

Drainage area.--32 sq mi, approximately.

Records available.--October 1933 to September 1952 in reports of Geological Survey. March to October 1916 and May 1923 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder. Altitude of gage is 8,800 ft. Mar. 18 to Oct. 9, 1916, staff gage and cippolletti weir at different datum.

Average discharge.--6 years (1940-41, 1947-52), 22.8 cfs.

Extremes.--Maximum discharge during year, 213 cfs June 8 (gage height, 2.86 ft); minimum daily, 0.1 cfs Oct. 17, 18, 21, 22.
1916, 1923-52: Maximum daily discharge, 630 cfs May 15, 1941; minimum daily, that of Oct. 17, 18, 21, 22, 1951.

Remarks.--Records good above 20 cfs and fair below except those for periods of no gage-height record, which are poor. A few diversions above station for irrigation.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-18, June 7)

Oct. 1 to June 7				June 8 to Sept. 15		Sept. 16-30	
0.6	0	1.0	8.0	0.5	3.0	0.7	4.0
.7	.5	1.4	36	.6	6.5	.8	7.0
.8	1.5	2.0	95	.8	16	.9	11
.9	4.0	3.0	205	1.2	45	1.0	17
				2.5	176		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	1.5					*7.2	40	95	51	27	7.8
2	2.2	1.7					7.6	50	106	50	25	8.3
3	1.8	2.0					7.6	71	116	49	22	7.4
4	2.2	2.0					9.2	99	110	49	18	6.5
5	2.8	1.3					10	113	122	53	16	6.2
6	3.2	.9					12	114	145	58	14	5.4
7	2.8	.6					14	113	175	64	14	5.8
8	2.0	.5					19	112	163	49	13	5.4
9	1.2	.7					16	104	*158	50	14	5.4
10	.4	.8					13	92	164	51	14	5.4
11	.4	.9				4.4	12	72	166	42	13	4.8
12	.7	.9					12	63	160	38	16	5.4
13	.6	.8					9.8	72	153	35	16	8.8
14	.4	*.4					12	*82	146	33	16	7.0
15	.4	.3					15	94	146	31	14	7.8
16	.3	.2	1.3	1.8	3.0		19	97	133	28	14	*7.4
17	.1	.3					22	92	107	25	14	7.4
18	.1	.3					30	77	99	22	16	6.7
19	.2	.3					40	67	96	20	17	5.5
20	.2	.3					46	62	93	16	*16	4.3
21	.1	.3					45	59	86	*14	17	9.8
22	.1	.3					34	55	74	12	16	13
23	*.3	.3				5.0	29	54	68	12	16	11
24	.3	.3				(*)	*27	48	62	12	14	9.0
25	.2	.3					26	47	61	12	13	8.2
26	1.0	.8					29	53	*65	12	12	8.2
27	1.8	1.0					40	56	62	14	12	8.2
28	1.4	*1.1				7.0	56	65	58	15	11	7.4
29	1.4	1.1					45	78	56	16	11	7.0
30	2.0	1.1			-		38	85	51	21	10	7.0
31	1.8	-			-	(*)	-	91	-	24	9.2	-
Total	34.2	23.3	40.3	55.8	87.0	155.0	702.4	2,377	3,296	978	470.2	217.5
Mean	1.10	0.78	1.3	1.8	3.0	5.00	23.4	76.7	110	31.5	15.2	7.25
Ac-ft	68	46	80	111	173	307	1,390	4,710	6,540	1,940	933	431

Calendar year 1951: Max 46 Min 0.1 Mean 5.52 Ac-ft 4,000
Water year 1951-52: Max 175 Min 0.1 Mean 23.1 Ac-ft 16,730

Peak discharge (base 80 cfs).--May 6 (2 a.m.) 120 cfs (2.25 ft); May 16 (5 a.m.) 105 cfs (2.10 ft); June 8 (3:30 p.m.) 213 cfs (2.86 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 2, 3, Nov. 18 to Mar. 31 (stage-discharge relation affected by ice during most of periods); discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations.

Trinchera Creek below Smith Reservoir, near Blanca, Colo.

Location.--Lat 37°23', long. 105°35', in sec. 5, T. 31 S., R. 73 W., on right bank 1 mile downstream from Smith Reservoir and 5 miles southwest of Blanca.

Drainage area.--396 sq mi.

Records available.--October 1933 to September 1952 in reports of Geological Survey. October 1929 to September 1952 in reports of State engineer. (No winter records several years.)

Gage.--Water-stage recorder. Prior to Apr. 19, 1943, at datum 1.00 ft higher.

Average discharge.--14 years (1930-31, 1933-36, 1937-38, 1943-52), 13.6 cfs.

Extremes.--Maximum discharge during year, 133 cfs May 10 (gage height, 2.15 ft); minimum daily, 0.2 cfs Oct. 23, 28.
1929-52: Maximum daily discharge, 1,340 cfs May 11, 1942; minimum daily recorded, 0.1 cfs at times in 1937, 1938, 1945, and 1947.

Remarks.--Records good above 10 cfs and fair below. Diversions above station for irrigation. Flow regulated by Smith Reservoir (capacity, 5,335 acre-ft).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 10, 11)

0.2	0.2	0.7	18
.3	.8	1.0	38
.4	3.2	2.0	116
.5	7.1	2.5	166

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.4	0.7	0.5	0.5	0.5	7.6	24	33	9.1	6.3	2.5
2	.3	.4	.7	.5	.5	.5	8.6	25	37	9.1	5.5	2.0
3	.3	.4	.7	.5	.5	.5	9.6	25	34	9.1	4.4	1.3
4	.3	.7	.7	.5	.5	.5	9.6	25	37	9.1	4.4	1.3
5	.3	.7	.7	.5	.5	.5	9.6	21	34	9.1	4.4	1.5
6	.3	.8	.7	.5	.5	.5	11	33	38	9.6	4.4	1.5
7	.3	.7	.7	.5	.5	.5	12	43	39	9.1	4.4	1.5
8	.3	.8	.6	*.5	.5	.5	12	71	46	9.1	4.4	1.3
9	.3	.7	.6	.5	.5	.5	12	108	57	9.1	4.0	1.8
10	.3	.7	.6	.5	.5	.5	12	130	*47	9.6	4.0	2.2
11	.3	.7	.6	.5	.5	.5	12	128	37	9.1	4.0	2.2
12	.3	.7	*.6	.5	.5	.5	14	110	30	9.1	4.0	2.0
13	.3	.6	.6	.5	.5	.5	14	91	22	8.6	4.0	2.0
14	.3	*.7	.6	.5	.5	.5	*14	*78	17	8.6	4.0	1.8
15	.3	.7	.6	.5	.5	.5	14	74	14	9.1	4.0	1.8
16	.3	.7	.6	.5	.5	.5	15	80	14	9.1	4.0	1.8
17	.3	.7	.6	.5	.5	3.5	15	84	14	9.6	4.0	1.8
18	.3	.7	.6	.5	.5	5.9	15	111	17	9.6	5.9	*1.8
19	.3	.7	.6	.5	.5	5.9	15	125	19	9.1	6.7	1.8
20	.3	.7	.6	.5	.5	5.9	15	104	19	9.1	5.9	1.8
21	.3	.7	.6	.5	.5	6.7	17	88	20	*9.1	2.7	1.5
22	.4	.7	.6	.5	.5	5.9	19	78	20	9.1	2.7	1.3
23	*.2	.7	.6	.5	.5	6.3	20	69	20	9.1	2.7	1.0
24	.3	.7	.6	.5	.5	*6.3	*23	65	20	9.1	2.7	.8
25	.3	.7	.6	.5	.5	6.3	23	59	20	9.1	2.7	.8
26	.3	.7	.6	.5	.5	6.3	23	62	*20	9.1	3.0	.8
27	.3	.7	.6	.5	*.5	6.3	23	65	20	9.1	3.2	1.3
28	.2	*.7	.6	*.5	.5	6.3	23	58	20	9.1	3.2	1.5
29	.3	.7	.6	.5	.5	6.3	24	51	16	8.1	2.5	1.5
30	.3	.7	.6	.5	-	6.3	24	49	9.1	5.9	2.0	1.5
31	.3	-	.6	.5	-	*7.1	-	38	-	5.9	1.8	-
Total	9.2	20.2	19.3	15.5	14.5	99.3	466.0	2,172	790.1	275.7	121.9	47.7
Mean	0.30	0.67	0.62	0.50	0.50	3.20	15.5	70.1	26.3	8.89	3.93	1.59
Ac-ft	18	40	38	31	29	197	924	4,310	1,570	547	242	95

Calendar year 1951: Max 13 Min 0.2 Mean 2.19 Ac-ft 1,590
Water year 1951-52: Max 130 Min 0.2 Mean 11.1 Ac-ft 8,040

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 8 to Mar. 16 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 4 discharge measurements, weather records, and gate openings at Smith Reservoir.

Platoro Reservoir at Platoro, Colo.

Location.--Lat 37°21'05", long. 106°32'35", in SW¼NW¼ sec. 22, T. 36 N., R. 4 E., on right bank in valve house at Platoro Dam on Conejos River, half a mile west of Platoro, 3½ miles downstream from Adams Fork, and 7 miles southwest of Jasper.

Drainage area.--40 sq mi, approximately.

Records available.--November 1951 to September 1952.

Gage.--Mercury manometer read once daily. Datum of gage is 9,911.5 ft above mean sea level (Bureau of Reclamation benchmark). Gage readings have been reduced to mean sea level.

Extremes.--Maximum contents observed during period, 36,910 acre-ft July 1-3 (elevation, 10,007.5 ft); no storage prior to Nov. 7, Aug. 23 to Sept. 30.

Remarks.--Reservoir is formed by an earth- and rock-fill dam and dikes. Dam completed Dec. 9, 1951; storage began Nov. 7, 1951. Capacity of reservoir, 60,000 acre-ft between elevations 9,911.5 ft (sill of trashrack at outlet) and 10,034.0 ft (crest of spillway). No dead storage. Reservoir is used for irrigation and flood control. Figures given herein represent usable contents.

Cooperation.--Records furnished by Bureau of Reclamation.

Capacity table (elevation, in feet, and contents, in acre-feet)
(Furnished by Bureau of Reclamation)

9,911.5	0	9,916.0	38	9,925.0	351	9,950.0	5,220
9,912.0	1	9,918.0	64	9,927.0	482	9,970.0	13,260
9,913.0	3	9,920.0	100	9,930.0	755	10,000.0	31,450
9,914.0	8	9,922.0	159	9,035.0	1,400	10,042.0	67,800
9,915.0	17	9,923.0	199	9,940.0	2,380		

Contents, at 8 a.m., in acre-feet, November 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	3,160	3,740	36,910	19,130	
2							-	2,500	4,610	36,910	18,410	
3							-	2,060	5,330	36,910	17,530	
4							-	1,580	6,210	36,750	16,610	
5							-	2,170	7,420	36,680	15,670	
6							-	2,850	8,350	36,750	14,710	
7							-	3,300	9,630	36,600	13,710	
8							-	3,800	11,630	36,370	12,700	
9							-	4,160	13,810	36,140	11,630	
10							-	4,850	15,980	35,750	10,660	
11							-	4,550	18,460	35,370	9,810	
12							-	4,390	20,290	34,840	8,800	
13							-	4,390	22,390	34,320	8,060	
14							-	4,460	24,400	33,830	7,060	
15							-	5,310	26,000	33,200	6,100	
16							-	5,610	28,100	32,500	5,220	
17							-	6,060	30,040	31,800	4,360	
18							-	6,100	31,380	31,020	3,550	
19							-	5,960	32,350	30,180	2,480	
20							-	5,780	33,200	29,340	1,540	
21							-	5,680	34,620	28,490	755	
22							-	5,220	35,220	27,520	126	
23							-	4,730	35,670	26,670	0	
24							-	3,890	36,060	25,740	0	
25							-	3,060	36,210	24,800	0	
26							4,040	2,330	36,520	23,940	0	
27							4,130	1,840	36,750	23,130	0	
28							4,040	1,480	36,750	22,330	0	
29					1,400		3,980	1,610	36,750	21,480	0	
30		280			-		3,770	1,720	36,830	20,690	0	
31		-	702	1,040	-	2,040	-	2,630	-	20,000	0	

Monthly elevation and contents, November 1951 to September 1952

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Oct. 31.....	-	0	-
Nov. 30.....	9,924.0	280	+280
Dec. 31.....	9,929.5	702	+422
Jan. 31.....	9,932.5	1,040	+338
Feb. 29.....	9,935.0	1,400	+360
Mar. 31.....	9,938.5	2,040	+640
Apr. 30.....	9,945.2	3,770	+1,730
May 31.....	9,941.0	2,630	-1,140
June 30.....	10,007.4	36,830	+34,200
July 31.....	9,982.7	20,000	-16,830
Aug. 31.....	-	0	-20,000
Sept.30.....	-	0	0
The period....	-	-	0

† Elevation at 8 a.m.

Conejos River below Platoro Reservoir, Colo.

Location.--Lat 37°21'20", long. 106°32'35", in NW¼NW¼ sec. 22, T. 36 N., R. 4 E., 1,500 ft downstream from valve house for Platoro Reservoir, and half a mile northwest of Platoro.

Drainage area.--40 sq mi, approximately.

Records available.--May to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 9,866.60 ft above mean sea level (levels by Bureau of Reclamation).

Extremes.--Maximum discharge during period, 700 cfs June 23 (gage height, 4.00 ft); minimum daily, 6.0 cfs June 12.

Remarks.--Records good. No diversion above station. Flow completely regulated by Platoro Reservoir (see preceding page).

Rating table, May 23 to Sept. 30, 1952 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Sept. 5-15)

0.6	5	2.5	175
1.0	16	3.0	296
1.5	36	3.5	460
1.8	63	4.0	700
2.0	91		

Discharge, in cubic feet per second, May to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	154	610	615	38
2								-	*184	*580	610	35
3								-	*93	610	600	32
4								-	*98	610	620	30
5								-	152	610	625	29
6								-	152	610	615	28
7								-	8.2	610	600	*27
8								-	8.0	610	615	25
9								-	7.8	610	605	25
10								-	7.2	610	630	23
11								-	6.2	600	635	23
12								-	6.0	615	501	34
13								-	6.5	610	625	35
14								-	66	600	605	27
15								-	133	600	590	24
16								-	91	590	575	24
17								-	113	*610	555	*24
18								-	334	625	610	23
19								-	376	620	600	22
20								-	392	620	585	19
21								-	452	620	*522	48
22								-	488	615	*192	53
23								635	457	610	86	40
24								610	640	610	79	35
25								585	610	*615	73	32
26								560	*610	620	*64	30
27								545	605	615	70	29
28								478	605	615	64	28
29								413	605	615	58	*26
30								251	605	610	48	25
31								64	-	610	41	-
Total								-	8,064.9	18,915	13,313	893
Mean								-	269	610	429	29.8
Ac-ft								-	16,000	37,520	26,410	1,770

Calendar year	: Max		Min	Mean	Ac-ft
Water year	: Max		Min	Mean	Ac-ft

* Discharge measurement made on this day.

Conejos River at Platoro, Colo.

Location (revised).--Lat 37°21'10", long. 106°31'10", in sec. 23, T. 36 N., R. 4 E., on left bank half a mile east of Platoro, 2.0 miles downstream from Platoro Reservoir, 5½ miles downstream from Adams Fork, and 6 miles southwest of Jasper.

Drainage area.--44.4 sq mi.

Records available.--April 1937 to September 1952 (no winter records 1937-49).

Gage.--Water-stage recorder. Altitude of gage is 9,800 ft (from topographic map). Prior to June 8, 1937, staff gage at same site and datum.

Extremes.--Maximum discharge during year, 712 cfs May 21 (gage height, 2.42 ft); minimum not determined.
1937-52: Maximum discharge, 1,380 cfs June 18, 1949 (gage height, 3.37 ft), from rating curve extended above 820 cfs; minimum not determined.

Remarks.--Records excellent except those for periods of ice effect or no gage-height record, which are fair. No diversion above station. Flow regulated by Platoro Reservoir (see p. 250) since Nov. 7, 1951.

Rating tables, water year 1951-52, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 31		Apr. 1 to Sept. 30			
0.4	0	0.4	2	1.2	125
.5	1.0	.5	7	1.6	265
.6	6.0	.6	15	2.0	464
.7	15	.7	25	2.5	762
.8	27	.9	53		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.7	11						400	201	632	614	38
2	9.6	*10						380	236	596	608	35
3	11	6.9						350	195	626	602	33
4	11	7.8						175	142	626	620	29
5	11	6.0						5.0	201	626	638	28
6	10	4.5						100	222	620	632	26
7	9.6	2.5						198	48	620	620	26
8	8.7	.7						151	46	626	626	*25
9	8.7	.5						257	42	626	602	23
10	*7.8	.5						131	42	626	620	21
11	6.9	.5						520	40	608	626	20
12	6.9	.5						503	35	*620	*479	38
13	5.0	.5					2.0	464	*30	620	620	44
14	5.0	.5						274	88	620	602	30
15	4.0	.5	0.5	0.6	0.6	1.5		119	358	620	590	24
16	4.0	.5						*119	142	620	578	24
17	3.5	.5						288	164	632	566	23
18	3.5	.5						296	378	638	620	23
19	4.0	.5						301	426	632	602	21
20	4.0	.5						320	436	626	584	21
21	4.5	.5						320	492	626	532	59
22	4.5	.5						492	526	626	210	73
23	4.0	.5						650	482	620	85	59
24	4.5	.5						650	657	614	78	47
25	6.9	.5						644	626	620	73	41
26	13	.5					5.0	632	626	626	65	37
27	12	.5					35	614	626	620	71	34
28	24	.5					83	555	626	620	69	32
29	15	.5					125	503	626	614	63	29
30	12	.5			-		320	325	632	614	52	29
31	12	-			-		-	124	-	608	42	-
Total	255.3	60.4	15.5	18.6	17.4	46.5	618.0	10,860.0	9,391	19,268	13,389	992
Mean	8.24	2.01	0.5	0.6	0.6	1.5	20.6	350	313	622	432	33.1
Ac-ft	506	120	31	37	35	92	1,230	21,540	18,630	38,220	26,560	1,970

Calendar year 1951: Max 597 Min - Mean 57.6 Ac-ft 41,680
Water year 1951-52: Max 657 Min - Mean 150 Ac-ft 109,000

Peak discharge (base, 830 cfs).--No peak above base.
* Discharge measurement made on this day.
Note.--No gage-height record Oct. 28 to Nov. 2, Jan. 3 to May 6 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 1 discharge measurement and gate openings at Platoro Reservoir. Stage-discharge relation affected by ice Nov. 9 to Jan. 2.

Conejos River near Mogote, Colo.

Location.--Lat 37°03'20", long. 106°11'20", in SE¼ sec. 34, T. 33 N., R. 7 E., on right bank 20 ft downstream from bridge on State Highway 174, three-quarters of a mile downstream from Fox Creek, 5½ miles west of Mogote, and 9½ miles west of Antonito.

Drainage area.--282 sq mi.

Records available.--September 1899 to March 1900, April 1903 to September 1913, and October 1933 to September 1952 in reports of Geological Survey. September 1899 to March 1900 and April 1903 to September 1952 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 8,300 ft. Sept. 1, 1899, to Mar. 31, 1900, and Apr. 17, 1903, to Oct. 31, 1905, staff gage near present site at different datum. May 4, 1905, to Mar. 20, 1907, staff gage and Mar. 21, 1907, to Oct. 5, 1911, chain gage, at site about 9 miles (corrected) upstream at different datum. Jan. 1, 1912, to early 1915, chain gage at present site and datum.

Average discharge.--50 years (1902-52), 367 cfs.

Extremes.--Maximum discharge during year, 2,700 cfs June 11 (gage height, 4.63 ft); minimum daily, 19 cfs Dec. 7.
1899-1900, 1903-52: Maximum discharge, 9,000 cfs Oct. 5, 1911 (gage height, 8.50 ft, site and datum then in use), from rating curve extended above 3,500 cfs; minimum, 18 cfs (discharge measurement) Dec. 19, 1939.

Remarks.--Records good except those for periods of ice effect, which are fair. No diversion above station. Some regulation by Platoro Reservoir (see p. 250).

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 20, Jan. 3 to Feb. 4, Mar. 1-14)

Oct. 1 to June 1				June 2 to Sept. 30			
0.9	18	2.5	385	1.1	68	3.0	787
1.1	30	3.0	654	1.5	143	4.0	1,810
1.4	59	3.5	1,080	2.0	276	5.0	3,310
1.6	91	4.0	1,650	2.5	482		
2.0	198	5.0	3,070				

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*31	45	33	27	44	49	74	1,160	1,810	1,440	933	150
2	31	*36	33	*23	44	48	*88	1,460	*2,020	*1,390	959	*139
3	33	35	*31	23	42	42	100	*1,750	1,900	1,370	889	130
4	35	42	32	25	42	39	128	2,030	1,950	1,350	848	123
5	36	41	27	28	45	41	152	1,890	1,890	1,390	848	117
6	35	32	20	30	43	*44	179	1,850	2,170	1,380	*825	112
7	34	32	b19	36	44	47	227	1,960	2,220	1,300	787	110
8	34	36	b22	38	47	48	274	1,810	2,220	1,280	810	102
9	34	36	b21	35	47	46	255	1,870	2,200	1,240	795	95
10	33	32	b31	37	46	44	255	*1,430	2,290	1,220	810	95
11	*33	33	38	42	46	42	270	1,590	2,400	1,150	802	*92
12	33	34	39	44	43	40	266	1,810	2,200	*1,110	773	102
13	32	34	36	44	42	40	259	1,930	*2,010	1,060	665	154
14	32	29	34	52	41	41	305	2,180	1,950	1,010	780	123
15	32	34	32	45	42	47	377	1,980	2,110	977	745	100
16	32	*26	31	42	42	47	411	1,900	2,200	959	717	97
17	30	25	*33	*43	40	53	*466	1,690	1,810	933	704	95
18	31	37	33	45	42	*55	548	1,510	1,810	933	738	87
19	31	36	32	47	42	58	622	1,310	1,910	915	*773	82
20	31	35	35	43	41	57	668	1,220	2,050	898	773	80
21	34	37	35	43	41	55	530	*1,280	1,970	889	766	119
22	*34	36	37	43	42	49	437	1,410	1,770	863	584	232
23	32	34	38	46	42	53	428	1,370	*1,630	863	314	*196
24	32	33	39	47	42	52	536	1,420	1,610	848	267	152
25	35	27	39	47	*42	54	654	1,530	1,680	883	234	132
26	46	29	38	48	42	55	749	1,700	1,700	872	232	121
27	64	37	37	45	b49	54	944	1,860	1,640	889	217	115
28	52	36	37	43	b53	62	962	1,970	1,520	924	229	110
29	46	32	37	44	b52	58	935	2,000	1,470	950	226	104
30	45	34	40	44	-	62	962	2,220	1,440	898	191	104
31	45	-	36	45	-	70	-	1,870	-	898	171	-
Total	1,118	1,025	1,025	1,244	1,270	1,552	13,061	52,960	57,550	33,062	19,405	3,570
Mean	36.1	34.2	33.1	40.1	43.8	50.1	435	1,708	1,918	1,067	626	119
Ac-ft	2,220	2,030	2,030	2,470	2,520	3,080	25,910	105,000	114,100	65,580	38,490	7,080

Calendar year 1951: Max 1,810 Min 19 Mean 167 Ac-ft 121,200
Water year 1951-52: Max 2,400 Min 19 Mean 510 Ac-ft 370,500

Peak discharge (base, 1,700 cfs).--May 4 (7:30 p.m.) 2,180 cfs (4.40 ft); May 14 (11:30 p.m.) 2,360 cfs (4.55 ft); May 30 (1 a.m.) 2,350 cfs (4.46 ft); June 11 (3:30 a.m.) 2,700 cfs (4.63 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

San Antonio River at Ortiz, Colo.

Location.--Lat 37°00', long. 106°02', in New Mexico, in sec. 19, T. 32 N., R. 9 E., on right bank a quarter of a mile south of Colorado-New Mexico State line, half a mile south of Ortiz, and half a mile upstream from Los Pinos River.

Drainage area.--110 sq mi.

Records available.--October 1933 to September 1952 in reports of Geological Survey. January to October 1915, May 1919 to October 1920, and October 1924 to September 1952 in reports of State engineer. (No winter records prior to 1941.)

Gage.--Water-stage recorder. Prior to Apr. 7, 1926, staff gage at various locations near present site at different datums.

Average discharge.--12 years (1940-52), 30.2 cfs.

Extremes.--Maximum discharge during year, 1,060 cfs May 4 (gage height, 4.55 ft); no flow Oct. 1 to Nov. 2, July 15-27.
1915, 1919-20, 1924-52: Maximum discharge, 1,750 cfs Apr. 15, 1937 (gage height, 5.38 ft), from rating curve extended above 1,100 cfs; no flow at times in most years.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. A few small diversions above station for irrigation.

Rating tables, water year 1951-52, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 16-22, Aug. 18-24)

Oct. 1 to Mar. 31		Apr. 1 to Sept. 30			
0.4	0	0.6	0	1.3	27
.5	.3	.7	.2	1.6	63
.6	1.1	.8	1.6	2.0	132
.7	2.9	.9	4.0	2.5	258
.8	5.8	1.0	7.2	3.0	415
		1.1	12	4.0	795

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	(*)	0			(*)		a20	441	136	2.8	9.6	2.1
2		*b0		(*)			*a36	*622	*130	*1.5	6.6	*1.5
3		b.5	(*)				a60	714	143	.9	5.0	1.3
4		b.3					a81	768	147	.3	3.8	1.3
5		b.8					a95	764	122	.3	3.3	1.3
6		b1.2				(*)	a97	726	108	.2	*3.0	1.2
7		b1.6					a220	642	97	.2	2.1	1.2
8		b1.6					a340	573	81	.2	2.8	1.0
9		b2.0					a212	521	69	.2	1.2	.8
10		b1.8					a185	428	62	5.0	.8	.3
11	(*)	b1.6					a199	*337	54	*8.2	.3	*.3
12		b1.7					a177	385	46	3.0	.2	.6
13		b1.8					a193	402	40	.5	.1	2.8
14		b1.9					a321	415	*36	.1	.9	5.9
15		a2.2	a2.7	a3.0	a4.0	a5.5	a428	385	32	0	2.3	3.5
16		*a1.8					448	340	28	0	1.5	2.3
17		a1.5	(*)	(*)			*448	281	24	0	1.5	2.6
18		a1.6				(*)	479	252	18	0	3.8	3.5
19		a1.6					482	210	18	0	*3.8	2.3
20		a1.8					475	194	17	0	3.3	1.6
21		a1.9					331	194	13	0	3.8	2.3
22	(*)	a1.9					284	192	11	0	2.8	6.9
23		a2.0					258	*172	*9.1	0	11	*9.6
24		a1.8					353	163	7.7	0	24	5.9
25		a1.5			(*)		455	177	6.9	*0	8.2	3.5
26		a1.6					500	182	6.6	0	5.6	2.3
27		a1.9					581	170	6.2	0	5.0	1.8
28		a1.8					550	172	5.3	14	4.0	1.5
29		a1.7					360	168	4.6	44	4.3	1.2
30		a2.0			-		353	156	4.0	11	4.6	.9
31		-			-		-	139	-	8.6	3.0	-
Total	0	45.4	83.7	93.0	116.0	170.5	9,021	11,285	1,482.4	101.0	132.2	73.3
Mean	0	1.51	2.7	3.0	4.0	5.5	301	364	49.4	3.26	4.26	2.44
Ac-ft	0	90	166	184	230	338	17,890	22,380	2,940	200	262	145

Calendar year 1951: Max 207 Min 0 Mean 10.0 Ac-ft 7,260
Water year 1951-52: Max 768 Min 0 Mean 61.8 Ac-ft 44,820

Peak discharge (base, 330 cfs).--Apr. 8 (time unknown) about 440 cfs; Apr. 19 (11 p.m.) 690 cfs 3.88 ft); Apr. 27 (12:30 a.m.) 718 cfs (3.87 ft); May 4 (11:30 p.m.) 1,060 cfs (4.55 ft); May 14 (3 a.m.) 503 cfs (3.30 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height record (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 10 discharge measurements, weather records, and records for nearby stations.

b Stage-discharge relation affected by ice.

Los Pinos River near Ortiz, Colo.

Location.--Lat 36°58', long. 106°03', in New Mexico, in N½ sec. 34, T. 32 N., R. 8 E., on left bank 1 mile south of Colorado-New Mexico State line, 2 miles southwest of Oritz, and 2½ miles upstream from mouth.

Drainage area.--167 sq mi.

Records available.--October 1933 to September 1952 in reports of Geological Survey. January 1914 to November 1920 and October 1924 to September 1952 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder. Altitude of gage is 8,100 ft.

Average discharge.--13 years (1927-28, 1940-52), 130 cfs.

Extremes.--Maximum discharge during year, 2,790 cfs May 5 (gage height, 5.76 ft), from rating curve extended above 1,400 cfs; minimum not determined.
1914-20, 1924-52: Maximum discharge, 3,160 cfs May 12, 1941 (gage height, 5.77 ft), from rating curve extended above 1,600 cfs; minimum observed, 4.0 cfs Dec. 17, 1945 (discharge measurement), but may have been less during period of no gage-height record.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are fair. Diversions above station for irrigation.

Rating tables, water year 1951-52, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 23-25)

Oct. 1 to Apr. 25				Apr. 26 to Sept. 30			
0.8	5.0	1.5	91	1.1	13	2.5	295
.9	12	2.0	206	1.2	20	3.0	480
1.1	31	3.3	695	1.4	45	4.0	990
				1.7	91	5.0	1,830
				2.0	156	5.9	3,000

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*9.2	15			(*)		58	745	1,140	289	75	19
2	9.2	*14		(*)			*63	*1,100	*1,090	*277	73	*19
3	9.2	9.9	(*)				72	1,520	1,100	259	77	19
4	11	16					91	1,700	1,180	247	59	18
5	8.5	14					113	2,180	1,120	259	51	18
6	9.2	14				(*)	156	2,280	1,160	259	*45	17
7	9.2	14					209	2,170	1,180	235	42	16
8	9.2	23					220	2,080	1,140	211	39	15
9	9.2	24					176	1,930	1,100	200	38	14
10	9.2	15					178	1,500	1,100	208	41	13
11	*9.2	15					192	*1,240	1,090	*173	35	*14
12	9.2	14					170	1,420	978	154	41	19
13	9.2	13					173	1,670	888	138	34	35
14	9.2	9.9					230	1,950	*840	127	37	18
15	9.2	15	a12	a10	a11	a14	286	2,010	858	118	31	15
16	9.2	*14					317	1,610	846	114	27	14
17	9.2	9.9	(*)	(*)			*359	1,120	690	102	26	18
18	8.5	b11				(*)	431	834	624	97	34	16
19	8.5	b10					575	715	624	93	*31	14
20	9.2	b9.6					611	720	637	86	32	14
21	9.2	b10					471	876	579	78	39	19
22	*9.9	b9.8					384	816	501	73	35	42
23	9.9	b9.4					390	*725	*448	72	77	*46
24	9.2	b9.1					519	794	424	73	41	26
25	12	b8.8			(*)		659	936	416	*66	29	24
26	17	b9.4					725	1,010	393	66	29	19
27	26	b11					888	1,090	372	65	29	17
28	16	b10					822	1,190	337	86	29	16
29	12	b9.8					601	1,240	312	97	42	16
30	13	b9.9			-		624	1,240	302	62	28	16
31	14	-			-		-	1,180	-	62	22	-
Total	331.9	377.5	372	310	319	434	10,763	41,571	23,469	4,446	1,268	586
Mean	10.7	12.6	12	10	11	14	359	1,341	782	143	40.9	19.5
Ac-ft	658	749	738	615	633	861	21,350	82,450	46,550	8,820	2,520	1,160

Calendar year 1951: Max 459 Min - Mean 53.9 Ac-ft 39,000
Water year 1951-52: Max 2,280 Min - Mean 230 Ac-ft 167,100

Peak discharge (base, 900 cfs).--Apr. 27 (8 p.m.) 1,100 cfs (4.10 ft); May 5 (10:45 a.m.) 2,790 cfs (5.76 ft); May 15 (10:45 p.m.) 2,550 cfs (5.59 ft); May 28 (9:45 p.m.) 1,670 cfs (4.84 ft).

* Discharge measurement made on this day.

a No gage-height record (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 8 discharge measurements, weather records, and records for nearby stations.

b Stage-discharge relation affected by ice.

San Antonio River at mouth, near Manassa, Colo.

Location.--Lat 37°11', long. 105°53', in sec. 21, T. 34 N., R. 10 E., on right bank 200 ft downstream from bridge on State Highway 142, 1 mile upstream from mouth, and 2½ miles east of Manassa.

Drainage area.--348 sq mi.

Records available.--October 1933 to September 1952 in reports of Geological Survey. April 1923 to September 1952 in reports of State engineer.

Gage.--Water-stage recorder. Prior to Apr. 23, 1936, at bridge 200 ft upstream at same datum.

Average discharge.--29 years (1923-52), 96.4 cfs.

Extremes.--Maximum discharge during year, 1,690 cfs May 6 (gage height, 6.42 ft); no flow Oct. 1 to Jan. 18.

1923-52: Maximum discharge, 2,620 cfs May 14, 1941, from rating curve extended above 2,200 cfs; maximum gage height, that of May 6, 1952; no flow at times in most years.

Remarks.--Records good above 100 cfs and fair below except those for periods of no gage-height record, which are poor. Diversions above station for irrigation.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 4-9, May 20-28; July 21 to Aug. 2, Sept. 2-9, 15-30)

Oct. 1 to Apr. 6, Sept. 5-30				Apr. 7 to Sept. 4			
0.6	0	1.3	2.0	0.7	6.5	3.0	267
.9	.1	1.4	4.0	.9	14	4.0	510
1.0	.2	1.5	7.0	1.2	29	5.0	825
1.1	.5	1.7	19	1.6	58	6.0	1,370
1.2	1.0	1.9	36	2.0	99	6.5	1,750
				2.5	169		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	(*)		3.6	*781	1,060	131	85	9.3
2		(*)		*0			4.0	1,090	1,080	117	62	9.3
3			(*)	0			4.6	1,350	1,000	107	41	9.3
4				0			6.7	1,450	1,060	109	34	8.2
5				0			15	1,550	1,000	122	32	7.0
						a1.4						
6				0			27	1,590	955	140	29	6.4
7				0			44	1,570	955	135	28	6.7
8				0			121	1,520	932	125	26	6.4
9				0			131	1,490	881	115	28	5.5
10				0			*89	1,420	817	108	30	4.6
					a0.3							
11	(*)			0			98	1,250	801	*107	26	4.0
12				0			99	1,260	731	89	26	3.6
13				0			83	1,310	*640	76	27	3.2
14				0			103	1,370	567	70	24	2.2
15				0		a2.0	179	1,420	540	55	26	2.0
16				0			260	1,400	567	45	24	1.9
17		(*)	(*)	*0			298	1,350	489	43	22	1.6
18				0		(*)	361	1,150	414	38	22	1.0
19						1.9	500	914	395	36	22	.8
20						1.9	628	809	390	33	31	.6
21				a.2		1.9	515	813	390	30	28	.7
22					a.7	1.9	385	*821	349	28	28	.8
23						1.9	271	745	300	24	20	*.6
24						1.9	349	849	230	20	16	.5
25					(*)	1.9	550	753	208	18	*16	.4
26					a1.1	2.0	789	845	195	13	13	.3
27						2.0	1,010	877	184	13	16	.3
28						2.0	1,190	941	178	16	16	.3
29				a.3		2.0	932	1,040	166	22	25	.2
30					-	1.9	753	1,060	157	*31	17	.4
31		-			-	2.8	-	1,060	-	95	10	-
Total	0	0	0	3.2	14.7	56.0	9,798.9	35,848	17,631	2,111	850	98.1
Mean	0	0	0	0.10	0.51	1.81	327	1,156	588	68.1	27.4	3.27
Ac-ft	0	0	0	6.3	29	111	19,440	71,100	34,970	4,190	1,690	195

Calendar year 1951: Max 238 Min 0 Mean 14.6 Ac-ft 10,570
Water year 1951-52: Max 1,590 Min 0 Mean 181 Ac-ft 131,700

Peak discharge (base, 500 cfs).--Apr. 20 (11 a.m.) 757 cfs (4.83 ft); Apr. 28 (2 p.m.) 1,290 cfs (5.89 ft); May 6 (3 p.m.) 1,690 cfs (6.42 ft); May 15 (2:30 p.m.) 1,490 cfs (6.17 ft); June 2 (11 a.m.) 1,190 cfs (5.74 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height record (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 3 discharge measurements, weather records, and records for nearby stations.

Conejos River near La Sauses, Colo.

Location.--Lat 37°23', long. 105°45', in secs. 2 and 11 (two channels), T. 35 N., R. 11 E., on left bank of main channel 100 ft downstream from bridge on State Highway 158 and on right bank of secondary channel 130 ft downstream from bridge on State Highway 158, half a mile upstream from mouth, 2 miles north of La Sauses, and 13 miles southeast of Alamosa.

Drainage area.--887 sq mi.

Records available.--October 1933 to September 1952 in reports of Geological Survey. March 1921 to September 1952 in reports of State engineer.

Gage.--Two water-stage recorders. Datum of gage on main (north) channel is 7,495.02 ft, and on secondary (south) channel is 7,495.89 ft, above mean sea level (levels by Bureau of Reclamation). Main channel: Prior to Oct. 23, 1934, at bridge 100 ft upstream, Oct. 23, 1934, to Apr. 10, 1937, at site 50 ft upstream, and Apr. 11, 1937, to Aug. 5, 1938, at present site at datum 1 ft higher. South channel: Prior to Oct. 23, 1934, at bridge 130 ft upstream at datum 0.44 ft higher and Oct. 23, 1934, to May 3, 1936, at site 30 ft upstream at present datum.

Average discharge.--31 years (1921-52), 227 cfs.

Extremes.--Maximum discharge during year, 2,500 cfs May 6; minimum daily, 0.1 cfs Oct. 29, 30.

1921-52: Maximum discharge, 3,890 cfs May 15, 1941; no flow at times in 1934, 1948, 1950, 1951.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Many diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*1.8	2.2	11	43	*39	46	52	*748	1,790	*465	682	103
2	1.3	3.4	13	*45	40	47	44	1,140	1,790	411	685	76
3	.7	*4.0	*15	45	40	44	*48	1,630	*1,820	358	685	*61
4	1.4	3.0	19	43	40	44	48	2,040	1,830	395	624	54
5	.4	5.0	23	40	40	47	45	2,350	1,820	492	597	48
6	2.2	6.2	16	40	39	*47	44	2,410	1,720	611	525	45
7	1.6	6.4	17	42	39	48	45	2,480	1,790	614	*481	38
8	1.5	8.0	19	42	39	48	83	2,360	1,840	495	416	38
9	12	18	20	41	39	50	203	2,190	1,860	449	448	38
10	20	8.4	34	42	40	55	169	*2,230	1,710	455	480	32
11	*27	7.4	38	42	42	54	149	1,840	1,620	*469	494	28
12	25	8.4	41	42	42	53	160	1,740	*1,580	405	550	26
13	22	9.3	39	42	40	50	140	1,860	1,350	342	510	*24
14	14	10	40	43	39	50	128	1,920	1,160	309	533	23
15	19	11	35	42	39	50	179	2,110	1,080	240	533	23
16	15	15	37	43	39	50	235	2,140	1,190	188	510	22
17	14	*11	*39	*43	39	50	*266	2,060	1,140	160	485	24
18	11	11	36	44	39	49	317	2,250	821	130	481	24
19	11	12	38	45	40	41	357	1,960	761	100	*453	23
20	14	14	39	44	39	*37	558	1,560	819	76	426	22
21	19	15	40	44	39	35	563	1,420	*880	64	452	26
22	15	15	41	44	39	34	366	*1,470	898	54	448	30
23	*14	15	42	42	41	31	263	1,510	843	39	295	*39
24	15	12	43	45	43	30	248	1,460	633	34	170	51
25	14	11	43	45	*42	30	385	1,510	596	*22	128	45
26	6.0	11	42	44	43	38	607	1,680	623	8.7	105	38
27	1.3	17	41	44	41	37	817	1,780	628	7.6	102	34
28	.3	19	40	44	41	37	1,130	1,860	584	7.3	94	29
29	.1	14	41	44	45	36	1,110	1,940	532	8.9	129	27
30	.1	12	45	44	-	36	772	1,980	532	66	146	25
31	.5	-	50	44	-	34	-	2,000	-	342	121	-
Total	300.2	314.7	1,037	1,337	1,167	1,338	9,531	57,628	36,240	7,817.5	12,788	1,116
Mean	9.68	10.5	33.5	43.1	40.2	43.2	318	1,859	1,208	252	413	37.2
Ac-ft	595	624	2,060	2,650	2,310	2,650	18,900	114,300	71,880	15,510	25,360	2,210

Calendar year 1951: Max 259 Min 0 Mean 20.3 Ac-ft 14,660
Water year 1951-52: Max 2,480 Min 0.1 Mean 357 Ac-ft 259,000

Peak discharge (base, 2,000 cfs).--May 6 (4 a.m.) 2,500 cfs; May 18 (1:15 p.m.) 2,310 cfs; May 31 (12:30 a.m.) 2,090 cfs.

* Discharge measurement made on this day.

Note.--No gage-height record on main channel Dec. 21-24, Apr. 9-16, and on secondary channel Dec. 2, 6-11, 15, 16, 20-24 (stage-discharge relation affected by ice during parts of periods); discharge estimated on basis of weather records and records for nearby stations.

Culebra Creek at San Luis, Colo.

Location.--Lat 37°11', long. 105°26', in sec. 35, T. 3 N., R. 72 W., Beaubien Grant Survey, on left bank 1 mile southeast of San Luis and 1½ miles upstream from Rito Seco.

Drainage area.--220 sq mi.

Records available.--January 1910 to December 1911 and October 1933 to September 1952 in reports of Geological Survey. May 1909 to September 1919 and April 1927 to September 1952 in reports of State engineer. Published as "Culebra River" 1910-11.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 8,000 ft. May 1, 1909, to September 1919, nonrecording gage on highway bridge in San Luis, at different datum. Apr. 1, 1927, to May 22, 1931, water-stage recorder at present site at different datum.

Average discharge.--35 years (1909-19, 1927-52), 62.1 cfs.

Extremes.--Maximum discharge during year, 318 cfs June 18 (gage height, 3.16 ft); minimum daily, 5.7 cfs Dec. 2, 16, 20-27, Jan. 7.
1909-19, 1927-52: Maximum discharge, 654 cfs July 1, 1947 (gage height, 5.09 ft), from rating curve extended above 300 cfs; minimum daily, 4.6 cfs Oct. 31, 1950.

Remarks.--Records excellent above 10 cfs and good below. Diversions above station for irrigation. Flow regulated by Sanchez Reservoir on Ventero Creek (capacity, 103,000 acre-ft).

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Jan. 18		Jan. 19 to Sept. 30			
0.1	2.9	0.1	4.0	1.0	59
.2	6.4	.2	8.0	2.0	165
.4	16	.5	24	3.0	296

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.7	8.2	6.4	7.3	8.0	10	10	10	130	249	118	76
2	8.2	7.8	5.7	6.0	7.6	8.5	10	15	188	225	115	99
3	9.2	8.7	6.9	6.4	7.6	9.0	9.5	14	190	170	105	110
4	*9.2	8.2	6.4	6.0	9.0	10	10	10	177	18	157	87
5	8.7	8.7	*6.4	6.0	9.0	9.5	10	11	166	16	177	59
6	8.7	8.7	7.3	6.4	9.0	10	10	14	141	23	206	52
7	8.7	8.7	7.3	5.7	9.0	11	10	12	112	181	169	45
8	8.7	8.7	6.9	*7.3	9.5	14	9.5	12	120	206	152	52
9	8.2	8.7	6.0	7.3	10	12	12	13	*202	215	106	67
10	8.2	9.2	6.0	6.9	10	13	14	13	220	207	89	65
11	8.2	8.7	6.4	6.9	10	12	11	12	241	199	140	46
12	8.2	8.7	6.4	7.3	9.5	9.0	12	17	236	190	145	28
13	8.2	*9.6	6.9	7.8	9.0	12	13	19	211	170	139	21
14	7.8	8.2	6.0	6.9	9.0	11	10	*18	212	202	105	14
15	7.8	8.2	6.0	6.9	8.5	14	10	38	198	219	78	12
16	7.8	7.3	5.7	6.4	9.0	30	10	62	228	212	73	*12
17	7.8	8.2	6.0	6.4	9.0	13	10	60	240	220	55	11
18	8.2	9.2	6.4	14	9.0	12	10	32	257	196	*99	10
19	7.8	8.7	*6.0	19	9.0	12	10	34	271	136	125	10
20	7.3	7.8	5.7	11	9.5	10	12	31	260	92	99	10
21	6.4	7.8	5.7	8.5	9.5	9.0	13	23	227	143	93	14
22	6.0	7.3	5.7	7.2	9.5	8.5	12	30	158	*183	80	16
23	*6.0	8.2	5.7	8.0	9.5	10	11	32	157	182	72	13
24	6.0	7.8	5.7	8.0	9.5	10	*11	38	160	179	60	12
25	6.4	6.9	5.7	8.5	9.5	9.5	11	35	196	167	92	12
26	9.2	7.3	5.7	8.5	10	10	11	52	*205	126	104	12
27	8.2	6.9	5.7	8.5	*10	*12	10	72	194	111	99	11
28	7.3	6.9	6.0	*8.5	9.5	14	13	85	175	184	84	10
29	7.3	6.9	6.0	8.5	10	14	13	108	153	192	87	10
30	7.3	6.4	16	8.5	-	12	14	108	199	181	53	10
31	7.8	-	11	8.5	-	12	-	108	-	149	42	-
Total	243.5	242.6	205.7	249.1	267.2	363.0	332.0	1,138	5,824	5,143	3,318	1,006
Mean	7.85	8.09	6.64	8.04	9.21	11.7	11.1	36.7	194	166	107	33.5
Ac-ft	483	481	408	494	530	720	659	2,260	11,550	10,200	6,580	2,000

Calendar year 1951: Max 99 Min 5.4 Mean 18.4 Ac-ft 13,330
Water year 1951-52: Max 271 Min 5.7 Mean 50.1 Ac-ft 36,360

* Discharge measurement made on this day.

Culebra Creek below San Luis, Colo.

Location.--Lat 37°12', long. 105°26', in sec. 27, T. 3 N., R. 72 W., Beaubien Grant Survey, on left bank 500 ft downstream from bridge on State Highway 159, 600 ft downstream from Rito Seco, and a quarter of a mile southwest of San Luis.

Drainage area.--255 sq mi.

Records available.--August 1938 to September 1952 (no winter records prior to 1941).

Gage.--Water-stage recorder.

Average discharge.--12 years (1940-52), 67.0 cfs.

Extremes.--Maximum discharge during year, 331 cfs June 11 (gage height, 2.85 ft); minimum daily, 11 cfs Oct. 3-9, 12, 13, 20-22, 24.
1938-52: Maximum discharge, 866 cfs May 30, 1942 (gage height, 4.54 ft), from rating curve extended above 400 cfs; minimum daily, 11 cfs several days in May, July, August, October 1951.

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. Diversions above station for irrigation. Flow regulated by Sanchez Reservoir on Ventero Creek (capacity, 103,000 acre-ft).

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 4		Dec. 5 to Aug. 25				Aug. 26 to Sept. 30	
1.3	9.0	1.4	13	2.3	171	1.4	20
1.5	26	1.6	34	2.8	315	1.7	52
		1.9	83			2.0	103

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	21	18	16	20	21	21	24	125	259	121	73
2	12	20	17	15	20	20	21	27	192	238	118	95
3	11	19	19	15	20	20	20	25	197	189	105	107
4	*11	19	21	15	20	20	20	22	181	27	157	87
5	11	18	*17	a15	20	20	21	23	174	21	179	62
6	11	18	17	a15	20	20	21	32	147	24	210	56
7	11	19	18	a15	20	20	21	35	121	181	169	50
8	11	19	17	*19	19	23	22	33	129	197	154	56
9	11	19	16	19	19	20	27	30	*208	230	105	69
10	12	20	14	19	19	23	25	25	233	219	91	68
11	12	21	14	19	20	24	23	24	259	205	136	53
12	11	22	14	20	20	19	24	27	256	197	143	41
13	11	*22	15	21	20	22	26	31	224	176	138	38
14	12	20	16	20	21	20	21	*26	221	205	107	30
15	12	21	a16	20	21	23	21	45	208	227	75	27
16	12	19	a16	20	21	40	21	64	236	221	74	*26
17	12	21	a16	21	21	23	21	72	247	230	58	24
18	12	22	a16	33	22	23	22	41	268	205	*95	23
19	12	22	*16	50	a22	22	21	40	286	140	123	23
20	11	19	16	30	a23	19	25	40	268	87	123	24
21	11	20	16	22	a23	17	27	27	236	140	93	32
22	11	20	16	21	a23	16	24	33	166	*179	79	34
23	*12	20	17	21	a22	18	22	35	154	184	72	29
24	11	20	17	21	a22	19	*22	42	152	181	61	28
25	12	19	17	21	21	19	23	38	189	171	91	27
26	16	18	17	21	21	19	22	56	*202	129	103	26
27	16	17	17	21	*21	*22	21	77	189	112	97	26
28	15	17	17	*20	20	26	26	91	166	187	87	25
29	14	17	16	20	20	25	25	114	145	200	91	24
30	17	17	32	20	-	23	27	114	194	189	58	24
31	21	-	25	20	-	22	-	112	-	154	50	-
Total	386	586	536	645	601	668	683	1,425	5,973	5,304	3,363	1,307
Mean	12.5	19.5	17.3	20.8	20.7	21.5	22.8	46.0	199	171	108	43.6
Ac-ft	766	1,160	1,060	1,280	1,190	1,320	1,350	2,830	11,850	10,520	6,670	2,590

Calendar year 1951: Max 97 Min 11 Mean 25.5 Ac-ft 18,480
Water year 1951-52: Max 286 Min 11 Mean 58.7 Ac-ft 42,590

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for station at San Luis.

Rio Grande near Lobatos, Colo.

Location.--Lat 37°05', long. 105°45', in sec. 22, T. 33 N., R. 11 E., on right bank just downstream from highway bridge, 6 miles north of Colorado-New Mexico State line, 7 miles downstream from Culebra Creek, 10 miles east of Lobatos, and 14 miles east of Antonito.

Drainage area.--7,700 sq mi (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--June 1899 to September 1913 and October 1933 to September 1952 in reports of Geological Survey. June 1899 to September 1952 in reports of State engineer. Prior to Jan. 1, 1904, published as "at Cenicero" and "near Cenicero."

Gage.--Water-stage recorder. Datum of gage is 7,426.79 ft above mean sea level, datum of 1929. Prior to Nov. 8, 1910, staff or chain gage at same site and datum.

Average discharge.--53 years (1899-1952), 704 cfs.

Extremes.--Maximum discharge during year, 11,600 cfs May 8 (gage height, 8.76 ft), from rating curve extended above 8,200 cfs, caused by failure of diversion dam above station; minimum daily, 25 cfs Oct. 6.
1899-1952: Maximum daily discharge, 13,100 cfs June 8, 1905, from rating curve extended above 8,000 cfs; no flow July 16 to Aug. 6, 1950, July 10 to Aug. 3, Aug. 9-17, 1951.

Remarks.--Records excellent except those for periods of ice effect or no gage-height record, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. Records for chemical analyses for the water year 1952 are given in Water-Supply Paper 1252.

Revisions.--W 210: Drainage area.

Rating table, water year 1951-52, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 31 to Nov. 5, Mar. 6-8, May 8, 9, May 22 to June 11, June 14-26)

0.7	20	2.5	940
1.0	100	3.0	1,510
1.5	284	5.0	4,320
2.0	554		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*40	50	103	260	*215	215	332	*930	2,410	*768	717	358
2	38	*35	104	*255	215	240	*358	1,130	2,430	702	820	*298
3	32	64	*94	245	220	285	353	1,750	*2,660	639	845	264
4	28	72	98	235	220	270	337	2,240	2,580	632	794	231
5	28	78	105	220	225	290	342	2,730	2,680	724	753	211
6	25	61	98	215	235	*318	322	3,170	2,570	864	*702	196
7	28	61	100	235	230	303	264	3,390	2,520	940	646	181
8	32	64	110	225	215	303	247	4,010	2,580	828	567	152
9	30	64	120	220	220	316	384	*2,960	2,940	768	605	139
10	30	64	150	230	225	298	468	2,890	3,060	710	674	132
11	*35	58	175	235	230	308	468	*2,720	2,960	*746	667	*122
12	45	61	185	210	230	368	434	2,290	3,030	702	702	119
13	42	64	195	245	235	327	374	2,380	*3,170	618	710	126
14	40	67	185	250	240	342	294	2,420	3,170	573	625	126
15	40	53	175	255	245	342	276	2,610	3,320	554	688	122
16	53	*58	180	250	240	308	294	2,730	3,170	479	646	122
17	50	75	*185	*247	235	313	*363	2,750	2,850	395	646	119
18	48	75	180	265	220	*313	412	2,870	2,510	342	625	116
19	42	86	190	275	210	313	457	2,850	2,210	289	*605	113
20	48	75	200	255	220	318	548	2,500	1,820	239	586	110
21	58	75	190	235	235	303	820	2,160	1,610	207	580	126
22	58	122	180	220	210	227	612	2,030	1,590	173	592	152
23	*48	135	190	230	215	294	548	*2,070	*1,470	152	548	*166
24	40	122	208	235	215	318	468	1,950	1,150	132	468	196
25	45	90	230	240	*200	308	485	1,850	912	*129	374	227
26	58	85	230	240	200	322	660	1,990	883	100	337	211
27	50	90	230	235	200	303	883	2,130	921	83	318	184
28	38	105	235	230	195	303	1,240	2,280	836	78	337	170
29	38	110	245	220	200	303	1,470	2,350	760	80	313	163
30	38	105	255	215	-	298	1,140	2,410	777	97	363	170
31	45	-	280	215	-	322	-	2,590	-	255	384	-
Total	1,270	2,324	5,405	7,342	6,395	9,393	15,653	75,130	65,549	13,998	18,237	5,122
Mean	41.0	77.5	174	237	221	303	522	2,424	2,185	452	588	171
Ac-ft	2,520	4,610	10,720	14,560	12,680	18,630	31,050	149,000	130,000	27,760	36,170	10,160

Calendar year 1951: Max 320 Min 0 Mean 103 Ac-ft 74,320
Water year 1951-52: Max 4,010 Min 25 Mean 617 Ac-ft 447,900

Peak discharge (base, 5,000 cfs).--May 8 (9:30 a.m.) 11,600 cfs (8.76 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Jan. 1 to Mar. 5 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 4 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation affected by ice Nov. 25 to Dec. 31.

Costilla Creek above Costilla Dam, N. Mex.

Location.--Lat 36°54'25", long. 105°15'00", on right bank, in Sangre de Cristo Grant, 2 miles upstream from Costilla Dam and 17 miles southeast of Costilla, Taos County.

Drainage area.--15 sq mi, approximately.

Records available.--April 1937 to September 1952 (irrigation seasons only).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 9,270 ft (from topographic map). Prior to July 1940, at site 60 ft downstream, at datum 1.78 ft lower.

Extremes.--Maximum discharge recorded during year, 88 cfs May 31 (gage height, 1.16 ft); minimum daily recorded, 2.0 cfs Oct. 3.
1937-52: Maximum discharge recorded, 346 cfs May 11, 1944 (gage height, 1.60 ft), from rating curve extended above 90 cfs by logarithmic plotting; maximum gage height, 1.90 ft May 15, 1938, former site and datum; minimum daily discharge recorded, 1.2 cfs Nov. 7, 1944.

Remarks.--Records fair. Discharge measurements generally made three times a month during irrigation season.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.3	0.6	0.7	18
.4	2.6	.9	37
.5	6.1	1.1	66
.6	11		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2						-	26	57	12	11	5.0
2	2.2						-	32	52	11	10	5.4
3	2.0						-	41	51	11	8.9	5.0
4	-						-	50	50	12	8.4	4.7
5	-						-	57	51	11	7.9	5.0
6	-						-	58	55	10	7.5	5.0
7	-						-	57	63	14	7.0	4.7
8	-						-	58	64	14	6.6	4.7
9	-						-	54	63	13	7.0	4.7
10	-						-	52	63	16	7.0	3.6
11	-						-	42	58	14	7.5	3.6
12	-						-	45	52	10	7.0	5.0
13	-						-	50	48	9.3	6.1	7.5
14	-						-	45	44	11	6.1	4.7
15	-						-	51	42	11	6.1	4.4
16	-						-	50	41	9.8	6.1	4.4
17	-						16	50	37	10	7.0	4.4
18	-						20	41	36	9.8	6.6	4.0
19	-						17	55	31	8.9	6.1	4.0
20	-						19	38	25	7.9	5.8	4.4
21	-						16	35	23	7.5	8.9	7.0
22	-						14	28	19	6.6	11	10
23	-						15	28	17	7.0	8.9	7.9
24	-						17	26	17	6.6	7.0	5.8
25	-						18	28	16	6.6	11	5.4
26	-						23	28	16	9.3	8.9	4.7
27	-						30	31	16	7.0	6.6	4.7
28	-						28	35	16	6.6	9.3	4.4
29	-						21	41	15	9.3	8.9	4.7
30	-						21	51	14	9.3	6.6	4.7
31	-						-	64	-	11	5.8	-
Total	-	-	-	-	-	-	-	1,347	1,152	312.5	238.6	153.5
Mean	-	-	-	-	-	-	-	43.5	38.4	10.1	7.70	5.12
Ac-ft	-	-	-	-	-	-	-	2,670	2,280	620	473	304

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

Peak discharge (base, 20 cfs).--Apr. 18 (6 p.m.) 35 cfs (0.84 ft); Apr. 27 (7:15 p.m.) 52 cfs (0.97 ft); May 5 (8 to 9 p.m.) 77 cfs (1.12 ft); May 19 (5 p.m.) 77 cfs (1.10 ft); May 31 (7 to 8 p.m.) 88 cfs (1.16 ft); July 10 (7 to 8 p.m.) 21 cfs (0.70 ft); Aug. 21 (11 p.m.) 22 cfs (0.73 ft); Aug. 25 (6:40 p.m.) 26 cfs (0.78 ft).

Costilla Creek below diversion dam, at Costilla, N. Mex.

Location.--Lat 36°58'00", long. 105°30'55", in Sangre de Cristo Grant, on right bank 650 ft downstream from diversion dam and 1.5 miles southeast of Costilla, Taos County.

Drainage area.--197 sq mi, approximately.

Records available.--April to September 1952.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,790 ft (from topographic map).

Extremes.--Maximum discharge during period, 204 cfs May 5 (gage height, 2.57 ft); minimum daily recorded, 0.7 cfs Sept. 17, 18.

Remarks.--Records good. Discharge measurements generally made four times a month during irrigation season. Flow partly regulated by Costilla Reservoir about 21 miles upstream (capacity, 15,700 acre-ft, original survey). Diversions above station for irrigation of about 4,800 acres, 800 of which are below station.

Rating table, Apr. 24 to Sept. 30 (gage height, in feet, and discharge, in cubic feet per second)

0.6	0.3	1.2	21
.7	1.1	1.5	45
.8	2.8	2.0	105
.9	5.8	2.5	190
1.0	10		

Discharge, in cubic feet per second, April to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	62	55	16	8.0	8.7
2							-	81	58	13	12	5.8
3							-	116	62	16	8.7	2.2
4							-	155	53	23	6.6	4.2
5							-	171	44	21	7.5	3.1
6							-	186	52	19	7.9	1.1
7							-	160	46	20	5.4	1.0
8							-	144	44	14	8.4	1.1
9							-	139	35	11	10	1.0
10							-	117	32	11	11	1.0
11							-	94	26	17	4.1	1.0
12							-	79	21	17	4.8	2.6
13							-	73	24	15	2.4	2.2
14							-	79	13	16	4.5	.9
15							-	86	8.7	19	8.5	.8
16							-	95	14	20	4.8	.8
17							-	106	20	18	7.5	.7
18							-	101	19	15	8.7	.7
19							-	91	18	14	8.3	1.1
20							-	72	20	11	6.2	1.7
21							-	64	12	15	14	2.2
22							-	50	14	6.2	30	6.2
23							-	53	15	3.1	8.3	6.6
24							11	48	15	5.6	6.2	6.1
25							26	37	17	7.4	6.2	6.6
26							28	28	14	24	4.8	7.1
27							46	28	19	13	1.2	5.4
28							82	31	16	8.1	7.6	5.8
29							74	34	13	9.6	13	7.5
30							58	46	14	6.6	15	7.9
31							-	48	-	2.8	15	-
Total							-	2,674	813.7	427.4	266.6	103.1
Mean							-	86.3	27.1	13.8	8.60	3.44
Ac-ft							-	5,300	1,610	848	529	204

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

Peak discharge (base, 300 cfs).--No peak above base.

Casias Creek near Costilla, N. Mex.

Location.--Lat 36°54'05", long. 105°15'30", in Sangre de Cristo Grant, on left bank 200 ft downstream from road crossing, 2.5 miles upstream from Costilla Dam, and 17 miles southeast of Costilla, Taos County.

Drainage area.--30 sq mi, approximately.

Records available.--April 1937 to September 1952 (irrigation seasons only).

Gage.--Water-stage recorder. Altitude of gage is 9,270 ft (from topographic map). Prior to July 1940, at site 100 ft downstream at different datum.

Extremes.--Maximum discharge recorded during year, 109 cfs June 10 (gage height, 1.65 ft); minimum daily recorded, 1.1 cfs Apr. 17.
1937-52: Maximum discharge recorded, 121 cfs Aug. 10, 1943; maximum gage height recorded, 1.90 ft June 14, 1938 (backwater from Costilla Reservoir); minimum daily discharge recorded, 0.2 cfs Nov. 3-7, 1947, Nov. 15, 16, 1948.

Remarks.--Records fair. Discharge measurements made 2 to 5 times a month May to September. Diversions for irrigation of about 2,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 17 to May 13)

0.56	1.1	1.2	37
.6	2.0	1.4	61
.8	10	1.7	117
1.0	22		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3						-	13	46	27	13	4.2
2	1.5						-	16	51	24	12	4.6
3	1.5						-	20	59	26	12	4.2
4	-						-	22	62	25	11	3.8
5	-						-	25	64	23	10	4.2
6	-						-	28	62	22	9.7	4.2
7	-						-	27	71	24	9.3	4.2
8	-						-	27	87	22	8.8	3.0
9	-						-	28	90	22	9.3	3.0
10	-						-	28	94	24	8.8	3.4
11	-						-	24	98	20	8.8	3.4
12	-						-	23	94	18	8.0	4.6
13	-						-	24	87	16	6.7	6.7
14	-						-	27	77	18	6.7	4.2
15	-						-	28	71	16	6.3	3.8
16	-						-	28	74	13	6.7	3.8
17	-						1.1	26	74	10	8.0	3.4
18	-						1.3	24	64	12	6.7	3.4
19	-						2.3	30	53	11	6.3	3.4
20	-						5.1	30	47	9.3	5.5	3.4
21	-						5.9	26	47	11	9.7	7.2
22	-						5.5	23	47	18	11	8.8
23	-						6.7	21	41	19	7.6	5.9
24	-						7.2	21	36	17	4.6	4.2
25	-						7.6	21	35	17	9.7	3.4
26	-						9.3	20	33	22	7.6	3.0
27	-						12	20	28	18	5.5	3.4
28	-						15	23	27	15	8.8	3.4
29	-						14	26	30	14	7.6	3.4
30	-						13	29	29	13	5.1	3.0
31	-						-	37	-	14	4.2	-
Total	-	-	-	-	-	-	-	765	1,778	560.3	255.0	124.6
Mean	-	-	-	-	-	-	-	24.7	59.3	18.1	8.23	4.15
Ac-ft	-	-	-	-	-	-	-	1,520	3,530	1,110	506	247

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

Peak discharge (base, 50 cfs).--May 19 (4:30 p.m.) 51 cfs (1.30 ft); June 10 (11:30 p.m.) 109 cfs (1.65 ft).

Santistevan Creek near Costilla, N. Mex.

Location.--Lat 36°53'05", long. 105°16'50", on left side of a 2-foot Parshall flume, in Sangre de Cristo Grant, 200 ft upstream from road crossing, 0.9 mile upstream from Costilla Dam, and 16 miles southeast of Costilla, Taos County.

Drainage area.--4 sq mi, approximately.

Records available.--April 1937 to September 1952 (irrigation seasons only).

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 9,300 ft (from topographic map). Prior to June 1940, fish-trap type of artificial control with 4-foot opening, gage at datum 0.99 ft lower.

Extremes.--Maximum discharge recorded during year 14 cfs July 16 (gage height, 1.37 ft); minimum daily recorded, 0.6 cfs Oct. 1-3.
1937-52: Maximum discharge recorded, 18 cfs Aug. 11, 1941 (gage height, 1.73 ft); minimum daily recorded, 0.1 cfs Nov. 13-17, 1948.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Discharge measurements made 2 to 5 times a month May to September.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 14-25)

0.1	0.2	0.6	3.6
.2	.7	.8	5.7
.3	1.2	1.0	8.0
.4	1.9	1.4	14
.5	2.7		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6						-	1.8	5.8	4.9	2.9	1.7
2	.6						-	2.1	6.1	4.4	2.8	1.7
3	.6						-	2.6	6.8	4.0	2.5	1.6
4	-						-	3.3	7.2	3.6	2.2	1.6
5	-						-	3.7	7.6	3.7	2.1	1.6
6	-						-	4.4	a8.4	3.9	1.9	1.6
7	-						-	5.4	a9.2	4.0	1.9	1.6
8	-						-	5.9	a10	3.9	1.8	1.6
9	-						-	5.6	a11	4.0	1.8	1.6
10	-						-	5.6	11	4.0	1.6	1.7
11	-						-	5.0	12	3.9	1.6	1.6
12	-						-	a4.2	12	3.7	1.6	1.9
13	-						-	3.4	12	3.6	1.4	2.0
14	-						-	3.9	12	3.8	1.5	1.9
15	-						-	4.6	12	3.8	1.4	1.9
16	-						1.4	4.7	13	3.8	1.4	1.7
17	-						1.3	4.7	12	3.8	1.5	1.7
18	-						1.5	4.5	11	3.9	1.5	1.6
19	-						1.6	4.6	10	3.6	1.4	1.5
20	-						1.6	4.4	9.4	3.4	1.4	1.6
21	-						1.4	4.2	8.5	3.3	2.1	1.7
22	-						1.3	4.0	8.4	3.2	1.8	1.9
23	-						1.3	3.8	7.8	3.3	1.5	1.6
24	-						1.3	3.7	7.4	3.2	1.5	1.5
25	-						1.2	3.8	7.0	3.1	2.3	1.4
26	-						1.5	3.8	6.4	3.7	1.7	1.4
27	-						1.9	4.0	5.9	3.2	1.6	1.4
28	-						1.8	4.2	5.2	2.8	2.3	1.4
29	-						1.6	4.5	5.4	3.5	2.0	1.4
30	-						1.6	4.9	5.2	2.7	1.7	1.4
31	-						-	5.4	-	3.0	1.6	-
Total	-	-	-	-	-	-	-	130.7	265.7	112.7	56.3	48.8
Mean	-	-	-	-	-	-	-	4.22	8.86	3.64	1.82	1.63
Ac-ft	-	-	-	-	-	-	-	259	527	224	117	97

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

Peak discharge (base, 5.0 cfs).--June 16 (5 a.m.) 14 cfs (1.37 ft); July 26 (12:30 p.m.) 8.2 cfs (0.93 ft); July 29 (5:30 p.m.) 13 cfs (1.30 ft); Aug. 21 (10 p.m.) 8.1 cfs (1.00 ft); Aug. 25 (3 p.m.) 7.2 cfs (0.91 ft); Aug. 28 (8 p.m.) 5.7 cfs (0.77 ft).
a No gage-height record; discharge estimated on basis of weather records and records for Costilla Creek above reservoir, near Costilla and Casias Creek near Costilla.

Costilla Creek below Costilla Dam, N. Mex.

Location.--Lat 36°52'25", long. 105°16'55", on left bank 125 ft downstream from outlet of reservoir, in Sangre de Cristo Grant, and 18 miles southeast of Costilla, Taos County.

Drainage area.--55 sq mi, approximately.

Records available.--April 1937 to September 1952 (irrigation seasons only except 1945-47, 1950-52).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 9,180 ft (from topographic map).

Extremes.--Maximum discharge during year, 123 cfs July 24 (gage height, 1.31 ft); no flow at times.
1937-52: Maximum discharge recorded, 286 cfs May 9, 10, 1942 (gage height, 2.65 ft); no flow at times.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Discharge measurements generally made 2 ot 3 times a month during irrigation season. Flow regulated by Costilla Reservoir (capacity, 15,000 acre-ft, original survey). Diversions for irrigation of about 2,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

-0.04	0	0.6	37
.1	3.5	.8	58
.2	7.5	1.0	83
.4	20	1.3	122

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.3	1.0							0	102	43	23
2	3.9	0							0	109	30	26
3	3.9	0							0	45	37	25
4	6.7	0							0	14	57	18
5	7.5	0							0	14	76	14
6	5.1	0							0	41	84	13
7	4.7	0							0	102	84	14
8	4.7	0							0	96	46	18
9	4.7	0							0	88	23	21
10	4.3	0							0	79	35	23
11	4.4	0							0	35	66	23
12	4.7	0							0	11	67	16
13	4.7	0							0	31	51	12
14	4.7	0							0	77	45	14
15	4.7	0							12	80	25	17
16	4.7								42	80	15	17
17	4.7								54	67	25	17
18	4.7								57	26	49	17
19	4.7								60	11	55	17
20	4.7								60	31	56	17
21	4.7								60	84	49	16
22	4.7	0							67	108	27	16
23	4.3								79	118	20	16
24	4.3								97	116	21	14
25	4.3								95	62	25	11
26	4.3								82	37	25	11
27	4.3								30	51	25	11
28	4.3	0							5.2	82	24	11
29	4.3	0							26	77	24	11
30	3.2	0							82	72	24	11
31	1.6	-							-	68	23	-
Total	140.8	1.0	0	0	0	0	0	0	908.2	2,014	1,256	490
Mean	4.54	0.03	0	0	0	0	0	0	30.3	65.0	40.5	16.3
Ac-ft	279	2.0	0	0	0	0	0	0	1,800	3,990	2,490	972

Calendar year 1951: Max 122 Min 0 Mean 10.9 Ac-ft 7,890
Water year 1951-52: Max 118 Min 0 Mean 13.1 Ac-ft 9,530

Note.--No gage-height record Nov. 16-27, Dec. 7 to Jan. 24, Mar. 8 to Apr. 15, Apr. 17-21; discharge estimated on basis of recorded range in stage, field estimates, and knowledge of gate operation.

Costilla Creek near Amalia, N. Mex.

Location.--Lat 36°52'15", long. 105°23'10", on left abutment at downstream side of third bridge upstream from Amalia, in Sangre de Cristo Grant, 1.5 miles downstream from Latir Creek, 6¼ miles southeast of Amalia, and 12 miles southeast of Costilla.

Drainage area.--140 sq mi, approximately.

Records available.--May 1949 to September 1952 (irrigation season only).

Gage.--Water-stage recorder. Altitude of gage is 8,500 ft (from topographic map).

Extremes.--Maximum discharge recorded during year, 194 cfs May 5 (gage height, 2.76 ft); minimum daily recorded, 7.2 cfs Oct. 2, 3.
1949-52: Maximum discharge recorded, 259 cfs July 23, 1949 (gage height, 3.15 ft); minimum daily recorded, 6.8 cfs Sept. 3, 1950.

