# Surface Water Supply of the United States 1958

## Part 8. Western Gulf of Mexico Basins

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

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

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## 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, L. B. Leopold, chief, under the general direction of J. V. B. Wells, chief, Surface Water Branch, and F. J. Flynn, chief, Basic Records Section.

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# CALENDAR FOR WATER YEAR 1958

## OCTOBER 1957

| S | M | T | W | T | F | S |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
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## NOVEMBER 1957

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## DECEMBER 1957

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## JANUARY 1958

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## FEBRUARY 1958

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## MARCH 1958

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## APRIL 1958

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## MAY 1958

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## JUNE 1958

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## JULY 1958

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## AUGUST 1958

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| 31 | | | | | | |

## SEPTEMBER 1958

| S | M | T | W | T | F | S |
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| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | | | | |

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# SURFACE WATER SUPPLY OF WESTERN GULF OF MEXICO BASINS, 1958

## 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, 1958. 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 14,000 gaging stations in the 48 States and at many others in the Territories of Alaska and Hawaii. On September 30, 1958, the Geological Survey and cooperating organizations were maintaining 7,090 gaging stations, including those in Alaska and Hawaii. Partial-record stations for low flow or for flood flow have been operated at many other points. In addition, discharge measurements are made at miscellaneous sites. The records for the water year October 1, 1957, to September 30, 1958, at gaging stations, partial-record stations, and miscellaneous sites in the western Gulf of Mexico basins are given in this report.

## 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, J. E. Whitten, and State Water Conservation Board, I. C. Crawford, director, succeeded by F. L. Sparks.

Louisiana: State Department of Public Works, L. M. Wimberly, director.

New Mexico: Office of the State engineer, S. E. Reynolds; Interstate Stream Commission, S. E. Reynolds, secretary; Pecos River Commission, J. H. Bliss, commissioner; and State Highway Department, L. D. Wilson, State highway engineer.

Texas: State Board of Water Engineers, consisting of Durwood Manford, chairman, R. M. Dixon, and O. F. Dent; Red Bluff Water Power Control District; Pecos River Commission, J. C. Wilson, commissioner; Sabine River Compact Administration, composed of S. K. Jackson, Federal representative and chairman, C. T. Watts and R. S. Copeland for Louisiana, and H. L. Woodworth and Ross Hopkins for 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 98 gaging stations, of which 1 was in Colorado, 3 in Louisiana, 19 in New Mexico, and 75 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 the Interior, the Agricultural Research 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: The cities of Ruidoso and Silver City; Carlsbad Irrigation District;

Middle Rio Grande Conservancy District; Pecos Valley Artesian Conservancy District; Public Service Company of New Mexico.

Texas: Texas Highway Department; Dallas County; the cities of Abilene, Arlington, Breckenridge, Corpus Christi, Dallas, Fort Worth, Houston, Lampasas, Longview, San Angelo and Tyler; Tarrant County Water Control and Improvement District No. 1; Lower Colorado River Authority; Brazos River Authority; Guadalupe-Blanco River Authority; Sabine River Authority; San Antonio River Authority; San Jacinto River Authority; Lower Neches Valley Authority; Brown County Water Improvement District No. 1; Harris County Flood Control District; Reeves County Water Improvement District No. 1; Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1; Colorado River Municipal Water District; Lower Nueces River Water Supply District; West Central Texas Municipal Water District; City Water Board of San Antonio; Dow Chemical Co.; Richmond Rice Association; Texas Electric Service Co; and Houston Lighting and Power Co.

## DIVISION OF WORK

The stream gaging was done by the Water Resources Division of the Geological Survey, under the direction of personnel shown in the preface. The data for stations in the several States were collected and prepared for publication in the district offices listed below:

| State | District office | Address |
|---|---|---|
| Colorado a/ | Denver | Federal Center. |
| Louisiana b/ | Baton Rouge | 315 Main Street. |
| New Mexico c/ | Santa Fe | 224 Federal Courthouse. |
| Texas d/ | Austin | 807 Brazos Street. |

a/ Except for Costilla Creek at Garcia and near Jaroso, and some diversions from Costilla Creek. The work was done in collaboration with J. E. Whitten, 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 but including Costilla Creek at Garcia and near Jaroso, Colo., and some diversions from Costilla Creek, and McKelligon Canyon, Government ditch, and Inlet to Ft. Bliss Sump area, at El Paso, Tex.
d/ Except McKelligon Canyon, Government ditch, and Inlet to Ft. Bliss Sump area, at El Paso, but including Sabine River at Logansport, La., Delaware River near Red Bluff, N. Mex., and Pecos River at 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 generally 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:

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied herein only to those gaging stations where a continuous record of discharge is obtained.

Partial-record station is a particular site where limited stream-flow data are collected systematically over a period of years for use in hydrologic analyses.

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

Acre-foot (ac-ft) is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet.

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.

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

## DOWNSTREAM ORDER AND STATION NUMBERS

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.

As an added means of identification, each gaging station and partial-record station has been assigned a station number. The numbers have been assigned in the same downstream order used in this report. In assigning station numbers, no distinction is made between

partial-record stations and regular gaging stations, so that the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete number for each station has eight digits, but the station number as shown in this report, just to the left of the station name, consists of only the essential digits of the complete number. For example, for a station with the complete number 08-0100.00, the station number shown in this report is 100. The notation in the two places to the left of the hyphen is the part number; it is 8 for all stations in this report and is therefore omitted.

## 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.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If the 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 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 in 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 of the stream. Records are published for the water year which begins on October 1 and ends on September 30. A calendar of the water year 1958 is shown on page IV for the purpose of finding the day of the week for any date.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes and 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 "Records available" are given the periods for which there are published records generally equivalent to those at the present site. 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, locations, and datums of previous gages used during the period of records available. 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). In the first paragraph, the data given are for the complete current water year unless otherwise specified. In the second paragraph, the data given are for the periods of record within the calendar year dates in the heading (not necessarily those for the complete years indicated by the heading dates). Reliable information concerning major floods that have occurred outside the period of record are given in the third or last paragraph under "Extremes." 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 nonrecording 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 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. Skeleton rating tables are generally not published for stations on canals.

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 figures for the maximum day and the minimum day for each month are underlined. If the figure 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 figures; 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. Discharge 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"). Figures 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 figures 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 published each year for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

At many gaging stations water samples are collected from the streams for the purpose of making chemical analyses, computing dissolved solids, suspended sediment loads, and particle-size distribution, or measuring water temperatures. For most of these samples the results are published in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States" which is issued in four volumes. In this report under "Remarks" a reference is made to quality-of-water records collected at gaging stations on a regular basis and published in the quality-of-water reports. At many other gaging stations quality-of-water data are obtained at irregular intervals and published as "miscellaneous analyses" in quality-of-water reports; such records are not referred to in "Remarks" paragraph in this report. At many gaging stations water temperature is obtained also at the time a discharge measurement is made; such temperature readings are not reported in the quality-of-water annual reports.

Data collected at partial-record stations and at miscellaneous sites are given at the end of each report. Partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements at miscellaneous sites are given in a third table. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are given in special tables after the list of measurements at miscellaneous sites.

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## 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 that 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.

Discharge 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, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur 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 1.

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.

Part 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.

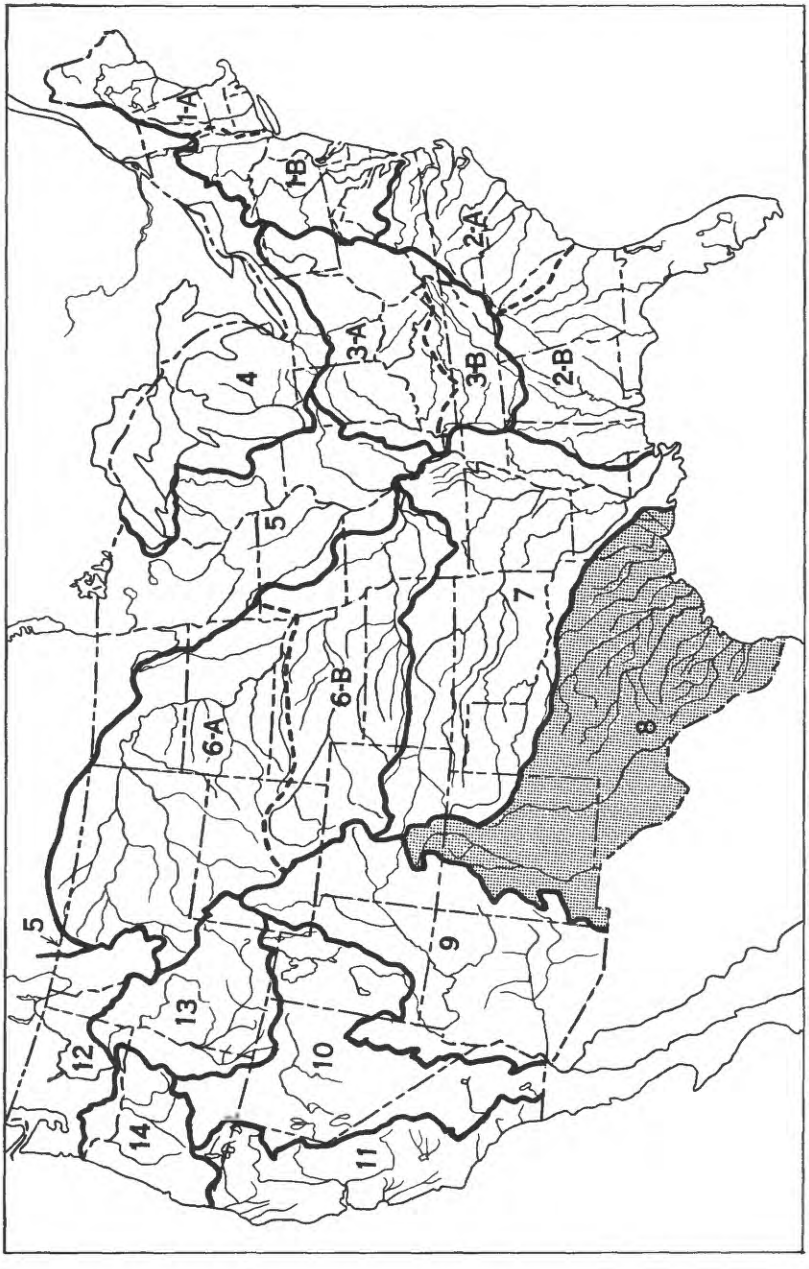


Figure 1.--Map of the United States showing areas covered by the 18 annual volumes on surface-water supply. The area covered by this report is shaded.

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.

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

(A = Annual Report; B = Bulletin)

| 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. |
| WSP 11..... | Gage heights..... | 1896. |
| 18th A, pt. 4 | Descriptions, measurements, ratings, and monthly discharge. | 1895-96. |
| WSP 15..... | Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River. | 1897. |
| WSP 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. |
| WSP 27..... | Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries. | 1898. |
| WSP 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. |
| WSP 35 to 39. | Descriptions, measurements, gage heights, and ratings..... | 1899. |
| 21st A, pt. 4 | Monthly discharge..... | 1899. |
| WSP 47 to 52. | Descriptions, measurements, gage heights, and ratings..... | 1900. |
| 22d A, pt. 4. | Monthly discharge..... | 1900. |
| WSP 65, 66... | Descriptions, measurements, gage heights, and ratings..... | 1901. |
| WSP 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, 1899-1958

| Year | WSP | Year | WSP | Year | WSP | Year | WSP | Year | WSP |
|---|---|---|---|---|---|---|---|---|---|
| 1899 | 37 | 1912 | 328 | 1925 | 608 | 1937 | 828 | 1949 | 1148 |
| 1900 | 50 | 1913 | 358 | 1926 | 628 | 1938 | 858 | 1950 | 1178 |
| 1901 | 66,75 | 1914 | 388 | 1927 | 648 | 1939 | 878 | 1951 | 1212 |
| 1902 | 84 | 1915 | 408 | 1928 | 668 | 1940 | 898 | 1952 | 1242 |
| 1903 | 99 | 1916 | 438 | 1929 | 688 | 1941 | 928 | 1953 | 1282 |
| 1904 | 132 | 1917 | 458 | 1930 | 703 | 1942 | 958 | 1954 | 1342 |
| 1905 | 174 | 1918 | 477 | 1931 | 718 | 1943 | 978 | 1955 | 1392 |
| 1906 | 210 | 1919-20 | 508 | 1932 | 733 | 1944 | 1008 | 1956 | 1442 |
| 1907-8 | 248 | 1921 | 528 | 1933 | 748 | 1945 | 1038 | 1957 | 1512 |
| 1909 | 268 | 1922 | 548 | 1934 | 763 | 1946 | 1058 | 1958 | 1562 |
| 1910 | 288 | 1923 | 568 | 1935 | 788 | 1947 | 1088 | | |
| 1911 | 308 | 1924 | 588 | 1936 | 808 | 1948 | 1118 | | |

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

| WSP | 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 or other agencies. 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:

| Report | Issued by |
|---|---|
| WSP 147: Destructive floods in the United States in 1904. | U. S. Geological Survey. |
| WSP 162: Destructive floods in the United States in 1905. | Do. |
| WSP 488: The flood in central Texas in September 1921. | Do. |
| WSP 771: Floods in the United States, frequency and magnitude. | Do. |
| WSP 796-G: Major Texas floods of 1935. | Do. |
| WSP 816: Major Texas floods of 1936. | Do. |
| WSP 842: Floods in Canadian and Pecos River basins of New Mexico, May and June 1937. | Do. |
| WSP 847: Maximum discharges at stream-measurement stations through September 1938. | Do. |
| WSP 914: Texas floods of 1938 and 1939. | Do. |
| WSP 997: Floods in Colorado. | Do. |
| WSP 1046: Texas floods of 1940. | Do. |
| WSP 1137-I: Summary of floods in the United States during 1950. | Do. |
| WSP 1260-A: Floods of September 1952 in Colorado and Guadalupe River basins, central Texas. | Do. |
| WSP 1260-F: Summary of floods in the United States during 1950. | Do. |
| WSP 1320-C: Floods of April-June 1953 in Louisiana and adjacent States. | Do. |
| Cir. 32: Flood of September 1946 at San Antonio, Tex. | Do. |
| Floods in Louisiana, magnitude and frequency. | Louisiana Department of Highways. |
| Flood of September and October 1932, International Portion of the Rio Grande. | International Boundary & Water Commission, United States and Mexico. |
| Floods of 1948 along the International Portion of the Rio Grande. | Do. |

## 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 1957 to September 1958 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 |
|---|---|---|---|
| Alamito Creek..... | Near Presidio, Tex..... | 1932-58 | International Boundary & Water Commission. |
| Arrey Canal..... | Near Arrey, N. Mex..... | 1918, 1920-58 | Bureau of Reclamation. |
| Arroyo Las Vacas.... | Near Villa Acuna, Coahuila, Mexico. | 1938-58 | International Boundary & Water Commission. |
| Devils River..... | Near mouth, Del Rio, Tex. | 1955-58 | Do. |
| Do..... | Upper..... | 1955-58 | Do. |
| East Side Canal..... | At Mesilla Dam, near Mesilla Park, N. Mex. | 1916-18, 1920-58 | Bureau of Reclamation. |
| Goodenough Spring... | Near Comstock, Tex..... | 1931-58† | International Boundary & Water Commission. |
| Hagerman Canal..... | Near Roswell, N. Mex..... | 1942-58 | Hagerman Irrigation Co. |
| Laredo sewage outfall. | At Laredo, Tex..... | 1950-58 | Texas State Health Department. |
| Leasburg Canal..... | At head, at Selden, N. Mex. | 1917-18, 1920-58 | Bureau of Reclamation. |
| Maverick Canal..... | At powerplant near Eagle Pass, Tex. | 1950-58 | Central Power & Light Co. |
| Outfall from wells and sewage in the vicinity of El Paso. | Near El Paso, Tex..... | 1936-58 | International Boundary & Water Commission. |
| Pecos River..... | Near Shumla, Tex..... | 1955-58 | Do. |
| Pinto Creek..... | Near Del Rio, Tex..... | 1931-58† | Do. |
| Rio Alamo..... | At Mier, Tamaulipas, Mexico. | 1924-58 | Do. |
| Rio Conchos..... | Near Ojinaga, Chihuahua, Mexico. | 1900-14, 1924-58 | Do. |
| Rio Escondido..... | At Villa de Fuente, Coahuila, Mexico. | 1923-58 | Do. |
| Rio Grande..... | Below American Dam, near El Paso, Tex. | 1938-58 | Do. |
| Do..... | Below Anzalduas Dam, near Reynosa, Tamaulipas, Mexico. | 1952-58 | Do. |
| Do..... | At lower Brownsville station, Tex. | 1934-58 | Do. |
| Do..... | At Chapeno, Tex..... | 1953-58 | Do. |
| Do..... | At County-line station near El Paso, Tex. | 1938-58 | Do. |
| Do..... | Below Diablo Dam site.... | 1955-58† | Do. |
| Do..... | At Eagle Pass, Tex..... | 1931-58† | Do. |
| Do..... | At El Paso, Tex..... | 1931-58† | Do. |
| Do..... | At Fort Quitman, Tex..... | 1931-58† | Do. |
| Do..... | At Island station, near El Paso, Tex. | 1938-58 | Do. |
| Do..... | At Johnson Ranch, Tex.... | 1936-58 | Do. |
| Do..... | At Langtry, Tex..... | 1931-58† | Do. |
| Do..... | At Laredo, Tex..... | 1924-58† | Do. |
| Do..... | At Leasburg Dam, at Selden, N. Mex. | 1919-58 | Bureau of Reclamation. |
| Do..... | Below Maverick Dam, Tex.. | 1956-58 | International Boundary & Water Commission. |
| Do..... | At upper Presidio station, Tex. | 1926-58† | Do. |
| Do..... | At lower Presidio station, Tex. | 1926-58† | Do. |
| Do..... | At Progreso Bridge, Tex. (formerly below Progreso Pump). | 1953-58 | Do. |
| Do..... | Near Rio Grande City, Tex. | 1924-58†† | Do. |
| Do..... | Near Villa Guerrero, Coahuila, Mexico. | 1952-58 | Do. |
| Do..... | Near San Benito, Tex..... | 1953-58 | Do. |
| Rio Salado..... | At Las Tortillas, Tamaulipas, Mexico. | 1953-58 | Do. |
| Rio San Diego..... | Jimenez, Coahuila, Mexico. | 1922-58 | Do. |
| Rio San Juan..... | Above Rio Grande City, Tex. | 1943-58 | Do. |
| Do..... | Below Rio Grande City, Tex. | 1946-58 | Do. |
| Rio San Rodrigo..... | Near El Moral, Coahuila, Mexico. | 1922-58 | Do. |
| San Felipe Creek.... | Near Del Rio, Tex..... | 1931-58 | Do. |
| Terlingua Creek..... | Near Terlingua, Tex..... | 1932-58 | Do. |
| West Side Canal..... | At Mesilla Dam, near Mesilla Park, N. Mex. | 1916-18, 1920-58 | Bureau of Reclamation. |

† Records for earlier years published in Geological Survey water-supply papers. See also pages 96-98, Water Bulletin No. 20 - International Boundary & Water Commission.

†† See also pages 96-98, Water Bulletin No. 20 - International Boundary & Water Commission.

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

The Agricultural Research Service of the United States Department of Agriculture has been collecting records of runoff near Waco, Tex., from 3 areas of 130 to 310 acres, beginning in 1937, from 5 areas of 3 to 4,380 acres, beginning in 1938, from 8 areas of 3 to 140 acres beginning in 1939 (most of these records incomplete from 1943 to about 1949); near Albuquerque, N. Mex., from 3 areas of 40 to 170 acres, beginning in 1940, and near Santa Rosa, N. Mex., from 1 area of 42,900 acres, beginning in 1955.

## HYDROLOGIC CONDITIONS

Runoff was generally above median throughout the water year except during the periods November to May and July when scattered areas in southern New Mexico and western Texas were below median and during August and September when scattered areas in northern New Mexico and Texas were also below median. Excessive runoff or flooding occurred in some drainage basins each month during the water year. Severe flooding in early January occurred in the coastal area of Texas from Corpus Christi to Brownsville. Outstanding floods again occurred in mid-June from central Texas southwestward across parts of the Guadalupe and Nueces River basins following torrential rains of up to 21 inches in 24 hours as a result of hurricane Alma. Medina Lake spilled for the first time since March 1937, following floods in Medina River where rainfall up to 20 inches was reported. Record high stages occurred in Seco Creek near Utopia, Tex. following a 21-inch rainfall in about 18 hours. The stage of the flood in Hondo Creek near Tarpley, Tex. was 28.2 ft, the highest in a record beginning in 1907. Severe local floods occurred in the Stephenville-Mineral Wells-Glen Rose area in middle Brazos River basin and in San Antonio area in Guadalupe River basin, Tex., July 6 and 7. In September severe flooding occurred throughout southern Texas causing damage at Orange, Beaumont, Port Arthur, Galveston, San Antonio, El Paso, and smaller cities. For three representative long-term stations in the area covered by this report, a comparison of monthly and yearly mean discharges during the 1958 water year with the median discharges for the 25-year period 1921-45 is shown in figure 2 on the following page.

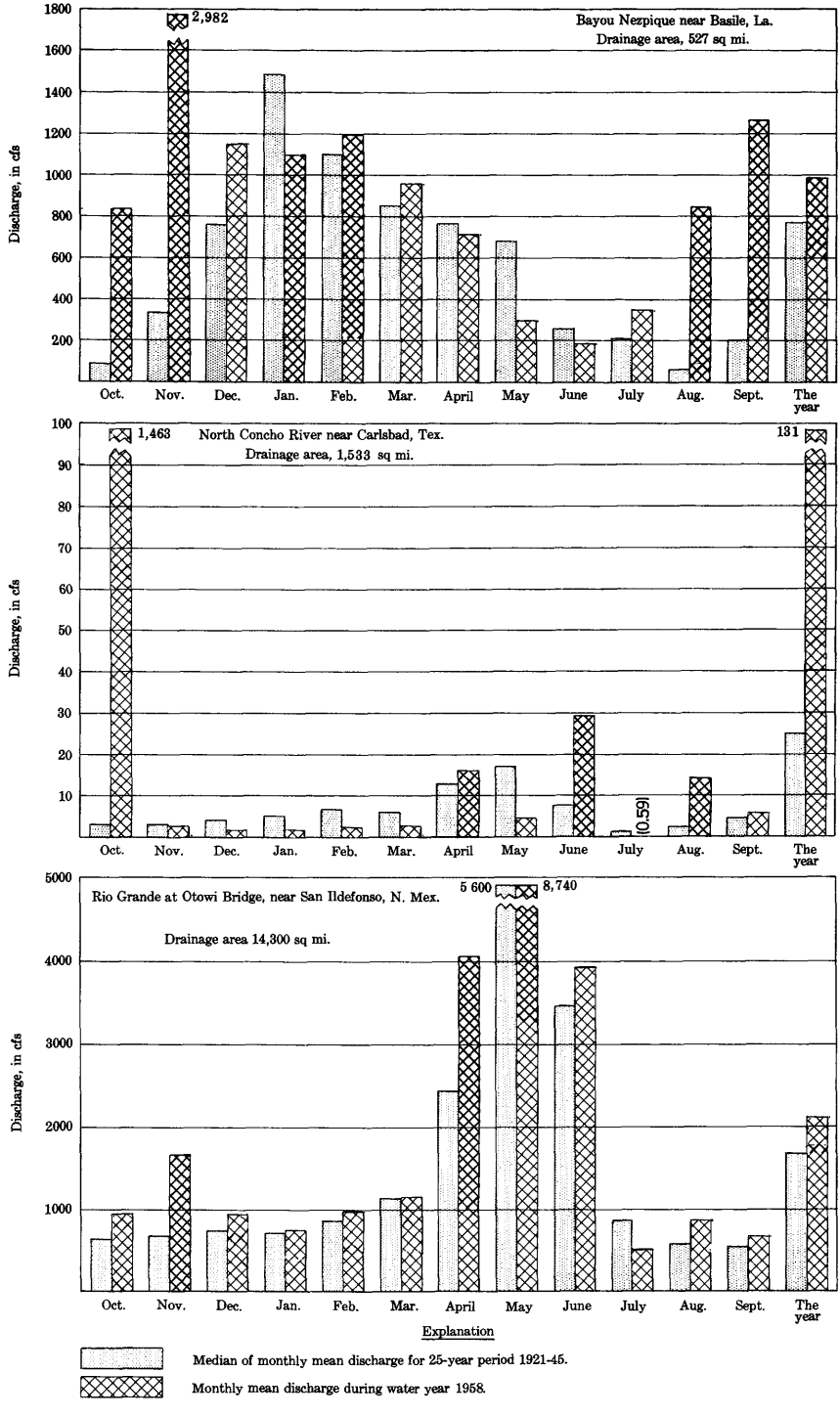


Figure 2. Comparison of discharge at three key gaging stations during 1958 water year with median discharge for 25-year period.

## MERMENTAU RIVER BASIN

### 100. 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 and Mexico Railway bridge and 4 miles west of Eunice.

Drainage area.--131 sq mi.

Records available.--October 1938 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 14.84 ft above mean sea level, datum of 1929 (Louisiana Geodetic Survey bench mark; 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. Datum of auxiliary gage is 13.70 ft above mean sea level. Oct. 1, 1943, to Nov. 1, 1950, Oct. 31, 1957, to Jan. 13, 1958, auxiliary staff gage at same site and datum.

Average discharge.--20 years, 255 cfs (184,600 acre-ft per year).

Extremes.--Maximum daily discharge during year, 1,530 cfs Oct. 19; maximum gage height, 15.27 ft Oct. 18; minimum discharge, 2.3 cfs Oct. 14 (gage height, 1.34 ft).
1938-58: Maximum discharge, 11,900 cfs May 20, 1953 (gage height, 22.36 ft); no flow at times in 1939, 1948, 1955-56.

Remarks.--Records good except those for periods of no gage-height record at auxiliary gage and those below 10 cfs, which are poor. Small diversion above station.

Revisions(water years).--WSP 1242: 1950(P).

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 159 | 19 | 90 | 900 | 62 | 64 | 17 | 372 | 19 | 27 | 42 | 207 |
| 2 | 79 | 16 | 55 | 540 | 38 | 39 | 13 | 147 | 15 | 18 | 42 | 71 |
| 3 | 46 | 13 | *42 | 250 | 25 | 24 | 10 | 58 | *11 | 15 | 41 | 39 |
| 4 | 35 | 12 | 38 | 78 | 17 | 15 | 8.4 | 38 | 10 | 14 | 39 | 41 |
| 5 | 27 | *9.3 | 35 | 35 | 13 | 37 | 8.0 | 117 | 16 | 16 | 35 | 47 |
| 6 | 22 | 8.9 | 32 | 31 | 180 | 178 | 8.2 | 119 | 29 | 19 | 48 | 53 |
| 7 | 17 | 18 | 189 | 79 | 500 | 349 | 6.5 | *70 | 33 | 30 | 53 | 55 |
| 8 | 13 | 362 | 493 | 180 | 662 | 415 | *4.6 | 38 | 52 | 50 | 47 | 62 |
| 9 | 9.9 | 660 | 584 | 140 | 776 | 476 | 180 | 22 | 47 | 110 | 66 | 55 |
| 10 | 7.0 | 934 | 605 | 70 | 612 | 440 | 522 | 31 | 34 | 235 | 177 | 50 |
| 11 | 5.2 | 1,240 | 392 | 41 | 346 | *310 | 736 | 275 | 24 | 369 | 174 | 42 |
| 12 | 3.6 | 1,080 | 184 | 33 | 343 | 130 | 853 | 358 | 20 | 396 | 160 | 60 |
| 13 | 2.7 | 836 | 76 | 230 | 276 | 48 | 682 | 309 | 19 | 344 | 247 | 85 |
| 14 | 2.4 | 783 | 45 | *424 | 135 | 27 | 303 | 154 | 15 | 217 | 269 | 83 |
| 15 | 31 | 791 | 35 | 493 | 182 | 18 | 259 | 55 | 17 | 137 | 255 | 56 |
| 16 | 590 | 1,170 | 30 | 360 | 287 | 13 | 298 | 28 | 20 | 92 | 293 | 45 |
| 17 | 840 | 1,440 | 27 | 152 | *231 | 11 | 176 | 19 | 14 | 58 | 221 | *41 |
| 18 | 1,360 | 1,120 | 25 | 66 | 116 | 9.5 | 111 | 20 | 11 | 50 | 137 | 138 |
| 19 | 1,530 | 954 | 134 | 38 | 52 | 10 | 30 | 35 | 22 | 182 | 92 | 300 |
| 20 | 1,090 | 812 | 528 | 32 | 30 | 52 | 18 | 124 | 86 | 224 | 53 | 370 |
| 21 | 737 | 633 | 770 | 223 | 20 | 42 | 12 | 92 | 102 | 136 | *60 | 508 |
| 22 | 413 | 467 | 977 | 432 | 16 | 23 | 9.5 | 52 | 113 | 80 | 50 | 663 |
| 23 | 380 | 543 | 921 | 459 | 159 | 175 | 8.2 | 33 | 432 | *180 | 47 | 783 |
| 24 | 533 | 651 | 523 | 575 | 500 | 575 | 6.2 | 70 | 613 | 313 | 345 | 911 |
| 25 | 630 | 818 | 216 | 701 | 510 | 840 | 5.0 | 383 | 674 | 341 | 691 | 917 |
| 26 | 690 | 886 | 199 | 818 | 352 | 1,260 | 4.6 | 213 | 521 | 227 | 749 | 801 |
| 27 | 540 | 820 | 249 | 773 | 166 | 1,170 | 7.0 | 93 | 228 | 110 | 921 | 511 |
| 28 | 262 | 687 | 525 | 484 | 103 | 800 | 121 | 38 | 76 | 64 | 1,080 | 228 |
| 29 | *93 | 468 | 780 | 206 | - | 390 | 395 | 25 | 50 | 53 | 1,030 | 138 |
| 30 | 38 | 204 | 1,030 | 140 | ------ | 100 | 475 | 22 | 38 | 45 | 823 | 84 |
| 31 | 25 | ------ | 1,160 | 103 | ------ | 26 | ------ | 20 | ------ | 41 | 534 | ------ |
| Total | 10,210.8 | 18,455.2 | 10,989 | 9,086 | 6,709 | 8,066.5 | 5,287.2 | 3,430 | 3,361 | 4,193 | 8,821 | 7,444 |
| Mean | 329 | 615 | 354 | 293 | 240 | 260 | 176 | 111 | 112 | 135 | 285 | 248 |
| Cfsm | 2.51 | 4.69 | 2.70 | 2.24 | 1.83 | 1.98 | 1.34 | 0.847 | 0.855 | 1.03 | 2.18 | 1.89 |
| In. | 2.89 | 5.23 | 3.11 | 2.58 | 1.91 | 2.28 | 1.50 | 0.98 | 0.95 | 1.19 | 2.51 | 2.11 |
| Ac-ft | 20,250 | 36,610 | 21,800 | 18,020 | 13,310 | 16,000 | 10,490 | 6,800 | 6,670 | 8,320 | 17,500 | 14,760 |

Calendar year 1957: Max 4,410 Min 0.5 Mean 288 Cfsm 2.20 In. 29.77 Ac-ft 208,200
Water year 1957-58: Max 1,530 Min 2.4 Mean 263 Cfsm 2.01 In. 27.24 Ac-ft 190,500

* Discharge measurement made on this day.
Note.--No gage-height record at auxiliary gage Oct. 16-20, 25-26, Dec. 28 to Jan. 3, Jan. 8, 9, 13, Mar. 10-12, 23-30; discharge estimated on basis of 1 discharge measurement, gage record at base gage, and discharge for nearby stations.

## 105. 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 13, 2¾ miles upstream from mouth and 7 miles north of Crowley.

Drainage area.--25.7 sq mi.

Records available.--April 1949 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 10.88 ft above mean sea level, datum of 1929. Prior to Aug. 16, 1949, wire-weight gage at same site and datum.

Average discharge.--9 years, 45.5 cfs (32,940 acre-ft per year).

Extremes.--Maximum discharge during year, 837 cfs Oct. 16 (gage height, 11.82 ft); no flow Apr. 8, 9.
1949-58: Maximum discharge, 2,410 cfs May 16, 1953 (gage height, 14.48 ft); no flow at times.

Remarks.--Records fair except those below 200 cfs, which are poor. Some diversion during irrigation season by several tractor-operated pumps.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 2, 3, Jan. 14-19, Apr. 9-11)

| | | | | | |
|---|---|---|---|---|---|
| 2.9 | 0 | 5.0 | 35 | 9.0 | 196 |
| 3.0 | .4 | 6.0 | 56 | 10.0 | 338 |
| 3.2 | 2.0 | 7.0 | 78 | 11.0 | 560 |
| 3.5 | 5.3 | 8.0 | 110 | 12.0 | 923 |
| 4.0 | 14 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 1.8 | 4.1 | 37 | 7.6 | 4.7 | 0.8 | 8.3 | 9.8 | 9.6 | 11 | 6.7 |
| 2 | 15 | 1.7 | 2.3 | 26 | 4.2 | 2.8 | .5 | 5.4 | 6.2 | 4.7 | 13 | 17 |
| 3 | 11 | 1.5 | *3.0 | 11 | 2.6 | 4.3 | .3 | 4.8 | 5.2 | 3.6 | 12 | 13 |
| 4 | 5.2 | 1.3 | 22 | 6.0 | 1.7 | 4.7 | .2 | 3.3 | *1.5 | 5.1 | 12 | 15 |
| 5 | 3.2 | 1.1 | 12 | 4.3 | 1.1 | 6.9 | .2 | 2.5 | .6 | 6.3 | 20 | 15 |
| 6 | 4.6 | *1.0 | 5.2 | 7.2 | 2.4 | 24 | .1 | 2.2 | 3.2 | 8.3 | 8.8 | 17 |
| 7 | 4.8 | .9 | 173 | 48 | 33 | 51 | .1 | *1.5 | 6.1 | 78 | 7.5 | 26 |
| 8 | 2.4 | 99 | 333 | 28 | 14 | 39 | .1 | 1.7 | 7.2 | 93 | 5.2 | 44 |
| 9 | 1.8 | 188 | 117 | 9.4 | 5.1 | 17 | 22 | 3.3 | 5.1 | 65 | 3.0 | 56 |
| 10 | 1.5 | 89 | 51 | 5.2 | 2.9 | 7.2 | 121 | 2.3 | 4.1 | 92 | 17 | 37 |
| 11 | 1.4 | 24 | 16 | 3.9 | 18 | *3.5 | *58 | 1.8 | 4.8 | 91 | 26 | 21 |
| 12 | 1.8 | 8.3 | 7.7 | 9.3 | 17 | 1.8 | 11 | 2.0 | 6.7 | 54 | 30 | 16 |
| 13 | 2.3 | 10 | 4.7 | 72 | 6.4 | 1.1 | 4.6 | 1.4 | 5.1 | 58 | 40 | 21 |
| 14 | 2.6 | 207 | 3.5 | 63 | 5.2 | .9 | 39 | 3.0 | 3.1 | 44 | 45 | 11 |
| 15 | 51 | 276 | 2.9 | *25 | 36 | .6 | 121 | 4.7 | 2.6 | 31 | 50 | 5.1 |
| 16 | 614 | 118 | 2.5 | 16 | 20 | .4 | 57 | 1.8 | 1.3 | 13 | 58 | 4.1 |
| 17 | 666 | 45 | 2.2 | 7.8 | 6.8 | .3 | 9.4 | .7 | .8 | 27 | 83 | 15 |
| 18 | 309 | 31 | 2.3 | 5.9 | 3.4 | 3.9 | 4.0 | 8.1 | .8 | 120 | 48 | 141 |
| 19 | 127 | 65 | 4.2 | 3.3 | *1.9 | 4.3 | 2.0 | 17 | .8 | 142 | 21 | 209 |
| 20 | 44 | 41 | 251 | 12 | 1.1 | 2.4 | 1.0 | 68 | .9 | 81 | 17 | 306 |
| 21 | 14 | 17 | 227 | 82 | .8 | 1.1 | .9 | 99 | .9 | 34 | 17 | 416 |
| 22 | *51 | 31 | 80 | 64 | 4.5 | .6 | 46 | 40 | 12 | 24 | *16 | 482 |
| 23 | 117 | 134 | 25 | 39 | 169 | 88 | 43 | 18 | 67 | *96 | 56 | *298 |
| 24 | 124 | 155 | 11 | 254 | 345 | 501 | 7.3 | 19 | 40 | 222 | 159 | 166 |
| 25 | 62 | 196 | 11 | 184 | 128 | 207 | 2.4 | 292 | 18 | 140 | 416 | 127 |
| 26 | 21 | 106 | 107 | 63 | 39 | 59 | .9 | 361 | 13 | 84 | 298 | 101 |
| 27 | 9.7 | 41 | 117 | 18 | 16 | 17 | .8 | 149 | 34 | 51 | 146 | 83 |
| 28 | 5.6 | 18 | 256 | 11 | 8.1 | 7.2 | 123 | 38 | 65 | 21 | 61 | 47 |
| 29 | 3.4 | 11 | 285 | 56 | - | 3.8 | 176 | 9.4 | 43 | 21 | 22 | 17 |
| 30 | 2.5 | 6.9 | 108 | 42 | ------- | 2.3 | 48 | 5.7 | 18 | 21 | 14 | 19 |
| 31 | 2.0 | ------- | 38 | 16 | ------- | 1.4 | ------- | 5.2 | ------- | 12 | 8.0 | ------- |
| Total | 2,309.8 | 1,926.5 | 2,284.6 | 1,229.3 | 900.8 | 1,069.2 | 900.6 | 1,180.1 | 386.8 | 1,752.6 | 1,740.5 | 2,751.9 |
| Mean | 74.5 | 64.2 | 73.7 | 39.7 | 32.2 | 34.5 | 30.0 | 38.1 | 12.9 | 56.5 | 56.1 | 91.7 |
| Ac-ft | 4,580 | 3,820 | 4,530 | 2,440 | 1,790 | 2,120 | 1,790 | 2,340 | 767 | 3,480 | 3,450 | 5,460 |

Calendar year 1957: Max 1,840 Min 0 Mean 77.7 Ac-ft 56,220
Water year 1957-58: Max 666 Min 0.1 Mean 50.5 Ac-ft 36,570

Peak discharge (base, 700 cfs).--Oct. 16 (10 p.m.) 837 cfs (11.82 ft).

* Discharge measurement made on this day.

## 120. 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 and Mexico Railway bridge and 2 miles west of Basile.

Drainage area.--527 sq mi.

Records available.--October 1938 to September 1958.

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.--20 years, 802 cfs (580,600 acre-ft per year).

Extremes.--Maximum daily discharge during year, 5,570 cfs Nov. 18; maximum gage height, 22.12 ft Nov. 19; minimum discharge, 2.8 cfs June 21 (gage height, 1.12 ft).
1938-58: Maximum discharge, 35,800 cfs May 20, 1953; maximum gage height, 34.39 ft May 20, 1953; minimum discharge, 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 for periods of no gage-height record, which are fair.

Revisions (water years).--WSP 1512: 1945-55.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,050 | 95 | 3,060 | 2,100 | 1,170 | 1,450 | 1,180 | 840 | 62 | 42 | 51 | 2,160 |
| 2 | 954 | 73 | 2,730 | 1,950 | 604 | 1,150 | 658 | 800 | 54 | 30 | 46 | 1,880 |
| 3 | 817 | 65 | 2,370 | 1,790 | 310 | 750 | 483 | 750 | 48 | 21 | 46 | 1,500 |
| 4 | 590 | 61 | 1,930 | 1,600 | 175 | 490 | 354 | 650 | 45 | 20 | 50 | 761 |
| 5 | 288 | *48 | 1,380 | 1,180 | 112 | 296 | 166 | 670 | 36 | 15 | 51 | 257 |
| 6 | 135 | 40 | 725 | 571 | 356 | 267 | 89 | *625 | 56 | 12 | 57 | 136 |
| 7 | 85 | 42 | 585 | 422 | 1,060 | 583 | 59 | 580 | 80 | 11 | 69 | 168 |
| 8 | 63 | 639 | 1,020 | 491 | 1,530 | 1,050 | 42 | 445 | 105 | 10 | 55 | 178 |
| 9 | 55 | 1,570 | 1,390 | 515 | 1,860 | 1,440 | 200 | 290 | *120 | 384 | 48 | 175 |
| 10 | 53 | 2,150 | 1,570 | 479 | 1,990 | 1,550 | 775 | 170 | 96 | 1,110 | 50 | 249 |
| 11 | 50 | 2,600 | 1,530 | 367 | 1,920 | *1,560 | 1,130 | 150 | 60 | 1,460 | 94 | 316 |
| 12 | 34 | 2,850 | 1,400 | 276 | *1,880 | 1,340 | 1,380 | 210 | 39 | 1,540 | 178 | 336 |
| 13 | 26 | 3,070 | 1,220 | 503 | 1,830 | 837 | 1,600 | 335 | 28 | 1,300 | 324 | 604 |
| 14 | 21 | 3,180 | 844 | *913 | 1,740 | 428 | 1,750 | 475 | 12 | 947 | 1,020 | 930 |
| 15 | 212 | 3,880 | 600 | 1,170 | 1,580 | 219 | 1,650 | 430 | 6.3 | 515 | 1,380 | 1,070 |
| 16 | 804 | 4,600 | 270 | 1,060 | 1,420 | 123 | 1,600 | 218 | 4.7 | 286 | 1,460 | 1,070 |
| 17 | 1,420 | 5,150 | 185 | 933 | 1,340 | 91 | 1,650 | 130 | 4.5 | 161 | 1,370 | *1,100 |
| 18 | 1,880 | 5,570 | 140 | 801 | 1,150 | 75 | 1,450 | 110 | 5.4 | 107 | 1,190 | 1,120 |
| 19 | 2,150 | 5,490 | 240 | 570 | 806 | 73 | 1,320 | 120 | 4.7 | 164 | 812 | 1,190 |
| 20 | 2,040 | 5,150 | 444 | 326 | 517 | 144 | 950 | 170 | 3.8 | 132 | 446 | 1,250 |
| 21 | 1,920 | 4,980 | 750 | 336 | 316 | 150 | 555 | 128 | 3.3 | 112 | 249 | 1,330 |
| 22 | 1,810 | 4,700 | 1,050 | 657 | 186 | 110 | 310 | 110 | 55 | 104 | *164 | 1,510 |
| 23 | 1,660 | 4,570 | 1,010 | 964 | 595 | 385 | 170 | 95 | 685 | *79 | 144 | 1,830 |
| 24 | 1,590 | 4,330 | 814 | 1,300 | 1,440 | 1,230 | 115 | 115 | 1,100 | 217 | 508 | 2,190 |
| 25 | 1,510 | 4,470 | 614 | 1,720 | 1,920 | 1,820 | 85 | 120 | 1,170 | 552 | 1,350 | 2,390 |
| 26 | 1,440 | 4,490 | 479 | 1,960 | 2,150 | 2,150 | 62 | 100 | 766 | 604 | 1,820 | 2,460 |
| 27 | 1,270 | 4,340 | 425 | 2,090 | 1,920 | 2,290 | 52 | 90 | 463 | 400 | 2,210 | 2,420 |
| 28 | 987 | 4,120 | 1,080 | 2,000 | 1,690 | 2,240 | 238 | 82 | 219 | 206 | 2,600 | 2,410 |
| 29 | *569 | 3,760 | 1,660 | 1,830 | - | 2,060 | 570 | 78 | 110 | 116 | 2,800 | 2,450 |
| 30 | 330 | 3,390 | 1,960 | 1,690 | ------ | 1,800 | 810 | 74 | 68 | 81 | 2,800 | 2,480 |
| 31 | 162 | ------ | 2,170 | 1,500 | ------ | 1,550 | ------ | 70 | ------ | 63 | 2,700 | ------ |
| Total | 25,975 | 89,473 | 35,645 | 34,064 | 33,567 | 29,701 | 21,453 | 9,230 | 5,509.7 | 10,801 | 26,142 | 37,920 |
| Mean | 838 | 2,982 | 1,150 | 1,099 | 1,199 | 958 | 715 | 298 | 184 | 348 | 843 | 1,264 |
| Cfsm | 1.59 | 5.66 | 2.18 | 2.09 | 2.28 | 1.82 | 1.36 | 0.565 | 0.349 | 0.660 | 1.60 | 2.40 |
| In. | 1.83 | 6.31 | 2.52 | 2.40 | 2.37 | 2.10 | 1.51 | 0.65 | 0.39 | 0.76 | 1.84 | 2.68 |
| Ac-ft | 51,520 | 177,500 | 70,700 | 67,560 | 66,580 | 58,910 | 42,550 | 18,310 | 10,930 | 21,420 | 51,850 | 75,210 |

Calendar year 1957: Max 5,640 Min 0.9 Mean 930 Cfsm 1.76 In. 23.95 Ac-ft 673,200
Water year 1957-58: Max 5,570 Min 3.3 Mean 985 Cfsm 1.87 In. 25.36 Ac-ft 713,000

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 4, Nov. 14-19, Dec. 15-19, Mar. 2-4, Apr. 9 to June 9; discharge estimated on basis of 2 discharge measurements, recorded range in stage, record at auxiliary gage, and records for nearby stations.

## 125. Bayou Lacassine at Intracoastal Waterway, La.

Location.--Lat 29°57'49", long 92°50'35", at short cutoff on left bank in Lacassine Migratory Water Fowl Refuge, 1,000 ft upstream from Intracoastal Waterway and 13 miles southwest of town of Lake Arthur.

Records available.--October 1954 to September 1958 (gage heights only), discontinued.

Gage.--Water-stage recorder. Altitude of gage is at mean sea level (from river-profile map).

Extremes.--Maximum elevation during year, 2.83 ft Sept. 24; minimum, 0.86 ft June 21. 1954-58: Maximum elevation, 5.6 ft June 28, 1957, from floodmark (affected by hurricane); minimum, 0.35 ft Oct. 20, 1956.

Remarks.--Elevations affected by operation of locks in Intracoastal Waterway System.

Elevation, in feet, at 8 a.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.03 | 1.88 | 2.09 | 1.61 | 1.59 | 1.41 | 1.83 | 2.13 | 1.65 | 1.43 | 1.68 | 2.07 |
| 2 | 2.03 | 1.84 | 2.08 | 1.61 | 1.48 | 1.32 | 1.85 | 2.09 | 1.60 | 1.40 | 1.64 | 2.03 |
| 3 | 2.00 | 1.77 | 2.09 | 1.62 | 1.48 | 1.36 | 1.83 | 2.08 | 1.52 | 1.37 | 1.58 | 1.98 |
| 4 | 1.93 | 1.73 | 1.96 | 1.64 | 1.65 | 1.41 | 1.78 | 1.98 | 1.52 | 1.31 | 1.58 | 2.01 |
| 5 | 1.90 | 1.72 | 1.97 | 1.67 | 1.62 | 1.46 | 1.76 | 1.78 | 1.54 | 1.25 | 1.55 | 2.13 |
| 6 | 1.90 | 1.76 | 2.03 | 1.58 | 1.59 | 1.44 | 1.63 | 1.56 | 1.48 | 1.30 | 1.55 | 2.22 |
| 7 | 1.87 | 1.85 | 2.17 | 1.43 | 1.34 | 1.56 | 1.55 | 1.54 | 1.47 | 1.25 | 1.53 | 2.20 |
| 8 | 1.83 | 1.92 | 1.97 | 1.33 | 1.42 | 1.63 | 1.77 | 1.56 | 1.54 | 1.35 | 1.56 | 2.18 |
| 9 | 1.76 | 1.88 | 1.91 | 1.47 | 1.43 | 1.48 | 1.67 | 1.59 | 1.57 | 1.44 | 1.62 | 2.16 |
| 10 | 1.65 | 1.88 | 1.89 | 1.43 | 1.43 | 1.61 | 1.68 | 1.59 | 1.55 | 1.60 | 1.59 | 2.16 |
| 11 | 1.60 | 1.86 | 1.62 | 1.37 | 1.27 | 1.57 | 1.65 | 1.54 | 1.48 | 1.62 | 1.58 | 2.14 |
| 12 | 1.60 | 2.02 | 1.82 | 1.45 | 1.36 | 1.57 | 1.72 | 1.44 | 1.43 | 1.69 | 1.52 | 2.12 |
| 13 | 1.63 | 2.07 | 1.80 | 1.43 | 1.38 | 1.26 | 1.76 | 1.42 | 1.42 | 1.73 | 1.65 | 2.04 |
| 14 | 1.70 | 2.11 | 1.76 | 1.42 | 1.64 | 1.33 | 1.86 | 1.41 | 1.44 | 1.80 | 1.77 | 2.04 |
| 15 | 1.82 | 2.24 | 1.71 | 1.29 | 1.36 | 1.43 | 1.86 | 1.47 | 1.39 | 1.82 | 1.86 | 2.07 |
| 16 | 2.17 | 2.35 | 1.65 | 1.23 | 1.45 | 1.45 | 1.89 | 1.45 | 1.35 | 1.76 | 1.88 | 2.15 |
| 17 | 2.27 | 2.39 | 1.58 | 1.26 | 1.47 | 1.43 | 1.91 | 1.46 | 1.28 | 1.75 | 1.88 | 2.17 |
| 18 | 2.31 | 2.41 | 1.60 | 1.32 | 1.42 | 1.32 | 1.91 | 1.53 | 1.18 | 1.72 | 1.93 | 2.21 |
| 19 | 2.28 | 2.32 | 1.77 | 1.46 | 1.39 | 1.24 | 1.95 | 1.59 | 1.24 | 1.72 | 1.94 | 2.28 |
| 20 | 2.27 | 2.37 | 1.62 | 1.50 | 1.37 | 1.32 | 1.96 | 1.57 | 1.14 | 1.73 | 1.91 | 2.44 |
| 21 | 2.34 | 2.35 | 1.63 | 1.34 | 1.36 | 1.36 | 1.87 | 1.56 | 1.10 | 1.74 | 1.87 | 2.54 |
| 22 | 2.41 | 2.33 | 1.63 | 1.43 | 1.37 | 1.56 | 1.79 | 1.65 | 1.13 | - | 1.82 | 2.73 |
| 23 | 2.41 | 2.22 | 1.60 | 1.39 | 1.50 | 1.62 | 1.92 | 1.68 | 1.36 | - | 1.99 | 2.77 |
| 24 | 2.37 | 2.32 | 1.54 | 1.55 | 1.51 | 1.58 | 1.92 | 1.70 | 1.46 | - | 2.10 | 2.80 |
| 25 | 2.30 | 2.29 | 1.59 | 1.71 | 1.52 | 1.68 | 1.88 | 1.74 | 1.52 | 1.86 | 2.28 | 2.80 |
| 26 | 2.09 | 2.35 | 1.61 | 1.68 | 1.59 | 1.63 | 1.89 | 1.72 | 1.47 | 1.87 | 2.29 | 2.78 |
| 27 | 2.07 | 2.38 | 1.72 | 1.65 | 1.54 | 1.71 | 1.89 | 1.67 | 1.45 | 1.87 | 2.31 | 2.75 |
| 28 | 2.08 | 2.37 | 1.76 | 1.67 | 1.47 | 1.81 | 2.09 | 1.67 | 1.48 | 1.86 | 2.25 | 2.68 |
| 29 | 2.03 | 2.32 | 1.83 | 1.63 | - | 1.91 | 2.09 | 1.67 | 1.52 | 1.81 | 2.21 | 2.63 |
| 30 | 2.02 | 1.95 | 1.87 | 1.66 | ------- | 1.72 | 2.08 | 1.67 | 1.49 | 1.77 | 2.22 | 2.59 |
| 31 | 1.93 | ------- | 1.65 | 1.65 | ------- | 1.75 | ------- | 1.68 | ------- | 1.73 | 2.14 | ------- |

Note.--No gage-height record July 22-24.

## 130. 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 1958.

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

Average discharge.--15 years, 798 cfs (577,700 acre-ft per year).

Extremes.--Maximum discharge during year, 15,700 cfs Sept. 23 (gage height, 15.98 ft); minimum, 28 cfs Oct. 13, 14; minimum gage height, 4.47 ft Oct. 14.
1943-58: Maximum discharge, 59,900 cfs May 19, 1953 (gage height, 21.55 ft); minimum, 15 cfs Sept. 27, 28, Oct. 7-9, 1954, Oct. 18, 1956; minimum gage height, 3.86 ft Oct. 18, 1956.

Remarks.--Records good.

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

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 9-13, Sept. 2-17)

| Oct. 1 to Mar. 28 | | | | Mar. 29 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 4.5 | 28 | 12.0 | 1,230 | 4.8 | 43 | 11.0 | 880 |
| 5.0 | 48 | 12.5 | 1,830 | 5.0 | 52 | 12.0 | 1,450 |
| 6.0 | 101 | 13.0 | 2,800 | 6.0 | 112 | 13.0 | 2,670 |
| 9.0 | 350 | 14.0 | 5,000 | 8.0 | 289 | 13.5 | 3,710 |
| 10.0 | 500 | 15.0 | 9,700 | 9.0 | 403 | 14.0 | 5,310 |
| 11.0 | 750 | | | 10.0 | 565 | 16.0 | 15,700 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 70 | 206 | 2,700 | 3,700 | 705 | 860 | 1,630 | 1,630 | 147 | 147 | 62 | 1,020 |
| 2 | 57 | 162 | 2,100 | 3,800 | 635 | 880 | 1,230 | 2,090 | 126 | 102 | 57 | 359 |
| 3 | 49 | 148 | 1,410 | 3,200 | 598 | 860 | 1,010 | 2,940 | 105 | 82 | 54 | *158 |
| 4 | 44 | 141 | 960 | 2,400 | 540 | 802 | 805 | 3,840 | 94 | 70 | 52 | 105 |
| 5 | 40 | 127 | 690 | 1,530 | 455 | 705 | 602 | 3,590 | 85 | 63 | 48 | 85 |
| 6 | 38 | 514 | 540 | 920 | 380 | 675 | 459 | 2,850 | 79 | 58 | 45 | 73 |
| 7 | 35 | 1,420 | 660 | 622 | 330 | 802 | 367 | 2,160 | 161 | 58 | 43 | 77 |
| 8 | 34 | 3,200 | 900 | 470 | 290 | 940 | 311 | 1,450 | 164 | 54 | 43 | 193 |
| 9 | 32 | 3,500 | 960 | 410 | 270 | 1,270 | *352 | 840 | 94 | 109 | 49 | 151 |
| 10 | 31 | 4,460 | 1,000 | 365 | 270 | 2,010 | 880 | 475 | *79 | *267 | 97 | 105 |
| 11 | 30 | 6,750 | 1,120 | 340 | 310 | 3,200 | 1,230 | 344 | 69 | 367 | 56 | 107 |
| 12 | 29 | *5,150 | 1,200 | 330 | *320 | 3,000 | 1,410 | 262 | 64 | 491 | 45 | 119 |
| 13 | 28 | 5,000 | 1,230 | 365 | 350 | 2,400 | 1,540 | 217 | 60 | 645 | 45 | 94 |
| 14 | 28 | 5,480 | 1,090 | 470 | 410 | 1,830 | 1,630 | *186 | 58 | 860 | *44 | 85 |
| 15 | 38 | 5,150 | 820 | 560 | 540 | 1,470 | 1,730 | 163 | 56 | 860 | 46 | 94 |
| 16 | 231 | 5,150 | 598 | 690 | 635 | 1,300 | 1,680 | 144 | 57 | 602 | 56 | 91 |
| 17 | 250 | 5,300 | 520 | 840 | 675 | 1,100 | 1,780 | 130 | 56 | 367 | 52 | 102 |
| 18 | 290 | 6,500 | *520 | 1,000 | 735 | 1,000 | 2,510 | 122 | 53 | 231 | 50 | 344 |
| 19 | 340 | 6,280 | 560 | 1,200 | 785 | *900 | 3,250 | 130 | 61 | 204 | 48 | 322 |
| 20 | 320 | 7,000 | 690 | 1,200 | 802 | 690 | 2,760 | 172 | 85 | 159 | 45 | 760 |
| 21 | 210 | 6,500 | 900 | 1,090 | 720 | 622 | 2,160 | 212 | 140 | 140 | 43 | 2,440 |
| 22 | 144 | 5,650 | 840 | 1,090 | 560 | 610 | 1,450 | 279 | 159 | 112 | 54 | 2,440 |
| 23 | 116 | 5,150 | 802 | 1,160 | 425 | 648 | 1,010 | 720 | 241 | 144 | 230 | 12,300 |
| 24 | 336 | 4,860 | 840 | 1,410 | 395 | 1,090 | 940 | 660 | 236 | 311 | 944 | 10,500 |
| 25 | 598 | 4,590 | 920 | 1,670 | 380 | 1,410 | 940 | 491 | 322 | 430 | 1,780 | 5,310 |
| 26 | 750 | 4,460 | 940 | 2,300 | 425 | 1,830 | 840 | 444 | 444 | 379 | 1,580 | 3,470 |
| 27 | 920 | 4,720 | 860 | 2,700 | 540 | 2,200 | 660 | 475 | 602 | 256 | 1,730 | 2,670 |
| 28 | *980 | 4,220 | 1,000 | 2,300 | 750 | 2,500 | 590 | 444 | 770 | 147 | 2,090 | 2,090 |
| 29 | 900 | 3,700 | 1,230 | 1,750 | - | 2,670 | 720 | 367 | 660 | 108 | 2,360 | 1,370 |
| 30 | 648 | 3,200 | 1,410 | 1,270 | ------ | 2,670 | 1,260 | 262 | 348 | 85 | 2,440 | 822 |
| 31 | 362 | ------ | 2,200 | 900 | ------ | 2,220 | ------ | 181 | ------ | 72 | 1,900 | ------ |
| Total | 7,978 | 118,688 | 32,210 | 42,052 | 14,230 | 45,164 | 37,736 | 28,270 | 5,675 | 7,980 | 16,188 | 47,856 |
| Mean | 257 | 3,956 | 1,039 | 1,357 | 508 | 1,457 | 1,258 | 912 | 189 | 257 | 522 | 1,595 |
| Cfsm | 0.515 | 7.93 | 2.08 | 2.72 | 1.02 | 2.92 | 2.52 | 1.83 | 0.379 | 0.515 | 1.05 | 3.20 |
| In. | 0.59 | 8.85 | 2.40 | 3.14 | 1.06 | 3.37 | 2.81 | 2.11 | 0.42 | 0.59 | 1.21 | 3.57 |
| Ac-ft | 15,820 | 235,400 | 63,890 | 83,410 | 28,220 | 89,580 | 74,850 | 56,070 | 11,260 | 15,830 | 32,110 | 94,920 |

Calendar year 1957: Max 7,000 Min 26 Mean 900 Cfsm 1.80 In. 24.47 Ac-ft 651,400
Water year 1957-58: Max 12,300 Min 28 Mean 1,107 Cfsm 2.22 In. 30.12 Ac-ft 801,400

Peak discharge (base, 4,000 cfs).--Nov. 20 (3:30 p.m.) 7,500 cfs (14.59 ft); Sept. 23 (4 p.m.) 15,700 cfs (15.98 ft).

* Discharge measurement made on this day.

## 135. 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 26, 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 1958.

Gage.--Water-stage recorder. Datum of gage is 39.43 ft above mean sea level, datum of 1929 (Louisiana Geodetic Survey bench mark). August 1922 to January 1925 water-stage recorder at same site at datum about 2.5 ft higher. September 1938 to Aug. 17, 1939, wire-weight gage at same site and datum.

Average discharge.--22 years (1922-24, 1938-58), 1,263 cfs (914,400 acre-ft per year).

Extremes.--Maximum discharge during year, 23,600 cfs Nov. 15 (gage height, 19.98 ft); minimum, 36 cfs Oct. 14 (gage height, 2.79 ft).
1922-25, 1938-58: Maximum discharge, 72,800 cfs May 19, 1953 (gage height, 26.53 ft); minimum, 30 cfs Sept. 28, 29, Oct. 17-19, 1956; minimum gage height, 2.72 ft Oct. 17-19, 1956.
Flood in June 1886 reached a stage of between 22 and 23 ft, present datum.

Remarks.--Records good. Paper mill at Elizabeth pumps about 11 cfs from wells which is later discharged into Mill Creek 20 miles above station. This discharge is continuous and fairly constant. Some small diversions from April to September for rice irrigation above station.

Revisions (water years).--WSP 1512: 1923, 1939(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 1-28, Feb. 8-23, Sept. 22-27)

| | | | | | |
|---|---|---|---|---|---|
| 2.7 | 28 | 4.5 | 272 | 16.0 | 6,950 |
| 3.0 | 57 | 5.0 | 400 | 17.0 | 9,690 |
| 3.5 | 112 | 9.0 | 1,800 | 19.0 | 18,200 |
| 3.8 | 148 | 12.0 | 3,150 | 20.0 | 23,600 |
| 4.0 | 174 | 15.0 | 5,500 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 104 | 1,080 | 4,810 | 2,360 | 2,280 | 1,120 | 2,830 | 1,880 | 430 | 640 | 141 | 2,000 |
| 2 | 108 | 945 | 4,200 | 2,120 | 1,960 | 1,080 | 3,010 | 2,200 | 321 | 610 | 126 | 2,120 |
| 3 | 98 | 658 | 3,520 | 2,200 | 1,600 | 1,120 | 2,680 | 2,080 | 248 | 364 | 114 | 2,040 |
| 4 | 85 | 386 | 2,890 | 2,640 | 1,300 | 1,160 | 2,200 | 2,080 | 218 | 203 | 106 | 1,600 |
| 5 | 72 | 266 | 2,520 | 3,380 | 1,120 | 1,190 | 1,760 | 2,320 | 185 | 157 | 100 | 884 |
| 6 | 64 | 254 | 2,120 | 3,380 | 1,860 | 1,300 | 1,400 | 2,730 | 166 | 137 | *96 | 460 |
| 7 | 60 | 914 | 1,960 | 2,950 | 2,640 | 1,680 | 1,190 | 3,820 | 154 | 142 | 90 | 415 |
| 8 | 54 | 4,060 | 2,040 | *2,440 | 1,900 | 1,960 | 945 | 4,120 | 143 | 248 | 86 | 475 |
| 9 | 50 | 6,580 | 1,960 | 1,920 | 951 | 2,080 | *1,280 | 3,450 | 146 | 430 | 88 | *505 |
| 10 | 46 | 7,370 | *1,760 | 1,400 | 670 | 2,000 | 2,360 | 2,640 | 174 | 347 | 89 | 550 |
| 11 | 44 | 6,580 | 1,600 | 1,080 | *840 | 1,760 | 1,920 | 2,280 | *156 | 222 | 89 | 535 |
| 12 | 41 | *5,060 | 1,440 | 1,020 | 685 | *1,720 | 1,330 | 1,920 | 134 | 265 | 110 | 387 |
| 13 | 39 | 6,300 | 1,330 | 1,400 | 580 | 1,920 | 1,300 | 1,050 | 122 | 283 | 114 | 902 |
| 14 | 37 | 16,200 | 1,330 | 1,680 | 565 | 2,320 | 1,480 | 685 | 116 | 358 | 91 | 1,160 |
| 15 | 66 | 22,500 | 1,400 | 1,560 | 805 | 2,640 | 2,040 | 520 | 107 | 460 | 82 | 725 |
| 16 | 1,160 | 16,300 | 1,400 | 1,300 | 1,020 | 2,600 | 2,280 | 415 | 101 | 580 | 78 | 460 |
| 17 | 2,000 | 9,350 | 1,400 | 1,120 | 1,050 | 2,320 | 2,280 | 339 | 100 | 718 | 75 | 387 |
| 18 | 2,120 | 7,150 | 1,300 | 1,050 | 980 | 2,080 | 2,200 | 294 | 98 | 805 | 76 | 762 |
| 19 | 1,640 | 6,760 | 1,120 | 1,080 | 875 | 1,880 | 2,000 | 281 | 100 | 685 | 78 | 910 |
| 20 | 1,040 | 7,150 | 1,220 | 1,220 | 840 | 1,720 | 1,920 | 279 | 118 | 475 | 76 | 875 |
| 21 | 625 | 8,150 | 1,260 | 1,960 | 840 | 1,640 | 2,200 | 259 | 106 | 318 | 71 | 2,500 |
| 22 | 535 | 8,440 | 1,160 | 2,440 | 858 | 1,440 | 2,680 | *313 | 279 | 246 | 74 | 5,900 |
| 23 | 535 | 10,000 | 1,080 | 2,600 | 1,290 | 1,480 | 2,830 | 304 | 565 | 204 | 471 | 6,950 |
| 24 | 595 | 10,000 | 1,120 | 2,830 | 2,280 | 2,480 | 2,560 | 358 | 655 | 187 | 1,580 | *6,610 |
| 25 | 445 | 10,000 | 1,120 | 2,890 | 2,280 | 2,680 | 2,040 | 640 | 460 | 184 | 2,080 | 7,260 |
| 26 | 355 | 8,730 | 1,120 | 2,730 | 1,920 | 2,360 | 1,560 | 1,020 | 306 | 222 | 2,200 | 10,400 |
| 27 | 460 | 7,150 | 1,190 | 2,520 | 1,480 | 2,360 | 1,330 | 1,050 | 272 | 306 | 1,960 | 7,370 |
| 28 | 625 | 5,960 | 2,220 | 2,360 | 1,260 | 2,080 | 1,480 | 788 | 321 | 366 | 2,120 | 5,710 |
| 29 | *770 | 5,320 | 2,780 | 2,360 | - | 2,040 | 1,300 | 700 | 430 | 323 | 2,040 | 4,420 |
| 30 | 910 | 5,140 | 2,890 | 2,440 | ------- | 2,160 | 1,220 | 640 | 550 | 224 | 1,800 | 3,520 |
| 31 | 1,050 | ------- | 2,640 | 2,480 | ------- | 2,440 | ------- | 550 | ------- | 165 | 1,800 | ------- |
| Total | 15,833 | 204,753 | 59,900 | 64,910 | 36,729 | 58,810 | 57,605 | 42,005 | 7,281 | 10,874 | 18,101 | 78,792 |
| Mean | 511 | 6,825 | 1,932 | 2,094 | 1,312 | 1,897 | 1,920 | 1,355 | 243 | 351 | 584 | 2,626 |
| Ac-ft | 31,400 | 406,100 | 118,800 | 128,700 | 72,850 | 116,600 | 114,300 | 83,320 | 14,440 | 21,570 | 35,900 | 156,300 |

Calendar year 1957: Max 22,500 Min 37 Mean 1,520 Ac-ft 1,100,000
Water year 1957-58: Max 22,500 Min 37 Mean 1,796 Ac-ft 1,300,000

Peak discharge (base, 8,000 cfs).--Nov. 15 (11 a.m.) 23,600 cfs (19.98 ft); Nov. 25 (7 to 9 a.m.) 10,400 cfs (17.18 ft); Sept. 26 (6 a.m.) 11,600 cfs (17.87 ft).

* Discharge measurement made on this day.

## 140. Sixmile Creek near Sugartown, La.

Location.--Lat 30°48'52", long 92°55'34", in NE¼ sec. 12, T. 3 S., R. 6 W., on downstream side of bridge on State Highway 112, 2.0 miles downstream from Caney Branch, 5.5 miles east of Sugartown, and 6.6 miles upstream from Whiskey Chitto Creek.

Drainage area.--171 sq mi.

Records available.--February 1956 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 90 ft (from topographic map).

Extremes.--Maximum discharge during year, 6,360 cfs Sept. 22 (gage height, 14.05 ft); minimum daily, 55 cfs July 31 to Aug. 3, Aug. 10, 19-21.
1956-58: Maximum discharge, that of Sept. 22, 1958; minimum, 34 cfs Sept. 24-30, Oct. 1, 2, 11-20, 1956; minimum gage height, 1.75 ft Sept. 28-30, Oct. 15, 19, 1956.

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

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 7-20)

| Oct. 1 to Feb. 23, Sept. 22-30 | | Feb. 24 to Sept. 21 | |
|---|---|---|---|
| 2.3 | 59 | 2.1 | 50 |
| 3.0 | 103 | 3.0 | 112 |
| 4.0 | 185 | 4.0 | 200 |
| 6.0 | 414 | 6.0 | 414 |
| | | 8.0 | 740 |
| Note.--Same as following table above 6.0 ft. | | 11.0 | 1,400 |
| | | 12.0 | 2,000 |
| | | 13.0 | 3,260 |
| | | 14.0 | 6,160 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 106 | 141 | 400 | 413 | 214 | 510 | 547 | 592 | 105 | 74 | 55 | 120 |
| 2 | 89 | 137 | 310 | 298 | 194 | 285 | 332 | 502 | 90 | 70 | 55 | 100 |
| 3 | 86 | 129 | 280 | 259 | 176 | 235 | 250 | 310 | 90 | 67 | 55 | 100 |
| 4 | 80 | 125 | 275 | 234 | 162 | 210 | 230 | 250 | 85 | 65 | 60 | 100 |
| 5 | 77 | 137 | 304 | 214 | 158 | 220 | 210 | 432 | 80 | 64 | 70 | 100 |
| 6 | 74 | 302 | 298 | 209 | *176 | 489 | 190 | 288 | 80 | 63 | 60 | 90 |
| 7 | 70 | 950 | 572 | 209 | 180 | 1,060 | 170 | 195 | 80 | 63 | *57 | 90 |
| 8 | 68 | 1,890 | 840 | 229 | 172 | 920 | 150 | 160 | 90 | 66 | 70 | 250 |
| 9 | 66 | *2,220 | 800 | *214 | 158 | 700 | *214 | 141 | 90 | *78 | 60 | 500 |
| 10 | 65 | 2,080 | 571 | 190 | 149 | 517 | 636 | 130 | *80 | 98 | 55 | *200 |
| 11 | 64 | *1,560 | *307 | 180 | 181 | 350 | 900 | 126 | 78 | 98 | 60 | 155 |
| 12 | 63 | 1,080 | 224 | 180 | 292 | 270 | 920 | 122 | 76 | 126 | 70 | 119 |
| 13 | 62 | 1,140 | 190 | 256 | 254 | *245 | 492 | 116 | 74 | 122 | 70 | 122 |
| 14 | 61 | 3,460 | 180 | 414 | 204 | 240 | 421 | 112 | 74 | 90 | 70 | 130 |
| 15 | 108 | 3,680 | 209 | 387 | 374 | 250 | 900 | 105 | 75 | 82 | 70 | 119 |
| 16 | 1,420 | 2,120 | 298 | 298 | 457 | 215 | 880 | 102 | 74 | 74 | 70 | 122 |
| 17 | 1,290 | 1,510 | 280 | 229 | 348 | 190 | 740 | 102 | 76 | 71 | 65 | 137 |
| 18 | 1,180 | 1,310 | 224 | 204 | 234 | 227 | 396 | 102 | 78 | 72 | 60 | 296 |
| 19 | 957 | 1,400 | 194 | 190 | 194 | 310 | 260 | 102 | 75 | 69 | 55 | 562 |
| 20 | 259 | 1,340 | 447 | 201 | 176 | 280 | 230 | 112 | 75 | 70 | 55 | 1,100 |
| 21 | 149 | 1,400 | 840 | 712 | 167 | 215 | 230 | 141 | 77 | 76 | 55 | 3,090 |
| 22 | 154 | 1,470 | 562 | 780 | 162 | 185 | 250 | *137 | 112 | 69 | 70 | *5,600 |
| 23 | 470 | 1,920 | 292 | 532 | 326 | 248 | 300 | 126 | 209 | 64 | 90 | 2,920 |
| 24 | 1,140 | 1,660 | 244 | 793 | 940 | 863 | 280 | 165 | 428 | 60 | 150 | 1,840 |
| 25 | 1,140 | 1,720 | 229 | 860 | 740 | 900 | 220 | 160 | 320 | 120 | 300 | 1,340 |
| 26 | 1,180 | 1,510 | 299 | 684 | 502 | 920 | 175 | 165 | 140 | 90 | 600 | 614 |
| 27 | 884 | 1,280 | 487 | 416 | 615 | 726 | 155 | 146 | 98 | 80 | 900 | 280 |
| 28 | *268 | 850 | 998 | 286 | 760 | 373 | 155 | 108 | 91 | 70 | 600 | 229 |
| 29 | 185 | 517 | 1,100 | 244 | - | 290 | 324 | 105 | 91 | 65 | 350 | 194 |
| 30 | 162 | 487 | 1,060 | 234 | ------ | 530 | 622 | 122 | 80 | 60 | 250 | 172 |
| 31 | 145 | ------ | 788 | 234 | ------ | 607 | ------ | 126 | ------ | 55 | 150 | ------ |
| Total | 12,122 | 39,525 | 14,102 | 10,783 | 8,665 | 13,580 | 11,779 | 5,602 | 3,271 | 2,391 | 4,757 | 20,791 |
| Mean | 391 | 1,317 | 455 | 348 | 309 | 438 | 393 | 181 | 109 | 77.1 | 153 | 693 |
| Cfsm | 2.29 | 7.70 | 2.66 | 2.04 | 1.81 | 2.56 | 2.30 | 1.06 | 0.637 | 0.451 | 0.895 | 4.05 |
| In. | 2.64 | 8.59 | 3.07 | 2.35 | 1.88 | 2.95 | 2.57 | 1.22 | 0.71 | 0.52 | 1.03 | 4.52 |
| Ac-ft | 24,040 | 78,400 | 27,970 | 21,390 | 17,190 | 26,940 | 23,360 | 11,110 | 6,490 | 4,740 | 9,440 | 41,240 |

Calendar year 1957: Max 3,680 Min 56 Mean 360 Cfsm 2.11 In. 28.54 Ac-ft 260,300
Water year 1957-58: Max 5,600 Min 55 Mean 404 Cfsm 2.36 In. 32.05 Ac-ft 292,300

Peak discharge (base, 1,300 cfs).--Oct. 16 (7:30 a.m.) 1,510 cfs (11.29 ft); Nov. 9 (10 p.m.) 2,320 cfs (12.35 ft); Nov. 15 (1 a.m.) 4,920 cfs (13.66 ft); Sept. 22 (9 a.m.) 6,360 cfs (14.05 ft).

* Discharge measurement made on this day.
Note.--No gage-height record June 2-9, July 24 to Sept. 10; discharge estimated on basis of 1 discharge measurement and records for nearby stations.

## 142. 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 112, 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 1958.

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

Average discharge.--9 years, 137 cfs (99,180 acre-ft per year).

Extremes.--Maximum discharge during year, 3,050 cfs Nov. 15 (gage height, 13.86 ft); minimum, 13 cfs Oct. 11-14; minimum gage height, 2.29 ft Oct. 14.
1949-58: Maximum discharge, 31,900 cfs May 18, 1953 (gage height, 21.33 ft, from floodmark), from rating curve extended above 8,900 cfs on basis of slope-area measurement of peak flow; minimum, 7.2 cfs Sept. 29, 30, 1956.

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

Revisions (water years).--WSP 1512: 1950.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Nov. 10-12, Dec. 10 to Jan. 20, May 14-22, May 28 to June 22, June 26 to July 20, July 22 to Aug. 23, Sept. 1-8, 21-25)

| Oct. 1 to Jan. 20 | | Jan. 21 to Sept. 30 | | | |
|---|---|---|---|---|---|
| 2.3 | 13 | 2.0 | 14 | 11.0 | 714 |
| 3.0 | 40 | 3.0 | 47 | 12.0 | 1,050 |
| 4.0 | 83 | 4.0 | 87 | 12.5 | 1,360 |
| 6.0 | 194 | 6.0 | 194 | 13.0 | 1,820 |
| | | 9.0 | 420 | 14.0 | 3,330 |

Note.--Same as following table above 6.0 ft.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 42 | 120 | 152 | a80 | 260 | 338 | 362 | 32 | 20 | 15 | 36 |
| 2 | 21 | 40 | 96 | 113 | a80 | 116 | 140 | 316 | 27 | 20 | 16 | 30 |
| 3 | 18 | 37 | 86 | 96 | a70 | 89 | 101 | 120 | 24 | 19 | 15 | 26 |
| 4 | 16 | 66 | 80 | 80 | a65 | 79 | 91 | 131 | 24 | 18 | 18 | 24 |
| 5 | 15 | 73 | 83 | 70 | a60 | 88 | 79 | 246 | 23 | 18 | 17 | 24 |
| 6 | 15 | a150 | 86 | 64 | *65 | 206 | 69 | 330 | 22 | 18 | 16 | 24 |
| 7 | 14 | a500 | 107 | 64 | 73 | 370 | 61 | 196 | 22 | 18 | *15 | 23 |
| 8 | 14 | 1,660 | 346 | 66 | 69 | 442 | 55 | 83 | 22 | 18 | 15 | 67 |
| 9 | 14 | 1,820 | 410 | *66 | 61 | 390 | *69 | 65 | 24 | *21 | 14 | 213 |
| 10 | 14 | 1,190 | 346 | 56 | 57 | 295 | 198 | 57 | *24 | 22 | 18 | 94 |
| 11 | 13 | *820 | *134 | 52 | 69 | 158 | 338 | 50 | 22 | 22 | 30 | *57 |
| 12 | 13 | 493 | 98 | 52 | 118 | 113 | 400 | 45 | 21 | 25 | 20 | 48 |
| 13 | 13 | 864 | 80 | 80 | 95 | *110 | 177 | 40 | 20 | 33 | 16 | 57 |
| 14 | 13 | 2,250 | 70 | 143 | 79 | 106 | 154 | 36 | 20 | 26 | 16 | 46 |
| 15 | 30 | 2,400 | 76 | 146 | 140 | 95 | 323 | 34 | 20 | 22 | 15 | 41 |
| 16 | a200 | 1,320 | 110 | 98 | 212 | 79 | 400 | 32 | 22 | 23 | 14 | 34 |
| 17 | a400 | 925 | 118 | 78 | 158 | 71 | 380 | 30 | 20 | 20 | 14 | 45 |
| 18 | a300 | 674 | 93 | 64 | 97 | 84 | 143 | 31 | 20 | 19 | 15 | 96 |
| 19 | a200 | 575 | 86 | 58 | 81 | 149 | 91 | 30 | 20 | 19 | 15 | 245 |
| 20 | 56 | 575 | 118 | 70 | 71 | 110 | 79 | 31 | 19 | 57 | 15 | 291 |
| 21 | 41 | 636 | 267 | a250 | 65 | 87 | 87 | 32 | 19 | 59 | 14 | 1,200 |
| 22 | 40 | 636 | 302 | a300 | 63 | 73 | 93 | *36 | 62 | 34 | 17 | *2,630 |
| 23 | 72 | 790 | 137 | a200 | 110 | 94 | 81 | 107 | 71 | 24 | 30 | 1,580 |
| 24 | 206 | 1,050 | 93 | a250 | 212 | 274 | 79 | 71 | 67 | 20 | 136 | 1,100 |
| 25 | 354 | 1,130 | 80 | a350 | 239 | 380 | 65 | 53 | 55 | 18 | 350 | 717 |
| 26 | 420 | 945 | 98 | a250 | 158 | 453 | 55 | 50 | 35 | 18 | 510 | 220 |
| 27 | 254 | 675 | 200 | a150 | 158 | 448 | 49 | 38 | 25 | 23 | 822 | 113 |
| 28 | *80 | 320 | 370 | a110 | 288 | 188 | 49 | 32 | 22 | 18 | 556 | 89 |
| 29 | 60 | 170 | 400 | a100 | - | 120 | 183 | 30 | 22 | 17 | 116 | 75 |
| 30 | 51 | 152 | 465 | a90 | ------ | 253 | 316 | 30 | 21 | 16 | 57 | 65 |
| 31 | 46 | ------ | 372 | a90 | ------ | 330 | ------ | 34 | ------ | 15 | 44 | ------ |
| Total | 3,029 | 22,978 | 5,617 | 3,808 | 3,093 | 6,110 | 4,743 | 2,778 | 847 | 720 | 2,981 | 9,310 |
| Mean | 97.7 | 766 | 181 | 123 | 110 | 197 | 158 | 89.6 | 28.2 | 23.2 | 96.2 | 310 |
| Cfsm | 1.07 | 8.37 | 1.98 | 1.34 | 1.20 | 2.15 | 1.73 | 0.979 | 0.308 | 0.254 | 1.05 | 3.39 |
| In. | 1.23 | 9.34 | 2.28 | 1.54 | 1.25 | 2.48 | 1.93 | 1.13 | 0.34 | 0.29 | 1.21 | 3.78 |
| Ac-ft | 6,010 | 45,580 | 11,140 | 7,550 | 6,130 | 12,120 | 9,410 | 5,510 | 1,680 | 1,430 | 5,910 | 18,470 |

Calendar year 1957: Max 2,400 Min 13 Mean 161 Cfsm 1.76 In. 23.92 Ac-ft 116,700
Water year 1957-58: Max 2,630 Min 13 Mean 181 Cfsm 1.98 In. 26.80 Ac-ft 130,900

Peak discharge (base, 500 cfs).--Nov. 8 (9:30 p.m.) 2,400 cfs (13.48 ft); Nov. 15 (3 a.m.) 3,050 cfs (13.86 ft); Mar. 27 (5 a.m.) 504 cfs (9.69 ft); Aug. 27 (3 p.m.) 872 cfs (11.55 ft); Sept. 22 (5 a.m.) 2,960 cfs (13.67 ft).

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

## 145. 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 26, 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 1958.

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

Average discharge.--19 years, 878 cfs (635,600 acre-ft per year).

Extremes.--Maximum discharge during year, 16,000 cfs Sept. 22 (gage height, 20.65 ft); minimum, 149 cfs Oct. 15 (gage height, 3.69 ft).

1939-58: Maximum discharge, 144,000 cfs May 18, 1953 (gage height, 32.8 ft, from floodmark), from rating curve extended above 35,000 cfs on basis of slope-area measurement of peak flow; minimum, 88 cfs Oct. 19, 20, 1956; minimum gage height, 3.37 ft Sept. 15, 16, 1954.

Flood in June 1886 reached a stage of 25.7 ft, from floodmarks preserved by local residents.

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

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 6-30, Dec. 7 to Jan. 21, June 11-22, Sept. 9-20, 27-30)

| Oct. 1-15 | | Oct. 16 to Sept. 30 | | | | | |
|---|---|---|---|---|---|---|---|
| 3.7 | 150 | 3.7 | 151 | 8.0 | 1,320 | 17.0 | 6,400 |
| 4.0 | 198 | 4.0 | 205 | 12.0 | 3,060 | 19.0 | 10,400 |
| 5.0 | 364 | 5.0 | 425 | 15.0 | 4,600 | 21.0 | 17,700 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 354 | 462 | 1,290 | 1,690 | 692 | 1,480 | 1,610 | 1,780 | 300 | 229 | 173 | 450 |
| 2 | 278 | 438 | 1,050 | 1,020 | 636 | 1,080 | 1,320 | 1,650 | 280 | 218 | 169 | 350 |
| 3 | 238 | 412 | 930 | 780 | 580 | 750 | 870 | 1,320 | 280 | 209 | 165 | 300 |
| 4 | 214 | 400 | 870 | 664 | 526 | 636 | 735 | 1,110 | 260 | 201 | 176 | 300 |
| 5 | 204 | 388 | 870 | 608 | 500 | 580 | 650 | 810 | 250 | 196 | 200 | 300 |
| 6 | 193 | 453 | 900 | 566 | 840 | 780 | 580 | 960 | 250 | 192 | *191 | 300 |
| 7 | 184 | 1,620 | 1,040 | 566 | 678 | 1,800 | 526 | 840 | 250 | 192 | 176 | 250 |
| 8 | 174 | 3,690 | 1,760 | *566 | 580 | 2,340 | 500 | 678 | 250 | 207 | 176 | 350 |
| 9 | 168 | *5,140 | 1,900 | 566 | 526 | 2,030 | *750 | 500 | 250 | *306 | 210 | *692 |
| 10 | 164 | 6,400 | *1,820 | 513 | 513 | 1,690 | 1,110 | 450 | 250 | 253 | 185 | 810 |
| 11 | 161 | 6,300 | 1,320 | 475 | *540 | 1,290 | 1,650 | 400 | *255 | 284 | 171 | 594 |
| 12 | 156 | 5,220 | 840 | 475 | 678 | *930 | 1,990 | 400 | 247 | 284 | 191 | 462 |
| 13 | 153 | 4,120 | 678 | 622 | 810 | 750 | 1,900 | 350 | 241 | 350 | 200 | 513 |
| 14 | 150 | 7,830 | 594 | 930 | 678 | 706 | 1,150 | 350 | 239 | 274 | 192 | 488 |
| 15 | *188 | 11,600 | 580 | 1,050 | 870 | 840 | 1,860 | 350 | 235 | 235 | 194 | 425 |
| 16 | 2,080 | 9,800 | 706 | 900 | 1,110 | 735 | 2,030 | 300 | 235 | 218 | 194 | 488 |
| 17 | 3,370 | 6,630 | 870 | 664 | 1,110 | 608 | 1,990 | 300 | 233 | 209 | 205 | 462 |
| 18 | 3,140 | 5,060 | 750 | 553 | 840 | 622 | 1,650 | 300 | 243 | 218 | 182 | 930 |
| 19 | 2,300 | 4,460 | 685 | 488 | 650 | 750 | 930 | 300 | 263 | 205 | 169 | 1,410 |
| 20 | 1,280 | *4,060 | 840 | 488 | 540 | 840 | 720 | 300 | 241 | 196 | 164 | 2,400 |
| 21 | 594 | 3,600 | 1,400 | 1,150 | 526 | 692 | 664 | 350 | 231 | 227 | 158 | 5,600 |
| 22 | 513 | 3,850 | 1,400 | 1,730 | 500 | 580 | 735 | *400 | 476 | 227 | 169 | 14,800 |
| 23 | 608 | 4,600 | 1,020 | 1,650 | 712 | 664 | 810 | 350 | 653 | 209 | 200 | *13,600 |
| 24 | 1,850 | 5,060 | 735 | 2,030 | 2,190 | 1,800 | 900 | 350 | 810 | 200 | 250 | 8,600 |
| 25 | 2,340 | 4,740 | 622 | 2,210 | 2,300 | 2,210 | 750 | 450 | 900 | 284 | 450 | 6,000 |
| 26 | 2,210 | 4,530 | 636 | 1,950 | 1,690 | 2,120 | 594 | 450 | 650 | 350 | 900 | 4,060 |
| 27 | 2,120 | 4,110 | 990 | 1,520 | 1,360 | 2,120 | 540 | 450 | 339 | 259 | 1,500 | 1,910 |
| 28 | 1,170 | 3,460 | 2,000 | 1,080 | 1,690 | 1,610 | 526 | 400 | 284 | 216 | 2,000 | 1,050 |
| 29 | 678 | 2,250 | 2,600 | 840 | - | 1,020 | 566 | 350 | 261 | 200 | 1,500 | 810 |
| 30 | 553 | 1,570 | 2,430 | 750 | ------ | 1,050 | 1,320 | 300 | 245 | 185 | 1,000 | 720 |
| 31 | 500 | ------ | 2,250 | 735 | ------ | 1,440 | ------ | 350 | ------ | 176 | 700 | ------ |
| Total | 28,285 | 122,253 | 36,376 | 29,829 | 24,865 | 36,543 | 31,926 | 17,648 | 9,901 | 7,209 | 12,510 | 69,424 |
| Mean | 912 | 4,075 | 1,173 | 962 | 888 | 1,179 | 1,064 | 569 | 330 | 233 | 404 | 2,314 |
| Cfsm | 1.79 | 7.99 | 2.30 | 1.89 | 1.74 | 2.31 | 2.09 | 1.12 | 0.647 | 0.457 | 0.792 | 4.54 |
| In. | 2.06 | 8.91 | 2.65 | 2.18 | 1.81 | 2.66 | 2.33 | 1.29 | 0.72 | 0.53 | 0.91 | 5.06 |
| Ac-ft | 56,100 | 242,500 | 72,150 | 59,160 | 49,320 | 72,480 | 63,320 | 35,000 | 19,640 | 14,300 | 24,810 | 137,700 |

Calendar year 1957: Max 11,600 Min 150 Mean 979 Cfsm 1.92 In. 26.03 Ac-ft 708,500
Water year 1957-58: Max 14,800 Min 150 Mean 1,169 Cfsm 2.29 In. 31.11 Ac-ft 846,500

Peak discharge (base, 3,000 cfs).--Oct. 17 (5 p.m.) 3,420 cfs (12.84 ft); Nov. 10 (8 to 9 p.m.) 6,510 cfs (16.43 ft); Nov. 15 (7 p.m.) 11,800 cfs (19.21 ft); Nov. 24 (11 a.m.) 5,140 cfs (15.48 ft); Sept. 22 (11:30 p.m.) 16,000 cfs (20.65 ft).

* Discharge measurement made on this day.

Note.--No gage-height record May 9 to June 10, Aug. 23 to Sept. 8; discharge estimated on basis of 1 discharge measurement and records for nearby stations.

## 148. Bundick Creek near De Ridder, La.

Location.--Lat 30°49'09", long 93°13'51", in SW¼NW¼ sec. 7, T. 3 S., R. 8 W., near left bank on downstream side of bridge on State Highway 26, 1.1 miles downstream from Flat Creek and 3.8 miles southwest of De Ridder.

Drainage area.--120 sq mi.

Records available.--March 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 113.75 ft above mean sea level (Louisiana Geodetic Survey bench mark).

Extremes.--Maximum discharge during year, 6,260 cfs Sept. 21 (gage height, 20.11 ft); minimum, 16 cfs Aug. 3 (gage height, 2.27 ft).
1956-58: Maximum discharge, that of Sept. 21, 1958; minimum, 8.8 cfs Oct. 16, 1956 (gage height, 1.94 ft).

Remarks.--Records good.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 2.2 | 14 | 14.0 | 1,200 |
| 3.0 | 45 | 15.0 | 1,600 |
| 5.0 | 158 | 17.0 | 3,100 |
| 9.0 | 480 | 20.0 | 6,140 |
| 11.0 | 700 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 36 | 58 | 165 | 179 | 132 | 193 | 252 | 596 | 34 | 27 | 17 | 34 |
| 2 | 31 | 54 | 144 | 151 | 114 | 135 | 129 | 295 | 31 | 25 | 17 | 32 |
| 3 | 32 | 52 | 141 | 132 | 99 | 117 | 111 | 136 | 29 | 25 | 16 | 30 |
| 4 | 30 | 62 | 151 | 120 | *93 | 105 | 102 | 96 | 30 | 23 | 21 | 28 |
| 5 | 28 | 63 | 179 | 114 | 90 | 108 | 90 | 84 | 28 | 23 | 21 | 28 |
| 6 | 26 | 212 | 148 | 117 | 96 | 154 | 78 | 76 | 29 | 22 | 20 | 33 |
| 7 | 25 | 632 | 427 | *135 | 96 | 294 | 68 | 66 | 36 | 23 | 20 | 64 |
| 8 | 23 | 3,280 | 560 | 135 | 87 | 318 | 60 | 54 | 206 | *34 | *19 | 120 |
| 9 | 23 | *2,890 | 454 | 117 | 78 | 262 | 230 | 49 | 182 | 70 | 25 | 141 |
| 10 | 22 | 1,110 | 227 | 105 | 84 | 193 | *810 | 46 | 56 | 59 | 50 | *213 |
| 11 | 22 | 329 | *148 | 105 | 158 | 132 | 811 | 45 | 37 | 57 | 68 | 123 |
| 12 | 21 | 162 | 126 | 138 | 186 | 108 | 302 | 43 | *31 | 42 | 33 | 320 |
| 13 | 21 | 778 | 117 | 351 | 132 | *120 | 126 | 40 | 29 | 36 | 26 | 114 |
| 14 | 22 | 3,140 | 123 | 417 | 126 | 151 | 237 | 37 | 28 | 29 | 30 | 62 |
| 15 | 108 | 2,060 | 222 | 294 | 294 | 129 | 530 | 36 | 31 | 28 | 25 | 50 |
| 16 | 909 | 898 | 278 | 168 | 270 | 93 | 468 | 35 | 34 | 35 | 24 | 112 |
| 17 | 927 | 356 | 214 | 132 | 165 | 87 | 230 | 34 | 33 | 32 | 28 | 2,360 |
| 18 | 568 | 706 | 154 | 117 | 114 | 165 | 123 | 34 | 39 | 26 | 24 | 2,860 |
| 19 | 118 | 1,850 | 218 | 108 | 99 | 214 | 102 | 38 | 35 | 24 | 20 | 1,640 |
| 20 | 61 | 1,320 | 390 | 175 | 90 | 141 | 93 | 50 | 33 | 24 | 18 | 1,860 |
| 21 | 48 | 566 | 257 | 553 | 84 | 102 | 111 | 78 | 32 | 22 | 17 | 5,720 |
| 22 | 58 | 565 | 158 | 628 | 90 | 87 | 141 | 54 | 143 | 22 | 55 | 3,980 |
| 23 | 168 | 1,570 | 120 | 439 | 332 | 197 | 176 | *48 | 502 | 37 | 349 | 1,920 |
| 24 | 415 | 1,880 | 108 | 507 | 856 | 506 | 183 | 152 | 388 | 44 | 594 | 872 |
| 25 | 642 | 1,140 | 123 | 570 | 804 | 628 | 93 | 214 | 115 | 38 | 1,470 | 319 |
| 26 | 303 | 696 | 302 | 351 | 412 | 443 | 73 | 132 | 51 | 28 | 1,200 | 193 |
| 27 | 96 | 350 | 368 | 200 | 374 | 193 | 66 | 57 | 40 | 24 | *368 | 210 |
| 28 | 73 | 262 | 822 | 158 | 318 | 151 | 70 | 56 | 35 | 21 | 78 | 158 |
| 29 | 62 | 286 | 1,060 | 172 | - | 141 | 138 | 66 | 32 | 19 | 53 | 132 |
| 30 | *58 | 207 | 692 | 179 | ------ | 440 | 621 | 50 | 29 | 18 | 44 | 118 |
| 31 | 57 | ------ | 266 | 154 | ------ | 390 | ------ | 39 | ------ | 18 | 38 | ------ |
| Total | 5,033 | 27,534 | 8,862 | 7,221 | 5,873 | 6,497 | 6,624 | 2,836 | 2,358 | 955 | 4,788 | 23,756 |
| Mean | 162 | 918 | 286 | 233 | 210 | 210 | 221 | 91.5 | 78.6 | 30.8 | 154 | 792 |
| Cfsm | 1.35 | 7.65 | 2.38 | 1.94 | 1.75 | 1.75 | 1.84 | 0.762 | 0.655 | 0.257 | 1.28 | 6.60 |
| In. | 1.56 | 8.54 | 2.74 | 2.24 | 1.82 | 2.02 | 2.05 | 0.88 | 0.73 | 0.30 | 1.48 | 7.36 |
| Ac-ft | 9,980 | 54,610 | 17,580 | 14,320 | 11,650 | 12,890 | 13,140 | 5,630 | 4,680 | 1,890 | 9,500 | 47,120 |

Calendar year 1957: Max 3,280 Min 15 Mean 233 Cfsm 1.94 In. 26.39 Ac-ft 168,900
Water year 1957-58: Max 5,720 Min 16 Mean 280 Cfsm 2.33 In. 31.72 Ac-ft 203,000

Peak discharge (base, 900 cfs).--Oct. 16 (7 p.m.) 1,060 cfs (13.34 ft); Nov. 8 (7 p.m.) 4,200 cfs (18.20 ft); Nov. 14 (11:30 a.m.) 3,460 cfs (17.38 ft); Nov. 19 (4 p.m.) 2,160 cfs (15.84 ft); Nov. 23 (11 p.m.) 2,160 cfs (15.85 ft); Dec. 29 (8:30 a.m.) 1,120 cfs (13.61 ft); Feb. 24 (11 p.m.) 946 cfs (12.66 ft); Apr. 10 (12 p.m.) 946 cfs (12.68 ft); Aug. 25 (5 p.m.) 1,950 cfs (15.54 ft); Sept. 18 (3 a.m.) 3,190 cfs (17.14 ft); Sept. 21 (12:30 p.m.) 6,260 cfs (20.11 ft).

* Discharge measurement made on this day.

## 150. 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 113, 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 1958.

Gage.--Water-stage recorder. Datum of gage is 56.92 ft above mean sea level (Louisiana Geodetic Survey bench mark). 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.--19 years, 411 cfs (297,600 acre-ft per year).

Extremes.--Maximum discharge during year, 18,000 cfs Sept. 22 (gage height, 19.06 ft); minimum, 68 cfs Aug. 3-5 (gage height, 2.85 ft).
1939-58: Maximum discharge, 37,000 cfs May 19, 1953 (gage height, 23.67 ft, from floodmark), from rating curve extended above 10,000 cfs on basis of slope-area and contracted-opening measurements of peak flow; 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 period of no gage-height record, which are fair.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to Feb. 23 | | | | Feb. 24 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 3.0 | 78 | 14.0 | 2,320 | 2.8 | 64 | 14.0 | 2,510 |
| 5.0 | 241 | 14.5 | 2,900 | 3.0 | 78 | 15.0 | 3,920 |
| 8.0 | 625 | 15.0 | 3,910 | 10.0 | 1,012 | 16.0 | 6,080 |
| 12.0 | 1,360 | 16.0 | 6,080 | 12.0 | 1,420 | 19.0 | 17,600 |
| 13.0 | 1,680 | | | 13.0 | 1,780 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 128 | 140 | 394 | 986 | 261 | 662 | 634 | 704 | 116 | 90 | 70 | 130 |
| 2 | 110 | 136 | 319 | 394 | 236 | 452 | 494 | 774 | 107 | 86 | 69 | 113 |
| 3 | 106 | 132 | 277 | 295 | 208 | 340 | 340 | 571 | 103 | 84 | 68 | 106 |
| 4 | 96 | 128 | 271 | 256 | 195 | 298 | 354 | 319 | 102 | 82 | 68 | 99 |
| 5 | 92 | 124 | 277 | 236 | 186 | 291 | 270 | 256 | 98 | 80 | 70 | 96 |
| 6 | 88 | 156 | 283 | 226 | *261 | 508 | 236 | 242 | 104 | 80 | 87 | 95 |
| 7 | 85 | 607 | 653 | 241 | 222 | 984 | 210 | 198 | 132 | 79 | *80 | 108 |
| 8 | 83 | *1,730 | 988 | *251 | 200 | 816 | 186 | 180 | 103 | 81 | 72 | 374 |
| 9 | 82 | 1,880 | 898 | 241 | 182 | 732 | 345 | 164 | 224 | *85 | 73 | 368 |
| 10 | 81 | 4,010 | 722 | 218 | 186 | 634 | 592 | 152 | 298 | a120 | 70 | *346 |
| 11 | 79 | *2,600 | *459 | 204 | 218 | 452 | *746 | 143 | *164 | a150 | 80 | 410 |
| 12 | 79 | 1,840 | 295 | 208 | 256 | *347 | 886 | 137 | 116 | a120 | 118 | 358 |
| 13 | 78 | 1,560 | 251 | 416 | 271 | 298 | 764 | 133 | 102 | a110 | 97 | 596 |
| 14 | 78 | 4,150 | 236 | 597 | 251 | 291 | 557 | 127 | 96 | a100 | 78 | 364 |
| 15 | *133 | 4,510 | 295 | 597 | 433 | 305 | 1,030 | 123 | 93 | a90 | 77 | 198 |
| 16 | 1,570 | 3,120 | 420 | 472 | 459 | 298 | 928 | 120 | 96 | a100 | 75 | 186 |
| 17 | 1,680 | 2,240 | 420 | 319 | 394 | 249 | 774 | 117 | 95 | a110 | 75 | 383 |
| 18 | 1,730 | 1,900 | 355 | 246 | 283 | 319 | 536 | 117 | 118 | a90 | 74 | 908 |
| 19 | 1,420 | 1,900 | 295 | 222 | 218 | 326 | 319 | 115 | 140 | a80 | 75 | 1,530 |
| 20 | 683 | 1,600 | 576 | 231 | 195 | 382 | 312 | 116 | 116 | a80 | 71 | 3,060 |
| 21 | 186 | 1,540 | 808 | 669 | 182 | 312 | 263 | 124 | 101 | a80 | 69 | 11,300 |
| 22 | 164 | 1,900 | 522 | 808 | 177 | 249 | 284 | *158 | 284 | a80 | 79 | 14,800 |
| 23 | 333 | 2,160 | 307 | 844 | 468 | 389 | 382 | 152 | 316 | 108 | 539 | *5,940 |
| 24 | 790 | 2,160 | 246 | 1,080 | 1,240 | 844 | 347 | 158 | 536 | 139 | 825 | 3,260 |
| 25 | 641 | 2,160 | 226 | 1,010 | 1,260 | 970 | 347 | 212 | 571 | 109 | 1,180 | 2,260 |
| 26 | 625 | 2,090 | 266 | 898 | 1,220 | 886 | 242 | 305 | 273 | 98 | 1,320 | 1,650 |
| 27 | 541 | 1,780 | 457 | 641 | 1,140 | 788 | 204 | 256 | 152 | 85 | 1,370 | 786 |
| 28 | 222 | 1,400 | 1,190 | 381 | 900 | 480 | 198 | 164 | 118 | 77 | 1,290 | 508 |
| 29 | 168 | 698 | 1,230 | 295 | - | 354 | 192 | 142 | 103 | 73 | 562 | 403 |
| 30 | 152 | 499 | 1,250 | 289 | ------ | 438 | 348 | 140 | 95 | 70 | 186 | 354 |
| 31 | 140 | ------ | 1,230 | 289 | ------ | 648 | ------ | 139 | ------ | 70 | 146 | ------ |
| Total | 12,443 | 50,850 | 16,416 | 14,060 | 11,702 | 15,342 | 13,320 | 6,758 | 5,072 | 2,886 | 9,113 | 51,089 |
| Mean | 401 | 1,695 | 530 | 454 | 418 | 495 | 444 | 218 | 169 | 93.1 | 294 | 1,703 |
| Cfsm | 1.68 | 7.12 | 2.23 | 1.91 | 1.76 | 2.08 | 1.87 | 0.916 | 0.710 | 0.391 | 1.24 | 7.16 |
| In. | 1.94 | 7.94 | 2.57 | 2.20 | 1.83 | 2.40 | 2.09 | 1.06 | 0.79 | 0.45 | 1.43 | 7.99 |
| Ac-ft | 24,680 | 100,900 | 32,560 | 27,890 | 23,210 | 30,430 | 26,420 | 13,400 | 10,060 | 5,720 | 18,080 | 101,300 |

Calendar year 1957: Max 4,510 Min 68 Mean 453 Cfsm 1.90 In. 25.82 Ac-ft 327,700
Water year 1957-58: Max 14,800 Min 68 Mean 573 Cfsm 2.41 In. 32.69 Ac-ft 414,600

Peak discharge (base, 1,500 cfs).--Oct. 18 (4:30 a.m.) 1,780 cfs (13.19 ft); Nov. 10 (8 a.m.) 4,510 cfs (15.28 ft); Nov. 14 (8 p.m.) 5,840 cfs (15.93 ft); Sept. 22 (3 a.m.) 18,000 cfs (19.06 ft).

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

## 160. English Bayou near Lake Charles, La.

Location.--Lat 30°16'17", long 93°10'37", in lot 22, T. 9 S., R. 8 W., on downstream side of first pile bent right of right turn span pier on U. S. Highway 171, 1.0 mile upstream from Calcasieu River and 4 miles northeast of city of Lake Charles.

Records available.--October 1954 to September 1958 (elevations only).

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

Extremes.--Maximum elevation during year, 6.02 ft Sept. 25; minimum, -0.40 ft Feb. 3. 1954-58: Maximum elevation, 6.54 ft June 27, 1957; minimum, -1.71 ft Dec. 19, 1954, but may have been less during periods of no gage-height record.

Remarks.--Tidal effect evident at all elevations. High stage on Calcasieu River causes reverse flow.

Elevation, in feet, at 8 a.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.96 | 1.56 | 1.55 | 0.73 | 0.57 | 1.15 | 1.40 | 2.62 | 1.98 | 1.44 | 0.86 | 1.25 |
| 2 | 2.00 | 1.73 | 1.74 | .96 | .33 | 1.33 | 1.74 | 2.06 | 1.74 | 1.57 | .81 | 1.35 |
| 3 | 1.90 | 1.42 | 1.90 | 1.83 | .02 | 1.31 | 1.84 | 1.79 | 1.48 | 1.36 | .71 | 1.58 |
| 4 | 1.54 | 1.08 | 1.35 | 1.79 | 1.06 | 1.45 | 1.56 | 2.16 | 1.54 | 1.31 | .55 | 1.97 |
| 5 | 1.28 | 1.72 | 1.76 | 1.87 | 1.40 | 1.85 | 1.62 | 2.16 | 1.24 | 1.26 | .78 | 2.51 |
| 6 | 1.65 | 1.88 | 2.18 | 2.03 | 1.85 | 1.67 | 1.99 | 1.88 | 1.26 | 1.32 | .98 | 3.24 |
| 7 | 1.75 | 2.38 | 2.44 | 2.09 | .57 | 1.60 | 1.44 | 1.57 | 1.18 | 1.44 | 1.34 | 2.98 |
| 8 | 1.73 | 2.82 | 2.04 | .82 | -.02 | 1.49 | 1.28 | 1.70 | 1.22 | 1.41 | 1.58 | 2.21 |
| 9 | 1.58 | 1.77 | .61 | 1.37 | .45 | 1.32 | 2.04 | 1.23 | 1.91 | 1.94 | 1.68 | 2.11 |
| 10 | 1.38 | 2.23 | 1.34 | .87 | .73 | .89 | 1.95 | .69 | 1.96 | 1.89 | 1.70 | 2.15 |
| 11 | 1.18 | 2.74 | .18 | .88 | .43 | 1.35 | 1.65 | .87 | 2.12 | 1.98 | 1.54 | 2.17 |
| 12 | 1.50 | 3.11 | .51 | 1.17 | .85 | .85 | .85 | 1.63 | 1.95 | 1.87 | 1.56 | 2.08 |
| 13 | 1.90 | 4.60 | 1.23 | 2.18 | .47 | .78 | .67 | 1.23 | 2.03 | 1.80 | 1.66 | 1.65 |
| 14 | 2.33 | 4.92 | 1.34 | .35 | 1.51 | -.05 | 1.09 | 1.24 | 2.11 | 2.07 | 1.42 | 1.98 |
| 15 | 2.52 | 4.83 | 1.24 | 1.17 | .94 | .48 | 1.70 | 1.38 | 2.33 | 1.84 | 1.66 | 2.42 |
| 16 | 3.40 | 4.78 | 1.12 | -.13 | .34 | .75 | 1.58 | 1.21 | 2.31 | 1.65 | 1.51 | 2.39 |
| 17 | 2.93 | 5.01 | 1.42 | .47 | .89 | 1.31 | .78 | .88 | 2.02 | 1.53 | 1.57 | 2.49 |
| 18 | 2.47 | 5.35 | 1.80 | .52 | 1.25 | .01 | .70 | 1.23 | 1.48 | 1.18 | 1.23 | 2.64 |
| 19 | 2.08 | 5.16 | 1.97 | 1.43 | .96 | .58 | 1.04 | 1.64 | 1.39 | 1.08 | 1.26 | 2.68 |
| 20 | 2.18 | 4.58 | 2.02 | 1.97 | .97 | .58 | 1.34 | 1.76 | 1.37 | 1.01 | 1.53 | 3.36 |
| 21 | 2.58 | 4.15 | 1.17 | 1.18 | 1.11 | .97 | 1.59 | 1.10 | .89 | 1.08 | 1.81 | 4.46 |
| 22 | 3.06 | 3.37 | 1.64 | .83 | .96 | 1.22 | 1.74 | 1.16 | .75 | 1.31 | 1.85 | 4.33 |
| 23 | 3.31 | 3.03 | 1.87 | 1.40 | 1.60 | 1.82 | 1.70 | 1.20 | .80 | 1.58 | 2.03 | 4.82 |
| 24 | 2.21 | 3.31 | 1.53 | 1.25 | 1.33 | 1.36 | 1.75 | 1.12 | 1.21 | 1.81 | 1.99 | 5.61 |
| 25 | 1.86 | 3.30 | 1.45 | .81 | 1.07 | 1.42 | 1.78 | 1.30 | 2.10 | 1.74 | 1.91 | 6.01 |
| 26 | 1.34 | 3.20 | 1.19 | 1.24 | 1.32 | .88 | 1.90 | 1.13 | 1.97 | 1.56 | 1.46 | 5.68 |
| 27 | 1.25 | 3.22 | 1.33 | .77 | 2.09 | .55 | 1.82 | 1.25 | 1.31 | 1.24 | 1.25 | 4.97 |
| 28 | 1.34 | 3.28 | 1.65 | .99 | 1.39 | .65 | 2.25 | 1.45 | 1.19 | 1.23 | 1.28 | 4.23 |
| 29 | 1.41 | 2.98 | 1.43 | 1.20 | - | 1.35 | 2.05 | 1.64 | 1.63 | .91 | 1.41 | 3.57 |
| 30 | 1.71 | 2.17 | 1.66 | 1.12 | ------- | 1.43 | 2.09 | 1.78 | 1.68 | .58 | 1.47 | 3.29 |
| 31 | 1.69 | ------- | 1.86 | 1.68 | ------- | .77 | ------- | 1.94 | ------- | .96 | 1.50 | ------- |

## 163. Bearhead Creek near Starks, La.

Location.--Lat 30°13'59", long 93°37'44", in sec. 30, T. 8 S., R. 12 W., near right bank on downstream side of bridge on State Highway 12, 2.4 miles northeast of Starks, 3.5 miles downstream from Green Island Marsh Creek, and 15.3 miles above confluence with Buxton Creek.

Drainage area.--177 sq mi.

Records available.--March 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 16.34 ft above mean sea level (Louisiana Geodetic Survey bench mark).

Extremes.--Maximum discharge during year, 7,300 cfs Sept. 22 (gage height, 17.00 ft); minimum daily, 0.1 cfs Aug. 11-21.
1956-58: Maximum discharge, that of Sept. 22, 1958; no flow for many days in 1956-57.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 15-23, Dec. 7-13, Apr. 22-27, May 10-14, 20-25, 30, June 9-12, July 12-14, 20-21, 24-28, Aug. 31, Sept. 12-16)

| | | | | | |
|---|---|---|---|---|---|
| 7.1 | 0 | 8.0 | 11 | 11.5 | 330 |
| 7.2 | .2 | 9.0 | 42 | 12.0 | 520 |
| 7.3 | .6 | 9.5 | 62 | 13.0 | 1,150 |
| 7.4 | 1.2 | 10.0 | 90 | 14.0 | 2,100 |
| 7.5 | 2.0 | 10.5 | 130 | 15.0 | 3,400 |
| 7.6 | 3.4 | 11.0 | 200 | 17.0 | 7,300 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,700 | 26 | 580 | 1,030 | 178 | 632 | 116 | 265 | 5.8 | 1.4 | 1.2 | 10 |
| 2 | 1,230 | 20 | 333 | 920 | 140 | 452 | 86 | 180 | 3.4 | .8 | .7 | 6.2 |
| 3 | 680 | 17 | 206 | 740 | 99 | 240 | 106 | 95 | 2.1 | .6 | .4 | 3.1 |
| 4 | 248 | 15 | 134 | 420 | 64 | 138 | 198 | 146 | 1.6 | .3 | .4 | 1.9 |
| 5 | 98 | 14 | 87 | 192 | *46 | 80 | 309 | 772 | 1.2 | a.2 | .4 | 1.8 |
| 6 | 47 | 61 | 62 | 118 | 91 | 137 | 228 | 1,310 | 1.2 | a.2 | .2 | 1.9 |
| 7 | 26 | 213 | 107 | *113 | 132 | 309 | 152 | 1,110 | 1.8 | 2.6 | a.2 | 2.1 |
| 8 | 16 | 911 | 296 | 142 | 228 | 476 | *75 | 678 | 1.7 | *4.7 | a.2 | 2.7 |
| 9 | 11 | 1,950 | *590 | 157 | 192 | 480 | 177 | 304 | 7.5 | 2.3 | a.2 | 1.5 |
| 10 | 8.0 | 2,400 | 734 | 146 | 110 | 416 | 910 | 131 | *35 | 1.1 | a.2 | 1.2 |
| 11 | 6.0 | 2,580 | 728 | 110 | 100 | *336 | 1,270 | 52 | 48 | .5 | a.1 | 1.1 |
| 12 | 4.8 | 2,340 | 605 | 80 | 125 | 216 | 1,190 | 30 | 22 | 12 | a.1 | 7.8 |
| 13 | 4.0 | 1,950 | 476 | 149 | 155 | 141 | 770 | 19 | 9.6 | 17 | a.1 | 31 |
| 14 | *3.6 | 1,700 | 276 | 288 | 172 | 78 | 516 | 13 | 5.2 | 12 | a.1 | 40 |
| 15 | 57 | 1,800 | 163 | 400 | 222 | 45 | 990 | 9.8 | 2.7 | 6.4 | a.1 | 42 |
| 16 | 648 | 2,640 | 138 | 360 | 330 | 32 | 1,190 | 7.4 | 1.8 | 3.9 | a.1 | 19 |
| 17 | 1,650 | 2,980 | 136 | 300 | 357 | 30 | 1,070 | 6.6 | 1.7 | 5.2 | a.1 | 11 |
| 18 | 2,050 | 2,520 | 137 | 242 | 285 | 33 | 860 | 5.6 | 1.4 | 3.1 | a.1 | 7.4 |
| 19 | 2,050 | *2,100 | 143 | 169 | 204 | 37 | 600 | 5.4 | 1.0 | 1.8 | a.1 | 8.2 |
| 20 | 1,850 | 2,000 | 136 | 142 | 131 | 44 | 384 | 16 | 1.0 | 30 | a.1 | 80 |
| 21 | 1,450 | 1,850 | 172 | 294 | 70 | 48 | 190 | *44 | 1.0 | 16 | a.1 | 2,810 |
| 22 | 990 | 1,800 | 250 | 585 | 74 | 48 | 66 | 36 | 13 | 4.8 | .6 | 6,860 |
| 23 | 510 | 2,100 | 294 | 710 | 325 | 144 | 46 | 21 | 7.6 | 14 | .8 | *6,860 |
| 24 | 235 | 2,640 | 315 | 770 | 915 | 410 | 37 | 26 | 3.1 | 26 | 14 | *5,560 |
| 25 | 152 | 2,910 | 324 | 830 | 1,150 | 600 | 31 | 37 | 2.8 | 80 | 68 | 3,960 |
| 26 | 173 | 2,910 | 255 | 860 | 1,110 | 575 | 34 | 106 | 4.4 | 64 | 100 | 2,640 |
| 27 | 232 | 2,460 | 196 | 770 | 955 | 500 | 45 | 128 | 12 | 46 | 145 | 1,750 |
| 28 | 245 | 1,900 | 482 | 540 | 800 | 372 | 274 | 93 | 8.4 | 24 | 204 | 1,030 |
| 29 | 206 | 1,400 | 1,030 | 396 | - | 228 | 555 | 39 | 4.4 | 10 | 212 | 448 |
| 30 | 106 | 955 | 1,190 | 285 | ------ | 285 | 480 | 18 | 2.1 | 4.8 | 87 | 204 |
| 31 | 41 | ------ | 1,150 | 216 | ------ | 240 | ------ | 10 | ------ | 2.0 | 22 | ------ |
| Total | 16727.4 | 49,162 | 11,725 | 12,474 | 8,760 | 7,802 | 12,955 | 5,713.8 | 214.5 | 397.7 | 858.6 | 32401.9 |
| Mean | 540 | 1,639 | 378 | 402 | 313 | 252 | 432 | 184 | 7.15 | 12.8 | 27.7 | 1,080 |
| Cfsm | 3.05 | 9.26 | 2.14 | 2.27 | 1.77 | 1.42 | 2.44 | 1.04 | 0.040 | 0.072 | 0.156 | 6.10 |
| In. | 3.52 | 10.33 | 2.47 | 2.62 | 1.84 | 1.64 | 2.72 | 1.20 | 0.04 | 0.08 | 0.18 | 6.81 |
| Ac-ft | 33,180 | 97,510 | 23,260 | 24,740 | 17,380 | 15,480 | 25,700 | 11,330 | 425 | 789 | 1,710 | 64,270 |

Calendar year 1957: Max 2,980 Min 0 Mean 414 Cfsm 2.34 In. 31.76 Ac-ft 299,900
Water year 1957-58: Max 6,860 Min 0.1 Mean 436 Cfsm 2.46 In. 33.45 Ac-ft 315,800

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for Beckwith Creek near De Quincy.

## 165. 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 12, a quarter of a mile upstream from New Orleans, Texas and 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 1958.

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.--13 years, 222 cfs (160,700 acre-ft per year).

Extremes.--Maximum discharge during year, 13,000 cfs Sept. 21 (gage height, 24.13 ft); minimum, 1.8 cfs Aug. 21; minimum gage height, 1.45 ft Aug. 21.
1945-58: Maximum discharge, 13,800 cfs May 21, 1955 (gage height, 24.45 ft); minimum, 0.1 cfs Sept. 27-30, Oct. 1-30, 1956; minimum gage height, 0.87 ft Sept. 26, 1954.

Remarks.--Records good.