Remarks.--Records good. Flow regulated by Costilla Reservoir (capacity, 15,700 acre-ft, original survey). Diversions for irrigation of about 2,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1 1	6.0	1.7	39
1.2	9	2.0	72
1.3	13	2.3	114
1.5	24	2.7	184

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.5						-	96	110	122	69	31
2	7.2						-	116	110	124	48	36
3	7.2						-	137	116	87	48	36
4	-						-	160	114	39	66	29
5	-						-	178	112	37	88	24
6	-						-	184	112	42	96	22
7	-						-	182	116	128	96	22
8	-						145	182	119	124	68	26
9	-						91	180	119	119	36	27
10	-						75	160	117	110	40	30
11	-						70	137	114	79	77	30
12	-						64	132	108	31	85	26
13	-						67	138	99	33	67	24
14	-						89	152	91	99	60	19
15	-						102	163	86	108	43	22
16	-						102	160	117	111	25	21
17	-						100	154	125	102	30	20
18	-						98	135	122	61	61	19
19	-						102	124	122	28	67	19
20	-						112	104	117	31	70	20
21	-						95	95	114	100	72	24
22	-						75	89	111	122	59	29
23	-						72	86	119	132	34	26
24	-						81	81	132	128	34	24
25	-						89	80	130	88	41	19
26	-						95	84	114	66	38	19
27	-						114	88	75	60	36	18
28	-						127	92	28	102	49	17
29	-						100	102	36	102	46	18
30	-						92	110	100	96	37	17
31	-						-	111	-	91	35	-
Total	-	-	-	-	-	-	-	3,992	3,205	2,702	1,721	714
Mean	-	-	-	-	-	-	-	129	107	87.2	55.5	23.8
Ac-ft	-	-	-	-	-	-	-	7,920	6,360	5,360	3,410	1,420

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

Ute Creek near Amalia, N. Mex.

Location.--Lat 36°57'10", long. 105°24'35", on right bank 100 ft downstream from road crossing and 2.6 miles northeast of Amalia.

Drainage area.--12 sq mi, approximately.

Records available.--April 1949 to September 1952 (no winter records).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 8,500 ft (from topographic map).

Extremes.--Maximum discharge recorded during year, 20 cfs June 10 (gage height, 1.29 ft); minimum daily recorded, 0.7 cfs Oct. 2.
1949-52: Maximum discharge recorded, 52 cfs July 25, 1949 (gage height, 1.77 ft); minimum daily recorded, 0.5 cfs at times in 1950, 1951.

Remarks.--Records good. Discharge measurements generally made 2 or 3 times a month during irrigation season. Two known diversions for irrigation of about 100 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.15	0.7	0.8	9.7
.2	1.1	1.0	14
.4	3.2	1.2	18
.6	6.1		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8						-	6.9	12	5.3	3.1	1.8
2	.7						-	7.6	13	5.0	2.3	1.7
3	-						-	10	13	5.0	1.9	1.6
4	-						-	13	13	5.0	1.8	1.6
5	-						-	15	14	4.6	1.6	1.4
6	-						-	16	15	4.4	1.4	1.4
7	-						-	14	16	4.9	1.4	1.3
8	-						6.6	14	17	4.4	1.6	d1.3
9	-						5.3	13	17	4.4	1.6	1.3
10	-						4.4	11	18	4.7	d1.6	1.4
11	-						4.0	10	18	4.3	1.6	1.4
12	-						3.7	10	17	3.9	1.6	1.6
13	-						3.7	12	16	3.6	1.4	1.8
14	-						4.4	13	15	3.5	1.6	1.4
15	-						5.5	14	15	3.2	1.4	1.4
16	-						5.9	13	14	3.0	1.4	1.4
17	-						6.4	12	13	2.7	1.4	1.4
18	-						6.9	10	12	2.5	1.4	1.4
19	-						7.6	9.3	11	2.3	1.4	1.3
20	-						7.5	8.4	11	2.2	1.4	1.4
21	-						6.9	7.6	10	2.0	2.7	2.0
22	-						6.1	7.3	9.5	1.9	3.2	2.3
23	-						5.6	7.1	8.8	2.0	2.4	2.2
24	-						5.9	6.6	8.0	2.0	2.0	1.9
25	-						6.1	6.6	7.8	1.9	2.7	1.6
26	-						6.3	6.9	7.5	2.3	2.5	1.6
27	-						7.8	8.2	6.9	2.2	2.2	1.6
28	-						8.8	10	6.4	2.4	2.3	1.6
29	-						7.8	11	6.1	2.2	2.6	1.7
30	-						7.1	12	5.6	2.0	2.0	1.9
31	-						-	12	-	2.4	1.8	-
Total	-	-	-	-	-	-	-	327.5	366.6	102.2	59.3	47.7
Mean	-	-	-	-	-	-	-	10.6	12.2	3.30	1.91	1.59
Ac-ft	-	-	-	-	-	-	-	650	727	203	118	95

Calendar year	: Max	Min	Mean	Ac-ft	
Water year	: Max	Min	Mean	Ac-ft	

Peak discharge (base, 35 cfs).--No peak above base.
d Doubtful gage-height record; discharge interpolated.

Costilla Creek near Costilla, N. Mex.

Location.--Lat 36°56'30", long. 105°30'10", in Sangre de Cristo Grant, on left bank 1 mile upstream from diversion dam and 2 miles southeast of Costilla, Taos County.

Drainage area.--195 sq mi, approximately.

Records available.--March 1936 to September 1952 (irrigation seasons only 1936-43).

Gage.--Water-stage recorder. Altitude of gage is 7,810 ft (from topographic map). Prior to June 1944, at site half a mile downstream at different datum.

Average discharge.--9 years (1943-52), 45.1 cfs.

Extremes.--Maximum discharge during year, 248 cfs Apr. 7 (gage height, 3.26 ft); minimum daily, 3.6 cfs Nov. 17.
1936-52: Maximum discharge, 1,150 cfs May 11, 1942 (gage height, 5.37 ft, site and datum then in use); minimum daily recorded, 2 cfs Dec. 30, 1946.

Remarks.--Records good except those for Nov. 4 to Feb. 14, which are poor. Discharge measurements generally made three or more times a month except during winter. Slight regulation by Costilla Reservoir, 20 miles upstream (capacity, 15,700 acre-ft, original survey). Diversions for irrigation of about 4,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.2	2.5	2.0	39
1.3	4.0	2.3	69
1.4	6.2	2.6	110
1.5	9.1	3.0	184
1.6	13	3.2	228
1.8	24		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.1	10	5.5			9.9	28	94	125	110	75	33
2	6.8	7.6	5.5			7.9	40	108	124	120	53	35
3	6.8	7.4	5.3			6.5	61	134	127	100	49	37
4	6.8	a7	5.3			b6	64	164	125	56	55	31
5	9.1	a7	5.8		a7	b8	87	190	120	52	72	25
6	9.9	a6		a6		b6.5	115	210	122	47	81	22
7	8.8	a6				7.9	142	201	125	114	81	21
8	9.1	6.0				9.1	156	190	132	118	74	23
9	8.5	6.2				9.1	107	186	127	113	40	22
10	8.2	6.8				9.9	81	170	125	107	38	27
11	8.2	7.1			a8	9.1	75	143	124	90	59	28
12	8.5	7.4			a8	4.9	70	134	118	48	71	28
13	8.5	7.9			a8	6.2	65	140	113	41	62	28
14	8.2	5.8			a8	8.8	81	153	106	86	55	22
15	8.5	7.4	a5	a7	7.9	7.4	98	166	98	101	49	22
16	8.2	4.2			8.2	22	98	168	113	104	27	23
17	8.8	3.6			b9	16	98	166	125	99	28	23
18	8.8	5.8			b8	9.9	94	149	124	72	51	22
19	9.5	6.0		a10	b7	12	100	140	124	40	61	21
20	9.1	6.5			b6	15	108	120	122	34	67	21
21	7.9	6.5			b8	11	96	110	115	76	71	25
22	7.4	6.5			7.9	6.5	77	102	112	96	83	32
23	7.4	7.4		a8	8.8	7.9	69	98	115	112	32	30
24	7.9	6.8			8.5	11	75	89	124	122	39	25
25	9.9	4.7			5.1	11	82	87	129	96	41	21
26	12	4.7	a6		7.1	6.2	84	87	111	68	44	20
27	16	b5			8.5	7.4	102	91	96	60	40	19
28	12	b5		a7	8.8	15	129	94	52	93	46	18
29	11	5.3			10	26	108	101	48	101	44	17
30	11	5.5	a7		-	28	94	117	87	89	41	18
31	11	-	a7		-	29	-	117	-	84	37	-
Total	280.9	189.1	167.4	220	220.8	351.1	2,684	4,219	3,408	2,649	1,666	739
Mean	9.06	6.30	5.40	7.10	7.61	11.3	89.5	136	114	85.5	53.7	24.6
Ac-ft	557	375	332	436	438	696	5,320	8,370	6,760	5,250	3,300	1,470

Calendar year 1951: Max 102 Min 3 Mean 20.2 Ac-ft 14,630
Water year 1951-52: Max 210 Min 3.6 Mean 45.9 Ac-ft 33,300

Peak discharge (base, 250 cfs).--No peak above base.
a No gage-height record; discharge estimated on basis of discharge measurements, available recorder trace, weather records, and records for nearby stations.
b Stage-discharge relation affected by ice.

Costilla Creek at Garcia, Colo.

Location.--Lat 36°59'30", long. 105°32'00", in Sangre de Cristo Grant, on left bank 200 ft downstream from old highway bridge, a quarter of a mile upstream from New Mexico-Colorado State line, and 0.6 mile south of Garcia.

Drainage area.--200 sq mi, approximately.

Records available.--June 1944 to September 1952 (no winter records).

Gage.--Water-stage recorder. Altitude of gage is 7,750 ft (based on estimated relation to former station). Prior to Apr. 20, 1950, at site 1,000 ft downstream at datum 7,747.43 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge recorded during year, 277 cfs Apr. 8 (gage height, 3.16 ft); no flow at times.
1944-52: Maximum discharge recorded, 308 cfs July 23, 1949 (gage height, 4.16 ft, site and datum then in use); no flow at times.
Flood of May 11, 1942, probably reached a discharge of 1,000 cfs.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Discharge measurements generally made twice a month except during winter period. Flow partly regulated by Costilla Reservoir about 23 miles upstream (capacity, 15,700 acre-ft, original survey). Diversions above station for irrigation of about 5,000 acres, 1,000 of which are below station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.95	0.0	1.5	9.9
1.0	.1	1.7	18
1.1	.9	2.0	37
1.2	2.3	2.5	101
1.3	4.2	3.0	223

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0						-	60	45	11	3.3	6.2
2	0						-	82	47	8.3	6.4	3.8
3	-						-	114	52	9.6	4.2	1.4
4	-						-	140	50	15	3.1	2.1
5	-						-	191	42	15	3.4	1.7
6	-						-	214	45	13	4.0	0
7	-						-	170	42	14	3.2	0
8	-						152	144	37	9.3	4.0	.1
9	-						98	138	32	5.7	4.4	0
10	-						69	110	27	6.0	6.0	0
11	-						46	84	23	10	2.7	0
12	-						50	74	20	11	2.7	1.2
13	-						41	69	21	9.3	1.6	1.8
14	-						55	73	5.4	9.7	1.7	.1
15	-						69	77	4.0	12	a4	0
16	-						69	86	8.3	13	a3	0
17	-						77	105	15	12	a5	0
18	-						58	98	14	9.8	5.4	0
19	-						64	83	14	7.7	3.8	0
20	-						70	66	15	6.2	2.7	.3
21	-						64	57	8.0	8.6	7.5	.8
22	-						a47	48	8.3	4.1	26	3.1
23	-						a23	51	9.6	1.0	9.6	4.1
24	-						a14	45	9.6	3.4	5.4	4.0
25	-						21	35	12	3.5	4.5	3.8
26	-						24	27	9.6	15	3.5	3.8
27	-						38	24	13	9.3	.5	3.2
28	-						71	26	9.3	5.8	3.8	3.4
29	-						71	29	7.0	7.4	11	4.2
30	-						55	40	8.5	4.0	13	4.2
31	-						-	39	-	1.4	13	-
Total	-	-	-	-	-	-	-	2,599	653.6	271.1	172.4	53.3
Mean	-	-	-	-	-	-	-	83.8	21.8	8.75	5.56	1.78
Ac-ft	-	-	-	-	-	-	-	5,160	1,300	538	342	106

Calendar year	Max	Min	Mean	Ac-ft
Water year	Max	Min	Mean	Ac-ft

Peak discharge (base, 200 cfs).--Apr. 8 (1:15 a.m.) 277 cfs (3.16 ft); May 6 (6 a.m.) 252 cfs (3.09 ft).

a No gage-height record; discharge estimated on basis of records for stations above and below.

Costilla Creek near Jaroso, Colo.

Location.--Lat 36°59'00", long. 105°42'05", in SW¼ sec. 30, T. 32 N., R. 12 E. (projected), in Sangre de Cristo Grant, on left bank 1 mile upstream from mouth, 1 mile downstream from Colorado-New Mexico State line, and 5 miles southwest of Jaroso.

Drainage area.--290 sq mi, approximately.

Records available.--April 1912 to September 1913 (published as "near mouth, N. Mex."), May to November 1936 (published as "near mouth, near Jaroso, Colo."), April 1948 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 7,500 ft (from topographic map). April 1912 to September 1913, staff gage at present site at different datum. May to November 1936, water-stage recorder at site 1 mile upstream at different datum.

Extremes.--Maximum discharge during year, 55 cfs May 7 (gage height, 2.40 ft); maximum gage height, 2.60 ft Jan. 19 (affected by ice); no flow most of year.
1912-13 (prior to completion of Costilla Reservoir): Maximum daily discharge, 344 cfs May 23, 24, June 7, 1912; no flow at times.
1936, 1948-52 (subsequent to completion of Costilla Reservoir): Maximum discharge, 96 cfs June 7, 1948 (gage height, 2.77 ft); no flow for long periods each year.

Remarks.--Records good for May, others poor. Flow partly regulated by Costilla Reservoir, completed in 1920, about 35 miles upstream (capacity, 15,700 acre-ft, original survey). Diversions for irrigation of about 6,000 acres above station.

Rating table, water year 1951-52, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.7	0	1.4	3.8
.9	.1	1.5	6.3
1.1	.5	1.7	13
1.2	1.0	2.0	26
1.3	2.1	2.4	52

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	(*)			0				*0	(*)			
2				0				0				(*)
3				0				0				
4				0		(*)		0			(*)	
5				0				*0				(*)
6				0				*14	(*)	(*)	(*)	
7				0				*46				
8		(*)		0				30				
9				0				*29				
10				0			(*)	28		(*)		
11				0				*13				(*)
12				0				1.2				
13				b.3				*0			(*)	
14			a0	0	(*)			0				
15		(*)		0				0				
16				0				0				
17				0				0				
18				b4				16				
19				b8				*12				(*)
20				3		(*)		15			(*)	
21				1				9.4				
22				0				*5.2				
23				0				0				
24				0				*0				(*)
25				0	(*)			0				
26				0				0	(*)			
27			*0	0				0			(*)	
28			0	0				0				
29			.4	0				0				
30			.9	0	-			0				
31		-	.4	0	-		-	-	-			-
Total	0	0	1.7	16.3	0	0	0	218.8	0	0	0	0
Mean	0	0	0.05	0.53	0	0	0	7.06	0	0	0	0
Ac-ft	0	0	3.4	32	0	0	0	434	0	0	0	0

Calendar year 1951: Max 0.9 Min 0 Mean 0.005 Ac-ft 3.4
Water year 1951-52: Max 46 Min 0 Mean 0.65 Ac-ft 469

Peak discharge (base, 100 cfs).--No peak above base.
* Discharge measurement or observation of no flow made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Nov. 2-14, 25-30, Dec. 1-26, Jan. 14-17, 20-31, Feb. 1-29, Mar. 1-31, Apr. 1-9; discharge estimated on basis of available recorder trace, discharge measurements, and weather records.

Principal diversions from Costilla Creek, N. Mex. and Colo.

Records of discharge are collected at 9 gaging stations on 4 diversions from Costilla Creek. Each of these stations is equipped with a water-stage recorder and a Parshall flume. Water diverted is used for irrigation in the Sangre de Cristo Grant in New Mexico and Colorado below the gaging station near Costilla. Records are collected during irrigation seasons only. Discharge measurements generally made twice a month except during winter period.

Acequia Madre at Costilla, N. Mex.--Lat 36°58'00", long. 105°30'50", 275 ft downstream from diversion dam. Records available, May 1944 to September 1952. Acequia diverts from right bank of Costilla Creek.

Mesa ditch near Garcia, Colo.--Lat 36°59'50", long. 105°30'45", 429 ft north of milepost No. 136+54 on New Mexico-Colorado State line. Records available, June 1944 to September 1952. Ditch diverts from right bank of Acequia Madre for irrigation in Colorado.

Middle ditch at Garcia, Colo.--Lat 36°59'50", long. 105°31'25", 300 ft north of New Mexico-Colorado State line. Records available, July 1944 to September 1952. Ditch diverts from Acequia Madre for irrigation in Colorado.

Cordillera ditch at Garcia, Colo.--Lat 36°59'40", long. 105°31'40", 570 ft south of New Mexico-Colorado State line. Records available, June 1944 to September 1952. Ditch diverts from Acequia Madre for irrigation in Colorado.

Cerro Canal at Costilla, N. Mex.--Lat 36°57'50", long. 105°31'10", 1,400 ft downstream from diversion dam. Records available, April 1944 to September 1952. Canal diverts from left bank of Costilla Creek.

Cerro Canal near Jaroso, Colo.--Lat 36°59'35", long. 105°34'35". Records available, June 1944 to September 1952. Flow measured is delivered to Colorado and to New Mexico branch of Cerro Canal.

New Mexico Branch Cerro Canal near Jaroso, Colo.--Lat 36°59'35", long. 105°34'45", 225 ft downstream from headgate. Records available, June 1944 to September 1952. Canal diverts from left bank of Cerro Canal for irrigation in New Mexico.

Alire ditch at Garcia, Colo.--Lat 36°59'45", long. 105°32'05", 430 ft southeast of milepost No. 137+64 on New Mexico-Colorado State line. Records available, June 1944 to September 1952. Ditch diverts from left bank of Costilla Creek for irrigation in Colorado.

Eastdale No. 1 intake canal near Jaroso, Colo.--Lat 37°02'40", long. 105°37'00", 1,100 ft downstream from headgate. Records available, June 1944 to September 1952. Canal diverts from right bank of Costilla Creek to Eastdale Reservoir No. 1 for irrigation in Colorado.

Diversions, in acre-feet, water year October 1951 to September 1952

Month	Acequia Madre	Mesa ditch	Middle ditch	Cordillera ditch	Cerro Canal at Costilla	Cerro Canal near Jaroso, Colo.	New Mexico Branch Cerro Canal	Alire ditch	Eastdale No. 1 intake canal
October.....	-	-	-	-	-	-	-	-	0
November.....	-	-	-	-	-	-	-	-	0
December.....	-	-	-	-	-	-	-	-	0
January.....	-	-	-	-	-	-	-	-	10
February.....	-	-	-	-	-	-	-	-	0
March.....	-	-	-	-	-	-	-	-	0
April.....	666	95	0	45	969	721	51	0	2,150
May.....	998	237	0	172	1,850	1,270	142	0	2,020
June.....	1,490	462	0	98	3,510	2,360	427	0	245
July.....	1,360	511	0	48	2,930	1,930	306	0	20
August.....	1,180	350	0	73	1,560	1,140	209	0	11
September.....	695	189	0	47	524	320	46	0	0
Water year....	-	-	-	-	-	-	-	-	4,460

Latir Creek near Cerro, N. Mex.

Location.--Lat 36°49'45", long. 105°32'45", in S½SW¼ sec. 15, T. 30 N., R. 13 E., on right bank at mouth of canyon, 100 ft upstream from heading of Cerro community ditch, and 6 miles northeast of Cerro.

Drainage area.--10 sq mi, approximately.

Records available.--April 1937 to September 1952 (irrigation seasons only prior to 1946).

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 8,250 ft (from topographic map).

Average discharge.--7 years (1945-52), 5.93 cfs.

Extremes.--Maximum discharge during year, 70 cfs June 10; maximum gage height, 1.89 ft June 11; minimum daily discharge, 1.1 cfs Feb. 20.
1937-52: Maximum discharge determined, 121 cfs June 3, 1942, from rating curve extended above 56 cfs by logarithmic plotting; maximum gage height recorded, 4.2 ft July 19, 1945 (log jam); minimum daily discharge, 0.5 cfs Dec. 14, 1949.

Remarks.--Records fair. Discharge measurements generally made twice a month except during winter.

Rating table, water year 1951-52, (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Nov. 2-4, 15-17, Dec. 7-10, Jan. 3-6)

0.1	0.5	1.0	22
.2	1.6	1.5	42
.4	4.7	2.0	70
.7	12		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.4	1.7	1.9	2.2	1.9	1.9	3.0	9.0	22	15	10	5.5
2	2.4	1.7	1.8	2.1	1.9	1.9	3.1	12	23	14	9.0	5.3
3	2.2	2.0	1.8	1.9	1.9	1.9	3.4	15	23	14	7.7	5.1
4	2.1	2.5	1.8	1.8	1.9	a2.0	3.8	16	22	15	7.5	5.3
5	2.2	2.8	1.8	1.7	1.9	2.1	4.5	16	25	14	6.8	5.3
6	2.2	2.8	1.8	1.8	1.8	2.2	4.5	16	35	13	6.1	5.1
7	2.1	2.8	1.8	1.7	1.9	2.2	5.3	15	38	13	5.9	4.9
8	2.4	2.6	1.7	1.4	2.1	2.2	5.7	15	46	12	5.7	4.7
9	2.2	2.6	1.6	1.4	2.1	2.2	3.4	13	62	11	8.0	4.3
10	2.2	2.6	1.6	1.4	2.1	2.2	2.8	11	69	10	7.7	4.3
11	2.2	2.6	1.9	1.6	2.1	2.2	3.0	11	56	10	6.8	4.1
12	2.2	2.6	1.9	1.9	1.9	2.2	3.1	12	55	9.2	6.1	4.3
13	2.1	2.5	1.9	2.4	1.8	2.2	3.1	14	52	8.7	5.7	4.9
14	2.1	2.4	1.9	2.1	1.8	2.2	4.0	16	48	9.0	5.7	4.1
15	2.1	1.9	1.8	2.1	1.4	2.1	5.3	17	46	8.7	5.5	4.0
16	2.1	1.4	1.8	2.1	1.4	2.4	5.9	16	38	8.4	4.9	4.0
17	2.2	1.4	1.8	2.2	1.6	2.4	6.4	15	36	8.0	4.9	4.0
18	2.2	a1.7	1.8	2.2	1.4	2.4	6.4	13	34	7.7	4.9	3.8
19	2.2	a1.9	1.8	2.2	a1.2	2.4	6.8	12	34	7.3	4.9	3.8
20	2.1	a2.2	1.8	2.2	a1.1	2.4	6.4	12	33	6.8	4.9	4.0
21	1.8	2.2	1.8	2.2	a1.4	2.4	4.7	11	31	6.6	9.4	4.7
22	1.7	2.4	1.9	2.2	a1.8	2.2	4.3	10	28	6.4	11	6.8
23	1.7	2.4	1.9	2.2	a1.9	2.2	4.5	9.2	25	6.4	6.8	5.7
24	1.8	2.2	1.9	a2.2	a1.8	2.1	5.7	9.0	23	5.9	6.4	4.7
25	2.1	2.2	1.9	a2.2	a1.6	2.1	6.6	10	21	5.9	8.4	4.5
26	2.6	2.1	1.9	a2.2	1.8	2.2	7.5	11	20	6.4	7.0	4.3
27	2.2	2.1	1.8	a2.1	1.9	2.5	11	13	19	6.1	6.1	4.1
28	1.9	2.1	1.9	a2.1	1.9	2.6	8.2	16	18	8.0	6.8	4.0
29	1.9	2.1	2.1	2.1	1.9	3.0	6.1	18	17	9.7	8.0	4.1
30	1.9	1.9	2.1	2.1	-	3.0	6.4	20	16	9.0	6.1	4.1
31	2.1	-	1.9	2.1	-	3.0	-	21	-	11	5.9	-
Total	65.6	66.4	57.1	62.1	51.2	71.0	154.9	424.2	1,015	296.2	210.6	137.8
Mean	2.12	2.21	1.84	2.00	1.77	2.29	5.16	13.7	33.8	9.55	6.79	4.59
Ac-ft	130	132	113	123	102	141	307	841	2,010	588	418	273

Calendar year 1951: Max 24 Min 1.3 Mean 3.53 Ac-ft 2,560
Water year 1951-52: Max 69 Min 1.1 Mean 7.14 Ac-ft 5,180

Peak discharge (base, 30 cfs).--June 10 (11:45 p.m.) 70 cfs (1.86 ft); Aug. 21 (10 p.m.) 50 cfs (1.63 ft); Aug. 25 (4 p.m.) 46 cfs (1.55 ft).
a No gage-height record; discharge estimated on basis of recorder trace, recorded range in stage, weather records, and records for nearby stations.

Rio Grande near Cerro, N. Mex.

Location.--Lat 36°44'05", long. 105°41'05", in N½ sec. 20, T. 29 N., R. 12 E., on left bank 4 miles southwest of Cerro, 5½ miles northwest of Questa, and 7 miles upstream from Red River.

Drainage area.--8,440 sq mi.

Records available.--May 1948 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 7,100 ft (from river-profile map).

Extremes.--Maximum discharge during year, 8,050 cfs May 8 (gage height, 14.74 ft); minimum daily, 77 cfs Nov. 4.
1948-52: Maximum discharge, 9,740 cfs June 22, 1949 (gage height, 15.78 ft); minimum daily, 48 cfs July 17, Aug. 15, 17-19, 1951.

Remarks.--Records good except those for periods of doubtful or no gage-height record, which are fair. Diversions for irrigation of about 626,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.5	73	7.0	1,280
2.0	120	9.0	2,240
3.0	259	12.0	4,700
5.0	645		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	82	139	259	251	292	335	1,060	2,630	830	540	410
2	86	80	153	243	243	275	362	985	2,560	756	830	370
3	87	78	133	235	243	251	380	1,360	2,840	695	880	320
4	84	77	146	235	235	267	380	1,940	*2,770	645	870	284
5	81	95	139	220	243	284	362	2,490	2,840	682	*800	251
6	80	103	143	204	235	*292	371	2,990	2,770	800	800	235
7	80	98	121	212	243	309	335	*3,310	2,700	920	720	227
8	81	95	179	212	251	300	275	4,070	2,700	920	670	212
9	83	*96	148	212	259	300	292	3,070	2,910	800	620	190
10	85	97	164	212	251	318	*456	2,910	3,150	758	708	180
11	83	98	*162	212	267	318	515	2,910	3,070	745	708	173
12	84	97	177	220	251	300	495	2,360	2,990	758	*708	168
13	84	98	190	243	267	309	485	2,300	3,150	682	758	164
14	89	98	204	251	235	326	390	2,490	3,230	645	708	172
15	89	94	183	*227	*251	362	326	2,630	3,310	620	708	170
16	86	87	197	235	259	362	309	2,770	3,390	600	708	168
17	87	81	190	235	259	335	353	2,910	*3,070	500	670	169
18	92	86	190	399	275	353	428	2,990	2,770	420	682	164
19	90	91	197	484	227	353	485	2,990	*2,490	380	670	*161
20	88	93	197	309	243	344	525	2,700	*2,120	320	*658	160
21	86	103	197	275	259	353	732	2,360	1,810	280	620	162
22	86	99	190	227	267	292	830	*2,180	1,760	250	630	183
23	88	126	190	220	275	277	645	2,120	1,710	240	610	197
24	91	188	197	235	275	*354	*585	2,120	1,480	200	580	204
25	86	136	204	235	220	344	525	1,960	1,160	180	470	235
26	86	113	212	235	*225	335	585	2,060	1,060	160	400	259
27	94	117	212	235	309	335	830	2,240	1,020	140	370	*243
28	96	118	212	243	284	335	1,060	2,360	1,020	160	370	220
29	87	117	220	243	259	326	1,360	2,490	890	140	370	204
30	82	128	235	243	-	318	1,280	2,490	*830	140	380	197
31	80	-	251	243	-	309	-	2,630	-	230	410	-
Total	2,663	3,051	5,672	7,693	7,361	9,828	16,291	76,245	70,200	15,598	19,626	6,452
Mean	85.9	102	183	248	254	317	543	2,460	2,340	503	633	215
Ac-ft	5,280	6,050	11,250	15,260	14,600	19,490	32,310	151,200	139,200	30,940	38,930	12,800

Calendar year 1951: Max 400 Min 48 Mean 139 Ac-ft 101,000
Water year 1951-52: Max 4,070 Min 77 Mean 658 Ac-ft 477,300

Peak discharge (base, 1,000 cfs).--Apr. 29 (4 to 5 p.m.) 1,530 cfs (7.57 ft); May 8 (3 p.m.) 8,050 cfs (14.74 ft); May 19 (3 a.m.) 3,150 cfs (10.32 ft); June 16 (8 a.m.) 3,470 cfs (10.73 ft).
* Discharge measurement made on this day.
Note.--Doubtful or no gage-height record July 15-31, Aug. 1-4, 9, 21-31, Sept. 1-3; discharge estimated on basis of records for stations below Taos Junction Bridge and near Lobatos, Colo.

Red River near Red River, N. Mex.

Location.--Lat 36°37'20", long. 105°23'20", in NE¼ sec. 36, T. 28 N., R. 14 E., on right bank 100 ft downstream from confluence of Middle and East Forks and 6 miles south of Red River.

Drainage area.--19.2 sq mi.

Records available.--July 1940 to September 1952 (no winter records prior to 1944). Prior to October 1947, published as Rio Colorado near Red River.

Gage.--Water-stage recorder. Datum of gage is 9,394.2 ft above mean sea level (plane-table levels by Division of Water and Power).

Average discharge.--9 years (1943-52), 17.4 cfs.

Extremes.--Maximum discharge during year, 264 cfs June 12 (gage height, 3.16 ft); maximum gage height recorded, 4.07 ft Jan. 2 (ice jam); minimum not determined.

1940-52: Maximum discharge recorded, that of June 12, 1952; maximum gage height recorded, that of Jan. 2, 1952 (ice jam); minimum daily discharge determined, 2.5 cfs Feb. 2, Mar. 3, 4, 1951.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 17 to May 8, June 7-14)

1.6	2.6	2.2	53
1.7	5.2	2.4	93
1.8	9.8	2.6	141
1.9	16	2.9	227
2.0	25		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.4	*4.9	3.6			3.6	4.9	26	104	53	24	14
2	4.2	3.6	3.6			3.6	5.2	40	102	50	30	14
3	4.4	4.2	b3.6			3.6	6.6	61	111	48	24	*12
4	4.2	4.7	b3.5			3.6	7.5	76	114	55	21	12
5	4.7	4.9	b4.0			3.6	8.9	85	121	64	*21	12
6	4.7	4.4	b4.5			3.6	10	87	138	61	20	11
7	4.4	4.4	*b4.0			3.6	13	78	168	61	20	11
8	4.4	4.4	b3.9			3.6	15	*86	182	51	19	11
9	4.4	4.4	b3.9			3.6	14	87	196	50	19	11
10	4.4	4.4				3.6	12	74	224	48	18	*11
11	4.2	4.4			a3.5	3.6	12	64	221	45	17	10
12	4.2	4.9				3.9	9.8	72	*221	37	*17	12
13	4.2	b4.5				3.6	9.8	85	199	36	16	14
14	3.9	4.2				3.6	12	104	190	39	16	11
15	4.2	b4.2				3.6	14	111	185	37	15	10
16	4.2	b4.0		a3.5		3.9	16	109	174	36	13	9.8
17	4.2	b4.0				3.9	19	91	160	32	13	9.8
18	4.2	4.2				3.9	19	72	152	30	13	9.3
19	4.2	4.2	a4			4.2	22	59	149	27	13	8.9
20	4.4	*4.2				3.9	23	*53	*144	25	*13	8.9
21	4.2	4.2			*3.4	3.9	20	48	126	25	18	10
22	3.9	4.2			3.4	3.9	16	43	111	22	27	15
23	3.6	3.9			3.4	3.9	16	39	93	23	21	12
24	3.6	3.9			3.4	3.6	17	37	87	21	21	11
25	4.4	4.2			3.4	3.6	16	42	82	22	20	*9.8
26	7.0	b5.0			3.4	3.6	20	57	76	23	18	9.3
27	6.6	3.9			3.4	3.6	25	*68	74	22	*15	9.3
28	4.9	3.9	*b6		3.4	3.6	27	*76	66	30	17	9.3
29	4.7	3.9			3.4	3.9	25	98	64	30	22	8.9
30	4.7	3.9	b4.5		-	4.2	23	93	59	25	18	*8.9
31	5.2	-			-	4.4	-	100	-	24	15	-
Total	138.9	128.1	126.1	108.5	100.6	116.3	458.7	2,221	4,093	1,152	574	326.2
Mean	4.48	4.27	4.07	3.50	3.47	3.75	15.3	71.6	136	37.2	18.5	10.9
Ac-ft	276	254	250	215	200	231	910	4,410	8,120	2,280	1,140	647

Calendar year 1951: Max 78 Min 2.5 Mean 9.44 Ac-ft 6,830
Water year 1951-52: Max 224 Min - Mean 26.1 Ac-ft 18,930

Peak discharge (base, 50 cfs).--May 9 (12:30 a.m.) 107 cfs (2.42 ft); May 14 (6:40 p.m.) 138 cfs (2.56 ft); June 12 (5:40 p.m.) 264 cfs (3.16 ft); Aug. 2 (12 m.) 51 cfs (2.20 ft); Aug. 22 (12:30 p.m.) 61 cfs (2.24 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of available recorder trace, discharge measurements, and records for nearby stations.

b Stage-discharge relation affected by ice.

Red River near Questa, N. Mex.

Location.--Lat 36°42'10", long. 105°34'00", in SW¼ sec. 33, T. 29 N., R. 13 E. (projected), on left bank 1¾ miles upstream from Cabresto Creek and 2 miles east of Questa.

Drainage area.--112 sq mi.

Records available.--October 1912 to August 1915 (fragmentary) and October 1930 to September 1952 in reports of Geological Survey. October 1912 to December 1931 in reports of State engineer. Prior to October 1947, published as Rio Colorado near Questa. January 1926 to December 1931 published as "above Questa", in State reports only.

Gage.--Water-stage recorder and concrete control. Datum of gage is 7,451.72 ft (revised) above mean sea level, datum of 1929. Prior to June 17, 1921, chain gages at various datums. June 17, 1921, to May 7, 1934, water-stage recorder at datum 2.55 ft lower and May 8, 1934, to Oct. 11, 1938, at datum 1.41 ft lower than present datum.

Average discharge.--36 years (1915-25, 1926-52), 63.3 cfs.

Extremes.--Maximum discharge during year, 520 cfs June 8 (gage height, 2.21 ft); minimum daily recorded, 9 cfs Dec. 10.
1930-52: Maximum discharge, 886 cfs May 25, 1942 (gage height, 2.32 ft), from rating curve extended above 450 cfs by logarithmic plotting; minimum daily, 6.3 cfs Nov. 24, 25, 1931.

Remarks.--Records good October, November, July to September, others fair except periods of doubtful or no gage-height record, which are poor. Diversions for irrigation of a few hundred acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 4 to Apr. 5, June 7-9, 12, Aug. 6 to Sept. 30)

0.65	9.0	1.3	87
.7	11	1.5	161
.9	22	1.7	270
1.1	44	2.0	510

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	*13	16		18	16	23	d120	284	a130	52	38
2	14	10	18		18	15	27	d160	284	*128	55	*38
3	13	10	15		18	13	31	d200	305	120	55	38
4	14	11	15		18	14	37	d250	326	120	46	35
5	14	11	15		17	14	43	d300	333	120	*43	35
6	14	11	15		19	15	48	d350	348	120	41	34
7	14	11	14		18	15	62	d350	372	*120	39	33
8	15	11	13		19	16	d80	*312	404	113	38	31
9	16	11	12		18	16	d74	284	420	97	37	30
10	13	11	a9		17	16	*d62	246	429	104	38	*30
11	12	11	a11	a18	17	16	d55	200	444	94	38	28
12	14	12	a13		17	12	d52	210	*456	84	*37	29
13	15	13	*15		17	14	d48	246	447	82	35	38
14	15	12	14		14	14	d50	298	404	82	37	31
15	16	14	12		*15	14	d60	356	380	87	38	29
16	16	13	12		15	18	d70	380	a350	84	35	28
17	16	12			16	18	d75	356	a300	*74	35	27
18	15	12			14	15	d80	284	*a270	64	35	*26
19	13	13			13	*17	d90	246	a250	64	35	26
20	12	13			15	18	d110	*205	a230	62	*35	26
21	13	14			15	17	d100	195	a210	60	43	28
22	13	14		*15	14	11	d90	190	a200	*57	87	37
23	13	14		a16	15	13	*d80	176	a190	55	50	31
24	14	15	a16	18	13	14	d80	171	a180	55	46	29
25	14	13		19	12	13	d82	166	a170	53	44	*28
26	17	*13		18	14	13	d85	161	a160	55	42	26
27	16	14		18	15	12	d110	176	a150	50	*38	26
28	13	13		17	*16	14	d150	*186	a150	53	41	26
29	12	14		18	15	16	d140	222	a140	64	64	26
30	12	15		18	-	19	d130	270	a140	57	46	*26
31	13	-		18	-	21	-	284	-	50	42	-
Total	436	374	459	553	462	469	2,224	7,550	8,726	2,558	1,347	913
Mean	14.1	12.5	14.8	17.8	15.9	15.1	74.1	244	291	82.5	43.5	30.4
Ac-ft	865	742	910	1,100	916	930	4,410	14,980	17,310	5,070	2,670	1,810

Calendar year 1951: Max 155 Min 8 Mean 28.0 Ac-ft 20,250
Water year 1951-52: Max 456 Min 9 Mean 71.2 Ac-ft 51,710

Peak discharge (base, 160 cfs).--May 8 (10:30 p.m.) 340 cfs (1.87 ft); May 16 (5 a.m.) 420 cfs (1.83 ft); June 8 (8:45 a.m.) 520 cfs (2.21 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of discharge measurements, weather records, and records for nearby stations.

d Doubtful gage-height record; discharge estimated as explained in footnote "a."

Llano ditch near Questa, N. Mex.

Location.--Lat 36°43'45", long. 105°33'00", in SE¼SE¼ sec. 21, T. 29 N., R. 13 E., on left bank 3½ miles northeast of Questa and 3⅔ miles upstream from mouth of Cabresto Creek.

Records available.--September 1943 to September 1952 (irrigation season only).

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 8,000 ft (from topographic map).

Extremes.--1943-52: Maximum daily discharge recorded, 32 cfs June 7, 11, 16-18, 1945; no flow at times.

Remarks.--Records good except those for July and August, which are fair. Ditch diverts water from right bank of Cabresto Creek for irrigation of about 800 acres near Questa.

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	0.5	0	0.08	5.2
November	.4	0	.05	3.2
December	-	-	-	-
Calendar year.	-	-	-	-
January	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	6.4	0	1.25	75
May	24	0	10.1	620
June	28	13	22.5	1,340
July	13	0	5.87	361
August	.4	0	.61	3.8
September	0	0	0	0
Water year	-	-	-	-

Cabresto Creek near Questa, N. Mex.

Location.--Lat 36°43'45", long. 105°33'10", in SE¼SE¼ sec. 21, T. 29 N., R. 13 E., on right bank a quarter of a mile downstream from Llano ditch heading, 3 miles northeast of Questa, and 3½ miles upstream from mouth.

Drainage area.--36.3 sq mi.

Records available.--September 1943 to September 1952.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 7,950 ft (from topographic map).

Average discharge.--9 years, 10.8 cfs.

Extremes.--Maximum discharge during year, 135 cfs May 7 (gage height, 4.03 ft); minimum daily, 1.6 cfs Nov. 17.
1943-52: Maximum discharge, 135 cfs May 13, 1945, May 7, 1952; maximum gage height, that of May 7, 1952; minimum daily discharge, that of Nov. 17, 1951.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Llano ditch diverts from right bank a quarter of a mile above gage for irrigation of about 800 acres below gage. Flow largely regulated by Cabresto Reservoir (capacity, 732 acre-ft).

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 21 to Nov. 1, Sept. 3-7)

0.3	2.5	2.0	38
.5	5.0	2.5	52
.7	8.0	3.0	70
1.1	15	3.5	96
1.5	24	4.0	132

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	*3.1	4.2		3.6	3.7	6.6	53	21	13	18	10
2	2.9	2.6	4.0		3.6	3.6	7.2	67	21	*12	18	10
3	3.0	2.9	3.9		3.8	3.4	8.6	88	*23	12	15	*10
4	3.0	2.9	4.2		3.6	3.2	12	106	22	12	14	9.5
5	3.0	2.9	3.9		3.6	3.6	15	112	23	12	*13	9.1
6	3.0	2.8	3.7		3.7	3.4	21	118	*23	11	13	9.3
7	3.0	2.8	3.6		3.7	3.7	28	*117	23	*11	12	8.8
8	3.0	2.9	3.8		3.8	3.7	31	114	24	11	12	8.3
9	3.0	3.0	3.4		4.2	3.9	27	124	57	10	12	7.8
10	3.0	3.3	3.0		4.2	3.8	*22	110	61	10	13	7.8
11	3.0	3.6	3.4	a3.5	4.0	3.7	20	90	57	11	16	8.0
12	3.0	3.6	3.6		3.8	3.2	18	86	*54	10	*16	*8.4
13	3.0	3.6	*4.0		3.8	3.1	16	a95	51	10	15	10
14	3.0	3.7	4.3		3.8	3.8	18	a110	47	11	14	8.8
15	3.0	3.7	4.0		*3.8	3.4	25	a120	35	10	10	8.1
16	2.8	2.1			*3.6	4.0	29	a115	12	10	8.4	7.8
17	2.5	1.6			3.6	4.0	33	a105	13	*11	8.1	7.5
18	2.8	2.0			3.6	3.9	36	a95	*14	11	8.3	*7.2
19	2.9	2.8			3.2	*4.0	39	86	15	11	8.1	6.9
20	2.9	3.7			3.0	4.0	39	76	21	11	8.3	6.9
21	3.0	3.8			3.7	3.8	34	69	17	11	11	8.0
22	3.0	3.7		*3.1	3.4	3.0	30	*62	13	11	*15	10
23	3.0	3.7	a3.8	3.7	3.4	3.8	25	53	10	11	10	9.8
24	3.0	3.8		3.6	3.6	4.3	*24	43	10	11	10	8.4
25	3.0	3.4		3.4	3.2	4.4	30	39	11	11	10	*8.1
26	3.1	*2.9		3.3	3.6	4.6	36	36	*13	11	*11	7.6
27	3.1	3.4		3.3	*3.7	4.6	50	40	14	11	11	7.3
28	3.1	3.9		3.2	3.7	5.1	64	36	11	15	11	7.0
29	3.1	3.9		3.6	3.6	5.5	56	41	11	18	12	8.7
30	3.1	4.0		3.6	-	6.1	53	41	13	17	11	*8.9
31	3.1	-		3.6	-	6.3	-	37	-	17	11	-
Total	92.4	96.1	117.8	107.9	105.9	124.6	853.4	2,484	740	364	375.2	250.0
Mean	2.98	3.20	3.80	3.48	3.65	4.02	28.4	80.1	24.7	11.7	12.1	8.33
Ac-ft	183	191	234	214	210	247	1,690	4,930	1,470	722	744	496

Calendar year 1951: Max 18 Min 1.6 Mean 5.90 Ac-ft 4,270
Water year 1951-52: Max 124 Min 3.0 Mean 15.6 Ac-ft 11,330

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for Llano ditch and Red River at mouth.

Red River at mouth, near Questa, N. Mex.

Location.--Lat 36°39'00", long. 105°41'30", in NW¼ sec. 20, T. 28 N., R. 12 E., on left bank 800 ft upstream from Rio Grande and 6.5 miles southwest of Questa.

Drainage area.--190 sq mi

Records available.--December 1950 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 6,600 ft (from topographic map).

Extremes.--Maximum discharge during year, 647 cfs Jan. 18 (gage height, 5.72 ft); minimum daily, 41 cfs Dec. 10.
1950-52: Maximum discharge, that of Jan. 18, 1952; minimum daily, 38 cfs Feb. 2, 1951.

Remarks.--Records good except those for May to July, which are poor. Discharge measurements generally made twice a month. Diversions for irrigation of about 3,000 acres above station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	47	50	54	53	50	56	188	341	181	94	81
2	48	45	51	53	51	50	61	255	341	167	93	80
3	47	45	50	51	53	48	65	305	370	167	92	76
4	48	45	51	47	51	48	69	398	388	168	90	73
5	48	46	51	46	52	50	73	448	408	167	87	70
6	48	45	47	45	50	49	83	488	438	164	85	70
7	48	47	47	56	51	48	106	458	478	167	82	68
8	49	47	48	54	50	50	138	458	499	163	81	68
9	49	48	46	51	50	48	127	448	499	152	79	68
10	46	48	41	47	51	48	112	379	541	152	79	67
11	46	48	44	53	52	48	110	332	541	149	76	68
12	47	48	46	53	51	45	107	323	541	136	77	69
13	48	49	48	104	51	45	103	350	520	133	76	76
14	48	48	48	67	47	48	109	388	499	134	75	68
15	48	50	44	56	48	46	125	428	478	136	74	68
16	48	48	46	58	48	50	143	428	468	136	72	67
17	48	45	47	58	50	50	157	408	428	123	71	70
18	48	47	45	162	50	48	151	350	388	118	70	68
19	47	47	49	89	48	48	157	314	370	113	71	64
20	46	48	49	58	47	50	180	296	332	109	71	64
21	47	49	42	58	51	50	159	280	314	103	95	72
22	47	50	44	49	50	46	138	280	288	102	124	80
23	45	49	47	53	50	48	123	255	255	99	101	78
24	44	50	50	56	49	49	124	232	216	99	99	76
25	44	48	50	55	46	49	134	224	202	99	97	73
26	44	47	50	55	48	49	143	232	202	98	99	72
27	46	47	50	53	50	48	181	255	195	97	96	72
28	44	48	50	51	50	50	241	271	188	96	94	71
29	46	49	53	53	50	51	208	288	181	98	111	70
30	47	49	75	54	-	53	190	314	188	95	95	71
31	48	-	82	51	-	55	-	341	-	95	88	-
Total	1,455	1,427	1,521	1,850	1,448	1,515	3,873	10,414	11,097	4,016	2,694	2,138
Mean	46.9	47.6	49.1	59.7	49.9	48.9	129	336	370	130	86.9	71.3
Ac-ft	2,890	2,830	3,020	3,670	2,870	3,000	7,680	20,660	22,010	7,970	5,340	4,240

Calendar year 1951: Max 183 Min 38 Mean 60.2 Ac-ft 43,610
Water year 1951-52: Max 541 Min 41 Mean 119 Ac-ft 86,180

Peak discharge (base, 220 cfs).--Jan. 13 (9 p.m.) 387 cfs (4.51 ft); Jan. 18 (9 p.m.) 647 cfs (5.72 ft); Apr. 28 (1:30 p.m.) 271 cfs (3.76 ft); May 6 (2 a.m.) 510 cfs (5.13 ft); May 16 (5:30 a.m.) 458 cfs (4.77 ft); June 12 (6 a.m.) 552 cfs (4.92 ft); Aug. 21 (9:45 p.m.) 360 cfs (4.13 ft).

Rio Hondo near Valdez, N. Mex.

Location.--Lat 36°32'20", long. 105°33'30", in S½ sec. 28, T. 27 N., R. 13 E. (projected), on left bank 500 ft upstream from diversions, a quarter of a mile upstream from Forest Service gate, 1½ miles east of Valdez, and 9 miles upstream from mouth.

Drainage area.--38 sq mi, approximately.

Records available.--August 1934 to September 1952.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,700 ft (from topographic map). Prior to Oct. 28, 1938, at datum 1.92 ft lower.

Average discharge.--18 years (1934-52), 40.5 cfs.

Extremes.--Maximum discharge during year, 274 cfs June 12; maximum gage height, 3.20 ft Dec. 16 (backwater from ice); minimum daily discharge unknown (occurred during winter). 1934-52: Maximum discharge, 541 cfs May 13, 1941, from rating curve extended above 300 cfs by logarithmic plotting; maximum gage height, 3.67 ft (present datum) Dec. 15, 1936 (ice jam); minimum daily discharge, 3 cfs Jan. 21, 1935.

Remarks.--Records good except those for periods of ice effect, no gage-height record, and indefinite stage-discharge relation, which are poor. No diversion above station.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 2 to May 13, May 26 to June 4)

0.6	7.0	1.6	108
.8	18	2.0	178
1.0	34	2.4	264
1.3	66		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	b9	a9.5			a9.5	a22	74	172	80	34	24
2	11	*b8	a9	a10		a8.5	a24	96	184	76	38	24
3	11	b8	a8.5		a10	a8	a26	131	196	72	34	24
4	11	7.9	8.4	(*)		a8	a29	152	202	70	*33	23
5	11	8.8	*9.3			a8	a32	168	202	67	32	*23
6	11	b8				a8.5	b36	186	211	67	32	22
7	11	b8		b9		a8.5	b42	178	228	67	31	22
8	11	8.4	b8		a9.5	a9	b50	172	217	64	31	22
9	11	8.4				a9	*45	167	221	64	31	21
10	11	8.4				8.8	37	150	243	*62	31	*21
11	10	8.4				8.8	34	138	*246	60	*31	21
12	10	8.8			(*)	9.3	30	145	248	56	31	22
13	11	8.8	a8.5	a10	a9	b10	29	172	230	52	30	25
14	10	8.4				11	33	198	e220	53	30	21
15	10	7.9				b13	47	*223	e210	52	29	20
16	10	*b7.5				12	55	223	208	46	29	20
17	10	b7.0				12	*59	182	198	42	27	19
18	10	b7.5	a9	a11	a8.5	12	60	154	188	40	27	19
19	10	b8				12	65	134	*180	38	*27	18
20	10	b8.5				12	79	129	176	38	27	18
21	11	8.8				12	65	122	165	37	33	21
22	11	8.4				b9	59	124	145	36	43	27
23	9.8	8.4	a10	a9	a8.5	b11	54	122	141	36	31	22
24	10	8.8				a13	56	118	132	34	30	*19
25	11	9.3				a14	61	122	124	34	28	18
26	15	b8			(*)	a15	69	134	116	33	25	17
27	15	b7.5			a9.5	a16	86	*141	110	34	24	17
28	12	b8	a11	a9.5		a17	93	155	100	34	*26	17
29	11	a8.5				a18	79	159	98	34	32	17
30	11	a9			-	a19	*69	161	87	31	27	17
31	b10	-			-	a20	-	170	-	30	25	-
Total	337.8	248.4	288.2	302.0	265.5	361.9	1,525	4,700	5,398	1,539	939	621
Mean	10.9	8.28	9.30	9.74	9.16	11.7	50.8	152	180	49.6	30.3	20.7
Ac-ft	670	493	572	599	527	718	3,020	9,320	10,710	3,050	1,860	1,230

Calendar year 1951: Max 112 Min - Mean 20.0 Ac-ft 14,510
Water year 1951-52: Max 248 Min - Mean 45.2 Ac-ft 32,770

Peak discharge (base, 100 cfs).--May 6 (12:30 a.m.) 196 cfs (2.33 ft); May 16 (3:30 a.m.) 246 cfs (2.39 ft); June 12 (7 p.m.) 274 cfs (2.50 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of 4 discharge measurements, weather records, and records for station at Arroyo Hondo.

b Stage-discharge relation affected by ice.

e Stage-discharge relation indefinite; discharge estimated on basis of records for station at Arroyo Hondo.

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Rio Hondo at Arroyo Hondo, N. Mex.

Location.--Lat 36°31'55", long. 105°41'05", in sec. 32, T. 27 N., R. 12 E., on left bank 1 mile downstream from Arroyo Hondo and 1¼ miles upstream from mouth.

Drainage area.--70 sq mi, approximately.

Records available.--April 1910 to August 1915, January 1932 to September 1952 in reports of Geological Survey. Published as "near Arroyo Hondo" April 1910 to August 1915. April 1910 to December 1928 in reports of State engineer.

Gage.--Water-stage recorder and concrete control since Aug. 12, 1938. Altitude of gage is 6,670 ft (from topographic map). Prior to Dec. 31, 1928, staff gage at site 1.1 miles downstream at different datum. Jan. 21, 1932, to Aug. 13, 1934, staff gage at present site at datum 0.4 ft lower. Aug. 13, 1934, to Aug. 11, 1938, water-stage recorder at site half a mile downstream at different datum.

Average discharge.--20 years (1932-52), 29.0 cfs.

Extremes.--Maximum discharge during year, 235 cfs June 11 (gage height, 2.65 ft); minimum daily, 7.2 cfs Oct. 1-5.
1932-52: Maximum discharge, 2,510 cfs Aug. 23, 1935 (gage height, 5.45 ft, datum then in use), from rating curve extended above 170 cfs by logarithmic plotting; minimum daily, 4.0 cfs July 13-16, 1934.

Remarks.--Records good. Diversions for irrigation of about 800 acres above station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.2	8.4	15	18	18	16	20	57	92	38	15	10
2	7.2	*8.0	14	17	18	16	22	72	92	36	13	10
3	7.2	8.2	15	17	18	15	23	107	105	34	12	9.8
4	7.2	8.0	15	*14	17	14	26	138	107	34	*12	*9.2
5	7.2	7.8	*15	12	17	16	29	148	107	32	11	9.2
6	7.4	7.6	14	13	16	15	32	176	115	32	11	9.2
7	7.4	7.6	13	19	16	16	34	152	148	34	10	9.0
8	7.4	7.6	14	17	17	16	44	148	178	35	9.8	8.8
9	7.6	7.8	12	13	17	16	*41	152	178	34	10	8.3
10	8.0	7.8	10	11	18	16	36	128	201	*32	10	8.8
11	8.0	8.2	12	17	*18	15	34	105	*210	29	*10	8.8
12	7.6	8.6	15	16	17	14	32	94	192	29	9.8	9.4
13	7.8	8.6	18	20	17	15	29	99	178	28	9.6	9.4
14	8.0	8.6	17	18	15	16	30	117	160	26	9.2	9.4
15	8.0	8.6	12	15	17	15	37	*152	155	27	9.2	9.4
16	8.0	*9.0	13	17	15	16	41	173	148	30	9.2	9.6
17	8.0	9.0	16	16	17	16	*42	152	140	27	9.2	*9.6
18	8.6	b8.5	14	35	16	16	43	a144	135	27	9.2	10
19	8.6	b9	17	22	13	15	47	a126	*133	25	*9.2	10
20	8.2	b10	17	18	12	15	59	a114	122	24	9.8	11
21	8.0	b11	12	18	16	15	52	90	103	23	11	12
22	7.8	b11	13	14	15	12	47	88	95	18	10	15
23	7.8	11	17	16	16	16	40	78	85	15	9.4	14
24	7.8	11	18	18	16	17	40	70	78	15	10	*14
25	8.0	b10	18	18	12	17	45	68	65	14	10	12
26	8.8	b10	17	18	*14	16	49	72	59	14	10	12
27	8.6	b11	16	17	18	15	60	*77	57	15	9.8	11
28	8.2	b12	15	16	17	16	82	83	53	18	11	11
29	8.2	b12	17	17	17	17	66	90	49	18	*12	11
30	8.2	b13	22	18	-	18	*58	92	41	16	11	11
31	8.4	-	21	17	-	20	-	94	-	15	11	-
Total	244.4	278.9	474	532	470	488	1,240	3,456	3,581	794	323.4	311.9
Mean	7.88	9.30	15.3	17.2	16.2	15.7	41.3	111	119	25.6	10.4	10.4
Ac-ft	485	553	940	1,060	932	968	2,460	6,850	7,100	1,570	641	619

Calendar year 1951: Max 79 Min 6.0 Mean 14.5 Ac-ft 10,520
Water year 1951-52: Max 210 Min 7.2 Mean 33.3 Ac-ft 24,180

Peak discharge (base, 100 cfs).--Jan. 18 (8:40 p.m.) 165 cfs (2.21 ft); June 11 (4:30 p.m.) 235 cfs (2.65 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Rio Taos at Los Cordovas, N. Mex.

Location.--Lat 36°23'20", long. 105°38'00", in N½ sec. 23, T. 25 N., R. 12 E. (projected), in Martinez Grant, on right bank at mouth of Rio Ranchos de Taos, 50 ft downstream from Arroyo Seco, half a mile northeast of Los Cordovas, and 3½ miles west of Taos.

Drainage area.--359 sq mi.

Records available.--April 1910 to August 1915 and October 1930 to September 1952 in reports of Geological Survey. April 1910 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Datum of inside gage is 6,710.59 ft above mean sea level, datum of 1929. Prior to Oct. 4, 1921, staff gage at same site at different datum. Oct. 4, 1921, to Oct. 1, 1934, at datum about 0.26 ft higher.

Average discharge.--41 years (1910-25, 1926-52), 61.7 cfs.

Extremes.--Maximum discharge during year, 555 cfs May 6 (gage height, 3.86 ft); minimum daily, 4.6 cfs Aug. 18.
1930-52: Maximum discharge, 1,830 cfs May 14, 1941 (gage height, 5.81 ft), from rating curve extended above 1,300 cfs by logarithmic plotting; minimum daily, 1.3 cfs July 17, Aug. 18, 1951.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions for irrigation of about 12,000 acres above station.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 29 to Nov. 17, Dec. 30 to Jan. 20, May 6 to June 15, June 24 to July 7, Aug. 12-18, 29, Sept. 6-12)

1.3	2.5	2.5	192
1.4	9.5	3.0	307
1.5	20	3.5	457
1.7	48	3.7	531
2.0	98		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	11	19	25	29	24	54	*180	184	*23	18	a9
2	5.3	11	17	20	29	24	69	211	186	*17	17	a9
3	6.0	12	17	15	29	23	83	282	205	14	16	a8
4	6.0	12	17	b13	29	21	103	397	*231	17	*14	a8
5	6.0	13	18	b11	25	25	129	454	246	16	11	a8
6	6.7	15	b17	b13	b22	24	161	523	253	20	11	*7.4
7	6.7	15	b15	14	24	25	180	493	275	26	8.8	6.0
8	6.0	*16	b13	13	24	24	215	443	304	20	8.8	6.0
9	6.7	17	b11	*11	*23	25	*184	433	310	19	8.8	*6.7
10	6.0	18	b10	b12	23	25	140	344	302	19	8.1	6.0
11	6.0	18	b13	14	24	25	123	263	*297	19	*8.8	5.3
12	6.0	19	b15	15	21	24	105	224	280	18	6.7	5.3
13	6.7	18	20	25	20	24	95	231	253	17	5.3	6.7
14	6.7	*15	20	36	18	*32	91	258	224	16	5.3	7.4
15	6.7	14	b18	26	b20	30	107	*310	205	18	5.3	8.1
16	7.4	13	b15	23	b18	38	140	323	184	20	5.3	8.1
17	6.7	12	b17	21	20	42	*161	315	159	20	5.3	8.1
18	6.0	b14	b16	49	20	34	157	256	140	17	4.6	9.5
19	6.7	15	*18	59	*b16	33	140	209	*129	15	5.3	*8.1
20	8.1	17	b18	40	b15	39	170	170	114	14	6.0	7.4
21	7.4	18	b15	33	21	38	172	144	96	13	*12	9.5
22	7.4	18	b12	b28	20	b27	155	136	84	*11	a10	15
23	8.1	18	b15	30	21	32	123	132	74	12	a9	*13
24	7.4	19	17	29	20	30	129	111	64	14	a8	11
25	8.1	18	15	29	b18	32	134	100	54	13	a7	8.8
26	13	b16	15	32	20	28	140	102	42	13	a6	*9.5
27	13	17	17	29	20	28	192	*120	*34	13	a6	12
28	12	17	18	28	19	33	265	140	34	19	a6	11
29	11	18	35	30	19	40	235	153	32	28	*17	11
30	11	*18	100	30	-	44	196	161	28	23	a13	11
31	11	-	46	*29	-	51	-	176	-	20	a10	-
Total	237.8	472	629	782	627	944	4,348	7,794	5,023	544	283.4	259.9
Mean	7.67	15.7	20.3	25.2	21.6	30.5	145	251	167	17.5	9.14	8.66
Ac-ft	472	936	1,250	1,550	1,240	1,870	8,620	15,460	9,960	1,080	562	516

Calendar year 1951: Max 100 Min 1.3 Mean 15.7 Ac-ft 11,370
Water year 1951-52: Max 523 Min 4.6 Mean 60.0 Ac-ft 43,520

Peak discharge (base, 200 cfs).--Dec. 30 (6:30 a.m.) 213 cfs (2.73 ft); Apr. 8 (2 a.m.) 256 cfs (2.85 ft); May 6 (8:30 a.m.) 555 cfs (3.86 ft); June 9 (8:30 a.m.) 336 cfs (3.25 ft).

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

b Stage-discharge relation affected by ice.

Rio Grande below Taos Junction Bridge, near Taos, N. Mex.

Location.--Lat 36°19'00", long. 105°45'30", in N½ sec. 15, T. 24 N., R. 11 E., on left bank 2 miles downstream from Rio Taos and bridge on Taos-Taos Junction highway and 12 miles southwest of Taos.

Drainage area.--9,730 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--October 1930 to September 1952 in reports of Geological Survey. July 1925 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 6,080 ft (from topographic map). Prior to Apr. 14, 1934, at bridge 2 miles upstream at different datum.

Average discharge.--27 years (1925-52), 843 cfs.

Extremes.--Maximum discharge during year, 8,640 cfs May 8 (gage height, 8.80 ft); minimum daily, 206 cfs Nov. 4.
1930-52: Maximum discharge, 9,730 cfs June 7, 1948, June 22, 1949; maximum gage height, 9.41 ft May 17, 1941; minimum daily discharge, 140 cfs (estimated) Aug. 21, 1931.

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. Diversions for irrigation of about 650,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

3.4	170	5.0	1,360
3.6	260	6.0	2,680
4.0	490	7.6	5,700
4.5	870		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	215	215	285	450	413	464	532	*1,660	3,420	*1,120	455	609
2	220	215	295	420	413	490	574	1,600	3,340	1,060	862	574
3	220	210	295	400	407	438	630	2,040	3,510	978	1,010	539
4	220	206	280	390	407	413	652	2,760	*3,600	915	1,030	484
5	215	215	305	380	389	451	675	3,600	3,690	906	987	451
6	210	*233	290	370	407	444	721	4,440	*3,690	1,000	951	438
7	210	238	270	380	383	477	753	4,840	3,600	1,160	906	419
8	215	228	295	390	*425	477	794	*5,500	3,600	1,210	*853	395
9	215	233	305	370	425	553	729	*4,640	3,690	1,090	777	383
10	220	233	290	360	425	567	761	4,160	4,060	1,050	794	*371
11	220	238	305	360	*451	525	844	3,960	*4,160	1,000	879	365
12	220	246	316	360	451	470	*844	3,260	4,060	1,020	870	360
13	220	251	321	390	425	451	777	3,080	*4,160	951	888	365
14	220	246	355	600	425	*477	737	3,170	4,160	862	906	360
15	224	246	340	430	395	525	698	3,420	4,160	836	*819	360
16	224	242	330	420	413	525	705	*3,600	4,250	*819	879	360
17	220	*354	430	425	518	769	3,780	*3,870	737	844	354	
18	224	215	338	460	432	511	*828	3,780	3,510	652	844	343
19	224	228	354	2,000	425	518	879	3,870	3,260	595	819	*332
20	224	233	360	*668	*365	511	1,000	*3,510	*2,840	546	819	332
21	220	242	340	546	419	511	1,090	3,080	2,380	484	828	332
22	220	246	350	413	438	504	1,340	2,760	2,240	438	924	365
23	220	251	350	389	438	401	1,060	*2,680	2,240	432	819	*371
24	220	310	350	395	444	484	996	2,680	*1,970	377	794	371
25	220	305	360	413	432	532	*924	2,460	1,610	360	713	377
26	228	280	360	407	332	525	933	2,460	1,440	343	638	*419
27	233	*260	360	407	451	504	1,220	*2,760	*1,360	338	574	425
28	233	265	370	401	477	504	1,640	2,920	1,350	410	560	401
29	228	265	400	407	*451	518	1,900	3,080	1,240	371	*609	383
30	*220	275	580	413	-	525	1,930	*3,170	1,130	332	567	377
31	215	-	500	407	-	518	-	3,340	-	332	574	-
Total	6,837	7,294	10,603	14,626	12,183	15,331	27,935	102,060	91,590	22,724	24,792	12,015
Mean	221	243	342	472	420	495	931	3,292	3,053	733	800	400
Ac-ft	13,560	14,470	21,030	29,010	24,160	30,410	55,410	202,400	181,700	45,070	49,170	23,830

Calendar year 1951: Max 652 Min 170 Mean 301 Ac-ft 217,900
Water year 1951-52: Max 5,500 Min 206 Mean 951 Ac-ft 690,200

Peak discharge (base, 1,600 cfs).--Jan. 19 (2 to 3 a.m.) 2,920 cfs (6.14 ft); May 8 (7:45 p.m.) 8,640 cfs (8.80 ft); June 16 (10:20 a.m.) 4,440 cfs (7.06 ft).
* Discharge measurement made on this day.
Note.--No gage-height record Dec. 14-16, Dec. 20 to Jan. 19; discharge estimated on basis of records for main stem and tributary stations above and below.

Embudo Creek at Dixon, N. Mex.

Location.--Lat 36°12'35", long. 105°54'35", in NW¼SW¼ sec. 20, T. 23 N., R. 10 E., at downstream end of bridge pier on U. S. Highway 64, 0.5 mile upstream from mouth, three-quarters of a mile east of Embudo, and 1¼ miles northwest of Dixon.

Drainage area.--305 sq mi.

Records available.--October 1930 to September 1952 in reports of Geological Survey. October 1923 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 5,849.54 ft above mean sea level, datum of 1929. Prior to Nov. 30, 1938, at site 1 mile upstream at different datum. Nov. 30, 1938, to Aug. 1, 1941, at site three-quarters of a mile upstream at datum about 69.0 ft higher.

Average discharge.--29 years (1923-52), 87.3 cfs.

Extremes.--Maximum discharge during year, 958 cfs July 10 (gage height, 5.70 ft); minimum daily, 3.1 cfs Oct. 2-13.
1930-52: Maximum discharge, 2,180 cfs Aug. 22, 1946 (gage height, 7.00 ft); minimum daily, 0.2 cfs June 27, 1950, July 8, 22, Aug. 17, 1951.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Discharge measurements generally made twice a month. Diversions above station for irrigation of about 6,500 acres, a small part of which is below gage.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 29 to May 11, July 1-3, Aug. 4 to Sept. 27)

2.5	2.8	3.5	124
2.6	5.9	4.0	255
2.7	9.7	4.5	420
2.9	24	5.0	630
3.1	49		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	7.9	23	45	36	36	99	267	396	54	26	57
2	3.1	7.5	24	38	30	28	111	318	399	46	25	52
3	3.1	8.7	19	28	28	b23	122	396	432	73	23	45
4	3.1	9.7	22	b25	23	b18	122	484	472	87	102	39
5	3.1	10	22	b15	22	b21	133	516	476	74	43	36
6	3.1	9.2	15	b15	21	22	154	567	464	69	30	33
7	3.1	9.2	14	b38	22	27	176	520	516	120	23	30
8	3.1	12	19	39	22	34	243	500	562	126	23	26
9	3.1	12	14	b22	23	45	219	492	590	162	22	24
10	3.1	11	16	b20	24	39	186	440	608	193	27	22
11	3.1	12	16	31	21	33	149	378	612	a120	26	22
12	3.1	14	23	30	26	24	131	364	562	a100	26	26
13	3.1	14	32	95	24	23	118	374	544	a90	22	51
14	3.4	14	33	a130	b17	38	111	399	480	a80	19	38
15	3.7	14	20	a70	b15	28	136	440	432	a70	16	31
16	4.0	11	20	a50	b15	65	194	472	388	a58	12	32
17	4.0	9.2	23	a50	b20	63	231	492	326	49	a10	33
18	4.0	10	22	a50	27	43	214	406	282	36	a9	31
19	4.0	14	23	a45	21	49	200	357	246	27	a9	31
20	4.0	19	25	a40	b20	59	252	309	219	20	a8.7	28
21	3.7	21	23	a35	b23	52	240	303	200	13	8.7	31
22	4.0	23	20	a35	b24	a32	205	288	171	8.7	8.7	72
23	4.0	21	25	a35	30	a30	174	267	152	9.7	8.7	62
24	4.3	23	25	a35	26	32	197	246	120	15	31	52
25	6.4	20	27	a35	b18	39	214	a230	105	11	32	45
26	6.4	18	24	a35	b15	43	219	a220	89	20	39	43
27	8.3	19	22	a35	b25	55	285	a230	79	19	30	42
28	7.1	22	22	a30	32	70	388	326	67	74	32	39
29	7.1	22	33	a30	33	84	326	326	62	55	125	36
30	7.9	22	116	a30	-	91	285	360	60	38	72	36
31	7.9	-	76	31	-	93	-	396	-	30	60	-
Total	134.8	439.4	838	1,242	683	1,337	5,814	11,683	10,111	1,947.4	948.8	1,145
Mean	4.35	14.6	27.0	40.1	23.6	43.1	194	377	337	62.8	30.6	38.2
Ac-ft	267	872	1,660	2,460	1,350	2,650	11,530	23,170	20,050	3,860	1,880	2,270

Calendar year 1951: Max 116 Min 0.2 Mean 15.2 Ac-ft 11,020
Water year 1951-52: Max 612 Min 3.1 Mean 99.2 Ac-ft 72,000

Peak discharge (base, 800 cfs).--Jan. 13 (10 p.m.) 805 cfs (5.33 ft); July 10 (7:30 p.m.) 958 cfs (5.70 ft); Aug. 4 (5 a.m.) 905 cfs (5.63 ft).

a No gage-height record; discharge estimated on basis of available recorder trace, discharge measurements, weather records, and records for Rio Santa Cruz at Cundigo.

b Stage-discharge relation affected by ice.

Rio Grande at Embudo, N. Mex.

Location.--Lat 36°12'20", long. 105°57'40", in SW¼SW¼ sec. 23, T. 23 N., R. 9 E., on right bank a quarter of a mile downstream from bridge at Embudo and 2½ miles downstream from Embudo Creek.

Drainage area.--10,400 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--January 1889 to December 1903, September 1912 to September 1916, and October 1930 to September 1952 in reports of Geological Survey. January 1889 to December 1903 and September 1912 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 5,789.14 ft above mean sea level, datum of 1929. Jan. 1 to Feb. 28, 1889, staff gage 1¼ miles upstream at different datum and March 1889 to December 1903, staff gage half a mile upstream at different datum. September 1912 to June 1914 on downstream end of bridge pier 200 ft upstream at present datum.

Average discharge.--52 years (1889-93, 1894-1903, 1912-16, 1917-52), 1,045 cfs.