Revisions (water years).--WSP 1118: 1946, 1947(M). WSP 1512: 1945.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 8-15, Sept. 9-20)

| | | | | | |
|---|---|---|---|---|---|
| 1.4 | 1.3 | 4.0 | 79 | 18.0 | 2,040 |
| 1.6 | 2.8 | 6.0 | 214 | 19.0 | 2,780 |
| 2.0 | 7.5 | 9.0 | 499 | 20.0 | 4,190 |
| 2.4 | 15 | 13.0 | 1,010 | 22.0 | 8,000 |
| 3.0 | 33 | 16.0 | 1,480 | 24.0 | 12,700 |
| 3.5 | 50 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 342 | 29 | 175 | 725 | 118 | 299 | 190 | 69 | 6.1 | 4.3 | 4.5 | 17 |
| 2 | 60 | 27 | 137 | 543 | 97 | 222 | 198 | 41 | 5.6 | 3.5 | 3.8 | 13 |
| 3 | 37 | 25 | 103 | 186 | 75 | 164 | 266 | 32 | 6.0 | 3.0 | 3.4 | 11 |
| 4 | 29 | 23 | 91 | 115 | 59 | 100 | 204 | 102 | 14 | 2.6 | 6.5 | 9.2 |
| 5 | 24 | 22 | 85 | 91 | *50 | 218 | 144 | 158 | 6.2 | 2.4 | 5.8 | 8.1 |
| 6 | 20 | 97 | 82 | 121 | 637 | 474 | 82 | 134 | 11 | 3.6 | *3.5 | 7.4 |
| 7 | 16 | 679 | 515 | 186 | 218 | 803 | 47 | 140 | 18 | 23 | 2.9 | 7.1 |
| 8 | 14 | 2,380 | 590 | *137 | 97 | 402 | *36 | 70 | 17 | *228 | 2.9 | 6.8 |
| 9 | 13 | 1,980 | 433 | 109 | 67 | 353 | 833 | 35 | 16 | 280 | 3.5 | 14 |
| 10 | 11 | 2,040 | *362 | 88 | 82 | 238 | 1,450 | 25 | *9.8 | 68 | 3.1 | *86 |
| 11 | 10 | 1,980 | 326 | 73 | 190 | *175 | 383 | 20 | 7.0 | 30 | 2.8 | 84 |
| 12 | 9.2 | 1,350 | 186 | 96 | 168 | 134 | 172 | 16 | 6.1 | 30 | 2.6 | 379 |
| 13 | 8.7 | 1,420 | 100 | 392 | 140 | 91 | 158 | 14 | 5.2 | 36 | 2.3 | 62 |
| 14 | *8.2 | 2,350 | 94 | 299 | 209 | 72 | 761 | 12 | 4.9 | 24 | 2.2 | 38 |
| 15 | 178 | 2,680 | 182 | 230 | 477 | 59 | 1,230 | 11 | 4.8 | 27 | 2.3 | 102 |
| 16 | 1,780 | 2,780 | 154 | 202 | 281 | 50 | 684 | 10 | 4.9 | 15 | 2.5 | 225 |
| 17 | 1,640 | 1,850 | 144 | 182 | 198 | 48 | 433 | 11 | 4.4 | 8.8 | 2.6 | 358 |
| 18 | 1,120 | 1,560 | 137 | 121 | 164 | 78 | 392 | 15 | 6.5 | 6.8 | 2.5 | 326 |
| 19 | 951 | *1,520 | 124 | 94 | 106 | 82 | 231 | 16 | 6.6 | 5.7 | 2.3 | 353 |
| 20 | 816 | 1,050 | 168 | 315 | 77 | 79 | 94 | 11 | 5.0 | 4.4 | 2.0 | 618 |
| 21 | 294 | 855 | 272 | 993 | 61 | 56 | 63 | *9.4 | 6.2 | 3.8 | 1.9 | 8,820 |
| 22 | 82 | 1,320 | 290 | 699 | 67 | 45 | 49 | 9.6 | 8.7 | 3.5 | 31 | 10,700 |
| 23 | 140 | 1,900 | 290 | 578 | 852 | 646 | 45 | 9.4 | 12 | 33 | 412 | *6,540 |
| 24 | 326 | 1,690 | 164 | 923 | 994 | 866 | 54 | 52 | 22 | 252 | 814 | 2,880 |
| 25 | 254 | 1,740 | 100 | 764 | 626 | 477 | 63 | 69 | 16 | 163 | 951 | 1,710 |
| 26 | 186 | 1,560 | 144 | 626 | 477 | 317 | 52 | 44 | 11 | 40 | 842 | 1,160 |
| 27 | 140 | 1,200 | 259 | 422 | 602 | 299 | 45 | 23 | 8.7 | 20 | 608 | 722 |
| 28 | 82 | 909 | 1,330 | 299 | 521 | 150 | 244 | 14 | 11 | 12 | 282 | 202 |
| 29 | 48 | 662 | 951 | 202 | - | 109 | 308 | 10 | 9.4 | 8.1 | 78 | 85 |
| 30 | 38 | 323 | 686 | 161 | ------ | 82 | 163 | 8.2 | 6.0 | 6.3 | 33 | 108 |
| 31 | 32 | ------ | 662 | 134 | ------ | 82 | ------ | 6.8 | ------ | 5.2 | 22 | ------ |
| Total | 8,709.1 | 38,001 | 9,336 | 10,106 | 7,710 | 7,270 | 9,074 | 1,197.4 | 276.1 | 1,353.0 | 4,138.9 | 35,851.6 |
| Mean | 281 | 1,267 | 301 | 326 | 275 | 235 | 302 | 38.6 | 9.20 | 43.6 | 134 | 1,195 |
| Cfsm | 1.90 | 8.56 | 2.03 | 2.20 | 1.86 | 1.59 | 2.04 | 0.261 | 0.062 | 0.295 | 0.905 | 8.07 |
| In. | 2.19 | 9.55 | 2.34 | 2.54 | 1.94 | 1.83 | 2.28 | 0.30 | 0.07 | 0.34 | 1.04 | 9.00 |
| Ac-ft | 17,270 | 75,370 | 18,520 | 20,040 | 15,290 | 14,420 | 18,000 | 2,380 | 548 | 2,680 | 8,210 | 71,110 |

Calendar year 1957: Max 2,780 Min 1.7 Mean 307 Cfsm 2.07 In. 28.12 Ac-ft 222,000
Water year 1957-58: Max 10,700 Min 1.9 Mean 364 Cfsm 2.46 In. 33.42 Ac-ft 263,800

Peak discharge (base, 1,600 cfs).--Oct. 16 (8 p.m.) 2,150 cfs (18.21 ft); Nov. 8 (6 p.m.) 3,050 cfs (19.27 ft); Nov. 16 (2 a.m.) 3,180 cfs (19.35 ft); Nov. 23 (1 p.m.) 1,980 cfs (17.93 ft); Apr. 10 (3:30 a.m.) 1,770 cfs (17.33 ft); Sept. 21 (7 p.m.) 13,000 cfs (24.13 ft).

* Discharge measurement made on this day.

175. Sabine River near Emory, Tex.

Location.--Lat 32°46', long 95°48', on left bank at downstream side of bridge on State Highway 19, 3.0 miles upstream from Giladon Creek, 7.5 miles south of Emory, Rains County, 8.0 miles downstream from McBees Creek, and at mile 501.
Drainage area.--965 sq mi.
Records available.--July 1952 to September 1958.
Gage.--Water-stage recorder. Datum of gage is 350.28 ft above mean sea level, unadjusted (Texas Reclamation Department bench mark).
Average discharge.--6 years, 607 cfs (439,400 acre-ft per year).
Extremes.--Maximum discharge during year, 35,400 cfs Apr. 28 (gage height, 20.27 ft); no flow Sept. 8-18.
1952-58: Maximum discharge, 74,000 cfs Apr. 27, 1957 (gage height, 25.06 ft); no flow at times.
Maximum stage since at least 1900, 25.7 ft in June 1943, from information by local resident and Texas Highway Department.
Remarks.--Records good. No diversion above station.
Revisions.--Revised figures of discharge, in cubic feet per second, for the high-water period in September 1957, superseding those published in WSP 1512, are given herewith:

| 1957 | |
|---|---|
| Sept. 22 | 576 |
| 23 | 1,400 |
| 24 | 995 |
| 25 | 860 |
| 26 | 566 |

| Month | Cfs-days | Maximum | Minimum | Mean | Cfsm | Runoff in Inches | Runoff in Acre-feet |
|---|---|---|---|---|---|---|---|
| September 1957 | 4,645.0 | 1,400 | 0 | 155 | 0.161 | 0.18 | 9,210 |
| Water year 1956-57 | 524,288.2 | 55,500 | 0 | 1,436 | 1.49 | 20.29 | 1,040,000 |

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 7-9, Mar. 10 to Apr. 26, Sept. 28-30)

Oct. 1 to Nov. 21

| | | | | | |
|---|---|---|---|---|---|
| 4.4 | 0.3 | 6.0 | 54 | 12.0 | 1,810 |
| 4.5 | .8 | 6.5 | 90 | 13.0 | 3,000 |
| 4.6 | 1.4 | 7.0 | 138 | 13.5 | 4,250 |
| 4.7 | 2.4 | 8.0 | 268 | 14.0 | 6,330 |
| 4.8 | 3.9 | 9.0 | 426 | 16.0 | 14,100 |
| 5.0 | 8.2 | 10.0 | 635 | 18.0 | 22,900 |
| 5.3 | 18 | 10.5 | 795 | 20.0 | 33,500 |
| 5.6 | 30 | 11.0 | 1,060 | | |

Nov. 22 to Sept. 30

| | | | |
|---|---|---|---|
| 4.33 | 0 | 5.1 | 6.6 |
| 4.4 | .1 | 5.4 | 16 |
| 4.5 | .3 | 5.7 | 29 |
| 4.6 | .7 | 6.0 | 47 |
| 4.7 | 1.3 | 6.5 | 87 |
| 4.9 | 3.2 | 7.0 | 138 |

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.3 | 20 | 99 | 101 | 43 | 43 | 5,550 | 16,100 | 0.2 | 80 | 3.6 | 0.2 |
| 2 | 4.5 | 14 | 63 | 210 | 39 | 59 | 3,150 | 19,600 | .5 | 52 | 3.2 | .1 |
| 3 | 3.2 | 12 | 48 | 149 | 35 | 45 | 1,240 | 22,000 | 1.0 | 33 | 2.7 | .1 |
| 4 | 2.2 | 9.6 | 35 | 79 | 28 | 37 | 231 | 19,400 | 1.1 | 18 | 2.6 | .1 |
| 5 | 1.6 | 193 | 29 | 53 | 25 | 28 | 114 | 18,700 | 1.6 | 16 | 2.7 | .1 |
| 6 | 1.2 | 2,040 | 26 | 40 | 23 | 29 | 124 | 11,100 | 1.6 | 65 | 2.8 | .1 |
| 7 | 1.0 | 9,500 | 30 | 31 | 20 | 642 | 89 | 5,240 | 2.2 | 681 | *2.7 | .1 |
| 8 | .8 | 17,500 | 287 | 25 | 17 | 1,900 | 58 | 2,350 | 2.3 | 940 | 2.7 | *0 |
| 9 | .7 | 11,800 | 598 | 21 | 15 | 5,720 | 50 | 733 | 206 | 1,300 | 2.6 | 0 |
| 10 | .6 | 7,850 | 537 | 18 | 15 | *6,900 | 49 | 161 | 409 | 1,900 | 1.6 | 0 |
| 11 | .6 | 5,140 | 197 | 17 | 14 | 5,750 | 48 | 94 | 174 | 1,860 | .9 | 0 |
| 12 | .6 | 2,650 | 99 | 19 | 13 | 3,240 | 61 | 70 | 71 | 505 | 6.1 | *0 |
| 13 | 1.1 | 1,640 | 62 | 256 | 12 | 1,440 | 82 | 56 | 40 | 92 | 9.3 | 0 |
| 14 | 972 | 1,160 | 48 | 511 | 14 | 500 | 171 | 46 | 21 | 52 | 4.7 | 0 |
| 15 | 4,210 | 968 | *38 | 778 | 20 | 665 | 622 | 40 | 4.3 | 37 | 2.5 | 0 |
| 16 | 8,040 | 912 | 33 | 778 | 21 | 546 | 885 | 46 | 3.7 | 26 | 2.4 | 0 |
| 17 | 8,230 | 708 | 24 | 631 | 31 | 226 | 1,260 | 54 | 224 | 18 | 1.7 | 0 |
| 18 | 7,660 | 309 | 19 | 293 | 41 | 126 | 820 | 48 | 635 | 13 | 1.1 | 0 |
| 19 | 4,920 | 171 | 17 | 223 | 40 | 94 | 208 | 41 | 912 | 10 | .8 | 4.7 |
| 20 | 2,520 | 184 | 16 | 1,830 | 34 | 75 | 112 | 31 | 1,370 | 8.3 | .6 | 152 |
| 21 | 918 | 166 | 12 | 2,520 | 27 | 61 | 144 | 24 | 1,900 | 7.6 | .8 | 402 |
| 22 | 204 | 120 | 13 | 3,080 | 21 | 73 | 257 | 20 | 1,640 | 7.1 | 1.0 | 550 |
| 23 | 432 | 86 | 11 | 3,600 | 17 | 129 | *400 | 13 | 1,090 | 6.0 | 1.0 | 560 |
| 24 | 742 | 203 | 12 | 2,860 | 14 | 197 | 308 | 8.0 | 516 | 11 | 1.0 | 298 |
| 25 | 795 | 764 | 155 | 1,470 | 12 | 358 | 156 | 5.6 | 164 | 40 | 1.1 | 90 |
| 26 | 1,020 | 835 | 606 | 379 | 11 | 358 | 951 | *3.0 | 74 | 42 | .9 | 44 |
| 27 | 628 | 1,160 | 695 | 149 | 11 | 184 | 15,000 | 1.4 | 42 | 34 | .8 | 60 |
| 28 | 152 | 1,520 | 815 | 100 | 11 | 101 | *31,500 | 1.0 | 21 | 21 | .6 | 31 |
| 29 | 68 | 851 | 722 | 74 | - | 338 | 22,600 | .7 | 68 | 12 | .4 | 13 |
| 30 | 43 | 220 | 254 | 60 | ------ | 1,160 | 15,900 | .5 | 111 | 7.6 | .3 | 6.0 |
| 31 | 29 | ------ | 124 | 50 | ------ | 2,200 | ------ | .3 | ------ | 4.7 | .2 | ------ |
| Total | 41,608.4 | 68,705.6 | 5,722 | 20,405 | 624 | 33,124 | 102,140 | 15,987.5 | 9,706.5 | 7,899.3 | 65.4 | 2,211.5 |
| Mean | 1,342 | 2,290 | 185 | 658 | 22.3 | 1,069 | 3,405 | 3,742 | 324 | 255 | 2.11 | 73.7 |
| Cfsm | 1.40 | 2.38 | 0.192 | 0.684 | 0.023 | 1.11 | 3.54 | 3.89 | 0.337 | 0.265 | 0.0022 | 0.077 |
| In. | 1.61 | 2.66 | 0.22 | 0.79 | 0.02 | 1.28 | 3.95 | 4.49 | 0.38 | 0.31 | 0.003 | 0.09 |
| Ac-ft | 82,530 | 136,300 | 11,350 | 40,470 | 1,240 | 65,700 | 202,600 | 230,100 | 19,250 | 15,670 | 130 | 4,390 |

Calendar year 1957: Max 55,500 Min 0 Mean 1,744 Cfsm 1.81 In. 24.63 Ac-ft 1,262,000
Water year 1957-58: Max 31,500 Min 0 Mean 1,118 Cfsm 1.16 In. 15.80 Ac-ft 809,000

Peak discharge (base, 9,000 cfs).--Nov. 8 (5 a.m.) 18,800 cfs (17.37 ft); Apr. 28 (1 p.m.) 35,400 cfs (20.27 ft); May 3 (12 m.) 22,900 cfs (17.98 ft).

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

## 185. Sabine River near Mineola, Tex.

Location.--Lat 32°36'45", long 95°29'10", near center of main channel 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 1958.

Gage.--Water-stage recorder. Datum of gage is 304.16 ft above mean sea level, datum of 1929. Prior to Dec. 12, 1955, at site 50 ft upstream at present datum.

Average discharge.--19 years, 1,088 cfs (787,700 acre-ft per year).

Extremes.--Maximum discharge during year, 36,000 cfs Apr. 30 (gage height, 20.60 ft); minimum, 2.0 cfs Sept. 6 (gage height, 1.83 ft).
1939-58: Maximum discharge, 76,000 cfs Apr. 1, 1945; maximum gage height, 24.37 ft June 8, 1943; no flow at times.
Maximum stage since at least 1915, that of June 8, 1943.

Remarks.--Records good.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 20-28, Apr. 21-26, June 27 to July 7, July 20 to Aug. 24)

| | | | | | |
|---|---|---|---|---|---|
| 1.9 | 1.8 | 7.0 | 280 | 17.0 | 6,100 |
| 2.0 | 4.1 | 10.0 | 652 | 18.0 | 13,000 |
| 2.5 | 16 | 12.0 | 1,050 | 19.0 | 22,500 |
| 3.0 | 28 | 14.0 | 1,760 | 20.0 | 30,000 |
| 4.0 | 66 | 16.0 | 3,640 | 21.0 | 40,000 |
| 5.0 | 120 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 84 | 123 | 1,040 | 842 | 209 | 123 | 1,370 | 30,000 | 22 | 41 | 19 | 3.2 |
| 2 | 39 | 81 | 652 | 477 | 169 | 108 | 1,610 | 24,600 | 19 | 78 | 15 | 3.2 |
| 3 | 25 | 71 | 538 | 300 | 144 | 99 | 2,290 | 24,600 | 17 | 74 | 13 | 2.5 |
| 4 | 19 | 61 | 263 | 290 | 126 | 117 | 2,700 | 26,800 | 15 | 52 | 11 | 2.3 |
| 5 | 14 | 99 | 161 | 261 | 120 | 123 | 3,910 | 25,300 | 18 | 80 | 9.2 | 2.3 |
| 6 | 11 | 608 | 126 | 193 | 123 | 140 | 2,240 | 23,200 | 14 | 254 | 8.5 | 2.3 |
| 7 | 8.9 | *1,380 | 123 | 140 | 126 | 188 | 1,010 | 19,600 | 13 | 860 | *7.6 | 4.6 |
| 8 | 6.9 | 2,340 | 173 | 114 | 114 | 692 | 386 | 12,000 | 11 | 1,660 | 6.9 | *4.8 |
| 9 | 7.3 | 9,210 | 197 | 99 | 99 | *1,430 | 270 | 8,000 | 11 | 2,210 | 6.6 | 4.1 |
| 10 | 5.5 | 21,100 | 349 | 91 | 105 | 2,070 | 177 | 6,300 | 11 | 2,530 | 5.9 | 3.4 |
| 11 | 4.6 | 15,400 | 554 | 86 | 123 | 3,020 | 154 | 4,380 | 99 | 2,610 | 10 | 7.1 |
| 12 | 3.9 | 10,000 | 300 | 92 | 133 | 5,250 | 161 | 2,020 | 280 | 2,610 | 8.7 | 14 |
| 13 | 6.3 | 8,000 | 180 | 348 | 123 | 6,500 | 158 | 857 | 214 | 2,530 | 6.6 | 7.3 |
| 14 | 160 | 6,500 | 173 | 945 | 131 | 5,750 | 403 | 336 | 102 | 2,020 | 6.4 | 5.5 |
| 15 | 933 | 5,400 | *169 | 1,250 | 254 | 4,600 | 972 | 193 | 49 | 1,070 | 5.9 | 4.1 |
| 16 | 2,110 | 4,400 | 136 | 1,430 | 331 | 2,720 | 1,130 | 201 | 59 | 393 | 5.0 | 3.4 |
| 17 | 2,880 | 3,090 | 120 | 1,470 | 280 | 1,500 | 1,190 | 140 | 279 | 115 | 4.8 | 5.2 |
| 18 | 6,010 | 2,370 | 111 | 1,400 | 234 | 998 | 1,280 | 123 | 406 | 56 | 4.6 | 4.8 |
| 19 | 8,600 | 1,760 | 108 | 1,220 | 189 | 562 | 1,340 | 117 | 366 | 42 | 6.9 | 79 |
| 20 | 8,600 | 1,220 | 111 | 1,800 | 158 | 300 | 1,280 | 105 | 589 | 35 | 7.1 | 676 |
| 21 | 8,000 | 754 | 105 | 2,800 | 140 | 201 | 876 | 88 | 796 | 29 | 6.9 | 792 |
| 22 | 6,500 | 486 | 96 | 3,380 | 126 | 158 | *512 | 78 | 1,050 | 27 | 9.2 | 500 |
| 23 | 5,400 | 473 | 86 | 4,000 | 117 | 347 | 412 | 66 | 1,280 | 30 | 10 | 473 |
| 24 | 3,520 | 610 | 81 | 4,300 | 114 | 727 | 436 | 56 | 1,430 | 31 | 15 | 568 |
| 25 | 1,940 | 825 | 144 | *4,400 | 108 | 876 | 486 | 50 | 1,470 | 29 | 16 | 596 |
| 26 | 1,370 | 1,250 | 520 | 4,400 | 108 | 708 | 1,660 | *44 | 1,160 | 23 | 11 | 450 |
| 27 | 1,190 | 1,710 | 871 | 4,000 | 120 | 738 | 13,200 | 39 | 626 | 19 | 9.2 | 224 |
| 28 | 1,130 | 3,020 | 1,130 | 2,580 | 130 | 554 | 23,200 | 35 | 242 | 20 | 6.4 | 96 |
| 29 | 998 | 2,590 | 1,250 | 1,340 | - | 561 | *31,000 | 33 | *91 | 31 | 4.8 | 64 |
| 30 | 606 | 1,360 | 1,250 | 604 | ------ | 998 | 34,000 | 29 | 48 | 28 | 3.6 | 59 |
| 31 | 277 | ------ | 1,190 | 302 | ------ | 1,110 | ------ | 25 | ------ | 24 | 3.4 | ------ |
| Total | 60,459.4 | 106,291 | 12,307 | 44,954 | 4,254 | 43,268 | 129,813 | 209,415 | 10,787 | 19,611 | 264.2 | 4,661.1 |
| Mean | 1,950 | 3,543 | 397 | 1,450 | 152 | 1,396 | 4,327 | 6,755 | 360 | 633 | 8.52 | 155 |
| Cfsm | 1.35 | 2.45 | 0.275 | 1.00 | 0.105 | 0.966 | 2.99 | 4.67 | 0.249 | 0.438 | 0.0059 | 0.107 |
| In. | 1.56 | 2.74 | 0.32 | 1.16 | 0.11 | 1.11 | 3.34 | 5.39 | 0.28 | 0.50 | 0.007 | 0.12 |
| Ac-ft | 119,900 | 210,800 | 24,410 | 89,160 | 8,440 | 85,820 | 257,500 | 415,400 | 21,400 | 38,900 | 524 | 9,250 |

Calendar year 1957: Max 50,300 Min 0.1 Mean 2,338 Cfsm 1.62 In. 21.98 Ac-ft 1,693,000
Water year 1957-58: Max 34,000 Min 2.3 Mean 1,770 Cfsm 1.22 In. 16.64 Ac-ft 1,282,000

Peak discharge (base, 11,000 cfs).--Nov. 10 (7 a.m.) 21,800 cfs (18.87 ft); Apr. 30 (5 a.m.) 36,000 cfs (20.60 ft).

* Discharge measurement made on this day.
Note.--Computed from once-daily staff-gage readings Nov. 23 to Dec. 3, Dec. 8-11, Mar. 24 to Apr. 21.

## 190. 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 1958. Discharge for some high-water periods in 1925-26 published in WSP 1342.

Gage.--Wire-weight gage read twice daily, more often 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.--20 years (1924-25, 1939-58), 462 cfs (334,500 acre-ft per year).

Extremes.--Maximum discharge during year, 39,400 cfs Apr. 28 (gage height, 24.38 ft, from floodmark); no flow for several days.

1924-26, 1939-58: 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 in July 1895 reached a stage of about 25.9 ft, from information by local resident.

Remarks.--Records good.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 12-25, Apr. 19-26, May 10 to June 4, June 16-18, June 23 to July 14, Sept. 19-30)

| | | | | | |
|---|---|---|---|---|---|
| 1.6 | 0 | 3.0 | 14 | 12.0 | 1,030 |
| 1.8 | .2 | 4.0 | 41 | 14.0 | 1,800 |
| 2.0 | .8 | 5.0 | 83 | 16.0 | 3,840 |
| 2.2 | 2.2 | 6.0 | 142 | 18.0 | 8,900 |
| 2.4 | 4.8 | 8.0 | 300 | 21.0 | 20,500 |
| 2.6 | 7.8 | 10.0 | 602 | 24.0 | 37,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 30 | 360 | 300 | 156 | 128 | 2,920 | 18,700 | 27 | *54 | 1.3 | 0 |
| 2 | 7.8 | 26 | 200 | 348 | 142 | 131 | 1,800 | 15,400 | 19 | 26 | .9 | .1 |
| 3 | 5.0 | 23 | 142 | 584 | 125 | 116 | 1,190 | 9,220 | 13 | 18 | .8 | .1 |
| 4 | 3.7 | 21 | 116 | 760 | 113 | 101 | 494 | 10,500 | 11 | 14 | .7 | 0 |
| 5 | 2.9 | 62 | 98 | 446 | 104 | 96 | 240 | 8,600 | 9.8 | 16 | .7 | 0 |
| 6 | 2.2 | 1,010 | 98 | 256 | 98 | 142 | 163 | 4,040 | 8.0 | 32 | .6 | .1 |
| 7 | 1.8 | 9,230 | 131 | 128 | 96 | 300 | 128 | 2,360 | 7.5 | 232 | .5 | .1 |
| 8 | 1.5 | 9,860 | 232 | 128 | 93 | 822 | 96 | 1,540 | 6.6 | 462 | *.5 | *.1 |
| 9 | 1.3 | 6,340 | 402 | 116 | 90 | *3,100 | 96 | 760 | 6.2 | 494 | .3 | .1 |
| 10 | 1.1 | *5,140 | 620 | 98 | 96 | 4,040 | 122 | 348 | 5.4 | 530 | .3 | .1 |
| 11 | .9 | 2,980 | 602 | 93 | 101 | 2,860 | 166 | 184 | 5.3 | 402 | .2 | .1 |
| 12 | .8 | 1,980 | 348 | 125 | 96 | 1,980 | 208 | 170 | 5.1 | 184 | .2 | .1 |
| 13 | 4.3 | 1,450 | 200 | 291 | 88 | 1,260 | 216 | 135 | 4.5 | 54 | .2 | 0 |
| 14 | 103 | 1,050 | 156 | 680 | 101 | 720 | 462 | 110 | 3.1 | 29 | .2 | 0 |
| 15 | 690 | 1,030 | *122 | 1,050 | 188 | 462 | 866 | 93 | 2.4 | 21 | .1 | 0 |
| 16 | 1,640 | 1,100 | 113 | 1,540 | 232 | 402 | 844 | 116 | 99 | 16 | .1 | 0 |
| 17 | 4,570 | 1,410 | 113 | 1,590 | 240 | 324 | 1,030 | 248 | 383 | 14 | 0 | .2 |
| 18 | 4,040 | 1,330 | 113 | 1,130 | 248 | 264 | 1,080 | 232 | 700 | 11 | 0 | .7 |
| 19 | 2,800 | 980 | 116 | 680 | 192 | 208 | 660 | 107 | 1,190 | 8.1 | 0 | 75 |
| 20 | 1,840 | 566 | 119 | 1,030 | 142 | 177 | 232 | 71 | 2,320 | 6.6 | 0 | 514 |
| 21 | 990 | 374 | 122 | 2,540 | 113 | 156 | 216 | 56 | 1,780 | 5.7 | 0 | 680 |
| 22 | 406 | 324 | 119 | 5,500 | 98 | 135 | *282 | 47 | 935 | 5.1 | .1 | 602 |
| 23 | 224 | 291 | 113 | 3,750 | 93 | 192 | 416 | 40 | 346 | 4.5 | 3.7 | 720 |
| 24 | 232 | 336 | 110 | 2,360 | 93 | 312 | 478 | 32 | 152 | 4.2 | 1.8 | 700 |
| 25 | 256 | 548 | 180 | *1,590 | 90 | 584 | 584 | 28 | 90 | 4.5 | .8 | 566 |
| 26 | 427 | 780 | 478 | 760 | 98 | 888 | 3,590 | *26 | 62 | 3.7 | .8 | 142 |
| 27 | 602 | 910 | 780 | 416 | 135 | 956 | 26,200 | 21 | 48 | 3.2 | .7 | 46 |
| 28 | 370 | 1,220 | 910 | 282 | 149 | 620 | *32,800 | 28 | 64 | 3.1 | .6 | 64 |
| 29 | 102 | 1,330 | 1,050 | 224 | - | 416 | 13,800 | 34 | 224 | 2.6 | .3 | 56 |
| 30 | 53 | 866 | 840 | 196 | ------ | 888 | 13,800 | 54 | 174 | 2.0 | .1 | 35 |
| 31 | 38 | ------ | 519 | 174 | ------ | 1,330 | ------ | 47 | ------ | 1.6 | 0 | ------ |
| Total | 19,427.3 | 52,597 | 9,622 | 29,165 | 3,610 | 24,110 | 105,179 | 73,347 | 8,700.9 | 2,663.9 | 16.5 | 4,201.8 |
| Mean | 627 | 1,753 | 310 | 941 | 129 | 778 | 3,506 | 2,366 | 290 | 85.9 | 0.53 | 140 |
| Cfsm | 1.07 | 2.99 | 0.529 | 1.61 | 0.220 | 1.33 | 5.98 | 4.04 | 0.495 | 0.147 | 0.00090 | 0.239 |
| In. | 1.23 | 3.34 | 0.61 | 1.85 | 0.23 | 1.53 | 6.67 | 4.65 | 0.55 | 0.17 | 0.001 | 0.27 |
| Ac-ft | 38,530 | 104,300 | 19,080 | 57,850 | 7,160 | 47,820 | 208,600 | 145,500 | 17,260 | 5,280 | 33 | 8,330 |

Calendar year 1957: Max 16,600 Min 0 Mean 964 Cfsm 1.64 In. 22.32 Ac-ft 697,500
Water year 1957-58: Max 32,800 Min 0 Mean 911 Cfsm 1.55 In. 21.10 Ac-ft 659,700

Peak discharge (base, 6,600 cfs).--Nov. 7 (7 p.m.) 12,300 cfs (19.01 ft); Apr. 28 (about 1 a.m.) 39,400 cfs (24.38 ft); May 1 (8 a.m.) 19,600 cfs (20.76 ft).

* Discharge measurement made on this day.

## 195. Big Sandy Creek near Big Sandy, Tex.

Location.--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 Railway Lines bridge, 1.3 miles northeast of Big Sandy, Upshur County, and 7.1 miles upstream from mouth.

Drainage area.--236 sq mi.

Records available.--February 1939 to September 1958.

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

Average discharge.--19 years, 209 cfs (151,300 acre-ft per year).

Extremes.--Maximum discharge during year, 12,900 cfs Apr. 28 (gage height, 21.30 ft); minimum, 9.2 cfs Aug. 21 (gage height, 3.12 ft).

1939-58: Maximum discharge, 38,000 cfs Mar. 31, 1945 (gage height, 24.1 ft, present site and datum, from floodmark), from rating curve extended above 13,000 cfs on basis of weather records and records for nearby streams; minimum, 5.0 cfs Aug. 15, 1956 (gage height, 2.18 ft).

Maximum stage since at least 1905, that of Mar. 31, 1945. Maximum stage known during period 1905 to Mar. 30, 1945, 22.1 ft (present site and datum) in January 1938 (probably backwater from Sabine River), from information by observer.

Remarks.--Records good except those for periods of backwater from Sabine River, which are poor. No large diversions above station.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 77 | 119 | 317 | 358 | 208 | 154 | 269 | 3,150 | 81 | 119 | 17 | 42 |
| 2 | 57 | 112 | 301 | 325 | 189 | 149 | 301 | 4,500 | 81 | 106 | 17 | 37 |
| 3 | 46 | 106 | 269 | 277 | 179 | 149 | 358 | *3,700 | 75 | 96 | 15 | 33 |
| 4 | 38 | 102 | 245 | 229 | 174 | 154 | 349 | *2,300 | 67 | 85 | 14 | 31 |
| 5 | 35 | 124 | 215 | 201 | 169 | 154 | 309 | 1,600 | 61 | 77 | 14 | 30 |
| 6 | 32 | 222 | 189 | 184 | 179 | 149 | 253 | *1,300 | 59 | 93 | 13 | 31 |
| 7 | 30 | 245 | 215 | 179 | 174 | 154 | 208 | 850 | 59 | 184 | *13 | 41 |
| 8 | 29 | 381 | 208 | 169 | 164 | *159 | 179 | 600 | 55 | 229 | 13 | 51 |
| 9 | 28 | 1,630 | 189 | 159 | 154 | 189 | 164 | 460 | 51 | 440 | 12 | 51 |
| 10 | 27 | *1,710 | 179 | 149 | 159 | 215 | 159 | 360 | 48 | 544 | 11 | 48 |
| 11 | 26 | 1,340 | 179 | 149 | 169 | 462 | 154 | 290 | 46 | 578 | 14 | *51 |
| 12 | 24 | 1,070 | 184 | 149 | 164 | 1,010 | 144 | 250 | 42 | 429 | 15 | 99 |
| 13 | 26 | 990 | 189 | 215 | 159 | 860 | 134 | 215 | 40 | 301 | 12 | 102 |
| 14 | 90 | 870 | *189 | 237 | 169 | 605 | 184 | 205 | 39 | 215 | 13 | 73 |
| 15 | 237 | 680 | 184 | 237 | 208 | 444 | 215 | 190 | 38 | 149 | 16 | 55 |
| 16 | 325 | 530 | 174 | 253 | 201 | 349 | 229 | 174 | 126 | 102 | 14 | 48 |
| 17 | 368 | 490 | 169 | 293 | 195 | 309 | 285 | 159 | 333 | 75 | 12 | 53 |
| 18 | 786 | 550 | 159 | 368 | 189 | 293 | 459 | 149 | 378 | 59 | 11 | 53 |
| 19 | 1,250 | 580 | 169 | 414 | 195 | 261 | 507 | 139 | 436 | 48 | 10 | 87 |
| 20 | 980 | 480 | 169 | 554 | 201 | 229 | 388 | 129 | 1,390 | 39 | 9.7 | 195 |
| 21 | 665 | 430 | 154 | 755 | 195 | 201 | *293 | 122 | 1,080 | 34 | 10 | 201 |
| 22 | 430 | 415 | 144 | 680 | 184 | 179 | 237 | 114 | 740 | 42 | 44 | 237 |
| 23 | 380 | 388 | 144 | 980 | 174 | 237 | 201 | 106 | 490 | 51 | 65 | 269 |
| 24 | 350 | 378 | 149 | *1,180 | 164 | 333 | 169 | 102 | 358 | 46 | 79 | 277 |
| 25 | 270 | 378 | 179 | 890 | 184 | 277 | 159 | *94 | 277 | 38 | 102 | 253 |
| 26 | 200 | 358 | 222 | 605 | 159 | 277 | 386 | 92 | 245 | 33 | 134 | 201 |
| 27 | 190 | 333 | 222 | 459 | 164 | 269 | *2,560 | 87 | 229 | 30 | 124 | 229 |
| 28 | 169 | 325 | 245 | 358 | 164 | 261 | *11,400 | 94 | 184 | 28 | 94 | 285 |
| 29 | 154 | 333 | 253 | 309 | - | 269 | *7,660 | 98 | 149 | 24 | 79 | 169 |
| 30 | 144 | 333 | 325 | 269 | ------ | 293 | *3,710 | 85 | *129 | 22 | 67 | 109 |
| 31 | 129 | ------ | 378 | 237 | ------ | 277 | ------ | 83 | ------ | 19 | 53 | ------ |
| Total | 7,592 | 16,002 | 6,507 | 11,821 | 4,987 | 9,321 | 32,023 | 21,795 | 7,386 | 4,335 | 1,116.7 | 3,441 |
| Mean | 245 | 533 | 210 | 381 | 178 | 301 | 1,067 | 703 | 246 | 140 | 36.0 | 115 |
| Cfsm | 1.04 | 2.26 | 0.890 | 1.61 | 0.754 | 1.28 | 4.52 | 2.98 | 1.04 | 0.593 | 0.153 | 0.487 |
| In. | 1.20 | 2.52 | 1.03 | 1.86 | 0.79 | 1.47 | 5.05 | 3.43 | 1.16 | 0.68 | 0.18 | 0.54 |
| Ac-ft | 15,060 | 31,740 | 12,910 | 23,450 | 9,890 | 18,490 | 63,520 | 43,230 | 14,650 | 8,600 | 2,210 | 6,830 |

Calendar year 1957: Max 4,780 Min 17 Mean 289 Cfsm 1.22 In. 16.66 Ac-ft 209,600
Water year 1957-58: Max 11,400 Min 9.7 Mean 346 Cfsm 1.47 In. 19.91 Ac-ft 250,600

Peak discharge (base, 1,500 cfs).--Nov. 9 (9 p.m.) 1,900 cfs (13.47 ft); Apr. 28 (9 a.m.) 12,900 cfs (21.30 ft); May 2 (12 m.) 4,610 cfs (18.13 ft).

* Discharge measurement made on this day.
Note.--Backwater from Sabine River Oct. 22-27, Nov. 12-22, Apr. 29 to May 15.

## 200. 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 1958.

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

Average discharge.--26 years, 2,038 cfs (1,475,000 acre-ft per year).

Extremes.--Maximum discharge during year, 53,500 cfs May 3 (gage height, 39.90 ft); minimum, 86 cfs Aug. 21 (gage height, 4.83 ft).
1932-58: Maximum discharge, 138,000 cfs 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 since at least 1914, that of Apr. 2, 1945. Flood in 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 1957-58, except periods computed using rate of change in stage as a factor (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 26 to June 17, July 21 to Aug. 21, Aug. 29 to Sept. 12)

| | | | | | |
|---|---|---|---|---|---|
| 4.9 | 79 | 12.0 | 1,560 | 30.0 | 8,000 |
| 5.5 | 166 | 16.0 | 2,540 | 35.0 | 19,600 |
| 6.0 | 256 | 20.0 | 3,710 | 40.0 | 59,500 |
| 8.0 | 660 | 25.0 | 5,350 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,730 | k3,130 | 2,850 | 2,490 | k5,450 | 814 | 2,260 | 44,900 | 432 | k949 | 163 | 108 |
| 2 | 1,390 | k2,150 | 2,880 | 2,600 | 5,210 | 770 | 2,280 | 51,300 | 352 | 660 | 156 | 100 |
| 3 | 814 | k1,360 | 2,910 | 2,570 | 4,130 | 726 | 2,440 | 52,400 | 312 | 532 | 148 | 92 |
| 4 | 362 | 638 | 2,880 | k2,190 | 2,710 | 704 | 2,710 | 48,000 | 283 | 432 | 136 | 85 |
| 5 | 213 | 682 | 2,620 | k1,740 | k1,440 | 682 | k3,170 | 42,000 | 252 | 382 | 128 | 85 |
| 6 | 163 | 1,230 | k1,900 | 1,490 | 1,120 | 682 | k3,550 | 37,700 | 240 | 395 | 120 | 89 |
| 7 | 137 | k1,800 | k1,480 | 1,370 | 990 | 704 | k3,830 | 33,800 | 265 | 2,000 | *117 | 98 |
| 8 | 121 | k2,420 | 1,280 | 1,320 | 924 | *770 | 3,890 | 29,700 | 224 | 2,380 | 111 | 124 |
| 9 | 110 | *k2,860 | 1,140 | 1,140 | 836 | 858 | 3,920 | 25,200 | 197 | 2,570 | 108 | 129 |
| 10 | 103 | k3,920 | 1,080 | 924 | 836 | 1,210 | k2,860 | 20,800 | 170 | 2,760 | 111 | 124 |
| 11 | 98 | k4,970 | 1,010 | 792 | 858 | k1,800 | k1,850 | 17,000 | 152 | 2,880 | 105 | *123 |
| 12 | 92 | k6,670 | 1,100 | 748 | 880 | k2,510 | k1,180 | 14,200 | 137 | 2,940 | 114 | 177 |
| 13 | 91 | k10,200 | *1,300 | k1,280 | 858 | k3,420 | 858 | 11,900 | 128 | 2,960 | 132 | 342 |
| 14 | 447 | 15,100 | 1,490 | 1,580 | 902 | k4,150 | 990 | 10,000 | 229 | 2,960 | 137 | 322 |
| 15 | 1,380 | 17,000 | 1,510 | 1,900 | 1,190 | k4,750 | 1,250 | 8,630 | 312 | 2,910 | 134 | 245 |
| 16 | k2,480 | 15,700 | 1,320 | 2,090 | 1,320 | k5,250 | 1,540 | k6,830 | 352 | 2,790 | 126 | 276 |
| 17 | 2,850 | 13,900 | 1,080 | 2,210 | 1,420 | k5,650 | 1,820 | k5,390 | k1,390 | k2,390 | 112 | 392 |
| 18 | 3,110 | 12,900 | 924 | 2,380 | 1,340 | 5,640 | 2,060 | k3,750 | 1,920 | k1,770 | 100 | 283 |
| 19 | 3,290 | 11,500 | 836 | 2,620 | 1,230 | 5,760 | 2,330 | k2,560 | 2,160 | k1,030 | 94 | 360 |
| 20 | 3,530 | 10,000 | 1,060 | k3,950 | 1,140 | 5,600 | 2,540 | k1,750 | 2,140 | 512 | 89 | 1,060 |
| 21 | k4,060 | 8,980 | 990 | k4,650 | 1,080 | k4,470 | *2,680 | k1,110 | 2,330 | 342 | 168 | 1,510 |
| 22 | k4,800 | 7,910 | 902 | 4,580 | 990 | k3,060 | 2,790 | 748 | 2,380 | 292 | 218 | 1,970 |
| 23 | k5,700 | k6,730 | 814 | 4,720 | 924 | k2,520 | 2,760 | 594 | 2,310 | 292 | 312 | 2,140 |
| 24 | k6,290 | k6,020 | 770 | 4,820 | 858 | 2,490 | k2,590 | 512 | 2,310 | 362 | 283 | 2,040 |
| 25 | k6,620 | k5,180 | 858 | 5,000 | 814 | 2,440 | k2,030 | *452 | 2,380 | 412 | 302 | 1,800 |
| 26 | 6,780 | k4,470 | 1,190 | 5,240 | 792 | 2,330 | k2,940 | 412 | 2,600 | 342 | 274 | 1,610 |
| 27 | 6,900 | k3,780 | 1,370 | 5,490 | 836 | 2,440 | k6,380 | 382 | 2,820 | 274 | 312 | k2,330 |
| 28 | 6,720 | k3,340 | 1,750 | 5,760 | 836 | 2,090 | *k6,460 | 422 | *2,760 | 238 | 265 | 2,280 |
| 29 | k5,920 | k3,040 | 1,970 | 5,960 | - | 2,060 | *k15,000 | 492 | k2,290 | 209 | 188 | k2,120 |
| 30 | k5,110 | 2,940 | 2,160 | 6,080 | ------ | 2,180 | k32,200 | 532 | k1,570 | 186 | 148 | k1,510 |
| 31 | k4,170 | ------ | 2,330 | 6,040 | ------ | 2,260 | ------ | 552 | ------ | 170 | 124 | ------ |
| Total | 85,581 | 190,520 | 47,734 | 95,724 | 41,914 | 80,790 | 121,158 | 474,018 | 35,397 | 39,321 | 5,035 | 23,924 |
| Mean | 2,761 | 6,351 | 1,540 | 3,088 | 1,497 | 2,606 | 4,039 | 15,290 | 1,180 | 1,268 | 162 | 797 |
| Cfsm | 0.970 | 2.23 | 0.541 | 1.09 | 0.526 | 0.916 | 1.42 | 5.37 | 0.415 | 0.446 | 0.057 | 0.280 |
| In. | 1.12 | 2.49 | 0.62 | 1.25 | 0.55 | 1.06 | 1.58 | 6.20 | 0.46 | 0.51 | 0.07 | 0.31 |
| Ac-ft | 169,700 | 377,900 | 94,680 | 189,900 | 83,140 | 160,200 | 240,300 | 940,200 | 70,210 | 77,990 | 9,990 | 47,450 |

Calendar year 1957: Max 57,400 Min 48 Mean 4,156 Cfsm 1.46 In. 19.83 Ac-ft 3,009,000
Water year 1957-58: Max 52,400 Min 85 Mean 3,400 Cfsm 1.19 In. 16.22 Ac-ft 2,462,000

* Discharge measurement made on this day.
k Computed by using rate of change in stage as a factor.

## 215. Lake Cherokee near Longview, Tex.

Location.--Lat 32°22', long 94°36', on left wall of intake structure of electric generating plant of Southwestern Gas and Electric Co. at Lake Cherokee on Cherokee Bayou, 2.3 miles upstream from dam, 6.0 miles upstream from Sabine River, and 12.0 miles southeast of Longview, Gregg County.

Drainage area.--149 sq mi.

Records available.--April 1951 to September 1958.

Gage.--Staff gage read once daily. Datum of gage is at mean sea level, datum of 1929.

Extremes.--Maximum elevation observed during year, 281.5 ft Oct. 15; minimum observed, 276.6 ft Aug. 9, 18-21, Aug. 31 to Sept. 8, Sept. 11-18.
1951-58: Maximum elevation observed, 282.0 ft May 2, 1956; minimum observed, 276.6 ft Oct. 16-18, 31, 1956, Aug. 9, 18-21, Aug. 31 to Sept. 8, Sept. 11-18, 1958.

Remarks.--Reservoir is formed by a rolled earth-fill dam 4,000 ft long with an uncontrolled concrete spillway 828 ft long. There is an emergency spillway of natural ground. Outlet works consists of one 18-inch diameter pipe controlled by a gate valve. Dam was completed Nov. 19, 1948. Date valve was closed is not known. Reservoir built for recreational purposes, to supply cooling water for generating plant of Southwestern Gas and Electric Co., and water for municipal use by city of Longview. A by-pass channel was opened Feb. 1, 1958 to lower water surface for repair work on spillway. The by-pass channel was closed Aug. 4, 1958. Data regarding dam and reservoir are given in following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Design water surface..... | 291.0 (corrected) | - |
| Top of emergency spillway..... | 285.0 | - |
| Top of service spillway..... | 280.0 | 62,400 |
| Invert at lowest intake..... | 260.0 | - |

Cooperation.--Gage-height records furnished by Southwestern Gas and Electric Co.

Month-end elevation and monthly diversions, water year October 1957 to September 1958

| Date | Elevation (feet)† | Diversions for municipal use (acre-feet) |
|---|---|---|
| Sept.30..... | 279.0 | - |
| Oct. 31..... | 280.2 | 340 |
| Nov. 30..... | 280.3 | 295 |
| Dec. 31..... | 280.3 | 286 |
| Calendar year 1957..... | - | 4,240 |
| Jan. 31..... | 280.2 | 285 |
| Feb. 28..... | 278.4 | 295 |
| Mar. 31..... | 277.1 | 262 |
| Apr. 30..... | 278.4 | 293 |
| May 31..... | 277.0 | 241 |
| June 30..... | 277.0 | 559 |
| July 31..... | 276.8 | 485 |
| Aug. 31..... | 276.6 | 692 |
| Sept.30..... | 278.6 | 419 |
| Water year 1957-58..... | - | 4,450 |

† Elevation at 12 p.m.

## 220. 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 1958.

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.--19 years, 2,813 cfs (2,037,000 acre-ft per year).

Extremes.--Maximum discharge during year, 67,500 cfs May 5 (gage height, 30.12 ft); minimum observed, 82 cfs Aug. 21 (gage height, 2.32 ft).

1939-58: 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 for main channels above 40,000 cfs and measured flow over road at gage height 31.5 ft; minimum observed, 5.5 cfs Oct. 2, 1956.

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

Remarks.--Records good. Small diversions above station for oil field operations, municipal supply, and industrial use. There are several small reservoirs on tributaries above this station, the largest of which are Lakes Cherokee and Gladewater with capacities of 62,400 and 6,950 acre-ft respectively. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 16 to May 1, May 10 to June 11)

| | | | | | |
|---|---|---|---|---|---|
| 2.3 | 80 | 8.0 | 1,560 | 24.0 | 12,800 |
| 2.5 | 98 | 12.0 | 3,360 | 26.0 | 18,600 |
| 3.0 | 160 | 16.0 | 5,810 | 28.0 | 39,000 |
| 4.0 | 354 | 20.0 | 8,690 | 30.0 | 66,000 |
| 6.0 | 880 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,520 | 6,280 | 6,560 | 2,720 | 6,210 | 1,600 | 2,860 | 9,030 | 1,010 | 2,320 | 179 | 174 |
| 2 | 1,600 | 6,000 | 5,420 | 2,770 | 6,350 | 1,420 | 2,820 | 12,300 | 880 | 1,640 | 156 | 146 |
| 3 | 1,520 | 5,480 | 4,580 | 2,860 | 6,350 | 1,450 | 2,820 | 35,300 | 768 | 1,070 | 142 | 128 |
| 4 | 1,170 | 4,330 | 4,030 | 2,860 | 6,280 | 1,520 | 2,860 | 64,600 | 656 | 796 | 146 | 119 |
| 5 | 768 | 2,640 | 3,800 | 2,820 | 5,880 | 1,520 | 2,960 | 66,000 | 615 | 642 | 136 | 113 |
| 6 | 460 | 2,410 | 3,580 | 2,540 | 4,770 | 1,560 | 3,060 | 59,000 | 511 | 563 | *127 | 109 |
| 7 | 310 | 3,010 | 3,470 | 2,140 | 3,260 | *1,560 | 3,210 | 52,000 | 472 | 524 | 114 | 122 |
| 8 | 228 | 3,310 | 3,160 | 1,880 | 2,360 | 1,560 | 3,420 | 45,500 | 498 | 1,340 | 115 | 146 |
| 9 | 186 | *3,740 | 2,640 | 1,720 | 1,960 | 1,560 | 3,690 | 40,300 | 472 | 2,230 | 109 | 170 |
| 10 | 160 | 3,800 | 2,230 | 1,640 | 1,800 | 1,560 | 3,860 | 35,400 | 412 | 2,410 | 110 | 182 |
| 11 | 145 | 3,690 | 2,140 | 1,490 | 1,840 | 1,640 | 3,910 | 29,800 | 376 | 2,540 | 108 | 170 |
| 12 | 135 | 3,860 | *2,360 | 1,310 | 1,840 | 1,880 | 3,580 | 24,600 | 332 | 2,640 | 108 | *166 |
| 13 | 126 | 5,220 | 1,880 | 1,560 | 1,800 | 2,360 | 2,590 | 21,900 | 310 | 2,680 | 112 | 171 |
| 14 | 328 | 7,330 | 1,800 | 2,540 | 1,920 | 3,010 | 1,840 | 17,900 | 288 | 2,720 | 112 | 228 |
| 15 | 3,590 | 9,030 | 1,920 | 2,960 | 2,540 | 3,420 | 1,920 | 15,800 | 278 | 2,770 | 115 | 332 |
| 16 | 6,490 | 10,300 | 2,000 | 2,910 | 2,910 | 3,740 | 2,000 | 14,300 | 378 | 2,720 | 118 | 321 |
| 17 | 7,330 | 11,400 | 1,960 | 2,960 | 2,770 | 4,210 | 2,000 | 13,600 | 684 | 2,680 | 114 | 278 |
| 18 | 6,000 | 12,300 | 1,760 | 2,910 | 2,540 | 4,640 | 2,140 | 12,800 | 1,230 | 2,540 | 110 | 343 |
| 19 | 4,700 | 13,300 | 1,600 | 2,960 | 2,410 | 4,960 | 2,320 | 11,800 | 2,050 | 2,230 | 108 | 460 |
| 20 | 4,090 | 13,400 | 1,490 | 3,690 | 2,280 | 5,290 | 2,540 | 10,500 | 2,320 | 1,560 | 92 | 628 |
| 21 | 3,740 | 13,400 | 1,560 | 6,280 | 2,140 | 5,550 | *2,720 | 8,780 | 2,360 | 976 | 90 | 1,310 |
| 22 | 3,800 | 13,400 | 1,560 | 7,190 | 2,000 | 5,740 | 2,860 | 6,630 | 2,410 | 602 | 89 | 1,760 |
| 23 | 4,580 | 13,200 | 1,450 | *7,620 | 1,840 | 5,810 | 2,960 | 3,860 | 2,640 | 424 | 212 | 2,000 |
| 24 | 5,360 | 12,900 | 1,340 | 7,260 | 1,800 | 5,740 | 3,010 | *2,230 | 2,640 | 365 | 511 | 2,100 |
| 25 | 5,740 | 12,700 | 1,310 | 6,770 | 1,640 | 5,030 | 2,960 | 1,600 | 2,500 | 343 | 563 | 2,050 |
| 26 | 5,940 | 12,100 | 1,490 | 6,700 | 1,450 | 4,150 | 3,520 | 1,340 | 2,500 | 376 | 615 | 1,880 |
| 27 | 6,070 | 11,400 | 1,880 | 6,070 | 1,560 | 3,520 | 5,940 | 1,170 | *2,680 | 376 | 485 | 1,800 |
| 28 | 6,070 | 10,300 | 2,230 | 5,940 | 1,800 | 3,160 | 6,350 | 1,040 | 2,960 | 332 | 354 | 2,000 |
| 29 | 6,210 | 9,200 | 2,500 | 5,940 | - | 2,960 | 6,700 | 1,140 | 2,960 | 278 | 332 | 2,320 |
| 30 | 6,280 | 7,760 | 2,590 | 6,000 | ------ | 2,910 | 7,540 | 1,240 | 2,720 | 236 | 278 | 2,280 |
| 31 | 6,280 | ------ | 2,640 | 6,070 | ------ | 2,860 | ------ | 1,100 | ------ | 197 | 219 | ------ |
| Total | 100,926 | 247,190 | 78,930 | 121,080 | 82,300 | 97,890 | 100,960 | 622,560 | 40,910 | 43,120 | 6,179 | 24,006 |
| Mean | 3,256 | 8,240 | 2,546 | 3,906 | 2,939 | 3,158 | 3,365 | 20,080 | 1,364 | 1,391 | 199 | 800 |
| Cfsm | 0.908 | 2.30 | 0.710 | 1.09 | 0.820 | 0.881 | 0.938 | 5.60 | 0.380 | 0.388 | 0.056 | 0.223 |
| In. | 1.05 | 2.56 | 0.82 | 1.26 | 0.85 | 1.02 | 1.05 | 6.46 | 0.42 | 0.45 | 0.06 | 0.25 |
| Ac-ft | 200,200 | 490,300 | 156,600 | 240,200 | 163,200 | 194,200 | 200,300 | ‡1,235 | 81,140 | 85,530 | 12,260 | 47,620 |

Calendar year 1957: Max 69,400 Min 72 Mean 5,115 Cfsm 1.43 In. 19.36 Ac-ft 3,703,000
Water year 1957-58: Max 66,000 Min 89 Mean 4,291 Cfsm 1.20 In. 16.25 Ac-ft 3,107,000

* Discharge measurement made on this day.
‡ Expressed in thousands.

## 222. Murvaul Lake near Gary, Tex.

Location.--Lat 32°02', long 94°25', at outlet structure of Murvaul Lake Dam on Murvaul Bayou, 3.0 miles northwest of Gary, Panola County, and 9.0 miles southwest of Carthage.

Drainage area.--112 sq mi.

Records available.--December 1957 to September 1958.

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

Extremes.--Maximum contents during period, 53,200 acre-ft May 4 (elevation, 267.1 ft); minimum, 26,670 acre-ft about Sept. 19 (elevation, 259.9 ft).

Remarks.--Reservoir is formed by a rolled-fill earthen dam 8,300 ft long. Spillway is an uncontrolled concrete flat-crested weir section 270 ft long at right end of dam and designed to discharge 26,700 cfs under a 10-foot head. Storage began in November 1957; dam completed in June 1958. Outlet works consist of 3 sluice gates to the control tower which discharge through a 36-inch valve and conduit. The reservoir is the property of Panola County Fresh Water Supply District No. 1, Carthage, Tex., and was built to impound water for municipal and industrial use. There were no diversions during the period. Occasional releases. Data regarding dam and reservoir are given in following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Design water surface | 275.0 | 91,520 |
| Spillway crest | 265.3 | 45,840 |
| Invert at lowest sluice gate | 235.0 | 25 |

Cooperation.--Capacity table furnished by Panola County Fresh Water District No. 1.

Capacity table, period Dec. 12, 1957, to Sept. 30, 1958 (elevation, in feet, and contents, in acre-feet)

| | | | | | |
|---|---|---|---|---|---|
| 259 | 24,000 | 262 | 33,550 | 265 | 44,650 |
| 260 | 26,980 | 263 | 37,090 | 266 | 48,660 |
| 261 | 30,160 | 264 | 40,790 | 267 | 52,780 |

Contents, in acre-feet, at 12 p.m., December 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | - | 31,490 | 35,650 | 33,200 | 33,550 | 49,480 | 45,440 | 47,040 | 39,660 | 30,820 |
| 2 | | | - | 31,150 | 35,300 | 32,850 | 33,550 | 49,070 | 45,440 | 46,640 | 39,290 | 30,490 |
| 3 | | | - | 30,820 | 34,950 | 32,510 | 33,550 | 52,780 | 45,440 | 46,640 | 38,920 | 30,160 |
| 4 | | | - | 30,820 | 34,950 | 32,510 | 33,550 | 51,940 | 45,440 | 46,240 | 38,550 | 29,830 |
| 5 | | | - | 30,490 | 34,600 | 32,510 | 33,550 | 50,300 | 45,440 | 46,240 | 38,180 | 29,500 |
| 6 | | | - | 30,160 | 34,600 | 32,510 | 33,550 | 49,070 | 45,440 | 46,240 | 37,810 | 29,500 |
| 7 | | | - | 30,160 | 34,250 | 32,510 | 33,550 | 48,200 | 45,440 | 46,240 | 37,810 | 29,180 |
| 8 | | | - | 29,830 | 33,900 | 32,510 | 33,550 | 47,800 | 45,040 | 46,240 | 37,090 | 28,860 |
| 9 | | | - | 29,500 | 33,550 | 32,170 | 33,550 | 47,400 | 45,040 | 45,840 | 37,090 | 28,540 |
| 10 | | | - | 29,180 | 34,250 | 32,170 | 33,550 | 47,000 | 45,040 | 45,840 | 36,730 | 28,220 |
| 11 | | | - | 29,180 | 34,600 | 32,170 | 33,550 | 46,600 | 45,040 | 45,840 | 36,370 | 28,220 |
| 12 | | | 33,200 | 29,180 | 34,600 | 32,510 | 33,550 | 46,200 | 44,650 | 45,840 | 36,010 | 27,900 |
| 13 | | | 33,200 | 30,820 | 34,250 | 32,850 | 33,550 | 46,200 | 44,650 | 45,440 | 35,650 | 27,600 |
| 14 | | | 32,850 | 31,490 | 34,600 | 32,850 | 33,900 | 46,100 | 44,650 | 45,440 | 35,300 | 27,300 |
| 15 | | | 32,850 | 31,490 | 35,300 | 32,510 | 33,900 | 45,900 | 44,650 | 45,440 | 34,950 | 27,000 |
| 16 | | | 32,510 | 31,490 | 35,300 | 32,510 | 33,900 | 45,900 | 47,440 | 44,650 | 34,600 | 26,700 |
| 17 | | | 32,170 | 31,150 | 34,950 | 32,850 | 33,900 | 45,900 | 50,300 | 44,650 | 34,250 | 26,700 |
| 18 | | | 32,170 | 30,820 | 34,950 | 32,850 | 33,900 | 45,900 | 49,480 | 44,260 | 33,900 | 26,700 |
| 19 | | | 32,170 | 30,820 | 34,600 | 32,850 | 33,900 | 45,900 | 49,480 | 43,870 | 33,550 | 27,600 |
| 20 | | | 31,830 | 33,900 | 34,600 | 32,850 | 34,250 | 45,900 | 48,660 | 43,480 | 33,200 | 33,900 |
| 21 | | | 31,490 | 36,730 | 34,250 | 32,850 | 34,250 | 45,900 | 48,250 | 43,090 | 33,200 | 39,300 |
| 22 | | | 31,490 | 37,090 | 34,250 | 32,850 | 34,250 | 45,900 | 51,940 | 43,090 | 33,200 | 40,790 |
| 23 | | | 31,150 | 37,090 | 33,900 | 32,850 | 34,250 | 45,900 | 50,300 | 42,700 | 32,850 | 40,790 |
| 24 | | | 30,820 | 37,090 | 33,900 | 32,850 | 34,250 | 45,840 | 49,070 | 42,310 | 33,200 | 40,410 |
| 25 | | | 30,820 | 36,730 | 33,550 | 32,850 | 34,250 | 45,840 | 48,250 | 41,930 | 32,850 | 40,030 |
| 26 | | | 30,820 | 36,730 | 33,550 | 32,850 | 34,250 | 45,840 | 49,070 | 41,550 | 32,510 | 40,030 |
| 27 | | | 31,150 | 36,370 | 33,550 | 32,850 | 36,370 | 45,440 | 48,660 | 41,550 | 32,170 | 41,550 |
| 28 | | | 31,830 | 36,370 | 33,200 | 32,850 | 41,930 | 45,440 | 47,840 | 41,170 | 32,170 | 41,930 |
| 29 | | | 31,830 | 36,010 | - | 33,200 | 44,650 | 45,440 | 47,440 | 40,790 | 31,490 | 41,550 |
| 30 | | | 31,830 | 36,010 | ------- | 33,550 | 48,660 | 45,440 | 47,040 | 40,410 | 31,490 | 41,170 |
| 31 | ------- | ------- | 31,490 | 35,650 | ------- | 33,550 | ------- | 45,440 | ------- | 40,030 | 31,150 | ------- |
| (†) | - | - | 261.4 | 262.6 | 261.9 | 262.0 | 266.0 | 265.2 | 265.6 | 263.8 | 261.3 | 264.1 |
| (‡) | - | - | - | +4,160 | -2,450 | +350 | +15,110 | -3,220 | +1,600 | -7,010 | -8,880 | +10,020 |

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
Note.--No gage-height record May 7-23, Sept. 14-21; contents estimated on basis of weather records and recorded range in stage.

## 225. Sabine River at Logansport, La.

Location.--Lat 31°59', long 94°01', at Logansport, De Soto Parish, on left bank 4,600 ft upstream from bridge on U. S. Highway 84, 4,800 ft upstream from Texas and New Orleans Railroad Co. bridge, 4 miles upstream from Bayou Castor, and at mile 268.
Drainage area.--4,858 sq mi.
Records available.--July 1903 to September 1958 (January 1907 to September 1923 monthly records only, published in WSP 850). Gage-height records collected at site 4,600 ft downstream since 1903 are contained in reports of U. S. Weather Bureau; used by Geological Survey 1903-5, and corrected to datum of geological Survey gage.
Gage.--Water-stage recorder used for gage-heights below 24 ft, and supplementary wire-weight gage, 4,600 ft downstream (used as regular gage Feb. 14, 1941, to Sept. 30, 1956) used for gage heights above 24 ft. Datum of gage is 147.72 ft above mean sea level, datum of 1929. July 1, 1903, to Dec. 31, 1906, chain gage at site of supplementary gage at datum 2.0 ft lower. Jan. 1, 1907, to Feb. 13, 1941, chain gage at site of supplementary gage at present datum.
Average discharge.--52 years (1903-19, 1922-58), 3,267 cfs (2,365,000 acre-ft per year).
Extremes.--Maximum discharge during year, 51,300 cfs May 10-11 (gage height, 37.82 ft at site of supplementary gage); minimum, 199 cfs Oct. 14.
1903-58: Maximum discharge, 92,000 cfs Apr. 8, 1945 (gage height, 44.07 ft at site of supplementary gage, 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 in May 1884 reached a stage of 39.4 ft, present datum, at site of supplementary gage.
Remarks.--Records good except for periods of backwater, which are fair. Diversions above station for oilfield operation and municipal and industrial use.
Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.
Revisions (water years).--WSP 850: 1903-6.

Rating tables, water year 1957-58, except periods of backwater (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 29 to Nov. 7, 17-20, Dec. 2-15, Feb. 3 to Mar. 26, June 18-29)

| Recording gage | | | | Wire-weight gage | | | |
|---|---|---|---|---|---|---|---|
| 3.6 | 250 | 10.0 | 3,350 | 7.0 | 2,220 | 24.0 | 12,000 |
| 4.0 | 440 | 15.0 | 5,750 | 9.0 | 3,050 | 28.0 | 16,900 |
| 5.0 | 995 | 20.0 | 8,600 | 12.0 | 4,450 | 32.0 | 25,000 |
| 7.0 | 2,000 | 24.0 | 11,500 | 16.0 | 6,550 | 36.0 | 41,000 |
| | | | | 20.0 | 8,900 | 38.0 | 52,500 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,020 | 6,960 | 16,100 | 4,750 | 7,520 | 3,040 | 5,250 | e8,900 | 1,630 | 4,070 | 475 | 520 |
| 2 | 1,220 | 6,740 | 15,000 | 4,450 | 7,240 | 2,990 | 4,850 | e10,000 | 1,430 | 3,580 | 435 | 460 |
| 3 | 1,430 | 6,580 | 13,700 | 4,150 | 7,040 | 2,630 | 4,450 | e11,300 | 1,430 | 2,990 | 420 | 410 |
| 4 | 1,530 | 6,360 | 12,300 | 3,950 | 6,940 | *2,360 | 4,020 | e13,000 | 1,220 | 2,180 | 395 | 365 |
| 5 | 1,430 | 6,080 | 10,800 | 3,800 | 6,820 | 2,220 | 3,710 | e16,100 | 1,060 | 1,530 | 370 | 340 |
| 6 | 1,110 | *5,650 | 9,180 | 3,770 | 6,770 | 2,320 | 3,580 | e21,000 | 905 | 1,160 | 370 | 326 |
| 7 | 732 | 5,150 | 8,060 | 3,590 | 6,720 | 2,540 | 3,580 | 32,600 | 845 | 1,020 | 365 | 340 |
| 8 | *535 | e8,100 | 7,500 | 3,280 | 6,060 | 2,760 | 3,620 | 44,300 | 788 | 905 | 360 | 385 |
| 9 | 420 | e8,500 | 6,990 | 2,870 | 4,950 | 2,940 | *3,710 | 50,100 | 700 | 935 | 340 | 385 |
| 10 | 331 | e8,300 | 6,160 | 2,580 | 4,100 | 2,900 | 3,890 | 51,300 | 666 | 1,910 | 336 | *390 |
| 11 | 282 | e7,900 | *5,150 | 2,460 | 3,720 | 2,630 | 4,070 | 51,300 | 617 | 2,580 | 326 | 390 |
| 12 | 238 | 7,020 | 4,100 | 2,800 | 3,540 | 2,580 | 4,160 | 49,500 | 556 | 2,810 | *322 | 410 |
| 13 | 214 | 6,580 | 3,590 | e3,700 | 3,520 | 2,580 | 4,160 | 46,500 | 510 | 2,940 | 326 | 405 |
| 14 | 250 | e7,600 | 3,320 | e5,200 | 2,960 | 4,300 | 3,800 | 43,200 | 465 | 3,080 | 340 | 390 |
| 15 | 480 | e8,400 | 3,140 | *e5,800 | 3,320 | 4,450 | 3,170 | 39,000 | 440 | 3,170 | 331 | 400 |
| 16 | 2,170 | e9,000 | 2,870 | e5,900 | 4,000 | 4,500 | 2,810 | 35,200 | 430 | 3,300 | 326 | 465 |
| 17 | 4,650 | 9,720 | 2,920 | e5,900 | 4,900 | 4,550 | 2,860 | 31,100 | 1,450 | 3,350 | 318 | 595 |
| 18 | 5,920 | 10,900 | 2,920 | e5,800 | 5,050 | 4,700 | 2,760 | 27,200 | 3,170 | 3,350 | 318 | 639 |
| 19 | 6,740 | *11,600 | 2,870 | e5,500 | 4,650 | 4,800 | 2,630 | 24,200 | 4,250 | 3,260 | 313 | 788 |
| 20 | 7,180 | 12,600 | 2,870 | 5,860 | *4,070 | 4,950 | 2,680 | 21,400 | 4,550 | 3,040 | 308 | 4,880 |
| 21 | 7,400 | 13,200 | 2,820 | e7,500 | 3,440 | 5,150 | 2,810 | *19,500 | 4,300 | 2,580 | 308 | e8,800 |
| 22 | e7,600 | e14,100 | 2,700 | e8,300 | 2,990 | 5,350 | 2,990 | 18,100 | 4,950 | 1,960 | 375 | e9,000 |
| 23 | e7,800 | e15,000 | 2,620 | e9,000 | 2,720 | 5,550 | 3,170 | 16,600 | 5,700 | 1,380 | 965 | *e7,800 |
| 24 | e7,800 | e15,800 | 2,500 | e9,600 | 2,580 | 5,970 | 3,260 | 15,200 | 5,350 | 935 | 551 | e6,200 |
| 25 | e7,800 | e16,200 | 2,400 | 10,100 | 2,450 | 6,360 | 3,300 | 13,500 | *4,750 | 732 | 546 | e5,400 |
| 26 | 7,400 | e16,300 | 2,500 | 10,400 | 2,360 | 6,580 | 3,350 | 11,300 | 4,250 | 650 | 732 | e5,000 |
| 27 | 7,400 | e16,500 | 2,780 | 10,400 | 2,360 | 6,740 | 3,530 | 8,120 | 4,020 | 634 | 788 | e4,600 |
| 28 | 7,520 | e16,500 | 4,150 | 10,000 | 2,720 | 6,410 | 4,700 | 4,500 | 4,160 | 628 | 788 | e4,600 |
| 29 | 7,460 | e16,300 | 5,300 | 9,370 | - | 5,650 | e6,100 | 2,680 | 4,250 | *617 | 694 | 4,450 |
| 30 | 7,340 | e16,300 | 5,250 | 8,670 | ------ | 5,400 | e7,600 | 2,000 | 4,350 | 573 | 600 | 4,600 |
| 31 | 7,180 | ------ | 5,050 | 8,060 | ------ | 5,450 | ------ | 1,780 | ------ | 520 | 562 | ------ |
| Total | 120,582 | 315,940 | 177,610 | 187,510 | 125,220 | 132,350 | 114,570 | 740,480 | 73,192 | 62,369 | 14,003 | 73,733 |
| Mean | 3,890 | 10,530 | 5,729 | 6,049 | 4,472 | 4,269 | 3,819 | 23,890 | 2,440 | 2,012 | 452 | 2,458 |
| Cfsm | 0.801 | 2.17 | 1.18 | 1.25 | 0.920 | 0.879 | 0.786 | 4.92 | 9.502 | 9.414 | 0.093 | 0.506 |
| In. | 0.92 | 2.42 | 1.36 | 1.44 | 0.96 | 1.01 | 0.88 | 5.67 | 0.56 | 0.48 | 0.11 | 0.56 |
| Ac-ft | 239,200 | 626,700 | 352,300 | 371,900 | 248,400 | 262,500 | 227,200 | ‡1,469 | 145,200 | 123,700 | 27,770 | 146,200 |

Calendar year 1957: Max 61,300 Min 90 Mean 6,574 Cfsm 1.35 In. 18.36 Ac-ft 4,759,000
Water year 1957-58: Max 51,300 Min 214 Mean 5,856 Cfsm 1.21 In. 16.37 Ac-ft 4,240,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
e Backwater from Bayou Castor and local runoff.
Note.--Recorder inoperative for lengthy periods; discharge computed from once-daily wire-weight-gage readings Nov. 19 to Jan. 14, Feb. 3-19, May 4-27, Sept. 22-30.

## 230. Bayou Castor near Logansport, La.

Location.--Lat 31°58'25", long 93°58'10", in NW¼ sec. 1, T. 11 N., R. 16 W., near center of span on downstream side of bridge on U. S. Highway 84, 1.7 miles east of Logansport and 2.5 miles upstream from Bayou Grand Cane.

Drainage area.--96.5 sq mi.

Records available.--October 1955 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 171.20 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Nov. 4, 1955, wire-weight gage at same site and datum.

Extremes.--Maximum discharge during year, 6,260 cfs Sept. 21 (gage height, 21.45 ft); no flow for many days.
1955-58: Maximum discharge, 8,030 cfs Apr. 6, 1956 (gage height, 23.33 ft); no flow for many days each year.

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

Rating table, water year 1957-58, except periods of backwater from Sabine River (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Aug. 24 to Sept. 6)

| | | | | | |
|---|---|---|---|---|---|
| 1.0 | 0 | 1.7 | 6.0 | 8.0 | 810 |
| 1.1 | .1 | 2.0 | 18 | 11.0 | 1,130 |
| 1.2 | .2 | 2.5 | 43 | 13.0 | 1,500 |
| 1.3 | .5 | 3.0 | 76 | 17.0 | 2,700 |
| 1.5 | 2.5 | 4.0 | 163 | 19.0 | 4,100 |
| 1.6 | 4.0 | 7.0 | 560 | 20.0 | 5,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 6.0 | 76 | 54 | 47 | 56 | 69 | 735 | 4.0 | 7.6 | a1.5 | 0.2 |
| 2 | 0 | 5.4 | 51 | 39 | 38 | 32 | 42 | 672 | 3.7 | 5.0 | a1.5 | .2 |
| 3 | 0 | 4.6 | 36 | 31 | 31 | 24 | 32 | 605 | 3.6 | 3.7 | a1.0 | .1 |
| 4 | *0 | *4.6 | 30 | 26 | *26 | 21 | 26 | *1,200 | 3.4 | 3.6 | a1.0 | .1 |
| 5 | 0 | 8.4 | 26 | 24 | 25 | 21 | 22 | 1,440 | 4.2 | 3.6 | a.9 | .1 |
| 6 | 0 | 96 | 29 | 22 | 30 | 53 | 18 | *c400 | 3.6 | 3.4 | a.8 | .1 |
| 7 | 0 | 381 | 228 | 21 | 28 | 114 | 15 | *c80 | 3.4 | 4.0 | a.7 | a.1 |
| 8 | 0 | 1,610 | 588 | 20 | 30 | 104 | *14 | *c60 | 3.2 | 11 | a.6 | *a40 |
| 9 | 0 | 2,050 | 505 | 19 | 24 | 107 | 13 | *c30 | 2.8 | 12 | a.4 | a40 |
| 10 | 0 | 851 | *101 | 18 | 96 | 86 | 14 | c25 | 2.4 | 7.2 | a.3 | a10 |
| 11 | 0 | 113 | 63 | 18 | 212 | 51 | 15 | c25 | 2.2 | 4.2 | a.2 | a3.0 |
| 12 | 0 | 74 | 47 | 26 | 145 | 78 | 14 | c25 | 2.1 | 3.6 | a.1 | a2.0 |
| 13 | 0 | 232 | 38 | 358 | 74 | 280 | 14 | c25 | 2.0 | 3.6 | a.1 | a1.5 |
| 14 | 4.0 | 679 | 33 | 778 | 64 | *322 | 17 | c25 | 1.9 | 3.2 | **a.2 | a1.0 |
| 15 | 68 | 1,070 | 31 | 772 | 217 | 109 | 44 | c20 | 1.9 | *10 | .1 | a1.0 |
| 16 | 62 | 691 | 30 | *158 | 306 | 64 | 50 | *c20 | 2.5 | 4.6 | .1 | a1.0 |
| 17 | 22 | 145 | 28 | 94 | 118 | 53 | 26 | c15 | 50 | 3.6 | .1 | a1.5 |
| 18 | 12 | 269 | 27 | 65 | 70 | 60 | 17 | c15 | 181 | 3.4 | 0 | a9.0 |
| 19 | 5.0 | 622 | 27 | 53 | 51 | 53 | 14 | c20 | 125 | 3.2 | 0 | a50 |
| 20 | 2.5 | 610 | 69 | 370 | 42 | 39 | 12 | c30 | 77 | 3.1 | 0 | *a1,000 |
| 21 | 1.7 | 158 | 94 | 1,280 | 36 | 31 | 11 | c20 | 25 | 3.0 | 0 | *a4,500 |
| 22 | 452 | 474 | 50 | 1,590 | 32 | 26 | 10 | c15 | 229 | 3.1 | .2 | *a4,000 |
| 23 | 910 | 962 | 32 | 650 | 32 | 48 | 8.8 | c10 | 168 | 3.2 | 68 | *1,350 |
| 24 | 869 | 1,230 | 25 | 132 | 39 | 116 | 7.6 | c10 | 92 | 3.1 | 62 | 196 |
| 25 | 170 | 984 | 28 | 94 | 39 | 118 | 6.4 | 8.4 | 26 | 3.0 | 19 | 48 |
| 26 | 36 | 700 | 62 | 74 | 38 | 68 | 6.0 | *6.8 | 15 | 2.6 | 6.0 | 32 |
| 27 | 20 | 252 | 118 | 60 | 63 | 48 | 7.2 | 6.0 | 32 | a2.0 | 2.3 | 64 |
| 28 | 14 | 187 | 316 | 51 | 94 | 37 | 74 | 5.6 | 94 | a2.0 | .7 | 47 |
| 29 | 11 | 150 | 422 | 48 | - | 76 | 177 | 5.2 | 30 | a2.0 | .5 | 26 |
| 30 | 8.8 | 113 | 140 | 53 | ------ | 292 | 359 | 5.0 | 14 | a1.5 | .4 | 20 |
| 31 | 7.2 | ------ | 74 | 56 | ------ | 204 | ------ | 4.4 | ------ | a1.5 | .3 | ------ |
| Total | 2,675.2 | 14,732.0 | 3,422 | 7,054 | 2,047 | 2,791 | 1,155.0 | 5,563.4 | 1,204.9 | 130.6 | 169.0 | 11,443.9 |
| Mean | 86.3 | 491 | 110 | 228 | 73.1 | 90.0 | 38.5 | 179 | 40.2 | 4.21 | 5.45 | 381 |
| Cfsm | 0.894 | 5.09 | 1.14 | 2.36 | 0.758 | 0.933 | 0.399 | 1.85 | 0.417 | 0.044 | 0.056 | 3.95 |
| In. | 1.03 | 5.68 | 1.31 | 2.72 | 0.79 | 1.08 | 0.45 | 2.13 | 0.47 | 0.05 | 0.06 | 4.41 |
| Ac-ft | 5,310 | 29,220 | 6,790 | 13,990 | 4,060 | 5,540 | 2,290 | 11,030 | 2,390 | 259 | 335 | 22,700 |

Calendar year 1957: Max 2,050 Min 0 Mean 130 Cfsm 1.35 In. 18.29 Ac-ft 94,170
Water year 1957-58: Max 4,500 Min 0 Mean 144 Cfsm 1.49 In. 20.18 Ac-ft 103,900

Peak discharge (base, 1,000 cfs).--Nov. 9 (1:30 a.m.) 2,560 cfs (16.67 ft); Nov. 15 (3 p.m.) 1,130 cfs (11.05 ft); Nov. 24 (9:30 p.m.) 1,300 cfs (11.96 ft); Jan. 22 (3 a.m.) 1,900 cfs (14.62 ft); May 5 (3:30 a.m.) 1,650 cfs (13.64 ft); Sept. 21 (12 p.m.) 6,260 cfs (21.45 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
a Doubtful or no gage-height record; discharge estimated on basis of 5 discharge measurements and records for nearby stations.
c Backwater from Sabine River; discharge estimated on basis of 5 discharge measurements, amount of backwater, and records for nearby station.

## 232. Tenaha Creek near Shelbyville, Tex.

Location.--Lat 31°46', long 94°05', near center of span at downstream side of bridge on State Highway 87, 1 mile northwest of Shelbyville, Shelby County, 4.2 miles downstream from Gulf, Colorado and Santa Fe Railway Co. bridge, and 6.5 miles upstream from Bell Creek.

Drainage area.--87.0 sq mi.

Records available.--March 1952 to September 1958.

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

Average discharge.--6 years, 93.7 cfs (67,840 acre-ft per year).

Extremes.--Maximum discharge during year, 9,180 cfs Sept. 20 (gage height, 12.70 ft, from graph based on gage readings); no flow Oct. 1-9.
1952-58: Maximum discharge, 15,200 cfs Mar. 11, 1953 (gage height, 13.85 ft); no flow at times.
Maximum stage since at least 1884, about 15 ft Nov. 23, 1940, from information by local residents.

Remarks.--Records fair. Diversion above station for municipal supply.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 15, 16, June 24-26, Aug. 27, Sept. 2-17)

| | | | | | |
|---|---|---|---|---|---|
| 1.3 | 0 | 2.4 | 14 | 8.0 | 394 |
| 1.4 | .1 | 3.0 | 26 | 9.0 | 660 |
| 1.5 | .4 | 4.0 | 53 | 10.0 | 1,710 |
| 1.6 | 1.2 | 5.0 | 97 | 11.0 | 3,800 |
| 1.8 | 3.8 | 6.0 | 160 | 12.0 | 6,600 |
| 2.0 | 7.3 | 7.0 | 252 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 17 | 67 | 61 | 61 | 53 | 55 | 478 | 12 | 16 | 1.3 | 15 |
| 2 | 0 | 16 | 61 | 50 | 53 | 46 | 46 | 147 | 12 | 14 | 1.2 | 13 |
| 3 | 0 | 21 | 61 | 46 | 50 | 43 | 41 | 928 | 10 | 12 | 1.1 | 11 |
| 4 | 0 | 38 | 57 | 46 | 47 | 40 | 37 | 2,700 | 20 | 11 | 1.0 | 9.1 |
| 5 | 0 | 103 | 52 | 43 | 50 | 85 | 33 | 1,070 | 19 | 10 | 1.1 | 8.2 |
| 6 | 0 | *1,630 | 52 | 41 | 55 | 573 | 28 | 570 | 14 | 9.5 | 1.3 | 8.2 |
| 7 | 0 | 2,200 | 326 | 41 | 52 | 505 | 25 | 136 | 12 | 13 | 1.0 | 10 |
| 8 | 0 | 3,470 | 272 | 40 | 44 | 316 | 24 | 69 | 11 | *15 | .7 | 12 |
| 9 | 0 | 1,200 | 150 | 37 | 41 | 363 | *24 | 53 | 10 | 11 | .6 | 12 |
| 10 | .9 | 750 | 84 | 37 | 184 | 148 | 27 | 46 | 8.7 | 9.8 | .5 | 9.1 |
| 11 | *1.1 | 227 | 65 | 38 | 620 | 87 | 25 | 38 | 7.5 | 9.1 | .5 | 7.3 |
| 12 | 1.1 | 111 | *55 | 87 | 350 | 75 | 24 | 33 | 6.6 | 8.0 | .6 | *5.5 |
| 13 | 1.1 | 251 | 52 | 1,020 | 119 | 205 | 23 | 29 | 5.5 | 7.3 | .7 | 5.1 |
| 14 | 1.3 | 667 | 52 | 990 | 105 | 258 | 36 | 26 | 5.1 | 6.6 | .6 | 5.0 |
| 15 | 326 | 529 | 52 | *647 | 280 | 123 | 48 | 25 | 5.5 | 5.5 | 1.0 | 4.8 |
| 16 | 750 | 441 | 52 | 259 | 188 | 75 | 32 | 23 | 12 | 4.4 | 1.0 | 5.1 |
| 17 | 521 | 247 | 50 | 102 | 108 | 67 | 25 | 22 | 494 | 3.8 | .6 | 8.9 |
| 18 | 98 | 449 | 50 | 80 | 80 | 84 | 23 | 21 | 256 | 3.4 | .5 | 16 |
| 19 | 26 | 725 | 50 | 69 | 69 | 65 | 23 | 21 | 278 | 3.0 | .6 | 20 |
| 20 | 17 | 434 | 48 | 517 | *63 | 53 | 23 | 21 | 110 | 2.8 | *.6 | 4,250 |
| 21 | 14 | 207 | 40 | 1,530 | 57 | 47 | 24 | *21 | 38 | 2.5 | .8 | 4,440 |
| 22 | 337 | 574 | 38 | 1,020 | 53 | 46 | 23 | 20 | 633 | 3.0 | 30 | *1,680 |
| 23 | 1,020 | 1,140 | 37 | 590 | 57 | 54 | 22 | 18 | 540 | 4.0 | 55 | 880 |
| 24 | 742 | 1,020 | 37 | 189 | 94 | 114 | 21 | 17 | 154 | 3.8 | 625 | 347 |
| 25 | 209 | 810 | 38 | 114 | 84 | 82 | 18 | 22 | 40 | 3.4 | 3,550 | 80 |
| 26 | 44 | 617 | 57 | 94 | 73 | 59 | 18 | 37 | *81 | 2.9 | 974 | 80 |
| 27 | 27 | 252 | 69 | 80 | 108 | 52 | 156 | 22 | 145 | 2.5 | *232 | 1,210 |
| 28 | 23 | 136 | 361 | 71 | 84 | 46 | 151 | 18 | 58 | 2.2 | 38 | 2,170 |
| 29 | 20 | 117 | 381 | 97 | - | 88 | 71 | 16 | 29 | *1.8 | 24 | 880 |
| 30 | 19 | 84 | 132 | 84 | ------ | 176 | 581 | 14 | 20 | 1.7 | 20 | 255 |
| 31 | 18 | ------ | 75 | ------ | ------ | 89 | ------ | 13 | ------ | 1.5 | 16 | ------ |
| Total | 4,216.5 | 18,483 | 2,973 | 8,195 | 3,229 | 4,117 | 1,707 | 6,674 | 3,046.9 | 204.5 | 5,581.3 | 16,457.3 |
| Mean | 136 | 616 | 95.9 | 264 | 115 | 133 | 56.9 | 215 | 102 | 6.60 | 180 | 549 |
| Cfsm | 1.56 | 7.08 | 1.10 | 3.03 | 1.32 | 1.53 | 0.654 | 2.47 | 1.17 | 0.076 | 2.07 | 6.31 |
| In. | 1.80 | 7.90 | 1.27 | 3.50 | 1.38 | 1.76 | 0.73 | 2.85 | 1.30 | 0.09 | 2.38 | 7.03 |
| Ac-ft | 8,360 | 36,660 | 5,900 | 16,250 | 6,400 | 8,170 | 3,390 | 13,240 | 6,040 | 406 | 11,070 | 32,640 |

Calendar year 1957: Max 3,470 Min 0 Mean 135 Cfsm 1.55 In. 21.00 Ac-ft 97,470
Water year 1957-58: Max 4,440 Min 0 Mean 205 Cfsm 2.36 In. 31.99 Ac-ft 148,500

Peak discharge (base, 800 cfs).--Oct. 23 (8 a.m.) 1,110 cfs (9.63 ft); Nov. 8 (12 m.) 4,240 cfs (11.20 ft); Nov. 18 (12 p.m.) 880 cfs (9.40 ft); Nov. 23 (2 a.m.) 1,440 cfs (9.85 ft); Jan. 13 (4:30 p.m.) 1,550 cfs (9.91 ft); Jan. 21 (4 a.m.) 1,800 cfs (10.05 ft); May 4 (2 a.m.) 3,360 cfs (10.80 ft); June 17 (12 m.) 880 cfs (9.40 ft); June 22 (8 p.m.) 880 cfs (9.40 ft); Aug. 25 (7 a.m.) 5,280 cfs (11.60 ft); Sept. 20 (5 p.m.) 9,180 cfs (12.70 ft); Sept. 28 (2 a.m.) 2,920 cfs (10.60 ft).

* Discharge measurement made on this day.

## 235. 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 Railway bridge and 2.5 miles northwest of Noble.

Drainage area.--154 sq mi.

Records available.--October 1951 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 169.73 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 . Prior to Oct. 5, 1955, wire-weight gage and crest-stage indicator at same site and datum.

Average discharge.--7 years, 123 cfs (89,050 acre-ft per year).

Extremes.--Maximum discharge during year, 15,400 cfs Sept. 21 (gage height, 16.04 ft); minimum daily, 0.1 cfs Aug. 9-13; minimum gage height, 2.29 ft Aug. 10.
1951-58: Maximum discharge, that of Sept. 21, 1958; no flow for many days in 1954, 1956-57.

Remarks.--Records fair. Records of chemical analyses for the water year 1958 are given in WSP 1573.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 27 to Mar. 24)

| Oct. 1 to May 5 | | | | May 6 to Sept. 30 | |
|---|---|---|---|---|---|
| 2.5 | 0.4 | 8.0 | 294 | 2.3 | 0.1 |
| 2.6 | 1.0 | 9.0 | 425 | 2.4 | .6 |
| 2.8 | 3.0 | 10.0 | 750 | 2.5 | 1.6 |
| 3.0 | 6.2 | 10.5 | 1,110 | 2.6 | 2.6 |
| 3.2 | 10 | 11.0 | 1,590 | 3.0 | 9.2 |
| 3.5 | 18 | 12.0 | 3,080 | 3.5 | 19 |
| 4.0 | 34 | 14.0 | 7,200 | 4.0 | 34 |
| 5.0 | 75 | 15.0 | 10,200 | | |
| 7.0 | 201 | 16.0 | 15,400 | | |

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.5 | 2.8 | 126 | 152 | 58 | 425 | 397 | 383 | 6.0 | 18 | 0.9 | 1.5 |
| 2 | 1.3 | 2.4 | 83 | 80 | 48 | 397 | 252 | 425 | 5.3 | 13 | .7 | 1.1 |
| 3 | 1.1 | 2.3 | 66 | 60 | 40 | 176 | 107 | 515 | 4.5 | 10 | .6 | .7 |
| 4 | 1.0 | *2.2 | 60 | 50 | 32 | 64 | 75 | *880 | 4.3 | 8.1 | .4 | .5 |
| 5 | .8 | 23 | 54 | 44 | 29 | 103 | 62 | 1,110 | *4.5 | 6.9 | .4 | .3 |
| 6 | .6 | 279 | 50 | 41 | *42 | 318 | 50 | 950 | 3.7 | 6.7 | .3 | .3 |
| 7 | .6 | 242 | 126 | 38 | 56 | 397 | *42 | 780 | 3.4 | 33 | .2 | .3 |
| 8 | .5 | *530 | 252 | 36 | 58 | 449 | 34 | 545 | 32 | 230 | .2 | *.4 |
| 9 | .5 | 465 | *330 | 34 | 41 | 440 | 29 | 212 | 56 | 52 | .1 | .2 |
| 10 | *.4 | 440 | 369 | 31 | 145 | 411 | 48 | 60 | 20 | 21 | .1 | 21 |
| 11 | .4 | 411 | 276 | 29 | 306 | 383 | 70 | 71 | 10 | 18 | .1 | 11 |
| 12 | .4 | 223 | 101 | 32 | 356 | 318 | 62 | 149 | 6.7 | 16 | .1 | 7.0 |
| 13 | .4 | 98 | 66 | 127 | 397 | 163 | 44 | 80 | 4.8 | 11 | .1 | 4.5 |
| 14 | .4 | 350 | 56 | 283 | 343 | *208 | 76 | 41 | 3.3 | *8.3 | .3 | 2.6 |
| 15 | .7 | 397 | 54 | 369 | 272 | 262 | 137 | 28 | 1.9 | 18 | *.5 | 2.0 |
| 16 | 3.7 | 488 | 54 | *411 | 318 | 272 | 125 | 22 | 4.3 | 15 | .4 | 2.1 |
| 17 | 5.1 | 645 | 54 | 356 | 356 | 152 | 70 | 19 | 23 | 9.2 | .3 | 18 |
| 18 | 2.2 | 990 | 54 | 154 | 292 | 110 | 45 | 18 | 88 | 6.5 | .2 | 55 |
| 19 | 3.0 | 1,110 | 50 | 89 | 122 | 149 | 34 | 17 | 208 | 5.0 | .8 | 127 |
| 20 | 11 | 1,110 | 47 | 327 | 75 | 119 | 29 | 18 | 208 | 4.2 | .9 | 918 |
| 21 | 6.6 | 1,110 | 44 | 810 | 60 | 72 | 27 | 17 | 176 | 3.2 | .6 | *11,300 |
| 22 | 19 | 1,240 | 41 | 1,240 | 50 | 56 | 36 | 17 | 375 | 2.7 | 1.5 | 10,200 |
| 23 | 78 | 1,240 | 42 | 1,340 | 48 | 82 | 36 | 16 | 425 | 4.0 | 4.2 | 3,400 |
| 24 | 72 | 1,160 | 34 | 1,070 | 64 | 197 | 27 | 13 | 318 | 7.0 | 8.8 | 1,270 |
| 25 | 89 | 1,160 | 33 | 722 | 125 | 356 | 20 | 13 | 318 | 3.4 | 8.1 | 845 |
| 26 | 56 | 1,070 | 40 | 455 | 140 | 440 | 16 | 17 | 226 | 2.2 | 7.6 | 600 |
| 27 | 25 | 845 | 67 | 173 | 262 | 455 | 14 | 15 | 51 | 1.7 | 6.0 | 383 |
| 28 | 11 | 645 | 252 | 86 | 356 | 301 | 14 | 13 | 39 | 1.3 | 6.3 | 172 |
| 29 | 6.9 | 455 | 306 | 70 | - | 226 | 56 | 13 | 52 | 1.1 | 4.8 | 80 |
| 30 | 4.8 | 232 | 369 | 64 | ------ | 356 | 308 | 9.7 | 29 | 1.0 | 3.0 | 65 |
| 31 | 3.6 | ------ | 343 | 62 | ------ | 383 | ------ | 7.4 | ------ | 1.0 | 2.0 | ------ |
| Total | 407.5 | 16,967.7 | 3,899 | 8,835 | 4,491 | 8,220 | 2,342 | 6,474.1 | 2,706.7 | 538.5 | 60.5 | 23,488.5 |
| Mean | 13.1 | 566 | 126 | 285 | 160 | 265 | 78.1 | 209 | 90.2 | 17.4 | 1.95 | 983 |
| Cfsm | 0.085 | 3.68 | 0.818 | 1.85 | 1.04 | 1.72 | 0.507 | 1.36 | 0.586 | 0.113 | 0.013 | 6.38 |
| In. | 0.10 | 4.11 | 0.94 | 2.13 | 1.08 | 1.98 | 0.57 | 1.57 | 0.65 | 0.13 | 0.02 | 7.12 |
| Ac-ft | 808 | 33,650 | 7,730 | 17,520 | 8,910 | 16,300 | 4,650 | 12,840 | 5,370 | 1,070 | 120 | 58,490 |

Calendar year 1957: Max 3,620 Min 0 Mean 195 Cfsm 1.27 In. 17.16 Ac-ft 141,000
Water year 1957-58: Max 11,300 Min 0.1 Mean 231 Cfsm 1.50 In. 20.40 Ac-ft 167,500

Peak discharge (base, 600 cfs).--Nov. 22 (9 p.m.) 1,430 cfs (10.87 ft); Jan. 22 (8 to 10 p.m.) 1,380 cfs (10.82 ft); May 5 (8 a.m.) 1,200 cfs (10.60 ft); Sept. 21 (1 p.m.) 15,400 cfs (16.04 ft).

* Discharge measurement made on this day.

## 240. 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 1958.

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

Average discharge.--10 years, 105 cfs (76,020 acre-ft per year).

Extremes.--Maximum discharge during year, 7,060 cfs Sept. 21 (gage height, 13.07 ft); no flow for many days.
1948-58: Maximum discharge, 15,000 cfs June 3, 1950 (gage height, 15.75 ft); no flow at times each year.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 5 to Nov. 5, Jan. 15-20, Mar. 5-24, Apr. 1-15, May 7 to June 22, July 9 to Aug. 16, Sept. 13-18, 26-30)

| | | | | | |
|---|---|---|---|---|---|
| 1.6 | 0 | 4.0 | 26 | 9.5 | 440 |
| 1.7 | .4 | 5.0 | 47 | 10.0 | 660 |
| 1.8 | .8 | 6.0 | 74 | 10.5 | 1,080 |
| 2.0 | 1.8 | 8.0 | 158 | 11.0 | 2,000 |
| 2.2 | 3.0 | 8.5 | 190 | 12.0 | 4,080 |
| 2.5 | 5.0 | 9.0 | 290 | 13.0 | 6,900 |
| 3.0 | 9.6 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.8 | 0.5 | 72 | 64 | 47 | 160 | 305 | 305 | 2.9 | 7.1 | a0 | 3.8 |
| 2 | 1.4 | .3 | 49 | 47 | 40 | 62 | 121 | 260 | 2.4 | 6.6 | a0 | 3.5 |
| 3 | 1.2 | .2 | 40 | 37 | 34 | 46 | 77 | 131 | 2.2 | 6.2 | a0 | 3.3 |
| 4 | .9 | **.1 | 36 | 31 | 29 | 37 | 62 | 263 | 2.0 | 6.0 | a0 | 3.1 |
| 5 | .7 | 1.0 | 32 | 27 | 26 | 64 | 52 | 460 | *1.6 | 5.6 | a0 | 2.9 |
| 6 | .5 | 64 | 30 | 24 | *26 | 411 | 44 | 304 | 1.6 | 5.6 | a0 | 2.9 |
| 7 | .4 | 220 | 53 | 23 | 31 | 720 | 38 | 99 | 1.6 | 5.6 | a0 | 2.9 |
| 8 | .3 | 365 | 189 | 23 | 34 | 1,160 | 35 | 52 | 1.4 | 84 | a0 | 3.2 |
| 9 | .2 | *500 | *200 | 23 | 29 | 1,160 | 33 | 39 | 1.4 | 53 | a0 | 3.3 |
| 10 | *0 | 520 | 88 | 21 | 86 | 820 | a50 | 39 | 1.2 | 12 | a.1 | 2.9 |
| 11 | 0 | 158 | 52 | 19 | 342 | 356 | *a100 | *52 | 1.0 | 9.0 | a.1 | *11 |
| 12 | 0 | 45 | 39 | 19 | 460 | 122 | 76 | 42 | .8 | 6.0 | a.1 | *8.4 |
| 13 | 0 | 45 | 32 | 50 | 236 | 79 | 47 | 28 | .7 | 3.6 | a.1 | 5.1 |
| 14 | 0 | 318 | 28 | 193 | 124 | 74 | 42 | 23 | .5 | *2.7 | a.1 | 3.2 |
| 15 | 0 | 540 | 28 | 208 | 183 | *62 | 141 | 20 | .6 | 2.3 | **a.1 | 1.8 |
| 16 | .3 | 660 | 29 | 108 | 335 | 50 | 139 | 19 | 1.8 | 2.3 | a.1 | 1.4 |
| 17 | .2 | 500 | 30 | *69 | 180 | 46 | 64 | 18 | 2.8 | 2.0 | a.1 | *1.8 |
| 18 | 0 | 480 | 30 | 52 | 89 | 50 | 35 | 19 | 3.5 | 1.8 | a.2 | 126 |
| 19 | 0 | 540 | 28 | 43 | 60 | 57 | 25 | 89 | 6.4 | 1.5 | a.3 | *335 |
| 20 | 0 | 635 | 27 | 245 | 48 | 52 | 21 | 48 | 7.6 | 1.4 | a.5 | 520 |
| 21 | 0 | 690 | 24 | 1,230 | 41 | 41 | 19 | 31 | 3.4 | 1.2 | a.8 | *4,500 |
| 22 | .5 | 750 | 21 | 2,800 | 37 | 36 | 17 | 18 | 386 | .9 | a2.0 | *4,330 |
| 23 | 2.6 | 1,320 | 18 | 1,320 | 36 | 40 | 16 | 12 | 520 | .8 | a3.0 | 1,600 |
| 24 | 26 | 1,800 | 16 | 700 | 50 | 165 | 15 | 9.7 | 410 | *.2 | a5.0 | 820 |
| 25 | 22 | 1,500 | 16 | 222 | 82 | 380 | 13 | 7.5 | 86 | 0 | 6.4 | 224 |
| 26 | 9.4 | 910 | 21 | 106 | 77 | 262 | 12 | 6.4 | 22 | 0 | 9.2 | 67 |
| 27 | 4.8 | 440 | 42 | 69 | 154 | 141 | 12 | 5.6 | 14 | 0 | 11 | 41 |
| 28 | 2.7 | 166 | 218 | 57 | 305 | 100 | 17 | 4.9 | 10 | 0 | 7.2 | 41 |
| 29 | 1.6 | 136 | 425 | 52 | - | 82 | 33 | 4.3 | 8.7 | 0 | 5.6 | 38 |
| 30 | 1.0 | 131 | 320 | 52 | ------- | 329 | 118 | 3.8 | 7.8 | 0 | 4.8 | 28 |
| 31 | .7 | ------- | 123 | 54 | ------- | 500 | ------- | 3.3 | ------- | 0 | 4.2 | ------- |
| Total | 79.2 | 13,435.1 | 2,356 | 7,988 | 3,223 | 7,664 | 1,779 | 2,416.5 | 1,511.9 | 227.4 | 61.0 | 12,734.5 |
| Mean | 2.55 | 448 | 76.0 | 258 | 115 | 247 | 59.3 | 78.0 | 50.4 | 7.34 | 1.97 | 424 |
| Cfsm | 0.023 | 3.96 | 0.673 | 2.28 | 1.02 | 2.19 | 0.525 | 0.690 | 0.446 | 0.065 | 0.017 | 3.75 |
| In. | 0.03 | 4.42 | 0.78 | 2.63 | 1.06 | 2.52 | 0.59 | 0.80 | 0.50 | 0.07 | 0.02 | 4.18 |
| Ac-ft | 157 | 26,650 | 4,670 | 15,840 | 6,390 | 15,200 | 3,530 | 4,790 | 3,000 | 451 | 121 | 25,260 |

Calendar year 1957: Max 3,160 Min 0 Mean 163 Cfsm 1.44 In. 19.57 Ac-ft 117,900
Water year 1957-58: Max 4,500 Min 0 Mean 147 Cfsm 1.30 In. 17.60 Ac-ft 106,100

Peak discharge (base, 800 cfs).--Nov. 24 (2 to 4 p.m.) 2,000 cfs (11.00 ft); Jan. 22 (2 a.m.) 3,720 cfs (11.87 ft); Mar. 8 (7 to 10 p.m.) 1,230 cfs (10.30 ft); Sept. 21 (5 p.m.) 7,060 cfs (13.07 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated on basis of 1 discharge measurement and records for nearby stations.

## 242. Bayou La Nana near Zwolle, La.

Location. --Lat 31°30'56", long 93°39'04", in NW¼SE¼ sec. 12, T. 6 N., R. 13 W., at bridge on State Highway 475, three-quarters of a mile downstream from Spring Branch, 4 miles upstream from mouth, and 8 miles south of Zwolle.

Drainage area.--130 sq mi.

Records available.--October 1955 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 132.42 ft above mean sea level (Louisiana Geodetic Survey bench mark; levels by Louisiana Department of Public Works). Auxiliary gage 0.4 mile upstream from base gage at same datum.

Extremes.--Maximum discharge during year, 5,700 cfs Sept. 22 (gage height, 21.34 ft); minimum daily, 0.1 cfs Oct. 13, 14; minimum gage height, 1.84 ft Aug. 20.
1955-58: Maximum discharge that of Sept. 22, 1958; no flow for many days 1956-57.

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

Rating tables, water year 1957-58, except period of backwater from Sabine River (gage height, in feet, and discharge, in cubic feet per second)

Oct. 1 to Nov. 7

| | | | |
|---|---|---|---|
| 1.8 | 0 | 2.4 | 16 |
| 1.9 | 1.0 | 3.0 | 55 |
| 2.0 | 2.6 | 4.0 | 150 |
| 2.1 | 4.5 | 6.0 | 420 |
| 2.2 | 7.2 | 7.0 | 580 |

Nov. 8 to Sept. 30

| | | | |
|---|---|---|---|
| 1.8 | 0.5 | 4.0 | 160 |
| 1.9 | 1.5 | 6.0 | 440 |
| 2.0 | 3.1 | 10.0 | 1,200 |
| 2.1 | 5.5 | 14.0 | 2,250 |
| 2.2 | 8.8 | 18.0 | 3,700 |
| 2.5 | 23 | 21.0 | 5,460 |
| 3.0 | 57 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.0 | 0.8 | 163 | 65 | 85 | 170 | 56 | 586 | 5.8 | 16 | 2.3 | a8.0 |
| 2 | .9 | .8 | 129 | 48 | 66 | 103 | 42 | 238 | 5.5 | 14 | 2.5 | a6.0 |
| 3 | .8 | a1.0 | 101 | 41 | 54 | 80 | 36 | 236 | 5.5 | 13 | 2.5 | a5.0 |
| 4 | .7 | a2.0 | 72 | 36 | 46 | 66 | 32 | 418 | 8.5 | 11 | 2.1 | 4.3 |
| 5 | .7 | a10 | 48 | 32 | 46 | 112 | 30 | 228 | *12 | 10 | 2.0 | 4.1 |
| 6 | .6 | a100 | 40 | 30 | 292 | 723 | 25 | 118 | 6.2 | 9.6 | 1.7 | 4.3 |
| 7 | .5 | a450 | 340 | 31 | 221 | 646 | 22 | 70 | 6.5 | 10 | 1.5 | 5.3 |
| 8 | .4 | *a700 | 535 | 32 | 85 | 425 | 19 | 49 | 5.5 | 16 | 1.4 | 96 |
| 9 | .4 | 630 | 178 | 30 | 55 | 350 | 19 | 40 | 5.0 | 14 | 1.5 | 55 |
| 10 | *.4 | 84 | 92 | 27 | 244 | 208 | 19 | c35 | 5.8 | 19 | 5.3 | 22 |
| 11 | .3 | 32 | 62 | 25 | *900 | 124 | *19 | *c30 | 5.0 | 22 | 5.3 | *13 |
| 12 | .2 | 20 | *48 | 27 | 348 | 91 | 18 | c25 | 4.1 | 34 | 2.8 | 8.5 |
| 13 | .1 | 102 | 41 | 111 | 156 | 80 | 16 | c25 | 3.3 | 20 | 1.8 | 7.2 |
| 14 | .1 | 552 | 38 | 277 | 141 | 77 | 25 | c20 | 3.8 | 18 | 3.6 | 6.2 |
| 15 | .7 | 301 | 36 | 186 | 545 | *66 | 51 | c20 | 3.3 | *11 | 3.6 | 5.3 |
| 16 | 2.6 | 186 | 36 | 232 | 363 | 55 | 52 | c15 | 7.5 | 8.5 | 2.0 | 5.0 |
| 17 | 4.1 | 284 | 34 | *117 | 164 | 51 | 31 | c15 | 72 | 6.8 | 1.4 | 7.2 |
| 18 | 4.3 | 508 | 33 | 77 | 110 | 65 | 22 | c15 | 55 | 6.2 | 1.3 | 151 |
| 19 | 2.6 | 1,200 | 33 | 58 | 83 | 70 | 18 | c15 | 145 | 8.1 | 1.2 | 52 |
| 20 | 1.5 | 565 | 33 | 876 | 70 | 53 | 16 | c10 | 74 | 7.2 | 1.0 | 960 |
| 21 | 1.0 | 513 | 33 | 2,860 | 62 | 44 | 17 | c10 | 23 | 5.3 | *1.2 | *3,510 |
| 22 | 3.4 | 1,470 | 30 | 3,320 | 55 | 40 | 18 | c20 | *1,120 | 6.5 | 58 | *4,820 |
| 23 | 6.1 | 2,040 | 27 | 781 | 57 | 46 | 18 | c30 | 1,650 | 6.8 | 149 | *2,370 |
| 24 | 11 | 2,360 | 24 | 218 | 90 | 78 | 16 | c40 | 1,020 | *6.2 | 980 | 632 |
| 25 | 6.9 | 1,080 | 25 | 153 | 113 | 96 | 14 | c25 | 102 | *6.5 | 1,400 | 552 |
| 26 | 4.1 | 347 | 43 | 118 | 185 | 67 | 16 | c15 | 50 | 5.0 | 595 | 488 |
| 27 | 2.8 | 206 | 102 | 95 | 850 | 56 | 514 | c10 | 34 | 4.5 | 56 | 350 |
| 28 | 1.8 | 238 | 583 | 82 | 537 | 51 | 1,800 | c9.0 | 28 | 3.8 | 27 | 206 |
| 29 | 1.5 | 472 | 409 | 134 | - | 45 | 1,270 | c8.0 | 22 | 3.1 | 18 | 74 |
| 30 | 1.2 | 244 | 147 | 164 | ------ | 68 | 566 | 7.8 | 19 | 2.8 | 11 | 49 |
| 31 | 1.0 | ------ | 91 | 113 | ------ | 90 | ------ | 6.8 | ------ | 2.6 | a10 | ------ |
| Total | 63.7 | 14,698.6 | 3,606 | 10,396 | 6,023 | 4,296 | 4,817 | 2,389.6 | 4,507.3 | 327.5 | 3,352.0 | 14,476.4 |
| Mean | 2.05 | 490 | 116 | 335 | 215 | 139 | 161 | 77.1 | 150 | 10.6 | 108 | 483 |
| Cfsm | 0.016 | 3.77 | 0.892 | 2.58 | 1.65 | 1.07 | 1.24 | 0.593 | 1.15 | 0.082 | 0.831 | 3.72 |
| In. | 0.02 | 4.21 | 1.03 | 2.97 | 1.72 | 1.23 | 1.38 | 0.68 | 1.28 | 0.09 | 0.96 | 4.15 |
| Ac-ft | 126 | 29,150 | 7,150 | 20,620 | 11,950 | 8,520 | 9,550 | 4,740 | 8,940 | 650 | 6,650 | 28,710 |

Calendar year 1957: Max 2,360 Min 0 Mean 119 Cfsm 0.915 In. 12.45 Ac-ft 86,220
Water year 1957-58: Max 4,820 Min 0.1 Mean 189 Cfsm 1.45 In. 19.72 Ac-ft 136,800

Peak discharge (base, 700 cfs).--Nov. 8 (10 p.m.) 1,020 cfs (9.10 ft); Nov. 19 (5 p.m.) 1,250 cfs (10.23 ft); Nov. 24 (10 a.m.) 2,520 cfs (14.90 ft); Dec. 28 (6:30 p.m.) 720 cfs (7.61 ft); Jan. 22 (2 a.m.) 4,300 cfs (19.24 ft); Feb. 11 (12 m.) 980 cfs (8.88 ft); Feb. 27 (5:30 p.m.) 1,000 cfs (8.96 ft); Mar. 6 (7 p.m.) 880 cfs (8.41 ft); Apr. 28 (3:30 a.m.) 1,920 cfs (12.92 ft); June 23 (11 p.m.) 1,900 cfs (12.78 ft); Aug. 25 (7 p.m.) 1,450 cfs (10.99 ft); Sept. 22 (1:30 a.m.) 5,700 cfs (21.34 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for nearby stations.
c Backwater from Sabine River.

## 244. Sabine River near Milam, Tex.

Location.--Lat 31°28', long 93°45', on 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 Bayou, 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 1958.

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 at present datum.

Average discharge.--19 years (1939-58), 5,630 cfs (4,076,000 acre-ft per year).

Extremes.--Maximum discharge during year, 41,600 cfs May 16 (gage height, 43.27 ft); minimum, 292 cfs Oct. 14.

1923-25, 1939-58: Maximum discharge, 83,400 cfs Apr. 12, 1945 (gage height, 48.87 ft); minimum, 25 cfs Oct. 14-19, 1956.

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 in 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. Diversions above station for oilfield operations and municipal and industrial use.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 6.5 | 196 | 15.0 | 4,100 | 40.0 | 28,900 |
| 7.0 | 337 | 20.0 | 7,750 | 43.0 | 39,400 |
| 8.0 | 660 | 26.0 | 13,100 | 44.0 | 46,700 |
| 10.0 | 1,400 | 34.0 | 21,000 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 512 | 7,430 | 21,100 | 6,650 | 11,000 | 4,560 | 7,270 | 9,990 | 3,580 | 4,620 | 610 | 850 |
| 2 | 694 | 7,110 | 20,900 | 6,120 | 9,810 | 4,420 | 6,950 | 10,900 | 2,400 | 4,300 | 578 | 677 |
| 3 | 935 | 6,950 | 20,600 | 5,600 | 8,860 | 4,230 | 6,350 | 11,400 | 2,150 | 3,840 | 528 | 594 |
| 4 | 1,160 | 6,800 | 20,100 | 5,030 | 8,090 | 3,840 | 5,450 | 12,900 | 1,900 | 3,240 | 495 | 544 |
| 5 | 1,320 | 6,720 | 19,600 | 4,490 | 7,670 | 3,480 | 4,750 | 14,000 | 1,720 | 2,570 | 463 | 479 |
| 6 | 1,360 | 7,270 | 18,800 | 4,230 | 7,750 | 5,100 | 4,230 | 14,600 | 1,540 | 1,950 | 447 | 447 |
| 7 | 1,280 | *8,090 | 18,200 | 4,040 | 7,840 | 6,350 | 3,840 | 15,400 | 1,360 | 1,620 | 415 | 447 |
| 8 | 1,080 | 9,720 | 17,400 | 3,900 | 7,430 | 6,350 | 3,660 | 16,400 | 1,240 | 1,580 | 402 | 463 |
| 9 | *830 | 11,200 | 16,200 | 3,660 | 7,110 | 6,880 | 3,660 | 17,400 | 1,120 | 1,490 | 393 | 512 |
| 10 | 644 | 12,100 | 14,500 | 3,300 | 6,650 | 6,950 | *3,660 | 19,000 | 1,080 | 1,440 | 380 | 463 |
| 11 | 512 | 12,800 | 12,300 | 2,960 | 7,590 | 6,120 | 3,840 | 22,800 | 1,040 | 1,490 | 371 | *495 |
| 12 | 412 | 13,500 | 9,720 | 2,790 | 7,510 | 5,240 | 4,040 | 27,400 | 935 | 2,250 | 362 | 479 |
| 13 | 349 | 13,600 | 7,270 | 3,360 | 6,500 | 4,490 | 4,230 | 32,400 | 848 | 2,620 | 362 | 463 |
| 14 | 304 | 13,700 | 5,600 | 6,350 | 5,980 | 4,890 | 4,300 | 36,600 | 779 | 2,790 | 359 | 463 |
| 15 | 331 | 13,100 | 4,620 | 8,520 | 6,120 | 5,450 | 4,230 | 40,200 | 711 | 2,840 | 365 | 463 |
| 16 | 512 | 12,300 | 3,900 | *9,280 | 6,580 | 5,680 | 3,840 | 40,800 | 677 | 2,900 | 368 | 447 |
| 17 | 1,080 | 12,300 | 3,540 | 9,810 | 6,580 | 5,750 | 3,360 | 40,800 | 779 | 3,010 | 362 | 463 |
| 18 | 3,120 | 12,600 | *3,360 | 9,810 | 6,800 | 5,820 | 3,120 | 39,400 | 1,400 | 3,060 | 349 | 1,350 |
| 19 | 4,890 | 13,700 | 3,360 | 9,360 | 6,800 | 5,750 | 2,960 | 37,200 | 3,010 | 3,120 | 340 | 1,850 |
| 20 | 5,980 | 14,000 | 3,240 | 10,200 | *6,500 | 5,680 | 2,790 | 35,300 | 5,100 | 3,010 | *331 | 3,970 |
| 21 | 6,720 | 14,600 | 3,180 | 15,000 | 5,680 | 5,600 | 2,680 | 33,000 | 5,980 | 2,900 | 325 | 14,600 |
| 22 | 7,110 | 16,400 | 3,120 | 16,600 | 4,820 | 5,600 | 2,790 | 31,000 | 8,680 | 2,620 | 399 | 19,800 |
| 23 | 7,590 | 18,800 | 3,010 | 17,400 | 4,160 | 5,750 | 2,900 | *29,300 | 11,200 | 2,250 | 528 | 23,000 |
| 24 | 8,180 | 20,100 | 2,900 | 16,600 | 3,840 | 6,120 | 3,010 | 28,100 | 11,600 | 1,760 | 2,310 | 25,200 |
| 25 | 8,600 | 20,800 | 2,840 | 16,000 | 3,720 | 6,950 | 3,120 | 26,700 | 10,300 | 1,320 | 4,040 | 26,100 |
| 26 | 8,680 | 20,800 | 2,740 | 15,400 | 3,720 | 7,670 | 3,180 | 25,300 | *8,770 | 1,040 | 2,960 | 25,800 |
| 27 | 8,600 | 20,700 | 2,790 | 14,700 | 4,890 | 7,920 | 3,950 | 23,900 | 7,350 | 865 | 1,320 | 24,800 |
| 28 | 8,430 | 20,700 | 4,160 | 14,000 | 5,600 | 7,920 | 6,500 | 22,300 | 6,050 | 762 | 1,720 | 23,300 |
| 29 | 8,180 | 21,000 | 6,050 | 13,500 | - | 7,750 | 6,650 | 20,200 | 5,240 | 711 | 1,900 | 21,700 |
| 30 | 7,920 | 21,100 | 6,580 | 12,900 | ------- | 7,510 | 7,590 | 16,600 | 4,820 | *694 | 1,620 | 18,800 |
| 31 | 7,670 | ------- | 6,800 | 12,100 | ------- | 7,430 | ------- | 9,120 | ------- | 660 | 1,160 | ------- |
| Total | 114,985 | 409,990 | 288,480 | 283,660 | 185,600 | 183,250 | 128,900 | 760,410 | 113,359 | 69,322 | 26,562 | 238,999 |
| Mean | 3,709 | 13,670 | 9,306 | 9,150 | 6,629 | 5,911 | 4,297 | 24,530 | 3,779 | 2,236 | 857 | 7,967 |
| Cfsm | 0.567 | 2.09 | 1.42 | 1.40 | 1.01 | 0.903 | 0.657 | 3.75 | 0.577 | 0.342 | 0.131 | 1.22 |
| In. | 0.65 | 2.33 | 1.64 | 1.61 | 1.05 | 1.04 | 0.73 | 4.32 | 0.64 | 0.39 | 0.15 | 1.36 |
| Ac-ft | 228,100 | 813,200 | 572,200 | 562,600 | 368,100 | 363,500 | 255,700 | ‡1,508 | 224,800 | 137,500 | 52,680 | 474,000 |

Calendar year 1957: Max 59,400 Min 156 Mean 8,456 Cfsm 1.29 In. 17.56 Ac-ft 6,122,000
Water year 1957-58: Max 40,800 Min 304 Mean 7,681 Cfsm 1.17 In. 15.91 Ac-ft 5,560,000

* Discharge measurement made on this day.
‡ Expressed in thousands.

245. 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 1952 to September 1958.

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

Average discharge.--6 years, 102 cfs (73,840 acre-ft per year).

Extremes.--Maximum discharge during year, 5,000 cfs Sept. 28 (gage height, 19.00 ft); no flow Oct. 13, 14.
1952-58: Maximum discharge, 17,000 cfs Apr. 29, 1953 (gage height, 22.50 ft); no flow at times.
Maximum stage since at least 1907, 26.6 ft in July 1933, from information by local resident. Flood in June 1950 reached a stage of 23.0 ft, from information by State Highway Department.

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.2 | 4.1 | 152 | 122 | 140 | 146 | 74 | 563 | 14 | 6.2 | 1.0 | 14 |
| 2 | 1.0 | 4.6 | 134 | 104 | 113 | 122 | 65 | 202 | 12 | 4.7 | .8 | 12 |
| 3 | .8 | 4.6 | 125 | 94 | 107 | 107 | 63 | 285 | 11 | 4.1 | .7 | 11 |
| 4 | .7 | 4.9 | 116 | 86 | 102 | 94 | 59 | 688 | 9.9 | 3.7 | .7 | 9.4 |
| 5 | .5 | 5.8 | 104 | 82 | 133 | 104 | 53 | 434 | 9.0 | 3.2 | 2.4 | 8.0 |
| 6 | .3 | 34 | 113 | 82 | 380 | 380 | 50 | 177 | 8.1 | 2.8 | 2.2 | 7.4 |
| 7 | .3 | 86 | 198 | 94 | 253 | 407 | 46 | 116 | 7.8 | 3.7 | 1.4 | 9.0 |
| 8 | .3 | *325 | 198 | 89 | 140 | 335 | 44 | 94 | 7.2 | *85 | 1.2 | 14 |
| 9 | *.2 | 256 | 152 | 74 | 116 | 435 | 46 | 76 | 6.8 | 48 | 1.0 | 19 |
| 10 | .2 | 122 | 113 | 67 | 191 | 261 | *49 | 65 | 6.8 | 27 | .9 | 13 |
| 11 | .1 | 96 | 99 | 67 | 371 | 174 | 45 | 59 | 5.7 | 24 | .7 | 11 |
| 12 | .1 | 54 | 89 | .182 | 253 | 155 | 38 | 51 | 5.4 | 19 | .6 | *9.9 |
| 13 | 0 | 65 | 82 | 594 | 170 | 134 | 37 | 42 | 5.1 | 11 | .7 | 9.2 |
| 14 | 0 | 327 | 82 | 826 | 174 | 119 | 67 | 36 | 5.1 | 8.6 | .8 | 8.5 |
| 15 | 3 | 329 | 94 | 382 | 253 | 104 | 128 | 34 | 5.0 | 6.0 | 1.2 | 8.1 |
| 16 | 8.1 | 557 | 92 | *205 | 229 | 92 | 72 | 30 | 6.3 | *5.1 | 1.3 | 8.3 |
| 17 | 13 | 445 | 86 | 170 | 152 | 94 | 50 | 26 | 14 | 4 | 1.0 | 25 |
| 18 | 9.9 | 394 | *82 | 143 | 128 | 104 | 43 | 30 | 13 | 3.7 | .9 | 309 |
| 19 | 8.1 | 603 | 84 | 122 | 119 | 94 | 45 | 34 | 12 | 3.0 | .5 | 245 |
| 20 | 7.5 | 301 | 82 | 957 | 110 | 84 | 47 | 30 | 12 | 2.6 | *.4 | 529 |
| 21 | 7.5 | 544 | 76 | 3,100 | *102 | 76 | 43 | 29 | 13 | 2.1 | .4 | 2,900 |
| 22 | 5.4 | 1,760 | 72 | 1,950 | 99 | 74 | 49 | 26 | 27 | 2.0 | 6.5 | 1,910 |
| 23 | 9.9 | 3,340 | 63 | 860 | 116 | 104 | 61 | 23 | 59 | 1.6 | 15 | 965 |
| 24 | 21 | 2,780 | 61 | 371 | 164 | 184 | 41 | 151 | 28 | 3.6 | 434 | 321 |
| 25 | 16 | 1,180 | 65 | 237 | 152 | 128 | 33 | 85 | 15 | 18 | 784 | 158 |
| 26 | 13 | 450 | 131 | 205 | 131 | 107 | 29 | 51 | 11 | 7.6 | *493 | 198 |
| 27 | 9.5 | 269 | 253 | 174 | 307 | 107 | 61 | 38 | 10 | 5.0 | 63 | 2,410 |
| 28 | 6.3 | 301 | 635 | 158 | 261 | 96 | 437 | *25 | 12 | 3.5 | 33 | 3,400 |
| 29 | 5.0 | 237 | 476 | 174 | - | 82 | 367 | 20 | 8.8 | 2.3 | 22 | 1,290 |
| 30 | 4.5 | 184 | 229 | 184 | ------ | 82 | 679 | 18 | 7.0 | 1.8 | 18 | 326 |
| 31 | 4.0 | ------ | 149 | 161 | ------ | 79 | ------ | 16 | ------ | 1.4 | 16 | ------ |
| Total | 157.4 | 15,063.0 | 4,487 | 12,116 | 4,966 | 4,664 | 2,921 | 3,554 | 367.0 | 324.3 | 1,905.3 | 15,157.8 |
| Mean | 5.08 | 502 | 145 | 391 | 177 | 150 | 97.4 | 115 | 12.2 | 10.5 | 61.5 | 505 |
| Cfsm | 0.042 | 4.15 | 1.20 | 3.23 | 1.46 | 1.24 | 0.805 | 0.950 | 0.101 | 0.087 | 0.508 | 4.17 |
| In. | 0.05 | 4.63 | 1.38 | 3.72 | 1.53 | 1.43 | 0.90 | 1.09 | 0.11 | 0.10 | 0.59 | 4.66 |
| Ac-ft | 312 | 29,880 | 8,900 | 24,030 | 9,850 | 9,250 | 5,790 | 7,050 | 728 | 643 | 3,780 | 30,070 |

Calendar year 1957: Max 3,480 Min 0 Mean 146 Cfsm 1.21 In. 16.37 Ac-ft 105,700
Water year 1957-58: Max 3,400 Min 0 Mean 180 Cfsm 1.49 In. 20.19 Ac-ft 130,300

Peak discharge (base, 900 cfs).--Nov. 23 (12 m.) 3,340 cfs (18.00 ft); Jan. 14 (3 a.m.) 944 cfs (13.80 ft); Jan. 21 (12 m.) 3,340 cfs (18.00 ft); Apr. 30 (12 p.m.) 962 cfs (13.9 ft, from graph); Sept. 21 (12 m.) 3,620 cfs (18.20 ft); Sept. 28 (2 a.m.) 5,000 cfs (19.00 ft).