Extremes.--Maximum discharge during year, 8,720 cfs May 8 (gage height, 11.30 ft); minimum daily, 212 cfs Oct. 6.
1889-1903, 1912-52: Maximum discharge, 15,900 cfs June 19, 1903 (gage height, 15.8 ft); minimum daily, 35 cfs Dec. 31, 1903.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Discharge measurements generally made twice a month. Diversions for irrigation of about 660,000 acres above station. Records of water temperatures and sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 20 to Apr. 7)

Oct. 1 to June 30				July 1 to Sept. 30			
2.9	205	6.0	2,820	2.7	375	3.6	850
3.1	280	7.0	4,020	2.9	465	4.0	1,130
3.5	465	8.0	5,120	3.2	620	4.4	1,460
4.0	780	9.0	6,220				
5.0	1,680						

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	216	233	329	498	445	455	626	1,930	3,900	1,250	460	686
2	219	222	342	476	440	509	671	1,880	3,780	1,210	820	664
3	222	219	347	455	425	450	724	2,320	4,020	1,170	1,050	620
4	219	226	a340	445	420	430	752	3,300	4,240	1,090	1,250	555
5	219	222	a360	430	415	482	787	4,020	4,240	1,050	1,090	515
6	212	248	a350	415	425	492	836	4,680	4,240	1,130	1,020	480
7	216	260	a330	425	410	532	898	5,230	4,240	1,370	980	452
8	216	260	a340	440	435	544	978	5,740	4,240	1,460	910	434
9	219	260	a340	410	435	612	914	5,420	4,460	1,460	850	416
10	219	260	a340	400	440	638	858	4,680	4,790	1,370	820	388
11	219	264	365	400	465	612	922	4,460	4,790	a1,200	910	375
12	219	268	356	395	476	544	914	3,900	4,570	a1,240	910	380
13	216	276	380	471	450	520	836	3,540	4,680	a1,200	910	411
14	216	272	395	708	460	562	801	3,780	4,570	a1,100	945	388
15	222	272	385	476	440	586	759	4,020	4,570	a1,000	850	375
16	222	260	365	455	455	632	808	4,240	4,680	a940	910	375
17	219	248	385	460	470	612	898	4,460	4,240	a900	880	375
18	226	240	375	476	476	586	962	4,240	3,900	a750	850	375
19	230	252	385	2,070	470	593	986	4,240	3,540	a650	850	367
20	230	264	395	773	420	593	1,150	3,900	3,180	a600	850	359
21	226	272	375	632	460	593	1,280	3,420	2,820	a550	880	367
22	222	288	380	492	476	568	1,480	3,120	2,580	490	945	460
23	222	280	380	455	487	482	1,190	3,000	2,520	495	880	452
24	222	329	385	460	487	538	1,100	2,880	2,260	447	880	447
25	226	352	a390	476	470	580	1,050	2,700	1,880	411	790	434
26	230	320	a400	460	405	593	1,060	2,640	1,630	393	719	456
27	236	300	400	460	445	580	1,380	3,000	1,580	388	587	475
28	236	308	405	445	504	600	1,930	3,240	1,580	591	626	460
29	236	308	440	455	470	606	2,200	3,420	1,430	480	766	434
30	233	308	671	450	-	612	2,260	3,540	1,280	398	697	424
31	230	-	574	440	-	606	-	3,660	-	388	653	-
Total	6,915	8,091	12,004	16,303	13,076	17,342	32,010	114,600	104,430	27,171	26,538	13,399
Mean	223	270	387	526	451	559	1,067	3,697	3,481	876	856	447
Ac-ft	13,720	16,050	23,810	32,340	25,940	34,400	63,490	227,300	207,100	53,890	52,640	26,580

Calendar year 1951: Max 690 Min 184 Mean 329 Ac-ft 238,100
Water year 1951-52: Max 5,740 Min 212 Mean 1,071 Ac-ft 777,300

Peak discharge (base, 2,000 cfs).--Jan. 19 (2 a.m.) 4,130 cfs (7.06 ft); May 8 (10:40 p.m.) 8,720 cfs (11.30 ft); June 11 (2 to 8 a.m.) 4,900 cfs (7.72 ft); July 9 (7:45 p.m.) 2,600 cfs (5.62 ft); July 10 (8:45 p.m.) 2,150 cfs (5.13 ft); Aug. 4 (6 a.m.) 2,150 cfs (5.13 ft).

a No gage-height record; discharge estimated on basis of records for stations near Cerro and below Taos Junction Bridge.

Rio Chama at Park View, N. Mex.

Location.--Lat 36°44'15", long. 106°34'40", at downstream end of bridge pier nearest right bank on State Highway 51, in Tierra Amarilla Grant, just below mouth of Rio Brazos and half a mile northwest of Park View.

Drainage area.--405 sq mi.

Records available.--November 1912 to September 1916 and October 1930 to September 1952 in reports of Geological Survey. November 1912 to September 1916 and April 1925 to December 1931 in reports of State engineer. All records include flow of Rio Brazos.

Gage.--Water-stage recorder. Altitude of gage is 7,280 ft (from river-profile map). Prior to July 21, 1945, intermittently at present or either of two other sites within 150 ft of present gage at different datums.

Average discharge.--29 years (1913-15, 1925-52), 370 cfs.

Extremes.--Maximum discharge during year, 6,790 cfs May 4 (gage height, 7.09 ft); maximum gage height, 7.10 ft May 2; minimum daily discharge, 1.3 cfs Oct. 27.
1930-52: Maximum discharge, 8,530 cfs Apr. 16, 1937, from rating curve extended above 3,800 cfs; maximum gage height, 8.12 ft May 26, 1941, site and datum then in use; minimum daily discharge, 1.3 cfs Aug. 15, 16, Oct. 27, 1951.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Discharge measurements generally made twice a month. Diversions for irrigation of about 7,000 acres above station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.4	5.9	b28	b50	40	48	280	1,900	2,480	536	123	48
2	3.7	10	29	b45	40	45	310	3,000	2,450	504	139	46
3	4.1	8.5	b28	b40	40	40	358	3,180	2,790	450	137	43
4	4.1	14	b29	35	40	40	426	3,560	2,950	425	88	41
5	3.4	17	b27	30	37	45	524	5,430	2,720	473	73	38
6	3.7	13	b25	30	35	43	629	4,650	2,630	466	67	36
7	3.7	13	b27	35	35	45	738	4,510	2,600	450	61	34
8	3.7	13	b29	35	35	48	834	4,380	2,480	410	58	29
9	3.7	13	27	32	38	50	698	4,420	2,360	360	57	26
10	3.7	13	25	32	40	48	682	3,510	2,340	380	57	24
11	3.4	15	27	35	43	45	650	3,180	2,200	320	54	23
12	3.4	18	30	40	45	42	552	3,400	2,070	270	53	34
13	3.1	20	32	45	40	45	594	3,700	1,900	240	58	60
14	3.4	20	30	40	37	50	754	4,110	1,840	210	64	30
15	4.1	16	28	35	35	45	946	4,110	1,810	199	55	21
16	4.1	b14	30	40	37	54	1,060	3,400	1,700	180	48	22
17	4.1	b12	31	45	40	72	1,160	2,600	1,480	158	44	23
18	4.8	b20	31	45	43	72	1,280	2,070	1,370	145	44	20
19	5.9	b23	30	45	35	72	1,380	1,840	1,300	131	48	18
20	6.8	b26	29	40	35	68	1,600	1,790	1,260	108	66	17
21	9.3	29	26	38	40	61	1,400	2,050	1,180	99	81	27
22	9.3	27	25	35	42	65	1,460	1,880	1,020	88	72	57
23	9.3	27	28	40	40	58	1,390	1,580	896	75	72	70
24	9.3	27	30	42	37	54	1,750	1,660	849	70	106	40
25	9.3	26	32	43	35	61	2,060	1,980	827	64	82	35
26	5.1	b22	b30	40	40	65	2,280	2,120	783	66	99	30
27	1.3	b25	b28	37	45	86	2,440	2,230	720	70	73	28
28	4.1	b26	b31	35	46	127	2,330	2,390	650	134	75	27
29	5.9	b27	b36	37	48	174	1,650	2,480	605	151	92	27
30	8.5	b28	b45	40	-	226	1,600	2,510	578	120	68	28
31	6.8	-	b60	42	-	262	-	2,450	-	108	55	-
Total	159.5	568.4	943	1,203	1,143	2,256	33,815	92,070	50,838	7,460	2,269	1,002
Mean	5.15	18.9	30.4	38.8	39.3	72.8	1,127	2,970	1,695	241	73.2	33.4
Ac-ft	316	1,130	1,870	2,390	2,270	4,470	67,070	182,600	100,800	14,800	4,500	1,990

Calendar year 1951: Max 1,460 Min 1.3 Mean 134 Ac-ft 96,840
Water year 1951-52: Max 5,430 Min 1.3 Mean 529 Ac-ft 384,200

Peak discharge (base, 2,700 cfs).--Apr. 27 (10:30 p.m.) 2,780 cfs (6.92 ft); May 2 (8:30 p.m.) 3,520 cfs (7.10 ft); May 4 (9:30 p.m.) 6,790 cfs (7.09 ft); May 8 (10 p.m.) 5,950 cfs (6.48 ft); May 14 (9:45 p.m.) 5,260 cfs (6.44 ft); June 3 (8 p.m.) 3,400 cfs (5.97 ft).
b Stage-discharge relation affected by ice.
Note.--No gage-height record Nov. 7-15, Dec. 9-25, Jan. 4 to Mar. 16, July 3, 4, 7-14, Sept. 2-11; discharge estimated on basis of recorder trace, discharge measurements, weather records, and records for nearby streams.

Willow Creek near Park View, N. Mex.

Location.--Lat 36°40'20", long. 106°42'10", in Tierra Amarilla Grant, on right bank 400 ft upstream from Willow Creek dam site, 0.3 mile downstream from Horse Lake Creek, and 7 miles southwest of Park View, Rio Arriba County.

Drainage area.--193 sq mi.

Records available.--May 1936 to September 1952 (no winter records prior to 1943).

Gage.--Water-stage recorder. Altitude of gage is 6,950 ft (from river-profile map). Prior to Oct. 9, 1937, at datum 0.79 ft higher.

Average discharge.--13 years (1939-52), 24.3 cfs.

Extremes.--Maximum discharge during year, 1,050 cfs Mar. 30 (gage height, 5.20 ft); no flow for long periods.
1936-52: Maximum discharge, 4,500 cfs Apr. 23, 1942 (gage height, 10.45 ft), from rating curve extended above 1,400 cfs on basis of slope-area determination of peak flow; no flow at times.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Discharge measurements generally made twice a month except during winter period. Diversions for irrigation of about 1,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 15-23)

0.5	0.1	1.2	18
.6	.5	1.5	40
.7	1.4	2.0	95
.8	2.9	2.5	175
.9	5.2	3.0	280
1.0	8.3	3.7	475
1.1	12		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a0	1	0				406	56	3	1	2	3
2	a0	1	0				400	53	3	1	7	3
3	0	1	0				365	50	6	1	5	3
4	0	0	0				316	45	23	1	5	3
5	0	0	0			a1	271	41	13	2	4	3
6	0	0					226	34	7	2	3	3
7	0	0					197	29	5	2	3	2
8	0	0					194	23	3	3	2	2
9	0	0					134	20	2	2	1	2
10	0	0					121	15	2	2	1	2
11	0	0					116	13	3	2	2	2
12	0	0				a10	75	11	3	1	1	2
13	0	0					82	10	2	1	1	2
14	0	2					106	10	2	1	1	2
15	0	1				a15	129	8	2	1	1	2
16	0	0		a1		a30	122	7	1	1	1	2
17	0	0	a0			a40	114	7	1	1	1	2
18	0	0				a50	103	7	2	0	1	1
19	0	0				a50	92	8	2	0	2	1
20	0	0				a50	98	6	2	0	5	1
21	0	0				a45	78	5	2	1	7	1
22	0	0				a45	134	5	1	1	7	4
23	0	0				a40	147	5	1	2	6	4
24	0	0				a75	98	4	1	2	13	3
25	0	0				125	78	4	0	2	7	3
26	0	0				186	74	a5	0	3	5	2
27	1	0				272	64	a5	0	3	5	2
28	0	0	a1			406	101	6	0	4	5	2
29	0	0				436	81	4	1	5	5	2
30	0	0	a10			453	51	3	1	5	3	2
31	0	-				421	-	3	-	2	3	-
Total	1	6	31	31	0	2,798	4,573	502	94	55	115	68
Mean	0.03	0.2	1.0	1.0	0	90.3	152	16.2	3.1	1.8	3.7	2.3
Ac-ft	2	12	61	61	0	5,550	9,070	996	186	109	228	135

Calendar year 1951: Max 61 Min 0 Mean 1.5 Ac-ft 1,090
Water year 1951-52: Max 453 Min 0 Mean 22.6 Ac-ft 16,410

Peak discharge (base, 800 cfs).--Mar. 30 (9 p.m.) 1,050 cfs (5.20 ft).
a No gage-height record; discharge estimated on basis of recorder trace, weather records, and records for nearby streams.

Rio Chama below El Vado Dam, N. Mex.

Location.--Lat 36°34'50", long. 106°43'30", in NW¼ sec. 15, T. 27 N., R. 2 E. (projected), on left bank 1.5 miles downstream from El Vado Dam, 2.7 miles upstream from Rio Nutrias, and 13 miles southwest of Tierra Amarilla.

Drainage area.--877 sq mi.

Records available.--October 1913 to November 1916 (published as Chama River near Tierra Amarilla October 1913 to September 1914 and as Chama River near El Vado October 1914 to November 1916) and October 1935 to September 1952 (published as Rio Chama near Tierra Amarilla October 1935 to September 1946) in reports of Geological Survey. October 1913 to September 1916 and February 1920 to December 1924 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 6,700 ft (from river-profile map). Prior to October 1935, at site 1.5 miles upstream at different datum. October 1935 to September 1938 at site 1.1 miles upstream at datum 6,726.46 ft above mean sea level, datum of 1929.

Average discharge.--16 years (1936-52), 422 cfs, subsequent to completion of El Vado Dam.

Extremes.--Maximum discharge during year, 2,530 cfs June 8 (gage height, 4.87 ft); minimum daily, 3.6 cfs Aug. 26-31, Sept. 7-9.
1935-52: Maximum discharge, 6,010 cfs May 17, 1941 (gage height, 6.89 ft); maximum gage height, 9.63 ft May 30, 1937, site and datum then in use; minimum daily discharge, 0.9 cfs Dec. 30, 1946.

Remarks.--Records good except those for period of no gage-height record, which are fair. Discharge measurements generally made twice a month. Flow regulated since 1935 by El Vado Reservoir (see p. 365). Diversions for irrigation of about 8,000 acres above station.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.0	1.6	2.5	380
1.2	8.2	3.0	660
1.4	28	3.5	1,030
1.6	67	4.0	1,480
1.8	118	4.5	2,030
2.0	180	5.0	2,660

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.7	50	60	a400	70	170	624	1,060	1,930	1,530	1,290	3.8
2	9.7	40	60	a250	70	130	630	1,080	2,070	1,530	1,270	3.8
3	8.9	37	55	a120	65	100	630	1,110	2,190	1,530	1,250	3.8
4	8.9	35	50	90	65	100	648	1,160	2,360	1,520	1,240	3.8
5	8.9	41	55	85	60	102	667	1,190	2,480	1,510	1,220	3.8
6	8.2	37	50	80	55	110	681	1,230	2,500	1,510	1,200	3.8
7	8.9	30	45	80	55	120	702	1,260	2,520	1,500	1,180	3.6
8	10	30	40	90	60	140	730	909	2,500	1,490	1,160	3.6
9	10	32	35	89	70	174	744	935	2,480	1,490	1,150	3.6
10	10	41	35	70	75	164	744	1,470	2,430	1,480	1,140	3.8
11	10	33	35	75	75	151	744	1,480	2,360	1,480	1,110	316
12	11	37	40	80	75	102	737	1,500	2,300	1,470	1,090	475
13	10	54	45	90	70	151	737	1,510	2,210	1,470	1,080	204
14	10	44	40	100	60	170	744	1,530	2,130	1,470	1,060	204
15	20	32	35	100	60	170	744	1,540	2,040	1,460	1,050	133
16	15	28	40	90	65	284	758	1,550	1,980	1,450	1,020	94
17	15	25	a45	110	65	344	779	1,560	1,900	1,440	998	58
18	14	25	a40	142	65	335	800	1,460	1,830	1,430	974	28
19	13	32	a40	184	55	322	821	1,560	1,740	1,430	942	27
20	15	50	a35	174	60	282	842	1,560	1,690	1,420	918	27
21	16	55	a30	110	70	232	876	1,560	1,640	1,420	886	32
22	15	60	a35	80	70	204	878	1,570	1,600	1,410	856	32
23	15	54	a40	80	70	177	894	1,570	1,560	1,400	772	30
24	16	47	a45	80	70	158	910	1,570	1,550	1,390	7.4	30
25	19	44	a50	80	60	161	934	1,560	1,550	1,380	3.8	30
26	26	42	a50	70	65	226	958	1,550	1,550	1,370	3.6	32
27	44	42	60	60	90	304	974	1,540	1,550	1,360	3.6	33
28	50	45	70	60	142	340	1,010	1,520	1,540	1,340	3.6	33
29	42	45	100	60	174	287	1,030	1,560	1,540	1,340	3.6	33
30	39	50	300	65	-	422	1,050	1,730	1,530	1,330	3.6	33
31	48	-	500	70	-	606	-	1,870	-	1,310	3.6	-
Total	556.2	1,217	2,160	3,314	2,106	6,738	24,020	44,354	59,250	44,660	24,888.8	1,921.4
Mean	17.9	40.6	69.7	107	72.6	217	801	1,431	1,975	1,441	803	64.0
Ac-ft	1,100	2,410	4,280	6,570	4,180	13,360	47,640	87,970	117,500	88,580	49,370	3,810

Calendar year 1951: Max 1,120 Min 3.1 Mean 183 Ac-ft 132,800
Water year 1951-52: Max 2,520 Min 3.6 Mean 588 Ac-ft 426,800

a No gage-height record; discharge estimated on basis of available recorder trace, discharge measurements, weather records, and records for stations near Abiquiu and Chamita, and Rio Grande at Otowi Bridge.

Note.--Stage-discharge relation affected by ice Nov. 2, 3, 6-9, Nov. 15 to Dec. 16, Dec. 27-31, Jan. 4-8, 10-17, Jan. 21 to Feb. 27, Mar. 3, 4, 6-8.

Rio Chama near Abiquiu, N. Mex.

Location.--Lat 36°13'00", long. 106°15'00", at downstream end of bridge pier on State Highway 96 in Juan Jose Lobato Grant, 1¾ miles upstream from El Rito Creek, 5 miles downstream from Abiquiu, Rio Arriba County, and 13.5 miles downstream from Abiquiu dam site.

Drainage area.--2,170 sq mi, approximately.

Records available.--January 1942 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 5,873.17 ft above mean sea level, datum of 1929.

Average discharge.--10 years, 392 cfs.

Extremes.--Maximum discharge during year, 7,870 cfs July 28 (gage height, 6.18 ft, from floodmark), from rating curve extended above 2,900 cfs; minimum daily discharge, 1.7 cfs Oct. 1.

1942-52: Maximum discharge, that of July 28, 1952; minimum daily, 1 cfs June 11, 1947.

Remarks.--Records good April to August, others fair except those for periods of ice effect or no gage-height record, which are poor. Discharge measurements generally made twice a month. Flow regulated by El Vado Reservoir (see p. 365). Diversions for irrigation of about 18,500 acres above station. Records of sediment loads for water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 29 to Mar. 3)

1.4	1.3	2.5	167
1.5	3.0	3.0	433
1.7	11	3.5	910
1.9	28	4.0	1,660
2.2	79	5.0	3,910

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	34	50	618	67	651	779	1,200	2,050	1,470	1,490	24
2	2.4	49	52	433	84	250	790	1,260	2,130	1,440	1,390	18
3	2.8	49	54	160	69	118	814	1,360	2,270	1,430	1,270	17
4	2.2	38	45	118	69	103	826	1,510	2,440	1,430	1,300	14
5	4.1	32	44	96	71	109	898	1,560	2,660	1,460	1,300	13
6	5.3	32	44	84	61	120	962	1,610	2,660	1,440	1,210	11
7	7.5	36	b45	81	61	118	988	1,640	2,780	1,520	1,170	10
8	8.5	38	b50	75	65	132	1,100	1,630	2,660	1,460	1,150	9.0
9	6.0	35	b40	89	61	398	975	811	2,660	1,490	1,210	7.0
10	5.3	32	b40	67	65	a300	910	1,700	2,620	1,520	1,170	6.0
11	7.0	38	b45	71	81	a300	936	1,710	2,570	1,430	1,110	7.5
12	8.5	44	b50	67	91	a250	886	1,710	2,480	1,430	1,110	247
13	8.5	44	41	79	81	a250	874	1,750	2,400	1,410	1,120	304
14	10	50	b35	91	86	a400	988	1,730	2,310	1,390	1,100	179
15	8.5	b50	b40	109	77	a300	1,080	1,750	2,230	1,390	1,050	175
16	8.0	b45	b50	96	65	a500	1,100	1,770	2,150	1,380	1,030	153
17	8.0	b40	b50	93	65	1,040	1,170	1,840	2,070	1,380	1,050	96
18	10	a35	b45	96	73	485	1,080	1,730	1,990	1,380	988	73
19	11	a50	59	282	67	492	1,070	1,730	1,920	1,350	988	45
20	12	a60	b45	271	56	426	1,150	1,710	1,800	1,330	923	35
21	15	a60	b35	167	63	349	1,110	1,700	1,730	1,320	936	32
22	16	a65	b45	106	71	246	1,080	1,700	1,660	1,320	975	32
23	16	a70	b60	81	71	160	1,050	1,700	1,590	1,500	1,000	50
24	14	a65	61	96	77	153	1,110	1,700	1,560	1,390	649	36
25	16	a60	63	93	73	139	1,120	1,710	1,560	1,410	128	36
26	18	a45	b60	89	61	192	1,170	1,710	1,540	1,430	50	36
27	32	a45	b62	77	67	367	1,200	1,750	1,510	1,430	42	36
28	25	a46	b65	71	67	492	1,320	1,750	1,510	2,000	39	36
29	32	45	67	63	214	582	1,350	1,800	1,490	1,320	91	32
30	38	49	109	59	-	339	1,210	1,900	1,490	1,300	81	25
31	34	-	790	83	-	655	-	1,990	-	1,350	39	-
Total	393.3	1,381	2,341	4,041	2,179	10,416	31,096	51,121	62,490	44,300	27,159	1,794.5
Mean	12.7	46.0	75.5	130	75.1	336	1,037	1,649	2,083	1,429	876	59.8
Ac-ft	780	2,740	4,640	8,020	4,320	20,660	61,680	101,400	123,900	87,870	53,870	3,560

Calendar year 1951: Max 1,140 Min 1.1 Mean 191 Ac-ft 138,300
Water year 1951-52: Max 2,780 Min 1.7 Mean 652 Ac-ft 473,400

a No gage-height record; discharge estimated on basis of recorder trace, recorded range in stage, staff-gage readings, discharge measurements, weather records, and records for stations above and below.

b Stage-discharge relation affected by ice.

Rio Ojo Caliente at La Madera, N. Mex.

Location.--Lat 36°20'45", long. 106°02'50", in NE¼ sec. 1, T. 24 N., R. 8 E., on right bank 2.5 miles south of La Madera, 3 miles downstream from confluence of Rio Vallecitos and Rio Tusas, and 4 miles north of Ojo Caliente.

Drainage area.--419 sq mi.

Records available.--April 1932 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 6,345.0 ft above mean sea level, datum of 1929. Prior to Apr. 23, 1934, at site 3 miles upstream at two different datums. Apr. 23, 1934, to June 22, 1936, at present site at datum 1.26 ft higher.

Average discharge.--20 years (1932-52), 81.6 cfs.

Extremes.--Maximum discharge during year, 2,170 cfs May 5 (gage height, 4.46 ft); minimum daily, 3.7 cfs Oct. 1, 2.
1932-52: Maximum discharge, 2,980 cfs Apr. 23, 1942, from rating curve extended above 1,300 cfs by logarithmic plotting; maximum gage height, 7.60 ft July 15, 1933, site and datum then in use; minimum daily discharge, 1 cfs at times in 1934, 1935, 1951.

Remarks.--Records fair. Diversions above station for irrigation of about 8,800 acres, a few hundred of which are below station.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 17 to Aug. 23)

1.6	2.7	2.4	103
1.7	4.1	2.6	185
1.8	6.6	3.0	430
1.9	10	3.5	790
2.0	17	4.0	1,200
2.1	28	4.6	1,780
2.2	46		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.7	7.4	17	71	31	46	347	1,240	195	6.6	39	7.0
2	3.7	8.2	18	40	29	39	402	1,520	340	*6.4	44	6.4
3	3.8	8.2	15	33	31	25	458	1,610	381	6.6	24	6.1
4	3.8	7.4	17	25	24	25	486	1,710	367	7.0	18	5.4
5	*3.8	7.8	15	23	25	42	479	1,760	302	8.2	22	*5.4
6	3.8	7.8	13	23	21	*33	570	1,610	249	10	16	5.4
7	4.0	*7.8	*16	29	22	39	689	1,410	221	12	13	5.4
8	4.0	8.2	20	28	*23	48	790	1,290	181	15	12	5.4
9	4.6	8.6	14	*22	25	58	577	1,120	154	14	12	5.4
10	5.1	10	12	21	26	56	472	894	133	12	12	5.4
11	5.1	10	15	26	39	61	*500	782	*114	12	11	4.8
12	5.1	12	17	25	31	35	486	806	93	10	10	5.1
13	5.1	14	18	50	31	25	486	798	68	8.9	8.6	5.1
14	5.1	13	17	85	18	44	619	*806	56	8.9	8.2	5.1
15	4.8	12	14	40	28	32	838	782	48	8.9	*7.8	5.1
16	4.8	10	15	33	21	88	934	654	42	9.3	7.4	5.1
17	4.8	9.3	15	33	26	97	998	626	33	8.6	6.4	*5.1
18	4.8	9.7	14	37	31	68	910	556	25	*7.0	6.4	5.1
19	4.8	12	16	58	20	93	998	500	20	7.4	7.0	5.1
20	4.8	*13	*16	48	17	*93	1,200	423	19	7.4	7.0	5.1
21	5.1	14	10	40	28	71	998	472	17	8.9	6.4	5.4
22	5.1	14	10	26	23	60	974	409	15	10	9.7	5.6
23	*5.4	14	17	26	26	55	910	328	14	10	7.8	6.4
24	5.4	19	18	26	28	44	1,110	283	14	10	7.8	7.4
25	5.8	14	19	28	22	48	1,290	302	13	12	7.4	7.4
26	7.4	12	18	26	21	46	1,380	308	13	10	7.0	7.0
27	9.7	13	17	23	28	48	1,380	283	11	9.7	7.4	7.0
28	9.7	14	*17	18	31	74	1,470	*302	8.6	10	7.0	6.6
29	7.4	15	23	*23	39	150	1,030	278	6.6	7.0	7.8	6.4
30	7.0	16	102	25	-	227	1,010	254	6.4	7.4	8.2	6.1
31	7.0	-	172	26	-	289	-	221	-	*30	7.0	-
Total	164.5	341.4	737	1,037	765	2,159	24,791	24,337	3,159.6	311.2	375.3	173.3
Mean	5.31	11.4	23.8	33.5	26.4	69.6	826	785	105	10.0	12.1	5.78
Ac-ft	326	677	1,460	2,060	1,520	4,280	49,170	48,270	6,270	617	744	344

Calendar year 1951: Max 250 Min 1.0 Mean 25.6 Ac-ft 18,520
Water year 1951-52: Max 1,760 Min 3.7 Mean 159 Ac-ft 115,700

Peak discharge (base, 600 cfs).--Apr. 7 (11 to 12 p.m.) 1,010 cfs (3.79 ft); May 5 (11 p.m.) 2,170 cfs (4.46 ft); July 31 (10 p.m.) 822 cfs (3.22 ft).
* Discharge measurement made on this day.

Rio Chama near Chamita, N. Mex.

Location.--Lat 36°04'20", long. 106°06'40", in NE¼ sec. 8, T. 21 N., R. 8 E., on left bank 200 ft downstream from Espanola-Ojo Caliente highway bridge, 2½ miles upstream from mouth, and 2½ miles northwest of Chamita.

Drainage area.--3,200 sq mi, approximately.

Records available.--October 1912 to June 1915 and October 1930 to September 1952 in reports of Geological Survey. October 1912 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 5,653 ft (from river-profile map). Prior to Oct. 4, 1933, at railroad bridge 2 miles downstream at different datum. Oct. 4, 1933, to Mar. 1, 1942, at site 150 ft upstream at datum 0.22 ft higher.

Average discharge.--38 years (1913-17, 1918-52), 649 cfs.

Extremes.--Maximum discharge during year, 5,880 cfs July 28 (gage height, 5.88 ft); no flow Oct. 18.

1930-52: Maximum discharge, 9,910 cfs May 14, 1941; maximum gage height, 8.33 ft, present datum, May 16, 1941; no flow at times.

Remarks.--Records fair except those for periods of ice effect, which are poor. Discharge measurements generally made twice a month. Diversions above station for irrigation of about 30,000 acres, a few hundred of which are below station. Flow regulated by El Vado Reservoir (see p. 365). Records of sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	34	73	472	118	596	973	1,780	2,280	1,430	1,380	55
2	.3	42	73	388	121	280	1,020	2,200	2,360	1,460	1,350	42
3	.3	40	57	166	128	170	1,140	2,630	2,630	1,540	1,270	35
4	.6	42	64	134	115	121	1,140	2,900	2,720	1,500	1,230	31
5	.9	40	64	118	115	134	1,270	3,100	2,810	1,540	1,210	29
6	.9	35	37	105	115	152	1,540	3,290	2,720	1,540	1,170	27
7	1.2	35	42	112	115	156	1,590	3,190	2,810	1,700	1,150	19
8	2.0	42	57	115	115	166	1,860	2,900	2,810	1,590	1,140	17
9	3.0	44	53	112	118	364	1,610	2,190	2,720	1,500	1,170	14
10	2.6	37	35	88	118	346	1,380	2,170	2,630	1,660	1,130	9.0
11	1.6	37	46	91	134	310	1,340	2,200	2,720	1,500	1,100	8.4
12	1.6	40	66	97	141	340	1,270	2,200	2,630	1,460	1,080	41
13	1.6	40	86	124	138	198	1,240	2,280	2,450	1,460	1,130	475
14	.9	35	62	163	b125	338	1,350	2,280	2,360	1,460	1,080	170
15	1.6	46	49	152	b120	340	1,590	2,280	2,200	1,430	1,060	156
16	2.3	44	64	131	b120	477	1,750	2,280	2,020	1,380	1,010	141
17	1.6	b48	62	131	128	1,500	1,960	2,630	1,940	1,360	1,020	102
18	0	b40	49	156	138	1,070	1,840	2,280	1,860	1,390	1,010	71
19	.9	b37	62	240	131	840	1,780	2,200	1,770	1,400	1,010	53
20	3.0	64	b70	270	115	860	2,100	2,070	1,680	1,400	1,020	29
21	3.7	57	b40	202	128	652	2,010	2,020	1,610	1,380	995	24
22	4.4	62	b50	170	134	472	1,800	1,980	1,590	1,340	1,050	34
23	5.7	71	b55	138	138	358	1,610	1,920	1,500	1,520	1,040	35
24	6.4	b87	71	131	b150	352	1,710	1,860	1,440	1,360	910	40
25	7.7	b72	b65	131	b140	334	1,940	1,860	1,450	1,300	322	28
26	18	b52	b65	134	138	352	2,090	1,860	1,440	1,410	138	20
27	18	b50	b70	138	156	451	2,280	1,940	1,460	1,350	121	21
28	29	b50	b80	131	159	596	2,630	1,930	1,440	1,880	91	24
29	34	b50	99	131	220	705	2,100	1,940	1,480	1,840	118	24
30	35	b54	124	108	-	669	1,710	2,120	1,440	1,340	105	24
31	34	-	460	118	-	744	-	2,280	-	1,330	73	-
Total	223.1	1,427	2,350	4,897	3,831	14,443	49,623	70,760	62,970	45,550	27,683	1,798.4
Mean	7.20	47.6	75.8	158	132	466	1,654	2,283	2,099	1,469	893	59.9
Ac-ft	443	2,830	4,660	9,710	7,600	28,650	98,430	140,400	124,900	90,350	54,910	3,570

Calendar year 1951: Max 1,130 Min 0 Mean 199 Ac-ft 143,800
Water year 1951-52: Max 3,290 Min 0 Mean 780 Ac-ft 566,500

b Stage-discharge relation affected by ice.

Rio Santa Cruz at Cundiyo, N. Mex.

Location.--Lat 35°57'40", long. 105°54'10", in SE¼NW¼ sec. 17, T. 20 N., R. 10 E., on left bank 135 ft downstream from highway bridge at confluence of Rio Medio and Rio Frijoles and a quarter of a mile northwest of Cundiyo.

Drainage area.--86 sq mi, approximately.

Records available.--September 1931 to September 1952 in reports of Geological Survey. September 1915 to December 1931 (published as Rio Medio at Cundiyo prior to 1930 and as Rio Santa Cruz above Chimayo in 1930-31) in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 6,960 ft (from topographic map). Prior to January 1930, staff gage at approximately same site at different datum. Sept. 1, 1930, to Aug. 12, 1932, at site 1 mile downstream at different datum. Aug. 13, 1932, to Oct. 29, 1934, at site 35 ft upstream at datum 1.06 ft higher.

Average discharge.--36 years (1915-29, 1930-52), 33.2 cfs.

Extremes.--Maximum discharge during year, 198 cfs June 10 (gage height, 2.67 ft); maximum gage height, 3,00 ft Dec. 22 (ice jam); minimum daily discharge, 4 cfs Nov. 16, Dec. 21. 1931-52: Maximum discharge, 2,610 cfs Sept. 24, 1931 (gage height, 8.20 ft, datum then in use), from rating curve extended above 170 cfs by logarithmic plotting; minimum daily, 1.1 cfs Dec. 3, 1950.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Discharge measurements generally made twice a month except during winter period. Diversions for irrigation of about 1,000 acres above station.

Rating tables, water year 1951-52, except periods of ice effect (gage height in feet, and discharge, in cubic feet per second)

Oct. 1 to Apr. 4				Apr. 5 to Sept. 30			
1.3	2.6	1.8	26	1.5	7.1	2.1	52
1.4	6.1	2.0	42	1.7	16	2.4	105
1.6	15	2.2	64	1.9	30	2.7	195

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	9.7	7.7	7.3	8.5	8.9	a47	62	130	35	18	18
2	9.7	5.4	8.1	7.7	b9	8.1	a50	78	125	33	18	16
3	9.3	6.1	7.3	8.1	8.1	9.3	a55	95	145	35	18	16
4	9.3	11	7.3	b8	b8	11	a60	125	164	39	15	14
5	9.7	11	8.1	b7.5	b8	9.3	64	145	164	32	14	14
6	9.7	6.5	b8	b7	b7	9.3	68	151	167	31	12	12
7	9.3	6.1	b8	b8	b7	9.3	74	154	174	40	10	12
8	8.9	9.3	8.9	8.9	b8	9.3	76	154	178	36	11	11
9	8.9	9.3	b8	9.3	b9	11	59	145	181	30	11	10
10	8.5	9.3	b9	b9	b9	10	44	130	188	29	13	10
11	8.5	9.7	b10	11	8.1	9.7	38	120	170	28	19	12
12	8.1	9.3	9.7	9.3	8.1	11	33	122	160	25	18	13
13	10	9.3	8.9	9.3	8.1	11	29	136	145	22	13	16
14	8.1	8.1	8.9	11	b8	11	29	157	136	24	13	13
15	7.3	8.5	b9	b12	8.9	11	44	170	128	27	11	12
16	7.7	4.0	b9	b10	b8	13	55	174	115	22	9.6	15
17	7.7	5.4	b9	8.1	b8	16	66	170	105	20	9.6	13
18	7.7	b8	b9	11	8.1	14	58	151	99	19	9.2	12
19	8.1	b10	8.1	11	b9	15	52	139	91	19	10	11
20	8.5	b12	b7	b10	b10	18	59	128	85	18	10	11
21	8.1	9.7	b4	b8	b10	16	56	122	72	18	10	12
22	8.1	8.5	b4.5	b7	b10	16	50	118	64	18	21	19
23	7.7	8.1	b4.5	b7	8.1	18	47	110	59	18	17	16
24	6.9	7.7	4.7	b7	7.3	17	52	105	53	18	18	14
25	7.3	b7.5	5.0	7.3	b7	13	52	103	50	18	16	13
26	11	b8	5.4	7.3	b10	11	58	108	45	19	18	12
27	16	b9	b6	b7	12	11	68	115	45	17	14	11
28	11	b10	6.5	b7	9.3	15	81	125	41	19	16	10
29	8.9	10	8.5	b7.5	7.7	29	68	130	39	19	51	10
30	11	b9	9.7	b8	-	a40	64	133	38	16	26	10
31	10	-	8.5	b8	-	a45	-	133	-	18	20	-
Total	281.0	255.5	236.3	264.6	247.3	456.2	1,656	4,008	3,356	762	489.4	388
Mean	9.06	8.52	7.62	8.54	8.53	14.7	55.2	129	112	24.6	15.8	12.9
Ac-ft	557	507	469	525	491	905	3,280	7,950	6,660	1,510	971	770

Calendar year 1951: Max 55 Min 2.6 Mean 10.7 Ac-ft 7,780
Water year 1951-52: Max 188 Min 4 Mean 33.9 Ac-ft 24,600

Peak discharge (base, 200 cfs).--No peak above base.

a No gage-height record; discharge estimated on basis of available recorder trace, discharge measurements, weather records, and records for nearby stations.

b Stage-discharge relation affected by ice.

Rio Tesuque above diversions, near Santa Fe, N. Mex.

Location.--Lat 35°44', long. 105°54', in SE¼ sec. 32, T. 18 N., R. 10 E., on right bank 1 mile upstream from Rito Tesuque and 4 miles northeast of Santa Fe.

Drainage area.--11 sq mi, approximately.

Records available.--March 1936 to January 1952 (discontinued) in reports of Geological Survey. May to October 1919 in reports of State engineer.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,100 ft (from topographic map). May to October 1919 at site 175 ft downstream at datum 6.00 ft lower.

Average discharge.--15 years (1936-51), 3.21 cfs.

Extremes.--Maximum discharge during period, 3.6 cfs Oct. 26 (gage height, 2.07 ft); minimum daily, 0.4 cfs Nov. 16, Dec. 7.
1936-52: Maximum discharge, 425 cfs July 19, 1938 (gage height, 4.2 ft, from flood-mark), from rating curve extended above 10 cfs on basis of slope-area determination at gage height 4.0 ft; no flow Aug. 25, 31, 1950, July 11, 1951.

Remarks.--Records good. Discharge measurements generally made twice a month. One diversion for irrigation of about 2 acres above station.

Rating table, Oct. 1, 1951 to Jan. 16, 1952, except period of no gage-height record (gage height, in feet, and discharge, in cubic feet per second)

1.6	0
1.7	.05
1.8	.2
1.9	.8
2.0	2.1

Discharge, in cubic feet per second, October 1951 to January 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9	0.9	0.7	0.6								
2	1.0	.7	.7	.6								
3	.9	.9	.6	.6								
4	.9	.9	.6	.6								
5	.9	.9	.6	.6								
6	1.0	.6	.5	.6								
7	1.0	.6	.4	.6								
8	.9	.8	.6	.6								
9	1.0	.7	.6	.6								
10	1.0	.7	.7	.6								
11	.9	.8	.7	.6								
12	.9	.8	.6	.6								
13	.9	.8	.6	.8								
14	.9	.7	.6	1.2								
15	.9	.9	.6	.7								
16	.9	.4	.6	.7								
17	.9	.6	.6	-								
18	.8	.7	.6	-								
19	.9	.9	.7	-								
20	.9	.8	.7	-								
21	.9	.8	.6	-								
22	.9	.6	.6	-								
23	.9	.6	.6	-								
24	.9	.6	.6	-								
25	.9	.6	.6	-								
26	1.1	.6	.5	-								
27	1.4	.7	.5	-								
28	1.0	.7	.5	-								
29	1.0	.7	.6	-								
30	.9	.7	.8	-								
31	.9	-	.7	-								
Total	29.2	21.7	18.9	-								
Mean	0.94	0.72	0.61	-								
Ac-ft	58	43	37	-								

Calendar year 1951: Max 3.9 Min 0 Mean 0.86 Ac-ft 627
Water year 1951-52: Max - Min - Mean - Ac-ft -

Peak discharge (base, 40 cfs).--No peak above base.

Rio Grande at Otowi Bridge, near San Ildefonso, N. Mex.

Location.--Lat 35°52'25", long. 106°08'35", near right bank on downstream side of pier of former railway bridge (now removed), 400 ft downstream from bridge on State Highway 4, 1¾ miles southwest of San Ildefonso Pueblo, San Ildefonso Pueblo Grant, 2½ miles downstream from Rio Pojoaque, and 7 miles west of Pojoaque.

Drainage area.--14,300 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--February 1895 to December 1905, June 1909 to December 1914, and October 1930 to September 1952 in reports of Geological Survey. February 1895 to December 1905 and June 1909 to December 1931 in reports of State engineer. In early reports this record was published as Rio Grande at Water Tank, "at Rio Grande," and "near Buckman."

Gage.--Water-stage recorder. Datum of gage is 5,488.48 ft above mean sea level, datum of 1929. Prior to Mar. 4, 1904, staff gage at site 180 ft upstream at datum 2.02 ft higher. Mar. 4 to Oct. 29, 1904, staff gage and Oct. 29, 1904, to Dec. 31, 1905, chain gage at same site and datum.

Average discharge.--49 years (1895-1905, 1909-14, 1915-16, 1919-52), 1,687 cfs.

Extremes.--Maximum discharge during year, 9,700 cfs May 9 (gage height, 8.75 ft); minimum daily, 195 cfs Oct. 1, 2.
1930-52: Maximum discharge, 22,500 cfs May 16, 1941; maximum gage height, 13.70 ft May 14, 1941; minimum daily discharge, 128 cfs June 21, 1934.
A daily discharge of 28,800 cfs (gage height, 13.60 ft) was published in reports of State engineer for May 23, 1920.

Remarks.--Records good. Discharge measurements generally made four times a month. Flow partly regulated by El Vado Reservoir (see p. 365) on Rio Chama which contributes about 40 percent of total flow. Diversions above station for irrigation of about 600,000 acres in Colorado and 75,000 acres in New Mexico. Records of chemical analyses, water temperatures, and sediment loads for water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	195	294	406	1,200	634	1,300	1,650	4,110	6,060	2,800	1,830	760
2	195	288	430	1,000	646	1,010	1,750	4,590	6,060	2,740	2,050	708
3	205	291	435	800	646	746	1,900	5,230	6,460	2,740	2,290	653
4	203	291	445	560	598	640	2,000	6,250	6,880	2,740	2,350	560
5	211	285	435	510	580	646	2,170	6,960	6,880	2,670	2,290	520
6	205	288	435	490	569	676	2,340	7,720	7,090	2,740	2,170	490
7	205	297	380	558	574	670	2,520	8,370	6,880	3,070	2,050	460
8	207	307	380	622	574	706	2,780	8,370	7,090	3,220	1,940	447
9	205	314	425	616	592	988	2,520	8,090	7,090	2,940	2,050	418
10	211	314	371	558	604	1,140	2,120	6,880	7,300	3,150	2,050	386
11	209	318	400	542	640	1,050	2,220	6,880	7,510	2,870	2,160	359
12	213	321	460	592	664	1,050	2,170	6,460	7,300	2,670	2,000	359
13	220	332	480	628	634	804	2,060	6,060	7,300	2,600	1,940	763
14	220	339	498	1,000	592	858	2,170	6,260	7,090	2,670	2,000	524
15	220	347	490	804	586	928	2,340	6,460	6,880	2,600	1,880	501
16	218	359	480	670	574	1,120	2,580	6,670	6,880	2,420	1,830	496
17	222	339	470	646	574	2,100	2,850	7,300	6,670	2,350	1,830	478
18	225	332	460	732	610	1,380	2,850	6,880	6,060	2,230	1,830	438
19	225	318	492	1,970	598	1,420	2,780	6,880	5,460	2,110	1,830	418
20	230	343	486	1,470	536	1,360	3,210	6,460	5,080	2,050	1,880	382
21	230	359	445	1,030	536	1,270	3,440	5,860	4,710	1,940	1,940	359
22	230	367	411	804	598	1,110	3,440	5,460	4,350	1,830	2,430	473
23	230	375	476	646	610	907	3,210	5,270	4,100	2,020	1,940	478
24	225	402	514	592	646	810	3,140	5,080	3,760	2,000	1,830	487
25	232	476	520	622	616	921	3,360	4,890	3,440	1,830	1,270	469
26	397	440	520	646	564	851	3,580	4,800	3,150	1,880	940	464
27	304	398	514	652	503	949	3,810	4,890	3,010	1,720	809	491
28	304	393	508	634	658	1,150	4,430	5,080	2,940	1,790	740	496
29	297	398	547	658	694	1,300	4,270	5,270	2,870	2,760	1,130	478
30	294	398	732	640	-	1,290	4,270	5,660	2,800	1,780	900	456
31	304	-	1,210	634	-	1,270	-	5,860	-	1,780	802	-
Total	7,291	10,323	15,255	23,526	17,450	32,420	83,930	191,000	169,150	74,710	54,981	14,771
Mean	235	344	492	759	602	1,046	2,798	6,161	5,638	2,410	1,774	492
Ac-ft	14,460	20,480	30,260	46,660	34,610	64,300	166,500	378,800	335,500	148,200	109,100	29,300

Calendar year 1951: Max 1,750 Min 153 Mean 535 Ac-ft 387,100
Water year 1951-52: Max 8,370 Min 195 Mean 1,898 Ac-ft 1,378,000

Peak discharge (base, 5,200 cfs).--May 9 (7 a.m.) 9,700 cfs (8.75 ft); June 11 (8 a.m.) 7,720 cfs (7.29 ft); July 29 (1:30 a.m.) 5,660 cfs (6.34 ft); Aug. 22 (6:30 p.m.) 6,880 cfs (7.06 ft).

Rio Grande at Cochiti, N. Mex.

Location.--Lat 35°37'10", long. 106°19'10", in NE¼ sec. 17, T. 16 N., R. 6 E., on downstream end of concrete pier near left end of highway bridge, 1½ miles northeast of Cochiti, 4 miles north of Pena Blanca, and 8 miles upstream from Galisteo Creek.

Drainage area.--14,600 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--October 1930 to September 1952 in reports of Geological Survey. January 1925 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 5,224.70 ft above mean sea level, datum of 1929. Prior to Jan. 28, 1947, on timber pile at right abutment at same datum and Jan. 28 to May 15, 1947, at site 240 ft upstream at datum 2.90 ft higher.

Average discharge.--27 years, 1,511 cfs.

Extremes.--Maximum discharge during year, 9,750 cfs May 9 (gage height, 7.96 ft); minimum daily discharge, 97 cfs Oct. 3.
1930-52: Maximum discharge, 23,400 cfs May 15, 1941 (gage height, 10.93 ft); minimum daily, 1 cfs Aug. 10-12, 1934.

Remarks.--Records good except those for periods of ice effect, which are fair. Discharge measurements generally made four times a month. Diversions above station for irrigation of about 700,000 acres, of which about 6,000 acres are below station.

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 27 to Dec. 9, Jan. 28, 29, Feb. 19 to Mar. 1, June 9, 10, July 6-10)

Oct. 1 to Mar. 19				Mar. 20 to Sept. 30			
2.5	84	3.6	700	3.0	220	5.0	2,560
2.7	171	4.0	1,060	3.3	400	6.0	4,750
3.0	261	4.5	1,550	3.6	650	7.0	7,250
3.3	445	5.0	2,140	4.0	1,040	7.5	8,500

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	188	288	375	1,260	610	933	1,520	4,000	6,000	2,660	1,550	599
2	156	293	382	1,110	628	1,090	1,530	4,250	6,120	2,560	1,720	599
3	97	293	410	907	673	844	1,640	4,750	6,120	2,520	2,040	565
4	102	283	410	700	673	718	1,740	5,620	6,620	2,560	2,100	497
5	102	277	417	b660	646	619	1,890	6,750	6,750	2,500	2,100	432
6	126	272	438	b620	593	593	2,120	7,500	6,880	2,560	1,990	440
7	192	304	b420	673	602	593	2,230	8,000	7,000	2,760	1,920	390
8	196	310	417	700	593	628	2,560	8,000	7,120	3,180	1,850	312
9	160	321	410	637	628	689	2,520	8,250	7,000	2,750	1,940	288
10	108	310	b430	576	628	1,060	2,190	7,000	7,250	2,870	1,860	270
11	109	310	b380	576	637	982	2,170	6,880	7,250	2,750	1,870	240
12	106	310	b470	610	664	952	2,240	6,500	7,120	2,560	1,800	230
13	135	327	b480	619	700	835	2,170	6,000	7,000	2,480	1,770	482
14	205	327	493	923	646	682	2,160	6,000	7,000	2,370	1,820	559
15	205	345	509	912	628	871	2,390	6,250	6,880	2,400	1,740	386
16	179	351	b480	727	593	824	2,560	6,500	6,620	2,240	1,700	379
17	123	339	b490	700	610	1,590	2,750	7,250	6,500	2,160	1,700	372
18	123	310	b500	736	610	1,330	2,750	7,000	6,120	1,990	1,640	330
19	123	299	493	1,440	602	1,220	2,750	6,620	5,620	1,920	1,600	294
20	149	293	485	1,460	593	1,240	3,050	6,380	5,250	1,860	1,600	306
21	227	304	b460	1,030	534	1,120	3,250	5,880	4,620	1,700	1,600	365
22	223	327	b430	862	610	941	3,150	5,500	4,250	1,580	2,080	400
23	196	375	b480	673	628	803	3,050	5,120	3,880	1,520	2,100	448
24	135	382	b520	646	646	616	2,850	4,880	3,660	1,960	1,740	344
25	129	445	534	655	646	659	3,050	4,750	3,450	1,640	1,220	337
26	209	438	517	691	628	686	3,150	4,500	3,150	1,660	840	318
27	294	403	509	682	525	767	3,350	4,620	2,950	1,580	704	374
28	209	403	525	655	619	941	4,000	4,880	2,950	1,520	659	472
29	213	396	576	655	646	1,120	4,500	5,120	2,950	2,480	897	456
30	209	396	700	664	-	1,260	4,250	5,250	2,750	1,700	776	358
31	232	-	1,090	655	-	1,050	-	5,620	-	1,560	695	-
Total	5,158	10,031	15,230	24,414	18,039	28,256	79,530	185,620	166,830	68,550	49,601	11,842
Mean	166	334	491	788	622	911	2,650	5,990	5,560	2,210	1,600	395
Ac-ft	10,230	19,900	30,210	48,420	35,780	56,050	157,700	368,200	330,900	136,000	98,380	23,490

Calendar year 1951: Max 1,510 Min 65 Mean 466 Ac-ft 337,500
Water year 1951-52: Max 8,250 Min 97 Mean 1,812 Ac-ft 1,315,000

Peak discharge (base, 4,500 cfs).--May 9 (12:10 p.m.) 9,750 cfs (7.96 ft); July 29 (6 a.m.) 4,750 cfs (5.96 ft); Aug. 23 (12:30 a.m.) 6,500 cfs (about 6.7 ft).
b Stage-discharge relation affected by ice.

Santa Fe Creek near Santa Fe, N. Mex.

Location.--Lat 35°41'15", long. 105°50'35", in NE¼SE¼ sec. 23, T. 17 N., R. 10 E., on left bank 0.4 mile downstream from McClure Dam and 5½ miles east of Santa Fe.

Drainage area.--20 sq mi, approximately.

Records available.--April 1913 to December 1914 and October 1930 to September 1952 in reports of Geological Survey. January 1913 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 7,735 ft (from topographic map). Prior to October 1930, at site 2 miles downstream and October 1930 to September 1947 at site 0.3 mile upstream, each at different datum.

Average discharge.--37 years (1913-18, 1919-27, 1928-52), 8.89 cfs.

Extremes.--Maximum daily discharge during year, 35 cfs June 7-9; minimum daily, 1.2 cfs Nov. 13-15, 23-30, Dec. 1-10.
1930-52: Maximum discharge, 418 cfs Apr. 23, 1942 (gage height, 3.51 ft, site and datum then in use), from rating curve extended above 150 cfs; minimum daily, 0.1 cfs Aug. 1-4, 1951.
A daily discharge of 655 cfs was published for Aug. 15, 1922, prior to regulation by McClure Reservoir.

Remarks.--Records good. Flow regulated by McClure Reservoir (see p. 365), completed in 1926, raised in 1935 and again in 1947.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.5	0.8	1.9	8.0
1.6	1.7	2.1	16
1.7	3.1	2.4	35

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.3	1.3	1.2	1.3	*1.5	1.4	*1.6	2.1	24	2.7	7.2	6.9
2	1.3	1.3	1.2	1.3	1.5	1.4	1.6	*2.1	18	2.4	7.2	6.9
3	1.3	1.3	1.2	1.3	1.5	*1.4	1.6	2.1	24	2.4	7.2	6.9
4	1.3	1.3	1.2	1.3	1.5	1.4	1.6	2.3	31	2.4	7.2	6.9
5	1.3	1.3	1.2	1.3	1.5	1.4	1.6	2.3	30	2.4	7.2	6.6
6	1.3	1.4	1.2	1.3	1.5	1.4	1.6	2.1	32	2.4	7.2	6.6
7	1.3	1.4	1.2	1.4	1.5	1.4	1.6	2.1	35	2.8	7.2	6.6
8	1.3	1.3	1.2	1.3	1.5	1.4	1.6	2.1	*35	*7.7	7.2	*6.9
9	1.3	1.3	1.2	1.3	1.5	1.4	1.6	2.1	35	8.4	7.2	6.9
10	1.3	1.3	1.2	1.3	1.5	1.4	1.7	2.1	*33	7.7	7.2	6.9
11	1.3	1.3	1.3	1.4	1.5	1.4	1.7	2.1	30	7.7	6.9	6.9
12	1.3	1.3	1.4	1.4	1.5	1.4	1.7	2.0	29	7.4	6.9	6.9
13	1.3	1.2	1.4	1.4	1.5	1.4	1.7	2.0	25	7.4	6.9	6.9
14	1.3	1.2	1.3	1.4	1.4	1.4	1.7	2.0	23	7.4	6.9	6.9
15	1.3	1.2	1.3	1.4	1.4	1.4	1.7	2.0	22	7.4	6.9	6.9
16	1.3	1.3	1.3	1.4	1.4	1.4	1.6	2.0	21	7.4	6.9	6.9
17	1.3	1.3	1.3	1.5	1.4	1.4	1.6	2.1	22	7.4	6.9	5.5
18	1.3	1.3	1.4	1.5	1.4	1.4	1.6	2.0	21	*7.4	*6.9	4.4
19	1.3	1.3	1.4	1.5	1.4	1.5	1.6	2.1	21	7.4	6.9	4.4
20	1.3	1.3	1.4	1.5	1.4	1.5	1.7	4.6	21	7.4	6.9	4.4
21	1.3	1.3	1.4	1.5	1.4	1.5	1.8	20	21	7.2	6.9	4.4
22	1.3	1.3	1.4	1.5	1.4	1.4	1.8	20	22	7.2	6.9	4.4
23	1.3	1.2	1.4	1.6	1.4	1.4	1.8	18	18	7.2	6.9	4.4
24	1.3	1.2	1.4	1.6	1.4	1.4	1.8	17	6.2	7.2	6.9	3.1
25	1.3	1.2	1.4	1.6	1.4	1.4	1.8	17	*2.7	7.2	7.2	1.8
26	1.3	1.2	1.4	1.6	1.4	1.5	1.8	17	2.7	7.2	7.2	1.8
27	1.3	1.2	1.4	1.6	1.4	1.5	2.0	19	2.7	7.2	7.2	1.8
28	1.3	1.2	1.4	1.6	1.4	1.5	2.0	20	2.7	7.2	7.2	1.8
29	1.3	1.2	1.4	1.6	1.4	1.5	2.0	12	2.7	7.2	7.2	1.8
30	1.3	*1.2	1.4	1.6	-	1.6	2.1	3.3	2.7	7.2	7.2	1.8
31	*1.3	-	*1.4	1.6	-	1.6	-	11	-	7.2	6.9	-
Total	40.3	38.1	40.9	44.9	41.9	44.5	51.6	218.6	615.4	194.8	218.7	155.3
Mean	1.30	1.27	1.32	1.45	1.44	1.44	1.72	7.05	20.5	6.28	7.05	5.18
Ac-ft	80	76	81	89	83	88	102	434	1,220	386	434	308

Calendar year 1951: Max 5.5 Min 0.1 Mean 1.53 Ac-ft 1,100
Water year 1951-52: Max 35 Min 1.2 Mean 4.66 Ac-ft 3,380

* Discharge measurement made on this day.

Galisteo Creek at Domingo, N. Mex.

Location.--Lat 35°30'45", long. 106°18'55", in SW¼ sec. 21, T. 15 N., R. 6 E., in Santo Domingo Pueblo Grant, at highway bridge, 0.3 mile northeast of Domingo, 2¾ miles east of Santo Domingo Pueblo, and 4 miles upstream from mouth.

Drainage area.--640 sq mi, approximately.

Records available.--October 1941 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 5,255.5 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--11 years, 7.98 cfs.

Extremes.--Maximum discharge during year, 12,400 cfs Aug. 11 (gage height, 9.6 ft), from rating curve extended above 3,100 cfs on basis of slope-area determinations at gage-heights 5.45 and 8.8 ft; no flow at times.
1941-52: Maximum discharge, that of Aug. 11, 1952; no flow at times.

Remarks.--Records fair except those for periods of no gage-height record and those below about 10 cfs, which are poor. Discharge measurements generally made four times a month. Diversions for irrigation of about 50 acres above station. Records for sediment loads for the water year 1951 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.1		0	0			0	33	0	0.2	a0
2	0	.1		0	0			0	.6	0	0	0
3	0	.1		0	0			0	1	156	44	0
4	0	0		0	0			0	.1	405	186	0
5	0	0		.2	0			0	0	8	2	0
6	0	0		0	0			0	0	2	.1	2
7	0	.1		0	0			0	0	760	0	1
8	0	0		0	0			0	0	47	0	.1
9	0	0		0	0			0	0	0	0	.4
10	0	.1		0	0			0	0	.2	0	.1
11	0	.5		0	.1			0	0	0	990	a0
12	0	.6		0	0			0	0	0	425	.6
13	0	.4		0	0			0	0	0	7	20
14	0	.1		0	0			0	0	80	a1	a1
15	0	.1		0	0			0	0	270	a0	a0
16	0	.1		0	0			0	0	2	a0	.5
17	0	.2		0	0			5	0	.3	a0	.1
18		.2		0	0			.1	0	0	a0	0
19		.1		0	0			0	0	0	a0	0
20		0		0	0			0	0	0	0	0
21	a0	0		0	0			.6	0	0	a0	0
22		0		0	0			.4	0	0	109	2
23		0		0	0			0	0	0	36	.4
24		0		0	0			0	0	.6	118	.1
25		0		0	0			0	0	0	10	0
26	0	0		0	0			0	0	.5	70	0
27	a1	0		0	0			0	0	.1	3	0
28	a.5	0		0	0			0	0	0	3	0
29	a.2	0		0	0			0	0	0	710	0
30	a.1	0		0	-			0	0	0	4	0
31	a.1	-		0	-			16	-	0	a.5	-
Total	1.9	2.8	0	0.2	0.1	0	0	22.1	34.7	1,731.7	2,718.8	28.3
Mean	0.06	0.09	0	0.01	0.003	0	0	0.71	1.16	55.9	87.7	0.94
Ac-ft	3.8	5.6	0	0.4	0.2	0	0	44	69	3,430	5,390	56

Calendar year 1951: Max 408 Min 0 Mean 4.03 Ac-ft 2,920
Water year 1951-52: Max 990 Min 0 Mean 12.4 Ac-ft 9,000

Peak discharge (base, 3,000 cfs).--July 4 (12:30 a.m.) 5,280 cfs (6.2 ft); July 7 (2:15 p.m.) 3,640 cfs (5.2 ft); Aug. 3 (11:30 p.m.) 3,050 cfs (4.8 ft); Aug. 11 (10:30 p.m.) 12,400 cfs (9.6 ft, from floodmark); Aug. 29 (1:20 a.m.) 4,100 cfs (5.5 ft).

a No gage-height record; discharge estimated.

Rio Grande at San Felipe, N. Mex.

Location.--Lat 35°26'30", long. 106°26'30" (corrected), in NW¼SW¼ sec. 17, T. 14 N., R. 5 E., on downstream end of bridge pier near left bank, 2,000 ft downstream from Tonque Arroyo, half a mile upstream from San Felipe Pueblo, and 12 miles northeast of Bernalillo.

Drainage area.--16,100 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--October 1930 to September 1952 in reports of Geological Survey. January 1926 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 5,110.38 ft above mean sea level, datum of 1929. May 16, 1945, to Sept. 30, 1946, at datum 0.59 ft lower.

Average discharge.--26 years, 1,604 cfs.

Extremes.--Maximum discharge during year, 11,500 cfs July 7 (gage height, 7.00 ft); minimum daily discharge, 140 cfs Oct. 5.
1930-52: Maximum discharge, 42,100 cfs Aug. 21, 1935, from rating curve extended above 15,000 cfs by logarithmic plotting; maximum gage height, 11.13 ft June 26, 1937; minimum daily discharge, 34 cfs July 7, 1934.

Remarks.--Records fair. Discharge measurements generally made four times a month. Diversions for irrigation of about 705,000 acres above station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	178	296	400	1,240	639	804	1,440	4,150	6,040	2,630	1,710	700
2	172	292	420	1,020	658	1,100	1,580	4,150	6,170	2,630	2,010	640
3	143	300	430	874	686	818	1,690	4,770	6,300	2,550	2,110	600
4	143	300	430	693	652	686	1,720	5,680	6,810	2,890	2,360	582
5	140	304	430	626	626	613	1,890	6,550	6,940	2,480	2,180	498
6	148	292	430	600	620	632	2,070	7,480	7,080	2,400	2,110	450
7	180	300	400	594	620	626	2,250	8,620	7,080	3,360	2,080	465
8	185	300	390	620	613	652	2,500	8,330	7,080	3,390	2,040	376
9	190	316	395	620	613	700	2,630	8,560	7,080	3,040	2,060	348
10	152	308	420	613	626	1,020	2,320	6,940	7,210	2,870	2,080	332
11	155	308	390	576	639	1,100	2,250	6,940	7,480	2,710	2,440	308
12	152	312	405	588	672	1,030	2,250	6,680	7,480	2,480	2,900	296
13	150	332	460	613	686	930	2,110	6,040	7,080	2,400	1,870	343
14	192	348	504	772	658	728	2,110	5,920	7,210	2,480	1,900	632
15	195	340	492	938	626	917	2,320	6,170	6,940	2,680	1,890	430
16	195	336	480	758	620	882	2,550	6,420	6,680	2,320	1,780	420
17	168	332	492	735	606	1,470	2,710	7,210	6,550	2,180	1,740	410
18	170	316	510	742	626	1,400	2,960	7,210	6,040	2,110	1,690	405
19	180	312	510	1,270	632	1,190	2,870	6,940	5,440	2,010	1,650	368
20	188	304	498	1,810	594	1,250	3,040	6,420	5,210	1,900	1,630	352
21	209	320	480	1,200	558	1,170	3,390	5,920	4,770	1,780	1,630	376
22	212	336	415	954	582	1,010	3,300	5,440	4,460	1,630	1,710	395
23	209	356	440	742	606	900	3,210	5,210	4,150	1,640	2,150	504
24	180	385	486	679	626	780	2,870	5,100	3,860	1,760	1,710	425
25	175	425	516	665	632	830	2,960	4,990	3,570	1,750	1,230	440
26	190	470	528	707	594	802	3,210	4,880	3,210	1,790	954	425
27	277	430	540	686	552	842	3,390	4,880	3,040	1,710	818	420
28	239	400	552	658	570	962	3,950	4,990	2,960	1,720	772	522
29	245	395	576	652	626	1,090	4,560	5,100	2,960	2,360	1,310	510
30	245	400	665	658	-	1,230	4,350	5,320	2,790	1,710	818	470
31	257	-	970	652	-	1,080	-	5,680	-	1,710	802	-
Total	5,814	10,165	15,054	24,555	18,058	29,244	80,450	188,690	169,670	71,070	54,134	13,442
Mean	188	339	486	792	623	943	2,682	6,087	5,656	2,293	1,746	448
Ac-ft	11,530	20,160	29,860	48,700	35,820	58,010	159,600	374,300	336,500	141,000	107,400	26,660

Calendar year 1951: Max 1,660 Min 90 Mean 488 Ac-ft 353,500
Water year 1951-52: Max 8,620 Min 140 Mean 1,859 Ac-ft 1,350,000

Peak discharge (base, 5,000 cfs).--May 9 (4 to 5 p.m.) 9,840 cfs (6.90 ft); July 7 (1:15 p.m.) 11,500 cfs (7.00 ft); Aug. 12 (1:30 p.m.) 9,530 cfs (6.64 ft).

Jemez River below East Fork, near Jemez Springs, N. Mex.

Location.--Lat 35°49'39", long. 106°38'51", in NW¼ sec. 5, T. 18 N., R. 3 E., on left bank 0.6 mile downstream from East Fork and boundary of Santa Fe National Forest and 5.3 miles northeast of Jemez Springs.

Drainage area.--194 sq mi (revised).

Records available.--May to October 1951, May to September 1952.

Gage.--Water-stage recorder. Datum of gage is 6,702.7 ft above mean sea level (from plane table survey).

Extremes.--Maximum discharge during period May to September 1952, 180 cfs July 3 (gage height, 2.55 ft), from rating curve extended above 34 cfs by logarithmic plotting; minimum daily, 8.6 cfs June 25.
1951-52: Maximum discharge determined, that of July 3, 1952; minimum daily determined, 8.0 cfs July 11, 12, 1951.

Remarks.--Records good except those for period of doubtful gage-height record, which are poor. Discharge measurements generally made twice a month. No known diversion above station.

Rating table, water year 1951-52, except periods of doubtful gage-height record (gage height, in feet, and discharge, in cubic feet per second)

1.3	6.2	1.6	18
1.4	9.2	1.8	33

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12							-	14	9.9	17	12
2	12							-	16	9.9	15	12
3	12							-	33	18	13	12
4	12							-	26	d15	12	12
5	12							-	19	d11	12	12
6	12							-	17	d10	13	13
7	12							-	15	d9	12	12
8	12							-	14	d18	12	12
9	12							-	13	d15	11	11
10	12							-	12	13	15	11
11	12							-	12	13	15	11
12	12							-	12	12	15	11
13	12							-	11	11	13	12
14	12							-	11	11	13	12
15	12							-	10	13	12	11
16	12							-	10	13	11	12
17	12							-	9.9	12	12	13
18	-							†12	9.9	11	11	12
19	-							-	10	12	12	12
20	-							-	9.9	11	11	11
21	-							25	9.5	10	11	12
22	-							24	9.5	10	12	16
23	-							23	9.2	11	13	16
24	-							21	8.9	13	23	14
25	-							20	8.6	12	23	13
26	-							18	8.9	12	17	13
27	-							17	8.9	17	14	12
28	-							21	8.9	12	15	12
29	-							19	8.9	12	19	12
30	-							16	9.9	13	16	12
31	-							15	-	13	14	-
Total	-	-	-	-	-	-	-	-	375.9	382.8	434	368
Mean	-	-	-	-	-	-	-	-	12.5	12.4	14.0	12.3
Ac-ft	-	-	-	-	-	-	-	-	746	759	861	730

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

† Result of discharge measurement made on this day.
d Doubtful gage-height record; discharge estimated on basis of records for nearby stations.

Rio Guadalupe at Box Canyon, near Jemez, N. Mex.

Location.--Lat 35°43'55", long. 106°45'45", in E½ sec. 6, T. 17 N., R. 2 E. (projected), in Canon de San Diego Grant, on left bank at downstream end of Guadalupe Box Canyon, 4.8 miles upstream from mouth, 5 miles southwest of Jemez Springs, and 7 miles north of Jemez.

Drainage area.--119 sq mi.

Records available.--May 1951 to September 1952 (irrigation season only).

Gage.--Water-stage recorder. Datum of gage is 6,015.5 ft above mean sea level, datum of 1929 (plane table survey).

Extremes.--Maximum discharge during period, 164 cfs June 3 (gage height, 3.79 ft); minimum daily, 4.1 cfs Oct. 10.
1951-52: Maximum discharge determined, that of June 3, 1952; minimum daily determined, 3.1 cfs Aug. 20, 1951.

Remarks.--Records fair. Discharge measurements generally made twice a month.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5							-	74	11	11	5.3
2	4.5							-	76	10	8.7	5.3
3	4.7							-	130	9.9	9.7	5.3
4	4.7							-	98	11	7.8	5.3
5	4.5							-	80	11	7.4	5.3
6	4.5							-	69	11	7.8	5.3
7	4.7							-	63	12	7.4	5.1
8	4.9							-	53	30	6.8	5.1
9	4.3							-	46	16	6.2	4.9
10	4.1							-	41	15	6.6	4.9
11	-							-	35	11	6.2	4.9
12	-							-	31	9.0	5.8	4.9
13	-							-	28	7.8	5.8	4.7
14	-							-	23	7.4	6.0	4.7
15	-							-	20	7.1	6.0	4.7
16	-							-	17	7.1	5.8	4.7
17	-							-	15	6.8	5.6	4.7
18	-							-	13	6.6	5.6	4.5
19	-							-	12	6.6	5.3	4.5
20	-							-	12	6.2	5.3	4.5
21	-							94	11	5.8	5.3	4.9
22	-							94	11	5.6	5.6	6.6
23	-							83	11	6.0	5.6	6.0
24	-							74	11	7.8	6.2	5.3
25	-							74	10	6.6	7.4	5.1
26	-							77	10	6.6	11	5.1
27	-							80	10	6.2	7.8	5.1
28	-							82	10	7.4	7.1	5.1
29	-							84	10	7.6	7.4	5.1
30	-							82	11	10	6.6	5.1
31	-							76	-	9.0	6.0	-
Total	-	-	-	-	-	-	-	-	1,041	291.1	212.8	152.0
Mean	-	-	-	-	-	-	-	-	34.7	9.39	6.86	5.07
Ac-ft	-	-	-	-	-	-	-	-	2,060	577	422	301

Calendar year	: Max	Min	Mean	Ac-ft	
Water year	: Max	Min	Mean	Ac-ft	

Jemez River near Jemez, N. Mex.

Location.--Lat 35°39'45", long. 106°44'30", in NW¼ sec. 33, T. 17 N., R. 2 E., (projected), on left bank in Canon de San Diego Grant, 0.7 mile downstream from Rio Guadalupe and 3½ miles north of Jemez, Sandoval County.

Drainage area.--492 sq mi.

Records available.--June 1936 to May 1941, August 1949 to October 1950, May to October 1951 and May to September 1952 (irrigation seasons only after October 1950).

Gage.--Water-stage recorder. Datum of gage is 5,622.3 ft above mean sea level, datum of 1929. June 1936 to March 1937, at site 60 ft upstream at datum 0.70 ft higher. March 1937 to July 1938, at datum 0.90 ft higher.

Average discharge.--5 years (1936-40, 1949-50), 69.1 cfs.

Extremes.--Maximum discharge during period May to September 1952, 1,220 cfs July 3 (gage height, 5.35 ft); minimum daily, 11 cfs June 26, 27, Sept. 5, 8, 9.
1936-41, 1949-52: Maximum discharge recorded, 3,590 cfs May 6, 1941 (gage height, 8.60 ft, present datum); minimum daily discharge, 5.8 cfs July 11, 12, 1951.