* Discharge measurement made on this day.

## 255. Bayou Toro near Toro, La.

Location.- Lat 31°18'25", long 93°31'56", in SW¼ sec. 20, T. 4 N., R. 11 W., at bridge on State Highway 473, 0.2 mile upstream from Hanby Creek, 2.5 miles northeast of Toro, and 7.8 miles west of Hornbeck.

Drainage area.--148 sq mi.

Records available.--October 1955 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 138.00 ft above mean sea level (Louisiana Geodetic Survey bench mark; levels by Louisiana Department of Public Works).

Extremes.--Maximum discharge during year, 3,350 cfs Sept. 21 (gage height, 17.53 ft); minimum, 4.4 cfs Aug. 21; minimum gage height, 2.78 ft Oct. 11.
1955-58: Maximum discharge, that of Sept. 21, 1958; minimum, 0.1 cfs Sept. 29, 30, Oct. 1-3, 1956; minimum gage height, 2.40 ft Sept. 30, Oct. 1, 1956.

Remarks.--Records good.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 18-20, 22-23, Dec. 9-26, Feb. 16-23, Mar. 1-23, May 4-23, Aug. 24, 25, 27, 28)

| Oct. 1 to June 23 | | | | June 24 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.7 | 4.5 | 5.0 | 131 | 2.8 | 4.0 | 5.0 | 131 |
| 2.9 | 7.5 | 6.0 | 250 | 3.0 | 8.0 | 6.0 | 250 |
| 3.0 | 9.0 | 8.0 | 600 | 3.2 | 13 | 8.0 | 600 |
| 3.5 | 29 | 14.0 | 2,300 | 3.5 | 24 | 16.0 | 2,900 |
| 4.0 | 54 | | | 4.0 | 52 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.4 | 14 | 119 | 123 | 131 | 162 | 102 | 923 | 26 | 18 | 6.0 | 44 |
| 2 | 8.0 | 14 | 107 | 102 | 107 | 123 | 82 | 295 | 24 | 17 | 5.4 | 38 |
| 3 | 7.5 | 17 | 103 | 89 | 93 | 107 | 74 | 180 | 22 | 15 | 5.0 | *32 |
| 4 | 7.4 | 16 | 99 | 81 | 85 | 95 | 67 | 255 | 21 | 13 | 5.4 | 30 |
| 5 | 7.2 | 17 | 91 | 74 | 85 | 95 | 61 | 212 | 21 | 13 | 6.4 | 28 |
| 6 | 6.8 | 127 | 86 | 74 | 102 | 145 | 54 | 131 | 20 | 17 | 5.2 | 28 |
| 7 | 7.0 | 195 | 335 | 84 | 131 | 310 | 48 | 104 | 20 | *18 | 5.0 | 32 |
| 8 | 7.0 | *1,110 | 416 | 81 | 101 | 348 | 45 | 85 | 18 | 35 | 4.8 | 51 |
| 9 | 6.3 | 708 | 170 | 70 | 80 | 216 | 68 | 74 | 18 | 143 | 4.8 | 78 |
| 10 | 6.2 | 162 | 111 | 63 | 90 | 150 | *79 | 66 | 17 | 138 | 5.0 | 52 |
| 11 | 5.8 | 85 | 93 | 62 | 369 | 115 | 66 | 60 | 15 | 52 | 5.4 | 36 |
| 12 | 6.3 | 69 | 79 | 76 | 254 | 98 | 52 | *55 | *14 | 42 | 6.2 | 32 |
| 13 | 6.0 | 126 | 72 | 425 | 140 | 102 | 47 | 50 | 13 | 29 | 6.6 | 30 |
| 14 | 6.3 | 397 | 71 | 488 | 145 | 111 | 564 | 46 | 13 | 22 | *6.6 | 26 |
| 15 | 13 | 400 | 75 | *202 | 512 | 93 | 344 | 42 | 15 | 19 | 6.0 | 24 |
| 16 | 30 | 657 | 80 | 131 | 387 | 81 | 163 | 40 | 17 | 16 | 5.4 | 23 |
| 17 | *38 | 800 | 74 | 107 | 210 | 81 | 97 | 37 | 18 | 15 | 5.6 | 41 |
| 18 | 27 | *1,280 | *69 | 93 | *150 | 127 | 75 | 36 | 23 | 13 | 5.0 | 65 |
| 19 | 16 | 1,330 | 69 | 84 | 131 | *119 | 67 | 38 | 26 | 13 | 5.0 | 45 |
| 20 | 11 | 926 | 85 | 506 | 119 | 90 | 67 | 68 | 38 | 12 | 5.6 | 1,380 |
| 21 | 9.6 | 501 | 85 | 1,920 | 111 | 76 | 64 | 70 | 30 | 11 | *4.6 | 2,880 |
| 22 | 14 | *1,640 | 65 | 1,480 | 106 | 71 | 72 | 52 | 166 | 10 | 279 | 2,880 |
| 23 | 94 | 2,190 | 55 | 442 | 126 | 148 | 87 | 78 | 906 | 10 | 688 | 1,780 |
| 24 | 119 | *2,100 | 52 | 236 | 192 | 428 | 67 | 330 | 452 | 9.0 | *1,190 | 466 |
| 25 | 50 | *1,490 | 86 | 198 | 174 | 272 | 52 | 144 | 83 | 9.5 | *1,850 | 207 |
| 26 | 31 | *481 | 183 | 156 | 162 | 145 | 49 | 68 | 51 | 10 | 1,450 | 180 |
| 27 | 23 | 258 | 353 | 131 | 563 | 119 | 117 | 48 | 38 | 8.5 | *226 | 642 |
| 28 | 19 | 198 | 1,100 | 120 | 392 | 105 | 1,120 | 40 | 30 | 8.0 | 123 | 1,660 |
| 29 | 16 | 198 | 690 | 303 | - | 95 | 1,280 | 44 | 25 | 7.0 | 89 | 749 |
| 30 | 15 | 150 | 221 | 286 | ------ | 172 | 1,700 | 36 | 21 | 6.6 | 67 | 214 |
| 31 | 14 | ------ | 150 | 168 | ------ | 169 | ------ | 30 | ------ | 6.0 | 51 | ------ |
| Total | 635.8 | 17,656 | 5,444 | 8,455 | 5,248 | 4,568 | 6,830 | 3,737 | 2,201 | 755.6 | 6,128.0 | 13,773 |
| Mean | 20.5 | 589 | 176 | 273 | 187 | 147 | 228 | 121 | 73.4 | 24.4 | 198 | 459 |
| Cfsm | 0.139 | 3.98 | 1.19 | 1.84 | 1.26 | 0.993 | 1.54 | 0.818 | 0.496 | 0.165 | 1.34 | 3.10 |
| In. | 0.16 | 4.44 | 1.37 | 2.12 | 1.31 | 1.14 | 1.72 | 0.94 | 0.55 | 0.19 | 0.54 | 3.46 |
| Ac-ft | 1,260 | 35,020 | 10,800 | 16,770 | 10,410 | 9,060 | 13,550 | 7,410 | 4,370 | 1,500 | 12,150 | 27,320 |

Calendar year 1957: Max 2,190 Min 4.8 Mean 148 Cfsm 1.00 In. 13.64 Ac-ft 107,500
Water year 1957-58: Max 2,880 Min 4.6 Mean 207 Cfsm 1.40 In. 18.94 Ac-ft 149,600

Peak discharge (base, 900 cfs).--Nov. 8 (8:30 a.m.) 1,280 cfs (10.62 ft); Nov. 18 (7:30 p.m.) 1,670 cfs (12.89 ft); Nov. 23 (2 a.m.) 2,360 cfs (14.53 ft); Dec. 28 (5 a.m.) 1,220 cfs (10.37 ft); Jan. 21 (6 a.m.) 2,120 cfs (13.39 ft); Apr. 14 (11:30 a.m.) 1,080 cfs (9.86 ft); Apr. 30 (3:30 a.m.) 1,910 cfs (12.73 ft); June 23 (10 p.m.) 1,000 cfs (9.57 ft); Aug. 24 (5:30 p.m.) 1,880 cfs (13.63 ft); Sept. 21 (11 p.m.) 3,350 cfs (17.53 ft); Sept. 28 (3:30 p.m.) 1,760 cfs (12.18 ft).

* Discharge measurement made on this day.

260. Sabine River below Toledo Bend, near Burkeville, Tex.

Location.--Lat 31°03'50", long 93°31'10", near left edge of low-water channel at downstream side of bridge on State Highway 63, about 200 ft downstream from Pearl Creek, 10 miles northeast of Burkeville, Newton County, 16 miles downstream from Bayou Toro, 23 miles downstream from proposed Toledo Bend Dam, and at mile 140.

Drainage area.--7,547 sq mi.

Records available.--September 1955 to September 1958.

Gage.--Water-stage recorder. Prior to Aug. 23, 1958, wire-weight gage at same site and datum. Datum of gage is 70.59 ft above mean sea level, datum of 1929, supplementary adjustment of 1941.

Extremes.--Maximum discharge during year, 43,200 cfs May 21, 22 (gage height, 30.42 ft); minimum, 472 cfs Aug. 21.
1955-58: Maximum discharge, 52,900 cfs May 15, 1957 (gage height, 32.43 ft); minimum, 60 cfs Sept. 26-30, 1956.
Maximum stage known since about 1860, 35.9 ft in May 1884, from information by local resident. Flood of Apr. 15, 1945, reached a stage of 35.8 ft and flood of May 23, 1953, reached a stage of 35.3 ft, from floodmarks.

Remarks.--Records good. Diversions above station for oilfield operation and municipal and industrial use.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 525 | 7,800 | 22,800 | 7,240 | 13,600 | 6,280 | 8,080 | 11,600 | a15,000 | 5,200 | 862 | 1,530 |
| 2 | 595 | 7,660 | 22,600 | 6,500 | 12,500 | 5,300 | 7,660 | 12,400 | a8,000 | 5,000 | 818 | 1,160 |
| 3 | 710 | 7,800 | 22,600 | 5,950 | 10,800 | 5,000 | 7,100 | 12,400 | 3,340 | 4,600 | 772 | 955 |
| 4 | 930 | 7,100 | 22,300 | 5,730 | 9,760 | 4,700 | 6,280 | 13,800 | 2,780 | 4,130 | 772 | 840 |
| 5 | 1,160 | 6,740 | 22,100 | 5,200 | 8,920 | 4,400 | 5,510 | 15,900 | 2,460 | 3,590 | 710 | 750 |
| 6 | 1,380 | 8,360 | 21,500 | 4,800 | 8,640 | 4,800 | 4,900 | 16,500 | 2,160 | 2,940 | 730 | 710 |
| 7 | 1,500 | 9,340 | 21,400 | 4,600 | 9,200 | 6,390 | 4,310 | 16,700 | 1,950 | 2,460 | 650 | 690 |
| 8 | 1,440 | *12,200 | 21,200 | 4,400 | 8,780 | 7,800 | 3,950 | 17,200 | 1,770 | 2,090 | 612 | 772 |
| 9 | 1,300 | 13,500 | 20,200 | 4,130 | 8,080 | 7,800 | 4,040 | 18,000 | 1,590 | 2,860 | 595 | 862 |
| 10 | 1,060 | 13,200 | 18,800 | 3,680 | 7,520 | 7,940 | 4,220 | 18,800 | 1,500 | 2,300 | 595 | 818 |
| 11 | *862 | 13,000 | 16,800 | 3,420 | 7,800 | 7,520 | 3,950 | 20,200 | *1,380 | 2,020 | 578 | 772 |
| 12 | 710 | 13,300 | 14,300 | 3,680 | 8,780 | 6,620 | 4,040 | 22,400 | 1,330 | 1,830 | a560 | 862 |
| 13 | a612 | 14,100 | 11,100 | 4,600 | 8,080 | 5,840 | a4,130 | *25,000 | 1,220 | 2,380 | a550 | 1,000 |
| 14 | 525 | 15,400 | 8,500 | 6,740 | 7,100 | 5,100 | 6,640 | 27,600 | 1,140 | 2,860 | 542 | 818 |
| 15 | 525 | 15,400 | 6,280 | 8,780 | 7,520 | 5,300 | 9,060 | 30,100 | 1,080 | 2,940 | 525 | 710 |
| 16 | 862 | 15,900 | 5,300 | 9,480 | 7,940 | 5,840 | *6,740 | 32,900 | 1,060 | *3,020 | 525 | 710 |
| 17 | 818 | 15,100 | 4,600 | *9,900 | 7,520 | 6,060 | 4,900 | 36,200 | 1,000 | 3,100 | 525 | 930 |
| 18 | 930 | 15,200 | 4,130 | 10,200 | 7,240 | 6,280 | 4,040 | 38,700 | 1,000 | 3,180 | 508 | 862 |
| 19 | 2,720 | 17,000 | *4,040 | 10,000 | 7,240 | 6,280 | 3,590 | 41,200 | 1,530 | 3,260 | a508 | 1,580 |
| 20 | 4,800 | *16,700 | 4,220 | 11,700 | 7,100 | 6,060 | 3,500 | 42,800 | 2,940 | 3,260 | 490 | 6,640 |
| 21 | 5,950 | 15,900 | 3,950 | 18,900 | *6,620 | 5,950 | 3,260 | 43,200 | 4,900 | a3,180 | 490 | 18,800 |
| 22 | *6,860 | 18,000 | 3,770 | 21,400 | 5,950 | 5,950 | 3,950 | 43,200 | 6,500 | 3,100 | 1,350 | 23,200 |
| 23 | 7,800 | 22,100 | 3,590 | 23,000 | 5,730 | 6,280 | 4,310 | 42,400 | 10,600 | 2,860 | *2,860 | 25,200 |
| 24 | 8,780 | 23,900 | 3,500 | 21,700 | 6,620 | 7,380 | 3,770 | 41,600 | 13,300 | 2,460 | 3,900 | 25,800 |
| 25 | 8,780 | 25,000 | 3,340 | 20,400 | 5,730 | 7,520 | 3,500 | 40,200 | 13,300 | 1,950 | 11,600 | 26,200 |
| 26 | 9,060 | 24,600 | a3,260 | 19,400 | 5,100 | 7,940 | a3,300 | 38,400 | 11,700 | 1,650 | 10,500 | 27,100 |
| 27 | 9,080 | 24,200 | 4,500 | a18,300 | a6,170 | 8,360 | a7,600 | 36,200 | 9,900 | 1,360 | 5,940 | 28,000 |
| 28 | 9,060 | 23,500 | 8,080 | 17,200 | 7,520 | 8,500 | 9,620 | 34,300 | a8,000 | 1,160 | 2,780 | 29,000 |
| 29 | 8,640 | 23,000 | 9,340 | 16,800 | - | 8,500 | 10,600 | 31,800 | a6,400 | 1,000 | 2,230 | 30,100 |
| 30 | 8,500 | 22,800 | 8,780 | 16,200 | ------ | 8,640 | 11,100 | 28,800 | 5,730 | 930 | 2,300 | 29,300 |
| 31 | 8,220 | ------ | 8,080 | 15,200 | ------ | 8,360 | ------ | 25,800 | ------ | 885 | 1,950 | ------ |
| Total | 114,674 | 467,800 | 354,960 | 339,230 | 223,560 | 204,690 | 167,650 | 876,300 | 144,560 | 83,555 | 58,327 | 286,671 |
| Mean | 3,699 | 15,590 | 11,450 | 10,940 | 7,984 | 6,603 | 5,588 | 28,270 | 4,819 | 2,695 | 1,882 | 9,556 |
| Cfsm | 0.490 | 2.07 | 1.53 | 1.45 | 1.06 | 0.875 | 0.740 | 3.75 | 0.639 | 0.357 | 0.249 | 1.27 |
| In. | 0.57 | 231 | 1.75 | 1.67 | 1.10 | 1.01 | 0.83 | 4.32 | 0.71 | 0.41 | 0.29 | 1.41 |
| Ac-ft | 227,500 | 927,900 | 704,100 | 672,900 | 443,400 | 406,000 | 332,500 | ‡1,738 | 286,700 | 165,700 | 115,700 | 568,600 |

Calendar year 1957: Max 52,800 Min 245 Mean 9,037 Cfsm 1.20 In. 16.28 Ac-ft 6,543,000
Water year 1957-58: Max 43,200 Min 490 Mean 9,101 Cfsm 1.21 In. 16.38 Ac-ft 6,589,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.
Note.--Discharge computed from twice-daily wire-weight-gage readings Oct. 1 to Aug. 22.

## 275. 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 8, 2¾ miles upstream from Prairie Creek and 5½ miles west of Leesville.

Drainage area.--114 sq mi.

Records available.--September 1948 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 190.58 ft above mean sea level, datum of 1929 (levels by Louisiana Department of Public Works).

Average discharge.--10 years, 162 cfs (117,300 acre-ft per year).

Extremes.--Maximum discharge during year, 5,930 cfs Aug. 25 (gage height, 15.62 ft); minimum daily, 7.9 cfs Oct. 13.
1948-58: Maximum discharge, 26,200 cfs Apr. 29, 1953 (gage height, 19.39 ft); minimum, 4.0 cfs many days in August, September, and October 1956; minimum gage height, 2.00 ft Sept. 21, 22, 23, 27, 28, 1956.

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

Revisions (water years).--WSP 1512: 1949(P).

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 9-21, Sept. 1-17)

| Oct. 1 to Nov. 5 | | | | Nov. 6 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.3 | 7.6 | 4.0 | 62 | 2.3 | 9.5 | 13.0 | 1,050 |
| 2.5 | 11 | 6.0 | 173 | 2.5 | 13 | 13.5 | 1,170 |
| 2.7 | 15 | 8.0 | 304 | 3.0 | 25 | 14.0 | 1,510 |
| 3.0 | 24 | 10.0 | 522 | 4.0 | 62 | 14.5 | 2,270 |
| | | | | 5.0 | 113 | 15.0 | 3,590 |
| | | | | 7.0 | 265 | 16.0 | 7,910 |
| | | | | 10.0 | 580 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14 | 31 | 138 | 176 | 141 | 276 | 110 | 855 | a30 | a15 | a10 | 56 |
| 2 | 13 | 30 | 124 | 144 | 116 | 141 | 92 | 340 | a30 | a15 | a10 | 46 |
| 3 | 12 | 80 | 124 | 127 | 101 | 120 | 88 | 262 | a30 | a15 | a10 | *38 |
| 4 | 11 | 50 | 124 | 113 | 95 | 107 | 85 | 460 | a25 | a15 | a10 | 32 |
| 5 | 10 | 71 | 110 | 107 | 95 | 144 | 78 | 380 | a25 | a15 | a40 | 30 |
| 6 | 9.9 | 790 | 110 | 104 | 98 | 310 | 70 | 187 | a25 | a20 | a70 | 30 |
| 7 | 9.6 | 785 | 419 | 120 | 98 | 330 | 62 | 127 | a25 | a30 | a25 | 31 |
| 8 | 9.0 | *955 | 524 | 116 | 88 | 340 | 56 | 95 | a20 | a80 | a15 | 35 |
| 9 | 8.7 | 1,510 | 229 | 101 | 80 | 330 | 160 | 82 | a20 | a200 | a15 | 36 |
| 10 | 8.4 | 718 | 127 | 90 | 88 | 207 | *472 | 72 | *a20 | *a500 | a20 | 33 |
| 11 | 8.2 | 195 | 101 | 104 | 162 | 141 | 198 | 68 | a20 | *a150 | a15 | 28 |
| 12 | 8.1 | 158 | 85 | 420 | 169 | 127 | 110 | *62 | a15 | 80 | a15 | 24 |
| 13 | 7.9 | 745 | 78 | 645 | 113 | *155 | 88 | 54 | a15 | 70 | *16 | 24 |
| 14 | 8.1 | 1,120 | 80 | 671 | 116 | 127 | 452 | 49 | a15 | 48 | 15 | 23 |
| 15 | 12 | 1,090 | 130 | *332 | 342 | 101 | 1,160 | 45 | a15 | 37 | 13 | 23 |
| 16 | 66 | 956 | 148 | 199 | 294 | 90 | 855 | 42 | a15 | 32 | 13 | 22 |
| 17 | *66 | 556 | 104 | 155 | 155 | 101 | 228 | 38 | a15 | 28 | 12 | 54 |
| 18 | 39 | 604 | *98 | 134 | *113 | 191 | 152 | 36 | a20 | 25 | 12 | 88 |
| 19 | 24 | 878 | 123 | 120 | 98 | 166 | 127 | 133 | a25 | 23 | 12 | 64 |
| 20 | 17 | 758 | 283 | 360 | 90 | 110 | 120 | 207 | a30 | 21 | 11 | 558 |
| 21 | 14 | 330 | 204 | 1,050 | 85 | 90 | 120 | 154 | a45 | 20 | *11 | 3,470 |
| 22 | 25 | 715 | 127 | 1,110 | 82 | 82 | 158 | 82 | a200 | 18 | 444 | 2,380 |
| 23 | 277 | 1,170 | 104 | 486 | 179 | 259 | 223 | 60 | a350 | 20 | 1,050 | 868 |
| 24 | 425 | 1,290 | 92 | 247 | 370 | 740 | 130 | 186 | a250 | 19 | 1,260 | 326 |
| 25 | 315 | 944 | 131 | 231 | 231 | 473 | 92 | 233 | a120 | 18 | *4,380 | 205 |
| 26 | 92 | 509 | 330 | 187 | 176 | 207 | 78 | 90 | a55 | 16 | 1,350 | 210 |
| 27 | 60 | 269 | 438 | 155 | 513 | 166 | 122 | 60 | a40 | 15 | 316 | 237 |
| 28 | 46 | 223 | 1,120 | 141 | 645 | 138 | 894 | 48 | a30 | 15 | 152 | 853 |
| 29 | 38 | 223 | 1,090 | 247 | - | 130 | 1,170 | 40 | a25 | 14 | 110 | 883 |
| 30 | 34 | 172 | 437 | 247 | ------ | 162 | 932 | 36 | a20 | 13 | 85 | 243 |
| 31 | 32 | ------ | 215 | 172 | ------ | 155 | ------ | 32 | ------ | 12 | 66 | ------ |
| Total | 1,719.9 | 17,925 | 7,547 | 8,611 | 4,933 | 6,216 | 8,682 | 4,615 | 1,570 | 1,599 | 9,583 | 10,950 |
| Mean | 55.5 | 598 | 243 | 278 | 176 | 201 | 289 | 149 | 52.3 | 51.6 | 309 | 365 |
| Cfsm | 0.487 | 5.25 | 2.13 | 2.44 | 1.54 | 1.76 | 2.54 | 1.31 | 0.459 | 0.453 | 2.71 | 3.20 |
| In. | 0.56 | 5.86 | 2.46 | 2.81 | 1.60 | 2.03 | 2.83 | 1.51 | 0.51 | 0.52 | 3.12 | 3.57 |
| Ac-ft | 3,410 | 35,550 | 14,970 | 17,080 | 9,780 | 12,330 | 17,220 | 9,150 | 3,110 | 3,170 | 19,010 | 21,720 |

Calendar year 1957: Max 1,570 Min 7.2 Mean 175 Cfsm 1.54 In. 20.82 Ac-ft 126,400
Water year 1957-58: Max 4,380 Min 7.9 Mean 230 Cfsm 2.02 In. 27.38 Ac-ft 166,500

Peak discharge (base, 900 cfs).--Nov. 9 (1:30 p.m.) 2,080 cfs (14.36 ft); Nov. 15 (5 p.m.) 1,120 cfs (13.34 ft); Nov. 20 (12:30 a.m.) 970 cfs (12.55 ft); Nov. 24 (7 a.m.) 1,510 cfs (14.00 ft); Dec. 29 (5:30 a.m.) 1,240 cfs (13.67 ft); Jan. 22 (8 a.m.) 1,170 cfs (13.52 ft); Apr. 15 (8 p.m.) 1,370 cfs (13.85 ft); Apr. 29 (9 a.m.) 1,260 cfs (13.68 ft); Aug. 25 (6:30 a.m.) 5,930 cfs (15.62 ft); Sept. 21 (4 p.m.) 4,640 cfs (15.32 ft); Sept. 29 (12:30 a.m.) 1,170 cfs (13.54 ft).

* Discharge measurement made on this day.
a Doubtful or no gage-height record; discharge estimated on basis of 3 discharge measurements and records for nearby stations.

## 280. 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 parish road from Rosepine to Evans, just downstream from Pocosin Creek, 4.8 miles northwest of Rosepine.

Drainage area.--366 sq mi.

Records available.--October 1951 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 118.09 ft above mean sea level, unadjusted. Prior to Nov. 11, 1954, wire-weight gage and crest-stage indicator at same site and datum.

Average discharge.--7 years, 508 cfs (367,800 acre-ft per year).

Extremes.--Maximum discharge during year, 32,200 cfs Nov. 20 (gage height, 24.67 ft); minimum, 47 cfs Oct. 14 (gage height, 3.66 ft).
1951-58: Maximum discharge, 64,300 cfs May 19, 1953 (gage height, 28.38 ft); minimum, 5.5 cfs Sept. 30, 1956; minimum gage height, 3.24 ft Sept. 28, 29, 30, 1956.

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

Revisions.--WSP 1392: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 31 to Jan. 12, Jan. 16-20, Jan. 25 to Feb. 23)

| | | | | | |
|---|---|---|---|---|---|
| 3.6 | 42 | 15.0 | 2,400 | 20.5 | 6,350 |
| 4.0 | 77 | 18.0 | 3,500 | 21.0 | 8,250 |
| 5.0 | 201 | 19.0 | 4,080 | 22.0 | 13,500 |
| 6.0 | 370 | 20.0 | 5,200 | 24.0 | 26,800 |
| 12.0 | 1,600 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 58 | 255 | 550 | 730 | 480 | 1,050 | a500 | 2,190 | a100 | a80 | 82 | 450 |
| 2 | 57 | 231 | 460 | 570 | 400 | 830 | a400 | 2,020 | a100 | a70 | 77 | 430 |
| 3 | 55 | 216 | 440 | 460 | 332 | a450 | a350 | 1,130 | a100 | a70 | 76 | 420 |
| 4 | 54 | 216 | 510 | 400 | 297 | a400 | a300 | 710 | a90 | a60 | 91 | 410 |
| 5 | 53 | 208 | 430 | 360 | 288 | 420 | a300 | 810 | a90 | a60 | 74 | 400 |
| 6 | 52 | 1,150 | 380 | 360 | 288 | 947 | a250 | 690 | a80 | a60 | 90 | 400 |
| 7 | 51 | 2,080 | 1,120 | *410 | 280 | 1,800 | a250 | a500 | a80 | *67 | 99 | 400 |
| 8 | 50 | 3,500 | 1,580 | 380 | 263 | 1,530 | a250 | a400 | a70 | 170 | *89 | *430 |
| 9 | *50 | 3,400 | 1,170 | 332 | 239 | 1,170 | 856 | a350 | a70 | 208 | 97 | 400 |
| 10 | 49 | 2,060 | 690 | 288 | 263 | 1,090 | 1,460 | a300 | a60 | 255 | 88 | 380 |
| 11 | 49 | 910 | *480 | 272 | *380 | 650 | *1,070 | a250 | a60 | 314 | 76 | 370 |
| 12 | 48 | 810 | 390 | 875 | 490 | a500 | a500 | a250 | *a60 | 297 | 72 | 400 |
| 13 | 48 | 1,300 | 351 | 2,080 | 420 | *1,010 | a400 | a200 | a60 | 272 | 69 | 380 |
| 14 | 48 | 2,610 | 342 | 2,190 | 342 | 850 | 842 | a200 | a70 | 263 | 69 | 351 |
| 15 | 72 | 1,980 | 470 | 1,650 | 750 | a500 | 2,340 | a150 | a90 | 247 | 66 | 332 |
| 16 | 667 | 1,420 | 570 | 870 | 950 | a400 | 2,770 | a150 | a70 | 231 | 67 | 366 |
| 17 | 388 | 1,820 | 530 | 570 | 650 | a350 | 2,380 | a150 | a70 | 208 | 66 | 1,420 |
| 18 | 126 | *2,160 | 430 | 460 | 400 | 690 | 905 | a150 | a80 | 201 | 63 | 2,380 |
| 19 | 84 | 2,220 | 540 | 400 | 314 | 730 | 550 | a150 | 84 | 187 | 59 | 1,070 |
| 20 | 71 | 20,200 | 1,050 | 812 | 280 | a450 | 570 | a300 | 81 | 180 | 57 | 1,470 |
| 21 | 66 | 4,910 | 970 | 2,370 | 255 | a350 | 530 | a250 | 75 | 165 | 54 | 8,750 |
| 22 | 77 | 2,160 | 590 | 2,700 | 247 | a300 | 995 | a250 | 257 | 152 | 314 | 11,300 |
| 23 | 1,160 | 2,940 | 400 | 2,370 | 660 | 785 | 930 | *a250 | 445 | 218 | 690 | 7,400 |
| 24 | 1,720 | 3,130 | 332 | 1,680 | 1,680 | 2,310 | 610 | a510 | a250 | 303 | 1,380 | 4,050 |
| 25 | 780 | 3,500 | 360 | 1,010 | 1,230 | 2,490 | a450 | a350 | a200 | 172 | 1,820 | 2,010 |
| 26 | 480 | 2,940 | 890 | 770 | 750 | 1,690 | a400 | a300 | a150 | 141 | 1,310 | 1,060 |
| 27 | 420 | 1,800 | 1,120 | 610 | 1,010 | 770 | a350 | a250 | a100 | 123 | 1,260 | 850 |
| 28 | 370 | 970 | 2,280 | 510 | 1,310 | 610 | 1,060 | a200 | a100 | 113 | 1,080 | 890 |
| 29 | 332 | 770 | 2,700 | 550 | - | 675 | 2,020 | a150 | a90 | 102 | 700 | 890 |
| 30 | 306 | 670 | 2,740 | 690 | ------ | 1,370 | 2,100 | a150 | a80 | 95 | 630 | 1,070 |
| 31 | 288 | ------ | 1,770 | 610 | ------ | 870 | ------ | a150 | ------ | 88 | 480 | ------ |
| Total | 8,129 | 72,536 | 26,635 | 28,339 | 15,248 | 27,837 | 26,688 | 13,860 | 3,312 | 5,172 | 11,245 | 50,929 |
| Mean | 262 | 2,418 | 859 | 914 | 545 | 898 | 890 | 447 | 110 | 167 | 363 | 1,698 |
| Cfsm | 0.716 | 6.61 | 2.35 | 2.50 | 1.49 | 2.45 | 2.43 | 1.22 | 0.301 | 0.456 | 0.992 | 4.64 |
| In. | 0.83 | 7.38 | 2.71 | 2.88 | 1.55 | 2.82 | 2.71 | 1.41 | 0.34 | 0.53 | 1.14 | 5.18 |
| Ac-ft | 16,120 | 143,900 | 52,830 | 56,210 | 30,240 | 55,210 | 52,930 | 27,490 | 6,570 | 10,260 | 22,300 | 101,000 |

Calendar year 1957: Max 20,200 Min 23 Mean 613 Cfsm 1.67 In. 22.76 Ac-ft 444,000
Water year 1957-58: Max 20,200 Min 48 Mean 794 Cfsm 2.17 In. 29.48 Ac-ft 575,100

Peak discharge (base, 3,000 cfs).--Nov. 9 (2:30 a.m.) 3,650 cfs (18.34 ft); Nov. 20 (7:30 a.m.) 32,200 cfs (24.67 ft); Nov. 25 (4:30 a.m.) 3,540 cfs (18.13 ft); Sept. 21 (11 p.m.) 14,000 cfs (22.09 ft).

* Discharge measurement made on this day.
a Doubtful or no gage-height record; discharge estimated on basis of 1 discharge measurement and records for nearby stations.

285. Sabine River near Bon Wier, Tex.

Location.--Lat 35°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, 0.8 mile upstream from Gulf, Colorado and Santa Fe Railway Co. bridge, 2.0 miles east of Bon Wier, Newton County, 2.4 miles upstream from Caney Creek, and at mile 98.

Drainage area.--8,323 sq mi.

Records available.--October 1923 to September 1934, January 1939 to September 1958. Gage-height records collected in this vicinity since 1913 are contained in reports of U. S. 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, and Jan. 21, 1939, to Jan. 16, 1942, chain gage at present site and datum.

Average discharge.--30 years, 7,518 cfs (5,443,000 acre-ft per year).

Extremes.--Maximum discharge during year, 39,600 cfs May 23-25; maximum gage height, 21.22 ft May 24; minimum discharge, 670 cfs Aug. 20, 21.
1923-34, 1939-58: Maximum discharge, 115,000 cfs May 19, 1953 (gage height, 25.70 ft); minimum, 160 cfs Sept. 29, 1956.
Maximum stage known since at least 1833, 30.5 ft Apr. 23 or 24, 1913, from information by Gulf, Colorado and Santa Fe Railway Co. and local residents. Flood in May 1884 reached a stage of about 26 ft. Floods occurring about 1844 and 1860 were higher than flood in 1884, from information by local residents.

Remarks.--Records good. Diversions above station for oilfield operation and municipal and industrial use.

Revisions (water years).--WSP 1342: 1953. WSP 1442: 1924, 1926-27(M), 1929(M), 1939.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 2-22)

| | | | |
|---|---|---|---|
| 1.3 | 670 | 14.0 | 15,200 |
| 2.0 | 1,040 | 18.0 | 24,500 |
| 4.0 | 2,450 | 20.0 | 31,500 |
| 7.0 | 5,350 | 22.0 | 47,600 |
| 10.0 | 9,100 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 745 | 8,540 | 23,900 | 10,800 | 15,400 | 9,800 | 9,940 | 13,400 | 25,100 | 6,020 | 1,250 | 2,690 |
| 2 | 745 | 8,140 | 23,300 | 9,380 | 14,200 | 8,270 | 9,240 | 13,500 | 15,200 | 5,680 | 1,160 | 2,210 |
| 3 | 795 | 8,010 | 23,000 | 8,680 | 12,800 | 6,980 | 8,820 | 13,800 | 7,230 | 5,460 | 1,130 | 1,820 |
| 4 | 870 | 8,010 | 23,000 | 7,880 | 11,600 | 6,380 | 8,270 | 13,400 | 4,500 | 5,020 | 1,130 | 1,610 |
| 5 | 1,040 | 7,620 | 22,700 | 7,100 | 10,400 | *6,020 | 7,490 | 14,000 | 3,600 | 4,600 | 1,130 | 1,470 |
| 6 | 1,280 | 8,400 | 22,100 | 6,620 | 9,800 | 6,020 | 6,620 | 15,400 | 3,210 | 4,000 | 1,040 | 1,370 |
| 7 | 1,470 | 11,400 | 22,400 | 6,380 | 9,800 | 7,360 | 5,900 | 15,800 | 2,850 | 3,600 | 1,010 | 1,340 |
| 8 | 1,580 | *15,200 | 23,300 | 6,140 | 9,940 | 9,660 | 5,350 | 15,800 | 2,530 | 3,120 | 950 | 1,370 |
| 9 | 1,540 | 18,000 | 22,700 | *5,900 | 9,520 | 10,400 | 5,680 | 16,000 | 2,370 | 3,120 | 920 | *1,470 |
| 10 | 1,440 | 17,200 | 21,200 | 5,570 | 8,960 | 9,940 | 7,360 | 16,800 | 2,130 | 3,500 | 920 | 1,540 |
| 11 | 1,250 | 15,600 | 19,200 | 5,240 | 8,820 | 9,660 | 6,860 | 17,400 | *1,930 | 3,120 | 920 | 1,470 |
| 12 | 1,040 | 14,200 | 17,200 | 5,790 | 9,380 | 8,820 | 6,020 | 18,600 | 1,860 | 2,850 | 870 | 1,470 |
| 13 | 895 | 14,900 | 14,700 | 7,230 | 9,800 | 8,140 | 5,570 | 20,000 | 1,750 | 2,690 | 820 | 1,610 |
| 14 | 795 | 18,000 | 11,700 | 9,380 | 9,100 | 7,620 | 6,020 | 22,100 | 1,640 | 3,210 | 795 | 1,680 |
| 15 | 770 | 19,000 | 9,380 | 11,000 | 8,820 | 6,860 | 10,500 | *24,500 | 1,580 | 3,500 | 770 | 1,440 |
| 16 | 1,540 | 18,400 | 7,880 | 11,600 | 9,380 | 6,860 | *11,700 | 26,300 | 1,540 | 3,600 | 770 | 1,340 |
| 17 | 2,370 | 18,000 | 6,740 | 11,400 | 9,660 | 7,100 | 9,940 | 28,200 | 1,500 | *3,600 | 745 | 1,640 |
| 18 | 1,640 | 18,000 | 6,020 | 11,400 | 8,960 | 7,490 | 7,880 | 30,100 | 1,400 | 3,600 | 720 | 3,700 |
| 19 | 1,500 | 19,200 | 5,570 | 11,400 | 8,540 | 7,880 | 5,790 | 32,100 | 1,970 | 3,700 | 720 | 3,900 |
| 20 | 2,610 | 20,000 | 5,790 | 11,800 | 8,400 | 7,750 | 5,130 | 34,500 | 2,290 | 3,800 | 695 | 5,060 |
| 21 | 5,130 | 21,800 | 6,140 | 16,200 | 8,140 | 7,360 | 5,020 | 36,600 | 3,700 | 3,800 | 695 | 18,800 |
| 22 | *6,260 | 25,100 | 5,680 | 21,200 | 7,620 | 7,100 | 5,020 | 38,800 | 5,900 | 3,700 | 820 | 26,600 |
| 23 | 7,750 | 26,300 | 5,130 | 23,900 | 7,750 | 7,490 | 6,140 | 39,600 | 9,240 | 3,700 | 2,860 | 27,800 |
| 24 | 10,800 | 27,200 | 4,910 | 24,800 | 10,500 | 9,380 | 5,900 | 39,600 | 11,400 | 3,500 | 4,260 | 28,900 |
| 25 | 9,940 | 28,200 | 5,130 | 23,900 | 10,200 | 10,800 | 5,130 | 39,600 | 12,300 | 3,030 | 7,580 | 28,900 |
| 26 | 9,660 | 28,600 | 5,240 | 21,500 | 8,270 | 10,800 | 4,800 | 38,800 | 12,000 | 2,530 | 12,000 | 27,800 |
| 27 | 9,380 | 28,200 | 6,380 | 19,600 | 7,620 | 10,400 | 4,600 | 37,300 | 10,800 | 2,050 | 10,200 | *26,900 |
| 28 | 9,380 | 27,200 | 9,660 | 18,400 | 9,240 | 9,800 | 5,350 | 35,200 | 9,380 | 1,750 | 6,740 | 26,900 |
| 29 | 9,240 | 25,700 | 12,900 | 17,600 | - | 9,800 | 9,940 | 33,300 | 8,010 | 1,540 | 4,100 | 27,200 |
| 30 | *8,960 | 24,500 | 12,900 | 17,000 | ------ | 10,600 | 12,600 | 31,000 | 6,860 | 1,400 | 3,300 | 27,800 |
| 31 | 8,820 | ------ | 12,300 | 16,600 | ------ | 10,800 | ------ | 28,600 | ------ | 1,310 | 3,120 | ------ |
| Total | 121,235 | 548,620 | 418,150 | 391,390 | 272,620 | 263,340 | 214,580 | 800,100 | 175,770 | 106,100 | 74,140 | 307,800 |
| Mean | 3,911 | 18,290 | 13,490 | 12,630 | 9,736 | 8,495 | 7,153 | 25,810 | 5,859 | 3,423 | 2,392 | 10,260 |
| Cfsm | 0.470 | 2.20 | 1.62 | 1.52 | 1.17 | 1.02 | 0.859 | 3.10 | 0.704 | 0.411 | 0.287 | 1.23 |
| In. | 0.54 | 2.45 | 1.87 | 1.75 | 1.22 | 1.18 | 0.96 | 3.57 | 0.79 | 0.47 | 0.33 | 1.37 |
| Ac-ft | 240,500 | ‡1,088 | 829,400 | 776,300 | 540,700 | 522,300 | 425,600 | ‡1,587 | 348,600 | 210,400 | 147,100 | 610,500 |

Calendar year 1957: Max 51,800 Min 507 Mean 10,170 Cfsm 1.22 In. 16.59 Ac-ft 7,361,000
Water year 1957-58: Max 39,600 Min 695 Mean 10,120 Cfsm 1.22 In. 16.50 Ac-ft 7,326,000

* Discharge measurement made on this day.
‡ Expressed in thousands.

## 287. Hoosier Creek near Merryville, La.

Location.- Lat 30°43'32", long 93°33'36", in SE¼ sec. 11, T. 4 S., R. 12 W., at bridge on State Highway 389, 2 miles upstream from Pullem Branch and 2 miles south of Merryville.

Drainage area.--14.6 sq mi.

Records available.--October 1955 to September 1958.

Gage.--Water-stage recorder.

Extremes.--Maximum discharge during year, 1,000 cfs Sept. 21 (gage height, 10.86 ft); minimum, 1.7 cfs Aug. 20, 21, 22 (gage height, 1.32 ft).
1955-58: Maximum discharge, that of Sept. 21, 1958; minimum, 1.0 cfs Aug. 21, 22, 1956; minimum gage height, that of Aug. 20, 21, 22, 1958.

Remarks.--Records good.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-16, Aug. 25 to Sept. 17)

| Oct. 1 to Feb. 23 | | Feb. 24 to Sept. 30 | | | |
|---|---|---|---|---|---|
| 1.6 | 3.0 | 1.3 | 1.6 | 4.0 | 62 |
| 1.8 | 5.4 | 1.4 | 2.2 | 5.0 | 100 |
| 2.0 | 8.8 | 1.6 | 4.4 | 6.0 | 160 |
| 3.0 | 33 | 2.0 | 11 | 7.0 | 250 |
| | | 3.0 | 33 | 10.0 | 820 |

Note.--Same as following table above 3.0 ft.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.9 | 4.8 | 17 | 16 | 14 | 17 | 17 | 7.3 | 3.1 | 2.6 | 2.1 | 3.4 |
| 2 | 7.4 | 4.4 | 15 | 13 | 12 | 15 | 14 | 6.1 | 3.0 | 2.6 | 2.1 | 3.4 |
| 3 | 6.7 | 4.0 | 16 | 11 | 10 | 14 | 13 | 5.6 | 3.0 | 2.6 | 2.2 | 3.2 |
| 4 | 5.9 | 3.9 | 16 | 10 | *9.8 | 13 | 13 | 7.3 | 3.1 | 2.5 | 2.2 | 3.1 |
| 5 | 5.4 | 3.9 | 15 | 9.6 | 9.8 | 13 | 11 | 48 | 3.2 | 2.6 | *3.4 | 3.1 |
| 6 | 5.1 | 26 | 14 | 12 | 11 | 15 | 9.5 | 16 | 3.5 | 3.1 | 2.5 | 3.5 |
| 7 | 4.4 | 88 | 58 | *22 | 11 | 23 | *8.3 | 8.5 | 33 | *3.2 | 2.1 | 3.8 |
| 8 | 4.3 | 443 | 58 | 15 | 9.2 | 21 | 7.5 | 6.3 | 15 | 3.1 | 2.1 | *4.0 |
| 9 | 4.0 | 79 | *24 | 11 | 8.4 | 26 | 17 | 5.4 | *5.6 | 3.4 | 2.1 | 4.0 |
| 10 | 3.8 | 26 | 17 | 9.6 | 9.4 | 18 | 38 | 4.9 | 4.0 | 3.0 | 10 | 4.6 |
| 11 | 3.8 | 16 | 14 | 10 | 18 | *14 | 16 | 4.7 | 3.6 | 3.0 | 5.2 | 4.0 |
| 12 | 3.7 | 13 | 13 | 18 | 16 | 13 | 11 | 4.4 | 3.4 | 2.8 | 2.5 | 3.6 |
| 13 | 3.6 | 153 | 11 | 52 | 14 | 14 | 9.5 | 4.0 | 3.1 | 2.8 | 2.1 | 4.0 |
| 14 | *3.5 | 431 | 13 | 41 | 16 | 14 | 61 | 3.8 | 3.8 | 2.6 | 2.1 | 4.0 |
| 15 | 7.5 | 66 | 25 | 20 | 38 | 12 | 122 | 3.6 | 11 | 2.5 | 2.1 | 4.0 |
| 16 | 147 | 33 | 24 | 15 | 22 | 11 | 28 | 3.5 | 8.0 | 2.3 | 2.0 | 13 |
| 17 | 40 | 42 | 17 | 13 | 13 | 11 | 16 | 3.4 | 4.6 | 2.1 | 2.9 | 23 |
| 18 | 11 | 165 | 15 | 11 | 10 | 16 | 13 | 3.5 | 3.9 | 2.1 | 2.7 | 53 |
| 19 | 6.7 | 177 | 15 | 11 | 9.4 | 15 | 12 | 7.0 | 3.6 | 2.3 | 2.0 | 16 |
| 20 | 5.0 | *38 | 55 | 30 | 9.2 | 13 | 11 | 20 | 3.5 | 2.2 | 1.8 | 49 |
| 21 | 4.3 | 30 | 25 | 156 | 8.8 | 12 | 11 | *9.2 | 3.4 | 2.1 | 1.7 | 702 |
| 22 | 4.7 | 201 | 15 | 44 | 10 | 11 | 13 | 6.8 | 4.1 | 2.1 | 2.9 | *240 |
| 23 | 33 | 300 | 12 | 25 | 72 | 43 | 17 | 5.8 | 11 | 2.6 | 33 | 59 |
| 24 | 68 | 102 | 11 | 45 | 129 | 73 | 11 | 12 | 8.9 | 2.6 | 15 | 26 |
| 25 | 18 | 74 | 11 | 37 | 36 | 26 | 9.0 | 17 | 4.3 | 2.3 | 34 | 16 |
| 26 | 10 | 37 | 21 | 23 | 25 | 18 | 7.8 | 7.0 | 3.5 | 2.1 | 12 | 13 |
| 27 | 7.4 | 28 | 26 | 18 | 32 | 17 | 7.1 | 4.7 | 3.6 | 2.0 | 5.8 | 11 |
| 28 | 5.7 | 26 | 158 | 16 | 25 | 14 | 11 | 4.0 | 3.5 | 2.0 | 4.4 | 10 |
| 29 | 5.1 | 29 | 56 | 22 | - | 15 | 13 | 3.5 | 3.0 | 2.0 | 4.0 | 8.8 |
| 30 | 4.7 | 21 | 25 | 22 | ------ | 60 | 8.3 | 3.4 | 2.7 | 2.1 | 3.8 | 8.5 |
| 31 | 4.7 | ------ | 19 | 17 | ------ | 38 | ------ | 3.1 | ------ | 2.1 | 3.6 | ------ |
| Total | 452.3 | 2,665.0 | 831 | 775.2 | 608.0 | 635 | 556.0 | 249.8 | 173.0 | 77.4 | 176.4 | 1,304.0 |
| Mean | 14.6 | 88.8 | 26.8 | 25.0 | 21.7 | 20.5 | 18.5 | 8.06 | 5.77 | 2.50 | 5.69 | 43.5 |
| Cfsm | 1.00 | 6.08 | 1.84 | 1.71 | 1.49 | 1.40 | 1.27 | 0.552 | 0.395 | 0.171 | 0.390 | 2.98 |
| In. | 1.15 | 6.78 | 2.12 | 1.97 | 1.55 | 1.61 | 1.42 | 0.64 | 0.44 | 0.20 | 0.45 | 3.32 |
| Ac-ft | 897 | 5,290 | 1,650 | 1,540 | 1,210 | 1,260 | 1,100 | 495 | 343 | 154 | 350 | 2,590 |

Calendar year 1957: Max 509 Min 2.4 Mean 26.1 Cfsm 1.79 In. 24.29 Ac-ft 18,930
Water year 1957-58: Max 702 Min 1.7 Mean 23.3 Cfsm 1.60 In. 21.65 Ac-ft 16,880

Peak discharge (base, 400 cfs).--Nov. 8 (8 a.m.) 740 cfs (9.63 ft); Nov. 14 (2 a.m.) 840 cfs (10.08 ft); Nov. 18 (10 p.m.) 490 cfs (8.34 ft); Nov. 23 (12:30 a.m.) 580 cfs (8.77 ft); Sept. 21 (5 a.m.) 1,000 cfs (10.86 ft).

* Discharge measurement made on this day.

## 295. 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 Mellons Creek, and 8.0 miles upstream from Whiteoak Creek.

Drainage area.--141 sq mi.

Records available.--April 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 134.69 ft above mean sea level, datum of 1929 (levels by Topographic Division). Prior to Dec. 19, 1957, wire-weight gage at same site and datum.

Average discharge.--6 years, 107 cfs (77,460 acre-ft per year).

Extremes.--Maximum discharge during year, 1,920 cfs Jan. 21 (gage height, 15.08 ft); minimum, 19 cfs Oct. 14.
1952-58: Maximum discharge, 20,200 cfs Apr. 29, 1953 (gage height, 19.45 ft); minimum observed, 12 cfs Aug. 23-26, 1956.
Maximum stage since at least 1907, 27.5 ft in April 1922, from information by local resident.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 3-5, 11, 12, 15-17, 20-23, June 10-19)

| | | | | | |
|---|---|---|---|---|---|
| 5.4 | 17 | 7.0 | 90 | 13.0 | 809 |
| 5.6 | 23 | 8.0 | 162 | 14.0 | 1,090 |
| 6.0 | 37 | 10.0 | 358 | 15.0 | 1,780 |
| 6.5 | 61 | 12.0 | 625 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 27 | 33 | 84 | 111 | 118 | 114 | 97 | 90 | 34 | 33 | 23 | 28 |
| 2 | 25 | 31 | 81 | 94 | 100 | 94 | 84 | 72 | 33 | 32 | 22 | 27 |
| 3 | 24 | 32 | 78 | 84 | 90 | 84 | 81 | 66 | 32 | 32 | 22 | 26 |
| 4 | 24 | 38 | 81 | 78 | 87 | *81 | 77 | 127 | 34 | 31 | 26 | 25 |
| 5 | 22 | 48 | 75 | 75 | 87 | 84 | 72 | 179 | 38 | 31 | 28 | 25 |
| 6 | 22 | 125 | 74 | 170 | 87 | 150 | 67 | 100 | 42 | 33 | 28 | 25 |
| 7 | 21 | 230 | 318 | 292 | 84 | 215 | 63 | 71 | 41 | 54 | 26 | 29 |
| 8 | 20 | *816 | 262 | *154 | 78 | 170 | 60 | 62 | 36 | 160 | 23 | 31 |
| 9 | 20 | 427 | 128 | 108 | 74 | 125 | 130 | 56 | 33 | 110 | 23 | 35 |
| 10 | 20 | 128 | 94 | 90 | 87 | 97 | 154 | 54 | 31 | 146 | 23 | 53 |
| 11 | 19 | 150 | 81 | 87 | 118 | 84 | 104 | 52 | 30 | 84 | 25 | 97 |
| 12 | *19 | 69 | 71 | 425 | 114 | 81 | 73 | 49 | 29 | 67 | 25 | 87 |
| 13 | 19 | 97 | *68 | 679 | 97 | 104 | 65 | 46 | *28 | 50 | 28 | 70 |
| 14 | 19 | 245 | 74 | 460 | 100 | 104 | 216 | 44 | 28 | 41 | 27 | 47 |
| 15 | 101 | 170 | 77 | 188 | 184 | 81 | 376 | *43 | 30 | 37 | 25 | 41 |
| 16 | 275 | 478 | 75 | 128 | 146 | 74 | 177 | 42 | 33 | 34 | 23 | 46 |
| 17 | 142 | 764 | 71 | 108 | 104 | 76 | *97 | 41 | 33 | 32 | 23 | 87 |
| 18 | 67 | 380 | 69 | 94 | 87 | 94 | 78 | 41 | 37 | 32 | 22 | 90 |
| 19 | 38 | 890 | 74 | 87 | 81 | 111 | 78 | 47 | 100 | 31 | 22 | 60 |
| 20 | 32 | 251 | 104 | 299 | 78 | 87 | 87 | 54 | 54 | 31 | 22 | 319 |
| 21 | 28 | 132 | 104 | 1,490 | 74 | 75 | 78 | 52 | 44 | 29 | *21 | 1,080 |
| 22 | 33 | 434 | 73 | 733 | 84 | 71 | 222 | 48 | 66 | 28 | 31 | 847 |
| 23 | 170 | 1,190 | 64 | 245 | 412 | 95 | 162 | 52 | 179 | 29 | 40 | 335 |
| 24 | 210 | 661 | 61 | 215 | 844 | 265 | 100 | 57 | 154 | 28 | 54 | 128 |
| 25 | 97 | 344 | 78 | 184 | 289 | 150 | 78 | 61 | 62 | 27 | 94 | 90 |
| 26 | 52 | 184 | 219 | 146 | 170 | 111 | 70 | 54 | 47 | 26 | 108 | 94 |
| 27 | 39 | 139 | 217 | 125 | 184 | *97 | 66 | 45 | 42 | 25 | 50 | 84 |
| 28 | 35 | 125 | 1,000 | 122 | 162 | 87 | 70 | 41 | 39 | 24 | 36 | 78 |
| 29 | 33 | 114 | 586 | 238 | - | 90 | 84 | 38 | 36 | 24 | 31 | 90 |
| 30 | 33 | 97 | 205 | 197 | ------ | 235 | 139 | 37 | 35 | 23 | 30 | 69 |
| 31 | 32 | ------ | 136 | 139 | ------ | 146 | ------ | 36 | ------ | *23 | 28 | ------ |
| Total | 1,718 | 8,822 | 4,782 | 7,645 | 4,220 | 3,532 | 3,305 | 1,857 | 1,460 | 1,387 | 1,009 | 4,143 |
| Mean | 55.4 | 294 | 154 | 247 | 151 | 114 | 110 | 59.9 | 48.7 | 44.7 | 32.5 | 138 |
| Cfsm | 0.393 | 2.09 | 1.09 | 1.75 | 1.07 | 0.808 | 0.780 | 0.425 | 0.345 | 0.317 | 0.230 | 0.979 |
| In. | 0.45 | 2.33 | 1.26 | 2.02 | 1.11 | 0.93 | 0.87 | 0.49 | 0.39 | 0.37 | 0.27 | 1.09 |
| Ac-ft | 3,410 | 17,500 | 9,480 | 15,160 | 8,370 | 7,010 | 6,560 | 3,680 | 2,900 | 2,750 | 2,000 | 8,220 |

Calendar year 1957: Max 1,190 Min 18 Mean 109 Cfsm 0.773 In. 10.49 Ac-ft 78,890
Water year 1957-58: Max 1,490 Min 19 Mean 120 Cfsm 0.851 In. 11.58 Ac-ft 87,040

Peak discharge (base, 1,000 cfs).--Nov. 8 (6:30 p.m.) 1,090 cfs (13.99 ft); Nov. 17 (4 a.m.) 1,130 cfs (14.07 ft); Nov. 19 (12 m.) 1,170 cfs (14.22 ft); Nov. 23 (12 m. to 2 p.m.) 1,520 cfs (14.77 ft); Dec. 28 (8 p.m.) 1,220 cfs (14.30 ft); Jan. 21 (5 to 6 p.m.) 1,920 cfs (15.08 ft); Feb. 24 (7 a.m.) 1,090 cfs (14.03 ft); Sept. 21 (9 p.m.) 1,220 cfs (14.28 ft).

* Discharge measurement made on this day.
Note.--Discharge computed from twice-daily wire-weight-gage readings Oct. 1 to Dec. 18.

## 300. 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 unnammed tributary, 3.2 miles east of Buna, Jasper County, and 10 miles upstream from Little Cypress Creek.

Drainage area.--63.4 sq mi.

Records available.--March 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 46 ft above mean sea level (State Highway Department bridge plans). Prior to Oct. 23, 1957, wire-weight gage at same site and datum.

Average discharge.--6 years, 68.8 cfs (49,810 acre-ft per year).

Extremes.--Maximum discharge during year, 2,420 cfs Sept. 22 (gage height, 10.95 ft); no flow for many days.
1952-58: Maximum discharge, 3,800 cfs Apr. 23, 1952, Apr. 13, 1955; maximum gage height, 11.95 ft Apr. 13, 1955, from graph based on gage readings; no flow at times.

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 3.5 | 44 | 191 | 56 | 98 | 17 | 26 | 0.2 | | | 0 |
| 2 | 12 | 3.2 | 31 | 94 | 38 | 56 | 9.7 | 14 | .2 | | | 0 |
| 3 | 7.9 | 2.6 | 27 | 54 | 26 | 38 | 36 | 9.1 | .1 | | | 0 |
| 4 | 5.0 | 2.2 | 42 | 37 | 20 | 29 | *34 | 96 | .1 | | | 0 |
| 5 | 3.3 | 1.8 | 33 | 28 | 17 | 25 | 17 | 148 | .1 | | | 0 |
| 6 | 2.3 | 6.8 | 26 | 58 | 20 | 45 | 9.2 | 38 | .1 | | | 0 |
| 7 | 1.5 | 69 | 193 | 117 | 28 | 75 | 5.6 | 21 | 4.2 | | | 0 |
| 8 | .9 | 622 | 271 | *85 | 19 | 55 | 3.7 | 13 | 1.8 | | | 0 |
| 9 | .6 | 790 | 150 | 63 | 12 | 43 | 258 | 7.8 | .8 | | | 0 |
| 10 | .4 | 552 | 89 | 44 | 11 | 28 | 180 | 5.0 | .4 | (*) | | 0 |
| 11 | .3 | 380 | 58 | 37 | 53 | 21 | 52 | 3.4 | .2 | | | 0 |
| 12 | .2 | *140 | 37 | 58 | 55 | 16 | 36 | 2.6 | .1 | | | 0 |
| 13 | .1 | 287 | 28 | 229 | 68 | 12 | 25 | 1.8 | 0 | | | 0 |
| 14 | .1 | 1,520 | 37 | 182 | 71 | 9.5 | 255 | 1.4 | 0 | | (*) | 0 |
| 15 | 16 | 948 | 104 | 123 | 126 | 7.9 | 428 | 1.2 | 0 | | | 0 |
| 16 | 362 | 730 | 85 | 83 | 91 | 7.2 | 237 | 1.0 | .1 | | | 0 |
| 17 | 276 | 465 | 66 | 55 | 63 | 6.7 | 134 | .9 | .8 | | | 2.2 |
| 18 | 106 | 261 | 55 | 40 | 40 | 13 | 65 | .9 | .9 | | | 2.6 |
| 19 | 46 | 295 | 55 | 31 | 28 | 21 | 34 | 1.4 | .4 | | | 1.2 |
| 20 | 21 | 227 | 66 | 255 | 23 | 15 | 22 | 51 | .2 | | | 176 |
| 21 | 11 | 243 | 48 | 850 | 20 | 9.5 | 15 | 39 | .1 | | | *2,140 |
| 22 | 8.1 | 869 | 33 | 625 | 130 | 7.1 | 10 | 12 | .4 | | | 2,350 |
| 23 | *25 | 1,270 | 24 | 410 | 905 | 6.6 | 8.0 | 5.7 | .5 | | (*) | 1,610 |
| 24 | 79 | 1,020 | 18 | 445 | 1,050 | 25 | 6.4 | 3.7 | .3 | | | 889 |
| 25 | 44 | 948 | 20 | 289 | 820 | 37 | 4.9 | 2.3 | .2 | | | 532 |
| 26 | 28 | 702 | 96 | 157 | 675 | 26 | 3.9 | 1.4 | .1 | | | 205 |
| 27 | 17 | 445 | 102 | 95 | 485 | 18 | 8.9 | 1.0 | 0 | | | 49 |
| 28 | 10 | 230 | 625 | 70 | 247 | 13 | 210 | .7 | 0 | | | 28 |
| 29 | 6.7 | 113 | 575 | 107 | - | 9.7 | 124 | **.5 | 0 | | | 14 |
| 30 | 4.9 | 68 | 350 | 91 | ------- | 28 | 55 | .4 | 0 | | | 9.9 |
| 31 | 4.0 | ------- | 285 | 75 | ------- | 35 | ------- | .3 | ------- | | | ------- |
| Total | 1,120.3 | 13,214.1 | 3,673 | 5,078 | 5,197 | 836.2 | 2,304.3 | 510.5 | 12.3 | 0 | 0 | 8,008.9 |
| Mean | 36.1 | 440 | 118 | 164 | 186 | 27.0 | 76.8 | 16.5 | 0.41 | 0 | 0 | 267 |
| Ac-ft | 2,220 | 26,210 | 7,290 | 10,070 | 10,310 | 1,660 | 4,570 | 1,010 | 24 | 0 | 0 | 15,890 |

Calendar year 1957: Max 1,550 Min 0 Mean 117 Ac-ft 84,780
Water year 1957-58: Max 2,350 Min 0 Mean 109 Ac-ft 79,250

Peak discharge (base, 1,000 cfs).--Nov. 14 (6 a.m.) 1,730 cfs (10.48 ft); Nov. 22 (10:30 p.m.) 1,620 cfs (10.40 ft); Feb. 23 (9 p.m.) 1,180 cfs (9.95 ft); Sept. 22 (7 p.m.) 2,420 cfs (10.95 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--Discharge computed from twice-daily wire-weight-gage readings Oct. 1-22.

## 305. 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 The Kansas City Southern Railway Co. bridge, 4.5 miles downstream from Cypress Creek, and at mile 40.

Drainage area.--9,440 sq mi.

Records available.--October 1924 to September 1958.

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 The Kansas City Southern Railway Co. bridge 4.2 miles downstream at datum 2.02 ft lower. Mar. 1, 1941, to Dec. 8, 1948, wire-weight gage at present site and datum.

Average discharge.--34 years, 8,906 cfs (6,448,000 acre-ft per year).

Extremes.--Maximum discharge during year, 41,300 cfs Sept. 24-25 (gage height, 15.60 ft); minimum, 1,010 cfs Aug. 22.

1924-58: Maximum discharge, 121,000 cfs May 22, 1953 (gage height, 19.98 ft); minimum, 270 cfs Sept. 27-30, Oct. 1-3, 17-20, 1956.

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); flood of Apr. 26-29, 1913, reached a stage of about 195 ft, present site and datum, from information by local resident.

Remarks.--Records good. Diversions above station for oilfield operation and municipal and industrial use. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1282: 1941(M), 1942. WSP 1442: 1925-29, 1937-39, 1943.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4,180 | 11,400 | 30,600 | 15,800 | 19,600 | 13,800 | 11,800 | 9,300 | 32,200 | 9,600 | 1,960 | 4,760 |
| 2 | 2,960 | 11,000 | 28,900 | 16,200 | 19,000 | 12,700 | 11,800 | 10,300 | 29,800 | 8,500 | 1,840 | 3,970 |
| 3 | 2,290 | 10,600 | 27,300 | 16,200 | 18,000 | 12,200 | 12,200 | 11,400 | 25,600 | 7,580 | 1,790 | 3,420 |
| 4 | *1,960 | 10,600 | 25,600 | 14,800 | 17,500 | 11,400 | 12,200 | 13,200 | 21,400 | 6,600 | 1,690 | 2,900 |
| 5 | 1,840 | 10,300 | 24,800 | 13,200 | 16,600 | 10,600 | 11,800 | 16,600 | 16,200 | 5,940 | 1,690 | 2,530 |
| 6 | 1,840 | 10,300 | *24,800 | 12,200 | 15,800 | 9,600 | 10,600 | 16,600 | 11,800 | 5,660 | 1,640 | 2,290 |
| 7 | 2,010 | 10,600 | 26,400 | *11,000 | 14,400 | 9,020 | 9,920 | 15,800 | 8,500 | 5,400 | 1,590 | 2,180 |
| 8 | 2,180 | 12,200 | 26,400 | 9,920 | 13,500 | 8,760 | 8,760 | 15,100 | 6,100 | 4,660 | 1,490 | 2,060 |
| 9 | 2,350 | 14,800 | 26,400 | 9,600 | 12,700 | 9,300 | 8,500 | 15,400 | 4,760 | 4,180 | 1,440 | 2,060 |
| 10 | 2,410 | 16,600 | 26,400 | 9,020 | 12,200 | 9,920 | 9,300 | 15,800 | 4,040 | 3,970 | 1,400 | 2,060 |
| 11 | 2,350 | 19,000 | 26,400 | 8,500 | 12,200 | 10,600 | 9,300 | 15,800 | 3,550 | 4,040 | 1,350 | 2,180 |
| 12 | 2,180 | 21,400 | 25,600 | 8,020 | 11,800 | 11,400 | 9,600 | 16,200 | 3,280 | 3,970 | 1,350 | 2,180 |
| 13 | 1,960 | 22,700 | 24,800 | 7,800 | 11,400 | 11,400 | 9,300 | 16,600 | 3,020 | 3,690 | 1,300 | 2,120 |
| 14 | 1,790 | 22,000 | 23,400 | 8,500 | 11,800 | 11,000 | 9,600 | 17,000 | 2,830 | 3,420 | 1,260 | 2,180 |
| 15 | 1,740 | 22,700 | 21,400 | 9,300 | 12,200 | 10,600 | 9,920 | 18,000 | 2,710 | 3,480 | 1,220 | 2,290 |
| 16 | 3,390 | 24,800 | 19,600 | 10,600 | 12,200 | 9,920 | 10,600 | 19,000 | 2,590 | 3,690 | 1,170 | 2,230 |
| 17 | 4,580 | 26,400 | 17,500 | 11,800 | 12,200 | 9,300 | 11,400 | 20,800 | 2,530 | 3,900 | 1,170 | 2,060 |
| 18 | 5,160 | 27,300 | 15,100 | 12,200 | 11,800 | 9,020 | 12,200 | 23,400 | 2,470 | *3,970 | 1,130 | 2,180 |
| 19 | 4,960 | 26,400 | 12,700 | 13,200 | 11,800 | 8,760 | 12,200 | 26,400 | 2,350 | 3,970 | 1,090 | 3,280 |
| 20 | 3,970 | 24,800 | 11,400 | 13,500 | 11,400 | 8,760 | 11,800 | 28,900 | 2,530 | 4,040 | 1,090 | 4,970 |
| 21 | 3,690 | 24,800 | 10,300 | 14,800 | 11,400 | 9,020 | 9,920 | 30,600 | 3,020 | 4,110 | 1,050 | 14,400 |
| 22 | 4,500 | 27,300 | 9,300 | 15,800 | 11,000 | 9,300 | 8,020 | 33,000 | 3,760 | 4,110 | 1,050 | 24,100 |
| 23 | 5,520 | 31,400 | 8,760 | 17,000 | 12,200 | 9,300 | 6,980 | 35,500 | 4,660 | 4,260 | 1,170 | 31,400 |
| 24 | 6,600 | 35,500 | 8,260 | 19,600 | 13,200 | 9,300 | 6,980 | 38,000 | 5,940 | 4,260 | 2,060 | 39,600 |
| 25 | 8,020 | 38,800 | 7,580 | 24,100 | 14,100 | 9,600 | 7,180 | 39,600 | 7,380 | 4,110 | 3,830 | 41,300 |
| 26 | 9,600 | 39,600 | 7,180 | 26,400 | 15,100 | 10,300 | 6,980 | 40,500 | 8,760 | 3,900 | 4,960 | 38,000 |
| 27 | 11,000 | 38,800 | 6,980 | 27,300 | 15,400 | 11,000 | 6,600 | 40,500 | 9,600 | 3,480 | 6,600 | 34,700 |
| 28 | 11,800 | 37,200 | 8,500 | 25,600 | 15,100 | *11,400 | 7,180 | *39,600 | 10,600 | 3,020 | 8,020 | 32,200 |
| 29 | 11,800 | 35,500 | 10,300 | 24,100 | - | 11,800 | 7,580 | 38,800 | 10,600 | 2,650 | *9,020 | 30,600 |
| 30 | 11,800 | 33,900 | 12,200 | 22,000 | ------ | 12,200 | 8,020 | 36,400 | 10,600 | 2,350 | 8,500 | 29,800 |
| 31 | 11,400 | ------ | 14,100 | 20,800 | ------ | 11,800 | ------ | 34,700 | ------ | 2,120 | 6,420 | ------ |
| Total | 151,830 | 698,700 | 568,960 | 468,860 | 385,600 | 323,080 | 288,240 | 748,800 | 263,180 | 138,630 | 81,340 | 370,000 |
| Mean | 4,898 | 23,290 | 18,350 | 15,120 | 13,770 | 10,420 | 9,608 | 24,150 | 8,773 | 4,472 | 2,624 | 12,330 |
| Cfsm | 0.519 | 2.47 | 1.94 | 1.60 | 1.46 | 1.10 | 1.02 | 2.56 | 0.929 | 0.474 | 0.278 | 1.31 |
| In. | 0.60 | 2.75 | 2.24 | 1.85 | 1.52 | 1.27 | 1.14 | 2.95 | 1.04 | 0.55 | 0.32 | 1.46 |
| Ac-ft | 301,200 | ‡1,386 | ‡1,129 | 930,000 | 764,800 | 640,800 | 571,700 | ‡1,485 | 522,000 | 275,000 | 161,300 | 733,900 |

Calendar year 1957: Max 53,700 Min 850 Mean 13,140 Cfsm 1.39 In. 18.87 Ac-ft 9,512,000
Water year 1957-58: Max 41,300 Min 1,050 Mean 12,290 Cfsm 1.30 In. 17.69 Ac-ft 8,901,000

* Discharge measurement made on this day.
‡ Expressed in thousands.

## 310. 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 The Kansas City Southern Railway Co. bridge and 3 miles southwest of Mauriceville, Orange County.

Drainage area.--127 sq mi.

Records available.--March 1952 to September 1958 (October 1956 to September 1957 monthly discharge only).

Gage.--Water-stage recorder. Datum of gage is 4.7 ft above mean sea level (State Highway Department bridge plans). Prior to Oct. 23, 1957, wire-weight gage at same site and datum.

Average discharge.--6 years (1952-58), 85.2 cfs (61,680 acre-ft per year).

Extremes.--Maximum discharge during year, 4,300 cfs Sept. 23; maximum gage height, 16.71 ft Sept. 23, backwater from local runoff; minimum discharge, 0.1 cfs Aug. 5.
1952-58: Maximum discharge, that of Sept. 23, 1958; no flow at times.

Remarks.--Records good except those computed from wire-weight-gage readings, which are poor. No diversion above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Backwater from local runoff Sept. 20-28)

| | | | | | |
|---|---|---|---|---|---|
| 1.3 | 0.1 | 2.2 | 11 | 10.0 | 808 |
| 1.4 | .3 | 2.6 | 26 | 12.0 | 1,140 |
| 1.5 | .6 | 3.0 | 47 | 13.0 | 1,390 |
| 1.6 | 1.1 | 3.5 | 80 | 14.0 | 1,840 |
| 1.7 | 1.8 | 4.0 | 123 | 15.0 | 2,760 |
| 1.8 | 2.8 | 5.0 | 226 | 16.0 | 4,300 |
| 2.0 | 5.8 | 7.0 | 446 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 424 | 8.8 | 281 | 402 | 188 | 446 | 5.3 | 369 | 0.7 | 0.4 | 0.2 | 0.3 |
| 2 | 360 | 7.0 | 215 | 336 | 141 | 336 | 7.0 | 347 | .5 | .4 | .2 | .2 |
| 3 | 280 | 5.8 | 161 | 264 | 103 | 232 | 15 | 264 | .4 | .3 | .2 | .2 |
| 4 | 204 | 4.9 | 111 | 198 | 78 | 141 | 46 | 290 | .4 | .3 | .2 | .2 |
| 5 | 123 | 4.1 | *70 | 132 | 59 | *83 | 65 | 286 | .4 | .3 | .2 | .3 |
| 6 | 63 | 47 | 46 | 105 | 60 | 105 | 70 | 156 | .4 | .3 | .2 | .4 |
| 7 | 31 | 87 | 109 | 103 | 52 | 156 | 53 | 151 | .4 | 13 | .3 | .7 |
| 8 | 20 | 446 | 113 | *88 | 38 | 182 | 28 | 132 | .5 | 20 | .4 | .6 |
| 9 | 11 | 336 | 109 | 78 | 29 | 182 | 38 | 96 | .7 | 9.3 | .4 | .5 |
| 10 | 8.0 | 303 | 114 | 69 | 44 | 141 | 148 | 56 | .6 | *3.4 | .4 | .5 |
| 11 | 4.9 | 292 | 118 | 60 | 73 | 107 | 358 | 28 | .4 | 2.1 | .3 | .5 |
| 12 | 3.4 | 292 | 111 | 85 | 58 | 74 | 501 | 15 | .3 | 1.2 | .2 | .4 |
| 13 | 2.8 | 380 | 102 | 198 | 53 | 49 | 512 | 8.5 | .3 | .7 | .2 | .4 |
| 14 | 1.8 | 402 | 90 | 215 | 79 | 33 | 689 | 5.1 | .3 | .5 | .2 | .3 |
| 15 | 283 | 314 | 92 | 237 | 118 | 23 | 701 | 3.4 | .3 | .4 | .5 | .3 |
| 16 | 677 | 281 | 87 | 237 | 110 | 17 | 653 | 2.6 | .3 | .3 | .5 | .3 |
| 17 | 557 | 292 | 84 | 210 | 110 | 14 | 569 | 2.0 | .3 | .3 | .4 | 2.2 |
| 18 | 424 | 358 | 81 | 171 | 102 | 24 | *446 | 1.6 | .3 | .6 | .3 | 2.8 |
| 19 | 303 | 369 | 78 | 128 | 91 | 26 | 325 | 1.6 | .3 | .9 | .2 | 2.0 |
| 20 | 220 | 325 | 100 | 282 | 74 | 20 | 220 | 3.1 | .3 | 4.4 | .2 | 188 |
| 21 | 166 | 292 | 128 | 424 | 60 | 15 | 105 | 3.3 | .4 | 2.8 | .2 | *1,650 |
| 22 | 130 | 413 | 128 | 424 | 146 | 12 | 45 | 2.9 | 181 | 1.6 | 8.4 | *3,350 |
| 23 | 113 | 557 | 110 | 534 | 637 | 12 | 27 | 2.3 | 24 | 1.3 | 4.9 | 4,190 |
| 24 | *106 | 677 | 88 | 665 | 701 | 11 | 17 | 3.3 | 8.5 | 1.2 | 9.2 | 3,700 |
| 25 | 88 | 925 | 65 | 605 | 822 | 9.0 | 11 | 2.6 | 3.8 | .6 | 6.0 | 2,610 |
| 26 | 58 | 1,100 | 52 | 512 | 910 | 7.5 | 7.3 | 1.6 | 2.1 | .5 | 2.6 | *1,740 |
| 27 | 36 | *1,020 | 121 | 424 | 880 | 6.2 | 5.3 | 1.4 | 1.3 | .4 | 1.2 | 1,160 |
| 28 | 26 | 810 | 512 | 358 | 653 | 5.1 | 60 | 1.0 | .8 | .3 | .7 | 748 |
| 29 | 18 | 534 | 446 | 347 | - | 4.3 | 171 | .6 | .6 | .3 | .5 | 408 |
| 30 | 14 | 369 | 479 | 276 | ------- | 4.0 | 292 | .9 | .4 | .2 | .3 | *246 |
| 31 | 11 | ------- | 457 | 232 | ------- | 5.3 | ------- | 1.0 | ------- | .2 | .3 | ------- |
| Total | 4,766.9 | 11,251.8 | 4,858 | 8,379 | 6,469 | 2,482.4 | 6,189.9 | 2,238.8 | 231.0 | 68.5 | 40.0 | 20,003.1 |
| Mean | 154 | 375 | 157 | 270 | 231 | 80.1 | 206 | 72.2 | 7.70 | 2.21 | 1.29 | 667 |
| Ac-ft | 9,460 | 22,320 | 9,640 | 16,620 | 12,830 | 4,920 | 12,280 | 4,440 | 458 | 136 | 79 | 39,680 |

Calendar year 1957: Max 1,240 Min 0 Mean 153 Ac-ft 111,100
Water year 1957-58: Max 4,190 Min 0.2 Mean 184 Ac-ft 132,900

Peak discharge (base, 1,300 cfs).--Sept. 23 (4 p.m.) 4,300 cfs (16.69 ft).

* Discharge measurement made on this day.
Note.--Discharge computed from once-daily wire-weight-gage readings Oct. 1-22.

## 320. 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 downstream 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 1958.

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 present site and datum.

Average discharge.--19 years, 787 cfs (569,800 acre-ft per year).

Extremes.--Maximum discharge during year, 19,200 cfs May 1 (gage height, 18.45 ft); minimum, 18 cfs Sept. 6, 7.
1939-58: Maximum discharge, 45,500 cfs Apr. 2, 1945 (gage height, 22.07 ft); no flow Oct. 3-5, 1939.
Highest stage since at least 1884, 24.3 ft in May 1908, from information by local residents. Flood in May 1884 was probably higher.

Remarks.--Records good except those for periods when wire-weight gage was used, which are fair, and periods of no gage-height record, which are poor. No large diversion above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 19 to Nov. 12, Feb. 11 to Mar. 8, Apr. 3-30, July 13-16, Aug. 24 to Sept. 20)

| | | | | | |
|---|---|---|---|---|---|
| 2.0 | 17 | 8.0 | 416 | 15.0 | 4,020 |
| 2.5 | 31 | 10.0 | 680 | 16.0 | 7,400 |
| 3.0 | 49 | 12.0 | 1,020 | 17.0 | 11,800 |
| 4.0 | 95 | 13.0 | 1,340 | 18.0 | 16,800 |
| 5.0 | 154 | 14.0 | 2,100 | 18.5 | 20,000 |
| 6.0 | 224 | 14.5 | 2,900 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 82 | 694 | 1,540 | 866 | 1,380 | 1,000 | 1,540 | 17,400 | 210 | 416 | 120 | 38 |
| 2 | 68 | 680 | 1,470 | 866 | 1,220 | 960 | 1,440 | 17,400 | 210 | 464 | 110 | 34 |
| 3 | 65 | 652 | 1,440 | 884 | 1,120 | 920 | 1,290 | 16,300 | 210 | 476 | 100 | 28 |
| 4 | 65 | 596 | 1,380 | 902 | 1,020 | 848 | 1,120 | 15,300 | 224 | 416 | 100 | 26 |
| 5 | 60 | 568 | 1,340 | 902 | 940 | 798 | 1,020 | *13,300 | 280 | 290 | 90 | 22 |
| 6 | 60 | 666 | 1,290 | 902 | 866 | 766 | 920 | 10,400 | 240 | 224 | 80 | 19 |
| 7 | 55 | 830 | 1,250 | 884 | 798 | 736 | 814 | 8,200 | 182 | 210 | 80 | 19 |
| 8 | 55 | 902 | 1,180 | 830 | 736 | 722 | 694 | 6,400 | 161 | 272 | 70 | 22 |
| 9 | 50 | 960 | 1,120 | 782 | 694 | 680 | 610 | 4,860 | 154 | 370 | 60 | 28 |
| 10 | 50 | 1,040 | 1,070 | 736 | 722 | 652 | *540 | 3,780 | 144 | 464 | 60 | 26 |
| 11 | 45 | 1,220 | 980 | 666 | 814 | 624 | 488 | 2,900 | *131 | 596 | 55 | 20 |
| 12 | 45 | 1,860 | 920 | 638 | 830 | 610 | 428 | 2,200 | 122 | 866 | *50 | 30 |
| 13 | 40 | 3,360 | *866 | 798 | 814 | 624 | 392 | 1,860 | 110 | 1,350 | 45 | 48 |
| 14 | 191 | 4,280 | 814 | 960 | 830 | 666 | 428 | 1,570 | 100 | 2,220 | 45 | 61 |
| 15 | 1,050 | 4,150 | 798 | 1,020 | 940 | 694 | 512 | 1,340 | 90 | *2,290 | 40 | 78 |
| 16 | 1,870 | 3,780 | 766 | 1,070 | 1,040 | 708 | 554 | 1,180 | 100 | 2,000 | 35 | 95 |
| 17 | 2,220 | 3,320 | 750 | 1,070 | 1,120 | 708 | 568 | 1,040 | 352 | 1,690 | 35 | *105 |
| 18 | 2,000 | 3,540 | 736 | 1,070 | 1,180 | 708 | 568 | 940 | 610 | 1,340 | 30 | 110 |
| 19 | 1,610 | 3,430 | 708 | 1,100 | 1,180 | 708 | 568 | 814 | 488 | 1,120 | 30 | 144 |
| 20 | 1,290 | 3,210 | 722 | 1,250 | 1,180 | 708 | 624 | 694 | 330 | 902 | 25 | 438 |
| 21 | 1,150 | 2,900 | 736 | 1,610 | 1,180 | 694 | 666 | 596 | 300 | 596 | 31 | 766 |
| 22 | 1,100 | 2,700 | 708 | *1,960 | 1,220 | 666 | 736 | 512 | 360 | 320 | 23 | 848 |
| 23 | 1,120 | 2,520 | 680 | 2,100 | 1,250 | 666 | 750 | 440 | 440 | 196 | 24 | 766 |
| 24 | 1,150 | 2,360 | 652 | 2,100 | 1,220 | 708 | 750 | 404 | 488 | 144 | 53 | 652 |
| 25 | 1,120 | 2,220 | 652 | 2,050 | 1,180 | 708 | 736 | 360 | 488 | 119 | 95 | 526 |
| 26 | 1,040 | 2,100 | 694 | 2,220 | *1,150 | 736 | 722 | 330 | 428 | 125 | 61 | 452 |
| 27 | 940 | 2,000 | 736 | 2,440 | 1,100 | 766 | 736 | 300 | 404 | 168 | 49 | 392 |
| 28 | 848 | 1,860 | 798 | 2,290 | 1,040 | 830 | 830 | 272 | 392 | 210 | 45 | 360 |
| 29 | *766 | 1,780 | 830 | 2,050 | - | 960 | 1,020 | 256 | 370 | 210 | 42 | 340 |
| 30 | 722 | 1,650 | 848 | 1,820 | ------ | 1,220 | 4,890 | 240 | 370 | 164 | 40 | 320 |
| 31 | 708 | ------ | 866 | 1,610 | ------ | 1,500 | ------ | 217 | ------ | 119 | 39 | ------ |
| Total | 21,635 | 61,828 | 29,340 | 40,446 | 28,764 | 24,294 | 26,954 | 131,825 | 8,488 | 20,347 | 1,762 | 6,813 |
| Mean | 698 | 2,061 | 946 | 1,305 | 1,027 | 784 | 898 | 4,252 | 283 | 656 | 56.8 | 227 |
| Cfsm | 0.618 | 1.83 | 0.838 | 1.16 | 0.910 | 0.694 | 0.795 | 3.77 | 0.251 | 0.581 | 0.050 | 0.201 |
| In. | 0.71 | 2.04 | 0.97 | 1.33 | 0.95 | 0.80 | 0.89 | 4.34 | 0.28 | 0.67 | 0.06 | 0.22 |
| Ac-ft | 42,910 | 122,600 | 58,200 | 80,220 | 57,050 | 48,190 | 53,460 | 261,500 | 16,840 | 40,360 | 3,490 | 13,510 |

Calendar year 1957: Max 15,100 Min 18 Mean 1,215 Cfsm 1.08 In. 14.62 Ac-ft 879,400
Water year 1957-58: Max 17,400 Min 19 Mean 1,103 Cfsm 0.977 In. 13.26 Ac-ft 798,300

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 3-13, June 13-16, Aug. 1-19, Sept. 14-16; discharge estimated on basis of weather records and Neches River near Alto. Discharge computed on basis of twice-daily wire-weight-gage readings Aug. 20 to Sept. 30.

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## 325. 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 1958.

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

Average discharge.--14 years, 1,208 cfs (874,600 acre-ft per year).

Extremes.--Maximum discharge during year, 19,300 cfs May 6 (gage height, 22.09 ft); minimum, 59 cfs Oct. 13.
1944-58: Maximum discharge, 42,800 cfs Apr. 4, 1945 (gage height, 26.85 ft); minimum, 0.1 cfs Sept. 27, 28, 1954.
Maximum stage since at least 1861, 28.2 ft in May 1884, from information by local residents (discharge, about 50,000 cfs).

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 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 111 | 1,400 | 3,050 | 1,350 | 3,230 | 2,010 | 1,210 | 1,840 | 423 | 467 | 216 | 104 |
| 2 | 111 | 1,250 | 2,880 | 1,300 | 3,140 | 1,870 | 1,250 | 1,800 | 390 | 445 | 198 | 96 |
| 3 | 111 | 1,150 | 2,660 | 1,230 | 3,050 | 1,770 | 1,400 | 2,280 | 357 | 423 | 167 | 92 |
| 4 | 104 | 1,070 | 2,520 | 1,210 | 2,960 | 1,650 | 1,500 | 7,030 | 335 | 434 | 155 | 87 |
| 5 | 96 | 1,030 | 2,310 | 1,170 | 2,800 | 1,590 | 1,590 | 16,800 | 325 | 456 | 131 | 81 |
| 6 | 89 | 1,150 | 2,190 | 1,170 | 2,660 | 1,680 | 1,620 | *18,900 | 315 | 772 | 115 | 78 |
| 7 | 80 | 1,320 | 2,120 | 1,170 | 2,450 | 1,650 | 1,620 | 16,800 | 325 | 982 | 104 | 107 |
| 8 | 73 | 1,680 | 2,040 | 1,170 | 2,190 | 1,530 | 1,560 | 13,900 | 357 | 800 | 93 | 115 |
| 9 | 69 | 1,840 | 1,980 | 1,150 | 1,980 | 1,480 | 1,450 | 10,300 | 335 | 612 | 85 | 115 |
| 10 | 66 | 1,620 | 1,900 | 1,150 | 1,840 | 1,400 | *1,350 | 8,260 | 305 | 502 | 79 | 107 |
| 11 | 63 | 1,400 | 1,840 | 1,130 | 1,980 | 1,280 | 1,230 | 6,610 | 255 | 467 | 90 | 96 |
| 12 | 61 | 1,420 | 1,770 | 1,170 | 2,010 | 1,250 | 1,090 | 5,580 | *235 | 467 | 111 | 100 |
| 13 | 62 | 2,080 | 1,680 | 1,950 | 1,840 | 1,420 | 965 | 4,900 | 220 | 490 | 93 | 111 |
| 14 | 385 | 3,560 | 1,590 | 2,660 | 1,740 | *1,500 | 916 | 4,250 | 202 | 550 | 84 | 115 |
| 15 | a2,000 | 3,800 | 1,500 | 2,590 | 1,900 | 1,350 | 948 | 3,800 | 194 | 625 | 80 | 107 |
| 16 | a5,000 | 3,680 | 1,420 | 2,190 | 2,080 | 1,210 | 932 | 3,340 | 189 | *744 | 77 | 123 |
| 17 | a6,000 | 3,800 | *1,350 | 1,980 | 2,010 | 1,150 | 856 | 2,960 | 668 | 965 | 72 | 167 |
| 18 | a5,500 | 4,250 | 1,280 | 1,840 | 1,940 | 1,130 | 856 | 2,660 | 1,090 | 1,230 | 76 | *220 |
| 19 | a5,000 | 4,510 | 1,250 | 1,740 | 1,900 | 1,110 | 900 | 2,380 | 870 | 1,420 | 79 | 265 |
| 20 | a4,500 | 4,600 | 1,300 | 2,180 | 1,870 | 1,090 | 982 | 2,150 | 730 | 1,560 | 84 | 790 |
| 21 | a4,000 | 4,600 | 1,300 | 3,560 | 1,870 | 1,070 | 982 | 1,900 | 744 | 1,620 | 89 | a3,000 |
| 22 | a3,500 | 4,700 | 1,230 | 3,680 | 1,870 | 1,050 | 999 | 1,620 | 800 | 1,590 | 107 | a5,000 |
| 23 | a3,200 | 4,900 | 1,150 | 3,450 | 1,900 | 1,050 | 1,050 | 1,280 | 758 | 1,450 | *115 | a4,000 |
| 24 | a2,900 | 5,010 | 1,090 | *3,340 | 2,080 | 1,090 | 1,050 | 1,050 | 651 | 1,150 | 131 | a3,000 |
| 25 | a2,600 | 5,010 | 1,090 | 3,230 | 2,080 | 1,150 | 1,020 | 870 | 562 | 772 | 255 | a2,500 |
| 26 | a2,400 | 4,700 | 1,150 | 3,140 | 2,080 | 1,150 | 1,020 | 744 | 550 | 478 | 325 | a2,000 |
| 27 | a2,200 | 4,340 | 1,230 | 3,050 | *2,120 | 1,130 | 1,170 | 664 | 562 | 305 | 230 | a1,700 |
| 28 | a2,000 | 3,940 | 1,480 | 3,050 | 2,080 | 1,110 | 1,840 | 586 | 562 | 225 | 176 | a1,500 |
| 29 | a1,850 | 3,560 | 1,650 | 3,140 | - | 1,090 | 1,900 | 538 | 538 | 194 | 159 | a1,300 |
| 30 | *1,710 | 3,340 | 1,560 | 3,140 | ------ | 1,130 | 1,870 | 502 | 502 | 194 | 135 | a1,100 |
| 31 | 1,560 | ------ | 1,420 | 3,140 | ------ | 1,170 | ------ | 456 | ------ | 212 | 119 | ------ |
| Total | 57,401 | 90,710 | 52,980 | 67,420 | 61,650 | 41,310 | 37,126 | 146,750 | 14,349 | 22,601 | 4,030 | 28,176 |
| Mean | 1,852 | 3,024 | 1,709 | 2,175 | 2,202 | 1,333 | 1,238 | 4,734 | 478 | 729 | 130 | 939 |
| Cfsm | 0.973 | 1.59 | 0.898 | 1.14 | 1.16 | 0.700 | 0.651 | 2.49 | 0.251 | 0.383 | 0.068 | 0.493 |
| In. | 1.12 | 1.77 | 1.04 | 1.32 | 1.20 | 0.81 | 0.73 | 2.87 | 0.28 | 0.44 | 0.08 | 0.55 |
| Ac-ft | 113,900 | 179,900 | 105,100 | 133,700 | 122,300 | 81,940 | 73,640 | 291,100 | 28,460 | 44,830 | 7,990 | 55,890 |

Calendar year 1957: Max 23,200 Min 56 Mean 1,867 Cfsm 0.981 In. 13.32 Ac-ft 1,352,000
Water year 1957-58: Max 18,900 Min 61 Mean 1,711 Cfsm 0.899 In. 12.21 Ac-ft 1,239,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

330. 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 and New Orleans Railroad Co. 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 1958.

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, July 10 to Aug. 31, 1925, chain gage, and Mar. 30, 1939, to Sept. 24, 1943, wire-weight gage, at site 500 ft upstream, all at present datum.

Average discharge.--20 years (1924-25, 1939-58), 1,749 cfs (1,266,000 acre-ft per year).

Extremes.--Maximum discharge during year, 16,600 cfs May 10 (gage height, 15.76 ft); minimum, 74 cfs Oct. 14.
1923-25, 1939-58: Maximum discharge, 49,900 cfs May 4, 1944 (gage height, 18.70 ft); no flow Aug. 15-22, 1925.
Maximum stage since at least 1874, about 21.0 ft in May 1884, present site, from information by local residents (discharge, about 80,000 cfs).

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

Revisions (water years).--WSP 1242: 1950.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 117 | 2,670 | 6,120 | 2,260 | 3,330 | 2,770 | 1,230 | 1,520 | 763 | 518 | 237 | 165 |
| 2 | 139 | 2,490 | 5,710 | 2,120 | 3,090 | 2,580 | 1,230 | 1,680 | 625 | 484 | 224 | 143 |
| 3 | *141 | 2,330 | 5,320 | 2,060 | 2,980 | 2,490 | 1,230 | 1,950 | 518 | 467 | 200 | 128 |
| 4 | 134 | 2,120 | 4,960 | 2,000 | 2,870 | 2,330 | 1,200 | 3,560 | 450 | 434 | 212 | 111 |
| 5 | 129 | 2,000 | 4,620 | 1,950 | 2,870 | 2,260 | 1,200 | 5,320 | 402 | 387 | 200 | 98 |
| 6 | 126 | 2,260 | 4,300 | 1,860 | 3,090 | 2,260 | 1,230 | 5,580 | 365 | 535 | 176 | 92 |
| 7 | 124 | 2,670 | 4,300 | 1,760 | *2,980 | 2,410 | 1,230 | *5,450 | 330 | 805 | 165 | 89 |
| 8 | 120 | 5,360 | 4,300 | 1,640 | 2,870 | 2,580 | 1,250 | 6,300 | 316 | 936 | 143 | 85 |
| 9 | 111 | 6,550 | 4,110 | 1,560 | 2,770 | 2,770 | 1,300 | 13,400 | 316 | 1,000 | 127 | 96 |
| 10 | 102 | 5,710 | 3,720 | 1,490 | 2,770 | 2,770 | 1,330 | 16,600 | 316 | 1,030 | 119 | 114 |
| 11 | 92 | 4,620 | 3,330 | 1,460 | 2,770 | 2,670 | *1,360 | 15,800 | 316 | 982 | 105 | 122 |
| 12 | 81 | 4,020 | 3,090 | 1,490 | 2,670 | 2,410 | 1,420 | 14,400 | *302 | 892 | 88 | 127 |
| 13 | 76 | 3,090 | 2,770 | 2,900 | 2,580 | 2,260 | 1,460 | 12,400 | 270 | 702 | 83 | 122 |
| 14 | 234 | 2,980 | 2,490 | 5,710 | 2,490 | 2,060 | 1,490 | 10,700 | 250 | 553 | 95 | 122 |
| 15 | 1,410 | 2,870 | 2,330 | 6,120 | 2,490 | 1,900 | 1,460 | 9,180 | 230 | 484 | 98 | 123 |
| 16 | 2,000 | 2,870 | 2,060 | 6,120 | 2,410 | 1,900 | 1,390 | 8,100 | 218 | 484 | 97 | 109 |
| 17 | 2,580 | 2,870 | 1,950 | 5,580 | 2,330 | 1,900 | 1,330 | 7,180 | 230 | *518 | 90 | 129 |
| 18 | 3,450 | 3,450 | *1,900 | 4,730 | 2,260 | 1,810 | 1,250 | 6,400 | 316 | 607 | 84 | 154 |
| 19 | 5,710 | 3,720 | 1,810 | 4,020 | 2,190 | 1,760 | 1,300 | 5,580 | 589 | 663 | 86 | *230 |
| 20 | 8,100 | 3,720 | 1,760 | 4,200 | 2,190 | 1,680 | 1,330 | 5,080 | 805 | 742 | 77 | 615 |
| 21 | 8,100 | 4,510 | 1,720 | 6,400 | 2,120 | 1,560 | 1,330 | 4,400 | 848 | 784 | 107 | 3,550 |
| 22 | 7,520 | 6,850 | 1,640 | 6,850 | 2,120 | 1,420 | 1,300 | 3,940 | 892 | 826 | *103 | 8,300 |
| 23 | 6,550 | 10,400 | 1,600 | 6,400 | 2,410 | 1,390 | 1,200 | 3,450 | 982 | 892 | 95 | 7,000 |
| 24 | 5,710 | 10,400 | 1,560 | 6,120 | 2,770 | 1,360 | 1,150 | 3,090 | 936 | 982 | 105 | 5,710 |
| 25 | 5,580 | 10,200 | 1,560 | 5,320 | 2,980 | 1,300 | 1,100 | 2,870 | 892 | 1,050 | 149 | 4,400 |
| 26 | 5,580 | 9,400 | 1,600 | 4,840 | 2,980 | 1,280 | 1,080 | 2,580 | 805 | 1,100 | 165 | 3,860 |
| 27 | 5,080 | 8,720 | 1,640 | 4,510 | 3,090 | 1,280 | 1,080 | 2,260 | 722 | 1,150 | 176 | 4,020 |
| 28 | 4,300 | 7,700 | 2,120 | 4,400 | *2,980 | 1,250 | 1,080 | 1,950 | 644 | 1,100 | 188 | 3,860 |
| 29 | 3,580 | 7,000 | 2,410 | 4,400 | - | 1,250 | 1,120 | 1,720 | 553 | 914 | 212 | 3,450 |
| 30 | *3,090 | 6,550 | 2,580 | 4,020 | ------ | 1,250 | 1,280 | 1,360 | 535 | 553 | 230 | 3,210 |
| 31 | 2,870 | ------ | 2,490 | 3,720 | ------ | 1,250 | ------ | 1,100 | ------ | 263 | 194 | ------ |
| Total | 82,936 | 150,100 | 91,870 | 118,010 | 75,450 | 60,160 | 37,940 | 184,900 | 15,826 | 22,837 | 4,430 | 50,334 |
| Mean | 2,675 | 5,003 | 2,964 | 3,807 | 2,695 | 1,941 | 1,265 | 5,965 | 528 | 737 | 143 | 1,678 |
| Cfsm | 1.00 | 1.87 | 1.11 | 1.43 | 1.01 | 0.727 | 0.474 | 2.23 | 0.198 | 0.276 | 0.054 | 0.628 |
| In. | 1.16 | 2.09 | 1.28 | 1.64 | 1.05 | 0.84 | 0.53 | 2.58 | 0.22 | 0.32 | 0.06 | 0.70 |
| Ac-ft | 164,500 | 297,700 | 182,200 | 234,100 | 149,700 | 119,300 | 75,250 | 366,700 | 31,390 | 45,300 | 8,790 | 99,840 |

Calendar year 1957: Max 22,600 Min 66 Mean 2,432 Cfsm 0.911 In. 12.35 Ac-ft 1,761,000
Water year 1957-58: Max 16,600 Min 76 Mean 2,451 Cfsm 0.918 In. 12.47 Ac-ft 1,775,000

* Discharge measurement made on this day.

## 335. Neches River near Rockland, Tex.

Location.--Lat 31°01'45", long 94°23'50", on left bank 2,100 ft upstream from Texas and New Orleans Railroad Co. 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 1958. July 1903 to September 1923 monthly records only, in WSP 850. Gage-height records collected in this vicinity since 1903 are contained in reports of U. S. 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 present datum.

Average discharge.--52 years (1903-10, 1913-58), 2,401 cfs (1,738,000 acre-ft per year).

Extremes.--Maximum discharge during year, 16,000 cfs Nov. 26 (gage height, 21.84 ft); minimum, 104 cfs Aug. 17, 18, 21, 23.
1903-58: Maximum discharge, 49,800 cfs May 6, 1944 (gage height, 31.84 ft); minimum observed during period of daily records, 1.6 cfs Sept. 28-30, Oct. 1, 2, 1956.
Maximum stage known, 34.9 ft in May 1884, from information by local resident (discharge, about 62,000 cfs).

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

Revisions (water years).--WSP 878: 1926-27. WSP 1342: 1922(M), 1935.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-15, Jan. 12-21, June 21-26)

| | | | | | |
|---|---|---|---|---|---|
| -0.2 | 104 | 2.0 | 800 | 12.0 | 6,900 |
| 0.0 | 138 | 4.0 | 1,860 | 16.0 | 9,700 |
| .5 | 248 | 6.0 | 3,040 | 20.0 | 13,200 |
| 1.0 | 392 | 9.0 | 4,950 | 22.0 | 16,400 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 117 | 5,140 | 11,300 | 4,500 | 5,990 | 4,360 | 1,640 | 1,390 | 1,690 | 686 | 622 | 264 |
| 2 | 117 | 4,880 | 10,200 | 3,910 | 5,470 | 4,240 | 1,580 | 1,470 | 1,150 | 643 | 382 | 226 |
| 3 | 120 | 4,430 | 9,140 | 3,910 | 5,080 | *4,040 | 1,520 | 2,020 | 875 | 622 | 293 | 210 |
| 4 | 127 | *4,040 | 8,230 | 3,780 | 4,620 | 3,840 | 1,470 | 3,650 | 731 | 622 | 258 | 181 |
| 5 | 134 | 3,520 | 7,460 | 3,520 | 4,240 | 3,520 | 1,470 | 4,950 | 643 | 601 | 258 | 158 |
| 6 | 142 | 3,340 | 6,700 | 3,460 | 4,040 | 3,220 | 1,470 | 6,640 | 622 | 601 | 251 | 146 |
| 7 | *150 | 3,340 | 6,180 | 3,400 | 4,170 | 3,160 | 1,420 | 7,040 | 532 | 580 | 241 | 146 |
| 8 | 152 | 4,500 | 5,730 | 3,100 | 4,170 | 3,160 | *1,360 | 6,580 | 512 | 850 | 229 | 181 |
| 9 | 138 | 4,500 | 5,400 | 2,740 | 3,910 | 3,160 | 1,420 | 6,250 | 458 | 975 | 206 | 142 |
| 10 | 136 | 4,950 | 5,140 | 2,380 | 3,780 | 3,100 | 1,420 | 6,320 | 406 | 1,080 | 179 | *125 |
| 11 | 134 | 5,540 | 4,880 | 2,200 | 3,780 | 3,040 | 1,470 | 6,970 | 406 | 1,180 | 158 | 122 |
| 12 | 127 | 6,060 | 4,690 | 2,330 | 3,650 | 3,040 | 1,470 | 9,210 | 406 | 1,250 | 138 | 224 |
| 13 | 118 | 6,700 | 4,500 | 5,990 | 3,520 | 3,100 | 1,580 | 11,700 | 406 | 1,200 | 129 | 175 |
| 14 | 107 | 6,970 | 4,300 | *6,180 | 3,520 | 3,100 | 1,910 | 13,100 | 399 | 1,050 | 122 | 150 |
| 15 | 398 | 6,970 | 4,040 | 6,510 | 3,520 | 2,920 | 2,260 | 13,800 | 382 | 825 | 115 | 150 |
| 16 | 1,960 | 6,770 | 3,720 | 6,770 | 3,520 | 2,740 | 2,140 | 13,500 | 354 | 664 | 109 | 146 |
| 17 | 2,200 | 6,440 | 3,460 | 6,700 | 3,400 | 2,500 | 1,960 | 12,800 | 330 | 580 | 104 | 591 |
| 18 | 2,680 | 6,250 | 3,160 | 6,840 | 3,340 | 2,380 | 1,960 | 11,800 | 318 | 580 | 106 | 601 |
| 19 | 2,740 | 5,990 | 3,040 | 7,460 | 3,160 | 2,260 | 2,560 | 10,700 | 370 | 601 | 112 | 274 |
| 20 | 2,860 | 6,060 | 2,920 | 9,140 | 2,980 | 2,140 | 2,080 | *9,490 | 536 | 664 | 112 | 1,540 |
| 21 | 3,280 | 7,040 | 2,860 | 11,800 | 2,800 | 2,080 | 2,020 | 8,580 | 850 | 708 | 104 | 2,560 |
| 22 | 3,780 | 8,930 | 2,560 | 11,900 | 2,740 | 1,960 | 2,200 | 7,530 | 1,100 | 754 | 104 | 2,800 |
| 23 | 5,080 | 10,300 | 2,440 | 11,800 | 3,840 | 1,860 | 2,080 | 6,580 | *1,250 | 900 | 142 | 2,860 |
| 24 | 6,250 | 12,900 | 2,320 | 11,100 | 4,300 | 1,800 | 1,860 | 5,800 | 1,280 | 950 | 238 | 2,860 |
| 25 | 6,970 | 15,500 | 2,300 | 10,200 | 4,240 | 1,690 | 1,640 | 5,080 | 1,280 | 1,020 | 288 | 3,520 |
| 26 | 7,180 | *16,000 | 2,680 | 9,350 | 4,170 | 1,690 | 1,470 | 4,500 | 1,200 | 1,100 | 224 | 4,500 |
| 27 | 6,770 | 15,900 | 3,280 | 8,720 | 4,690 | 1,640 | 1,420 | 4,040 | 1,100 | 1,120 | 186 | 5,470 |
| 28 | 6,250 | 15,000 | 5,660 | 8,090 | 4,430 | 1,580 | 1,360 | 3,460 | 1,020 | *1,180 | 175 | 6,320 |
| 29 | 5,800 | 13,800 | 5,340 | 7,810 | - | 1,640 | 1,300 | 3,100 | 950 | 1,200 | 208 | 6,250 |
| 30 | 5,540 | 12,500 | 5,210 | 7,110 | ------ | 1,690 | 1,330 | 2,740 | 825 | 1,180 | 277 | 5,990 |
| 31 | 5,340 | ------ | 4,820 | 6,510 | ------ | 1,640 | ------ | 2,200 | ------ | 975 | 298 | ------ |
| Total | 76,897 | 234,260 | 153,660 | 199,210 | 111,070 | 82,290 | 50,840 | 212,990 | 22,381 | 26,941 | 6,368 | 48,882 |
| Mean | 2,481 | 7,809 | 4,957 | 6,426 | 3,967 | 2,655 | 1,695 | 6,871 | 746 | 869 | 205 | 1,629 |
| Cfsm | 0.701 | 2.21 | 1.40 | 1.82 | 1.12 | 0.750 | 0.479 | 1.94 | 0.211 | 0.246 | 0.058 | 0.460 |
| In. | 0.81 | 2.46 | 1.61 | 2.09 | 1.17 | 0.86 | 0.53 | 2.24 | 0.24 | 0.28 | 0.07 | 0.51 |
| Ac-ft | 152,500 | 464,600 | 304,800 | 395,100 | 220,300 | 163,200 | 100,800 | 422,500 | 44,390 | 53,440 | 12,630 | 96,960 |

Calendar year 1957: Max 29,000 Min 67 Mean 3,222 Cfsm 0.911 In. 12.35 Ac-ft 2,332,000
Water year 1957-58: Max 16,000 Min 104 Mean 3,358 Cfsm 0.949 In. 12.87 Ac-ft 2,431,000

* Discharge measurement made on this day.

340. Lake Tyler near Whitehouse, Tex.

Location.--Lat 32°14'30", long 95°10'30", at intake tower of pumphouse, 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, approximately.

Records available.--April 1949 to September 1958.

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 11, 1951, staff gage at pumphouse 660 ft shoreward at same datum.

Extremes.--Maximum contents during year, 45,560 acre-ft Nov. 13, 14 (elevation, 376.42 ft); minimum, 40,000 acre-ft Oct. 9-13; minimum elevation, 373.99 ft Oct. 12, 13. 1949-58: Maximum contents, 47,000 acre-ft Apr. 27, 1957; minimum since first appreciable storage in 1950, 33,400 acre-ft Jan. 16-21, 1957; minimum elevation, 370.98 ft Jan. 19-20, 1957.

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.

Month-end elevation, total contents, and monthly diversions, water year October 1957 to September 1958

| Date | Elevation (feet)† | Contents (acre-feet) | Change in contents (acre-feet) | Diversions for municipal use (acre-feet) |
|---|---|---|---|---|
| Sept. 30 | 374.18 | 40,440 | - | - |
| Oct. 31 | 375.49 | 43,400 | +2,960 | 681 |
| Nov. 30 | 375.56 | 43,640 | +240 | 530 |
| Dec. 31 | 375.57 | 43,640 | 0 | 551 |
| Calendar year 1957 | - | - | +9,800 | 7,731 |
| Jan. 31 | 375.50 | 43,400 | -240 | 553 |
| Feb. 28 | 375.51 | 43,400 | 0 | 489 |
| Mar. 31 | 375.49 | 43,400 | 0 | 547 |
| Apr. 30 | 376.19 | 45,080 | +1,680 | 575 |
| May 31 | 375.36 | 43,160 | -1,920 | 782 |
| June 30 | 375.42 | 43,160 | 0 | 870 |
| July 31 | 375.10 | 42,440 | -720 | 981 |
| Aug. 31 | 374.58 | 41,320 | -1,120 | 1,320 |
| Sept. 30 | 375.46 | 43,400 | +2,080 | 793 |
| Water year 1957-58 | - | - | +2,960 | 8,672 |

† Elevation at 12 p.m.

## 345. 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 1958.

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

Average discharge.--19 years, 287 cfs (207,800 acre-ft per year).

Extremes.--Maximum discharge during year, 8,550 cfs May 1 (gage height, 10.57 ft); minimum, 1.7 cfs Oct. 12, 13.

1939-58: Maximum discharge, 23,400 cfs May 3, 1944 (gage height, 14.09 ft), from rating curve extended above 11,000 cfs by logarithmic plotting; no flow at times.

Maximum stage since May 1884, about 20 ft in May 1908 and December 1913; flood of May 1884 was higher, stage unknown; from information by local residents.

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.6 | 105 | 496 | 355 | 322 | 344 | 240 | 7,550 | 175 | 148 | 21 | 13 |
| 2 | 6.2 | 96 | 428 | 322 | 288 | 344 | 205 | 6,380 | 130 | 80 | 20 | 11 |
| 3 | 5.0 | 89 | 385 | 257 | 275 | 344 | 187 | 5,140 | 86 | 56 | 18 | 10 |
| 4 | 4.2 | 89 | 332 | 220 | 257 | 295 | 175 | 4,050 | 74 | 48 | 18 | 8.5 |
| 5 | 3.7 | 157 | 275 | 187 | 246 | 252 | 159 | 3,000 | 65 | 42 | 16 | 7.2 |
| 6 | 3.3 | 75 | 252 | 171 | 235 | 246 | 148 | *2,220 | 65 | 41 | 15 | 6.2 |
| 7 | 2.9 | 606 | 263 | 163 | 230 | 246 | 136 | 1,450 | 59 | 65 | 14 | 6.4 |
| 8 | 2.6 | 520 | 281 | 155 | 230 | 252 | 122 | 975 | 52 | 151 | 12 | 9.7 |
| 9 | 2.3 | 622 | 269 | 151 | 235 | 246 | 119 | 740 | 46 | 205 | 9.9 | 14 |
| 10 | 2.1 | 730 | 275 | 151 | 341 | 240 | *119 | 614 | 42 | 235 | 8.9 | 17 |
| 11 | 1.8 | 700 | 281 | 140 | 451 | 230 | 119 | 508 | *42 | 257 | 8.9 | 21 |
| 12 | 1.7 | 720 | 281 | 148 | 368 | 215 | 122 | 395 | 35 | 240 | 9.9 | 20 |
| 13 | 2.1 | 2,540 | *269 | 392 | 355 | 230 | 119 | 304 | 33 | 125 | 17 | 29 |
| 14 | 113 | 4,280 | 240 | 460 | 462 | *235 | 198 | 263 | 30 | 73 | 20 | 44 |
| 15 | 1,070 | 5,140 | 215 | 412 | 760 | 246 | 246 | 225 | 29 | 55 | 15 | 40 |
| 16 | 930 | 3,400 | 196 | 438 | 646 | 257 | 257 | 210 | 36 | *44 | 10 | 35 |
| 17 | 630 | 2,190 | 196 | 472 | 622 | 240 | 275 | 187 | 553 | 38 | 7.4 | 125 |
| 18 | 990 | 2,450 | 196 | 460 | 670 | 215 | *275 | 167 | 740 | 34 | 5.5 | *86 |
| 19 | 750 | 2,190 | 205 | 415 | 680 | 196 | 246 | 151 | 382 | 30 | 4.0 | 86 |
| 20 | 569 | 1,550 | 225 | 1,400 | 590 | 192 | 187 | 140 | 304 | 28 | 3.3 | 295 |
| 21 | 438 | 1,530 | 230 | 1,830 | 502 | 175 | 183 | 136 | 275 | 26 | 3.0 | 508 |
| 22 | 382 | 1,530 | 230 | 848 | 377 | 167 | 246 | 119 | 179 | 24 | 3.0 | 472 |
| 23 | 398 | 1,510 | 225 | *1,130 | 322 | 179 | 210 | 105 | 130 | 24 | *3.8 | 534 |
| 24 | 332 | 1,310 | 215 | 1,020 | 312 | 257 | 179 | 92 | 144 | 23 | 11 | 583 |
| 25 | 295 | 1,260 | 210 | 900 | 312 | 269 | 159 | 86 | 148 | 44 | 146 | 490 |
| 26 | 344 | 874 | 235 | 750 | 322 | 288 | 201 | 83 | 130 | 44 | 187 | 333 |
| 27 | 395 | 874 | 252 | 646 | *379 | 304 | 398 | 77 | 112 | 34 | 78 | 532 |
| 28 | 385 | 796 | 355 | 562 | 360 | 304 | 2,030 | 74 | 130 | 26 | 37 | 382 |
| 29 | *332 | 690 | 355 | 484 | - | 275 | 3,300 | 108 | 159 | 23 | 23 | 281 |
| 30 | 215 | 583 | 355 | 408 | ------ | 368 | *5,010 | 151 | 183 | 24 | 18 | 269 |
| 31 | 130 | ------ | 355 | 355 | ------ | 295 | ------ | 179 | ------ | 23 | 15 | ------ |
| Total | 8,743.5 | 39,881 | 8,577 | 15,802 | 11,149 | 7,946 | 15,570 | 35,879 | 4,568 | 2,310 | 778.6 | 5,268.0 |
| Mean | 282 | 1,329 | 277 | 510 | 398 | 256 | 519 | 1,157 | 152 | 74.5 | 25.1 | 176 |
| Cfsm | 0.738 | 3.48 | 0.725 | 1.34 | 1.04 | 0.670 | 1.36 | 3.03 | 0.398 | 0.195 | 0.066 | 0.461 |
| In. | 0.85 | 3.88 | 0.84 | 1.54 | 1.09 | 0.77 | 1.52 | 3.49 | 0.44 | 0.22 | 0.08 | 0.51 |
| Ac-ft | 17,340 | 79,100 | 17,010 | 31,340 | 22,110 | 15,760 | 30,880 | 71,160 | 9,060 | 4,580 | 1,540 | 10,450 |

Calendar year 1957: Max 6,190 Min 0.2 Mean 427 Cfsm 1.12 In. 15.17 Ac-ft 309,100
Water year 1957-58: Max 7,550 Min 1.7 Mean 429 Cfsm 1.12 In. 15.23 Ac-ft 310,300

Peak discharge (base, 1,400 cfs).--Oct. 15 (10 p.m.) 1,420 cfs (7.62 ft); Nov. 15 (8 a.m.) 5,270 cfs (9.47 ft); Nov. 18 (4 p.m.) 3,000 cfs (8.43 ft); Jan. 20 (10 p.m.) 3,000 cfs (8.44 ft); May 1 (8:30 a.m.) 8,550 cfs (10.57 ft).

* Discharge measurement made on this day.

## 370. Angelina River near Lufkin, Tex.

Location.--Lat 31°27'26", long 94°43'34", near right bank at downstream side of bridge on U. S. Highway 59, 200 ft upstream from Procella Creek, 1½ miles downstream from Bayou Loco, 1.5 miles upstream from Southern Pacific Railroad bridge, and 8 miles north of Lufkin, Angelina County.

Drainage area.--1,630 sq mi.

Records available.--October 1923 to September 1934, July 1939 to September 1958.

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 Southern Pacific 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.--30 years, 1,275 cfs (923,100 acre-ft per year).

Extremes.--Maximum discharge during year, 13,000 cfs May 8 (gage height, 13.50 ft); minimum, 36 cfs Oct. 13.
1923-34, 1939-58: Maximum discharge, 38,200 cfs Feb. 24, 1932; maximum gage height, 18.55 ft May 7, 1944; minimum discharge, 0.8 cfs Oct. 29, 30, 1956.
Maximum stage known since at least 1884, about 26.5 ft in May 1884, 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. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 718: 1924, 1926. WSP 1392: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 20 to May 30)

| | | | | | |
|---|---|---|---|---|---|
| 1.4 | 34 | 6.0 | 398 | 11.0 | 3,640 |
| 2.0 | 56 | 7.0 | 650 | 12.0 | 6,100 |
| 3.0 | 104 | 8.0 | 1,010 | 13.0 | 9,500 |
| 4.0 | 171 | 9.0 | 1,550 | 14.0 | 13,000 |
| 5.0 | 254 | 10.0 | 2,340 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 92 | 3,410 | 5,180 | 1,690 | 4,080 | 2,160 | 1,430 | 1,520 | 344 | 1,080 | 80 | 464 |
| 2 | 80 | 3,270 | 4,900 | 1,660 | 3,640 | 2,030 | 1,340 | 1,460 | 328 | 912 | 75 | 409 |
| 3 | 72 | 3,200 | 4,640 | 1,660 | 3,270 | 1,910 | 1,280 | 2,490 | 314 | 685 | 70 | 301 |
| 4 | 66 | 2,850 | 4,290 | 1,660 | 2,850 | 1,830 | 1,280 | 4,400 | 314 | 497 | 60 | 201 |
| 5 | 60 | 2,440 | 3,980 | 1,690 | 2,540 | 1,910 | 1,340 | 5,710 | 314 | 398 | 60 | 138 |
| 6 | 54 | 2,540 | 3,720 | 1,690 | 2,250 | 2,200 | 1,310 | 10,600 | 321 | 409 | 55 | 110 |
| 7 | 50 | 2,660 | 3,720 | 1,660 | 1,910 | 2,160 | 1,260 | *12,600 | 321 | 409 | 55 | 116 |
| 8 | 46 | 4,080 | 3,560 | 1,580 | 1,690 | 2,120 | 1,160 | 12,600 | 328 | 398 | 55 | 128 |
| 9 | 44 | 4,770 | 3,200 | 1,460 | 1,490 | 2,030 | 1,010 | 12,300 | 314 | 360 | 55 | 107 |
| 10 | 42 | 4,180 | 2,780 | 1,340 | 1,430 | 1,910 | 912 | 10,900 | 270 | 300 | 55 | 90 |
| 11 | 40 | 3,480 | 2,440 | 1,180 | 1,520 | 1,800 | *825 | 9,850 | 244 | 270 | 50 | 92 |
| 12 | 38 | 3,200 | 2,120 | 1,140 | 1,660 | 1,760 | 738 | 8,480 | *240 | 270 | 50 | 87 |
| 13 | 36 | 3,480 | 1,910 | 1,720 | 1,830 | 1,800 | 632 | 6,950 | 222 | 260 | 50 | 87 |
| 14 | 379 | 4,180 | 1,760 | 2,250 | 1,800 | 1,910 | 632 | 5,780 | 190 | 270 | 50 | 90 |
| 15 | 1,750 | 4,900 | 1,660 | 2,340 | 1,830 | 2,120 | 615 | 4,900 | 171 | 280 | 50 | 84 |
| 16 | 3,200 | 5,040 | 1,580 | 2,340 | 1,870 | 2,120 | 615 | 4,080 | 160 | 287 | 45 | 84 |
| 17 | 3,800 | 4,900 | 1,490 | 2,070 | 1,950 | 1,910 | 615 | 3,560 | 342 | *294 | 45 | 104 |
| 18 | 3,410 | 5,940 | *1,460 | 1,830 | 2,030 | 1,830 | 650 | 3,060 | 1,150 | 280 | 45 | 167 |
| 19 | 3,200 | 8,310 | 1,400 | 1,800 | 2,030 | 1,800 | 790 | 2,490 | 1,400 | 240 | 50 | *219 |
| 20 | 5,450 | 9,500 | 1,340 | 2,440 | 2,070 | *1,760 | 842 | 1,950 | 1,040 | 200 | 60 | 2,860 |
| 21 | 7,970 | 9,500 | 1,280 | 3,560 | 2,160 | 1,620 | 895 | 1,430 | 825 | 170 | 55 | 4,400 |
| 22 | 7,970 | 9,160 | 1,280 | 3,980 | 2,250 | 1,430 | 930 | 1,010 | 1,080 | 150 | *50 | 3,720 |
| 23 | 7,800 | 8,820 | 1,280 | 3,890 | 2,540 | 1,280 | 1,010 | 808 | 1,240 | 130 | 42 | 3,560 |
| 24 | 7,120 | 8,820 | 1,210 | *3,480 | 2,660 | 1,280 | 1,040 | 720 | 1,240 | 120 | 50 | 3,130 |
| 25 | 5,940 | 8,310 | 1,210 | 3,340 | 2,600 | 1,340 | 1,010 | 685 | 1,260 | 110 | 99 | 2,490 |
| 26 | 4,900 | 7,460 | 1,280 | 3,340 | 2,540 | 1,240 | 990 | 668 | 1,260 | 100 | 186 | 2,490 |
| 27 | 4,290 | 6,780 | 1,400 | 3,720 | 2,440 | 1,160 | 1,470 | 615 | 1,260 | 95 | 264 | 4,970 |
| 28 | 3,890 | 6,100 | 1,690 | 4,640 | *2,250 | 1,160 | 2,390 | 555 | 1,260 | 90 | 314 | 7,120 |
| 29 | 3,640 | 5,780 | 1,800 | 5,180 | - | 1,280 | 1,990 | 475 | 1,240 | 85 | 360 | 7,120 |
| 30 | *3,480 | 5,480 | 1,800 | 5,040 | ------ | 1,370 | 1,690 | 398 | 1,210 | 80 | 420 | 6,100 |
| 31 | 3,480 | ------ | 1,760 | 4,520 | ------ | 1,460 | ------ | 360 | ------ | 80 | 464 | ------ |
| Total | 82,389 | 162,540 | 73,120 | 79,890 | 63,180 | 53,690 | 32,691 | 133,404 | 20,202 | 9,309 | 3,419 | 51,038 |
| Mean | 2,658 | 5,418 | 2,359 | 2,577 | 2,256 | 1,732 | 1,090 | 4,303 | 673 | 300 | 110 | 1,701 |
| Cfsm | 1.63 | 3.32 | 1.45 | 1.58 | 1.38 | 1.06 | 0.669 | 2.64 | 0.413 | 0.184 | 0.067 | 1.04 |
| In. | 1.88 | 3.71 | 1.67 | 1.82 | 1.44 | 1.23 | 0.75 | 3.04 | 0.46 | 0.21 | 0.08 | 1.16 |
| Ac-ft | 163,400 | 322,400 | 145,000 | 158,500 | 125,300 | 106,500 | 64,840 | 264,600 | 40,070 | 18,460 | 6,780 | 101,200 |

Calendar year 1957: Max 19,400 Min 34 Mean 1,956 Cfsm 1.20 In. 16.30 Ac-ft 1,416,000
Water year 1957-58: Max 12,600 Min 36 Mean 2,096 Cfsm 1.29 In. 17.45 Ac-ft 1,517,000

* Discharge measurement made on this day.
Note.--No gage-height record July 12-15, July 18 to Aug. 21; discharge estimated on basis of trend of flow, weather records, and records for Angelina River near Zavalla.