Remarks.--Records good. Discharge measurements generally made twice a month. Diversions for irrigation of about 300 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.0	8.6	1.7	62
1.2	18	2.0	103
1.4	32	2.5	190

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14							-	84	13	33	15
2	15							-	92	14	26	14
3	18							-	191	78	28	12
4	22							-	146	46	22	12
5	17							-	110	23	20	11
6	16							-	94	22	23	12
7	15							-	81	40	20	12
8	21							-	70	49	18	11
9	18							-	61	30	16	11
10	16							-	51	25	17	12
11	15							-	45	24	18	12
12	16							-	39	21	18	12
13	16							-	33	20	17	12
14	16							-	28	18	14	13
15	17							-	27	18	14	14
16	17							-	23	20	12	14
17	18							-	20	18	14	14
18	-							-	18	15	14	14
19	-							-	17	16	14	14
20	-							-	18	15	12	13
21	-							114	17	15	15	14
22	-							114	16	18	14	24
23	-							100	15	16	25	20
24	-							88	14	18	24	17
25	-							84	12	19	26	16
26	-							88	11	19	25	15
27	-							91	11	20	20	14
28	-							92	12	21	36	15
29	-							96	13	24	22	15
30	-							92	13	19	20	16
31	-							85	-	29	15	-
Total	-	-	-	-	-	-	-	-	1,382	743	612	420
Mean	-	-	-	-	-	-	-	-	46.1	24.0	19.7	14.0
Ac-ft	-	-	-	-	-	-	-	-	2,740	1,470	1,210	833

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

Jemez River near Bernalillo, N. Mex.

Location.--Lat 35°23'10", long. 106°31'45", in NE¼ sec. 5, T. 13 N., R. 4 E., on right bank 1½ miles upstream from mouth and 6 miles north of Bernalillo.

Drainage area.--1,040 sq mi, approximately.

Records available.--March 1936 to January 1938, March 1943 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 5,100.00 ft above mean sea level, datum of 1929 (Corps of Engineers benchmark). Prior to Apr. 24, 1951, at site three-quarters of a mile upstream at datum 20.11 ft higher.

Average discharge.--10 years (1936-37, 1943-52), 53.3 cfs.

Extremes.--Maximum discharge during year, 2,700 cfs Aug. 25 (gage height, 11.40 ft), from rating curve extended above 2,100 cfs by logarithmic plotting; no flow at times.
1936-38, 1943-52: Maximum discharge, 15,300 cfs Oct. 18, 1944, from rating curve extended above 3,000 cfs by logarithmic plotting; maximum gage height, 5.62 ft Aug. 29, 1943, former site and datum; no flow at times.

Remarks.--Records poor. Discharge measurements generally made six times a month. Diversions for irrigation of about 3,000 acres above station. Records of sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Revisions (water years).--W 1178: 1949. W 1212: 1950.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1	22	94	28	31	65	390	110	0	33	a0
2	0	1	25	31	25	10	55	160	210	0	67	a0
3	0	0	22	4	20	6	155	140	110	1	a2	a0
4	0	1	17	9	20	a12	120	240	52	0	a1	a0
5	0	1	13	11	20	a10	230	435	39	0	0	0
6	0	0	5	11	28	a15	74	460	50	0	0	0
7	0	1	2	14	22	a25	346	300	44	0	0	0
8	0	1	1	20	35	a35	413	390	56	95	0	0
9	0	1	0	9	19	a40	390	a300	39	1	0	0
10	0	1	0	3	50	35	102	a200	39	0	0	0
11	0	2	6	10	35	39	87	a180	6	0	37	0
12	0	2	10	35	39	31	102	a200	0	0	10	0
13	0	8	20	50	20	25	44	225	0	0	0	0
14	0	10	13	68	3	27	56	240	0	128	1	0
15	0	13	2	a30	15	33	80	255	0	1	0	0
16	0	3	4	a20	31	17	170	225	0	1	0	0
17	0	2	15	a15	31	6	195	140	0	0	0	0
18	0	3	6	a10	35	15	240	130	0	0	0	0
19	0	a5	11	a15	13	a25	315	120	0	0	0	0
20	0	a10	2	a15	6	a30	300	94	0	0	0	0
21	0	a12	0	a10	15	28	182	102	0	0	0	0
22	0	a10	1	a6	22	13	170	94	0	0	22	0
23	0	17	0	a8	8	22	182	62	0	0	94	25
24	0	10	17	10	6	29	130	56	0	0	130	0
25	0	4	28	20	4	62	150	62	0	0	226	0
26	0	1	11	a25	15	50	240	44	0	67	3	0
27	64	8	10	a15	17	39	350	44	0	0	1	1
28	11	10	15	a15	20	56	390	62	0	0	0	0
29	3	15	a20	a20	17	74	535	22	0	0	96	0
30	1	20	a25	28	-	62	660	28	0	0	a2	0
31	4	-	a30	35	-	62	-	62	-	0	a0	-
Total	83	173	353	666	619	964	6,528	5,462	755	294	725	26
Mean	2.7	5.8	11.4	21.5	21.3	31.1	218	176	24.4	9.5	23.4	0.87
Ac-ft	165	343	700	1,320	1,230	1,910	12,950	10,830	1,500	583	1,440	52

Calendar year 1951: Max 871 Min 0 Mean 19.6 Ac-ft 14,170
Water year 1951-52: Max 660 Min 0 Mean 45.5 Ac-ft 33,020

Peak discharge (base, 2,000 cfs).--Aug. 25 (9 a.m.) 2,700 cfs (11.40 ft).
a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

Rio Grande near Bernalillo, N. Mex.

Location.--Lat 35°17'05", long. 106°35'45", in Alameda Grant, on right bank 2 miles northwest of Sandia Pueblo, 3 miles southwest of Bernalillo, 3.5 miles downstream from State Highway 44, and 8.5 miles downstream from Jemez River.

Drainage area.--17,300 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--May 1941 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 5,030.85 ft above mean sea level, datum of 1951, unadjusted.

Average discharge.--11 years (1941-52), 1,343 cfs.

Extremes.--Maximum discharge during year, 9,800 cfs May 8; maximum gage height, 4.80 ft May 7; minimum daily discharge, 14 cfs Oct. 3, 4, 10, 11, 13.
1941-52: Maximum discharge, 25,400 cfs May 16, 1941; maximum gage height, 6.83 ft Sept. 20, 1941; minimum daily discharge, 3 cfs Sept. 14, 15, 1951.

Remarks.--Records fair. Discharge measurements generally made six times a month. Diversions for irrigation of about 710,000 acres above station. Records of water temperatures and sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	100	378	1,450	638	840	1,240	4,100	6,090	2,240	1,300	560
2	18	110	396	1,290	651	1,240	1,660	3,950	6,200	2,200	1,600	414
3	14	230	404	876	651	765	1,560	4,900	6,140	2,080	2,170	362
4	14	235	412	599	599	651	1,660	5,700	6,800	2,960	1,990	308
5	16	235	412	528	586	625	1,760	6,380	6,920	2,100	1,840	250
6	17	230	412	612	573	599	2,090	7,400	7,100	2,600	1,680	213
7	22	246	404	651	573	586	1,930	8,600	6,800	2,870	1,530	458
8	21	246	363	720	550	550	2,650	8,540	6,920	2,680	1,440	390
9	18	240	387	625	586	750	2,420	8,680	7,040	2,520	1,680	141
10	14	246	410	620	612	870	2,090	7,580	7,040	2,620	2,150	95
11	14	270	390	612	651	898	2,090	7,040	7,100	2,660	1,720	98
12	15	270	380	664	664	1,020	2,090	6,800	7,040	2,340	2,700	101
13	14	282	410	735	664	705	2,160	6,200	6,800	2,770	1,880	98
14	21	300	480	912	640	612	2,090	5,700	6,680	2,340	1,860	637
15	27	314	486	894	599	825	2,160	5,870	6,380	2,560	1,580	414
16	25	307	438	560	586	894	2,290	6,380	6,200	2,150	1,660	369
17	23	314	466	612	573	1,040	2,520	7,160	5,980	1,920	1,720	123
18	26	314	466	735	573	1,740	2,800	7,400	5,660	1,800	1,220	117
19	23	294	497	1,070	586	876	2,650	6,920	5,020	1,620	1,190	110
20	29	276	476	2,040	560	930	3,200	6,740	4,780	1,970	1,210	107
21	36	294	438	1,060	528	876	3,300	6,260	4,240	1,400	1,270	355
22	42	321	430	810	539	750	3,000	5,450	4,090	1,370	1,300	376
23	36	342	404	750	638	720	2,900	5,350	3,670	1,240	1,600	430
24	33	356	486	625	651	476	2,800	5,250	3,470	1,870	1,990	163
25	28	387	528	651	664	466	2,900	5,050	3,180	1,240	1,460	130
26	31	446	508	677	651	539	3,100	4,800	2,970	1,490	1,000	117
27	126	404	497	664	560	528	3,300	4,900	2,880	1,820	700	126
28	120	356	497	638	539	725	3,650	5,000	2,770	1,080	560	383
29	96	356	518	651	651	1,000	4,700	5,000	3,030	1,970	1,340	438
30	94	370	638	625	-	1,270	4,300	5,200	2,710	1,570	660	406
31	90	-	1,020	612	-	948	-	5,400	-	1,180	890	-
Total	1,129	8,691	14,431	24,568	17,536	25,324	77,060	189,700	161,700	63,230	46,890	8,289
Mean	36.4	290	466	793	605	817	2,569	6,119	5,390	2,040	1,513	276
Ac-ft	2,240	17,240	28,620	48,730	34,780	50,230	152,800	376,300	320,700	125,400	93,010	16,440

Calendar year 1951: Max 2,050 Min 3 Mean 379 Ac-ft 274,500
Water year 1951-52: Max 8,680 Min 14 Mean 1,745 Ac-ft 1,266,000

Peak discharge (base, 5,000 cfs).--May 9 (9:30 p.m.) 9,800 cfs (4.77 ft); July 7 (4:30 p.m.) 7,340 cfs (4.51 ft); Aug. 12 (4:10 a.m.) 8,480 cfs (4.65 ft).

Rio Grande at Albuquerque, N. Mex.

Location.--Lat 35°05'20", long. 106°40'45", in SE¼ sec. 13, T. 10 N., R. 2 E. (projected), in Albuquerque Grant, at downstream side of bridge on U. S. Highway 66, at Albuquerque.

Drainage area.--17,440 sq mi (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--January 1942 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,946.14 ft above mean sea level, datum of 1929. Prior to Sept. 18, 1947, at datum 2.0 ft higher.

Average discharge.--10 years, 1,111 cfs.

Extremes.--Maximum discharge during year, 9,600 cfs May 10 (gage height, 6.83 ft); minimum daily, 16 cfs Oct. 7, 13.
1942-52: Maximum discharge, 25,000 cfs Apr. 24, 1942, from rating curve extended above 13,900 cfs by logarithmic plotting; maximum gage height, 6.61 ft May 28, 1948; minimum daily discharge, that of Oct. 7, 13, 1951.

Remarks.--Records fair. Discharge measurements generally made eight times a month. Diversions above station for irrigation of about 718,000 acres, several hundred of which are below station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	27	62	356	1,430	623	680	1,040	4,000	5,980	2,380	1,320	394
2	24	41	374	1,220	632	1,220	1,460	3,780	6,260	2,150	1,500	214
3	18	63	392	1,090	650	932	1,480	4,250	6,540	1,880	2,040	184
4	20	83	398	680	660	730	1,670	5,450	6,960	3,020	1,820	144
5	19	71	410	587	632	632	1,860	6,260	7,250	2,180	1,720	129
6	19	77	417	560	605	550	2,180	7,250	7,250	2,900	1,670	124
7	16	73	431	544	587	544	2,300	8,000	6,960	2,970	1,480	132
8	31	90	404	605	560	520	2,480	8,000	7,100	2,880	1,430	215
9	26	122	398	641	560	596	2,610	8,450	6,960	2,250	1,350	210
10	17	130	430	700	614	682	2,300	8,040	7,100	2,500	2,180	115
11	17	149	410	623	632	896	2,150	7,550	7,550	2,580	1,430	67
12	17	174	386	560	650	1,110	2,180	6,960	7,400	2,320	3,390	60
13	16	217	424	596	680	875	2,360	6,540	6,960	2,700	1,820	54
14	18	275	512	660	670	596	2,070	6,260	6,680	2,200	1,610	116
15	25	285	480	932	632	603	2,240	6,400	6,680	2,900	1,480	248
16	31	280	438	740	623	750	2,450	6,820	6,540	2,250	1,520	203
17	32	285	466	660	587	783	2,710	7,550	6,260	2,050	1,760	224
18	33	290	504	730	587	1,590	2,780	7,700	5,700	1,880	1,100	109
19	34	285	504	805	605	920	2,680	7,250	5,420	1,750	1,010	63
20	33	275	488	2,170	569	860	3,230	6,820	5,000	1,720	1,000	58
21	41	285	480	1,370	560	872	3,400	6,400	4,580	1,410	1,040	75
22	56	322	450	980	552	860	3,170	5,980	4,720	1,270	1,320	146
23	47	328	420	772	614	920	2,710	5,560	3,800	1,130	2,210	219
24	32	362	470	680	650	615	2,580	5,420	3,500	1,410	1,840	338
25	34	374	510	641	623	466	2,650	5,420	3,300	1,220	1,910	174
26	34	404	504	660	605	445	3,170	4,720	3,000	1,400	1,260	81
27	47	392	504	650	587	445	3,400	4,720	2,750	1,800	916	81
28	93	374	504	623	504	452	3,650	5,140	2,620	1,060	475	101
29	52	339	488	623	560	805	4,920	5,420	2,880	1,670	1,110	190
30	49	356	552	623	-	1,170	4,350	5,420	2,450	1,590	568	243
31	48	-	689	632	-	944	-	5,560	-	1,160	732	-
Total	1,006	6,863	14,193	24,787	17,613	24,063	78,630	193,090	166,150	62,580	46,011	4,711
Mean	32.4	229	458	800	607	776	2,620	6,230	5,540	2,020	1,480	157
Ac-ft	2,000	13,610	28,150	49,160	34,940	47,730	156,000	383,000	329,600	124,100	91,260	9,340

Calendar year 1951: Max 2,210 Min 16 Mean 321 Ac-ft 232,700
Water year 1951-52: Max 8,450 Min 16 Mean 1,748 Ac-ft 1,269,000

Peak discharge (base, 4,000 cfs).--May 10 (3:15 a.m.) 9,600 cfs (6.83 ft); July 7 (8:10 p.m.) 7,250 cfs (6.25 ft); Aug. 12 (8 a.m.) 8,700 cfs (6.68 ft).

Rio Grande near Belen, N. Mex.

Location.--Lat 34°39'10", long. 106°44'10", in Tome Claim, on downstream end of timber bridge pier nearest left bank on State Highway 6, 2 miles east of Belen, Valencia County.

Drainage area.--18,230 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--January 1942 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,797.32 ft above mean sea level, datum of 1929.

Average discharge.--10 years, 1,002 cfs.

Extremes.--Maximum discharge during year, 9,200 cfs May 10 (gage height, 4.55 ft); minimum daily, 15 cfs Oct. 21.
1942-52: Maximum discharge, 23,100 cfs Apr. 24, 1942 (gage height, 5.05 ft), from rating curve extended above 12,500 cfs by logarithmic plotting; minimum daily, that of Oct. 21, 1951.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Discharge measurements generally made four times a month. Diversions for irrigation of about 725,000 acres above station. Station is bypassed by 1 canal, 3 ditches, and 1 riverside drain.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	18	101	974	619	594	520	3,900	5,500	1,510	655	a400
2	27	18	108	1,320	619	967	1,010	3,620	6,000	1,420	916	a300
3	28	19	103	1,090	610	1,200	1,460	3,980	6,250	1,580	1,210	a250
4	26	19	110	849	619	810	1,580	5,100	6,750	2,420	1,480	227
5	26	20	122	673	619	655	1,740	5,750	7,000	2,030	1,500	203
6	25	21	154	602	570	538	2,040	6,250	7,280	1,940	1,360	151
7	24	20	145	619	562	467	1,950	7,280	7,000	2,010	1,340	112
8	22	21	235	628	546	439	1,850	7,550	7,000	3,550	1,120	108
9	22	21	258	637	554	425	2,460	7,820	7,000	a2,700	1,040	103
10	21	22	266	602	554	509	2,370	8,100	7,000	a2,400	1,740	96
11	19	24	320	637	619	735	2,150	7,280	7,000	a2,300	1,850	96
12	20	25	325	554	637	855	2,100	6,660	7,280	a2,200	3,270	92
13	19	31	320	570	682	872	2,300	6,250	7,000	a2,100	1,090	90
14	19	32	372	610	722	570	1,950	5,750	6,500	a1,900	875	85
15	22	36	467	733	691	420	1,690	6,000	6,500	2,340	1,040	83
16	21	56	453	914	610	396	1,900	6,500	6,250	2,040	1,160	112
17	18	65	439	755	602	610	2,100	7,000	5,950	1,900	1,690	83
18	18	74	418	733	594	1,130	2,460	7,550	5,550	1,480	1,460	79
19	16	60	418	755	586	1,020	2,530	7,280	5,250	1,180	875	76
20	16	70	404	1,610	637	888	2,990	6,750	4,960	1,600	849	72
21	15	69	390	1,880	619	920	3,290	6,500	4,370	1,620	985	70
22	16	72	432	1,210	570	1,110	3,210	5,950	4,280	570	1,090	69
23	16	60	460	955	554	901	2,770	5,500	3,500	488	2,180	67
24	16	62	432	810	594	646	2,400	5,150	3,100	460	1,820	69
25	17	74	467	691	610	320	2,740	5,300	2,740	700	1,460	78
26	18	87	538	664	610	203	3,100	4,550	2,400	655	1,360	74
27	17	85	509	655	619	207	3,290	4,140	1,980	1,350	722	70
28	18	103	502	673	610	244	3,500	4,780	2,100	1,170	637	70
29	19	108	474	655	495	262	3,860	4,820	2,300	710	594	74
30	19	115	446	637	-	1,070	4,550	5,000	2,120	1,310	900	79
31	19	-	467	610	-	1,090	-	5,200	-	955	a560	-
Total	628	1,507	10,655	25,305	17,533	21,073	71,860	183,260	157,910	50,578	38,828	3,538
Mean	20.3	50.2	344	816	605	680	2,395	5,912	5,264	1,632	1,253	118
Ac-ft	1,250	2,990	21,130	50,190	34,780	41,800	142,500	363,500	313,200	100,300	77,010	7,020

Calendar year 1951: Max 1,640 Min 15 Mean 226 Ac-ft 163,400
Water year 1951-52: Max 8,100 Min 15 Mean 1,592 Ac-ft 1,156,000

Peak discharge (base, 4,000 cfs).--May 10 (1 p.m.) 9,200 cfs (4.55 ft); July 8 (4:30 p.m.) 7,280 cfs (3.96 ft); Aug. 12 (4:45 p.m.) 8,100 cfs (4.19 ft); Aug. 23 (6 p.m.) 5,250 cfs (3.65 ft).
a No gage-height record; discharge estimated on basis of records for other main-stem stations.

Rio Grande near Bernardo, N. Mex.

Location.--Lat 34°25'00", long. 106°47'50", in W½NW¼ sec. 12, T. 2 N., R. 1 E. (projected), at bridge on U. S. Highway 60, 2¼ miles east of Bernardo and 3½ miles upstream from Rio Puerco.

Drainage area.--19,230 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--June 1936 to January 1939, October 1941 to September 1952. Prior to October 1951, flow in Bernardo interior drain was included only when carrying river overflow; since that date entire flow is included.

Gage.--Water-stage recorder. Datum of gage is 4,723.95 ft above mean sea level, datum of 1929. Supplementary recording gages at different datums on San Francisco riverside drain and Bernardo interior drain used when these channels carry river water.

Average discharge.--12 years (1936-38, 1941-42, 1943-52), 1,366 cfs.

Extremes.--Maximum daily discharge during year, 7,950 cfs May 10; minimum daily, 1 cfs Oct. 2-7.
1936-39, 1941-52: Maximum discharge not determined, probably occurred Apr. 25, 1942; maximum daily discharge, 19,600 cfs Apr. 25, 1942; maximum gage height, 6.90 ft Apr. 25, 1942; no flow at times in 1951.

Remarks.--Records fair. Records represent total discharge of river and are a summation of discharge in main channel, San Francisco riverside drain, and Bernardo drain. Discharge measurements generally made once or twice a week. Diversions for irrigation of about 740,000 acres above station. Records of sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2	3	97	591	667	568	588	3,742	5,350	1,632	896	485
2	1	3	103	1,256	627	728	634	3,515	6,340	1,450	1,041	381
3	1	3	111	1,186	607	1,368	1,374	3,420	6,870	1,480	1,047	253
4	1	3	122	1,086	647	807	1,464	4,374	6,580	1,797	1,474	235
5	1	3	124	806	667	667	1,501	5,168	6,760	2,436	1,368	210
6	1	4	156	686	607	555	1,746	5,576	6,980	1,776	1,403	182
7	1	4	145	647	567	507	2,072	6,500	6,960	2,432	1,349	130
8	2	5	225	607	555	494	1,713	7,420	6,860	3,802	1,140	105
9	2	6	285	626	555	435	2,146	7,630	6,990	2,904	1,089	104
10	2	5	275	626	567	407	2,246	7,950	6,800	2,522	1,129	101
11	2	5	325	606	627	537	2,229	7,280	6,560	2,180	1,601	95
12	2	7	330	567	647	867	2,051	7,080	6,590	2,102	2,164	70
13	2	7	309	568	667	988	2,134	6,280	6,450	2,045	1,704	81
14	2	7	313	606	707	727	2,063	5,455	6,110	2,120	985	72
15	2	7	425	647	747	588	1,452	5,490	5,930	1,827	1,081	67
16	2	7	469	1,002	668	316	1,760	5,610	5,730	2,192	1,186	54
17	2	7	485	827	648	560	1,854	6,290	5,500	1,845	1,548	51
18	2	31	433	728	629	815	2,202	7,350	5,340	1,327	1,530	49
19	2	51	426	747	627	1,398	2,366	7,410	4,950	1,186	914	46
20	2	42	422	836	608	953	2,623	6,610	4,650	1,103	828	43
21	2	51	406	1,888	647	946	3,263	6,110	4,250	1,358	828	47
22	2	50	406	1,187	607	1,157	3,173	5,450	3,990	734	868	73
23	2	42	456	947	567	1,097	2,950	5,030	3,514	570	1,320	95
24	3	39	446	787	587	908	2,942	4,654	3,004	505	2,164	117
25	3	50	466	707	627	508	2,712	4,846	2,612	568	1,633	124
26	3	75	546	667	647	233	2,950	4,682	2,360	771	1,263	109
27	3	86	566	667	648	176	3,225	3,994	2,042	897	910	151
28	3	97	518	687	627	194	3,249	4,238	1,871	1,197	767	147
29	3	106	507	647	607	205	3,398	4,431	1,722	838	567	142
30	3	107	475	627	-	628	4,022	4,717	2,185	1,008	724	92
31	3	-	464	627	-	1,258	-	4,881	-	1,194	667	-
Total	64	913	10,836	24,689	18,205	21,595	68,102	173,183	151,850	49,798	37,188	3,911
Mean	2.06	30.4	350	796	628	697	2,270	5,587	5,062	1,606	1,200	130
Ac-ft	127	1,810	21,490	48,970	36,110	42,830	135,100	343,500	301,200	98,770	73,760	7,760

Calendar year 1951: Max 1,630 Min 0 Mean 211 Ac-ft 152,900
Water year 1951-52: Max 7,950 Min 1 Mean 1,531 Ac-ft 1,111,000

Rio Puerco above Chico Arroyo, near Guadalupe, N. Mex.

Location.--Lat 35°36'05", long. 107°09'55", in SW¼ sec. 21, T. 16 N., R. 3 W., on left bank 1.6 miles upstream from Chico Arroyo and 5½ miles northeast of the village of Guadalupe, Sandoval County.

Drainage area.--420 sq mi.

Records available.--July 1951 to September 1952.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,925 ft (by barometer).

Extremes.--Maximum discharge during year, 4,000 cfs Aug. 12 (gage height, 13.2 ft), from rating curve extended above 1,300 cfs on basis of slope-area determination of peak flow; no flow at times.
1951-52: Maximum discharge, that of Aug. 12, 1952; no flow at times.

Remarks.--Records fair except those below 25 cfs and for periods of no gage-height record, which are poor. Discharge measurements generally made three times a month. Diversions for irrigation of about 3,700 acres above station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0	b3	0	8	a0	35	8	0	20	
2	0	a0	0	b2		a1	0	35	15	0	9	
3	0	a0	0			.5	0	50	72	136	2	
4	0	a0	0			a.2	0	75	69	36	a0	
5	0	0	0			a.1	0	98	35	16	a0	
6	0	0		b0	a0	a.1	0	135	a20	109	.6	
7	0	0				2	0	120	a15	53	.1	
8	0	0				6	0	102	10	32	0	a0
9	0	0				29	0	99	a8	4	.1	
10	0	0		0		37	0	73	7	2	0	
11	0	0		0		a10	0	54	4	1	0	
12	0	0		0	0	a5	0	45	2	a0	288	
13	0	0		0		4	0	31	.5	a0	43	
14	0	0		0		2	0	30	.3	a0	5	
15	0	0		0		.7	0	33	0	a25	1	
16	0	0		0	a0	3	0	32	0	1	.2	0
17	0	0		0		13	1	29	0	0	.1	0
18	0	0	b0	0		9	8	28	0	0	.1	0
19	0	0		b20	0	4	9	22	0	0	0	0
20	0	0		a10	0	a1	15	19	0	0	0	0
21	0	0		a5	.2	1	25	14	0	0	0	0
22	0	0		a4	.8	a.5	25	10	0	0	.3	0
23	0	0		a3	a.1	a.2	11	7	0	4	.5	0
24	0	0		a1			11	4	0	12	.3	0
25	0	0		a2			9	a2	0	0	.5	0
26	0	.1			a0	a0	11	a12	0	0	10	0
27	19	.2					17	a4	0	0	2	0
28	a1	.1		a0			46	2	0	0	a.2	0
29	a.2	.1					43	5	0	8	1	0
30	a.1	.1			-		35	8	0	3	a.5	0
31	a0	-	7		-		-	9	-	38	a.4	-
Total	20.3	0.6	7	50	1.1	137.3	266	1,222	265.8	480	399.3	0
Mean	0.65	0.02	0.23	1.61	0.04	4.42	8.87	3.94	8.86	1.55	12.9	0
Ac-ft	40	1.2	14	99	2.2	272	528	2,420	527	952	792	0

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 288 Min 0 Mean 7.79 Ac-ft 5,650

Peak discharge (base, 1,000 cfs).--July 3 (10:30 p.m.) 2,320 cfs (9.76 ft); July 7 (8:50 p.m.) 1,060 cfs (6.62 ft); Aug. 12 (9 p.m.) 4,000 cfs (13.2 ft).

a No gage-height record; discharge estimated on basis of recorded range in stage, recession curves, notes and data obtained by Quality of Water employees.

b Stage-discharge relation affected by ice.

Chico Arroyo near Guadalupe, N. Mex.

Location.--Lat 35°35'40", long. 107°11'20", in NE¼ sec. 30, T. 16 N., R. 3 W., on left bank a quarter of a mile upstream from mouth, 4½ miles northwest of Guadalupe, and 5½ miles southwest of Cabezon.

Drainage area.--1,390 sq mi, approximately.

Records available.--November 1943 to September 1952.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,895 ft (by barometer).

Average discharge.--9 years (1943-52), 17.2 cfs.

Extremes.--Maximum discharge during year, 3,600 cfs July 7, 28 (gage height, 6.5 ft), from rating curve extended above 2,900 cfs on basis of slope-area determinations at gage heights 9.6 and 12.8 ft; no flow at times.
1943-52: Maximum discharge, 12,700 cfs July 21, 1944, from rating curve extended above 2,500 cfs by logarithmic plotting; maximum gage height, 14.0 ft July 31, 1951; no flow at times.

Remarks.--Records fair except those below 10 cfs and for periods of no gage-height record, which are poor. Discharge measurements generally made three times a month, but more frequently during periods of high flow than low-flow periods. Diversions for irrigation of about 100 acres above station. Records of sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				1.2			0	0.4	0	0	33	0
2				.2			0	0	0	0	91	0
3				0			0	0	161	92	2	0
4				0			0	0	32	183	.2	0
5				0			0	0	2	85	0	0
6				0			0	0	.2	376	0	0
7				0			0	0	0	350	0	0
8				0			0	0	0	300	0	0
9				0			0	0	0	19	0	0
10				0			0	0	0	10	56	0
11				0			0	0	0	5	4	0
12				0			0	0	0	a.1	20	0
13				0			0	0	0	0	147	0
14				0			0	0	0	0	38	0
15				0			0	0	0	95	7	0
16				0			0	0	0	52	.1	52
17				0			0	0	0	3	0	3
18				0			0	0	0	a.2	0	a.2
19				6			0	0	0	0	46	0
20				9			0	0	0	0	42	0
21				a5			0	0	0	0	246	0
22				a1			0	0	0	0	480	0
23				a0			0	0	0	0	365	0
24				a0			0	0	0	0	41	0
25				a0			0	0	0	2	12	0
26				a0			0	0	0	0	172	0
27				a0			0	0	0	4	33	0
28				a0			55	0	0	188	36	0
29				a0			48	0	0	320	75	0
30				a0			11	0	0	22	10	0
31				a0			-	0	-	.8	.4	
Total	0	0	0	22.2	0	0	114	0.4	195.2	2,107.1	1,956.7	55.2
Mean	0	0	0	0.72	0	0	3.8	0.01	6.51	68.0	63.1	1.84
Ac-ft	0	0	0	44	0	0	226	0.8	387	4,180	3,880	109

Calendar year 1951: Max 1,070 Min 0 Mean 17.4 Ac-ft 12,590
Water year 1951-52: Max 480 Min 0 Mean 12.2 Ac-ft 8,830

Peak discharge (base, 2,300 cfs).--July 7 (9:20 p.m.) 3,600 cfs (6.5 ft); July 28 (about 11 p.m.) 3,600 cfs (6.5 ft; from floodmark).

a No gage-height record; discharge estimated on basis of recession curve and notes by Quality of Water employees.

Bluewater Creek below Bluewater Dam, N. Mex.

Location.--Lat 35°19'35", long. 108°06'35", in SE¼ sec. 4, T. 12 N., R. 12 W., 350 ft downstream from Bluewater Dam and 9.3 miles west of Bluewater.

Drainage area.--215 sq mi.

Records available.--March 1951 to September 1952.

Gage.--Water-stage recorder and artificial control. Altitude of gage is 7,320 ft (by barometer).

Extremes.--Maximum discharge during year, 58 cfs July 1-3 (gage height, 2.75 ft); minimum daily, 0.1 cfs for many days.
1951-52: Maximum discharge, that of July 1-3, 1952; minimum daily, 0.1 cfs for many days.

Remarks.--Records good. Discharge measurements generally made twice a month. Flow regulated by operation of Bluewater-Toltec Reservoir (capacity, 46,000 acre-ft).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 22-29)

Oct. 1 to Aug. 18				Aug. 19 to Sept. 30			
1.4	0.05	2.0	4.5	1.5	0.3	2.0	4.2
1.5	.2	2.1	7.0	1.6	.6	2.1	6.5
1.6	.5	2.2	10	1.7	1.0	2.3	15
1.7	1.1	2.3	15	1.8	1.6	2.5	29
1.8	1.9	2.5	29	1.9	2.7		
1.9	3.0	2.8	64				

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.6	36	56	24	0.3
2	.1	.1	.1	.1	.1	.1	.3	.6	36	58	21	.3
3	.1	.1	.1	.1	.1	.1	.3	.6	38	42	21	.3
4	.1	.1	.1	.1	.1	.1	.4	.6	44	.5	21	.3
5	.1	.1	.1	.1	.1	.1	.5	.6	44	.4	22	1.4
6	.1	.1	.1	.1	.1	.1	.5	.6	44	5.8	22	2.6
7	.1	.1	.1	.1	.1	.1	.5	.6	44	22	19	2.4
8	.1	.1	.1	.1	.1	.1	.5	.6	44	24	18	3.6
9	.1	.1	.1	.1	.1	.1	.5	.6	44	26	17	10
10	.1	.1	.1	.1	.1	.1	.6	.6	47	26	17	10
11	.1	.1	.1	.1	.1	.1	.6	.6	50	26	17	10
12	.1	.1	.1	.1	.1	.1	.6	.6	50	26	17	12
13	.1	.1	.1	.1	.1	.1	.6	.6	50	15	17	12
14	.1	.1	.1	.1	.1	.1	.6	.6	47	14	17	10
15	.1	.1	.1	.1	.1	.1	.6	.6	46	19	17	8.0
16	.1	.1	.1	.1	.1	.1	.6	.6	44	19	17	8.0
17	.1	.1	.1	.1	.1	.1	.6	.6	42	22	17	8.0
18	.1	.1	.1	.1	.1	.1	.6	.6	40	24	14	8.4
19	.1	.1	.1	.1	.1	.1	.6	.6	37	23	3.5	8.0
20	.1	.1	.1	.1	.1	.1	.6	12	37	19	.3	7.1
21	.1	.1	.1	.1	.1	.1	.6	12	37	23	.3	5.9
22	.1	.1	.1	.1	.1	.1	.6	17	37	24	.3	5.9
23	.1	.1	.1	.1	.1	.1	.6	18	38	26	.3	5.9
24	.1	.1	.1	.1	.1	.1	.6	35	42	26	.3	5.6
25	.1	.1	.1	.1	.1	.1	.6	36	42	26	.3	3.2
26	.1	.1	.1	.1	.1	.1	.6	36	42	26	.3	.3
27	.1	.1	.1	.1	.1	.1	.7	36	42	26	.3	.3
28	.1	.1	.1	.1	.1	.2	.6	36	42	25	.3	.3
29	.1	.1	.1	.1	.1	.2	.6	36	42	25	.3	.3
30	.1	.1	.1	.1	-	.2	.6	36	42	25	.3	1.0
31	.1	-	.1	.1	-	.2	-	36	-	25	.3	-
Total	3.1	3.0	3.1	3.1	2.9	3.5	16.4	357.4	1,270	744.7	342.1	151.4
Mean	0.10	0.10	0.10	0.10	0.10	0.11	0.55	11.5	42.3	24.0	11.0	5.05
Ac-ft	6.2	6.0	6.2	6.2	5.8	6.9	32	709	2,520	1,480	678	300

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 58 Min 0.1 Mean 7.92 Ac-ft 5,760

Bluewater Creek near Bluewater, N. Mex.

Location.--Lat 35°17'50", long. 108°01'40", in W½SW¼ sec. 5, T. 12 N., R. 11 W., on left bank 2½ miles northwest of Bluewater Village and 8 miles downstream from Bluewater Dam.

Drainage area.--235 sq mi.

Records available.--May 1912 to December 1914 and October 1930 to September 1952 in reports of Geological Survey. May 1912 to June 1919 and April 1921 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 6,720 ft (from topographic map). Prior to Aug. 20, 1919, at site 83 ft upstream at datum 3.49 ft higher. Aug. 20, 1919, to Mar. 18, 1939, at original site at datum 1.57 ft higher than present datum.

Average discharge.--22 years (1930-52), 12.7 cfs.

Extremes.--Maximum discharge during year, 130 cfs July 4 (gage height, 3.90 ft), from rating curve extended above 70 cfs by logarithmic plotting; minimum daily, 0.2 cfs Dec. 10, 21, 22.

1930-52: Maximum discharge, 1,010 cfs Sept. 1, 1936 (gage height, 6.15 ft, site and datum then in use), from rating curve extended above 65 cfs by logarithmic plotting; no flow at times.

Remarks.--Records good except those below 2 cfs, which are fair, and those for periods of ice effect, which are poor. Discharge measurements generally made twice a month. Flow regulated by Bluewater-Toltec Reservoir (capacity, 46,000 acre-ft).

Rating tables, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 23				Mar. 24 to Sept. 30			
2.0	0.10	2.3	1.2	2.2	1.5	2.9	20
2.1	.26	2.4	2.4	2.3	2.6	3.2	41
2.2	.6			2.5	5.9	3.4	60
				2.7	11		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	0.7	0.7	0.9	1.0	1.0	1.5	4.7	45	52	31	1.8
2	.6	.7	.6	.8	1.0	1.1	1.6	4.7	52	57	26	1.8
3	.6	.7	.6	.7	1.0	1.0	2.0	4.7	43	54	25	1.8
4	.6	.7	.6	.5	1.0	.8	2.1	4.7	48	17	25	1.6
5	.5	.7	.6	.5	.9	.7	2.3	4.9	48	7.0	25	1.6
6	.5	.7	.5	.6	.8	.8	2.6	4.9	47	5.1	25	3.1
7	.6	.7	.4	.8	.7	1.0	2.7	4.7	46	25	23	3.4
8	.6	.7	.5	1.0	.6	1.0	3.1	4.9	46	27	22	3.5
9	.6	.7	.4	1.0	.7	1.0	3.4	4.9	46	32	21	7.4
10	.6	.7	.2	.8	.6	1.0	3.5	4.9	48	32	20	9.6
11	.6	.8	.3	.9	.7	1.0	4.0	4.7	50	32	19	9.6
12	.6	.8	.4	1.0	.7	.8	3.9	4.7	50	31	20	11
13	.6	.8	.5	1.1	.6	.8	3.9	4.6	50	21	19	11
14	.6	.9	.5	1.0	.4	1.0	3.9	4.6	50	18	19	11
15	.6	.9	.4	.9	.3	.9	3.9	4.6	46	21	19	9.8
16	.6	.9	.3	.9	.4	.8	4.2	4.6	46	22	19	9.6
17	.7	.8	.3	1.0	.6	.8	4.2	5.1	43	24	20	9.6
18	.6	.8	.3	1.1	.7	.8	4.4	5.1	43	27	17	9.3
19	.6	.9	.4	1.2	.6	.7	4.4	4.9	39	27	12	9.3
20	.6	.8	.4	1.0	.4	.7	5.3	9.3	38	22	3.0	9.3
21	.6	.8	.2	.9	.6	.8	4.7	14	38	25	2.7	7.9
22	.6	.8	.2	.8	.4	.8	4.7	23	38	27	2.2	10
23	.6	.8	.3	.8	.6	.7	4.7	29	38	30	2.1	7.9
24	.7	.8	.4	.9	.8	1.6	4.6	36	42	30	2.8	7.2
25	.7	.8	.6	1.0	.6	1.2	4.6	39	43	30	2.3	7.0
26	.8	.7	.5	.9	.6	1.1	4.6	39	44	30	6.9	3.0
27	.8	.7	.5	.8	.8	1.1	4.9	44	44	30	2.6	2.6
28	.8	.7	.6	.8	1.2	1.1	5.1	45	43	30	4.6	2.4
29	.8	.7	.8	.8	1.0	1.1	4.9	45	44	30	3.2	2.4
30	.8	.7	1.2	.8	-	1.2	4.7	45	44	30	2.3	2.3
31	.7	-	1.0	1.0	-	1.3	-	45	-	29	2.1	-
Total	19.8	22.9	15.2	27.2	20.3	29.7	114.4	504.2	1,342	874.1	443.8	187.8
Mean	0.64	0.76	0.49	0.88	0.70	0.96	3.81	16.3	44.7	28.2	14.3	6.26
Ac-ft	39	45	30	54	40	59	227	1,000	2,660	1,730	880	372

Calendar year 1951: Max 42 Min 0 Mean 0.68 Ac-ft 490
Water year 1951-52: Max 57 Min 0.2 Mean 9.84 Ac-ft 7,140

Note --Stage-discharge relation affected by ice Nov. 25, Dec. 1-2, Dec. 5 to Feb. 24, Feb. 27 (doubtful gage-height record Dec. 21 to Jan. 1, Jan. 5-14, 16-19, 22-31, Feb. 8-12; discharge estimated on basis of recorder trace, discharge measurements, and weather records).

Bluewater Creek at Grants, N. Mex.

Location.--Lat 35°09'20", long. 107°52'10", in SW¼NW¼ sec. 26, T. 11 N., R. 10 W., on right bank at bridge on State Highway 53 at Grants, 0.2 mile south of U. S. Highway 66.

Drainage area.--1,000 sq mi, approximately.

Records available.--October 1912 to September 1913 (fragmentary October to December) and April 1949 to September 1952 in reports of Geological Survey. October 1912 to December 1926 (monthly figures only for calendar year 1925) in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 6,468.34 ft above mean sea level (levels by Corps of Engineers). October 1912 to December 1914 staff gage, January 1915 to Dec. 5, 1917, chain gage and Dec. 6, 1917, to December 1926, staff gage, at same site at different datums.

Average discharge.--14 years (1914-25, 1949-52), 7.66 cfs.

Extremes.--Maximum discharge during year, 1,760 cfs Aug. 28 (gage height, 5.35 ft), from rating curve extended above 300 cfs on basis of velocity-area studies; no flow for long periods.
1912-26, 1949-52: Maximum discharge recorded, that of Aug. 28, 1952; no flow for long periods.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Discharge measurements generally made twice a month. Flow regulated by Bluewater-Toltec Reservoir (capacity, 46,000 acre-ft). Diversions and ground-water withdrawals for irrigation of about 4,500 acres above station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	1.7	0.2	0.4	0.8	1.5
2							0	1.0	.4	.6	1.0	1.5
3							0	.4	.8	.5	.9	1.6
4							0	.2	0	.4	.9	2.0
5							0	0	.5	.3	.8	3.4
6							0	0	1.1	.3	.9	2.2
7							0	0	.4	0	.9	1.9
8							0	0	.4	0	1.2	1.9
9							0	0	.6	0	1.6	1.9
10							0	0	.8	.7	1.2	1.9
11							0	.5	.2	.5	1.4	1.9
12							0	.6	0	2.4	1.5	1.9
13							0	.1	1.0	.7	1.0	1.9
14							0	.3	0	.7	1.6	2.4
15							0	.8	0	.9	1.9	1.8
16							0	0	0	.4	2.4	2.4
17							0	.9	.5	.1	2.4	2.4
18							0	.6	.7	0	1.8	2.2
19							0	0	1.8	0	2.2	1.8
20							0	.7	3.0	.4	1.6	1.8
21							.2	1.1	1.9	1.5	1.6	2.0
22							0	.4	3.2	1.9	1.6	5.4
23							1	0	3.4	2.4	16	4.1
24							2	0	1.6	2.2	4.1	23
25							1	0	1.6	2.0	1.4	6.0
26							1	0	.6	1.9	1.3	2.8
27							1	0	1.6	2.2	1.5	1.9
28							1	.1	1.4	2.6	220	1.9
29							1	.6	.9	2.0	100	1.8
30							.6	1.2	1.5	1.5	5.2	1.8
31							-	.9	-	1.3	1.9	-
Total	0	0	0	0	0	0	8.8	12.1	30.1	30.8	382.6	91.0
Mean	0	0	0	0	0	0	0.29	0.39	1.00	0.99	12.3	3.03
Ac-ft	0	0	0	0	0	0	18	24	60	61	759	180

Calendar year 1951: Max 66 Min 0 Mean 0.58 Ac-ft 420
Water year 1951-52: Max 220 Min 0 Mean 1.65 Ac-ft 1,100

Note.--No gage-height record Mar. 13 to Apr. 29.

San Jose River near Grants, N. Mex.

Location.--Lat 35°04', long. 107°44', in SE¼SE¼ sec. 23, T. 10 N., R. 9 W., at west boundary of Acoma Indian Reservation, 8½ miles southeast of Grants.

Drainage area.--1,070 sq mi, approximately.

Records available.--June 1936 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 6,269.47 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 6.91 cfs.

Extremes.--Maximum discharge during year, 274 cfs Aug. 29 (gage height, 2.58 ft); minimum daily, 4.2 cfs for many days.
1936-52: Maximum discharge, 1,330 cfs about Aug. 21, 1947 (gage height, 4.15 ft, from floodmarks), from rating curve extended above 500 cfs by logarithmic plotting; minimum daily, 2.5 cfs May 7-10, 1943.

Remarks.--Records good. Discharge measurements generally made twice a month. Diversions for irrigation of about 5,100 acres above station (including 4,500 acres irrigated partly or entirely from wells).

Revisions (water years).--W 898: 1936-39(M).

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.3	3.3	1.0	35
.4	5.7	1.4	67
.5	8.8	1.8	113
.7	17		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.1	5.1	4.9	4.6	4.6	4.2	4.4	4.9	4.9	4.6	8.1	7.5
2	5.1	4.9	4.9	4.6	4.6	4.2	4.4	4.9	4.9	4.6	5.4	5.7
3	5.1	4.9	4.9	4.6	4.6	4.2	4.4	4.9	4.9	4.6	4.9	4.6
4	5.1	4.9	4.9	4.6	4.6	4.2	4.4	4.9	4.9	4.6	4.6	4.9
5	5.1	4.9	4.9	4.6	4.6	4.2	4.4	4.9	4.9	4.6	4.6	4.9
6	5.1	4.9	4.9	4.6	4.6	4.2	4.6	4.6	4.9	5.1	4.6	4.9
7	5.1	4.9	4.9	4.6	4.6	4.2	4.6	4.6	4.9	5.1	4.4	5.1
8	5.1	4.9	4.9	4.6	4.6	4.4	4.6	4.6	4.9	4.9	4.4	5.1
9	5.1	4.9	4.9	4.6	4.6	4.4	4.6	4.6	4.9	4.6	4.4	4.6
10	4.9	4.9	4.9	4.6	4.9	4.4	4.6	4.6	4.9	4.6	4.4	4.6
11	4.9	4.9	4.9	4.6	4.9	4.4	4.6	4.6	4.9	4.6	4.4	4.6
12	4.9	4.9	4.9	4.6	4.9	4.4	4.6	4.6	4.9	4.6	4.4	4.6
13	4.9	4.9	4.9	4.6	4.9	4.4	4.6	4.6	4.9	4.6	4.4	4.6
14	4.9	4.9	4.9	4.6	4.9	4.4	4.6	4.6	4.9	4.6	4.4	4.6
15	4.9	4.9	4.9	4.6	4.9	4.4	4.6	4.6	4.6	4.6	4.4	4.6
16	4.9	4.9	4.9	4.6	4.6	4.4	4.6	4.6	4.6	4.6	4.4	4.9
17	4.9	4.9	4.9	4.6	4.4	4.2	4.6	4.6	4.6	4.6	4.4	4.9
18	4.9	4.9	4.9	4.6	4.4	4.2	4.6	4.6	4.6	4.6	4.4	5.7
19	4.9	4.9	4.9	4.6	4.4	4.2	4.6	4.6	4.6	4.6	4.6	5.1
20	4.9	4.9	4.9	4.6	4.4	4.2	4.6	4.6	4.6	4.6	4.6	5.1
21	4.9	4.9	4.9	4.6	4.4	4.2	4.6	4.6	4.6	4.6	4.9	5.1
22	4.9	4.9	4.9	4.6	4.4	4.2	4.6	4.6	4.6	4.6	5.1	6.0
23	4.9	4.9	4.6	4.6	4.2	4.4	4.6	4.6	4.6	4.6	5.4	6.6
24	4.9	4.9	4.6	4.6	4.2	4.4	4.6	4.6	4.6	4.6	6.0	9.2
25	4.9	4.9	4.6	4.6	4.2	4.4	4.9	4.6	4.6	4.6	15	13
26	5.1	4.9	4.6	4.6	4.2	4.4	4.9	4.6	4.6	4.4	14	11
27	5.1	4.9	4.6	4.6	4.2	4.4	4.9	4.6	4.6	4.4	11	7.5
28	4.9	4.9	4.6	4.6	4.2	4.4	4.9	4.6	4.6	4.4	9.8	6.0
29	4.9	4.9	4.6	4.6	4.2	4.4	4.9	4.6	4.6	4.4	104	5.7
30	4.9	4.9	4.6	4.6	-	4.4	4.9	4.6	4.6	4.4	43	5.4
31	4.9	-	4.6	4.6	-	4.4	-	4.6	-	4.4	13	-
Total	154.1	147.2	149.2	142.6	131.2	133.8	138.8	144.1	142.2	142.7	325.4	176.1
Mean	4.97	4.91	4.81	4.60	4.52	4.32	4.63	4.65	4.74	4.60	10.5	5.87
Ac-ft	306	292	296	283	260	265	275	286	282	283	645	349

Calendar year 1951: Max 102 Min 4.2 Mean 5.94 Ac-ft 4,310
Water year 1951-52: Max 104 Min 4.2 Mean 5.27 Ac-ft 3,820

Peak discharge (base, 100 cfs).--Aug. 29 (1:15 p.m.) 274 cfs (2.58 ft).

San Jose River at Correo, N. Mex.

Location.--Lat 34°58'00", long. 107°10'10", in NE¼ sec. 32, T. 9 N., R. 3 W., on left bank 0.6 mile upstream from U. S. Highway 66, 0.7 mile northeast of Correo, and 13 miles upstream from mouth.

Drainage area.--2,610 sq mi, approximately.

Records available.--April 1943 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 5,474.88 ft above mean sea level, unadjusted.

Average discharge.--9 years (1943-52), 7.75 cfs.

Extremes.--Maximum discharge during year, 3,220 cfs Sept. 22 (gage height, 6.00 ft); no flow for much of year.

1943-52: Maximum discharge, 8,010 cfs May 26, 1944 (gage height, 9.20 ft), from rating curve extended above 1,700 cfs by logarithmic plotting; no flow for long periods.

A stage of 15.4 ft (based on drift marks found near gage in 1950) probably occurred during flood of August 1929.

Remarks.--Records fair. Discharge measurements generally made three times a month. Flow regulated by Bluewater Reservoir (capacity, 46,000 acre-ft) and three small reservoirs below. Diversion for irrigation of about 8,600 acres above station (includes about 4,500 acres irrigated wholly or partly from ground-water sources). Records of sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1950-51 (gage height, in feet, and discharge, in cubic feet per second)

0.48	0	1.4	62
.7	1.1	1.7	125
.8	2.9	2.0	205
.9	6.5	2.4	350
1.0	12	2.8	545
1.2	31		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									0	0	0	0
2									8	0	0	0
3									102	0	0	0
4									.3	0	0	0
5									0	0	0	0
6									0	22	0	0
7									0	287	0	0
8									0	13	.6	0
9									0	19	.5	0
10									0	162	0	0
11									0	6	47	0
12									0	.1	16	0
13									0	0	1	0
14									0	0	0	0
15									0	0	0	0
16									0	0	0	0
17									0	0	0	0
18									0	0	0	0
19									0	0	0	0
20									0	0	0	0
21									0	0	0	0
22									0	0	47	419
23									0	.3	17	17
24									0	2	1	2
25									0	0	.2	0
26									0	0	14	0
27									0	0	2	0
28									0	0	1	0
29									0	33	154	0
30									0	0	.1	0
31									-	0	0	-
Total	0	0	0	0	0	0	0	0	110.3	544.4	309.4	438
Mean	0	0	0	0	0	0	0	0	3.68	17.6	9.98	14.6
Ac-ft	0	0	0	0	0	0	0	0	219	1,080	614	869

Calendar year 1951: Max 445 Min 0 Mean 6.72 Ac-ft 4,870
Water year 1951-52: Max 419 Min 0 Mean 3.83 Ac-ft 2,780

Peak discharge (base, 800 cfs).--July 7 (3:30 a.m.) 903 cfs (3.43 ft); Aug. 29 (4:15 a.m.) 1,500 cfs (4.24 ft); Sept. 22 (5:40 p.m.) 3,220 cfs (6.00 ft).

Rio Puerco at Rio Puerco, N. Mex.

Location.--Lat 34°47'35", long. 106°59'15", in NW¼ sec. 31, T. 7 N., R. 1 W. (projected), in San Clemente Grant, on downstream end of pier nearest left abutment of Atchison, Topeka and Santa Fe Railroad bridge, 7 miles downstream from San Jose River.

Drainage area.--5,160 sq mi, approximately.

Records available.--September 1910 to December 1914 (records fragmentary, gage heights only prior to March 1913), and March 1934 to September 1952 in reports of Geological Survey. January 1913 to December 1925 and September 1926 to December 1927 in reports of State engineer.

Gage.--Water-stage recorder and concrete control. Datum of gage is 5,008.49 ft above mean sea level, datum of 1929. Prior to Mar. 19, 1934, at datum 0.47 ft higher.

Average discharge.--27 years (1913-17, 1919-20, 1921-24, 1926-27, 1934-52), 82.6 cfs.

Extremes.--Maximum discharge during year, 3,340 cfs Sept. 23 (gage height, 2.50 ft); no flow at times.
1934-52: Maximum discharge, 28,000 cfs Aug. 21, 1935 (gage height, 7.24 ft), by computation of peak flow over dam; no flow at times.

Remarks.--Records fair except those for periods of no gage-height record, and those below 2 cfs, which are poor. Discharge measurements generally made three times a month, or more often during high-flow periods. Diversions for irrigation of about 12,300 acres above station (includes 4,500 acres irrigated wholly or partly from wells). Records of sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.2	0	0.9	47
.3	.2	1.0	90
.4	1.0	1.1	150
.5	2.6	1.2	230
.6	6.0	1.4	480
.7	13	1.6	820
.8	26		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								8	a0	a0	14	8
2								16	172	0	132	2
3								11	373	0	96	0
4								6	126	8	18	0
5								3	74	261	4	0
6								21	35	201	1	0
7								50	13	812	0	0
8								74	a3	665	a0	0
9								44	1	285	a0	0
10								37	1	181	0	0
11								42	a1	20	36	0
12								27		5	30	0
13								16		a1	276	0
14								a9		a0	217	0
15								8		0	39	0
16								3		31	12	0
17								2		48	1	0
18								6		16	a0	0
19								8		6	a1	0
20								9		a2	4	0
21								6	a0	a1	14	0
22								3		a0	293	56
23								a1		a0	783	782
24								a0		130	456	25
25								a0		a6	74	4
26								a0		a1	124	a1
27								5		a0	233	0
28								10		a0	50	0
29								a1		21	570	0
30								a0		214	88	0
31								a0		31	14	-
Total	0	0	0	0	0	0	0	426	799	2,946	3,580	878
Mean	0	0	0	0	0	0	0	13.7	26.6	95.0	115	29.3
Ac-ft	0	0	0	0	0	0	0	845	1,580	5,840	7,100	1,740

Calendar year 1951: Max 1,850 Min 0 Mean 30.7 Ac-ft 22,250
Water year 1951-52: Max 812 Min 0 Mean 23.6 Ac-ft 17,100

Peak discharge (base, 6,000 cfs).--No peak above base.
a No gage-height record; discharge estimated on basis of upstream and downstream records.

Rio Puerco near Bernardo, N. Mex.

Location.--Lat 34°24'30", long. 106°51'10", in SE¼ sec. 8, T. 2 N., R. 1 E., at bridge on U. S. Highway 85, 1.2 miles southwest of Bernardo, 3 miles upstream from mouth, and 16 miles south of Belen.

Drainage area.--5,860 sq mi, approximately.

Records available.--September 1910 to August 1914 (fragmentary gage heights only), November 1939 to September 1952. Published as "near La Joya" 1910-14.

Gage.--Water-stage recorder. Datum of gage is 4,725.48 ft above mean sea level, unadjusted. September 1910 to August 1914, at site 1½ miles downstream at different datum.

Average discharge.--12 years (1940-52), 53.0 cfs.

Extremes.--Maximum discharge during year, 1,820 cfs Sept. 23 (gage height, 7.15 ft); no flow for extended periods.
1939-52: Maximum discharge, 18,800 cfs Sept. 23, 1941, from rating curve extended above 7,800 cfs by logarithmic plotting; maximum gage height, 10.00 ft July 22, 1944; no flow for extended periods.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Discharge measurements generally made 2 or 3 times a week during periods of flow. Diversions for irrigation of about 12,300 acres above station, of which about 4,500 acres are irrigated from ground-water sources. Records of sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								0	0.2	0	a20	a12
2								0	141	0	58	4
3								0	483	2	116	3
4								0	218	1	53	.8
5								0	96	81	a20	0
6								a1	52	a75	a5	0
7								a10	26	439	1	0
8								a40	a10	493	.2	0
9								a45	a4	557	0	0
10								a40	1	205	0	0
11								a35	.4	106	0	0
12								a30	a.2	a12	14	0
13								a20	0	a3	a10	0
14								a10	0	1	198	0
15								a5	0	76	a80	0
16								a2	0	a4	22	0
17								a0	0	a10	17	0
18								a1	0	a30	8	0
19								a2	0	a10	4	0
20								a3	0	a4	a1	0
21								3	0	.4	a2	0
22								1	0	0	6	0
23								.5	0	0	422	341
24								.5	0	a1	466	95
25								0	0	a160	145	18
26								0	0	a5	102	6
27								0	0	a1	141	1
28								0	0	a.5	110	0
29								0	0	a.2	214	0
30								a3	0	70	180	0
31								a1	-	a175	a25	-
Total	0	0	0	0	0	0	0	253.0	1,031.8	2,522.1	2,440.2	480.8
Mean	0	0	0	0	0	0	0	8.16	34.4	81.4	78.7	16.0
Ac-ft	0	0	0	0	0	0	0	502	2,050	5,000	4,840	954

Calendar year 1951: Max 1,830 Min 0 Mean 30.6 Ac-ft 22,200
Water year 1951-52: Max 557 Min 0 Mean 18.4 Ac-ft 13,350

Peak discharge (base, 3,000 cfs).--No peak above base.
a No gage-height record; discharge estimated on basis of recession curves and record of Rio Puerco at Rio Puerco.

Rio Salado near San Acacia, N. Mex.

Location.--Lat 34°16'40", long. 106°52'55", in E½ sec. 30, T. 1 N., R. 1 E., near right bank 1 mile upstream from mouth, 2 miles northeast of San Acacia, 1.7 miles downstream from bridge on U. S. Highway 85, and 15 miles north of Socorro.

Drainage area.--1,380 sq mi, approximately.

Records available.--October 1947 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,711.22 ft above mean sea level, unadjusted.

Average discharge.--5 years (1947-52), 8.6 cfs.

Extremes.--Maximum discharge during year, 13,200 cfs July 14 (gage height, 12.70 ft), from rating curve extended above 984 cfs on basis of slope-area determinations at gage heights 11.25 and 11.90 ft; no flow for long periods.
1947-52: Maximum discharge, that of July 14, 1952; no flow for long periods.

Remarks.--Records poor. Discharge measurements made frequently during known periods of flow. Diversions for irrigation of about 100 acres above station. Records of sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								0	0	0	0	0
2								0	116	0	62	0
3								0	190	0	a10	0
4								0	a6	0	0	0
5								0	0	0	0	0
6								0	0	220	0	0
7								0	0	95	0	0
8								0	0	4	5	0
9								0	0	120	0	0
10								0	0	90	38	0
11								0	0	6	9	0
12								0	0	4	7	0
13								0	0	0	.5	0
14								0	0	430	60	0
15								0	0	160	5	0
16								0	0	61	0	0
17								0	0	a10	0	0
18								a2	0	a2	a10	0
19								a1	0	0	1	0
20								0	0	0	0	0
21								0	0	0	25	0
22								0	0	0	120	218
23								0	0	0	224	225
24								0	0	0	54	a10
25								0	0	0	90	0
26								0	0	0	4	0
27								0	0	0	143	0
28								0	0	0	40	0
29								0	0	0	80	0
30								0	0	0	3	7
31								0	-	0	0	-
Total	0	0	0	0	0	0	0	3	312	1,202	990.5	460
Mean	0	0	0	0	0	0	0	0.1	10.4	38.8	32.0	15.3
Ac-ft	0	0	0	0	0	0	0	6	619	2,380	1,960	912

Calendar year 1951: Max 848 Min 0 Mean 16.3 Ac-ft 11,780
Water year 1951-52: Max 430 Min 0 Mean 8.1 Ac-ft 5,880

Peak discharge (base, 1,500 cfs).--July 6 (3 p.m.) 2,010 cfs (10.98 ft); July 9 (10:30 p.m.) 3,240 cfs (11.30 ft); July 14 (7 p.m.) 13,200 cfs (12.70 ft); Aug. 22 (9 p.m.) 3,500 cfs (11.20 ft).
a No gage-height record; discharge estimated on basis of available recorder trace, observations of no flow, and notes and gage heights furnished by Quality of Water employees.

Socorro main canal north at San Acacia, N. Mex.

Location.--Lat 34°15'15", long. 106°53'50", in SE¼NW¼ sec. 1, T. 1 S., R. 1 W., on left bank at San Acacia, half a mile downstream from point of diversion.

Records available.--April 1936 to September 1952.

Gage.--Water-stage recorder Datum of gage is 4,659.74 ft above mean sea level, datum of 1929

Extremes.--1936-52: Maximum daily discharge, 234 cfs Aug. 26, 1938; no flow at times.

Remarks.--Records fair. Measurements generally made once a week during periods of flow. Canal diverts water from right bank of Rio Grande for irrigation of about 8,000 acres. Three acequias, together irrigating about 300 acres, divert water from canal above station.

Revisions.--Revised figures of discharge for July 1951, superseding those published in Water-Supply Paper 1212 are given herein:

Month	Maximum	Minimum	Mean	Runoff-in acre-feet
July	146	0	36.2	2,230
Water year 1950-51	158	0	42.7	30,912

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff-in acre-feet
October	0	0	0	0
November	78	0	21.5	1,280
December	62	0	23.2	1,420
Calendar year 1951	158	0	40.0	28,988
January	0	0	0	0
February	54	0	17.2	990
March	116	0	78.8	4,850
April	144	88	116	6,910
May	144	74	123	7,550
June	156	1	101	6,030
July	180	94	143	8,820
August	162	77	130	8,020
September	156	0	84.2	5,010
Water year 1951-52	180	0	70.1	50,880

Rio Grande at San Acacia, N. Mex.

Location.--Lat 34°15'20", long. 106°53'30", in NE¼ sec. 1, T. 1 S., R. 1 W., installations on both banks, 0.2 mile downstream from San Acacia diversion dam, half a mile east of San Acacia, and 2 miles downstream from Rio Salado.

Drainage area.--26,770 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--April 1936 to September 1952 in reports of Geological Survey. February 1925 to September 1927 (gage heights and discharge measurements only) in reports of State engineer.

Gage.--Water-stage recorders at present site since Apr. 16, 1936. Datum of gage is 4,660.16 ft above mean sea level, datum of 1929. February 1925 to September 1927, staff gage on old highway bridge at same site at different datum. Datum of present gage was 2.87 ft higher than present datum prior to July 19, 1937, and 2.40 ft higher than present datum July 19, 1937, to July 25, 1941.

Average discharge.--16 years (1936-52), 1,336 cfs.

Extremes.--Maximum discharge during year, 8,210 cfs June 3 (gage height, 5.14 ft); no flow Oct. 1 to Nov. 11.
1936-52: Maximum discharge, 27,400 cfs Aug. 5, 1936 (gage height, 10.75 ft, present datum); no flow at times in 1946, 1950-52.

Remarks.--Records fair. Discharge measurements made about 20 times a month. Diversions above station for irrigation of about 760,000 acres; this includes Socorro main canal north (see p. 316), which bypasses station and irrigates about 8,000 acres. Records of chemical analyses, water temperatures, and sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Revisions.--Figure of daily discharge for Aug. 16, 1951, has been revised to 261 cfs, superseding that published in Water-Supply Paper 1212. Resulting monthly and annual figures are as follows:

Month	Total (cfs-days)	Mean (cfs)	Runoff in acre-feet
August 1951.....	15,798.3	510	31,340
Water year 1950-51.....	90,693.1	248	179,898

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	49	432	652	623	623	3,650	4,830	1,420	792	383
2		0	34	1,200	623	694	432	3,460	6,220	1,390	860	296
3		0	45	1,250	642	1,150	1,110	3,290	7,710	1,380	1,090	147
4		0	63	1,010	652	896	1,230	4,020	7,320	1,710	1,350	113
5		0	61	792	663	747	1,320	4,690	6,980	2,390	1,250	81
6		0	104	652	594	545	1,660	5,110	6,650	1,930	1,230	61
7		0	161	642	555	465	1,890	5,550	6,820	2,380	1,230	49
8		0	180	594	545	416	1,660	6,490	6,650	4,150	1,150	18
9		0	238	613	555	416	1,790	6,980	6,820	3,430	884	12
10		0	312	632	564	407	2,200	7,500	6,490	2,700	933	6
11		0	262	603	584	360	2,200	7,150	6,330	2,310	1,480	5
12		.3	336	603	623	632	2,070	6,650	6,170	2,140	1,410	7
13		1	320	564	652	957	2,110	5,860	6,010	2,000	2,270	7
14		2	320	555	694	652	2,000	5,110	5,860	2,440	1,150	6
15		2	334	642	726	509	1,330	4,830	5,700	1,980	1,010	5
16		2	405	953	694	368	1,530	5,110	5,550	2,260	1,150	5
17		2	465	896	652	456	1,710	5,550	5,260	1,840	1,300	5
18		2	416	747	632	642	1,890	6,330	4,970	1,210	1,360	5
19		3	390	694	613	1,410	2,100	7,150	4,690	1,140	981	5
20		3	383	726	574	849	2,550	6,820	4,280	1,080	642	5
21		4	375	1,680	642	781	3,150	6,170	3,900	1,290	747	5
22		4	407	1,300	594	957	3,200	5,400	3,770	813	955	312
23		4	456	1,050	574	1,060	2,860	4,830	3,340	465	1,740	478
24		3	474	781	594	1,030	2,710	4,690	2,570	353	2,740	283
25		4	430	705	603	509	2,450	4,420	2,310	391	1,950	78
26		5	456	632	642	289	2,430	4,550	2,140	588	1,210	42
27		6	518	632	642	226	2,780	4,020	1,890	726	1,060	36
28		7	500	674	623	203	3,060	3,900	1,710	1,180	747	32
29		18	492	663	613	231	3,290	4,150	1,610	857	788	27
30		34	460	594	-	388	3,770	4,280	1,930	760	740	21
31		-	440	623	-	1,020	-	4,550	-	1,220	694	-
Total	0	106.3	9,886	24,134	18,016	19,888	63,105	162,260	146,480	49,903	36,893	2,535
Mean	0	3.54	319	779	621	642	2,104	5,234	4,883	1,610	1,190	84.5
Ac-ft	0	211	19,610	47,870	35,730	39,450	125,200	321,800	290,500	98,980	73,180	5,030

Calendar year 1951: Max 2,030 Min 0 Mean 217 Ac-ft 157,400
Water year 1951-52: Max 7,710 Min 0 Mean 1,457 Ac-ft 1,058,000

Peak discharge (base, 5,800 cfs).--June 3 (1 to 5 p.m.) 8,210 cfs (5.14 ft); July 14 (7:55 p.m.) 6,650 cfs (4.80 ft).

Rio Grande at San Antonio, N. Mex.

Location.--Lat 33°55'10", long. 106°51'00", in W½ sec. 33, T. 4 S., R. 1 E., on downstream end of pier near left end of bridge on U. S. Highway 380, about 0.9 mile east of San Antonio.

Drainage area.--27,400 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--June 1951 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,542.08 ft above mean sea level, unadjusted.

Extremes.--Maximum discharge during year, 8,200 cfs June 3; maximum gage height, 5.05 ft May 10; no flow for extended periods.
1951-52: Maximum discharge, that of June 3, 1952; maximum gage height, that of May 10, 1952; no flow at times.
Maximum flood known, about 50,000 cfs Oct. 10 or 11, 1904 (based on records at San Marcial).

Remarks.--Records good except those for periods of ice effect, which are poor. Discharge measurements generally made eight times a month. Diversions above station for irrigation of about 770,000 acres. Station is bypassed by San Antonio riverside drain (see p. 319), Socorro main canal south (see p. 320), and one other small canal. Records of water temperatures and sediment loads for water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.5	305	495	439	765	3,610	4,880	1,680	1,300	355
2		0	8.3	680	487	479	431	3,210	6,280	1,320	1,050	263
3		0	17	1,240	504	860	702	3,000	7,800	1,130	828	175
4		0	20	1,080	524	1,170	970	3,340	7,200	1,520	676	105
5		0	27	863	524	710	1,150	4,550	7,000	2,560	1,230	76
6		0	36	590	514	533	1,360	5,220	7,000	2,150	1,060	47
7		0	b80	542	514	455	1,710	5,920	6,800	2,220	952	38
8		0	b100	495	495	345	1,650	6,800	7,000	3,860	910	22
9		0	b80	471	504	320	1,860	7,200	6,800	3,960	687	2.3
10		0	b60	455	514	305	2,150	7,400	6,620	3,340	744	0
11		0	b50	487	524	325	2,240	7,600	6,280	2,020	996	0
12		0	b80	552	514	388	2,080	7,000	6,100	2,480	1,190	0
13		0	256	402	479	662	1,820	6,280	5,920	1,900	2,760	0
14		0	245	396	524	744	1,900	5,400	5,750	2,200	1,010	0
15		0	213	423	638	504	1,290	5,050	5,580	2,480	927	0
16		0	300	554	542	376	1,190	5,220	5,580	2,480	632	0
17		0	330	1,000	471	315	1,570	5,750	5,220	1,850	687	0
18		0	320	614	479	552	1,820	6,450	5,050	1,420	1,100	0
19		0	280	514	479	1,140	2,040	7,200	4,700	865	910	0
20		0	280	514	471	860	2,310	7,000	4,400	815	520	0
21		0	300	1,020	487	829	2,920	6,620	4,100	965	512	0
22		0	350	1,360	514	952	3,180	5,580	3,710	1,250	654	37
23		0	389	952	479	1,150	3,280	5,050	3,410	438	1,860	212
24		0	396	744	463	863	3,020	4,400	2,800	322	2,840	405
25		0	300	571	479	542	2,600	4,250	2,420	263	2,010	120
26		0	310	524	471	345	2,550	4,400	2,180	335	1,100	76
27		0	350	495	479	210	2,900	3,800	2,020	592	1,170	49
28		14	408	514	524	195	3,210	3,800	1,570	934	768	44
29		1.6	408	524	479	178	3,150	4,100	1,430	973	626	36
30		0	356	524	-	195	3,630	4,250	1,630	574	499	39
31		-	340	514	-	713	-	4,550	-	1,150	575	-
Total	0	15.6	6,689.8	19,919	14,571	17,654	61,448	164,000	147,230	50,046	32,783	2,101.3
Mean	0	0.52	216	643	502	569	2,048	5,290	4,908	1,614	1,058	70.0
Ac-ft	0	31	13,270	39,510	28,900	35,020	121,900	325,300	292,000	99,270	65,020	4,170

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 7,800 Min 0 Mean 1,411 Ac-ft 1,024,000

Peak discharge (base, 4,000 cfs).--May 10 (4 a.m.) 7,600 cfs (5.05 ft); May 19 (10 a.m.) 7,400 cfs (4.85 ft); June 3 (10 a.m.) 8,200 cfs (5.00 ft); July 8 (9 p.m.) 5,220 cfs (4.20 ft); July 15 (3 a.m.) 5,750 cfs (4.20 ft); Aug. 13 (7 a.m.) 5,430 cfs (4.28 ft); Aug. 23 (9 p.m.) 6,580 cfs (4.80 ft).
b Stage-discharge relation affected by ice.

Socorro main canal south near San Antonio, N. Mex.

Location.--Lat 33°53'30", long. 106°52'00", in NW¼ sec. 8, T. 5 S., R. 1 E., on right bank 0.2 mile north of San Antonito School, 1½ miles upstream from Bosque del Apache Grant, and 1¾ miles south of San Antonio.

Records available.--April 1937 to July 1938 (published as "at end near San Antonio"), March 1948 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,526.41 ft (revised) above mean sea level, datum of 1929. April 1937 to July 1938, at two different sites 1½ miles downstream at different datums. March 1948 to November 1951, at site 30 ft upstream at datum 7.29 ft higher.

Extremes.--1937-38, 1948-52: Maximum daily discharge, 41 cfs July 16, 1950; no flow at times.

Remarks.--Records good except those for October and November and Aug. 27 to Sept. 3, which are poor. Discharge measurements generally made four times a month. Canal diverts water from San Antonio riverside drain for irrigation above and below station. Lateral diversions above station. No known diversions between gage and north boundary of United States Fish and Wildlife Refuge (Bosque del Apache Grant). This is one of three stations gaging flow into refuge.

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	9.3	1.8	6.46	397
November	13	6.3	9.75	580
December	13	0	2.10	129
Calendar year 1951	38	0	7.02	5,080
January	0	0	0	0
February	14	0	.49	28
March	40	6.3	22.1	1,360
April	27	1.1	15.1	896
May	30	13	20.6	1,260
June	23	2.1	12.1	722
July	24	.9	8.97	551
August	18	2	9.62	592
September	23	.5	11.8	704
Water year 1951-52	40	0	9.95	7,220

San Antonio Riverside drain near San Antonio, N. Mex.

Location.--Lat 33°53'00", long. 106°51'05", in SW¼SW¼ sec. 9, T. 5 S., R. 1 E., on left bank 1 mile east of U. S. Highway 85, 1.2 miles upstream from boundary of Bosque del Apache Grant (wildlife refuge), and 2 miles southeast of San Antonio.

Records available.--March 1948 to September 1952. May 1936 to February 1938, at site 50 ft below Elmendorf interior drain; records not equivalent.

Gage.--Water-stage recorder. Datum of gage is 4,524.33 ft above mean sea level (levels by Bureau of Reclamation). Mar. 15, 1948, to Mar. 31, 1950, at site 1.2 miles downstream at datum 1.14 ft lower.

Extremes.--1948-52: Maximum daily discharge, 119 cfs June 24, 1949; minimum daily, 1.6 cfs Nov. 29, 1951.

Remarks.--Records fair. Discharge measurements generally made four times a month. Diversions from drain above station. Canal wasteways and interior drains enter drain above station. Flow represents one of three channels entering north boundary of Bosque del Apache Grant. Average pickup per mile between station and Grant boundary is about 5 percent (as determined from comparative discharge measurements).

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	2.7	1.7	2.15	132
November	2.0	1.6	1.91	114
December	33	1.8	21.0	1,290
Calendar year 1951	93	1.6	26.9	19,460
January	49	33	42.0	2,580
February	71	50	55.0	3,170
March	78	60	67.1	4,130
April	88	70	80.7	4,800
May	106	85	93.0	5,720
June	112	83	93.9	5,590
July	94	69	80.7	4,960
August	89	72	80.5	4,950
September	72	12	39.5	2,350
Water year 1951-52	112	1.6	54.8	39,790

Elmendorf interior drain near San Antonio, N. Mex.

Location.--Lat 33°52'10", long. 106°51'50", in SW¼ sec. 17, T. 5 S., R. 1 E., on left bank 15 feet north of north boundary of Bosque del Apache Grant (wildlife refuge), 0.7 mile east of railroad, and 3.3 miles south of junction of U. S. Highways 85 and 380.

Records available.--July 1936 to January 1938, March 1948 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,518.64 ft above mean sea level, datum of 1929. July 1936 to January 1938, staff gage at site 535 ft upstream at datum 0.60 ft higher. Mar. 11, 1948, to Nov. 10, 1949, water-stage recorder at site 535 ft upstream at different datum.

Extremes.--1948-52: Maximum daily discharge, 16 cfs May 18, 21, 1952; minimum daily, 0.2 cfs Aug. 29 to Sept. 2, 1948.

Remarks.--Records fair except those for period of no gage-height record, which are poor. Discharge measurements generally made four times a month. Flow past station consists of drain and wasted irrigation water and represents part of inflow to wildlife refuge.

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	2.4	1.8	1.99	122
November	3.4	2.0	2.61	155
December	4.0	2.4	2.70	166
Calendar year 1951	6.8	1.6	3.57	2,580
January	3.2	2.6	2.91	179
February	3.7	3.2	3.37	194
March	11	3.8	5.83	359
April	13	4.6	7.18	427
May	16	5.6	10.1	619
June	15	3.8	7.08	421
July	14	3.0	5.85	360
August	7.4	3.3	4.50	276
September	11	3.2	4.22	251
Water year 1951-52	16	1.8	4.86	3,530

San Antonio Riverside drain near San Marcial, N. Mex.

Location.--Lat 33°44'50", long. 106°55'30", in Bosque del Apache Grant (wildlife refuge), on right bank half a mile upstream from outlet to Rio Grande, 5 miles northeast of San Marcial, and 10 miles south of San Antonio.

Records available.--March 1948 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,489.12 ft above mean sea level, datum of 1929.

Extremes.--1948-52: Maximum daily discharge, 180 cfs May 11, 1950; minimum daily, 2.7 cfs Nov. 2, 1951.

Remarks.--Records good except those for May and June, which are poor. Flow represents inflow at north boundary of wildlife refuge, plus river seepage and groundwater gains, less diversions and use within grant. Diversions for irrigation of a few hundred acres above station.

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	5.2	4.1	4.55	280
November	5.4	2.7	4.24	252
December	4.1	3.1	3.69	227
Calendar year 1951	134	2.7	304	22,010
January	46	3.6	12.8	788
February	72	28	46.8	2,690
March	96	36	73.4	4,510
April	179	69	104	6,210
May	136	109	121	7,440
June	173	102	131	7,810
July	122	75	93.5	5,750
August	99	78	87.5	5,380
September	98	30	53.5	3,180
Water year 1951-52	179	2.7	61.3	44,520

Rio Grande at San Marcial, N. Mex.

Location.--Lat 33°40'50", long. 106°59'15", in Pedro Armendaris Grant 33, on pier of Atchinson, Topeka & Santa Fe Railway bridge, 1.1 miles downstream from San Marcial, Socorro County, and 17½ miles southwest of San Antonio.

Drainage area.--27,700 sq mi, approximately (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.).

Records available.--January 1895 to September 1952 in reports of Geological Survey. January 1931 to December 1946 in Water Bulletins of International Boundary Commission.

Gage.--Water-stage recorder at present site and datum since Jan. 25, 1943. Datum of gage is 4,455.38 ft above mean sea level (levels by International Boundary Commission). Prior to Feb. 16, 1922, staff, wire-weight, or inverted rod gages at either of two sites about 0.3 and 1.8 miles upstream at different datums. Feb. 16, 1922, to Apr. 13, 1937, and July 2, 1938, to Feb. 16, 1943, water-stage recorder at present site at different datums. Apr. 13, 1937, to July 1, 1938, water-stage recorder at site near present gage. Feb. 17 to June 24, 1943, water-stage recorder at bridge 1.8 miles upstream at different datum. Since Apr. 14, 1950, supplemental water-stage recorder on Tiffany Channel 4 miles upstream to measure bypass flow.

Average discharge.--56 years (1896-1952), 1,463 cfs.

Extremes.--Maximum daily discharge during year, 7,740 cfs June 4; no flow at times. 1895-1952: Maximum discharge, about 50,000 cfs Oct. 11, 1904; no flow at times.

Remarks.--Records fair. Record is composite of main stem and Tiffany Channel. Discharge measurements generally made 5 or 6 times a week, less during low-flow periods. Diversions for irrigation of about 775,000 acres above station. Records of chemical analyses, water temperatures, and sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.2	0.5	244	442	366	692	3,270	4,510	1,690	912	486
2	.2	.1	.6	265	354	334	520	3,540	4,820	1,390	604	287
3	.2	.1	.4	721	401	455	430	3,450	6,480	1,230	666	236
4	.1	.1	.5	834	425	707	688	3,230	7,740	1,090	794	173
5	.1	0	.4	776	436	948	820	3,390	7,360	1,500	1,040	128
6	.1	0	.2	659	419	703	993	4,080	7,010	1,980	995	106
7	.1	0	.3	505	444	538	1,150	4,300	6,890	1,740	924	77
8	.1	0	.4	464	432	389	1,370	5,290	6,780	2,490	878	65
9	.1	0	.6	382	409	279	1,480	6,060	6,590	3,490	780	62
10	.1	0	.8	328	426	296	1,550	7,280	6,750	3,560	826	59
11	.1	.1	.7	395	460	229	1,780	6,990	6,420	2,590	870	57
12	.1	.1	.9	406	441	283	1,920	7,300	6,140	2,350	1,310	50
13	.1	.2	59	336	478	420	1,850	6,940	6,140	2,010	1,970	29
14	.1	.2	224	340	481	660	1,730	6,070	5,980	1,820	1,440	28
15	0	.2	86	363	564	638	1,760	5,240	5,640	2,330	1,200	30
16	0	.2	100	390	644	380	1,500	5,010	5,430	1,890	886	30
17	0	.2	232	617	578	306	1,510	4,970	5,440	1,800	826	30
18	0	.2	243	684	494	462	1,580	5,520	4,970	1,520	952	30
19	0	.3	228	553	494	490	1,700	6,700	4,880	1,190	1,050	29
20	0	.3	189	469	448	812	1,910	7,330	4,490	1,050	664	29
21	0	.3	130	483	431	802	2,140	6,360	4,230	889	472	28
22	0	.3	117	940	488	699	2,380	6,100	3,860	1,090	510	32
23	0	.2	128	1,100	494	781	2,750	5,590	3,550	557	962	70
24	0	.1	236	887	462	955	2,780	5,080	3,100	407	2,490	192
25	0	.1	400	662	381	841	2,690	4,620	2,540	305	2,100	170
26	.1	.1	256	507	389	531	2,460	4,390	2,250	290	1,300	99
27	0	.1	242	439	457	280	2,420	4,470	2,120	465	1,120	65
28	0	3.1	291	431	446	161	2,660	3,900	1,770	521	914	50
29	0	1.1	313	479	416	151	2,820	3,850	1,580	925	634	47
30	0	.5	279	476	-	188	2,930	4,060	1,410	604	615	44
31	.2	-	251	460	-	448	-	4,350	-	688	622	-
Total	2.1	8.4	4,010.3	16,595	13,234	15,532	52,964	158,730	146,870	45,451	31,326	2,818
Mean	0.07	0.28	129	535	456	501	1,765	5,120	4,896	1,466	1,011	93.9
Ac-ft	4.2	17	7,950	32,920	26,250	30,810	105,100	314,800	291,300	90,150	62,130	5,590

Calendar year 1951: Max 1,520 Min 0 Mean 158 Ac-ft 114,100
Water year 1951-52: Max 7,740 Min 0 Mean 1,332 Ac-ft 487,500

Rio Grande at the narrows, in Elephant Butte Reservoir, N. Mex.

Location.--Lat 33°23'10", long. 107°09'45", in NE¼ sec. 5, T. 11 S., R. 3 W., on right bank 19 miles northeast of Truth or Consequences (formerly Hot Springs), Sierra County.

Drainage area.--28,500 sq mi, approximately (includes 2,940 sq mi in northern part of San Luis Valley, Colo.).

Records available.--May 1951 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,377.33 ft above mean sea level (levels by Bureau of Reclamation).

Extremes.--Maximum discharge during year, 7,150 cfs June 6; maximum gage height, 8.28 ft May 13; minimum daily discharge, 5.3 cfs Oct. 6.
1951-52: Maximum discharge, that of June 6, 1952; minimum daily discharge, 4.2 cfs July 28-31, 1951.
Maximum flood known occurred in October 1904; discharge, about 50,000 cfs.

Remarks.--Records good except those below 100 cfs, which are fair and those for no gage-height record, which are poor. Discharge measurements made eight times a month. Diversions for irrigation of about 775,000 acres above station. Zero of gage is about 75 ft below crest of spillway at Elephant Butte dam.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.5	9.0	9.6	258	460	452	235	2,760	4,080	1,440	964	645
2	a7.0	7.5	9.6	250	448	402	438	2,880	4,440	1,580	816	480
3	a6.5	7.5	9.0	261	420	392	498	3,350	4,630	1,340	670	a320
4	a6.0	7.8	8.1	396	424	420	414	3,560	5,480	1,210	584	269
5	a5.5	7.2	7.5	504	424	127	485	3,350	6,770	1,260	700	200
6	5.3	7.5	7.8	520	436	a20	600	3,140	6,960	1,580	804	156
7	6.1	7.8	8.1	484	444	70	686	3,560	6,580	1,840	804	123
8	6.1	5.9	9.6	620	444	399	770	4,240	6,390	1,780	768	102
9	6.6	7.2	9.3	480	424	444	836	4,800	6,390	2,440	786	93
10	6.6	6.3	9.0	420	424	382	930	5,400	6,390	2,920	797	88
11	7.2	8.1	10	385	440	318	1,150	6,200	6,390	3,170	774	84
12	7.2	9.0	17	406	448	314	1,310	6,800	6,020	2,620	762	80
13	6.3	8.7	13	410	432	302	1,520	7,050	5,840	2,380	1,070	75
14	6.3	8.7	17	382	460	332	1,750	6,600	5,840	2,060	1,840	71
15	7.2	8.4	154	350	448	414	1,800	6,000	5,660	2,000	1,420	41
16	6.9	8.4	92	350	504	498	1,750	5,300	5,480	2,280	1,090	78
17	7.5	7.8	91	374	544	494	1,700	4,700	5,130	2,110	882	62
18	8.1	8.1	179	464	532	434	1,570	4,510	5,130	1,840	810	a48
19	7.2	8.7	230	544	488	360	1,480	4,900	4,960	1,560	875	a50
20	7.2	9.0	235	520	476	410	1,480	5,600	4,790	1,260	938	56
21	7.8	10	193	464	452	498	1,570	6,600	4,470	1,050	680	57
22	7.2	10	120	464	448	605	1,750	6,400	4,150	1,050	565	57
23	7.2	10	116	560	464	660	1,900	5,800	3,780	1,020	585	272
24	7.2	10	135	680	460	640	2,220	5,480	3,360	595	963	105
25	7.2	10	205	735	420	722	2,580	5,130	3,100	a480	1,840	210
26	7.2	9.6	297	715	392	788	2,820	4,830	2,820	a400	2,060	167
27	7.2	9.0	252	604	424	758	2,760	4,390	2,220	a350	1,440	109
28	7.5	9.6	235	504	444	512	2,460	4,390	1,940	570	1,170	86
29	8.1	9.6	276	464	452	311	2,400	4,080	1,680	696	984	a75
30	9.3	9.6	300	476	-	221	2,580	3,850	1,480	882	786	a70
31	9.0	-	279	472	-	198	-	3,920	-	645	670	-
Total	219.2	256.0	3,533.6	14,496	13,076	12,897	44,442	149,370	142,150	46,408	29,897	4,329
Mean	7.07	8.53	114	468	451	416	1,481	4,818	4,738	1,497	964	144
Ac-ft	435	508	7,010	28,750	25,940	25,580	88,150	296,300	282,000	92,050	59,300	8,590

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 7,050 Min 5.3 Mean 1,260 Ac-ft 914,600

Peak discharge (base, 4,000 cfs).--May 13 (5 to 8 a.m.) 7,050 cfs (8.28 ft); May 22 (1 a.m.) 6,600 cfs (8.04 ft) June 6 (12 p.m. to 7 a.m.) 7,150 cfs (8.09 ft).
a No gage-height record; discharge estimated on basis of recorder trace, discharge measurements, and records for other main-stem stations upstream.

Rio Grande below Elephant Butte Dam, N. Mex.

Location.--Lat 33°08'45", long. 107°12'20", in SW¼ sec. 25, T. 13 S., R. 4 W. (projected), on left bank 1.0 mile downstream from dam, 1½ miles upstream from Cuchillo Negro River and in Pedro Armendaris Grant.

Drainage area.--28,900 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--October 1916 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,242.09 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1926, at site 0.1 mile upstream at different datum. Oct. 1, 1926, to Jan. 1917, 1939, at site 400 ft downstream from dam at datum 23.01 ft higher than present datum. Jan. 17 to Mar. 29, 1939, at site 0.8 mile upstream at datum 0.15 ft higher, and Mar. 29, 1939, to Apr. 23, 1942, at site 0.8 mile upstream at datum 1.15 ft lower than present datum.

Average discharge.--36 years, 1,155 cfs.

Extremes.--Maximum daily discharge during year, 2,130 cfs July 22, 30; minimum daily, 2.8 cfs Oct. 23, 24.
1916-52: Maximum daily discharge, 8,220 cfs May 22, 1942; no flow at times prior to 1929.

Remarks.--Records good except those below 50 cfs, which are fair. Discharge measurements generally made once a week. Flow regulated by Elephant Butte Reservoir (see p. Diversions for irrigation of about 800,000 acres above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 1-3, 8-12, 16-19, Apr. 2-20)

Oct. 1 to May 31				June 1 to Sept. 30			
1.2	2.5	2.2	121	1.3	6.0	2.6	209
1.3	5.5	2.6	210	1.4	11	3.0	320
1.4	10	3.0	320	1.6	27	4.0	680
1.6	28	4.0	675	1.9	65	5.0	1,160
1.9	67	6.0	1,690	2.2	117	7.0	2,500

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	3.4	3.4	4.0	770	4.6	492	1,120	1,260	2,020	1,930	85
2	3.4	4.0	4.6	4.0	768	3.4	344	1,130	1,490	1,850	1,530	1,040
3	3.7	3.4	4.0	3.7	765	362	341	1,140	1,460	1,980	1,500	1,650
4	6.9	27	3.7	243	780	639	402	1,140	1,510	1,690	1,510	1,600
5	7.8	4.3	3.7	240	806	635	347	1,160	1,580	1,830	1,520	1,590
6	3.7	3.7	3.7	248	818	627	353	1,160	1,590	1,500	1,540	1,560
7	3.4	3.4	3.4	262	810	615	353	1,140	1,610	1,880	1,500	1,420
8	7.4	3.4	3.4	271	812	480	371	1,180	1,480	1,990	1,480	1,270
9	3.7	3.4	3.7	380	818	4.9	374	1,200	1,520	1,900	1,020	806
10	3.4	3.4	4.9	448	840	3.1	492	1,220	1,600	1,910	698	794
11	3.4	3.4	4.3	418	768	4.0	695	1,210	1,660	1,850	1,360	562
12	3.4	4.3	5.2	436	810	160	703	1,140	1,690	1,890	1,400	107
13	3.4	3.4	4.9	465	786	619	711	1,190	1,780	1,850	1,160	10
14	3.4	3.4	3.7	370	802	615	763	1,290	1,820	1,760	1,100	6
15	3.1	3.7	3.7	410	593	607	742	1,460	1,800	1,840	1,080	146
16	3.1	3.4	3.4	502	870	264	751	1,630	1,730	1,410	1,080	266
17	3.1	3.4	3.4	598	859	4.6	791	1,690	1,850	1,700	1,080	235
18	3.4	4.6	4.0	774	856	4.0	754	1,530	1,820	1,850	1,140	224
19	3.4	4.0	13	1,010	854	348	794	1,440	1,780	2,010	1,120	199
20	3.4	3.4	4.0	1,060	849	563	720	1,560	1,830	1,800	1,180	71
21	3.4	3.4	4.3	600	851	714	726	1,590	1,870	1,910	647	41
22	3.4	3.4	3.7	450	838	940	990	1,610	1,820	2,130	396	86
23	2.8	3.4	3.7	584	831	940	1,000	1,670	1,800	2,080	120	38
24	2.8	3.7	3.4	1,100	824	782	1,010	1,620	1,900	2,090	12	130
25	6.7	63	3.4	956	828	534	1,010	1,490	1,990	2,060	316	66
26	4.3	4.0	3.4	766	832	538	1,010	1,580	2,060	2,070	425	96
27	3.1	3.7	3.4	766	808	541	1,020	1,520	2,080	1,990	444	62
28	4.0	3.4	3.4	760	816	541	1,070	1,580	2,030	2,030	466	17
29	3.1	3.4	3.4	762	533	541	1,100	1,560	1,920	2,090	296	260
30	4.0	3.4	14	764	-	533	1,120	1,540	2,000	2,130	120	182
31	4.0	-	4.6	768	-	534	-	1,480	-	2,110	354	-
Total	121.5	191.2	138.8	16,422.7	23,195	15,700.6	21,349	42,970	52,330	59,200	29,524	14,619
Mean	3.92	6.37	4.48	530	800	442	712	1,386	1,744	1,910	952	487
Ac-ft	241	379	275	32,570	46,010	27,170	42,350	85,230	103,800	117,400	58,560	29,000

Calendar year 1951: Max 1,660 Min 2.6 Mean 592 Ac-ft 428,700
Water year 1951-52: Max 2,130 Min 2.8 Mean 748 Ac-ft 543,000

Rio Grande below Caballo Dam, N. Mex.

Location.--Lat 32°53'05", long. 107°17'30", in NE¼SW¼ sec. 30, T. 16 S., R. 4 W., on left bank 600 ft upstream from Bojarquez Bridge, 4,200 ft downstream from Caballo Dam, 1¼ miles downstream from Apache Canyon, 1 1/3 miles upstream from Percha diversion dam, 3 miles northeast of Arrey, and 5 miles south of Caballo.

Drainage area.--30,200 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--January 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 4,140.9 ft above mean sea level, datum of 1929. Prior to Oct. 7, 1938, at datum 7.0 ft higher. Oct. 7-12, 1938, at datum 6.0 ft higher and Oct. 13, 1938, to Dec. 13, 1945, at datum 5.0 ft higher than present datum.

Average discharge.--14 years, 1,124 cfs.

Extremes.--1938-52: Maximum daily discharge, 7,650 cfs May 20, 1942; minimum daily, 0.6 cfs at times in November, December 1951, January 1952.

Remarks.--Records good. Flow regulated by Caballo Reservoir (capacity when constructed, 345,900 acre-ft) and Elephant Butte Reservoir (capacity, 2,185,400 acre-ft, survey of 1951). Diversions for irrigation of about 800,000 acres above station.

Cooperation.--Records furnished by Bureau of Reclamation.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	0.6	0.7	0.7	0.8	1.1	1,530	562	666	2,240	2,470	2,100
2	1.2	.6	.6	.7	.8	1.2	1,550	609	434	1,960	2,540	2,010
3	1.2	.6	.6	.6	.9	1.3	1,570	822	117	1,720	2,550	1,980
4	1.1	.6	.6	.6	.9	1.4	1,540	999	304	1,680	2,410	1,990
5	1.1	.6	.6	.6	1.0	1.4	1,510	982	397	1,650	2,240	2,050
6	1.1	.6	.7	.6	1.0	1.3	1,480	1,040	564	1,630	2,070	2,190
7	1.0	.6	.7	.6	.9	1.3	1,460	1,140	728	1,620	2,000	2,200
8	1.0	.7	.7	.6	.9	1.3	1,510	1,190	820	1,390	2,020	2,060
9	1.0	.7	.6	.6	1.0	1.4	1,570	1,300	1,020	1,160	2,170	2,000
10	1.0	.7	.6	.6	1.0	1.4	1,560	1,400	1,190	1,070	2,250	2,040
11	.9	.7	.6	.6	1.1	1.4	1,530	1,440	1,340	854	2,160	2,030
12	.9	.7	.6	.6	1.1	1.4	1,420	1,440	1,470	908	1,890	1,380
13	.8	.7	.6	.6	1.1	1.5	1,290	1,130	1,700	1,100	1,600	6.7
14	.8	.7	.6	.7	1.0	1.5	1,200	925	1,960	1,120	1,280	6.0
15	.7	.7	.6	.7	1.0	1.5	1,160	871	2,000	1,430	1,020	5.3
16	.7	.7	.6	.7	1.0	1.6	980	807	1,780	1,780	1,230	4.6
17	.7	.6	.6	.7	1.0	1.6	789	886	1,730	1,960	1,450	3.9
18	.7	.6	.6	.7	1.0	1.6	797	923	2,080	2,100	1,420	3.2
19	.7	.6	.6	.7	1.0	1.6	844	852	2,240	2,320	1,480	2.6
20	.7	.6	.6	.7	1.0	488	837	961	2,240	2,480	1,760	2.6
21	.7	.6	.6	.7	1.0	1,450	698	974	2,480	2,370	1,970	2.5
22	.7	.7	.6	.7	1.0	1,470	611	1,070	2,690	2,260	2,230	2.4
23	.7	.7	.6	.7	1.1	1,460	572	926	2,610	2,420	2,430	2.4
24	.7	.7	.6	.6	1.1	1,460	536	945	2,590	2,550	2,580	2.1
25	.7	.7	.6	.6	1.2	1,450	460	959	2,820	2,590	2,440	1.9
26	.7	.7	.6	.6	1.2	1,580	505	1,000	2,840	2,360	2,380	1.7
27	.7	.7	.6	.7	1.2	1,630	579	766	2,580	2,430	2,110	1.7
28	.7	.7	.6	.7	1.1	1,550	507	851	2,480	2,360	2,010	1.7
29	.7	.7	.6	.7	1.1	1,500	478	818	2,500	2,250	2,030	1.8
30	.7	.7	.6	.7	-	1,550	516	546	2,420	2,250	2,010	1.8
31	.7	-	.6	.8	-	1,540	-	536	-	2,410	2,130	-
Total	26.2	19.8	19.0	20.4	29.5	17,154.8	31,589	29,670	50,790	58,422	62,330	24,084.9
Mean	0.85	0.66	0.61	0.66	1.02	553	1,053	957	1,693	1,885	2,011	803
Ac-ft	52	39	38	40	59	34,030	62,660	58,850	100,700	115,900	123,600	47,770
(†)	0	0	0	0	0	150	140	382	261	514	637	204

Calendar year 1951: Max 2,310 Min 0.6 Mean 648 (†) 1,430 Ac-ft 469,400
Water year 1951-52: Max 2,840 Min 0.6 Mean 749 (†) 2,290 Ac-ft 543,700

† Diversion by Bonita ditch in acre-feet. Bonita ditch diverts directly from Caballo Dam and this diversion is not included in the river records.

Pecos River near Pecos, N. Mex.

Location.--Lat 35°42'25", long. 105°41'00", in NE¼NE¼ sec. 17, T. 17 N., R. 12 E., on left bank at downstream side of bridge on private road, 600 ft upstream from Indian Creek, 2 miles downstream from Holy Ghost Creek, and 11 miles north of Pecos.

Drainage area.--189 sq mi (contributing area).

Records available.--October 1930 to September 1952 in reports of Geological Survey. August 1919 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 7,502.94 ft above mean sea level, datum of 1929.

Average discharge.--22 years (1930-52), 103 cfs.

Extremes.--Maximum discharge during year, 690 cfs June 9 (gage height, 3.67 ft); minimum daily, 10 cfs Dec. 20.
1930-52: Maximum discharge, 1,960 cfs May 14, 1941 (gage height, 4.57 ft); minimum daily, 6.1 cfs Jan. 16, 1934.

Remarks.--Records good except those for periods of ice affect, which are poor. Diversions for irrigation of about 75 acres above station.

Rating table, water year 1951-52, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

1.3	8
1.5	16
1.7	30
2.0	66
2.4	151
2.9	306
3.4	530
3.7	710

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	28	b12	b30	b18	24	65	198	465	134	66	124
2	30	20	b11	25	b18	24	81	251	*445	117	78	*112
3	29	*27	*b12	20	b18	b22	95	314	510	128	76	101
4	28	28	b12	15	b16	b28	108	390	552	117	80	93
5	28	27	b13	*b16	b16	b28	128	*455	563	110	69	87
6	28	20	b14	b20	b15	b28	156	525	574	103	65	81
7	27	b20	b15	31	b16	b25	187	536	609	*147	60	74
8	*27	b25	b15	22	b20	27	219	525	633	134	56	71
9	27	b22	b16	b20	b24	*25	181	525	645	117	58	66
10	26	22	b18	b18	*b28	25	131	450	658	117	60	65
11	25	25	b20	b24	24	23	108	403	621	121	*76	65
12	25	*24	b23	26	24	22	91	416	574	97	93	*97
13	28	26	*b22	24	b22	b24	81	480	541	91	74	131
14	25	20	b20	b20	b20	b20	91	530	495	119	66	101
15	24	24	b15	b20	b20	b22	136	591	465	144	60	73
16	24	16	b15	b20	b20	27	187	574	421	117	55	69
17	24	b12	b18	b20	b20	b25	213	495	377	101	52	68
18	24	b14	b12	19	b25	28	201	411	344	95	52	60
19	24	b20	b12	26	b22	30	190	360	310	91	53	52
20	25	b25	b10	b25	b20	b24	198	333	288	*80	48	53
21	24	28	b12	b25	b25	b20	178	329	264	76	51	68
22	*25	25	b18	b22	b25	b18	*146	310	241	73	113	68
23	23	24	b22	b20	b22	b20	136	285	219	69	163	62
24	24	24	b22	b20	b22	b20	156	268	204	71	148	60
25	26	b20	b25	*21	b18	*b22	164	268	190	71	*114	59
26	36	b18	b22	21	b18	b25	178	288	175	73	105	55
27	45	b16	b20	b20	b20	b25	222	325	173	76	89	52
28	31	b15	b30	b18	b22	b25	261	360	156	73	99	52
29	28	b15	b40	b16	b22	b30	222	398	156	66	268	51
30	28	b14	b50	b16	-	40	210	440	151	68	175	50
31	28	-	b35	b16	-	51	-	475	-	68	146	-
Total	846	644	601	656	600	797	4,720	12,508	12,019	3,064	2,768	2,220
Mean	27.3	21.5	19.4	21.2	20.7	25.7	157	403	401	92.8	89.3	74.0
Ac-ft	1,680	1,280	1,190	1,300	1,190	1,580	9,360	24,810	23,840	6,080	5,490	4,400

Calendar year 1951: Max 522 Min 10 Mean 44.8 Ac-ft 32,460
Water year 1951-52: Max 658 Min 10 Mean 114 Ac-ft 82,200

Peak discharge (base, 310 cfs).--May 8 (10 p.m.) 603 cfs (3.57 ft); May 15 (9 p.m.) 658 cfs (3.65 ft); June 9 (10 p.m.) 690 cfs (3.67 ft); Aug. 29 (5 a.m.) 435 cfs (3.19 ft).
* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Pecos River near Anton Chico, N. Mex.

Location.--Lat 35°10'50", long. 105°06'20", in Anton Chico Grant, on right bank, 2 miles upstream from Canyon Blanco, 2½ miles southeast of Anton Chico, and 10 miles downstream from Tecolote Creek.

Drainage area.--1,050 sq mi, approximately (contributing area).

Records available.--April 1910 to December 1914 and October 1930 to September 1952 in reports of Geological Survey. April 1910 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 5,130 ft (from river-profile map). Prior to July 2, 1937, at 5 different sites from one-sixth mile to 5 miles upstream at various datums. July 2, 1937, to June 21, 1951, at site 345 ft upstream at datum 2.42 ft higher.

Average discharge.--39 years (1921-25, 1926-52), 146 cfs.

Extremes.--Maximum discharge during year, 7,360 cfs Aug. 11 (gage height, 9.57 ft); minimum daily, 1 cfs Feb. 3-9, 17, 19, 21-23.
1912-52: Maximum discharge, 40,300 cfs June 1, 1937 (gage height, 20.34 ft, datum 2.42 ft higher, at site 345 ft upstream), by slope-area method; no flow at times.

Remarks.--Records good except those for winter months of December to February, which are fair. Discharge measurements made twice a month. Diversions above station for irrigation of about 6,200 acres above and below station.

Rating tables, water year 1951-52, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 8-13, May 29 to June 15, Aug. 5-12, Sept. 10-25)

Oct. 1 to Aug. 11				Aug. 12 to Sept. 30			
2.0	0.5	3.1	33	3.2	16	4.5	245
2.1	1.1	3.5	70	3.4	34	5.0	435
2.2	2.2	4.0	155	3.7	71	5.5	710
2.3	3.8	4.5	300	4.1	145	5.7	860
2.5	8.2	5.0	530				
2.8	18	5.4	800				

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	21	15	41	b2	20	55	290	581	113	74	192
2	3.1	22	5.7	42	b2	24	79	252	497	88	79	141
3	6.5	21	18	b25	b1	26	106	304	470	62	217	109
4	9.6	20	18	b20	b1	24	140	389	530	155	181	100
5	11	19	19	b25	b1	30	162	492	548	132	105	67
6	11	18	b10	b35	b1	26	194	596	548	76	73	43
7	12	14	b6	41	b1	27	252	676	542	424	33	37
8	8.8	12	b5	34	b1	31	286	669	578	183	25	38
9	8.5	9.6	b5	30	b1	29	368	676	603	164	394	44
10	9.6	8.5	b5	b25	2	33	348	636	616	110	76	40
11	8.2	8.5	b8	b24	4	37	290	524	622	105	753	34
12	9.3	17	b25	b26	7	38	249	470	584	105	617	35
13	10	13	19	27	b7	38	196	465	530	397	822	282
14	9.3	11	b16	33	b6	36	162	530	492	96	208	221
15	7.0	18	b15	31	b4	33	155	610	440	187	49	109
16	6.5	20	b15	41	b2	35	157	683	402	186	28	76
17	7.2	20	15	39	b1	30	236	662	360	115	26	68
18	8.8	b16	b12	37	b2	31	320	596	324	92	29	60
19	10	13	b20	35	b1	41	308	497	286	74	32	50
20	8.5	11	24	34	2	43	293	420	255	57	40	43
21	7.2	9.3	b25	38	1	44	348	380	224	26	33	42
22	8.2	13	b20	b26	1	52	344	372	194	138	374	53
23	8.5	14	b25	b16	1	53	282	336	169	22	341	76
24	8.0	17	b20	b16	b2	40	233	296	171	131	255	94
25	8.2	b15	b25	b21	b12	39	224	259	147	18	210	64
26	11	b14	b25	b14	17	45	243	246	134	8.0	183	41
27	7.5	b16	b30	b10	18	47	259	252	119	4.0	111	34
28	7.7	15	b35	b8	16	42	316	290	125	2.2	82	30
29	5.4	15	b30	b8	17	39	364	332	90	3.7	506	22
30	16	15	28	b6	-	39	308	360	132	3.9	370	22
31	20	-	27	b2	-	42	-	460	-	104	227	-
Total	273.8	455.9	565.7	810	134	1,114	7,277	14,020	11,313	3,381.8	6,553	2,267
Mean	8.83	15.2	18.2	26.1	4.6	35.9	243	452	377	109	211	75.6
Ac-ft	543	904	1,120	1,610	266	2,210	14,430	27,810	22,440	6,710	13,000	4,500

Calendar year 1951: Max 768 Min 0.2 Mean 38.8 Ac-ft 28,080
Water year 1951-52: Max 683 Min 1 Mean 132 Ac-ft 95,540

Peak discharge (base, 3,000 cfs).--July 13 (2:30 p.m.) 6,510 cfs (9.00 ft); Aug. 9 (6:30 p.m.) 4,180 cfs (8.00 ft); Aug. 11 (10:30 p.m.) 7,360 cfs (9.57 ft); Aug. 13 (1:30 a.m.) 3,330 cfs (7.70 ft).
b Stage-discharge relation affected by ice.

Gallinas River near Montezuma, N. Mex.

Location.--Lat 35°39'00", long. 105°19'10", in Las Vegas Grant, on left bank 2 miles west of Montezuma, San Miguel County, 6 miles northwest of Las Vegas.

Drainage area.--84 sq mi, approximately.

Records available.--October 1930 to September 1952 in reports of Geological Survey. March 1915 to December 1931 (no winter records 1915-26) in reports of State engineer.

Gage.--Water-stage recorder and natural rock control. Altitude of gage is 6,950 ft (from topographic map).

Average discharge.--26 years (1926-52), 20.0 cfs.

Extremes.--Maximum discharge during year, 906 cfs Sept. 12 (gage height, 4.20 ft), from rating curve extended above 350 cfs on basis of slope-area determination at gage height 5.20 ft; minimum daily, 1.6 cfs Oct. 17, 18, 20.
1930-52: Maximum discharge, 3,310 cfs Sept. 23, 1941 (gage height, 7.78 ft), from rating curve extended above 350 cfs by logarithmic plotting; minimum daily, 0.6 cfs July 3-6, 8-11, 1951.

Remarks.--Records good except those for periods of ice effect, which are fair. Discharge measurements generally made twice a month. Diversions for irrigation of about 10 acres above station.

Rating table, water year 1951-52, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

0.2	0.9	0.8	16
.3	2.2	1.2	37
.4	4.0	1.6	70
.5	6.3	1.9	103

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	2.9	2.6	4.0	3.8	3.6	17	43	42	3.6	4.9	11
2	1.9	2.7	2.4	b3.5	3.8	3.8	20	44	38	3.1	4.9	6.9
3	1.9	2.4	2.6	b2.5	3.8	3.5	23	56	39	3.3	5.4	4.5
4	2.1	2.6	2.4	b3	3.6	b3.0	25	73	41	5.2	9.5	3.8
5	2.1	2.7	b2.5	b3	4.0	b3.2	31	87	40	4.9	11	5.5
6	2.1	2.6	b2.5	4.0	3.6	b3.5	37	97	40	4.7	9.8	4.0
7	2.2	2.4	b2.5	5.6	3.8	3.6	46	98	36	6.3	6.9	3.5
8	2.4	2.7	b2.5	4.5	3.8	3.5	56	91	34	7.7	5.6	2.9
9	2.4	2.6	b2.0	b3	4.2	4.2	45	90	31	5.8	8.0	2.7
10	2.1	2.4	b2.0	b3.5	3.8	4.5	33	77	28	4.9	6.1	2.4
11	1.8	2.4	b2.5	4.5	3.6	4.2	25	61	26	5.2	6.8	3.6
12	1.9	2.4	b3.0	3.8	3.6	4.0	22	54	23	4.9	26	88
13	1.9	2.9	b3.5	3.1	3.3	3.8	19	57	20	5.2	16	12
14	1.9	2.6	b3.0	5.9	3.3	4.5	17	63	15	4.9	10	27
15	1.7	2.7	b3.0	5.6	3.6	4.2	22	68	14	6.9	7.4	5.8
16	1.7	2.2	b3.0	4.0	3.3	5.4	30	69	14	5.2	5.6	5.6
17	1.6	b1.8	b3.0	4.0	3.8	5.6	36	66	12	4.0	4.5	5.2
18	1.6	b2.0	b3.0	4.7	2.9	5.4	39	54	11	4.5	4.2	4.9
19	1.7	b2.0	b3.0	12	b2.5	5.8	36	47	11	4.7	4.0	4.9
20	1.6	2.4	b2.5	7.7	b2.3	6.3	49	43	9.4	1.8	3.8	4.7
21	1.8	2.6	b2.5	6.6	b2.7	6.9	50	43	7.4	1.8	18	4.5
22	2.2	2.4	b3.0	5.2	3.1	5.6	42	43	7.1	2.4	50	6.9
23	2.1	2.4	b3.0	6.3	3.3	6.9	37	38	6.9	3.5	26	8.8
24	2.1	2.7	b3.0	4.9	b3.0	6.9	42	36	5.2	4.0	16	6.3
25	2.1	2.6	b3.0	4.2	b3.3	5.8	42	33	5.2	2.6	13	5.2
26	2.4	2.4	b2.5	4.2	b3.5	5.4	43	32	4.0	3.1	10	4.7
27	2.6	2.6	b3.0	4.0	b3.5	5.2	50	35	3.1	3.1	8.5	3.8
28	2.7	2.6	5.4	4.0	3.3	5.4	60	41	3.5	3.1	38	3.5
29	2.7	2.6	4.7	4.5	3.5	7.4	50	39	3.5	3.1	43	3.5
30	2.4	2.6	7.4	4.0	-	10	50	39	3.3	3.3	22	3.5
31	2.4	-	6.9	4.0	-	12	-	42	-	4.9	15	-
Total	64.3	74.9	97.9	143.8	99.6	163.1	1,094	1,759	573.6	131.7	419.9	259.6
Mean	2.07	2.50	3.16	4.64	3.43	5.26	36.5	56.7	19.1	4.25	13.5	8.65
Ac-ft	128	149	194	285	198	324	2,170	3,490	1,140	261	833	515

Calendar year 1951: Max 129 Min 0.6 Mean 5.93 Ac-ft 4,290
Water year 1951-52: Max 98 Min 1.6 Mean 13.3 Ac-ft 9,690

Peak discharge (base, 150 cfs).--Aug. 21 (6 p.m.) 295 cfs (2.85 ft); Aug. 28 (4 p.m.) 210 cfs (2.50 ft); Sept. 12 (2:40 p.m.) 906 cfs (4.20 ft).
b Stage-discharge relation affected by ice.

Gallinas River at Montezuma, N. Mex.

Location.--Lat 35°39'15", long. 105°16'30", in Las Vegas Grant, near center of span on downstream side of highway bridge, half a mile downstream from Montezuma, San Miguel County, and 5 miles northwest of Las Vegas.

Drainage area.--87 sq mi, approximately.

Records available.--August 1903 to December 1914 (prior to October 1904, gage heights only) and October 1930 to September 1952 in reports of Geological Survey. October 1904 to December 1931 in reports of State engineer (prior to 1930 published as "near Las Vegas").

Gage.--Water-stage recorder. Altitude of gage is 6,675 ft (from topographic map). Prior to Mar. 24, 1926, staff gage.

Average discharge.--45 years (1905-11, 1913-52), 20.5 cfs.

Extremes.--Maximum discharge during year, 815 cfs Sept. 12 (gage height, 5.54 ft); minimum daily, 0.4 cfs at times October to January.
1930-52: Maximum discharge, 6,020 cfs Sept. 3, 1942 (gage height, 7.75 ft), from rating curve extended above 1,000 cfs by logarithmic plotting; no flow Oct. 4-9, 1934.
A very destructive flood, probably the greatest known, occurred Sept. 29, 30, 1904.

Remarks.--Records good except those less than 1 cfs and for Aug. 21 to Sept. 7, which are fair. Discharge measurements generally made twice a month. Flow partly regulated at low flows by small reservoirs owned by Public Service Co. of New Mexico. Diversions for irrigation of about 15 acres above station and for Las Vegas city water supply.

Revisions (water years).--W 1178: 1942.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.2	0.1	3.0	20
2.3	1.0	3.2	34
2.4	2.3	3.5	64
2.6	6.0	3.8	112
2.8	12		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	0.6	0.4	2.5	4.0	3.2	16	40	35	1.5	2.8	12
2	.8	.5	.4	.9	3.7	3.5	19	38	34	1.6	3.0	5.2
3	.6	.6	.4	.5	4.0	2.5	22	45	34	3.3	3.2	3.3
4	.6	.5	.4	.4	3.0	2.2	25	63	34	3.0	5.1	2.6
5	.6	.6	.5	.4	3.2	2.3	27	80	34	1.9	12	2.5
6	.6	.6	.4	.4	2.6	2.8	32	92	34	2.0	8.8	3.2
7	.8	.8	1.5	.5	2.5	2.8	36	94	30	2.2	5.8	2.3
8	.6	.8	.5	.5	2.8	2.8	46	81	28	2.6	4.4	1.8
9	.6	.8	.4	.5	2.8	3.3	40	78	26	3.3	5.2	1.8
10	.7	.7	.4	.6	4.2	4.4	28	63	24	3.3	9.1	1.6
11	.8	.6	.4	.6	4.8	4.6	20	50	20	3.2	13	3.2
12	.6	.7	.4	.6	3.5	4.2	17	44	18	2.8	18	104
13	.6	.7	.4	.8	3.3	2.2	15	47	16	2.5	17	17
14	.6	.8	.4	.8	2.3	4.5	14	50	12	2.8	9.4	10
15	.8	.7	.4	5.9	2.6	3.0	15	54	10	2.8	6.5	8.5
16	.5	.9	.5	2.8	2.6	4.0	22	58	10	2.8	5.4	7.2
17	.5	.9	.5	1.6	3.0	4.8	27	56	10	3.0	4.4	7.0
18	.5	.9	.5	2.8	2.8	4.2	31	47	9.7	2.6	3.8	5.8
19	.5	.9	.6	13	1.9	4.2	29	41	7.8	2.6	3.7	3.7
20	.4	.9	.6	10	1.5	3.7	36	39	7.2	2.5	3.5	1.9
21	.5	.8	.6	7.5	1.9	4.6	40	39	5.8	2.2	25	1.5
22	.5	.6	.7	4.4	2.3	2.6	35	39	3.8	1.9	41	2.2
23	.5	.5	1.0	5.0	2.2	3.8	34	36	2.6	2.0	24	2.3
24	.4	.6	1.2	6.2	2.0	5.2	36	33	2.3	4.2	17	2.5
25	.4	.5	1.5	4.4	1.6	5.2	34	30	1.9	2.8	12	1.9
26	.4	.5	1.6	4.2	1.2	4.0	35	29	.5	2.0	8.2	1.6
27	.4	.5	1.6	3.7	2.6	4.0	39	31	1.8	2.0	6.0	1.5
28	.4	.5	1.0	3.3	2.5	4.6	47	37	1.2	2.0	24	1.4
29	.4	.4	.8	3.5	2.5	5.6	42	34	1.2	2.5	39	1.4
30	.4	.4	.6	3.8	-	9.7	40	34	1.5	3.0	19	1.5
31	.4	-	3.8	3.5	-	14	-	44	-	2.8	16	-
Total	16.6	19.8	24.4	95.6	79.9	132.5	899	1,546	456.3	79.7	375.3	222.4
Mean	0.54	0.66	0.79	3.08	2.76	4.27	30.0	49.9	15.2	2.57	12.1	7.41
Ac-ft	33	39	48	190	158	263	1,780	3,070	905	158	744	441

Calendar year 1951: Max 119 Min 0.4 Mean 3.45 Ac-ft 2,500
Water year 1951-52: Max 104 Min 0.4 Mean 10.8 Ac-ft 7,830

Peak discharge (base, 100 cfs).--May 7 (5:30 a.m.) 105 cfs (3.75 ft); May 31 (2 p.m.) 220 cfs (4.26 ft); Aug. 11 (3 p.m.) 168 cfs (4.10 ft); Aug. 21 (5 p.m.) 267 cfs (4.45 ft, from reconstructed graph); Sept. 12 (3:20 p.m.) 815 cfs (5.54 ft).

Storrie feeder canal near Las Vegas, N. Mex.

Location.--Lat 35°38'30", long. 105°14'35", in Las Vegas Grant, 3.5 miles northwest of Las Vegas.

Records available.--November 1949 to December 1952 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 6,700 ft (from topographic map). Prior to Oct. 1, 1951, at datum 0.80 ft higher.

Extremes.--1949-52: Maximum discharge, 323 cfs July 13, 1950; no flow for many periods.

Remarks.--Records poor. Records represent inflow to Storrie Lake (capacity, 22,000 acre-ft, survey of 1921).

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0
November	0	0	0	0
December	0	0	0	0
Calendar year 1951	89	0	1.53	1,130
January	4.4	0	.71	44
Feburary	.4	0	.05	3.0
March	4	0	1.34	82
April	49	0	18.0	1,070
May	89	19	38.1	2,340
June	46	0	10.2	605
July	5.8	0	.37	23
August	50	0	10.4	637
September	101	0	7.55	449
Water year 1951-52	101	0	7.24	5,250
October	0	0	0	0
November	0	0	0	0
December	0	0	0	0
Calendar year 1952	101	0	7.24	5,250

Gallinas River near Lourdes, N. Mex.

Location.--Lat 35°28'15", long. 105°09'35", in Las Vegas Grant, on right bank 0.8 mile upstream from ford on Lourdes-Romeroville road, 1.2 miles northwest of Lourdes, 2.8 miles downstream from Pagosa Canyon, and 9 miles south of Las Vegas.

Drainage area.--313 sq mi.

Records available.--June 1951 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 5,928 ft above mean sea level (levels from planetable benchmark).

Extremes.--1951: Maximum discharge during period June to September, 2,250 cfs Aug. 1 (gage height, 6.56 ft); minimum daily, 2.6 cfs July 30.
1951-52: Maximum discharge during water year, 2,500 cfs Aug. 4 (gage height, 7.06 ft); minimum daily, 1.9 cfs Apr. 8.
Major floods occurred in 1904 and on June 1, 1937.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions for irrigation of about 8,500 acres above station.

Discharge, in cubic feet per second, 1951-52

1951

Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.	Day	June	July	Aug.	Sept.
1	-	8.0	472	3.9	11	-	a8	60	3.5	21	-	a4	*4.3	3.9
2	-	7.7	20	3.7	12	-	a8	a20	3.7	22	-	a4	5.9	4.6
3	-	8.4	8.0	3.5	13	-	*81	a15	4.1	23	-	a4	*340	4.3
4	-	7.1	5.6	3.2	14	-	91	a10	3.5	24	-	a3	31	3.9
5	-	7.1	23	*3.0	15	-	13	a5	3.0	25	-	a3	56	3.9
6	-	6.8	12	3.0	16	-	6.5	*3.9	3.0	26	-	a3	23	3.2
7	-	7.4	7.7	3.2	17	-	4.8	a4	3.2	27	-	a3	11	3.2
8	-	7.7	a6	3.5	18	-	a5	a4	3.5	28	-	a3	7.4	3.9
9	-	5.3	a5	3.5	19	-	a5	a4	3.0	29	8.0	a3	5.3	4.1
10	-	5.3	*93	3.5	20	-	a5	a4	3.2	30	8.0	*2.6	4.6	4.3
										31	-	5.3	3.9	-
Total											-	336.0	1,274.6	107.0
Mean											-	10.8	41.1	3.57
Ac-ft											-	666	2,530	212

Peak discharge (base, 600 cfs).--July 13 (8:30 p.m.) 980 cfs (5.27 ft); Aug. 1 (2 a.m.) 2,250 cfs (6.56 ft); Aug. 10 (8 p.m.) 950 cfs (4.92 ft); Aug. 23 (6 a.m.) 950 cfs (4.95 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorder trace, weather records, and records for stations above and below.

1951-52

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.7	4.6	3.0	3.0	2.6	3.5	2.4	3.9	88	6.8	11	6.5
2	3.7	4.8	3.0	2.8	2.6	4.6	2.4	*4.1	28	4.3	43	5.3
3	3.7	4.8	2.8	b2.0	2.8	3.9	2.2	3.5	11	4.1	28	5.0
4	3.2	4.6	2.8	*b2.0	2.6	3.0	2.2	3.2	8.0	11	216	5.3
5	3.5	4.6	3.0	2.6	2.6	3.0	2.2	3.0	6.8	7.4	84	4.8
6	3.7	5.0	2.6	2.8	2.8	2.8	2.0	3.0	5.6	8.0	9.1	5.6
7	3.7	4.8	*2.2	3.2	2.6	2.6	2.0	3.0	4.6	8.8	6.2	5.6
8	3.7	4.1	3.5	2.5	2.6	2.8	1.9	2.5	4.3	*5.6	5.3	4.6
9	3.9	4.1	b3.0	b2.0	2.5	2.6	2.2	2.5	4.1	4.6	*189	5.3
10	*3.7	*3.9	b3.0	2.4	2.5	*3.2	2.5	3.2	3.5	4.1	103	6.5
11	3.7	3.7	b3.5	2.8	*5.3	3.2	2.8	3.5	*3.7	3.9	260	6.8
12	3.9	3.7	b5.0	2.6	6.2	2.5	2.6	3.0	3.9	4.1	336	44
13	3.2	3.9	5.9	2.8	4.8	2.5	3.2	4.6	3.7	3.7	222	40
14	3.5	*3.9	3.7	3.0	3.9	2.8	3.0	4.1	3.5	29	a20	18
15	3.5	3.7	3.5	3.0	3.9	2.6	2.6	2.4	3.7	*15	*8.4	11
16	3.7	b3.5	3.7	2.8	3.7	2.6	2.5	*2.8	2.6	8.8	5.6	11
17	3.9	b2.7	3.2	2.6	3.5	2.2	*2.4	3.9	3.0	7.4	4.1	9.9
18	3.7	b2.9	2.5	3.2	3.5	2.4	2.4	7.4	4.1	5.6	3.5	8.4
19	3.9	b3.1	2.8	3.7	3.2	2.2	2.2	5.9	5.9	3.9	3.7	7.1
20	3.9	3.2	b3.0	3.0	3.0	2.2	5.0	4.3	5.6	6.8	3.7	7.1
21	3.5	3.5	b3.0	2.6	3.0	2.4	7.1	4.3	4.8	4.6	3.9	8.0
22	3.5	3.2	b3.5	2.2	3.0	2.8	4.3	4.8	4.8	5.6	51	13
23	*3.7	3.0	b3.5	2.6	3.0	3.2	3.7	4.1	4.3	7.4	18	18
24	3.9	3.5	4.3	2.8	2.8	2.8	3.7	4.1	3.9	55	13	12
25	4.1	b3.5	3.9	2.5	3.2	3.0	4.3	3.7	3.5	8.0	27	9.9
26	4.6	b3.0	3.0	2.2	*3.2	3.0	3.9	3.5	3.9	4.8	14	8.8
27	5.3	b3.0	2.6	2.4	3.0	3.5	4.1	4.1	4.6	4.1	4.6	8.0
28	5.0	b3.0	3.0	2.4	2.8	3.2	3.9	4.8	4.3	3.7	97	8.4
29	4.6	3.0	3.0	2.5	2.6	2.8	3.9	4.8	4.6	3.7	*55	7.4
30	4.3	3.0	3.5	2.6	-	2.5	3.7	5.0	6.2	16	14	*7.1
31	4.6	-	3.0	2.6	-	2.4	-	*152	-	27	8.4	-
Total	120.5	111.3	102.0	82.2	93.8	88.8	93.3	269.0	248.5	292.8	1,867.5	318.4
Mean	3.89	3.71	3.29	2.65	3.23	2.86	3.11	8.68	8.28	9.45	60.2	10.6
Ac-ft	239	221	202	163	186	176	185	534	493	581	3,700	632

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 336 Min 1.9 Mean 10.1 Ac-ft 7,310

Peak discharge (base, 600 cfs).--May 31 (7 p.m.) 2,200 cfs (6.50 ft); Aug. 3 (11 p.m.) 700 cfs (4.77 ft); Aug. 4 (9:30 p.m.) 2,500 cfs (7.06 ft); Aug. 9 (8 p.m.) 1,720 cfs (6.30 ft); Aug. 11 (7:30 p.m.) 1,860 cfs (6.37 ft); Aug. 28 (4 p.m.) 1,240 cfs (5.60 ft).
* Discharge measurement made on this day.
a No gage-height record; discharge estimated from reconstructed recorder trace.
b Stage-discharge relation affected by ice.

Gallinas River near Colonias, N. Mex.

Location.--Lat 35°11'10", long. 104°54'40", on right bank 1½ miles upstream from mouth, 2 miles south of San Miguel-Guadalupe County line, 6¼ miles northwest of Colonias.

Drainage area.--610 sq mi, approximately.

Records available.--January 1951 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 4,940 ft (from river-profile map).

Extremes.--1951: Maximum discharge during period January to September, 1,080 cfs July 13 (gage height, 6.44 ft); no flow for long periods.
1951-52: Maximum discharge during water year, 2,550 cfs Aug. 9 (gage height, 10.1 ft); no flow for long periods.
Maximum flood known occurred about June 1, 1937, when a stage of about 27 ft was reached, discharge determined as 23,000 cfs, by slope-area measurement made in 1951. A flood of about the same magnitude occurred in 1904.

Remarks.--Records fair except those for May, June 1951 and those for Aug. 11-28, 1952, which are poor. Diversions for irrigation of about 9,600 acres above station.

Discharge, in cubic feet per second, January to September 1951

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								0		0	0	
2								0		0	0	
3								0		0	0	
4								0		0	0	
5								0		0	0	
6								0		0	2	
7								0		0	*6	
8								0		0	1	
9								0		0	0	
10								0		0	1	
11								0		0	59	
12								0		4	92	
13								0		349	18	(*)
14								0		427	3	
15								0		158	1	
16								0		48	0	
17								0		5	0	
18								10		0	0	
19								10		*0	0	
20								*100		0	0	
21								50		0	0	
22								20		0	*0	
23								5		328	239	
24								1		64	318	
25								0		7	123	
26								0		*1	74	
27								0		0	60	
28								0		0	24	
29								0		0	9	
30								0		0	1	
31								0		0	0	-
Total				0	0	0	0	196	0	1,391	1,031	0
Mean				0	0	0	0	6.3	0	44.9	33.3	0
Ac-ft				0	0	0	0	389	0	2,760	2,040	0

Calendar year	: Max	Min	Mean	Ac-ft
Water year	: Max	Min	Mean	Ac-ft

Peak discharge (base, 700 cfs).--July 13 (1 a.m.) 1,080 cfs (6.44 ft); July 23 (4 a.m.) 729 cfs (5.36 ft); Aug. 23 (6 p.m.) 753 cfs (5.46 ft).
* Discharge measurement or observation of no flow made on this day.
Note.--No gage-height record Jan. 1 to July 2; discharge estimated on basis of observations by construction engineer.

Gallinas River near Colonias, N. Mex.--Continued

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0								*238	0	0	8
2	0	(*)		(*)					95	0	6	3
3	0					(*)			23	0	26	1
4	0		(*)						2	0	25	0
5	*0								0	0	260	0
6	0								0	0	100	0
7	0								0	0	31	0
8	0								0	*0	6	0
9	0								0	0	267	0
10	0								0	0	*391	0
11	0				(*)				0	0	160	0
12	0								0	80	*714	0
13	0								0	6	398	0
14	0								0	0	a150	0
15	0								0	0	a30	0
16	0						(*)		0	0	a10	0
17	0			(*)					0	0	a6	*0
18	0								0	0	a4	0
19	0								0	0	a3	0
20	0		(*)						0	0	a2	0
21	0								0	0	a1	0
22	0					(*)			0	0	386	0
23	0								0	*0	a120	0
24	0								0	0	386	0
25	0								0	0	a80	*0
26	67								0	0	a50	0
27	171								0	0	a20	0
28	8				(*)				0	0	*13	0
29	2								0	0	71	0
30	1				-		(*)		0	0	93	0
31	0	-			-		-		-	0	29	-
Total	249	0	0	0	0	0	0	0	358	86	3,838	12
Mean	8.0	0	0	0	0	0	0	0	11.9	2.8	124	0.4
Ac-ft	494	0	0	0	0	0	0	0	710	171	7,610	24

Calendar year 1951: Max 427 Min 0 Mean 7.9 Ac-ft 5,680
Water year 1951-52: Max 714 Min 0 Mean 12.4 Ac-ft 9,010

Peak discharge (base, 700 cfs).--Oct. 26 (9:45 p.m.) 834 cfs (5.73 ft); July 12 (6 p.m.) 780 cfs (5.55 ft); Aug. 5 (9 a.m.) 777 cfs (5.80 ft); Aug. 9 (8 p.m.) 2,550 cfs (10.1 ft); Aug. 12 (4:15 a.m.) 1,560 cfs (8.27 ft); Aug. 22 (9 a.m.) 1,670 cfs (7.98 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height gecord; discharge estimated on basis of recorder trace, weather records, and records for upstream stations.

Pecos River at Santa Rosa, N. Mex.

Location.--Lat 34°56'05", long. 104°41'25", in SW¼SW¼ sec. 2, T. 8 N., R. 21 E., near center of span on downstream side of bridge pier on U. S. Highway 66 at Santa Rosa, 1 mile upstream from Rio Agua Negra Chiquita.

Drainage area.--2,650 sq mi, approximately (contributing area).

Records available.--May 1903 to December 1906 (gage heights only), February 1910 to July 1911, September 1912 to December 1914, and October 1930 to September 1952 in reports of Geological Survey. February 1910 to July 1911 and September 1912 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder and concrete control. Datum of gage is 4,529.77 ft above mean sea level, datum of 1929. Prior to May 5, 1922, chain gage within a quarter of a mile of present site at different datum. May 5, 1922, to June 24, 1937, water-stage recorder at several sites within a quarter of a mile of present site at various datums.

Average discharge.--33 years (1912-14, 1916-23, 1928-52), 161 cfs.

Extremes.--Maximum discharge during year, 7,080 cfs Aug. 12 (gage height, 7.70 ft); minimum daily, 6.8 cfs Jan. 5, Feb. 9.
1930-52:. Maximum discharge, 55,200 cfs June 2, 1937 (gage height, 25.7 ft), from rating curve extended above 32,000 cfs by logarithmic plotting; minimum daily, 2.7 cfs June 25, 1937.

Remarks.--Records good except those for period of no gage-height record, which are fair. Discharge measurements generally made 2 or 3 times a month. Diversions for irrigation of about 16,000 acres above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 16, 17, May 24 to June 23, June 26 to July 13)

Oct. 1 to Apr. 30				May 1 to Sept. 30			
1.4	4.2	1.9	57	1.5	5.1	2.1	84
1.5	7.1	2.2	126	1.6	8.3	2.4	205
1.6	15	2.5	225	1.7	14	2.8	455
1.7	26			1.8	23	3.2	820
				1.9	37	4.5	2,350

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.5	11	15	7.1	11	7.9	11	163	448	20	350	150
2	8.7	11	16	7.1	11	11	12	130	511	12	124	76
3	7.9	13	15	7.9	11	10	11	73	314	14	87	60
4	8.7	11	16	9.5	10	10	11	122	314	9.3	650	a50
5	9.5	11	17	6.8	10	9.5	11	302	359	8.0	167	a40
6	9.5	12	14	9.5	8.7	8.7	11	352	359	12	339	a35
7	10	12	14	15	8.7	9.5	23	420	346	30	79	a30
8	9.5	9.5	13	13	8.7	10	59	455	392	139	23	a28
9	12	9.5	16	9.5	7.9	12	103	399	434	91	292	a26
10	12	8.7	17	8.7	7.9	18	158	378	385	79	1,790	a25
11	11	9.5	19	12	10	13	140	296	434	36	265	a24
12	10	10	24	12	12	10	105	296	434	252	2,310	a23
13	9.5	11	24	10	12	11	79	272	399	545	915	a22
14	8.7	12	20	9.5	9.5	11	57	284	385	343	602	30
15	10	12	16	9.5	9.5	11	33	340	346	70	210	87
16	9.5	13	16	10	10	12	19	378	272	47	111	79
17	11	13	20	10	11	13	11	441	232	81	62	33
18	13	13	16	11	10	12	41	314	182	45	51	24
19	12	13	16	11	11	11	146	227	146	34	43	20
20	12	13	17	10	11	10	162	200	122	18	39	17
21	10	12	13	11	12	12	155	154	94	12	36	18
22	10	13	13	10	12	12	194	146	49	12	718	27
23	10	13	13	10	11	13	176	146	29	18	329	23
24	11	13	22	12	11	13	132	118	17	24	493	18
25	12	13	17	12	10	14	98	84	12	12	254	15
26	12	13	15	10	10	13	71	62	10	20	167	14
27	34	12	13	11	10	14	73	39	11	14	194	15
28	48	12	15	9.5	7.1	13	91	36	12	11	79	17
29	15	14	13	10	6.8	12	146	55	54	10	49	18
30	8.7	16	11	11	-	11	200	108	18	11	413	18
31	10	-	8.7	10	-	12	-	134	-	122	308	-
Total	384.7	359.2	494.7	315.6	290.8	359.6	2,539	6,924	7,120	2,151.3	11,549	1,062
Mean	12.4	12.0	16.0	10.2	10.0	11.6	84.6	223	237	69.4	373	35.4
Ac-ft	763	712	981	626	577	713	5,040	13,730	14,120	4,270	22,910	2,110

Calendar year 1951: Max 1,430 Min 7.1 Mean 38.0 Ac-ft 27,530
Water year 1951-52: Max 2,310 Min 6.8 Mean 91.7 Ac-ft 66,550

Peak discharge (base, 4,000 cfs).--Aug. 10 (4:30 a.m.) 5,330 cfs (6.65 ft); Aug. 12 (7 a.m.) 7,080 cfs (7.70 ft).
a No gage-height record; discharge estimated on basis of adjoining record and weather records.

Pecos River near Puerto de Luna, N. Mex.

Location.--Lat 34°43', long. 104°32', in sec. 29, T. 6 N., R. 23 E., on left bank 10 miles southeast of Puerto de Luna and 14 miles upstream from Alamogordo Dam.

Drainage area.--3,970 sq mi, approximately (contributing area).

Records available.--April 1938 to September 1952.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,300 ft (from river-profile map).

Average discharge.--14 years, 256 cfs.

Extremes.--Maximum discharge during year, 31,000 cfs July 14 (gage height, 12.20 ft); minimum daily, 60 cfs Aug. 20.
1938-52: Maximum discharge, 48,600 cfs Sept. 1, 1942 (gage height, 17.00 ft), from rating curve extended above 7,400 cfs on basis of flow at Santa Rosa; minimum daily, 34 cfs July 9, 1951.

Remarks.--Records good except those for periods Apr. 21 to May 14 and July 14 to Aug. 26, which are poor. Discharge measurements generally made twice a month. Diversion for irrigation of about 17,500 acres above station. Discharge represents inflow to Alamogordo Reservoir (capacity 132,200 acre-ft). Records of chemical analyses, water temperatures, and sediment loads for water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 31		Jan. 1 to Sept. 30			
0.6	60	0.5	54	1.6	575
.7	85	.7	93	2.0	1,160
.8	115	1.0	175	3.0	3,200
.9	150	1.3	315		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	82	106	112	89	93	87	82	260	341	312	543	212
2	78	94	100	95	91	98	76	190	564	110	234	156
3	78	82	115	112	80	91	78	170	371	103	152	122
4	82	88	103	100	82	98	72	240	309	91	484	103
5	80	85	97	103	85	95	74	350	286	70	272	85
6	80	97	91	93	100	93	74	400	364	87	400	78
7	82	103	72	100	93	93	74	450	364	95	260	70
8	75	97	100	95	80	85	76	500	364	135	120	70
9	80	80	91	93	89	91	136	520	364	205	400	70
10	82	100	100	98	87	110	217	450	364	156	1,100	70
11	72	97	91	87	100	103	235	350	371	160	600	74
12	72	103	94	95	107	91	208	330	371	247	1,500	82
13	80	80	109	93	93	78	194	310	343	2,320	972	74
14	91	94	103	93	91	85	175	309	304	3,030	800	68
15	85	88	109	87	91	78	147	336	292	1,120	600	99
16	88	88	97	85	91	78	120	385	275	405	350	128
17	82	97	109	89	91	76	139	436	244	163	200	117
18	88	91	103	93	91	80	115	453	230	163	125	89
19	94	109	106	93	80	76	136	378	201	144	80	76
20	94	106	97	89	93	74	194	322	190	128	60	72
21	94	103	78	93	89	85	221	275	169	112	70	74
22	91	100	89	87	91	91	210	249	141	103	500	105
23	94	100	88	91	91	91	200	244	105	461	450	105
24	97	106	109	95	89	91	180	226	82	110	450	100
25	91	100	115	87	93	95	160	194	70	100	400	91
26	106	118	100	85	91	93	140	194	65	90	250	89
27	106	109	109	82	95	93	130	160	61	85	208	85
28	150	126	106	91	95	93	140	150	116	80	208	80
29	132	112	109	89	89	91	160	144	98	75	141	87
30	100	118	97	87	-	91	250	179	533	72	298	87
31	124	-	103	89	-	89	-	201	-	72	269	-
Total	2,830	2,977	3,102	2,858	2,631	2,763	4,413	9,355	7,952	10,604	12,496	2,818
Mean	91.3	99.2	100	92.2	90.7	89.1	147	302	265	342	403	93.9
Ac-ft	5,610	5,900	6,150	5,670	5,220	5,480	8,750	18,560	15,770	21,030	24,790	5,590

Calendar year 1951: Max 1,890 Min 34 Mean 119 Ac-ft 86,240
Water year 1951-52: Max 3,030 Min 60 Mean 177 Ac-ft 128,500

Peak discharge (base, 3,500 cfs).--June 30 (9:30 p.m.) 3,660 cfs (3.23 ft); July 13 (3:30 a.m.) 9,020 cfs (5.27 ft); July 14 (7:30 p.m.) 31,000 cfs (12.20 ft); Aug. 12 (time unknown) 5,420 cfs (3.90 ft).

Pecos River below Alamogordo Dam, N. Mex.

Location.--Lat 34°36'20", long. 104°23'10", in lot 1, sec. 2, T. 4 N., R. 24 E., on left bank 1,200 ft downstream from Alamogordo Dam, 1½ miles downstream from Alamogordo Creek, and 4½ miles northeast of Guadalupe.

Drainage area.--4,390 sq mi, approximately (contributing area).

Records available.--October 1912 to December 1914 and October 1930 to September 1952 in reports of Geological Survey. Prior to October 1944 published as "near Guadalupe." October 1912 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder and Parshall flume, with concrete control above top of flume. Datum of gage is 4,142.67 ft above mean sea level (Bureau of Reclamation datum). Prior to Sept. 10, 1936, at site 1½ miles upstream at different datum.

Average discharge.--21 years (1913-16, 1918-25, 1926-37), 264 cfs (prior to completion of Alamogordo Dam). 15 years (1937-52), 249 cfs.

Extremes.--Maximum discharge during year, 1,300 cfs June 26 (gage height, 3.28 ft); no flow Feb. 18-24.

1930-52: Maximum discharge, 42,800 cfs Sept. 1, 1942, by computation of flow over spillway and through outlet gates of Alamogordo Dam by Bureau of Reclamation; maximum gage height, 13.58 ft Sept. 22, 1941, from floodmark; no flow at times.

Remarks.--Records good except those below 1 cfs, which are fair. Discharge measurements generally made twice a month. Diversions for irrigation of about 17,500 acres above station. Flow regulated by Alamogordo Reservoir (see p. 366). Records of chemical analyses for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 14-23)

0.08	0.1	1.4	80
.1	.3	1.9	139
.2	2.8	2.2	213
.3	6.0	2.6	415
.5	14	2.9	730
.9	38	3.3	1,360

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	38	0.8	0.3	0.3	0.3	772	98	80	1,070	1,010	96
2	91	.6	.8	.3	.3	74	772	100	83	235	690	97
3	90	.6	.8	.3	.2	109	744	91	83	152	86	98
4	90	.6	.8	.2	.3	100	814	88	83	114	85	99
5	91	.3	.6	.2	.3	100	886	90	83	124	86	99
6	91	.6	.3	.2	.3	101	994	91	84	119	88	99
7	91	.6	.3	.2	.3	100	963	93	82	105	93	98
8	91	.8	.3	.2	.3	101	948	97	82	87	94	98
9	91	.8	.3	.2	.3	99	916	99	103	96	96	99
10	91	.8	.3	.3	.3	99	886	101	102	102	97	91
11	88	1.0	.3	.3	49	99	870	102	98	102	98	81
12	85	1.2	.3	.3	122	98	828	103	102	102	102	84
13	87	1.0	.6	.3	104	100	259	102	103	104	246	83
14	87	1.0	.6	.3	71	96	64	103	106	104	1,120	83
15	82	1.0	.6	.2	49	84	67	117	106	51	1,140	86
16	78	1.0	.3	.2	41	85	67	120	108	51	1,140	90
17	81	1.0	.3	.2	15	75	68	121	108	71	1,170	90
18	81	1.0	.3	.3	0	63	69	121	106	70	1,210	91
19	78	1.0	.3	.3	0	61	71	110	458	73	1,190	91
20	77	1.0	.3	.3	0	61	57	110	1,010	74	1,170	92
21	77	1.2	.2	.3	0	63	52	110	1,110	62	1,160	96
22	77	1.0	.3	.2	0	73	64	106	1,110	84	1,110	96
23	77	1.0	.2	.2	0	67	65	106	1,120	94	1,110	93
24	77	1.0	.2	.2	0	54	66	106	1,160	93	407	93
25	82	1.0	.2	.2	.2	46	68	106	1,160	98	93	91
26	92	1.0	.2	.2	.3	45	80	104	1,240	91	92	87
27	92	1.0	.2	.2	.3	483	89	91	1,260	89	92	87
28	91	1.0	.3	.3	.2	828	92	82	1,220	73	94	87
29	91	.8	.3	.3	.1	814	94	81	1,190	686	94	86
30	92	.8	.3	.3	-	786	96	80	1,140	1,070	94	86
31	92	-	.3	.3	-	786	-	80	-	1,020	96	-
Total	2,672	63.7	11.9	7.8	455.0	5,750.3	11,881	3,109	14,880	6,466	15,453	2,747
Mean	86.2	2.12	0.38	0.25	15.7	185	396	100	496	209	498	91.6
Ac-ft	5,300	126	24	15	902	11,410	23,570	6,170	29,510	12,830	30,650	5,450

Calendar year 1951: Max 1,690 Min 0.2 Mean 207 Ac-ft 149,600
Water year 1951-52: Max 1,260 Min 0 Mean 173 Ac-ft 126,000

Pecos River near Acme, N. Mex.

Location.--Lat 33°32'10", long. 104°22'40", in NW¼ sec. 14, T. 9 S., R. 25 E., on right bank 1 mile southeast of Melena railroad station, 3½ miles downstream from Salt Creek, 5 miles southwest of Acme, and 13 miles northeast of Roswell.