380. Attoyac Bayou near Chireno, Tex.

Location.--Lat 31°30'15", long 94°18'15", on downstream side of temporary 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 November 1954, October 1955 to September 1957. October 1957 to September 1958 (monthly discharge only).

Gage.--Tape-down from temporary reference point, read twice daily. Datum of gage is 169.95 ft above mean sea level, datum of 1929. Jan. 24, 1924, to Aug. 29, 1925, chain gage; July 31, 1939, to Nov. 18, 1954, and Sept. 24, 1955, to Sept. 30, 1957, water-stage recorder.

Average discharge.--18 years (1939-54, 1955-58), 496 cfs (359,100 acre-ft per year).

Extremes.--Maximum discharge during year, 14,500 cfs Sept. 22 (gage height, 21.4 ft, from graph based on gage readings); minimum, 17 cfs Aug. 2.

1924-25, 1939-54, 1955-58: Maximum discharge, 31,900 cfs Nov. 24, 1940 (gage height, 25.97 ft); minimum, 0.8 cfs Aug. 26, 27, 1956.

Maximum stage known since at least 1902, 29.9 ft in June 1912, from information by local residents.

Remarks.--Records poor. Only monthly and peak discharges published because of extremely poor gage-height record. No large diversion above station.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 719 | 23 | 323 | 19,840 |
| November | 9,900 | 124 | 1,918 | 114,200 |
| December | 1,150 | 336 | 619 | 38,050 |
| Calendar year 1957 | 12,000 | 14 | 606 | 438,800 |
| January | 3,580 | 248 | 1,064 | 65,450 |
| February | 743 | 296 | 479 | 26,600 |
| March | 675 | 304 | 482 | 29,620 |
| April | 635 | 139 | 267 | 15,890 |
| May | 6,350 | 106 | 993 | 61,050 |
| June | 719 | 44 | 308 | 18,310 |
| July | 428 | 26 | 98.2 | 6,040 |
| August | 1,610 | 17 | 305 | 18,740 |
| September | 12,500 | 54 | 1,995 | 118,700 |
| Water year 1957-58 | 12,500 | 17 | 735 | 532,500 |

Peak discharge (base, 2,500 cfs).--About Nov. 9 or 10 (time unknown) 10,900 cfs (20.29 ft); Nov. 26 (6:30 a.m.) 2,690 cfs (16.99 ft); Jan. 23 (time unknown) 3,580 cfs (17.60 ft); about May 4 (time unknown) 8,100 cfs (19.38 ft); Sept. 22 (time unknown) 14,500 cfs (21.4 ft); Sept. 28 (7 a.m.) 6,900 cfs (19.00 ft).

385. 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 8 ½ miles northeast of Zavalla, Angelina County.

Drainage area.--2,880 sq mi.

Records available.--October 1951 to September 1958.

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

Average discharge.--7 years, 1,766 cfs (1,279,000 acre-ft per year).

Extremes.--Maximum discharge during year, 19,000 cfs Nov. 24 (gage height, 25.27 ft); minimum, 91 cfs Oct. 14.
1951-58: Maximum discharge, 37,300 cfs May 18, 1953 (gage height, 27.72 ft); minimum, 22 cfs Sept. 22-24, 1954, Oct. 5, 6, 1956.
Maximum stage known since at least 1883, about 29 ft in June 1902. Second highest flood occurred in 1932, stage unknown. Floods in 1941 and 1944 reached about the same stage as the May 1953 flood.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Southland Paper Mill pumps about 22 cfs from wells, of which about 18 cfs is later discharged into Mill Creek, 20 miles above station. The town of Nacogdoches discharges about 2 cfs sewage effluent into La Nana Bayou, 27 miles above station. This discharge is continuous and fairly constant. No large diversion above station.

Revisions.--WSP 1392: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 1.6 | 92 | 8.0 | 1,680 | 21.0 | 8,500 |
| 2.0 | 150 | 12.0 | 3,180 | 23.0 | 11,300 |
| 3.0 | 342 | 15.0 | 4,500 | 24.0 | 13,700 |
| 5.0 | 824 | 18.0 | 6,100 | 26.0 | 23,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 215 | 6,800 | 11,300 | 2,100 | 6,040 | 3,470 | 1,870 | 3,560 | 772 | 1,900 | 160 | 1,200 |
| 2 | 209 | 5,800 | 10,400 | 2,200 | 6,040 | 3,350 | 1,870 | 3,640 | 672 | 1,800 | 155 | 1,260 |
| 3 | 195 | 5,200 | 9,700 | 2,400 | 6,040 | *3,140 | 1,910 | 3,950 | 624 | 1,700 | 153 | 1,260 |
| 4 | 179 | 4,500 | 9,050 | 2,600 | 5,970 | 2,900 | 1,910 | 4,900 | 588 | 1,500 | 148 | 1,010 |
| 5 | 162 | 4,040 | 8,500 | 2,500 | 5,840 | 2,740 | 1,840 | 5,560 | 564 | 1,200 | 132 | 672 |
| 6 | 148 | 4,320 | 7,960 | 2,500 | 6,520 | 2,780 | 1,710 | 8,140 | 564 | 1,000 | 124 | 504 |
| 7 | 139 | 4,360 | 7,600 | 2,400 | 5,840 | 2,940 | 1,620 | 10,300 | 588 | 880 | 115 | 386 |
| 8 | *125 | 5,250 | 7,200 | 2,400 | 5,000 | 3,260 | *1,580 | 11,000 | 564 | 860 | 111 | 320 |
| 9 | 116 | 5,350 | 6,800 | 2,300 | 4,320 | 3,560 | 1,550 | 10,800 | 576 | 840 | 112 | *331 |
| 10 | 111 | 5,660 | 6,380 | 2,300 | 3,780 | 3,520 | 1,490 | 10,200 | 540 | 780 | 109 | 420 |
| 11 | 105 | 6,450 | 6,100 | 2,200 | 3,390 | 3,430 | 1,460 | 13,400 | 540 | 700 | 108 | 456 |
| 12 | 101 | 8,940 | 5,780 | 2,100 | 3,180 | 3,220 | 1,370 | 13,700 | 516 | 600 | 105 | 353 |
| 13 | 96 | 10,400 | 5,500 | 4,000 | 3,100 | 2,980 | 1,310 | 13,200 | 480 | 580 | 101 | 288 |
| 14 | 93 | *10,300 | 5,200 | *5,250 | 3,020 | 2,700 | 1,620 | 12,400 | 440 | 580 | 97 | 244 |
| 15 | 126 | 9,440 | 4,800 | 4,950 | 3,220 | 2,500 | 1,550 | 11,300 | 380 | 560 | 96 | 229 |
| 16 | 950 | 8,500 | 4,410 | 5,000 | 3,260 | 2,380 | 1,280 | 10,300 | 340 | 560 | 93 | 227 |
| 17 | 1,910 | 7,870 | 3,950 | 5,050 | 3,310 | 2,420 | 1,200 | 9,050 | 420 | 540 | 96 | 258 |
| 18 | 2,540 | 7,440 | 3,390 | 4,950 | 3,310 | 2,540 | 1,140 | 8,050 | 800 | 520 | 105 | 375 |
| 19 | 2,940 | 7,440 | *2,940 | 4,750 | 3,220 | 2,620 | 1,110 | 7,120 | 1,400 | 500 | 102 | 564 |
| 20 | 3,220 | 7,600 | 2,620 | 5,480 | 3,140 | 2,620 | 1,170 | *6,240 | 2,100 | 440 | 98 | 1,490 |
| 21 | 3,520 | 8,830 | 2,380 | 7,520 | 3,020 | 2,540 | 1,170 | 5,350 | 2,500 | 400 | 96 | 4,650 |
| 22 | 3,690 | 12,000 | 2,220 | 7,780 | 2,940 | 2,340 | 1,550 | 4,500 | 2,600 | 360 | 112 | 7,240 |
| 23 | 4,000 | 17,500 | 2,120 | 8,050 | 3,020 | 2,150 | 1,650 | 3,780 | 2,400 | 320 | 116 | 15,000 |
| 24 | 4,500 | 18,500 | 2,040 | 7,960 | 3,180 | 2,040 | 1,580 | 3,100 | *2,300 | 280 | 292 | 18,000 |
| 25 | 5,200 | 17,500 | 2,000 | 7,780 | 3,140 | 1,940 | 1,460 | 2,220 | 2,190 | 260 | 408 | 15,800 |
| 26 | 6,200 | 15,800 | 2,000 | 7,600 | 3,140 | 1,870 | 1,400 | 1,550 | 2,120 | 240 | 720 | 13,200 |
| 27 | 7,600 | 14,700 | 1,900 | 7,690 | 3,390 | 1,870 | 1,400 | 1,260 | 2,100 | 220 | 798 | 11,300 |
| 28 | 9,000 | 13,700 | 1,900 | 7,600 | 3,520 | 1,910 | 1,810 | 1,140 | 2,000 | 200 | 824 | 10,200 |
| 29 | 9,000 | 12,900 | 1,900 | 7,200 | - | 1,940 | 2,660 | 1,060 | 2,000 | 180 | 954 | 9,850 |
| 30 | 8,400 | 12,100 | 2,000 | 6,730 | ------ | 1,940 | 3,260 | 1,010 | 1,900 | *172 | 1,060 | 9,570 |
| 31 | 7,600 | ------ | 2,000 | 6,310 | ------ | 1,910 | ------ | 902 | ------ | 165 | 1,140 | ------ |
| Total | 82,390 | 279,190 | 152,040 | 149,650 | 112,890 | 81,520 | 48,500 | 202,682 | 35,578 | 20,837 | 8,840 | 126,657 |
| Mean | 2,658 | 9,306 | 4,905 | 4,827 | 4,032 | 2,630 | 1,617 | 6,538 | 1,186 | 672 | 285 | 4,222 |
| Cfsm | 0.923 | 3.23 | 1.70 | 1.68 | 1.40 | 0.913 | 0.561 | 2.27 | 0.412 | 0.233 | 0.099 | 1.47 |
| In. | 1.06 | 3.60 | 1.96 | 1.93 | 1.46 | 1.05 | 0.63 | 2.62 | 0.46 | 0.27 | 0.11 | 1.64 |
| Ac-ft | 163,400 | 553,800 | 301,600 | 296,800 | 223,900 | 161,700 | 96,200 | 402,000 | 70,570 | 41,330 | 17,530 | 251,200 |

Calendar year 1957: Max 31,900 Min 88 Mean 3,278 Cfsm 1.14 In. 15.45 Ac-ft 2,373,000
Water year 1957-58: Max 18,500 Min 93 Mean 3,564 Cfsm 1.24 In. 16.79 Ac-ft 2,580,000

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 23 to Nov. 4, Dec. 25 to Jan. 13, June 13-23, June 27 to July 29; discharge estimated on basis of recorded range in stage, weather records, and records for Angelina River near Lufkin and Attoyac Bayou near Chireno.

## 400. Dam B Reservoir at Town Bluff, Tex.

Location.--Lat 30°47'47", long 94°10'52", near right bank 70 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 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, Galveston-Houston supplementary adjustment. Prior to Oct. 25, 1954, at site 490 ft upstream at same datum.

Extremes.--Maximum contents during year, 102,900 acre-ft Dec. 28 (elevation, 83.61 ft); minimum, 27,540 acre-ft Aug. 24 (elevation, 75.93 ft).
1951-58: Maximum contents, 128,400 acre-ft May 22, 1953 (elevation, 85.21 ft); no storage Sept. 18 to Oct. 13, 1954.

Remarks.--Reservoir is formed by earth-fill dam with a concrete section having a total length of dam, 6,698 ft including concrete spillway and non-overflow section. There is a 6,100-foot uncontrolled emergency spillway on left bank with crest at elevation 85.0 ft. There is also a 326-foot gated spillway with six 40- by 35-foot taintor gates with sill 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 June 1951 and deliberate impoundment of water began Apr. 16, 1951. Water used for industrial, municipal, and irrigation supplies. Data regarding dam and reservoir are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Maximum design water surface | 93.0 | 306,400 |
| Uncontrolled spillway and top of taintor gates | 85.0 | 124,700 |
| Normal storage | 83.0 | 94,200 |
| Invert of sluice intake | 52.0 | 20 |
| Sill, 6 taintor gates | 50.0 | 0 |

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

Capacity table, water year 1957-58 (elevation, in feet, and total capacity, in acre-feet)

| | | | |
|---|---|---|---|
| 75.0 | 22,300 | 80.0 | 59,320 |
| 76.0 | 27,960 | 82.0 | 81,280 |
| 78.0 | 41,830 | 84.0 | 108,700 |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 87,190 | 93,160 | 81,640 | 83,500 | 84,380 | 84,380 | 88,100 | 91,940 | 90,870 | 96,040 | 73,130 | 49,570 |
| 2 | 86,940 | 92,610 | 83,630 | 86,420 | 87,450 | 85,010 | 86,940 | 93,020 | 91,400 | 94,250 | 70,220 | 52,030 |
| 3 | 86,940 | 89,810 | 80,910 | 87,060 | 86,290 | 84,130 | 86,040 | 92,210 | 91,400 | 93,980 | 67,080 | 54,850 |
| 4 | 87,450 | 87,320 | 85,520 | 86,290 | 85,650 | 82,510 | 86,940 | 91,670 | 93,560 | 94,110 | 63,840 | 57,110 |
| 5 | 87,970 | 88,230 | 89,680 | 85,520 | 84,380 | 82,760 | 90,200 | 91,800 | 95,760 | 94,250 | 60,600 | 58,550 |
| 6 | 88,360 | 90,740 | 89,540 | 86,810 | 84,000 | 81,890 | 92,480 | 90,470 | 97,020 | 94,800 | 56,920 | 59,620 |
| 7 | 88,880 | 94,940 | 87,450 | 86,160 | 83,630 | 82,140 | 93,020 | 88,620 | 96,320 | 93,290 | 53,840 | 61,500 |
| 8 | 89,150 | 95,900 | 84,380 | 83,130 | 83,750 | 83,750 | 93,160 | 87,190 | 95,620 | 90,470 | 50,970 | 61,900 |
| 9 | 89,540 | 93,980 | 83,630 | 82,140 | 83,750 | 85,270 | 92,750 | 86,810 | 95,070 | 91,270 | 47,940 | 62,100 |
| 10 | 89,280 | 91,540 | 90,070 | 83,130 | 83,750 | 86,420 | 91,540 | 87,450 | 94,940 | 94,110 | 45,020 | 63,020 |
| 11 | 88,880 | 89,810 | 88,230 | 84,260 | 81,280 | 84,380 | 89,680 | 88,360 | 94,940 | 94,250 | 42,140 | 65,180 |
| 12 | 88,230 | 88,880 | 87,970 | 87,580 | 80,180 | 82,140 | 88,620 | 89,540 | 94,660 | 93,560 | 39,380 | 66,970 |
| 13 | 87,580 | 91,540 | 87,840 | 93,160 | 81,640 | 81,770 | 88,880 | 90,340 | 94,520 | 92,750 | 36,870 | 68,150 |
| 14 | 87,580 | 90,470 | 87,450 | 89,680 | 86,290 | 82,010 | 91,000 | 87,840 | 94,800 | 93,560 | 34,400 | 68,800 |
| 15 | 89,810 | 90,870 | 87,710 | 83,130 | 85,780 | 82,760 | 91,130 | 87,190 | 94,800 | 94,940 | 32,220 | 69,350 |
| 16 | 87,190 | 89,540 | 87,190 | 81,520 | 85,270 | 84,640 | 88,750 | 87,580 | 94,250 | 95,900 | 31,240 | 71,110 |
| 17 | 83,750 | 86,290 | 86,040 | 82,880 | 83,880 | 86,290 | 87,060 | 88,100 | 94,390 | 95,350 | 31,110 | 73,250 |
| 18 | 83,500 | 86,940 | 86,290 | 83,130 | 82,140 | 82,510 | 88,230 | 87,190 | 94,250 | 92,880 | 30,720 | 76,130 |
| 19 | 84,380 | 86,810 | 88,100 | 82,880 | 82,140 | 81,150 | 93,160 | 84,000 | 95,210 | 91,270 | 29,950 | 78,490 |
| 20 | 86,290 | 86,290 | 87,580 | 84,260 | 82,760 | 82,880 | 90,070 | 83,000 | 95,210 | 90,200 | 29,130 | 87,580 |
| 21 | 88,880 | 86,040 | 87,190 | 86,290 | 83,630 | 85,650 | 88,230 | 83,000 | 94,250 | 89,280 | 28,390 | 86,290 |
| 22 | 92,340 | 92,340 | 87,710 | 86,160 | 84,380 | 87,970 | 90,870 | 83,130 | 93,560 | 89,540 | 28,150 | 83,000 |
| 23 | 91,670 | 92,340 | 88,750 | 84,640 | 85,650 | 90,470 | 92,340 | 82,630 | 91,540 | 88,360 | 27,600 | 83,000 |
| 24 | 88,100 | 92,880 | 88,880 | 83,130 | 82,140 | 89,150 | 91,270 | 83,130 | 92,210 | 86,680 | 29,570 | 82,760 |
| 25 | 86,680 | 95,070 | 91,270 | 84,890 | 82,260 | 87,060 | 88,750 | 82,010 | 93,840 | 85,010 | 33,370 | 85,270 |
| 26 | 86,290 | 91,130 | 92,340 | 82,510 | 86,290 | 84,130 | 88,880 | 82,630 | 92,750 | 83,130 | 36,510 | 87,320 |
| 27 | 87,580 | 88,620 | 98,710 | 82,630 | 87,970 | 82,510 | 90,870 | 84,140 | 91,540 | 81,520 | 38,780 | 86,680 |
| 28 | 89,150 | 87,060 | 99,700 | 83,250 | 84,890 | 83,630 | 91,800 | 86,550 | 93,430 | 80,060 | 41,050 | 86,810 |
| 29 | 90,600 | 83,500 | 92,750 | 82,510 | - | 88,360 | 90,870 | 86,810 | 96,320 | 79,090 | 43,170 | 86,290 |
| 30 | 92,070 | 78,020 | 85,010 | 82,630 | ------- | 90,740 | 89,810 | 87,190 | 97,580 | 77,660 | 45,020 | 85,010 |
| 31 | 92,880 | ------- | 82,140 | 82,630 | ------- | 89,810 | ------- | 89,150 | ------- | 75,540 | 47,100 | ------- |
| (†) | 82.90 | 81.73 | 82.07 | 82.11 | 82.29 | 82.67 | 82.67 | 82.62 | 83.24 | 81.52 | 78.65 | 82.30 |
| (‡) | +5,040 | -14,860 | +4,120 | +490 | +2,260 | +4,920 | 0 | -660 | +8,430 | -22,040 | -28,440 | +37,910 |

Calendar year 1957..... ‡ 0
Water year 1957-58..... ‡ -2,830

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

## 405. Neches River at Town Bluff, Tex.

Location.--Lat 30°47'36", long 94°10'28", on left bank 2,000 ft downstream from Dam B, half a mile northeast of Town Bluff, Tyler County, 2.5 miles upstream from Walnut Creek, 8 miles downstream from Wolf Creek, and at mile 113.

Drainage area.--7,407 sq mi.

Records available.--March 1951 to September 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, Galveston-Houston supplementary adjustment. Prior to May 21, 1953, water-stage recorder and May 21, 1953, to Dec. 3, 1954, staff gage, at present site and datum.

Average discharge.--7 years, 4,261 cfs (3,085,000 acre-ft per year).

Extremes.--Maximum discharge during year, 35,700 cfs Nov. 28-29, maximum elevation, 77.14 ft Nov. 28; minimum daily discharge, 112 cfs Oct. 8.
1951-58: Maximum discharge, 90,900 cfs May 21, 22, 1953 (elevation, 82.85 ft); no flow at times due to regulation by Dam B.
Maximum elevation known, about 86.8 ft in May 1884 (discharge, about 120,000 cfs), from information by Corps of Engineers.

Remarks.--Records good. Flow largely regulated by Dam B Reservoir (see preceding page) except during major floods. No large diversion above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-14, June 4-6, 10-20, 24, 25, June 27 to Aug. 6, Aug. 16 to Sept. 21)

| | | | | | |
|---|---|---|---|---|---|
| 49.0 | 102 | 54.0 | 1,830 | 70.0 | 17,400 |
| 49.5 | 184 | 56.0 | 3,010 | 75.0 | 26,700 |
| 50.0 | 292 | 60.0 | 6,100 | 77.0 | 35,000 |
| 51.0 | 550 | 65.0 | 11,000 | 78.0 | 43,000 |
| 52.0 | 900 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 693 | 12,200 | 30,400 | 10,500 | 15,000 | 11,000 | 4,800 | 4,420 | 1,880 | 2,680 | 1,940 | 565 |
| 2 | 535 | 12,200 | 27,300 | 7,400 | 12,000 | 8,750 | 4,650 | 4,950 | 1,880 | 3,450 | 1,940 | 430 |
| 3 | 352 | 12,200 | 26,000 | 7,670 | 12,000 | 8,550 | *4,500 | 7,130 | 1,730 | 2,270 | 1,940 | 227 |
| 4 | 220 | 11,100 | 23,300 | 8,050 | 12,000 | 8,450 | 3,300 | 10,100 | 931 | 1,580 | 1,940 | 374 |
| 5 | 120 | 9,050 | 19,500 | 8,050 | 11,900 | 7,760 | 2,380 | 10,900 | 325 | 1,530 | 1,940 | 679 |
| 6 | 117 | 7,850 | 19,100 | 8,150 | 11,600 | 7,490 | 2,500 | 12,600 | 675 | 1,730 | 1,940 | 492 |
| 7 | 114 | 8,050 | 18,800 | 8,250 | 11,400 | 7,400 | 2,820 | 14,200 | 1,330 | 2,940 | 1,830 | 478 |
| 8 | 112 | 10,700 | 18,000 | 8,050 | 11,100 | 7,040 | 3,010 | 15,700 | 1,480 | 2,270 | 1,680 | 565 |
| 9 | 192 | 12,300 | 16,400 | 7,130 | 10,600 | 7,040 | 3,820 | 15,600 | 1,330 | *1,440 | 1,730 | 612 |
| 10 | 328 | *12,600 | 13,300 | *5,500 | 9,680 | 7,490 | 4,120 | 15,600 | 1,020 | 587 | 1,780 | 393 |
| 11 | 400 | 12,600 | 12,000 | 5,020 | 9,570 | 8,250 | 4,050 | 15,700 | 940 | 1,330 | 1,630 | 159 |
| 12 | 400 | 12,900 | 11,800 | 5,250 | 9,050 | 8,750 | 3,820 | 16,300 | *940 | 1,880 | 1,530 | 146 |
| 13 | 400 | 13,200 | 11,400 | 8,630 | 7,310 | 7,850 | 3,150 | *18,600 | 920 | 1,730 | *1,480 | 142 |
| 14 | 652 | 15,400 | 11,000 | 15,600 | 6,440 | 6,270 | 4,050 | 21,900 | 820 | 1,070 | 1,430 | 135 |
| 15 | 1,140 | 17,000 | 10,300 | 17,700 | 7,670 | 6,020 | 6,440 | 23,700 | 800 | 478 | 1,230 | 279 |
| 16 | 3,330 | 18,000 | 9,680 | 16,600 | 8,150 | 5,100 | 6,780 | 24,500 | 900 | 464 | 824 | 492 |
| 17 | 5,760 | 18,800 | 9,460 | 14,200 | *8,550 | 5,020 | 5,250 | 24,700 | 900 | 874 | 451 | 429 |
| 18 | 5,180 | 18,900 | 8,250 | 14,000 | 8,550 | 6,860 | 3,450 | 24,700 | 900 | 1,680 | 520 | 469 |
| 19 | 4,950 | 18,400 | 7,130 | 13,800 | 7,580 | 6,440 | 3,080 | 24,700 | 1,000 | 1,630 | 660 | 612 |
| 20 | 4,950 | 17,300 | *7,130 | 17,200 | 6,700 | 4,800 | 5,250 | 22,900 | 1,950 | 1,230 | 660 | 818 |
| 21 | 5,100 | 17,000 | 6,780 | 23,900 | 6,270 | 3,980 | 5,590 | 20,200 | 3,220 | 1,180 | 660 | 7,510 |
| 22 | 6,180 | 18,600 | 5,590 | 25,200 | 6,610 | 3,900 | 3,750 | 17,600 | 4,050 | 1,380 | 676 | 14,100 |
| 23 | 9,680 | 23,700 | 5,100 | 26,200 | 9,830 | 4,050 | 4,880 | 14,300 | 4,950 | 1,580 | 660 | 14,000 |
| 24 | *12,100 | 25,200 | 5,020 | 26,200 | 13,100 | 5,100 | 5,100 | 11,900 | 2,940 | 1,730 | 676 | 13,800 |
| 25 | 12,100 | 27,000 | 5,020 | 24,300 | 11,200 | 5,840 | 4,950 | 9,900 | 2,270 | 1,780 | 710 | 13,800 |
| 26 | 12,100 | 31,700 | 5,590 | 23,100 | 8,150 | 5,760 | 3,750 | 8,020 | 3,980 | 1,880 | 727 | 15,000 |
| 27 | 12,100 | 35,000 | 6,850 | 21,400 | 9,460 | 5,180 | 2,440 | 4,800 | 3,600 | 1,880 | 744 | 18,600 |
| 28 | 12,100 | 35,700 | 12,700 | 19,500 | 11,900 | 3,600 | 2,750 | 4,420 | 1,730 | 1,830 | *710 | 20,700 |
| 29 | 12,100 | 35,700 | 17,000 | 18,900 | - | 2,750 | 4,380 | 4,420 | 1,060 | 1,630 | 628 | 21,000 |
| 30 | 12,100 | 34,400 | 16,800 | 17,700 | ------- | 3,300 | 6,020 | 3,820 | 1,580 | 1,680 | 580 | 21,200 |
| 31 | 12,100 | ------- | 14,500 | 16,400 | ------- | 4,420 | ------- | 2,750 | ------- | 1,940 | 580 | ------- |
| Total | 147,705 | 554,750 | 411,200 | 449,550 | 273,370 | 194,210 | 124,830 | 431,030 | 52,031 | 51,333 | 36,426 | 168,206 |
| Mean | 4,765 | 18,490 | 13,260 | 14,500 | 9,763 | 6,265 | 4,161 | 13,900 | 1,734 | 1,656 | 1,175 | 5,607 |
| Ac-ft | 293,000 | ‡1,100 | 815,600 | 891,700 | 542,200 | 385,200 | 247,600 | 854,900 | 103,200 | 101,800 | 72,250 | 333,600 |

Calendar year 1957: Max 62,000 Min 18 Mean 7,461 Ac-ft 5,401,000
Water year 1957-58: Max 35,700 Min 112 Mean 7,931 Ac-ft 5,741,000

* Discharge measurement made on this day.
‡ Expressed in thousands.

## 410. 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 and Santa Fe Railway Co. 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 1958.

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 and Santa Fe Railway Co. bridge at datum 5.5 ft lower; Oct. 1, 1923, to July 12, 1934, staff gages at site about 200 ft downstream at present datum; July 13, 1934, to Dec. 7, 1948, staff gage at present site and datum.

Average discharge.--37 years (1904-6, 1923-58), 6,290 cfs (4,554,000 acre-ft per year).

Extremes.--Maximum discharge during year, 35,600 cfs Dec. 2 (gage height, 18.41 ft); minimum daily, 261 cfs Sept. 15, 16.

1904-6, 1923-58: Maximum discharge, 92,100 cfs May 11, 1944 (gage height, 23.58 ft, from floodmark); minimum daily, 63 cfs Nov. 26-28, 1956.

Maximum stages known, 26.2 ft in May 1884 (discharge, about 125,000 cfs) and 24.5 ft in August 1915 (discharge, about 102,000 cfs). Stages by Gulf, Colorado and Santa Fe Railway Co.

Remarks.--Records good. Some regulation by Dam B Reservoir 59 miles upstream (see p. 64). No large diversions above station. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 718: 1929. WSP 1342: 1924.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,160 | 11,800 | 34,100 | 16,600 | 20,500 | 10,900 | 3,850 | 5,040 | 4,120 | 1,930 | 1,840 | 550 |
| 2 | 1,030 | 12,000 | 35,600 | 16,600 | 19,000 | 11,200 | 4,710 | 5,790 | 3,160 | 2,230 | 1,980 | 550 |
| 3 | 900 | 12,000 | 34,800 | 14,500 | 17,500 | 11,800 | 5,280 | 5,400 | 2,430 | 2,820 | 1,980 | 526 |
| 4 | *780 | 12,000 | 32,600 | 11,400 | 15,300 | 10,600 | *5,280 | 5,930 | 2,130 | 3,090 | 1,980 | 466 |
| 5 | 622 | 12,000 | 30,600 | 9,960 | 14,100 | 9,960 | 4,930 | 7,420 | 1,840 | 2,700 | 1,980 | 372 |
| 6 | 514 | 12,000 | 28,600 | 9,340 | 13,400 | *9,540 | 3,760 | 8,940 | 1,270 | 2,280 | 1,980 | 353 |
| 7 | 400 | 11,400 | 26,800 | 9,340 | 12,700 | 9,140 | 2,880 | 9,960 | 960 | 2,180 | 1,980 | 514 |
| 8 | 353 | 10,600 | 24,400 | 9,340 | 12,400 | 8,940 | 2,760 | 11,200 | 1,200 | 2,430 | 1,930 | 490 |
| 9 | 324 | 10,200 | 22,700 | 9,540 | 12,000 | 8,580 | 3,490 | 12,700 | 1,540 | 2,820 | 1,840 | 466 |
| 10 | 306 | 10,400 | 21,600 | 9,340 | 12,000 | 8,400 | 3,850 | 14,100 | 1,620 | 2,640 | 1,790 | 514 |
| 11 | 315 | 11,400 | 20,000 | 8,760 | 11,800 | 8,230 | 4,300 | 15,300 | 1,460 | 1,930 | 1,840 | 550 |
| 12 | 420 | 12,000 | 18,000 | 7,740 | 11,200 | 8,400 | 4,600 | 15,700 | 1,270 | 1,500 | 1,840 | 454 |
| 13 | 514 | 13,000 | 16,200 | 7,100 | 10,600 | 8,580 | 4,600 | 16,200 | *1,200 | 1,930 | 1,790 | 315 |
| 14 | 550 | 14,100 | 14,500 | 7,260 | 10,200 | 8,940 | 4,600 | 16,200 | 1,160 | 2,180 | 1,790 | 270 |
| 15 | 622 | *14,500 | 13,400 | 8,760 | 9,140 | 8,760 | 4,500 | 17,000 | 1,130 | 1,980 | *1,740 | 261 |
| 16 | 994 | 14,900 | 12,700 | *11,400 | 8,230 | 8,060 | 5,660 | 18,500 | 1,060 | 1,340 | 1,700 | 261 |
| 17 | 1,880 | 15,700 | 12,000 | 14,900 | 8,230 | 7,420 | 7,100 | 20,000 | 1,060 | *960 | 1,420 | 324 |
| 18 | 3,560 | 17,000 | 11,400 | 17,000 | 8,580 | 6,650 | 7,580 | 22,200 | 1,100 | 900 | 900 | 478 |
| 19 | 4,930 | 18,000 | 10,900 | 17,000 | 8,940 | 6,500 | 6,650 | 23,800 | 1,100 | 1,300 | 646 | 490 |
| 20 | 5,280 | 18,500 | 10,200 | 16,600 | 9,140 | 7,260 | 4,710 | 25,000 | 1,100 | 1,840 | 622 | 2,150 |
| 21 | 5,160 | 19,000 | 9,140 | 16,600 | 8,760 | 7,260 | 4,300 | 25,000 | 1,300 | 1,790 | 670 | 5,160 |
| 22 | 5,160 | 20,000 | 8,580 | 17,500 | 8,230 | 6,210 | 5,530 | 25,000 | 2,180 | 1,580 | 696 | 6,650 |
| 23 | 5,400 | 20,000 | 8,060 | 20,000 | 9,140 | 5,160 | 5,530 | 24,400 | 2,950 | 1,540 | 696 | 9,140 |
| 24 | 6,350 | 20,000 | 7,420 | 23,200 | 9,960 | 4,820 | 4,930 | 22,200 | 3,940 | 1,660 | 722 | 12,000 |
| 25 | 7,900 | 21,000 | 6,650 | 25,600 | 12,000 | 4,930 | 5,280 | 19,500 | 4,300 | 1,790 | 722 | 13,800 |
| 26 | 9,340 | 22,200 | 6,350 | 26,800 | 14,100 | *5,930 | 5,530 | 15,700 | 3,580 | 1,880 | 670 | 14,100 |
| 27 | 10,400 | 23,800 | 6,350 | 26,800 | 13,800 | 6,500 | 5,400 | 12,400 | 3,240 | 1,930 | 670 | 14,100 |
| 28 | 11,200 | 26,200 | 7,260 | 26,200 | 11,800 | 6,650 | 5,040 | 9,340 | 3,760 | 1,980 | 670 | 14,500 |
| 29 | 11,400 | 29,200 | 8,400 | 25,000 | - | 5,930 | 3,850 | *6,500 | 3,400 | 1,980 | 646 | 16,200 |
| 30 | 11,800 | 32,600 | 10,400 | 23,200 | ------- | 4,710 | 3,670 | 5,280 | 2,430 | 1,930 | 622 | 18,000 |
| 31 | 11,800 | ------- | 13,800 | 22,200 | ------- | 3,670 | ------- | 4,710 | ------- | 1,740 | 574 | ------- |
| Total | 121,364 | 497,500 | 523,510 | 485,580 | 332,750 | 239,630 | 144,150 | 446,410 | 62,990 | 60,780 | 40,926 | 134,004 |
| Mean | 3,915 | 16,580 | 16,890 | 15,660 | 11,880 | 7,730 | 4,805 | 14,400 | 2,100 | 1,961 | 1,320 | 4,467 |
| Ac-ft | 240,700 | 986,800 | ‡1,038 | 963,100 | 660,000 | 475,300 | 285,900 | 885,400 | 124,900 | 120,600 | 81,180 | 265,800 |

Calendar year 1957: Max 55,000 Min 92 Mean 7,699 Ac-ft 5,575,000
Water year 1957-58: Max 35,600 Min 261 Mean 8,465 Ac-ft 6,128,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--Discharge computed from twice-daily staff-gage readings June 21 to July 10.

## 415. Village Creek near Kountze, Tex.

Location.--Lat 30°23'43", long 94°15'45", on left bank 800 ft downstream from bridge on Farm Road 418, 1.2 miles upstream from Gulf, Colorado and Santa Fe Railway Co. bridge, 2.7 miles upstream from Cypress Creek, 3.2 miles northeast 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 1958.

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.--22 years (1924-27, 1939-58), 869 cfs (629,100 acre-ft per year).

Extremes.--Maximum discharge during year, 10,800 cfs Jan. 23, 24 (gage height, 18.01 ft); minimum daily, 50 cfs Aug. 18-20.

1924-27, 1939-58: 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 not determined, probably occurred during period of no gage-height record; minimum daily, 16 cfs Oct. 1, 2, 1956.

Maximum stage known since 1913, 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 and Santa Fe Railway Co. for site 1.2 miles downstream.

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

Rating table, water year 1957-58, except period of backwater (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-15, 21-24, Oct. 29 to Nov. 7, Nov. 14-28, Dec. 28 to Jan. 13, Mar. 12 to Apr. 14, Apr. 19-23, Apr. 28 to May 1)

| | | | | | |
|---|---|---|---|---|---|
| 1.5 | 48 | 8.0 | 1,090 | 14.0 | 3,800 |
| 2.0 | 80 | 10.0 | 1,630 | 15.0 | 5,040 |
| 3.0 | 167 | 12.0 | 2,400 | 16.0 | 6,680 |
| 4.0 | 291 | 13.0 | 2,950 | 18.0 | 10,800 |
| 6.0 | 652 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 590 | 329 | 1,630 | 3,510 | 1,960 | 3,090 | 494 | 458 | 124 | 120 | 70 | 75 |
| 2 | 329 | 306 | 1,140 | 3,600 | 1,860 | 2,350 | 458 | 298 | 138 | 118 | 65 | 65 |
| 3 | *223 | 284 | 936 | 2,660 | 1,600 | 1,730 | 449 | 250 | 129 | 115 | 60 | 60 |
| 4 | 188 | 263 | 848 | 1,600 | 1,290 | 1,290 | 431 | 400 | 116 | 112 | 60 | 65 |
| 5 | 167 | 249 | 826 | 1,050 | 1,090 | 1,090 | 422 | 800 | 109 | 109 | 75 | 65 |
| 6 | 152 | 314 | 804 | 936 | 1,000 | 1,020 | 398 | 900 | 104 | 105 | 90 | 70 |
| 7 | 138 | 631 | 936 | 1,480 | 980 | 1,070 | 370 | 840 | 114 | 106 | 80 | 70 |
| 8 | 129 | 1,160 | 1,290 | 2,080 | 958 | 1,190 | 337 | 750 | 107 | 108 | 75 | 65 |
| 9 | 117 | 1,790 | 1,400 | 2,400 | 914 | 1,240 | 378 | 650 | 101 | 109 | 70 | 60 |
| 10 | 113 | 1,960 | 1,340 | *2,350 | 848 | 1,160 | 716 | 550 | 102 | 124 | 65 | 65 |
| 11 | 106 | 1,960 | 1,110 | 1,930 | 892 | 1,050 | 782 | 450 | 101 | *152 | 65 | 75 |
| 12 | 101 | 1,820 | 892 | 1,400 | 1,090 | 914 | 652 | 350 | 97 | 162 | 70 | 80 |
| 13 | 97 | 1,480 | 738 | 1,600 | 1,290 | 826 | 494 | 300 | *93 | 162 | 60 | 85 |
| 14 | 93 | 1,890 | 652 | 2,200 | 1,310 | 848 | 638 | *242 | 106 | 152 | 55 | 85 |
| 15 | 197 | 2,160 | 610 | 4,000 | *1,340 | 914 | 1,240 | 217 | 129 | 138 | 55 | 85 |
| 16 | 1,330 | 2,300 | 631 | 5,400 | 1,400 | 826 | 1,500 | 199 | 129 | 129 | 55 | 90 |
| 17 | 1,960 | 2,400 | 652 | *4,760 | 1,420 | 760 | 1,400 | 188 | 124 | 120 | 55 | 100 |
| 18 | 1,890 | 2,400 | 631 | 4,130 | 1,310 | 738 | 1,140 | 177 | 129 | 116 | 50 | 170 |
| 19 | 1,660 | 2,300 | 610 | 2,800 | 1,110 | 760 | 782 | 172 | 138 | 109 | 50 | 150 |
| 20 | 1,240 | 2,200 | 631 | 2,080 | 958 | 782 | 494 | 167 | 138 | 111 | 50 | 160 |
| 21 | 760 | *2,120 | 782 | 3,320 | 870 | 782 | 396 | 167 | 134 | 114 | 60 | c800 |
| 22 | 440 | 2,080 | 914 | 6,500 | 1,020 | 738 | 378 | 167 | 142 | 114 | 80 | *c1,500 |
| 23 | 431 | 2,720 | 870 | 9,240 | 2,600 | 673 | 370 | 172 | 152 | 120 | 90 | c1,700 |
| 24 | 901 | 3,700 | 738 | 9,680 | 5,040 | 652 | 337 | 167 | 152 | 112 | 95 | c1,600 |
| 25 | 1,370 | 4,020 | 610 | 6,320 | 5,800 | 631 | 314 | 162 | 147 | 110 | 80 | *c1,250 |
| 26 | 1,540 | 4,500 | 652 | 4,500 | 5,330 | *631 | 277 | 152 | 142 | 100 | 75 | c900 |
| 27 | 1,370 | *5,040 | 892 | 3,250 | 4,900 | 610 | 242 | 147 | 142 | 95 | 80 | 650 |
| 28 | 914 | 4,250 | 1,840 | 2,450 | 4,130 | 590 | 515 | 142 | 138 | 90 | 90 | 450 |
| 29 | 550 | 3,170 | 2,770 | 1,960 | - | 570 | 673 | 138 | 129 | 85 | 100 | 400 |
| 30 | 422 | 2,350 | 3,090 | 1,790 | ------ | 550 | 550 | 129 | 124 | 80 | 85 | 350 |
| 31 | 362 | ------ | 3,250 | 1,890 | ------ | 512 | ------ | 124 | ------ | 75 | 80 | ------ |
| Total | 19,880 | 62,146 | 34,715 | 102,866 | 54,310 | 30,587 | 17,625 | 10,025 | 3,730 | 3,572 | 2,190 | 11,340 |
| Mean | 641 | 2,072 | 1,120 | 3,318 | 1,940 | 987 | 588 | 323 | 124 | 115 | 70.6 | 378 |
| Cfsm | 0.766 | 2.48 | 1.34 | 3.96 | 2.32 | 1.18 | 0.703 | 0.386 | 0.148 | 0.137 | 0.084 | 0.452 |
| In. | 0.88 | 2.76 | 1.54 | 4.57 | 2.41 | 1.36 | 0.78 | 0.45 | 0.17 | 0.16 | 0.10 | 0.50 |
| Ac-ft | 39,430 | 123,300 | 68,860 | 204,000 | 107,700 | 60,670 | 34,960 | 19,880 | 7,400 | 7,080 | 4,340 | 22,490 |

Calendar year 1957: Max 10,100 Min 48 Mean 758 Cfsm 0.906 In. 12.30 Ac-ft 549,100
Water year 1957-58: Max 9,680 Min 50 Mean 967 Cfsm 1.16 In. 15.68 Ac-ft 700,100

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 16-20, Jan. 14-16, Apr. 16, 17, May 3-13, July 26 to Sept. 20, Sept. 27-30; discharge estimated on basis of discharge measurements, weather records, and records for nearby stations.

c Backwater from Cypress Creek.

## 427. North Creek near Jacksboro, Tex.

Location.--Lat 33°17', long 98°18', on left bank at downstream side of bridge on U. S. Highway 281, 1.5 miles upstream from Henderson Creek, 9.3 miles northwest of Jacksboro, Jack County, and 14 miles upstream from mouth.

Drainage area.--21.6 sq mi.

Records available.--August 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,016.33 ft above mean sea level, unadjusted (State Highway Department bench mark).

Extremes.--Maximum discharge during year, 1,760 cfs Nov. 4 (gage height, 12.56 ft); no flow for many days.
1956-58: Maximum discharge, 6,990 cfs Apr. 28, 1957 (gage height, 24.45 ft); no flow many days each year.
Flood of May 3, 1956, reached a stage of 21.58 ft, from floodmarks.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 8-13)

| | | | | | |
|---|---|---|---|---|---|
| 4.0 | 0 | 4.6 | 7.0 | 6.0 | 83 |
| 4.1 | .2 | 4.8 | 12 | 7.0 | 200 |
| 4.2 | .8 | 5.1 | 24 | 8.0 | 379 |
| 4.3 | 1.9 | 5.5 | 45 | 9.0 | 600 |
| 4.4 | 3.3 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 188 | 0.4 | 0 | | 0 |
| 2 | 0 | 0 | .1 | 0 | .1 | .1 | .2 | *287 | .4 | 0 | | 0 |
| 3 | 0 | 4.2 | **.1 | .1 | .1 | .1 | .2 | 188 | .4 | 0 | | 0 |
| 4 | 0 | 323 | .1 | .1 | .1 | .1 | .2 | 12 | .3 | 0 | | 0 |
| 5 | 0 | 192 | .1 | .1 | .1 | 1.9 | .1 | 6.8 | .2 | 0 | | 0 |
| 6 | 0 | 11 | .1 | .1 | .1 | 1.4 | .1 | 4.5 | .2 | 79 | | 0 |
| 7 | 0 | *75 | .2 | .1 | 0 | 11 | .1 | *3.3 | .2 | 4.8 | | 0 |
| 8 | 3.7 | *7.1 | .1 | *.1 | 0 | 18 | .1 | 2.6 | .2 | 1.0 | | 0 |
| 9 | 1.2 | 1.8 | .1 | .1 | 0 | 2.3 | .1 | 2.2 | .4 | .4 | | 0 |
| 10 | 0 | .7 | .1 | .1 | 0 | .6 | .1 | 1.9 | *.2 | .2 | | 0 |
| 11 | 0 | .4 | .1 | .1 | .1 | .3 | .1 | 1.7 | .2 | .2 | | 0 |
| 12 | 0 | .8 | .1 | .9 | .1 | 2.4 | .1 | 1.4 | .1 | .1 | | 0 |
| 13 | 21 | .4 | .1 | 4.6 | .1 | 9.5 | .3 | 1.2 | .1 | .1 | | 0 |
| 14 | 18 | .2 | .1 | .8 | .1 | 4.5 | .4 | 1.1 | .1 | 0 | | 0 |
| 15 | .4 | .2 | .1 | .3 | .1 | 1.1 | .2 | *1.1 | .1 | 0 | | 0 |
| 16 | 0 | .2 | .1 | .2 | .1 | .6 | .2 | 1.0 | .1 | 0 | | .2 |
| 17 | 0 | .1 | .1 | .2 | .1 | .4 | .2 | .9 | .2 | 0 | | 0 |
| 18 | 0 | .2 | .2 | .2 | .1 | .2 | .2 | .8 | .2 | 0 | (*) | 0 |
| 19 | 0 | .2 | .1 | .2 | .1 | .2 | .2 | .8 | .2 | 0 | | 25 |
| 20 | 0 | .2 | .1 | .9 | .1 | .2 | 1.2 | .7 | .2 | 0 | | 4.7 |
| 21 | 0 | .1 | .1 | .6 | .1 | .2 | .6 | .6 | 1.8 | *0 | | .4 |
| 22 | 0 | .1 | .1 | .6 | .2 | .2 | .2 | .5 | 1.8 | 0 | | 0 |
| 23 | 0 | .2 | .1 | .4 | .2 | .2 | .2 | .4 | .4 | 0 | | 0 |
| 24 | 0 | 22 | .2 | .2 | .1 | .1 | .2 | .4 | .3 | 0 | | *0 |
| 25 | *0 | 6.5 | .4 | .2 | *.1 | .1 | .1 | 14 | .2 | 0 | | 0 |
| 26 | 0 | 1.3 | .2 | .2 | .2 | .1 | 273 | 1.5 | .1 | 0 | | 0 |
| 27 | 0 | *.6 | .1 | .1 | .1 | *.1 | 52 | .8 | .1 | 0 | | 0 |
| 28 | 0 | .4 | .1 | .1 | .1 | .2 | 6.0 | .6 | .1 | 0 | | 0 |
| 29 | 0 | .3 | .1 | .1 | - | .6 | 161 | .6 | 0 | 0 | | 0 |
| 30 | 0 | .2 | .1 | .1 | ------ | .2 | 382 | .5 | 0 | 0 | | 0 |
| 31 | 0 | ------ | .1 | .1 | ------ | .2 | ------ | .5 | ------ | 0 | | ------ |
| Total | 44.3 | 649.4 | 3.8 | 12.0 | 2.7 | 57.2 | 879.8 | 727.4 | 9.2 | 85.8 | 0 | 30.3 |
| Mean | 1.43 | 21.6 | 0.12 | 0.39 | 0.10 | 1.85 | 29.3 | 23.5 | 0.31 | 2.77 | 0 | 1.01 |
| Cfsm | 0.066 | 1.00 | 0.0056 | 0.018 | 0.0046 | 0.086 | 1.36 | 1.09 | 0.014 | 0.128 | 0 | 0.047 |
| In. | 0.08 | 1.12 | 0.007 | 0.02 | 0.005 | 0.10 | 1.52 | 1.25 | 0.02 | 0.15 | 0 | 0.05 |
| Ac-ft | 88 | 1,290 | 7.5 | 24 | 5.4 | 113 | 1,750 | 1,440 | 18 | 170 | 0 | 60 |

Calendar year 1957: Max 2,010 Min 0 Mean 26.0 Cfsm 1.20 In. 16.35 Ac-ft 18,810
Water year 1957-58: Max 382 Min 0 Mean 6.85 Cfsm 0.317 In. 4.32 Ac-ft 4,970

Peak discharge (base, 500 cfs).--Nov. 4 (9:15 p.m.) 1,760 cfs (12.56 ft); Apr. 26 (6:45 p.m.) 1,390 cfs (11.57 ft); Apr. 30 (1 p.m.) 1,320 cfs (11.39 ft); May 3 (12:30 a.m.) 1,140 cfs (10.89 ft); July 6 (5:15 p.m.) 504 cfs (8.61 ft).

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

## 428. West Fork Trinity River near Jacksboro, Tex.

Location.--Lat 33°17'30", long 98°04'40", on left bank at downstream side of bridge on State Highway 24, 4 miles downstream from North Creek, 7 miles upstream from Carroll Creek, 7 miles northeast of Jacksboro, Jack County, and at mile 660.

Drainage area.--683 sq mi.

Records available.--March 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 873.98 ft above mean sea level (State Highway Department bridge plans).

Extremes.--Maximum discharge during year, 3,030 cfs Nov. 5 (gage height, 20.51 ft); maximum gage height, 20.63 ft May 3 (backwater from log jam); no flow many days.
1956-58: Maximum discharge, 35,100 cfs Apr. 27, 1957 (gage height, 32.10 ft, from floodmark); no flow many days each year.
Maximum stage known since about 1900, that of Apr. 27, 1957. Flood in June 1941 reached a stage of about 30 ft, from information by local residents.

Remarks.--Records good. At the end of the year the flow from 28.5 sq mi above this station was partly controlled by six floodwater-detention reservoirs with a combined capacity of 11,200 acre-ft below the flood-spillway crests, of which 9,440 acre-ft is floodwater-detention capacity and 1,760 acre-ft is sediment-storage capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 1 to June 2, June 18-21, July 6-14, Aug. 12-14, Aug. 20-21, Sept. 21-24)

| | | | | | |
|---|---|---|---|---|---|
| 2.2 | 0 | 3.0 | 23 | 10.0 | 621 |
| 2.3 | .5 | 4.0 | 79 | 15.0 | 1,330 |
| 2.4 | 2.2 | 6.0 | 242 | 20.0 | 2,750 |
| 2.6 | 8.0 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0.8 | 6.4 | 6.1 | 2.7 | 0.4 | 21 | 2,440 | 7.4 | 0 | 0 | 0 |
| 2 | 0 | .6 | 4.0 | 4.3 | 1.8 | .3 | 14 | *2,370 | 4.5 | 0 | 0 | 0 |
| 3 | 0 | 1.1 | *3.0 | 3.2 | 1.4 | .2 | 12 | 2,650 | 3.2 | 0 | 0 | 0 |
| 4 | 0 | 358 | 2.0 | 2.2 | 1.4 | .2 | 9.8 | 2,320 | 2.7 | 0 | 0 | 0 |
| 5 | 0 | 2,300 | 1.2 | 1.6 | 1.4 | 13 | 6.4 | 1,860 | 1.4 | 0 | 0 | 0 |
| 6 | 0 | 2,600 | 1.2 | 1.2 | 1.2 | 54 | 4.3 | 1,130 | 1.2 | 137 | 0 | 0 |
| 7 | 0 | 2,240 | 1.4 | .9 | 1.2 | 126 | 3.0 | *262 | .5 | 546 | 0 | 0 |
| 8 | .1 | 2,280 | .6 | *.6 | 1.2 | 415 | 2.2 | 127 | .3 | 558 | 0 | 0 |
| 9 | 132 | 2,020 | .4 | .6 | 1.2 | 440 | 1.8 | 86 | .2 | 189 | 0 | 0 |
| 10 | 535 | 1,470 | .3 | .6 | 1.4 | 186 | 1.2 | 68 | *.2 | 106 | 0 | 0 |
| 11 | 747 | 400 | .2 | .6 | 1.6 | 70 | .9 | 61 | .1 | 46 | 0 | 0 |
| 12 | 847 | 91 | .1 | 1.5 | 1.8 | 73 | 1.0 | 46 | .6 | 18 | 19 | 0 |
| 13 | 377 | 92 | .1 | 26 | 1.6 | 238 | 2.0 | 43 | .4 | 9.0 | 4.0 | 0 |
| 14 | 534 | 96 | .1 | 109 | 2.0 | 323 | 5.4 | *40 | .2 | 4.8 | 3.2 | 0 |
| 15 | 580 | 111 | .1 | 131 | 1.8 | 192 | 3.0 | 25 | .1 | 3.5 | 1.6 | 0 |
| 16 | 413 | 65 | .1 | 85 | 1.2 | 104 | 3.2 | 18 | .1 | 2.5 | .4 | 0 |
| 17 | 119 | 34 | 0 | 38 | 1.0 | 53 | 3.0 | 14 | 0 | 1.8 | .1 | 0 |
| 18 | 28 | 22 | 0 | 21 | .9 | 30 | 2.2 | 14 | 39 | 1.0 | *0 | 0 |
| 19 | 15 | 17 | .1 | 32 | .8 | 21 | 1.8 | 20 | 16 | .5 | 0 | 0 |
| 20 | 8.7 | 13 | .2 | 74 | .6 | 15 | 21 | 19 | 7.0 | .5 | 2.3 | 0 |
| 21 | 5.8 | 11 | .2 | 107 | .6 | 12 | 104 | 12 | 4.3 | *.5 | 7.3 | 44 |
| 22 | 7.4 | 9.0 | .1 | 82 | .6 | 11 | 85 | 9.0 | 4.0 | .4 | 2.5 | 39 |
| 23 | 10 | 8.7 | .1 | 44 | .6 | 9.8 | 62 | 6.4 | 2.7 | .5 | 1.8 | 15 |
| 24 | 8.4 | 88 | .1 | 30 | .6 | 8.4 | 29 | 4.5 | 2.2 | .5 | 1.0 | *7.0 |
| 25 | *4.0 | 328 | .4 | 20 | *.5 | 6.7 | 15 | 13 | 2.5 | .4 | .6 | 3.8 |
| 26 | 2.2 | 157 | .8 | 14 | .4 | 6.1 | 128 | 89 | 1.0 | .1 | .2 | 2.5 |
| 27 | 3.8 | 68 | 12 | 11 | .6 | *5.4 | 982 | 52 | .5 | 0 | .1 | 1.4 |
| 28 | 3.5 | 27 | 52 | 9.0 | .5 | 5.1 | 525 | 17 | .2 | 0 | 0 | 1.0 |
| 29 | 2.5 | 16 | 27 | 8.0 | - | 54 | 890 | 166 | .1 | 0 | 0 | .5 |
| 30 | 1.6 | 10 | 17 | 6.7 | ------- | 60 | 1,710 | 68 | 0 | 0 | 0 | .4 |
| 31 | 1.0 | ------- | 10 | 4.3 | ------- | 34 | ------- | 17 | ------- | 0 | 0 | ------- |
| Total | 4,386.0 | 14,934.2 | 141.2 | 875.4 | 32.6 | 2,566.6 | 4,649.2 | 14,066.9 | 102.6 | 1,626.0 | 44.1 | 114.6 |
| Mean | 141 | 498 | 4.55 | 28.2 | 1.16 | 82.8 | 155 | 454 | 3.42 | 52.5 | 1.42 | 3.82 |
| Ac-ft | 8,700 | 29,620 | 280 | 1,740 | 65 | 5,090 | 9,220 | 27,900 | 204 | 3,220 | 87 | 227 |

Calendar year 1957: Max 29,200 Min 0 Mean 592 Ac-ft 428,600
Water year 1957-58: Max 2,650 Min 0 Mean 119 Ac-ft 86,350

Peak discharge (base, 2,500 cfs).--Nov. 5 (7:30 p.m.) 3,030 cfs (20.51 ft); May 3 (6 p.m.) 2,880 cfs (20.63 ft).

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

## 430. 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 1958 (prior to October 1950, monthly figures only).

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, 341,200 acre-ft May 4 (gage height, 832.6 ft); minimum observed, 258,200 acre-ft Oct. 6-8 (gage height, 824.9 ft).
1932-58: Maximum contents observed, 407,600 acre-ft Apr. 29, 30, 1942 (gage height, 836.2 ft); minimum since reservoir first filled in 1941, 7,170 acre-ft Oct. 12-16, 1956.

Remarks.--Reservoir is formed by a rolled-fill earthen-type dam containing a concrete spillway with three 20-foot 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. Reservoir used for flood control and municipal supply for city of Fort Worth. Capacity figures for current year are based on a redetermination of reservoir capacity during fall of 1952. Data regarding dam and reservoir are given in the following table:

| | Gage height (feet) | Capacity (acre-feet) |
|---|---|---|
| Left emergency spillway | 859.0 | - |
| Right emergency spillway | 853.0 | - |
| Service spillway | 826.1 | 270,300 |
| Bottom of three 48-inch conduits | 751.4 | 0 |

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

Revisions.--WSP 1148: Drainage area.

Capacity table, water year 1957-58 (gage height, in feet, and total capacity, in acre-feet)

| | | | |
|---|---|---|---|
| 824 | 249,300 | 830 | 311,600 |
| 825 | 259,200 | 832 | 334,200 |
| 826 | 269,300 | 833 | 345,800 |
| 828 | 290,000 | | |

Total contents, in acre-feet, at 7 a.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 259,200 | 270,300 | 296,400 | 285,800 | 283,700 | 280,600 | 292,100 | 311,600 | 298,600 | 284,800 | 279,500 | 276,400 |
| 2 | 259,200 | 270,300 | 296,400 | 285,800 | 283,700 | 280,600 | 291,100 | 330,800 | 297,500 | 284,800 | 279,500 | 275,400 |
| 3 | 259,200 | 270,300 | 296,400 | 285,800 | 283,700 | 280,600 | 290,000 | 340,000 | 297,500 | 283,700 | 279,500 | 275,400 |
| 4 | 259,200 | 270,300 | 295,400 | 285,800 | 283,700 | 279,500 | 287,900 | 341,200 | 297,500 | 283,700 | 279,500 | 275,400 |
| 5 | 259,200 | 278,500 | 295,400 | 284,800 | 283,700 | 280,600 | 287,900 | 340,000 | 296,400 | 282,600 | 278,500 | 274,400 |
| 6 | 258,200 | 285,800 | 294,300 | 284,800 | 283,700 | 281,600 | 286,800 | 336,500 | 296,400 | 282,600 | 278,500 | 274,400 |
| 7 | 258,200 | 292,100 | 294,300 | 284,800 | 283,700 | 282,600 | 286,800 | 331,900 | 295,400 | 285,800 | 278,500 | 274,400 |
| 8 | 258,200 | 299,600 | 294,300 | 284,800 | 282,600 | 283,700 | 286,800 | 323,800 | 294,300 | 286,800 | 278,500 | 274,400 |
| 9 | 259,200 | 302,900 | 293,200 | 283,700 | 282,600 | 285,800 | 285,800 | 317,200 | 293,200 | 287,900 | 278,500 | 274,400 |
| 10 | 259,200 | 305,100 | 293,200 | 283,700 | 282,600 | 286,800 | 285,800 | 312,700 | 293,200 | 287,900 | 278,500 | 274,400 |
| 11 | 259,200 | 307,200 | 293,200 | 283,700 | 282,600 | 287,900 | 285,800 | 311,600 | 292,100 | 287,900 | 278,500 | 274,400 |
| 12 | 259,200 | 307,200 | 292,100 | 283,700 | 282,600 | 287,900 | 285,800 | 310,500 | 291,100 | 286,800 | 278,500 | 274,400 |
| 13 | 263,200 | 306,200 | 292,100 | 284,800 | 282,600 | 287,900 | 284,800 | 309,400 | 290,000 | 286,800 | 278,500 | 274,400 |
| 14 | 269,300 | 305,100 | 292,100 | 284,800 | 282,600 | 289,000 | 285,800 | 309,400 | 290,000 | 285,800 | 278,500 | 272,400 |
| 15 | 270,300 | 304,000 | 291,100 | 284,800 | 282,600 | 289,000 | 285,800 | 308,300 | 289,000 | 285,800 | 277,500 | 270,300 |
| 16 | 271,300 | 304,000 | 291,100 | 284,800 | 281,600 | 289,000 | 285,800 | 308,300 | 289,000 | 284,800 | 277,500 | 269,300 |
| 17 | 272,400 | 302,900 | 291,100 | 284,800 | 281,600 | 290,000 | 285,800 | 307,200 | 289,000 | 284,800 | 277,500 | 268,300 |
| 18 | 272,400 | 301,800 | 290,000 | 284,800 | 281,600 | 290,000 | 285,800 | 307,200 | 289,000 | 283,700 | 277,500 | 267,300 |
| 19 | 272,400 | 301,800 | 290,000 | 283,700 | 281,600 | 290,000 | 284,800 | 307,200 | 289,000 | 283,700 | 277,500 | 267,300 |
| 20 | 271,300 | 301,800 | 289,000 | 284,800 | 281,600 | 289,000 | 285,800 | 306,200 | 289,000 | 283,700 | 277,500 | 267,300 |
| 21 | 271,300 | 300,700 | 289,000 | 285,800 | 281,600 | 289,000 | 285,800 | 306,200 | 287,900 | 283,700 | 277,500 | 267,300 |
| 22 | 272,400 | 300,700 | 289,000 | 285,800 | 281,600 | 289,000 | 285,800 | 305,100 | 287,900 | 282,600 | 277,500 | 267,300 |
| 23 | 272,400 | 299,600 | 289,000 | 285,800 | 280,600 | 289,000 | 285,800 | 304,000 | 287,900 | 282,600 | 277,500 | 267,300 |
| 24 | 272,400 | 299,600 | 287,900 | 285,800 | 280,600 | 287,900 | 285,800 | 302,900 | 287,900 | 283,700 | 277,500 | 267,300 |
| 25 | 271,300 | 299,600 | 287,900 | 285,800 | 280,600 | 287,900 | 285,800 | 302,900 | 286,800 | 283,700 | 277,500 | 267,300 |
| 26 | 271,300 | 299,600 | 287,900 | 284,800 | 280,600 | 287,900 | 284,800 | 302,900 | 286,800 | 282,600 | 277,500 | 267,300 |
| 27 | 270,300 | 299,600 | 287,900 | 284,800 | 280,600 | 287,900 | 290,000 | 301,800 | 286,800 | 281,600 | 277,500 | 267,300 |
| 28 | 270,300 | 299,600 | 286,800 | 284,800 | 280,600 | 287,900 | 291,100 | 301,800 | 285,800 | 281,600 | 276,400 | 266,200 |
| 29 | 270,300 | 297,500 | 286,800 | 284,800 | - | 289,000 | 292,100 | 300,700 | 285,800 | 280,600 | 276,400 | 266,200 |
| 30 | 270,300 | 297,500 | 286,800 | 284,800 | ------- | 293,200 | 296,400 | 299,600 | 284,800 | 280,600 | 276,400 | 266,200 |
| 31 | 270,300 | ------- | 286,800 | 284,800 | ------- | 293,200 | ------- | 299,600 | ------- | 279,500 | 276,400 | ------- |
| (†) | 826.1 | 828.7 | 827.7 | 827.5 | 827.1 | 828.3 | 828.6 | 828.9 | 827.5 | 827.0 | 826.7 | 825.7 |
| (‡) | +11,100 | +27,200 | -10,700 | -2,000 | -4,200 | +12,600 | +3,200 | +3,200 | -14,800 | -5,300 | -3,100 | -10,200 |

Calendar year 1957..... ‡ +265,600
Water year 1957-58..... ‡ +7,000

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

## 440. 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 Greathouse Branch (corrected), 4.0 miles (corrected) east of Bridgeport, Wise County, and 4.4 miles upstream from mouth.

Drainage area.--332 sq mi.

Records available.--October 1936 to September 1958.

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

Average discharge.--21 years (1937-58), 90.4 cfs (65,450 acre-ft per year); median of yearly mean discharges, 58 cfs (42,000 acre-ft per year).

Extremes.--Maximum discharge during year, 10,100 cfs May 3 (gage height, 10.70 ft); no flow for many days.
1936-58: 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 poor. Flow from 103 sq mi modified since May 1, 1956, by Amon Carter Reservoir capacity, 20,050 acre-ft at elevation 920.0 ft (fixed service outlet) and 32,290 acre-ft at elevation 927.0 ft (emergency flood spillway). During the year the city of Bowie diverted 461 acre-ft of water from Amon Carter Reservoir for municipal use and returned an undetermined amount of sewage effluent above the station. At the end of the year the flow from 4.32 sq mi above this station was partly controlled by 2 floodwater-detention reservoirs with a combined capacity of 1,250 acre-ft below the flood spillway crests, of which 1,060 acre-ft is floodwater-detention capacity and 190 acre-ft is sediment pool capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The first floodwater-detention reservoir in this basin was completed in December 1957.

Revisions.--WSP 1148: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 16 | 10 | 13 | 9.9 | 28 | *1,200 | 6 | 3.4 | | |
| 2 | 0 | 0 | 15 | 10 | 13 | 9.3 | 21 | *6,800 | 6 | 3.2 | | |
| 3 | 0 | 0 | 15 | 10 | 13 | 9.1 | 19 | 7,000 | 6 | 3.1 | | |
| 4 | 0 | 67 | 14 | 10 | 13 | 9.1 | 19 | 1,100 | 5 | 2.8 | | |
| 5 | 0 | 1,330 | 14 | 9 | 13 | 16 | 17 | 500 | 5 | 2.6 | | |
| 6 | 0 | 1,650 | 15 | 9 | 12 | 108 | 15 | *337 | 5 | 2.5 | | |
| 7 | 0 | 628 | 22 | 9 | 12 | 290 | 14 | 213 | 5 | 213 | | |
| 8 | 0 | 1,220 | 19 | 9 | 12 | 338 | 13 | 145 | 5 | 134 | | |
| 9 | *0 | 453 | 16 | *8.2 | 12 | 346 | 13 | 104 | 5 | 22 | | |
| 10 | 0 | 136 | 15 | 8.2 | 12 | 108 | 13 | 86 | *4.6 | 8.0 | | |
| 11 | 0 | 72 | 14 | 8.1 | 12 | 49 | 12 | 72 | 4.2 | 4.4 | | |
| 12 | 0 | 53 | 12 | 8.8 | 12 | 69 | 12 | 58 | 3.9 | 3.0 | | |
| 13 | 83 | 52 | 12 | 20 | 12 | 188 | 12 | 50 | 3.7 | 2.9 | | |
| 14 | 222 | 48 | 12 | 16 | 12 | 168 | 12 | 48 | 3.7 | 2.4 | | |
| 15 | *65 | 40 | 12 | 16 | 12 | 87 | 12 | *46 | 3.7 | 2.0 | | |
| 16 | *11 | 31 | 12 | 15 | 12 | 56 | 11 | 44 | 3.6 | 1.0 | | |
| 17 | 4 | 25 | 12 | 14 | 12 | 46 | 11 | 41 | 3.9 | .5 | (*) | |
| 18 | 2 | 49 | 12 | 13 | 12 | 38 | 11 | 36 | 5.9 | .2 | | |
| 19 | 1 | 36 | 12 | 12 | 12 | 34 | 11 | 38 | 6.8 | .1 | | |
| 20 | 1 | 26 | 10 | 50 | 12 | 26 | 25 | 40 | 6.3 | *0 | | |
| 21 | .5 | 19 | 10 | 125 | 13 | 24 | 15 | 31 | 5.7 | 0 | | |
| 22 | .5 | 17 | 10 | 75 | 13 | 22 | 12 | 25 | 6.0 | 0 | | |
| 23 | .2 | 16 | 10 | 25 | 13 | 22 | 12 | 21 | 5.9 | 0 | | (*) |
| 24 | .2 | 24 | 10 | 15 | 13 | 20 | 12 | 18 | 5.3 | 6.6 | | |
| 25 | .1 | 55 | 10 | 12 | 12 | 19 | 12 | 21 | 4.5 | 3.3 | | |
| 26 | .1 | 42 | 20 | 12 | *12 | 19 | 50 | 25 | 3.9 | 1.8 | | |
| 27 | 0 | *28 | 15 | 12 | 12 | *18 | 150 | 20 | 3.7 | 1.1 | | |
| 28 | 0 | 22 | 10 | 12 | 11 | 19 | 125 | 8 | 3.7 | .6 | | |
| 29 | 0 | 18 | 10 | 15 | - | 192 | 150 | 7 | 3.7 | .1 | | |
| 30 | 0 | 17 | 10 | 14 | ------- | 129 | 175 | 7 | 3.6 | 0 | | |
| 31 | 0 | ------- | 10 | 13 | ------- | 45 | ------- | 7 | ------- | 0 | | ------- |
| Total | 390.6 | 6,174 | 406 | 595.3 | 344 | 2,533.4 | 1,014 | 18,146 | 144.3 | 424.6 | 0 | 0 |
| Mean | 12.6 | 206 | 13.1 | 19.2 | 12.3 | 81.7 | 33.8 | 585 | 4.81 | 13.7 | 0 | 0 |
| Ac-ft | 775 | 12,250 | 805 | 1,180 | 682 | 5,020 | 2,010 | 35,990 | 286 | 842 | 0 | 0 |

Calendar year 1957: Max 13,800 Min 0 Mean 244 Ac-ft 176,900
Water year 1957-58: Max 7,000 Min 0 Mean 82.7 Ac-ft 59,840

* Discharge measurement or observation of no flow made on this day.
Note.--No gage-height record Oct. 17-26, Dec. 18 to Jan. 7, Jan. 17 to Feb. 25, Apr. 6-30, May 3-5, May 28 to June 9; discharge estimated on basis of recorded range in stage, weather records, and records for nearby stations.

## 445. West Fork Trinity River near Boyd, Tex.

Location.--Lat 33°05'05", long 97°33'30", on right bank at downstream side of bridge on State Farm Road 730, 0.6 mile northeast of Boyd, Wise County, 3.5 miles downstream from Boggy Creek, and at mile 602.

Drainage area.--1,729 sq mi.

Records available.--January 1947 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 660.57 ft above mean sea level, datum of 1929. Prior to Dec. 14, 1954, at site 2.2 miles downstream at datum 5.48 ft lower.

Average discharge.--11 years, 245 cfs (177,400 acre-ft per year).

Extremes.--Maximum discharge during year, 16,400 cfs May 3 (gage height, 19.83 ft); no flow Oct. 1-13.

1947-58: Maximum discharge, 24,400 cfs Apr. 27, 1957 (gage height, 21.60 ft); no flow at times.

Flood in April 1942 reached a stage of 20.6 ft, from information by State Highway Department. Flood in 1908 was highest since at least 1880 and reached a stage of about 25 ft, from information by local residents.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Flow largely regulated by Bridgeport Reservoir since 1932 and Amon Carter Reservoir near Bowie since May 1956, combined capacity, 292,000 acre-ft. Sustained flow during several periods is release from Bridgeport Reservoir, 21 miles upstream.

Revisions (water years).--WSP 1392: 1947(M), 1948, 1949(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 1.3 | 0 | 2.0 | 7.4 | 13.0 | 1,300 |
| 1.4 | .1 | 2.3 | 16 | 15.0 | 1,750 |
| 1.5 | .4 | 3.0 | 47 | 16.0 | 2,090 |
| 1.6 | .9 | 4.0 | 109 | 17.0 | 3,500 |
| 1.7 | 1.9 | 6.0 | 275 | 18.0 | 7,450 |
| 1.8 | 3.3 | 9.0 | 620 | 20.0 | 17,400 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 2 | 285 | 139 | 123 | 82 | 287 | *4,350 | 285 | 102 | 70 | 17 |
| 2 | 0 | 2 | 275 | 135 | 120 | 82 | 838 | 7,310 | 275 | 98 | 67 | 16 |
| 3 | 0 | 2 | 266 | 131 | 116 | 79 | 1,000 | 14,200 | 266 | 92 | 64 | 14 |
| 4 | 0 | 400 | *257 | 127 | 112 | 79 | 961 | 8,750 | 257 | 88 | 62 | 14 |
| 5 | 0 | 1,000 | 248 | 123 | 109 | 79 | 310 | 6,000 | 248 | 88 | 58 | 13 |
| 6 | 0 | 1,440 | 248 | 120 | 109 | 142 | 195 | *4,600 | 239 | 106 | 56 | 13 |
| 7 | 0 | 2,500 | 248 | 116 | 106 | 376 | 179 | 4,200 | 239 | 139 | 53 | 13 |
| 8 | 0 | 2,000 | 248 | 112 | 102 | 562 | 167 | 4,200 | 239 | 239 | 50 | 13 |
| 9 | 0 | 1,180 | 239 | *109 | 98 | 620 | 159 | 4,200 | *221 | 208 | 48 | 13 |
| 10 | 0 | *892 | 230 | 106 | 102 | 414 | 159 | 3,850 | 212 | 151 | 46 | 60 |
| 11 | 0 | 538 | 221 | 106 | 98 | 257 | 155 | 2,580 | 203 | 135 | 42 | 44 |
| 12 | 0 | 501 | 212 | 106 | 98 | 221 | 147 | 1,190 | 195 | 127 | 40 | 18 |
| 13 | 0 | 725 | 203 | 116 | 98 | 345 | 147 | 800 | 187 | 120 | 37 | 15 |
| 14 | 250 | 740 | 199 | 127 | 95 | 345 | 167 | 665 | 179 | 116 | 34 | 357 |
| 15 | 200 | 695 | 195 | 123 | 95 | 305 | 175 | *620 | 175 | 109 | 32 | 725 |
| 16 | 100 | 442 | 191 | 120 | 92 | 257 | 167 | 606 | 171 | 102 | 30 | 800 |
| 17 | 50 | 398 | 187 | 116 | 88 | 230 | 155 | 564 | 179 | 98 | *27 | 755 |
| 18 | 20 | 489 | 187 | 116 | 85 | 216 | 147 | 525 | 171 | 95 | 25 | 346 |
| 19 | 10 | 420 | 183 | 112 | 85 | 208 | 147 | 501 | 167 | 88 | 23 | 44 |
| 20 | 5 | 365 | 183 | 135 | 85 | 195 | 183 | 489 | 163 | *85 | 23 | 35 |
| 21 | 4 | 345 | 171 | 248 | 88 | 187 | 257 | 465 | 159 | 85 | 84 | 20 |
| 22 | 3.5 | 325 | 167 | 257 | 88 | 183 | 248 | 442 | 163 | 79 | 44 | 12 |
| 23 | 3 | 315 | 163 | 199 | 88 | 179 | 187 | 420 | 155 | 88 | 84 | *6.3 |
| 24 | 2.5 | 376 | 159 | 163 | 85 | 179 | 163 | 398 | 147 | 88 | 57 | 4.4 |
| 25 | 2 | 442 | 163 | 147 | 85 | 171 | 147 | 398 | 143 | 88 | 40 | 3.5 |
| 26 | 2 | 376 | 163 | 139 | 85 | 167 | 195 | 398 | 135 | 82 | 32 | 2.5 |
| 27 | 2 | 345 | 159 | 131 | *85 | 163 | 748 | 387 | 127 | 76 | 30 | 2.0 |
| 28 | 2 | 325 | 159 | 127 | 82 | *159 | 1,230 | 365 | 120 | 73 | 26 | 1.5 |
| 29 | 2 | 305 | 155 | 131 | - | 1,020 | 1,860 | 345 | 112 | 73 | 23 | 1.2 |
| 30 | 2 | 295 | 147 | 135 | ------- | 861 | 2,970 | 325 | 109 | 73 | 21 | 1 |
| 31 | 2 | ------- | 143 | 131 | ------- | 371 | ------- | 305 | ------- | 70 | 19 | ------- |
| Total | 662.0 | 18,180 | 6,254 | 4,203 | 2,702 | 8,734 | 13,850 | 74,488 | 5,641 | 3,261 | 1,347 | 3,379.4 |
| Mean | 21.4 | 606 | 202 | 136 | 96.5 | 282 | 462 | 2,402 | 188 | 105 | 43.5 | 113 |
| Ac-ft | 1,310 | 36,060 | 12,400 | 8,340 | 5,360 | 17,320 | 27,470 | 147,700 | 11,190 | 6,470 | 2,670 | 6,700 |

Calendar year 1957: Max 18,600 Min 0 Mean 822 Ac-ft 594,800
Water year 1957-58: Max 14,200 Min 0 Mean 561 Ac-ft 283,000

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 1 to Nov. 9, May 30 to June 8, Aug. 11-16, Sept. 25-30; discharge estimated on basis of weather records, release from Bridgeport Reservoir, and records for nearby stations.

## 450. 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 1958 (prior to October 1950, monthly figures only).

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 at present datum.

Extremes.--Maximum contents observed during year, 230,100 acre-ft May 7 (elevation, 653.7 ft); minimum observed, 161,400 acre-ft Mar. 14, 20, 21 (elevation, 646.5 ft).
1934-58: Maximum contents observed, 333,500 acre-ft Aug. 26, 1942 (elevation, 659.9 ft); minimum since reservoir first filled in 1937, 57,690 acre-ft Nov. 19, 20, 1956.

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. 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 herein represent total contents. Capacity figures since Oct. 1, 1951, are based on redetermination of reservoir capacity during fall of 1952. Data regarding dam and reservoir are given in the following table.

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Crest of emergency spillway | 671.8 | - |
| Service spillway crest | 649.1 | 182,700 |
| Bottom of four 48-inch outlet conduits | 599.9 | 0 |

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

Revisions.--WSP 1148: Drainage area.

Capacity table, water year 1957-58 (elevation, in feet, and total capacity, in acre-feet)

| | | | |
|---|---|---|---|
| 646.5 | 161,400 | 652.0 | 211,400 |
| 648.0 | 173,500 | 654.0 | 233,400 |
| 650.0 | 191,400 | | |

Total contents, in acre-feet, at 8 a.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 176,000 | 172,700 | 176,000 | 176,000 | 170,200 | 169,400 | 166,900 | 174,300 | 183,700 | 184,700 | 181,100 | 170,200 |
| 2 | 175,200 | 172,700 | 176,000 | 176,000 | 168,600 | 169,400 | 165,300 | 181,100 | 182,700 | 184,700 | 180,200 | 170,200 |
| 3 | 175,200 | 172,700 | 176,900 | 176,000 | 167,800 | 169,400 | 164,500 | 198,400 | 182,700 | 184,700 | 178,500 | 170,200 |
| 4 | 175,200 | 171,900 | 176,900 | 176,000 | 166,900 | 169,400 | 163,700 | 218,000 | 183,700 | 184,700 | 178,500 | 169,400 |
| 5 | 175,200 | 172,700 | 176,900 | 176,000 | 166,100 | 169,400 | 164,500 | 226,800 | 183,700 | 183,700 | 178,500 | 169,400 |
| 6 | 174,300 | 175,200 | 176,000 | 176,000 | 166,100 | 170,200 | 163,700 | 229,000 | 184,700 | 188,500 | 178,500 | 169,400 |
| 7 | 174,300 | 176,900 | 175,200 | 176,900 | 166,100 | 171,000 | 162,900 | 230,100 | 184,700 | 188,500 | 177,700 | 169,400 |
| 8 | 174,300 | 178,500 | 175,200 | 176,900 | 166,100 | 170,200 | 162,900 | 229,000 | 184,700 | 187,500 | 177,700 | 168,600 |
| 9 | 174,300 | 179,400 | 173,500 | 176,900 | 166,100 | 169,400 | 163,700 | 227,900 | 184,700 | 187,500 | 177,700 | 168,600 |
| 10 | 174,300 | 179,400 | 173,500 | 176,900 | 166,100 | 167,800 | 163,700 | 226,800 | 184,700 | 187,500 | 177,700 | 168,600 |
| 11 | 173,500 | 179,400 | 174,300 | 176,900 | 166,900 | 166,900 | 164,500 | 225,700 | 184,700 | 187,500 | 177,700 | 169,400 |
| 12 | 173,500 | 177,700 | 174,300 | 177,700 | 166,900 | 165,300 | 164,500 | 222,400 | 184,700 | 187,500 | 177,700 | 169,400 |
| 13 | 172,700 | 176,900 | 174,300 | 178,500 | 166,900 | 163,700 | 164,500 | 216,900 | 184,700 | 187,500 | 177,700 | 169,400 |
| 14 | 172,700 | 176,000 | 174,300 | 178,500 | 166,900 | 161,400 | 165,300 | 211,400 | 184,700 | 186,600 | 177,700 | 167,800 |
| 15 | 173,500 | 175,200 | 175,200 | 178,500 | 166,900 | 162,900 | 165,300 | 206,400 | 184,700 | 186,600 | 176,900 | 166,900 |
| 16 | 174,300 | 174,300 | 175,200 | 178,500 | 166,900 | 162,900 | 165,300 | 202,400 | 185,600 | 186,600 | 176,900 | 168,600 |
| 17 | 174,300 | 172,700 | 176,000 | 178,500 | 167,800 | 164,500 | 165,300 | 198,400 | 185,600 | 186,600 | 176,900 | 169,400 |
| 18 | 174,300 | 171,900 | 176,000 | 178,500 | 167,800 | 162,900 | 165,300 | 194,400 | 185,600 | 185,600 | 176,900 | 170,200 |
| 19 | 174,300 | 170,200 | 176,000 | 179,400 | 167,800 | 162,100 | 164,500 | 191,400 | 185,600 | 184,700 | 176,900 | 171,000 |
| 20 | 174,300 | 169,400 | 175,200 | 180,200 | 167,800 | 161,400 | 165,300 | 187,500 | 185,600 | 183,700 | 176,900 | 171,900 |
| 21 | 174,300 | 168,600 | 174,300 | 179,400 | 167,800 | 161,400 | 165,300 | 184,700 | 185,600 | 184,700 | 176,900 | 171,900 |
| 22 | 174,300 | 169,400 | 173,500 | 177,700 | 167,800 | 162,100 | 165,300 | 181,900 | 186,600 | 182,700 | 177,700 | 171,900 |
| 23 | 174,300 | 170,200 | 172,700 | 177,700 | 168,600 | 162,900 | 165,300 | 182,700 | 186,600 | 181,900 | 176,900 | 171,900 |
| 24 | 174,300 | 171,000 | 173,500 | 176,900 | 168,600 | 162,900 | 166,100 | 183,700 | 186,600 | 181,900 | 176,000 | 171,900 |
| 25 | 174,300 | 171,900 | 174,300 | 176,000 | 168,600 | 163,700 | 164,500 | 184,700 | 185,600 | 181,900 | 174,300 | 171,000 |
| 26 | 174,300 | 172,700 | 174,300 | 175,200 | 168,600 | 163,700 | 164,500 | 184,700 | 185,600 | 181,900 | 173,500 | 171,000 |
| 27 | 173,500 | 173,500 | 174,300 | 174,300 | 169,400 | 163,700 | 170,200 | 185,600 | 185,600 | 181,900 | 171,900 | 171,900 |
| 28 | 173,500 | 174,300 | 174,300 | 173,500 | 169,400 | 163,700 | 169,400 | 185,600 | 185,600 | 181,900 | 171,000 | 171,000 |
| 29 | 172,700 | 175,200 | 175,200 | 172,700 | - | 166,900 | 168,600 | 186,600 | 185,600 | 181,900 | 170,200 | 171,000 |
| 30 | 172,700 | 175,200 | 175,200 | 171,900 | ------- | 168,600 | 169,400 | 185,600 | 184,700 | 181,100 | 170,200 | 170,200 |
| 31 | 172,700 | ------- | 176,000 | 171,000 | ------- | 167,800 | ------- | 183,700 | ------- | 181,100 | 170,200 | ------- |
| (†) | 647.9 | 648.2 | 648.3 | 647.7 | 647.5 | 647.3 | 647.5 | 649.2 | 649.3 | 648.9 | 647.6 | 647.6 |
| (‡) | -3,300 | +2,500 | +800 | -5,000 | -1,600 | -1,600 | +1,600 | +14,300 | +1,000 | -3,600 | -10,900 | 0 |

Calendar year 1957..... ‡ +113,100
Water year 1957-58..... ‡ -5,800

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

## 460. 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 1958.

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

Average discharge.--11 years, 43.3 cfs (31,350 acre-ft per year).

Extremes.--Maximum discharge during year, 3,080 cfs May 3 (gage height, 13.21 ft); no flow Aug. 8, 9, 13-20, Sept. 1-10.

1947-58: Maximum discharge, 34,000 cfs May 25, 1957 (gage height, 29.00 ft); 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. At the end of the year the flow from 75.2 sq mi above this station was partly controlled by 32 floodwater-detention reservoirs with a total combined capacity of 24,420 acre-ft below the flood spillway crests, of which 20,660 acre-ft is floodwater detention capacity and 3,760 acre-ft is sediment storage capacity. Five of these reservoirs were constructed during the current year and have a total combined capacity below flood spillway crests of 1,791 acre-ft, of which 406 acre-ft is sediment pool capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. There are 21 of these reservoirs above and 11 below Lake Weatherford.

Since Dec. 15, 1956, Lake Weatherford has modified runoff from 105 sq mi above the gaging station. The reservoir has a capacity of 19,470 acre-ft at elevation 896.0 ft (fixed glory hole outlet) and 35,180 acre-ft at elevation 906.0 ft (emergency flood spillway).

During the year the city of Weatherford diverted approximately 1,400 acre-ft of water for municipal use from Lake Weatherford and returned approximately 900 acre-ft as sewage effluent above the station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 14-18, 22-26, Oct. 30 to Nov. 5, Jan. 19 to Mar. 29, May 10-16, June 13-23)

| | | | | | |
|---|---|---|---|---|---|
| 2.1 | 0 | 2.6 | 8.2 | 4.0 | 187 |
| 2.2 | .4 | 2.8 | 20 | 5.0 | 445 |
| 2.3 | 1.1 | 3.0 | 35 | 7.0 | 1,030 |
| 2.4 | 2.5 | 3.5 | 97 | 11.0 | 2,450 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.5 | 13 | 8.7 | 11 | 13 | 14 | 34 | 1,280 | 29 | 6.9 | 0.2 | 0 |
| 2 | 2.7 | 14 | 10 | 11 | 12 | 15 | 28 | 1,230 | 25 | 6.2 | .1 | 0 |
| 3 | 2.5 | 14 | 10 | 12 | 12 | 17 | 26 | 2,160 | 23 | 5.6 | .2 | 0 |
| 4 | 2.5 | 21 | 9.6 | 12 | 13 | 19 | 24 | 827 | 21 | 5.6 | .5 | 0 |
| 5 | 2.5 | 32 | 9.6 | 12 | 14 | 52 | 23 | 459 | 18 | 5.9 | .5 | 0 |
| 6 | 2.5 | 48 | 12 | 12 | 14 | 50 | 22 | 317 | 16 | 15 | .3 | 0 |
| 7 | 2.4 | 24 | 16 | 12 | 13 | 125 | 22 | 258 | 14 | 26 | .1 | 0 |
| 8 | 2.4 | 32 | 10 | 12 | 12 | 47 | 23 | 224 | 14 | 29 | 0 | 0 |
| 9 | 2.4 | 11 | 7.9 | 12 | 13 | 35 | *34 | 185 | 12 | 29 | 0 | 0 |
| 10 | 3.0 | 8.2 | 7.9 | 12 | 14 | 27 | 26 | 165 | 12 | 29 | .1 | 0 |
| 11 | 3.0 | 7.5 | 7.9 | 12 | 14 | 23 | 24 | 143 | 11 | 25 | .1 | 4.3 |
| 12 | 4.7 | 7.9 | 7.5 | 18 | 14 | 32 | 24 | *129 | 10 | 21 | .1 | 3.9 |
| 13 | 6.6 | 9.2 | 7.9 | 34 | 14 | 29 | 31 | 116 | 8.7 | 18 | 0 | 2.2 |
| 14 | 13 | 9.2 | 8.2 | 25 | 15 | 24 | 80 | 107 | 8.2 | 13 | 0 | 1.9 |
| 15 | *27 | 8.2 | 8.7 | 19 | 15 | 22 | 36 | 90 | 7.9 | 8.7 | 0 | 1.8 |
| 16 | 25 | 7.9 | 8.7 | 16 | 14 | 21 | 30 | 82 | *9.2 | 5.2 | 0 | 7.6 |
| 17 | 16 | 8.7 | 9.2 | 15 | 14 | 19 | 26 | 90 | 9.2 | 3.7 | 0 | 22 |
| 18 | 10 | *9.2 | 9.2 | 14 | 14 | *19 | 28 | 67 | 11 | 2.7 | 0 | 14 |
| 19 | 7.9 | 7.5 | 9.2 | 14 | 14 | 19 | 30 | 58 | 9.2 | 2.1 | 0 | 19 |
| 20 | 6.9 | 7.5 | 8.7 | 19 | 14 | 17 | 36 | 53 | 8.2 | 1.7 | 0 | 39 |
| 21 | 7.2 | 6.9 | 7.5 | 22 | 14 | 17 | 35 | 50 | 8.7 | 1.7 | 29 | 18 |
| 22 | 12 | 6.6 | 7.9 | 19 | 16 | 18 | 29 | 46 | 20 | 2.1 | 39 | 12 |
| 23 | 23 | 6.9 | 8.7 | 16 | 15 | 19 | 27 | 44 | 13 | *3.9 | 25 | 10 |
| 24 | 28 | 17 | 9.6 | 16 | 15 | 18 | 26 | 42 | 11 | 8.1 | 17 | 6.9 |
| 25 | 14 | 41 | 17 | 14 | 15 | 17 | 24 | 44 | 9.6 | 6.2 | 8.7 | *5.2 |
| 26 | 10 | 19 | 18 | 14 | 16 | 17 | 50 | 45 | 8.7 | 2.7 | *4.2 | 13 |
| 27 | 8.7 | 12 | *12 | 14 | 15 | 17 | 472 | 42 | 8.2 | 1.7 | 1.9 | 10 |
| 28 | 8.2 | 11 | 12 | 13 | 14 | 17 | 274 | 39 | 8.7 | .9 | .9 | 5.6 |
| 29 | 8.7 | 9.6 | 12 | 14 | - | 100 | 857 | 35 | 8.2 | .7 | .4 | 4.4 |
| 30 | 11 | 8.7 | 12 | *14 | ------- | 73 | 927 | 31 | 7.5 | .4 | .2 | 4.2 |
| 31 | 11 | ------- | 12 | 14 | ------- | 45 | ------- | 29 | ------- | .3 | .1 | ------- |
| Total | 287.3 | 438.7 | 315.6 | 474 | 392 | 984 | 3,328 | 8,487 | 380.2 | 288.0 | 128.6 | 205.0 |
| Mean | 9.27 | 14.6 | 10.2 | 15.3 | 14.0 | 31.7 | 111 | 274 | 12.7 | 9.29 | 4.15 | 6.83 |
| Ac-ft | 570 | 870 | 626 | 940 | 778 | 1,950 | 6,600 | 16,830 | 754 | 571 | 255 | 407 |

Calendar year 1957: Max 13,100 Min 0 Mean 143 Ac-ft 103,400
Water year 1957-58: Max 2,160 Min 0 Mean 43.0 Ac-ft 31,150

* Discharge measurement made on this day.

## 465. Benbrook Reservoir near Benbrook, Tex.

Location.--Lat 32°39', long 97°27', in intake structure of Benbrook Dam on Clear Fork Trinity River, 2.5 miles south of Benbrook, Tarrant County, 3.5 miles upstream from Marys Creek, and 15 miles upstream from mouth of Clear Fork.

Drainage area.--433 sq mi.

Records available.--October 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Extremes.--Maximum contents during year, 124,300 acre-ft May 6 (elevation, 702.41 ft); minimum, 80,610 acre-ft Oct. 12 (elevation, 691.92 ft).
1952-58: Maximum contents, 185,000 acre-ft June 6, 1957 (elevation, 713.35 ft); minimum since first appreciable storage began, 5,010 acre-ft May 9, 1955.

Remarks.--Reservoir is formed by a rolled earth-fill dam 9,130 ft long including a 500-foot uncontrolled off-channel concrete gravity spillway with ogee weir section with a 100-foot notch in center. Outlet works consists of a 13-foot diameter concrete conduit controlled by two 6.5- by 13-foot broome-type gates and two 30-inch steel pipes controlled by slide gates. Deliberate impoundment of water began Sept. 29, 1952. From August 1950 to Sept. 28, 1952, reservoir operated as detention basin only. Figures given herein represent total contents. Reservoir built for flood control, navigation, and low flow regulation. For storage above reservoir see Remarks paragraph on preceding page concerning U. S. Soil Conservation Service reservoirs. Data regarding dam and reservoir are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Maximum design water surface | 741.0 | 410,000 |
| Spillway crest | 724.0 | 258,600 |
| Notch crest | 710.0 | 164,800 |
| Top of conservation storage | 694.0 | 88,250 |
| Inverts at intakes to wet wells | 656.0 | 6,550 |
| Invert of two 6.5- by 13-foot broome-type gates | 622.0 | 12 |

Cooperation.--Records of elevations and contents furnished by Corps of Engineers and reviewed by Geological Survey.

Capacity table, water year 1957-58 (elevation, in feet, and total capacity, in acre-feet)

| | | | |
|---|---|---|---|
| 691 | 77,350 | 697 | 100,000 |
| 693 | 84,530 | 700 | 113,000 |
| 695 | 92,060 | 703 | 127,200 |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 81,040 | 82,930 | 87,730 | 87,650 | 88,330 | 87,360 | 87,620 | 105,100 | 86,280 | 85,230 | 85,380 | 83,330 |
| 2 | 81,000 | 82,890 | 87,800 | 87,500 | 87,990 | 87,390 | 87,580 | 111,100 | 86,240 | 85,160 | 85,340 | 83,220 |
| 3 | 80,960 | 82,960 | 87,840 | 87,430 | 87,730 | 87,430 | 87,470 | 119,400 | 86,240 | 85,080 | 85,270 | 83,110 |
| 4 | 80,890 | 83,070 | 87,840 | 87,470 | 87,650 | 87,730 | 87,320 | 122,000 | 86,240 | 85,010 | 85,160 | 83,040 |
| 5 | 80,860 | 84,970 | 87,760 | 87,470 | 87,620 | 88,210 | 87,130 | 123,600 | 86,280 | 85,530 | 85,080 | 83,000 |
| 6 | 80,820 | 85,310 | 87,990 | 87,500 | 87,360 | 88,560 | 86,950 | 124,300 | 86,240 | 85,940 | 84,970 | 83,110 |
| 7 | 80,790 | 85,750 | 88,070 | 87,500 | 87,320 | 89,240 | 86,760 | 124,100 | 86,200 | 87,060 | 84,900 | 83,110 |
| 8 | 80,820 | 85,870 | 88,070 | 87,540 | 87,320 | 89,620 | 86,830 | 123,700 | 86,160 | 87,130 | 84,790 | 83,140 |
| 9 | 80,750 | 85,900 | 88,100 | 87,390 | 87,470 | 89,660 | 86,800 | 122,800 | 86,090 | 87,130 | 84,790 | 83,070 |
| 10 | 80,720 | 85,940 | 88,070 | 87,240 | 87,540 | 89,470 | 86,610 | 121,200 | 86,020 | 87,130 | 84,670 | 83,040 |
| 11 | 80,680 | 86,020 | 87,880 | 87,360 | 87,620 | 89,280 | 86,460 | 119,400 | 85,940 | 87,060 | 84,600 | 82,960 |
| 12 | 80,610 | 86,130 | 87,690 | 87,650 | 87,650 | 89,280 | 86,420 | 117,200 | 85,900 | 87,020 | 84,490 | 82,820 |
| 13 | 81,260 | 86,200 | 87,760 | 88,140 | 87,690 | 89,130 | 87,020 | 114,700 | 85,870 | 86,910 | 84,420 | 82,740 |
| 14 | 81,800 | 86,280 | 87,840 | 88,290 | 87,580 | 88,900 | 87,500 | 112,200 | 85,830 | 86,830 | 84,340 | 82,670 |
| 15 | 83,110 | 86,240 | 87,950 | 88,440 | 87,390 | 88,710 | 87,540 | 108,700 | 85,830 | 86,720 | 84,200 | 82,710 |
| 16 | 83,180 | 86,350 | 88,070 | 88,560 | 87,390 | 88,440 | 87,540 | 104,300 | 85,870 | 86,650 | 84,090 | 82,640 |
| 17 | 83,140 | 86,460 | 87,990 | 88,670 | 87,470 | 88,140 | 87,500 | 98,140 | 85,870 | 86,540 | 84,020 | 82,560 |
| 18 | 83,110 | 86,460 | 87,800 | 88,780 | 87,500 | 87,840 | 87,540 | 91,220 | 85,870 | 86,420 | 84,020 | 82,530 |
| 19 | 83,070 | 86,460 | 87,800 | 88,940 | 87,540 | 87,690 | 87,540 | 88,180 | 85,830 | 86,350 | 83,910 | 83,690 |
| 20 | 83,040 | 86,460 | 87,760 | 89,160 | 87,620 | 87,620 | 87,800 | 88,400 | 85,790 | 86,240 | 83,980 | 83,800 |
| 21 | 83,070 | 86,460 | 87,760 | 89,360 | 87,690 | 87,650 | 87,800 | 88,330 | 86,050 | 86,160 | 84,090 | 83,760 |
| 22 | 83,290 | 86,460 | 87,840 | 89,470 | 87,800 | 87,690 | 87,760 | 87,990 | 86,050 | 86,130 | 84,090 | 83,940 |
| 23 | 83,220 | 86,540 | 87,880 | 89,620 | 87,910 | 87,730 | 87,580 | 87,760 | 86,020 | 86,420 | 84,200 | 83,940 |
| 24 | 83,140 | 87,130 | 88,140 | 89,740 | 87,990 | 87,690 | 87,430 | 87,620 | 85,940 | 86,350 | 84,130 | 83,910 |
| 25 | 83,070 | 87,390 | 88,520 | 89,780 | 88,070 | 87,650 | 87,620 | 87,540 | 85,790 | 86,240 | 84,050 | 83,870 |
| 26 | 83,000 | 87,500 | 88,520 | 89,890 | 88,210 | 87,620 | 88,140 | 87,430 | 85,600 | 86,090 | 83,980 | 84,050 |
| 27 | 82,960 | 87,650 | 88,400 | 89,970 | 87,910 | 87,540 | 90,230 | 87,240 | 85,530 | 85,980 | 83,870 | 83,940 |
| 28 | 82,890 | 87,690 | 88,250 | 89,930 | 87,500 | 87,580 | 91,150 | 87,130 | 85,460 | 85,870 | 83,760 | 83,910 |
| 29 | 82,890 | 87,690 | 88,100 | 89,580 | - | 87,620 | 93,480 | 86,910 | 85,380 | 85,790 | 83,540 | 83,840 |
| 30 | 82,890 | 87,690 | 88,070 | 89,200 | ------- | 87,620 | 101,300 | 86,680 | 85,310 | 85,640 | 83,470 | 83,650 |
| 31 | 82,850 | ------- | 87,800 | 88,710 | ------- | 87,620 | ------- | 86,460 | ------- | 85,490 | 83,400 | ------- |
| (†) | 692.54 | 693.85 | 693.88 | 694.12 | 693.80 | 693.83 | 697.31 | 693.52 | 693.21 | 693.26 | 692.69 | 692.76 |
| (‡) | +1,740 | +4,840 | +110 | +910 | -1,210 | +120 | +13,680 | -14,840 | -1,150 | +180 | -2,090 | +250 |

Calendar year 1957..... ‡ +72,910
Water year 1957-58..... ‡ +2,540

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

## 470. 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 1958.

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

Average discharge.--11 years, 74.4 cfs (53,860 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 4,120 cfs May 17 (gage height, 11.01 ft); minimum daily, 0.6 cfs Oct. 30, 31, Nov. 3.

1947-58: 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 measurement 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 since September 1952 (see preceding page). Reservoir acted as a detention basin August 1950 to September 1952.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 9-16, Sept. 15-30)

| | | | | | |
|---|---|---|---|---|---|
| 2.7 | 0.5 | 3.3 | 25 | 5.0 | 450 |
| 2.8 | 1.1 | 3.6 | 58 | 6.0 | 970 |
| 2.9 | 2.7 | 4.0 | 132 | 8.0 | 2,170 |
| 3.0 | 6.0 | 4.5 | 260 | 11.0 | 4,120 |
| 3.1 | 11 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.1 | 43 | 1.1 | 102 | 230 | 119 | 104 | 12 | 106 | 3.9 | 16 | 3.9 |
| 2 | 2.3 | .9 | 1.9 | 102 | 230 | 5.3 | 104 | 17 | 50 | 3.9 | 9.5 | 3.9 |
| 3 | 2.1 | .6 | 3.3 | 78 | 160 | 4.9 | 106 | 26 | 4.2 | 3.9 | 9.5 | 4.2 |
| 4 | 2.1 | .7 | 3.3 | 3.9 | 100 | 5.3 | 106 | 7.8 | 4.2 | 3.9 | 9.5 | 4.6 |
| 5 | 2.1 | 13 | 64 | 3.6 | 100 | 7.3 | 106 | 5.6 | 4.6 | 5.5 | 9.5 | 4.6 |
| 6 | 2.1 | 6.4 | 95 | 3.6 | 100 | 5.6 | 106 | 271 | 4.9 | 5.8 | 9.5 | 4.9 |
| 7 | 2.1 | 6.1 | 2.7 | 3.3 | 53 | 64 | 106 | 680 | 5.3 | 4.9 | 9.5 | 5.3 |
| 8 | 2.5 | 1.7 | 3.3 | 3.3 | 6.9 | 121 | 108 | 680 | 5.3 | 3.9 | 9.5 | 4.9 |
| 9 | 2.3 | 2.1 | 3.3 | 64 | 4.9 | 121 | 106 | 915 | 5.3 | 3.9 | 10 | 4.6 |
| 10 | 2.3 | 2.1 | 3.3 | 167 | 4.9 | 182 | *106 | 1,180 | 5.3 | 3.9 | 8.8 | 4.6 |
| 11 | 1.9 | 2.1 | 91 | 3.3 | 4.6 | 230 | 106 | 1,210 | 5.3 | 33 | 8.8 | 4.6 |
| 12 | 1.6 | 2.3 | 130 | 3.6 | 4.2 | 230 | 66 | 1,360 | 5.3 | 2.7 | 8.8 | 48 |
| 13 | 7.3 | 2.5 | 3.9 | 3.9 | 4.2 | 230 | 52 | *1,470 | 4.9 | 2.7 | 8.2 | 1.7 |
| 14 | 5.6 | *2.7 | 3.6 | 2.7 | 115 | 230 | 49 | 1,650 | 4.6 | 2.5 | 8.2 | 1.4 |
| 15 | *5.2 | 38 | 3.6 | 2.7 | 118 | 230 | 77 | 2,040 | 4.6 | 2.5 | 15 | 1.7 |
| 16 | 1.4 | 1.0 | 3.6 | 2.7 | 7.8 | 230 | 106 | 2,460 | *4.2 | 2.7 | 7.3 | 2.3 |
| 17 | 1.2 | 1.0 | 95 | 2.7 | 6.0 | 230 | 106 | 3,230 | 3.9 | 19 | 7.3 | 2.1 |
| 18 | 1.1 | *2.7 | 119 | 2.7 | 4.9 | 230 | 106 | 3,610 | 3.6 | 8.8 | 7.3 | 2.3 |
| 19 | 1.1 | 1.4 | 3.9 | 3.0 | 4.9 | 172 | 106 | 1,650 | 3.6 | 8.8 | 7.3 | 3.6 |
| 20 | 1.0 | 4.6 | 3.9 | 3.3 | 4.6 | 112 | 108 | 8.7 | 3.3 | 8.8 | 7.3 | 2.5 |
| 21 | 1.0 | 3.3 | 3.9 | 2.7 | 4.6 | 114 | 106 | 116 | 3.6 | 8.2 | 8.2 | 2.5 |
| 22 | 1.3 | 3.6 | 3.9 | 2.7 | 4.6 | 102 | 106 | 201 | 3.0 | 9.5 | 6.8 | 2.7 |
| 23 | 1.4 | 3.6 | 3.9 | 2.7 | 4.6 | 102 | 106 | 145 | 3.0 | *11 | 13 | 3.0 |
| 24 | 1.0 | 5.6 | 4.9 | 2.7 | 4.6 | 102 | 106 | 102 | 3.0 | 9.5 | 12 | 3.0 |
| 25 | 1.1 | 3.0 | 5.3 | 2.5 | 4.6 | 102 | 110 | 102 | 26 | 9.5 | 12 | *2.7 |
| 26 | 2.5 | 3.0 | 58 | 2.5 | 5.3 | 102 | 89 | 102 | 41 | 9.5 | *12 | 47 |
| 27 | 2.3 | 3.0 | *104 | 2.5 | 112 | 102 | 5.8 | 104 | 4.9 | 9.5 | 10 | 2.7 |
| 28 | 1.0 | 3.0 | 104 | 126 | *230 | 102 | 4.6 | 106 | 4.6 | 9.5 | 7.3 | 2.5 |
| 29 | .7 | 30 | 102 | 230 | - | 104 | 5.3 | 106 | 4.6 | 9.5 | 35 | 2.7 |
| 30 | .6 | 1.4 | 102 | *230 | ------- | 104 | 38 | 106 | 4.6 | 9.5 | 3.9 | 3.3 |
| 31 | .6 | ------- | 102 | 230 | ------- | 104 | ------- | 106 | ------- | 9.5 | 3.9 | ------- |
| Total | 62.9 | 194.4 | 1,232.6 | 1,395.6 | 1,634.2 | 3,899.4 | 2,616.7 | 23,779.1 | 336.7 | 241.9 | 310.9 | 187.8 |
| Mean | 2.03 | 6.48 | 39.8 | 45.0 | 58.4 | 126 | 87.2 | 767 | 11.2 | 7.80 | 10.0 | 6.26 |
| Ac-ft | 125 | 386 | 2,440 | 2,770 | 3,240 | 7,730 | 5,190 | 47,170 | 668 | 480 | 617 | 372 |

Calendar year 1957: Max 4,280 Min 0 Mean 192 Ac-ft 138,800
Water year 1957-58: Max 3,610 Min 0.6 Mean 98.3 Ac-ft 71,190

* Discharge measurement made on this day.

475. Clear Fork Trinity River at Fort Worth, Tex.

Location.--Lat 32°44'02", long 97°21'33", 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 The Texas and Pacific Railway Co. bridge, 3 miles upstream from mouth, 5 miles downstream from Marys Creek, and 10 miles downstream from Benbrook Dam.

Drainage area.--526 sq mi.

Records available.--March 1924 to September 1958.

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.--34 years, 106 cfs (76,740 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 5,030 cfs May 3 (gage height, 8.22 ft); minimum, 1.3 cfs Sept. 3, 4 (gage height, 2.56 ft).

1924-58: 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 measurement 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 measurement of peak flow, data furnished by city engineer of Fort Worth).

Remarks.--Records good. Flow largely regulated since September 1952 by Benbrook Reservoir (see p. 75). Reservoir acted as detention basin August 1950 to September 1952. The Texas and Pacific Railway Co. and city of Fort Worth divert a small amount of water from pool in which gage is located. Records of water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1148: Drainage area. WSP 1392: 1924-25, 1927.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 10-15)

| | | | | | |
|---|---|---|---|---|---|
| 2.5 | 0 | 2.9 | 73 | 4.0 | 740 |
| 2.6 | 4.8 | 3.1 | 143 | 5.0 | 1,680 |
| 2.7 | 19 | 3.3 | 222 | 6.0 | 2,840 |
| 2.8 | 43 | 3.5 | 332 | 8.0 | 4,840 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.8 | 32 | 14 | 111 | 218 | 174 | 129 | 676 | 129 | 11 | 16 | 4.8 |
| 2 | 2.8 | 19 | 17 | 111 | 218 | 9.7 | 121 | 1,200 | 83 | 13 | 67 | 2.8 |
| 3 | 4.8 | 9.7 | 21 | 107 | 151 | 7.1 | 118 | 1,480 | 19 | 9.7 | 14 | 1.3 |
| 4 | 5.9 | 25 | 21 | 23 | 97 | 21 | 118 | 284 | 16 | 9.7 | 9.7 | 2.8 |
| 5 | 5.9 | 184 | 28 | 11 | *97 | 134 | 118 | 197 | 17 | 98 | 8.4 | 4.8 |
| 6 | 4.8 | 58 | 177 | 11 | 97 | 107 | 114 | 300 | 16 | 73 | 8.4 | 11 |
| 7 | 2.8 | 76 | 19 | 11 | 80 | 236 | 114 | 849 | 14 | 40 | 11 | 9.7 |
| 8 | 7.1 | 30 | 16 | 13 | 11 | 185 | 140 | 851 | 14 | 16 | 9.7 | 8.4 |
| 9 | 2.0 | 17 | 16 | 14 | 11 | 151 | 143 | 1,090 | 14 | 14 | 9.7 | 7.1 |
| 10 | 2.0 | 14 | 17 | 222 | 11 | 162 | *125 | 1,270 | 13 | 16 | 11 | 5.9 |
| 11 | 2.0 | 13 | 44 | 32 | 8.4 | 232 | 121 | 1,340 | 11 | 37 | 11 | 7.1 |
| 12 | 2.0 | 13 | 180 | 13 | 8.4 | 296 | 97 | 1,480 | 13 | 14 | 9.7 | 35 |
| 13 | 90 | 13 | 17 | 90 | 8.4 | 267 | 168 | *1,530 | 9.7 | 9.7 | 8.4 | 13 |
| 14 | 70 | 13 | 14 | 30 | 29 | 247 | 177 | 1,680 | 9.7 | 5.9 | 8.4 | 4.8 |
| 15 | 113 | 28 | 16 | 19 | 189 | 242 | 90 | 2,120 | 11 | 4.8 | 30 | 4.8 |
| 16 | *21 | 13 | 19 | 16 | 14 | 242 | 125 | 2,780 | 13 | 4.8 | 11 | 24 |
| 17 | 11 | 11 | 55 | 16 | 8.4 | 237 | 125 | 3,400 | *13 | 11 | 5.9 | 5.9 |
| 18 | 8.4 | 11 | 182 | 16 | 8.4 | 242 | 158 | 4,180 | 13 | 14 | 5.9 | 5.9 |
| 19 | 8.4 | *13 | 16 | 23 | 7.1 | *202 | 143 | 2,390 | 13 | 11 | 5.9 | 98 |
| 20 | 7.1 | 11 | 13 | 32 | 7.1 | 136 | 181 | 67 | 11 | 13 | 47 | 16 |
| 21 | 8.4 | 13 | 14 | 32 | 7.1 | 132 | 136 | 125 | 17 | 13 | 35 | 8.4 |
| 22 | 23 | 14 | 14 | 25 | 8.4 | 125 | 129 | 262 | 17 | 11 | 14 | 162 |
| 23 | 35 | 11 | 14 | 21 | 8.4 | 132 | 125 | 202 | 13 | *41 | 28 | 11 |
| 24 | 11 | 80 | 46 | 19 | 8.4 | 121 | 114 | 143 | 11 | 14 | 19 | 7.1 |
| 25 | 8.4 | 43 | 90 | 19 | 8.4 | 125 | 218 | 143 | 9.7 | 13 | 14 | 7.1 |
| 26 | 8.4 | 28 | 52 | 19 | 14 | 125 | 381 | 143 | 61 | 11 | 14 | 70 |
| 27 | 9.7 | 25 | 114 | 17 | 44 | 125 | 261 | 136 | 9.7 | 11 | *14 | 21 |
| 28 | 9.7 | 25 | 114 | 83 | 218 | 125 | 139 | 136 | 11 | 11 | 9.7 | 8.4 |
| 29 | 9.7 | 43 | 114 | 218 | - | 219 | 439 | 132 | 11 | 8.4 | 28 | 7.1 |
| 30 | 11 | 19 | 114 | 218 | ------- | 139 | 1,470 | 129 | 11 | 4.8 | 9.7 | 7.1 |
| 31 | 13 | ------- | 111 | 218 | ------- | 136 | ------- | 129 | ------- | 8.4 | 4.8 | ------- |
| Total | 521.1 | 904.7 | 1,699 | 1,810 | 1,595.9 | 5,033.8 | 6,037 | 30,824 | 623.8 | 572.2 | 498.3 | 582.3 |
| Mean | 16.8 | 30.2 | 54.8 | 58.4 | 57.0 | 162 | 201 | 994 | 20.8 | 18.5 | 16.1 | 19.4 |
| Ac-ft | 1,030 | 1,790 | 3,370 | 3,590 | 3,170 | 9,980 | 11,970 | 61,140 | 1,240 | 1,130 | 988 | 1,150 |

Calendar year 1957: Max 5,590 Min 0 Mean 319 Ac-ft 231,000
Water year 1957-58: Max 4,180 Min 1.3 Mean 139 Ac-ft 100,500

* Discharge measurement made on this day.

## 480. West Fork Trinity River at Fort Worth, Tex.

Location.--Lat 32°45'40", long 97°19'55", on left bank 125 ft upstream from Texas Electric Service Co.'s concrete dam, 980 ft downstream from center line of Paddock Viaduct (North Main Street) at Fort Worth, Tarrant County, 2,600 ft downstream from Clear Fork Trinity River, and at mile 559.

Drainage area.--2,627 sq mi.

Records available.--October 1920 to September 1958. Gage-height records collected in this vicinity since 1910 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder and concrete dam control with angle-iron crested notch for flows below 50 cfs. Datum of gage is 519.24 ft above mean sea level, datum of 1929 (Texas Reclamation Department bench mark based on Coast and Geodetic Survey datum). Prior to Aug. 21, 1954, water-stage recorder at site 1,200 ft upstream at same datum. Aug. 22, 1954, to Oct. 15, 1955, at site 2,000 ft upstream at same datum.

Average discharge.--38 years, 431 cfs (312,000 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 7,850 cfs May 3 (gage height, 4.72 ft); minimum, 1.5 cfs Sept. 5, 6 (gage height, 0.30 ft).

1920-58: Maximum discharge, 85,000 cfs Apr. 25, 1922 (gage height at site then in use, 23.95 ft), by slope-area measurement of peak flow by city engineer of Fort Worth; maximum gage height at site then in use, 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. Maximum stages have been affected by levee construction, levee breaks, and channel rectification.

Remarks.--Records good. Flow largely regulated by Bridgeport Reservoir since 1932 (see p. 70), Eagle Mountain Reservoir since 1934 (see p. 73), Benbrook Reservoir since 1952 (see p. 75), and Lake Worth (capacity, 33,300 acre-ft). During year city of Fort Worth diverted 54,300 acre-ft of water from Lake Worth for municipal use and returned 33,100 acre-ft of sewage effluent below station. Several small diversions above station.

Revisions (water years).--WSP 1148: Drainage area. WSP 1392: 1925.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 29 to Apr. 26, May 5-19)

| | | | | | |
|---|---|---|---|---|---|
| 0.3 | 1.5 | 0.8 | 46 | 2.0 | 1,320 |
| .4 | 5.2 | .9 | 74 | 3.0 | 3,120 |
| .5 | 11 | 1.0 | 147 | 4.0 | 5,650 |
| .6 | 19 | 1.2 | 352 | 5.0 | 8,900 |
| .7 | 30 | 1.5 | 669 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 27 | 52 | 178 | 840 | 311 | 435 | 3,120 | 414 | 14 | 5.2 | 8.0 |
| 2 | 15 | 60 | 46 | 157 | 840 | 352 | 647 | 3,940 | 498 | 12 | 88 | 6.8 |
| 3 | 13 | 27 | 49 | 157 | 804 | 342 | 1,020 | 5,260 | 342 | 11 | 50 | 4.8 |
| 4 | 13 | 55 | 49 | 59 | 724 | 404 | 1,110 | 4,050 | 132 | 9.8 | 23 | 2.4 |
| 5 | 12 | 447 | 57 | 28 | *747 | 612 | 978 | 4,700 | 68 | 278 | 17 | 1.5 |
| 6 | 10 | 142 | 455 | 24 | 519 | 425 | 724 | 5,240 | 46 | 198 | 15 | 2.8 |
| 7 | 9.2 | 241 | 572 | 24 | 290 | 658 | 604 | 5,790 | 38 | 112 | 14 | 32 |
| 8 | 23 | 71 | 736 | 24 | 74 | 530 | 540 | 5,790 | 32 | 38 | 17 | 22 |
| 9 | 18 | 49 | 615 | 26 | 57 | 498 | 498 | *5,790 | 30 | 28 | 15 | 17 |
| 10 | 13 | 43 | 435 | 252 | 57 | 852 | *435 | 5,930 | 27 | 24 | 14 | 15 |
| 11 | 13 | 40 | 239 | 67 | 43 | 1,170 | 425 | 5,930 | 23 | 24 | 14 | 15 |
| 12 | 13 | 41 | 331 | 71 | 36 | 1,410 | 404 | 5,930 | 21 | 35 | 13 | 19 |
| 13 | 281 | 339 | 73 | 162 | 38 | 1,420 | 582 | 5,930 | 20 | 19 | 14 | 41 |
| 14 | 215 | 939 | 54 | 52 | 64 | 1,230 | 621 | 5,650 | 19 | 15 | 11 | 15 |
| 15 | 223 | 1,170 | 46 | 38 | 243 | 740 | 414 | 5,370 | 18 | 15 | 18 | 16 |
| 16 | *52 | 1,260 | 43 | 33 | 40 | 583 | 446 | 5,510 | 19 | 12 | 40 | 84 |
| 17 | 32 | 1,290 | 66 | 35 | 29 | 572 | 435 | 5,650 | 21 | 9.2 | 17 | 27 |
| 18 | 23 | 1,440 | 290 | 32 | 24 | 561 | 519 | 6,220 | 21 | 11 | 16 | 17 |
| 19 | 20 | *1,220 | 177 | 42 | 22 | *561 | 446 | 4,650 | 20 | 13 | 17 | 357 |
| 20 | 17 | 1,020 | 311 | 74 | 22 | 540 | 540 | 2,240 | 18 | 13 | 66 | 382 |
| 21 | 17 | 724 | 508 | 57 | 22 | 477 | 466 | 2,080 | 17 | 13 | 213 | 362 |
| 22 | 46 | 404 | 615 | 60 | 26 | 435 | 446 | 1,990 | 24 | 13 | 29 | 394 |
| 23 | 73 | 198 | 435 | 360 | 29 | 446 | 435 | 1,100 | *24 | 72 | 34 | 383 |
| 24 | 24 | 383 | 303 | 561 | 22 | 425 | 435 | 508 | 22 | *28 | 50 | 342 |
| 25 | 18 | 178 | 425 | 647 | 22 | 425 | 573 | 270 | 18 | 20 | 24 | 267 |
| 26 | 16 | 103 | 198 | 680 | 35 | 425 | 966 | 259 | 21 | 14 | 20 | 442 |
| 27 | 16 | 71 | 259 | 658 | 52 | 414 | 922 | 239 | 24 | 11 | 19 | 60 |
| 28 | 17 | 74 | 229 | 747 | *259 | 414 | 669 | 229 | 21 | 9.8 | *18 | 22 |
| 29 | 17 | 105 | 198 | 900 | - | 631 | 1,750 | 218 | 18 | 9.2 | 18 | *17 |
| 30 | 17 | 93 | *188 | 900 | ------- | 435 | 3,550 | 229 | 17 | 8.0 | 33 | 18 |
| 31 | 19 | ------- | 178 | 965 | ------- | 414 | ------- | 331 | ------- | 5.2 | 13 | ------- |
| Total | 1,308.2 | 12,254 | 8,232 | 8,070 | 5,980 | 18,712 | 22,035 | 110,143 | 2,033 | 1,094.2 | 955.2 | 3,392.3 |
| Mean | 42.2 | 408 | 266 | 260 | 214 | 604 | 734 | 3,553 | 67.8 | 35.3 | 30.8 | 113 |
| Ac-ft | 2,590 | 24,310 | 16,330 | 16,010 | 11,860 | 37,110 | 43,710 | 218,500 | 4,030 | 2,170 | 1,890 | 6,730 |

Calendar year 1957: Max 23,700 Min 3.9 Mean 1,181 Ac-ft 855,100
Water year 1957-58: Max 6,220 Min 1.5 Mean 532 Ac-ft 385,200

* Discharge measurement made on this day.

## 485. Marine Creek at Fort Worth, Tex.

Location.--Lat 32°48'16", long 97°21'48", on left bank at downstream side of bridge on Northwest 33d Street at Fort Worth, Tarrant County, 1.5 miles upstream from North Main Street bridge, 2.2 miles upstream from St. Louis Southwestern Railway bridge, and 2.4 miles upstream from mouth.

Drainage area.--16.8 sq mi (see Remarks).

Records available.--July 1950 to September 1958 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 562.60 ft above mean sea level, datum of 1929.

Average discharge.--8 years, 3.70 cfs (2,680 acre-ft per year).

Extremes.--Maximum and minimum discharges for the water years 1950-58 are contained in the following table:

| Water year | Maximum | | | Minimum | |
|---|---|---|---|---|---|
| | Date | Discharge (cfs) | Gage height (feet) | Date | Discharge (cfs) |
| 1950† | Sept.19, 1950 | 51 | 1.48 | (a) | 0 |
| 1951 | June 16, 1951 | 266 | 2.29 | (a) | 0 |
| 1952 | Apr. 22, 1952 | 37 | 1.38 | (a) | 0 |
| 1953 | Apr. 23, 1953 | 305 | 2.37 | (a) | 0 |
| 1954 | Oct. 23, 1953 | 572 | 2.84 | (a) | 0 |
| 1955 | June 16, 1955 | 350 | 2.48 | (a) | 0 |
| 1956 | May 1, 1956 | 1,060 | 3.40 | (a) | 0 |
| 1957 | May 25, 1957 | 4,600 | 5.55 | (a) | 0 |
| 1958 | May 3, 1958 | 460 | 1.90 | (a) | 0 |

† Period July to September.
a Many days.

1950-58: Maximum discharge, 4,600 cfs May 25, 1957 (gage height, 5.55 ft); no flow many days each year.
Maximum stage known since at least 1907, 16.1 ft Apr. 20, 1942, from floodmarks (discharge, 24,400 cfs), by slope-area measurement.

Remarks.--Records fair except those below 10 cfs, which are poor. Flow from 3.7 sq mi partly regulated after Feb. 7, 1957, by Cement Creek Reservoir (total capacity, 3,950 acre-ft). Fixed outlet is 30-inch diameter "glory hole" in bottom of reservoir. No usable contents. Flow from 9.8 sq mi regulated by fixed outlet after Apr. 17, 1958, at Marine Creek Reservoir (total capacity, 15,370 acre-ft). There was no outflow from this reservoir after storage began.

Discharge, in cubic feet per second, July to September 1950

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | 0.5 | 0.6 | 0.1 |
| 2 | | | | | | | | | | .5 | .7 | .1 |
| 3 | | | | | | | | | | .5 | .9 | .9 |
| 4 | | | | | | | | | | .5 | .5 | 1.4 |
| 5 | | | | | | | | | | *.7 | .1 | .7 |
| 6 | | | | | | | | | | .7 | .4 | .4 |
| 7 | | | | | | | | | | .7 | .1 | .3 |
| 8 | | | | | | | | | | 1.2 | 0 | *.1 |
| 9 | | | | | | | | | | .7 | 0 | .1 |
| 10 | | | | | | | | | | .6 | 0 | .1 |
| 11 | | | | | | | | | | 1.4 | 0 | .3 |
| 12 | | | | | | | | | | .9 | 0 | .4 |
| 13 | | | | | | | | | | 1.0 | 0 | .1 |
| 14 | | | | | | | | | | .9 | 0 | .1 |
| 15 | | | | | | | | | | .6 | 0 | 0 |
| 16 | | | | | | | | | | .4 | 0 | .7 |
| 17 | | | | | | | | | | .9 | 0 | .6 |
| 18 | | | | | | | | | | .4 | 0 | .4 |
| 19 | | | | | | | | | | .3 | 0 | 3.0 |
| 20 | | | | | | | | | | .1 | 0 | .6 |
| 21 | | | | | | | | | | .1 | .3 | .1 |
| 22 | | | | | | | | | | 0 | 3.2 | .1 |
| 23 | | | | | | | | | | 0 | .5 | 0 |
| 24 | | | | | | | | | | 0 | .3 | .1 |
| 25 | | | | | | | | | | 0 | .3 | 0 |
| 26 | | | | | | | | | | 0 | .3 | 0 |
| 27 | | | | | | | | | | 2.7 | .3 | 0 |
| 28 | | | | | | | | | | *2.4 | .4 | 0 |
| 29 | | | | | | | | | | 1.4 | .5 | 0 |
| 30 | | | | | ------- | | | | | .9 | .6 | 0 |
| 31 | | ------- | | | ------- | | ------- | | ------- | .6 | .4 | ------- |
| Total | | | | | | | | | | 21.6 | 10.4 | 10.7 |
| Mean | | | | | | | | | | 0.70 | 0.34 | 0.36 |
| Ac-ft | | | | | | | | | | 43 | 21 | 21 |

Calendar year : Max Min Mean Ac-ft
Water year : Max Min Mean Ac-ft

* Discharge measurement made on this day.

## 485. Marine Creek at Fort Worth, Tex.--Continued

Discharge, in cubic feet per second, water year October 1950 to September 1951

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.1 | 0 | 0.3 | 0 | b0.1 | 0 | 0 | 1.1 | 0.1 | 0 | | 0 |
| 2 | .1 | 0 | .4 | .1 | b.1 | 0 | 0 | .1 | .5 | *5.4 | | 0 |
| 3 | 0 | 0 | .3 | 0 | b.2 | 0 | 0 | .1 | 7.2 | 1.2 | | 0 |
| 4 | .1 | 0 | .3 | 0 | .4 | 0 | .1 | .1 | 1.0 | .7 | | 0 |
| 5 | 0 | 0 | .3 | 0 | .4 | 0 | .1 | .8 | .1 | .4 | | 0 |
| 6 | .1 | .1 | b.1 | 0 | 0 | 0 | 0 | .5 | .1 | .5 | | 0 |
| 7 | 0 | .1 | b.1 | 0 | 0 | 0 | 0 | .7 | .1 | .1 | | 0 |
| 8 | 0 | .1 | .3 | 0 | 0 | 0 | 0 | .1 | .1 | 0 | | 0 |
| 9 | *.1 | 0 | .3 | 0 | 0 | 0 | 0 | 1.5 | .1 | 0 | | 0 |
| 10 | 0 | 0 | .1 | 0 | 0 | .1 | .1 | 2.6 | .1 | 0 | | .3 |
| 11 | 0 | 0 | *0 | 0 | 0 | 1.2 | .1 | .3 | .1 | 0 | | .1 |
| 12 | 0 | 0 | 0 | 0 | 0 | .3 | .1 | .1 | .1 | 0 | | .3 |
| 13 | 0 | 0 | 0 | .3 | 0 | .1 | .1 | .1 | .1 | *0 | | .1 |
| 14 | 0 | *0 | .1 | .1 | 1.5 | .1 | .1 | .1 | .3 | 0 | | .1 |
| 15 | 0 | .1 | 0 | *0 | 1.1 | .1 | 0 | .4 | 1.5 | 0 | | .1 |
| 16 | 0 | 0 | 0 | 0 | 1.1 | .1 | 0 | .1 | 15 | 0 | | 0 |
| 17 | 0 | 0 | 0 | 0 | 1.1 | 0 | 0 | .1 | .6 | 0 | | 0 |
| 18 | 0 | 0 | 0 | 0 | .5 | 0 | .1 | *1.1 | .1 | 0 | | 0 |
| 19 | 0 | .1 | 0 | 0 | *.1 | 0 | *.1 | .6 | .1 | 0 | | 0 |
| 20 | 0 | .1 | 0 | 0 | .4 | *.1 | .5 | .4 | .1 | 0 | | *0 |
| 21 | .1 | .1 | 0 | 0 | 0 | .1 | .6 | .6 | .1 | 0 | | 0 |
| 22 | .1 | .1 | 0 | 0 | 0 | .1 | .1 | 2.8 | .3 | 0 | | 0 |
| 23 | 0 | .1 | 0 | .1 | .1 | .3 | .1 | .1 | .1 | 0 | | 0 |
| 24 | .3 | 0 | 0 | .1 | .1 | 0 | .1 | .1 | .4 | .2 | | 0 |
| 25 | .3 | .1 | 0 | .1 | 0 | .1 | 1.1 | .1 | *.3 | .7 | | 0 |
| 26 | .1 | .1 | 0 | .1 | 0 | .1 | .5 | .1 | .1 | .3 | | 0 |
| 27 | 0 | .1 | 0 | .1 | 0 | .7 | .1 | .3 | .1 | .1 | | 0 |
| 28 | 0 | .1 | 0 | .5 | 0 | .1 | 0 | *.1 | 0 | 0 | | 0 |
| 29 | 0 | .1 | 0 | b.2 | - | .1 | .3 | .3 | 0 | 0 | (*) | 0 |
| 30 | 0 | .3 | 0 | b.1 | ------- | 0 | .3 | .1 | 0 | *0 | | 0 |
| 31 | 0 | ------- | 0 | b.1 | ------- | .1 | ------- | 0 | ------- | 0 | | ------- |
| Total | 1.4 | 1.7 | 2.6 | 1.9 | 7.2 | 3.8 | 4.6 | 15.5 | 28.8 | 9.6 | 0 | 1.0 |
| Mean | 0.05 | 0.06 | 0.08 | 0.06 | 0.26 | 0.12 | 0.15 | 0.50 | 0.96 | 0.31 | 0 | 0.03 |
| Ac-ft | 2.8 | 3.4 | 5.2 | 3.8 | 14 | 7.5 | 9.1 | 31 | 57 | 19 | 0 | 2.0 |

Calendar year 1950: Max - Min - Mean - Ac-ft -
Water year 1950-51: Max 15 Min 0 Mean 0.21 Ac-ft 155

Peak discharge (base, 230 cfs).--June 16 (1:45 a.m.) 266 cfs (2.29 ft).

* Discharge measurement or observation of no flow made on this day.
b Stage-discharge relation affected by ice.

Discharge, in cubic 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 | 0.1 | 0.3 | 0 | 1.8 | 0 | | 0 | 0 |
| 2 | | | 0 | 0 | .1 | .3 | 0 | .5 | .1 | | 0 | 0 |
| 3 | | | 0 | .1 | .1 | .7 | .5 | .3 | .3 | | 0 | 0 |
| 4 | | | 0 | .1 | 0 | .2 | .1 | 0 | .1 | | *0 | 0 |
| 5 | | (*) | 0 | .1 | 0 | .2 | 0 | 0 | 0 | | 0 | 0 |
| 6 | | | *0 | .1 | 0 | *.2 | 0 | 0 | 0 | | 0 | 0 |
| 7 | | | 0 | *.1 | *0 | .1 | 0 | *0 | 0 | | 0 | 0 |
| 8 | | | 0 | .1 | 0 | 0 | 0 | .1 | 0 | | 0 | *0 |
| 9 | | | .1 | 0 | 0 | .1 | .1 | 0 | *0 | | 0 | 0 |
| 10 | | (*) | .1 | 0 | 0 | .1 | .1 | 0 | 0 | | 0 | 0 |
| 11 | | | 0 | .1 | .1 | .1 | 1.4 | .3 | 0 | | 0 | 0 |
| 12 | | | 0 | .2 | .1 | 0 | 1.4 | .1 | 0 | | .3 | 0 |
| 13 | | | .1 | .2 | 0 | 0 | 0 | .2 | 0 | | 0 | 0 |
| 14 | | | .1 | .1 | 0 | .1 | 0 | .2 | 0 | | 0 | 0 |
| 15 | | | .1 | .1 | 0 | .1 | 0 | .1 | 0 | (*) | 0 | 0 |
| 16 | | | .1 | .1 | 0 | .1 | 0 | 0 | 0 | | 0 | 0 |
| 17 | | | .1 | .1 | 0 | .3 | .1 | .6 | 0 | | 0 | 0 |
| 18 | | | .1 | 0 | 0 | .5 | 0 | 2.3 | 0 | | 0 | 0 |
| 19 | | | .2 | 0 | 0 | .2 | .1 | .2 | 0 | | 0 | 0 |
| 20 | | | .1 | 0 | 0 | .1 | 2.3 | 0 | 0 | | 0 | 0 |
| 21 | | | .1 | .1 | .1 | .1 | 3.3 | 0 | 0 | | 0 | 2.7 |
| 22 | | | 0 | .1 | .1 | .1 | 5.1 | 0 | 0 | | 0 | 0 |
| 23 | | | 0 | .1 | .3 | .1 | .9 | *.5 | 0 | | 0 | 0 |
| 24 | | | 0 | .1 | .3 | .1 | .3 | .7 | 0 | | 0 | 0 |
| 25 | | | .1 | .1 | .5 | .1 | .1 | .2 | 0 | | 0 | 0 |
| 26 | | | .1 | .1 | .5 | .2 | .1 | .5 | 0 | | 0 | 0 |
| 27 | | | .1 | .1 | .3 | .2 | 0 | .1 | 0 | | 0 | 0 |
| 28 | | | .1 | .1 | .2 | .2 | 0 | 1.9 | 0 | | 0 | 0 |
| 29 | | | .1 | .1 | .2 | .2 | 0 | .5 | 0 | | 0 | 0 |
| 30 | | | .1 | .1 | ------- | .2 | .7 | .1 | 0 | | 0 | 0 |
| 31 | | ------- | .1 | .1 | ------- | *.2 | ------- | .1 | ------- | | 0 | ------- |
| Total | 0 | 0 | 1.9 | 2.6 | 3.0 | 5.4 | 16.6 | 11.3 | 0.5 | 0 | 0.3 | 2.7 |
| Mean | 0 | 0 | 0.06 | 0.08 | 0.10 | 0.17 | 0.55 | 0.36 | 0.02 | 0 | 0.01 | 0.09 |
| Ac-ft | 0 | 0 | 3.8 | 5.2 | 6.0 | 11 | 33 | 22 | 1.0 | 0 | 0.6 | 5.4 |

Calendar year 1951: Max 15 Min 0 Mean 0.20 Ac-ft 147
Water year 1951-52: Max 5.1 Min 0 Mean 0.12 Ac-ft 88

Peak discharge (base, 230 cfs).--No peak above base.

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

485. Marine Creek at Fort Worth, Tex.--Continued
Discharge, in cubic feet per second, water year October 1952 to September 1953

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0 | 0.9 | 0.5 | 0 | g0.7 | 0.1 | 0.9 | | *0 | 0 | 0 |
| 2 | | 0 | .3 | .2 | 0 | g.9 | .1 | 1.3 | | 0 | 0 | 0 |
| 3 | | 0 | .3 | .5 | 0 | g.7 | .2 | 1.1 | | 0 | 0 | 4.6 |
| 4 | | 0 | .1 | .2 | 0 | g.3 | .2 | 1.1 | | 0 | 0 | 2.4 |
| 5 | | 0 | .1 | .5 | 0 | *.2 | .7 | .9 | | 0 | 0 | .3 |
| 6 | | 0 | .1 | *.7 | 0 | .3 | .5 | .9 | | 0 | 0 | .1 |
| 7 | | 0 | .2 | .3 | 0 | .1 | .5 | .9 | | 0 | 0 | 0 |
| 8 | | 0 | .1 | 0 | 0 | 0 | .3 | .7 | | 0 | 0 | 0 |
| 9 | | 1.7 | .1 | 0 | 0 | 3.6 | .3 | .7 | | 0 | 0 | 0 |
| 10 | | *0 | .1 | 0 | 0 | 1.3 | .1 | 1.7 | | 0 | 0 | 0 |
| 11 | | 0 | .1 | 0 | .5 | 1.1 | 0 | 1.1 | | 0 | 0 | 0 |
| 12 | | 0 | .1 | 0 | .4 | .9 | 0 | 2.4 | | 0 | 0 | 0 |
| 13 | | 0 | .1 | 0 | .2 | .7 | 0 | 2.2 | | 0 | 0 | 0 |
| 14 | | 0 | .1 | 0 | 0 | .7 | .1 | 1.9 | | 0 | 0 | 0 |
| 15 | | 0 | .1 | 0 | 0 | .7 | .2 | 24 | | 0 | 0 | 0 |
| 16 | | 0 | .1 | .5 | 0 | .7 | .1 | 12 | | *9.3 | 0 | 0 |
| 17 | | 0 | .1 | .2 | *g0 | .9 | .2 | 2.4 | | 2.4 | 0 | 0 |
| 18 | | 0 | .8 | .1 | g.1 | .5 | .3 | 1.5 | | 1.5 | *1.6 | 0 |
| 19 | | 0 | 2.5 | 0 | g.3 | .3 | .2 | .9 | | .5 | .2 | 0 |
| 20 | | 0 | .1 | 0 | g.1 | .3 | .2 | .5 | | .2 | 0 | 0 |
| 21 | | 0 | .1 | 0 | g.1 | .5 | .2 | .5 | | 0 | 0 | 0 |
| 22 | | 0 | 0 | .3 | g.1 | .5 | .1 | .5 | | 0 | 0 | 0 |
| 23 | | 1.5 | .1 | 0 | g0 | .1 | 11 | .3 | | 0 | 0 | 0 |
| 24 | | 1.9 | .1 | 0 | g.1 | *.2 | 1.1 | .2 | | 0 | 0 | 0 |
| 25 | | *3.5 | 0 | 0 | g0 | .2 | .3 | .3 | | 0 | 0 | 0 |
| 26 | | .3 | 0 | 0 | g0 | .2 | .1 | .3 | | 0 | 0 | 0 |
| 27 | | .1 | .1 | 0 | g0 | .2 | .2 | .2 | | 0 | 0 | 0 |
| 28 | | .1 | .1 | 0 | g0 | .2 | 26 | *.2 | | 0 | 0 | 0 |
| 29 | | .1 | .1 | 0 | - | .1 | 13 | .1 | | 0 | 0 | *0 |
| 30 | (*) | .1 | 2.1 | 0 | ------- | .3 | 1.7 | 0 | | 0 | 0 | 0 |
| 31 | | ------- | .9 | 0 | ------- | .2 | ------- | 0 | ------- | 0 | 0 | ------- |
| Total | 0 | 9.3 | 10.0 | 4.0 | 1.9 | 17.6 | 58.0 | 61.7 | 0 | 13.9 | 1.8 | 7.4 |
| Mean | 0 | 0.31 | 0.32 | 0.13 | 0.07 | 0.57 | 1.93 | 1.99 | 0 | 0.45 | 0.06 | 0.25 |
| Ac-ft | 0 | 18 | 20 | 7.9 | 3.8 | 35 | 115 | 122 | 0 | 28 | 3.6 | 15 |

Calendar year 1952: Max 5.1 Min 0 Mean 0.17 Ac-ft 122
Water year 1952-53: Max 26 Min 0 Mean 0.51 Ac-ft 368

Peak discharge (base, 230 cfs).--Apr. 23 (3 p.m.) 305 cfs (2.37 ft); Apr. 28 (12:15 p.m.) 275 cfs (2.31 ft).

* Discharge measurement or observation of no flow made on this day. g Computed from twice-daily wire-weight-gage readings. Note.--No gage-height record Jan. 7 to Feb. 16; discharge estimated on basis of weather records, recorded range in stage, and engineers' notes.

Discharge, in cubic feet per second, water year October 1953 to September 1954

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0.3 | 0.7 | 0.1 | a1 | 0.3 | 0.1 | 1.9 | 0.1 | | | |
| 2 | 0 | .1 | 1.3 | .1 | a.5 | .3 | 0 | .5 | .1 | | | |
| 3 | 0 | .3 | 1.5 | .2 | a.5 | .1 | *.1 | .1 | .1 | | | |
| 4 | 1.9 | 1.5 | .9 | .3 | a.5 | .1 | 0 | 0 | .1 | | | |
| 5 | .3 | .5 | .5 | .3 | a.5 | .2 | 0 | 0 | .1 | | | |
| 6 | .1 | .2 | .5 | .3 | a.5 | .2 | 0 | 0 | .1 | | | |
| 7 | .1 | .3 | .5 | .3 | a.5 | .2 | 0 | 0 | .1 | | | |
| 8 | .1 | .3 | *.5 | .3 | a.5 | .1 | 0 | 0 | 0 | | | |
| 9 | .1 | .2 | .3 | .5 | .5 | .1 | 0 | 0 | *0 | | | |
| 10 | 0 | .2 | .3 | .7 | .5 | .1 | 0 | 1.8 | 0 | | (*) | |
| 11 | 0 | .1 | .5 | .5 | .7 | .1 | 0 | 8.7 | 0 | | | |
| 12 | 0 | .1 | .5 | .5 | .5 | .1 | 1.4 | 6.2 | 0 | | | |
| 13 | 0 | .1 | .5 | .5 | .7 | .1 | 1.7 | 2.8 | 0 | | | |
| 14 | 0 | .1 | .5 | .7 | .5 | .1 | .7 | 1.7 | 0 | | | |
| 15 | 0 | .2 | .5 | 1.3 | .7 | .1 | 2.0 | d1 | 0 | | | |
| 16 | 0 | .2 | .5 | .9 | .5 | .1 | .1 | d.7 | 0 | | | |
| 17 | 0 | .3 | .5 | a.8 | .3 | .1 | 0 | d.5 | 0 | | | (*) |
| 18 | 0 | .3 | .5 | a.8 | .3 | .1 | 0 | d.4 | 0 | | | |
| 19 | 0 | 2.6 | .5 | *.7 | .5 | *.1 | 0 | d.3 | 0 | | | |
| 20 | 0 | 1.3 | .7 | .5 | .5 | .2 | 0 | *.5 | 0 | | | |
| 21 | 0 | .5 | .5 | a.8 | .3 | .2 | 0 | .3 | 0 | | | |
| 22 | 14 | .5 | .7 | a.7 | .3 | .1 | 0 | .2 | 0 | | | |
| 23 | 15 | .3 | .5 | a.5 | .3 | .2 | 0 | .3 | 0 | | | |
| 24 | 1.1 | .3 | .3 | a.4 | .2 | .9 | 0 | .2 | 0 | | | |
| 25 | 37 | .2 | .3 | .3 | .1 | .7 | 0 | .3 | 0 | | | |
| 26 | *28 | .2 | .2 | .3 | .2 | .2 | 0 | .3 | 0 | | | |
| 27 | 1.9 | .2 | .2 | .3 | .1 | .1 | 0 | .1 | 0 | | | |
| 28 | .7 | .5 | .2 | a.3 | .2 | .1 | .1 | .3 | 0 | | | |
| 29 | .3 | .5 | .2 | a.3 | - | 0 | 0 | .3 | 0 | | | |
| 30 | .2 | .5 | .2 | a.3 | ------- | .1 | 5.4 | .1 | 0 | | | |
| 31 | .3 | ------- | .2 | a.3 | ------- | .1 | ------- | .1 | ------- | | | ------- |
| Total | 101.1 | 12.9 | 15.7 | 14.8 | 12.4 | 5.5 | 11.6 | 29.6 | 0.7 | 0 | 0 | 0 |
| Mean | 3.26 | 0.43 | 0.51 | 0.48 | 0.44 | 0.18 | 0.39 | 0.95 | 0.02 | 0 | 0 | 0 |
| Ac-ft | 201 | 26 | 31 | 29 | 25 | 11 | 23 | 59 | 1.4 | 0 | 0 | 0 |

Calendar year 1953: Max 37 Min 0 Mean 0.81 Ac-ft 588
Water year 1953-54: Max 37 Min 0 Mean 0.56 Ac-ft 406

Peak discharge (base, 230 cfs).--Oct. 23 (12:30 a.m.) 572 cfs (2.84 ft); Oct. 25 (9:15 p.m.) 290 cfs (2.34 ft).

* Discharge measurement or observation of no flow made on this day. a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and engineers' notes.
d Doubtful gage-height record; discharge computed from reconstructed gage-height graph based on recorder graph and weather records.

## 485. Marine Creek at Fort Worth, Tex.--Continued

Discharge, in cubic feet per second, water year October 1954 to September 1955

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.3 | 0 | | 0 |
| 2 | | 0 | 0 | 0 | 0 | .1 | 0 | 0 | .1 | 0 | | *0 |
| 3 | | .5 | 0 | 0 | 1.0 | .1 | 0 | 0 | .3 | 0 | | 0 |
| 4 | | *0 | 0 | 0 | 1.1 | 0 | 0 | 0 | 2.2 | 0 | | 0 |
| 5 | | 0 | 0 | .1 | .1 | **.1 | 0 | 0 | .7 | 0 | | 0 |
| 6 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .1 | 0 | | 0 |
| 7 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .1 | 0 | | 0 |
| 8 | | 0 | 0 | .1 | .4 | 0 | 0 | 0 | 1.2 | 0 | | 0 |
| 9 | | 0 | 0 | .9 | .1 | 0 | .3 | 0 | .1 | 0 | | 0 |
| 10 | | 0 | 0 | .1 | 0 | 0 | .1 | .1 | 0 | 0 | | 1.9 |
| 11 | | 0 | .3 | .1 | .1 | 0 | 0 | 1.0 | 0 | 0 | | .2 |
| 12 | | 0 | .1 | 0 | 0 | 0 | .8 | 0 | 0 | 0 | | 0 |
| 13 | | 0 | 0 | 0 | 0 | 1.8 | 0 | 0 | 0 | 0 | | 0 |
| 14 | | 0 | 0 | .1 | 0 | 0 | 0 | .3 | 0 | 0 | | 0 |
| 15 | | 0 | 0 | .1 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 16 | | 0 | 0 | 0 | 0 | 0 | 0 | *1.3 | 14 | 0 | | 0 |
| 17 | | 0 | *0 | .1 | 0 | 0 | 0 | *.3 | .6 | 0 | | 0 |
| 18 | | 0 | 0 | .1 | .1 | .5 | 0 | 2.1 | 32 | .1 | | 0 |
| 19 | | 0 | 0 | .1 | 2.7 | .6 | 0 | 9.3 | 5.3 | 0 | | 0 |
| 20 | | 0 | 0 | 0 | .5 | 4.6 | 0 | 17 | 3.7 | 0 | | 0 |
| 21 | | 0 | 0 | 0 | 0 | .5 | 0 | .6 | 1.2 | 0 | | 0 |
| 22 | | 0 | 0 | 0 | 0 | 0 | 0 | .1 | .5 | 0 | | 0 |
| 23 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .4 | 0 | | .5 |
| 24 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *.1 | 0 | | .1 |
| 25 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .1 | 0 | | 0 |
| 26 | | 0 | 0 | 0 | .1 | 0 | *0 | 2.2 | 0 | 0 | | 0 |
| 27 | | 0 | .1 | 0 | 0 | 0 | 0 | .1 | 0 | *0 | | 0 |
| 28 | | 0 | .8 | **.1 | 0 | 0 | 0 | .1 | 0 | 0 | | 0 |
| 29 | | 0 | .1 | .1 | - | 0 | 0 | .1 | 0 | 0 | | 0 |
| 30 | | 0 | .1 | .1 | ------- | 0 | 0 | .1 | 0 | 0 | | 0 |
| 31 | | ------- | 0 | .1 | ------- | .2 | ------- | .1 | ------- | 0 | | ------- |
| Total | 0 | 0.5 | 1.5 | 2.2 | 6.2 | 8.6 | 1.2 | 34.8 | 63.0 | 0.1 | 0 | 2.7 |
| Mean | 0 | 0.02 | 0.05 | 0.07 | 0.22 | 0.28 | 0.04 | 1.12 | 2.10 | 0.003 | 0 | 0.09 |
| Ac-ft | 0 | 1.0 | 3.0 | 4.4 | 12 | 17 | 2.4 | 69 | 125 | 0.2 | 0 | 5.4 |

Calendar year 1954: Max 8.7 Min 0 Mean 0.21 Ac-ft 152
Water year 1954-55: Max 32 Min 0 Mean 0.33 Ac-ft 239

Peak discharge (base, 230 cfs).--June 16 (6:30 a.m.) 350 cfs (2.48 ft); June 18 (2:30 a.m.) 242 cfs (2.25 ft).

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

Discharge, in cubic feet per second, water year October 1955 to September 1956

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.8 | | 0.2 | 0.1 | 0.5 | 0.1 | 0 | *199 | 0.5 | | | |
| 2 | 0 | | 0 | .1 | .4 | .1 | 0 | 23 | 0 | | | |
| 3 | 1.9 | (*) | 0 | 0 | .4 | 0 | 0 | 6.2 | 2.4 | | | |
| 4 | 0 | (*) | 0 | 0 | .6 | .1 | 0 | 2.8 | .4 | | | |
| 5 | 0 | | 0 | 0 | .7 | .1 | 0 | 1.6 | .1 | | | |
| 6 | 0 | | 0 | 0 | .1 | .1 | 0 | .9 | 0 | | | |
| 7 | 0 | | 0 | 0 | .1 | 0 | 0 | .7 | 0 | | | |
| 8 | 0 | | 0 | 0 | 2.9 | 0 | 0 | .6 | 0 | | | |
| 9 | 0 | | 0 | 0 | .3 | 0 | 0 | .5 | 0 | | | |
| 10 | 0 | | 0 | 0 | .3 | .1 | 0 | .5 | 0 | | | |
| 11 | 0 | | 0 | 0 | .1 | .1 | 0 | .5 | 0 | | | |
| 12 | 0 | | 0 | 0 | 0 | .1 | 0 | .5 | 0 | | | |
| 13 | 0 | | .4 | 0 | 0 | .3 | 0 | .4 | *0 | | | |
| 14 | 0 | | 0 | 0 | 0 | .3 | 12 | .4 | 0 | | | |
| 15 | 0 | | 0 | 0 | 0 | .1 | 1.8 | .4 | 0 | | | |
| 16 | 0 | | 0 | 0 | .1 | .1 | 0 | .3 | 0 | | | |
| 17 | 0 | | 0 | *0 | 3.1 | 0 | 0 | .1 | 0 | | | |
| 18 | 0 | | 0 | 1.3 | .5 | 0 | 0 | .3 | 0 | | | |
| 19 | 0 | | 0 | .9 | .4 | 0 | 0 | .1 | 0 | | | |
| 20 | 0 | | 0 | .9 | *.1 | 0 | 0 | .1 | 0 | | | |
| 21 | 0 | | .1 | 1.1 | .1 | 0 | 0 | 0 | 0 | | | |
| 22 | 0 | | .3 | 1.0 | .1 | 0 | 0 | 0 | 0 | | | |
| 23 | 0 | | .1 | .4 | .1 | 0 | 0 | 0 | 0 | | | |
| 24 | 0 | | .1 | .3 | .1 | .1 | 0 | 0 | 0 | (*) | (*) | |
| 25 | 0 | | .1 | .1 | 0 | 0 | 0 | 0 | 0 | | | |
| 26 | 0 | | .1 | .1 | .1 | 0 | 0 | 0 | 0 | | | |
| 27 | 0 | | .1 | .1 | 0 | 0 | 0 | 0 | 0 | | | |
| 28 | 0 | | .3 | .1 | 0 | 0 | 0 | 0 | 0 | | | |
| 29 | 0 | | .3 | .1 | 0 | *0 | 2.4 | 0 | 0 | | | |
| 30 | 0 | (*) | .1 | 0 | ------- | 0 | *2.4 | 0 | 0 | | | |
| 31 | 0 | ------- | .3 | .1 | ------- | 0 | ------- | 3.1 | ------- | | | ------- |
| Total | 2.7 | 0 | 2.5 | 6.7 | 11.1 | 1.7 | 18.6 | 242.0 | 3.4 | 0 | 0 | 0 |
| Mean | 0.09 | 0 | 0.08 | 0.22 | 0.38 | 0.05 | 0.62 | 7.81 | 0.11 | 0 | 0 | 0 |
| Ac-ft | 5.4 | 0 | 5.0 | 13 | 22 | 3.4 | 37 | 480 | 6.7 | 0 | 0 | 0 |

Calendar year 1955: Max 32 Min 0 Mean 0.34 Ac-ft 246
Water year 1955-56: Max 199 Min 0 Mean 0.79 Ac-ft 572

Peak discharge (base, 230 cfs).--Apr. 14 (5:15 p.m.) 438 cfs (2.63 ft); May 1 (5 a.m.) 1,060 cfs (3.40 ft).

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

485. Marine Creek at Fort Worth, Tex.--Continued

Discharge, in cubic feet per second, water year October 1956 to September 1957

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | 1.5 | 0.3 | 2.6 | 27 | 76 | 2.4 | | 0 |
| 2 | 0 | .4 | 0 | 0 | .3 | .3 | 2.7 | 15 | 530 | 2.0 | | 0 |
| 3 | *0 | .9 | 0 | .6 | .3 | .3 | 11 | 21 | 300 | 2.0 | | 0 |
| 4 | 0 | 4.0 | 0 | .1 | .1 | .5 | 3.6 | 15 | 100 | 1.5 | | 0 |
| 5 | 0 | 1.3 | 0 | 0 | .1 | .2 | 1.1 | 8.8 | *331 | 1.3 | | 0 |
| 6 | 0 | .7 | .1 | 0 | 3.9 | .5 | .2 | 4.5 | 44 | 1.3 | | 0 |
| 7 | 0 | .3 | .1 | 0 | .3 | .3 | .2 | 3.2 | *27 | 1.3 | | .4 |
| 8 | 0 | .1 | 0 | 0 | .2 | **.3 | .1 | 3.4 | 25 | 1.1 | | 0 |
| 9 | 0 | .1 | 0 | 0 | .1 | 0 | .2 | 5.9 | 22 | 1.1 | | 0 |
| 10 | 0 | .1 | 0 | 0 | .1 | .1 | .3 | 4.2 | *16 | 1.0 | | 0 |
| 11 | 0 | .1 | 0 | 0 | .1 | .1 | .3 | 3.9 | 11 | 1.0 | | .1 |
| 12 | 0 | .1 | 0 | 0 | .1 | .1 | .2 | 15 | 10 | .8 | | .3 |
| 13 | 0 | .1 | 0 | 0 | .2 | .2 | .3 | 133 | *9.2 | .8 | | .1 |
| 14 | .1 | .1 | .1 | 0 | .1 | .2 | .3 | 13 | 7.3 | .8 | | .1 |
| 15 | 3.1 | 0 | 0 | 0 | .1 | .1 | .7 | 11 | 5.8 | .4 | (*) | 0 |
| 16 | *12 | *0 | 0 | 0 | .1 | .3 | 1.3 | 4.2 | 5.3 | .4 | | .1 |
| 17 | 2.0 | .1 | 0 | 0 | .1 | .5 | .9 | 2.4 | 4.8 | .6 | | *.1 |
| 18 | .3 | .1 | 2.5 | 0 | .5 | .5 | *.9 | 8.1 | 4.8 | .8 | | .1 |
| 19 | 0 | .1 | 7.6 | 0 | .1 | .7 | *31 | 5.2 | 4.8 | .7 | | .1 |
| 20 | 0 | .3 | .5 | 0 | .1 | 5.7 | 51 | 2.2 | 4.8 | .4 | | .1 |
| 21 | 0 | 0 | .2 | *0 | .2 | .5 | 174 | 2.1 | *4.4 | .4 | | 3.4 |
| 22 | 0 | 0 | 0 | .1 | .7 | 0 | 24 | 3.2 | 4.0 | .6 | | 1.2 |
| 23 | 0 | 0 | 0 | .1 | 1.1 | .1 | 306 | 138 | 6.8 | .7 | | .2 |
| 24 | 0 | 0 | 0 | .3 | .6 | 0 | 75 | 908 | *6.8 | .4 | | .1 |
| 25 | 0 | 0 | 0 | .1 | .5 | 0 | 40 | *1,850 | 5.3 | .4 | | .1 |
| 26 | 0 | 0 | 0 | .2 | .3 | 0 | *797 | 347 | 4.4 | .2 | | .1 |
| 27 | 0 | 0 | 0 | .3 | .3 | 8.3 | 227 | 121 | 3.6 | .2 | | .1 |
| 28 | 0 | 0 | 0 | .3 | .3 | .3 | 100 | 106 | 3.3 | .2 | | .1 |
| 29 | 0 | 0 | 0 | .2 | - | .2 | 42 | 79 | 3.0 | .1 | | .1 |
| 30 | 1.0 | 0 | 0 | .2 | ------- | .7 | 34 | 110 | 2.7 | .1 | | .1 |
| 31 | 0 | ------- | 0 | 1.3 | ------- | 4.8 | ------- | 279 | ------- | .1 | | ------- |
| Total | 18.5 | 8.9 | 11.1 | 3.8 | 12.4 | 26.1 | 1,927.9 | 4,249.3 | 1,583.1 | 25.1 | 0 | 7.0 |
| Mean | 0.60 | 0.30 | 0.36 | 0.12 | 0.44 | 0.84 | 64.3 | 137 | 52.8 | 0.81 | 0 | 0.23 |
| Ac-ft | 37 | 18 | 22 | 7.5 | 25 | 52 | 3,820 | 8,430 | 3,140 | 50 | 0 | 14 |

Calendar year 1956: Max 199 Min 0 Mean 0.88 Ac-ft 639
Water year 1956-57: Max 1,850 Min 0 Mean 21.6 Ac-ft 15,620

Peak discharge (base, 230 cfs).--Apr. 19 (8 a.m.) 242 cfs (2.65 ft); Apr. 20 (12 p.m.) 1,610 cfs (4.30 ft); Apr. 23 (8:30 a.m.) 756 cfs (3.50 ft); Apr. 26 (4:30 p.m.) 2,420 cfs (4.81 ft); May 13 (9:15 a.m.) 660 cfs (3.38 ft); May 24 (4 a.m.) 4,300 cfs (5.47 ft); May 25 (3:30 a.m.) 4,600 cfs (5.55 ft); May 30 (12 p.m.) 1,620 cfs (3.37 ft); June 2 (3 p.m.) 2,610 cfs (4.24 ft); June 5 (12:30 a.m.) 1,880 cfs (3.58 ft).

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.1 | 0.2 | 0.6 | 1.1 | 1.3 | 1.0 | 11 | 145 | a0.6 | 0 | d0 | 0 |
| 2 | .1 | .2 | .6 | 1.3 | 1.1 | 1.1 | 9.8 | 206 | a.5 | .3 | d0 | 0 |
| 3 | .2 | .3 | .4 | 1.3 | 1.1 | 1.1 | 6.8 | 207 | a.4 | .1 | d0 | .1 |
| 4 | .2 | .7 | .4 | 1.5 | *1.1 | 3.7 | 4.4 | 32 | a.3 | .1 | d.5 | .1 |
| 5 | .2 | 3.9 | .4 | 1.5 | 1.3 | 20 | 3.3 | 15 | a.2 | 11 | d.3 | .3 |
| 6 | .2 | .8 | 1.3 | 1.5 | 1.3 | 29 | 3.3 | 10 | a.1 | *4.7 | d.2 | .4 |
| 7 | .2 | 5.0 | 1.0 | 1.5 | 1.3 | 60 | 3.3 | 7.9 | a.1 | 2.2 | d.1 | .4 |
| 8 | .4 | 1.0 | .7 | 1.3 | 1.5 | 38 | 7.1 | 5.8 | a0 | .6 | d.1 | .3 |
| 9 | .2 | .6 | .7 | 1.1 | 1.5 | 29 | 5.3 | 4.8 | a0 | .3 | d0 | .3 |
| 10 | .2 | .4 | .7 | 1.3 | 1.7 | 18 | 4.4 | 4.8 | a0 | .1 | d0 | .1 |
| 11 | .2 | .4 | .7 | 1.3 | 1.5 | 13 | 4.4 | 4.4 | a0 | .1 | d0 | .1 |
| 12 | .2 | .6 | .8 | 2.4 | 1.7 | 23 | 4.8 | 3.3 | a0 | .1 | d0 | .3 |
| 13 | 2.3 | .6 | .8 | 4.4 | 2.0 | 29 | 19 | *3.3 | a0 | .1 | d0 | .1 |
| 14 | 1.4 | .6 | .8 | 3.0 | 2.4 | 16 | 29 | 3.3 | a0 | .1 | d.5 | .1 |
| 15 | 1.6 | .4 | .8 | 2.4 | 2.0 | 10 | 9.8 | 3.3 | a0 | 0 | d.3 | .1 |
| 16 | *.6 | .4 | 1.0 | 1.3 | 1.7 | 9.2 | 6.8 | 3.0 | .5 | .1 | d.2 | 1.9 |
| 17 | .2 | .6 | 1.0 | 1.3 | 1.5 | 9.2 | 5.8 | 3.0 | *.9 | .1 | d.1 | .4 |
| 18 | .3 | .6 | 1.0 | 1.1 | 1.5 | *7.9 | 19 | 2.7 | .6 | .1 | d.1 | .3 |
| 19 | .1 | *.6 | 1.0 | 2.2 | 1.5 | 6.8 | 15 | 2.4 | .3 | .1 | d1.0 | 8.2 |
| 20 | .1 | .6 | 1.0 | 3.3 | 1.3 | 6.2 | 28 | 2.2 | 0 | 0 | 7.4 | .6 |
| 21 | .1 | .4 | 1.0 | 3.0 | 1.3 | 6.2 | 14 | 2.2 | .4 | .1 | 5.0 | .5 |
| 22 | .4 | .4 | 1.0 | 2.2 | 1.5 | 6.8 | 9.2 | d2.0 | .9 | .3 | *.5 | .9 |
| 23 | 1.3 | .4 | 1.0 | 2.2 | 1.7 | 7.3 | 7.3 | d2.0 | .4 | *1.7 | .1 | .7 |
| 24 | .2 | 2.0 | 3.0 | 2.2 | 1.5 | 6.8 | 6.2 | d1.7 | .1 | .6 | .6 | .4 |
| 25 | .2 | .8 | 3.6 | 2.2 | 1.3 | 6.8 | 9.2 | d1.5 | 0 | d.5 | 0 | *.1 |
| 26 | .1 | .7 | 2.0 | 2.0 | 2.0 | 6.8 | 97 | d1.3 | .1 | d.4 | 0 | .4 |
| 27 | .2 | .7 | 1.3 | 1.7 | 1.5 | 6.8 | 101 | d1.1 | 0 | d.3 | 0 | .1 |
| 28 | .2 | .7 | 1.3 | 1.5 | .8 | 7.9 | 26 | a1.0 | .1 | d.1 | 0 | 0 |
| 29 | .2 | .7 | 1.3 | 1.5 | - | 59 | 28 | a.9 | 0 | d.1 | 0 | 0 |
| 30 | .2 | .6 | *1.0 | 1.7 | ------- | 39 | 85 | a.8 | 0 | d0 | 0 | 0 |
| 31 | .2 | ------- | 1.1 | 1.5 | ------- | 21 | ------- | a.7 | ------- | d0 | 0 | ------- |
| Total | 12.3 | 25.9 | 33.3 | 57.8 | 41.9 | 505.6 | 583.2 | 684.4 | 6.5 | 24.3 | 17.0 | 17.2 |
| Mean | 0.40 | 0.86 | 1.07 | 1.86 | 1.50 | 16.3 | 19.4 | 22.1 | 0.22 | 0.78 | 0.55 | 0.57 |
| Ac-ft | 24 | 51 | 66 | 115 | 83 | 1,000 | 1,160 | 1,360 | 13 | 48 | 34 | 34 |

Calendar year 1957: Max 1,850 Min 0 Mean 21.7 Ac-ft 15,680
Water year 1957-58: Max 207 Min 0 Mean 5.51 Ac-ft 3,990

Peak discharge (base, 230 cfs).--Apr. 26 (3:30 p.m.) 310 cfs (1.65 ft); May 3 (1 a.m.) 460 cfs (1.90 ft).

* Discharge measurement made on this day. a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, engineers' notes, and record of reservoir operation. d Doubtful gage-height record; discharge computed from reconstructed gage-height graph based on recorder graph, weather records, and record of reservoir operation.

## 492. Lake Arlington at Arlington, Tex.

Location.--Lat 32°43'04", long 97°11'36", in pumphouse at right end of Lake Arlington Dam on Village Creek, near western boundary of Arlington, Tarrant County, 1.5 miles upstream from Texas & Pacific Railroad, 8.5 miles east of Fort Worth, and 8 miles upstream from mouth of Village Creek.

Drainage area.--136 sq mi.

Records available.--March 1957 to September 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. Prior to Sept. 9, 1957, staff gage at same site and datum.

Extremes.--1957: Maximum contents during period March to September, 55,750 acre-ft May 23 (elevation, 554.3 ft, from graph based on gage readings).
1957-58: Maximum contents during water year, 53,560 acre-ft Apr. 30 (elevation, 553.40 ft); minimum since first filled in April 1957, 41,960 acre-ft Sept. 15 (elevation, 548.25 ft).

Remarks.--Reservoir is formed by a rolled earth-fill dam 6,482 ft long including a 882-foot uncontrolled earthen emergency spillway. Dam completed and storage began Mar. 31, 1957. The service spillway is a reinforced-concrete structure of morning-glory design, with a 32-foot diameter uncontrolled opening, designed to discharge a total of 4,000 cfs through a 10-foot diameter concrete pipe. Capacity of reservoir, 70,140 acre-ft at elevation, 559.7 ft (top of emergency spillway); 45,710 acre-ft at elevation, 550.0 ft (top of service spillway); 180 acre-ft at elevation, 505.0 ft (invert of lowest pumphouse intake). Figures given herein represent total contents. Dam built by city of Arlington to impound water for municipal and industrial use. See table below for total diversions.

Cooperation.--Area-capacity curve prepared and furnished by Freese and Nichols, Consulting Engineers. Record of elevations, prior to Sept. 9, 1957, and diversions furnished by city of Arlington.

Capacity table, April 1957 to Sept. 30, 1958 (elevation, in feet, and contents, in acre-feet)

| | | | | | |
|---|---|---|---|---|---|
| 505 | 180 | 523 | 7,210 | 543 | 31,740 |
| 507 | 400 | 528 | 11,360 | 548 | 41,430 |
| 510 | 1,000 | 533 | 16,570 | 553 | 52,600 |
| 513 | 1,900 | 538 | 23,320 | 558 | 65,380 |
| 518 | 4,070 | | | | |

Contents, in acre-feet, at 12 p.m., March to September 1957

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | a740 | 48,620 | 48,170 | 45,710 | a43,800 | a42,300 |
| 2 | | | | | | | a800 | 48,170 | 47,720 | a45,700 | a43,700 | a42,300 |
| 3 | | | | | | | a820 | 48,850 | 47,940 | a45,600 | a43,700 | a42,200 |
| 4 | | | | | | | a860 | 48,400 | 49,540 | a45,600 | a43,600 | a42,200 |
| 5 | | | | | | | a880 | 47,940 | 48,400 | a45,500 | a43,600 | a42,100 |
| 6 | | | | | | | a890 | 47,490 | 47,720 | a45,500 | a43,500 | a42,100 |
| 7 | | | | | | | a900 | 47,270 | 47,270 | a45,500 | a43,500 | a42,600 |
| 8 | | | | | | | a900 | 47,040 | 47,040 | a45,400 | a43,400 | a43,000 |
| 9 | | | | | | | a900 | 46,820 | 46,820 | a45,400 | a43,400 | 42,900 |
| 10 | | | | | | | a910 | 46,820 | 46,600 | a45,300 | a43,300 | 42,840 |
| 11 | | | | | | | a910 | 46,600 | 46,600 | a45,300 | a43,300 | 42,800 |
| 12 | | | | | | | a920 | 51,890 | 46,380 | a45,200 | a43,200 | 42,800 |
| 13 | | | | | | | a920 | 50,710 | 46,380 | a45,100 | a43,200 | 42,780 |
| 14 | | | | | | | a920 | 49,540 | 46,380 | a45,100 | a43,100 | 42,590 |
| 15 | | | | | | | a930 | 48,620 | 46,380 | a45,000 | a43,100 | 42,520 |
| 16 | | | | | | | a930 | 48,170 | 46,150 | a45,000 | a43,000 | 42,460 |
| 17 | | | | | | | a930 | 47,720 | 46,150 | a44,900 | a43,000 | 42,440 |
| 18 | | | | | | | a940 | 47,940 | 46,150 | a44,800 | a42,900 | 42,400 |
| 19 | | | | | | | a2,000 | 47,490 | 45,930 | a44,700 | a42,900 | 42,380 |
| 20 | | | | | | | a2,900 | 47,270 | 45,930 | a44,600 | a42,900 | 42,350 |
| 21 | | | | | | | a5,800 | 47,040 | a45,900 | a44,500 | a42,800 | 42,990 |
| 22 | | | | | | | 11,450 | 48,170 | a45,900 | a44,400 | a42,800 | 43,370 |
| 23 | | | | | | | 14,450 | 55,750 | a45,800 | a44,300 | a42,700 | 43,370 |
| 24 | | | | | | | 16,460 | 54,530 | a45,800 | a44,300 | a42,700 | 43,330 |
| 25 | | | | | | | 17,900 | 52,600 | a45,900 | a44,200 | a42,600 | 43,310 |
| 26 | | | | | | | 38,580 | 51,650 | a45,900 | a44,200 | a42,600 | 43,290 |
| 27 | | | | | | | 50,240 | 49,540 | a45,900 | a44,100 | a42,500 | 43,240 |
| 28 | | | | | | | 50,010 | 48,400 | a45,800 | a44,100 | a42,500 | 43,200 |
| 29 | | | | | | - | 49,540 | 47,720 | a45,800 | a44,000 | a42,400 | 43,200 |
| 30 | | | | | ------- | | 49,080 | 47,270 | a45,800 | a43,900 | a42,400 | 43,100 |
| 31 | | ------- | | | ------- | a240 | ------- | 49,310 | ------- | a43,800 | a42,300 | ------- |
| (†) | | | | | | - | 551.5 | 551.6 | - | - | - | - |
| (‡) | | | | | | - | +48,840 | +230 | -3,510 | -2,000 | -1,500 | +800 |
| (††) | | | | | | - | 0 | 0 | 0 | 0 | 120 | 0 |

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet.
a No gage-height record; contents estimated on basis of weather records, records of diversions, and records for nearby stations.

## 492. Lake Arlington at Arlington, Tex.--Continued

Contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | a43,100 | 45,600 | a46,100 | a46,000 | 45,750 | a45,700 | a46,000 | 51,060 | 45,560 | 44,190 | 44,270 | 42,610 |
| 2 | 43,100 | 45,560 | a46,000 | a45,900 | 45,750 | a45,700 | a45,900 | a51,200 | 45,490 | 44,140 | 44,230 | 42,520 |
| 3 | 43,050 | 45,600 | 45,980 | a45,900 | 45,750 | a45,700 | a45,900 | a50,300 | 45,450 | 44,100 | 44,210 | 42,440 |
| 4 | 43,010 | 45,710 | a45,900 | a45,800 | 45,730 | a45,800 | a45,800 | a48,900 | 45,400 | 44,040 | 44,120 | 42,350 |
| 5 | 43,010 | 48,940 | a45,900 | a45,800 | a45,700 | a46,000 | a45,800 | 48,030 | 45,380 | 44,250 | 44,080 | 42,290 |
| 6 | 42,990 | 48,210 | a46,100 | a45,700 | a45,700 | a46,000 | a45,700 | 47,450 | 45,300 | 44,560 | 43,990 | 42,290 |
| 7 | 42,950 | 48,030 | a46,100 | a45,700 | a45,700 | a46,000 | 45,640 | 47,090 | 45,320 | 45,750 | 43,930 | 42,250 |
| 8 | 42,970 | 47,450 | a46,000 | a45,600 | a45,600 | a46,800 | a45,800 | 46,800 | 45,320 | 45,780 | 43,840 | 42,230 |
| 9 | 42,920 | 47,000 | a46,000 | a45,600 | a45,600 | a46,600 | a45,800 | 46,580 | 45,250 | 45,780 | 43,710 | 42,230 |
| 10 | 42,900 | 46,710 | a45,900 | a45,500 | a45,800 | a46,500 | a45,700 | 46,440 | 45,160 | 45,730 | 43,690 | 42,210 |
| 11 | 42,880 | 46,490 | a45,900 | a45,500 | a45,800 | a46,400 | a45,700 | 46,330 | 45,080 | 45,690 | 43,650 | 42,140 |
| 12 | 42,840 | 46,380 | a45,800 | a45,800 | a45,800 | a46,300 | a45,700 | 46,220 | 45,010 | 45,620 | 43,560 | 42,100 |
| 13 | 43,240 | 46,290 | a46,000 | a46,200 | a45,700 | 46,290 | a45,800 | 46,150 | 44,950 | 45,580 | 43,460 | 42,060 |
| 14 | 44,340 | 46,220 | a46,000 | a46,100 | a45,700 | 46,200 | a46,600 | 46,220 | 44,900 | 45,450 | 43,410 | 42,000 |
| 15 | 46,600 | 46,110 | a46,900 | 46,040 | a45,700 | a46,100 | a46,500 | 46,220 | 44,860 | 45,360 | 43,330 | 42,020 |
| 16 | 46,550 | 46,060 | a46,900 | a46,000 | a45,600 | a46,100 | a46,400 | 46,150 | 44,880 | 45,300 | 43,290 | 42,210 |
| 17 | 46,380 | 46,090 | a46,800 | a45,900 | a45,600 | a46,000 | a46,300 | 46,090 | 44,840 | 45,250 | 43,200 | 42,140 |
| 18 | 46,220 | 46,040 | 45,750 | a45,900 | a45,600 | a46,000 | a46,200 | 46,020 | 44,840 | 45,190 | 43,160 | 42,100 |
| 19 | 46,090 | 45,980 | a45,700 | a45,800 | a45,600 | a46,000 | a46,100 | 45,980 | 44,820 | 45,120 | 43,120 | 44,100 |
| 20 | 46,000 | 45,910 | a45,700 | a46,000 | a45,600 | a45,900 | a46,400 | 45,930 | 44,750 | 45,060 | 43,180 | 44,250 |
| 21 | 45,950 | a45,900 | a45,600 | a46,000 | a45,600 | a45,900 | a46,300 | 45,910 | 44,770 | 44,950 | 43,160 | 44,250 |
| 22 | 46,040 | a45,800 | a45,600 | a45,900 | a45,800 | a45,900 | a46,200 | 45,860 | 44,730 | 44,920 | 43,120 | 50,030 |
| 23 | 46,000 | a46,500 | a45,500 | a45,900 | a45,900 | a46,700 | a46,100 | 45,820 | 44,710 | 44,990 | 43,140 | 48,760 |
| 24 | 45,890 | a46,400 | a45,500 | a45,800 | a45,900 | a46,600 | a46,000 | 45,800 | 44,680 | 44,970 | 43,120 | 47,740 |
| 25 | 45,750 | a46,300 | a46,200 | a45,800 | a45,900 | a46,500 | a46,300 | 45,750 | 44,530 | 44,880 | 43,050 | 47,130 |
| 26 | 45,710 | a46,300 | a46,100 | a46,000 | a45,800 | a46,400 | a46,500 | 45,710 | 44,450 | 44,840 | 43,010 | 46,750 |
| 27 | 45,640 | a46,200 | a46,100 | a46,000 | a45,800 | a46,300 | a49,500 | 45,690 | 44,400 | 44,750 | 42,970 | 46,460 |
| 28 | 45,600 | 46,200 | 46,020 | a45,900 | a45,800 | 46,180 | a48,300 | 45,640 | 44,360 | 44,620 | 42,880 | 46,240 |
| 29 | 45,580 | 46,150 | 46,060 | a45,900 | - | a46,200 | a49,100 | 45,600 | 44,320 | 44,560 | 42,800 | 46,060 |
| 30 | 45,560 | a46,100 | 46,040 | a45,800 | _____ | a46,200 | 53,560 | 45,620 | 44,270 | 44,470 | 42,710 | 45,910 |
| 31 | 45,560 | _____ | a46,000 | 45,780 | _____ | a46,100 | _____ | 45,600 | _____ | 44,360 | 42,650 | _____ |
| (†) | 549.93 | - | - | 550.03 | - | - | 553.40 | 549.95 | 549.34 | 549.38 | 548.58 | 550.09 |
| (‡) | +2,460 | +540 | -100 | -220 | +20 | +300 | +7,460 | -7,960 | -1,330 | +90 | -1,710 | +3,260 |
| (††) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 319 | 357 | 334 | 243 |

Calendar year 1957..... ‡ - †† -
Water year 1957-58..... ‡ +2,810 †† 1,320

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet.
a No gage-height record; contents estimated on basis of recorded range in stage, weather records, records of diversions, and records for nearby stations.

## 495. West Fork Trinity River at Grand Prairie, Tex.

Location.--Lat 32°45'45", long 96°59'40", on left bank at upstream side of bridge on Belt Line Road, 1.3 miles northeast of Grand Prairie, Dallas County, 4 miles upstream from Bear Creek, 7 miles upstream from Mountain Creek, and at mile 515.

Drainage area.--3,070 sq mi.

Records available.--March 1925 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 410.42 ft above mean sea level, datum of 1929. Prior to Dec. 6, 1933, chain gage at bridge on old channel 2,500 ft southeast of present site at datum 2.56 ft higher. Dec. 6, 1933, to May 24, 1956, water-stage recorder at site 440 ft downstream from site of chain gage at datum 2.56 ft higher than present datum. May 25, 1956, to Apr. 18, 1957, staff gage at site 1.5 miles downstream at different datum. Apr. 19 to Aug. 13, 1957, reference point on bridge at present site and datum.

Average discharge.--33 years, 581 cfs (420,600 acre-ft per year).

Extremes.--Maximum discharge during year, 9,200 cfs May 4 (gage height, 18.65 ft); minimum daily, 19 cfs Aug. 12.

1925-58: Maximum discharge, 62,000 cfs May 17, 1949 (gage height, 28.00 ft, site and datum then in use), 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 (former site and datum) in 1908 (probably May), from information by local resident. Flood in April 1922 reached a stage of 29 ft (former site and datum), from floodmarks.

Remarks.--Records fair. Flow largely regulated by Bridgeport Reservoir since 1932 (see p. 70), Eagle Mountain Reservoir since 1934 (see p. 73), Benbrook Reservoir since 1952 (see p. 75), Lake Worth (capacity, 33,300 acre-ft), and Lake Arlington (capacity, 45,700 acre-ft) since March 1957. Cities of Fort Worth, Arlington, and Grand Prairie discharge sewage effluent between station at Fort Worth and this station. Several diversions above Fort Worth for municipal and other uses. The river channel at station was relocated in 1956.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
Shifting-control method used Nov. 14-25, Dec. 12-22, 24, 25, Dec. 27 to Jan. 11, Jan. 30 to Feb. 6, Mar. 12-20, Apr. 26 to May 20, June 5 to July 6, Aug. 23-26, Sept. 26-30)

| | | | | | |
|---|---|---|---|---|---|
| 1.6 | 18 | 2.5 | 200 | 10.0 | 4,120 |
| 1.7 | 30 | 3.0 | 360 | 15.0 | 6,670 |
| 1.8 | 46 | 4.0 | 785 | 19.0 | 8,840 |
| 2.0 | 80 | 6.0 | 1,880 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 71 | 62 | 135 | 185 | 1,010 | 212 | 520 | 8,210 | 650 | 66 | 22 | 24 |
| 2 | 75 | 67 | 92 | 176 | 835 | 260 | 520 | 7,570 | 785 | 71 | 22 | 20 |
| 3 | 75 | 100 | 90 | 176 | 835 | 287 | 864 | *8,570 | 615 | 66 | 69 | 22 |
| 4 | 75 | 80 | 86 | 173 | *785 | 287 | 1,340 | 8,400 | 246 | 67 | 69 | 24 |
| 5 | 73 | 621 | 84 | 125 | 718 | 731 | 1,420 | 6,310 | 160 | 71 | 36 | 22 |
| 6 | 67 | 2,390 | 104 | 94 | 695 | 1,650 | 1,170 | 6,040 | 130 | 769 | 32 | 22 |
| 7 | 56 | 1,390 | 591 | 90 | 460 | 1,420 | 810 | 6,230 | 128 | 537 | 26 | 22 |
| 8 | 64 | 1,310 | 628 | 94 | 233 | 1,550 | *662 | 6,420 | 106 | 132 | 26 | 32 |
| 9 | 86 | 718 | 785 | 90 | 106 | 1,130 | 750 | *6,370 | 88 | 86 | 26 | 38 |
| 10 | 82 | 432 | 628 | 90 | 86 | 885 | 562 | 6,410 | 92 | 66 | 25 | 36 |
| 11 | 73 | 290 | 410 | 198 | 96 | 1,300 | 464 | 6,410 | 90 | 60 | 20 | 32 |
| 12 | 71 | 224 | 230 | 116 | 78 | 1,640 | 432 | 6,280 | 88 | 54 | 19 | 29 |
| 13 | 102 | 200 | 308 | 305 | 73 | 1,940 | 428 | 6,070 | 84 | 57 | 30 | 26 |
| 14 | 915 | 478 | 185 | 280 | 78 | *1,760 | 1,460 | *5,780 | 80 | 40 | 40 | 41 |
| 15 | 930 | 1,140 | 160 | 138 | 104 | 1,520 | 881 | 5,700 | 78 | 40 | 27 | 32 |
| 16 | 1,230 | 1,450 | 150 | 110 | 206 | 1,090 | 560 | 5,660 | 71 | 40 | 25 | 37 |
| 17 | 420 | 1,650 | 152 | 100 | 88 | 835 | 540 | 5,640 | 88 | 35 | 32 | 122 |
| 18 | 245 | 1,760 | *158 | 94 | 69 | 785 | 560 | 5,870 | *92 | 38 | 35 | 57 |
| 19 | 173 | 1,760 | 297 | 104 | 69 | 785 | 921 | 6,010 | 82 | 35 | 24 | 676 |
| 20 | 125 | 1,420 | 252 | 185 | 67 | 740 | 972 | 3,920 | 82 | 32 | 27 | 1,120 |
| 21 | 96 | *985 | 336 | 254 | 67 | 695 | *1,170 | 2,640 | 82 | 24 | 55 | 342 |
| 22 | 104 | 740 | 488 | 150 | 67 | 560 | 813 | 2,640 | 94 | *27 | 328 | 314 |
| 23 | 278 | 440 | 560 | 128 | 66 | 605 | 628 | 2,060 | 102 | 35 | *32 | 1,690 |
| 24 | 288 | 464 | 448 | 332 | 69 | 650 | 560 | 1,230 | 82 | 100 | 26 | 1,460 |
| 25 | 125 | 785 | 598 | 560 | 67 | 582 | 500 | 602 | 78 | 52 | 33 | 810 |
| 26 | 90 | 380 | 698 | 650 | 71 | 540 | 2,130 | 360 | 75 | 40 | 27 | *581 |
| 27 | 73 | 245 | 260 | 672 | 92 | 516 | *5,780 | *336 | 96 | 29 | 25 | 642 |
| 28 | 62 | 173 | 260 | 672 | 102 | 500 | 3,540 | 290 | 98 | 21 | 25 | 211 |
| 29 | 66 | 132 | 233 | 785 | - | 2,260 | 2,420 | 269 | 75 | 21 | 25 | 108 |
| 30 | 71 | 125 | 200 | 985 | ------- | 1,240 | 4,990 | 248 | 64 | 25 | 25 | 88 |
| 31 | 67 | ------- | 194 | 960 | ------- | 582 | ------- | 350 | ------- | 25 | 25 | ------- |
| Total | 6,328 | 22,011 | 9,800 | 9,071 | 7,292 | 29,537 | 38,367 | 138,895 | 4,681 | 2,761 | 1,258 | 8,680 |
| Mean | 204 | 734 | 316 | 293 | 260 | 953 | 1,279 | 4,480 | 156 | 89.1 | 40.6 | 289 |
| Ac-ft | 12,550 | 43,660 | 19,440 | 17,990 | 14,460 | 58,590 | 76,100 | 275,500 | 9,280 | 5,480 | 2,500 | 17,220 |

Calendar year 1957: Max 43,700 Min 46 Mean 1,608 Ac-ft 1,164,000
Water year 1957-58: Max 8,570 Min 19 Mean 764 Ac-ft 552,800

* Discharge measurement made on this day.

## 503. Elm Fork Trinity River near Muenster, Tex.

Location.--Lat 33°37', long 97°23', on left bank 40 ft upstream from bridge on Farm Road 373, 2.5 miles south of Muenster, Cooke County, 2.5 miles downstream from Long Branch, and 6.5 miles upstream from Brushy Elm Creek.

Drainage area.--46.0 sq mi, of which 30.97 sq mi is above flood-detention structures.

Records available.--October 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 889.33 ft above mean sea level, datum of 1929 (Soil Conservation Service bench mark).

Extremes.--Maximum discharge during year, 5,900 cfs May 1 (gage height, 20.20 ft), from rating curve extended above 1,300 cfs; no flow at times.
1956-58: Maximum discharge, that of May 1, 1958; no flow at times.
Maximum stage known since at least 1900, about 23 ft in May 1935, from information by local resident.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. The flow from 30.97 sq mi above this station was partly controlled by 11 floodwater-detention reservoirs with a total combined capacity of 11,315 acre-ft below spillway crests, of which 9,834 acre-ft is floodwater-detention capacity and 1,481 acre-ft is sediment storage capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. Station operated as part of Elm Fork Trinity River basin hydrologic cooperative program to evaluate rainfall-runoff relation, soil conservation practices, and the effects of flood-detention structures. Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 1.1 | 10 | 6.2 | 20 | 7.6 | a22 | 911 | 4.4 | 1.8 | 0.5 | 0 |
| 2 | .1 | 1.1 | 11 | 6.2 | 18 | 7.6 | a17 | 1,100 | 4.0 | 1.7 | .5 | 0 |
| 3 | .2 | 1.4 | 12 | 6.2 | *16 | 7.6 | a15 | 345 | 3.7 | 1.5 | .4 | 0 |
| 4 | *.2 | 288 | 11 | 5.3 | 16 | 8.4 | a13 | 220 | 3.4 | 1.2 | .4 | 0 |
| 5 | .2 | *592 | 11 | 5.3 | 51 | 24 | a12 | 183 | 3.2 | 1.5 | .3 | 0 |
| 6 | .2 | 220 | 17 | 5.3 | 33 | 73 | a11 | 174 | 3.4 | 45 | .3 | 0 |
| 7 | .2 | 366 | 19 | 5.3 | 20 | 128 | a10 | 170 | 3.4 | a12 | .3 | 0 |
| 8 | .3 | 190 | 13 | 4.8 | 16 | 119 | a9.5 | 169 | 3.2 | a8.0 | .2 | 0 |
| 9 | .2 | 169 | 11 | 4.8 | 15 | 64 | 8.9 | *166 | 2.9 | 6.2 | .2 | 0 |
| 10 | .3 | 154 | 11 | 4.8 | 17 | a45 | 8.0 | 140 | 2.4 | 4.4 | .2 | 0 |
| 11 | .3 | 150 | 8.9 | 4.8 | 16 | a30 | 7.6 | 128 | *2.2 | 3.7 | .2 | .1 |
| 12 | .3 | 157 | 8.4 | 9.4 | 16 | 63 | 7.1 | 110 | 1.8 | 3.2 | .1 | .1 |
| 13 | 30 | *154 | 8.9 | 36 | 19 | a70 | 8.4 | 94 | 1.7 | 2.6 | .1 | 0 |
| 14 | *7.1 | 151 | 8.9 | 25 | 19 | a60 | 19 | *66 | 1.5 | 2.2 | .1 | 0 |
| 15 | 2.0 | 139 | 9.6 | 23 | 19 | a50 | 14 | 51 | 1.2 | 2.0 | .1 | 0 |
| 16 | 1.1 | 130 | 12 | 20 | 17 | a35 | 12 | *45 | .9 | 1.7 | .1 | .3 |
| 17 | .8 | 124 | *12 | 18 | 16 | a35 | 12 | 39 | 1.5 | 1.5 | .1 | .3 |
| 18 | .6 | 94 | 12 | 17 | 15 | a30 | 11 | 34 | 1.0 | 1.2 | *0 | .2 |
| 19 | .5 | 66 | 11 | 57 | 15 | a25 | 9.6 | 27 | 1.4 | 1.1 | 0 | .2 |
| 20 | .4 | 52 | 8.9 | 182 | 14 | a22 | 51 | 22 | 2.4 | 1.0 | .1 | .2 |
| 21 | .4 | 48 | 8.0 | *150 | 13 | a25 | 19 | 19 | 7.5 | 1.1 | .4 | .1 |
| 22 | 1.1 | 36 | 7.6 | 97 | 13 | a25 | 16 | 16 | 8.4 | *1.2 | .3 | .1 |
| 23 | 1.4 | 30 | 7.6 | 70 | 12 | a22 | 17 | 14 | 5.8 | 2.0 | .2 | 0 |
| 24 | .8 | 30 | 8.9 | 60 | *10 | a21 | 12 | 13 | 4.8 | 2.0 | .2 | 0 |
| 25 | *.8 | *30 | 20 | 49 | 10 | a20 | 8.9 | 16 | 4.4 | 1.5 | .1 | *0 |
| 26 | .8 | 27 | 14 | 36 | 14 | *20 | 13 | 15 | 3.7 | 1.4 | 0 | 0 |
| 27 | .7 | 22 | 12 | 33 | 12 | 21 | 25 | 12 | 2.9 | 1.0 | 0 | 0 |
| 28 | .7 | 17 | 8.9 | 39 | 8.9 | 25 | 24 | 8.4 | 2.4 | .9 | 0 | 0 |
| 29 | .9 | 15 | 8.9 | 39 | - | 58 | 137 | 6.2 | 2.2 | .9 | 0 | 0 |
| 30 | 1.0 | 11 | 8.4 | 33 | ------ | a40 | 140 | 5.8 | 2.0 | .8 | 0 | 0 |
| 31 | 1.0 | ------ | 7.6 | 26 | ------ | a30 | ------ | 4.8 | ------ | .7 | 0 | ------ |
| Total | 54.8 | 3,465.6 | 338.5 | 1,078.4 | 480.9 | 1,211.2 | 690.0 | 4,324.2 | 93.7 | 117.0 | 5.4 | 1.6 |
| Mean | 1.77 | 116 | 10.9 | 34.8 | 17.2 | 39.1 | 23.0 | 139 | 3.12 | 3.77 | 0.17 | 0.05 |
| Cfsm | 0.038 | 2.52 | 0.237 | 0.757 | 0.374 | 0.850 | 0.500 | 3.02 | 0.068 | 0.082 | 0.0037 | 0.0011 |
| In. | 0.04 | 2.80 | 0.27 | 0.87 | 0.39 | 0.98 | 0.56 | 3.50 | 0.08 | 0.09 | 0.004 | 0.001 |
| Ac-ft | 109 | 6,870 | 671 | 2,140 | 954 | 2,400 | 1,370 | 8,580 | 186 | 232 | 11 | 3.2 |

Calendar year 1957: Max 1,520 Min 0 Mean 52.6 Cfsm 1.14 In. 15.50 Ac-ft 38,060
Water year 1957-58: Max 1,100 Min 0 Mean 32.5 Cfsm 0.707 In. 9.58 Ac-ft 23,530

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and outflow from detention structures.

## 505. Elm Fork Trinity River near Sanger, Tex.

Location.--Lat 33°23'25", long 97°05'10", on right bank on downstream side of pier of bridge on State Farm Highway 455, 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 1958.

Gage.--Water-stage recorder. Datum of gage is 553.93 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942 (Corps of Engineers bench mark). Prior to May 7, 1955, at site 500 ft downstream at same datum.

Average discharge.--9 years, 148 cfs (107,100 acre-ft per year).

Extremes.--Maximum discharge during year, 27,500 cfs May 2 (gage height, 29.10 ft, from floodmarks); minimum, 3.0 cfs Sept. 5, 6.
1949-58: Maximum discharge, that of May 2, 1958; no flow at times.
Maximum stage since at least 1903, about 31 ft in 1908 at former site, from information by local residents. Flood of May 18, 1935, reached a stage of 29.7 ft at former site, from floodmarks.

Remarks.--Records good except those above 13,000 cfs, which are poor. At the end of the year the flow from 51.3 sq mi above this station was partly controlled by 20 floodwater-detention reservoirs with a total combined capacity of 17,120 acre-ft below the flood spillway crests, of which 14,690 is floodwater-detention capacity and 2,430 acre-ft is sediment-pool capacity. Four of these reservoirs were constructed during the current year and have a total combined capacity below flood spillway crests of 3,032 acre-ft, of which 508 acre-ft is sediment-pool capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.7 | 14 | 150 | 88 | 114 | 54 | 110 | *3,150 | 50 | 21 | 8.7 | 3.8 |
| 2 | 9.3 | 14 | 145 | 80 | 101 | 50 | 99 | 20,700 | 45 | 20 | 8.4 | 3.5 |
| 3 | 8.7 | 14 | 145 | 78 | 96 | 50 | 94 | 9,970 | 42 | 18 | 8.1 | 3.3 |
| 4 | 8.7 | 1,210 | 136 | 76 | 93 | 51 | 86 | 1,420 | 39 | 18 | 8.1 | 3.1 |
| 5 | 8.4 | 10,200 | 131 | 74 | 94 | 72 | 76 | 693 | 36 | 827 | 8.1 | 3.0 |
| 6 | 8.4 | *4,090 | 176 | 73 | 411 | 536 | 68 | 574 | 35 | 3,030 | 8.1 | 3.0 |
| 7 | 8.1 | 2,840 | 295 | 72 | 140 | 3,060 | 61 | 487 | 35 | 910 | 7.5 | 3.1 |
| 8 | 8.4 | 2,620 | 185 | 70 | 96 | 655 | 59 | 445 | 36 | 131 | 6.9 | 3.3 |
| 9 | 9.3 | 431 | 140 | 68 | 88 | 455 | 62 | 417 | 31 | 73 | 8.1 | 3.1 |
| 10 | 9.3 | 349 | 131 | 69 | 87 | 248 | 61 | 362 | 28 | 54 | 16 | 6.4 |
| 11 | 9.6 | 301 | *118 | 70 | 88 | 200 | 59 | 325 | 26 | 45 | 9.6 | 83 |
| 12 | 9.9 | 295 | 110 | 184 | 86 | 418 | 55 | 301 | *25 | 38 | 7.8 | 12 |
| 13 | 79 | 389 | 110 | 2,150 | 84 | 760 | 56 | *265 | 22 | 32 | 7.8 | 9.0 |
| 14 | 335 | 529 | 110 | 348 | 87 | 325 | 135 | 236 | 20 | 23 | 7.2 | 8.1 |
| 15 | *85 | *313 | 110 | 314 | 103 | 236 | 114 | 215 | 20 | 23 | 6.3 | 6.9 |
| 16 | 35 | 253 | 110 | 175 | 92 | 190 | 76 | 200 | 54 | 21 | 5.7 | 16 |
| 17 | 26 | 320 | 110 | 140 | 82 | 175 | 64 | 190 | 196 | 20 | 5.5 | 37 |
| 18 | 20 | 1,630 | 114 | 126 | 77 | 165 | 61 | 175 | 45 | 18 | 5.0 | 11 |
| 19 | 16 | 406 | 110 | 150 | 76 | 140 | 59 | 170 | 65 | 18 | *4.7 | 41 |
| 20 | 14 | 283 | 100 | 1,390 | 73 | 131 | 266 | 160 | 47 | 17 | 6.3 | 36 |
| 21 | 14 | 231 | 93 | 1,340 | *71 | 126 | 204 | 136 | 217 | 14 | 115 | 12 |
| 22 | 16 | 205 | 91 | 381 | 70 | 118 | 118 | 122 | 139 | 13 | 20 | 8.1 |
| 23 | 19 | 195 | 90 | 265 | 67 | 114 | 83 | 114 | 57 | 20 | 9.0 | 7.2 |
| 24 | 19 | 426 | 93 | 210 | 66 | 104 | 70 | 99 | 45 | *25 | 7.2 | 6.6 |
| 25 | 15 | 858 | 252 | 180 | 65 | *96 | 58 | 94 | 36 | 19 | 6.3 | 6.0 |
| 26 | 14 | 301 | 236 | 155 | 66 | 92 | 62 | 96 | 33 | 15 | 5.5 | *5.7 |
| 27 | 13 | 231 | 150 | 136 | 73 | 92 | 106 | 86 | 29 | 13 | 5.2 | 5.7 |
| 28 | 13 | 195 | 122 | 145 | 66 | 100 | 132 | 80 | 27 | 11 | 5.0 | 5.5 |
| 29 | 14 | 175 | 106 | 185 | - | 490 | 2,920 | 71 | 25 | 11 | 4.5 | 6.3 |
| 30 | 14 | 160 | 99 | 150 | ------- | 236 | 2,320 | 64 | 23 | 10 | 4.0 | 5.7 |
| 31 | 14 | ------- | 95 | 131 | ------- | 131 | ------- | 58 | ------- | 9.3 | 3.8 | ------- |
| Total | 859.8 | 29,478 | 4,163 | 9,073 | 2,712 | 9,670 | 7,794 | 41,475 | 1,528 | 5,517.3 | 339.4 | 364.4 |
| Mean | 27.7 | 983 | 134 | 293 | 96.9 | 312 | 260 | 1,338 | 50.9 | 178 | 10.9 | 12.1 |
| Ac-ft | 1,710 | 58,470 | 8,260 | 18,000 | 5,380 | 19,180 | 15,460 | 82,260 | 3,030 | 10,940 | 673 | 723 |

Calendar year 1957: Max 14,000 Min 3.0 Mean 494 Ac-ft 357,400
Water year 1957-58: Max 20,700 Min 3.0 Mean 310 Ac-ft 224,100

Peak discharge (base, 4,000 cfs).--Nov. 5 (12 m.) 12,200 cfs (26.00 ft); Nov. 8 (3:30 a.m.) 5,870 cfs (22.80 ft); Mar. 7 (11 a.m.) 4,800 cfs (21.51 ft); Apr. 29 (11 a.m.) 4,160 cfs (20.58 ft); May 2 (about 2 p.m.) 27,500 cfs (29.10 ft); July 6 (3 a.m.) 7,840 cfs (24.41 ft).

* Discharge measurement made on this day.

## 510. Isle du Bois Creek near Pilot Point, Tex.

Location.--Lat 33°24'20", long 97°00'45", on left bank at downstream side of bridge on State Farm Highway 372, 2.4 miles downstream from Wolf Creek, 3.0 miles west of Pilot Point, Denton County, and 6.3 miles upstream from mouth. Prior to Feb. 8, 1958, at site 1 mile upstream.

Drainage area.--262 sq mi.

Records available.--April 1949 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 555.48 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942 (Corps of Engineers bench mark). Prior to Feb. 8, 1958, at site 1 mile upstream at datum 4.22 ft higher.

Average discharge.--9 years, 114 cfs (82,530 acre-ft per year).

Extremes.--Maximum discharge during year, 16,000 cfs May 2 (gage height, 27.30 ft); no flow several days.
1949-58: Maximum discharge, 22,700 cfs Apr. 26, 1957 (gage height, 28.2 ft, present site and datum); no flow at times.
Maximum stage known since at least 1900, about 30.4 ft in 1908, present site and datum, from information by local resident.

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

Revisions (water years).--WSP 1512: 1950.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 14 to Apr. 5, May 10-15, 22-25, July 14 to Aug. 10, Sept. 27-30)

| Oct. 1 to Feb. 7 | | | | Feb. 8 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.4 | 0 | 4.0 | 65 | 1.1 | 0 | 4.0 | 125 |
| 1.5 | .1 | 5.0 | 124 | 1.2 | .2 | 6.0 | 330 |
| 1.6 | .5 | 7.0 | 300 | 1.3 | .5 | 10.0 | 924 |
| 1.8 | 1.8 | 9.0 | 540 | 1.4 | 1.1 | 16.0 | 2,200 |
| 2.0 | 3.8 | 13.0 | 1,260 | 1.5 | 2.1 | 21.0 | 3,860 |
| 2.2 | 6.4 | 18.0 | 2,600 | 1.7 | 5.0 | 23.0 | 5,160 |
| 2.5 | 12 | 21.0 | 3,880 | 2.0 | 12 | 25.0 | 8,200 |
| 3.0 | 25 | 23.0 | 5,510 | 2.5 | 29 | 26.0 | 10,800 |
| | | | | 3.0 | 54 | 27.0 | 14,700 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | 0.1 | a19 | 13 | g25 | 14 | 26 | *4,660 | 4.0 | 3.0 | a0.8 | a0.1 |
| 2 | .4 | .1 | a17 | 12 | g19 | 12 | 20 | *12,500 | 3.3 | 2.3 | a.7 | a.1 |
| 3 | .2 | 0 | a15 | 11 | g16 | 11 | 17 | *9,670 | 2.8 | 1.9 | a.6 | a.1 |
| 4 | .1 | 278 | a14 | 10 | g15 | 12 | 15 | *2,800 | 2.5 | 1.9 | a.5 | a0 |
| 5 | .1 | g4,120 | a13 | 9.9 | g15 | 16 | 37 | *309 | 1.9 | 628 | a.5 | a0 |
| 6 | .1 | g5,180 | a13 | *9.5 | g44 | 88 | 161 | 87 | 1.7 | 1,690 | a.4 | a0 |
| 7 | 0 | *2,770 | 146 | 9.5 | g72 | 1,080 | 30 | 54 | 2.7 | 1,120 | a.4 | a0 |
| 8 | 0 | 3,400 | 71 | 9.3 | 30 | 1,320 | 20 | 42 | 1.6 | 206 | a.3 | a0 |
| 9 | 0 | 869 | 30 | 9.3 | 23 | 350 | 22 | 37 | 1.1 | 34 | 21 | a0 |
| 10 | 0 | a200 | *20 | 9.3 | a18 | 90 | 111 | 34 | 6.6 | 18 | 1.2 | a.2 |
| 11 | 0 | a60 | 16 | 9.3 | a16 | 46 | 41 | 30 | 3.0 | 13 | 4.0 | a.4 |
| 12 | 0 | a35 | 14 | 97 | 15 | 157 | 25 | 26 | *1.5 | 9.8 | .9 | a.2 |
| 13 | .5 | g26 | 13 | 733 | 16 | 853 | 18 | *24 | 1.1 | 7.8 | a.5 | a.1 |
| 14 | 85 | 68 | 13 | 400 | 18 | 246 | 110 | 22 | .9 | 6.0 | a.3 | a.1 |
| 15 | 198 | 88 | 12 | 274 | 20 | 42 | 122 | 21 | .7 | 4.8 | a.2 | a0 |
| 16 | a35 | 36 | 12 | 263 | 20 | 28 | 40 | 25 | 1,050 | 4.4 | a.2 | a0 |
| 17 | 12 | 79 | 12 | 60 | 18 | 24 | 24 | 21 | 2,900 | 3.7 | a.2 | a0 |
| 18 | 5.7 | 834 | 12 | 36 | 17 | 22 | 18 | 18 | 1,450 | 3.4 | a.1 | a0 |
| 19 | 2.9 | 982 | 12 | 32 | 16 | 20 | 18 | 15 | 64 | 3.1 | **g.1 | 5.5 |
| 20 | 1.6 | 101 | 12 | 618 | *16 | 17 | 199 | 14 | 38 | 2.8 | a.1 | .8 |
| 21 | .9 | 44 | 12 | 1,100 | 16 | 16 | 403 | 13 | 580 | 2.6 | 1.1 | a.3 |
| 22 | .7 | 28 | 11 | 339 | 16 | 14 | 224 | 12 | 1,040 | 2.3 | 8.3 | .6 |
| 23 | .8 | a20 | 10 | 86 | 16 | 60 | 184 | 10 | 268 | *2.3 | 2.1 | a.3 |
| 24 | .6 | 81 | 10 | 48 | 15 | 130 | 40 | 9.6 | 28 | 2.5 | .6 | a.3 |
| 25 | .4 | 976 | 180 | 37 | 15 | *30 | 25 | 9.1 | 14 | 2.7 | a.4 | **g.2 |
| 26 | .2 | 473 | 401 | 30 | 16 | 17 | 20 | 24 | 9.6 | 2.7 | a.3 | .2 |
| 27 | .1 | 78 | 80 | 26 | 16 | 15 | 151 | 14 | 7.6 | 2.2 | a.3 | .2 |
| 28 | .1 | 46 | 33 | 28 | 17 | 14 | 113 | 8.0 | 5.4 | 1.7 | a.2 | .1 |
| 29 | .3 | a30 | 23 | 65 | - | 487 | 1,390 | 6.1 | 4.2 | a1.3 | a.2 | .1 |
| 30 | .2 | a23 | 18 | 57 | ------- | 476 | 3,070 | 5.4 | 3.6 | a1.1 | a.2 | .1 |
| 31 | .1 | ------- | 15 | g35 | ------- | 52 | ------- | 4.5 | ------- | a.9 | a.1 | ------- |
| Total | 346.5 | 20,925.2 | 1,279 | 4,476.1 | 576 | 5,759 | 6,694 | 30,524.7 | 7,497.8 | 3,786.2 | 46.8 | 10.0 |
| Mean | 11.2 | 698 | 41.3 | 144 | 20.6 | 186 | 223 | 985 | 250 | 122 | 1.51 | 0.33 |
| Ac-ft | 687 | 41,500 | 2,540 | 8,880 | 1,140 | 11,420 | 13,280 | 60,540 | 14,870 | 7,510 | 93 | 20 |

Calendar year 1957: Max 12,100 Min 0 Mean 383 Ac-ft 277,000
Water year 1957-58: Max 12,500 Min 0 Mean 224 Ac-ft 162,500

Peak discharge (base, 2,500 cfs).--Nov. 6 (2 a.m.) 6,310 cfs (23.70 ft); Nov. 8 (about 10 a.m.) 3,880 cfs (21.0 ft); May 2 (8 p.m.) 16,000 cfs (27.30 ft); June 17 (5 p.m.) 3,340 cfs (19.73 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 records for Elm Fork Trinity River near Sanger and Little Elm Creek near Aubrey.
g Computed from twice-daily staff-gage readings.

## 515. Clear Creek near Sanger, Tex.

Location.--Lat 33°20', long 97°11', on right bank at downstream side of bridge on U. S. Highway 77, 1,350 ft downstream from Duck Creek, 1.1 miles upstream from Gulf, Colorado and Santa Fe Railway Co. bridge, and 1.8 miles south of Sanger, Denton County.

Drainage area.--296 sq mi.

Records available.--March 1949 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 587.23 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942 (Corps of Engineers bench mark).

Average discharge.--9 years, 70.0 cfs (50,680 acre-ft per year).

Extremes.--Maximum discharge during year, 17,400 cfs May 2 (gage height, 24.65 ft); no flow Oct. 3-10, 12.

1949-58: Maximum discharge, 18,200 cfs Sept. 13, 1950 (gage height, 24.80 ft); no flow at times.

Maximum stage since at least 1880, 31.5 ft in 1908, from information by Gulf, Colorado and Santa Fe Railway Co. Flood in May 1935 reached a stage of 29.0 ft, from information by State Highway Department.

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

Revisions (water years).--WSP 1512: 1950, 1955.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 4, Apr. 23-26, May 4 to June 10, June 20 to July 5)

| | | | | | |
|---|---|---|---|---|---|
| 0.5 | 0 | 1.4 | 21 | 7.0 | 930 |
| .6 | .2 | 1.7 | 40 | 10.0 | 1,750 |
| .7 | .8 | 2.0 | 69 | 15.0 | 3,600 |
| .8 | 2.0 | 2.5 | 137 | 20.0 | 6,300 |
| .9 | 3.7 | 3.0 | 217 | 21.0 | 7,210 |
| 1.0 | 6.0 | 5.0 | 548 | 23.0 | 11,500 |
| 1.2 | 12 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.1 | 3.1 | a80 | 37 | 69 | 28 | 93 | 1,640 | 33 | 18 | 5.1 | 1.2 |
| 2 | .1 | 3.3 | a70 | 35 | 60 | 28 | 82 | 10,500 | 32 | 16 | 4.4 | 1.2 |
| 3 | 0 | 3.3 | a65 | 37 | 57 | 29 | 80 | 2,810 | 30 | 15 | 3.7 | 1.1 |
| 4 | 0 | 318 | a60 | 37 | 59 | 30 | 67 | 670 | 27 | 14 | 3.3 | 1.1 |
| 5 | 0 | 4,280 | a55 | 35 | 66 | 61 | 55 | 427 | 25 | 183 | 3.7 | 1.1 |
| 6 | 0 | *1,140 | 68 | *35 | 125 | 287 | 44 | a300 | 25 | 491 | 3.0 | 1.1 |
| 7 | 0 | 1,910 | 211 | 35 | 60 | 1,110 | 40 | a240 | 26 | 615 | 2.4 | 1.1 |
| 8 | 0 | 762 | a100 | 33 | 50 | 591 | 40 | 199 | 24 | 88 | 2.0 | 1.1 |
| 9 | 0 | 281 | a70 | 32 | 48 | 316 | 45 | 177 | 22 | a40 | 5.5 | 1.0 |
| 10 | 0 | 196 | a55 | 35 | 54 | a160 | 44 | 156 | 20 | a25 | 4.8 | 1.0 |
| 11 | .1 | 158 | *44 | 35 | 58 | a115 | 40 | 142 | 20 | a20 | 5.8 | 1.0 |
| 12 | 0 | 169 | 41 | 84 | 55 | 248 | 39 | 131 | *20 | a17 | 4.4 | 1.0 |
| 13 | 166 | 297 | 46 | 500 | 52 | 464 | 42 | *118 | 18 | a15 | 3.0 | 1.0 |
| 14 | 267 | 463 | 50 | 209 | 62 | a220 | 157 | a110 | 17 | a13 | 2.0 | 1.0 |
| 15 | a45 | 209 | 48 | 134 | 70 | a150 | 90 | a100 | 17 | a12 | 3.3 | 1.0 |
| 16 | a20 | 145 | 46 | 98 | 55 | a120 | 55 | a110 | 20 | a11 | 1.9 | 1.1 |
| 17 | *13 | 122 | 46 | 88 | 49 | a100 | 44 | 112 | 190 | a10 | 1.2 | 1.2 |
| 18 | a10 | 619 | 46 | 79 | 48 | a90 | 44 | 88 | a50 | a9 | .8 | 1.2 |
| 19 | a8 | 209 | 44 | 88 | 47 | a85 | 46 | 75 | 51 | a8.5 | *.6 | 1.5 |
| 20 | a7 | 143 | 36 | 525 | 45 | a80 | 185 | 67 | 65 | a8 | 3.6 | 1.2 |
| 21 | a6 | 118 | 31 | 561 | *43 | a75 | 126 | a60 | 95 | a7.5 | 39 | 1.2 |
| 22 | a5 | a100 | 31 | 257 | 43 | a75 | 69 | a56 | 123 | a7.5 | 22 | 1.2 |
| 23 | a5 | a85 | 32 | 196 | 43 | a80 | 57 | a52 | a50 | a10 | 13 | 1.2 |
| 24 | a15 | 308 | 35 | 153 | 47 | *73 | 48 | a50 | a35 | a20 | 8.8 | 1.2 |
| 25 | a8 | 430 | 126 | 126 | 41 | 71 | 40 | 57 | 27 | *13 | 7.2 | 1.2 |
| 26 | 5.5 | 209 | 106 | 108 | 45 | 71 | 57 | 71 | 24 | 10 | 6.8 | 1.2 |
| 27 | 4.4 | a150 | 67 | 85 | 45 | 75 | 216 | a52 | 23 | 8.5 | 4.8 | *1.2 |
| 28 | 3.5 | a120 | 55 | 116 | 32 | 86 | 131 | a45 | 22 | 7.2 | 3.5 | 1.2 |
| 29 | 3.0 | a100 | 48 | 179 | - | 416 | 439 | 40 | 20 | 6.5 | 2.5 | 2.2 |
| 30 | 3.0 | a90 | 46 | 119 | ------- | 177 | 1,610 | 39 | 19 | 6.5 | 1.6 | 2.0 |
| 31 | 3.0 | ------- | 44 | 98 | ------- | 109 | ------- | 36 | ------- | 5.8 | 1.4 | ------- |
| Total | 597.7 | 13,140.7 | 1,902 | 4,189 | 1,528 | 5,620 | 4,125 | 18,730 | 1,170 | 1,731.0 | 175.1 | 36.0 |
| Mean | 19.3 | 438 | 61.4 | 135 | 54.6 | 181 | 138 | 604 | 39.0 | 55.8 | 5.65 | 1.20 |
| Ac-ft | 1,190 | 26,060 | 3,770 | 8,310 | 3,030 | 11,150 | 8,180 | 37,150 | 2,320 | 3,430 | 347 | 71 |

Calendar year 1957: Max 11,800 Min 0 Mean 288 Ac-ft 208,400
Water year 1957-58: Max 10,500 Min 0 Mean 145 Ac-ft 105,000

Peak discharge (base, 3,000 cfs).--Nov. 5 (7 a.m.) 6,620 cfs (20.44 ft); Nov. 7 (7 p.m.) 3,640 cfs (15.07 ft); May 2 (8 a.m.) 17,400 cfs (24.65 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for Elm Fork Trinity River near Sanger and Denton Creek near Justin.

## 527. Little Elm Creek near Aubrey, Tex.

Location.--Lat 33°17', long 96°54', on left bank at downstream side of bridge on State Farm Road 1385, 1 mile upstream from Mustang Creek, 5.5 miles east of Aubrey, Denton County, and 18 miles upstream from Lewisville Dam.

Drainage area.--75.5 sq mi.

Records available.--June 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 534.76 ft above mean sea level (State Highway Department bench mark).

Extremes.--Maximum discharge during year, 4,460 cfs May 1 (gage height, 16.26 ft); no flow many days.
1956-58: Maximum discharge, 7,830 cfs Apr. 26, 1957 (gage height, 17.34 ft); no flow many days each year.
Maximum stage known since about 1900, 18.2 ft in May 1941, from information by local residents.

Remarks.--Records good except those between 20 and 150 cfs which are fair and those for the period of no gage-height record, which are poor. No diversions above gage.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 4.1 | 0 | 5.5 | 40 | 13.0 | 960 |
| 4.2 | .1 | 6.0 | 65 | 14.0 | 1,320 |
| 4.3 | .3 | 7.0 | 124 | 14.5 | 1,580 |
| 4.4 | .6 | 8.0 | 200 | 15.0 | 2,040 |
| 4.6 | 2.2 | 10.0 | 399 | 15.5 | 2,810 |
| 4.8 | 7.0 | 12.0 | 720 | 16.0 | 3,830 |
| 5.0 | 15 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 0 | 3.8 | 2.1 | 3.8 | 1.4 | 9.4 | 3,140 | 0 | 0 | | |
| 2 | .2 | 0 | 2.9 | 1.7 | 2.7 | .8 | 5.2 | 3,420 | 0 | 0 | | |
| 3 | .1 | 0 | 2.4 | 1.5 | 1.8 | .6 | 3.1 | 1,690 | 0 | 0 | | |
| 4 | .1 | 18 | 2.0 | 1.3 | 1.5 | .5 | 2.2 | 278 | 0 | 0 | | |
| 5 | .1 | 2,200 | 1.8 | 1.0 | 1.5 | 1.2 | 3.5 | 32 | 0 | 20 | | |
| 6 | .1 | 1,300 | 4.1 | 1.0 | 1.4 | 29 | 6.1 | 14 | 0 | 5.3 | | |
| 7 | 0 | *570 | 13 | .9 | 1.1 | 129 | 1.8 | 6.4 | 0 | 3.3 | | |
| 8 | 0 | 680 | 17 | .8 | .9 | 110 | 1.1 | 3.5 | 0 | .3 | | |
| 9 | 0 | 101 | 7.4 | .7 | .8 | 42 | 1.2 | 2.0 | 0 | 0 | | |
| 10 | 0 | 26 | *3.8 | .7 | .9 | 17 | 8.7 | 1.7 | 0 | 0 | | |
| 11 | 0 | 14 | 2.1 | .7 | .8 | 8.6 | 24 | 1.4 | 0 | 0 | | |
| 12 | 0 | 8.2 | 1.5 | 27 | .8 | 67 | 3.8 | .7 | 0 | 0 | | |
| 13 | .2 | 7.0 | 1.4 | 93 | .8 | 212 | 1.7 | .4 | *0 | 0 | | |
| 14 | a70 | 23 | 1.2 | 36 | 1.0 | 36 | 33 | 5.7 | 0 | 0 | | |
| 15 | a20 | 7.8 | 1.2 | 14 | 1.4 | 14 | 38 | 7.4 | 0 | 0 | | |
| 16 | a3 | 3.8 | 1.1 | 9.0 | 1.1 | 8.2 | 9.4 | .8 | 16 | 0 | | |
| 17 | a.6 | 31 | *1.1 | 6.7 | 1.0 | 5.5 | 3.1 | .3 | 439 | 0 | | |
| 18 | .2 | 322 | 1.0 | 4.0 | .9 | 3.8 | 1.5 | .1 | 148 | 0 | | |
| 19 | .1 | 65 | .9 | 7.7 | .8 | 2.9 | 1.0 | .5 | 5.5 | 0 | (*) | |
| 20 | 0 | 22 | .9 | 133 | *.7 | 2.0 | 16 | .2 | 1.0 | 0 | | |
| 21 | 0 | 11 | .8 | 193 | .6 | 1.7 | 35 | .1 | 1.4 | 0 | | |
| 22 | 0 | 5.8 | .7 | 45 | .6 | 1.8 | 14 | 0 | 131 | 0 | | |
| 23 | 0 | 4.9 | .6 | 22 | .6 | 74 | 2.9 | .1 | 11 | *0 | | |
| 24 | 0 | 104 | .7 | 15 | .6 | 38 | 1.3 | .1 | .8 | 0 | | |
| 25 | 0 | 168 | 36 | 9.4 | .5 | *12 | .6 | 0 | .3 | 0 | | |
| 26 | 0 | 46 | 95 | 6.7 | .5 | 4.0 | 13 | 0 | .1 | 0 | | (*) |
| 27 | 0 | 22 | 22 | 4.9 | 4.0 | 2.9 | 153 | 0 | 0 | 0 | | |
| 28 | 0 | 13 | 9.4 | 3.8 | 6.3 | 9.3 | 38 | 0 | 0 | 0 | | |
| 29 | 0 | 8.6 | 5.5 | 6.1 | - | 306 | 1,170 | *0 | 0 | 0 | | |
| 30 | 0 | 5.2 | *3.6 | 10 | ------- | 124 | 1,790 | 0 | 0 | 0 | | |
| 31 | 0 | ------- | 2.7 | 7.4 | ------- | 20 | ------- | 0 | ------- | 0 | | ------- |
| Total | 94.9 | 5,787.3 | 247.6 | 666.1 | 39.4 | 1,285.2 | 3,391.6 | 8,605.4 | 754.1 | 28.9 | 0 | 0 |
| Mean | 3.06 | 193 | 7.99 | 21.5 | 1.41 | 41.5 | 113 | 278 | 25.1 | 0.93 | 0 | 0 |
| Cfsm | 0.041 | 2.56 | 0.106 | 0.285 | 0.019 | 0.550 | 1.50 | 3.68 | 0.332 | 0.012 | 0 | 0 |
| In. | 0.05 | 2.85 | 0.12 | 0.33 | 0.02 | 0.63 | 1.67 | 4.24 | 0.37 | 0.01 | 0 | 0 |
| Ac-ft | 188 | 11,480 | 491 | 1,320 | 78 | 2,550 | 6,730 | 17,070 | 1,500 | 57 | 0 | 0 |
| (†) | 2.55 | 7.83 | 1.60 | 2.06 | 0.73 | 3.60 | 7.22 | 3.85 | 4.37 | 2.23 | 1.81 | 1.92 |

Calendar year 1957: Max 4,290 Min 0 Mean 139 Cfsm 1.84 In. 24.95 Ac-ft 100,800 (†) 60.44
Water year 1957-58: Max 3,420 Min 0 Mean 57.3 Cfsm 0.759 In. 10.29 Ac-ft 41,460 (†) 39.77

Peak discharge (base, 1,000 cfs).--Nov. 5 (11:30 a.m.) 2,900 cfs (15.55 ft); May 1 (4 a.m.) 4,460 cfs (16.26 ft).

* Discharge measurement or observation of no flow made on this day.
† Weighted mean rainfall, in inches, in drainage area above station.
a No gage-height record; discharge estimated on basis of weather records and records for Isle du Bois Creek near Pilot Point.

## 528. Garza-Little Elm Reservoir near Lewisville, Tex.

Location.--Lat 33°04', long 96°58', in intake structure of Lewisville Dam on Elm Fork Trinity River, 2 miles upstream from bridge on State Highway 121, 2.4 miles northeast of Lewisville, Denton County, and 12 miles upstream from Denton Creek.
Drainage area.--1,658 sq mi.
Records available.--November 1954 to September 1958.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to May 17, 1955, staff gage at site 4,000 ft upstream at same datum.
Extremes.--Maximum contents during year, 903,400 acre-ft May 5 (elevation, 529.34 ft); minimum, 428,100 acre-ft Sept. 15 (elevation, 512.55 ft).
1954-58: Maximum contents, 1,146,000 acre-ft June 3, 1957 (elevation, 535.57 ft); minimum since appreciable storage began, 1,260 acre-ft (contents of Lake Dallas not included) Sept. 20, 1956 (elevation, 459.60 ft).
Remarks.--Reservoir is formed by a rolled earth-fill dam, 32,888 ft long including a 560-foot uncontrolled off-channel concrete gravity spillway with ogee weir section. Outlet works consist of a 16-foot diameter concrete conduit controlled by three 6.5- by 13-foot broome-type gates and two 60-inch steel pipes controlled by service valves. Deliberate impoundment of water began Nov. 1, 1954, and main dam was completed in August 1955. Data regarding dam and reservoir are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Spillway crest | 532.0 | 1,002,900 |
| Top of conservation storage | 515.0 | 482,000 |
| Inverts of lowest intakes to wet wells | 481.0 | 48,870 |
| Invert of three 6.5- by 13-foot broome-type gates | 448.0 | 238 |

The dam forming Lake Dallas was breached Oct. 28, 1957, connecting Lake Dallas with Garza-Little Elm Reservoir. Storage Oct. 1-27, 1957, in former Lake Dallas is included and the figures given herein represent total storage of the combined reservoirs. Reservoir built for flood control and water conservation.
Cooperation.--Except for period Oct. 1-27, records furnished by Corps of Engineers and reviewed by Geological Survey.

Capacity table, water year 1957-58 (elevation, in feet, and total capacity, in acre-feet)

| | | | |
|---|---|---|---|
| 512 | 416,600 | 522 | 663,500 |
| 514 | 459,500 | 524 | 723,800 |
| 516 | 503,300 | 526 | 788,000 |
| 518 | 554,300 | 528 | 855,900 |
| 520 | 606,900 | 530 | 927,300 |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 483,600 | 478,600 | 480,800 | 481,300 | 482,000 | 473,000 | 482,000 | 641,600 | 683,800 | 503,300 | 463,300 | 436,900 |
| 2 | 483,200 | 478,100 | 482,400 | 480,400 | 481,300 | 473,000 | 482,000 | 761,200 | 675,700 | 498,000 | 462,600 | 435,900 |
| 3 | 482,100 | 478,100 | 482,600 | 480,800 | 480,600 | 472,500 | 481,100 | 878,800 | 668,000 | 494,600 | 461,500 | 434,800 |
| 4 | 481,600 | 480,800 | 482,800 | 480,400 | 480,800 | 473,900 | 479,900 | 902,000 | 660,000 | 492,400 | 460,100 | 434,000 |
| 5 | 481,000 | 519,500 | 482,600 | 480,400 | 482,000 | 475,200 | 478,600 | 900,200 | 653,100 | 493,300 | 458,800 | 433,400 |
| 6 | 480,500 | 564,600 | 485,400 | 480,600 | 481,700 | 477,900 | 477,700 | 892,600 | 645,400 | 501,800 | 457,900 | 432,700 |
| 7 | 479,700 | 595,700 | 485,600 | 480,400 | 482,200 | 488,800 | 475,700 | 883,400 | 637,300 | 508,300 | 456,600 | 432,100 |
| 8 | 480,400 | 612,200 | 486,200 | 479,300 | 482,200 | 493,900 | 475,200 | 875,300 | 630,300 | 505,400 | 455,700 | 431,300 |
| 9 | 479,400 | 612,500 | 486,200 | 479,000 | 482,000 | 492,400 | 475,400 | 866,500 | 628,900 | 500,300 | 454,600 | 430,200 |
| 10 | 479,000 | 604,500 | 485,600 | 479,000 | 482,000 | 487,100 | 474,100 | 856,900 | 627,800 | 495,400 | 453,300 | 430,000 |
| 11 | 477,900 | 595,700 | 483,700 | 479,500 | 482,000 | 481,500 | 472,500 | 846,900 | 626,100 | 490,700 | 452,700 | 430,000 |
| 12 | 477,000 | 587,600 | 482,800 | 482,800 | 481,500 | 481,500 | 471,600 | 840,800 | 617,800 | 486,000 | 451,800 | 429,600 |
| 13 | 479,400 | 578,800 | 483,000 | 488,600 | 481,500 | 482,600 | 473,900 | 832,200 | 610,300 | 482,400 | 451,100 | 429,200 |
| 14 | 481,600 | 572,400 | 483,000 | 492,200 | 481,300 | 479,700 | 473,900 | 824,300 | 602,600 | 480,800 | 450,000 | 428,500 |
| 15 | 482,800 | 565,200 | 483,300 | 489,400 | 479,700 | 478,100 | 473,200 | 814,800 | 595,400 | 479,900 | 449,200 | 428,100 |
| 16 | 483,200 | 556,900 | 483,300 | 487,900 | 478,400 | 475,400 | 472,500 | 805,100 | 591,900 | 479,700 | 448,100 | 428,800 |
| 17 | 483,200 | 555,400 | 483,300 | 485,600 | 476,600 | 474,100 | 472,300 | 795,000 | 589,500 | 478,800 | 447,000 | 428,300 |
| 18 | 482,100 | 555,900 | 483,700 | 482,800 | 475,400 | 473,000 | 472,500 | 785,000 | 587,400 | 477,900 | 446,100 | 428,100 |
| 19 | 482,000 | 551,300 | 483,700 | 483,300 | 474,100 | 472,700 | 472,300 | 773,900 | 580,700 | 476,600 | 445,000 | 432,700 |
| 20 | 481,000 | 545,600 | 483,300 | 486,200 | 473,000 | 472,300 | 475,200 | 764,800 | 572,600 | 476,100 | 445,700 | 433,200 |
| 21 | 481,000 | 536,900 | 482,600 | 489,700 | 472,700 | 472,100 | 478,400 | 756,600 | 569,000 | 475,000 | 445,700 | 432,700 |
| 22 | 481,400 | 530,000 | 482,200 | 485,800 | 472,700 | 474,100 | 478,100 | 750,000 | 564,400 | 473,600 | 445,200 | 432,300 |
| 23 | 481,400 | 521,600 | 482,200 | 481,300 | 472,700 | 477,500 | 477,200 | 743,000 | 557,700 | 474,300 | 445,000 | 432,100 |
| 24 | 480,900 | 517,700 | 483,000 | 480,600 | 472,700 | 477,000 | 476,100 | 735,500 | 550,400 | 473,000 | 444,400 | 432,100 |
| 25 | 480,500 | 513,200 | 484,100 | 481,500 | 472,700 | 475,900 | 474,800 | 729,200 | 543,600 | 472,300 | 443,300 | 431,900 |
| 26 | 479,400 | 506,400 | 485,000 | 481,300 | 473,000 | 474,500 | 486,200 | 722,000 | 536,200 | 470,700 | 441,900 | 432,300 |
| 27 | 478,100 | 499,900 | 485,400 | 481,500 | 473,200 | 473,200 | 495,400 | 714,700 | 528,900 | 469,400 | 441,300 | 431,900 |
| 28 | 479,300 | 492,200 | 484,700 | 482,000 | 473,000 | 471,800 | 502,900 | 708,600 | 522,700 | 468,500 | 440,400 | 430,900 |
| 29 | 478,800 | 486,700 | 483,700 | 482,200 | - | 484,500 | 530,200 | 704,000 | 516,100 | 467,300 | 439,300 | 430,200 |
| 30 | 478,800 | 483,000 | 483,000 | 482,400 | ------- | 485,200 | 578,600 | 699,400 | 509,800 | 465,500 | 438,400 | 430,400 |
| 31 | 478,400 | ------- | 482,200 | 482,400 | ------- | 483,300 | ------- | 691,500 | ------- | 464,200 | 437,800 | ------- |
| (†) | 514.84 | 515.05 | 515.01 | 515.02 | 514.60 | 515.06 | 518.94 | 522.94 | 516.25 | 514.21 | 513.01 | 512.66 |
| (‡) | -6,400 | +4,600 | -800 | +200 | -9,400 | +10,300 | +95,300 | +112,900 | -181,700 | -45,600 | -26,400 | -7,400 |

Calendar year 1957 ‡ +446,800
Water year 1957-58 ‡ -54,400

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

## 530. 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 Reservoir, and 8.3 miles upstream from Denton Creek.

Drainage area.--1,671 sq mi.

Records available.--March 1949 to September 1958.

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

Average discharge.--9 years, 536 cfs (388,000 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 5,440 cfs May 17 (gage height, 24.09 ft); minimum daily, 2 cfs Dec. 5, 9, Sept. 15, 18, 22-30.
1949-58: Maximum discharge, 21,700 cfs Sept. 15, 1950 (gage height, 30.75 ft); minimum daily, 0.8 cfs Jan. 19, 1955.
Maximum stage since at least 1907, 33.8 ft in 1908, present site and datum, from floodmarks.

Remarks.--Records good except those for periods of backwater from Denton Creek and Carrollton Dam, which are poor. Flow regulated by Garza-Little Elm Reservoir (see preceding page.).

Rating table, water year 1957-58, except periods of backwater from Denton Creek and Carrollton Dam (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 24-31)

| | | | | | |
|---|---|---|---|---|---|
| 1.7 | 1.0 | 3.0 | 44 | 10.0 | 850 |
| 1.8 | 2.5 | 4.0 | 95 | 15.0 | 2,030 |
| 1.9 | 4.5 | 5.0 | 176 | 20.0 | 3,700 |
| 2.1 | 10 | 7.0 | 393 | 24.1 | 5,440 |
| 2.5 | 24 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 278 | 72 | 220 | 590 | 419 | 128 | 1,260 | 369 | 3,700 | 2,740 | 345 | 181 |
| 2 | 278 | 74 | 4 | 392 | 419 | 128 | 868 | 446 | 3,700 | 2,740 | 345 | 236 |
| 3 | 242 | 74 | 3 | 112 | 283 | 128 | 832 | 338 | 3,700 | 2,490 | 345 | 251 |
| 4 | 136 | 77 | 3 | 109 | 102 | 128 | 814 | 307 | 3,700 | 1,050 | 345 | 221 |
| 5 | 136 | 126 | *2 | 109 | 80 | 148 | 814 | 1,740 | 3,700 | 872 | 345 | 216 |
| 6 | 136 | 365 | 15 | 109 | 80 | 157 | 814 | 3,460 | 3,740 | 256 | 333 | 186 |
| 7 | 136 | 1,850 | 5 | 109 | 174 | 498 | 814 | 5,080 | 3,740 | 810 | 322 | 140 |
| 8 | 124 | 4,020 | 3 | 109 | 272 | 1,390 | 814 | 5,360 | 3,700 | 2,120 | 333 | 140 |
| 9 | 95 | 5,000 | 2 | 109 | 272 | 2,450 | 814 | 5,400 | 959 | 2,210 | 333 | 140 |
| 10 | 95 | 5,180 | 724 | *106 | 272 | 2,990 | *814 | 5,400 | 333 | 2,330 | 333 | 136 |
| 11 | 95 | 5,180 | 682 | 92 | 272 | 4,380 | 814 | 5,360 | 269 | 2,330 | 278 | 55 |
| 12 | 92 | 5,130 | 408 | 95 | 272 | 2,670 | 562 | 4,950 | 2,700 | 2,330 | 256 | 3 |
| 13 | 102 | 5,040 | 166 | 191 | 406 | 1,860 | 256 | 3,780 | 3,700 | 1,860 | 272 | 2.5 |
| 14 | 98 | 4,770 | 162 | 641 | 635 | 2,480 | 500 | 5,080 | 3,740 | 578 | 272 | 2.5 |
| 15 | 95 | 4,680 | 162 | 1,370 | 746 | 2,210 | 985 | 5,360 | 3,740 | 322 | 289 | 2 |
| 16 | 95 | 4,680 | 151 | 1,440 | 746 | 1,520 | 682 | 5,400 | 3,740 | 322 | 278 | 5 |
| 17 | 95 | 4,560 | 65 | *1,570 | 730 | 1,490 | 289 | 5,440 | *3,740 | 311 | 278 | 2.5 |
| 18 | 95 | 1,590 | 89 | 1,570 | 730 | 985 | 216 | 5,440 | 3,740 | 311 | 216 | 2 |
| 19 | 95 | *4,260 | *226 | 1,150 | *730 | 311 | 211 | 5,440 | 3,700 | 311 | 152 | 2.5 |
| 20 | 95 | 4,640 | 289 | 1,000 | 666 | 311 | 267 | 5,260 | 3,700 | 311 | 211 | 4 |
| 21 | 95 | 4,640 | 289 | 1,890 | 400 | 311 | 278 | 4,420 | 3,740 | 311 | 196 | 3 |
| 22 | 95 | 4,420 | 289 | 3,100 | 128 | 236 | 568 | 3,700 | 3,780 | 211 | 166 | 2 |
| 23 | 98 | 3,500 | 289 | 3,980 | 128 | 166 | 925 | *3,580 | 3,700 | 311 | 144 | 2 |
| 24 | 98 | 4,420 | 289 | 1,340 | 128 | 196 | 925 | 3,540 | 3,660 | 311 | 132 | 2 |
| 25 | 74 | 4,590 | 300 | 289 | 128 | 577 | 906 | 3,540 | 3,660 | 311 | 132 | 2 |
| 26 | 57 | 4,590 | 300 | 289 | 128 | 906 | 1,220 | 3,540 | 3,660 | 311 | 132 | 2 |
| 27 | 56 | 4,590 | 419 | 216 | 128 | 887 | 813 | 3,580 | 3,380 | *311 | 140 | 2 |
| 28 | 70 | 4,540 | 605 | 148 | 128 | 730 | 234 | 3,620 | 2,700 | 311 | 251 | 2 |
| 29 | 95 | 4,340 | 590 | 206 | - | 868 | 545 | 2,070 | 2,610 | 311 | 236 | 2 |
| 30 | 89 | 2,990 | 590 | 278 | ------- | 1,150 | 719 | 1,370 | 2,610 | 322 | 186 | 2 |
| 31 | 72 | ------- | 590 | *311 | ------- | 1,570 | ------- | 3,380 | ------- | 345 | 181 | ------- |
| Total | 3,512 | 103,988 | 7,931 | 23,020 | 9,602 | 33,959 | 20,573 | 115,750 | 97,241 | 30,070 | 7,777 | 1,949.0 |
| Mean | 113 | 3,466 | 256 | 743 | 343 | 1,095 | 686 | 3,734 | 3,241 | 970 | 251 | 65.0 |
| Ac-ft | 6,970 | 206,300 | 15,730 | 45,660 | 19,050 | 67,360 | 40,810 | 229,600 | 192,900 | 59,640 | 15,430 | 3,870 |

Calendar year 1957: Max 11,200 Min 2 Mean 1,644 Ac-ft 1,190,000
Water year 1957-58: Max 5,440 Min 2 Mean 1,248 Ac-ft 903,300

* Discharge measurement made on this day.
Note.--Backwater from Denton Creek and Carrollton Dam Dec. 1-10, Sept. 11-30.

## 535. 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 and Santa Fe Railway Co. 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 1958.

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

Average discharge.--9 years, 85.8 cfs (62,120 acre-ft per year).

Extremes.--Maximum discharge during year, 17,300 cfs May 2 (gage height, 16.70 ft); no flow for many days.

1949-58: Maximum discharge, 29,800 cfs May 24, 1957 (gage height, 17.64 ft); no flow at times.

Flood in May 1935 was highest flood since 1908 and reached a stage of 20.6 ft at site about 1,500 ft upstream, from information by local resident. Flood in May 1908 reached a stage about 1 ft higher than flood in May 1935, from information by local resident.