Drainage area.--11,380 sq mi, approximately (contributing area).

Records available.--July 1937 to September 1952 in reports of Geological Survey. August 1921 to July 1923 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 3,500 ft (from river-profile map). Prior to Nov. 1, 1938, at site on highway bridge 2 miles upstream at various datums.

Average discharge.--15 years (1937-52), 248 cfs.

Extremes.--Maximum discharge during year, 3,950 cfs July 19 (gage height, 6.97 ft); no flow at times.
1937-52: Maximum discharge, 45,000 cfs Sept. 23, 1941 (gage height, 13.71 ft), from rating curve extended above 15,000 cfs by logarithmic plotting; no flow at times.
Maximum discharge during flood of May 28, 1937, 53,000 cfs (gage height, 14.82 ft, from floodmarks, site and datum then in use), by slope-area method.

Remarks.--Records fair. Discharge measurements made twice a month during periods of low flow and oftener during releases. Flow regulated by Alamogordo Reservoir (see p. 366). Diversions for irrigation of about 23,000 acres above station. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	50	7	3.1	0	1.7	650	11	11	920	815	30
2	0	88	7	2.6	0	1.2	630	9.4	24	843	710	21
3	0	71	5	5.9	0	1.0	600	8.7	34	730	865	13
4	0	52	4	5.9	0	.5	591	8.0	10	235	665	9.2
5	0	47	3	5.0	0	.2	591	11	4.8	124	126	5.4
6	0	31	1	4.5	0	0	690	14	2.1	110	92	3.0
7	0	23	0	7.2	0	0	810	7.6	.1	94	51	2.0
8	0	18	4	8.5	0	0	770	3.3	0	94	21	1.2
9	0	15	4	9.2	0	5.9	865	1.3	0	59	89	.3
10	0	15	3	11	0	15	854	2.4	0	50	32	0
11	0	13	2	9.9	0	18	843	1.1	0	51	146	0
12	2	13	1	9.2	0	16	876	.9	0	36	1,250	0
13	6	12	3	7.2	0	12	780	.2	0	23	964	0
14	4	9	5	5.9	0	7.9	730	.7	0	197	292	0
15	8	10	13	4.0	0	4.5	246	1.6	0	1,590	350	0
16	9	8	16	4.0	0	5.4	137	.3	0	1,130	800	0
17	7	7	15	4.0	5.4	11	90	0	0	212	832	0
18	11	7	11	4.5	9.9	15	649	0	0	99	920	0
19	26	6	8	3.6	18	18	252	0	0	1,640	997	0
20	25	6	6	1.2	23	17	127	0	0	363	942	0
21	18	6	4	1.7	23	15	99	0	0	127	931	0
22	16	7	3	1.7	21	18	90	0	217	69	931	0
23	16	7	4	1.7	18	18	67	0	660	49	1,220	0
24	13	9	4	1.7	12	14	52	0	680	29	1,200	0
25	14	9	4	1.2	7.9	12	40	0	770	8.0	909	12
26	62	7	4	.5	7.2	12	38	0	854	6.4	322	17
27	30	7	4	0	6.6	18	39	0	1,080	4.7	151	17
28	130	7	6	0	5.9	26	31	0	1,160	5.0	99	17
29	106	7	7	0	3.1	122	17	0	953	3.4	62	19
30	68	7	7	0	-	519	14	0	1,060	2.0	61	22
31	52	-	4	0	-	620	-	3.8	-	110	46	-
Total	623	574	169	124.9	161.0	1,544.3	12,268	85.3	7,520.0	9,013.5	16,891	189.1
Mean	20.1	19.1	5.5	4.03	5.55	49.8	409	2.75	251	291	545	6.30
Ac-ft	1,240	1,140	335	248	319	3,060	24,330	169	14,920	17,880	33,500	375

Calendar year 1951: Max 1,520 Min 0 Mean 152 Ac-ft 110,400
Water year 1951-52: Max 1,640 Min 0 Mean 134 Ac-ft 97,520

Peak discharge (base, 1,400 cfs).--Apr. 18 (11 a.m.) 1,920 cfs (5.72 ft); June 27 (5:30 a.m.) 1,590 cfs (5.51 ft); June 28 (2 p.m.) 1,660 cfs (5.56 ft); July 15 (4:30 p.m.) 3,460 cfs (6.80 ft); July 19 (3:30 p.m.) 3,950 cfs (6.97 ft); Aug. 4 (2 a.m.) 1,480 cfs (5.35 ft); Aug. 12 (11 a.m.) 2,540 cfs (6.19 ft); Aug. 23 (7 p.m.) 2,250 cfs (6.02 ft).

Rio Ruidoso at Hondo, N. Mex.

Location.--Lat 33°23'00", long. 105°16'30", in NE¼SW¼ sec. 4, T. 11 S., R. 17 E., on right bank a quarter of a mile upstream from confluence with Rio Bonito and half a mile southwest of Hondo.

Drainage area.--307 sq mi.

Records available.--October 1930 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 5,181.38 ft above mean sea level, datum of 1929.

Average discharge.--22 years, 20.7 cfs.

Extremes.--Maximum discharge during year, about 600 cfs July 13 (gage height, 5 ft, estimated) from rating curve extended above 50 cfs on basis of velocity-area studies; minimum daily, 0.5 cfs Oct. 11-17.
1930-52: Maximum discharge, 12,400 cfs Sept. 29, 1941 (gage height, 21.13 ft, from floodmark), from rating curve extended above 130 cfs on basis of velocity-area studies; no flow Aug. 15, 16, 1935, June 2-7, 1950.

Remarks.--Records fair. Discharge measurements generally made twice a month. Diversions for irrigation of about 1,700 acres above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 18			Mar. 19 to Sept. 30		
2.2	0.4	2.1	0.2	2.5	9.2
2.3	1.4	2.2	.8	2.7	24
2.4	3.4	2.3	2.3	2.9	45
2.5	5.6	2.4	4.8	3.1	73

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	0.8	0.7	2.8	2.0	1.8	4.0	36	9.2	2.2	14	0.8
2	1.4	.9	.7	2.6	2.0	3.2	17	33	12	2.0	3.3	.8
3	1.3	.9	.7	3.2	2.8	3.0	24	34	9.2	2.0	3.0	.8
4	1.0	.9	.9	3.4	3.0	2.8	29	36	9.9	2.2	2.6	.8
5	.7	.9	.9	3.4	2.6	2.8	30	38	13	2.0	2.2	.8
6	.6	.9	1.2	2.6	2.6	3.2	31	42	13	7.8	1.9	.8
7	.6	.9	1.3	2.6	2.4	2.8	30	41	7.9	3.2	1.7	1.0
8	.6	.7	2.0	3.2	2.8	2.4	35	36	6.6	2.0	1.7	1.0
9	.6	.7	2.2	3.2	3.4	2.2	30	36	5.7	2.0	1.9	1.0
10	.6	.7	2.4	3.2	2.0	2.6	27	37	5.2	20	4.1	1.0
11	.5	.7	2.6	e 2.8	1.6	2.2	27	37	5.2	19	7.4	1.0
12	.5	.7	2.8	2.0	1.3	3.2	29	34	5.2	28	3.3	1.1
13	.5	.7	2.8	2.0	2.4	3.2	27	26	4.6	72	1.3	1.1
14	.5	.7	2.8	2.0	3.4	3.4	23	22	4.8	62	1.0	1.1
15	.5	.7	2.8	1.8	4.7	3.4	18	22	5.7	56	1.0	1.1
16	.5	.7	1.8	1.8	4.7	3.2	22	21	4.0	40	1.1	1.3
17	.5	.7	.9	1.6	4.5	3.6	27	18	3.6	35	1.4	1.3
18	.7	.7	.9	1.6	3.6	3.6	32	18	3.3	33	1.1	1.4
19	.9	.7	1.0	1.8	2.4	4.6	34	18	2.6	35	1.1	1.3
20	.7	.7	3.2	2.0	1.8	7.0	42	15	2.6	27	1.1	1.3
21	.7	.7	4.3	2.4	2.2	7.4	46	13	2.3	22	1.0	1.3
22	.8	1.1	2.8	2.2	1.4	7.9	46	9.9	2.3	20	1.0	1.3
23	.8	1.2	2.8	2.0	1.8	9.2	35	7.9	2.3	19	.8	1.3
24	.8	1.0	2.6	1.8	3.0	9.9	29	6.6	2.2	15	.8	1.1
25	.8	.8	2.4	2.0	2.8	8.8	27	6.6	1.9	9.9	.8	1.0
26	.8	.7	2.2	2.4	1.6	7.4	27	7.9	1.9	12	.7	1.1
27	.8	.7	2.2	2.2	1.8	7.4	30	9.2	1.9	9.2	1.0	1.0
28	.8	.7	2.4	2.2	1.6	7.0	34	9.9	1.9	7.0	.8	1.0
29	.8	.7	2.6	2.2	2.0	7.0	36	9.2	1.9	5.7	1.6	.8
30	.8	.7	2.8	2.2	-	4.8	34	9.9	2.2	4.6	1.0	.8
31	.8	-	3.0	2.2	-	4.3	-	8.8	-	4.2	1.0	-
Total	23.3	23.6	64.7	73.4	74.2	145.3	882.0	698.9	154.1	581.0	66.7	31.5
Mean	0.75	0.79	2.09	2.37	2.56	4.69	29.4	22.5	5.14	18.7	2.15	1.05
Ac-ft	46	47	128	146	147	288	1,750	1,390	306	1,150	132	62

Calendar year 1951: Max 28 Min 0.1 Mean 1.98 Ac-ft 1,430
Water year 1951-52: Max 72 Min 0.5 Mean 7.70 Ac-ft 5,590

Peak discharge (base, 200 cfs).--July 10 (2 p.m.) 262 cfs (4.01 ft); July 13 (7 p.m.) about 600 cfs (5 ft, estimated); Aug. 1 (3:30 p.m.) 212 cfs (3.72 ft).

Rio Bonito at Hondo, N. Mex.

Location.--Lat 33°23'20", long. 105°16'30", in NE¼NW¼ sec. 4, T. 11 S., R. 17 E., near center of span on downstream side of bridge on U. S. Highway 70, at Hondo, half a mile upstream from confluence with Rio Ruidoso.

Drainage area.--306 sq mi (contributing area).

Records available.--October 1930 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 5,205.17 ft above mean sea level, datum of 1929. Prior to Feb. 4, 1933, at site a quarter of a mile upstream at different datum. Oct. 10, 1931, datum lowered 0.23 ft.

Average discharge.--22 years, 11.1 cfs.

Extremes.--Maximum discharge during year, 6,520 cfs Aug. 3 (gage height, 17.70 ft), from rating curve extended above 250 cfs on basis of slope-area determination of peak flow; no flow at times.

1930-52: Maximum discharge, 11,000 cfs Sept. 28 or 29, 1941 (gage height, 20.92 ft, from floodmark), from rating curve extended above 220 cfs on basis of slope-area determination at gage height 19.0 ft; no flow at times.

Remarks.--Records good except those above 100 cfs, which are poor. Low flow regulated by Bonito reservoir. Diversions for irrigation of about 1,700 acres above station.

Revisions (water years).--W 1212: 1950.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Apr. 1 to Aug. 2				Aug. 3 to Sept. 30			
0.28	0	0.7	2.2	0.28	0	0.9	7.4
.3	.1	.8	4.3	.3	.1	1.0	15
.4	.2	.9	8.5	.4	.2	1.1	50
.5	.6	1.0	17	.5	.6	1.3	150
.6	1.1	1.1	30	.6	1.2	1.6	264
				.7	2.2	2.0	383
				.8	4.1		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	0	0	14	8.3	5.4
2							0	0	0	0	7.2	4.8
3							0	0	0	0	*383	4.4
4							0	0	0	.1	8.9	4.4
5							0	0	0	0	2.0	3.7
6							0	*3.0	*0	6.5	.8	3.3
7							0	5.6	0	20	*.7	3.3
8							0	4.6	0	11	.7	3.2
9							0	5.6	0	8.1	193	3.0
10							0	4.7	0	12	4.1	3.2
11							0	5.1	0	62	2.4	3.3
12							0	2.9	0	34	2.2	3.5
13							0	.2	0	35	*177	3.2
14							0	.2	0	31	56	3.2
15							0	0	0	*110	12	3.0
16							0	0	0	34	8.9	*2.8
17							0	0	0	11	7.1	2.6
18							0	0	*0	16	6.1	2.4
19							.1	0	0	17	6.1	2.1
20							.1	0	0	9.4	5.0	3.0
21							.1	*0	0	6.8	4.3	2.6
22							.5	0	0	3.3	1.7	6.0
23							*.1	0	0	*1.5	18	7.4
24							0	0	0	.8	13	7.4
25							0	0	0	.3	7.1	5.8
26							0	0	0	0	.3.7	5.1
27							0	0	0	0	*33	5.1
28							0	0	6.2	0	22	5.1
29							0	0	22	0	8.2	4.8
30							0	0	21	0	5.8	3.6
31							-	0	-	.4	5.4	-
Total	0	0	0	0	0	0	0.9	31.9	49.2	444.2	1,013.7	120.7
Mean	0	0	0	0	0	0	0.03	1.03	1.64	14.3	32.7	4.02
Ac-ft	0	0	0	0	0	0	1.8	63	98	881	2,010	239

Calendar year 1951: Max 135 Min 0 Mean 2.73 Ac-ft 1,970
Water year 1951-52: Max 383 Min 0 Mean 4.54 Ac-ft 3,290

Peak discharge (base, 1,000 cfs).--Aug. 3 (5 p.m.) 6,520 cfs (17.70 ft); Aug. 9 (2 a.m.) 1,400 cfs (6.90 ft); Aug. 13 (5 p.m.) 2,930 cfs (12.70 ft).

* Discharge measurement or observation of no flow made on this day.

Rio Hondo at Diamond A Ranch, near Roswell, N. Mex.

Location.--Lat 33°20'40", long. 104°51'10", in NE¼ sec. 20, T. 11 S., R. 21 E., on left bank on downstream side of road bridge at Diamond A Ranch, 8 miles upstream from Rocky Arroyo and 18 miles west of Roswell.

Drainage area.--960 sq mi (contributing area).

Records available.--May 1939 to September 1952 in reports of Geological Survey. May 1908 to August 1909 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 4,100 ft (from State topographic map).

Average discharge.--13 years, 39.9 cfs.

Extremes.--Maximum discharge during year, 3,690 cfs July 14 (gage height, 20.60 ft); no flow at times.
1939-52: Maximum discharge, 27,000 cfs Sept. 22, 1941 (gage height, 28.78 ft), by slope-area method; no flow at times.

Remarks.--Records fair. Diversions for irrigation of about 5,500 acres above station. Records of water temperatures and sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Dec. 31		Jan. 1 to July 14				July 14 to Sept. 30			
3.3	0	3.3	0	3.8	8	3.4	0	4.1	16
3.4	.9	3.4	.3	4.1	21	3.5	.1	4.5	44
3.5	3	3.5	1	4.5	46	3.6	.6	4.9	80
3.6	5	3.6	3	4.9	80	3.7	2	5.9	193
3.8	12	3.7	5	5.7	169	3.8	4	6.9	326
3.9	17					3.9	7	8.4	546

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0		0		0	5		28	0	0
2			0		0		0	5		6	0	0
3	(*)		1		0		0	5		0	0	0
4			0		0		0	5		0	420	0
5			0		0		0	5		0	20	0
6			0		0		0	5	(*)	0	*2	0
7			0		1		0	*5		*48	0	0
8			0		0		0	5		158	0	0
9			1		0		0	*6		*30	145	0
10			13		0		0	6		103	33	0
11			6		0		0	6		70	15	0
12			4		1		0	2		166	7	0
13			*1		0		0	*0		27	2	0
14			1		0		0	0		553	157	0
15			0		0		0	0		*160	5	0
16			0		0		0	0		*191	0	0
17			0		0		0	0		95	0	0
18			0		0		1	0		60	*0	0
19			1		0		5	0		56	0	0
20			0		0		5	0		62	0	0
21			0		0		5	0		41	0	0
22			0		0		6	0		26	0	0
23			0		0		*8	0		17	0	6
24			0		0		5	0		*9	0	13
25			0		0		4	0		6	0	1
26			0		0		3	0		1	*0	1
27			0		0		3	0		0	0	3
28			0		0		4	0		*0	0	4
29			0		0		4	0		0	0	1
30			0		-		5	0		0	0	1
31			0		-		-	0		0	0	-
Total	0	0	28	0	2	0	58	60	0	1,913	806	30
Mean	0	0	0.9	0	0.1	0	1.9	1.9	0	61.7	26.0	1.0
Ac-ft	0	0	56	0	4.0	0	115	119	0	3,790	1,600	60

Calendar year 1951: Max 150 Min 0 Mean 2.1 Ac-ft 1,540
Water year 1951-52: Max 553 Min 0 Mean 7.9 Ac-ft 5,740

Peak discharge (base, 600 cfs).--July 7 (11:30 a.m.) about 1,000 cfs; July 14 (2:30 a.m.) 3,690 cfs (20.60 ft); July 16 (9 a.m.) 708 cfs (9.36 ft); Aug. 4 (12:30 a.m.) 2,040 cfs (15.58 ft); Aug. 9 (7 a.m.) 708 cfs (9.35 ft); Aug. 14 (5 a.m.) about 640 cfs.
* Discharge measurement or observation of no flow made on this day.

Rio Felix at old highway bridge, near Hagerman, N. Mex.

Location.--Lat 33°07'30", long. 104°20'40", in SW¼ sec. 4, T. 14 S., R. 26 E., near left bank on downstream side of bridge, 1¼ miles northwest of Hagerman and 2½ miles upstream from mouth.

Drainage area.--932 sq mi (contributing area).

Records available.--April 1939 to September 1952. March 1932 to April 1939 at site 1 mile downstream; records for periods of low flow not equivalent.

Gage.--Water-stage recorder. Altitude of gage is 3,410 ft (from topographic map).

Average discharge.--13 years (1939-52), 19.2 cfs.

Extremes.--Maximum discharge during year, 675 cfs Aug. 12 (gage height, 5.90 ft); minimum daily, 0.01 cfs Oct. 10-13, 17.
1939-52: Maximum discharge, 20,000 cfs Sept. 22, 1941 (gage height, 23.0 ft), from rating curve extended above 5,100 cfs by logarithmic plotting; minimum daily, 0.01 cfs Oct. 10-13, 17, 1952.

Remarks.--Records good. Discharge measurements generally made twice a month. Diversions for irrigation of about 350 acres above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 13, May 16 to June 30)

Oct. 1 to June 30				July 1 to Sept. 30			
1.07	0.01	1.3	0.7	1.24	0.02	1.8	8.2
1.1	.02	1.4	1.5	1.3	.07	2.1	20
1.2	.2	1.5	2.8	1.4	.4	2.5	44
				1.5	1.3	3.2	110
				1.6	2.9		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.07	0.07	0.2	0.1	0.09	0.07	0.06	0.2	0.1	0.07	0.02	0.03
2	.06	.07	.2	.1	.07	.06	.09	.1	.1	.07	.02	.04
3	.07	.09	.2	.1	.09	.07	.1	.1	.2	.1	.03	.04
4	.04	.09	.2	.1	.1	.09	.09	.1	.2	.05	.08	.04
5	.06	.09	.2	.1	.1	.09	.09	.2	.2	.05	.03	.04
6	.04	.09	.2	.2	.1	.09	.1	.2	.1	.05	.02	.04
7	.02	.09	.2	1.2	.1	.07	.1	.1	.1	.08	.02	.04
8	.02	.1	.2	.2	.1	.07	.1	.1	.09	.1	.03	.08
9	.07	.1	.2	.1	.1	.07	.1	.09	.09	.1	.03	.05
10	.01	.1	.1	.09	.1	.07	.1	.09	.09	.2	.05	.07
11	.01	.1	.1	.1	.09	.06	.09	.07	.07	.4	.03	.08
12	.01	.09	.1	.1	.09	.06	.09	.07	.06	.08	106	.07
13	.01	.09	.09	.09	.09	.06	.1	.07	.06	.08	1.7	.07
14	.02	.1	.1	.1	.09	.07	.1	.07	.06	.07	.02	.07
15	.02	.09	.09	.2	.09	.09	.07	.07	.06	.1	.02	.07
16	.02	.09	.1	.1	.09	.09	.07	.06	.06	.09	.02	.07
17	.01	.09	.1	.1	.09	.07	.09	.09	.06	.05	.03	.07
18	.02	.09	.2	.09	.4	.07	.09	.1	.06	.04	.02	.2
19	.02	.1	.1	.1	.07	.07	.09	.1	.06	.03	.02	.08
20	.03	.1	.1	.1	.07	.07	.07	.09	.06	.03	.02	.08
21	.03	.1	.1	.07	.07	.07	.07	.09	.06	.02	.02	.08
22	.03	.1	.1	.07	.07	.09	.09	.09	.09	.02	.02	.1
23	.03	.1	.1	.07	.07	.07	.1	.09	.04	.02	.02	.1
24	.04	.1	.07	.07	.07	.2	.1	.1	.03	.02	.03	.1
25	.06	.1	.09	.07	.09	.1	.09	.1	.03	.02	.03	.08
26	.06	.1	.09	.07	.07	.07	.09	.1	.06	.02	.03	.08
27	.06	.1	.09	.07	.07	.07	.09	.2	.07	.02	.03	.07
28	.07	.2	.09	.09	.07	.06	.1	2.1	.07	.03	.03	.07
29	.07	.2	.1	.09	.07	.06	.1	.3	.07	.03	.03	.04
30	.07	.2	.1	.09	-	.06	.1	.1	.09	.02	.04	.04
31	.07	-	.09	.09	-	.06	-	2.8	-	.02	.04	-
Total	1.22	3.13	4.00	4.22	2.77	2.37	2.72	8.14	2.49	2.07	108.53	2.09
Mean	0.039	0.104	0.129	0.136	0.096	0.076	0.091	0.263	0.083	0.067	3.50	0.070
Ac-ft	2.4	6.2	7.9	8.4	5.5	4.7	5.4	16	4.9	4.1	215	4.1

Calendar year 1951: Max 26 Min 0.01 Mean 0.520 Ac-ft 376
Water year 1951-52: Max 106 Min 0.01 Mean 0.393 Ac-ft 285

Peak discharge (base, 500 cfs).--Aug. 12 (1 a.m.) 675 cfs (5.90 ft).

Pecos River near Lake Arthur, N. Mex.

Location.--Lat 32°59'25", long. 104°19'10", on line between secs. 26 and 27, T. 15 S., R. 26 E., on left bank 1,100 ft upstream from highway bridge, 3 miles east of Lake Arthur, 10 miles upstream from Cottonwood Creek, and 11 miles northeast of Artesia.

Drainage area.--14,760 sq mi, approximately (contributing area).

Records available.--August 1938 to September 1952.

Gage.--Water-stage recorder and rock control. Datum of gage is 3,327.07 ft above mean sea level, datum of 1929.

Average discharge.--14 years, 353 cfs.

Extremes.--Maximum discharge during year, 2,660 cfs July 20 (gage height, 6.00 ft); minimum daily, 3.8 cfs June 18.

1938-52: Maximum discharge, 49,600 cfs Sept. 24, 1941 (gage height, 21.90 ft), from rating curve extended above 16,100 cfs on basis of slope-area determinations at gage height 21.77 ft and logarithmic plotting; no flow Aug. 21, 22, 1947.

Flood of May 30, 1937, reached a stage of 21.77 ft (discharge, 51,500 cfs, by slope-area determination of peak flow), but may have been exceeded by floods of 1904 and 1919.

Remarks.--Records good above 10 cfs, fair below. Discharge measurements generally made two or more times a month. Flow partly regulated by Alamogordo Reservoir 150 miles above station (see p. 366). Diversions and ground-water withdrawals for irrigation of about 98,500 acres above station.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 30		Mar. 31 to Sept. 30					
1.9	14	1.6	3.5	2.1	25	3.6	480
2.1	27	1.7	5.2	2.4	58	4.1	770
2.4	62	1.8	7.8	2.7	115	5.1	1,640
2.7	120	1.9	12	3.1	246	5.4	1,960

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	102	88	95	38	47	440	69	37	833	a5	80
2	18	88	86	93	46	49	465	58	34	777	548	30
3	24	91	86	95	49	58	491	53	27	791	568	16
4	27	120	86	97	51	50	508	48	24	614	708	15
5	18	118	78	95	38	51	524	44	31	204	400	13
6	17	113	80	88	41	51	546	34	17	120	118	12
7	18	113	84	75	41	50	632	36	25	113	72	12
8	27	104	89	72	44	45	758	36	22	133	26	16
9	27	97	89	66	35	46	740	28	23	138	18	11
10	28	93	93	62	35	44	752	14	9.6	123	235	8.5
11	29	89	91	67	46	44	798	20	7.3	84	176	8.2
12	27	89	91	66	39	58	875	32	9.6	66	603	8.9
13	21	88	93	69	47	54	861	29	9.3	68	1,790	9.6
14	24	88	97	67	43	60	758	24	7.0	68	898	12
15	30	89	91	62	41	57	692	25	8.5	169	348	21
16	30	86	93	60	38	54	304	29	8.5	1,890	380	16
17	28	86	106	62	35	54	196	35	4.4	673	826	11
18	34	82	108	61	49	49	131	42	3.8	304	882	11
19	31	84	102	64	46	42	585	49	4.0	182	854	9.6
20	28	84	106	64	41	38	277	42	4.0	1,560	868	8.9
21	41	88	104	67	67	43	190	34	4.2	380	875	12
22	44	89	99	56	66	43	138	33	4.2	166	868	26
23	38	89	97	56	66	45	118	33	5.9	100	868	28
24	39	89	97	49	70	57	111	30	359	53	1,370	30
25	45	89	97	50	72	37	111	30	455	27	910	25
26	47	88	95	54	66	47	104	30	574	10	784	29
27	53	88	93	56	51	43	93	38	742	a9	366	24
28	57	86	95	60	46	66	78	50	910	a8	153	26
29	93	84	97	39	53	57	71	40	1,080	a7	89	34
30	120	84	97	38	-	51	69	29	861	a6	68	38
31	120	-	97	36	-	357	-	31	-	a6	71	-
Total	1,198	2,778	2,905	2,041	1,400	1,847	12,416	1,125	5,311.3	9,682	16,745	601.7
Mean	38.6	92.6	93.7	65.8	48.3	59.6	414	36.3	177	312	540	20.1
Ac-ft	2,380	5,510	5,760	4,050	2,780	3,660	24,630	2,230	10,530	19,200	33,210	1,190

Calendar year 1951: Max 1,440 Min 4.3 Mean 179 Ac-ft 129,400
Water year 1951-52: Max 1,890 Min 3.8 Mean 159 Ac-ft 115,100

Peak discharge (base, 1,500 cfs).--July 16 (8:30 a.m.) 2,420 cfs (5.75 ft); July 20 (8 a.m.) 2,660 cfs (6.00 ft); Aug. 13 (4 a.m.) 2,480 cfs (5.80 ft); Aug. 24 (10:30 a.m.) 1,690 cfs (5.13 ft).

a No gage-height record; discharge estimated on basis of adjacent record and records at upstream and downstream stations.

Cottonwood Creek near Lake Arthur, N. Mex.

Location.--Lat 32°55'00", long. 104°22'00", in SW¼SE¼ sec. 15, T. 16 S., R. 26 E., on right bank 1½ miles upstream from mouth and 6 miles south of town of Lake Arthur.

Drainage area.--199 sq mi (contributing area).

Records available.--March 1932 to September 1952.

Gage.--Water-stage recorder and concrete control. Datum of gage is 3,316.3 ft above mean sea level (river-profile survey). Prior to Aug. 30, 1938, at site 75 ft downstream at datum 2.1 ft lower. Aug. 30, 1938, to May 16, 1948, at present site at datum 1.54 ft lower than present datum.

Average discharge.--20 years, 8.74 cfs.

Extremes.--Maximum discharge during year, 8.7 cfs Aug. 12 (gage height, 1.23 ft); minimum daily, 0.4 cfs for many days.
1932-52: Maximum discharge, 1,100 cfs June 13, 1935, from rating curve extended above 15 cfs by logarithmic plotting; maximum gage height, 12.0 ft May 30, 1937, present datum, from floodmarks (backwater from Pecos River); no flow at times.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Discharge measurements generally made twice a month. Diversions above station for irrigation of about 4,500 acres.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.6	0.3
.7	.7
.8	1.5
.9	2.6
1.1	5.7

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.2	1.8	3.7	1.6	3.1	0.4	1.3	2.3	1.5	0.7	0.4
2	.7	1.2	2.0	3.7	.6	.6	.6	.5	2.6	1.3	.6	.5
3	1.0	1.2	2.0	a3.7	2.7	.5	3.0	1.2	2.6	1.3	.7	.6
4	1.2	1.2	2.0	a3.6	2.7	.6	2.6	2.0	2.3	1.4	1.2	.9
5	1.4	1.2	2.0	a3.9	2.7	.6	.4	2.4	2.3	1.3	.9	.5
6	1.2	1.2	2.3	a4.2	3.3	.6	.7	1.9	2.3	1.6	.6	.6
7	1.2	1.3	2.2	4.5	3.6	2.0	.4	1.8	1.9	1.7	.5	.6
8	1.2	1.3	2.3	4.7	3.0	3.0	.4	1.6	1.9	1.6	.6	.4
9	1.3	1.3	2.4	4.3	2.7	4.8	.4	1.6	1.9	1.5	1.8	.4
10	1.4	1.4	2.5	a4.5	3.0	4.8	.4	1.6	1.9	1.5	.7	.4
11	1.5	1.5	2.6	a4.5	2.9	4.8	.8	1.7	2.0	1.6	1.2	.4
12	2.3	1.4	2.6	a4	3.2	3.1	.5	1.5	2.0	1.6	3.1	.4
13	2.0	1.5	2.5	a4	3.4	.6	.5	1.5	1.9	1.4	1.7	.4
14	2.2	1.5	2.3	a4	2.6	.5	.5	1.7	1.7	1.3	1.9	.4
15	2.0	1.6	2.0	a4	.4	.5	.5	1.6	1.5	1.9	1.1	.4
16	1.7	1.6	2.2	a4	.4	.4	.5	1.6	1.5	1.9	1.0	.4
17	1.4	1.6	2.4	a4	.4	.4	.5	1.7	1.4	2.0	1.0	.4
18	1.2	1.7	2.3	a4	.4	.4	.5	2.0	1.4	1.3	1.0	.4
19	1.2	1.6	2.5	a3.5	.4	.4	.5	2.0	1.3	1.1	.9	.4
20	1.1	1.6	2.5	a3.5	1.2	.4	.5	1.9	1.3	1.0	1.2	.4
21	1.0	1.6	2.5	a3.5	5.0	.8	.5	1.9	1.2	1.0	1.4	.4
22	1.0	1.6	2.6	3.6	5.2	.5	.5	1.9	1.1	1.0	1.1	.6
23	1.0	1.6	2.6	a3	4.8	.4	.5	1.9	1.1	1.0	.9	.6
24	1.1	1.7	2.7	a3	4.7	.4	.5	1.8	1.2	.9	.9	.6
25	1.1	1.7	2.9	a3	4.5	.6	.5	1.9	1.8	.9	.8	.6
26	1.2	1.7	3.0	a3	4.7	.4	.5	2.0	1.4	.8	.7	.7
27	1.1	1.7	3.2	a3	4.8	.4	.5	2.7	1.7	.8	.5	.8
28	1.1	1.7	3.2	a3.5	3.7	.4	.5	2.5	2.6	.7	.5	1.0
29	1.1	1.7	3.3	3.9	4.2	.4	.7	2.5	3.2	.8	.5	1.1
30	1.1	1.7	3.4	4.2	-	.4	1.9	2.3	1.6	.7	.6	1.1
31	1.3	-	3.6	3.6	-	.4	-	2.2	-	.7	.9	-
Total	40.0	44.8	78.4	117.6	82.8	37.2	21.2	56.7	54.9	39.1	31.2	16.8
Mean	1.29	1.49	2.53	3.79	2.86	1.20	0.71	1.83	1.83	1.26	1.01	0.56
Ac-ft	79	89	156	233	164	74	42	112	109	78	62	33

Calendar year 1951: Max 15 Min 0.4 Mean 1.55 Ac-ft 1,120
Water year 1951-52: Max 5.2 Min 0.4 Mean 1.70 Ac-ft 1,230

Peak discharge (base, 40 cfs).--No peaks above base.
a No gage-height record; discharge estimated on basis of recorded range in stage, discharge measurements, and weather records.

Pecos River near Artesia, N. Mex.

Location.--Lat 32°50'05", long. 104°19'25", in W½NW¼ sec. 18, T. 17 S., R. 27 E., near left bank on downstream end of bridge pier on State Highway 83, 4.3 miles east of Artesia, 7.0 miles north of mouth of Rio Penasco, and 17 miles north of McMillan Dam.
Drainage area.--15,300 sq mi, approximately (contributing area).
Records available.--March 1905 to September 1925, October 1931 to February 1936 (published as "near Dayton") and February 1936 to September 1952 in reports of Geological Survey. March 1905 to December 1931 in reports of State engineer.
Gage.--Water-stage recorder. Altitude of gage is 3,290 ft (from river-profile map). Prior to Aug. 27, 1914, staff gage and Aug. 27, 1914, to Feb. 21, 1936, water-stage recorder, at site 6½ miles downstream at different datum. Feb. 21, 1936, to Apr. 4, 1941, water-stage recorder at site 600 ft downstream from present site at different datum.
Average discharge.--16 years (1936-52), 390 cfs.
Extremes.--Maximum discharge during year, 2,340 cfs July 20 (gage height, 10.35 ft); minimum daily, 2.1 cfs Aug. 1.
1905-52: Maximum gage height, 15.9 ft Sept. 18, 1919, site and datum then in use (discharge not determined). Flood of May 30, 1937, reached a gage height of 14.7 ft (discharge, 51,500 cfs, by slope-area method); no flow Aug. 17-24, 1934, Aug. 14-25, 1946, Aug. 1-22, 1947.
Remarks.--Records good except those above 1,000 cfs, which are fair. Discharge measurements generally made three times a month. Flow partly regulated by Alamogordo Reservoir (see p. 366). Diversions and ground- water withdrawals for irrigation of about 128,000 acres above station. Discharge represents inflow to Lake McMillan, which stores water for irrigation of about 25,000 acres of Carlsbad project. Records for chemical analyses, water temperatures, and sediment loads for the water year 1952 are given in Water-Supply Paper 1252.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 27 to June 15, June 25-27, July 22 to Aug. 3, Aug. 14-17, Aug. 28 to Sept. 30)

Oct. 1 to Mar. 31		Apr. 1 to Sept. 30			
3.2	11	2.8	1.4	4.2	86
3.4	20	2.9	2.8	4.7	157
3.8	49	3.0	4.7	5.7	345
4.3	104	3.1	7.4	6.7	590
4.8	179	3.3	15	7.7	900
		3.7	39	9.4	1,690

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	110	90	101	44	56	345	72	37	820	2.1	59
2	14	98	91	96	47	52	365	64	40	750	250	48
3	20	91	89	98	48	55	402	58	33	780	590	27
4	25	108	87	100	54	58	428	53	29	736	565	19
5	27	123	87	101	51	56	428	52	25	304	556	11
6	21	120	83	101	39	56	452	46	30	126	138	9.2
7	21	121	83	94	43	54	502	38	19	98	59	12
8	24	113	90	84	42	57	615	41	27	92	37	9.6
9	31	103	92	80	42	54	675	38	25	127	24	13
10	32	98	94	77	41	57	690	31	25	96	52	9.9
11	35	95	92	76	47	54	750	22	13	83	252	9.2
12	35	94	91	81	49	58	795	30	12	59	229	8.1
13	32	90	94	81	47	64	812	36	12	64	1,640	5.5
14	28	90	92	83	52	58	750	31	13	55	932	3.9
15	30	90	95	80	47	62	675	24	11	58	440	9.2
16	35	92	95	74	43	58	414	25	11	1,330	285	18
17	35	91	103	74	42	58	218	30	9.9	930	735	13
18	34	89	110	76	44	56	152	39	6.0	390	848	11
19	39	87	109	75	51	51	393	50	4.5	237	830	11
20	33	90	112	78	43	41	336	44	7.8	1,220	865	8.8
21	33	92	112	81	50	39	220	37	5.2	431	830	9.9
22	46	94	110	74	68	43	157	31	3.8	192	795	18
23	43	98	107	68	69	47	123	32	3.6	98	812	31
24	41	99	105	63	72	52	113	33	141	63	1,150	31
25	43	98	104	58	77	55	109	28	415	48	935	31
26	53	96	101	59	76	43	106	33	515	36	750	28
27	51	94	100	60	70	52	94	35	602	24	382	30
28	56	94	98	64	58	52	91	51	945	18	173	28
29	62	91	99	60	51	60	72	51	1,060	9	103	28
30	124	87	101	49	-	57	71	41	851	6	66	36
31	123	-	101	46	-	179	-	33	-	4	56	-
Total	1,237	2,936	3,017	2,392	1,507	1,794	11,353	1,229	4,931.8	9,284	15,379.1	586.3
Mean	39.9	97.9	97.3	77.2	52.0	57.9	378	39.6	164	299	496	19.5
Ac-ft	2,450	5,820	5,980	4,740	2,990	3,560	22,520	2,440	9,780	18,410	30,500	1,160

Calendar year 1951: Max 1,450 Min 1.0 Mean 177 Ac-ft 128,100
Water year 1951-52: Max 1,640 Min 2.1 Mean 152 Ac-ft 110,400

Peak discharge (base, 1,500 cfs).--July 16 (3:30 p.m.) 2,060 cfs (10.05 ft); July 20 (1:30 p.m.) 2,340 cfs (10.35 ft); Aug. 13 (9:30 a.m.) 2,200 cfs (10.10 ft).

Rio Penasco near Dayton, N. Mex.

Location.--Lat 32°44'30", long. 104°22'35", in SW¼SW¼ sec. 15, T. 18 S., R. 26 E., on right bank 3 ft upstream from crest of abandoned diversion dam, 1 mile northeast of old Dayton railway station, 3½ miles upstream from mouth and 7 miles southeast of Artesia.

Drainage area.--1,070 sq mi, approximately.

Records available.--April 1951 to September 1952. Records for September 1905 to June 1908 (gage heights only July 1906 to June 1908), at site 2½ miles downstream, published as Penasco River near Dayton, not equivalent.

Gage.--Water-stage recorder and concrete control. Datum of gage is 3,340.89 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 454 cfs July 19 (gage height, 1.39 ft); no flow most of year.
1951-52: Maximum discharge, that of July 19, 1952; no flow for long periods.
Revisions.--The maximum discharge for period April to September 1951 has been revised to 235 cfs July 11, 1951 (gage height, 1.15 ft), superseding figure published in Water-Supply Paper 1212.

Remarks.--Records excellent. Diversions above station for irrigation of about 2,700 acres. Records for water temperatures and sediment loads for water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, October 1951 to September 1952

July 17.....	*36	July 19.....	85
18.....	*13	20.....	14

* Discharge measurement made on this day.
Note.--Flow occurred only on days listed above.

Month	Cfs-days	Minimum	Minimum	Mean	Runoff in acre-feet
July.....	148	85	0	4.8	294
Water year 1951-52.	148	85	0	.4	294

Four Mile Draw near Lakewood, N. Mex.

Location.--Lat 32°40'45", long. 104°23'40", at west line of SW¼SW¼ sec. 4, T. 19 S., R. 26 E., on downstream side of center of pier of bridge on U. S. Highway 285, 3.8 miles northwest of Lakewood and 5½ miles upstream from mouth.

Drainage area.--265 sq mi, approximately.

Records available.--October 1951 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 3,329.75 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 820 cfs June 28 (gage height, 7.40 ft); no flow for long periods.

Remarks.--Records good.

Discharge, in cubic feet per second, October 1951 to September 1952

June 28.....	*104	July 8.....	9
29.....	*133	14.....	1
		15.....	1

* Discharge measurement made on this day.
Note.--Flow occurred only on days listed above.

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
June.....	237	133	0	7.9	470
July.....	11	9	0	.4	22
Water year 1951-52	248	133	0	.7	492

Kaiser Lake-McMillan Channel near Lakewood, N. Mex.

Location.--Lat 32°39'05", long. 104°13'50", in NE¼ sec. 19, T. 19 S., R. 27 E., on left bank 3½ miles northeast of Lakewood, 4¼ miles northeast of gates in McMillan Dam, 14 miles southeast of Artesia and half a mile above high-water line of Lake McMillan.

Records available.--May 1950 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 3,260.70 ft above mean sea level (levels by Bureau of Reclamation).

Extremes.--Maximum discharge during year, 1,140 cfs Aug. 25 (gage height, 6.86 ft); no flow June 22-24, Sept. 15, 16.
1950-52: Maximum daily discharge, 1,440 cfs July 9, 1950; no flow Aug. 21-23, Sept. 10, 1951, June 22-24, Sept. 15, 16, 1952.

Remarks.--Records good except those for period Oct. 1-17, which are fair. Discharge measurements generally made 2 or 3 times a month. Flow partly regulated by Alamogordo Reservoir (see p.). Diversions and ground-water withdrawals above station for irrigation of about 147,000 acres. Channel will not carry entire flow of Pecos River at higher stages.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 1, 2, July 24 to Aug. 2, Aug. 7-10, 18-21)

Oct. 1 to Mar. 31		Apr. 1 to Aug. 17				Aug. 18 to Sept. 30			
2.9	3.0	2.4	0	3.1	14	1.7	0	2.8	31
3.0	5.5	2.5	.3	3.2	22	1.8	.3	3.1	59
3.1	9.5	2.6	.8	3.3	34	1.9	.8	3.6	133
3.2	16	2.7	1.6	3.6	90	2.0	1.6	4.1	238
3.3	26	2.8	2.9	4.6	332	2.1	2.8	5.1	520
3.6	74	2.9	5.0	5.6	635	2.2	4.5	6.1	860
3.7	93	3.0	8.8	6.7	1,080	2.3	6.8	6.7	1,100
						2.5	13		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5	82	67	82	36	50	224	69	24	800	1.2	37
2	6	76	67	87	36	53	320	64	28	760	.4	49
3	6	69	67	80	40	51	371	59	32	760	376	33
4	8	65	67	78	40	56	397	55	24	740	480	18
5	10	60	58	80	48	56	410	50	20	548	582	10
6	10	82	63	76	43	51	424	45	20	211	289	6.1
7	8	82	61	80	36	53	437	40	20	113	90	3.1
8	8	84	63	70	39	54	512	36	12	104	42	3.5
9	12	82	65	72	39	54	600	37	18	120	21	3.6
10	18	76	67	65	39	53	618	33	17	113	18	3.3
11	19	72	69	61	39	54	652	24	17	92	145	3.6
12	20	69	70	61	42	51	722	20	6.9	63	160	2.6
13	20	70	72	63	59	60	722	30	4.0	45	596	2.6
14	17	69	78	65	50	58	740	30	6.9	54	1,080	1.5
15	16	70	72	65	51	56	688	27	6.5	50	612	0
16	17	70	78	61	45	58	600	22	4.6	264	280	0
17	18	69	80	60	43	51	302	24	3.3	992	449	4.3
18	18	67	84	58	39	54	191	34	2.4	531	720	5.2
19	18	69	89	56	46	48	185	45	1.9	280	738	3.5
20	23	67	89	58	48	42	458	52	1.0	395	755	2.7
21	19	69	87	56	37	36	286	42	.1	841	772	2.0
22	19	69	87	60	58	37	201	33	0	309	772	2.6
23	29	70	87	51	67	42	148	29	0	143	772	12
24	26	70	84	48	70	46	127	32	0	82	808	23
25	26	72	84	45	70	51	124	30	139	52	1,100	23
26	31	70	85	46	72	43	113	24	358	34	825	25
27	36	69	80	46	72	39	99	32	451	20	615	20
28	36	67	84	45	63	43	97	34	626	13	252	19
29	39	67	76	51	51	56	86	50	820	8.0	139	18
30	51	67	84	46	-	63	73	42	900	4.4	71	20
31	82	-	85	39	-	63	-	30	-	2.0	40	-
Total	671	2,160	2,349	1,911	1,418	1,582	10,927	1,174	3,563.6	8,543.4	13,600.6	357.2
Mean	21.6	72.0	75.8	61.6	48.9	51.0	364	37.9	119	276	439	11.9
Ac-ft	1,330	4,280	4,660	3,790	2,810	3,140	21,670	2,330	7,070	16,950	26,980	708

Calendar year 1951: Max 632 Min 0 Mean 111 Ac-ft 80,570
Water year 1951-52: Max 1,100 Min 0 Mean 132 Ac-ft 95,720

Pecos River below McMillan Dam, N. Mex.

Location.--Lat 32°35'30", long. 104°21'00", in NE¼ sec. 11, T. 20 S., R. 26 E., on left bank 700 ft downstream from gates in McMillan Dam and 3 miles southeast of Lakewood.

Drainage area.--16,990 sq mi, approximately (contributing area).

Records available.--August 1939 to December 1940, December 1946 to September 1952.

Gage.--Water-stage recorder with rock control. Datum of gage is 3,239.30 ft above mean sea level, datum of 1929 (corrected). August 1939 to December 1940, at site 30 ft downstream at datum 0.99 ft lower.

Average discharge.--7 years (1939-40, 1946-52), 60.1 cfs.

Extremes.--Maximum discharge during year, 1,190 cfs Jan. 9 (gage height, 4.63 ft); no flow for many days.
1939-40, 1946-52: Maximum discharge 3,210 cfs Sept. 16, 1949 (gage height, 7.47 ft); no flow during many periods.
Flood of Oct. 2, 1904, was estimated as 82,000 cfs by chief engineer of Pecos River River Irrigation Co.

Remarks.--Records good. Flow regulated by Alamogordo Reservoir and Lake McMillan (see p.). Diversions for irrigation of about 147,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.3	0.0	1.0	23
.4	.3	1.3	51
.5	1.1	1.7	110
.6	2.9	2.2	210
.7	5.9	2.7	355
.8	10	3.7	755

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.2	0.4	*130	*0.3	0.2	*0.1	*347	*308
2				0	.2	.4	218	.3	*.1	.1	1.8	296
3			(*)	0	.2	*.4	341	.3	.1	210	181	281
4				0	*.2	.3	348	5.7	0	404	468	115
5				0	.2	.3	344	.3	.1	338	492	4.9
6				0	.2	.3	369	.2	.1	308	438	.1
7				0	.2	.3	422	.2	.1	305	91	.1
8				0	.2	.3	431	.2	0	260	.4	.1
9			(*)	266	.2	.3	*580	.2	0	*235	.4	0
10				*237	.2	.3	579	.2	.1	232	.4	3.4
11				51	.2	.3	659	.2	*.1	201	.3	.1
12				28	.2	.3	656	.2	.1	173	.3	0
13				.2	.2	.3	710	.1	.1	171	*115	0
14				.2	.2	.3	732	.1	0	125	314	0
15				.1	.2	.3	608	.1	0	.2	517	0
16				.2	.2	.3	230	*.1	*.1	.2	317	*0
17				.2	.2	.3	*171	.1	0	.2	517	0
18				.2	.2	.2	1.3	.2	0	7.1	517	0
19				.2	.3	.1	.7	.2	0	.2	362	0
20				.2	.3	.1	.6	.2	0	.1	394	0
21				.2	.3	*.1	.6	.1	0	.1	394	0
22				.2	.3	.1	.6	.1	0	.1	397	0
23				.2	.3	.1	*.5	.1	0	0	400	0
24				.2	.4	.1	.5	.1	0	.1	404	.1
25				.2	.4	.1	.4	.1	0	0	408	9.0
26				.2	.4	.1	.4	.1	0	0	414	14
27				.2	.4	172	.4	.2	119	0	366	13
28				.2	.4	266	.3	.2	251	.1	324	8.0
29				.2	.4	36	.3	.1	.2	239	324	3.8
30				.2	-	41	.3	.1	.1	380	317	10
31				.2	-	30	-	.1	-	390	311	-
Total	0	0	0	585.7	7.5	551.4	7,534.9	10.7	371.5	3,979.6	8,532.6	1,066.6
Mean	0	0	0	18.9	0.26	17.8	251	0.35	12.4	128	275	35.6
Ac-ft	0	0	0	1,160	15	1,090	14,950	21	737	7,890	16,920	2,120

Calendar year 1951: Max 425 Min 0 Mean 50.8 Ac-ft 36,810
Water year 1951-52: Max 732 Min 0 Mean 61.9 Ac-ft 44,900

* Discharge measurement or observation of no flow made on this day.

Pecos River at dam site 3, near Carlsbad, N. Mex.

Location.--Lat 32°30'45", long. 104°19'50", in lot 14, sec. 6, T. 21 S., R. 26 E., on right bank at dam site 3 of Carlsbad project of Bureau of Reclamation, about 1 mile upstream from flow line of Lake Avalon, 1.3 miles downstream from Rocky Arroyo, and 8 miles northwest of Carlsbad.

Drainage area.--17,620 sq mi, approximately (contributing area).

Records available.--August 1939 to December 1940, August 1944 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 3,172.31 ft above mean sea level (Bureau of Reclamation datum). Prior to Aug. 10, 1944, at site 1,000 ft downstream at same datum.

Average discharge.--9 years (1939-40, 1944-52), 183 cfs.

Extremes.--Maximum discharge during year, 4,920 cfs June 29 (gage height, 6.52 ft); minimum daily, 17 cfs June 23, 24.

1939-40, 1944-52: Maximum discharge, 18,200 cfs May 31, 1949 (gage height, 12.3 ft); minimum daily, 16 cfs June 18-21, 1946, Oct. 11, 1947.

Flood of Oct. 2, 1904, was estimated at 82,000 cfs at McMillan Dam (about 10 miles upstream) by chief engineer of Pecos River Irrigation Co.

Remarks.--Records good. Discharge measurements generally made twice a month. Flow regulated by storage in Alamogordo Reservoir and Lake McMillan (see p. 366). Diversions and ground-water withdrawals for irrigation of about 150,000 acres above station. Discharge represents inflow to Lake Avalon. Results of chemical analyses for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.0	12	1.0	172
.1	18	1.5	349
.3	38	2.5	840
.6	83	2.9	1,100

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	29	23	73	85	60	73	87	119	32	71	533	409
2	28	23	73	85	60	66	199	119	31	81	163	404
3	27	24	74	83	63	66	349	119	31	168	181	395
4	27	24	73	83	64	73	349	115	30	462	540	306
5	26	27	73	85	60	64	350	108	31	435	545	144
6	27	32	76	83	57	57	404	100	31	404	550	121
7	26	37	81	83	54	52	422	94	30	413	242	112
8	26	42	76	83	52	48	407	89	27	465	106	102
9	24	51	68	209	52	44	605	87	26	353	87	92
10	24	56	64	400	51	47	555	83	25	357	81	87
11	23	60	63	160	50	57	656	78	24	349	76	80
12	23	64	64	100	51	54	659	71	24	301	69	74
13	22	69	68	62	57	57	702	63	21	301	73	69
14	21	71	71	58	60	54	730	58	21	368	317	63
15	21	71	73	55	56	48	708	56	21	201	353	60
16	21	68	69	51	51	44	297	54	20	151	370	57
17	21	64	68	48	50	38	286	52	19	149	378	52
18	20	64	71	46	46	42	96	50	18	151	383	48
19	21	64	71	43	50	43	85	48	18	149	417	47
20	22	66	73	46	51	54	94	44	19	151	453	44
21	22	68	80	43	48	54	92	41	19	154	462	42
22	21	68	74	48	47	54	98	44	18	154	466	44
23	21	71	78	51	47	51	102	44	17	154	471	41
24	22	71	80	50	51	46	108	42	17	154	476	39
25	23	71	80	50	52	42	110	39	18	151	484	38
26	23	73	80	54	54	38	115	38	24	151	484	39
27	23	73	80	56	57	69	117	39	46	149	462	43
28	22	73	80	56	60	246	117	37	309	149	422	41
29	22	73	81	57	64	133	117	34	1,070	256	422	39
30	22	73	85	58	-	78	119	32	66	484	417	37
31	24	-	83	58	-	68	-	32	-	476	413	-
Total	724	1,714	2,303	2,529	1,575	1,960	9,135	2,027	2,103	7,912	10,896	3,169
Mean	23.4	57.1	74.3	81.6	54.3	63.2	304	65.4	70.1	255	351	106
Ac-ft	1,440	3,400	4,570	5,020	3,120	3,890	18,120	4,020	4,170	15,690	21,610	6,290

Calendar year 1951: Max 540 Min 20 Mean 164 Ac-ft 118,700
Water year 1951-52: Max 1,070 Min 17 Mean 126 Ac-ft 91,340

Peak discharge (base, 1,700 cfs).--June 29 (2 a.m.) 4,920 cfs (6.52 ft).

Carlsbad main canal at head, near Carlsbad, N. Mex.

Location.--Lat 32°29'28", long. 104°15'08", in N½SW¼SW¼ sec. 12, T. 21 S., R. 26 E., on right bank 220 ft downstream from head gates in Avalon Dam and 5.0 miles north of Carlsbad.

Records available.--July 1939 to December 1940 (published as "Carlsbad project main canal"), April 1951 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 3,140 ft (from topographic map). July 1939 to December 1940, at site 20 ft upstream at datum 0.9 ft higher.

Extremes.--1939-40, 1951-52: Maximum daily discharge, 490 cfs July 13, 1940; no flow at times.

Remarks.--Records excellent. Discharge measurements made 3 or 4 times a month during irrigation season. Diverts water from Lake Avalon for irrigation of Carlsbad Irrigation District. Records of chemical analyses for the water year 1952 are given in Water-Supply Paper 1252.

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff-in acre-feet
October	13	0	6.64	408
November	0	0	0	0
December	0	0	0	0
Calendar year 1951	-	-	-	-
January	263	0	93.5	5,750
February	0	0	0	0
March	273	0	56.3	3,460
April	382	0	227	13,490
May	145	0	66.8	4,110
June	209	0	22.5	1,340
July	441	0	245	15,080
August	466	0	348	21,390
September	405	0	113	6,730
Water year 1951-52	466	0	98.8	71,760

Pecos River below Avalon Dam, N. Mex.

Location.--Lat 32°28'53", long. 104°15'43", in SW¼SW¼NE¼ sec. 14, T. 21 S., R. 26 E., 5,200 ft below Avalon Dam and 4.5 miles northwest of Carlsbad.
Drainage area.--18,080 sq mi, approximately (contributing area).
Records available.--June 1951 to September 1952.
Gage.--Water-stage recorder. Altitude of gage is 3,130 ft (from topographic map).
Extremes.--Maximum discharge during period June 1951 to September 1952, 10 cfs June 28, 1952 (gage height, 3.90 ft); no flow most of period.
Remarks.--Records poor. Flow regulated by Alamogordo Reservoir, Lake McMillan and Lake Avalon (see p. 365). Diversions and ground-water withdrawals above station for irrigation of about 175,000 acres. Station bypassed by Carlsbad main canal (see p. 349).

Discharge, in cubic feet per second, June 1951 to September 1952
June 28, 1952 1

Note.--Flow occurred only on day listed above

Month	Cfs-days	Maximum	Minimum	Mean	Runoff-in acre-feet
June 1952.....	1	1	0	0.03	2.0
Water year 1951-52..	1	1	0	.003	2.0

Pecos River at Carlsbad, N. Mex.

Location.--Lat 32°24'50", long. 104°13'20", in NW¼SE¼ sec. 6, T. 22 S., R. 27 E., in downstream end of pier near center of Green Street Bridge in Carlsbad, half a mile upstream from Dark Canyon.
Drainage area.--18,100 sq mi, approximately (contributing area).
Records available.--May 1903 to March 1908, May 1914 to September 1925, October 1928 to September 1930, and October 1931 to September 1952 in reports of Geological Survey. June 1903 to December 1906, May 1914 to December 1928, and January 1930 to December 1931 in reports of State engineer.
Gage.--Water-stage recorder. Datum of gage is 3,080.38 ft above mean sea level, datum of 1929. Prior to October 1931, several types of gages (staff gage prior to June 1, 1920) in immediate vicinity of present site at different datums.
Average discharge.--23 years (1914-37), 304 cfs (prior to completion of Alamogordo Dam); 15 years (1937-52), 248 cfs.
Extremes.--Maximum discharge during year, 109 cfs Apr. 8 (gage height, 1.49 ft); minimum daily, 23 cfs May 15, June 12, Aug. 10, 30, 31.
1903-8, 1914-52: Maximum discharge, 85,700 cfs Aug. 7, 1916 (gage height, about 21.0 ft), from rating curve extended above 34,000 cfs by logarithmic plotting; no flow May 9, 1904.
Remarks.--Records good. Flow regulated by Alamogordo Reservoir, Lake McMillan, Lake Avalon (see p. 366), and at low stages by powerplant above station. Diversions and ground-water withdrawals above station for irrigation of about 175,000 acres. Records for chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	35	42	41	47	36	30	55	38	48	42	33
2	31	55	51	43	29	38	60	26	60	41	37	*39
3	54	40	48	41	39	50	37	30	30	42	39	54
4	34	40	32	43	36	*28	64	33	57	36	58	38
5	*41	60	36	43	44	51	36	39	24	32	41	37
6	53	35	40	41	*66	42	46	*40	55	40	44	38
7	29	55	32	41	31	40	46	51	24	50	41	32
8	54	*29	43	41	29	46	56	33	25	*43	41	38
9	29	53	48	40	41	49	30	35	*62	46	29	36
10	31	29	*30	40	38	48	33	26	30	46	23	38
11	57	43	40	41	39	47	*58	37	33	49	33	54
12	31	46	41	41	56	74	30	38	23	54	26	26
13	52	46	40	41	27	32	50	32	33	41	*32	35
14	31	31	60	43	38	*47	41	54	44	46	33	37
15	55	56	42	43	42	46	49	23	37	56	34	40
16	31	49	31	43	57	38	54	26	52	54	25	44
17	51	31	42	*43	48	52	32	31	34	48	35	51
18	33	31	*31	45	26	49	62	36	35	50	36	25
19	61	36	38	44	*36	73	30	46	33	50	34	37
20	33	50	55	42	58	45	40	28	38	48	36	32
21	42	50	46	42	47	43	60	36	48	57	35	36
22	*60	43	29	39	31	33	29	44	31	53	37	40
23	36	31	33	40	31	40	52	*40	42	55	36	*60
24	33	35	40	40	44	52	37	24	*39	56	43	50
25	59	40	41	50	43	74	30	44	41	45	40	35
26	39	*45	43	44	32	40	36	27	38	44	44	64
27	56	34	43	48	55	34	35	52	40	25	43	30
28	38	41	*43	32	30	34	53	39	30	*40	41	42
29	60	46	48	33	29	44	48	27	35	46	35	63
30	35	36	41	57	-	45	28	38	46	41	23	37
31	60	-	43	35	-	74	-	36	-	44	23	-
Total	1,369	1,251	1,272	1,300	1,169	1,444	1,292	1,126	1,157	1,426	1,119	1,221
Mean	44.2	41.7	41.0	41.9	40.3	46.6	43.1	36.3	38.6	46.0	36.1	40.7
Ac-ft	2,720	2,480	2,520	2,580	2,320	2,860	2,560	2,230	2,290	2,830	2,220	2,420

Calendar year 1951: Max 286 Min 1.2 Mean 61.7 Ac-ft 44,660
Water year 1951-52: Max 74 Min 23 Mean 41.4 Ac-ft 30,030

* Discharge measurement made on this day.

Black River above Malaga, N. Mex.

Location.--Lat 32°13'40", long. 104°09'05", in SW¼ sec. 12, T. 24 S., R. 27 E., on right bank 0.6 mile upstream from Black River diversion dam, 4.8 miles west of Malaga, and 7 miles upstream from mouth.

Drainage area.--343 sq mi.

Records available.--December 1946 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 3,070 ft (from topographic map).

Average discharge.--5 years (1947-52), 13.1 cfs.

Extremes.--Maximum discharge during year, 530 cfs July 14 (gage height, 2.99 ft); minimum daily, 2.7 cfs Sept. 19-21.

1946-52: Maximum discharge, 9,230 cfs July 22, 1948 (gage height, 9.82 ft), from rating curve extended above 1,400 cfs on basis of slope-area determination at gage height 8.41 ft; minimum daily, that of Sept. 19-21, 1952.

Maximum stage known, 19.0 ft in September 1941, from well-defined floodmarks determined in 1947 (discharge not determined).

Remarks.--Records good. Discharge measurements generally made twice a month. Diversions for irrigation of about 1,200 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.6	1.3	1.0	16
.7	2.9	1.2	33
.8	5.7	1.5	72
.9	9.9		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	7.4	9.5	9.5	8.6	5.1	9.1	7.0	12	7.4	9.1	5.1
2	7.0	7.8	9.9	9.9	8.2	5.1	8.2	7.0	12	7.8	8.6	4.9
3	6.1	7.8	9.5	11	7.4	5.7	7.8	7.4	14	24	8.2	4.9
4	5.1	7.4	9.1	9.9	8.2	6.1	7.8	7.4	13	10	7.4	4.6
5	4.9	8.2	9.1	9.9	7.8	6.5	7.4	7.0	12	8.2	6.5	4.6
6	4.9	8.6	8.6	9.9	7.4	7.0	7.4	7.0	12	8.2	6.1	5.1
7	4.9	8.6	8.6	9.9	7.0	7.4	7.4	7.4	11	8.6	6.1	5.1
8	5.1	7.8	9.1	9.5	6.5	7.0	7.4	7.4	11	11	6.5	5.1
9	5.1	7.4	9.1	11	6.5	7.0	7.4	7.4	9.9	9.9	6.5	5.1
10	5.1	7.4	9.1	9.5	6.5	7.0	8.2	7.8	9.5	9.9	6.5	5.4
11	5.4	8.2	9.1	9.1	5.7	7.8	8.6	7.8	9.5	9.5	6.5	6.1
12	5.7	7.8	9.1	9.9	5.4	7.0	8.2	8.2	9.1	11	6.5	6.5
13	6.1	7.8	9.9	9.9	5.7	7.0	8.2	7.8	8.6	8.6	8.6	6.1
14	6.5	7.8	9.9	9.5	6.5	7.8	8.2	8.2	8.6	64	11	6.1
15	7.0	7.8	9.5	9.5	7.0	8.2	7.8	8.6	8.6	62	9.5	6.1
16	7.0	7.8	9.5	9.5	7.0	8.2	8.2	8.6	18	15	8.6	5.4
17	7.0	7.8	9.5	9.5	7.0	8.2	8.2	9.5	9.9	12	8.6	4.0
18	6.5	7.8	9.5	11	7.0	7.8	8.2	9.9	7.0	8.6	9.5	2.9
19	6.5	8.2	9.5	9.5	6.5	7.8	8.2	11	6.1	8.6	8.6	2.7
20	6.1	8.6	9.9	9.5	7.0	7.8	8.2	9.9	5.4	8.2	6.5	2.7
21	6.1	8.6	9.9	9.5	6.5	7.8	7.0	9.5	5.7	7.4	6.1	2.7
22	6.5	8.6	9.5	9.1	6.5	7.8	6.5	9.5	6.1	7.8	7.0	3.7
23	6.1	8.6	9.5	8.6	6.1	7.8	7.0	9.1	6.1	7.4	7.0	5.4
24	5.7	9.1	9.5	8.2	5.7	8.2	7.8	9.5	6.1	6.5	6.1	4.9
25	6.1	9.1	9.5	8.6	6.1	8.2	7.4	9.5	7.4	7.0	5.7	4.6
26	6.5	8.6	9.5	8.2	5.7	8.2	7.0	9.1	7.0	7.0	5.7	4.6
27	7.0	9.1	9.5	8.6	5.4	9.1	7.0	9.9	7.8	7.4	5.4	4.3
28	7.4	9.5	9.9	8.2	5.1	9.9	7.0	40	9.9	7.0	5.7	4.6
29	7.4	9.1	9.5	8.6	5.7	9.9	7.0	22	9.5	6.5	5.7	4.3
30	6.5	9.5	9.5	9.1	-	9.5	7.0	15	8.6	7.4	5.7	5.4
31	7.0	-	9.5	8.6	-	9.5	-	14	-	8.2	5.7	-
Total	191.3	247.8	292.3	292.2	191.7	237.4	230.8	319.4	281.4	392.1	221.2	143.0
Mean	6.17	8.26	9.43	9.43	6.61	7.66	7.69	10.3	9.38	12.6	7.14	4.77
Ac-ft	379	492	580	580	380	471	458	634	558	778	439	284

Calendar year 1951: Max 53 Min 3.7 Mean 8.88 Ac-ft 6,430
Water year 1951-52: Max 64 Min 2.7 Mean 8.31 Ac-ft 6,030

Peak discharge (base, 200 cfs).--July 14 (6:30 a.m.) 530 cfs (2.99 ft); July 15 (3:30 a.m.) 374 cfs (2.62 ft).

Pecos River near Malaga, N. Mex.

Location.--Lat 32°12'30", long. 104°01'30", in N½ sec. 19, T. 24 S., R. 29 E., on right bank 3 miles southeast of Malaga and 3 miles downstream from Black River.

Drainage area.--19,190 sq mi, approximately (contributing area).

Records available.--May 1920 to September 1925 and October 1931 to September 1952 in reports of Geological Survey. January 1921 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 2,895.68 ft above mean sea level, datum of 1929. Prior to Mar. 25, 1949, at datum 3 ft higher.

Average discharge.--17 years (1920-37), 299 cfs (prior to completion of Alamogordo Reservoir); 15 years (1937-52), 314 cfs.

Extremes.--Maximum discharge during year, 210 cfs July 15 (gage height, 3.25 ft); minimum daily, 14 cfs Apr. 4, 8, July 29, 30, Aug. 5, 6.
1920-52: Maximum discharge, 63,700 cfs Sept. 21, 1941, from rating curve extended above 22,500 cfs by logarithmic plotting; maximum gage height, 35.1 ft, present datum, May 22, 1941, from floodmarks; no flow Aug. 20-22, 1934.

Remarks.--Records good except those for period Mar. 22-28, which are fair. Discharge measurements generally made twice a month. Flow regulated by Alamogordo Reservoir, Lakes McMillan and Avalon, and by several small diversion dams that divert for power and irrigation. Diversions and ground-water withdrawals above station for irrigation of about 181,000 acres. Records of chemical analyses for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.8	9
2.0	24
2.4	66
3.0	159

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	64	70	79	75	80	65	22	34	25	15	17	22
2	66	71	76	79	74	60	19	36	21	15	15	22
3	70	67	79	92	83	65	16	38	19	16	15	23
4	70	54	76	85	75	70	14	39	18	35	15	21
5	70	53	75	83	70	74	15	31	26	25	14	20
6	67	56	67	80	71	60	15	33	28	16	14	21
7	67	83	70	76	90	50	16	43	28	15	15	23
8	70	79	72	79	86	48	14	44	37	21	15	21
9	70	76	74	82	69	48	17	46	36	32	15	22
10	71	75	78	80	67	54	15	42	34	36	15	21
11	67	79	79	78	74	56	19	36	56	33	18	21
12	66	74	78	79	74	51	20	27	51	29	18	21
13	67	74	79	83	76	56	28	24	44	44	17	20
14	65	74	79	85	78	67	34	23	39	54	16	19
15	64	76	78	86	67	60	23	22	37	148	17	18
16	67	72	83	83	72	59	21	29	47	96	24	18
17	70	76	79	87	83	41	24	41	47	83	28	22
18	69	75	74	82	89	38	40	42	50	70	25	22
19	70	70	74	80	74	40	30	44	45	56	23	20
20	67	67	72	83	65	30	24	43	43	35	18	17
21	67	78	79	79	69	44	24	61	42	27	16	22
22	69	79	82	80	90	35	22	59	46	32	16	32
23	66	83	80	78	69	31	24	60	48	28	17	41
24	61	82	75	76	65	32	32	61	38	34	16	46
25	67	75	72	76	67	32	31	60	39	22	20	50
26	69	74	76	78	71	30	30	54	25	17	24	50
27	70	75	72	79	70	43	31	48	18	16	22	50
28	70	76	72	76	69	37	30	41	18	15	27	51
29	70	75	72	78	78	30	29	47	16	14	22	51
30	71	78	72	75	-	27	32	39	15	14	22	51
31	70	-	72	72	-	23	-	33	-	15	22	-
Total	2,107	2,196	2,345	2,484	2,165	1,456	711	1,280	1,036	1,108	578	858
Mean	68.0	73.2	75.6	80.1	74.7	47.0	23.7	41.3	34.5	35.7	18.6	28.6
Ac-ft	4,180	4,360	4,650	4,930	4,290	2,890	1,410	2,540	2,050	2,200	1,150	1,700

Calendar year 1951: Max 336 Min 28 Mean 94.5 Ac-ft 68,400
Water year 1951-52: Max 148 Min 14 Mean 50.1 Ac-ft 36,350

Peak discharge (base, 1,000 cfs).--No peak above base.

Pecos River at Pierce Canyon Crossing, near Malaga, N. Mex.

Location.--Lat 32°11'20", long. 103°59'00", in SE¼ sec. 28, T. 24 S., R. 29 E., a quarter of a mile upstream from Pierce Canyon Crossing and 6 miles southeast of Malaga.
Drainage area.--19,260 sq mi, approximately (contributing area).
Records available.--July 1938 to September 1941, August 1951 to September 1952.
Gage.--Water-stage recorder. Altitude of gage is 2,890 ft (from river-profile map).
Extremes.--Maximum discharge during period August 1951 to September 1952, 204 cfs July 15 (gage height, 1.88 ft); minimum daily, 11 cfs July 29, 30.
1938-41, 1951-52: Maximum gage height, 24.8 ft May 22, 1941, from floodmarks (discharge not determined); minimum daily, that of July 29, 30, 1952.
Remarks.--Records excellent except those for period June 29 to July 8, which are good. Discharge measurements generally made twice a month. Flow regulated by storage in Alamogordo Reservoir, Lake McMillan, Lake Avalon (see p. 365), and several small diversion and power dams below Carlsbad. Diversions and ground-water withdrawals for irrigation of about 181,500 acres above station. Records of chemical analyses and water temperatures for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, Aug. 17, 1951, to Sept. 30, 1952 (gage height, in feet, and discharge, in cubic feet per second)

0.8	8.7
.9	15
1.1	32
1.4	71
1.7	138

Discharge, in cubic feet per second, 1951-52

1951

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	-	68	9	-	64	17	40	71	25	64	68
2	-	70	10	-	64	18	38	70	26	64	65
3	-	65	11	-	56	19	35	76	27	62	70
4	-	64	12	-	80	20	32	80	28	60	65
5	-	59	13	-	78	21	36	80	29	68	56
6	-	64	14	-	71	22	53	80	30	73	62
7	-	59	15	-	68	23	60	80	31	68	-
8	-	56	16	-	73	24	59	80			
Total										-	2,062
Mean										-	68.7
Ac-ft										-	4,090

1951-52

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	64	71	84	80	80	75	38	50	28	20	13	22
2	70	73	82	80	78	68	28	42	29	20	14	21
3	76	70	82	96	82	68	16	41	31	21	17	21
4	75	62	82	91	80	75	15	40	28	24	16	21
5	73	59	80	85	71	80	14	34	21	32	15	18
6	71	65	73	84	71	70	16	29	25	26	20	18
7	70	82	70	76	85	62	24	36	24	25	19	19
8	73	80	70	80	91	56	26	41	31	29	20	21
9	71	76	75	84	73	62	21	44	38	39	19	19
10	75	71	80	82	70	62	26	48	35	42	13	22
11	70	76	82	80	78	68	42	43	48	43	14	22
12	68	78	76	80	78	64	47	41	52	38	21	24
13	70	71	78	84	80	66	52	46	44	42	21	30
14	68	73	78	85	82	76	52	46	40	70	21	28
15	66	76	76	87	73	73	43	36	32	138	22	23
16	70	75	80	84	76	75	25	34	32	102	24	21
17	70	76	80	91	89	76	33	46	38	96	24	22
18	71	78	73	84	98	60	48	53	39	80	22	22
19	75	75	70	82	82	65	60	55	38	68	21	23
20	70	70	68	84	76	56	53	58	33	50	19	26
21	70	76	75	80	75	60	44	64	31	41	12	26
22	71	80	82	78	96	55	34	58	31	32	14	26
23	68	85	84	78	82	53	30	60	36	35	16	47
24	65	85	80	76	73	56	33	62	31	35	15	50
25	70	82	76	76	76	56	41	65	37	33	14	58
26	73	76	80	73	82	51	39	59	44	23	20	65
27	75	76	78	75	78	60	40	56	29	15	21	59
28	73	80	78	76	73	62	55	53	24	12	25	59
29	73	78	78	78	84	53	41	53	22	11	23	60
30	73	80	78	76	-	47	46	48	21	11	22	64
31	73	-	76	73	-	40	-	38	-	12	22	-
Total	2,200	2,255	2,404	2,518	2,312	1,950	1,082	1,479	992	1,265	579	957
Mean	71.0	75.2	77.5	81.2	79.7	62.9	36.1	47.7	33.1	40.8	18.7	31.9
Ac-ft	4,360	4,470	4,770	4,990	4,590	3,870	2,150	2,930	1,970	2,510	1,150	1,900

Calendar year 1951: Max - Min - Mean - Ac-ft -
Water year 1951-52: Max 138 Min 11 Mean 54.6 Ac-ft 39,660

Pecos River at Red Bluff, N. Mex.