Remarks.--Records good. Several small diversions above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 7-30, Aug. 25-27)

| | | | | | |
|---|---|---|---|---|---|
| 1.14 | 0 | 2.0 | 25 | 11.0 | 2,320 |
| 1.2 | .3 | 2.4 | 54 | 13.0 | 3,550 |
| 1.3 | 1.5 | 3.0 | 117 | 14.0 | 4,460 |
| 1.4 | 3.0 | 4.0 | 232 | 15.0 | 6,060 |
| 1.5 | 5.1 | 6.0 | 555 | 16.0 | 10,600 |
| 1.7 | 11 | 8.0 | 1,050 | 17.0 | 20,800 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 2.4 | 32 | 26 | 50 | 22 | 92 | 5,720 | 33 | 9.1 | 0 | 0 |
| 2 | 0 | 2.6 | 32 | 22 | 39 | 22 | 87 | 10,600 | 30 | 7.9 | 0 | 0 |
| 3 | 0 | 2.7 | 32 | 23 | 37 | 23 | 90 | 11,400 | 29 | 6.5 | 0 | 0 |
| 4 | 0 | 4.3 | 30 | 23 | 36 | 23 | 68 | 4,330 | 26 | 5.7 | 0 | 0 |
| 5 | 0 | 812 | 27 | 22 | 39 | 34 | 60 | 1,170 | 23 | 7.1 | 0 | 0 |
| 6 | 0 | *1,700 | 32 | *21 | 39 | 149 | 45 | 487 | 22 | 28 | 0 | 0 |
| 7 | 0 | 1,520 | 68 | 21 | 35 | 623 | 39 | 318 | 22 | 106 | 0 | 0 |
| 8 | 0 | 921 | 59 | 21 | 35 | 485 | 38 | 245 | 20 | 156 | 0 | 0 |
| 9 | *0 | 815 | 39 | 20 | 32 | 421 | 41 | 206 | 18 | 150 | 0 | 0 |
| 10 | 0 | 366 | 33 | 22 | 36 | 232 | 41 | 183 | 16 | 82 | 0 | 0 |
| 11 | 0 | 138 | 31 | 22 | 37 | 156 | 37 | 166 | 16 | 35 | 0 | 0 |
| 12 | 0 | 79 | *25 | 24 | 36 | 151 | 34 | 148 | 14 | 20 | 0 | 0 |
| 13 | 0 | 82 | 26 | 126 | 36 | 322 | 39 | 135 | *13 | 13 | 0 | 0 |
| 14 | 194 | 73 | 29 | 141 | 38 | *206 | 102 | 126 | 11 | 8.8 | 0 | 0 |
| 15 | 117 | 82 | 27 | 73 | 44 | 166 | 93 | 126 | 11 | 5.9 | 0 | 0 |
| 16 | 64 | 68 | 26 | 50 | 37 | 134 | 58 | 126 | 13 | 4.3 | 0 | 0 |
| 17 | 21 | 50 | 26 | 42 | 33 | 115 | 45 | 129 | 16 | 3.2 | 0 | 0 |
| 18 | 11 | 114 | 27 | 37 | 32 | 97 | 44 | 109 | 38 | 2.4 | 0 | 0 |
| 19 | 6.5 | 91 | 26 | 36 | 32 | 85 | 45 | 94 | 50 | 2.0 | 0 | 0 |
| 20 | 4.5 | 55 | 23 | 96 | 30 | 77 | 95 | 84 | 39 | 1.3 | *0 | 0 |
| 21 | 3.4 | 42 | 21 | 313 | 20 | 72 | 137 | 76 | 37 | 1.3 | 0 | 0 |
| 22 | 3.4 | 33 | 19 | 194 | 29 | 71 | 104 | 71 | 36 | 1.1 | 0 | 0 |
| 23 | 3.6 | 32 | 20 | 128 | 29 | 72 | 82 | 67 | 44 | 1.6 | 0 | 0 |
| 24 | 3.8 | 109 | 20 | 92 | 29 | *65 | 62 | 61 | 52 | 11 | 0 | 0 |
| 25 | 4.0 | 194 | 32 | 74 | 29 | 56 | 43 | 57 | 37 | 7.3 | 1.4 | 0 |
| 26 | 4.0 | 122 | 52 | 64 | 29 | 54 | 294 | 61 | 26 | *3.4 | .8 | .2 |
| 27 | 3.0 | 81 | 39 | 52 | 32 | 53 | 503 | 56 | 19 | 2.1 | .2 | **.2 |
| 28 | 2.4 | 60 | 39 | 48 | 26 | 61 | 536 | 49 | 15 | 1.1 | 0 | .1 |
| 29 | 2.1 | 45 | 36 | 88 | - | 572 | 2,530 | *44 | 13 | .8 | 0 | .8 |
| 30 | 2.0 | 39 | 32 | 80 | ------- | 239 | 2,360 | 40 | 11 | .2 | 0 | 1.1 |
| 31 | 2.1 | ------- | 30 | 63 | ------- | 119 | ------- | 36 | ------- | 0 | | ------- |
| Total | 451.8 | 7,735.0 | 990 | 2,064 | 965 | 4,977 | 7,844 | 36,520 | 750 | 684.1 | 2.4 | 2.4 |
| Mean | 14.6 | 258 | 31.9 | 66.6 | 34.5 | 161 | 261 | 1,178 | 25.0 | 22.1 | 0.08 | 0.08 |
| Ac-ft | 896 | 15,340 | 1,960 | 4,090 | 1,910 | 9,870 | 15,560 | 72,440 | 1,490 | 1,360 | 4.8 | 4.8 |

Calendar year 1957: Max 17,200 Min 0 Mean 359 Ac-ft 260,200
Water year 1957-58: Max 11,400 Min 0 Mean 173 Ac-ft 124,900

Peak discharge (base, 3,000 cfs).--Apr. 30 (5 p.m.) 4,940 cfs (14.41 ft); May 2 (7 p.m.) 17,300 cfs (16.70 ft).

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

## 545. Grapevine Reservoir near Grapevine, Tex.

Location.--Lat 32°58', long 97°03', in intake structure of Grapevine Dam on Denton Creek, 2.7 miles northeast of Grapevine, Tarrant County, 4.3 miles upstream from bridge on State Highway 121, and 11.7 miles upstream from mouth of Denton Creek.

Drainage area.--694 sq mi.

Records available.--July 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to May 16, 1953, staff gage at site 1,000 ft upstream at present datum.

Extremes.--Maximum contents during year, 330,700 acre-ft May 12 (elevation, 550.98 ft); minimum, 172,500 acre-ft Sept. 30 (elevation, 532.76 ft).
1952-58: Maximum contents, 445,800 acre-ft June 6, 1957 (elevation, 560.80 ft); minimum since appreciable storage began, 14,120 acre-ft Dec. 18, 1956 (elevation, 494.84 ft).

Remarks.--Reservoir is formed by a rolled earth-fill dam, 12,850 ft long including a 500-foot uncontrolled off-channel concrete gravity spillway with ogee weir section. Dam completed June 1952 and deliberate impoundment of water began July 3, 1952. Figures given herein represent total contents. Reservoir built for flood control, navigation, and water conservation. Data regarding dam and reservoir are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Maximum design water surface | 581.0 | 768,800 |
| Spillway crest | 560.0 | 435,500 |
| Top of conservation storage | 535.0 | 188,500 |
| Inverts of lowest intakes to wet wells | 500.5 | 24,750 |
| Invert of two 6.5- by 13-foot broome-type gates | 475.0 | 832 |

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

Capacity table, water year 1957-58 (elevation, in feet, and total capacity, in acre-feet)

| | | | |
|---|---|---|---|
| 532 | 167,200 | 543 | 253,600 |
| 534 | 181,300 | 547 | 290,700 |
| 537 | 203,700 | 551 | 330,900 |
| 540 | 227,800 | | |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 183,900 | 182,500 | 194,100 | 188,300 | 188,200 | 188,300 | 190,800 | 253,600 | 295,300 | 210,100 | 185,100 | 179,500 |
| 2 | 183,700 | 182,500 | 191,900 | 188,300 | 188,000 | 188,300 | 187,900 | 277,500 | 292,200 | 205,200 | 185,000 | 179,000 |
| 3 | 183,500 | 182,400 | 191,200 | 188,300 | 188,000 | 188,300 | 188,100 | 310,900 | 289,200 | 201,000 | 184,700 | 178,800 |
| 4 | 183,400 | 182,900 | 190,700 | 188,300 | 188,200 | 188,800 | 188,300 | 323,600 | 286,200 | 197,400 | 184,600 | 178,500 |
| 5 | 183,100 | 185,800 | 190,400 | 188,300 | 188,200 | 189,500 | 188,500 | 326,700 | 283,200 | 195,500 | 184,300 | 178,300 |
| 6 | 182,900 | 189,600 | 190,300 | 188,200 | 188,200 | 190,000 | 188,400 | 327,900 | 280,000 | 196,400 | 184,200 | 178,200 |
| 7 | 182,900 | 194,400 | 189,800 | 188,200 | 188,200 | 192,300 | 188,300 | 328,400 | 277,300 | 196,300 | 184,000 | 178,100 |
| 8 | 182,800 | 196,600 | 189,600 | 188,200 | 188,200 | 193,600 | 188,500 | 329,200 | 274,100 | 194,700 | 183,900 | 178,000 |
| 9 | 182,600 | 198,400 | 189,000 | 188,200 | 188,200 | 194,200 | 189,000 | 329,800 | 273,800 | 193,400 | 183,600 | 178,000 |
| 10 | 182,300 | 199,300 | 188,600 | 188,200 | 188,500 | 194,400 | 188,700 | 330,100 | 273,400 | 192,300 | 183,500 | 178,100 |
| 11 | 182,100 | 199,600 | 188,500 | 188,200 | 188,500 | 194,300 | 188,300 | 330,600 | 273,000 | 191,100 | 183,300 | 177,800 |
| 12 | 181,800 | 199,800 | 188,500 | 189,100 | 188,500 | 193,700 | 188,200 | 329,300 | 270,500 | 189,700 | 183,100 | 177,300 |
| 13 | 182,600 | 200,100 | 188,500 | 189,200 | 188,400 | 192,100 | 189,100 | 327,600 | 267,300 | 188,900 | 183,000 | 176,600 |
| 14 | 183,300 | 200,100 | 188,500 | 189,400 | 188,900 | 190,300 | 189,500 | 328,300 | 264,300 | 188,300 | 182,800 | 176,100 |
| 15 | 183,600 | 200,300 | 188,600 | 189,100 | 188,900 | 189,300 | 189,100 | 328,700 | 261,500 | 187,700 | 182,600 | 175,400 |
| 16 | 183,900 | 200,400 | 188,800 | 189,000 | 188,800 | 189,100 | 188,700 | 328,800 | 259,000 | 187,500 | 182,600 | 175,300 |
| 17 | 183,800 | 201,100 | 188,900 | 188,800 | 188,800 | 188,800 | 188,500 | 328,900 | 256,000 | 187,400 | 182,400 | 174,500 |
| 18 | 183,600 | 201,400 | 189,100 | 188,700 | 188,900 | 188,200 | 188,500 | 329,200 | 253,000 | 187,400 | 182,100 | 174,000 |
| 19 | 183,500 | 201,400 | 188,700 | 189,200 | 188,900 | 188,000 | 188,500 | 329,200 | 250,500 | 187,100 | 182,000 | 176,500 |
| 20 | 183,400 | 201,300 | 188,500 | 189,400 | 188,900 | 187,900 | 189,700 | 328,600 | 247,500 | 187,100 | 181,800 | 176,400 |
| 21 | 183,400 | 200,900 | 188,300 | 189,300 | 188,800 | 187,800 | 190,300 | 326,600 | 246,700 | 186,800 | 181,800 | 176,000 |
| 22 | 183,800 | 200,900 | 188,400 | 189,200 | 188,600 | 188,300 | 189,800 | 323,700 | 243,700 | 186,800 | 181,500 | 175,800 |
| 23 | 183,800 | 200,900 | 188,500 | 189,100 | 188,500 | 188,600 | 188,900 | 320,600 | 240,700 | 186,900 | 181,600 | 175,400 |
| 24 | 183,500 | 202,100 | 188,900 | 188,700 | 188,300 | 188,600 | 187,800 | 317,700 | 238,000 | 186,800 | 181,500 | 174,900 |
| 25 | 183,300 | 202,500 | 189,300 | 188,500 | 188,100 | 188,800 | 187,800 | 314,800 | 235,200 | 186,600 | 181,200 | 174,600 |
| 26 | 183,000 | 202,500 | 189,200 | 188,400 | 188,200 | 188,800 | 197,500 | 311,400 | 232,200 | 186,500 | 181,000 | 174,400 |
| 27 | 182,800 | 202,500 | 189,000 | 188,200 | 188,200 | 188,600 | 205,500 | 308,300 | 228,800 | 186,300 | 180,800 | 173,800 |
| 28 | 182,600 | 202,200 | 188,700 | 188,200 | 188,200 | 188,500 | 207,400 | 305,600 | 224,300 | 186,200 | 180,500 | 173,300 |
| 29 | 182,500 | 200,900 | 188,500 | 188,300 | - | 196,700 | 222,500 | 303,700 | 219,400 | 185,800 | 180,300 | 172,800 |
| 30 | 182,500 | 197,800 | 188,500 | 188,400 | ------- | 196,400 | 236,300 | 301,200 | 214,700 | 185,600 | 180,000 | 172,500 |
| 31 | 182,400 | ------- | 188,500 | 188,400 | ------- | 194,100 | ------- | 298,200 | ------- | 185,500 | 179,700 | ------- |
| (†) | 534.16 | 536.23 | 534.99 | 534.98 | 534.96 | 535.75 | 541.02 | 547.77 | 538.40 | 534.58 | 533.78 | 532.76 |
| (‡) | -1,800 | +15,400 | -9,300 | -100 | -200 | +5,900 | +42,200 | +61,900 | -83,500 | -29,200 | -5,800 | -7,200 |

Calendar year 1957..... ‡ +173,200
Water year 1957-58..... ‡ -11,700

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

## 550. 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.--704 sq mi.

Records available.--October 1947 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 439.11 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 130 cfs (94,120 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 2,500 cfs June 30 (gage height, 20.16 ft); minimum daily, 7.0 cfs July 17.

1947-58: 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 the flood in April 1942, which reached a stage of about 36 ft, from floodmarks, from information by local resident.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow regulated by Grapevine Reservoir (see preceding page).

Revisions.--WSP 1512: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 29, Jan. 13-18, Jan. 20 to Feb. 3, Feb. 20-26, Mar. 5-7, July 16-22, 26-29, Sept. 11-19)

| | | | | | |
|---|---|---|---|---|---|
| 3.9 | 6.3 | 5.0 | 36 | 12.0 | 755 |
| 4.0 | 7.8 | 6.0 | 90 | 16.0 | 1,420 |
| 4.5 | 19 | 8.0 | 255 | 20.0 | 2,440 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 39 | 18 | 1,750 | 12 | 122 | 14 | *1,960 | 85 | 1,400 | 2,470 | 19 | 68 |
| 2 | 39 | 18 | 1,550 | 12 | 122 | 14 | 1,610 | 144 | 1,400 | 2,440 | 19 | 56 |
| 3 | 40 | 18 | 272 | 12 | 76 | 14 | 279 | 119 | 1,400 | 2,350 | 19 | 56 |
| 4 | 48 | 19 | *240 | 12 | 15 | 15 | 21 | 34 | 1,400 | 1,760 | 19 | 47 |
| 5 | 48 | 125 | 230 | 12 | 15 | 34 | 19 | 31 | 1,400 | 1,620 | 19 | a30 |
| 6 | 50 | 26 | 240 | 12 | 14 | 20 | 18 | 31 | 1,400 | 120 | 17 | a30 |
| 7 | 50 | 49 | 235 | 12 | 13 | 140 | 18 | 30 | 1,380 | 226 | 17 | 30 |
| 8 | 48 | 21 | 235 | 12 | 13 | 266 | 18 | a30 | 1,370 | 800 | 18 | 30 |
| 9 | *50 | 20 | 235 | 12 | 13 | 260 | *75 | a30 | 228 | 711 | 19 | 30 |
| 10 | 42 | 20 | 200 | *12 | 13 | 260 | 151 | a30 | 114 | 576 | 19 | 30 |
| 11 | 16 | 20 | 19 | 12 | 13 | 260 | 155 | a30 | 97 | 576 | 19 | 72 |
| 12 | 18 | 20 | 18 | 14 | 13 | 615 | 88 | 520 | 1,060 | 563 | 20 | 163 |
| 13 | 21 | 20 | 18 | 84 | 13 | 1,160 | 21 | 1,330 | 1,350 | 369 | 21 | 202 |
| 14 | 24 | 19 | 17 | 147 | 13 | 1,140 | 126 | 44 | 1,350 | 90 | 21 | 220 |
| 15 | 23 | 19 | 17 | 147 | 13 | 764 | 288 | 40 | 1,350 | 52 | 21 | 230 |
| 16 | 22 | 20 | 17 | 147 | 13 | 288 | 288 | 39 | 1,350 | 24 | 20 | *220 |
| 17 | 21 | 21 | 17 | *147 | 13 | 277 | 210 | 38 | *1,350 | 7.0 | 20 | 163 |
| 18 | 20 | 23 | 17 | 88 | 13 | 255 | 136 | 37 | 1,350 | 10 | 21 | 167 |
| 19 | 20 | 62 | 54 | 16 | *13 | 197 | 136 | 37 | 1,330 | 13 | 21 | 187 |
| 20 | 20 | 139 | 122 | 151 | 42 | 136 | 192 | 222 | 1,330 | 16 | *27 | 59 |
| 21 | 20 | 136 | 74 | 310 | 122 | 92 | 202 | 910 | 1,370 | 12 | 31 | 151 |
| 22 | 21 | 109 | 16 | 299 | 122 | 20 | 437 | 1,440 | 1,330 | *12 | 29 | 136 |
| 23 | 24 | 11 | 15 | 299 | 122 | 20 | 641 | *1,460 | 1,310 | 21 | 29 | 114 |
| 24 | a22 | 27 | 12 | 264 | 118 | 20 | 461 | 1,480 | 1,310 | 35 | 29 | 155 |
| 25 | a20 | 59 | 16 | 147 | 118 | 19 | 161 | 1,540 | 1,310 | 24 | 29 | 159 |
| 26 | 19 | 136 | 57 | 147 | 71 | 41 | 529 | 1,560 | 1,310 | 18 | 28 | 118 |
| 27 | a18 | 139 | 118 | 132 | 14 | 111 | 166 | 1,560 | 1,400 | *18 | 29 | 118 |
| 28 | a18 | 139 | 118 | 97 | 14 | 111 | 30 | 1,380 | 2,260 | 18 | 56 | 118 |
| 29 | a18 | 415 | 118 | 59 | - | 274 | 75 | 942 | 2,380 | 18 | 56 | 118 |
| 30 | 18 | 1,520 | 74 | 58 | ------- | 536 | 168 | 1,020 | 2,470 | 18 | 56 | 111 |
| 31 | 18 | ------- | 12 | *68 | ------- | 1,100 | ------- | 1,400 | ------- | 18 | 56 | ------- |
| Total | 875 | 3,388 | 6,133 | 2,953 | 1,276 | 8,473 | 8,679 | 17,593 | 39,859 | 15,005.0 | 824 | 3,388 |
| Mean | 28.2 | 113 | 198 | 95.3 | 45.6 | 273 | 289 | 568 | 1,329 | 484 | 26.6 | 113 |
| Ac-ft | 1,740 | 6,720 | 12,160 | 5,860 | 2,530 | 16,810 | 17,210 | 34,900 | 79,060 | 29,760 | 1,630 | 6,720 |

Calendar year 1957: Max 2,190 Min 0.3 Mean 410 Ac-ft 296,700
Water year 1957-58: Max 2,470 Min 7.0 Mean 297 Ac-ft 215,100

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of releases from Grapevine Reservoir.

555. Elm Fork Trinity River near Carrollton, Tex.

Location.--Lat 32°57'55", long 96°56'40", near left bank at downstream side of pier of highway bridge, 40 ft upstream from Carrollton Dam, 0.3 mile downstream from Denton Creek, 1 mile upstream from St. Louis Southwestern Railway Lines bridge, and 2.3 miles northwest of Carrollton, Dallas County.

Drainage area.--2,457 sq mi.

Records available.--January 1907 to September 1920 (monthly records only, in WSP 850), October 1920 to March 1923, August 1923 to September 1958. Prior to November 1923, published as "near Dallas."

Gage.--Water-stage recorder and concrete control. Datum of gage is 433.40 ft above mean sea level, datum of 1929. Prior to November 1923, staff gage at site 15.5 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 present site at same datum. July 7, 1938, to Apr. 14, 1939, staff gage at site 9.3 miles downstream at datum 22.94 ft lower. Apr. 15, 1939, to Sept. 30, 1955, water-stage recorder at site 8.5 miles downstream at datum 22.94 ft lower.

Average discharge.--50 years (1907-22, 1923-58), 826 cfs (598,000 acre-ft per year).

Extremes.--Maximum discharge during year, 7,720 cfs Apr. 27 (gage height, 6.65 ft, from floodmark); no flow Dec. 18.

1907-58: Maximum gage height, about 20 ft, present site and datum, May 25, 1908, from information in files of Corps of Engineers (discharge not determined); maximum gage height subsequent to 1908, 14.5 ft, present site and datum, Apr. 26, 1942, from observation by U. S. Weather Bureau (discharge at site 8.5 miles downstream, 90,700 cfs); no flow at times.

Remarks.--Records good. Flow largely regulated by Garza-Little Elm Reservoir since November 1954 (see p. 92) and Grapevine Reservoir since July 1952 (see p. 95). According to records furnished by the city of Dallas, 44,330 acre-ft of water was diverted above station for municipal use.

Revisions (water years).--WSP 788: 1924. WSP 1148: Drainage area at former site.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to Nov. 30 | | | | | | Dec. 1 to Sept. 30 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.5 | 5.6 | 0.9 | 55 | 2.0 | 834 | 0.45 | 0 | 0.8 | 45 | 3.0 | 1,580 |
| .6 | 11 | 1.0 | 83 | 3.0 | 1,760 | .5 | 2.6 | 1.0 | 105 | 4.0 | 2,890 |
| .7 | 21 | 1.2 | 170 | 4.0 | 2,950 | .6 | 10 | 1.5 | 375 | 6.0 | 6,380 |
| .8 | 35 | 1.4 | 308 | 6.0 | 6,270 | .7 | 23 | 2.0 | 680 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 213 | 10 | 1,780 | 567 | 507 | 155 | 3,120 | 1,720 | 4,840 | 4,660 | 261 | 145 |
| 2 | 200 | 18 | 1,580 | 465 | 519 | 155 | 2,440 | 1,470 | 4,840 | 4,660 | 261 | 195 |
| 3 | 198 | 28 | 274 | 125 | 381 | 155 | 1,140 | 1,520 | 4,840 | 4,480 | 303 | 279 |
| 4 | 91 | 30 | 175 | 125 | 133 | 160 | 750 | 296 | 4,840 | 2,820 | 267 | 195 |
| 5 | 87 | 229 | 160 | 125 | 99 | 243 | 743 | 1,360 | 4,840 | 2,520 | 261 | 165 |
| 6 | 87 | 248 | 180 | 121 | 99 | 285 | 743 | 3,100 | 4,840 | 542 | 249 | 207 |
| 7 | 91 | 1,570 | 195 | 125 | 160 | 643 | 722 | 4,840 | 4,840 | 682 | 207 | 129 |
| 8 | 102 | 3,600 | 185 | 125 | 285 | 1,580 | 722 | 4,840 | 4,840 | 2,960 | 243 | 117 |
| 9 | 77 | 4,470 | 180 | 125 | 291 | 2,660 | 758 | 4,840 | 1,710 | 2,960 | 255 | 117 |
| 10 | 75 | 4,470 | 616 | *121 | 291 | 3,120 | 854 | 4,840 | 405 | 2,890 | 273 | 105 |
| 11 | 51 | 4,640 | 709 | 105 | 291 | 4,480 | 854 | 4,840 | 321 | 2,890 | 234 | 52 |
| 12 | 42 | 4,640 | 370 | 125 | 291 | 3,520 | 662 | *4,840 | 2,780 | 2,890 | 159 | 46 |
| 13 | 52 | 4,470 | *87 | 292 | 405 | 3,040 | 262 | 4,840 | 4,660 | 2,420 | 214 | 119 |
| 14 | 63 | 4,310 | 87 | 652 | 615 | 3,680 | 431 | 4,840 | 4,840 | 676 | 185 | 158 |
| 15 | 53 | 4,310 | 93 | 1,430 | 701 | 3,280 | 1,160 | 4,840 | 4,840 | 261 | 207 | 170 |
| 16 | 51 | 4,310 | 91 | 1,530 | 687 | 1,800 | 980 | 4,840 | 4,840 | 213 | 213 | *190 |
| 17 | 53 | 4,310 | 6.5 | *1,690 | 680 | 1,690 | 513 | 4,840 | *4,840 | 125 | 219 | 144 |
| 18 | 51 | 2,120 | 0 | 1,640 | *687 | 1,330 | 339 | 4,840 | 4,840 | 195 | 231 | 77 |
| 19 | 53 | 3,830 | *116 | 1,140 | 687 | 531 | 405 | 4,840 | 4,840 | 190 | 127 | 298 |
| 20 | 47 | 4,310 | 345 | 1,140 | 654 | 459 | 543 | 4,840 | 4,840 | 190 | *132 | 3.2 |
| 21 | 55 | 4,310 | 381 | 2,170 | 531 | 411 | 597 | 4,840 | 4,840 | 185 | 213 | 69 |
| 22 | 55 | 4,310 | 291 | 3,280 | 273 | 306 | 790 | 4,840 | 4,840 | 195 | 160 | 84 |
| 23 | 50 | 3,440 | 291 | 4,160 | 267 | 207 | 1,480 | 4,660 | 4,840 | 261 | 141 | 54 |
| 24 | 51 | 4,230 | 303 | 1,850 | 267 | 198 | 1,380 | 4,660 | 4,840 | 267 | 113 | 71 |
| 25 | 45 | 4,310 | 387 | 441 | 273 | 462 | 1,050 | 4,660 | 4,840 | 225 | 99 | 128 |
| 26 | 21 | 4,310 | 375 | 423 | 249 | 830 | 2,020 | 4,840 | 4,840 | *201 | 113 | 72 |
| 27 | 19 | 4,310 | 537 | 363 | 160 | 910 | 3,170 | 4,840 | 4,660 | 190 | 133 | 75 |
| 28 | 19 | 4,310 | 680 | 255 | 155 | 790 | 470 | 4,660 | 4,480 | 195 | 170 | 72 |
| 29 | 45 | 4,310 | 680 | 249 | - | 1,470 | 1,400 | 3,270 | 4,480 | 201 | 243 | 54 |
| 30 | 28 | 4,310 | 654 | 327 | ------- | 1,580 | 1,730 | 1,960 | 4,660 | 219 | 175 | 69 |
| 31 | 7.8 | ------- | 573 | 357 | ------- | 2,520 | ------- | 4,480 | ------- | 261 | 170 | ------- |
| Total | 2,132.8 | 98,073 | 12,381.5 | 25,643 | 10,638 | 42,650 | 32,228 | 124,576 | 129,796 | 41,624 | 6,231 | 3,659.2 |
| Mean | 68.8 | 3,269 | 399 | 827 | 380 | 1,376 | 1,074 | 4,019 | 4,326 | 1,343 | 201 | 122 |
| Ac-ft | 4,230 | 194,500 | 24,560 | 50,860 | 21,100 | 84,600 | 63,920 | 247,100 | 257,400 | 82,560 | 12,360 | 7,260 |
| (†) | 4,150 | 4,740 | 4,160 | 0 | 0 | 613 | 3,480 | 4,820 | 5,750 | 6,490 | 5,750 | 4,380 |

Calendar year 1957: Max 12,200 Min 0 Mean 1,945 Ac-ft 1,408,000
Water year 1957-58: Max 4,840 Min 0 Mean 1,451 Ac-ft 1,050,000

* Discharge measurement made on this day.
† Diversions, in acre-feet, for municipal use.
Note.--Discharge for period Apr. 19 to May 11 computed from once-daily or more often U. S. Weather Bureau telemark readings.

## 565. Turtle Creek at Dallas, Tex.

Location.--Lat 32°48', long 96°48', on left bank 68 ft upstream from Hall Street Dam, 210 ft upstream from Hall Street at Dallas, Dallas County, and 2.0 miles north of Dallas County courthouse.

Drainage area.--7.98 sq mi.

Records available.--October 1951 to September 1958 (records for April 1948 to September 1951, published in WSP 1392, are unreliable and should not be used).

Gage.--Water-stage recorder. Datum of gage is 428.15 ft above mean sea level, unadjusted (city of Dallas reference mark). Prior to Dec. 17, 1951, at site 52 ft upstream at same datum.

Average discharge.--7 years, 5.99 cfs (4,340 acre-ft per year).

Extremes.--Maximum discharge during year, 3,070 cfs Apr. 26 (gage height, 6.54 ft), from rating curve extended above 1,200 cfs as explained below; no flow Sept. 5.
1951-58: Maximum discharge, 3,850 cfs Apr. 26, 1957 (gage height, 7.30 ft), from rating curve extended above 1,200 cfs on basis of weir formula $Q = 3.3\ L(H)^{3/2}$; no flow at times.
Maximum stage known since at least 1903, that of Apr. 26, 1957. Flood of Aug. 27, 1947, reached a stage of 6.8 ft, from floodmarks.

Remarks.--Records good except those below 10 cfs and those for periods of indefinite stage-discharge relation or no gage-height record, which are poor.

Revisions.--See Records available.

Rating table, water year 1957-58, except periods of indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.14 | 0.1 | 1.6 | 68 |
| 1.2 | 1.5 | 1.8 | 123 |
| 1.3 | 11 | 2.0 | 185 |
| 1.4 | 26 | 3.0 | 610 |
| 1.5 | 46 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | 1.0 | 3 | 1.0 | 2 | e5 | 2.2 | 23 | 0.7 | 0.7 | 0.3 | 0.2 |
| 2 | .5 | 1.5 | 3 | 1.0 | 2 | 2.9 | 2.2 | 221 | .7 | 1.0 | .3 | .1 |
| 3 | *.3 | 1.0 | 3 | 1.0 | *2.9 | 1.0 | 1.5 | 79 | .7 | 1.0 | .3 | .1 |
| 4 | .5 | 13 | 2 | 1.5 | 3.7 | 20 | 1.5 | 17 | .7 | 1.0 | .2 | .1 |
| 5 | .5 | 66 | 1 | 1.0 | 4.5 | 57 | 1.5 | 9.8 | .7 | 2.2 | .2 | .1 |
| 6 | .3 | 15 | 33 | 1.5 | 2.9 | 6.4 | .7 | 7.5 | .7 | 49 | .2 | .1 |
| 7 | .3 | 11 | 2.9 | 1.5 | 2.2 | 26 | 1.5 | 6 | 2.2 | 20 | .2 | 1.0 |
| 8 | .3 | 5.4 | 2.9 | .7 | 1.5 | 21 | *3.0 | 5 | 4.5 | 3.7 | .2 | .7 |
| 9 | .2 | 2.2 | 2.2 | .7 | 4.5 | 3.7 | 13 | 4.5 | 1.5 | 1.5 | .2 | .5 |
| 10 | .3 | 1.5 | 2.2 | 1.0 | 5.5 | 2.9 | 3.7 | 4 | .7 | 1.0 | .2 | .3 |
| 11 | .5 | 1.0 | 1.0 | 1.0 | 1.0 | 2.2 | 2.2 | 3.5 | .5 | 1.0 | .3 | .2 |
| 12 | .3 | 1.5 | 2.2 | 45 | 1.5 | 18 | 1.5 | 4 | .3 | .7 | .3 | .2 |
| 13 | 41 | 2.2 | 2.2 | 16 | 1.0 | 3.7 | 5.3 | 4 | .3 | .7 | e1.5 | .2 |
| 14 | 69 | 1.5 | 2.9 | 3.7 | 13 | 2.9 | 18 | 3.5 | .3 | .5 | e4 | .2 |
| 15 | 95 | 1.0 | 2.9 | 2.9 | 2.9 | 2.2 | 3.7 | 3.5 | .3 | .5 | 4 | .3 |
| 16 | 4.5 | 1.0 | 2.2 | 2 | 1.5 | 1.5 | 1.5 | *2.9 | .3 | .5 | 3.5 | .3 |
| 17 | 2.2 | 1.0 | .7 | 1.5 | 1.5 | 1.0 | 1.0 | 2.9 | .3 | .5 | 3 | *.3 |
| 18 | 1.5 | 2.2 | 1.5 | 1.5 | 1.0 | .7 | 4.5 | 2.9 | *.5 | .5 | 1.6 | .5 |
| 19 | .7 | 2 | 1.5 | 20 | 1.0 | .7 | 3.7 | 2.2 | .5 | .5 | 2.2 | 80 |
| 20 | 1.0 | 1.5 | *e2 | 7 | .7 | .7 | 12 | 2.2 | .5 | .5 | 1.5 | 9.8 |
| 21 | 1.0 | e3.5 | e1.5 | 3 | 1.0 | .7 | 5.4 | 2.2 | .5 | .5 | 1.5 | 2.9 |
| 22 | 13 | e7.5 | e1.5 | 2 | 1.0 | 1.6 | *4.5 | 2.2 | 4.5 | *.5 | *.2 | 2.9 |
| 23 | 12 | e3.5 | e1 | 2 | 1.5 | 14 | 2.2 | 2.2 | 2.2 | .7 | .2 | 3.7 |
| 24 | 2.9 | 37 | 17 | 2 | 1.5 | .7 | 1.5 | 2.2 | 1.5 | .7 | 2.2 | 1.5 |
| 25 | 3.7 | 2.2 | 34 | 1.5 | 1.5 | .7 | 2.9 | 2.9 | 1.0 | .7 | .7 | 1.0 |
| 26 | 1.5 | e1 | 2.2 | 1.5 | 6.8 | .7 | 421 | 2.9 | .7 | .7 | .3 | 1.5 |
| 27 | 1.5 | e1.5 | 2.2 | 1.5 | 1.0 | 1.5 | 44 | 2.2 | .5 | .7 | .3 | 2.9 |
| 28 | 1.5 | 4 | 1.5 | 7 | e1 | 1.0 | 11 | 1.5 | .5 | .5 | .3 | .7 |
| 29 | 1.5 | 4 | 1.0 | 4 | - | 191 | 105 | 1.5 | .5 | .5 | .2 | .5 |
| 30 | 1.5 | 3 | 1.0 | 3 | ------- | 5.4 | 96 | 1.0 | .7 | .5 | .2 | .7 |
| 31 | .7 | ------- | 1.0 | 3 | ------- | 3.7 | ------- | 1.0 | ------- | .3 | .2 | ------- |
| Total | 260.2 | 199.7 | 138.2 | 142.0 | 72.1 | 400.5 | 777.7 | 430.2 | 29.5 | 93.3 | 30.5 | 113.5 |
| Mean | 8.39 | 6.66 | 4.46 | 4.58 | 2.58 | 12.9 | 25.9 | 13.9 | 0.98 | 3.01 | 0.98 | 3.78 |
| Ac-ft | 516 | 396 | 274 | 282 | 143 | 794 | 1,540 | 853 | 59 | 185 | 60 | 225 |

Calendar year 1957: Max 662 Min 0 Mean 12.9 Ac-ft 9,310
Water year 1957-58: Max 421 Min 0.1 Mean 7.36 Ac-ft 5,330

Peak discharge (base, 880 cfs).--Oct. 15 (11 a.m.) 940 cfs (3.62 ft); Mar. 29 (3:30 a.m.) 1,840 cfs (4.99 ft); Apr. 26 (6:30 p.m.) 3,070 cfs (6.54 ft); Apr. 29 (10 a.m.) 1,180 cfs (4.00 ft); May 2 (12:15 p.m.) 1,910 cfs (5.09 ft).

* Discharge measurement made on this day.
e Stage-discharge relation indefinite; discharge estimated on basis of 1 discharge measurement, recorder graph, and theoretical computations for orifice flow through pipes.
Note.--No gage-height record Nov. 19, Nov. 28 to Dec. 5, Jan. 16 to Feb. 2, May 7-15, Aug. 15-17; discharge estimated on basis of recorded range in stage, weather records, and records of release from pool at gage.

## 570. 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 in WSP 28, 37), July 1903 to September 1958 (January 1907 to September 1920 monthly figures only, published in WSP 850). Gage-height records collected in this vicinity since 1903 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 368.02 ft above mean sea level, datum of 1929, supplementary adjustment of 1954. 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.--55 years (1903-58), 1,518 cfs (1,099,000 acre-ft per year).

Extremes.--Maximum discharge during year, 23,200 cfs Apr. 27 (gage height, 34.60 ft); minimum daily, 40 cfs Sept. 13, 14.

1903-58: 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, 1920-58, 1.2 cfs July 4, 1953.

Maximum stage since at least 1840, that of May 25, 1908. Flood in 1866 reached about the same stage.

Remarks.--Records fair except those for periods of no gage-height record or indefinite stage-discharge relation, which are poor. Flow largely regulated by Bridgeport Reservoir since 1932 (see p. 70), Eagle Mountain Reservoir since 1934 (see p. 73), Benbrook and Grapevine Reservoirs since 1952 (see p. 75, 95), Garza-Little Elm Reservoir since 1954 (see p. 92), and several smaller reservoirs, all of which have a combined capacity of 2,323,000 acre-ft. During year the city of Dallas diverted 87,430 acre-ft of water above station and 7,780 acre-ft of water from East Fork Trinity River basin for municipal use and returned 91,620 acre-ft of sewage effluent below station, from records furnished by city of Dallas. Sewage effluent from the cities of Fort Worth, Arlington, and Grand Prairie enters above station. Other diversions above station.

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

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 252 | 175 | 3,620 | 930 | 1,510 | 416 | 3,320 | 16,900 | 4,970 | 4,680 | a125 | e125 |
| 2 | *315 | 140 | 2,000 | 930 | 1,510 | 582 | 3,180 | 14,600 | 5,580 | 4,790 | a110 | e75 |
| 3 | *269 | 159 | 1,300 | 618 | *1,480 | 652 | 2,420 | 16,700 | 5,650 | 4,740 | a175 | e100 |
| 4 | 211 | 227 | 670 | 512 | 1,260 | 790 | 1,960 | 14,100 | 5,330 | 3,780 | a225 | e125 |
| 5 | 159 | 1,180 | 548 | 495 | 1,090 | 1,260 | 1,930 | 9,780 | 5,150 | 3,050 | a175 | e85 |
| 6 | 163 | 5,760 | 949 | 416 | 1,060 | 3,080 | 1,860 | 10,200 | 5,090 | 2,900 | a150 | e100 |
| 7 | 163 | 4,500 | 970 | 368 | 950 | 2,840 | *1,580 | 11,500 | 5,270 | 2,310 | a125 | e140 |
| 8 | 183 | 4,200 | 990 | 368 | 830 | 3,620 | 1,470 | 12,000 | 5,270 | 2,540 | a110 | e125 |
| 9 | 183 | 4,920 | 1,090 | 363 | 730 | 3,810 | 1,880 | 12,000 | 3,740 | 3,090 | a140 | e115 |
| 10 | 173 | 5,280 | 1,020 | 374 | 690 | 4,440 | 1,800 | 11,900 | 929 | 2,970 | a150 | e100 |
| 11 | 179 | 5,400 | 1,540 | 430 | 652 | 5,010 | *1,740 | 12,000 | 724 | 2,970 | a175 | e75 |
| 12 | 338 | 5,760 | 970 | 582 | 635 | 6,250 | 1,680 | 12,000 | 1,400 | 2,930 | a100 | e50 |
| 13 | 203 | 5,740 | 618 | 810 | 600 | 5,520 | 1,420 | 12,000 | 4,420 | 2,890 | e75 | e40 |
| 14 | 890 | 5,280 | 402 | 1,020 | 810 | 5,520 | 2,490 | 11,700 | 4,850 | 1,570 | e85 | e40 |
| 15 | 1,270 | 5,640 | 341 | 1,610 | 1,020 | 5,520 | 2,580 | 11,700 | 5,030 | 443 | e65 | e75 |
| 16 | 988 | 5,880 | 323 | 1,620 | 1,200 | 3,740 | 2,320 | *11,700 | 5,090 | a200 | e50 | e100 |
| 17 | 433 | 6,160 | 269 | 1,680 | 1,160 | *2,840 | 1,950 | 11,400 | 5,150 | a125 | e75 | *e400 |
| 18 | 282 | 6,550 | 238 | 1,720 | 1,060 | 2,640 | *1,970 | 11,400 | 5,150 | a110 | e250 | 297 |
| 19 | 234 | 4,620 | *325 | 1,680 | 1,020 | 1,660 | 1,990 | 11,900 | *5,030 | a100 | a100 | 1,740 |
| 20 | 211 | 5,760 | 512 | 1,750 | 1,060 | 1,400 | 2,270 | 10,400 | 5,030 | a100 | a75 | 2,160 |
| 21 | 190 | *6,160 | 710 | 2,180 | 990 | 1,260 | 2,770 | 8,580 | 5,030 | a100 | a100 | 776 |
| 22 | 245 | 5,880 | 710 | 2,640 | 730 | 1,100 | 2,310 | 8,300 | 5,270 | *115 | *e235 | 761 |
| 23 | 282 | 4,870 | 830 | 3,680 | 565 | 1,420 | *2,320 | 7,810 | 5,270 | a100 | a150 | 1,330 |
| 24 | 320 | 4,600 | 770 | 3,870 | 512 | 1,100 | 2,220 | 6,740 | 5,090 | a225 | a150 | 1,340 |
| 25 | 245 | 6,380 | 1,060 | 1,610 | 478 | 1,190 | 2,010 | 5,980 | 5,030 | a200 | a125 | 888 |
| 26 | 169 | 5,780 | 1,480 | 1,300 | 621 | 1,480 | 7,360 | 5,520 | 4,970 | a125 | a110 | 670 |
| 27 | 140 | 5,160 | 1,340 | 1,300 | 476 | 1,620 | *21,500 | 5,330 | 4,970 | e100 | a100 | 584 |
| 28 | 124 | 4,920 | 1,120 | 1,520 | 341 | 1,650 | 14,600 | 5,270 | 4,790 | e90 | a100 | 470 |
| 29 | 119 | 4,890 | 1,120 | 1,200 | - | 4,890 | 9,330 | 4,500 | 4,680 | a75 | a100 | 304 |
| 30 | 159 | 4,980 | 1,090 | 1,400 | ------- | 5,080 | 13,500 | 2,620 | 4,680 | a200 | e125 | 252 |
| 31 | 143 | ------- | 990 | 1,400 | ------- | 3,100 | ------- | 3,410 | ------- | a200 | e100 | ------- |
| Total | 9,235 | 136,951 | 29,915 | 40,376 | 25,040 | 85,500 | 119,730 | 309,940 | 138,633 | 47,818 | 3,930 | 13,442 |
| Mean | 298 | 4,565 | 965 | 1,302 | 894 | 2,758 | 3,991 | 9,998 | 4,621 | 1,542 | 127 | 448 |
| Ac-ft | 18,320 | 271,600 | 59,340 | 80,080 | 49,670 | 169,600 | 237,500 | 614,800 | 275,000 | 94,850 | 7,800 | 26,600 |

Calendar year 1957: Max 51,200 Min 48 Mean 4,271 Ac-ft 3,092,000
Water year 1957-58: Max 21,500 Min 40 Mean 2,632 Ac-ft 1,905,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.
e Stage-discharge relation indefinite; discharge estimated on basis of 2 discharge measurements and records for upstream and downstream stations.

## 585. Honey Creek near McKinney, Tex.

Location.--Lat 33°17', long 96°39', on right bank at downstream side of highway bridge, 4.5 miles downstream from Haw Branch, 5.6 miles upstream from mouth, and 6.0 miles northwest of McKinney, Collin County.

Drainage area.--39.0 sq mi, of which 20.9 sq mi is above flood-detention structures.

Records available.--July 1951 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 563.68 ft above mean sea level, datum of 1929 (Soil Conservation Service reference mark).

Average discharge.--7 years, 17.6 cfs (12,740 acre-ft per year).

Extremes.--Maximum discharge during year, 4,580 cfs May 2 (gage height, 18.70 ft); no flow at times.

1951-58: Maximum discharge, 7,920 cfs May 26, 1957 (gage height, 20.29 ft); no flow at times.

Maximum stage known since at least 1930, 23.0 ft in spring of 1950, from information by local resident.

Remarks.--Records fair. Station operated as part of the Honey Creek basin hydrologic cooperative program of the Geological Survey and U. S. Soil Conservation Service to evaluate rainfall-runoff relation, soil conservation practices, and the effects of flood-detention structures. Flow from 20.9 sq mi above this station was partly controlled by 12 floodwater retarding reservoirs with total permanent pool capacity of 2,243 acre-ft and total floodwater detention capacity of 6,214 acre-ft. Diversions for irrigation above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 30 to May 2, May 23 to June 8, June 16, 18-21, 23, 24, Sept. 19)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0.1 | 0.0 | 0.8 | 6.0 | 3.0 | 63 | 7.0 | 308 |
| .2 | .1 | 1.0 | 9.8 | 3.5 | 80 | 8.0 | 410 |
| .3 | .4 | 1.2 | 14 | 4.0 | 100 | 10.0 | 664 |
| .4 | 1.0 | 1.6 | 23 | 4.5 | 124 | 12.0 | 1,020 |
| .5 | 1.8 | 2.0 | 33 | 5.0 | 152 | 14.0 | 1,520 |
| .6 | 2.9 | 2.5 | 47 | 6.0 | 220 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 16 | 12 | 20 | 7.8 | 26 | *616 | 9.6 | 0.6 | | 0 |
| 2 | 0 | 0 | 16 | 12 | 19 | 8.6 | 23 | *1,240 | 9.6 | .5 | (*) | 0 |
| 3 | 0 | 0 | 16 | 12 | 17 | 8.4 | 21 | 462 | 9.2 | .4 | | 0 |
| 4 | 0 | 16 | 14 | 11 | 22 | 9.8 | 18 | 226 | 8.8 | .3 | | 0 |
| 5 | 0 | 459 | 13 | 11 | 23 | 37 | 23 | 210 | 9.0 | .6 | | 0 |
| 6 | 0 | 112 | 26 | 11 | 23 | 39 | 16 | 205 | 9.6 | 1.1 | | 0 |
| 7 | 0 | 185 | 26 | 11 | 16 | 59 | 12 | 175 | 9.4 | .8 | | 0 |
| 8 | 0 | 74 | 19 | 8.2 | 12 | 50 | 14 | 150 | 8.8 | .6 | | 0 |
| 9 | 0 | 40 | 14 | 9.0 | 14 | 37 | 31 | 110 | 8.6 | .5 | | 0 |
| 10 | *0 | 30 | 15 | 9.0 | 16 | 32 | 21 | 102 | 8.2 | .5 | | 0 |
| 11 | 0 | 30 | 13 | 9.6 | *15 | 28 | 17 | 100 | *7.7 | .5 | | *0 |
| 12 | 0 | 30 | 9.4 | 26 | 16 | 53 | 14 | 92 | 7.3 | .4 | | 0 |
| 13 | 0 | 30 | 10 | 49 | 12 | 48 | 18 | *94 | 7.0 | .4 | | 0 |
| 14 | 2.7 | 20 | 11 | 31 | 20 | 35 | 43 | 98 | 6.6 | .3 | | 0 |
| 15 | .9 | 15 | 12 | 28 | 22 | 29 | 28 | 98 | 6.8 | .3 | | 0 |
| 16 | .9 | 15 | 12 | 23 | 16 | 27 | 21 | 95 | 36 | .3 | | 0 |
| 17 | .5 | 45 | 13 | 21 | 15 | 27 | 18 | 92 | 53 | .2 | | 0 |
| 18 | .4 | 50 | 13 | 19 | *14 | 22 | 17 | 91 | 44 | **.2 | | 0 |
| 19 | .4 | 25 | 12 | 29 | 14 | 20 | 17 | 82 | 39 | .2 | | 21 |
| 20 | .3 | 20 | 8.6 | 88 | 13 | 19 | 27 | 72 | 24 | .1 | | .2 |
| 21 | .3 | 15 | 7.3 | 68 | 12 | 19 | 22 | 60 | 40 | .1 | | .1 |
| 22 | .3 | 15 | 7.5 | 45 | 13 | 19 | 18 | 50 | 49 | .1 | | .1 |
| 23 | .5 | 15 | 8.0 | 38 | 12 | 32 | 15 | 35 | 31 | .1 | | 0 |
| 24 | .3 | 50 | 10 | 32 | 12 | 23 | 13 | 20 | 9.0 | .1 | | 0 |
| 25 | .1 | 40 | 47 | 30 | 12 | 20 | 11 | 17 | 3.8 | 0 | | 0 |
| 26 | 0 | 30 | 32 | 28 | 17 | 18 | 101 | 14 | 4.0 | 0 | | 0 |
| 27 | 0 | *27 | 27 | 25 | 17 | 20 | 84 | 12 | 1.6 | 0 | | 0 |
| 28 | 0 | 23 | 24 | 27 | 9.4 | 20 | *56 | 12 | 1.1 | 0 | | 0 |
| 29 | 0 | 20 | 18 | 29 | - | 87 | 930 | 11 | .9 | 0 | | 0 |
| 30 | 0 | 17 | 17 | 26 | ------- | 42 | 1,050 | 11 | .6 | 0 | | 0 |
| 31 | 0 | ------- | 18 | 25 | ------- | *31 | ------- | 10 | ------- | 0 | | ------- |
| Total | 7.6 | 1,448 | 504.8 | 802.8 | 443.4 | 927.6 | 2,725 | 4,662 | 463.2 | 9.2 | 0 | 21.4 |
| Mean | 0.25 | 48.3 | 16.3 | 25.9 | 15.8 | 29.9 | 90.8 | 150 | 15.4 | 0.30 | 0 | 0.71 |
| Ac-ft | 15 | 2,870 | 1,000 | 1,590 | 879 | 1,840 | 5,400 | 9,250 | 919 | 18 | 0 | 42 |

Calendar year 1957: Max 3,040 Min 0 Mean 66.7 Ac-ft 48,260
Water year 1957-58: Max 1,240 Min 0 Mean 32.9 Ac-ft 23,820

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--No gage-height record Oct. 18 to Nov. 3, Nov. 9-26, July 2-6, 8-17, July 19 to Aug. 1, Sept. 20-30; discharge estimated on basis of weather records, field notes, and shape of previous recession curves.

## 590. 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, 2.8 miles downstream from Honey Creek, 7.2 miles upstream from Wilson Creek, and 22.4 miles upstream from Lavon Dam.

Drainage area.--188 sq mi.

Records available.--August 1949 to September 1958.

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

Average discharge.--9 years, 102 cfs (73,840 acre-ft per year).

Extremes.--Maximum discharge during year, 14,100 cfs May 2 (gage height, 16.87 ft); minimum, 0.2 cfs Oct. 11, Sept. 1, 2, 13-15.
1949-58: Maximum gage height, 17.23 ft June 11, 1950 (discharge uncertain, previously published figure found to be in error); maximum discharge measured, 23,900 cfs May 26, 1957; no flow at times.
Maximum stage known since at least 1913, about 21.0 ft in April 1942, from information by local residents.

Remarks.--Records good except those above 3,000 cfs, which are fair. Low flow maintained by sewage effluent from U. S. Government hospital. Small diversions for irrigation above station. The flow from 25.0 sq mi above this station is partly controlled by 15 floodwater-detention reservoirs (built during 1951-57) with a total combined capacity of 10,350 acre-ft below the flood spillway crests, of which 7,530 acre-ft is floodwater-detention capacity and 2,820 acre-ft is sediment storage capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation.

Revisions (water years).--WSP 1512: 1950, 1951(P).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 5, 6, Apr. 29 to May 1)

| | | | | | |
|---|---|---|---|---|---|
| 3.3 | 0.2 | 4.0 | 15 | 12.0 | 570 |
| 3.4 | .6 | 4.5 | 42 | 14.0 | 918 |
| 3.5 | 1.2 | 5.0 | 70 | 15.0 | 1,730 |
| 3.6 | 2.6 | 6.0 | 128 | 15.5 | 2,820 |
| 3.7 | 4.6 | 8.0 | 260 | 16.0 | 5,070 |
| 3.8 | 7.4 | 10.0 | 410 | 16.5 | 9,070 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.4 | 1.5 | 74 | 60 | 78 | 36 | *101 | 6,140 | 30 | 14 | 1.4 | 0.2 |
| 2 | .3 | 1.8 | 74 | 55 | 70 | 36 | 86 | *8,040 | 28 | 13 | *.8 | .2 |
| 3 | .3 | 1.6 | 72 | 55 | 65 | 36 | 83 | 4,240 | 26 | 11 | .5 | .3 |
| 4 | .3 | 5.6 | 64 | 52 | 67 | 36 | 71 | 1,320 | 24 | 9.2 | .5 | .3 |
| 5 | .4 | *2,490 | 61 | 50 | 74 | 137 | 101 | 506 | 24 | 9.2 | .4 | .3 |
| 6 | .3 | 2,980 | 105 | 50 | 72 | 235 | 72 | 430 | 29 | 20 | .4 | .3 |
| 7 | .3 | *933 | 206 | 50 | 61 | 831 | 54 | 378 | 58 | 35 | .3 | .3 |
| 8 | .4 | 1,330 | 101 | 46 | 52 | 318 | 52 | 323 | 88 | 27 | .3 | .3 |
| 9 | .5 | 222 | 74 | 44 | 51 | 212 | 227 | 274 | 34 | 18 | .9 | .3 |
| 10 | *.3 | 149 | 70 | 46 | 56 | 138 | 180 | 246 | 21 | 13 | .4 | *.4 |
| 11 | .2 | 127 | 62 | 46 | 57 | 113 | 89 | 226 | *17 | 11 | .3 | .4 |
| 12 | .3 | 126 | 53 | 77 | 53 | 255 | 66 | 212 | 15 | 8.8 | .4 | .3 |
| 13 | .9 | 153 | 56 | 394 | 50 | 409 | 68 | *200 | 14 | 6.8 | .7 | .2 |
| 14 | 2.1 | 161 | 58 | 157 | 58 | 180 | 264 | 200 | 13 | 5.7 | .8 | .2 |
| 15 | 13 | 123 | 57 | 174 | 83 | 141 | 164 | 370 | 12 | 4.6 | .7 | .2 |
| 16 | 11 | 93 | 56 | 110 | 57 | 125 | 98 | 226 | 239 | 3.8 | .5 | .3 |
| 17 | 9.2 | 392 | 56 | 95 | 51 | 116 | 80 | 186 | 453 | 3.6 | .4 | .5 |
| 18 | 5.4 | 862 | 56 | 83 | *49 | 104 | 78 | 180 | 80 | 3.4 | .4 | .4 |
| 19 | 3.4 | 203 | 54 | 97 | 49 | 89 | 78 | 160 | 80 | 3.0 | .4 | 544 |
| 20 | 2.2 | 131 | 48 | 537 | 47 | 80 | 134 | 141 | 43 | 2.4 | .4 | 79 |
| 21 | 1.8 | 101 | 42 | 534 | 46 | 80 | 128 | 125 | 181 | 2.6 | .5 | 8.8 |
| 22 | 1.8 | 89 | 41 | 226 | 44 | 78 | 83 | 107 | 449 | 2.3 | .5 | 4.2 |
| 23 | 2.2 | 104 | 41 | 174 | 44 | 131 | 71 | 92 | 80 | 3.0 | .5 | 3.0 |
| 24 | 2.4 | 299 | 45 | 141 | 44 | 113 | 58 | 72 | 49 | 2.8 | .5 | 2.0 |
| 25 | 3.6 | 379 | 294 | 131 | 43 | 78 | 51 | 128 | 32 | 5.3 | .5 | 1.5 |
| 26 | 3.2 | 186 | 217 | 116 | 46 | 74 | 221 | 92 | 32 | 3.6 | .5 | 1.2 |
| 27 | 2.3 | 144 | 116 | 101 | 73 | 72 | 852 | 58 | 27 | 2.3 | .4 | 1.8 |
| 28 | 1.8 | *116 | 98 | 95 | 44 | 75 | *260 | 57 | 20 | 1.4 | .4 | .7 |
| 29 | 1.4 | 98 | 80 | 134 | - | 507 | *3,340 | 45 | 18 | 1.2 | .4 | .5 |
| 30 | 1.2 | 83 | 74 | 110 | ------- | 211 | *3,600 | 38 | 16 | 1.1 | .3 | .5 |
| 31 | 1.1 | ------- | 71 | 71 | ------- | 119 | ------- | 33 | ------- | 1.6 | .3 | ------- |
| Total | 74.0 | 12,084.5 | 2,576 | 4,111 | 1,584 | 5,165 | 10,810 | 24,845 | 2,232 | 249.7 | 15.7 | 652.6 |
| Mean | 2.39 | 403 | 83.1 | 133 | 56.6 | 167 | 360 | 801 | 74.4 | 8.05 | 0.51 | 21.8 |
| Ac-ft | 147 | 23,970 | 5,110 | 8,150 | 3,140 | 10,240 | 21,440 | 49,280 | 4,430 | 495 | 31 | 1,290 |

Calendar year 1957: Max 9,490 Min 0.2 Mean 347 Ac-ft 251,100
Water year 1957-58: Max 8,040 Min 0.2 Mean 176 Ac-ft 127,700

Peak discharge (base, 1,200 cfs).--Nov. 5 (8 p.m.) 5,070 cfs (15.90 ft); Nov. 18 (1 a.m.) 1,590 cfs (14.91 ft); Mar. 7 (9 a.m.) 1,320 cfs (14.63 ft); Apr. 27 (5 a.m.) 1,320 cfs (14.65 ft); Apr. 29 (8 p.m.) 6,370 cfs (16.33 ft); May 2 (10 a.m.) 14,100 cfs (16.87 ft).

* Discharge measurement made on this day.

## 595. 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, 2.3 miles downstream from Stiff Creek, 5 miles upstream from mouth, and 15 miles upstream from Lavon Dam.

Drainage area.--115 sq mi.

Records available.--September 1949 to September 1958.

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

Average discharge.--9 years, 63.0 cfs (45,610 acre-ft per year).

Extremes.--Maximum discharge during year, 5,800 cfs May 2 (gage height, 15.70 ft); no flow at times.
1949-58: Maximum discharge, 9,080 cfs Apr. 26, 1957 (gage height, 16.28 ft), from rating curve extended above 3,800 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 good except those for period of no gage-height record, which are fair. At the end of year, flow from 22.9 sq mi above this station was partly controlled by 20 floodwater-detention reservoirs with a total combined capacity of 7,780 acre-ft below flood spillway crests, of which 6,220 acre-ft is floodwater-detention capacity and 1,560 acre-ft is sediment-pool capacity. Three of these reservoirs were constructed during the current year and have total combined capacity below flood spillway crests of 3,100 acre-ft, of which 662 acre-ft is sediment-pool capacity. The capacity in these reservoirs allocated to sediment will be used for conservation storage until eliminated by sedimentation. The first floodwater detention reservoir in this basin was completed in October 1952.

Revisions (water years).--WSP 1392: 1950, 1951(P).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 28 to May 16)

| | | | | | |
|---|---|---|---|---|---|
| 4.4 | 0 | 5.6 | 14 | 13.0 | 510 |
| 4.5 | .1 | 6.0 | 22 | 13.5 | 760 |
| 4.6 | .3 | 7.0 | 50 | 14.0 | 1,260 |
| 4.7 | .8 | 8.0 | 89 | 14.5 | 2,100 |
| 4.8 | 1.6 | 10.0 | 205 | 15.0 | 3,200 |
| 5.0 | 3.7 | 12.0 | 370 | 15.5 | 4,900 |
| 5.2 | 6.5 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.7 | 2.3 | 96 | 84 | 119 | 46 | *76 | 2,330 | 44 | 19 | 0.8 | 0 |
| 2 | .6 | 2.7 | 96 | 72 | 106 | 44 | 68 | 3,330 | 36 | 17 | *1.0 | 0 |
| 3 | .5 | 2.9 | 94 | 70 | 102 | 44 | 64 | 2,120 | 32 | 16 | 2.1 | 0 |
| 4 | .4 | 8.3 | 87 | 68 | 96 | 45 | 58 | 1,010 | 28 | 14 | 1.7 | 0 |
| 5 | .3 | 748 | 76 | 64 | 96 | 167 | 75 | 408 | 26 | 14 | 1.6 | 0 |
| 6 | .1 | *1,850 | 84 | 62 | 99 | 174 | 70 | 334 | 24 | 15 | .8 | 0 |
| 7 | 0 | *769 | 191 | *62 | 87 | 425 | 50 | 298 | 25 | 23 | .3 | 0 |
| 8 | 0 | 768 | 141 | 58 | 76 | 316 | 45 | 282 | 23 | 22 | .1 | 0 |
| 9 | *0 | 310 | 104 | 55 | 74 | 206 | 108 | 266 | 38 | 19 | 18 | 0 |
| 10 | 0 | 212 | 87 | 55 | 76 | 132 | 229 | 258 | 22 | 16 | 34 | *0 |
| 11 | 0 | 177 | 80 | 55 | 78 | 114 | 100 | 234 | 18 | 14 | 7.7 | 0 |
| 12 | 0 | 171 | 68 | 56 | 74 | 157 | 66 | 191 | *16 | 12 | 4.5 | 0 |
| 13 | .1 | 198 | 68 | 219 | 72 | 282 | 58 | 177 | 15 | 11 | 2.2 | 0 |
| 14 | .7 | 191 | 72 | 181 | 76 | 159 | 130 | *252 | 14 | 9.4 | 1.2 | 0 |
| 15 | 10 | 171 | 70 | 192 | 92 | 129 | 129 | 792 | 13 | 8.2 | .8 | 0 |
| 16 | 8.0 | 132 | 68 | 165 | 84 | 119 | 80 | 331 | 52 | 7.0 | .4 | 0 |
| 17 | 7.9 | 186 | 66 | 129 | 72 | 114 | 66 | 219 | 114 | 6.0 | .4 | 0 |
| 18 | 4.9 | a450 | 66 | 119 | 68 | 104 | 62 | 198 | 52 | 5.4 | .2 | 0 |
| 19 | 1.9 | a280 | 64 | 124 | *68 | 92 | 62 | 184 | 28 | 5.0 | .1 | 370 |
| 20 | 1.0 | a200 | 58 | 350 | 66 | 82 | 70 | 171 | 24 | 4.4 | 0 | 330 |
| 21 | .7 | a160 | 50 | 414 | 64 | 92 | 96 | 165 | 46 | 3.8 | 0 | 70 |
| 22 | .8 | a130 | 48 | 242 | 62 | 82 | 62 | 159 | 293 | 3.5 | 0 | 48 |
| 23 | 1.2 | a150 | 72 | 198 | 58 | 94 | 55 | 153 | 62 | 4.6 | 0 | 42 |
| 24 | 1.8 | a300 | 66 | 177 | 56 | 102 | 48 | 138 | 44 | 10 | 0 | 32 |
| 25 | 3.8 | a350 | 146 | 165 | 55 | 72 | 42 | 132 | 36 | 7.2 | 0 | 16 |
| 26 | 3.2 | a220 | 236 | 159 | 58 | 66 | 212 | 144 | 34 | 5.2 | 0 | 9.7 |
| 27 | 1.7 | a180 | 141 | 144 | 72 | 64 | 568 | 96 | 32 | 3.2 | 0 | 7.0 |
| 28 | 1.2 | *144 | 124 | 138 | 80 | 60 | 249 | 82 | 27 | 2.3 | 0 | 4.7 |
| 29 | 1.2 | 126 | 102 | 150 | - | 298 | *947 | 72 | 24 | 1.9 | 0 | 3.5 |
| 30 | 1.2 | 112 | 94 | 144 | ------- | 168 | *1,770 | 62 | 22 | 1.5 | 0 | 2.7 |
| 31 | 1.6 | ------- | 106 | 135 | ------- | 89 | ------- | 55 | ------- | 1.2 | 0 | ------- |
| Total | 55.5 | 8,701.2 | 2,921 | 4,306 | 2,186 | 4,138 | 5,715 | 14,643 | 1,264 | 301.8 | 77.9 | 935.6 |
| Mean | 1.79 | 290 | 94.2 | 139 | 78.1 | 133 | 190 | 472 | 42.1 | 9.74 | 2.51 | 31.2 |
| Ac-ft | 110 | 17,260 | 5,790 | 8,540 | 4,340 | 8,210 | 11,340 | 29,040 | 2,510 | 599 | 155 | 1,860 |

Calendar year 1957: Max 4,330 Min 0 Mean 186 Ac-ft 134,300
Water year 1957-58: Max 3,330 Min 0 Mean 124 Ac-ft 89,750

Peak discharge (base, 1,800 cfs).--Nov. 6 (3 a.m.) 2,300 cfs (14.60 ft); May 2 (5 p.m.) 5,800 cfs (15.70 ft).

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for East Fork Trinity River near McKinney.

## 605. Lavon Reservoir near Lavon, Tex.

Location.--Lat 33°02', long 96°29', in right abutment of spillway in dam on East Fork Trinity River, three-quarters of a mile upstream from St. Louis Southwestern Railway Lines bridge, 1 mile upstream from bridge on State Highway 78, and 2.5 miles west of Lavon, Collin County.

Drainage area.--777 sq mi.

Records available.--October 1953 to September 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to Jan. 20, 1954, staff gage in the approach channel at same datum.

Extremes.--Maximum contents during year, 389,300 acre-ft May 5 (elevation, 488.26 ft); minimum, 137,100 acre-ft Sept. 18 (elevation, 471.40 ft).
1953-58: Maximum contents, 462,800 acre-ft May 26, 1957 (elevation, 491.90 ft); minimum since first appreciable storage began, 91,960 acre-ft Sept. 28, 1954 (elevation, 466.74 ft).

Remarks.--Reservoir is formed by a rolled earth-fill dam 9,499 ft long, including a 568-foot gated spillway with twelve 40- by 28-foot taintor gates. The low-flow outlets consist of five 36-inch diameter gate-controlled sluices with inverts at elevation 453.0 ft. Deliberate impoundment of water began Sept. 14, 1953, and dam completed in October 1953. Water for municipal supply can be withdrawn to elevation 453 ft. Data regarding dam and reservoir are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Maximum design water surface | 496.0 | 556,100 |
| Top of taintor gates | 490.0 | 423,400 |
| Top of conservation storage | 472.0 | 143,600 |
| Spillway crest | 462.0 | 56,290 |
| Invert at lowest intake | 453.0 | 14,330 |

Figures given herein represent total contents. The reservoir is designed for flood control and water conservation. For storage of Soil Conservation detention reservoirs above reservoir see Remarks on two preceding pages.

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

Capacity table, water year 1957-58 (elevation, in feet, and total capacity, in acre-feet)

| | | | |
|---|---|---|---|
| 471 | 132,700 | 483 | 295,300 |
| 473 | 154,900 | 488 | 384,300 |
| 478 | 218,900 | 490 | 423,400 |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 140,500 | 139,900 | 191,700 | 153,200 | 142,500 | 140,600 | 160,700 | 283,000 | 288,800 | 255,500 | 189,800 | 140,600 |
| 2 | 140,100 | 140,300 | 191,800 | 150,500 | 142,400 | 140,600 | 160,700 | 388,300 | 288,200 | 253,000 | 188,400 | 140,300 |
| 3 | 139,900 | 139,800 | 192,200 | 148,000 | 141,900 | 140,600 | 161,000 | 375,600 | 287,300 | 250,300 | 186,200 | 140,000 |
| 4 | 139,700 | 141,200 | 192,400 | 145,500 | 141,600 | 141,200 | 160,600 | 387,400 | 286,500 | 248,600 | 183,800 | 139,800 |
| 5 | 139,600 | 149,500 | 192,600 | 143,000 | 141,500 | 145,600 | 158,200 | 388,900 | 286,000 | 248,700 | 182,000 | 139,600 |
| 6 | 139,300 | 170,800 | 193,800 | 141,900 | 141,400 | 153,300 | 155,400 | 387,400 | 287,000 | 250,100 | 180,800 | 139,400 |
| 7 | 139,000 | 183,100 | 193,700 | 142,200 | 141,100 | 160,300 | 151,800 | 383,300 | 286,400 | 250,100 | 177,800 | 139,400 |
| 8 | 139,100 | 190,200 | 192,400 | 142,300 | 141,100 | 167,900 | 148,800 | 375,400 | 285,400 | 248,100 | 175,700 | 139,200 |
| 9 | 139,000 | 192,500 | 190,300 | 142,400 | 141,400 | 171,300 | 146,700 | 367,600 | 284,400 | 245,900 | 173,700 | 138,900 |
| 10 | 138,600 | 192,400 | 188,200 | 142,800 | 141,600 | 171,900 | 144,600 | 362,000 | 283,300 | 243,800 | 171,900 | 139,000 |
| 11 | 138,100 | 191,800 | 186,200 | 143,200 | 141,300 | 171,900 | 142,800 | 362,900 | 281,000 | 241,500 | 169,800 | 139,000 |
| 12 | 137,700 | 191,800 | 184,400 | 144,600 | 140,900 | 172,900 | 141,900 | 361,500 | 278,300 | 239,100 | 167,700 | 138,600 |
| 13 | 139,000 | 191,700 | 182,400 | 145,200 | 140,500 | 175,400 | 142,800 | 351,400 | 276,000 | 236,000 | 165,200 | 138,000 |
| 14 | 140,100 | 191,100 | 180,300 | 145,700 | 141,700 | 175,400 | 144,900 | 341,900 | 273,800 | 233,200 | 162,800 | 137,800 |
| 15 | 141,900 | 190,200 | 177,900 | 145,900 | 141,800 | 174,600 | 146,500 | 333,300 | 272,100 | 230,900 | 160,700 | 137,400 |
| 16 | 142,000 | 189,000 | 175,600 | 145,800 | 141,900 | 173,700 | 145,500 | 324,000 | 272,100 | 229,100 | 158,800 | 137,700 |
| 17 | 142,000 | 188,600 | 172,600 | 145,600 | 142,000 | 173,100 | 143,000 | 314,000 | 277,500 | 226,100 | 156,700 | 137,400 |
| 18 | 141,700 | 191,300 | 170,000 | 145,000 | 142,300 | 171,000 | 141,400 | 304,200 | 277,000 | 223,600 | 154,300 | 137,100 |
| 19 | 141,500 | 194,400 | 167,700 | 145,600 | 142,500 | 169,200 | 139,900 | 294,200 | 275,400 | 221,100 | 151,900 | 150,400 |
| 20 | 141,200 | 194,600 | 167,900 | 148,500 | 142,600 | 167,200 | 140,700 | 289,000 | 274,200 | 218,900 | 149,800 | 159,500 |
| 21 | 141,000 | 193,800 | 167,900 | 152,100 | 142,700 | 164,800 | 141,300 | 289,300 | 273,400 | 216,700 | 148,000 | 161,600 |
| 22 | 141,600 | 192,600 | 167,200 | 153,100 | 142,400 | 163,600 | 140,900 | 289,600 | 274,900 | 214,400 | 145,700 | 161,600 |
| 23 | 141,700 | 191,200 | 165,400 | 152,100 | 142,000 | 163,200 | 140,900 | 290,000 | 273,500 | 212,400 | 144,100 | 160,800 |
| 24 | 141,700 | 191,800 | 163,800 | 150,000 | 141,800 | 160,800 | 140,900 | 290,600 | 271,300 | 210,000 | 143,700 | 160,400 |
| 25 | 141,100 | 194,200 | 164,700 | 148,200 | 141,600 | 158,200 | 141,400 | 291,400 | 269,400 | 207,300 | 143,000 | 160,100 |
| 26 | 140,900 | 194,200 | 165,800 | 146,300 | 141,400 | 154,900 | 155,100 | 291,700 | 267,200 | 204,700 | 142,500 | 159,300 |
| 27 | 140,300 | 194,200 | 164,600 | 144,100 | 141,200 | 151,600 | 171,300 | 291,600 | 264,700 | 201,900 | 142,000 | 158,200 |
| 28 | 140,000 | 193,700 | 162,200 | 142,900 | 140,900 | 148,100 | 182,100 | 291,100 | 262,200 | 199,900 | 141,800 | 156,500 |
| 29 | 139,800 | 193,400 | 160,300 | 142,600 | - | 155,100 | 201,000 | 290,600 | 260,100 | 197,500 | 141,400 | 155,100 |
| 30 | 140,000 | 192,400 | 158,300 | 142,600 | ------- | 159,300 | 239,600 | 289,600 | 257,800 | 194,900 | 141,200 | 154,700 |
| 31 | 139,800 | ------- | 155,800 | 142,600 | ------- | 160,200 | ------- | 288,800 | ------- | 192,500 | 141,000 | ------- |
| (†) | 471.65 | 476.04 | 473.08 | 471.91 | 471.75 | 473.45 | 479.43 | 482.60 | 480.64 | 476.05 | 471.76 | 472.98 |
| (‡) | -900 | +52,600 | -36,600 | -13,200 | -1,700 | +19,300 | +79,400 | +49,200 | -31,000 | -65,300 | -51,500 | +13,700 |

Calendar year 1957..... ‡ +49,400
Water year 1957-58..... ‡ +14,000

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

## 610. East Fork Trinity River near Lavon, Tex.

Location.--Lat 33°01'23", long 96°28'32", on left bank at downstream side of bridge on State Highway 78, 150 ft downstream from St. Louis Southwestern Railway Lines bridge, 3,500 ft downstream from Lavon Dam, 2.5 miles west of Lavon, Collin County, and at mile 54.9.

Drainage area.--779 sq mi.

Records available.--October 1953 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 429.58 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 331 cfs (239,600 acre-ft per year).

Extremes.--Maximum discharge during year, 5,830 cfs May 14 (gage height, 14.66 ft); no flow Dec. 4, 5.

1953-58: Maximum discharge, 39,000 cfs May 26, 27, 1957, from records of released flow from Lavon Reservoir furnished by Corps of Engineers; maximum gage height, 17.34 ft May 26, 1957; no flow at times.

Maximum stage since at least 1894, 22.3 ft in 1913 and in April 1942, from information by St. Louis Southwestern Railway Lines and local residents.

Remarks.--Records good. Flow regulated by Lavon Reservoir (see preceding page).

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32 | 0.1 | 549 | 1,370 | 264 | 231 | 67 | 25 | 207 | 1,060 | 1,040 | 5.6 |
| 2 | 32 | .1 | 395 | 1,370 | 264 | 134 | 247 | 36 | 207 | 1,060 | 1,040 | 5.2 |
| 3 | 31 | 18 | *.6 | 1,340 | 264 | 66 | 247 | 33 | 207 | 1,060 | *1,040 | 5.0 |
| 4 | 24 | 33 | 0 | 1,340 | 264 | 66 | 456 | 17 | 207 | 1,060 | 1,040 | 2.1 |
| 5 | 4.3 | 42 | 0 | 1,340 | 264 | 68 | 1,160 | 872 | 207 | 888 | 779 | 1.0 |
| 6 | .2 | 37 | 192 | 649 | 264 | 68 | 1,680 | 1,980 | 207 | 18 | 508 | 1.1 |
| 7 | .1 | 38 | 692 | *30 | 255 | 71 | 1,680 | *2,520 | 207 | 189 | 1,040 | 1.1 |
| 8 | 13 | 202 | 1,110 | 29 | 127 | 170 | 1,720 | 5,350 | 207 | 880 | 1,040 | 6.2 |
| 9 | *32 | 560 | 1,220 | 29 | 32 | 255 | 1,800 | *5,300 | 207 | 1,100 | 1,040 | *13 |
| 10 | 32 | 571 | 1,220 | 29 | 107 | 327 | 1,690 | 4,040 | 444 | 1,100 | 1,000 | 12 |
| 11 | 32 | 582 | 1,220 | 29 | 223 | 538 | 1,570 | 62 | 910 | 1,100 | 1,000 | 12 |
| 12 | 32 | 582 | 1,190 | 29 | 223 | 638 | 823 | 720 | *1,060 | 1,100 | 1,000 | 12 |
| 13 | 24 | 582 | 1,190 | 176 | 118 | 638 | 144 | 5,100 | 1,000 | 1,060 | 1,000 | 12 |
| 14 | 18 | 778 | 1,240 | 450 | 31 | 711 | 144 | *5,660 | 980 | 1,060 | 980 | 12 |
| 15 | 32 | 957 | 1,420 | 450 | 31 | 913 | 141 | 5,610 | 980 | 1,060 | 980 | 13 |
| 16 | 31 | 957 | 1,460 | 440 | 31 | 892 | 637 | 5,400 | 1,000 | 1,060 | 980 | 13 |
| 17 | 31 | 854 | 1,620 | 440 | 31 | 980 | 1,460 | 5,300 | 1,040 | 1,060 | 957 | 13 |
| 18 | 31 | 208 | *1,620 | 440 | 31 | 1,190 | 1,270 | 5,150 | 1,040 | 1,060 | 980 | 13 |
| 19 | 31 | 560 | 1,280 | 440 | *31 | 1,190 | 957 | 5,050 | 1,040 | 1,040 | 1,000 | 51 |
| 20 | 31 | 643 | 29 | 591 | 31 | 1,240 | 537 | 3,000 | 1,040 | 1,040 | 1,000 | 9.3 |
| 21 | 26 | *903 | 17 | 1,000 | 96 | 1,340 | 141 | 32 | 1,040 | 1,040 | 1,000 | 2.1 |
| 22 | 19 | 786 | 402 | 1,040 | 223 | 1,340 | 200 | 13 | 1,040 | 1,040 | 1,040 | 50 |
| 23 | 32 | 697 | *1,240 | 1,140 | 223 | 1,340 | 291 | 9.1 | 1,040 | 1,100 | 803 | 283 |
| 24 | 31 | 957 | 1,220 | 1,370 | 223 | 1,420 | 223 | 6.4 | 1,040 | 1,100 | 217 | 147 |
| 25 | 31 | 957 | 574 | 1,420 | 223 | 1,620 | 215 | 10 | 1,040 | 1,100 | 21 | 191 |
| 26 | 31 | 914 | 540 | 1,460 | 223 | *1,830 | 192 | 3.2 | 1,040 | 1,060 | 21 | 582 |
| 27 | 20 | 780 | 1,270 | 1,420 | 223 | 1,920 | 35 | **52 | 1,040 | 1,060 | 21 | 516 |
| 28 | 1.2 | 538 | 1,270 | 968 | 231 | 1,890 | 18 | 207 | 1,040 | 1,060 | 21 | 516 |
| 29 | .3 | 538 | 1,240 | 345 | - | 856 | 30 | 207 | 1,000 | 1,060 | 19 | 516 |
| 30 | .2 | 549 | 1,300 | 264 | ------- | 17 | 39 | 207 | 1,040 | 1,060 | 11 | 516 |
| 31 | .1 | ------- | 1,370 | *264 | ------- | 13 | ------- | 207 | ------- | 1,040 | 6.2 | ------- |
| Total | 685.4 | 15,823.2 | 28,090.6 | 21,702 | 4,551 | 23,972 | 19,814 | 62,178.7 | 22,757 | 30,775 | 22,624.2 | 3,531.7 |
| Mean | 22.1 | 527 | 906 | 700 | 163 | 773 | 660 | 2,006 | 759 | 993 | 730 | 118 |
| Ac-ft | 1,360 | 31,380 | 55,720 | 43,050 | 9,030 | 47,550 | 39,300 | 123,300 | 45,140 | 61,040 | 44,870 | 7,010 |

Calendar year 1957: Max 36,800 Min 0 Mean 1,025 Ac-ft 741,800
Water year 1957-58: Max 5,660 Min 0 Mean 703 Ac-ft 508,800

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

620. 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 at mile 13.8.

Drainage area.--1,257 sq mi.

Records available.--June 1949 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 343.69 ft above mean sea level, datum of 1929.

Average discharge.--9 years, 579 cfs (419,200 acre-ft per year).

Extremes.--Maximum discharge during year, 11,800 cfs Apr. 27 (after levee break); maximum gage height, 17.81 ft Apr. 27 (prior to levee break); minimum daily discharge, 6.9 cfs Sept. 11.
1949-58: Maximum discharge, 33,000 cfs May 28, 1957 (gage height, 22.81 ft); no flow at times.

Remarks.--Records good except those for period Apr. 28 to May 4, which are fair. Flow largely regulated by Lavon Reservoir since September 1953 (see p.103). At end of year flow from 55.5 sq mi above this station and below the station near Lavon was partly controlled by 18 floodwater-detention reservoirs with a total combined capacity of 17,850 acre-ft below the flood spillway crests, of which 14,580 acre-ft is floodwater-detention capacity and 3,270 acre-ft is sediment-storage capacity. One of these reservoirs was constructed during the current year and has a total capacity below spillway crest of 2,510 acre-ft, of which 751 acre-ft is sediment-storage capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 18-23, Mar. 24 to Apr. 1, Apr. 28 to May 12, Aug. 27 to Sept. 19)

| | | | | | |
|---|---|---|---|---|---|
| 3.7 | 4.5 | 8.0 | 185 | 13.0 | 1,340 |
| 4.0 | 8.2 | 9.0 | 275 | 13.5 | 1,800 |
| 4.5 | 18 | 10.0 | 415 | 14.0 | 2,960 |
| 5.0 | 30 | 11.0 | 605 | 16.0 | 6,800 |
| 6.0 | 67 | 12.0 | 900 | 18.0 | 11,200 |
| 7.0 | 118 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 30 | 705 | 1,340 | 545 | 311 | 1,390 | 7,150 | 325 | 940 | 940 | 20 |
| 2 | 20 | 29 | 655 | 1,340 | 451 | 311 | 518 | 7,200 | 325 | 940 | 940 | 16 |
| 3 | 20 | 28 | *655 | 1,400 | 415 | 299 | 433 | 8,500 | 311 | 940 | *940 | *12 |
| 4 | 21 | 29 | 534 | 1,400 | 415 | 190 | 525 | *8,430 | 299 | 980 | 940 | 9.5 |
| 5 | 22 | 171 | 191 | 1,400 | 399 | 178 | 487 | 5,100 | 299 | 1,020 | 940 | 8.7 |
| 6 | 22 | 1,200 | 130 | 1,400 | 415 | 488 | 565 | 2,160 | 339 | 1,100 | 900 | 8.7 |
| 7 | 22 | 2,410 | 245 | 1,400 | 399 | 1,350 | 765 | 1,670 | 367 | 1,290 | 769 | 11 |
| 8 | 19 | 2,410 | 505 | *1,220 | 383 | 1,560 | 1,100 | 2,160 | 325 | 855 | 565 | 9.8 |
| 9 | *16 | 1,670 | 680 | 412 | 367 | 1,670 | 1,560 | 2,960 | 299 | 487 | 735 | 8.5 |
| 10 | 15 | 1,150 | 900 | 152 | 209 | 1,200 | 1,800 | 4,180 | 275 | 630 | 865 | 7.4 |
| 11 | 15 | 900 | 1,100 | 121 | 124 | 830 | 1,800 | 4,900 | 275 | 865 | 900 | 6.9 |
| 12 | 14 | 830 | 1,200 | 112 | 214 | 680 | 1,800 | 4,900 | 451 | 980 | 900 | 11 |
| 13 | 18 | 830 | 1,240 | 292 | 325 | 795 | 1,670 | *2,600 | 585 | 980 | 900 | 16 |
| 14 | 121 | 830 | 1,240 | 487 | 325 | 1,100 | 1,800 | 1,290 | 705 | 980 | 900 | 13 |
| 15 | 456 | 765 | 1,240 | 487 | 215 | 1,020 | 1,340 | 3,480 | 830 | 940 | 865 | 10 |
| 16 | 830 | 795 | 1,240 | 585 | 146 | 940 | 752 | 5,260 | 900 | 940 | 865 | 10 |
| 17 | 429 | 900 | 1,290 | 585 | 115 | 1,020 | 469 | 5,260 | 1,060 | 940 | 865 | 12 |
| 18 | 112 | 1,020 | 1,340 | 585 | 100 | 1,060 | 630 | 5,260 | 1,020 | 940 | 940 | 12 |
| 19 | 70 | 1,280 | 1,470 | 585 | 94 | 1,060 | 1,060 | 5,080 | 980 | 940 | 940 | 402 |
| 20 | 53 | 972 | 1,470 | 705 | *90 | 1,150 | 1,470 | 5,080 | 980 | 940 | 900 | 1,470 |
| 21 | 45 | 655 | 1,560 | 1,100 | 87 | 1,240 | 1,670 | 5,080 | 980 | 940 | 900 | 1,470 |
| 22 | 46 | 680 | 926 | 1,290 | 87 | 1,290 | 1,490 | 4,360 | 1,020 | 940 | 940 | 550 |
| 23 | 82 | 795 | 225 | 1,240 | 174 | 1,340 | 615 | 1,720 | 1,060 | 940 | 940 | 144 |
| 24 | 102 | 1,020 | 483 | 1,240 | 299 | 1,560 | 487 | 660 | 1,060 | 940 | 940 | 136 |
| 25 | 80 | 1,100 | 1,070 | 1,240 | 311 | 1,560 | 451 | 451 | 980 | 980 | 830 | 312 |
| 26 | 59 | 1,400 | 1,470 | 1,290 | 325 | 1,470 | 1,180 | 311 | 980 | 980 | 297 | 165 |
| 27 | 49 | 1,240 | 1,340 | 1,400 | 339 | 1,560 | 8,780 | 213 | 980 | 980 | 92 | 298 |
| 28 | 43 | 1,150 | 830 | 1,470 | 339 | 1,670 | *9,730 | 177 | 940 | 980 | 38 | 487 |
| 29 | 40 | 1,060 | 1,060 | 1,470 | - | *2,160 | 6,120 | 230 | 940 | 980 | 26 | 505 |
| 30 | 39 | 865 | 1,290 | 1,400 | ------- | 4,780 | *5,680 | 339 | 940 | 940 | 25 | 505 |
| 31 | 33 | ------- | 1,340 | 958 | ------- | 4,060 | ------- | 339 | ------- | 940 | 23 | ------- |
| Total | 2,930 | 28,214 | 29,624 | 30,106 | 7,707 | 39,902 | 58,137 | 106,500 | 20,830 | 29,167 | 22,550 | 6,646.5 |
| Mean | 94.5 | 940 | 956 | 971 | 275 | 1,287 | 1,938 | 3,435 | 694 | 941 | 727 | 222 |
| Ac-ft | 5,810 | 55,960 | 58,760 | 59,710 | 15,290 | 79,140 | 115,300 | 211,200 | 41,320 | 57,850 | 44,730 | 13,180 |

Calendar year 1957: Max 30,200 Min 3.3 Mean 1,534 Ac-ft 1,111,000
Water year 1957-58: Max 9,730 Min 6.9 Mean 1,047 Ac-ft 758,200

* Discharge measurement made on this day.

625. 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, 2.5 miles south of Rosser, Kaufman County, 8.5 miles downstream from East Fork Trinity River, 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 1958.

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 abandoned lock and dam No. 7, 1.7 miles upstream at datum 6.94 ft higher.

Average discharge.--19 years (1939-58), 2,885 cfs (2,089,000 acre-ft per year).

Extremes.--Maximum discharge during year, 34,000 cfs May 3 (gage height, 33.63 ft); minimum, 210 cfs Sept. 15 (gage height, 4.30 ft).

1924, 1938-58: Maximum discharge not determined, 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; maximum daily discharge, 133,000 cfs Apr. 23, 1942; minimum discharge, 34 cfs Sept. 8-11, 1924.

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

Remarks.--Records good. Flow largely regulated by reservoirs above Dallas and after September 1953 by Lavon Reservoir on East Fork Trinity River (see p.103 ). Levee system constructed in 1916. At end of year, flow from 89.9 sq mi above this station and below the stations Trinity River at Dallas and East Fork Trinity River near Lavon was partly controlled by 32 floodwater-detention reservoirs with a total combined capacity of 30,210 acre-ft below flood spillway crests, of which 24,770 acre-ft is floodwater-detention capacity and 5,440 acre-ft is sediment-storage capacity. One of these reservoirs was constructed during the current year and has a total capacity below flood spillway crest of 2,510 acre-ft, of which 751 acre-ft is sediment-storage capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The first of these floodwater-detention reservoirs was completed in August 1953. Cities of Fort Worth and Dallas divert considerable water for municipal supply, of which about 60 percent is returned as sewage. Diversions above station for irrigation and municipal supplies. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions.--WSP 1148: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 4.0 | 177 | 11.0 | 1,620 | 28.0 | 11,800 |
| 5.0 | 297 | 14.0 | 2,680 | 30.0 | 16,300 |
| 6.0 | 444 | 18.0 | 4,520 | 34.0 | 36,000 |
| 8.0 | 820 | 22.0 | 6,890 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 381 | 396 | 5,940 | 2,360 | 2,520 | 778 | 8,360 | 27,400 | 4,020 | 5,460 | 1,090 | 297 |
| 2 | 366 | 366 | 4,680 | 2,320 | 2,180 | 798 | *6,060 | 27,700 | 5,220 | *5,520 | 1,110 | 304 |
| 3 | 396 | 366 | *2,880 | 2,240 | 2,000 | 678 | 4,420 | 33,000 | 5,700 | 5,520 | 1,110 | 331 |
| 4 | 381 | 444 | 1,930 | 2,000 | 1,930 | 936 | 3,280 | 33,500 | 5,820 | 5,580 | *1,160 | 338 |
| 5 | 345 | 2,030 | 1,270 | 1,830 | 1,710 | 984 | 2,760 | 32,600 | 5,580 | 4,950 | g1,220 | 310 |
| 6 | 278 | 10,900 | 936 | 1,800 | 1,470 | 2,020 | 2,680 | 29,400 | 5,400 | 5,120 | g1,160 | 284 |
| 7 | 258 | 9,450 | 1,320 | 1,740 | 1,440 | 4,270 | 2,600 | 24,500 | 5,520 | 5,000 | g1,110 | *312 |
| 8 | 278 | 12,900 | 1,500 | 1,680 | 1,320 | 5,760 | 2,480 | 20,000 | 5,580 | 4,020 | g984 | 548 |
| 9 | *290 | 9,950 | 1,560 | 1,620 | 1,160 | 6,630 | 2,680 | 17,100 | 5,460 | 3,680 | g798 | 352 |
| 10 | 290 | 8,210 | 1,770 | 960 | 1,110 | 6,370 | 3,320 | 15,700 | 4,240 | 3,640 | g912 | 304 |
| 11 | 271 | 7,280 | 1,860 | 638 | 1,010 | 6,120 | 3,500 | 15,300 | 1,440 | 3,640 | g1,030 | 290 |
| 12 | 278 | 6,780 | 2,520 | 678 | 842 | 6,120 | 3,460 | 15,600 | 1,010 | 3,770 | g1,110 | 271 |
| 13 | 252 | 6,630 | 2,180 | 2,240 | 820 | 6,560 | 3,320 | *15,900 | 2,070 | 3,360 | g1,060 | 246 |
| 14 | 2,210 | 6,700 | 1,860 | 2,240 | 912 | 6,440 | 3,460 | 15,900 | 4,460 | 3,720 | 1,030 | 234 |
| 15 | 4,540 | 6,440 | 1,710 | 1,930 | 1,090 | 6,440 | 4,320 | 15,300 | 5,340 | 2,400 | 1,030 | 222 |
| 16 | 5,700 | 6,440 | 1,620 | 2,320 | 1,190 | 6,500 | 4,020 | *14,500 | 5,580 | 1,500 | 1,030 | 252 |
| 17 | 2,830 | 6,560 | 1,620 | 2,640 | 1,270 | 5,120 | 3,050 | 14,800 | *5,760 | 1,290 | 1,010 | 572 |
| 18 | 1,450 | 6,760 | 1,590 | 2,520 | 1,270 | 3,920 | 2,070 | 15,300 | 6,000 | 1,220 | 1,220 | 483 |
| 19 | 778 | 6,890 | 1,620 | 2,600 | 1,110 | 3,640 | 2,070 | 15,600 | 5,940 | 1,190 | 1,620 | 4,310 |
| 20 | 618 | 6,440 | 1,710 | 3,180 | *1,030 | 2,720 | 2,680 | 15,900 | 5,880 | 1,160 | 1,190 | 14,800 |
| 21 | 546 | 6,630 | 1,930 | 3,920 | 1,060 | 2,400 | 3,720 | 15,900 | 5,880 | 1,160 | 1,110 | 9,560 |
| 22 | 511 | 6,500 | 2,180 | 4,120 | 1,010 | 2,400 | 5,210 | 15,600 | 6,440 | 1,160 | 1,270 | 5,230 |
| 23 | 658 | 6,370 | 1,930 | 4,730 | 820 | 2,360 | 4,600 | 14,800 | 6,180 | 1,140 | 1,440 | 2,840 |
| 24 | 738 | 6,180 | 1,290 | 5,580 | 718 | 2,840 | 3,540 | 12,900 | 6,060 | 1,190 | 1,220 | 2,070 |
| 25 | 678 | 6,500 | 2,320 | 5,280 | 758 | 2,840 | 3,050 | 10,600 | 5,940 | 1,290 | 1,240 | 1,620 |
| 26 | 546 | 6,960 | 3,870 | 3,180 | 820 | 2,800 | 3,300 | 8,440 | 5,820 | 1,270 | 1,110 | 1,290 |
| 27 | 444 | 7,280 | 3,500 | 2,520 | 960 | 3,000 | 14,800 | 7,600 | 5,760 | 1,190 | 582 | 1,030 |
| 28 | 381 | 6,760 | 3,360 | 2,680 | 888 | 3,050 | *24,000 | 6,060 | 5,700 | 1,160 | 366 | 984 |
| 29 | 352 | 6,240 | 2,400 | 2,880 | - | 3,500 | *28,000 | 5,700 | 5,580 | 1,140 | 310 | 1,010 |
| 30 | 352 | 6,060 | 2,140 | 2,760 | ------- | 6,240 | 27,800 | 5,170 | 5,520 | 1,110 | 310 | 842 |
| 31 | 381 | ------- | 2,320 | 2,720 | ------- | 8,510 | ------- | 3,460 | ------- | 1,110 | 338 | ------- |
| Total | 27,777 | 187,392 | 69,316 | 79,906 | 34,418 | 122,744 | 188,610 | 521,230 | 154,900 | 84,660 | 31,280 | 51,536 |
| Mean | 896 | 6,246 | 2,236 | 2,578 | 1,229 | 3,959 | 6,287 | 16,810 | 5,163 | 2,731 | 1,009 | 1,718 |
| Ac-ft | 55,090 | 371,700 | 137,500 | 158,500 | 68,270 | 243,500 | 374,100 | ‡1,034 | 307,200 | 167,900 | 62,040 | 102,200 |

Calendar year 1957: Max 54,600 Min 128 Mean 6,537 Ac-ft 4,732,000
Water year 1957-58: Max 33,500 Min 222 Mean 4,257 Ac-ft 3,082,000

* Discharge measurement made on this day. ‡ Expressed in thousands.
g Computed from twice-daily wire-weight-gage readings.

## 630. 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 1958.

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

Average discharge.--19 years (1939-58), 481 cfs (348,200 acre-ft per year).

Extremes.--Maximum discharge during year, 35,200 cfs Apr. 28 (gage height, 23.14 ft); no flow for many days.

1938-58: Maximum discharge, 44,800 cfs Mar. 30, 1945 (gage height, 25.43 ft); from rating curve extended above 16,000 cfs on basis of slope-area measurement at gage height, 23.5 ft; no flow at times.

Maximum stage since at least 1889, that of Mar. 30, 1945. Flood of Sept. 29, 1936, second highest since 1889, reached a stage of about 23.5 ft, present site, from information by local resident (discharge, 35,400 cfs, result of slope-area measurement at site 12 miles downstream).

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

Revisions.--WSP 1148: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.3 | 0 | 2.0 | 54 | 13.0 | 1,760 |
| .4 | .3 | 3.0 | 112 | 14.0 | 2,560 |
| .5 | 1.0 | 5.0 | 273 | 15.0 | 4,200 |
| .6 | 2.5 | 9.0 | 748 | 17.0 | 9,320 |
| .8 | 7.5 | 11.0 | 1,110 | 20.0 | 21,600 |
| 1.0 | 13 | 12.0 | 1,370 | 23.0 | 34,800 |
| 1.5 | 31 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 21 | 79 | 79 | 52 | 15 | 323 | 10,000 | 4.2 | 0 | | 0 |
| 2 | 0 | 17 | 58 | 58 | 40 | 13 | 106 | 13,000 | 2.8 | 0 | | 0 |
| 3 | 0 | 11 | 50 | 43 | 32 | 13 | *68 | 18,000 | 1.5 | 0 | | 0 |
| 4 | 0 | 8.2 | *40 | 36 | 28 | 12 | 47 | 20,000 | .7 | 0 | (*) | 0 |
| 5 | 0 | 657 | 29 | 31 | 25 | 11 | 35 | 15,000 | .3 | 0 | | 0 |
| 6 | 0 | 4,790 | 24 | 24 | 21 | 11 | 25 | 5,000 | .1 | 170 | | 0 |
| 7 | 0 | 5,760 | 24 | 19 | 18 | 932 | 19 | 2,000 | 0 | 1,250 | | 0 |
| 8 | *0 | 8,940 | 72 | 15 | 16 | 1,810 | 14 | 500 | 0 | 3,440 | | 0 |
| 9 | 0 | 8,760 | 183 | *12 | 14 | 2,920 | 19 | 250 | 0 | 2,770 | | *0 |
| 10 | 0 | 7,790 | 85 | 12 | 15 | 2,920 | 23 | 200 | 0 | 1,300 | | 0 |
| 11 | 0 | 3,580 | 50 | 11 | 20 | 1,770 | 31 | 150 | 0 | 187 | | 0 |
| 12 | 0 | 1,150 | 37 | 13 | 26 | 341 | 28 | 120 | 0 | 61 | | 0 |
| 13 | 0 | 1,220 | 31 | 235 | 21 | 162 | 25 | 110 | 0 | 30 | | .6 |
| 14 | 681 | 1,520 | 24 | 870 | 24 | 126 | 644 | 100 | 0 | 10 | | 2.0 |
| 15 | 4,200 | 1,440 | 20 | 1,060 | 68 | 109 | 1,260 | *96 | 0 | 3 | | 1.2 |
| 16 | 10,600 | 768 | 21 | 391 | 122 | 85 | 950 | 182 | 0 | 1 | | 1.1 |
| 17 | 9,200 | 289 | 17 | 154 | 82 | 62 | 213 | 122 | 0 | 0 | | 1.1 |
| 18 | 7,020 | 237 | 15 | 97 | 50 | 48 | 157 | 88 | *121 | 0 | | 40 |
| 19 | 2,960 | 283 | 14 | 78 | 36 | 38 | 185 | 74 | 177 | 0 | | 86 |
| 20 | 830 | 190 | 12 | 1,500 | 26 | 32 | 261 | 65 | 43 | 0 | | 826 |
| 21 | 404 | 126 | 12 | 3,520 | *19 | 29 | 541 | 60 | 26 | 0 | | 1,440 |
| 22 | 144 | 112 | 11 | 3,700 | 16 | 25 | 469 | 56 | 295 | 0 | | 796 |
| 23 | 504 | 140 | 10 | 2,840 | 14 | 28 | 255 | 55 | 52 | 0 | | 112 |
| 24 | 688 | 611 | 9.2 | 1,020 | 14 | 240 | 150 | 50 | 15 | 0 | | 38 |
| 25 | 602 | 1,530 | 137 | 255 | 14 | 163 | 76 | 38 | 5.0 | 0 | | 17 |
| 26 | 233 | 1,760 | 1,410 | 162 | 13 | 88 | 1,280 | 29 | 1.2 | 0 | | 6.5 |
| 27 | 116 | 1,230 | 1,860 | 119 | 14 | 62 | 18,400 | 22 | .2 | 0 | | 6.8 |
| 28 | 68 | 330 | 1,160 | 94 | 15 | 44 | 31,600 | 17 | 0 | 0 | | 67 |
| 29 | 46 | 158 | 285 | 76 | - | 72 | 19,000 | 12 | 0 | 0 | | 38 |
| 30 | 34 | 109 | 166 | 63 | ------- | 448 | 10,000 | 9.0 | 0 | 0 | | 20 |
| 31 | 27 | ------- | 112 | 63 | ------- | 1,030 | ------- | 6.2 | ------- | 0 | | ------- |
| Total | 38,357 | 53,537.2 | 6,057.2 | 16,650 | 855 | 13,659 | 86,204 | 86,411.2 | 745.0 | 9,222 | 0 | 3,499.3 |
| Mean | 1,237 | 1,785 | 195 | 537 | 30.5 | 441 | 2,873 | 2,787 | 24.8 | 297 | 0 | 117 |
| Ac-ft | 76,080 | 106,200 | 12,010 | 33,020 | 1,700 | 27,090 | 171,000 | 171,400 | 1,480 | 18,290 | 0 | 6,940 |

Calendar year 1957: Max 23,600 Min 0 Mean 1,157 Ac-ft 837,500
Water year 1957-58: Max 31,600 Min 0 Mean 864 Ac-ft 625,200

Peak discharge (base, 5,300 cfs).--Oct. 16 (4 p.m.) 11,900 cfs (17.67 ft); Nov. 8 (6 p.m.) 10,000 cfs (17.19 ft); Apr. 28 (9 a.m.) 35,200 cfs (23.14 ft); May 4 (time unknown) 20,300 cfs (19.7 ft).

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

Note.--No gage-height record Apr. 29 to May 14, July 13 to Aug. 4; discharge estimated on basis of nearby stations.

## 632. Pin Oak Creek near Hubbard, Tex.

Location.--Lat 31°48', long 96°43', on right bank 85 ft downstream from bridge on State Highway 171, 5.8 miles southeast of Hubbard, Hill County, and 9 miles upstream from Elm Creek.

Drainage area.--17.6 sq mi.

Records available.--September 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 463.08 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Extremes.--Maximum discharge during year, 4,340 cfs Aug. 24 (gage height, 13.86 ft); no flow most of the time.
1956-58: Maximum discharge, that of Aug. 24, 1958; no flow most of the time each year.
Maximum stage known since at least 1900, about 17 ft in August 1919, from information by local resident.

Remarks.--Records fair. Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to May 2 | | | | May 3 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.4 | 0 | 3.2 | 6.7 | 2.1 | 0 | 5.0 | 92 |
| 2.5 | .1 | 3.6 | 15 | 2.2 | .1 | 6.0 | 164 |
| 2.6 | .4 | 4.0 | 27 | 2.3 | .9 | 7.0 | 264 |
| 2.7 | 1.1 | 4.5 | 50 | 2.5 | 3.9 | 8.0 | 416 |
| 2.8 | 2.0 | 5.0 | 81 | 3.0 | 13 | 9.0 | 644 |
| 2.9 | 3.0 | 6.0 | 164 | 3.5 | 26 | 10.0 | 988 |
| 3.0 | 4.1 | 7.0 | 264 | 4.0 | 43 | 11.0 | 1,470 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | | 0 | 0 | 0 | 0 | 21 | | | 0 | 0 |
| 2 | 0 | 0 | | 0 | 0 | 0 | 0 | 82 | | | 0 | 0 |
| 3 | 0 | 0 | | 0 | 0 | 0 | 0 | 467 | | | 0 | 0 |
| 4 | 0 | 0 | | 0 | 0 | 0 | *0 | 12 | | | 0 | 0 |
| 5 | 0 | .2 | (*) | 0 | 0 | 0 | 0 | 4.6 | | | *0 | 0 |
| 6 | 0 | .6 | | 0 | 0 | *0 | 0 | *2.3 | | | 0 | 0 |
| 7 | *0 | 1.7 | | 0 | 0 | .1 | 0 | 1.7 | | | 0 | 0 |
| 8 | 0 | 2.1 | | 0 | 0 | 0 | 0 | .9 | | | 0 | *.6 |
| 9 | 0 | .1 | | 0 | 0 | 0 | 0 | .7 | | | 0 | .3 |
| 10 | 0 | 0 | | 0 | .7 | 0 | 0 | .4 | | | 0 | 0 |
| 11 | 0 | 0 | | 0 | .3 | 0 | 0 | .3 | | | 0 | 2.0 |
| 12 | 0 | 0 | | 0 | .1 | 0 | 0 | .2 | | | 0 | .1 |
| 13 | 5.7 | 1.7 | | 2.1 | 0 | 0 | 0 | .1 | | | 0 | 0 |
| 14 | 135 | 1.7 | | .4 | 0 | 0 | .1 | .1 | | | 0 | 0 |
| 15 | 178 | .2 | | .1 | 0 | 0 | 0 | .1 | | | 0 | 0 |
| 16 | 5.1 | .1 | | 0 | 0 | 0 | 0 | .1 | | | 0 | .2 |
| 17 | .5 | 2.8 | | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 |
| 18 | .2 | 29 | | 0 | 0 | 0 | 0 | 0 | (*) | | 13 | 0 |
| 19 | .1 | 2.2 | | 1.6 | 0 | 0 | 0 | 0 | | | 0 | 108 |
| 20 | 0 | .5 | | 19 | 0 | 0 | .4 | 0 | | | 0 | 35 |
| 21 | 0 | .1 | | 4.0 | 0 | 0 | 18 | 0 | | | 0 | 3.3 |
| 22 | .1 | 6.4 | | .8 | 6.3 | 3.9 | 13 | 0 | | | 0 | 159 |
| 23 | .4 | 3.9 | | .2 | 21 | .3 | 0 | 0 | | | 3.8 | 8.5 |
| 24 | 0 | 110 | | .1 | 1.7 | 0 | 0 | 0 | | | 1,140 | 2.3 |
| 25 | 0 | 5.2 | | 0 | .3 | 0 | 0 | 0 | | | 4.0 | 1.1 |
| 26 | 0 | 1.4 | | 0 | .1 | 0 | 0 | 0 | | | .5 | .6 |
| 27 | 0 | .6 | | *0 | .1 | 0 | 3.4 | 0 | | | 0 | .4 |
| 28 | 0 | .2 | | .1 | 0 | 0 | 0 | 0 | | | 0 | .2 |
| 29 | 0 | .1 | | .2 | - | 0 | 5.8 | 7.9 | | | 0 | .1 |
| 30 | 0 | 0 | | .1 | ------- | 0 | 82 | .2 | | | 0 | 4.0 |
| 31 | 0 | ------ | | 0 | ------- | 0 | ------- | 0 | ------ | | 0 | ------ |
| Total | 325.1 | 170.8 | 0 | 28.7 | 30.6 | 4.3 | 122.7 | 601.6 | 0 | 0 | 1,161.3 | 325.7 |
| Mean | 10.5 | 5.69 | 0 | 0.93 | 1.09 | 0.14 | 4.09 | 19.4 | 0 | 0 | 37.5 | 10.9 |
| Cfsm | 0.596 | 0.323 | 0 | 0.053 | 0.062 | 0.0080 | 0.232 | 1.10 | 0 | 0 | 2.13 | 0.619 |
| In. | 0.69 | 0.36 | 0 | 0.06 | 0.06 | 0.009 | 0.26 | 1.27 | 0 | 0 | 2.45 | 0.69 |
| Ac-ft | 645 | 339 | 0 | 57 | 61 | 8.5 | 243 | 1,190 | 0 | 0 | 2,300 | 646 |

Calendar year 1957: Max 1,970 Min 0 Mean 23.5 Cfsm 1.34 In. 18.09 Ac-ft 17,000
Water year 1957-58: Max 1,140 Min 0 Mean 7.59 Cfsm 0.431 In. 5.85 Ac-ft 5,490

Peak discharge (base, 400 cfs).--Oct. 15 (3 p.m.) 580 cfs (8.77 ft); May 3 (3:45 a.m.) 1,140 cfs (10.35 ft); Aug. 24 (6:45 a.m.) 4,340 cfs (13.86 ft); Sept. 19 (6:30 p.m.) 554 cfs (8.65 ft); Sept. 22 (3:45 p.m.) 765 cfs (9.42 ft).

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

## 635. Richland Creek near Richland, Tex.

Location.--Lat 31°57', long 96°25', at downstream side of bridge on U. S. Highway 75, 800 ft downstream from Texas and New Orleans Railroad Co. bridge, 1 mile north of Richland, Navarro County, and 3.5 miles downstream from Pin Oak Creek. Prior to Feb. 15, 1958, at site 50 ft upstream.

Drainage area.--737 sq mi.

Records available.--December 1924 to February 1925 (discharge measurements and monthly runoff only), March 1939 to September 1958.

Gage.--Wire-weight gage read twice daily. Datum of gage is 299.12 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. Dec. 11, 1924, to Feb. 11, 1925, chain gage at site 800 ft upstream at same datum. Mar. 17, 1939, to Feb. 14, 1958, water-stage recorder at site 50 ft upstream at same datum. June 8, 1955, to Feb. 14, 1958, supplementary water-stage recorder, 3,900 ft to right of main-channel gage, used for floodflows.

Average discharge.--19 years (1939-58), 395 cfs (286,000 acre-ft per year).

Extremes.--Maximum discharge during year, 33,400 cfs May 3 (gage height, 22.52 ft); no flow for many days.

1939-58: 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 and New Orleans Railroad Co.

Remarks.--Records good above 100 cfs and fair below except those for period of no gage-height record, which are poor. At end of year, flow from 14.8 sq mi above this station was partly controlled by nine floodwater-detention reservoirs with a total combined capacity of 5,988 acre-ft below flood spillway crests, of which 4,856 acre-ft is floodwater-detention capacity and 1,132 acre-ft is sediment-storage capacity. Three of these reservoirs were constructed during the current year and have a total combined capacity below flood spillway crests of 1,219 acre-ft, of which 226 acre-ft is sediment-pool capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The first floodwater-detention reservoir in this basin was completed in October 1956.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 18-26, Dec. 29 to Jan. 12, Mar. 28 to Apr. 13)

| | | | | | |
|---|---|---|---|---|---|
| 6.07 | 0 | 7.0 | 79 | 20.5 | 4,280 |
| 6.1 | .1 | 8.0 | 189 | 21.0 | 6,920 |
| 6.2 | 2.1 | 10.0 | 425 | 21.5 | 12,200 |
| 6.3 | 6.6 | 14.0 | 1,100 | 22.0 | 20,500 |
| 6.4 | 14 | 19.0 | 2,460 | 22.5 | 32,900 |
| 6.5 | 24 | 20.0 | 3,120 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 52 | 156 | 38 | 83 | 90 | 74 | 6,660 | 90 | 6.6 | 0 | 6.6 |
| 2 | 0 | 58 | 137 | 39 | 74 | 72 | 71 | 15,600 | 50 | 4.0 | 0 | 2.1 |
| 3 | 0 | 2,010 | 128 | 34 | 64 | 69 | *70 | 22,500 | 40 | 2.1 | 0 | .8 |
| 4 | 0 | 998 | 121 | 30 | 61 | 70 | 70 | *23,200 | 31 | .1 | 0 | .8 |
| 5 | 0 | 452 | 118 | 30 | 61 | 68 | 66 | 12,500 | 26 | 0 | 0 | .3 |
| 6 | 0 | 2,840 | 101 | 28 | 62 | 40 | 62 | 3,100 | 22 | 76 | *0 | .1 |
| 7 | 0 | 2,700 | 101 | 27 | 62 | 94 | 52 | *418 | 19 | 742 | 0 | .1 |
| 8 | *0 | 3,280 | 101 | 26 | 58 | 976 | 48 | 324 | 17 | 760 | 0 | *.1 |
| 9 | 0 | 2,880 | 102 | 26 | 53 | 700 | 55 | 255 | 15 | 414 | 0 | 0 |
| 10 | 0 | 1,800 | 84 | *25 | 54 | 336 | 66 | 211 | 14 | 172 | 0 | 0 |
| 11 | 0 | 336 | 74 | 27 | 67 | 200 | 81 | 189 | 13 | 90 | 0 | 0 |
| 12 | 0 | 277 | 72 | 48 | 108 | *114 | 66 | 172 | 12 | 46 | 0 | 0 |
| 13 | 0 | 518 | 66 | 302 | 81 | 136 | 57 | 162 | 11 | 12 | 0 | 0 |
| 14 | 613 | 2,000 | 61 | 373 | *71 | 103 | 113 | 138 | 10 | 9.4 | 0 | 0 |
| 15 | 3,140 | 773 | 65 | 194 | 65 | 156 | 247 | 177 | 10 | 6.6 | 0 | 0 |
| 16 | 4,920 | 324 | 64 | 106 | 68 | 128 | 118 | 402 | 9 | 5.5 | 0 | 0 |
| 17 | 2,540 | 329 | 60 | 72 | 74 | 124 | 72 | 156 | 8 | 3.6 | 0 | 0 |
| 18 | 316 | 1,070 | 57 | 57 | 64 | 118 | 177 | 130 | 8 | 2.1 | 0 | 30 |
| 19 | 162 | 1,340 | 56 | 65 | 59 | 110 | 688 | 112 | *49 | .8 | 0 | 149 |
| 20 | 112 | 356 | 54 | 776 | 56 | 103 | 492 | 101 | 30 | .8 | 0 | *1,590 |
| 21 | 81 | 194 | 48 | 2,080 | 52 | 96 | 755 | 83 | 19 | .3 | 5.0 | 2,880 |
| 22 | 67 | 184 | 43 | 760 | 57 | 81 | 818 | 79 | 18 | .1 | 97 | 2,440 |
| 23 | 340 | 712 | 37 | 246 | 322 | 175 | 590 | 76 | 15 | .1 | 277 | 1,110 |
| 24 | 655 | 1,550 | 38 | 167 | 738 | 327 | 194 | 74 | 13 | .1 | 704 | 565 |
| 25 | 280 | 3,120 | 44 | 133 | 285 | 162 | 65 | 72 | 10 | 0 | 2,470 | 206 |
| 26 | 133 | 2,030 | 46 | 114 | 150 | 113 | 86 | 68 | 10 | 0 | 1,720 | 200 |
| 27 | 101 | 455 | 68 | 103 | 112 | 101 | 1,340 | 56 | 8.0 | 0 | 396 | 294 |
| 28 | 81 | 272 | 74 | 93 | 156 | 83 | 2,310 | 52 | 6.6 | 0 | 90 | 189 |
| 29 | 69 | 216 | 49 | 99 | - | 81 | 2,990 | 617 | 6.6 | 0 | 46 | 184 |
| 30 | 62 | 178 | 47 | 121 | ------- | 83 | 1,450 | 1,260 | 6.6 | 0 | 35 | 184 |
| 31 | 58 | ------- | 40 | 98 | ------- | 78 | ------- | 183 | ------- | 0 | 22 | ------- |
| Total | 13,730 | 33,304 | 2,312 | 6,337 | 3,217 | 5,187 | 13,343 | 89,127 | 596.8 | 2,354.2 | 5,862.0 | 10,031.9 |
| Mean | 443 | 1,110 | 74.6 | 204 | 115 | 167 | 445 | 2,875 | 19.9 | 75.9 | 189 | 334 |
| Ac-ft | 27,230 | 66,060 | 4,590 | 12,570 | 6,380 | 10,290 | 26,470 | 176,800 | 1,180 | 4,670 | 11,630 | 19,900 |

Calendar year 1957: Max 38,400 Min 0 Mean 983 Ac-ft 711,900
Water year 1957-58: Max 23,200 Min 0 Mean 508 Ac-ft 367,800

Peak discharge (base, 12,000 cfs).--May 3 (about 12 p.m.) 33,400 cfs (22.52 ft).

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

Note.--No gage-height record June 1-18, 20; discharge estimated on basis of weather records and records for nearby stations.

## 645. 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 Lines bridge, 6,000 ft upstream from city of Corsicana diversion dam, 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 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 294.26 ft above mean sea level, datum of 1929.

Average discharge.--19 years, 469 cfs (339,500 acre-ft per year).

Extremes.--Maximum discharge during year, 38,200 cfs May 3 (gage height, 28.10 ft); no flow for many days.
1939-58: 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 poor. Storage began in 1956 in South Prong Reservoir (capacity, 13,500 acre-ft) on South Prong Waxahachie Creek above this station. At end of year, flow from 5.38 sq mi above this station was partly controlled by three floodwater-detention reservoirs with a total combined capacity of 2,015 acre-ft below spillway crests, of which 1,548 acre-ft is floodwater-detention capacity and 467 acre-ft is sediment capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The first of these floodwater-detention reservoirs was completed in April 1957. From information furnished by the city of Corsicana, the city diverted approximately 1,610 acre-ft during the year for municipal supply from pool in which gage is located. Discharge given herein does not include that pumped by the city.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 5.74 | 0 | 6.5 | 17 | 15.0 | 1,240 |
| 5.8 | .1 | 6.7 | 32 | 21.0 | 2,400 |
| 5.9 | .4 | 7.0 | 72 | 22.0 | 2,900 |
| 6.0 | 1.2 | 7.5 | 146 | 22.5 | 3,580 |
| 6.1 | 2.5 | 8.0 | 197 | 23.0 | 5,200 |
| 6.2 | 4.5 | 9.0 | 314 | 24.0 | 11,000 |
| 6.3 | 7.4 | 11.0 | 592 | 27.0 | 30,500 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.1 | 67 | 300 | 85 | 200 | 146 | 175 | *15,800 | 69 | 3.2 | 0 | 0 |
| 2 | 0 | 118 | 270 | 80 | 190 | 122 | 150 | 15,600 | 58 | 2.1 | 0 | 1.2 |
| 3 | 0 | 329 | 250 | 75 | 180 | 100 | *135 | 28,300 | 50 | 1.1 | 0 | 1.9 |
| 4 | 0 | 184 | *230 | 70 | 160 | 88 | 133 | *30,100 | 45 | .1 | 0 | .5 |
| 5 | 0 | 384 | 219 | 70 | 160 | *91 | 125 | 18,800 | 39 | 0 | *0 | 0 |
| 6 | 0 | 2,910 | 208 | 65 | 156 | 129 | 105 | 6,860 | 36 | 145 | 0 | 0 |
| 7 | 0 | 5,110 | 208 | 60 | 156 | 478 | 117 | *2,580 | 34 | 1,390 | 0 | 0 |
| 8 | *0 | 8,300 | 248 | 60 | 156 | 3,470 | 80 | 1,590 | 31 | 1,290 | 0 | *72 |
| 9 | 0 | 10,400 | 220 | 60 | 131 | 2,810 | 90 | 1,160 | 28 | 202 | 0 | 114 |
| 10 | 0 | 3,000 | 170 | 60 | 129 | 1,630 | 146 | 886 | 26 | 102 | 0 | 94 |
| 11 | 0 | 1,000 | 140 | 60 | 143 | 1,800 | 166 | 578 | 17 | 46 | 0 | 16 |
| 12 | 0 | 500 | 130 | 130 | 156 | 300 | 122 | 454 | 17 | 23 | 0 | 8.8 |
| 13 | 0 | 1,500 | 125 | 450 | 151 | 350 | 88 | 392 | 15 | 14 | 0 | 6.1 |
| 14 | 1,010 | 3,000 | 120 | 600 | 146 | 300 | 345 | 343 | 12 | 8.8 | 0 | 4.1 |
| 15 | 3,680 | 1,500 | 120 | 400 | 138 | 400 | 491 | 406 | 11 | 5.3 | 0 | 2.9 |
| 16 | 6,800 | 800 | 120 | 250 | 156 | 300 | 288 | 1,120 | 9.7 | 3.0 | 0 | 2.5 |
| 17 | 4,470 | 500 | 115 | 150 | 134 | 270 | 178 | 433 | 1.7 | 1.7 | 0 | 4.5 |
| 18 | 2,230 | 1,500 | 110 | 110 | 114 | 250 | 357 | 296 | 27 | .5 | 394 | 125 |
| 19 | 316 | 2,000 | 105 | 130 | 109 | 230 | 831 | 260 | *16 | 0 | 674 | 434 |
| 20 | 161 | 800 | 100 | 1,400 | 103 | 210 | 640 | 219 | 20 | 0 | 132 | *9,970 |
| 21 | 117 | 400 | 95 | 2,000 | 103 | 210 | 1,150 | 197 | 14 | 0 | 28 | 18,600 |
| 22 | 117 | 300 | 85 | 1,000 | 109 | 200 | 1,610 | 186 | 86 | 0 | 95 | 9,250 |
| 23 | 817 | 1,000 | 80 | 600 | 126 | 300 | 1,080 | 176 | 174 | 0 | 62 | 3,090 |
| 24 | 1,130 | 2,500 | 75 | 340 | 156 | 1,000 | 297 | 166 | 167 | .7 | 396 | *1,300 |
| 25 | 283 | 5,000 | 80 | 290 | 171 | 800 | 204 | 151 | 70 | .6 | 555 | 719 |
| 26 | 160 | 3,000 | 90 | 250 | 151 | 400 | 1,310 | 143 | 31 | .9 | 97 | 481 |
| 27 | 130 | 1,500 | 110 | 220 | 144 | 300 | 8,290 | 137 | 15 | 1.2 | 26 | 284 |
| 28 | 110 | 800 | 130 | 200 | 166 | 250 | 15,200 | 119 | 9.7 | .8 | 14 | 230 |
| 29 | 88 | 500 | 115 | 220 | - | 210 | 8,000 | 102 | 6.8 | .2 | 6.4 | 192 |
| 30 | 74 | 350 | 105 | 260 | ------- | 190 | 5,510 | 119 | 4.3 | 0 | 3.8 | 161 |
| 31 | 72 | ------- | 95 | 250 | ------- | 180 | ------- | 88 | ------- | 0 | .1 | ------- |
| Total | 21,765.1 | 59,252 | 4,568 | 9,995 | 4,094 | 17,514 | 47,413 | 127,761 | 1,140.2 | 3,242.2 | 2,483.3 | 45,164.5 |
| Mean | 702 | 1,975 | 147 | 322 | 146 | 565 | 1,580 | 4,121 | 38.0 | 105 | 80.1 | 1,505 |
| Ac-ft | 43,170 | 117,500 | 9,060 | 19,820 | 8,120 | 34,740 | 94,040 | 253,400 | 2,260 | 6,430 | 4,930 | 89,580 |

Calendar year 1957: Max 20,100 Min 0 Mean 940 Ac-ft 680,200
Water year 1957-58: Max 30,100 Min 0 Mean 944 Ac-ft 683,000

Peak discharge (base, 13,000 cfs).--Apr. 27 (11 p.m.) 19,000 cfs (24.31 ft); May 1 (6 p.m.) 19,700 cfs (25.44 ft); May 3 (5 p.m.) 38,200 cfs (28.10 ft); Sept. 20 (10 p.m.) 23,600 cfs (25.98 ft).

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

Note.--No gage-height record Oct. 26-28, Nov. 10 to Dec. 3, Dec. 9 to Jan. 23, Jan. 26 to Feb. 5, Mar. 11 to Apr. 2; discharge estimated on basis of records for nearby streams.

650. Trinity River near Oakwood, Tex.

Location.--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.--October 1923 to September 1924 (monthly discharge only), October 1924 to September 1958. Records for January 1905 to September 1923, published in WSP 850 and 878 have been found unreliable and should not be used. Gage-height records collected in this vicinity since 1904 are contained in reports of the U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 175.06 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.--35 years (1923-58), 4,905 cfs (3,551,000 acre-ft per year).

Extremes.--Maximum discharge during year, 95,400 cfs May 7 (gage height, 48.79 ft); minimum, 266 cfs Oct. 11.

1923-58: Maximum discharge, 153,000 cfs Apr. 29, 1942 (gage height, 51.64 ft); minimum observed, 28 cfs Aug. 24, 1925.

Flood of June 4, 1908, reached a stage of about 52.2 ft, present site and datum, from information by U. S. Weather Bureau (discharge, about 164,000 cfs). The 1908 flood is highest since at least 1904.

Remarks.--Records good. Some regulation by reservoirs above Dallas and by Lavon Reservoir on East Fork Trinity River (since Sept. 14, 1953). At the end of the year the flow from 210 sq mi above this station and below the stations Trinity River at Dallas and East Fork Trinity River near Lavon was partly controlled by 68 floodwater detention reservoirs with a total combined capacity of 78,800 acre-ft below the flood spillway crests, of which 64,960 acre-ft is floodwater detention capacity and 13,840 acre-ft is sediment storage capacity. Four of these reservoirs were constructed during the current year and have a total combined capacity below flood spillway of 3,730 acre-ft, of which 977 acre-ft is sediment pool capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The first of these floodwater detention reservoirs was completed in August 1953. Diversions above station for municipal supply and other uses.

Revisions (water years).--WSP 1148: Drainage area. WSP 1442: 1934. See also Records available.

Rating table, water year 1957-58, except periods when rate of change in stage used as a factor (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 28 to Nov. 5, Jan. 30 to Mar. 9, Mar. 22-31, Apr. 7-14, May 3-11, June 3-24, Aug. 4 to Sept. 19)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5.0 | 240 | 15.0 | 2,750 | 30.0 | 11,400 | 42.0 | 31,200 |
| 7.0 | 545 | 20.0 | 4,820 | 35.0 | 15,600 | 44.0 | 46,500 |
| 10.0 | 1,230 | 25.0 | 7,620 | 39.0 | 20,400 | 48.0 | 98,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 509 | 956 | 11,700 | 4,070 | 3,690 | 1,910 | k5,610 | 15,400 | 14,100 | 5,450 | 1,180 | 455 |
| 2 | 473 | 860 | 9,800 | 3,360 | 3,600 | 2,030 | 6,980 | 19,600 | k9,500 | 5,350 | 1,150 | 407 |
| 3 | 439 | 838 | 8,090 | 3,200 | 3,440 | 1,850 | 8,090 | 42,100 | k5,640 | 5,250 | 1,150 | 407 |
| 4 | 423 | 1,340 | 6,860 | 3,040 | 3,200 | 1,640 | 8,300 | 60,300 | 5,550 | 5,200 | 1,180 | 368 |
| 5 | 407 | 2,610 | 5,300 | 2,890 | 2,970 | 1,610 | 7,160 | 72,000 | 5,750 | 5,250 | 1,180 | 347 |
| 6 | 407 | 2,970 | 3,900 | 2,720 | 2,820 | 1,700 | k4,850 | 88,900 | 6,020 | 5,400 | 1,180 | 326 |
| 7 | 407 | k7,210 | 2,820 | 2,550 | 2,680 | 1,760 | 3,860 | 94,100 | 6,080 | 5,300 | 1,260 | 319 |
| 8 | 375 | 10,400 | 2,190 | 2,440 | 2,440 | 2,230 | 3,360 | *83,700 | 5,910 | 5,300 | 1,280 | 354 |
| 9 | 326 | 12,600 | 1,940 | 2,350 | 2,280 | k5,050 | *3,280 | 68,100 | 5,800 | *6,740 | 1,230 | 340 |
| 10 | 286 | 14,100 | 2,220 | 2,280 | 2,310 | k8,000 | 3,160 | 56,400 | 5,750 | 7,620 | 1,180 | 361 |
| 11 | 266 | 15,400 | 2,350 | 2,190 | 2,310 | 9,400 | 3,160 | 47,700 | *5,750 | 7,230 | 1,030 | 545 |
| 12 | 286 | 16,800 | *2,410 | 1,970 | 2,220 | 10,800 | 3,520 | 39,000 | 5,350 | 6,740 | 932 | 509 |
| 13 | 312 | 18,900 | 2,510 | 2,090 | 2,150 | 11,200 | 3,770 | 34,100 | 3,730 | 5,910 | 1,050 | 439 |
| 14 | k8,280 | 23,300 | 2,680 | 2,720 | 2,120 | 10,700 | 3,940 | 30,200 | 2,090 | 4,730 | 1,150 | 399 |
| 15 | 14,200 | 26,900 | 2,860 | 4,420 | 2,440 | 9,320 | 4,110 | 27,800 | 1,730 | 4,070 | 1,200 | 361 |
| 16 | 15,800 | 27,300 | 2,680 | 5,300 | 2,650 | 8,090 | 4,680 | 25,800 | 3,200 | 3,810 | 1,180 | *340 |
| 17 | 15,800 | 26,500 | 2,440 | 4,730 | 2,860 | 7,420 | 5,550 | 24,000 | 4,920 | 3,320 | 1,130 | 361 |
| 18 | 16,200 | 25,800 | 2,280 | 4,280 | 2,790 | 7,100 | 5,800 | 22,400 | 5,650 | 2,380 | 1,100 | 340 |
| 19 | 16,600 | 23,300 | 2,220 | 3,900 | 2,610 | 6,560 | 5,110 | 20,800 | 6,020 | 1,700 | 1,100 | 538 |
| 20 | 16,900 | 20,100 | 2,250 | 4,780 | 2,480 | 5,500 | 4,550 | 20,100 | 6,140 | 1,450 | *1,500 | 3,280 |
| 21 | 17,200 | 18,000 | 2,220 | 6,260 | 2,220 | 4,550 | 5,010 | 19,300 | 6,260 | 1,340 | 2,220 | *k5,260 |
| 22 | 17,400 | 15,800 | 2,250 | *8,300 | 2,060 | 3,900 | 5,800 | *18,800 | 6,200 | 1,280 | 1,970 | k9,480 |
| 23 | 16,000 | 13,600 | 2,350 | 9,960 | 2,190 | 3,440 | 7,100 | 18,200 | 6,200 | 1,260 | 1,470 | 10,900 |
| 24 | k10,000 | 12,100 | 2,550 | 10,800 | 2,380 | 3,560 | 8,230 | 17,800 | 6,500 | 1,230 | 1,530 | 12,400 |
| 25 | k6,370 | 11,800 | 2,610 | 10,800 | 2,280 | 4,030 | 8,300 | 17,300 | 6,680 | 1,230 | 1,940 | 13,600 |
| 26 | 5,200 | 12,300 | 2,350 | 10,400 | *2,440 | 4,280 | 6,620 | 17,100 | 6,500 | 1,230 | 3,160 | 14,100 |
| 27 | 3,730 | 12,900 | 2,490 | 9,400 | 2,190 | 4,280 | 5,450 | 16,900 | 6,140 | 1,260 | 3,690 | 13,200 |
| 28 | 2,580 | 13,200 | 4,720 | k6,370 | 1,940 | 3,900 | k9,380 | 16,600 | 5,860 | *1,340 | 3,240 | k6,300 |
| 29 | *1,820 | 13,300 | 6,020 | 4,820 | - | 3,860 | 11,500 | 16,400 | 5,700 | 1,310 | 2,200 | k3,520 |
| 30 | 1,360 | 13,000 | 6,140 | 3,940 | ------- | 3,860 | 13,500 | 16,200 | 5,550 | 1,260 | 1,090 | 2,150 |
| 31 | 1,100 | ------- | 5,400 | 3,770 | ------- | 3,980 | ------- | 15,600 | ------- | 1,200 | 605 | ------- |
| Total | 191,456 | 414,184 | 118,600 | 150,100 | 71,760 | 157,510 | 179,730 | ‡1,082.7 | 176,270 | 112,140 | 46,457 | 101,706 |
| Mean | 6,176 | 13,810 | 3,826 | 4,842 | 2,563 | 5,081 | 5,991 | 34,930 | 5,876 | 3,617 | 1,499 | 3,390 |
| Ac-ft | 379,700 | 821,500 | 235,200 | 297,700 | 142,300 | 312,400 | 356,500 | ‡2,148 | 349,600 | 222,400 | 92,150 | 201,700 |

Calendar year 1957: Max 90,600 Min 202 Mean 11,650 Ac-ft 8,432,000
Water year 1957-58: Max 94,100 Min 266 Mean 7,678 Ac-ft 5,559,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
k Computed by using rate of change in stage as a factor.
Note.--No recorder record Oct. 27 to Nov. 6, Dec. 6-27, Jan. 2-4, 13, 14, 19, Jan. 30 to Feb. 22, Apr. 7, 8, July 28 to Aug. 2, Aug. 8-18, Sept. 29, 30; discharge computed from once-daily wire-weight-gage readings.

## 655. Trinity River near Midway, Tex.

Location.--Lat 31°04'40", long 95°42'00", near center of channel 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 1958.

Gage.--Wire-weight gage read twice daily. Datum of gage is 117.63 ft above mean sea level, datum of 1929.

Average discharge.--19 years, 6,110 cfs (4,423,000 acre-ft per year).

Extremes.--Maximum discharge during year, 100,000 cfs May 10 (gage height, 46.79 ft); minimum, 440 cfs Oct. 13.

1939-58: Maximum discharge, 146,000 cfs May 1, 1942 (gage height, 48.58 ft); minimum observed, 87 cfs July 27, 1956.

Maximum stage known since at least 1866 and prior to construction of levees in 1916, about 45.0 ft in May 1890 (discharge not determined), from information by local residents. Flood in 1866 reached a stage of about 44.0 ft. 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, was greatest flood during period 1916-38 and reached a stage of 46.7 ft, from floodmark (flow confined within levees).

Remarks.--Records good. Some regulation by reservoirs above Dallas and by Lavon Reservoir on East Fork Trinity River (since Sept. 14, 1953). Diversions above station for municipal supplies, industrial use and irrigation.

Revisions.--WSP 1148: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 23 to May 8, May 15-24, July 19 to Sept. 19)

| | | | | | |
|---|---|---|---|---|---|
| 3.0 | 424 | 16.0 | 7,600 | 40.0 | 34,500 |
| 4.0 | 780 | 20.0 | 10,800 | 43.0 | 42,800 |
| 6.0 | 1,620 | 25.0 | 15,200 | 45.0 | 59,700 |
| 9.0 | 3,080 | 30.0 | 20,200 | 46.0 | 80,500 |
| 12.0 | 4,850 | 35.0 | 26,600 | 47.0 | 105,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 936 | 1,980 | 12,900 | 6,410 | 4,350 | 3,200 | 4,470 | 13,000 | 15,200 | 5,780 | 1,310 | 916 |
| 2 | 799 | 1,760 | 12,100 | 5,110 | 4,170 | 2,860 | 5,370 | 14,000 | 14,500 | 5,640 | 1,270 | 704 |
| 3 | 742 | 1,660 | 10,700 | 4,230 | 3,990 | 2,820 | 6,760 | 17,600 | 12,500 | 5,500 | 1,220 | 612 |
| 4 | 685 | 1,580 | 9,100 | 3,810 | 3,750 | 2,660 | 7,900 | 23,500 | 9,180 | 5,440 | 1,180 | 558 |
| 5 | 648 | 1,660 | 7,530 | 3,520 | 3,520 | 2,660 | 8,350 | 26,600 | 6,550 | 5,370 | 1,180 | 541 |
| 6 | 630 | 2,860 | 6,480 | 3,300 | 3,250 | 4,110 | 8,050 | 29,500 | 5,920 | 5,370 | 1,220 | 507 |
| 7 | 612 | 3,870 | 5,110 | 3,140 | 3,080 | 3,420 | 6,690 | 33,700 | 6,060 | 5,500 | 1,180 | 507 |
| 8 | 612 | 7,680 | 3,930 | 2,980 | 2,920 | 2,860 | 5,440 | *45,800 | 6,060 | 5,570 | 1,220 | 594 |
| 9 | 594 | 9,740 | 3,300 | 2,820 | 2,720 | 3,080 | *3,990 | 80,500 | 5,990 | *5,440 | 1,270 | 648 |
| 10 | 558 | 11,200 | 2,920 | 2,760 | 2,560 | 4,780 | 3,640 | 98,000 | *5,850 | 6,200 | 1,270 | 541 |
| 11 | 490 | 12,100 | 2,920 | 2,660 | 2,660 | 7,390 | 3,520 | 95,500 | 5,780 | 7,110 | *1,220 | 524 |
| 12 | 456 | 13,300 | *3,030 | 2,920 | 2,760 | *9,260 | 3,470 | 80,500 | 5,710 | 7,180 | 1,140 | 576 |
| 13 | 440 | 15,200 | 3,080 | 4,980 | 2,660 | 11,000 | 3,690 | 67,500 | 5,440 | 6,830 | 1,020 | 742 |
| 14 | 8,790 | 17,900 | 3,080 | 6,340 | 2,620 | 11,900 | 4,110 | 54,400 | 4,350 | 6,270 | 996 | 666 |
| 15 | 29,300 | 19,200 | 3,250 | 5,370 | 2,980 | 11,700 | 4,350 | 48,400 | 2,920 | 5,240 | 1,100 | 576 |
| 16 | 35,800 | 20,200 | 3,360 | 4,980 | 3,300 | 10,800 | 4,590 | 45,500 | 2,220 | 4,410 | 1,140 | *541 |
| 17 | 36,100 | 21,200 | 3,250 | 5,640 | 3,200 | 9,580 | 5,040 | 42,800 | 4,650 | 3,990 | 1,140 | 818 |
| 18 | 34,900 | 22,300 | 3,080 | 5,780 | 3,200 | 8,720 | 5,780 | 40,700 | 6,620 | 3,580 | 1,140 | 1,310 |
| 19 | 32,300 | 23,200 | 2,920 | 5,240 | 3,200 | 8,280 | 6,340 | 37,800 | 6,550 | 2,820 | 1,140 | 1,100 |
| 20 | 29,100 | 23,600 | 2,820 | 6,620 | 2,980 | 7,750 | 5,990 | 34,500 | 6,340 | 2,120 | 1,100 | 9,540 |
| 21 | 25,700 | 23,900 | 2,860 | *9,740 | 2,820 | 6,830 | 5,370 | *30,500 | 6,270 | 1,760 | 1,270 | 15,500 |
| 22 | 22,800 | 24,500 | 2,760 | 10,700 | 3,300 | 5,710 | 5,640 | 28,600 | 6,900 | 1,580 | 2,120 | 13,400 |
| 23 | 22,700 | 24,500 | 2,760 | 10,100 | 6,550 | 4,980 | 6,340 | 26,200 | 6,620 | 1,480 | 2,160 | 13,800 |
| 24 | 21,700 | 23,400 | 2,820 | 10,600 | 5,710 | 4,230 | 7,180 | 23,500 | 6,340 | 1,440 | 2,220 | 13,600 |
| 25 | 19,100 | 20,400 | 2,980 | 11,200 | *4,720 | 4,050 | 8,120 | 21,300 | 6,340 | 1,400 | 2,920 | 13,100 |
| 26 | 14,100 | 16,600 | 3,420 | 11,300 | 3,990 | 4,470 | 8,580 | 19,300 | 6,550 | 1,350 | 2,460 | 13,100 |
| 27 | 8,500 | 14,600 | 3,930 | 10,800 | 3,810 | 4,850 | 8,500 | 17,900 | 6,620 | 1,350 | 2,820 | 15,600 |
| 28 | *5,780 | 13,400 | 5,300 | 9,900 | 3,640 | 4,850 | 11,100 | 16,800 | 6,340 | *1,350 | 3,520 | 16,000 |
| 29 | 4,110 | 13,100 | 5,920 | 8,500 | - | 4,660 | 10,400 | 16,200 | 6,060 | 1,400 | 3,360 | 13,400 |
| 30 | 2,980 | 13,200 | 6,900 | 6,760 | ------- | 4,470 | 11,700 | 15,800 | 5,920 | 1,400 | 2,860 | 7,530 |
| 31 | 2,320 | ------- | 7,040 | 5,440 | ------- | 4,410 | ------- | 15,500 | ------- | 1,350 | 1,530 | ------- |
| Total | 364,282 | 419,790 | 151,550 | 193,650 | 98,410 | 182,340 | 190,470 | ‡1,161.4 | 202,350 | 121,220 | 50,396 | 157,551 |
| Mean | 11,750 | 13,990 | 4,889 | 6,247 | 3,515 | 5,882 | 6,349 | 37,460 | 6,745 | 3,910 | 1,626 | 5,252 |
| Ac-ft | 722,500 | 832,600 | 300,600 | 384,100 | 195,200 | 361,700 | 377,800 | ‡2,304 | 401,400 | 240,400 | 99,960 | 312,500 |

Calendar year 1957: Max 102,000 Min 253 Mean 13,210 Ac-ft 9,564,000
Water year 1957-58: Max 98,000 Min 440 Mean 9,023 Ac-ft 6,533,000

* Discharge measurement made on this day.
‡ Expressed in thousands.

## 660. 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 (monthly discharge and yearly summaries only), October 1923 to September 1958. Gage-height records collected in this vicinity since 1903 are contained in reports of U. S. 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.--38 years, 6,623 cfs (4,813,000 acre-ft per year).

Extremes.--Maximum discharge during year, 66,800 cfs May 14 (gage height, 44.85 ft); minimum observed, 366 cfs Oct. 14.

1903-6, 1923-58: 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 1903, 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. Some regulation by reservoir above Dallas and by Lavon Reservoir on East Fork Trinity River since Sept. 14, 1953 (see p. 103). Diversion for municipal supplies, industrial use, and irrigation above station.

Cooperation.--Gage-height record collected in cooperation with the U. S. Weather Bureau.

Revisions (water years).--WSP 828: 1935 (yearly mean only). WSP 1148: Drainage area. WSP 1512: 1924, 1926-27(M), 1930, 1934.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 6-27, Feb. 26 to Mar. 13, Mar. 18 to May 3, May 5-11, June 5 to July 19)

| | | | | | |
|---|---|---|---|---|---|
| 1.3 | 350 | 12.0 | 8,500 | 30.0 | 33,500 |
| 1.5 | 430 | 16.0 | 12,700 | 35.0 | 42,800 |
| 2.0 | 670 | 20.0 | 17,600 | 40.0 | 53,200 |
| 4.0 | 1,820 | 25.0 | 25,000 | 45.0 | 67,500 |
| 8.0 | 4,800 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,230 | 2,290 | 13,700 | 6,700 | 5,160 | 4,000 | 5,160 | 12,900 | 16,100 | 6,600 | 1,320 | 1,560 |
| 2 | 902 | 1,950 | 13,300 | 5,340 | 4,480 | 3,520 | 5,250 | 13,800 | 15,600 | 6,510 | 1,290 | 1,010 |
| 3 | 745 | 1,820 | 12,500 | 4,400 | 4,400 | 3,200 | 6,420 | 21,000 | 14,400 | 6,330 | 1,260 | 745 |
| 4 | 695 | 1,690 | 10,800 | 4,000 | 4,160 | *3,060 | 7,740 | 28,100 | 12,500 | 6,240 | 1,230 | 670 |
| 5 | 650 | 1,820 | 9,300 | 3,840 | 3,920 | 2,990 | 8,400 | 28,300 | 10,300 | 6,150 | 1,230 | 625 |
| 6 | 610 | 3,840 | 7,930 | 3,680 | 3,680 | 3,520 | 8,700 | 30,000 | 6,880 | 6,420 | 1,230 | 555 |
| 7 | 600 | 6,940 | 6,510 | 3,520 | 3,440 | 4,640 | 8,120 | 34,000 | 6,420 | 6,700 | 1,230 | a540 |
| 8 | 590 | 13,600 | 5,070 | 3,280 | 3,130 | 4,000 | *6,880 | 37,500 | 6,600 | *6,790 | 1,230 | 535 |
| 9 | 585 | 13,600 | 4,080 | 3,060 | 2,920 | 3,680 | 5,250 | *41,400 | 6,510 | 6,600 | 1,260 | 695 |
| 10 | 570 | 14,300 | 3,360 | 2,920 | 2,710 | 3,840 | 4,400 | 45,200 | *6,420 | 6,700 | 1,320 | 745 |
| 11 | 525 | 14,600 | *2,990 | 2,850 | 2,640 | 5,970 | 4,160 | 49,600 | 6,240 | 7,360 | 1,320 | 670 |
| 12 | 488 | 14,300 | 3,060 | 3,060 | 2,780 | *8,020 | 4,000 | *55,300 | 6,240 | 8,020 | 1,230 | 720 |
| 13 | 430 | 16,200 | 3,200 | 13,100 | 2,850 | 9,400 | 4,000 | 64,000 | 6,060 | 7,840 | 1,150 | 695 |
| 14 | 1,670 | 19,700 | 3,280 | 11,600 | 2,780 | 10,700 | 4,480 | 66,800 | 5,610 | 7,260 | 1,040 | 795 |
| 15 | 22,300 | 20,700 | 3,360 | 9,700 | 3,840 | 11,200 | 4,800 | 65,400 | 4,160 | 6,510 | 1,070 | *720 |
| 16 | 38,900 | 21,400 | 3,520 | 7,740 | a4,200 | 10,900 | 5,070 | 62,200 | 2,850 | 5,430 | 1,150 | 650 |
| 17 | 42,800 | 21,800 | 3,680 | 6,790 | a4,000 | 10,000 | 5,340 | 57,800 | 2,850 | 4,480 | 1,200 | 670 |
| 18 | 41,600 | 22,800 | 3,520 | 6,600 | a3,800 | 9,200 | 5,970 | 53,400 | 6,420 | 4,080 | 1,200 | 875 |
| 19 | 38,500 | 23,900 | 3,200 | 6,240 | a3,600 | 8,600 | 6,880 | 49,600 | 7,360 | 3,600 | 1,380 | 1,440 |
| 20 | 34,900 | 24,200 | 3,060 | 9,670 | a3,300 | 8,310 | 7,170 | 45,600 | 7,080 | 2,640 | 1,260 | 9,030 |
| 21 | 30,700 | 26,000 | 3,060 | *14,700 | 3,060 | 7,840 | 7,080 | 41,400 | 7,080 | 1,950 | 1,230 | 21,600 |
| 22 | 27,600 | 33,700 | 3,060 | 13,700 | 4,200 | 7,080 | 6,980 | *37,100 | 7,930 | 1,660 | 1,530 | 21,700 |
| 23 | 27,100 | 35,500 | 2,990 | 13,400 | 11,000 | 6,150 | 7,170 | 32,200 | 8,120 | 1,500 | 2,220 | 21,700 |
| 24 | 26,400 | 34,200 | 2,990 | 11,800 | 11,300 | 5,430 | 7,740 | 28,000 | 7,550 | 1,440 | 2,220 | 19,700 |
| 25 | 25,000 | 31,400 | 3,440 | 11,700 | 10,700 | 4,800 | 8,400 | 24,800 | 7,260 | 1,380 | 2,430 | 17,800 |
| 26 | 20,800 | 26,900 | 4,320 | 11,900 | 9,500 | 4,720 | 9,100 | 22,000 | 7,260 | 1,350 | 2,850 | 16,000 |
| 27 | 14,100 | 21,200 | 5,430 | 11,700 | 6,510 | 5,250 | 9,700 | 20,100 | 7,360 | 1,320 | 2,640 | 15,700 |
| 28 | *8,800 | 16,900 | 10,700 | 11,400 | 4,720 | 5,610 | 13,700 | 18,600 | 7,260 | 1,320 | 3,060 | 18,200 |
| 29 | 5,880 | 14,600 | 9,100 | 10,500 | - | 5,520 | 13,200 | 17,600 | 6,980 | *1,320 | a3,100 | 18,300 |
| 30 | 4,080 | 13,800 | 9,700 | 8,700 | ------- | 5,340 | 12,000 | 16,900 | 6,700 | 1,380 | 3,200 | 13,800 |
| 31 | 2,990 | ------- | 9,300 | 6,600 | ------- | 5,250 | ------- | 16,600 | ------- | 1,380 | 2,430 | ------- |
| Total | 422,740 | 515,650 | 183,510 | 244,190 | 132,780 | 191,740 | 213,260 | ‡1,137.2 | 230,100 | 138,260 | 51,510 | 208,445 |
| Mean | 13,640 | 17,190 | 5,920 | 7,874 | 4,742 | 6,185 | 7,109 | 36,680 | 7,670 | 4,460 | 1,662 | 6,948 |
| Ac-ft | 838,500 | ‡1,023 | 364,000 | 484,300 | 263,400 | 380,300 | 423,000 | ‡2,256 | 456,400 | 274,200 | 102,200 | 413,400 |

Calendar year 1957: Max 97,000 Min 269 Mean 14,540 Ac-ft 10,530,000
Water year 1957-58: Max 66,800 Min 430 Mean 10,050 Ac-ft 7,279,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge computed on basis of weather records and records for stations at Midway and Romayor.

## 665. 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 and Santa Fe Railway Co. bridge, 4.1 miles downstream from Big Creek, and at mile 94.

Drainage area.--17,192 sq mi.

Records available.--May 1924 to September 1958.

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.--34 years, 7,462 cfs (5,402,000 acre-ft per year).

Extremes.--Maximum discharge during year, 58,200 cfs May 17-19 (gage height, 29.00 ft); minimum, 571 cfs Oct. 14.
1924-58: Maximum discharge, 111,000 cfs May 9, 1942 (gage height, 35.8 ft, from floodmarks, present site and datum); minimum, 102 cfs Aug. 24, 25, 1956.
Maximum stage known since at least 1908, that of May 9, 1942.

Remarks.--Records good. Some regulation by reservoirs above Dallas and by Lavon Reservoir on East Fork Trinity River since Sept. 14, 1953 (see p.103). Diversions for municipal supplies, industrial use, and irrigation above station. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1148: Drainage area. WSP 1392: 1932, 1935.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2,160 | 4,080 | 16,800 | 11,700 | 9,280 | 6,980 | 5,460 | 13,800 | 18,200 | 6,260 | *1,480 | 2,630 |
| 2 | *1,860 | 3,410 | 16,300 | 10,400 | 7,460 | 5,570 | 5,240 | 13,400 | 17,600 | 6,020 | 1,450 | 1,930 |
| 3 | 1,480 | 2,970 | 15,800 | 8,740 | 6,500 | 4,800 | *5,130 | 16,600 | 17,000 | 5,900 | 1,420 | 1,320 |
| 4 | 1,240 | 2,720 | 15,000 | 7,340 | 6,140 | 4,280 | 5,790 | 32,700 | *15,900 | 5,790 | 1,380 | 980 |
| 5 | 1,010 | 2,630 | 13,300 | 6,260 | 5,900 | 3,980 | 7,100 | 34,600 | 13,400 | 5,680 | 1,360 | 821 |
| 6 | 900 | 2,720 | 11,700 | 6,380 | 5,680 | 3,980 | 8,220 | 32,000 | 10,100 | 5,900 | 1,320 | 723 |
| 7 | 796 | 4,950 | 10,400 | 6,740 | 5,460 | *4,590 | 8,740 | 30,700 | 7,830 | 6,260 | 1,300 | 655 |
| 8 | 747 | 14,500 | 9,560 | 5,900 | 5,240 | 5,900 | 8,480 | 31,000 | 6,980 | 6,140 | 1,300 | 655 |
| 9 | 723 | 21,000 | 7,830 | 5,350 | 4,800 | 5,570 | 7,220 | 31,700 | *6,740 | 6,260 | 1,300 | 612 |
| 10 | 700 | g18,800 | 6,620 | 4,910 | 4,700 | 4,800 | 5,790 | 33,500 | 6,740 | 6,020 | 1,320 | 591 |
| 11 | 677 | g15,900 | 5,680 | 4,700 | 4,700 | 4,590 | 4,700 | 37,200 | 6,500 | 6,020 | 1,360 | 677 |
| 12 | 677 | g15,200 | 5,130 | 4,590 | 4,590 | 5,570 | 4,280 | 41,400 | 6,380 | 6,500 | 1,320 | 821 |
| 13 | 612 | g16,100 | 4,910 | 14,600 | 4,480 | 7,700 | 4,180 | *46,100 | 6,260 | 7,100 | 1,300 | 723 |
| 14 | 633 | g20,000 | 4,910 | 25,100 | 4,590 | 9,700 | 4,280 | 50,300 | 6,140 | 7,220 | 1,260 | 677 |
| 15 | 10,800 | g23,300 | 4,910 | 20,800 | 4,700 | 11,200 | 5,460 | 54,000 | 5,790 | 6,740 | 1,180 | 677 |
| 16 | 34,100 | g23,500 | 4,910 | 15,900 | 5,020 | 12,200 | *5,350 | 56,500 | 4,910 | 6,260 | 1,090 | 747 |
| 17 | 42,400 | g23,500 | 4,910 | *11,500 | 5,020 | 12,000 | 5,130 | 57,600 | 3,880 | 5,350 | 1,090 | 723 |
| 18 | 44,900 | g24,400 | 5,020 | 9,000 | 5,130 | 11,400 | 5,240 | 58,200 | 3,230 | 4,480 | 1,140 | 677 |
| 19 | 45,300 | g23,300 | 5,130 | 8,350 | 4,800 | 10,300 | 5,900 | 58,200 | 5,130 | 4,080 | 1,180 | 700 |
| 20 | 43,400 | g27,900 | 5,020 | 12,700 | 4,700 | 9,420 | 7,340 | 57,000 | 6,860 | 3,690 | 1,200 | 1,040 |
| 21 | 39,900 | g30,500 | 4,700 | 28,800 | 4,590 | 8,870 | 7,340 | 55,000 | 6,740 | *3,140 | 1,300 | g11,700 |
| 22 | 35,800 | g34,100 | 4,590 | 28,100 | 5,130 | 8,350 | 7,580 | 51,600 | 6,620 | 2,550 | 1,240 | g24,400 |
| 23 | 32,200 | g45,700 | 4,480 | 23,500 | 13,200 | 7,460 | 7,700 | 46,900 | 7,460 | 2,160 | 1,200 | 25,100 |
| 24 | *31,700 | g51,200 | 4,380 | 19,000 | 20,400 | 6,860 | 7,460 | 41,100 | 8,090 | 1,860 | 1,580 | 24,000 |
| 25 | 29,300 | g49,000 | 4,380 | 15,800 | 17,600 | 6,020 | 7,460 | 34,900 | 7,580 | 1,760 | 2,000 | 22,200 |
| 26 | 27,900 | g41,700 | 5,570 | 14,300 | 15,000 | 5,350 | 7,960 | 29,500 | 6,980 | 1,650 | *1,930 | *21,000 |
| 27 | 23,500 | *36,000 | 7,340 | 14,100 | 12,500 | 5,020 | 8,740 | 25,700 | 6,740 | 1,580 | 2,470 | 19,600 |
| 28 | 16,700 | 28,600 | 18,900 | 14,000 | 9,560 | 5,240 | 10,400 | 22,900 | 6,860 | 1,520 | 2,550 | 19,200 |
| 29 | 10,400 | 22,400 | 20,000 | 14,500 | - | 5,570 | 15,600 | 21,200 | 6,860 | 1,480 | 2,550 | 20,000 |
| 30 | 7,100 | 18,400 | 15,400 | 13,800 | ------- | 5,790 | 16,100 | 19,800 | 6,620 | 1,450 | 2,970 | 19,700 |
| 31 | 5,240 | ------- | 13,800 | 11,700 | ------- | 5,790 | ------- | 18,800 | ------- | 1,450 | 3,060 | ------- |
| Total | 494,855 | 648,480 | 277,380 | 398,560 | 206,870 | 214,850 | 215,370 | ‡1,153 | 246,120 | 138,270 | 48,600 | 255,379 |
| Mean | 15,960 | 21,620 | 8,948 | 12,860 | 7,388 | 6,931 | 7,179 | 37,220 | 8,204 | 4,460 | 1,568 | 7,513 |
| Ac-ft | 981,500 | ‡1,286 | 550,200 | 790,500 | 410,300 | 426,100 | 427,100 | ‡2,289 | 488,200 | 274,300 | 96,400 | 447,000 |

Calendar year 1957: Max 93,000 Min 324 Mean 16,420 Ac-ft 11,890,000
Water year 1957-58: Max 58,200 Min 591 Mean 11,690 Ac-ft 8,467,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
g Computed from once-daily gage readings.

## 670. 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 and New Orleans Railroad Co. 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 1958 (high-water records only). Gage-height records collected in this vicinity since 1903 are contained in reports of U. S. 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, 58,800 cfs May 20, 21, 22; maximum gage height, 28.35 ft May 21, 22; minimum discharge not determined (affected by tides); minimum gage height, 5.70 ft Sept. 11.

1938-58: 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 U. S. Weather Bureau at chain gage on railroad bridge upstream.

Remarks.--Records fair above 6,000 cfs and poor below. Discharge not computed below gage height 10 ft because tides affect the stage-discharge relation. Some regulation by reservoirs above Dallas, and by Lavon Reservoir on East Fork Trinity River since Sept. 14, 1953 (see p. 103). Diversions above station for municipal supplies, industrial use, and irrigation.

Cooperation.--Gage-height record furnished by U. S. Weather Bureau.

Revision.--WSP 1148: Drainage area.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1-14 | | Oct. 15 to Sept. 30 | | | |
|---|---|---|---|---|---|
| 10.0 | 3,800 | 10.0 | 2,600 | 26.0 | 27,600 |
| | | 14.0 | 5,600 | 27.0 | 34,600 |
| | | 18.0 | 9,700 | 28.0 | 50,500 |
| | | 21.0 | 13,700 | 29.0 | 78,300 |
| | | 24.0 | 20,100 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3,800 | 9,480 | 28,100 | 14,700 | 13,100 | 11,000 | 4,970 | 14,700 | 23,100 | 6,550 | | 2,900 |
| 2 | - | 6,950 | 23,800 | 13,100 | 10,700 | 8,270 | 4,790 | 13,500 | 21,500 | 6,150 | | - |
| 3 | - | 5,330 | 21,200 | 11,000 | 8,490 | 6,350 | 4,620 | 13,400 | 20,400 | 5,960 | | - |
| 4 | - | *3,760 | 19,300 | 8,820 | 7,050 | 4,880 | 4,620 | 18,900 | 19,500 | 5,870 | | - |
| 5 | - | 3,020 | 17,300 | 7,650 | 6,150 | 4,060 | 5,420 | 26,000 | 18,000 | 5,600 | | - |
| 6 | - | 2,780 | 15,200 | 6,650 | 5,780 | 3,620 | 6,650 | 29,200 | 15,200 | 5,600 | | - |
| 7 | - | 2,840 | 13,200 | 6,850 | 5,240 | 3,480 | 7,550 | 32,000 | 11,900 | 5,960 | | - |
| 8 | - | 7,100 | 11,500 | 6,750 | 4,880 | 4,140 | 8,050 | 33,800 | 9,260 | 6,150 | | - |
| 9 | - | 15,400 | 10,200 | 5,870 | 4,460 | 5,240 | 7,950 | 34,600 | *7,950 | 5,960 | | - |
| 10 | - | 19,500 | 8,160 | 5,240 | 4,220 | 4,880 | 6,950 | 35,600 | 7,350 | 5,690 | | - |
| 11 | - | 19,300 | 6,350 | 4,540 | 4,460 | 4,220 | 5,420 | 36,800 | 6,950 | 5,780 | | - |
| 12 | - | 18,500 | 5,060 | 4,140 | 4,460 | 3,980 | 4,300 | 39,600 | 6,650 | 6,050 | | - |
| 13 | - | 18,500 | 4,220 | 7,340 | 4,300 | 5,060 | 3,760 | 42,100 | 6,350 | 6,650 | | - |
| 14 | - | 20,100 | 3,830 | 18,200 | 4,140 | 7,150 | 3,900 | 45,600 | 6,250 | 7,250 | | - |
| 15 | - | 22,800 | 3,830 | 22,800 | 4,460 | 9,150 | 4,620 | 49,500 | 6,050 | 7,250 | | - |
| 16 | 17,800 | 25,100 | 3,760 | 21,200 | 4,620 | 10,500 | 5,420 | 52,800 | 5,690 | 6,850 | | - |
| 17 | 27,600 | 25,600 | 3,690 | 18,200 | 4,700 | 11,300 | 5,150 | 55,100 | 4,700 | 6,150 | | - |
| 18 | 32,000 | 26,500 | 3,760 | 14,200 | 4,700 | 11,300 | 4,790 | 56,400 | 3,620 | 5,240 | | - |
| 19 | 36,800 | 28,100 | 3,830 | 11,500 | 4,540 | 10,800 | 4,880 | 57,600 | 3,080 | 4,540 | | - |
| 20 | 43,000 | 29,200 | 3,900 | 10,900 | 4,300 | 9,940 | 5,510 | 58,800 | 4,790 | 3,980 | | - |
| 21 | 44,800 | 29,800 | 3,760 | 20,300 | 4,060 | 9,260 | 6,750 | 58,800 | 6,850 | 3,550 | | 3,690 |
| 22 | 46,500 | 31,200 | 3,480 | 27,600 | 4,060 | 8,600 | 6,950 | 58,800 | 6,950 | 2,900 | | 15,900 |
| 23 | 47,500 | 34,600 | 3,340 | 28,600 | 6,870 | 8,050 | 7,150 | 57,600 | 6,950 | - | | 23,100 |
| 24 | 43,900 | 41,200 | 3,270 | 28,600 | 15,100 | 7,350 | 7,150 | 56,400 | 7,650 | - | | 24,600 |
| 25 | 40,400 | 47,500 | 3,270 | 25,600 | 19,000 | 6,550 | 6,950 | 51,600 | 7,950 | - | | 25,100 |
| 26 | 38,800 | 51,600 | 3,200 | 22,100 | 18,000 | 5,690 | 7,050 | 47,500 | 7,550 | - | | 23,800 |
| 27 | 34,600 | 50,500 | 4,060 | 19,800 | 16,400 | 4,880 | 7,550 | 43,000 | 7,050 | - | | 23,100 |
| 28 | 31,200 | 47,500 | 9,480 | 18,000 | 13,700 | 4,620 | 8,270 | 36,800 | 6,750 | - | | 22,400 |
| 29 | 25,100 | 41,200 | 18,500 | 17,300 | - | 4,700 | 10,400 | 31,200 | 6,850 | - | | 21,800 |
| 30 | 18,000 | 33,800 | 18,200 | 16,800 | ------- | 4,970 | 14,300 | 28,100 | 6,750 | - | | 21,800 |
| 31 | *12,800 | ------- | 16,200 | 15,400 | ------- | 5,150 | ------- | 25,100 | ------- | - | 2,840 | ------- |
| Total | - | 718,760 | 296,950 | 459,750 | 211,940 | 209,140 | 191,840 | ‡1,240.9 | 279,590 | - | - | - |
| Mean | - | 23,960 | 9,579 | 14,830 | 7,569 | 6,746 | 6,395 | 40,030 | 9,320 | - | - | - |
| Ac-ft | - | ‡1,426 | 589,000 | 911,900 | 420,400 | 414,800 | 380,500 | ‡2,461 | 554,600 | - | - | - |

Calendar year 1957: Max 87,700 Min - Mean - Ac-ft -
Water year 1957-58: Max 58,800 Min - Mean - Ac-ft -

* Discharge measurement made on this day.
‡ Expressed in thousands.

## 680. 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 Co. bridge, 3½ miles downstream from Lake Creek, 4¼ miles south of Conroe, Montgomery County, and at mile 79.

Drainage area.--832 sq mi.

Records available.--May 1924 to September 1927, July 1939 to September 1958.

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.--22 years, 530 cfs (383,700 acre-ft per year).

Extremes.--Maximum discharge during year, 13,100 cfs Nov. 24 (gage height, 15.50 ft); minimum, about 6 cfs Sept. 1-4.

1924-27, 1939-58: 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; no flow June 14, 1956, result of construction dam upstream.

Maximum stage known since at least December 1913, that of Nov. 25, 1940. Flood in December 1913 reached a stage of 25.2 ft, present site and datum, from information by International-Great Northern Railroad Co. (discharge, 101,000 cfs, from rating curve extended as indicated above).

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

Revisions (water years).--WSP 1058: 1926.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 36 | 31 | 409 | 2,140 | 1,550 | 585 | 106 | 980 | 36 | 15 | 8 | 6 |
| 2 | 28 | 24 | 312 | 1,020 | 750 | 409 | 100 | 272 | 34 | 15 | 8 | 6 |
| 3 | 23 | 20 | 262 | 478 | 454 | 312 | 97 | 1,500 | 34 | 15 | 8 | 6 |
| 4 | 20 | 16 | 231 | 343 | 354 | 262 | 91 | 3,720 | 34 | 15 | 8 | 6 |
| 5 | 18 | 13 | 212 | 282 | 302 | 229 | 84 | 7,530 | 34 | 15 | 8 | 7 |
| 6 | 17 | 12 | 193 | 778 | 272 | 215 | 77 | 7,280 | 32 | 15 | 7 | 9 |
| 7 | 15 | 31 | 215 | 1,330 | *52 | 215 | 70 | 4,330 | 35 | 15 | 7 | 10 |
| 8 | 14 | 335 | 220 | 1,130 | 262 | 212 | 64 | 2,180 | 34 | 15 | 7 | 15 |
| 9 | 12 | 1,620 | 206 | 720 | 262 | 206 | 63 | 937 | 34 | 15 | 7 | 20 |
| 10 | 12 | 5,030 | 195 | 454 | 282 | 198 | 58 | 365 | 32 | 20 | 8 | 30 |
| 11 | 12 | 4,080 | 177 | 332 | 376 | *179 | 55 | 235 | 32 | 20 | 9 | 40 |
| 12 | 12 | 1,990 | 163 | 383 | 454 | 166 | 55 | 180 | 31 | 20 | 10 | 45 |
| 13 | 12 | 888 | 152 | 2,230 | 454 | 150 | 57 | 145 | 30 | 20 | 10 | 40 |
| 14 | 18 | 810 | 150 | 3,090 | 478 | 137 | 164 | 120 | 25 | 20 | 10 | 35 |
| 15 | 2,610 | 970 | 145 | *3,920 | 675 | 127 | 332 | 102 | 20 | 15 | 10 | 30 |
| 16 | *7,730 | 1,050 | 143 | 3,780 | 615 | 120 | 343 | *85 | 20 | 15 | 10 | 30 |
| 17 | 6,980 | 840 | 141 | 2,120 | 600 | 116 | *272 | 76 | *20 | 15 | 9 | 25 |
| 18 | *3,910 | 542 | 141 | 963 | 503 | 115 | 217 | 68 | 20 | 15 | 9 | 25 |
| 19 | 2,260 | 478 | 147 | 478 | 354 | 126 | 151 | 61 | 20 | 15 | 9 | 40 |
| 20 | 1,290 | 690 | 156 | 1,750 | 262 | 126 | 237 | 58 | 20 | 10 | 9 | 102 |
| 21 | 530 | 1,050 | 156 | 3,500 | 219 | 126 | 585 | 55 | 20 | 10 | 9 | 569 |
| 22 | *237 | 3,020 | 152 | 4,680 | 831 | 122 | 810 | 53 | 20 | 10 | 10 | 812 |
| 23 | 176 | 7,710 | 147 | 4,920 | 2,370 | 122 | 735 | 50 | 15 | *9.7 | 15 | 442 |
| 24 | 130 | 11,800 | 141 | 3,990 | 2,770 | 122 | 529 | 48 | 15 | 9.5 | 15 | 645 |
| 25 | 98 | 11,400 | 156 | 2,590 | 3,570 | 137 | 365 | 52 | 15 | 9 | *12 | 660 |
| 26 | 124 | *6,820 | 437 | 1,550 | 3,500 | 147 | 217 | 66 | 15 | 9 | 10 | 431 |
| 27 | 282 | 4,200 | 873 | 900 | 2,320 | 158 | 169 | 45 | 15 | 9 | 9 | 228 |
| 28 | 196 | 2,590 | 1,880 | 1,020 | 1,170 | 152 | 442 | 42 | 15 | 8 | 8 | 143 |
| 29 | 96 | 1,400 | 2,370 | 2,260 | - | 134 | 1,070 | 92 | 15 | 8 | 7 | 109 |
| 30 | 58 | 660 | 4,060 | 1,460 | ------- | 115 | 1,830 | 50 | 15 | 8 | 7 | 118 |
| 31 | 42 | ------- | 3,990 | 1,830 | ------- | 113 | ------- | 41 | ------- | 8 | 7 | ------- |
| Total | 26,996 | 70,120 | 18,332 | 56,421 | 26,261 | 5,653 | 9,445 | 30,818 | 737 | 418.2 | 280 | 4,684 |
| Mean | 871 | 2,337 | 591 | 1,820 | 938 | 182 | 315 | 994 | 24.6 | 13.5 | 9.03 | 156 |
| Cfsm | 1.05 | 2.81 | 0.710 | 2.19 | 1.13 | 2.19 | 0.379 | 1.19 | 0.030 | 0.016 | 0.011 | 0.188 |
| In. | 1.21 | 3.13 | 0.82 | 2.52 | 1.17 | 0.25 | 0.42 | 1.38 | 0.03 | 0.02 | 0.01 | 0.21 |
| Ac-ft | 53,550 | 139,100 | 36,360 | 111,900 | 52,090 | 11,210 | 18,730 | 61,130 | 1,460 | 829 | 555 | 9,290 |

Calendar year 1957: Max 13,100 Min 7.5 Mean 633 Cfsm 0.761 In. 10.19 Ac-ft 452,500
Water year 1957-58: Max 11,800 Min 6 Mean 685 Cfsm 0.823 In. 11.17 Ac-ft 496,200

Peak discharge (base, 4,300 cfs).--Oct. 16 (7 to 9 p.m.) 9,000 cfs (14.42 ft); Nov. 10 (4 p.m.) 5,630 cfs (12.44 ft); Nov. 24 (12 p.m.) 13,100 cfs (15.50 ft); Dec. 30 (11 p.m.) 4,680 cfs (11.32 ft); Jan. 23 (4 p.m.) 5,000 cfs (11.70 ft); May 5 (9 p.m.) 8,500 cfs (14.62 ft).

* Discharge measurement made on this day.

Note.--No gage-height record June 13-16, June 18 to July 22, July 24 to Aug. 24, Aug. 26 to Sept. 13; discharge estimated on basis of weather records and records for nearby stations.

## 685. 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 Co. 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 1958.

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.--19 years, 218 cfs (157,800 acre-ft per year).

Extremes.--Maximum discharge during year, 5,260 cfs Jan. 22 (gage height, 18.20 ft); minimum, 4.3 cfs Sept. 3.
1939-58: Maximum discharge, 42,700 cfs Nov. 25, 1940 (gage height, 28.60 ft, from graph based on gage readings); minimum, 1.1 cfs Oct. 23, 24, 1956.
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 except those for periods of no gage-height record, which are poor. No diversion above station.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 31 | 44 | 150 | 200 | 613 | 202 | 34 | 136 | 25 | 9 | 5.0 | 4.8 |
| 2 | *23 | 42 | 123 | 160 | 248 | 138 | 32 | 65 | 22 | 9 | 5.0 | 4.5 |
| 3 | 18 | 40 | 109 | 140 | 179 | 109 | 32 | 71 | 20 | 9 | 5.0 | 4.3 |
| 4 | 17 | 38 | 98 | 120 | 150 | 100 | 31 | 545 | 18 | 9 | 5.2 | 4.5 |
| 5 | 13 | 36 | 98 | 110 | 138 | 90 | 30 | 1,470 | 17 | 9 | 5.5 | 5.0 |
| 6 | 10 | 36 | 92 | 150 | 126 | 90 | 30 | 2,440 | 17 | 11 | 5.2 | 6.5 |
| 7 | 9.0 | 36 | 109 | 280 | 120 | 85 | 30 | 914 | 16 | 10 | 5.0 | 7.3 |
| 8 | 8.4 | 40 | 92 | 400 | 109 | 80 | 30 | 212 | 15 | 9 | 5.0 | 7.3 |
| 9 | 7.8 | 46 | 85 | 310 | 98 | 80 | 30 | 126 | 14 | 9 | 4.8 | 7.3 |
| 10 | 7.0 | 120 | 79 | 250 | 98 | 75 | 30 | 95 | 13 | 9 | 4.8 | 6.8 |
| 11 | 6.5 | 112 | 68 | 230 | 120 | *72 | 30 | 79 | 12 | 9 | 5.0 | 6.2 |
| 12 | 6.5 | 64 | 62 | 210 | 188 | 66 | 30 | 68 | 12 | 9 | 7.0 | 6.5 |
| 13 | 5.7 | 75 | 58 | 200 | 215 | 64 | 30 | 60 | 12 | 8 | 6.0 | 6.8 |
| 14 | 44 | 123 | 56 | 600 | 202 | 60 | 40 | 53 | 12 | 8 | 6.0 | 6.0 |
| 15 | 738 | 116 | 54 | *2,240 | 337 | 56 | 80 | 48 | 12 | 8 | 6.0 | 5.5 |
| 16 | *3,080 | 109 | 54 | 1,080 | 372 | 54 | 90 | *44 | 12 | 8 | 6.0 | 5.5 |
| 17 | 3,200 | 82 | 50 | 288 | 243 | 54 | *79 | 41 | *13 | 8 | 6.0 | 6.0 |
| 18 | 2,210 | 79 | 51 | 179 | 158 | 54 | 50 | 41 | 13 | 8 | 5.7 | 6.0 |
| 19 | 700 | 79 | 60 | 146 | 126 | 56 | 66 | 36 | 13 | 8 | 5.7 | 6.5 |
| 20 | 210 | 120 | 54 | 1,170 | 112 | 56 | 88 | 36 | 12 | 8 | 6 | 22 |
| 21 | 142 | 134 | 53 | 3,380 | 106 | 60 | 60 | 32 | 12 | 7 | 6 | 69 |
| 22 | *130 | 200 | 52 | 4,660 | 420 | 56 | 52 | 38 | 11 | 7 | 6 | 212 |
| 23 | 116 | 1,200 | 54 | 2,860 | 1,550 | 53 | 48 | 42 | 11 | *7.0 | 10 | 272 |
| 24 | 109 | 3,400 | 48 | 1,640 | 1,880 | 53 | 40 | 40 | 11 | 6.5 | 9 | 92 |
| 25 | 109 | 3,800 | 52 | 1,700 | 1,890 | 53 | 33 | 31 | 11 | *6.2 | *7.0 | 62 |
| 26 | 88 | *2,500 | 82 | 1,850 | 856 | 53 | 29 | 27 | 10 | 6.2 | 6.0 | 44 |
| 27 | 72 | 1,500 | 146 | 736 | 396 | 50 | 27 | 22 | 10 | 6.2 | 5.0 | 60 |
| 28 | 62 | 800 | 273 | 315 | 326 | 47 | 26 | 22 | 10 | 6.0 | 4.5 | 65 |
| 29 | 54 | 400 | 500 | 531 | - | 44 | 25 | 38 | 10 | 5.5 | 5.0 | 52 |
| 30 | 50 | 200 | 600 | 1,310 | ------ | 40 | 138 | 44 | 10 | 5.0 | 5.0 | 38 |
| 31 | 48 | ------ | 273 | 1,660 | ------ | 37 | ------ | 36 | ------ | 5.0 | 5.0 | ------ |
| Total | 11,324.9 | 15,571 | 3,725 | 29,105 | 11,376 | 2,187 | 1,370 | 6,952 | 406 | 242.6 | 178.4 | 1,101.3 |
| Mean | 365 | 519 | 120 | 939 | 406 | 70.5 | 45.7 | 224 | 13.5 | 7.83 | 5.75 | 36.7 |
| Cfsm | 0.912 | 1.30 | 0.300 | 2.35 | 1.02 | 0.176 | 0.114 | 0.560 | 0.034 | 0.020 | 0.014 | 0.092 |
| In. | 1.05 | 1.45 | 0.35 | 2.71 | 1.06 | 0.20 | 0.13 | 0.65 | 0.04 | 0.02 | 0.02 | 0.10 |
| Ac-ft | 22,460 | 30,880 | 7,390 | 57,730 | 22,560 | 4,340 | 2,720 | 13,790 | 805 | 481 | 354 | 2,180 |

Calendar year 1957: Max 4,280 Min 2.8 Mean 148 Cfsm 0.370 In. 5.07 Ac-ft 107,400
Water year 1957-58: Max 4,660 Min 4.3 Mean 229 Cfsm 0.572 In. 7.78 Ac-ft 165,700

Peak discharge (base, 1,600 cfs).--Oct. 16 or 17 (time unknown) about 3,500 cfs; Nov. 24 or 25 (time unknown) 4,600 cfs (17.5 ft); Jan. 15 (about 6 a.m.) 2,450 cfs (13.5 ft); Jan. 22 (1 to 2 p.m.) 5,260 cfs (18.20 ft); Jan. 26 (3 a.m.) 2,200 cfs (12.92 ft); Jan. 31 (3 a.m.) 2,000 cfs (12.38 ft); Feb. 25 (3 a.m.) 2,200 cfs (12.92 ft); May 6 (6 a.m.) 2,850 cfs (14.49 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 17, 19, Nov. 22-25, Nov. 27 to Dec. 1, Dec. 21, 29, 30, Jan. 1-14, Mar. 4-10, Apr. 5-16, June 12-16, June 18 to July 23, Aug. 20-24; discharge estimated on basis of weather records, engineers' notes, high-water marks, and records for nearby stations. Computed from twice-daily staff-gage readings Oct. 1 to Dec. 31, Aug. 25-28.

## 690. 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 1958.

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, at upstream side of bridge at datum 12.00 ft higher.

Average discharge.- 14 years, 143 cfs (103,500 acre-ft per year).

Extremes.--Maximum discharge during year, 7,440 cfs Oct. 15 (gage height, 24.8 ft, from floodmark); no flow many days.

1944-58: 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; no flow at times.

Maximum stage known since about 1875, 34 ft (present datum) in May 1929, from information by local resident. Flood in November 1940 reached a stage of about 32 ft (present datum), from information by State Highway Department.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-8, 13-16, 18, 22-25, Nov. 13-15, 18, 19, 22-30, June 10, Sept. 25-27, 29, 30)

| | | | | | |
|---|---|---|---|---|---|
| 4.8 | 0 | 5.4 | 7.1 | 8.0 | 252 |
| 4.9 | .1 | 5.7 | 16 | 9.0 | 448 |
| 5.0 | .4 | 6.0 | 30 | 12.0 | 1,300 |
| 5.1 | 1.3 | 6.5 | 64 | 16.0 | 2,800 |
| 5.2 | 2.8 | 7.0 | 114 | 22.0 | 5,500 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 15 | 168 | 40 | 286 | 73 | 2.6 | 1.1 | 12 | 0 | 0 | 2.8 |
| 2 | 14 | 12 | 99 | 40 | 191 | 54 | 2.4 | .8 | 7.4 | 0 | 0 | 3.3 |
| 3 | 8.2 | 10 | 61 | 35 | 108 | 45 | 2.2 | 16 | 3.7 | 0 | 0 | 2.6 |
| 4 | 4.5 | 9.8 | 52 | 35 | 80 | 35 | 2.1 | 207 | 3.3 | 0 | 0 | 1.4 |
| 5 | 2.9 | 8.7 | 50 | 30 | 72 | 30 | 2.0 | 354 | 3.3 | 0 | 0 | 4.2 |
| 6 | 2.8 | 8.7 | 43 | 207 | 66 | 25 | 1.4 | 252 | 1.5 | 0 | 0 | 4.5 |
| 7 | 2.4 | 9.5 | 40 | 385 | 62 | 20 | 1.2 | 214 | .6 | 0 | 0 | 9.8 |
| 8 | 1.7 | 11 | 45 | 269 | 55 | 20 | 1.2 | 137 | .1 | 0 | 0 | 18 |
| 9 | 1.2 | 12 | 40 | 221 | 50 | 15 | 1.8 | 43 | .1 | 0 | 0 | 26 |
| 10 | 1.1 | 19 | 35 | 162 | 60 | *12 | 1.8 | 20 | 0 | 0 | 0 | 19 |
| 11 | 1.1 | 20 | 35 | 84 | 100 | 11 | 1.8 | 13 | 0 | 0 | 0 | 25 |
| 12 | .5 | 17 | 30 | 211 | 120 | 9.0 | 1.5 | 9.8 | 0 | 0 | 0 | 14 |
| 13 | 1.4 | 67 | 30 | 1,110 | 110 | 8.4 | 3.0 | 8.2 | 0 | 0 | .4 | 12 |
| 14 | 86 | 114 | 25 | 772 | 134 | 7.6 | 14 | 6.4 | 0 | .1 | 1.0 | 20 |
| 15 | 2,880 | 85 | 25 | *516 | 198 | 7.6 | 78 | 4.5 | 0 | 2.8 | 3.5 | 19 |
| 16 | *5,440 | 59 | 25 | 406 | 111 | 7.4 | 86 | *3.1 | 0 | 1.3 | 5.8 | 13 |
| 17 | 2,370 | 38 | 25 | 286 | 68 | 7.6 | *34 | 2.1 | *10 | 1.2 | 2.0 | 12 |
| 18 | *870 | 58 | 25 | 152 | 60 | 7.4 | 20 | 1.8 | *7.0 | .5 | .6 | 12 |
| 19 | 540 | 94 | 25 | 78 | 55 | 6.6 | 14 | 1.7 | .2 | .6 | .2 | 20 |
| 20 | 360 | 70 | 25 | 2,360 | 50 | 5.8 | 12 | 2.1 | 0 | .6 | 4.5 | 41 |
| 21 | 260 | 52 | 20 | 3,000 | 140 | 5.2 | 9.8 | 1.8 | 0 | .6 | 9.2 | 351 |
| 22 | *206 | 1,330 | 20 | 2,000 | 536 | 4.5 | 11 | 1.4 | 0 | .3 | 6.6 | 576 |
| 23 | 236 | 1,920 | 20 | 1,960 | 1,040 | 5.4 | 7.6 | 70 | 0 | **.2 | 6.6 | 406 |
| 24 | 145 | 1,810 | 20 | 2,040 | *800 | 5.4 | 5.8 | 188 | 0 | 0 | 6.6 | 234 |
| 25 | 82 | 1,560 | 20 | 1,490 | 504 | 5.0 | 5.4 | 56 | 0 | 0 | 4.1 | 123 |
| 26 | 58 | *1,200 | 20 | 1,170 | 364 | 4.5 | 3.9 | 26 | 0 | 0 | 1.8 | 93 |
| 27 | 43 | 860 | 33 | 800 | 260 | 4.1 | 2.4 | 15 | 0 | 0 | 4.0 | 259 |
| 28 | 34 | 589 | 66 | 540 | 138 | 3.7 | 2.0 | 9.2 | 0 | 0 | 3.3 | 430 |
| 29 | 29 | 406 | 96 | 482 | - | 3.2 | 1.5 | 104 | 0 | 0 | 1.6 | 221 |
| 30 | 26 | 252 | 82 | 364 | ------ | 8.4 | 1.3 | 65 | 0 | 0 | 8.3 | 131 |
| 31 | 24 | ------ | 42 | 323 | ------ | 3.7 | ------ | 23 | ------ | 0 | 5.6 | ------ |
| Total | 13,750.8 | 10,716.7 | 1,342 | 21,568 | 5,818 | 460.5 | 333.7 | 1,857.0 | 49.2 | 8.2 | 75.7 | 3,103.6 |
| Mean | 444 | 357 | 43.3 | 696 | 208 | 14.9 | 11.1 | 59.9 | 1.64 | 0.26 | 2.44 | 103 |
| Cfsm | 1.69 | 1.36 | 0.165 | 2.66 | 0.794 | 0.057 | 0.042 | 0.229 | 0.0063 | 0.00099 | 0.0093 | 0.393 |
| In. | 1.95 | 1.52 | 0.19 | 3.06 | 0.83 | 0.07 | 0.05 | 0.26 | 0.007 | 0.001 | 0.01 | 0.44 |
| Ac-ft | 27,270 | 21,260 | 2,660 | 42,780 | 11,540 | 913 | 662 | 3,680 | 98 | 16 | 150 | 6,160 |

Calendar year 1957: Max 5,440 Min 0 Mean 121 Cfsm 0.462 In. 6.28 Ac-ft 87,750
Water year 1957-58: Max 5,440 Min 0 Mean 162 Cfsm 0.618 In. 8.39 Ac-ft 117,200

Peak discharge (base, 1,000 cfs).--Oct. 15 (time unknown) 7,440 cfs (24.8 ft); Nov. 22 (12 p.m.) 2,080 cfs (14.84 ft); Jan. 13 (3 p.m.) 1,170 cfs (11.63 ft); Jan. 20 (6 p.m.) 4,500 cfs (19.94 ft); Feb. 23 (12 m.) 1,080 cfs (11.34 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
Note.--No gage-height record Oct. 17, 19-21, Dec. 7-26, Jan. 1-5, Feb. 8-13, 18-21, Mar. 3-9; discharge estimated on basis of weather records and records for nearby stations.

## 700. East Fork San Jacinto River near Cleveland, Tex.

Location.--Lat 30°20', long 95°07', near left bank at downstream side of pile bent of bridge on State Highway 105, 1,880 ft downstream from Gulf, Colorado and Santa Fe Railway Co. bridge, 1¼ miles west of Cleveland, Liberty County, and 4.3 miles downstream from Winter Creek.

Drainage area.--330 sq mi.

Records available.--April 1939 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 107.98 ft above mean sea level, datum of 1929, supplementary adjustment of 1936. Prior to Sept. 13, 1955, at site 1,800 ft upstream at datum 5.00 ft higher.

Average discharge.--19 years, 233 cfs (168,700 acre-ft per year).

Extremes.--Maximum discharge during year, 12,500 cfs Nov. 24 (gage height, 18.07 ft); minimum daily, 5.8 cfs Aug. 8.

1939-58: Maximum discharge, 59,000 cfs Nov. 24, 1940 (gage height, about 24 ft, present site and datum), from rating curve extended above 27,000 cfs by logarithmic plotting; minimum daily, 3.0 cfs Aug. 23, 24, Sept. 27, 28, 1956.

Maximum stage known since at least 1900, that of Nov. 24, 1940. Flood of May 5, 1935, reached about same stage as that of Nov. 24, 1940, from information by local residents.

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

Revisions (water years).--WSP 1512: 1941(M), 1945(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 27 to Mar. 29)

| | | | |
|---|---|---|---|
| 3.3 | 5.0 | 8.0 | 675 |
| 3.5 | 11 | 10.0 | 1,280 |
| 4.0 | 31 | 13.0 | 2,410 |
| 4.5 | 64 | 15.0 | 4,650 |
| 5.0 | 112 | 17.0 | 9,000 |
| 6.0 | 249 | 18.0 | 12,200 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 27 | 44 | 163 | 377 | 320 | 212 | 62 | 46 | 34 | 11 | 6.3 | 7.4 |
| 2 | 21 | 42 | 139 | 212 | 204 | 166 | 59 | 42 | 31 | 10 | 6.3 | 6.6 |
| 3 | 18 | 40 | 126 | 163 | 158 | 145 | 57 | 171 | 26 | 9.8 | 6.3 | 6.6 |
| 4 | 15 | 37 | 126 | 135 | 134 | 131 | 55 | 868 | 23 | 10 | 6.3 | 7.2 |
| 5 | 14 | 36 | 112 | 122 | 124 | 124 | 50 | 1,950 | 22 | 10 | 7.2 | 7.4 |
| 6 | 13 | 42 | 106 | 357 | 149 | 120 | 46 | 2,130 | 20 | 12 | 6.3 | 9.2 |
| 7 | 11 | 81 | 142 | 528 | 146 | 126 | 42 | 949 | 22 | 11 | 6.0 | 9.8 |
| 8 | 11 | 358 | 157 | 440 | 135 | *129 | 40 | 194 | 21 | 17 | 5.8 | 11 |
| 9 | 10 | 775 | 162 | 265 | 142 | 123 | 41 | 118 | 19 | 36 | 6.8 | 14 |
| 10 | 9.8 | 1,420 | 148 | 172 | 203 | 106 | 41 | 90 | 18 | 19 | 9.8 | 17 |
| 11 | 9.2 | 1,480 | 110 | 139 | 291 | 100 | 39 | 74 | 17 | 20 | 11 | 13 |
| 12 | 9.2 | 357 | 94 | 216 | 226 | 92 | 36 | 62 | 16 | 17 | 12 | 12 |
| 13 | 9.2 | 273 | 88 | 852 | 204 | 86 | 36 | 55 | 16 | 14 | 10 | 28 |
| 14 | 50 | 462 | 84 | 1,600 | 226 | 79 | 164 | *48 | 16 | 12 | 9.0 | 26 |
| 15 | 996 | 650 | 81 | 2,270 | 320 | 74 | *176 | 44 | 17 | 10 | 8.0 | 22 |
| 16 | *2,240 | 800 | 80 | 1,680 | 350 | 72 | 128 | 40 | 17 | 9.2 | 9.0 | 17 |
| 17 | 4,660 | 412 | 78 | 394 | 274 | 72 | 84 | 38 | 17 | 8.6 | 8.0 | 16 |
| 18 | 3,440 | 242 | 77 | 212 | 176 | 72 | 69 | 36 | 20 | 9.0 | 7.2 | 15 |
| 19 | 1,620 | 612 | 86 | 172 | 132 | 77 | 61 | 35 | *26 | 9.2 | 8.0 | 14 |
| 20 | 295 | 860 | 124 | 1,000 | 116 | 76 | 55 | 34 | 20 | 8.6 | 8.0 | 28 |
| 21 | 142 | 410 | 102 | 2,160 | 106 | 72 | 58 | 32 | 17 | *8.4 | 29 | 126 |
| 22 | 120 | 867 | 84 | *3,390 | 212 | 69 | 64 | 32 | 16 | 7.8 | 75 | 376 |
| 23 | *183 | 4,000 | 79 | 2,370 | 726 | 68 | 77 | 35 | 17 | 8.4 | 40 | 650 |
| 24 | 226 | 10,100 | 72 | 1,190 | 1,210 | 66 | 94 | 34 | 18 | 9.6 | 25 | 725 |
| 25 | 226 | 4,990 | 86 | 462 | 1,520 | 68 | 72 | 35 | 16 | 7.4 | 19 | 651 |
| 26 | 128 | 2,640 | 327 | 310 | 1,120 | 82 | 54 | 33 | 14 | 7.4 | *17 | 216 |
| 27 | 84 | *1,630 | 628 | 226 | 400 | 81 | 46 | 29 | 13 | 7.4 | 14 | 507 |
| 28 | 65 | 540 | 1,080 | 263 | 274 | 69 | 62 | 27 | 12 | 6.8 | 12 | 700 |
| 29 | 55 | 274 | 1,790 | 800 | - | 66 | 48 | 25 | 12 | 6.6 | 10 | 1,010 |
| 30 | 51 | 204 | 3,480 | 860 | ------ | 61 | 41 | 24 | 11 | 6.6 | 8.6 | 1,040 |
| 31 | 47 | ------ | 1,720 | 650 | ------ | 61 | ------ | 36 | ------ | 6.3 | 7.8 | ------ |
| Total | 14,805.4 | 34,678 | 11,731 | 23,987 | 9,598 | 2,945 | 1,957 | 7,366 | 564 | 346.1 | 414.7 | 6,288.2 |
| Mean | 478 | 1,156 | 378 | 774 | 343 | 95.0 | 65.2 | 238 | 18.8 | 11.2 | 13.4 | 210 |
| Cfsm | 1.45 | 3.50 | 1.15 | 2.35 | 1.04 | 0.288 | 0.198 | 0.721 | 0.057 | 0.034 | 0.041 | 0.636 |
| In. | 1.67 | 3.91 | 1.32 | 2.70 | 1.08 | 0.33 | 0.22 | 0.83 | 0.06 | 0.04 | 0.05 | 0.71 |
| Ac-ft | 29,370 | 68,780 | 23,270 | 47,580 | 19,040 | 5,840 | 3,880 | 14,610 | 1,120 | 686 | 823 | 12,470 |

Calendar year 1957: Max 10,100 Min 6.3 Mean 265 Cfsm 0.803 In. 10.92 Ac-ft 192,100
Water year 1957-58: Max 10,100 Min 5.8 Mean 314 Cfsm 0.951 In. 12.92 Ac-ft 227,500

Peak discharge (base, 2,500 cfs).--Oct. 17 (3 to 4 p.m.) 5,370 cfs (15.42 ft); Nov. 24 (3 a.m.) 12,500 cfs (18.07 ft); Dec. 30 (10 a.m.) 4,050 cfs (14.61 ft); Jan. 22 (6 a.m.) 3,770 cfs (14.37 ft).

* Discharge measurement made on this day.

## 705. 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 and New Orleans Railroad Co. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 86.61 at above mean sea level, datum of 1929, Galveston-Houston supplementary adjustment of 1936.

Average discharge.--14 years (1944-58), 73.9 cfs (53,500 acre-ft per year).

Extremes.--Maximum discharge during year, 2,350 cfs Oct. 16 (gage height, 9.88 ft); minimum, 4 cfs July 28 to Aug. 3.

1943-58: 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 measurement of peak flow; minimum, 1.1 cfs Sept. 28-30, 1956.

Maximum stage known since about 1895, that of Oct. 8, 1949. Flood in November 1940 reached a stage of 17.3 ft, from information by local residents.

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 25 | 63 | 70 | 141 | 100 | 39 | 34 | 16 | 7.2 | 4 | 6 |
| 2 | 14 | 24 | 56 | 56 | 102 | 84 | 38 | 30 | 16 | 6.7 | 4 | 5 |
| 3 | 14 | 24 | 53 | 49 | 84 | 74 | 38 | 43 | 14 | 7.4 | 4 | 4.6 |
| 4 | 13 | 24 | 53 | 44 | 74 | 72 | 38 | 353 | 13 | 6.7 | 5 | 4.8 |
| 5 | 12 | 24 | 50 | 42 | 70 | 70 | 38 | 404 | 12 | 6.7 | 5 | 5.0 |
| 6 | 11 | 24 | 50 | 124 | 72 | *67 | 35 | 232 | 13 | 9.6 | 6 | 5.6 |
| 7 | 9.9 | 27 | 63 | 280 | 102 | 70 | 32 | 82 | 12 | 11 | 6 | 6.4 |
| 8 | 9.5 | 77 | 82 | 176 | 84 | 77 | 30 | 52 | 12 | 11 | 5 | 11 |
| 9 | 9.0 | 80 | 67 | 94 | 67 | 74 | 30 | 42 | 13 | 12 | 5 | 12 |
| 10 | 8.8 | 52 | 56 | 70 | 67 | 65 | 31 | 36 | 12 | 26 | 5 | 12 |
| 11 | 8.5 | 40 | 48 | 60 | 247 | 60 | 31 | 32 | 10 | 32 | 5 | 9.4 |
| 12 | 8.5 | 34 | 43 | 80 | 268 | 56 | 31 | 30 | 10 | 18 | 6 | 8.3 |
| 13 | 8.3 | 50 | 41 | 445 | 176 | 56 | 29 | 27 | 10 | 13 | 6 | 13 |
| 14 | 20 | 165 | 40 | 509 | 144 | 53 | 64 | *24 | 9.9 | 11 | 6 | 24 |
| 15 | 633 | 111 | 40 | 254 | 286 | 50 | *168 | 23 | 9.9 | 9.7 | 6 | 13 |
| 16 | *1,840 | 72 | 40 | 124 | 230 | 48 | 103 | 22 | 10 | 8.6 | 6 | 9.7 |
| 17 | 564 | 53 | 40 | 84 | 130 | 48 | 54 | 20 | 11 | 8.1 | 5 | 10 |
| 18 | 224 | 56 | 40 | 70 | 97 | 50 | 39 | 20 | 16 | 7.2 | 5 | 10 |
| 19 | 82 | 90 | 40 | 63 | 84 | 52 | 56 | 20 | *11 | 6.2 | 6 | 11 |
| 20 | 52 | 74 | 52 | 604 | 77 | 56 | 44 | 20 | 12 | 5.9 | 6 | 16 |
| 21 | 41 | 65 | 60 | 1,940 | 74 | 56 | 41 | 20 | 11 | 5.8 | 7 | 42 |
| 22 | 40 | 310 | 51 | *812 | 114 | 49 | 40 | 20 | 9.9 | *5.8 | 9 | 77 |
| 23 | *58 | 1,080 | 42 | 374 | 453 | 48 | 47 | 22 | 9.9 | 6 | 9 | 100 |
| 24 | 70 | 940 | 38 | 328 | 440 | 48 | 44 | 21 | 9.7 | 5 | 8 | 72 |
| 25 | 56 | 741 | 40 | 286 | 254 | 48 | 33 | 19 | 9.9 | 5 | 8 | 54 |
| 26 | 40 | 336 | 74 | 184 | 160 | 49 | 28 | 18 | 9.4 | 5 | 8 | 52 |
| 27 | 33 | 189 | 97 | 120 | 148 | 47 | 25 | 17 | 8.5 | 5 | *8.8 | 60 |
| 28 | 29 | 114 | 220 | 111 | 134 | 46 | 39 | 16 | 7.9 | 4 | 8 | 46 |
| 29 | 27 | *92 | 246 | 303 | - | 45 | 74 | 16 | 7.7 | 4 | 7 | 28 |
| 30 | 26 | 77 | 164 | 483 | ------ | 44 | 46 | 15 | 7.2 | 4 | 6 | 51 |
| 31 | 26 | ------ | 92 | 239 | ------ | 42 | ------ | 14 | ------ | 4 | 6 | ------ |
| Total | 4,103.5 | 5,070 | 2,141 | 8,478 | 4,379 | 1,804 | 1,385 | 1,744 | 333.9 | 277.6 | 190.8 | 778.8 |
| Mean | 132 | 169 | 69.1 | 273 | 156 | 58.2 | 46.2 | 56.3 | 11.1 | 8.95 | 6.15 | 26.0 |
| Cfsm | 1.10 | 1.41 | 0.576 | 2.27 | 1.30 | 0.485 | 0.385 | 0.469 | 0.092 | 0.075 | 0.051 | 0.217 |
| In. | 1.27 | 1.57 | 0.66 | 2.63 | 1.36 | 0.56 | 0.43 | 0.54 | 0.10 | 0.09 | 0.06 | 0.24 |
| Ac-ft | 8,140 | 10,060 | 4,250 | 16,820 | 8,690 | 3,580 | 2,750 | 3,460 | 662 | 551 | 378 | 1,540 |

Calendar year 1957: Max 1,840 Min 3.8 Mean 57.7 Cfsm 0.481 In. 6.52 Ac-ft 41,780
Water year 1957-58: Max 1,940 Min 4 Mean 84.1 Cfsm 0.701 In. 9.51 Ac-ft 60,880

Peak discharge (base, 900 cfs).--Oct. 16 (4 to 5 a.m.) 2,350 cfs (9.88 ft); Nov. 23 (10 to 11 a.m.) 1,190 cfs (8.41 ft); Jan. 21 (10 a.m.) 2,170 cfs (9.72 ft).

* Discharge measurement made on this day.

Note.--No gage-height record July 23 to Aug. 26, Aug. 28 to Sept. 2; discharge estimated on basis of 2 discharge measurements, weather records, and records for Caney Creek near Splendora.

## 710. 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 and Santa Fe Railway Co. bridge and 8 miles west of Splendora, Montgomery County.

Drainage area.--104 sq mi.

Records available.--January 1944 to September 1958.

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.--14 years, 66.3 cfs (48,000 acre-ft per year).

Extremes.--Maximum discharge during year, 2,480 cfs Oct. 15 (gage height, 11.2 ft, from floodmarks); minimum, 7.3 cfs Aug. 3, 4.

1944-58: 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, 4.1 cfs Oct. 26, 1956, caused by construction upstream.

Maximum stage known since about 1885, 22.0 ft in November 1940, present site and datum, from information by local resident. Flood in May 1935 reached a stage of 19.3 ft, present site and datum, from information by local resident.

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 23 | 58 | 60 | 76 | 60 | 34 | 31 | 20 | 12 | 7.6 | 9.4 |
| 2 | 14 | 23 | 55 | 55 | 60 | 60 | 33 | 31 | 18 | 12 | 7.6 | 9.1 |
| 3 | 13 | 22 | 53 | 50 | 55 | 55 | 31 | 211 | 17 | 12 | 7.5 | 8.9 |
| 4 | 13 | 21 | 52 | 45 | 50 | 55 | 31 | 850 | 17 | 12 | 8.0 | 8.7 |
| 5 | 12 | 21 | 51 | 50 | 50 | 50 | 31 | 110 | 16 | 11 | 8.0 | 8.7 |
| 6 | 12 | 22 | 49 | 141 | 45 | 50 | 29 | 60 | 16 | 11 | 8.3 | 9.8 |
| 7 | 12 | 62 | 56 | 268 | 45 | 50 | 28 | 50 | 16 | 11 | 8.2 | 12 |
| 8 | 12 | 249 | 76 | 82 | 45 | *49 | 27 | 40 | 16 | 12 | 8.0 | 12 |
| 9 | 11 | 518 | 55 | 55 | 50 | 46 | 27 | 40 | 16 | 16 | 7.8 | 13 |
| 10 | 11 | 65 | 47 | 50 | 59 | 44 | 27 | 35 | 15 | 13 | 7.8 | 11 |
| 11 | 11 | 42 | 44 | 50 | 216 | 42 | 27 | 30 | 15 | 11 | 8.0 | 10 |
| 12 | 11 | 38 | 42 | 80 | 100 | 40 | 26 | 30 | 14 | 11 | 8.2 | 37 |
| 13 | 11 | 54 | 41 | 826 | 77 | 40 | 26 | 30 | 14 | 9.8 | 8.3 | 34 |
| 14 | 11 | 287 | 41 | 465 | 84 | 39 | 58 | *28 | 14 | 9.3 | 8.2 | 16 |
| 15 | *956 | 134 | 41 | 100 | 208 | 38 | 182 | 28 | 14 | 9.1 | 8.9 | 14 |
| 16 | 1,900 | 50 | 41 | 68 | 103 | 37 | *62 | 27 | 14 | 8.9 | 8.2 | 14 |
| 17 | 720 | 40 | 41 | 55 | 64 | 37 | 40 | 26 | 14 | 8.9 | 8.0 | 13 |
| 18 | 90 | 56 | 40 | 50 | 50 | 37 | 40 | 25 | 14 | 9.3 | 7.8 | 12 |
| 19 | 54 | 193 | 42 | 55 | 45 | 39 | 37 | 25 | *14 | 9.3 | 9.8 | 12 |
| 20 | 42 | 60 | 46 | 605 | 40 | 40 | 36 | 24 | 14 | 9.3 | 9.3 | 30 |
| 21 | 37 | 40 | 44 | 1,840 | 40 | 38 | 36 | 24 | 14 | 11 | 9.8 | 300 |
| 22 | 39 | 550 | 41 | *269 | 129 | 36 | 165 | 25 | 13 | *9.3 | 13 | 150 |
| 23 | *117 | 1,500 | 40 | 165 | 513 | 35 | 234 | 24 | 13 | 8.5 | 12 | 100 |
| 24 | 74 | 910 | 39 | 244 | 253 | 38 | 64 | 23 | 14 | 8.3 | 12 | 70 |
| 25 | 43 | 462 | 43 | 136 | 111 | 40 | 44 | 23 | 13 | 8.2 | 12 | 60 |
| 26 | 33 | 140 | 350 | 94 | 84 | 38 | 37 | 22 | 13 | 8.2 | 10 | 45 |
| 27 | 29 | 97 | 145 | 74 | 87 | 37 | 35 | 21 | 12 | 8.0 | *9.8 | 40 |
| 28 | 26 | 80 | 811 | 118 | 74 | 35 | 55 | 20 | 12 | 7.8 | 9.4 | 35 |
| 29 | 25 | *69 | 388 | 441 | - | 34 | 43 | 20 | 12 | 7.6 | 9.3 | 30 |
| 30 | 25 | 60 | 94 | 166 | ------ | 33 | 34 | 31 | 12 | 7.6 | 9.1 | 60 |
| 31 | 24 | ------ | 70 | 97 | ------ | 33 | ------ | 22 | ------ | 7.6 | 9.1 | ------ |
| Total | 4,404 | 5,888 | 3,036 | 6,854 | 2,813 | 1,305 | 1,579 | 1,986 | 436 | 310.0 | 279.0 | 1,184.6 |
| Mean | 142 | 196 | 97.9 | 221 | 100 | 42.1 | 52.6 | 64.1 | 14.5 | 10.0 | 9.00 | 39.5 |
| Cfsm | 1.37 | 1.88 | 0.941 | 2.12 | 0.962 | 0.405 | 0.506 | 0.616 | 0.139 | 0.096 | 0.087 | 0.380 |
| In. | 1.57 | 2.11 | 1.09 | 2.45 | 1.01 | 0.47 | 0.56 | 0.71 | 0.16 | 0.11 | 0.10 | 0.42 |
| Ac-ft | 8,740 | 11,680 | 6,020 | 13,590 | 5,580 | 2,590 | 3,130 | 3,940 | 865 | 615 | 553 | 2,350 |

Calendar year 1957: Max 1,900 Min 7.1 Mean 61.9 Cfsm 0.595 In. 8.07 Ac-ft 44,800
Water year 1957-58: Max 1,900 Min 7.5 Mean 82.4 Cfsm 0.792 In. 10.76 Ac-ft 59,650

Peak discharge (base, 1,300 cfs).--Oct. 15 (time unknown) 2,480 cfs (11.2 ft); Nov. 23 (time unknown) about 1,700 cfs; Dec. 28 (10 p.m.) 1,300 cfs (7.96 ft); Jan. 13 (11 p.m.) 1,440 cfs (8.44 ft); Jan. 21 (12 m.) 2,340 cfs (10.95 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 16, 17, 20-23, 30, Dec. 31 to Jan. 5, Jan. 9-11, 17-19, Feb. 2-9, 18-21, Mar. 1-7, May 4-13, Sept. 20-30; discharge estimated on basis of weather records and records for nearby stations.

## 720. Lake Houston near Sheldon, Tex.

Location.--Lat 29°54'55", long 95°08'30", at intake structure on San Jacinto River near right bank 100 ft upstream from Lake Houston Dam, 4.0 miles north of Sheldon, Harris County, 4.6 miles upstream from bridge on U. S. Highway 90, and 18 miles northeast of Houston. Upper gage (prior to October 1954, published as West Fork San Jacinto River near Humble), lat 30°01'35", long 95°15'30", at bridge on U. S. Highway 59, about half a mile downstream from Spring Creek, 2½ miles north of Humble, and 16 miles upstream from dam.

Drainage area.--2,811 sq mi at dam; 1,811 sq mi at upper gage.

Records available.--April 1954 to September 1958.

Gage.--Water-stage recorders. Datum of gage at dam is 0.70 ft below mean sea level, datum of 1929, adjusted in 1957 for ground surface subsidence. Prior to Aug. 3, 1954, staff gage read once daily. Datum of upper gage is 30.53 ft above mean sea level, datum of 1929.

Extremes.--Maximum contents during year, 186,300 acre-ft Nov. 25, 26 (gage height, 46.6 ft); minimum, 123,800 acre-ft Sept. 2-6 (gage height, 41.5 ft). Maximum gage height at upper gage, 16.6 ft Nov. 25; minimum, 10.2 ft Sept. 3-5, 12-19.
1954-58: Maximum contents, that of Nov. 25, 26, 1957; minimum since first filling of reservoir in August 1954, 79,880 acre-ft (gage height, 36.8 ft) Dec. 10-12, 14-17, 1956. Maximum gage height at upper gage, 16.7 ft May 2, 1957; minimum since first filling of reservoir, 5.5 ft Dec. 12, 1956.

Remarks.--Lake is formed by compacted earth-fill embankment sections 4,000 and 4,600 ft long. Spillway is a slab-and-buttress (Ambursen type) structure 3,160 ft long, located near center of dam. Dam completed and storage began Apr. 9, 1954. Total capacity, 158,200 acre-ft (elevation, 44.5 ft, top of spillway). Usable capacity, about 150,000 acre-ft between elevations 44.5 and 22.0 ft (bottom of 36-inch sluice gate). Water used for municipal supply for city of Houston, for industries in ship-channel area, and for irrigation.

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

Capacity table, water year 1957-58 (gage height, in feet, and total capacity, in acre-feet)

| | | | |
|---|---|---|---|
| 41 | 118,600 | 45 | 164,500 |
| 42 | 129,100 | 46 | 177,800 |
| 43 | 140,200 | 47 | 191,900 |
| 44 | 152,000 | | |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 162,000 | 160,800 | 164,500 | 168,500 | 167,200 | 164,500 | 159,500 | 164,500 | 159,500 | 147,300 | 133,500 | 124,900 |
| 2 | 160,800 | 160,800 | 163,200 | 165,800 | 165,800 | 163,200 | 159,500 | 163,200 | 159,500 | 147,300 | 132,400 | 124,900 |
| 3 | 160,800 | 160,800 | 162,000 | 164,500 | 164,500 | 163,200 | 159,500 | 163,200 | 158,200 | 146,100 | 131,300 | 123,800 |
| 4 | 160,800 | 160,800 | 162,000 | 163,200 | 163,200 | 163,200 | 159,500 | 169,800 | 158,200 | 146,100 | 131,300 | 123,800 |
| 5 | 159,500 | 160,800 | 162,000 | 162,000 | 163,200 | 162,000 | 159,500 | 172,500 | 158,200 | 146,100 | 131,300 | 123,800 |
| 6 | 159,500 | 160,800 | 162,000 | 163,200 | 162,000 | 162,000 | 159,500 | 175,100 | 158,200 | 146,100 | 131,300 | 124,900 |
| 7 | 159,500 | 160,800 | 162,000 | 165,800 | 160,800 | 162,000 | 158,200 | 172,500 | 157,000 | 146,100 | 130,200 | 124,900 |
| 8 | 159,500 | 160,800 | 159,500 | 165,800 | 160,800 | 162,000 | 159,500 | 168,500 | 157,000 | 144,900 | 130,200 | 124,900 |
| 9 | 159,500 | 162,000 | 159,500 | 165,800 | 162,000 | 160,800 | 159,500 | 165,800 | 157,000 | 144,900 | 129,100 | 124,900 |
| 10 | 158,200 | 167,200 | 159,500 | 164,500 | 162,000 | 162,000 | 159,500 | 163,200 | 155,800 | 144,900 | 129,100 | 124,900 |
| 11 | 158,200 | 169,800 | 158,200 | 165,800 | 163,200 | 160,800 | 158,200 | 162,000 | 155,800 | 144,900 | 129,100 | 124,900 |
| 12 | 157,000 | 168,500 | 159,500 | 164,500 | 163,200 | 159,500 | 159,500 | 162,000 | 155,800 | 144,900 | 128,000 | 124,900 |
| 13 | 157,000 | 167,200 | 159,500 | 169,800 | 163,200 | 158,200 | 160,800 | 162,000 | 154,500 | 143,700 | 128,000 | 124,900 |
| 14 | 159,500 | 167,200 | 160,800 | 172,500 | 164,500 | 158,200 | 162,000 | 160,800 | 154,500 | 143,700 | 127,000 | 124,900 |
| 15 | 180,600 | 165,800 | 160,800 | 172,500 | 165,800 | 158,200 | 162,000 | 162,000 | 154,500 | 142,600 | 127,000 | 124,900 |
| 16 | 184,800 | 165,800 | 160,800 | 172,500 | 165,800 | 159,500 | 163,200 | 160,800 | 153,200 | 142,600 | 127,000 | 124,900 |
| 17 | 180,600 | 165,800 | 162,000 | 169,800 | 164,500 | 159,500 | 163,200 | 162,000 | 153,200 | 142,600 | 126,000 | 124,900 |
| 18 | 177,800 | 164,500 | 162,000 | 167,200 | 164,500 | 158,200 | 162,000 | 162,000 | 153,200 | 141,400 | 126,000 | 124,900 |
| 19 | 173,800 | 164,500 | 162,000 | 164,500 | 163,200 | 158,200 | 162,000 | 160,800 | 153,200 | 141,400 | 126,000 | 124,900 |
| 20 | 169,800 | 164,500 | 160,800 | 179,200 | 163,200 | 158,200 | 162,000 | 159,500 | 152,000 | 140,200 | 126,000 | 128,000 |
| 21 | 167,200 | 165,800 | 162,000 | 182,000 | 163,200 | 158,200 | 162,000 | 159,500 | 152,000 | 139,100 | 126,000 | 132,400 |
| 22 | 164,500 | 172,500 | 162,000 | 182,000 | 165,800 | 159,500 | 162,000 | 160,800 | 152,000 | 139,100 | 126,000 | 136,900 |
| 23 | 164,500 | 179,200 | 162,000 | 180,600 | 171,200 | 159,500 | 163,200 | 160,800 | 152,000 | 138,000 | 126,000 | 142,600 |
| 24 | 163,200 | 183,400 | 162,000 | 177,800 | 171,200 | 158,200 | 163,200 | 160,800 | 150,800 | 138,000 | 127,000 | 147,300 |
| 25 | 163,200 | 186,300 | 162,000 | 173,800 | 172,500 | 158,200 | 162,000 | 160,800 | 150,800 | 138,000 | 127,000 | 149,600 |
| 26 | 160,800 | 180,600 | 162,000 | 171,200 | 171,200 | 158,200 | 162,000 | 160,800 | 150,800 | 136,900 | 127,000 | 153,200 |
| 27 | 160,800 | 175,100 | 164,500 | 168,500 | 169,800 | 159,500 | 162,000 | 160,800 | 149,600 | 135,800 | 127,000 | 154,500 |
| 28 | 160,800 | 171,200 | 164,500 | 167,200 | 167,200 | 159,500 | 162,000 | 159,500 | 149,600 | 135,800 | 127,000 | 157,000 |
| 29 | 162,000 | 168,500 | 165,800 | 169,800 | - | 159,500 | 162,000 | 159,500 | 148,500 | 134,600 | 127,000 | 159,500 |
| 30 | 160,800 | 164,500 | 167,200 | 169,800 | ------- | 159,500 | 163,200 | 159,500 | 148,500 | 134,600 | 126,000 | 162,000 |
| 31 | 160,800 | ------- | 168,500 | 168,500 | ------- | 159,500 | ------- | 159,500 | ------- | 133,500 | 126,000 | ------- |
| (†) | 44.7 | 45.0 | 45.3 | 45.3 | 45.2 | 44.6 | 44.9 | 44.6 | 43.7 | 42.4 | 41.7 | 44.8 |
| (‡) | -1,200 | +3,700 | +4,000 | 0 | -1,300 | -7,700 | +3,700 | -3,700 | -11,000 | -15,000 | -7,500 | +36,000 |
| (††) | 7,730 | 7,540 | 7,680 | 6,630 | 6,670 | 6,810 | 7,800 | 10,760 | 11,240 | 11,410 | 9,880 | 7,770 |

Calendar year 1957..... ‡ +81,900 †† 101,800
Water year 1957-58..... ‡ 0 †† 101,900

† Gage height, in feet, at end of month.
‡ Change in contents, in acre-feet.
†† Diversions, in acre-feet, for municipal and industrial uses, and for irrigation.
Note.--Contents computed from once-daily staff-gage readings Apr. 12-15, July 31 to Aug. 26.

## 725. 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, 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 1958.

Gages.--Water-stage recorders. Datum of both gages is 0.33 ft below mean sea level, datum of 1929, Galveston-Houston supplementary adjustmant and Houston supplementary adjustment of 1943.

Extremes.--Maximum gage height at dam during year, 88.9 ft Oct. 17, 18 (contents, 6,780 acre-ft); maximum at upper gage, 98.3 ft Oct. 15.

1945-58: 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 5 concrete conduits, 2 of which are uncontrolled. The middle conduit is controlled by 2 vertical-lift steel gates; the 2 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 height 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.

Gage heights and contents at indicated time when flood runoff was partly stored in reservoir during October 1957

| Date | Time | Gage height at upper gage (feet) | Gage height at dam (feet) | Contents (acre-feet) |
|---|---|---|---|---|
| Oct. 13 | 12 p.m. | - | 75.3 | 3 |
| 14 | 5 p.m. | 90.5 | 75.2 | 2 |
| | 7 p.m. | 90.5 | 76.4 | 9 |
| | 12 p.m. | 91.3 | 76.7 | 11 |
| 15 | 11 a.m. | 91.3 | 77.8 | 22 |
| | 1 p.m. | 93.3 | 78.8 | 35 |
| | 2 p.m. | 95.8 | 79.8 | 52 |
| | 4 p.m. | 98.0 | 81.1 | 83 |
| | 12 p.m. | 98.2 | 81.9 | 122 |
| 16 | 4 a.m. | 97.8 | 83.1 | 278 |
| | 8 a.m. | 97.4 | 84.8 | 875 |
| | 12 m. | 96.9 | 86.2 | 2,040 |
| | 6 p.m. | 96.4 | 87.5 | 3,850 |
| | 12 p.m. | 96.1 | 88.3 | 5,390 |
| 17 | 12 m. | 95.2 | 88.9 | 6,780 |
| | 6 p.m. | 94.7 | 88.9 | 6,780 |
| | 12 p.m. | 94.4 | 88.9 | 6,780 |
| 18 | 12 m. | 93.7 | 88.6 | 6,060 |
| | 12 p.m. | 93.2 | 88.1 | 4,970 |
| 19 | 12 m. | 92.7 | 87.3 | 3,520 |
| | 12 p.m. | 92.2 | 86.2 | 2,040 |
| 20 | 8 a.m. | 92.0 | 85.4 | 1,290 |
| | 4 p.m. | 91.7 | 84.5 | 714 |
| | 12 p.m. | 91.4 | 83.3 | 321 |
| 21 | 8 a.m. | 91.1 | 82.0 | 129 |
| | 4 p.m. | 90.9 | 80.8 | 73 |
| | 12 p.m. | 90.8 | 80.0 | 55 |
| 22 | 12 m. | 90.6 | 79.4 | 45 |
| | 12 p.m. | - | 78.9 | 37 |
| 23 | 12 m. | - | 78.6 | 32 |
| | 12 p.m. | - | 78.3 | 28 |
| 24 | 12 m. | - | 78.1 | 26 |
| | 12 p.m. | - | 77.8 | 22 |
| 25 | 12 m. | - | 77.6 | 20 |
| | 12 p.m. | - | 77.2 | 16 |
| 26 | 12 m. | - | 76.9 | 13 |
| | 12 p.m. | - | 76.6 | 10 |
| 27 | 12 m. | - | 76.4 | 9 |
| | 12 p.m. | - | 76.2 | 7 |
| 28 | 12 m. | - | 76.1 | 7 |
| | 12 p.m. | - | 76.0 | 6 |

730. 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. Supplementary 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 1958.

Gages.--Water-stage recorders. Datum of all gages is mean sea level, datum of 1929, Galveston-Houston supplementary adjustment and Houston supplementary adjustment of 1943.

Extremes.--Maximum elevation at dam during year, 92.8 ft Oct. 16, 17 (contents, 5,610 acre-ft); maximum at gage on South Mayde Creek, 107.4 ft Oct. 15; maximum at gage on Langham Creek, 102.4 ft Oct. 15.

1948-58: Maximum elevation at dam, 94.3 ft July 31, 1954; maximum at gage on South Mayde Creek, that of Oct. 15, 1957; maximum at gage on Langham Creek, 102.8 ft July 30 or 31, 1954.

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 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; from floodmarks, from information by local residents.

Remarks.--Reservoir is formed by rolled-fill earthen-type dam 61,166 ft long. Dam completed in the 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 5 concrete conduits, 2 of which are uncontrolled. The middle conduit is controlled by 2 vertical-lift gates; the 2 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 elevations 73.0 (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 elevation record at dam furnished by Corps of Engineers.

Elevation and contents, at indicated time when flood runoff was partly stored in reservoir, during period in October, November 1957, and January 1958

| Date | Time | Elevation on South Mayde Creek (feet) | Elevation on Langham Creek (feet) | Elevation at dam (feet) | Contents (acre-feet) |
|---|---|---|---|---|---|
| Oct. 14 | 10 p.m. | 103.0 | 100.0 | 75.6 | 6 |
| | 12 p.m. | 102.7 | 100.3 | 76.4 | 9 |
| 15 | 6 a.m. | 102.3 | 100.6 | 76.9 | 13 |
| | 10 a.m. | 105.9 | 100.5 | 76.8 | 12 |
| | 12 m. | 106.8 | 100.6 | 77.5 | 17 |
| | 2 p.m. | 107.1 | 101.1 | 79.6 | 40 |
| | 4 p.m. | 107.4 | 101.7 | 81.5 | 72 |
| | 6 p.m. | 107.4 | 102.3 | 82.8 | 100 |
| | 8 p.m. | 107.4 | 102.4 | 84.5 | 157 |
| | 10 p.m. | 107.3 | 102.4 | 86.5 | 385 |
| | 12 p.m. | 107.2 | 102.3 | 88.6 | 1,070 |
| 16 | 2 a.m. | 107.2 | 102.2 | 90.0 | 2,020 |
| | 6 a.m. | 107.0 | 102.0 | 91.5 | 3,570 |
| | 8 a.m. | 106.9 | 101.9 | 92.0 | 4,260 |
| | 12 m. | 106.8 | 101.7 | 92.5 | 5,060 |
| | 8 p.m. | 106.6 | 101.4 | 92.8 | 5,610 |
| | 12 p.m. | 106.4 | 101.2 | 92.8 | 5,610 |
| 17 | 12 m. | 105.9 | 100.9 | 92.3 | 4,720 |
| | 12 p.m. | 105.0 | 100.6 | 91.6 | 3,700 |
| 18 | 8 a.m. | 104.1 | 100.4 | 91.0 | 2,970 |
| | 4 p.m. | 103.2 | 100.2 | 90.3 | 2,280 |
| | 12 p.m. | 102.5 | 99.9 | 89.4 | 1,560 |
| 19 | 6 a.m. | 102.0 | 99.5 | 88.3 | 923 |
| | 12 m. | 101.6 | 98.9 | 87.0 | 492 |
| | 4 p.m. | 101.3 | 98.5 | 85.0 | 189 |
| | 8 p.m. | 101.1 | 98.0 | 83.0 | 105 |
| | 12 p.m. | 100.8 | 97.6 | 81.3 | 68 |
| 20 | 4 a.m. | 100.6 | 97.2 | 80.0 | 46 |
| | 8 a.m. | 100.4 | 96.8 | 78.6 | 28 |
| | 12 m. | 100.2 | 96.5 | 77.5 | 17 |
| | 6 p.m. | 99.9 | 96.1 | 76.7 | 11 |
| | 12 p.m. | 99.7 | 95.8 | 76.0 | 7 |
| Nov. 22 | 7 a.m. | 100.5 | 98.9 | 76.5 | 10 |
| | 10 a.m. | 103.0 | 100.0 | 77.5 | 17 |
| | 6 p.m. | 105.6 | 100.8 | 78.9 | 32 |
| | 12 p.m. | 105.3 | 100.8 | 79.6 | 40 |
| 23 | 6 a.m. | 104.8 | 100.6 | 80.7 | 57 |
| | 12 m. | 104.9 | 100.5 | 81.6 | 74 |
| | 6 p.m. | 104.8 | 100.5 | 81.7 | 76 |
| | 12 p.m. | 104.7 | 100.5 | 81.5 | 72 |
| 24 | 12 m. | 104.7 | 100.5 | 81.2 | 66 |
| | 12 p.m. | 103.5 | 100.2 | 80.7 | 57 |
| 25 | 12 m. | 102.4 | 99.7 | 79.8 | 43 |
| | 12 p.m. | 101.6 | 98.7 | 78.8 | 30 |

730. Addicks Reservoir near Addicks, Tex.--Continued

Elevation and contents, at indicated time when flood runoff was partly stored in reservoir, during period in October, November 1957, and January 1958--Continued

| Date | Time | Elevation on South Mayde Creek (feet) | Elevation on Langham Creek (feet) | Elevation at dam (feet) | Contents (acre-feet) |
|---|---|---|---|---|---|
| Nov. 26 | 12 m. | 100.9 | 97.5 | 78.0 | 22 |
| | 12 p.m. | 100.4 | 96.8 | 77.0 | 13 |
| 27 | 12 m. | 99.8 | 96.3 | 76.3 | 9 |
| | 12 p.m. | 99.5 | 95.9 | 76.0 | 7 |
| 28 | 12 m. | 99.1 | 95.6 | 75.6 | 6 |
| | 12 p.m. | 98.7 | 95.2 | 75.4 | 5 |
| Jan. 20 | 8 a.m. | 97.4 | 97.0 | 76.2 | 8 |
| | 12 m. | 104.5 | 100.4 | 78.8 | 30 |
| | 6 p.m. | 105.9 | 101.4 | 80.1 | 48 |
| | 12 p.m. | 105.8 | 101.2 | 82.0 | 82 |
| 21 | 6 a.m. | 105.2 | 100.9 | 84.4 | 151 |
| | 12 m. | 104.4 | 100.7 | 84.9 | 182 |
| | 6 p.m. | 103.5 | 100.6 | 84.7 | 168 |
| | 12 p.m. | 102.6 | 100.4 | 84.0 | 135 |
| 22 | 6 a.m. | 101.8 | 100.2 | 82.5 | 93 |
| | 12 m. | 101.3 | 100.0 | 81.0 | 63 |
| | 12 p.m. | 100.3 | 99.2 | 79.0 | 33 |
| 23 | 6 a.m. | 99.9 | 98.5 | 78.4 | 26 |
| | 12 m. | 101.1 | 99.1 | 78.4 | 26 |
| | 12 p.m. | 103.8 | 100.4 | 79.1 | 34 |
| 24 | 12 m. | 102.5 | 100.2 | 79.8 | 43 |
| | 12 p.m. | 101.3 | 99.5 | 79.4 | 38 |
| 25 | 12 m. | 100.5 | 98.2 | 78.5 | 27 |
| | 12 p.m. | 99.8 | 97.2 | 77.4 | 16 |
| 26 | 12 m. | 99.1 | 96.3 | 76.3 | 9 |
| | 12 p.m. | 98.6 | 95.8 | 75.8 | 6 |

## 735. 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 works 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 1958.

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.--13 years, 160 cfs (115,800 acre-ft per year).

Extremes.--Maximum discharge during year, 6,470 cfs Oct. 17 (gage height, 71.05 ft); minimum daily, 1.9 cfs Apr. 8.

1945-58: Maximum discharge, 11,200 cfs Aug. 29, 1945 (gage height, 81.23 ft, at former site); 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 except those for periods of no gage-height record, which are fair. Floodflow regulated by Barker and Addicks Reservoirs (see p. 123, 124). Extreme low flow sustained by drainage from irrigated lands.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 10-13)

| | | | | | |
|---|---|---|---|---|---|
| 49.0 | 1.9 | 50.5 | 73 | 60.0 | 1,720 |
| 49.2 | 5.6 | 51.0 | 116 | 64.0 | 2,990 |
| 49.4 | 11 | 52.0 | 222 | 68.0 | 4,690 |
| 49.7 | 24 | 54.0 | 495 | 71.0 | 6,470 |
| 50.0 | 40 | 57.0 | 1,020 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100 | 29 | 216 | 18 | 165 | 61 | *2.8 | 4.2 | 47 | 9.3 | 9.6 | 50 |
| 2 | 80 | 26 | 150 | *15 | 120 | 65 | 2.7 | 4.0 | 24 | 7.4 | 6.4 | 48 |
| 3 | 60 | 21 | *116 | 12 | 85 | 46 | 2.7 | 5.0 | 13 | 7.6 | 6.8 | 46 |
| 4 | 50 | 17 | 94 | 11 | 62 | 34 | 2.7 | 34 | 11 | 5.8 | 9.3 | 44 |
| 5 | 45 | 14 | 73 | 9.3 | 51 | 28 | 2.4 | 87 | 16 | 6.6 | 7.6 | *42 |
| 6 | 40 | 14 | 62 | 40 | *44 | 20 | 2.2 | 63 | *31 | 8.1 | 7.8 | 54 |
| 7 | 35 | *35 | 64 | 120 | 39 | *22 | 2.1 | *36 | 20 | 9.6 | *13 | 147 |
| 8 | 30 | 236 | 58 | 112 | 31 | 19 | 1.9 | 22 | 18 | *15 | 17 | 394 |
| 9 | 25 | 160 | 46 | 66 | 25 | 14 | 4.4 | 15 | 9.3 | 16 | 16 | 345 |
| 10 | *85 | 84 | 36 | 44 | 143 | 12 | 4.4 | 11 | 7.6 | 20 | 20 | 266 |
| 11 | 65 | 59 | 28 | 31 | 420 | 9.6 | 2.7 | 8.7 | 7.8 | 30 | 20 | 176 |
| 12 | 116 | 77 | 22 | 116 | 500 | 9.0 | 2.8 | 9.6 | 5.2 | 35 | 26 | 135 |
| 13 | 28 | 209 | 19 | 555 | 420 | 7.6 | 14 | 5.0 | 4.6 | 28 | 26 | 94 |
| 14 | 113 | 366 | 15 | 510 | 390 | 6.6 | 186 | 3.8 | 6.8 | 18 | 35 | 70 |
| 15 | 2,180 | 272 | 14 | 345 | 408 | 5.6 | 266 | 4.6 | 6.8 | 11 | 37 | 56 |
| 16 | *5,580 | 170 | 13 | 222 | 318 | 5.6 | 165 | 7.4 | 6.1 | 13 | 32 | 66 |
| 17 | 6,280 | 112 | 12 | 145 | 187 | 6.4 | 70 | 9.6 | 7.2 | 12 | 30 | 88 |
| 18 | 5,580 | 386 | 12 | 105 | 120 | 5.4 | 29 | 8.7 | 95 | 8.7 | 30 | 78 |
| 19 | 4,740 | 436 | 12 | 86 | 79 | 6.6 | 22 | 13 | 79 | 6.8 | 26 | 73 |
| 20 | 2,860 | 252 | 13 | 1,160 | 58 | 6.8 | 12 | 16 | 44 | 6.1 | 28 | 70 |
| 21 | 1,330 | 165 | 11 | 2,240 | 48 | 5.6 | 7.8 | 9.0 | 27 | 5.6 | 26 | 70 |
| 22 | 771 | 769 | 11 | 2,000 | 336 | 5.2 | 6.1 | 5.8 | 21 | 4.2 | 33 | 1,200 |
| 23 | 667 | 1,560 | 10 | 1,440 | 882 | 12 | 5.2 | 6.8 | 20 | 4.6 | 51 | 1,100 |
| 24 | 540 | 1,970 | 9.3 | 1,490 | 789 | 9.3 | 4.8 | 11 | 21 | 7.6 | 82 | 900 |
| 25 | 352 | 1,750 | 9.3 | 1,320 | 586 | 7.1 | 4.0 | 29 | 15 | 12 | 81 | 600 |
| 26 | 216 | 1,280 | 9.6 | 901 | 394 | 5.4 | 4.0 | 44 | 9.0 | 9.6 | 75 | 400 |
| 27 | 140 | 863 | 17 | 602 | 252 | 8.1 | 3.8 | 29 | 6.8 | 3.6 | 75 | 300 |
| 28 | 94 | 634 | 33 | 436 | 165 | 7.8 | 3.6 | 31 | 7.1 | 5.4 | 65 | 150 |
| 29 | 66 | 480 | 33 | 422 | -- | 4.8 | 4.0 | 161 | 7.4 | 6.1 | 62 | 100 |
| 30 | 51 | 338 | 31 | 338 | ------- | 3.6 | 4.2 | 170 | 12 | 7.6 | 60 | 80 |
| 31 | 40 | ------- | 24 | 246 | ------- | 3.1 | ------- | 98 | ------- | 8.4 | 55 | ------- |
| Total | 32,359 | 12,784 | 1,273.2 | 15,157.3 | 7,117 | 462.2 | 845.3 | 962.2 | 605.7 | 348.7 | 1,068.5 | 7,242 |
| Mean | 1,044 | 426 | 41.1 | 489 | 254 | 14.9 | 28.2 | 31.0 | 20.2 | 11.2 | 34.5 | 241 |
| Ac-ft | 64,180 | 25,360 | 2,530 | 30,060 | 14,120 | 917 | 1,680 | 1,910 | 1,200 | 692 | 2,120 | 14,360 |

Calendar year 1957: Max 6,280 Min 0 Mean 228 Ac-ft 165,200
Water year 1957-58: Max 6,280 Min 1.9 Mean 220 Ac-ft 159,100

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 1-9, Feb. 11-14, Aug. 30 to Sept. 4, 20-30; discharge estimated on basis of weather records and records for stations at Barker and Addicks Reservoirs and Buffalo Bayou at Houston.

## 740. Buffalo Bayou at Houston, Tex.

Location.--Lat 29°45'42", long 95°23'54", 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 and New Orleans Railroad Co. bridge and 3.1 miles upstream from Whiteoak Bayou.

Drainage area.--362 sq mi.

Records available.--May 1936 to September 1957, October 1957 to September 1958 (high-water records and discharge measurements).

Gage.--Water-stage recorder. Datum of gage is 4.08 ft below mean sea level, datum of 1929, unadjusted for ground surface subsidence resulting from heavy ground-water withdrawals. Prior to June 19, 1936, reference point on upstream side of bridge at same datum.

Average discharge.--21 years (1936-57), 243 cfs (175,900 acre-ft per year).

Extremes.--Maximum discharge during year, about 7,200 cfs Oct. 18 (gage height, about 22.5 ft, from graph based on outside staff-gage readings); minimum not determined (affected by tides); minimum gage height, 5.84 ft Apr. 7.

1936-58: Maximum discharge, 10,900 cfs Aug. 30, 1945 (gage height, 34.23 ft); minimum not determined after September 1957 (affected by tides).

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 above 2,000 cfs and fair below, except for periods of backwater from Whiteoak Bayou and no gage-height record, which are poor. Discharge not computed below gage height 12.0 ft because tides affect stage-discharge relation. Floodflow regulated by Barker and Addicks Reservoirs (see p. 123, 124).

Revisions.--WSP 1038: Drainage area.

Rating table, water year 1957-58, except period of backwater (gage height, in feet, and discharge, in cubic feet per second)

| | |
|---|---|
| 12.0 | 1,060 |
| 14.0 | 1,680 |
| 17.0 | 3,000 |
| 20.0 | 5,100 |
| 22.5 | 7,150 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | - | | - | | - | | | - | | | |
| 2 | - | - | | - | | - | | | - | | | |
| 3 | - | - | | †29 | | - | | | - | | | |
| 4 | - | †49 | | - | | - | | | - | | | |
| 5 | - | - | | - | | - | | | - | | | |
| 6 | - | - | | - | †71 | - | | | †20 | | | |
| 7 | - | - | | - | | †28 | | | - | †48 | †15 | |
| 8 | - | †341 | | - | | - | | †53 | - | | | |
| 9 | - | - | | - | | - | | | †30 | | | |
| 10 | - | - | | - | | - | | | - | | | |
| 11 | - | - | | - | | - | | | - | | | |
| 12 | - | - | | - | | - | | | - | | | |
| 13 | - | - | | - | | - | | | - | | | |
| 14 | - | †646 | | - | | - | †664 | | - | | | |
| 15 | *c2,450 | - | | - | | - | | | - | | | |
| 16 | c5,340 | - | | - | | - | | | - | | | |
| 17 | *6,880 | - | †34 | - | | - | | | - | | | |
| 18 | a7,100 | - | | - | | - | | | - | | | |
| 19 | a6,000 | - | | - | | - | | | - | | | |
| 20 | a3,000 | - | | 1,640 | | - | | | - | | | |
| 21 | a2,000 | - | | 1,920 | | - | | | - | | | |
| 22 | a1,300 | - | | 2,400 | | - | | | - | | | |
| 23 | - | 1,330 | | 2,360 | | - | | | - | | | |
| 24 | - | 1,820 | | 1,860 | | - | | | - | | | |
| 25 | - | 2,070 | | 1,680 | | - | | | - | | | |
| 26 | - | 1,920 | | 1,420 | | - | | | - | | | |
| 27 | - | 1,540 | | - | | - | | | - | | | |
| 28 | - | 1,120 | | - | | - | | | - | | | |
| 29 | - | - | | - | - | - | | | - | | | |
| 30 | - | | | - | ------- | - | | | - | | | |
| 31 | - | ------- | | - | ------- | †17 | ------- | | ------- | | | ------- |
| Total | - | - | - | - | - | - | - | - | - | - | - | - |
| Mean | - | - | - | - | - | - | - | - | - | - | - | - |
| Ac-ft | - | - | - | - | - | - | - | - | - | - | - | - |

Calendar year 1957: Max 7,100 Min - Mean - Ac-ft -
Water year 1957-58: Max 7,100 Min - Mean - Ac-ft -

* Discharge measurement made on this day.
† Result of discharge measurement.
a No gage-height record; discharge estimated on basis of weather records and record for Buffalo Bayou near Addicks.
c Backwater from Whiteoak Bayou.
Note.--Tidal backwater affects the stage-discharge relationship below 12.0 ft. Days shown with less then 1,060 cfs are individual measurements and do not necessarily represent the mean daily flow.

## 745. 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 and New Orleans Railroad Co. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 4.08 ft below mean sea level, datum of 1929, unadjusted for ground surface subsidence resulting from heavy ground-water withdrawals. Prior to June 17, 1936, reference point at same site and datum.

Average discharge.--22 years, 67.9 cfs (49,160 acre-ft per year).

Extremes.--Maximum discharge during year, 5,320 cfs Oct. 15 (gage height, 40.58 ft); minimum daily recorded, 1.8 cfs July 20, 21.
1936-58: 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 fair except those for period of no gage-height record, which are poor. Low flow partly sustained by industrial waste. No diversion above station.

Revisions.--WSP 1038: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | a12 | a7 | a26 | a8 | a30 | a20 | 3.6 | 3.4 | 6.9 | a3 | 2.4 | 3.4 |
| 2 | a11 | a7 | a20 | a9 | a20 | a17 | 4.2 | 3.1 | 3.9 | *3.6 | 2.4 | 2.3 |
| 3 | a10 | a7 | a16 | a7 | a15 | *a15 | 3.6 | 21 | 3.1 | 2.4 | 2.4 | 4.4 |
| 4 | a10 | a6 | a15 | a7 | a13 | a13 | 3.1 | 20 | 2.6 | 3.1 | 47 | 2.6 |
| 5 | a9 | a6 | a14 | a8 | a13 | a12 | 3.1 | 14 | 2.6 | 3.1 | 13 | 8.6 |
| 6 | a9 | a10 | a20 | *a40 | a20 | a15 | 3.6 | 5.6 | 3.1 | 21 | 3.6 | 62 |
| 7 | a8 | 144 | a40 | a30 | a15 | a11 | 2.9 | 4.4 | 3.4 | *32 | 3.9 | 158 |
| 8 | a8 | a60 | a15 | a22 | a13 | a8 | 2.4 | 3.4 | 3.6 | 9.4 | 5.2 | *66 |
| 9 | a8 | a30 | a14 | a17 | a12 | a6 | 216 | 2.9 | 2.6 | 34 | 4.7 | *19 |
| 10 | *21 | a20 | a12 | a12 | a100 | a5 | 14 | 2.9 | 2.4 | 13 | 42 | *15 |
| 11 | 8.1 | a15 | a9 | a8 | a80 | a6 | 4.9 | a3 | *2.4 | 9.4 | *13 | 12 |
| 12 | 4.9 | a10 | a9 | 195 | a60 | *7.7 | 4.7 | a3 | a2.5 | 6.0 | a10 | 8.6 |
| 13 | 3.6 | 247 | a9 | 348 | a50 | 6.5 | 40 | *3.4 | a2.5 | 5.2 | 91 | 7.3 |
| 14 | 342 | *268 | a10 | 144 | a150 | 6.9 | *361 | a3 | 2.9 | 3.9 | a20 | 4.7 |
| 15 | 2,380 | a80 | a9 | 72 | a80 | 5.6 | 130 | a3 | 3.6 | 2.9 | a10 | 17 |
| 16 | 2,960 | a50 | a9 | 39 | a60 | 4.2 | 28 | a3 | 3.4 | 3.9 | 7.7 | 9.4 |
| 17 | *1,250 | a30 | a9 | 24 | a30 | 9.0 | 12 | a3 | 4.2 | 3.6 | 4.7 | 8.6 |
| 18 | *594 | 420 | a8 | 14 | a20 | 8.6 | 9.0 | 7.3 | 154 | 3.4 | 5.6 | 16 |
| 19 | 254 | 174 | a16 | 17 | a15 | 6.5 | 5.6 | 4.9 | 425 | 2.4 | 5.6 | 15 |
| 20 | a100 | *53 | a10 | 1,070 | a13 | 4.9 | 4.9 | 4.2 | a100 | 1.8 | 5.2 | 374 |
| 21 | a50 | 66 | a7 | 917 | a12 | 4.7 | 5.6 | 3.6 | a20 | 1.8 | 11 | 552 |
| 22 | a60 | 751 | a6 | 526 | 467 | 5.6 | 4.7 | 3.6 | a8 | 2.3 | 22 | a100 |
| 23 | a80 | 640 | a8 | 571 | 531 | 36 | 3.6 | 3.6 | a5 | 2.3 | a15 | a50 |
| 24 | a60 | 511 | a8 | 508 | 256 | 11 | 3.4 | 3.4 | a3 | 2.3 | a10 | a20 |
| 25 | a40 | 279 | a16 | 279 | a100 | 6.5 | 3.9 | 2.4 | a3 | 2.2 | 16 | a10 |
| 26 | a30 | a168 | a12 | a150 | a70 | 5.6 | 3.9 | 2.9 | a3 | 2.2 | 15 | a7 |
| 27 | a20 | a100 | a55 | a100 | a60 | 5.2 | 3.1 | 2.9 | a3 | 2.2 | 16 | a5 |
| 28 | a15 | a68 | a55 | a80 | a30 | 5.6 | 3.4 | a3 | a3 | 2.2 | 8.1 | a4 |
| 29 | a10 | a50 | a26 | a90 | - | 6.9 | 3.4 | 8.6 | a3 | 2.4 | 8.1 | a4 |
| 30 | a9 | a36 | a16 | a70 | ------- | 3.9 | 3.9 | 69 | a3 | 2.2 | 6.9 | a4 |
| 31 | a8 | ------- | a16 | a50 | ------- | *3.9 | ------- | 14 | ------- | 2.3 | 4.2 | ------- |
| Total | 8,384.6 | 4,313 | 515 | 5,432 | 2,335 | 282.8 | 895.5 | 235.5 | 788.7 | 191.5 | 431.7 | 1,569.9 |
| Mean | 270 | 144 | 16.6 | 175 | 83.4 | 9.12 | 29.8 | 7.60 | 26.3 | 6.18 | 13.9 | 52.3 |
| Ac-ft | 16,630 | 8,550 | 1,020 | 10,770 | 4,630 | 561 | 1,780 | 467 | 1,560 | 380 | 856 | 3,110 |

Calendar year 1957: Max 2,960 Min 0.9 Mean 71.2 Ac-ft 51,550
Water year 1957-58: Max 2,960 Min 1.8 Mean 69.5 Ac-ft 50,310

Peak discharge (base, 820 cfs).--Oct. 15 (6 p.m.) 5,320 cfs (40.58 ft); Nov. 22 (12 m.) 1,000 cfs (26.81 ft); Jan. 20 (3 p.m.) 1,780 cfs (30.83 ft); Apr. 14 (9:30 a.m.) 950 cfs (26.48 ft); June 19 (2 a.m.) 1,440 cfs (29.20 ft); Sept. 21 (2 p.m.) 1,200 cfs (27.88 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records, engineers' notes, discharge measurements, recorded range in stage, and records for nearby stations.