Location.--Lat 32°04'40", long. 104°02'20", sec. 1, T. 26 S., R. 28 E., on right bank at Red Bluff, 0.2 mile downstream from Red Bluff Creek and 5.5 miles upstream from Delaware River.

Drainage area.--19,540 sq mi, approximately (contributing area).

Records available.--October 1937 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 2,850.05 ft above mean sea level, datum of 1929.

Average discharge.--15 years, 322 cfs.

Extremes.--Maximum discharge during year, 366 cfs July 11 or 12 (gage height, 4.26 ft); minimum, 6.2 cfs Aug. 26.

1937-52: Maximum discharge, 52,600 cfs May 24, 1941 (gage height, 28.3 ft), from rating curve extended above 30,000 cfs on basis of slope-area determination of peak flow; minimum, that of Aug. 26, 1952.

Maximum stage known, that of May 24, 1941. Flood of October 1904 reached a stage of 28.0 ft, from information by Panhandle & Santa Fe Railway.

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. Flow largely regulated by reservoirs above Carlsbad (see p. 349). Many diversions above station for irrigation. Records of chemical analyses for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.5	5.0	3.0	40
2.6	9.0	3.2	66
2.7	15	3.5	120
2.8	23	4.0	257

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	65	69	84	84	84	84	36	44	36	29	17	21
2	65	69	84	84	89	74	31	44	29	26	14	21
3	72	68	84	89	89	68	24	39	29	25	14	20
4	79	69	84	96	93	72	17	38	30	25	17	20
5	77	71	82	93	86	76	14	36	29	28	17	21
6	77	68	82	91	80	79	17	32	21	34	15	18
7	74	66	74	86	84	66	17	29	25	53	21	14
8	76	86	71	84	104	59	25	35	25	a34	16	19
9	*77	84	74	87	95	53	28	37	31	a25	15	21
10	77	76	*77	89	80	56	23	42	35	a26	16	22
11	77	76	84	87	80	60	29	44	34	a70	19	24
12	74	82	84	86	86	60	40	40	51	a182	14	23
13	72	77	84	87	87	58	45	38	50	a124	18	25
14	74	*76	84	93	95	63	46	41	42	a150	22	29
15	71	79	84	93	89	69	46	39	38	a100	21	28
16	76	79	84	*95	79	66	38	34	35	a100	24	25
17	76	74	87	93	86	69	26	33	*33	106	24	24
18	76	80	84	95	96	63	*36	39	38	87	24	24
19	79	80	76	91	*95	59	50	47	39	74	*22	25
20	80	74	74	91	84	58	52	50	37	60	20	25
21	77	74	72	93	76	48	44	*53	34	45	17	18
22	79	82	80	87	86	55	39	56	32	*38	13	20
23	69	86	87	89	95	46	33	53	33	33	12	36
24	76	89	86	86	76	47	30	58	36	34	14	a47
25	79	86	80	86	72	*51	32	59	34	36	13	a47
26	72	80	80	86	76	48	36	58	70	32	7.8	a47
27	66	79	82	86	80	41	36	59	38	24	9.6	a47
28	72	82	82	87	79	53	38	56	31	16	13	a47
29	71	82	82	86	80	48	46	48	29	13	18	a47
30	71	82	82	87	-	41	39	55	21	11	22	a47
31	69	-	80	84	-	38	-	44	-	11	21	-
Total	2,295	2,325	2,514	2,751	2,481	1,828	1,013	1,380	1,045	1,651	530.4	854
Mean	74.0	77.5	81.1	88.7	85.6	59.0	33.8	44.5	34.8	53.3	17.1	28.5
Ac-ft	4,550	4,610	4,990	5,460	4,920	3,630	2,010	2,740	2,070	3,270	1,050	1,690

Calendar year 1951: Max 559 Min 24 Mean 98.5 Ac-ft 71,340
Water year 1951-52: Max 182 Min 7.8 Mean 56.5 Ac-ft 40,990

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage and weather records.

Delaware River near Red Bluff, N. Mex.

Location.--Lat 32°01', long. 104°03', sec. 23, T. 26 S., R. 28 E., near center of channel on downstream side of pier of bridge on U. S. Highway 285, 3.5 miles upstream from mouth, 4 miles south of Red Bluff, and 14 miles south of Malaga.

Drainage area.--689 sq mi.

Records available.--April 1912 to September 1913, May 1914 to June 1915, October 1937 to September 1952. Published as "near Malaga, N. Mex." 1912-13, and as "near Angeles, Tex." 1914-15.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,900.66 ft above mean sea level, datum of 1929. Prior to May 1914, water-stage recorder at site 3 miles upstream at different datum. May 1914 to June 1915, water-stage recorder at site 2½ miles downstream at different datum.

Average discharge.--16 years (1912-13, 1937-52), 12.1 cfs.

Extremes.--Maximum discharge during year, 14,100 cfs July 11 (gage height, 12.84 ft, from floodmark), from rating curve extended above 1,300 cfs on basis of slope-area determinations at gage heights 8.65, 12.84 and 18.00 ft; no flow at times.
1912-13, 1914-15, 1937-52: Maximum discharge, 34,600 cfs June 27, 1938 (gage height, 18.00 ft, from floodmark), by slope-area determination of peak flow; no flow at times. Maximum stage known since at least 1911, that of June 27, 1938.

Remarks.--Records good except those for periods of no gage-height record, which are fair. No diversions above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.5	0	1.0	2.2	1.8	18	3.0	250
.6	.1	1.2	4.4	2.0	27	3.5	520
.7	.4	1.4	7.6	2.3	59	4.0	980
.8	.8	1.6	12	2.6	121	5.0	2,000
.9	1.4						

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.7	1.7	1.6	1.5	1.2	1.0	0	0	3.9	0
2		0	1.7	1.8	1.6	1.5	1.1	1.0	0	0	2.5	0
3		0	1.7	2.0	1.4	1.3	1.1	1.0	0	0	a2.2	0
4		0	1.6	2.0	1.5	1.4	1.0	.9	0	0	a2.0	0
5		0	1.5	2.0	1.5	1.4	1.0	.8	0	0	a1.7	0
6		0	1.4	2.0	1.5	1.4	.9	.7	0	0	a1.5	0
7		0	1.4	2.0	1.6	1.5	.9	.6	0	0	a1.2	0
8		.1	1.5	1.9	1.6	1.5	.9	.5	0	1,130	a.9	0
9	(*)	.7	1.7	1.7	1.6	1.5	.8	.4	0	50	a.7	0
10		.7	*1.9	1.8	1.6	1.3	.8	.3	0	11	3.3	0
11		.9	1.9	1.8	1.7	1.3	.9	.2	0	*860	39	0
12		1.1	2.1	1.8	1.6	1.3	1.1	.2	0	1,540	3.1	0
13		1.1	2.1	1.9	1.5	1.2	1.1	.2	0	39	a1.5	0
14		*1.0	2.0	1.8	1.4	1.3	1.1	.1	0	14	a1.3	0
15		1.0	1.9	1.8	1.6	1.3	1.0	.1	0	997	a1.2	0
16		1.0	1.9	*1.7	1.9	1.3	.9	.1	0	49	a1.0	0
17		1.2	1.9	1.7	1.9	1.3	213	0	*0	249	4.5	0
18		1.3	2.0	1.8	1.8	1.2	*25	0	0	122	13	0
19		1.3	2.0	1.8	*1.6	1.2	*10	.1	0	27	*4.4	0
20		1.3	1.7	1.8	1.6	1.1	5.9	0	0	11	2.2	0
21		1.3	1.8	1.9	1.6	1.0	4.0	*0	0	6.7	1.3	0
22		1.5	1.8	1.7	1.5	1.0	5.2	0	0	*4.7	.8	1.3
23		1.5	1.8	1.6	1.5	1.1	3.4	0	0	3.8	.6	16
24		1.5	1.9	1.6	1.5	1.2	2.7	0	0	4.6	.4	.5
25		1.5	1.9	1.5	1.5	*1.3	2.2	0	0	3.2	.3	.9
26		1.5	1.9	1.5	1.7	1.3	2.0	0	8.0	2.8	.2	.8
27		1.5	1.9	1.5	1.7	1.2	1.7	0	13	2.7	.1	.6
28		1.5	2.0	1.5	1.5	1.3	1.5	0	1.4	a2.4	0	.4
29		1.5	1.8	1.6	1.5	1.3	1.3	0	.3	a2.2	0	.3
30		1.6	1.8	1.6	-	1.3	1.2	0	0	a2.1	0	.3
31		-	1.8	1.6	-	1.2	-	0	-	a1.9	0	-
Total	0	27.6	56.0	54.4	46.1	40.0	294.9	8.2	22.7	5,136.1	94.8	21.1
Mean	0	0.92	1.81	1.75	1.59	1.29	9.83	0.26	0.76	166	3.06	0.70
Ac-ft	0	55	111	108	91	79	585	16	45	10,190	188	42

Calendar year 1951: Max 292 Min 0 Mean 2.26 Ac-ft 1,640
Water year 1951-52: Max 1,540 Min 0 Mean 15.9 Ac-ft 11,510

Peak discharge (base, 650 cfs).--Apr. 17 (7 a.m.) 1,230 cfs (4.25 ft); July 8 (7:30 a.m.) 5,620 cfs (8.17 ft); July 11 (11:30 p.m.) 14,100 cfs (12.84 ft); July 15 (2 a.m.) 4,360 cfs (7.13 ft); July 17 (9:30 p.m.) 1,880 cfs (4.89 ft).

* Discharge measurement or observation of no flow made on this day.

a No gage-height record; discharge estimated on basis of rate of change in stage and weather records.

Salt (Screwbean) Draw near Orla, Tex.

Location.--Lat 31°52'40", long. 103°56'50", near center of channel on downstream side of pier of bridge on U. S. Highway 285, 157 ft upstream from Panhandle & Santa Fe Railway bridge, 4.1 miles northwest of Orla, Reeves County, and 5 miles upstream from mouth.

Drainage area.--464 sq mi.

Records available.--August 1939 to December 1940, October 1943 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 2,804.19 ft above mean sea level, datum of 1929. Aug. 16, to Sept. 9, 1939, staff gage, Sept. 10, 1939, to Dec. 31, 1940, water-stage recorder, and Oct. 1 to Nov. 15, 1943, staff gage, all at present site and datum.

Average discharge.--10 years (1939-40, 1943-52), 3.15 cfs.

Extremes.--Maximum discharge during year, 4,070 cfs Apr. 17 (gage height, 13.93 ft); no flow at times.
1939-40, 1943-52: Maximum discharge, that of Apr. 17, 1952; no flow at times.
Floods have reached a stage of 18 or 19 ft, from information by local residents.

Remarks.--Records fair.

Revisions.--W 1118: Drainage area.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.17	0	2.5	6.9	3.5	45	6.0	270
2.2	.1	2.6	10	4.0	70	8.0	560
2.3	.9	2.8	17	4.5	104	10.0	955
2.4	3.6	3.0	24	5.0	155	11.0	1,510

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0		0	1.3	0	
2							0		0	.8	0	
3							0		0	.4	0	
4							0		0	.1	0	
5							0		0	0	0	
6							0		0	0	0	
7							0		0	0	0	
8							0		0	0	0	
9	(*)						0		0	0	0	
10			(*)				0		0	0	0	
11							0		0	0	1.7	
12							0		0	0	1.8	
13							0		0	0	.1	
14		(*)					0		0	0	0	
15							0		0	0	0	
16				(*)			0		0	0	0	
17							*1,130		*0	0	0	
18							*37		0	.2	0	
19					(*)		*7.3		0	1.0	*0	
20							3.2		0	.1	0	
21							1.2	(*)	0	0	0	
22							.4		0	*0	0	
23							.2		0	0	0	
24							0		0	0	0	
25						(*)	0		0	0	0	
26							0		22	0	0	
27							0		125	0	0	
28							0		10	0	0	
29							0		3.9	0	0	
30					-		0		2.2	0	0	
31		-			-		-		-	0	0	
Total	0	0	0	0	0	0	1,179.3	0	163.1	3.9	3.6	0
Mean	0	0	0	0	0	0	39.3	0	5.44	0.13	0.12	0
Ac-ft	0	0	0	0	0	0	2,340	0	324	7.7	7.1	0

Calendar year 1951: Max 67 Min 0 Mean 0.31 Ac-ft 225
Water year 1951-52: Max 1,130 Min 0 Mean 3.69 Ac-ft 2,680

Peak discharge (base, 600 cfs).--Apr. 17 (8:30 a.m.) 4,070 cfs (13.93 ft).
* Discharge measurement or observation of no flow made on this day.

Pecos River near Orla, Tex.

Location.--Lat 31°49', long. 103°48', on left bank 600 ft upstream from Pasotex pipeline crossing, 6 miles southeast of Orla, Reeves County, 11 miles downstream from Salt (Screwbean) Draw, and 14 miles downstream from Red Bluff Dam.

Drainage area.--21,300 sq mi, approximately (contributing area).

Records available.--May 1937 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 2,718.05 ft above mean sea level, datum of 1929.

Average discharge.--15 years, 324 cfs.

Extremes.--Maximum discharge during year, 2,000 cfs Apr. 17 (gage height, 4.70 ft); minimum, 3.2 cfs July 20, 21, Sept. 20, 21.
1937-52: Maximum discharge, 23,700 cfs Sept. 29, 1941 (gage height, 20.74 ft); no flow Sept. 9-14, Nov. 4, 1946.

Remarks.--Records good. Flow regulated by Red Bluff Reservoir (see p. 365). Occasional runoff from draws between dam and station. Many diversions above Red Bluff Reservoir for irrigation. Records of chemical analyses for the water year 1952 are given in Water-Supply Paper 1252.

Revisions (water years).--W 928: 1937.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.7	3.2	1.5	140
.8	8.0	2.0	311
.9	17	2.5	546
1.0	29	3.0	840
1.2	62	3.5	1,180

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*6.9	6.9	11	10	8.0	7.4	259	119	7.4	101	300	4.9
2	6.9	6.9	11	10	8.0	8.0	259	100	6.9	152	300	4.0
3	6.4	7.4	11	10	9.3	8.0	214	100	6.9	152	300	4.0
4	5.9	6.9	70	11	12	7.4	134	66	7.4	152	300	138
5	6.4	6.9	158	10	9.4	8.0	134	49	6.9	152	296	170
6	6.9	6.9	157	10	14	8.0	131	49	6.9	161	296	167
7	6.4	7.4	154	28	9.4	8.0	131	49	6.4	281	292	164
8	6.9	7.4	54	36	8.7	8.0	146	49	6.4	296	292	164
9	6.9	7.4	13	12	8.7	8.0	300	49	5.9	300	284	161
10	6.9	7.4	*12	8.7	8.7	8.0	303	42	5.9	300	281	53
11	6.9	7.4	11	8.7	8.7	7.4	300	29	13	300	245	9.4
12	6.9	8.0	11	8.7	28	7.4	300	29	33	277	131	6.4
13	5.9	8.0	11	8.7	23	6.9	296	18	35	125	125	5.4
14	6.4	*7.4	11	8.7	10	15	296	10	74	55	82	4.9
15	5.9	8.7	10	8.0	13	10	296	9.4	92	8.2	75	4.4
16	5.9	8.0	10	*7.4	20	10	284	9.4	94	5.4	75	4.0
17	6.4	8.0	10	7.4	10	11	972	8.7	*94	4.4	73	3.6
18	6.4	8.7	10	8.0	9.4	11	*244	10	94	4.0	73	3.6
19	6.4	8.7	10	8.0	*8.7	12	44	12	94	3.6	*256	3.6
20	6.9	8.7	10	8.0	8.7	12	51	9.4	94	3.2	262	3.2
21	6.9	8.7	10	8.0	8.0	13	119	*8.7	94	53	259	3.2
22	6.4	8.7	10	8.0	8.0	12	143	39	94	*105	256	3.6
23	6.4	8.7	10	8.0	8.0	13	143	82	94	62	262	7.4
24	6.4	8.7	10	8.0	7.4	96	146	84	219	92	230	7.4
25	6.4	8.7	11	8.0	8.0	356	196	84	220	110	75	5.9
26	6.9	8.7	11	8.0	8.0	*360	146	84	217	105	23	5.4
27	6.9	8.7	11	8.0	7.4	266	140	87	311	87	8.0	4.9
28	6.9	10	11	24	8.0	262	140	38	85	87	6.4	4.4
29	7.4	10	11	16	7.4	262	140	9.4	16	89	5.9	4.4
30	7.4	10	10	10	-	262	140	8.0	10	134	5.4	4.4
31	6.9	-	10	8.7	-	262	-	7.4	-	167	5.4	-
Total	205.4	244.0	870	342.0	305.9	2,345.5	6,547	1,348.4	2,144.0	3,923.8	5,474.1	1,129.4
Mean	6.63	8.13	28.1	11.0	10.5	75.7	218	43.5	71.5	127	177	37.6
Ac-ft	407	484	1,730	678	607	4,650	12,990	2,670	4,250	7,780	10,860	2,240

Calendar year 1951: Max 724 Min 5.9 Mean 148 Ac-ft 107,400
Water year 1951-52: Max 972 Min 3.2 Mean 68.0 Ac-ft 49,350

* Discharge measurement made on this day.

Pecos River at Pecos, Tex.

Location.--Lat 31°26', long. 103°28', on right bank 20 ft downstream from bridge on U. S. Highway 80, 195 ft downstream from Texas & Pacific Railway bridge, 1.7 miles east of Pecos, Reeves County, and 11 miles upstream from Toyah Creek.

Drainage area.--22,100 sq mi, approximately (contributing area).

Records available.--January 1898 to June 1907, April 1914 to August 1915, March 1922 to July 1926, August 1939 to September 1952. Published as "near Pecos" 1898-1907, as "near Barstow" 1914-15, and as "above Barstow" 1922-26. Records for Feburary 1916 to May 1921 published as "near Barstow" are not equivalent owing to diversion by Ward County Irrigation District No. 1 canal.

Gage.--Water-stage recorder. Datum of gage is 2,552.00 ft above mean sea level, datum of 1929. Prior to July 26, 1926, staff gage or water-stage recorders at several sites within 10 miles of present site at various datums. Aug. 15, 1939, to Oct. 12, 1946, water-stage recorder at site 284 ft upstream at datum 2.00 ft higher.

Average discharge.--13 years (1939-52), 244 cfs.

Extremes.--Maximum discharge during year, 888 cfs Apr. 19 (gage height, 8.94 ft); minimum daily, 1.4 cfs Sept. 21.
1898-1907, 1914-15, 1922-26, 1939-52: Maximum gage height, about 20 ft, present datum, at railroad bridge 195 ft upstream, Oct. 5, 1904 (discharge not determined); flood of Sept. 30, 1941, reached a stage of 19.68 ft present datum, at site then in use (discharge, 22,200 cfs); minimum daily discharge 1939-52, 1.2 cfs Feb. 29, 1948.
Flood of August 1893 reached approximately the same stage as that of Oct. 5, 1904, from information by local residents.

Remarks.--Records good. Flow largely regulated by reservoirs above Orla (see p. 365). Several large diversions between Red Bluff Reservoir and this station for irrigation.

Rating tables, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Mar. 25		Mar. 26 to Sept. 30			
2.65	1.6	2.3	1.0	3.0	32
2.7	2.8	2.4	1.6	3.2	62
2.8	8.9	2.5	2.6	3.5	101
2.9	21	2.6	4.0	4.0	151
3.0	34	2.7	6.0	5.0	241
3.5	93	2.8	9.5	7.0	530
		2.9	16		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.8	2.2	3.2	2.2	3.6	1.8	201	69	6.8	8.3	73	4.4
2	2.5	2.8	3.2	2.2	3.6	2.5	201	58	7.5	6.3	110	3.8
3	2.5	2.8	3.2	2.2	4.6	2.5	201	46	7.2	14	95	3.7
4	2.8	2.8	3.2	2.2	4.6	2.0	192	35	6.3	55	102	3.6
5	2.8	2.8	3.2	2.2	4.6	1.8	142	14	5.5	62	103	3.2
6	2.8	2.8	3.2	2.2	4.6	1.8	120	13	5.3	59	105	3.1
7	2.8	2.8	30	2.2	4.6	1.8	115	9.0	5.0	69	116	11
8	2.8	2.8	76	2.2	4.0	1.6	113	8.2	5.0	283	116	54
9	*2.8	2.8	78	2.2	4.0	1.6	113	9.0	4.9	260	127	76
10	2.8	2.8	45	2.2	4.0	1.6	164	8.6	4.7	206	138	72
11	2.8	2.8	*25	3.2	4.6	1.6	184	12	4.7	220	151	8.2
12	2.8	2.8	16	7.2	4.0	1.6	188	14	4.9	220	168	5.3
13	2.8	*2.8	12	6.5	4.0	1.8	192	12	6.0	230	95	4.4
14	2.8	2.5	8.9	5.8	4.0	2.0	192	7.9	5.0	174	56	4.0
15	2.8	2.5	6.5	5.1	5.1	2.0	*196	6.3	4.4	122	43	3.7
16	2.8	2.5	5.1	4.6	9.2	2.0	184	5.8	4.4	69	15	3.4
17	2.8	2.5	5.6	4.0	13	2.8	192	5.5	4.2	43	8.3	3.2
18	2.8	2.8	4.0	*4.0	10	2.5	*340	6.0	4.5	26	6.8	3.0
19	2.8	2.8	3.6	4.0	10	2.5	*488	8.2	4.5	10	6.9	2.2
20	2.8	2.8	3.2	3.6	*10	2.5	112	7.8	*4.4	7.8	39	1.5
21	2.8	2.8	2.8	3.6	8.0	2.5	49	6.8	4.4	7.2	142	1.4
22	2.8	3.2	2.8	3.6	6.5	2.2	29	*6.6	4.4	7.9	*138	1.5
23	2.8	3.2	2.5	3.6	5.8	2.2	48	6.6	4.5	*6.0	138	2.2
24	2.8	3.2	2.5	3.6	4.6	2.5	55	6.3	4.4	7.2	138	2.4
25	2.8	3.2	2.5	3.6	3.6	2.5	51	6.6	4.5	7.4	142	2.2
26	2.8	3.2	2.5	3.6	2.2	87	66	6.4	44	23	80	1.9
27	2.8	3.2	2.5	3.6	2.0	*225	89	9.1	62	68	13	1.8
28	2.8	3.2	2.2	3.6	1.8	210	68	10	198	69	6.8	1.6
29	2.8	3.2	2.2	3.6	1.8	201	70	51	126	52	5.5	1.6
30	2.8	3.2	2.2	3.6	-	201	63	37	19	43	5.0	1.5
31	2.8	-	2.2	3.6	-	196	-	8.5	-	48	4.5	-
Total	86.2	85.8	364.0	109.6	152.4	1,172.2	4,418	510.2	576.4	2,483.1	2,486.8	291.8
Mean	2.78	2.86	11.7	3.54	5.26	37.8	147	16.5	19.2	80.1	80.2	9.73
Ac-ft	171	170	722	217	302	2,330	8,760	1,010	1,140	4,930	4,930	579

Calendar year 1951: Max 498 Min 2.2 Mean 83.8 Ac-ft 60,670
Water year 1951-52: Max 488 Min 1.4 Mean 34.8 Ac-ft 25,260

* Discharge measurement made on this day.

Phantom Lake Spring near Toyahvale, Tex.

Location.--Lat 30°56', long. 103°51', on left bank of outlet canal 375 ft below source of spring, 4.0 miles southwest of Toyahvale, Reeves County, and 8.0 miles southwest of Balmorhea.

Records available.--December 1931 to December 1933, October 1948 to September 1952.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 3,472.69 ft above mean sea level (Bureau of Reclamation benchmark). Dec. 21, 1931, to Dec. 31, 1933, water-stage recorder at site 425 ft downstream at datum 3.05 ft higher.

Average discharge.--5 years (1932-33, 1948-52), 16.1 cfs.

Extremes.--1931-33, 1948-52: Maximum daily discharge, 114 cfs Oct. 2, 3, 1932; minimum daily, 12 cfs at times in June, July, August 1932, Aug. 8-15, 1951, Sept. 26-30, 1952.

Remarks.--Records good. Discharge represents total flow of spring. Spring flow fluctuates slowly; check gates below gage affect stage-discharge relation frequently; daily discharge determined from hydrograph based on discharge measurements. Water used for irrigation in vicinity of Toyahvale and Balmorhea.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	14	14	14	13	13	13	13	13	13	21	14
2	14	14	14	14	13	13	13	13	13	13	21	14
3	14	14	14	14	13	13	13	13	13	13	20	14
4	*14	14	14	14	13	13	13	13	13	13	20	14
5	14	14	14	14	13	13	13	13	13	13	19	13
6	14	14	14	14	13	13	13	13	13	13	19	13
7	14	14	14	14	13	13	13	13	13	13	19	13
8	14	14	14	14	13	13	13	13	13	13	18	13
9	14	14	14	14	13	13	13	13	13	14	18	13
10	14	14	14	13	13	13	13	13	13	14	18	13
11	14	14	14	13	13	13	13	13	13	14	17	13
12	14	14	*14	13	13	13	13	13	13	15	17	13
13	14	14	14	13	13	13	13	13	13	16	17	13
14	14	14	14	13	13	13	13	13	13	18	16	13
15	14	*14	14	13	13	13	13	13	13	20	16	13
16	14	14	14	13	13	13	13	13	13	22	16	13
17	14	14	14	13	13	13	13	13	13	22	16	13
18	14	14	14	*13	*13	13	13	13	13	23	15	13
19	14	14	14	13	13	13	13	13	*13	23	15	13
20	14	14	14	13	13	13	13	*13	13	23	15	13
21	14	14	14	13	13	13	13	13	13	23	15	13
22	14	14	14	13	13	13	*13	13	13	23	*15	13
23	14	14	14	13	13	13	13	13	13	23	15	13
24	14	14	14	13	13	13	13	13	13	23	14	13
25	14	14	14	13	13	*13	13	13	13	*23	14	13
26	14	14	14	13	13	13	13	13	13	23	14	12
27	14	14	14	13	13	13	13	13	13	23	14	12
28	14	14	14	13	13	13	13	13	13	23	14	12
29	14	14	14	13	13	13	13	13	13	22	14	12
30	14	14	14	13	-	13	13	13	13	22	14	12
31	14	-	14	13	-	13	-	13	-	22	14	-
Total	434	420	434	412	377	403	390	403	390	578	510	389
Mean	14.0	14.0	14.0	13.3	13.0	13.0	13.0	13.0	13.0	18.6	16.5	13.0
Ac-ft	861	833	861	817	748	799	774	799	774	1,150	1,010	772

Calendar year 1951: Max 15 Min 12 Mean 14.2 Ac-ft 10,250
Water year 1951-52: Max 23 Min 12 Mean 14.0 Ac-ft 10,200

* Discharge measurement made on this day.

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San Solomon Springs at Toyahvale, Tex.

Location.--Lat 30°56", long. 103°47', on left bank of South Canal at Toyahvale, Reeves County, and 540 ft downstream from spring pool.

Records available.--October 1931 to December 1933, March 1941 to September 1952.

Gage.--Water-stage recorder and sharp-crested weir. Datum of gage is 3,311.02 ft above mean sea level, datum of 1929. Prior to Nov. 18, 1931, water-stage recorder at site about 0.6 mile downstream.

Average discharge.--13 years (1931-33, 1941-52), 36.5 cfs.

Extremes.--1931-33, 1941-52: Maximum daily discharge, 71 cfs Oct. 7-9, 1932, Oct. 26-30, 1941; minimum daily, 28 cfs Jan. 26 to Feb. 24, 1949.

Remarks.--Records good. Discharge represents total flow of springs and is determined by combining flows in South Canal and two additional outlets (flow measured periodically), Middle and North Canals. Flow into each canal regulated by operation of head gates. Water used for irrigation in vicinity of Balmorhea.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	32	30	30	30	30	31	30	31	35	38	34
2	31	32	30	30	30	30	31	30	31	35	38	34
3	31	32	30	30	29	30	31	30	31	34	38	34
4	*31	32	30	30	29	30	31	30	31	34	38	34
5	31	32	30	30	29	30	31	30	31	33	38	34
6	31	32	30	30	29	30	31	30	31	33	38	34
7	31	32	30	30	29	30	31	30	31	33	38	34
8	31	32	30	30	29	30	31	30	31	34	38	34
9	31	32	30	30	29	30	31	30	31	36	37	34
10	31	32	30	30	29	30	31	30	31	36	37	34
11	31	32	30	30	29	30	31	30	31	37	37	34
12	31	32	*30	30	29	30	31	30	31	38	37	34
13	31	32	30	30	29	30	31	30	31	39	36	34
14	31	32	30	30	29	30	31	30	31	40	36	34
15	31	*32	30	30	29	30	31	30	31	40	36	34
16	31	32	30	30	29	30	31	30	31	41	36	33
17	31	31	30	30	29	31	31	30	31	42	36	33
18	31	31	30	*30	*29	31	31	30	31	42	36	33
19	31	31	30	30	29	31	31	30	*31	42	35	33
20	31	31	30	30	29	31	31	*30	31	43	35	33
21	31	31	30	30	29	31	31	30	31	43	34	33
22	31	31	30	30	29	31	*31	30	31	43	*34	33
23	31	31	30	30	29	31	31	30	31	43	34	33
24	31	30	30	30	30	31	31	30	31	42	35	33
25	32	30	30	30	30	*31	31	30	31	*42	35	33
26	32	30	30	30	30	31	31	30	31	41	35	33
27	32	30	30	30	30	31	31	31	32	40	35	33
28	32	30	30	30	30	31	31	31	33	40	35	33
29	32	30	30	30	30	31	31	31	35	39	35	33
30	32	30	30	30	-	31	31	31	35	39	34	33
31	32	-	30	30	-	31	-	31	-	38	34	-
Total	968	939	930	930	849	945	930	935	941	1,197	1,118	1,005
Mean	31.2	31.3	30.0	30.0	29.3	30.5	31.0	30.2	31.4	38.6	36.1	33.5
Ac-ft	1,920	1,860	1,840	1,840	1,680	1,870	1,840	1,850	1,870	2,370	2,220	1,990

Calendar year 1951: Max 32 Min 29 Mean 30.7 Ac-ft 22,220
Water year 1951-52: Max 43 Min 29 Mean 31.9 Ac-ft 23,150

* Discharge measurement made on this day.
Note.--No gage-height record Jan. 19 to Feb. 17; discharge estimated on basis of records of Reeves County Water Improvement District No. 1.

Principal diversions from Pecos River between Red Bluff Reservoir and Imperial, Tex.

Records of discharge are collected for eight canals that divert water from Pecos River between Red Bluff Reservoir and Imperial, Tex. Each of these canals is equipped with a water-stage recorder for collecting gage-height records. All stations are located within 2 miles of canal headgate except as noted herein. Water diverted by these canals is used for irrigation of lands on both sides of Pecos River in Reeves, Ward, and Pecos Counties. Stations prior to 1941 were published separately (daily discharge figures for the earlier records).

Reeves County Water Improvement District No. 2 Canal near Mentone, diverts from right bank, lat 31°38', long. 103°34'. Records available, February 1922 to July 1925, August 1939 to September 1952. Published as "Farmers Independent Canal near Porterville" 1922-25.

Ward County Water Improvement District No. 3 Canal near Barstow, diverts from left bank, lat 31°34', long. 103°31'. Records available, August 1939 to September 1952.

Ward County Irrigation District No. 1 Canal near Barstow, diverts from left bank, lat 31°33', long. 103°29'. Records available, February 1922 to September 1925, August 1939 to September 1952. Published as "Barstow Canal near Barstow" 1922-25.

Grandfalls-Big Valley Canal near Barstow, diverts from left bank, lat 31°25', long. 103°15'. Records available, March 1922 to November 1925, September 1939 to September 1952. Water diverted through Ward County Water Improvement District No. 2 Canal irrigates most of lands formerly supplied by this canal.

Pecos County Water Improvement District No. 2 upper diversion canal near Grandfalls, diverts from right bank, lat 31°20', long. 102°58'. Records available, March 1922 to July 1925, August 1939 to September 1952. Published as "Imperial High-line Canal near Grandfalls" 1922-25. Gage located 12½ miles downstream from headgates.

Ward County Water Improvement District No. 2 Canal near Grandfalls, diverts from left bank, lat 31°22', long. 103°01'. Records available, August 1939 to September 1952.

Pecos County Water Improvement District No. 2 Canal near Imperial, diverts from Imperial Reservoir on right bank, lat 31°16', long. 102°45'. Records available, April 1940 to September 1952.

Pecos County Water Improvement District No. 3 Canal near Imperial, diverts from Pecos County Water Improvement District No. 2 Canal above station near Imperial on that canal, lat 31°18', long. 102°45'. Records available, March 1940 to September 1952.

Several smaller diversions (pumps) divert water from Pecos River between Red Bluff Reservoir and Imperial for irrigation of lands adjacent to river, but no records for them were obtained.

Diversions, in acre-feet, water year October 1951 to September 1952

Month	Reeves County District No. 2 Canal near Mentone	Ward County District No. 3 Canal near Barstow	Ward County District No. 1 Canal near Barstow	Grandfalls Big Valley Canal near Barstow
October	56	0	0	0
November	190	0	0	0
December	269	0	5.6	0
Calendar year 1951	8,080	6,590	21,230	4,100
January	78	0	0	0
February	33	0	0	0
March	35	0	3.2	0
April	650	1,100	1,010	537
May	296	2.8	1,190	73
June	263	401	1,090	a0
July	250	234	1,080	a484
August	793	900	2,550	513
September	a403	4.6	454	0
Water year 1951-52	3,320	2,640	7,380	1,610

Month	Pecos County District No. 2 Canal (upper diversion) near Grandfalls	Ward County District No. 2 Canal near Grandfalls	*Pecos County District No. 2 Canal near Imperial	*Pecos County District No. 3 Canal near Imperial
October	a657	0	0	0
November	a758	0	0	0
December	1,370	0	0	0
Calendar year 1951	31,790	21,760	13,740	11,100
January	203	0	686	0
February	204	399	0	51
March	1,310	671	a430	91
April	a5,890	2,230	a1,110	902
May	853	1,150	1,080	1,030
June	521	328	222	0
July	a2,690	2,040	1,280	1,020
August	a1,670	2,640	1,390	1,050
September	438	313	14	234
Water year 1951-52	16,560	9,770	6,210	4,380

* Combined flow of Pecos County Water Improvement District No. 2 Canal near Imperial and Pecos County Water Improvement District No. 3 Canal near Imperial represents released water from Imperial Reservoir (fed by Pecos County Water Improvement District No. 2 upper diversion canal).

a No gage-height record at times; discharge estimated on basis of recorded range in stage, engineers' notes, and records for nearby stations.

Pecos River below Grandfalls, Tex.

Location.--Lat 31°18', long. 102°46', on left bank 26 ft downstream from State Farm-to-Market Road 11 between Grandfalls and Imperial, 7.1 miles southeast of Grandfalls, Ward County, and 10 miles downstream from Chacatori Draw.

Drainage area.--27,820 sq mi, approximately (contributing area).

Records available.--December 1921 to July 1926, August 1939 to September 1952. Published as "near Buena Vista" 1921-26.

Gage.--Water-stage recorder. Datum of gage is 2,373.0 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). December 1921 to July 1926, water-stage recorder at site 12 miles downstream at different datum. Aug. 22, 1939, to Oct. 5, 1939, staff gage at same site and datum.

Average discharge.--13 years (1939-52), 184 cfs.

Extremes.--Maximum discharge during year, 280 cfs May 28 (gage height, 5.07 ft); minimum daily, 11 cfs Aug. 23, 24, Sept. 7.
1921-26, 1939-52: Maximum discharge, 22,000 cfs Oct. 2, 1941 (gage height, 20.98 ft); minimum daily, 8.0 cfs July 27, 1925.

Remarks.--Records good. Flow largely regulated by reservoirs above Orla (see p. 365). Many large diversions for irrigation between Red Bluff Reservoir and this station. Records of chemical analyses for the water year 1952 are given in Water-Supply Paper 1252.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 24 to June 23)

2.4	11	3.5	108
2.6	22	4.0	168
3.0	54		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	16	17	18	28	19	16	18	35	16	14	12
2	*18	16	17	18	28	20	16	18	24	14	13	12
3	18	16	17	18	27	19	15	19	20	14	13	12
4	18	16	17	18	27	19	15	19	19	14	13	12
5	18	16	17	18	27	19	16	19	18	14	13	12
6	18	16	17	18	27	19	16	19	17	13	13	12
7	18	16	17	18	26	19	16	20	16	13	13	11
8	18	16	18	18	24	20	16	18	16	13	13	12
9	18	16	18	18	21	20	16	19	15	15	13	12
10	18	16	18	18	19	21	16	18	15	15	13	12
11	18	16	*18	18	19	21	16	21	15	16	13	12
12	17	16	18	20	18	20	16	19	15	18	13	12
13	17	16	19	26	18	22	16	19	15	19	13	12
14	17	16	20	28	18	20	16	21	17	23	14	12
15	17	16	20	*28	18	20	17	28	16	21	15	12
16	17	*15	19	29	19	21	*17	24	16	24	13	12
17	16	15	19	30	19	21	17	16	15	23	12	12
18	17	15	18	30	19	19	17	21	*15	18	12	12
19	17	16	18	30	21	45	19	22	16	17	12	12
20	17	16	18	30	*22	49	25	23	16	16	*12	12
21	17	16	18	30	19	48	26	23	17	16	12	12
22	17	16	18	30	20	45	55	*20	18	16	12	12
23	17	16	18	28	19	44	32	18	17	15	11	14
24	17	17	18	28	19	43	21	16	18	15	11	15
25	17	17	18	28	19	32	19	16	18	*15	12	14
26	17	17	18	28	20	28	19	15	21	14	12	14
27	16	17	18	29	19	*28	18	16	21	14	12	13
28	16	17	18	29	19	21	18	166	24	14	12	13
29	17	17	18	29	19	18	17	120	26	14	12	14
30	17	17	18	29	-	16	18	82	20	14	12	13
31	17	-	18	29	-	16	-	63	-	14	12	-
Total	535	484	558	766	618	792	577	956	551	497	390	373
Mean	17.3	16.1	18.0	24.7	21.3	25.5	19.2	30.8	18.4	16.0	12.6	12.4
Ac-ft	1,060	960	1,110	1,520	1,230	1,570	1,140	1,900	1,090	986	774	740

Calendar year 1951: Max 218 Min 11 Mean 24.3 Ac-ft 17,620
Water year 1951-52: Max 166 Min 11 Mean 19.4 Ac-ft 14,080

* Discharge measurement made on this day.

Comanche Springs at Fort Stockton, Tex.

Location.--Lat 30°53', long. 102°52', on left bank of outlet canal of Pecos County Water Improvement District No. 1, in eastern outskirts of Fort Stockton, Pecos County, 0.2 mile upstream from bridge on U. S. Highway 290 and 0.5 mile downstream from head of springs.

Records available.--February 1941 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 2,922.82 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 38.1 cfs.

Extremes.--1941-52: Maximum daily discharge, 54 cfs Jan. 30, 1942; minimum daily, 1.1 cfs Sept. 6, 1952.

Remarks.--Records fair. Discharge represents total of springs or water pumped from wells at springs. At times flow may represent a combination of spring flow and pumpage. Water used to irrigate about 6,000 acres of land below station.

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	26	30	34	35	33	24	29	26	26	14	14
2	15	27	30	34	35	33	24	29	26	26	12	14
3	18	27	31	34	35	33	23	29	26	26	12	13
4	19	27	32	34	35	33	*22	29	26	26	12	13
5	20	27	32	34	34	33	23	29	25	26	10	9.0
6	21	27	32	34	34	33	23	29	25	25	*11	1.1
7	22	28	31	34	34	33	23	29	25	25	10	8.2
8	23	28	31	34	34	33	22	29	25	26	10	9.6
9	23	28	31	34	33	33	20	29	25	26	10	11
10	*23	28	32	34	33	32	17	29	25	26	10	11
11	23	29	33	34	33	32	16	28	25	26	9.8	11
12	23	29	33	34	33	32	16	27	24	26	9.6	11
13	23	30	*34	34	33	32	17	26	24	26	9.4	12
14	22	30	34	35	33	32	*17	25	24	26	9.4	13
15	22	30	34	35	33	32	16	24	25	26	9.2	14
16	23	29	34	35	33	32	15	24	*25	26	9.0	15
17	23	*29	34	35	33	32	15	24	25	26	9.0	16
18	23	29	34	35	*33	32	14	25	25	26	*8.9	16
19	23	29	34	*35	33	32	18	*25	25	26	8.7	17
20	23	29	34	35	33	31	23	25	*26	25	7.8	17
21	23	28	34	35	33	31	25	26	26	*25	7.8	17
22	24	29	34	35	33	31	*29	26	26	25	*8.4	18
23	24	29	34	35	33	30	30	*26	25	25	9.2	18
24	24	29	34	35	33	*30	30	26	25	24	9.4	18
25	24	29	34	35	33	30	29	26	25	*22	9.2	19
26	24	29	34	35	33	30	29	26	26	22	9.2	19
27	25	28	33	35	33	30	29	27	26	21	8.6	19
28	26	29	33	35	33	30	29	26	26	20	12	19
29	26	31	33	35	33	28	29	26	26	17	13	20
30	26	30	34	35	-	26	29	26	26	16	13	20
31	26	-	34	35	-	25	-	26	-	15	13	-
Total	702	857	1,021	1,072	969	969	676	830	759	749	314.6	432.9
Mean	22.6	28.6	32.9	34.6	33.4	31.3	22.5	26.8	25.3	24.2	10.1	14.4
Ac-ft	1,390	1,700	2,030	2,130	1,920	1,920	1,340	1,650	1,510	1,490	624	859

Calendar year 1951: Max 37 Min 8.4 Mean 25.2 Ac-ft 18,260
Water year 1951-52: Max 35 Min 1.1 Mean 25.6 Ac-ft 18,560

* Discharge measurement made on this day.

Pecos River near Girvin, Tex.

Location.--Lat 31°07', long. 102°25', on right bank 2.4 miles upstream from Comanche Creek, 2.6 miles northwest of Girvin, Pecos County, and 7.8 miles upstream from bridge on U. S. Highway 67.

Drainage area.--29,560 sq mi, approximately (contributing area at auxiliary gage 7.8 miles downstream).

Records available.--August 1939 to September 1952.

Gage.--Water-stage recorder with combination concrete control and measuring flume. Supplementary water-stage recorder (used as regular gage prior to July 17, 1951, now used only for flows exceeding about 250 cfs) 7.8 miles downstream at datum 2,269.65 ft above mean sea level, datum of 1929.

Average discharge.--13 years, 214 cfs.

Extremes.--Maximum discharge during year, 164 cfs July 11 (gage height, 2.14 ft); minimum daily, 15 cfs June 16, Sept. 4.
1939-52: Maximum discharge, 20,000 cfs Oct. 5, 1941 (gage height, 20.49 ft, at supplementary gage); minimum daily, that of June 16, Sept. 4, 1952.
Maximum stage known since at least 1932, that of Oct. 5, 1941.

Remarks.--Records excellent. Flow largely regulated by reservoirs above Orla (see p. Many diversions above station for irrigation. Some return flow enters river between station below Grandfalls and this station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

1.1	8.7
1.2	17
1.4	39
1.6	66
1.9	117

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	28	32	31	43	32	33	22	71	25	24	18
2	28	28	32	31	42	33	31	19	63	26	22	18
3	28	27	31	31	42	33	31	20	50	26	22	17
4	27	27	31	32	42	32	30	22	38	23	21	15
5	27	28	26	32	40	32	30	21	33	20	20	17
6	30	28	37	32	42	32	27	20	27	18	21	19
7	27	28	31	31	40	32	28	19	24	17	20	18
8	26	28	31	31	40	31	27	19	22	19	21	18
9	26	28	30	32	40	32	28	17	21	17	19	20
10	*27	30	31	31	39	33	27	18	21	18	19	20
11	27	31	31	31	38	32	27	17	21	39	19	18
12	26	30	31	31	36	33	28	18	20	39	18	19
13	26	30	*32	31	34	32	30	19	20	32	19	22
14	26	30	33	32	33	33	*28	18	18	31	19	21
15	27	30	32	34	34	32	27	16	17	27	19	18
16	26	28	32	38	34	32	26	17	*15	27	19	18
17	30	*28	33	39	34	32	27	17	17	28	19	19
18	28	28	32	40	*33	33	27	21	20	34	*20	19
19	31	30	32	*42	33	33	28	*25	18	31	19	18
20	27	30	32	43	33	31	28	24	16	31	19	18
21	30	30	32	43	33	43	27	24	17	*30	18	18
22	31	30	32	43	37	55	30	24	17	28	19	21
23	28	32	32	42	34	55	30	*22	17	27	21	22
24	28	32	31	42	33	*56	34	20	18	25	18	23
25	28	32	32	42	33	56	39	21	18	24	18	19
26	28	32	32	42	32	55	31	21	20	24	18	20
27	28	31	31	44	32	50	25	22	21	23	18	21
28	31	31	31	44	33	44	23	22	20	23	18	21
29	28	31	31	43	33	44	22	20	20	23	18	21
30	30	31	31	43	-	39	24	87	21	23	18	21
31	30	-	32	43	-	36	-	102	-	23	18	-
Total	868	887	979	1,146	1,052	1,178	853	774	741	801	601	577
Mean	28.0	29.6	31.6	37.0	36.3	38.0	28.4	25.0	24.7	25.8	19.4	19.2
Ac-ft	1,720	1,760	1,940	2,270	2,090	2,340	1,690	1,540	1,470	1,590	1,190	1,140

Calendar year 1951: Max 169 Min 20 Mean 37.3 Ac-ft 27,010
Water year 1951-52: Max 102 Min 15 Mean 28.6 Ac-ft 20,740

* Discharge measurement made on this day.

Reservoirs in Rio Grande basin

Elephant Butte Reservoir.--Lat 33°09'15", long. 107°11'30", in NW¼ sec. 30, T. 13 S., R. 3 W. (surveys by Bureau of Reclamation), at dam on Rio Grande, 1 mile west of Elephant Butte, N. Mex., and 4 miles northeast of Truth or Consequences (Hot Springs). Drainage area, 28,900 sq mi (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.). Records available, January 1940 to September 1952. Water-stage recorder. Datum of gage is 43.3 ft above mean sea level, datum of 1929. Maximum daily contents during year, 423,200 acre-ft July 18 (gage height, 4,324.59 ft); minimum daily, 16,300 acre-ft Mar. 8 (gage height, 4,261.64 ft).

Reservoir is formed by concrete dam. Storage began Jan. 6, 1915. Dam completed May 13, 1916. Capacity, 2,185,400 acre-ft between gage heights 4,231.5 ft (sill of outlet gate) and 4,407.0 ft (spillway crest). No dead storage, survey of 1951. No storage allocated to flood control. Figures given herein represent usable contents. Water is used for power development and irrigation on Rio Grande project of Bureau of Reclamation. Contents as here given are computed from mean daily gage heights. Records furnished by Bureau of Reclamation.

Caballo Reservoir.--Lat 32°53'45", long. 107°17'30", in SE¼SW¼ sec. 19, T. 16 S., R. 4 W., at dam on Rio Grande, 0.5 mile downstream from mouth of Apache Canyon, 0.9 mile upstream from Bojarquez Bridge, 2 miles upstream from Percha diversion dam, 3.5 miles northeast of Arrey, and 4.5 miles south of Caballo, N. Mex. Drainage area, 30,200 sq mi (includes 2,940 sq mi in closed basin in northern part of San Luis Valley, Colo.). Records available, February 1938 to September 1952. Water-stage recorder. Datum of gage is 43.3 ft above mean sea level, datum of 1929. Maximum daily contents during year, 99,730 acre-ft June 12, 13 (gage height, 4,153.41 ft); minimum daily, 2,400 acre-ft Sept. 13 (gage height, 4,119.97 ft).

Reservoir is formed by earth-fill dam. Storage began Feb. 8, 1938. Dam completed Sept. 19, 1938. Capacity, 340,900 acre-ft between gage heights 4,104 ft (bottom of tunnel entrance to gates) and 4,182 ft (gage height above which spillway gates operate automatically). No dead storage. 100,000 acre-ft of storage is held for flood control. Figures given herein represent usable contents. Water released from Elephant Butte Reservoir for power development is stored in Caballo Reservoir and released for irrigation on Rio Grande project of Bureau of Reclamation. Contents given herein are computed from mean daily gage heights. Records furnished by Bureau of Reclamation.

Carson Reservoir.--Lat 36°25'20", long. 105°50'00", in N½NW¼ sec. 12, T. 25 N., R. 10 E., on operating gate structure at Carson Dam on Aguaje de la Petaco, 4¾ miles northwest of Carson, Taos County, N. Mex. Drainage area, 190 sq mi, approximately. Records available, January 1940 to September 1952. Water-stage recorder. Altitude of gage is 6,810 ft (from topographic map). Maximum daily contents during year, 2,720 acre-ft Apr. 17-21 (gage height, 34.6 ft); no storage most of year. Maximum contents during period 1940-52, 3,620 acre-ft May 6, 1941 (gage height, 38.5 ft); no storage most of time.

Reservoir is formed by earth-fill dam, riprap faced, completed in 1935. Capacity, 5,684 acre-ft between gage heights 8.0 ft (sill of outlet gate) and 45 ft (crest of spillway). Dead storage negligible. Reservoir was designed to provide water for irrigation in Carson Irrigation District near Carson, N. Mex., but little storage value has been realized because of major leaks in reservoir. Gage heights and contents at 12 p.m.

El Vado Reservoir.--Lat 36°35'45", long. 106°43'55", in SE¼ sec. 4, T. 27 N., R. 2 E. (projected), at left end of dam on Rio Chama, 2 miles downstream from old town of El Vado and 13 miles southwest of Tierra Amarilla, N. Mex. Drainage area, 873 sq mi. Records available, January 1935 to September 1952. Water-stage recorder (records stages above spillway floor only) and inclined staff gage. Datum of gage is 9.565 ft above mean sea level, datum of 1929. Maximum daily contents during year, 144,800 acre-ft June 7-9 (gage height, 6,884.1 ft); no contents Oct. 1 to about Mar. 15. Maximum daily contents and gage height during period 1935-52, 204,900 acre-ft June 4, 5, 1948 (gage height, 6,904.2 ft); no contents Aug. 6, 1951, to about Mar. 15, 1952.

Reservoir is formed by rock-fill dam, steel faced. Storage began in January 1935. Capacity, 197,500 acre-ft between gage heights 6,740.0 ft (bottom of trash rack) and 6,902.0 ft (top of spillway gate). No dead storage. Prior to Jan. 1, 1947, figures represent usable contents computed from capacity table furnished by Middle Rio Grande Conservancy District in 1940; after Jan. 1, 1947, figures represent usable contents, computed from capacity table based on survey of 1944 by Corps of Engineers. Water is used for irrigation by Middle Rio Grande Conservancy District. Gage read daily about 7:30 a.m. Continuous recorder registers gage heights above 6,879.3 ft (floor of spillway). Contents given herein are those at 7:30 a.m. Staff-gage readings furnished by Middle Rio Grande Conservancy District.

McClure Reservoir.--Lat 35°41'15", long. 105°50'10", in NE¼SW¼ sec. 24, T. 17 N., R. 10 E., on outlet tower at McClure Dam on Santa Fe Creek, 2½ miles upstream from Nichols Reservoir and 6 miles east of Santa Fe, N. Mex. Drainage area, 19 sq mi, approximately. Records available, October 1947 to September 1952. Water-stage recorder. Datum of gage is 7,768.32 ft above mean sea level, datum of 1929, and 166.1 ft above Public Service Co. of New Mexico assumed datum. Maximum contents during year, 2,770 acre-ft June 3-10 (gage height, 98.5 ft); minimum, 520 acre-ft Feb. 26 to Mar. 8. Maximum daily contents 1947-52, that of June 3-10, 1952. No contents Jan. 25 to May 8, 1951.

Reservoir is formed by earth-fill dam, completed in 1926 (capacity, 561 acre-ft), raised 6 ft in 1935 (capacity, 750 acre-ft), raised 31.5 ft in 1947. Capacity, 2,614 acre-ft between gage heights -0.4 ft (bottom of lowest sluice gate) and 96.4 ft (crest of spillway). If 4-foot flashboards are placed in spillway, capacity will be about 2,900 acre-ft. No dead storage. Figures given herein represent contents at 12 p.m. Water is used for municipal consumption of city of Santa Fe. Capacity table computed from area-capacity table furnished by Public Service Co. of New Mexico.

Reservoirs in Rio Grande basin--Continued

Nichols Reservoir.--Lat 35°41'20", long. 105°52'40", in E½NE¼ sec. 21, T. 17 N., R. 10 E., on outlet tower at dam on Santa Fe Creek, three-quarters of a mile upstream from Two Mile Reservoir, 2½ miles downstream from McClure Dam, and 3½ miles east of Santa Fe, N. Mex. Drainage area, 24 sq mi, approximately. Records available, December 1942 to September 1952. Water-stage recorder. Datum of gage is 7,313.2 ft above mean sea level, datum of 1929. Maximum daily contents during year, 836 acre-ft June 8 (gage height, 171.8 ft); minimum daily, 29 acre-ft Oct. 3. Maximum daily contents 1943-52, that of June 8, 1952; minimum daily, 16 acre-ft Feb. 11 to Mar. 10, 1944, Feb. 1-19, 1948.

Reservoir is formed by earth-fill dam. Storage began Mar. 16, 1943. Capacity, 796 acre-ft between gage heights 121.2 ft (bottom of lower operational gate) and 171.0 ft (top of flashboards in spillway). Dead storage, 14 acre-ft. Figures given herein represent total storage at 12 p.m. Water is used for municipal consumption of city of Santa Fe. Capacity table computed from survey furnished in 1943 by Public Service Co. of New Mexico.

Alamogordo Reservoir.--Lat 34°36'30", long. 104°23'10", in SW¼ sec. 34, T. 5 N., R. 24 E., at dam on Pecos River, 5 miles northeast of Guadalupe and 12 miles northwest of Fort Sumner, N. Mex. Drainage area, 4,390 sq mi (contributing area). Records available, January 1939 to September 1952. Water-stage recorder. Datum of gage is at mean sea level, Bureau of Reclamation datum. Maximum daily contents during year, 35,250 acre-ft Aug. 14 (elevation, 4,242.60 ft); minimum daily, 820 acre-ft July 3 (elevation, 4,202.60 ft). Maximum daily contents during period 1939-52, 149,400 acre-ft Apr. 19, 20, 1942 (elevation, 4,275.30 ft); minimum daily, 403 acre-ft July 28 to Aug. 2, 1951 (elevation, 4,200.70 ft).

Reservoir is formed by Alamogordo Dam; completed and storage began in 1938. Total capacity, 132,200 acre-ft at elevation 4,275.0 ft (top of spillway gates) above mean sea level. No dead storage. Figures given herein represent total contents and are computed from elevations at 8 a.m. Staff gage only below elevation 4,234.25 ft; continuous recorder registers gage heights above. Elevation record furnished by Bureau of Reclamation. Capacity table based on survey of March 1944 by Corps of Engineers.

Lake McMillan.--Lat 32°35'45", long. 104°20'55", in SE¼ sec. 2, T. 20 S., R. 26 E., near gates on dam on Pecos River, 3 miles southeast of Lakewood, N. Mex. Drainage area, 16,990 sq mi (contributing area). Records available, January 1939 to September 1952. Staff gage. Datum of gage is 3,241.6 ft above mean sea level, Bureau of Reclamation datum. Maximum daily contents during year, 6,390 acre-ft July 4, 5 (gage height, 18.00 ft); no storage Oct. 1-15, Jan. 11, 12, Mar. 29 to Apr. 8, Apr. 10-15, Aug. 2, 3, 7, Sept. 5-8, 11-30 (gage height, 0.0 ft). Maximum daily contents 1939-52, 68,500 acre-ft Sept. 26, 1941 (gage height, 29.95 ft); no storage at times in 1944, 1946-52.

Lake is formed by McMillan Dam. Storage began in 1906. Capacity, 38,660 acre-ft between gage heights 0.0 ft (sill of outlet gate) and 26.1 ft (crest of spillway 1). No dead storage. Figures given herein represent usable contents. Water is used for irrigation by Carlsbad Irrigation District. Contents computed from daily readings at 6 a.m. Gage-height record and capacity table furnished respectively by Carlsbad Irrigation District and Bureau of Reclamation.

Lake Avalon.--Lat 32°29'25", long. 104°15'00", in SW¼ sec. 12, T. 21 S., R. 26 E., on headwall at outlet gate on dam on Pecos River, 5 miles north of Carlsbad, N. Mex. Drainage area, 18,070 sq mi (contributing area). Records available, January 1939 to September 1952. Staff gage. Datum of gage is 3,157.0 ft above mean sea level, Bureau of Reclamation datum. Maximum daily contents during year, 5,020 acre-ft May 13, 14 (gage height, 19.35 ft); minimum daily, 73 acre-ft Sept. 20 (gage height, 8.00 ft). Maximum daily contents 1939-52, 11,000 acre-ft May 22, 1941 (gage height, 25.0 ft); no storage at times when natural flow was passing through reservoir.

Lake is formed by Avalon Dam. Storage began in 1906. Capacity, 6,600 acre-ft between gage height 0.0 ft (sill of outlet gates) and 21.0 ft (crest of spillway 1). No dead storage. Figures given herein represent usable contents ard are computed from daily readings at 6 a.m. Water is used for irrigation by Carlsbad Irrigation District who furnishes gage-height record and contents table.

Red Bluff Reservoir.--Lat 31°54'05", long. 103°54'40", at right end of Red Bluff Dam on Pecos River, 3 miles upstream from Salt (Screwbean) Draw and 4.5 miles north of Orla, Reeves County, Tex. Drainage area, 20,720 sq mi (contributing area). Records available, February 1937 to September 1952. Staff gage read at irregular intervals. Datum of gage is 0.30 ft below mean sea level, datum of 1929. Maximum contents observed during year, 47,000 acre-ft Mar. 25 (gage height, 2,803.0 ft); minimum observed, 12,570 acre-ft Sept. 10 (gage height, 2,783.3 ft). Maximum contents observed during period 1937-52, 352,000 acre-ft Sept. 27, 28, 1941 (gage height, 2,846.2 ft, observed on staff gage at service spillway, affected by variable drawdown due to flow through taintor gates); minimum observed, 11,080 acre-ft May 13, 1948 (gage height, 2,781.4 ft).

Reservoir is formed by earth-fill dam, rock-faced. Storage began in 1936. Dam completed early in 1937. Capacity, 307,000 acre-ft between gage heights 2,764.0 ft (penstock intake sill) and 2,842.0 ft (top of taintor gates). Dead storage, 3,000 acre-ft. Figures given herein represent total contents. Water is used for power development and for irrigation from Mentone to Grandfalls. Contents computed from intermittent gage readings. Gage-height record and capacity curve furnished by Red Bluff Water Power Control District.

Monthly gage heights and contents, of reservoirs in Rio Grande basin, water year October 1951 to September 1952

Date	Elephant Butte Reservoir			Caballo Reservoir		
	Elevation or gage height (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation or gage height (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	4,263.15	19,420	-	4,124.22	6,900	-
Oct. 31	4,264.72	22,900	+3,480	4,126.37	10,000	+3,100
Nov. 30	4,266.35	26,700	+3,800	4,128.07	12,830	+2,830
Dec. 31	4,270.10	36,500	+9,800	4,129.40	15,280	+2,450
Calendar year 1951	-	-	-293,200	-	-	-51,690
Jan. 31	4,270.10	36,500	0	4,141.08	45,960	+30,680
Feb. 29	4,262.17	17,300	-19,200	4,150.94	86,620	+40,660
Mar. 31	4,262.89	18,900	+1,600	4,149.20	78,200	-8,420
Apr. 30	4,276.83	59,300	+40,400	4,144.70	59,150	-19,050
May 31	4,308.10	259,000	+199,700	4,149.51	79,670	+20,520
June 30	4,324.42	421,200	+162,200	4,149.91	81,560	+1,890
July 31	4,321.66	390,700	+30,500	4,149.74	80,760	-800
Aug. 31	4,321.20	385,700	-5,000	4,133.46	23,970	-56,790
Sept.30	4,318.84	360,900	-24,800	4,126.28	9,860	-14,110
Water year 1951-52	-	-	+341,480	-	-	+2,960

Date	Carson Reservoir			El Vado Reservoir		
Sept.30	Dry	0	-	-	0	0
Oct. 31	"	0	0	-	0	0
Nov. 30	"	0	0	-	0	0
Dec. 31	"	0	0	-	0	0
Calendar year 1951	-	-	0	-	-	-29,350
Jan. 31	(a)	0	0	-	0	0
Feb. 29	Dry	0	0	-	0	0
Mar. 31	27.3	1,490	+1,490	6,778.3	5,820	+5,820
Apr. 30	31.9	2,220	+730	6,824.6	40,280	+34,460
May 31	(a)	314	-1,906	6,881.8	138,800	+98,520
June 30	Dry	0	-314	6,874.8	121,800	-17,000
July 31	"	0	0	6,836.6	55,030	-66,770
Aug. 31	"	0	0	6,785.3	9,170	-45,860
Sept.30	"	0	0	6,783.8	8,400	-770
Water year 1951-52	-	-	0	-	-	+8,400

Date	McClure Reservoir			Nichols Reservoir		
Sept.30	58.0	612	-	127.7	39	-
Oct. 31	57.3	591	-21	129.2	47	+8
Nov. 30	56.6	570	-21	137.0	109	+62
Dec. 31	55.8	547	-23	-	184	+75
Calendar year 1951	-	-	+501	-	-	+164
Jan. 31	55.5	539	-8	149.5	271	+87
Feb. 29	54.8	520	-19	153.6	348	+77
Mar. 31	59.1	645	+125	159.2	472	+124
Apr. 30	79.9	1,560	+915	159.0	468	-4
May 31	98.2	2,740	+1,180	163.5	585	+117
June 30	96.3	2,610	-130	165.6	643	+58
July 31	93.7	2,420	-190	166.2	661	+18
Aug. 31	89.0	2,110	-310	167.1	688	+27
Sept.30	85.6	1,890	-220	166.3	664	-24
Water year 1951-52	-	-	+1,278	-	-	+625

Date	Alamogordo Reservoir			Lake McMillan		
Sept.30	4,224.30	13,210	-	0	0	-
Oct. 31	4,224.15	13,080	-130	14.70	634	+634
Nov. 30	4,229.30	17,890	+4,810	15.30	1,160	+526
Dec. 31	4,232.95	21,890	+4,000	15.30	1,160	0
Calendar year 1951	-	-	-77,290	-	-	-8,940
Jan. 31	4,237.90	28,180	+6,290	15.20	1,050	-110
Feb. 29	4,240.25	31,550	+3,370	15.30	1,160	+110
Mar. 31	4,234.70	24,000	-7,550	0	0	-1,160
Apr. 30	4,215.60	7,020	-16,980	15.60	1,520	+1,520
May 31	4,230.65	19,310	+12,290	15.00	866	-654
June 30	4,210.50	4,100	-15,210	16.60	3,140	+2,274
July 31	4,231.80	20,570	+16,470	15.50	1,390	-1,750
Aug. 31	4,229.60	18,200	-2,370	16.50	2,950	+1,560
Sept.30	4,229.90	18,510	+310	0	0	-2,950
Water year 1951-52	-	-	+5,300	-	-	0

a No gage-height record; contents computed from reconstructed graph or interpolated.

Monthly gage heights and contents, of reservoirs in Rio Grande basin, water year October 1951 to September 1952--Continued

Date	Lake Avalon			Red Bluff Reservoir		
	Elevation or gage height (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation or gage height (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	13.20	820	-	2,795.1	28,590	-
Oct. 31	13.85	1,080	+260	2,796.5	31,300	+2,710
Nov. 30	16.80	2,920	+1,840	(a)	34,400	+3,100
Dec. 31	19.15	4,840	+1,920	(a)	37,080	+2,680
Calendar year 1951	-	-	-1,260	-	-	-57,920
Jan. 31	16.00	2,350	-2,490	2,800.8	41,000	+3,920
Feb. 29	17.70	3,610	+1,260	2,802.0	44,000	+3,000
Mar. 31	15.15	1,790	-1,820	(a)	40,750	-3,250
Apr. 30	18.00	3,850	+2,060	(a)	30,900	-9,850
May 31	14.20	1,250	-2,600	2,795.8	29,920	-980
June 30	16.95	3,030	+1,780	2,793.8	26,260	-3,660
July 31	14.00	1,150	-1,880	2,794.7	27,860	+1,600
Aug. 31	14.85	1,610	+460	2,785.9	15,190	-12,670
Sept.30	13.80	1,060	-550	2,785.2	14,420	-770
Water year 1951-52	-	-	+240	-	-	-14,170

a No gage-height record; contents estimated on basis of gage heights for adjacent days.

Bear Canyon near Mimbres, N. Mex.

Location.--Lat 32°52'50", long. 107°59'20", in SW¼SW¼ sec. 28, T. 16 S., R. 11 W., on left bank 100 ft downstream from bridge on State Highway 167, 200 ft downstream from Bear Canyon Dam, and 2 miles northwest of Mimbres.

Drainage area.--16 sq mi, approximately.

Records available.--October 1937 to September 1952.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 6,050 ft (from topographic map).

Average discharge.--15 years, 0.93 cfs.

Extremes (regulated).--Maximum discharge during year, 41 cfs Sept. 2 (gage height, 1.92 ft); no flow most of year.
1937-52: Maximum discharge, 83 cfs Mar. 7, 1949; maximum gage height, 2.88 ft Sept. 29, 1941; no flow for long periods.

Remarks.--Records good. Discharge measurements generally made three times a month. Flow regulated by Bear Canyon Reservoir (capacity, 700 acre-ft). One diversion for irrigation of about 10 acres above station.

Monthly discharge, in cubic feet per second, water year October 1951 to September 1952

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0
November	0	0	0	0
December	0	0	0	0
Calendar year 1951	0	0	0	0
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	9.9	0	2.40	143
May	.6	0	.12	7.5
June	7.3	0	2.21	132
July	7.0	0	1.54	94
August	.1	0	.003	.2
September	9.9	0	2.51	150
Water year 1951-52	9.9	0	.72	527

Mimbres River near Mimbres, N. Mex.

Location.--Lat 32°52'20", long. 107°59'00", in NE¼SW¼ sec. 33, T. 16 S., R. 11 W., on left bank a quarter of a mile downstream from Bear Canyon and 1½ miles northwest of Mimbres.

Drainage area.--183 sq mi.

Records available.--October 1930 to September 1952 in reports of Geological Survey. May 1921 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder and since Mar. 26, 1938, concrete control. Altitude of gage is 6,000 ft (from topographic map). Datum raised about 0.1 ft when station was moved 10 ft upstream Jan. 17, 1934.

Average discharge.--29 years (1921-24, 1926-52), 11.6 cfs.

Extremes.--Maximum discharge during year, 1,560 cfs Aug. 2 (gage height, 6.22 ft), from rating curve extended above 110 cfs by logarithmic plotting; minimum daily, 1.5 cfs Oct. 4-6.

1930-52: Maximum discharge, 2,230 cfs Aug. 19, 1944 (gage height, 5.54 ft), from rating curve extended above 120 cfs by logarithmic plotting; minimum daily, 0.9 cfs July 22, 1947, Aug. 10, 1951.

Remarks.--Records good. Discharge measurements generally made 3 or 4 times a month. Some regulation by Bear Canyon Reservoir (capacity, 700 acre-ft). Diversions for irrigation of about 300 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

2.1	1.1	2.8	9.0
2.2	1.9	3.0	20
2.3	2.7	3.2	41
2.4	3.6	3.5	101
2.6	5.6		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.6	5.9	3.9	4.9	4.9	6.5	30	25	10	13	6.6	2.8
2	1.6	5.3	3.9	4.0	4.9	6.9	41	24	13	13	88	9.6
3	1.6	5.1	3.9	3.9	4.9	6.4	52	23	14	12	9.0	11
4	1.5	4.8	3.8	3.9	4.9	6.3	49	24	12	12	8.4	9.4
5	1.5	4.2	3.9	3.8	4.9	6.2	47	25	11	12	8.0	10
6	1.5	4.2	3.9	3.8	4.8	6.2	46	24	10	12	7.5	10
7	1.6	4.3	3.8	3.8	4.8	5.6	47	23	9.4	11	7.3	10
8	1.6	4.3	3.9	3.7	4.7	5.6	46	21	8.8	11	7.3	11
9	1.6	4.2	3.9	3.7	4.3	4.8	40	19	8.2	20	9.3	11
10	1.6	4.4	3.9	3.7	4.1	4.8	35	16	8.0	15	10	11
11	1.6	5.0	3.9	3.7	4.1	5.4	40	14	6.9	12	16	9.8
12	1.6	4.7	4.0	3.7	4.2	5.0	31	13	6.6	12	9.4	5.1
13	1.6	4.5	4.0	9.8	4.3	5.0	26	12	6.8	9.9	9.0	5.8
14	1.6	4.4	3.9	33	4.3	5.2	24	12	7.3	9.9	16	5.6
15	1.7	4.3	3.8	8.4	4.2	5.2	24	12	7.1	16	9.9	5.6
16	1.6	4.3	3.8	6.5	4.2	5.3	25	12	7.5	9.4	8.8	5.6
17	1.6	4.2	3.8	5.6	4.2	7.7	26	12	7.1	9.0	8.4	5.6
18	1.7	4.2	3.9	45	4.4	6.9	25	14	5.6	7.7	7.1	5.6
19	1.7	4.0	3.9	63	4.3	8.0	26	14	5.4	6.8	6.5	5.4
20	1.7	3.7	4.2	27	4.3	9.9	26	13	5.3	7.5	6.2	5.2
21	1.9	3.7	3.9	15	4.3	11	30	13	8.4	8.0	4.5	5.3
22	2.0	3.7	3.9	8.2	4.3	8.6	26	12	11	7.7	3.0	68
23	2.0	3.8	3.9	6.4	4.3	9.0	24	12	11	7.1	2.7	19
24	2.0	3.9	4.0	5.8	4.4	8.6	22	11	11	7.3	17	11
25	2.1	3.9	4.1	5.4	4.9	8.6	25	11	11	7.5	9.0	9.0
26	2.3	4.0	3.9	5.3	5.6	8.4	28	10	11	7.5	6.5	8.2
27	2.1	4.0	3.9	5.2	5.6	8.6	33	11	12	5.9	5.3	7.7
28	2.0	4.0	3.9	5.1	5.8	10	34	11	13	6.2	4.7	7.5
29	2.0	4.0	3.9	5.1	5.8	13	29	12	13	6.2	3.6	7.5
30	2.8	4.0	3.9	5.0	-	14	27	11	13	6.2	3.9	7.1
31	14	-	5.3	5.0	-	16	-	10	-	7.3	4.0	-
Total	67.3	129.0	122.6	316.4	134.7	238.7	984	476	284.4	308.1	322.9	305.4
Mean	2.17	4.30	3.95	10.2	4.64	7.70	32.8	15.4	9.48	9.94	10.4	10.2
Ac-ft	133	256	243	628	267	473	1,950	944	564	611	640	606

Calendar year 1951: Max 36 Min 0.9 Mean 2.90 Ac-ft 2,100
Water year 1951-52: Max 88 Min 1.5 Mean 10.1 Ac-ft 7,320

Peak discharge (base, 290 cfs).--Aug. 2 (4 p.m.) 1,560 cfs (6.22 ft); Aug. 14 (10:40 a.m.) 294 cfs (4.07 ft); Sept. 22 (6 p.m.) 890 cfs (5.20 ft).

Mimbres River near Faywood, N. Mex.

Location.--Lat 32°35'10", long. 107°55'10", in NW¼ sec. 7, T. 20 S., R. 10 W., on right bank 6 miles northeast of Faywood Hot Springs, 10 miles northeast of Faywood, and 12 miles upstream from San Vicente Arroyo.

Drainage area.--485 sq mi.

Records available.--April 1908 to December 1914 and October 1930 to September 1952 in reports of Geological Survey. April 1908 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 5,050 ft (from topographic map). April 1908 to Aug. 12, 1909, chain gage at site 200 ft downstream. Prior to July 8, 1909, at datum 10.45 ft higher and July 8 to Aug. 12, 1909, at datum 6.45 ft higher. Aug. 13 to Dec. 31, 1915, at datum 3.45 ft higher, Jan. 1, 1916, to Sept. 30, 1942, at datum 2 ft higher, and Oct. 1, 1942, to Jan. 26, 1950, at datum 1.00 ft higher.

Average discharge.--36 years (1908-10, 1912-17, 1919-24, 1926-27, 1929-52), 19.7 cfs.

Extremes.--Maximum discharge during year, 2,380 cfs Sept. 22 (gage height, 6.30 ft), from rating curve extended above 600 cfs on basis of slope-area determination at gage height 7.80 ft; no flow at times.
1930-52: Maximum discharge not determined; maximum gage height, 12.0 ft Aug. 4, 1939, present datum; no flow at times.

Remarks.--Records fair. Discharge measurements generally made three times a month. Diversions for irrigation of about 3,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 30, 31, Jan. 14-18, Sept. 22-30)

0.53	0	1.2	19
.6	.4	1.4	32
.7	1.5	1.7	61
.8	3.4	1.9	87
1.0	9.4		

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0			0	0	0.2	6.3	15	2.6	1.9	1.4	1.0
2	0			0	0	.2	22	13	9.6	2.1	39	1.0
3	0			0	0	.1	34	13	25	1.9	29	1.0
4	0			0	0	.1	37	8.0	15	2.1	6.2	.8
5	0			0	.1	.1	38	7.0	9.1	2.3	2.3	.8
6	0			0	0	.1	39	7.0	5.7	2.3	1.5	.8
7	0			0	0	.1	37	6.0	4.4	2.3	1.3	.8
8	0			0	.1	.1	34	4.2	3.2	2.1	10	.7
9	0			0	.2	.1	33	4.2	3.0	2.1	4.4	.7
10	0			0	.2	.1	30	3.9	3.0	2.8	1.4	.7
11	0			0	.1	.2	32	5.0	3.0	2.1	25	.6
12	0			0	.1	.2	34	4.7	3.0	3.8	8.4	.6
13	0			0	.1	.2	29	3.2	2.8	3.1	17	.6
14	0			5.2	.1	.2	28	2.6	2.6	1.5	2.0	.5
15	0			11	.1	.2	24	2.6	2.8	70	5.5	.5
16	0			8.4	.1	.2	21	2.3	2.6	17	2.3	.5
17	0			4.2	0	.2	a15	2.4	2.6	2.3	1.0	.4
18	0			1.9	0	.2	11	3.0	2.6	1.4	.5	.4
19	0			50	0	.2	11	2.6	2.4	1.4	.5	.4
20	0			40	0	.7	11	2.4	2.4	6.1	.4	.3
21	0			25	0	1.5	12	2.4	2.3	2.6	.3	.3
22	0			15	.1	2.6	13	3.2	2.3	11	.2	85
23	0			8.4	.1	3.2	12	3.2	2.1	5.0	46	a10
24	0			a5.0	.1	2.3	9.1	3.2	2.1	2.1	34	a5.0
25	0			a3.0	.1	2.3	9.4	3.2	2.1	1.9	36	.7
26	0			a2.0	.1	2.1	9.1	3.4	2.1	1.7	6.3	.7
27	0			a1.0	.2	1.5	9.1	3.0	1.7	1.9	1.3	.6
28	0			a0	.2	2.6	22	2.8	1.9	1.5	1.2	.6
29	0			a0	.2	2.3	23	2.8	2.1	1.5	1.1	.5
30	1.0			0	-	1.9	19	2.8	2.1	1.5	1.1	.4
31	1.2			0	-	2.6	-	2.8	-	1.4	1.1	-
Total	2.2	0	0	180.1	2.3	28.6	664.0	144.9	128.2	162.7	287.7	116.9
Mean	0.07	0	0	5.81	0.08	0.92	22.1	4.67	4.27	5.25	9.28	3.90
Ac-ft	4.4	0	0	357	4.6	57	1,320	287	254	323	571	232

Calendar year 1951: Max 176 Min 0 Mean 1.64 Ac-ft 1,190
Water year 1951-52: Max 85 Min 0 Mean 4.69 Ac-ft 3,410

Peak discharge (base, 800 cfs).--July 15 (7 p.m.) 1,310 cfs (4.96 ft); Aug. 23 (10:30 p.m.) 1,210 cfs (4.84 ft); Sept. 22 (10 p.m.) 2,380 cfs (6.30 ft).
a No gage-height record; discharge estimated on basis of weather records and records for station near Mimbres.

Rio Tularosa near Bent, N. Mex.

Location.--Lat 33°08'45", long. 105°53'50", in E½NW¼ sec. 32, T. 13 S., R. 11 E., on right bank 50 ft downstream from bridge on U. S. Highway 70, 3 miles west of Bent, and 8.5 miles northeast of Tularosa.

Drainage area.--120 sq mi, approximately.

Records available.--December 1947 to September 1952.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,500 ft (from topographic map).

Extremes.--Maximum discharge during year, 154 cfs Oct. 31 (gage height, 1.40 ft); minimum daily, 3.9 cfs Aug. 25.
1947-52: Maximum discharge, 2,360 cfs July 19, 1950 (gage height, 5.3 ft), from rating curve extended above 33 cfs on basis of logarithmic plotting and slope-area determination at gage height 5.3 ft; minimum daily, 1.5 cfs June 20, 1950.

Remarks.--Records good. Discharge measurements generally made twice a month. Diversions for irrigation of about 1,000 acres above station.

Rating table, water year 1951-52 (gage height, in feet, and discharge, in cubic feet per second)

0.4	1.6
.5	4.4
.6	10
.7	20
.8	32

Discharge, in cubic feet per second, water year October 1951 to September 1952

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	8.6	8.6	13	11	16	13	7.2	6.1	9	11	9.3
2	10	9.3	9.3	12	11	16	13	8.6	7.3	8	11	9.3
3	9.3	9.3	9.3	12	11	16	13	8.6	8.6	7	12	9.3
4	9.3	10	8.6	13	10	14	13	6.8	12	9	9.3	8.6
5	10	9.3	7.2	13	9.3	14	13	7.1	11	11	8.6	8.6
6	9.3	9.3	11	13	9.3	14	9.0	7.1	10	11	9.3	8.6
7	7.2	9.3	11	13	7.9	14	8.0	12	10	12	7.3	4.6
8	6.2	9.3	10	12	10	15	7.9	12	9.3	13	7.6	4.6
9	5.5	10	9.3	12	11	15	13	11	7.2	13	11	4.8
10	7.2	9.3	9.3	12	12	15	13	11	6.6	13	7.5	8.6
11	7.2	11	9.3	12	10	14	15	11	6.2	13	5.5	9.3
12	7.9	12	10	11	10	14	13	10	5.2	12	5.3	9.3
13	10	11	10	10	8.6	13	14	8.6	5.6	7.5	9.3	9.3
14	10	11	10	10	12	11	14	7.2	6.2	7.1	7.9	9.3
15	9.3	11	10	11	13	13	12	7.2	5.3	6.5	7.9	9.3
16	8.6	10	9.3	11	13	15	12	9.3	6.8	11	8.6	8.6
17	9.3	9.3	10	11	13	14	13	10	6.9	11	9.3	8.6
18	9.3	9.3	10	12	10	13	13	6.2	12	12	9.3	10
19	9.3	8.6	11	12	11	13	12	5.7	12	12	10	9.3
20	9.3	8.6	12	12	11	12	9.2	6.0	12	12	8.6	10
21	7.9	7.9	13	12	11	13	9.9	10	11	13	8.6	6.4
22	7.8	7.9	12	12	9.7	13	9.6	11	11	16	14	14
23	7.2	7.9	12	12	7.1	13	14	11	8.6	12	8.6	11
24	11	7.2	12	11	14	11	14	11	7.1	10	4.8	11
25	11	6.6	12	11	13	12	16	11	7.2	9.3	3.9	10
26	11	6.2	12	11	12	10	14	11	7.2	10	4.3	10
27	9.3	6.6	12	10	11	11	13	11	8.4	6.6	7.9	9.3
28	10	7.2	12	10	12	10	11	11	7.2	5.6	8.6	10
29	9.3	7.2	13	11	9.3	13	11	9.3	13	5.6	8.6	9.3
30	13	7.9	13	10	-	13	9.3	9.3	7.2	10	8.6	11
31	22	-	12	11	-	13	-	8.6	-	11	8.6	-
Total	293.7	268.1	330.2	358	313.2	413	364.9	286.8	254.2	319.2	262.8	271.3
Mean	9.47	8.94	10.7	11.5	10.8	13.3	12.2	9.25	8.47	10.3	8.48	9.04
Ac-ft	583	532	655	710	621	819	724	569	504	633	521	538

Calendar year 1951: Max 39 Min 4.6 Mean 10.8 Ac-ft 7,830
Water year 1951-52: Max 22 Min 3.9 Mean 10.2 Ac-ft 7,410

Peak discharge (base, 300 cfs).--No peak above base.

Measurements of streamflow in the Western Gulf of Mexico basins made at points other than gaging stations are given in the following table:

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952

Calcasieu River basin, La.

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
May 25	Bear Head Creek..	Houston River.....	In SE¼ sec. 30, T. 8 S., R. 12 W., Louisiana meridian, at bridge on State Highway 7, 2.3 miles northeast of Starks.	1,410
25	....do.....	....do.....	....do.....	1,440
26	....do.....	....do.....	....do.....	1,360
25	Cowards Gully....	Buxton Creek.....	In SE¼ sec. 28, T. 7 S., R. 11 W., Louisiana meridian, at bridge on State Highway 7, 3.9 miles southwest of DeQuincy.	45.9
26	....do.....	....do.....	....do.....	138
Apr. 23	Barnes Creek.....	Calcasieu River...:	In NW¼ sec. 25, T. 6 S., R. 8 W., Louisiana meridian, at bridge on State Highway 7, 5.5 miles west of Reeves.	3,960
24	....do.....	....do.....	....do.....	4,270
23	Clear Creek.....	Barnes Creek.....	In NE¼ sec. 23, T. 6 S., R. 7 W., Louisiana meridian, at bridge on State Highway 7, at Reeves.	2,120

Sabine River basin, Tex.

Aug. 20	Duck Creek.....	Sabine River.....	Lat 32°34'10", long. 95°25'50", about 1.5 miles upstream from International Great Northern Railway bridge, 4.2 miles north of Lindale, Smith County.	0.06
June 12	Tenahá Creek.....	....do.....	Lat 31°51', long. 93°57', about 1½ miles below confluence of Flat Fork Creek, 10 miles northeast of Shelbyville, Shelby County.	17.0
July 15	....do.....	....do.....	....do.....	3.54
Aug. 12	....do.....	....do.....	....do.....	5.41
Sept. 9	....do.....	....do.....	....do.....	0
June 12	Bayou Siep.....	....do.....	Lat 31°43', long. 93°52', about ¼ mile below confluence of Bayou Blue and 10 miles northeast of Patroon, Shelby County.	*10.0
Aug. 12	....do.....	....do.....	....do.....	1.83
Sept. 9	....do.....	....do.....	....do.....	*.05
June 12	Patroon Bayou....	....do.....	Lat 31°32', long. 93°48', about 5 miles above mouth and 7 miles north northeast of Milam, Sabine County.	18.7
July 15	....do.....	....do.....	....do.....	7.59
Aug. 14	....do.....	....do.....	....do.....	3.55
Sept. 9	....do.....	....do.....	....do.....	*.1
May 16	Palo Gaucho Creek	....do.....	Lat 31°25', long. 93°44', at county road bridge, about 2 miles northwest of Sabinetown, Sabine County, and 7 miles east of Milam.	39.9
June 13	....do.....	....do.....	....do.....	46.4
July 23	....do.....	....do.....	....do.....	46.1
Aug. 25	....do.....	....do.....	....do.....	3.54
June 13	Housen Bayou.....	....do.....	Lat 31°16', long. 93°41', at county road bridge, about 1½ miles above mouth and 9 miles east of Yellowpine, Sabine County.	7.87
July 23	....do.....	....do.....	....do.....	6.16
Aug. 25	....do.....	....do.....	....do.....	*.2
June 13	Sandy Creek.....	....do.....	Lat 31°15', long. 93°40', about 3 miles above mouth, 9½ miles east of Yellowpine, Sabine County.	24.7
July 23	....do.....	....do.....	....do.....	34.2
Aug. 25	....do.....	....do.....	....do.....	3.48
June 13	Lows Creek.....	Sandy Creek.....	Lat 31°14', long. 93°40', at county road bridge, ¼ mile above confluence with Sandy Creek, 10 miles southeast of Yellowpine, Sabine County.	*1.0
July 23	....do.....	....do.....	....do.....	.24
Aug. 25	....do.....	....do.....	....do.....	0
June 13	Mill Creek.....	Sabine River.....	Lat 31°12', long. 93°38', at county road bridge, 2 miles above mouth and 12 miles southeast of Yellowpine, Sabine County.	13.1
July 23	....do.....	....do.....	....do.....	21.4
Aug. 25	....do.....	....do.....	....do.....	6.49
June 13	Indian Creek.....	....do.....	Lat 31°10', long. 93°36', at county road bridge, about 1 mile above mouth and 12½ miles northeast of Burkeville, Newton County.	*8.0
July 23	....do.....	....do.....	....do.....	11.9
Aug. 25	....do.....	....do.....	....do.....	4.27
June 13	Buck Creek.....	Indian Creek.....	Lat 31°10', long. 93°36', at county road bridge, ¼ mile upstream from Indian Creek, 12½ miles northeast of Burkeville, Newton County.	*3.0
July 23	....do.....	....do.....	....do.....	5.89
Aug. 25	....do.....	....do.....	....do.....	4.07

* Field estimate.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Sabine River basin, Tex.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
June 13	Hickman Creek....	Sabine River.....	Lat 31°06', long. 93°35', at county road bridge, 1½ miles above mouth and 8¼ miles northeast of Burkeville, Newton County.	*3.0
July 23	....do.....	....do.....	....do.....	6.06
Aug. 25	....do.....	....do.....	....do.....	2.68
Apr. 7	Little Cow Creek.	....do.....	At bridge on State Highway 87, above McGraw Creek and ½ mile south of Burkeville, Newton County.	40.7
June 19	....do.	....do.....	....do.....	33.2
July 25	....do.....	....do.....	....do.....	37.6
Aug. 26	....do.....	....do.....	....do.....	28.7
Apr. 7	....do.....	....do.....	Lat 30°59', long. 93°39', ½ mile above confluence of McGraw Creek and 1⅞ miles southeast of Burkeville, Newton County.	44.4
June 19	McGraw Creek.....	Little Cow Creek...	1 mile above mouth and 2 miles southeast of Burkeville, Newton County.	15.8
July 25	....do.....	....do.....	....do.....	23.4
Aug. 26	....do.....	....do.....	....do.....	15.6
June 19	Little Cow Creek.	Sabine River.....	Lat 30°58', long. 93°36', about 5 miles above mouth and 5 miles southeast of Burkeville, Newton County.	60.2
July 25	....do.....	....do.....	....do.....	71.4
Aug. 26	....do.....	....do.....	....do.....	52.9
June 20	Quicksand Creek..	....do.....	At U. S. Highway 190, 0.7 mile above mouth and 1¼ miles east of Bon Wier, Newton County.	29.5
July 26	....do.....	....do.....	....do.....	38.9
Aug. 26	....do.....	....do.....	....do.....	21.8
Sept.19	....do.....	....do.....	....do.....	19.7
May 13	Caney Creek.....	....do.....	Lat 30°45', long. 93°38', at Highway 190 bridge, about 2 miles upstream from mouth and 0.6 mile east of Bon Wier, Newton County.	19.5
June 19	....do.....	....do.....	....do.....	11.8
July 25	....do.....	....do.....	....do.....	13.5
Aug. 26	....do.....	....do.....	....do.....	7.88
June 20	Davis Creek.....	....do.....	Lat 30°42', long. 93°40', about 2 miles above mouth and 3⅛ miles southwest of Bon Wier, Newton County.	*2.0
July 26	....do.....	....do.....	....do.....	4.36
Aug. 27	....do.....	....do.....	....do.....	1.33
June 20	Dempsey Creek....	....do.....	Lat 30°41', long. 93°41', 1½ miles upstream from mouth and 5 miles southwest of Bon Wier, Newton County.	5.11
July 26	....do.....	....do.....	....do.....	2.93
Aug. 27	....do.....	....do.....	....do.....	1.83
June 20	Church House Creek.	....do.....	Lat 30°40', long. 93°41', about 1 mile upstream from mouth and 6 miles southwest of Bon Wier, Newton County.	*.5
July 26	....do.....	....do.....	....do.....	.80
Aug. 27	....do.....	....do.....	....do.....	*.5
June 20	Donahoe Creek....	....do.....	Lat 30°38', long. 93°43', about 2 miles upstream from mouth and 9 miles southwest of Bon Wier, Newton County.	6.52
July 26	....do.....	....do.....	....do.....	4.25
Aug. 27	....do.....	....do.....	....do.....	.34
May 9	Big Cow Creek....	....do.....	Lat 30°36', long. 93°48', about 5 miles upstream from mouth and 4.8 miles east of Call, Newton County.	129
June 20	....do.....	....do.....	....do.....	88.6
Aug. 27	....do.....	....do.....	....do.....	49.9
June 4	Nichols Creek....	....do.....	Lat 30°26', long. 93°47', about 3 miles above mouth and 9.8 miles north of Deweyville, Newton County.	*20.0
July 11	....do.....	....do.....	....do.....	0
Aug. 8	....do.....	....do.....	....do.....	0
Sept. 5	....do.....	....do.....	....do.....	0
May 12	Orange County Water Co.'s industrial feeder canal lateral No. 5.	....do.....	Lat 30°04'20", long. 93°47'25", 3½ miles southwest of Orange, Orange County.	19.6

* Field estimate.

Trinity River basin, Tex.

July 14	West Fork Trinity River.	Trinity River.....	Lat 32°47', long. 97°24', 1/3 mile downstream from Lake Worth, 5.5 miles northwest of Post Office, Fort Worth, Tarrant County.	14.6
14	....do.....	....do.....	Lat 32°45'45", long. 97°22'50", at bridge on White Settlement Road, at Fort Worth, Tarrant County.	15.2
14	....do.....	....do.....	....do.....	14.7
14	....do.....	....do.....	Lat 32°46'00", long. 97°22'35", near junction of Rockwood Park Drive and Cresthaven, at Fort Worth, Tarrant County.	39.6
14	....do.....	....do.....	....do.....	39.9
Sept. 9	....do.....	....do.....	Lat 32°47', long. 96°55', about 6,000 ft upstream from confluence with Elm Fork Trinity River, at Dallas, Dallas County.	66.0

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Trinity River basin, Tex.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Sept. 9	Elm Fork Trinity River.	Trinity River.....	Lat 32°49', long. 96°54', about ¾ mile above confluence with West Fork Trinity River, at Dallas, Dallas County.	4.81

San Jacinto River basin, Tex.

July 8	East Fork San Jacinto River.	San Jacinto River..	Lat 30°18', long. 95°07', 3½ miles southwest of Cleveland, Liberty County.	17.9
8	....do.....	....do.....	Lat 30°13', long. 95°06', 4 miles east of Splendora, Montgomery County.	20.2
8	....do.....	....do.....	Lat 30°09', long. 95°07', 5½ miles east of New Caney, Montgomery County.	23.2
Aug. 7	....do.....	....do.....	....do.....	14.1
Sept. 8	....do.....	....do.....	....do.....	9.40
1951 Nov. 30	Luce Bayou.....	East Fork San Jacinto River.	Lat 30°30'02", long. 95°06'00", at county road bridge, 2.1 miles upstream from mouth and 2.3 miles north northwest of Huffman, Harris County.	*.10
1952 Jan. 14	....do.....	....do.....	....do.....	*.20
1951 Nov. 30	West Fork San Jacinto River.	San Jacinto River..	50 ft above confluence with East Fork of San Jacinto River, 8.4 miles east of Humble, Harris County.	63.2
1952 Jan. 14	....do.....	....do.....	....do.....	67.8

* Field estimate.

Brazos River basin, Tex.

1952 Mar. 4	Double Mountain Fork Brazos River.	Brazos River.....	Lat 33°32'54", long. 101°46'54", on State Highway 835, 4.3 miles southeast of Lubbock, Lubbock County.	1.77
Apr. 3	....do.....	....do.....	....do.....	1.85
30	....do.....	....do.....	....do.....	2.00
June 10	....do.....	....do.....	....do.....	1.69
July 2	....do.....	....do.....	....do.....	1.92
Aug. 5	....do.....	....do.....	....do.....	1.68
Sept. 3	....do.....	....do.....	....do.....	1.64
4	....do.....	....do.....	....do.....	1.87
Mar. 4	....do.....	....do.....	Lat 33°31'36", long. 101°43'36", on State Highway 835, 7.8 miles southeast of Lubbock, Lubbock County.	2.79
Apr. 3	....do.....	....do.....	....do.....	2.84
30	....do.....	....do.....	....do.....	a12.2
30	....do.....	....do.....	....do.....	a12.5
June 10	....do.....	....do.....	....do.....	1.64
July 2	....do.....	....do.....	....do.....	1.99
Aug. 5	....do.....	....do.....	....do.....	1.57
Sept. 3	....do.....	....do.....	....do.....	1.15
3	....do.....	....do.....	....do.....	1.16
4	....do.....	....do.....	....do.....	1.31
Mar. 4	....do.....	....do.....	Lat 33°31'46", long. 101°42'24", between 200 and 800 ft below upper Buffalo Lakes Inc. dam, 7.5 miles northwest of Slaton, Lubbock County.	2.35
Apr. 3	....do.....	....do.....	....do.....	1.88
30	....do.....	....do.....	....do.....	a22.5
June 10	....do.....	....do.....	....do.....	b.12
July 2	....do.....	....do.....	....do.....	b.19
Aug. 5	....do.....	....do.....	....do.....	b.18
Sept. 3	....do.....	....do.....	....do.....	.29
Mar. 4	....do.....	....do.....	Lat 33°30'42", long. 101°39'36", on State Highway 400, 5.5 miles north of Slaton, Lubbock County.	1.04
Apr. 3	....do.....	....do.....	....do.....	2.10
30	....do.....	....do.....	....do.....	a39.2
June 10	....do.....	....do.....	....do.....	.36
July 2	....do.....	....do.....	....do.....	0
Aug. 5	....do.....	....do.....	....do.....	.10
Sept. 3	....do.....	....do.....	....do.....	0
Mar. 4	....do.....	....do.....	Lat 33°29'27", long. 101°37'27", 4.2 miles northeast of Slaton, Lubbock County.	.64
Apr. 3	....do.....	....do.....	....do.....	2.02
30	....do.....	....do.....	....do.....	a57.1
June 10	....do.....	....do.....	....do.....	*.01
July 2	....do.....	....do.....	....do.....	0
Aug. 5	....do.....	....do.....	....do.....	0
Sept. 3	....do.....	....do.....	....do.....	0
Nov. 21	White River.....	Salt Fork Brazos River.	Lat 33°41', long. 101°10', at county road crossing about 4½ miles east of Crosbyton, Crosby County.	2.06
Feb. 21	....do.....	....do.....	....do.....	2.70
May 1	....do.....	....do.....	....do.....	8.72

* Field estimate.
a Affected by local runoff.
b Accumulated seepage from dam.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Brazos River basin, Tex.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Aug. 6	White River.....	Salt Fork Brazos River.	Lat 33°41', long. 101°10', at county road crossing about 4½ miles east of Crosbyton, Crosby County.	0.83
Nov. 21	....do.....	....do.....	Lat 33°40'00", long. 101°09'30", below falls at U. S. Highway 82 about 4½ miles east of Crosbyton, Crosby County.	2.34
Feb. 21	....do.....	....do.....	....do.....	3.55
May 1	....do.....	....do.....	....do.....	9.37
Aug. 6	....do.....	....do.....	....do.....	.85
May 23	North Bosque River.	Brazos River.....	Lat 32°13'30", long. 98°11'45", at bridge on U. S. Highway 377, at Stephenville, Erath County.	c45,000
23	Green Creek.....	North Bosque River.	Lat 32°09', long. 98°18', ½ mile above crossing on U. S. Highway 67, 4 miles northeast of Dublin, Erath County.	c18,900
23	....do.....	....do.....	Lat 32°04', long. 98°14', at bridge on State Highway 6, about 1.7 miles northwest of Alexander, Erath County.	c73,500
23	North Bosque River.	Brazos River.....	Lat 31°59', long. 98°02', at bridge on U. S. Highway 281, at Hico, Hamilton County.	c87,800
Aug. 21	Salado Creek.....	Lampasas River.....	Lat 30°55'18", long. 97°35'34", about 4.5 miles above Salado, Bell County.	0
21	....do.....	....do.....	Lat 30°56'37", long. 97°32'06", at Salado, Bell County.	7.60
July 8	Brisco Irrigation Co.'s canal.	Brazos River.....	Lat 29°30', long. 95°33', at bridge over canal 4,500 ft downstream from pump plant and about 4 miles east of Thompsons.	d485
8	South Texas Water Co.'s canal.	....do.....	Lat 29°27', long. 95°32', at flume over Oyster Creek, 3½ miles west of Juliff, Fort Bend County.	d486

c Flow at crest stage; computed by indirect method.
d Total flow of canals, 3 pumps in operation.

Colorado River basin, Tex.

May 7	Deep Creek.....	Colorado River.....	Lat 32°34', long. 100°54', 2 miles northwest of Dunn, Scurry County.	0
June 10	....do.....	....do.....	....do.....	0
July 11	....do.....	....do.....	....do.....	0
May 7	Sulphur Creek.....	Deep Creek.....	Lat 32°34', long. 100°53', 1.2 miles northeast of Dunn, Scurry County.	*.01
June 10	....do.....	....do.....	....do.....	0
July 11	....do.....	....do.....	....do.....	0
Sept.16	Middle Concho River.	Concho River.....	Lat 31°23', long. 100°31', just above mouth of Spring Creek, 7.6 miles southwest of San Angelo, Tom Green County.	0
Oct. 17	Spring Creek.....	Middle Concho River	Lat 31°14', long. 100°49', ½ mile below source of spring, 3.3 miles south of Mertzon, Irion County.	e6.95
Mar. 7	....do.....	....do.....	....do.....	e6.37
June 10	....do.....	....do.....	....do.....	e9.05
Aug. 25	....do.....	....do.....	....do.....	e6.30
Sept.15	....do.....	....do.....	....do.....	e7.55
25	....do.....	....do.....	....do.....	e7.72
25	Upper Ditch Co. canal.	Spring Creek.....	Lat 31°16', long. 100°49', at Mertzon, Irion County.	6.17
16	Dove Creek.....	....do.....	Lat 31°18', long. 100°38', 3.4 miles north of Knickerbocker, Tom Green County.	0
Dec. 10	South Concho River.	Concho River.....	Lat 31°19', long. 100°29', 10 miles south of San Angelo, Tom Green County.	7.45
Jan. 22	....do.....	....do.....	....do.....	9.26
Feb. 12	....do.....	....do.....	....do.....	1.54
Mar. 11	....do.....	....do.....	....do.....	3.02
Apr. 8	....do.....	....do.....	....do.....	.59
May 5	....do.....	....do.....	....do.....	9.87
June 11	....do.....	....do.....	....do.....	4.87
July 2	....do.....	....do.....	....do.....	0
Aug. 11	....do.....	....do.....	....do.....	0
Sept.15	....do.....	....do.....	....do.....	0
15	Pecan Creek.....	South Concho River.	Lat 31°19', long. 100°27', 10 miles south of San Angelo, Tom Green County.	0
2	Pecan Springs....	Pecan Creek.....	Lat 31°14', long. 100°25', 5.3 miles northeast of Christoval, Tom Green County, on Jake Johnson Ranch.	0
2	Lipan Springs....	Lipan Creek.....	Lat 31°15', long. 100°15', 7.8 miles southwest of Vancourt, Tom Green County, on Dick Warin Ranch.	e.11
Aug. 21	Colorado River...	Gulf of Mexico.....	Lat 31°18', long. 98°36', 10 miles northeast of San Saba, San Saba County.	0
23	Government Springs.	San Saba River.....	Lat 30°50', long. 100°06', 30 ft below Fort McKavett-San Angelo road crossing, and 0.7 mile northeast of Fort McKavett, Menard County.	3.77
23	Clear Creek.....	....do.....	Lat 30°54', long. 99°55', about 800 ft above mouth of creek, 8 miles west of Menard, Menard County.	7.62
23	Cogden Branch....	....do.....	Lat 30°55', long. 99°52', 4.9 miles west of Menard, Menard County.	.50

* Field estimate.
e Total flow of spring.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Colorado River basin, Tex.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
June 24	Brady Creek.....	San Saba River...	Lat 31°08', long. 99°00', 10 miles south of Richland Springs, San Saba County.	2.03
Sept. 8	Fleming Spring..	....do.....	Lat 31°11', long. 98°56', 15 miles southwest of San Saba, San Saba County.	.34
8	Sloan's Spring..	....do.....	Lat 31°08', long. 98°55', 7 miles southwest of Algerita, San Saba County.	4.26
8	Baker Springs...	....do.....	Lat 31°12', long. 98°55', 3.9 miles southwest of Algerita, San Saba County.	1.69
8	Hall Springs....	Richland Creek...	Lat 31°17', long. 99°04', 3.7 miles west of Richland Springs, San Saba County.	0
8	Richland Springs	....do.....	Lat 31°17', long. 98°56', at Richland Springs, San Saba County.	0
9	San Saba Springs	San Saba River...	Lat 31°12', long. 98°43', at San Saba, San Saba County.	e7.31
10	Bee Water Hole Branch.	Cherokee Creek...	Lat 30°59'55", long. 98°36'30", at bridge on Farm-to-Market Road 501, 6 miles east of Cherokee, San Saba County.	c2,850
11	Cherokee Creek..	Colorado River...	Lat 31°03'20", long. 98°33'00", 1.5 miles upstream from Chappel-Bend Road, 1.5 miles west of Chappel, San Saba County.	c46,000
Aug. 28	South Llano River.	Llano River.....	Lat 30°16', long. 99°56', in Edwards County, about 1 mile upstream from Seven Hundred Springs and 24 miles southwest of Junction, Kimble County.	4.96
28	....do.....	....do.....	Lat 30°16', long. 99°56', in Edwards County about 300 ft downstream from Seven Hundred Springs and about 23.5 miles southwest of Junction, Kimble County.	15.6
30	Johnson Fork Llano River.	....do.....	Lat 30°29'40", long. 99°40'20", 0.5 mile above mouth and about 6.5 miles east of Junction, Kimble County.	2.21
Sept.10	Llano River.....	Colorado River...	Lat 30°40'40", long. 99°20'00", 1.5 miles upstream from Mason-Blue Mountain School road and 8 miles southwest of Mason, Mason County.	c26,700
10	Hickory Creek...	Llano River.....	Lat 30°42'20", long. 98°50'00", 1 mile above Farm Road 152 and 8 miles east of Castell, Llano County.	c50,300
10	Six Mile Creek..	....do.....	Lat 30°43'20", long. 98°45'40", 350 ft upstream from Farm Road 152 and 5½ miles west of Llano, Llano County.	c10,500
11	Johnson Creek...	....do.....	Lat 30°46'00", long. 98°45'40", at bridge on State Highway 29, 5 miles west of Llano, Llano County.	c12,200
11	Pecan Creek.....	....do.....	Lat 30°50'00", long. 98°43'30", ½ mile downstream from old Llano-Valley Spring road low-water crossing at Smathers Ranch and 6 miles northwest of Llano, Llano County.	c11,900
11	Oatman Creek....	....do.....	Lat 30°43'20", long. 98°40'05", 500 ft downstream from a low-water crossing, 1 mile downstream from State Highway 16, and 2 miles south of Llano, Llano County.	c9,960
11	Wrights (or Mitchell) Creek.	....do.....	Lat 30°46'50", long. 98°38'00", 0.5 mile upstream from Llano-Lone Grove road and 3 miles northeast of Llano, Llano County on A. R. Hains Ranch.	c6,580
10	Little Llano River.	....do.....	Lat 30°48'00", long. 98°34'10", 0.8 mile downstream from Lone Grove, Llano County.	c21,800
11	Honey Creek.....	....do.....	Lat 30°38'10", long. 98°31'20", about 2,000 ft downstream from the Llano-Round Mountain road and 5 miles west of Kingsland, Llano County.	c27,600
10	Hog Branch.....	Sandy Creek.....	Lat 30°34'50", long. 98°42'00", about 500 ft downstream from State Highway 16 and 12 miles south of Llano, Llano County.	c3,470
10	Hog Branch tributary.	Hog Branch.....	Lat 30°34'50", long. 98°42'10", at culvert on State Highway 16, 12 miles south of Llano, Llano County.	c482
10	Coal Creek.....	Sandy Creek.....	Lat 30°27'30", long. 98°38'00", at Clinton Hardin Ranch, about 800 ft below ranch crossing on creek and 5 miles northeast of Willow City, Gillespie County.	c23,800
10	Comanche Creek..	....do.....	Lat 30°30'30", long. 98°33'30", on Hardin Ranch, 2.6 miles from mouth at Sandy Creek and 3.6 miles south of Click, Llano County.	c18,900
11	Sandy Creek.....	Colorado River...	Llano-Round Mountain road crossing, 11.5 miles northwest of Round Mountain, Blanco County.	c163,000
10	Walnut Creek....	Sandy Creek.....	Lat 30°32'00", long. 98°27'00", 0.6 mile upstream from Llano-Round Mountain road crossing and 9.2 miles northwest of Round Mountain, Blanco County.	c16,400
10	Pedernales River	Colorado River...	Lat 30°12'30", long. 99°00'00", 0.2 mile downstream from paved road from Morris Ranch south to State Highway 16 and 0.6 mile southeast of Morris Ranch, Gillespie County.	c35,200

c Flow at crest stage; computed by indirect method.
e Total flow of spring.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Colorado River basin, Tex.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Sept.10	Wolf Creek.....	Pedernales River	Lat 30°10'45", long. 99°00'10", 2.4 miles south of Morris Ranch, 3.5 miles upstream from mouth, and 10 miles southwest of Fredericksburg, Gillespie County.	c25,200
10	Bear Creek.....	....do.....	Lat 30°10'40", long. 98°56'35", 0.65 mile downstream from paved road, 3.2 miles upstream from mouth, and 7.9 miles southwest of Fredericksburg, Gillespie County.	c21,000
10	Live Oak Creek..	....do.....	Lat 30°14'30", long. 98°55'00", in Oak Crest Park, ¼ mile downstream from Fredericksburg-Tivydale road and 3.4 miles southwest of Fredericksburg, Gillespie County.	c21,300
10	Palo Alto Creek.	....do.....	Lat 30°17'30", long. 98°48'00", just upstream from Gold-Fredericksburg road and 4.5 miles northeast of Fredericksburg, Gillespie County.	c22,000
10	South Grape Creek.	....do.....	Lat 30°12'40", long. 98°43'30", 0.8 mile upstream from U. S. Highway 290 and 4 miles southwest of Stonewall, Gillespie County.	c30,500
11	Pedernales River	Colorado River..	Lat 30°14'25", long. 98°40'10", about 0.4 mile upstream from site of former gage and 0.6 mile west of Stonewall, Gillespie County.	c170,000
11	Rocky Creek.....	Pedernales River	Lat 30°15'30", long. 98°31'30", about 0.4 mile downstream from U. S. Highway 290, and 2½ miles east of Hye, Blanco County.	c38,700
10	North Grape Creek.	....do.....	Lat 30°20'35", long. 98°29'35", 2.1 miles southwest of Sandy, Blanco County and 2.3 miles upstream from mouth.	c117,000
10	Miller Creek....	....do.....	Lat 30°12'05", long. 98°19'45", along U. S. Highway 290, 500 ft downstream from mouth of McCall Creek and 7¼ miles southeast of Johnson City, Blanco County.	c34,700
10	Cypress Creek...	....do.....	Lat 30°23', long. 98°15', at Farm-to-Market road 962, ½ mile north of Cypress Mill, Blanco County.	c6,210
11	Pedernales River	Colorado River..	Lat 30°22'40", long. 98°07'15", 2 miles upstream from Fall Creek, 4 miles upstream from Ranch Road 93, and 8.5 miles upstream from old gage site near Spicewood, Travis County.	c452,000

c Flow at crest stage; computed by indirect method.

Guadalupe River basin, Tex.†

1951 Oct. 1	North Fork Guadalupe River.	Guadalupe River.	Lat 30°04'33", long. 99°20'30", ½ mile above junction of South Fork Guadalupe River and ½ mile northwest of Hunt, Kerr County.	8.83
1952 Sept. 4	....do.....	....do.....	....do.....	2.49
1951 Oct. 1	South Fork Guadalupe River.	....do.....	Lat 30°04'20", long. 99°20'00", at highway crossing at Hunt, Kerr County.	7.49
1952 Sept. 4	....do.....	....do.....	....do.....	4.00
1951 Oct. 1	Guadalupe River.	Gulf of Mexico..	Lat 30°03', long. 99°19', at discontinued gaging site, 0.6 mile east of Hunt, Kerr County.	13.6
1952 Sept. 4	....do.....	....do.....	....do.....	4.91
5	....do.....	....do.....	Lat 30°04'05", long. 99°17'25", 2.1 miles (by road) below discontinued gage near Hunt, Kerr County.	5.67
1951 Oct. 1	....do.....	....do.....	Lat 30°04'00", long. 99°13'30", about 1½ miles east of Ingram, Kerr County.	16.6
1952 Sept. 5	....do.....	....do.....	Lat 30°03'30", long. 99°10'15", 150 ft above concrete low-water bridge, 2.0 miles above main bridge at Kerrville, Kerr County.	5.13
1951 Oct. 2	....do.....	....do.....	Lat 30°03'05", long. 99°08'48", about ½ mile above State Highway 16, at Kerrville, Kerr County.	15.9
2	....do.....	....do.....	Lat 29°57'00", long. 99°04'55", 2.8 miles west of Center Point, Kerr County.	17.4
1952 Sept. 5	....do.....	....do.....	Lat 29°56'45", long. 99°02'25", about 30 ft above low concrete slab crossing at Center Point, Kerr County.	2.94
1951 Oct. 2	....do.....	....do.....	Lat 29°56'25", long. 99°00'30", about 1.6 miles east of Center Point, Kerr County.	15.5

† Includes discharge measurements made prior to 1952 water year.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Guadalupe River basin, Tex.--Continued†

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
1952				
Sept.10	Big Joshua Creek	Guadalupe River.	Lat 29°54'50", long. 98°48'25", about 1.5 miles upstream from Little Joshua Creek, 2.5 miles south of Waring, Kendall County.	c30,900
10	Little Joshua Creek.	....do.....	Lat 29°53'20", long. 98°47'55", 1.1 miles upstream from mouth and 1.8 miles southwest of Welfare, Kendall County.	c12,800
1951				
Oct. 2	Guadalupe River.	Gulf of Mexico..	Lat 29°57'30", long. 98°43'00", 1½ miles south southeast of Sisterdale, Kendall County.	14.0
17	Cave without a name.	Spring Creek....	Lat 29°53'24", long. 98°37'00", about 5 miles northwest of Bergheim, Kendall County.	.03
2	Guadalupe River.	Gulf of Mexico..	Lat 29°53'30", long. 98°33'36", 4½ miles north northeast of Bergheim, Kendall County.	13.0
11	....do.....	....do.....	....do.....	5.37
1952				
Sept. 5	....do.....	....do.....	Lat 29°53'10", long. 98°31'50", at county road bridge, about 5 miles northeast of Bergheim, Kendall County.	*.01
1951				
Oct. 11	....do.....	....do.....	Lat 29°52'50", long. 98°31'36", 4.6 miles northeast of Bergheim, Kendall County.	6.72
1952				
Sept. 8	Edge Falls Springs.	Curry Creek.....	Lat 29°54'46", long. 98°30'19", 4 miles south of Kendalia, Kendall County.	.40
1951				
Oct. 11	Guadalupe River.	Gulf of Mexico..	Lat 29°52'30", long. 98°25'10", 1.0 mile southwest of Spring Branch, Comal County.	5.61
11	Spring Branch Creek.	Guadalupe River.	....do.....	.50
3	Big Spring.....	....do.....	Lat 29°54'55", long. 98°17'45", (at Crane's Mill) 5 miles southwest of Fischer Store, Comal County.	.31
1952				
Sept. 9	....do.....	....do.....	....do.....	.80
1951				
Oct. 3	Guadalupe River.	Gulf of Mexico..	Lat 29°54'55", long. 98°17'45", below Big Spring, 5 miles southwest of Fischer Store, Comal County.	.55
1952				
Sept. 9	....do.....	....do.....	Lat 29°54'08", long. 98°15'04", 300 ft above unnamed spring and 1.4 miles southwest of Hancock, Comal County.	4.06
9	....do.....	....do.....	Lat 29°54'08", long. 98°15'04", 450 ft below unnamed spring, 1.4 miles southwest of Hancock, Comal County.	6.46
1951				
Oct. 3	....do.....	....do.....	Lat 29°52'10", long. 98°09'30", about 1½ miles northeast of Sattler, Comal County.	5.11
3	Hueco Springs...	Guadalupe River.	Lat 29°45'35", long. 98°08'25", near New Braunfels, Comal County.	0
Nov. 6	....do.....	....do.....	....do.....	0
Dec. 18	....do.....	....do.....	....do.....	0
1952				
Jan. 22	....do.....	....do.....	....do.....	0
Mar. 5	....do.....	....do.....	....do.....	0
Apr. 11	....do.....	....do.....	....do.....	f1.41
May 14	....do.....	....do.....	....do.....	0
June 18	....do.....	....do.....	....do.....	f4.50
July 24	....do.....	....do.....	....do.....	f6.44
Aug. 29	....do.....	....do.....	....do.....	0
Sept.18	....do.....	....do.....	....do.....	e85.5
23	....do.....	....do.....	....do.....	e82.7
11	Comal Creek.....	Comal River.....	Lat 29°43'55", long. 98°07'40", on Dean Word Ranch, 3.4 miles upstream from gage on Comal River at New Braunfels, Comal County.	c8,480
11	Dry Comal Creek.	....do.....	Lat 29°42'00", long. 98°08'10", 6,200 ft above gage on Comal River, just downstream from North Santa Clara Street in New Braunfels, Comal County.	c35,000
1951				
Oct. 4	San Marcos River	Guadalupe River.	At San Marcos, Hays County.....	g89.4
Nov. 8	....do.....	....do.....	....do.....	g90.4
Dec. 21	....do.....	....do.....	....do.....	g84.2
1952				
Jan. 25	....do.....	....do.....	....do.....	g79.2
Mar. 7	....do.....	....do.....	....do.....	g80.3
Apr. 17	....do.....	....do.....	....do.....	g92.0
May 16	....do.....	....do.....	....do.....	g87.8
June 27	....do.....	....do.....	....do.....	g110
July 28	....do.....	....do.....	....do.....	g105
Aug. 30	....do.....	....do.....	....do.....	g88.4

* Field estimate.
† Includes discharge measurements made prior to 1952 water year.
c Flow at crest stage; computed by indirect method.
e Total flow of springs.
f Flow of West Springs only.
g No flow in Golf Course Creek and Purgatory Creek.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Guadalupe River basin, Tex.--Continued†

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
Sept.11	Blanco River....	San Marcos River	Lat 30°06'30", long. 98°27'00", 0.8 mile upstream from Hines Creek and 1⅝ miles west of Blanco, Blanco County.	c61,900
8	....do.....	....do.....	Lat 30°05'36", long. 98°26'24", 1½ miles above Highway 281 crossing near Blanco County.	*.08
10	Hines Creek.....	Blanco River....	Lat 30°07'20", long. 98°26'00", 1.5 miles upstream from mouth and Blanco River and 1½ miles northwest of Blanco, Blanco County.	c5,430
1952 Sept. 8	Koch Creek Springs.	....do.....	Lat 30°05'37", long. 98°25'36", made in Blanco State Park, 50 ft above mouth, at Blanco, Blanco County.	.57
10	Little Blanco River.	....do.....	Lat 30°00'20", long. 98°25'20", 1.6 miles upstream from bridge on U. S. Highway 281, Twin Sisters, Blanco County.	c19,900
10	....do.....	....do.....	Lat 30°02'30", long. 98°16'30", 0.5 mile upstream from Horton Ranch headquarters, 2.5 miles upstream from mouth and Blanco River, and 8.2 miles east of Twin Sisters, Blanco County.	c41,000
11	Blanco River....	San Marcos River	Lat 29°54'50", long. 97°53'50", at U. S. Highway 81 bridge, 3½ miles northeast of San Marcos, Hays County.	h86,600
12,13	Guadalupe River.	Gulf of Mexico..	Lat 29°29'48", long. 97°27'10", on U. S. Highway 183, about 1½ miles south of Gonzales, Gonzales County.	j69,900
13	....do.....	....do.....	....do.....	45,900
15	....do.....	....do.....	Lat 29°03'48", long. 97°19'18", at bridge on U. S. Highway 87, 2.6 miles southwest of Cuero, DeWitt County.	44,700
4	Medina River....	San Antonio River.	Lat 29°41'40", long. 98°58'55", about 1,800 ft above Cold Springs wier, near Pipe Creek, Bandera County.	0
4	....do.....	....do.....	Lat 29°41'35", long. 98°58'50", just above Cold Spring, near Pipe Creek, Bandera County.	.09
4	Cold Spring.....	Medina River....	Lat 29°41'20", long. 98°58'40", about 3 ft upstream from point spring, empties into river near Pipe Creek, Bandera County.	.77
Jan. 16	Medina River....	San Antonio River.	About 2 miles downstream from former gaging station near Pipe Creek, Bandera County.	11.2
June 13	....do.....	....do.....	Lat 29°29'54", long. 98°54'21", 1 mile below diversion dam at Haby's road crossing near Riomedina, Medina County.	0
1951 Sept. 7	....do.....	....do.....	Lat 29°15', long. 98°31', at old gaging station site near Cassin, Bexar County.	0
1952 Jan. 15	....do.....	....do.....	....do.....	2.63
1951 Sept. 7	Leon Creek.....	Medina River....	Lat 29°26', long. 98°37', at Pinn Road crossing 2 miles north of U. S. Highway 90, west of San Antonio, Bexar County.	0
1952 Jan. 16	....do.....	....do.....	....do.....	0
1951 Sept. 7	....do.....	....do.....	Lat 29°25', long. 98°37', at U. S. Highway 90 crossing west of San Antonio, Bexar County.	*.10
1952 Jan. 16	....do.....	....do.....	....do.....	.24
1951 Sept. 7	....do.....	....do.....	Lat 29°22', long. 98°35', at Loop 13, highway crossing, south side of Kelly Field and southwest of San Antonio, Bexar County.	.62
1952 Jan. 16	....do.....	....do.....	....do.....	1.33
1951 Sept. 7	....do.....	....do.....	Lat 29°20', long. 98°35', 500 ft above Quintana Road crossing and above Texas and New Orleans Railroad bridge southwest of San Antonio, Bexar County.	9.37
1952 Jan. 16	....do.....	....do.....	....do.....	9.39
1951 Sept. 7	....do.....	....do.....	Lat 29°17', long. 98°34', at Farm Road No. 346 crossing, south of San Antonio, Bexar County.	11.3
1952 Jan. 15	....do.....	....do.....	....do.....	9.33
1951 Aug. 31	Medina River....	San Antonio River.	Lat 29°16', long. 98°30', about ½ mile below mouth of Leon Creek at Cassin, Bexar County.	10.3
Sept. 7	....do.....	....do.....	....do.....	13.2

* Field estimate.
† Includes discharge measurements made prior to 1952 water year.
c Flow at crest stage; computed by indirect method.
h Peak discharge occurring later this day, computed as 96,400 cfs on basis of this discharge measurement.
j Peak discharge occurring Sept. 12 computed as 90,900 cfs on basis of this discharge measurement.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Guadalupe River basin, Tex.--Continued†

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
1952				
Jan. 15	Medina River....	San Antonio River	Lat 29°16', long. 98°30', about ½ mile below mouth of Leon Creek at Cassin, Bexar County.	17.1
1951				
Aug. 31	San Antonio Springs.	....do.....	Lat 29°28', long. 98°28', just above Hilderbrand Street in San Antonio, Bexar County.	0
Sept. 6	....do.....	....do.....	....do.....	0
1952				
Jan. 15	....do.....	....do.....	....do.....	0
1951				
Sept. 6	San Antonio River.	Guadalupe River..	700 ft above Josephine Street Bridge in San Antonio, Bexar County.	2.39
1952				
Jan. 15	....do.....	....do.....	At Grayson Street Bridge in San Antonio, Bexar County.	5.44
1951				
Aug. 31	San Pedro Springs.	San Pedro Creek..	Lat 29°26'48", long. 98°30'03", at San Pedro Park in San Antonio, Bexar County.	0
1952				
Jan. 15	....do.....	....do.....	....do.....	0
1951				
Sept. 6	San Pedro Creek.	San Antonio River	Lat 29°24', long. 98°30', just below State Highway 16 bridge (S. Flores St.) in San Antonio, Bexar County.	5.89
1952				
Jan. 15	....do.....	....do.....	....do.....	6.60
1951				
Sept. 6	San Antonio River.	Guadalupe River..	Lat 29°22', long. 98°29', about 200 ft upstream from U. S. Highway 281 bridge in San Antonio, Bexar County.	49.2
1952				
Jan. 15	....do.....	....do.....	....do.....	30.2
1951				
Sept. 5	Salado Creek....	San Antonio River	Lat 29°31'05", long. 98°25'42", at highway crossing No. 13, north of San Antonio, Bexar County.	0
1952				
Jan. 14	....do.....	....do.....	....do.....	0
1951				
Sept. 5	....do.....	....do.....	Lat 29°30'09", long. 98°25'06", at low-water bridge on U. S. Highway 81 in San Antonio, Bexar County.	.17
1952				
Jan. 14	....do.....	....do.....	....do.....	.61
1951				
Sept. 5	....do.....	....do.....	Lat 29°29'06", long. 98°25'06", at Rittiman road crossing in San Antonio, Bexar County.	0
1952				
Jan. 14	....do.....	....do.....	....do.....	*.03
14	....do.....	....do.....	Lat 29°27'54", long. 98°25'30", just above Farmer's well in San Antonio, Bexar County.	*.05
14	....do.....	....do.....	Lat 29°27'30", long. 98°25'54", about 800 ft above Missouri, Kansas & Texas Railroad bridge on southeast side of Fort Sam Houston Military Reservation, in San Antonio, Bexar County.	6.62
14	....do.....	....do.....	Lat 29°24'24", long. 98°25'51", at Hedwig road crossing in San Antonio, Bexar County.	8.24
14	....do.....	....do.....	Lat 29°19'03", long. 98°24'42", at U. S. Highway 181 crossing, southeast of San Antonio, Bexar County.	9.14
1951				
Sept. 6	San Antonio River.	Guadalupe River..	Lat 29°14'39", long. 98°25'00", on Lamm Ranch, ¼ mile above confluence with Medina River, south of San Antonio, Bexar County.	58.4
1952				
Jan. 15	....do.....	....do.....	....do.....	74.9
Sept.10	Cibolo Creek....	San Antonio River	Lat 29°45'00", long. 98°38'35", 0.3 mile upstream from Balcones Creek and 5½ miles southwest of Boerne, Kendall County.	c27,900

* Field estimate.
† Includes some discharge measurements made prior to the 1952 water year.
c Flow at crest stage; computed by indirect method.

Nueces River basin, Tex.†

1952				
Sept. 7	Nueces River....	Gulf of Mexico...	Lat 29°37', long. 100°00', at State Highway 55 in Uvalde County, 3½ miles below Camp Wood, Real County.	4.57
9	Kickapoo Springs	West Nueces River	Lat 29°45', long. 100°24', about 21 miles southeast of Rock Springs, Edwards County.	1.49
9	West Nueces River.	Neuces River.....	Lat 29°43', long. 100°25', about 24 miles southeast of Rock Springs, Edwards County.	0

† Includes discharge measurements made prior to 1952 water year.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Nueces River basin, Tex.--Continued†

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
1952				
Mar. 28	Nueces River....	Gulf of Mexico..	Lat 28°50', long. 99°46', on Little Ranch, 5.7 miles southeast of LaPryor, Zavalla County.	1.71
Sept. 7	Frio River.....	Nueces River....	70 ft downstream from Rio Frio-Leakey road crossing, 2.3 miles south of Leakey, Real County.	4.65
1951				
Oct. 12	....do.....	....do.....	Near Texas & New Orleans Railroad bridge, 0.6 mile above Dry Frio and 10 miles northeast of Uvalde, Uvalde County.	k0
12	Dry Frio River..	Frio River.....	Lat 29°30', long. 99°47', about 1,000 ft above Aldine School, 4 miles southeast of Reagan Wells, Uvalde County.	4.88
Nov. 28	....do.....	....do.....	....do.....	5.66
1952				
Jan. 8	....do.....	....do.....	....do.....	3.83
Feb. 14	....do.....	....do.....	....do.....	3.45
Mar. 19	....do.....	....do.....	....do.....	3.68
May 2	....do.....	....do.....	....do.....	10.5
June 14	....do.....	....do.....	....do.....	7.91
July 31	....do.....	....do.....	....do.....	.74
June 12	Hondo Creek.....	....do.....	Lat 29°35', long. 99°15', in Medina County, 0.3 mile north of Pob Dupuy Ranch headquarters, about 5 miles south of Tarpley, Bandera County.	34.7
1951				
Jan. 17	....do.....	....do.....	Lat 29°35', long. 99°15', in Medina County, 250 ft below old concrete dam, and about 5 miles south of Tarpley, Bandera County.	.56
1952				
Jan. 7	....do.....	....do.....	....do.....	0
June 12	....do.....	....do.....	Lat 29°33', long. 99°14', south of Harrison Ranch house, 14.7 miles north of Hondo, Medina County.	25.5
12	....do.....	....do.....	Lat 29°28', long. 99°12', above concrete low-water bridge, 9.4 miles north of Hondo, Medina County.	6.37
12	....do.....	....do.....	Lat 29°27', long. 99°11', at concrete slab at Schlentz crossing, 7.8 miles north of Hondo, Medina County.	0
13	South Verde Creek.	Verde Creek.....	Lat 29°35', long. 99°07', at J. Short Ranch crossing, 16.4 miles north of Hondo, Medina County.	1.53
13	East Branch of Verde Creek.	....do.....	Lat 29°35', long. 99°05', 16.4 miles north of Hondo, Medina County.	0
13	Verde Creek.....	Hondo Creek.....	Lat 29°31', long. 99°05', below concrete slab at Grodt crossing, 12.2 miles north northeast of Hondo, Medina County.	0
Jan. 16	....do.....	....do.....	Lat 29°22', long. 99°03', 0.2 mile above mouth of Hondo Creek, and about 5.4 miles northeast of Hondo, Medina County.	.17
16	Hondo Creek.....	Frio River.....	Lat 29°13', long. 99°04', about 9½ miles southeast of Hondo, Medina County.	*.03
June 12	Seco Creek.....	Hondo Creek....	Lat 29°34', long. 99°24', at Patton Ranch headquarters, 17.2 miles north of D'Hanis, Medina County.	15.2
12	....do.....	....do.....	Lat 29°29', long. 99°23', at Woodward Ranch headquarters, 13.1 miles north of D'Hanis, Medina County.	*.01
12	....do.....	....do.....	Lat 29°26', long. 99°17', on D'Hanis-Utopia road crossing, 7.4 miles north of D'Hanis, Medina County.	0

* Field estimate.
† Includes some discharge measurements made prior to the 1952 water year.
k Observations of no flow also made on following dates: Nov. 28, 1951, Jan. 8, Feb. 14, Mar. 19, May 1, June 14, July 31, 1952.

Rio Grande basin†

1952				
July 28	Tierra Amarilla Arroyo.	Rio Grande.....	Lat 36°17', long. 105°47', at mouth at Pilar, N. Mex. Drainage area, 7 sq mi.	c4,600
23	Rio Santa Cruz..	....do.....	Lat 35°59'15", long. 106°04'05", at bridge on U. S. Highway 285, at south edge of Riverside, N. Mex.	c3,270
Aug. 22	Ramon Martinez Arroyo.	Pojoaque Creek..	Lat 35°53', long. 106°05', at State Highway 4 at El Rancho, N. Mex. Drainage area, 0.8 sq mi.	c1,780
1951				
Oct. 31	Santa Fe Creek..	Rio Grande.....	Lat 35°41', long. 105°50', in sec. 24, T. 17 N., R. 10 E., above McClure Reservoir, 6½ miles east of Santa Fe, N. Mex.	1.28
1952				
Feb. 1	....do.....	....do.....	....do.....	1.37
May 2	....do.....	....do.....	....do.....	17.8
June 8	....do.....	....do.....	....do.....	41.4
10	....do.....	....do.....	....do.....	32.2
25	....do.....	....do.....	....do.....	7.40
July 8	....do.....	....do.....	....do.....	7.34
18	....do.....	....do.....	....do.....	4.90
Aug. 18	....do.....	....do.....	....do.....	1.74
Sept. 8	....do.....	....do.....	....do.....	2.19

† Includes discharge measurements made prior to 1952 water year.
c Flow at crest stage; computed by indirect method.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Rio Grande basin--Continued†

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
1952				
July 28	Santa Fe Creek..	Rio Grande.....	At Don Gaspar St. Bridge in Santa Fe, N. Mex.	c635
1951				
Oct. 10	....do.....	....do.....	Lat 35°35', long. 106°08', in NE¼ sec. 30, T. 16 N., R. 8 E., 10 miles southwest of Santa Fe, N. Mex.	.79
Nov. 26	....do.....	....do.....	....do.....	1.23
Dec. 21	....do.....	....do.....	....do.....	.91
1952				
Jan. 15	....do.....	....do.....	....do.....	.92
Feb. 20	....do.....	....do.....	....do.....	.81
Mar. 14	....do.....	....do.....	....do.....	.87
Apr. 18	....do.....	....do.....	....do.....	.86
May 16	....do.....	....do.....	....do.....	.71
June 24	....do.....	....do.....	....do.....	.65
Aug. 15	....do.....	....do.....	....do.....	.50
Jan. 15	Cienega Creek...	Santa Fe Creek..	Lat 35°33', long. 106°08', in W½ sec. 6, T. 15 N., R. 8 E., ½ mile southwest of Cienega and 12 miles southwest of Santa Fe, N. Mex.	2.84
Feb. 20	....do.....	....do.....	....do.....	3.16
May 16	....do.....	....do.....	....do.....	.82
June 24	....do.....	....do.....	....do.....	.39
Sept.12	....do.....	....do.....	....do.....	.35
Jan. 15	Santa Fe Creek..	Rio Grande.....	Lat 35°33', long. 106°09', in W½ sec. 1, T. 15 N., R. 7 E., 1 mile southwest of Cienega and 12 miles southwest of Santa Fe, N. Mex.	7.58
Feb. 20	....do.....	....do.....	....do.....	9.01
May 16	....do.....	....do.....	....do.....	1.04
June 24	....do.....	....do.....	....do.....	.37
Sept.12	....do.....	....do.....	....do.....	1.07
Aug. 12	San Cristobal Arroyo tributary.	Galisteo Creek..	Lat 35°21'55", long. 105°50'45", at U. S. Highway 285, culvert No. 113, 7.75 miles south of Lamy Junction, N. Mex. Drainage area, 1.5 sq mi.	c2,860
Sept.10	San Jose River..	Rio Puerco.....	Lat 35°04'00", long. 107°44'30", in E½ sec. 25, T. 10 N., R. 9 W., 8 miles west of San Fidel, N. Mex.	6.63
10	....do.....	....do.....	Lat 35°04'00", long. 107°44'15", in E½ sec. 25, T. 10 N., R. 9 W., 7.5 miles west of San Fidel, N. Mex.	6.67
11	....do.....	....do.....	....do.....	7.00
11	....do.....	....do.....	Lat 35°04'00", long. 107°43'30", near center sec. 30, T. 10 N., R. 8 W., 7 miles west of San Fidel, N. Mex.	7.22
July 21	San Antonio riverside drain.	Rio Grande.....	Lat 33°55'10", long. 106°51'15", in SE¼ sec. 32, T. 4 S., R. 1 E., N. Mex., on upstream side of U. S. Highway 380.	58.3
Aug. 12	Pintada Canyon tributary No. 1.	Pintada Canyon (and Pecos River).	Lat 34°50'40", long. 105°35'05", at culvert at U. S. Highway 285, 12.2 miles south of Cline's Corners, N. Mex.	c156
July 14	Tajique Creek...	Closed basin in Estancia Valley.	Lat 34°45'12", long. 106°17'07", 400 ft downstream from State Road 65, at Tajique, N. Mex.	c1,110
7	Estancia Valley tributary No. 1.	....do.....	In SW¼SW¼ sec. 10, T. 6 N., R. 8 E., near Estancia, N. Mex.	c4,660
7	Estancia Valley tributary No. 2.	....do.....	Lat 34°33', long. 106°13', in sec. 26, T. 4 N., R. 27 E. at railroad bridge, 3 miles northeast of Mountainair, N. Mex.	c3,560
(‡)	Eight Mile Draw	Berrenda Creek..	Lat 33°24'09", long. 104°38'49", at Six Mile Bar, near Roswell, N. Mex.	c22,200
Aug. 11	....do.....	....do.....	....do.....	c4,730
Jan. 8	Hagerman Canal..	Rio Hondo.....	Lat 33°24'20", long. 104°26'20", in NE¼ sec. 31, T. 10 S., R. 25 E., at head 5 miles east of Roswell, N. Mex.	25.1
9	....do.....	....do.....	....do.....	39.1
8	Rio Hondo.....	Pecos River.....	Lat 33°22'20", long. 104°24'00", in SE¼ sec. 9, T. 11 S., R. 25 E., at mouth 7 miles east of Roswell, N. Mex.	9.22
9	....do.....	....do.....	....do.....	8.99
8	Pecos River.....	Rio Grande.....	Lat 33°22'20", long. 104°24'00", in SE¼ sec. 9, T. 11 S., R. 25 E., just below mouth of Rio Hondo, 7 miles east of Roswell, N. Mex.	30.4
9	....do.....	....do.....	....do.....	33.3
8	....do.....	....do.....	Lat 33°12'30", long. 104°20'00", in NW¼ sec. 10, T. 13 S., R. 26 E., at Dexter Bridge, 2¼ miles northeast of Dexter, N. Mex.	48.3
9	....do.....	....do.....	....do.....	53.4
8	....do.....	....do.....	Lat 33°08'40", long. 104°18'40", in S½ sec. 35, T. 13 S., R. 26 E., ¼ mile above Rio Felix and 2½ miles northeast of Hagerman, N. Mex.	57.7
9	....do.....	....do.....	....do.....	58.8
Jan. 8	Rio Felix.....	Pecos River.....	Lat 33°08'30", long. 104°18'50", in S½ sec. 35, T. 13 S., R. 26 E., ¼ mile above mouth and 2½ miles northeast of Hagerman, N. Mex.	4.97

† Includes discharge measurements made prior to 1952 water year.
‡ Flood of the fall of 1941.
c Flow at crest stage; computed by indirect method.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Rio Grande basin--Continued†

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
1952				
Jan. 9	Rio Felix.....	Pecos River.....	Lat 33°08'30", long. 104°18'50", in S½ sec. 35, T. 13 S., R. 26 E., ¼ mile above mouth and 2½ miles northeast of Hagerman, N. Mex.	4.55
8	Walnut Creek....	....do.....	Lat 32°58', long. 104°22', in SE¼ sec. 29, T. 15 S., R. 26 E., near mouth 50 ft below road bridge, ½ mile south of Lake Arthur School and ¾ mile south of Lake Arthur, N. Mex.	.71
9	....do.....	....do.....	....do.....	.82
1951				
Nov. 28	Pecos River.....	Rio Grande.....	Lat 32°33'15", long. 104°23'05", in NW¼ sec. 21, T. 20 S., R. 26 E., below Major Johnson Springs, 15 miles northwest of Carlsbad, N. Mex.	60.4
28	....do.....	....do.....	....do.....	62.1
28	....do.....	....do.....	In SW¼SW¼ sec. 26, T. 20 S., R. 26 E., 2.1 miles below Major Johnson Springs and 11 miles northwest of Carlsbad, N. Mex.	72.3
28	....do.....	....do.....	....do.....	71.6
28	....do.....	....do.....	In NE¼NW¼ sec. 1, T. 21 S., R. 25 E., 1.6 miles above dam site 3, and 10 miles northwest of Carlsbad, N. Mex.	76.2
28	....do.....	....do.....	....do.....	75.9
1952				
May 15	Black River.....	Pecos River.....	In SE¼NW¼ sec. 35, T. 25 S., R. 24 E., below upper Washington Ranch diversion dam, 8½ miles southwest of White City, N. Mex.	2.18
Aug. 1	....do.....	....do.....	....do.....	.84
Sept.24	....do.....	....do.....	....do.....	2.04
May 15	....do.....	....do.....	In NW¼NW¼ sec. 25, T. 25 S., R. 24 E., above lower Washington Ranch diversion dam, 7 miles southwest of White City, N. Mex.	2.07
Aug. 1	....do.....	....do.....	....do.....	1.93
Sept.24	....do.....	....do.....	....do.....	3.01
May 15	Rattlesnake Springs.	Black River.....	In SE¼SW¼ sec. 23, T. 25 S., R. 24 E., 7¼ miles southwest of White City, N. Mex.	2.99
July 21	....do.....	....do.....	....do.....	3.68
Aug. 1	....do.....	....do.....	....do.....	2.37
Sept.24	....do.....	....do.....	....do.....	5.71
24	....do.....	....do.....	....do.....	4.86
Aug. 1	Black River.....	Pecos River.....	In SE¼NW¼ sec. 24, T. 25 S., R. 24 E., below lower diversion dam, 6 miles southwest of White City, N. Mex.	.46
Sept.24	....do.....	....do.....	....do.....	0
Jan. 14	Blue Springs....	Black River.....	In SW¼ sec. 27, T. 24 S., R. 26 E., above all diversions, 5½ miles east of White City, N. Mex.	14.1
Mar. 11	....do.....	....do.....	....do.....	12.6
Apr. 25	....do.....	....do.....	....do.....	13.3
1951				
Oct. 4	Giffin Springs..	Main Canal of Reeves County Water Improvement District No. 1.	Lat 30°57', long. 103°47', in middle of northeast boundary, sec. 20, block 13, Houston & Great Northern Railroad Survey, at Toyahvale, Reeves County, Tex.	6.37
Dec. 12	....do.....	....do.....	....do.....	5.15
1952				
Feb. 18	....do.....	....do.....	....do.....	4.68
Apr. 22	....do.....	....do.....	....do.....	3.20
June 19	....do.....	....do.....	....do.....	4.86
1951				
Oct. 4	West Sandia Springs.	Canal of Reeves County Water Improvement District No. 1.	Lat 30°59', long. 103°44', at head of feeder canal, 500 ft south of U. S. Highway 290, at Balmorhea, Reeves County, Tex.	.95
Dec. 12	....do.....	....do.....	....do.....	1.04
1952				
Feb. 18	....do.....	....do.....	....do.....	1.12
Apr. 22	....do.....	....do.....	....do.....	.78
June 19	....do.....	....do.....	....do.....	.71
1951				
Oct. 4	East Sandia Springs.	....do.....	Lat 30°59', long. 103°44', at former gaging station just below small dam, 1 mile east of Balmorhea, Reeves County, Tex.	.59
Dec. 12	....do.....	....do.....	....do.....	.80
1952				
Feb. 18	....do.....	....do.....	....do.....	.60
Apr. 22	....do.....	....do.....	....do.....	.75
June 19	....do.....	....do.....	....do.....	.66
1951				
Oct. 10	San Pedro Springs.	San Pedro Co.'s Canal.	Lat 30°59', long. 102°49', in W½ Survey 208, Joseph Burleson, Pecos County, just below source, 7 miles northeast of Fort Stockton, Pecos County, Tex.	2.17
Nov. 17	....do.....	....do.....	....do.....	3.22
Dec. 13	....do.....	....do.....	....do.....	2.62
1952				
Jan. 19	....do.....	....do.....	....do.....	2.84
Feb. 18	....do.....	....do.....	....do.....	2.66

† Includes discharge measurements made prior to 1952 water year.

Miscellaneous discharge measurements in Western Gulf of Mexico basins during water year October 1951 to September 1952--Continued

Rio Grande basin--Continued†

Date	Stream	Tributary to or diverting from--	Locality	Discharge (cfs)
1952				
Mar. 24	San Pedro Springs.	San Pedro Co.'s Canal.	Lat 30°59', long. 102°49', in W½ Survey 208, Joseph Burleson, Pecos County, just below source, 7 miles northeast of Fort Stockton, Pecos County, Tex.	2.91
Apr. 14	....do.....	....do.....	....do.....	2.00
May 19	....do.....	....do.....	....do.....	2.79
June 16	....do.....	....do.....	....do.....	3.04
July 21	....do.....	....do.....	....do.....	3.21
Aug. 18	....do.....	....do.....	....do.....	2.55
Sept. 8	Devils River....	Rio Grande.....	Lat 29°58', long. 101°09', at discontinued gaging station, 13½ miles southwest of Juno, Val Verde County, Tex.	33.1
7	San Felipe Springs.	San Felipe Creek	Lat 29°22', long. 100°53', about 550 ft below Southern Pacific Railroad at Del Rio, Val Verde County, Tex.	45.0
8	Mud Springs.....	Mud Creek.....	Lat 29°27', long. 100°37', on Mays Ranch, 16 miles northwest of Brackettville, Kinney County, Tex.	0
9	Pinto Springs...	Pinto Creek.....	Lat 29°24', long. 100°29', on C. C. Belcher Ranch, 7½ miles northwest of Brackettville, Kinney County, Tex.	3.59
1951				
Nov. 29	Las Moras Springs.	Rio Grande.....	At Brackettville, Tex.....	e7.58
1952				
Feb. 15	....do.....	....do.....	....do.....	e6.85
Apr. 30	....do.....	....do.....	....do.....	e12.3
Aug. 1	....do.....	....do.....	....do.....	e9.72
Sept. 9	....do.....	....do.....	....do.....	e6.29

† Includes discharge measurements made prior to 1952 water year.
e Total flow of springs.

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