## 750. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 3.90 ft below mean sea level, datum of 1929, unadjusted for ground surface subsidence resulting from heavy ground-water withdrawals. Prior to June 20, 1936, reference point on bridge at same site and datum.

Average discharge.--22 years, 83.3 cfs (60,310 acre-ft per year).

Extremes.--Maximum discharge during year, 5,100 cfs Oct. 15 (gage height, 47.48 ft); minimum daily, 0.1 cfs Mar. 14, Apr. 1, caused by construction work upstream from gage. 1936-58: Maximum discharge, 8,120 cfs Nov. 2, 1943; maximum gage height, 51.70 ft Aug. 28, 1945; minimum daily discharge, 0.1 cfs Oct. 11, 12, 1937, Mar. 14, Apr. 1, 1958.

Maximum stage known since at least 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 8 miles downstream from gage; furnished by city of Houston.

Remarks.--Records fair. No diversion above station. Low flow partly maintained by sewage effluent from Houston suburbs and was partially regulated for most of year by construction dams upstream from gage.

Revisions.--WSP 1038: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | a12 | 24 | 6.1 | 33 | 29 | 0.1 | 15 | 19 | 21 | 16 | 22 |
| 2 | 10 | a12 | 22 | 9.6 | 26 | 26 | *29 | 15 | 15 | *35 | 15 | 22 |
| 3 | 10 | a25 | 20 | 10 | 22 | *26 | 30 | 13 | 12 | 30 | 19 | 23 |
| 4 | 10 | 23 | 18 | 8.5 | 19 | 23 | 19 | 15 | 12 | 20 | 22 | 22 |
| 5 | 9.8 | a15 | 17 | 13 | 19 | 22 | 17 | 15 | 15 | 16 | 22 | 26 |
| 6 | 9.4 | 57 | 19 | 48 | 26 | 30 | 16 | 12 | 20 | 16 | 22 | *76 |
| 7 | 10 | 95 | 58 | *21 | 19 | 23 | 16 | 15 | 19 | 33 | 24 | 110 |
| 8 | 9.8 | 178 | 21 | 17 | 15 | 18 | 16 | *14 | 18 | 25 | 22 | 81 |
| 9 | 12 | a300 | 17 | 14 | 13 | 16 | 43 | 12 | 19 | 28 | 26 | 29 |
| 10 | 12 | a100 | 16 | 13 | 53 | 3.2 | 37 | 12 | 18 | 38 | 28 | *63 |
| 11 | 11 | a50 | 14 | 12 | 69 | 15 | 36 | 11 | *21 | 49 | *64 | 48 |
| 12 | 11 | a20 | 14 | 120 | 89 | 19 | 42 | 8.3 | 20 | 51 | 34 | 19 |
| 13 | 11 | a150 | 14 | 279 | 62 | 1.8 | 44 | 16 | 19 | 50 | 48 | 17 |
| 14 | 284 | a100 | 12 | 161 | 91 | .1 | *422 | 12 | 19 | 39 | 75 | 17 |
| 15 | 2,010 | a80 | 12 | 54 | 93 | 8.3 | 225 | 12 | 18 | 31 | 34 | 23 |
| 16 | *1,970 | a70 | 12 | 33 | 59 | 1.8 | 89 | 12 | 19 | 25 | a25 | 26 |
| 17 | *994 | a200 | 12 | 22 | 33 | 23 | 44 | 23 | 25 | 28 | a22 | 17 |
| 18 | *620 | a1,500 | 11 | 18 | 27 | 26 | 28 | 34 | 30 | 23 | a20 | 18 |
| 19 | 361 | a400 | 12 | 21 | 21 | 20 | 22 | 29 | 30 | 20 | a18 | 19 |
| 20 | 130 | *132 | 12 | 934 | 21 | 32 | 31 | 25 | 28 | 27 | a18 | 427 |
| 21 | 51 | 70 | 10 | 772 | 23 | 14 | 20 | 22 | 22 | 22 | 17 | 1,220 |
| 22 | 61 | 1,150 | 10 | 441 | 712 | 20 | 17 | 14 | 24 | 18 | *17 | 132 |
| 23 | 78 | 1,040 | 10 | 566 | 700 | 40 | 14 | 22 | 23 | 19 | 17 | 50 |
| 24 | 63 | 705 | 10 | 529 | 289 | 39 | 16 | 16 | 22 | 22 | 42 | 34 |
| 25 | 31 | 344 | 16 | 223 | 120 | 37 | 16 | 8.3 | 21 | 20 | *31 | 20 |
| 26 | 20 | 168 | 15 | 96 | 72 | 15 | 15 | 1.8 | 20 | 20 | 26 | 16 |
| 27 | a16 | 86 | 28 | 68 | 51 | 1.8 | 6.0 | 11 | 21 | 20 | 28 | 8.3 |
| 28 | a14 | 57 | 26 | 81 | 38 | 5.0 | 22 | 12 | 18 | 20 | 28 | 3.5 |
| 29 | a12 | 41 | 13 | 89 | - | 19 | 15 | 12 | 10 | 19 | 25 | 3.6 |
| 30 | a12 | 31 | 12 | 69 | ------- | 36 | 14 | 98 | 13 | 18 | 24 | 26 |
| 31 | a12 | ------- | 11 | 43 | ------- | *11 | ------- | 33 | ------- | 16 | 22 | ------- |
| Total | 6,875.0 | 7,209 | 518 | 4,791.2 | 2,815 | 601.0 | 1,361.1 | 570.4 | 590 | 819 | 851 | 2,618.4 |
| Mean | 222 | 240 | 16.7 | 155 | 101 | 18.4 | 45.4 | 19.4 | 19.7 | 26.4 | 27.5 | 87.3 |
| Ac-ft | 13,640 | 14,300 | 1,030 | 9,500 | 5,580 | 1,190 | 2,700 | 1,130 | 1,170 | 1,620 | 1,690 | 5,190 |

Calendar year 1957: Max 2,010 Min 7 Mean 85.6 Ac-ft 61,990
Water year 1957-58: Max 2,010 Min 0.1 Mean 81.1 Ac-ft 58,740

Peak discharge (base, 1,300 cfs).--Oct. 15 (4:30 p.m.) 5,100 cfs (47.48 ft); Nov. 18 (time unknown) 2,810 cfs (41.73 ft); Nov. 22 (2 p.m.) 1,910 cfs (39.50 ft); Jan. 20 (1:30 p.m.) 1,620 cfs (38.05 ft); Sept. 21 (2 a.m.) 2,320 cfs (40.28 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records, recorded range in stage, engineers' notes, and records for nearby stations.

## 755. Sims Bayou at Houston, Tex.

Location.--Lat 29°40'27", long 95°17'21", on left bank at downstream side of bridge on State Highway 35 in southeast section of Houston, Harris County, 5.6 miles upstream from mouth.

Drainage area.--64.0 sq mi.

Records available.--October 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 0.61 ft below mean sea level, datum of 1929, adjustment of 1957.

Average discharge.--6 years, 38.6 cfs (27,950 acre-ft per year).

Extremes.--Maximum discharge during year, 5,050 cfs Oct. 15 (gage height, 23.22 ft); minimum daily, 5.0 cfs July 14.
1952-58: Maximum discharge, that of Oct. 15, 1957; minimum daily, 0.9 cfs Aug. 7, 1955.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Low flow is largely sewage effluent from Houston suburbs and drainage from lands irrigated with ground water. Diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | a9 | 15 | a15 | 9.8 | 17 | a15 | 8.4 | 8.1 | a8 | 14 | 7.2 | 6.8 |
| 2 | a9 | 14 | a12 | 8.8 | 14 | a13 | 8.8 | 8.1 | a8 | 278 | 7.0 | 6.7 |
| 3 | a8 | 12 | a10 | *8.4 | 12 | a12 | 8.6 | 11 | a8 | 48 | 7.2 | 7.2 |
| 4 | a8 | 15 | 7.9 | 8.8 | *11 | a12 | 8.4 | 11 | a8 | 10 | 7.2 | 7.2 |
| 5 | a8 | 14 | 7.8 | 9.3 | 11 | 12 | 8.1 | 7.4 | a7 | 7.4 | 8.4 | 6.4 |
| 6 | a8 | 19 | 7.4 | 20 | 12 | 14 | 8.4 | 7.0 | a7 | 12 | 8.9 | *81 |
| 7 | a7 | 36 | 22 | 15 | 11 | 13 | 7.4 | 6.6 | a7 | 65 | 7.4 | *179 |
| 8 | a7 | 330 | 83 | a14 | 10 | 12 | 7.6 | 6.6 | a7 | 27 | 7.2 | 255 |
| 9 | a7 | a200 | 31 | 12 | 9.8 | 11 | 77 | 6.6 | a7 | 15 | 7.8 | 85 |
| 10 | a7 | a100 | a15 | 12 | 42 | 11 | 15 | 6.7 | a7 | 21 | 11 | *28 |
| 11 | *6.7 | a50 | a10 | 12 | 66 | 11 | 8.6 | 6.6 | *6.8 | 16 | 8.4 | 17 |
| 12 | a7 | a30 | a8 | 60 | 116 | 11 | 7.6 | 6.7 | 6.6 | 7.4 | 7.6 | 20 |
| 13 | a7 | a600 | a7 | 138 | a60 | 11 | 13 | *6.6 | 6.4 | 6.7 | 11 | 16 |
| 14 | 297 | *577 | a6 | 40 | a200 | 11 | *238 | 6.6 | a6 | *5.0 | 12 | 12 |
| 15 | *2,450 | 221 | a6 | 18 | a150 | 11 | *a75 | a7 | a6 | 5.5 | 8.4 | 11 |
| 16 | *2,680 | 111 | a6 | 12 | a80 | 11 | a30 | a7 | a6 | 5.8 | 7.2 | 10 |
| 17 | *678 | 75 | 5.4 | 9.1 | a40 | 16 | 13 | a7 | a6 | 5.6 | 7.0 | 222 |
| 18 | *146 | 341 | 5.6 | 8.4 | a20 | 14 | a10 | a7 | a6 | 6.3 | 6.8 | 114 |
| 19 | 55 | 253 | 6.3 | 8.4 | a15 | *11 | a9 | a20 | a6 | 6.3 | 7.6 | *36 |
| 20 | a25 | 114 | 6.7 | 904 | a10 | 10 | a9 | a14 | 5.8 | 5.5 | *7.2 | *230 |
| 21 | a20 | 73 | 7.0 | 650 | a9 | 10 | a9 | a11 | 6.4 | 5.4 | 6.8 | 2,290 |
| 22 | a15 | 897 | 6.7 | 138 | a600 | 9.6 | a9 | a10 | 8.1 | 5.5 | 6.8 | 636 |
| 23 | a40 | a1,200 | 6.4 | 467 | a700 | 11 | 8.6 | a10 | 10 | 56 | 9.6 | 132 |
| 24 | a20 | a500 | 6.4 | 464 | a300 | 10 | 8.1 | a25 | 7.4 | 15 | 46 | 42 |
| 25 | a18 | a200 | 6.6 | 116 | a100 | 9.4 | 8.4 | a15 | 7.0 | 9.3 | 18 | 23 |
| 26 | a17 | a100 | 6.4 | 53 | a60 | 9.3 | 8.4 | a13 | 6.7 | 7.4 | 9.1 | 28 |
| 27 | a16 | a70 | 6.8 | 30 | a30 | 9.3 | 8.2 | a10 | 6.7 | 7.3 | 7.2 | 21 |
| 28 | a16 | a50 | 6.6 | 26 | a20 | 9.1 | 8.1 | a20 | 6.4 | 7.9 | 7.0 | 16 |
| 29 | a16 | a30 | 47 | 42 | - | 11 | 8.2 | a12 | 6.1 | 9.1 | 6.8 | 12 |
| 30 | a15 | a20 | 22 | 29 | ------- | 10 | 8.2 | a10 | 8.9 | 8.9 | 8.2 | 13 |
| 31 | 15 | ------- | 12 | 21 | ------- | 8.8 | ------- | a9 | ------- | 8.2 | 7.0 | ------- |
| Total | 6,637.7 | 6,267 | 412.0 | 3,364.0 | 2,725.8 | 349.5 | 655.1 | 312.6 | 209.3 | 707.5 | 295.0 | 4,563.3 |
| Mean | 214 | 209 | 13.3 | 109 | 97.4 | 11.3 | 21.8 | 10.1 | 6.98 | 22.8 | 9.52 | 152 |
| Ac-ft | 13,170 | 12,430 | 817 | 6,670 | 5,410 | 693 | 1,300 | 620 | 415 | 1,400 | 585 | 9,050 |

Calendar year 1957: Max 2,970 Min 3.9 Mean 85.7 Ac-ft 62,060
Water year 1957-58: Max 2,680 Min 5.0 Mean 72.6 Ac-ft 52,560

Peak discharge (base, 850 cfs).--Oct. 15 (6:30 p.m.) 5,050 cfs (23.22 ft); Nov. 13 (6:30 p.m.) 1,070 cfs (12.42 ft); Nov. 23 (time unknown) 1,420 cfs (13.9 ft); Jan. 20 (5 p.m.) 1,610 cfs (14.48 ft); Jan. 23 (7 p.m.) 851 cfs (12.05 ft); Feb. 22 or 23 (time unknown) 1,120 cfs (12.9 ft); July 2 (4 p.m.) 1,120 cfs (12.90 ft); Sept. 21 (2 p.m.) 3,180 cfs (18.90 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records, recorded range in stage, engineers notes, and records for nearby stations.

## 760. Greens Bayou near Houston, Tex.

Location.--Lat 29°55'05", long 95°18'24", on right bank at downstream side of bridge on U. S. Highway 59, 10.5 miles northeast of Houston, Harris County, and 12.0 miles upstream from Halls Bayou.

Drainage area.--67.5 sq mi.

Records available.--October 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 0.66 ft below mean sea level, datum of 1929, adjustment of 1957.

Average discharge.--6 years, 24.5 cfs (17,740 acre-ft per year).

Extremes.--Maximum discharge during year, 3,410 cfs Oct. 16 (gage height, 62.82 ft); no flow Oct. 10.
1952-58: Maximum discharge, 7,000 cfs July 30, 1954 (gage height, 64.75 ft); no flow at times.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 16-19, Apr. 13-16, June 18, 19, Aug. 13 to Sept. 1, Sept. 8-12, 15-19, 23-24)

| | | | | | |
|---|---|---|---|---|---|
| 48.6 | 0 | 49.2 | 3.2 | 52.0 | 237 |
| 48.7 | .1 | 49.3 | 5.0 | 54.0 | 590 |
| 48.8 | .3 | 49.6 | 16 | 57.0 | 1,270 |
| 48.9 | .6 | 50.0 | 38 | 60.0 | 2,160 |
| 49.0 | 1.1 | 50.5 | 70 | 62.0 | 2,980 |
| 49.1 | 1.9 | 51.0 | 114 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.3 | 0.5 | 8.9 | 3.7 | 25 | 18 | 0.9 | 0.5 | 5.8 | 1 | 1.6 | 0.4 |
| 2 | 1.2 | .5 | 5.3 | 1.8 | 15 | 11 | .9 | 1.0 | 1.3 | 1 | 1.0 | .4 |
| 3 | 1.0 | .3 | 3.6 | .9 | 8.9 | 7.0 | .9 | 40 | 1.1 | 1 | .5 | .4 |
| 4 | .2 | .2 | 2.7 | .7 | 6.1 | 5.3 | .8 | 77 | .8 | 1 | 10 | .4 |
| 5 | .2 | .1 | 1.8 | .6 | 4.8 | 4.1 | .7 | 15 | 2.3 | 1 | 3.2 | .4 |
| 6 | .1 | .4 | 1.6 | 4.5 | 4.6 | *4.5 | .6 | 3.9 | 1.2 | 1 | .7 | .4 |
| 7 | .1 | 12 | 2.7 | 20 | 3.4 | 4.6 | .5 | 1.1 | 1.6 | *2.9 | 2.6 | 5 |
| 8 | .1 | 37 | 2.6 | 9.7 | 2.6 | 4.3 | .5 | .6 | .8 | 3.1 | 2.9 | 21 |
| 9 | .1 | 3.4 | 1.7 | 3.6 | 1.9 | 3.4 | 3.1 | .6 | .8 | 2.2 | 4.3 | 26 |
| 10 | 0 | .7 | 1.3 | 1.7 | 36 | 2.8 | 1.2 | .5 | .9 | 2.0 | 3.7 | 16 |
| 11 | .9 | .4 | .9 | 1.2 | 86 | 2.4 | .8 | .4 | .9 | 9.7 | 5.0 | 12 |
| 12 | .6 | .7 | .7 | 39 | 55 | 2.2 | .6 | .2 | .9 | 16 | 3.4 | 3.7 |
| 13 | .2 | 127 | .6 | 272 | 57 | 2.0 | 2.3 | .2 | 1.3 | 3.9 | 4.6 | 3.1 |
| 14 | 13 | 269 | .5 | 91 | 121 | 1.8 | *20 | .2 | 1.4 | 2.8 | 4.8 | 2.9 |
| 15 | 1,340 | 72 | .5 | 38 | 134 | 1.5 | 9.7 | **.2 | .9 | 1.9 | 7.8 | 2.7 |
| 16 | *2740 | 33 | .4 | 19 | 53 | 1.4 | 3.6 | .1 | 1.0 | 1.5 | 8.9 | 7.8 |
| 17 | *533 | 17 | .5 | 10 | 28 | 1.6 | 1.9 | .1 | 1.1 | .8 | 7.8 | 23 |
| 18 | 158 | 122 | .5 | 6.1 | 18 | 1.7 | 1.5 | .4 | 3.4 | 1.1 | 7.2 | 12 |
| 19 | 69 | 83 | .5 | 4.3 | 11 | 2.4 | 1.0 | .6 | *13 | .8 | 36 | 9.7 |
| 20 | 38 | 29 | .5 | 1,160 | 7.5 | 1.8 | .9 | .6 | 8 | 1.5 | 23 | 15 |
| 21 | 20 | 22 | .4 | 868 | 5.3 | *1.5 | 2.9 | .4 | 5 | 1.3 | 11 | 25 |
| 22 | 23 | 608 | .4 | 300 | 292 | 1.4 | 5.6 | 3.7 | 3 | .7 | 8.2 | 50 |
| 23 | 84 | 610 | .3 | 366 | 424 | 2.2 | 1.3 | 1.1 | 2 | .6 | 3.7 | 104 |
| 24 | *74 | 454 | .3 | *413 | 156 | 2.2 | .7 | .6 | 2 | .6 | 1.7 | 57 |
| 25 | 31 | 205 | .5 | 162 | 80 | 1.8 | .5 | 1.1 | 1 | .9 | 2.2 | 42 |
| 26 | 12 | 99 | 1.3 | 84 | 58 | 1.5 | .4 | 7.8 | 1 | .5 | 2.9 | 26 |
| 27 | 4.5 | 59 | 3.7 | 53 | 53 | 1.3 | .5 | 12 | 1 | 1.6 | *3.2 | 18 |
| 28 | 1.7 | 40 | 52 | 55 | 31 | 1.3 | 1.0 | 2.6 | 1 | 1.7 | 5.3 | 12 |
| 29 | .9 | *28 | 24 | 127 | - | 1.3 | .7 | 1.5 | 1 | .9 | 2.9 | 7.8 |
| 30 | .7 | 17 | 10 | 70 | ------- | 1.2 | .5 | 28 | 1 | 3.2 | 1.7 | 3.6 |
| 31 | .7 | ------- | 5.6 | 44 | ------- | .9 | ------- | 23 | ------- | 1.6 | .7 | ------- |
| Total | 5,149.5 | 2,950.2 | 136.3 | 4,229.8 | 1,778.1 | 100.4 | 66.5 | 225.0 | 66.5 | 69.8 | 182.5 | 507.7 |
| Mean | 166 | 98.3 | 4.40 | 136 | 63.5 | 3.24 | 2.22 | 7.26 | 2.22 | 2.25 | 5.89 | 16.9 |
| Cfsm | 2.46 | 1.46 | 0.065 | 2.01 | 0.940 | 0.048 | 0.033 | 0.108 | 0.033 | 0.033 | 0.087 | 0.250 |
| In. | 2.84 | 1.62 | 0.08 | 2.33 | 0.98 | 0.06 | 0.04 | 0.12 | 0.04 | 0.04 | 0.10 | 0.28 |
| Ac-ft | 10,210 | 5,850 | 270 | 8,390 | 3,530 | 199 | 132 | 446 | 132 | 138 | 362 | 1,010 |

Calendar year 1957: Max 2,740 Min 0 Mean 38.0 Cfsm 0.563 In. 7.64 Ac-ft 27,500
Water year 1957-58: Max 2,740 Min 0 Mean 42.4 Cfsm 0.628 In. 8.53 Ac-ft 30,670

Peak discharge (base, 700 cfs).--Oct. 16 (7 to 8 a.m.) 3,410 cfs (62.82 ft); Nov. 22 (4 p.m.) 974 cfs (55.85 ft); Jan. 20 (5 p.m.) 2,060 cfs (59.67 ft).

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

Note.--No gage-height record June 20 to July 6, Sept. 2-7, 13, 14, 20-22, 27, 28; discharge estimated on basis of weather records, engineers notes, and record for Halls Bayou at Houston. Discharge computed from once-daily tape-gage readings Sept. 8-12, 15-19, 23-26, 29, 30.

## 765. Halls Bayou at Houston, Tex.

Location.--Lat 29°51'42", long 95°20'05", on right bank at downstream side of bridge on Jensen Drive (formerly U. S. Highway 59), in northeast section of Houston, Harris County, 11.0 miles upstream from mouth.

Drainage area.--26.2 sq mi.

Records available.--October 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 0.66 ft below mean sea level, datum of 1929, adjustment of 1957.

Average discharge.--6 years, 11.1 cfs (8,040 acre-ft per year).

Extremes.--Maximum discharge during year, 1,280 cfs Oct. 15 (gage height, 57.09 ft); minimum recorded, 0.3 cfs Aug. 2, 3.
1952-58: Maximum discharge, 2,410 cfs May 18, 1953, from rating curve extended above 400 cfs by logarithmic plotting; maximum gage height, 60.65 ft July 30, 1954; no flow at times.

Remarks.--Records fair. No diversion above station. Low flow is partly sustained by sewage effluent from Houston suburbs.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 14 to Nov. 22, Nov. 25 to Jan. 20, Jan. 22 to Feb. 14, June 17-19, July 7, 8, Aug. 4-6, 10, 11, 13, 14, 19, 20, Sept. 23, 24)

| | | | | | |
|---|---|---|---|---|---|
| 44.8 | 0.2 | 45.5 | 9.1 | 47.0 | 86 |
| 44.9 | .4 | 45.7 | 17 | 48.0 | 160 |
| 45.1 | 1.4 | 46.0 | 30 | 50.0 | 344 |
| 45.3 | 3.8 | 46.5 | 56 | 52.0 | 560 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.3 | 0.6 | 3.5 | 1.9 | 14 | 12 | 2.9 | 2.1 | 1.0 | 1.4 | 0.4 | 0.6 |
| 2 | 5.8 | .6 | 3.2 | 1.4 | 8.2 | 8.5 | 2.7 | 2.1 | .9 | 1.4 | .3 | .6 |
| 3 | 4.9 | .6 | 2.7 | 1.3 | 5.1 | 6.7 | 2.7 | 30 | .8 | 1.2 | .7 | .6 |
| 4 | 4.3 | .5 | 2.2 | 1.0 | 3.8 | 5.8 | 2.6 | 44 | .7 | 1.0 | 6.0 | .6 |
| 5 | 3.8 | .5 | 2.1 | 1.1 | 3.7 | 5.4 | 2.4 | 7.0 | .7 | 1.0 | 25 | .6 |
| 6 | 3.3 | .9 | 2.7 | 12 | 3.8 | 5.8 | 2.3 | 2.7 | .8 | 1.0 | 9.1 | .6 |
| 7 | 3.0 | 9.0 | 16 | 8.8 | 3.2 | 7.0 | 2.0 | 2.0 | .8 | *3.2 | 2.7 | 25 |
| 8 | 2.7 | 44 | 6.4 | 3.2 | 2.4 | 9.1 | 2.0 | 1.7 | .9 | 16 | 1.7 | 25 |
| 9 | 9.1 | 7.6 | 3.0 | 2.0 | 2.3 | 4.7 | 69 | 1.6 | .9 | 3.0 | 1.4 | 15 |
| 10 | 6.7 | 2.2 | 2.2 | 1.6 | 22 | 4.5 | 13 | 1.4 | .8 | 2.1 | 3.7 | 10 |
| 11 | 4.3 | 1.8 | 1.7 | 1.6 | 28 | 3.8 | 4.3 | 1.4 | .8 | 5.1 | 11 | 7 |
| 12 | 3.5 | 7.3 | 1.6 | 49 | 22 | 3.7 | 3.0 | 1.4 | .8 | 3.5 | 2.7 | 4 |
| 13 | 3.0 | 83 | 1.6 | 108 | 23 | 3.5 | 17 | 1.4 | .7 | 2.9 | 8.4 | 3 |
| 14 | 43 | 87 | 1.7 | 28 | 83 | 3.0 | *119 | 1.3 | .7 | 2.2 | 21 | 2 |
| 15 | *540 | 18 | 1.5 | 15 | 64 | 2.9 | 41 | *1.3 | .7 | 1.7 | 9.1 | 2 |
| 16 | *508 | 11 | 1.6 | 7.9 | 30 | 2.9 | 15 | 1.4 | .6 | 1.4 | 2.4 | 10 |
| 17 | *103 | 7.9 | 1.5 | 5.1 | 20 | 3.0 | 7.9 | 1.4 | 18 | 1.4 | 2.0 | 20 |
| 18 | 38 | 87 | 1.4 | 3.5 | 15 | 4.0 | 7.0 | 1.7 | 31 | 1.2 | 1.7 | 15 |
| 19 | 19 | 36 | 1.8 | 3.0 | 11 | 3.2 | 5.4 | 1.8 | *23 | 1.1 | 14 | 10 |
| 20 | 14 | 12 | 1.7 | 432 | 8.5 | 2.9 | 4.5 | 1.6 | 9.5 | 1.0 | 12 | 400 |
| 21 | 9.8 | 11 | 1.4 | 205 | 7.9 | *2.6 | 7.6 | 1.4 | 3.5 | 1.0 | 3.0 | 130 |
| 22 | 10 | 321 | 1.2 | 71 | 179 | 2.6 | 22 | 1.4 | 4.0 | .9 | 2.6 | 30 |
| 23 | 14 | 252 | 1.3 | 181 | 145 | 9.8 | 8.2 | 1.4 | 4.0 | .8 | 5.6 | 17 |
| 24 | 8.8 | 190 | 1.2 | *136 | 61 | 6.7 | 4.3 | 1.4 | 2.7 | .8 | 7.9 | 12 |
| 25 | *6.1 | 74 | 2.7 | 46 | 36 | 4.3 | 3.3 | 1.4 | 2.2 | .7 | 7.0 | 8.5 |
| 26 | 2.9 | 35 | 5.1 | 29 | 32 | 3.3 | 3.0 | 1.3 | 2.1 | .7 | 4.3 | 5.4 |
| 27 | 1.4 | 22 | 7.9 | 22 | 39 | 2.9 | 2.7 | 1.2 | 1.9 | .6 | 3.2 | 6.7 |
| 28 | .9 | 12 | 22 | 28 | 21 | 2.7 | 2.4 | 1.2 | 1.8 | .6 | 3.0 | 4.3 |
| 29 | .7 | *7.9 | 7.9 | 41 | - | 2.6 | 2.3 | 1.2 | 1.7 | .5 | 2.0 | 2.9 |
| 30 | .7 | 5.6 | 4.0 | 26 | ------- | 2.6 | 2.2 | 1.1 | 1.6 | .5 | 1.0 | 4.6 |
| 31 | .7 | ------- | 2.9 | 20 | ------- | 2.6 | ------- | 1.0 | ------- | .4 | .8 | ------- |
| Total | 1,382.7 | 1,348.0 | 117.7 | 1,492.4 | 893.9 | 145.1 | 383.7 | 123.3 | 119.6 | 60.3 | 175.7 | 773.0 |
| Mean | 44.6 | 44.9 | 3.80 | 48.1 | 31.9 | 4.68 | 12.8 | 3.98 | 3.99 | 1.95 | 5.67 | 25.8 |
| Ac-ft | 2,740 | 2,670 | 233 | 2,960 | 1,770 | 288 | 761 | 245 | 237 | 120 | 348 | 1,530 |

Calendar year 1957: Max 540 Min 0.2 Mean 15.8 Ac-ft 11,460
Water year 1957-58: Max 540 Min 0.3 Mean 19.2 Ac-ft 13,900

Peak discharge (base, 300 cfs).--Oct. 15 (6:30 p.m.) 1,280 cfs (57.09 ft); Nov. 22 (3 p.m.) 525 cfs (51.73 ft); Jan. 20 (2 p.m.) 732 cfs (53.43 ft); Jan. 23 (5 p.m.) 324 cfs (49.55 ft); Feb. 22 (6 p.m.) 344 cfs (50.03 ft); Sept. 20 (time unknown) about 560 cfs.

* Discharge measurement made on this day.
Note.--No gage-height record Aug. 28 to Sept. 22; discharge estimated on basis of weather records and records for Greens Bayou near Houston.

## 770. 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 and Santa Fe Railway Co. 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, April 1947 to September 1958. Discharge for some high-water periods in 1944 and 1946 published in WSP 1392.

Gage.--Water-stage recorder. Datum of gage is 29.29 ft above mean sea level, datum of 1929, adjustment of 1957. Prior to June 9, 1948, staff gage and June 9, 1948, to Apr. 22, 1952, water-stage recorder, at same site at datum 5.80 ft higher.

Average discharge.--11 years (1947-58), 29.6 cfs (21,430 acre-ft per year).

Extremes.--Maximum discharge during year, 1,640 cfs Oct. 16 (gage height, 17.16 ft); minimum, 0.8 cfs June 6.
1947-58: Maximum discharge, 2,170 cfs Mar. 18, 1957; maximum gage height, 18.98 ft Oct. 8, 1949, present datum; no flow at times.
Maximum stage known since at least 1932, that of Oct. 8, 1949 (discharge, 1,840 cfs, before channel rectification); maximum discharge, that of Mar. 18, 1957.

Remarks.--Records good except those for periods of backwater, which are fair. Large area of riceland above station is irrigated with water from Brazos River. Low flow from April to October is largely drainage from irrigated lands. Diversions for irrigation above station.

Revisions (water years).--WSP 1392: 1947(M).

Rating table, water year 1957-58, except periods of backwater (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 2.1 | 0 | 3.0 | 10 | 8.0 | 298 |
| 2.2 | .2 | 3.5 | 20 | 10.0 | 515 |
| 2.3 | 1.2 | 4.0 | 34 | 13.0 | 920 |
| 2.4 | 2.5 | 5.0 | 76 | 17.0 | 1,600 |
| 2.6 | 5.1 | 6.0 | 134 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 3.5 | 15 | 4.1 | 14 | 15 | 2.1 | 12 | 1.8 | 9.0 | 10 | 7.4 |
| 2 | 7.3 | 2.8 | 10 | 3.4 | 10 | 9.9 | 1.8 | 6.3 | 1.8 | 35 | 9.2 | 4.8 |
| 3 | 6.0 | 2.4 | 8.3 | 2.9 | 7.6 | 7.0 | 1.6 | 5.8 | 1.8 | 50 | 7.8 | 3.0 |
| 4 | 5.4 | 2.1 | 6.4 | 2.6 | *6.3 | 5.6 | 7.3 | 9.1 | 1.6 | 30 | 7.6 | 2.0 |
| 5 | 4.7 | 1.8 | 5.2 | 2.5 | 5.8 | 4.6 | 8.0 | 10 | 1.3 | 24 | 12 | 3.2 |
| 6 | 4.3 | 2.8 | 4.7 | 4.2 | 5.1 | 4.7 | 2.6 | 9.5 | .9 | 12 | 10 | *c16 |
| 7 | 4.3 | 4.2 | 17 | 4.4 | 4.2 | 5.2 | 1.3 | 6.0 | 1.1 | 11 | 7.0 | *c42 |
| 8 | 4.2 | 57 | 26 | 3.3 | 3.4 | 5.1 | .9 | 2.6 | 1.3 | 14 | 9.1 | *c34 |
| 9 | 3.8 | 48 | 16 | *2.4 | 3.2 | 4.2 | 2.6 | 2.5 | 2.5 | 19 | 13 | c24 |
| 10 | 3.4 | 24 | 10 | 2.2 | 12 | 3.4 | 3.3 | 4.2 | 4.6 | 24 | 14 | c25 |
| 11 | *3.2 | 14 | 7.2 | 2.2 | 45 | 2.9 | 11 | 7.0 | *3.9 | 18 | 13 | c19 |
| 12 | 3.5 | 12 | 5.2 | 8.4 | 99 | 2.6 | 7.7 | 3.9 | 4.1 | 12 | 13 | 16 |
| 13 | 4.4 | 96 | 4.4 | 39 | 95 | 2.5 | 3.2 | *3.8 | 4.7 | 8.4 | 12 | 10 |
| 14 | 67 | 249 | 3.9 | 25 | 98 | 2.2 | 38 | 3.9 | 6.5 | 6.0 | 15 | 5.9 |
| 15 | 897 | *125 | 3.7 | 14 | 98 | 2.1 | *51 | 5.2 | 3.9 | 4.7 | 16 | 4.1 |
| 16 | 1,580 | 68 | 3.7 | 8.3 | 50 | 2.0 | 20 | 3.8 | 3.3 | 8.1 | 15 | 2.8 |
| 17 | 826 | 40 | 3.5 | 6.1 | 30 | 3.2 | 8.5 | 3.5 | 5.1 | 9.5 | 11 | c11 |
| 18 | 269 | 61 | 3.5 | 4.7 | 20 | 4.6 | 4.2 | 8.7 | 3.8 | 7.4 | 12 | *c96 |
| 19 | 119 | 78 | 3.4 | 3.9 | 14 | 3.2 | 2.9 | 20 | 3.2 | 7.0 | 13 | c32 |
| 20 | 68 | 46 | 3.3 | 274 | 10 | *2.4 | 2.4 | 11 | 3.3 | 8.4 | *12 | c38 |
| 21 | 42 | 28 | 3.0 | 342 | 8.0 | 2.2 | 2.0 | 4.8 | 4.6 | 11 | 9.7 | 651 |
| 22 | 27 | 293 | 2.8 | 147 | 140 | 2.2 | 1.6 | 3.2 | 5.1 | 13 | 7.4 | 558 |
| 23 | 32 | 467 | 2.6 | 237 | 288 | 2.5 | 2.0 | 5.0 | 7.6 | *12 | 7.3 | 253 |
| 24 | 40 | 358 | 2.5 | 301 | 160 | 2.5 | 1.2 | 16 | 6.9 | 12 | 8.7 | 122 |
| 25 | 25 | *190 | 2.5 | 150 | 92 | 2.2 | 3.7 | 22 | 6.9 | 12 | 10 | 62 |
| 26 | 15 | 113 | 2.5 | 86 | 60 | 2.1 | 9.1 | 13 | 5.8 | 9.7 | 12 | 34 |
| 27 | 9.8 | 74 | 3.8 | 53 | 42 | 2.0 | 6.9 | 8.0 | 5.1 | 9.7 | 11 | 24 |
| 28 | 7.2 | 51 | 9.4 | 39 | 26 | 1.8 | 4.2 | 5.6 | 4.4 | 10 | 7.6 | 22 |
| 29 | 5.5 | 34 | 8.8 | 41 | - | 1.7 | 7.2 | 6.7 | 3.2 | 9.9 | 5.2 | 14 |
| 30 | 4.3 | 23 | 5.5 | 31 | ------- | 2.1 | 5.7 | 4.1 | 3.2 | 9.5 | 4.2 | 10 |
| 31 | *4.1 | ------- | 4.4 | 21 | ------- | 2.2 | ------- | 2.4 | ------- | 11 | 7.2 | ------- |
| Total | 4,102.4 | 2,568.6 | 208.2 | 1,865.6 | 1,446.6 | 115.9 | 224.0 | 229.6 | 113.3 | 437.3 | 322.0 | 2,146.2 |
| Mean | 132 | 85.6 | 6.72 | 60.2 | 51.7 | 3.74 | 7.47 | 7.41 | 3.78 | 14.1 | 10.4 | 71.5 |
| Ac-ft | 8,140 | 5,090 | 413 | 3,700 | 2,870 | 230 | 444 | 455 | 225 | 867 | 639 | 4,260 |

Calendar year 1957: Max 2,030 Min 0 Mean 55.1 Ac-ft 39,880
Water year 1957-58: Max 1,580 Min 0.9 Mean 37.8 Ac-ft 27,330

Peak discharge (base, 600 cfs).--Oct. 16 (6 to 8 a.m.) 1,640 cfs (17.16 ft); Sept. 21 (5 to 6 p.m.) 952 cfs (13.24 ft).

* Discharge measurement made on this day.
c Backwater from temporary dam.

## 780. 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 bridge on State Farm Road 1462, 5½ miles southwest of Alvin, Brazoria County and 6½ miles upstream from State Highway 35.

Records available.--August to October 1944 and March to December 1946 (low-water records during irrigation season), January 1947 to February 1958, March to September 1958 (discharge measurements only).

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.--10 years (1947-57), 85.1 cfs (61,610 acre-ft per year).

Extremes.--Maximum discharge during period October 1957 to February 1958, 4,100 cfs Oct. 16 (gage height, 13.25 ft); minimum, 1.7 cfs Nov. 4.

1947-58: Maximum discharge, 7,400 cfs Oct. 8, 1949 (gage height, 18.80 ft, from floodmark), from rating curve extended above 3,300 cfs by logarithmic plotting; no flow at times.

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 fair. Large area of riceland above station is irrigated with water from Brazos River. Low flow from April to October is largely drainage from the irrigated lands. Diversions for irrigation above station.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25 | 3.2 | 33 | 7.7 | 43 | | | | | | - | |
| 2 | 23 | 3.0 | 26 | 6.0 | 28 | | | | | | - | |
| 3 | 21 | 2.2 | 24 | 4.9 | 20 | | | | | | - | |
| 4 | 16 | 2.0 | 21 | 4.6 | *15 | | | | | | - | |
| 5 | 12 | 2.5 | 17 | 4.6 | 14 | | | | | | - | |
| 6 | a10 | 5.2 | 16 | 7.7 | 13 | | | | | | - | |
| 7 | a8 | 20 | 74 | 9.1 | 9.7 | | | | | | - | |
| 8 | a7 | 46 | 57 | 6.8 | 6.8 | | | | | | - | |
| 9 | a8 | 43 | 39 | *6.0 | 6.8 | | | | | †108 | - | |
| 10 | a10 | 29 | 28 | 5.6 | - | | | | | | - | |
| 11 | *15 | 29 | 20 | 5.6 | - | | | | | | - | |
| 12 | 19 | 52 | 14 | 62 | - | | | | | | - | |
| 13 | 24 | 232 | 12 | 155 | - | | | †38 | | | - | |
| 14 | a200 | 696 | 12 | 70 | - | | | | | | - | |
| 15 | a1,200 | *386 | 11 | 45 | - | | †35 | | | | - | |
| 16 | 3,390 | 188 | 11 | 30 | - | | | | | | - | |
| 17 | 2,310 | 98 | 10 | 21 | - | | | | | | - | |
| 18 | 820 | 116 | 9.1 | 14 | - | | | | | | - | †91 |
| 19 | 276 | 147 | 9.1 | 12 | - | | | | | | - | |
| 20 | 127 | 91 | 8.6 | 552 | - | †4.9 | | | | | †84 | |
| 21 | 74 | 60 | 6.8 | 658 | - | | | | | | - | |
| 22 | 53 | 773 | 6.0 | 247 | - | | | | | | †115 | |
| 23 | 80 | *1,700 | 5.6 | 508 | - | | | | †45 | | - | |
| 24 | 112 | 1,340 | 5.6 | 850 | - | | | | | | - | |
| 25 | 53 | *504 | 5.2 | 366 | - | | | | | | - | |
| 26 | 31 | 247 | 5.2 | 184 | - | | | | | | - | |
| 27 | 20 | 135 | 6.4 | 102 | - | | | | | | - | |
| 28 | 12 | 91 | 11 | 78 | - | | | | | | - | |
| 29 | 7.7 | 63 | 9.7 | 116 | - | | | | | | - | |
| 30 | 4.9 | 47 | 9.1 | 83 | ------- | | | | | | - | |
| 31 | *4.2 | ------- | 8.1 | 61 | ------- | | ------- | | ------- | | - | ------- |
| Total | 8,972.8 | 7,151.1 | 530.5 | 4,282.6 | - | - | - | - | - | - | - | - |
| Mean | 289 | 238 | 17.1 | 138 | - | - | - | - | - | - | - | - |
| Ac-ft | 17,800 | 14,180 | 1,050 | 8,490 | - | - | - | - | - | - | - | - |

Calendar year 1957: Max 3,920 Min 0 Mean 130 Ac-ft 94,020
Water year 1957-58: Max - Min - Mean - Ac-ft -

Peak discharge (base, 800 cfs).--Oct. 16 (6 p.m.) 4,100 cfs (13.25 ft); Nov. 14 (3:30 a.m.) 906 cfs (6.18 ft); Nov. 23 (3 to 4 p.m.) 1,830 cfs (10.12 ft); Jan. 20 (9 p.m.) 990 cfs (7.33 ft); Jan. 24 (2:30 a.m.) 1,040 cfs (7.50 ft).

* Discharge measurement made on this day.
† Result of discharge measurement.
a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

Note.--Discharge record not computed Feb. 10 to Sept. 30 because of removal of recorder during dismantling of bridge, channel rectification, and availability of observers.

## 790. Oyster Creek near Angleton, Tex.

Location.--Lat 29°09'30", long 95°28'30", near center of low-water channel on downstream side of bridge on State Highway 35, 2.8 miles west of Angleton, Brazoria County, 4.1 miles upstream from Missouri Pacific Railroad Co. bridge, 4.4 miles downstream from another Missouri Pacific Railroad Co. bridge, and about 45 miles upstream from Gulf of Mexico. Prior to Apr. 30, 1958, at site 500 ft downstream.

Records available.--October 1944 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1.31 ft below mean sea level, datum of 1929. Prior to Apr. 30, 1958, at site 500 ft downstream at same datum.

Average discharge.--13 years (1945-58), 164 cfs (118,700 acre-ft per year).

Extremes.--Maximum discharge during year, 1,050 cfs Oct. 16 (gage height, 18.76 ft); minimum daily, 45 cfs Sept. 17.

1944-58: Maximum discharge, 10,600 cfs May 10, 1957 (gage height, 31.45 ft, present site, overflow from Brazos River); minimum daily, 0.3 cfs at times in 1955-56.

Maximum stage since about 1900, 32.2 ft in December 1913; flood of Dec. 5, 1940, reached a stage of 30.9 ft, from information by State Highway Department. At extreme high stages the Brazos River overflows into Oyster Creek above this station.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Diversions above station for irrigation. A large part of flow is water released from Harris Reservoir (capacity, 12,000 acre-ft), for industrial use below station. Harris Reservoir is supplied with water diverted from Brazos River during periods of floodflow.

Revisions (water years).--WSP 1392: 1947.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 24 to Apr. 29)

| Oct. 1 to Apr. 29 | | | | Apr. 30 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 9.0 | 41 | 14.0 | 480 | 9.6 | 39 | 14.0 | 360 |
| 10.0 | 134 | 16.0 | 690 | 10.0 | 76 | 16.0 | 550 |
| 12.0 | 297 | 19.0 | 1,080 | 12.0 | 219 | 18.0 | 800 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 97 | 161 | 169 | 140 | 140 | 148 | *138 | 160 | 150 | 164 | 65 | 59 |
| 2 | 148 | 161 | 181 | 140 | 140 | 143 | 143 | 174 | 150 | 167 | 65 | 57 |
| 3 | 156 | 156 | 193 | 140 | 140 | 134 | 148 | 167 | 150 | 164 | 66 | 57 |
| 4 | 115 | 156 | 152 | 140 | *138 | 120 | 130 | 158 | 146 | 153 | 66 | 64 |
| 5 | 99 | 152 | 148 | 140 | 134 | 130 | 120 | 146 | 146 | 146 | 66 | 79 |
| 6 | 99 | 152 | 156 | 140 | 134 | 138 | 116 | 142 | 150 | 150 | 68 | 98 |
| 7 | 102 | 152 | 177 | 140 | 134 | 134 | 116 | 146 | 150 | 160 | 66 | 100 |
| 8 | 143 | 152 | 181 | 140 | 138 | 125 | 120 | 146 | 153 | 180 | 75 | 268 |
| 9 | 164 | 152 | 156 | *138 | 138 | 125 | 134 | 150 | 156 | 170 | 68 | 312 |
| 10 | 173 | 156 | 134 | 138 | 152 | 125 | 134 | 153 | 153 | 174 | 73 | 182 |
| 11 | 169 | 161 | 120 | 138 | 189 | 120 | 134 | 164 | 160 | 167 | 70 | 71 |
| 12 | 169 | 189 | 148 | 173 | 189 | 120 | 152 | 164 | 160 | 156 | 60 | 85 |
| 13 | 177 | 289 | 161 | 281 | 209 | 125 | 148 | 150 | 164 | 156 | 62 | 142 |
| 14 | 197 | 540 | 150 | 225 | 197 | 125 | 140 | 146 | 156 | 146 | 67 | 100 |
| 15 | 317 | *470 | 150 | 181 | 225 | 130 | 140 | 146 | 153 | 142 | 65 | 73 |
| 16 | 968 | 313 | 140 | 177 | 193 | 134 | 140 | 150 | 153 | 142 | 62 | 48 |
| 17 | 875 | 249 | 140 | 180 | 143 | 134 | 140 | 167 | 153 | 146 | 61 | *45 |
| 18 | 570 | 209 | 140 | 180 | 106 | 130 | 140 | 187 | 150 | 146 | 62 | 108 |
| 19 | 340 | 173 | 140 | 180 | 120 | 125 | 140 | 177 | 150 | 135 | 65 | 112 |
| 20 | 273 | 185 | 140 | 300 | 134 | 125 | 140 | 156 | 153 | 128 | *59 | 132 |
| 21 | 376 | 177 | 140 | 400 | 143 | 125 | 140 | 138 | 156 | 128 | 60 | 556 |
| 22 | 510 | 276 | 140 | 350 | 229 | 125 | 150 | 138 | 156 | 104 | 68 | 789 |
| 23 | 560 | 668 | 140 | 300 | 550 | 138 | 150 | *142 | *164 | *89 | 81 | 528 |
| 24 | 460 | 849 | 140 | 250 | 530 | 156 | 150 | 146 | 164 | 88 | 81 | 320 |
| 25 | 313 | 726 | 140 | 500 | 450 | 134 | 160 | 146 | 156 | 87 | 79 | 225 |
| 26 | 185 | 540 | 140 | 400 | 289 | 120 | 160 | 146 | 156 | 87 | 64 | 167 |
| 27 | 84 | 385 | 140 | 300 | 209 | 120 | 170 | 153 | 146 | 86 | 57 | 270 |
| 28 | 50 | 273 | 140 | 250 | 152 | 130 | 177 | 146 | 146 | 86 | 61 | 200 |
| 29 | 102 | 193 | 140 | 200 | - | 138 | 152 | 146 | 150 | 74 | 61 | 180 |
| 30 | 130 | 156 | 140 | 180 | ------- | 138 | *146 | 150 | 156 | 68 | 62 | 70 |
| 31 | 156 | ------- | 140 | 160 | ------- | 138 | ------- | 153 | ------- | 65 | 62 | ------- |
| Total | 8,277 | 8,571 | 4,616 | 6,701 | 5,645 | 4,052 | 4,268 | 4,751 | 4,606 | 4,504 | 2,047 | 5,497 |
| Mean | 267 | 286 | 149 | 216 | 202 | 131 | 142 | 153 | 154 | 131 | 66.0 | 183 |
| Ac-ft | 16,420 | 17,000 | 9,160 | 13,290 | 11,200 | 8,040 | 8,470 | 9,420 | 9,140 | 8,040 | 4,060 | 10,900 |

Calendar year 1957: Max 10,600 Min 2.1 Mean 494 Ac-ft 357,400
Water year 1957-58: Max 968 Min 45 Mean 175 Ac-ft 125,100

Peak discharge (base, 920 cfs).--Oct. 16 (5 to 6 p.m.) 1,050 cfs (18.76 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 14 to Jan. 8, Jan. 17 to Feb. 3, Apr. 14-27; discharge estimated on basis of weather records and record of releases from Harris Reservoir.

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## 805. 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 1958.

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.--29 years (1924-34, 1939-58), 177 cfs (128,100 acre-ft per year).

Extremes.--Maximum discharge during year, 17,900 cfs May 13 (gage height, 10.45 ft); no flow at times.
1923-34, 1939-58: Maximum discharge, 91,400 cfs Sept. 26, 1955 (gage height, 27.50 ft); no flow at times.
Maximum stage since at least 1899, that of Sept. 26, 1955.

Remarks.--Records fair. Small diversions above station for oilfield operations. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 733: 1927(M).

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.1 | 18 | 12 | 2.1 | 1.5 | 2.3 | *10 | 166 | 19 | g19 | 23 | g0.1 |
| 2 | .1 | 17 | 11 | 2.0 | 1.3 | 2.3 | 6.4 | 333 | 21 | g12 | 11 | g.1 |
| 3 | 0 | 372 | 12 | *2.0 | 1.3 | 2.3 | 4.0 | 478 | 20 | 41 | g4.4 | g.1 |
| 4 | 0 | 967 | 9.2 | 2.7 | 1.3 | 2.5 | 2.7 | 226 | 195 | g21 | g.9 | **g.1 |
| 5 | 0 | 1,030 | 8.8 | 5.8 | 2.2 | 3.1 | 2.0 | 93 | 200 | g12 | g.2 | g.1 |
| 6 | 0 | 1,620 | 9.2 | 7.2 | 1.5 | 4.2 | 1.8 | 49 | 111 | 446 | **.1 | g.1 |
| 7 | 25 | 863 | 9.2 | 6.8 | 1.3 | 5.6 | 1.7 | g28 | 58 | g66 | .1 | g.1 |
| 8 | 3,660 | 388 | 6.8 | 6.3 | 1.3 | 93 | 1.8 | g14 | 39 | g12 | .1 | 70 |
| 9 | 193 | 206 | 6.4 | 5.2 | 1.3 | 88 | 1.8 | g9.6 | 46 | *g8.8 | .1 | 338 |
| 10 | 37 | 143 | 6.2 | 4.2 | 1.4 | 48 | 1.8 | g8.8 | g19 | 5.2 | .1 | 18 |
| 11 | *12 | 129 | 5.0 | 3.7 | 1.7 | 31 | 2.0 | g7.6 | *14 | 2.7 | .1 | 10 |
| 12 | 6.4 | 115 | 5.0 | 3.7 | *2.1 | 20 | 2.5 | 865 | 7.2 | 1.3 | .1 | g4.4 |
| 13 | 236 | *g75 | 5.2 | 3.7 | 2.3 | 21 | 4.4 | 6,000 | 5.2 | .5 | .1 | g3.1 |
| 14 | 33 | 58 | 5.0 | 3.5 | 2.9 | 18 | 11 | *3,570 | 4.4 | .1 | .1 | g2.7 |
| 15 | 260 | 45 | 5.0 | *3.1 | 2.5 | 14 | 6.8 | 1,100 | 4.4 | .1 | .1 | 21 |
| 16 | 156 | 36 | 5.0 | 2.7 | 2.1 | 12 | *4.2 | 604 | 4.4 | .1 | .1 | 2,490 |
| 17 | 94 | 33 | *5.2 | 2.5 | 1.8 | 10 | 5.2 | 424 | 5.0 | 0 | .1 | 566 |
| 18 | 49 | 32 | 5.8 | 2.1 | 1.7 | 9.2 | 1,570 | 513 | 4.2 | 0 | .1 | 190 |
| 19 | 29 | 27 | 4.7 | 4.2 | 1.4 | *6.4 | 531 | 919 | 4.0 | 0 | **.1 | *70 |
| 20 | g27 | 23 | 3.1 | 8.0 | 1.4 | 5.6 | 271 | 1,090 | 3.5 | 0 | .1 | 29 |
| 21 | g29 | 25 | 3.3 | 7.2 | 2.0 | 4.7 | 273 | 540 | 34 | 0 | 4.6 | 12 |
| 22 | 1,600 | 27 | 3.1 | 5.8 | 6.8 | 4.4 | 120 | 339 | 27 | .1 | 480 | 7.6 |
| 23 | 1,060 | 29 | 3.1 | 5.8 | 12 | 5.6 | 73 | g216 | 8.0 | .4 | 203 | 3.7 |
| 24 | 396 | 26 | 3.1 | 6.2 | 14 | 5.6 | 70 | g143 | 1,100 | **0 | 82 | 1.5 |
| 25 | *182 | 23 | 4.0 | 5.2 | *12 | 5.6 | g41 | g111 | *890 | 0 | 276 | .5 |
| 26 | 98 | *22 | 3.1 | 4.2 | 8.4 | 4.4 | g28 | g82 | 402 | 0 | 62 | 302 |
| 27 | 64 | 20 | 2.9 | 3.3 | 5.0 | 4.0 | g19 | g59 | 190 | 0 | g31 | 350 |
| 28 | 45 | 17 | 2.5 | *3.3 | 2.7 | 4.0 | g14 | *45 | 106 | 0 | g8.8 | 98 |
| 29 | 31 | 15 | 2.5 | 3.3 | - | 8.4 | g30 | 37 | 58 | 0 | g2.1 | 222 |
| 30 | 25 | 14 | 2.3 | 2.7 | ------- | 8.4 | *66 | 29 | 40 | 0 | g.5 | 129 |
| 31 | 21 | ------- | 2.1 | ------- | | 9.6 | ------- | 23 | ------- | 17 | g.2 | ------- |
| Total | 8,368.6 | 6,415 | 171.8 | 130.7 | 97.2 | 463.2 | 3,176.1 | 16,122.0 | 3,639.3 | 665.3 | 1,191.2 | 4,939.2 |
| Mean | 270 | 214 | 5.54 | 4.22 | 3.47 | 14.9 | 106 | 585 | 121 | 21.5 | 38.4 | 165 |
| Ac-ft | 16,600 | 12,720 | 341 | 259 | 193 | 919 | 6,300 | 35,940 | 7,220 | 1,320 | 2,360 | 9,800 |

Calendar year 1957: Max 10,600 Min 0 Mean 392 Ac-ft 283,800
Water year 1957-58: Max 6,000 Min 0 Mean 130 Ac-ft 93,970

Peak discharge (base, 8,800 cfs).--Oct. 8 (6 a.m.) 9,360 cfs (7.38 ft); May 13 (7 p.m.) 17,900 cfs (10.45 ft).

* Discharge measurement made on this day.
** Field estimate made on this day.
g Discharge computed from once-daily or more wire-weight-gage readings.

806. Running Water Draw near Clovis, N. Mex.

Location.--Lat 34°31'55", long 103°12'05", in W½NE¼ sec. 31, T. 4 N., R. 36 E., on left bank a quarter of a mile upstream from State Highway 18 and 8 miles north of Clovis.

Drainage area.--109 sq mi, of which about 14 sq mi is probably noncontributing.

Records available.--October 1952 to September 1956 (annual maximum only), October 1956 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 4,250 ft (from topographic map). Prior to October 1956, crest-stage gage at site 900 ft downstream at datum 0.4 ft lower.

Extremes.--1952-57: The annual maximum discharges for the water years 1953-57 are given in the following table.

| Water year | Date | Discharge (cfs) | Gage height at crest-stage gage (feet) | Gage height at recorder site (feet) |
|---|---|---|---|---|
| 1953 | (Unknown) | b550 | 4.39 | |
| 1954 | Aug. 21-22, 1954a | b5,200 | 7.05 | |
| 1955 | July 28, 1955a | b2,800 | 5.59 | |
| 1956 | May 24, 1956a | b460 | 3.59 | |
| 1957 | Sept. 6, 1957 | c7,090 | d9.59 | d9.95 |

a Most probable date, based on weather records and periodic readings of crest-stage gage.
b From rating curve.
c Previously published in WSP 1512.
d From floodmarks.

1957-58: Maximum discharge during year, 43 cfs Sept. 16 (gage height, 4.02 ft); no flow except for Sept. 13, 14, 16.

Remarks.--Records good. Nineteen observations of no flow made during year.

Discharge, in cubic feet per second, water year October 1957 to September 1958

Sept. 13..... 2.8
14..... .2
16..... 4.7

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| September 1958..... | 7.7 | 4.7 | 0 | 0.26 | 15 |
| Calendar year 1957.... | 2,329 | 826 | 0 | 6.4 | 4,620 |
| Water year 1957-58.... | 7.7 | 4.7 | 0 | .02 | 15 |

Peak discharge (base, 150 cfs).--No peak above base.

Note.--Flow occurred only on days listed above.

## 815. Dove Creek near Aspermont, Tex.

Location.--Lat 33°24', long 100°25', on left bank 0.1 mile downstream from Hayrick Creek, 2.2 miles downstream from Salt Flat Creek, 8 miles upstream from Salt Fork Brazos River, and 20 miles northwest of Aspermont, Stonewall County.

Drainage area.--69 sq mi, approximately.

Records available.--October 1956 to September 1958.

Gage.--Water-stage recorder.

Extremes.--Maximum discharge during year, 2,950 cfs Oct. 7 (gage height, 4.12 ft), from rating curve extended above 240 cfs as explained below; minimum daily, 0.3 cfs several days.
1956-58: Maximum discharge, 5,610 cfs Apr. 28, 1957 (gage height, 4.96 ft), from rating curve extended above 240 cfs on basis of slope-area measurement at peak flow; minimum daily, 0.3 cfs several days each year.
Flood in 1941 reached a stage of about 9 ft, from information by local residents.

Remarks.--Records good except those for periods when gage height is affected by wind, which are poor. No diversion above station. Records of chemical analyses for the water year 1958 are given in WSP 1573.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 1.44 | 0.1 | 1.7 | 8.0 | 2.0 | 38 |
| 1.5 | 1.0 | 1.8 | 14 | 2.1 | 63 |
| 1.6 | 3.8 | 1.9 | 21 | 2.3 | 145 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.6 | 1.7 | e1.2 | 1.7 | e0.8 | 1.7 | 1.4 | 1.3 | 1.4 | e1.2 | 0.8 | e0.4 |
| 2 | .6 | 1.2 | e1.2 | *e1.4 | 1.0 | 1.7 | *e1.0 | 1.3 | 1.4 | e1.2 | 1.0 | e.4 |
| 3 | e.4 | 4.5 | 1.4 | e1.4 | e1.0 | 1.7 | e.8 | e.8 | e1.2 | e1.2 | .8 | *e.4 |
| 4 | e.4 | 7.1 | 1.7 | 2.6 | e1.0 | 2.3 | .4 | e.6 | e1.0 | e1.2 | e.8 | e.4 |
| 5 | e.4 | 113 | e1.7 | 5.1 | 1.0 | 2.6 | e.4 | .4 | e1.0 | 2.3 | *e.4 | e.4 |
| 6 | e.6 | 5.4 | e1.7 | e1.7 | 1.0 | 3.2 | .3 | e.4 | 1.2 | 9.5 | e.6 | .6 |
| 7 | 140 | 10 | e1.7 | 1.2 | e1.2 | 2.3 | e.8 | e.4 | e1.2 | .6 | e.6 | 13 |
| 8 | 103 | 2.6 | e1.4 | 1.2 | e1.2 | 12 | e1.0 | 2.6 | 1.0 | .8 | 1.0 | 2.0 |
| 9 | 2.8 | 2.0 | 1.4 | e1.2 | 1.4 | e1.2 | e1.0 | 1.6 | 1.0 | 1.0 | 1.2 | 1.2 |
| 10 | *2.0 | 2.0 | e1.4 | e1.4 | 1.7 | e1.0 | e1.0 | .6 | .8 | *e.6 | .4 | 4.3 |
| 11 | 1.7 | 2.3 | 1.4 | e1.4 | *2.0 | 1.0 | 1.2 | e.6 | *.8 | e.4 | .3 | 1.0 |
| 12 | 2.6 | 2.3 | e1.4 | 1.7 | 2.3 | 4.0 | 3.4 | 53 | 1.0 | e.4 | .3 | .4 |
| 13 | 12 | 2.0 | 1.7 | 2.0 | e2.0 | e1.7 | 13 | 128 | .8 | e.3 | .3 | .4 |
| 14 | 2.6 | *1.4 | 1.7 | e1.4 | e2.0 | 1.4 | 2.8 | 4.8 | .8 | e.3 | .3 | .8 |
| 15 | 1.7 | 1.0 | 1.7 | 1.2 | 1.7 | e1.2 | 1.2 | *1.4 | .8 | e.3 | .3 | 135 |
| 16 | 1.4 | 1.2 | 1.7 | *1.4 | e1.7 | e1.2 | 1.4 | 1.2 | 8.4 | e.3 | .3 | 3.4 |
| 17 | 1.4 | 1.4 | 1.7 | 1.4 | 2.0 | e1.2 | 7.9 | 2.9 | 1.4 | e.3 | .3 | .6 |
| 18 | 1.4 | 2.3 | 1.7 | e1.4 | 2.3 | 2.0 | 15 | 3.6 | .8 | e.3 | .3 | *.6 |
| 19 | 1.7 | 1.4 | *e1.7 | 4.3 | 2.3 | *1.4 | 2.6 | 1.4 | .8 | e.3 | .9 | 1.0 |
| 20 | 2.3 | 1.4 | 1.4 | 2.6 | 2.6 | e1.2 | 4.2 | .8 | 1.2 | .3 | *.8 | 1.2 |
| 21 | 6.1 | e1.4 | e1.4 | 2.0 | 2.8 | e1.2 | 3.6 | .6 | 8.4 | .3 | e.6 | 1.2 |
| 22 | 7.3 | 3.8 | e1.7 | 1.7 | 3.8 | 1.2 | e.6 | .8 | 1.2 | e.4 | .3 | 2.4 |
| 23 | e1.2 | 2.3 | e2.0 | 1.4 | e2.6 | 3.0 | .6 | .8 | 1.0 | e.6 | 12 | 1.7 |
| 24 | *1.0 | .e2.0 | 2.3 | e1.4 | e2.0 | e1.2 | e.6 | .8 | e1.0 | *e.6 | 2.2 | 1.2 |
| 25 | 2.5 | 1.4 | 2.3 | 1.2 | e2.0 | e1.2 | .6 | 1.0 | *e1.0 | .6 | e.6 | 73 |
| 26 | 1.2 | *e1.4 | e2.0 | 1.2 | *e1.7 | e1.2 | .8 | 1.2 | 1.0 | e.6 | .6 | 22 |
| 27 | 1.0 | e1.4 | e2.0 | e1.0 | e1.4 | 1.2 | e.8 | *1.4 | 1.2 | e1.0 | e.4 | 1.2 |
| 28 | e1.0 | 1.4 | e2.0 | .8 | e1.4 | 36 | e1.0 | e1.2 | 1.4 | 26 | e.4 | .6 |
| 29 | 1.2 | e1.2 | 2.0 | *1.0 | - | 6.0 | *1.2 | e1.2 | 1.2 | 3.1 | e.4 | e.6 |
| 30 | 1.4 | 1.2 | 2.0 | e1.0 | ------- | 1.4 | e1.0 | e1.4 | e1.2 | .6 | e.4 | .4 |
| 31 | 1.7 | ------- | e1.7 | e.8 | ------- | e1.4 | ------- | 1.2 | ------- | .6 | e.6 | ------- |
| Total | 305.2 | 183.7 | 52.3 | 51.2 | 49.9 | 101.0 | 71.6 | 219.3 | 46.6 | 57.2 | 30.2 | 271.8 |
| Mean | 9.85 | 6.12 | 1.69 | 1.65 | 1.78 | 3.26 | 2.39 | 7.07 | 1.55 | 1.85 | 0.97 | 9.06 |
| Ac-ft | 605 | 364 | 104 | 102 | 99 | 200 | 142 | 435 | 92 | 113 | 60 | 539 |

Calendar year 1957: Max 528 Min 0.3 Mean 12.0 Ac-ft 8,660
Water year 1957-58: Max 140 Min 0.3 Mean 3.95 Ac-ft 2,860

Peak discharge (base, 1,000 cfs).--Oct. 7 (11 p.m.) 2,950 cfs (4.12 ft).

* Discharge measurement made on this day.
e Stage-discharge relation affected by wind; discharge estimated.

820. 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 1958.

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.--19 years (1939-58), 155 cfs (112,200 acre-ft per year).

Extremes.--Maximum discharge during year, 7,760 cfs Oct. 14 (gage height, 7.16 ft); minimum daily, 0.1 cfs for several days.

1923-25, 1939-58: Maximum discharge, 52,200 cfs Sept. 25, 1955 (gage height, 14.92 ft), from rating curve extended above 29,000 cfs by logarithmic plotting; no flow at times.

Maximum stage since 1900, that of Sept. 25, 1955. Flood in December 1913 reached a stage of 14.4 ft, and flood in November 1934 reached a stage of 13.7 ft, from information by local residents.

Remarks.--Records fair. No large diversion above station. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 31 | g16 | g3.9 | 6.2 | 6.6 | 26 | 42 | 5.8 | a8 | a40 | a0.1 |
| 2 | .2 | 27 | g19 | *g4.2 | 6.2 | 6.6 | *25 | 83 | 4.6 | a5 | a10 | a.1 |
| 3 | .2 | 56 | g13 | g3.6 | 5.8 | 6.6 | 18 | 65 | 4.2 | a4 | g4.6 | **.1 |
| 4 | .2 | 781 | g9.7 | g3.5 | 5.8 | 6.6 | 11 | 58 | 3.9 | a3 | g5.4 | .1 |
| 5 | .2 | 3,200 | g12 | 9.7 | 5.8 | 9.1 | g5.3 | 34 | 3.9 | a2 | g3.3 | .1 |
| 6 | .2 | 731 | g16 | 15 | 5.4 | 12 | g2.2 | 22 | 3.6 | 209 | *.8 | .1 |
| 7 | 2.0 | 355 | g13 | g11 | 5.4 | 16 | g.9 | 16 | 4.3 | g35 | .4 | .1 |
| 8 | g1,370 | g211 | g8.6 | g9.7 | 5.4 | 33 | g.8 | 14 | g2.5 | g38 | .4 | 4.9 |
| 9 | g91 | g157 | g7.1 | g6.2 | 5.8 | 38 | a1 | 24 | g.4 | *g12 | .5 | 3.4 |
| 10 | g26 | g96 | g7.6 | g5.4 | 5.8 | 20 | g1.0 | 20 | g.1 | 7.6 | .7 | .2 |
| 11 | *15 | g72 | g8.1 | g3.0 | 5.8 | 13 | g1.1 | 17 | *g.3 | 5.8 | .3 | .1 |
| 12 | 13 | a60 | a8 | g7.4 | *6.6 | 15 | g1.1 | 350 | .3 | 2.0 | .3 | .4 |
| 13 | 40 | g54 | g8.6 | 13 | 6.2 | 20 | 25 | 1,650 | .3 | 1.0 | .3 | .2 |
| 14 | 2,250 | *52 | g8.1 | 12 | 6.6 | 17 | 52 | 1,210 | .3 | .4 | .3 | .2 |
| 15 | 267 | 49 | g7.6 | 9.7 | 6.6 | g11 | 34 | 320 | .3 | .3 | .2 | 1,010 |
| 16 | 180 | 44 | g7.6 | 8.6 | 6.6 | g8.6 | 23 | *235 | .9 | .3 | .2 | 1,230 |
| 17 | 144 | 37 | g6.2 | 8.6 | 6.2 | g9.7 | *24 | 180 | 13 | .3 | .2 | 219 |
| 18 | g76 | 42 | *g8.1 | 7.6 | 6.2 | g9.1 | 151 | 194 | 50 | .3 | .2 | *83 |
| 19 | g47 | 39 | a8 | 13 | 6.6 | g8.6 | 98 | 334 | 17 | .3 | **.7 | 40 |
| 20 | g34 | 33 | g8.1 | 21 | 6.6 | *g7.6 | 116 | 250 | g3.8 | .3 | .2 | 25 |
| 21 | g40 | 30 | g6.6 | 19 | 7.1 | g6.6 | 108 | 143 | 25 | .2 | .2 | 16 |
| 22 | 356 | 34 | g5.4 | 16 | 15 | g5.0 | g39 | g83 | 75 | .2 | .2 | 14 |
| 23 | 469 | 43 | g6.2 | 13 | 16 | 14 | g67 | g50 | g33 | .3 | 55 | 28 |
| 24 | 276 | 42 | g5.0 | 11 | 17 | 16 | g69 | g43 | 259 | *.2 | 87 | 29 |
| 25 | 168 | 34 | g5.8 | 10 | *15 | 14 | g37 | g27 | 242 | .2 | 6.0 | 42 |
| 26 | 116 | *32 | g6.2 | 9.7 | 13 | 11 | g26 | g19 | *110 | .2 | g.5 | 94 |
| 27 | 78 | 28 | g3.6 | 8.1 | 9.1 | 8.6 | g20 | *g16 | g47 | .3 | g.1 | 66 |
| 28 | 57 | 26 | g3.3 | 7.1 | 6.6 | 17 | g17 | 16 | a30 | 37 | a.1 | g62 |
| 29 | 44 | 25 | g4.2 | *7.6 | - | 177 | g13 | 13 | a20 | 434 | g.1 | g33 |
| 30 | 38 | g21 | g3.9 | 8.1 | ------- | 62 | *48 | 9.7 | a10 | 251 | a.1 | a20 |
| 31 | 34 | ------- | g3.6 | 7.1 | ------- | 31 | ------- | 7.1 | ------- | 110 | a.1 | ------- |
| Total | 6,232.2 | 6,442 | 254.2 | 292.8 | 220.4 | 636.3 | 1,060.4 | 5,544.8 | 970.5 | 1,168.2 | 218.4 | 3,021.1 |
| Mean | 201 | 215 | 8.20 | 9.45 | 7.87 | 20.5 | 35.3 | 179 | 32.4 | 37.7 | 7.05 | 101 |
| Ac-ft | 12,360 | 12,780 | 504 | 581 | 437 | 1,260 | 2,100 | 11,000 | 1,920 | 2,320 | 433 | 5,990 |

Calendar year 1957: Max 14,400 Min 0.2 Mean 334 Ac-ft 241,700
Water year 1957-58: Max 3,200 Min 0.1 Mean 71.4 Ac-ft 51,680

Peak discharge (base, 12,000 cfs).--No peak above base.

* Discharge measurement made on this day.
** Field estimate made on this day.
a Doubtful or no gage-height record; discharge estimated on basis of 3 discharge measurements and observer's and engineers' notes.
g Discharge computed on basis of once-daily wire-weight-gage readings.

## 825. 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 1958.

Gage.--Water-stage recorder and movable wire-weight gage. Wire-weight gage read once daily. Datum of gage is 1,240.97 ft above mean sea level, datum of 1929, supplementary adjustment of 1942.

Average discharge.--34 years (1924-58), 438 cfs (317,100 acre-ft per year).

Extremes.--Maximum discharge during year, 16,000 cfs May 14 (gage height, 6.85 ft); no flow at times.
1923-58: 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 measurement of peak flow; maximum gage height, 21.00 ft Sept. 28, 1955; no flow at times.
Maximum stage known, that of Sept. 28, 1955. A flood in about 1906 reached about the same stage.

Remarks.--Records fair. Small diversions above station for irrigation and oilfield operation.

Revisions (water years).--WSP 808: 1924-29.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | g0.3 | g134 | a76 | 27 | 29 | 31 | *177 | 204 | 76 | a170 | 145 | g20 |
| 2 | g0 | a120 | a69 | *29 | 25 | 31 | 121 | 1,250 | 64 | g121 | 131 | g8.4 |
| 3 | g0 | a100 | a62 | 27 | 25 | 27 | 78 | 1,540 | 60 | g90 | 90 | *3.0 |
| 4 | g0 | 686 | a60 | 25 | 29 | 27 | g50 | 980 | 54 | a80 | 56 | .3 |
| 5 | g0 | 2,900 | g62 | 31 | 25 | 27 | g38 | 762 | 46 | g71 | *34 | 0 |
| 6 | g0 | *4,880 | g58 | 31 | 20 | 29 | g29 | 492 | 40 | 1,450 | 20 | 0 |
| 7 | g5.2 | 3,880 | a56 | 31 | 18 | 31 | g21 | 425 | 36 | 1,970 | g11 | 0 |
| 8 | 6,040 | 2,130 | a56 | 33 | 21 | 42 | g20 | 400 | 72 | 1,240 | g3.0 | 0 |
| 9 | 4,950 | 1,350 | a54 | 34 | 20 | 60 | g24 | 382 | 113 | g474 | a1.1 | 0 |
| 10 | 1,420 | 796 | a52 | 33 | 23 | 56 | 90 | g237 | g62 | *g292 | g.1 | 0 |
| 11 | *608 | a560 | a50 | 34 | *25 | 56 | g48 | g170 | *58 | 223 | 1.6 | 0 |
| 12 | 308 | g438 | g48 | 36 | b20 | 87 | g36 | g144 | 42 | 151 | g.1 | 21 |
| 13 | 246 | 342 | a48 | 44 | b25 | 109 | a33 | 3,770 | 42 | 101 | g0 | 17 |
| 14 | 185 | *g280 | a46 | 40 | 34 | 109 | 58 | *10,200 | 25 | 82 | g0 | 21 |
| 15 | 1,750 | 251 | a46 | *38 | 33 | 85 | 66 | *4,600 | 21 | 66 | g0 | 56 |
| 16 | 688 | 202 | a44 | 40 | 31 | 73 | *60 | 2,000 | 21 | 52 | g0 | 109 |
| 17 | 407 | a170 | a42 | 38 | 29 | 58 | 58 | g1,170 | 441 | 36 | g0 | *1,690 |
| 18 | 342 | a160 | a40 | 36 | 29 | 54 | 62 | g931 | 240 | 31 | g0 | 832 |
| 19 | g265 | g137 | *g38 | 38 | 29 | 46 | 231 | 1,570 | 112 | 25 | *g0 | 592 |
| 20 | a230 | a130 | 38 | 48 | 29 | *42 | 970 | g877 | a50 | 20 | g0 | g382 |
| 21 | g147 | g118 | 36 | 46 | 31 | 38 | 656 | 1,440 | a30 | 18 | 18 | a240 |
| 22 | g128 | a110 | 38 | 46 | 38 | 44 | 450 | g1,000 | a20 | 15 | g6.8 | g162 |
| 23 | 699 | a110 | 36 | 46 | 36 | 38 | 376 | g680 | a16 | *8.1 | g.1 | g125 |
| 24 | 1,270 | g112 | 34 | 48 | 36 | 33 | g232 | g520 | a16 | 2.2 | 48 | a70 |
| 25 | 823 | g107 | 38 | 46 | 36 | 29 | g162 | a420 | 45 | g1.1 | 327 | a100 |
| 26 | 600 | g101 | 34 | 42 | *38 | 27 | g121 | a310 | *930 | g1.1 | 419 | g112 |
| 27 | 450 | g95 | 34 | 40 | 36 | 27 | a110 | g219 | 672 | g1.1 | g219 | g71 |
| 28 | g353 | 95 | 31 | 38 | 33 | 27 | g107 | *151 | 506 | 2.9 | 181 | g38 |
| 29 | g256 | 82 | 31 | 34 | - | 65 | g90 | 121 | 353 | 26 | g112 | g16 |
| 30 | a210 | g76 | 29 | *34 | ------- | 148 | *g246 | 107 | g210 | 18 | g73 | a6 |
| 31 | a170 | ------- | 27 | 29 | ------- | 144 | ------- | 80 | ------- | 9.4 | g40 | ------- |
| Total | 22,550.5 | 20,652 | 1,413 | 1,142 | 803 | 1,700 | 4,820 | 37,152 | 4,473 | 6,847.9 | 1,936.8 | 4,692.7 |
| Mean | 727 | 688 | 45.6 | 36.8 | 28.7 | 54.8 | 161 | 1,198 | 149 | 221 | 62.5 | 156 |
| Ac-ft | 44,730 | 40,960 | 2,800 | 2,270 | 1,590 | 3,370 | 9,550 | 73,690 | 8,870 | 13,580 | 3,840 | 9,310 |

Calendar year 1957: Max 22,000 Min 0 Mean 823 Ac-ft 595,800
Water year 1957-58: Max 10,200 Min 0 Mean 296 Ac-ft 214,600

Peak discharge (base, 11,000 cfs).--Oct. 8 (11 a.m.) 11,100 cfs (5.81 ft); May 14 (3 p.m.) 16,000 cfs (6.85 ft).

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge interpolated or estimated on basis of weather records.
b Stage-discharge relation affected by ice.
g Computed from once-daily wire-weight-gage readings.

## 840. Clear Fork Brazos River at Nugent, Tex.

Location.--Lat 32°41', long 99°40', on right bank 33 ft downstream from pier of county road bridge in Nugent, Jones County, and 4 miles upstream from Deadman Creek.

Drainage area.--2,220 sq mi.

Records available.--February 1924 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,531.91 ft above mean sea level (levels by Brazos River Authority). Prior to Dec. 12, 1933, staff gage at site 575 ft downstream at same datum.

Average discharge.--34 years, 135 cfs (97,740 acre-ft per year).

Extremes.--Maximum discharge during year, 932 cfs July 8 (gage height, 5.30 ft); minimum, 0.6 cfs Aug. 20.

1924-58: 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. Some regulation by reservoirs in Elm Creek basin (see p. 180) and Lakes Sweetwater and Trammel in Sweetwater Creek basin, which have a combined capacity of about 114,700 acre-ft. Diversions above station for municipal supply and oilfield operation materially affect low flow. During the year the city of Abilene did not divert any water into Fort Phantom Hill Reservoir from the river above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 15 to July 8)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.4 | 0.3 | 1.8 | 13 | 2.3 | 66 | 3.2 | 270 |
| 1.5 | 1.0 | 1.9 | 19 | 2.5 | 104 | 3.5 | 350 |
| 1.6 | 3.0 | 2.0 | 28 | 2.7 | 146 | 4.0 | 490 |
| 1.7 | 7.0 | 2.1 | 38 | 2.9 | 192 | 5.0 | 820 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9.5 | 11 | 13 | 11 | 11 | 13 | 17 | 93 | 3.4 | 0.9 | 1.1 | 2.2 |
| 2 | 9.5 | 11 | 13 | 11 | 11 | 13 | 13 | 134 | 6.0 | .8 | 1.0 | 1.8 |
| 3 | 9.0 | 11 | 13 | 11 | 11 | 13 | *11 | 64 | 4.0 | .7 | 1.0 | 1.4 |
| 4 | 9.0 | 17 | 13 | 11 | 11 | 13 | 10 | 22 | 2.4 | .7 | 1.0 | *1.3 |
| 5 | 9.0 | 28 | 12 | 13 | 12 | 13 | 9.5 | 13 | 1.6 | .7 | 1.0 | 1.1 |
| 6 | 9.5 | 128 | 13 | 13 | 12 | 14 | 9.0 | 9.5 | 1.3 | 58 | *1.0 | 1.1 |
| 7 | 9.0 | 198 | 13 | 13 | 11 | 17 | 9.0 | 9.5 | 1.0 | 411 | 1.0 | 1.3 |
| 8 | 55 | 52 | 13 | 13 | 11 | 22 | 9.0 | 12 | 3.0 | 801 | .9 | 1.4 |
| 9 | *28 | 31 | 13 | 13 | 11 | 20 | 9.0 | 8.0 | 212 | *230 | 1.0 | 2.0 |
| 10 | 174 | 20 | 13 | 13 | 11 | 19 | 9.0 | 7.5 | 124 | 22 | 1.6 | 9.4 |
| 11 | 275 | 16 | 13 | 13 | 11 | 16 | 9.0 | 6.0 | 457 | 13 | 1.3 | 13 |
| 12 | 36 | 16 | 12 | 13 | 13 | 16 | 9.0 | 6.0 | *144 | 9.0 | 1.0 | 10 |
| 13 | 243 | *17 | 11 | 13 | 13 | 17 | 14 | 57 | 52 | 6.0 | .9 | 12 |
| 14 | 490 | 15 | 11 | 13 | 13 | 15 | 20 | 122 | 17 | 5.1 | .8 | 4.7 |
| 15 | 346 | 14 | 11 | 12 | 13 | 14 | 16 | *241 | 8.5 | 4.3 | .8 | 10 |
| 16 | 71 | 14 | 12 | 11 | 12 | 13 | 16 | 232 | 4.7 | 3.7 | .7 | 93 |
| 17 | 27 | 14 | *13 | 10 | 11 | 13 | 20 | 76 | 4.7 | 3.3 | .7 | 372 |
| 18 | 16 | 13 | 13 | 10 | 13 | 13 | 16 | 40 | 2.7 | 2.7 | .7 | 574 |
| 19 | 14 | 13 | 13 | 11 | 13 | 13 | 14 | 24 | 2.7 | 2.7 | .7 | 240 |
| 20 | 197 | 13 | 12 | 12 | 13 | 12 | 13 | 28 | 2.7 | 2.7 | .7 | 65 |
| 21 | 14 | 13 | 12 | 12 | 13 | 12 | 141 | 22 | 6.6 | 3.0 | 24 | 37 |
| 22 | 13 | 13 | 12 | 12 | 15 | 12 | 49 | 17 | 4.3 | 9.4 | 129 | 22 |
| 23 | 12 | 13 | 12 | 12 | 14 | 11 | 22 | 13 | 2.7 | 82 | 78 | 15 |
| 24 | 11 | 13 | 12 | 12 | 19 | 11 | 14 | 8.5 | 2.2 | 24 | 53 | 11 |
| 25 | 11 | 13 | 13 | 12 | *22 | 11 | 1.3 | 7.5 | 2.0 | 5.5 | 306 | 8.0 |
| 26 | 10 | 13 | 13 | 12 | 19 | 11 | 1.1 | 6.5 | 2.2 | 3.3 | 170 | 68 |
| 27 | 10 | 13 | 12 | 12 | 17 | 11 | 29 | 7.5 | 1.4 | 2.2 | 138 | 67 |
| 28 | 10 | 14 | 11 | *13 | 13 | 13 | 13 | 9.0 | 1.3 | 1.8 | 24 | 44 |
| 29 | 10 | 14 | 12 | 13 | - | 13 | 8.5 | 10 | 1.1 | 1.6 | 9.0 | 81 |
| 30 | 10 | 14 | 12 | 12 | ------- | 16 | 38 | 8.5 | 1.0 | 1.4 | 4.7 | 72 |
| 31 | 10 | ------- | 12 | 11 | ------- | 14 | ------- | 6.0 | ------- | 1.3 | 3.3 | ------- |
| Total | 2,157.5 | 785 | 383 | 373 | 369 | 434 | 569.4 | 1,320.0 | 1,079.5 | 1,713.8 | 957.9 | 1,841.7 |
| Mean | 69.6 | 26.2 | 12.4 | 12.0 | 13.2 | 14.0 | 19.0 | 42.6 | 36.0 | 55.3 | 30.9 | 61.4 |
| Ac-ft | 4,280 | 1,560 | 760 | 740 | 732 | 861 | 1,130 | 2,620 | 2,140 | 3,400 | 1,900 | 3,650 |

Calendar year 1957: Max 18,800 Min 0 Mean 668 Ac-ft 483,600
Water year 1957-58: Max 801 Min 0.7 Mean 32.8 Ac-ft 23,770

Peak discharge (base, 2,300 cfs).--No peak above base.

* Discharge measurement made on this day.

## 855. 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, Shackelford County, 5,100 ft upstream from bridge on U. S. Highway 283, and 1.3 miles upstream from Mill Creek.

Drainage area.--3,974 sq mi.

Records available.--December 1923 to September 1958.

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.--34 years (1924-58), 257 cfs (186,100 acre-ft per year).

Extremes.--Maximum discharge during year, 5,860 cfs Sept. 27 (gage height, 17.77 ft); minimum, 0.4 cfs several days.
1923-58: 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. Some regulation by reservoirs (total combined capacity, 177,800 acre-ft) as follows: Elm Creek basin (combined capacity, 98,230 acre-ft); Sweetwater Creek basin (combined capacity, 16,450 acre-ft); Lake Penick (capacity, 3,100 acre-ft); and Lake Stamford (capacity, 60,000 acre-ft). Diversions above station for irrigation, municipal supply, and oilfield operations materially affect low flow.

Revisions (water years).--WSP 1392: 1949.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 6-19)

| | | | | | |
|---|---|---|---|---|---|
| 1.6 | 0.1 | 2.1 | 14 | 4.0 | 460 |
| 1.7 | .6 | 2.3 | 31 | 5.0 | 870 |
| 1.8 | 2.0 | 2.6 | 72 | 7.0 | 1,740 |
| 1.9 | 4.7 | 3.0 | 152 | 12.0 | 3,460 |
| 2.0 | 8.6 | 3.5 | 290 | 17.0 | 5,450 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 14 | 7.3 | 13 | 13 | 12 | 18 | 18 | 79 | 52 | 5.1 | 1 | 25 |
| 2 | 11 | 7.3 | 13 | 13 | 12 | 22 | 35 | 635 | 39 | 3.8 | 1 | 16 |
| 3 | 8.6 | 7.3 | 13 | 13 | 12 | 25 | *27 | 1,150 | 32 | 3.0 | 1 | 9.5 |
| 4 | 6.9 | 46 | 12 | 12 | 11 | 20 | 22 | 721 | 22 | 3.0 | .5 | *6.5 |
| 5 | 5.8 | 215 | 11 | 12 | 12 | 17 | 18 | 230 | 15 | 3.3 | .5 | 4.7 |
| 6 | 4.4 | 299 | 12 | 13 | 12 | 16 | 15 | 121 | 11 | 1,540 | .5 | 3.8 |
| 7 | 4.4 | 252 | 12 | 13 | 10 | 14 | 13 | 79 | 8.2 | 1,900 | *.5 | 3.5 |
| 8 | 714 | 225 | 12 | 13 | 10 | 16 | 13 | 55 | 6.1 | 1,110 | .5 | 3.8 |
| 9 | *120 | 190 | 12 | 14 | 10 | 16 | 13 | 39 | 5.1 | *1,000 | .5 | 3.8 |
| 10 | 50 | 108 | 10 | 14 | 10 | 16 | 11 | 30 | *4.1 | 614 | .5 | 3.8 |
| 11 | 30 | 74 | 10 | 14 | 11 | 42 | 10 | 25 | 149 | 146 | .5 | 321 |
| 12 | 134 | 58 | 11 | 16 | 11 | 50 | 9.0 | 28 | 322 | 66 | .4 | 20 |
| 13 | 272 | *50 | 11 | 16 | 11 | 38 | 10 | 29 | 273 | 38 | .4 | 6.9 |
| 14 | 265 | 38 | 12 | 16 | 11 | 30 | 10 | 41 | 150 | 22 | .4 | 4.1 |
| 15 | 392 | 32 | 12 | 16 | 11 | 26 | 9.5 | 131 | 95 | 14 | .4 | 3.8 |
| 16 | 545 | 28 | 11 | 16 | 11 | 24 | 8.6 | *201 | 59 | 9.0 | .4 | 936 |
| 17 | 200 | 25 | *11 | 15 | 12 | 24 | 9.0 | 284 | 41 | 6.5 | .4 | 1,770 |
| 18 | 104 | 22 | 12 | 15 | 12 | 22 | 9.5 | 313 | 28 | 5.8 | .4 | 1,740 |
| 19 | 69 | 19 | 12 | 14 | 13 | 20 | 18 | 186 | 19 | 3.5 | .4 | 908 |
| 20 | 46 | 18 | 12 | 14 | 13 | 18 | 26 | 104 | 15 | 3 | .5 | 480 |
| 21 | 33 | 16 | 11 | 15 | 13 | 17 | 23 | 83 | 48 | 3 | .4 | 215 |
| 22 | 30 | 14 | 12 | 14 | 16 | 16 | 23 | 62 | 1,370 | 3 | .4 | 174 |
| 23 | 22 | 15 | 12 | 13 | 16 | 15 | 23 | 53 | 425 | 2.5 | 1.1 | 407 |
| 24 | 18 | 15 | 13 | 13 | *16 | 13 | 69 | 52 | *162 | 2.5 | 1.6 | 158 |
| 25 | 17 | 13 | 21 | 13 | 16 | 13 | 74 | 43 | 81 | 2.5 | 1.5 | 94 |
| 26 | 18 | 13 | 20 | 13 | 17 | 13 | 64 | 36 | 44 | 2 | 50 | 1,830 |
| 27 | 16 | 13 | 15 | *13 | 20 | 13 | 103 | 30 | 27 | 2 | 237 | 5,230 |
| 28 | 12 | 13 | 13 | 13 | 21 | 13 | 48 | 25 | 17 | 2 | 169 | 1,350 |
| 29 | 10 | 13 | 13 | 12 | - | 20 | 37 | 205 | 12 | 1.5 | 146 | 318 |
| 30 | 8.2 | 13 | 13 | 13 | ------- | 25 | 71 | 128 | 7.7 | 1.5 | 79 | 176 |
| 31 | 7.7 | ------- | 13 | 12 | ------- | 20 | ------- | 74 | ------- | 1.5 | 43 | ------- |
| Total | 3,188.0 | 1,858.9 | 390 | 426 | 362 | 652 | 839.6 | 5,272 | 3,539.2 | 6,520.0 | 739.7 | 16,222.2 |
| Mean | 103 | 62.0 | 12.6 | 13.7 | 12.9 | 21.0 | 28.0 | 170 | 118 | 210 | 23.9 | 541 |
| Ac-ft | 6,320 | 3,690 | 774 | 845 | 718 | 1,290 | 1,670 | 10,460 | 7,020 | 12,930 | 1,470 | 32,180 |

Calendar year 1957: Max 27,300 Min 0 Mean 1,191 Ac-ft 862,000
Water year 1957-58: Max 5,230 Min 0.4 Mean 110 Ac-ft 79,370

Peak discharge (base, 3,900 cfs).--Sept. 27 (12 m.) 5,860 cfs (17.77 ft).

* Discharge measurement made on this day.
Note.--No gage-height record July 20 to Aug. 6; discharge estimated on basis of 1 discharge measurement and weather records.

865. Hubbard Creek near Breckenridge, Tex.

Location.--Lat 32°50'15", long 98°57'00", near right bank on downstream side of pier of bridge on U. S. Highway 183, 2.3 miles downstream from Big Sandy Creek, 6.8 miles northwest of Breckenridge, Stephens County, 7 miles upstream from Gonzales Creek, and 8 miles upstream from mouth and Clear Fork Brazos River.

Drainage area.--1,087 sq mi.

Records available.--April 1955 to September 1958.

Gage.--Water-stage recorder.

Extremes.--Maximum discharge during year, 21,500 cfs July 7 (gage height, 33.19 ft); maximum gage height, 33.38 ft July 7 (backwater from relief channels); minimum discharge, 0.1 cfs Oct. 3-7.
1955-58: Maximum discharge, 34,500 cfs May 26, 1957 (gage height, 34.00 ft); no flow for many days 1955-57.
Maximum stage known since at least 1925, 34.2 ft July 20, 1953, from information by local resident and State Highway Department.

Remarks.--Records good. Lake Cisco (capacity, 31,250 acre-ft), Lake McCarty (capacity, 2,800 acre-ft) and several smaller reservoirs with capacities from 100 to 400 acre-ft are on tributaries above gage. Diversions above station for municipal and industrial uses. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 4.1 | 32 | 7.2 | 4.1 | 11 | 16 | *3,280 | 15 | 4.1 | 1.0 | 0.7 |
| 2 | .2 | 3.0 | 25 | 6.7 | 3.8 | 8.8 | 11 | *667 | 14 | 3.0 | .9 | .5 |
| 3 | .1 | 2.4 | 20 | 5.8 | 3.5 | 8.4 | *7.7 | 4,480 | 8.4 | 2.5 | 1.0 | .5 |
| 4 | .1 | 57 | 15 | 4.9 | 3.4 | 7.2 | 6.5 | 1,380 | 5.4 | 2.0 | 1.1 | **.4 |
| 5 | .1 | 472 | 13 | 5.1 | 3.2 | 7.7 | 4.9 | 290 | 3.5 | 1.8 | 1.0 | .3 |
| 6 | .1 | 1,300 | 12 | 5.6 | 2.9 | 56 | 4.1 | 165 | 2.8 | 4,380 | .9 | .3 |
| 7 | .1 | 422 | 11 | 5.6 | 2.8 | 274 | 3.4 | 104 | 2.2 | *15,400 | *.8 | .3 |
| 8 | 19 | 294 | 9.9 | 11 | 2.6 | 295 | 2.9 | 69 | 1.7 | 2,020 | .7 | 3.2 |
| 9 | *772 | 135 | 8.4 | 13 | 2.5 | 243 | 2.8 | 51 | 1.4 | *174 | .7 | 1.3 |
| 10 | 124 | 74 | 7.7 | 11 | 2.6 | 123 | 2.5 | 40 | *1.2 | 80 | .8 | 12 |
| 11 | 33 | 51 | 6.5 | 9.2 | 2.8 | 60 | 2.1 | 56 | 1.1 | 51 | .8 | 30 |
| 12 | 13 | 52 | 5.8 | 7.7 | 2.9 | 43 | 2.0 | 161 | 2.7 | 35 | .7 | 2.5 |
| 13 | *2,760 | *79 | 5.4 | 9.5 | 3.0 | 51 | 3.2 | 70 | 20 | 25 | .7 | 1.1 |
| 14 | *15,100 | 60 | 5.4 | 9.5 | 3.2 | 42 | 17 | 62 | 8.1 | 19 | .7 | .8 |
| 15 | *4,940 | 46 | 5.6 | 8.2 | 3.2 | 42 | 48 | 130 | 5.8 | 14 | .7 | .6 |
| 16 | 388 | 36 | *5.6 | 7.4 | 3.0 | 36 | 64 | *274 | 4.3 | 11 | .6 | 110 |
| 17 | 167 | 28 | 5.6 | 6.7 | 3.2 | 27 | 40 | *200 | 2.9 | 8.4 | .6 | 505 |
| 18 | 80 | 20 | 5.6 | 5.8 | 2.9 | 21 | 27 | 262 | 2.1 | 7.0 | .5 | 88 |
| 19 | 53 | 25 | 4.9 | 5.8 | 2.8 | 17 | 20 | 706 | 9.7 | 6.0 | .5 | 406 |
| 20 | 37 | 21 | 4.7 | 6.5 | 2.8 | 14 | 19 | 275 | 8.4 | 5.6 | .4 | 296 |
| 21 | 25 | 13 | 4.3 | 7.2 | 2.9 | 12 | 17 | 94 | 58 | 6.3 | 132 | 48 |
| 22 | 19 | 13 | 4.1 | 7.0 | 3.8 | 10 | 17 | 57 | 927 | 15 | 54 | 23 |
| 23 | 67 | 14 | 4.1 | 7.2 | 5.1 | 10 | 18 | 40 | 308 | 88 | 26 | 12 |
| 24 | 86 | 17 | 4.3 | 5.8 | *5.8 | 8.4 | 17 | 29 | *96 | 12 | 703 | 8.7 |
| 25 | 51 | 938 | 4.9 | 6.2 | 9.3 | 7.7 | 15 | 28 | 49 | 4.8 | 133 | 6.2 |
| 26 | 33 | 366 | 56 | 6.2 | 20 | 7.0 | 23 | 26 | 29 | 2.9 | 30 | 4.7 |
| 27 | 19 | 195 | 25 | *6.0 | 18 | 7.0 | 40 | 16 | 18 | 2.0 | 11 | 128 |
| 28 | 12 | 102 | 21 | 5.6 | 14 | 7.0 | 27 | 13 | 12 | 1.6 | 4.9 | 56 |
| 29 | 7.7 | 98 | 13 | 4.9 | - | 400 | 200 | 11 | 7.7 | 1.4 | 2.6 | 18 |
| 30 | 6.0 | 43 | 9.5 | 4.9 | ------- | 64 | 1,450 | 15 | 6.0 | 1.2 | 1.6 | 10 |
| 31 | 5.0 | ------- | 7.2 | 4.7 | ------- | 29 | ------- | 15 | ------- | 1.1 | 1.1 | ------- |
| Total | 24,817.6 | 4,980.5 | 362.5 | 217.9 | 140.1 | 1,949.2 | 2,128.1 | 13,066 | 1,631.4 | 22,385.7 | 1,114.3 | 1,774.1 |
| Mean | 801 | 166 | 11.7 | 7.03 | 5.00 | 62.9 | 70.9 | 421 | 54.4 | 722 | 35.9 | 59.1 |
| Ac-ft | 49,220 | 9,880 | 719 | 432 | 278 | 3,870 | 4,220 | 25,920 | 3,240 | 44,400 | 2,210 | 3,520 |

Calendar year 1957: Max 19,900 Min 0 Mean 703 Ac-ft 509,000
Water year 1957-58: Max 15,400 Min 0.1 Mean 204 Ac-ft 147,900

Peak discharge (base, 5,000 cfs).--Oct. 14 (4 p.m.) 18,500 cfs (33.22 ft); May 3 (5 p.m.) 6,270 cfs (27.29 ft); July 7 (11 a.m.) 21,500 cfs (33.19 ft).

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

880. 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 and 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 1958.

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.--20 years, 1,012 cfs (732,700 acre-ft per year).

Extremes.--Maximum discharge during year, 18,700 cfs July 7 (gage height, 14.34 ft); minimum daily, 19 cfs Aug. 18, 19.

1938-58: 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 fair. Some regulation by reservoirs (total combined capacity, 221,800 acre-ft) as follows: Elm Creek basin (combined capacity, 98,230 acre-ft); Sweetwater Creek basin (combined capacity, 16,450 acre-ft); Lake Penick (capacity, 3,100 acre-ft); Lake Stamford (capacity, 60,000 acre-ft); Lake Cisco (capacity, 31,250 acre-ft); Lake McCarty (capacity, 2,800 acre-ft); and Lake Daniels (capacity, 10,000 acre-ft). Many small diversions above station for municipal supply and oilfield operations.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 67 | 255 | 220 | 85 | 76 | 68 | 146 | 7,890 | 234 | 365 | 40 | 90 |
| 2 | 59 | 228 | 200 | 84 | 70 | 71 | 172 | *4,830 | 200 | 274 | 40 | 67 |
| 3 | 53 | 214 | 179 | 79 | 67 | 71 | 174 | 7,770 | 164 | 208 | 32 | 54 |
| 4 | 47 | 782 | 169 | 77 | 67 | 71 | *160 | 9,790 | 137 | 174 | 63 | *41 |
| 5 | 40 | 4,380 | 160 | 74 | 70 | 77 | 141 | 4,250 | 116 | 155 | 82 | 33 |
| 6 | 36 | *9,320 | 155 | 76 | 64 | 90 | 108 | 2,190 | 110 | 4,900 | *70 | 28 |
| 7 | 36 | 7,010 | 146 | 80 | 63 | 116 | 85 | 1,450 | 99 | 16,600 | 53 | 26 |
| 8 | 731 | 4,700 | 141 | 77 | 58 | 399 | 77 | 940 | 82 | *16,500 | 45 | 22 |
| 9 | *6,500 | 3,320 | 132 | 77 | 58 | 374 | 74 | 652 | *75 | 8,910 | 39 | 21 |
| 10 | 3,610 | 1,980 | 126 | 77 | 64 | 271 | 66 | 514 | 79 | 2,820 | 36 | 26 |
| 11 | 1,680 | 1,300 | 122 | 82 | 66 | 182 | 59 | 445 | 79 | 1,800 | 34 | 60 |
| 12 | 964 | *916 | 108 | 85 | 66 | 150 | 58 | 478 | 94 | 868 | 32 | 84 |
| 13 | 1,590 | 788 | 101 | 112 | 61 | 160 | 70 | 738 | 123 | 496 | 29 | 47 |
| 14 | 6,430 | 708 | 101 | 108 | 66 | 182 | 118 | 3,590 | 274 | 341 | 26 | 37 |
| 15 | *11,800 | 580 | 103 | 104 | 67 | 174 | 126 | 7,450 | 164 | 258 | 24 | 32 |
| 16 | 8,660 | 460 | *103 | 97 | 64 | 177 | 108 | 3,320 | 155 | *206 | 22 | 33 |
| 17 | 2,330 | 396 | 103 | 90 | 66 | 164 | 139 | *2,470 | 130 | 167 | 20 | 1,720 |
| 18 | 1,230 | 353 | 101 | 88 | 66 | 137 | 137 | 2,050 | 106 | 137 | 19 | 3,700 |
| 19 | 860 | 333 | 97 | 88 | 64 | 122 | 137 | 3,230 | 106 | 114 | 19 | 3,060 |
| 20 | 646 | 304 | 92 | 101 | 61 | 110 | 177 | 3,060 | 177 | 99 | 40 | 3,140 |
| 21 | 484 | 271 | 88 | 106 | 66 | 101 | 182 | 1,740 | 547 | 92 | 55 | 1,400 |
| 22 | 466 | 252 | 87 | 106 | 79 | 94 | 526 | 1,300 | 1,980 | 88 | 114 | 664 |
| 23 | 388 | 237 | 87 | 106 | 84 | 90 | 435 | 1,500 | 1,980 | 94 | 100 | 484 |
| 24 | 333 | 240 | 88 | 106 | *90 | 84 | 308 | 948 | *1,140 | 172 | 156 | 592 |
| 25 | 1,590 | 456 | 104 | 94 | 82 | 77 | 274 | 682 | 445 | 101 | 842 | 420 |
| 26 | 1,092 | 1,240 | 106 | 90 | 77 | 73 | 540 | 550 | 268 | 77 | 160 | 1,560 |
| 27 | 764 | 610 | 103 | *90 | 76 | 68 | 1,220 | 410 | 208 | 63 | 74 | 3,620 |
| 28 | 562 | 401 | 118 | 87 | 74 | 67 | 544 | 325 | 498 | 55 | 148 | 5,250 |
| 29 | 440 | 294 | 103 | 87 | - | 1,700 | 284 | 277 | 490 | 48 | 206 | 3,780 |
| 30 | 357 | 246 | 95 | 87 | ------- | 876 | 3,200 | 222 | 508 | 43 | 174 | 714 |
| 31 | 297 | ------- | 90 | 82 | ------- | 205 | ------- | 350 | ------- | 37 | 139 | ------- |
| Total | 54,142 | 42,574 | 3,728 | 2,782 | 1,932 | 6,601 | 9,845 | 75,411 | 10,768 | 56,262 | 2,933 | 30,805 |
| Mean | 1,747 | 1,419 | 120 | 89.7 | 69.0 | 213 | 328 | 2,433 | 359 | 1,815 | 94.6 | 1,027 |
| Ac-ft | 107,400 | 84,440 | 7,390 | 5,520 | 3,830 | 13,090 | 19,530 | 149,600 | 21,360 | 111,600 | 5,820 | 61,100 |

Calendar year 1957: Max 64,100 Min 3.5 Mean 3,644 Ac-ft 2,638,000
Water year 1957-58: Max 16,600 Min 19 Mean 816 Ac-ft 590,700

Peak discharge (base, 11,000 cfs).--Oct. 15 (11 p.m.) 13,700 cfs (12.07 ft); May 4 (10 a.m.) 11,100 cfs (10.87 ft); July 7 (2 p.m.) 18,700 cfs (14.34 ft).

* Discharge measurement made on this day.

Note.--Discharge computed from once-daily or more wire-weight-gage readings Oct. 1-7, 11-13, Oct. 17 to Nov. 5, Nov. 9-25, Nov. 27 to Mar. 28, Mar. 31 to Apr. 21, May 6-13, 22, May 24 to June 8, June 16-19, 25-27, June 30 to July 5, July 12-16, July 25 to Aug. 21, Sept. 1-3, 23, 25, 26, 30.

## 881. Salt Creek at Olney, Tex.

Location.--Lat 33°22'15", long 98°44'30", on right bank, 21 ft downstream from bridge on State Highway 199, 0.5 mile east of Olney, Young County.

Drainage area.--9.6 sq mi.

Records available.--April to September 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,164.03 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during period, 345 cfs Sept. 16 (gage height, 8.18 ft); no flow most of time.
Maximum stage since at least 1908, about 16.7 ft in June 1915; flood in May or June 1941 reached a stage of about 16 ft, from information by local residents.

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

Rating tables, Apr. 24 to Sept. 30, 1958 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 24-25, May 3-6, May 16)

Apr. 24 to May 27

| | | | |
|---|---|---|---|
| 1.6 | 0 | 2.2 | 3.7 |
| 1.7 | .2 | 2.5 | 8.7 |
| 1.8 | .5 | 3.0 | 22 |
| 1.9 | .9 | 3.5 | 39 |
| 2.0 | 1.6 | 4.0 | 58 |
| 2.1 | 2.5 | | |

May 28 to Sept. 30

| | | | |
|---|---|---|---|
| 2.51 | 0 | 3.3 | 11 |
| 2.6 | .1 | 3.6 | 23 |
| 2.7 | .3 | 4.0 | 42 |
| 2.8 | .8 | 4.5 | 68 |
| 2.9 | 1.8 | 5.0 | 98 |
| 3.0 | 3.2 | 6.0 | 166 |
| 3.1 | 5.2 | | |

Discharge, in cubic feet per second, April to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | - | 49 | 0 | 0 | 0 | 0 |
| 2 | | | | | | | - | 56 | 0 | 0 | 0 | 0 |
| 3 | | | | | | | - | *49 | 0 | 0 | 0 | 0 |
| 4 | | | | | | | - | .3 | 0 | 0 | 0 | 0 |
| 5 | | | | | | | - | .1 | *0 | 0 | 0 | 0 |
| 6 | | | | | | | - | .1 | 0 | 90 | 0 | 0 |
| 7 | | | | | | | - | a0 | 0 | *5.6 | 0 | 0 |
| 8 | | | | | | | - | a0 | .4 | *.3 | 0 | 0 |
| 9 | | | | | | | - | a0 | .2 | 0 | 0 | 0 |
| 10 | | | | | | | - | a0 | 0 | 0 | 0 | 0 |
| 11 | | | | | | | - | a0 | 0 | 0 | 0 | 0 |
| 12 | | | | | | | - | a0 | 0 | 0 | 0 | 0 |
| 13 | | | | | | | - | a0 | 0 | .1 | 0 | 0 |
| 14 | | | | | | | - | a.1 | 0 | 0 | 0 | 0 |
| 15 | | | | | | | - | a.1 | 0 | 0 | 0 | 0 |
| 16 | | | | | | | - | **.1 | 2.2 | 0 | 0 | *103 |
| 17 | | | | | | | - | a.1 | .2 | 0 | 0 | *2.2 |
| 18 | | | | | | | - | a.1 | 0 | 0 | 0 | 0 |
| 19 | | | | | | | - | a.1 | 0 | 0 | 0 | .1 |
| 20 | | | | | | | - | a.1 | 0 | 0 | *1.3 | 0 |
| 21 | | | | | | | - | a.1 | .4 | 0 | .2 | 0 |
| 22 | | | | | | | - | a0 | .1 | 0 | 0 | 0 |
| 23 | | | | | | | - | a0 | 0 | *3.3 | .6 | 0 |
| 24 | | | | | | | *0 | a0 | 0 | .1 | 2.8 | 0 |
| 25 | | | | | | | 0 | a0 | 0 | 0 | 0 | 0 |
| 26 | | | | | | | 8.1 | a0 | 0 | 0 | 0 | 1.2 |
| 27 | | | | | | | *3.1 | a0 | 0 | 0 | 0 | 0 |
| 28 | | | | | | | a.8 | *0 | 0 | 0 | 0 | 0 |
| 29 | | | | | | | 33 | 0 | 0 | 0 | 0 | 0 |
| 30 | | | | | ------- | | 18 | 0 | 0 | 0 | 0 | 0 |
| 31 | | ------- | | | ------- | | ------- | 0 | ------- | 0 | 0 | ------- |
| Total | | | | | | | - | 155.3 | 3.5 | 99.4 | 4.9 | 106.5 |
| Mean | | | | | | | - | 5.01 | 0.12 | 3.21 | 0.16 | 3.55 |
| Ac-ft | | | | | | | - | 308 | 6.9 | 197 | 9.7 | 211 |

| | | | | |
|---|---|---|---|---|
| Calendar year | : Max | Min | Mean | Ac-ft |
| Water year | : Max | Min | Mean | Ac-ft |

Peak discharge (base, 200 cfs).--May 1 (9 p.m.) 262 cfs (7.44 ft); July 6 (2 p.m.) 309 cfs (7.84 ft); Sept. 16 (1 p.m.) 345 cfs (8.18 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated on basis of recorder trace and weather records.

## 882. Salt Creek near Newcastle, Tex.

Location.--Lat 33°13'00", long 98°38'55", on left bank 75 ft downstream from county bridge, 1.0 mile upstream from Oak Creek, 5.0 miles east of Newcastle, Young County, and about 8.5 miles upstream from Salt Creek Reservoir dam.

Drainage area.--57.9 sq mi.

Records available.--April to September 1958.

Gage.--Water-stage recorder and concrete control.

Extremes.--Maximum discharge during period, 479 cfs May 3 (gage height, 7.36 ft); no flow most of time.

Maximum flood known occurred in 1900 (stage and discharge not determined). Maximum stages since 1900 occurred in 1941 and September 1955, gage height, 20.6 ft, from information by local residents. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Remarks.--Records good.

Rating table, Apr. 24 to Sept. 30, 1958 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 1.0 | 0 | 1.6 | 7.2 | 3.0 | 117 |
| 1.1 | .1 | 1.7 | 12 | 4.0 | 197 |
| 1.2 | .4 | 1.8 | 19 | 5.0 | 277 |
| 1.3 | 1.0 | 2.0 | 37 | 6.0 | 360 |
| 1.4 | 2.1 | 2.5 | 77 | 7.0 | 445 |
| 1.5 | 4.0 | | | | |

Discharge, in cubic feet per second, April to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | - | 236 | 0 | 0 | 0 | 0 |
| 2 | | | | | | | - | *302 | 0 | 0 | 0 | 0 |
| 3 | | | | | | | - | 428 | 0 | 0 | 0 | 0 |
| 4 | | | | | | | - | 190 | 0 | 0 | 0 | 0 |
| 5 | | | | | | | - | *29 | 0 | 0 | 0 | 0 |
| 6 | | | | | | | - | 11 | 0 | 135 | *0 | 0 |
| 7 | | | | | | | - | 5.8 | 0 | *295 | 0 | 0 |
| 8 | | | | | | | - | 3.1 | 0 | 60 | 0 | 0 |
| 9 | | | | | | | - | 2.0 | 0 | 8.4 | 0 | 0 |
| 10 | | | | | | | - | 1.4 | 0 | 2.6 | 0 | 0 |
| 11 | | | | | | | - | 1.1 | 0 | 1.0 | 0 | 0 |
| 12 | | | | | | | - | .8 | 0 | .3 | 0 | 0 |
| 13 | | | | | | | - | .7 | 0 | .1 | 0 | 0 |
| 14 | | | | | | | - | 1.6 | 0 | 0 | 0 | 0 |
| 15 | | | | | | | - | 1.6 | 0 | 0 | 0 | 0 |
| 16 | | | | | | | - | *1.4 | 0 | *0 | 0 | 0 |
| 17 | | | | | | | - | 1.3 | 0 | 0 | 0 | *119 |
| 18 | | | | | | | - | 1.0 | 0 | 0 | 0 | *36 |
| 19 | | | | | | | - | 5.0 | 0 | 0 | 0 | 6.0 |
| 20 | | | | | | | - | 6.4 | 0 | 0 | 0 | 1.8 |
| 21 | | | | | | | - | 2.0 | .1 | 0 | 0 | .7 |
| 22 | | | | | | | - | 1.0 | 0 | 0 | 0 | .4 |
| 23 | | | | | | | - | .5 | .9 | *.1 | 0 | .2 |
| 24 | | | | | | | *0.3 | .3 | *1.0 | 0 | .4 | 0 |
| 25 | | | | | | | .3 | .2 | .2 | .2 | .1 | 0 |
| 26 | | | | | | | 25 | .2 | 0 | .4 | 0 | 0 |
| 27 | | | | | | | *43 | .1 | 0 | .1 | 0 | 0 |
| 28 | | | | | | | 9.8 | 0 | 0 | 0 | 0 | 0 |
| 29 | | | | | | | 50 | 0 | 0 | 0 | 0 | 0 |
| 30 | | | | | ------- | | *322 | 0 | 0 | 0 | 0 | 0 |
| 31 | | ------- | | | ------- | | ------- | 0 | ------- | 0 | 0 | ------- |
| Total | | | | | | | - | 1,233.5 | 2.2 | 503.2 | 0.5 | 164.1 |
| Mean | | | | | | | - | 39.8 | 0.07 | 16.2 | 0.02 | 5.47 |
| Ac-ft | | | | | | | - | 2,450 | 4.4 | 998 | 1.0 | 325 |

| | | | | |
|---|---|---|---|---|
| Calendar year | : Max | Min | Mean | Ac-ft |
| Water year | : Max | Min | Mean | Ac-ft |

Peak discharge (base, 400 cfs).--Apr. 30 (4 p.m.) 470 cfs (7.34 ft); May 3 (2 a.m.) 479 cfs (7.36 ft).

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

## 883. Oak Creek near Graham, Tex.

Location.--Lat 33°12'40", long 98°37'05", on downstream side of bridge on F. M. Highway 1769, 2.5 miles upstream from mouth and 7.0 miles northwest of Graham, Young County.

Drainage area.--19.7 sq mi.

Records available.--April to September 1958.

Gage.--Water-stage recorder.

Extremes.--Maximum discharge during period, 296 cfs Apr. 30 (gage height, 5.32 ft); no flow most of time.
Maximum stage since at least 1900, 15.2 ft in September 1955. Flow of May 1957 reached a stage of 15.0 ft, from information by local resident.

Remarks.--Records good. Records of chemical analyses for the water year 1958 are given in WSP 1573.

Rating table, Apr. 24 to Sept. 30, 1958 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.64 | 0 | 1.3 | 5.8 |
| .7 | .1 | 1.4 | 8.6 |
| .8 | .2 | 1.6 | 17 |
| .9 | .5 | 2.0 | 42 |
| 1.0 | 1.1 | 2.5 | 83 |
| 1.1 | 2.1 | 3.0 | 123 |
| 1.2 | 3.7 | 4.0 | 203 |

Discharge, in cubic feet per second, April to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | - | 138 | | 0 | 0 | 0 |
| 2 | | | | | | | - | 117 | | 0 | 0 | 0 |
| 3 | | | | | | | - | *54 | | 0 | 0 | 0 |
| 4 | | | | | | | - | 10 | (*) | 0 | 0 | 0 |
| 5 | | | | | | | - | 3.4 | | 0 | 0 | 0 |
| 6 | | | | | | | - | 1.9 | | 13 | 0 | 0 |
| 7 | | | | | | | - | 1.1 | | *14 | 0 | 0 |
| 8 | | | | | | | - | .7 | | 1.9 | 0 | 0 |
| 9 | | | | | | | - | .4 | | .4 | 0 | 0 |
| 10 | | | | | | | - | .3 | | .1 | 0 | 0 |
| 11 | | | | | | | - | .2 | | .1 | 0 | 0 |
| 12 | | | | | | | - | .1 | | 0 | 0 | 0 |
| 13 | | | | | | | - | .1 | | 0 | 0 | 0 |
| 14 | | | | | | | - | .1 | | 0 | 0 | 0 |
| 15 | | | | | | | - | .1 | | 0 | 0 | 0 |
| 16 | | | | | | | - | **.1 | | *0 | 0 | 0 |
| 17 | | | | | | | - | .2 | | 0 | 0 | *0 |
| 18 | | | | | | | - | .1 | | 0 | 0 | 0 |
| 19 | | | | | | | - | 4.6 | | 0 | 0 | .1 |
| 20 | | | | | | | - | 2.9 | | 0 | 0 | .1 |
| 21 | | | | | | | - | 1.1 | | 0 | *0 | 0 |
| 22 | | | | | | | - | .5 | | 0 | 0 | 0 |
| 23 | | | | | | | - | .2 | | 0 | .4 | 0 |
| 24 | | | | | | | *0 | .1 | (*) | 0 | .6 | 0 |
| 25 | | | | | | | 0 | .1 | | 0 | .1 | 0 |
| 26 | | | | | | | 5.5 | .1 | | 0 | 0 | 0 |
| 27 | | | | | | | *8.5 | **.1 | | 0 | 0 | 0 |
| 28 | | | | | | | 4.6 | .1 | | 0 | 0 | 0 |
| 29 | | | | | | | 12 | 0 | | 0 | 0 | 0 |
| 30 | | | | | ------- | | *182 | 0 | | 0 | 0 | 0 |
| 31 | | ------- | | | ------- | | ------- | 0 | ------- | 0 | 0 | ------- |
| Total | | | | | | | - | 337.6 | 0 | 29.5 | 1.1 | 0.2 |
| Mean | | | | | | | - | 10.9 | 0 | 0.95 | 0.04 | 0.007 |
| Ac-ft | | | | | | | - | 670 | 0 | 59 | 2.2 | 0.4 |

| | | | | |
|---|---|---|---|---|
| Calendar year | : Max | Min | Mean | Ac-ft |
| Water year | : Max | Min | Mean | Ac-ft |

Peak discharge (base, 200 cfs).--Apr. 30 (12 m.) 296 cfs (5.32 ft).

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

## 885. 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 non-contributing.

Records available.--March 1941 to September 1958.

Gage.--Mercury U-tube gage. Datum of gage is 0.10 ft above mean sea level, datum of 1929 (levels by Brazos River Authority).

Extremes.--Maximum contents observed during year, 687,000 acre-ft Nov. 9, 10 (gage height, 998.0 ft); minimum observed, 568,800 acre-ft Sept. 10, 15 (gage height, 991.3 ft).
1941-58: Maximum contents observed, 743,900 acre-ft Oct. 5, 1941 (gage height, 1,001.0 ft); minimum observed, 273,300 acre-ft Feb. 19 to Mar. 17, 1953 (gage height, 967.0 ft).

Remarks.--Reservoir is formed by reinforced concrete dam of flat slab deck, massive buttress type, with 9 roof-weir gates (modified bear-trap type), 2 bulkhead sections, and earthen dike section. Total length of dam is 2,740 ft. The gates are designed to carry 550,000 cfs. Powerhouse is designed for 3 units having a total output of 37,500 kilowatts. Usable capacity for power development, 698,900 acre-ft. Dam completed and storage began Mar. 21, 1941. Water used for power development, industry, and irrigation. Data regarding dam and reservoir are shown in the following table:

| | Gage height (feet) | Capacity (acre-feet) |
|---|---|---|
| Maximum design level (top of roof-weir gates, gates raised). | 1,000.00 | 724,700 |
| Bottom of roof-weir gates (gates lowered)..... | 987.00 | 504,100 |
| Sill of powerhouse penstock..... | 911.5 | 25,810 |
| Bottom of 54-inch horizontal cylinder valve (high pressure outlet). | 874.8 | 236 |

Contents published prior to Oct. 1, 1944, are from capacity table showing maximum design level, 730,000 acre-ft, and usable capacity for power development, 705,500 acre-ft.
Figures given herein represent total contents. Records of chemical analyses and water temperatures for Brazos River at Possum Kingdom Dam near Garford, for the water year 1958 are given in WSP 1573.

Cooperation.--Records of daily gage height and capacity table furnished by Brazos River Authority.

Capacity table, water year 1957-58 (gage height, in feet, and total contents, in acre-feet)

| | | | |
|---|---|---|---|
| 991.0 | 564,000 | 996.0 | 651,000 |
| 992.0 | 580,000 | 998.0 | 687,000 |
| 994.0 | 615,000 | | |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 615,000 | 643,800 | 661,800 | 622,200 | 598,800 | 580,000 | 604,200 | 645,600 | 654,600 | 633,000 | 618,600 | 575,200 |
| 2 | 613,200 | 643,800 | 660,000 | 622,200 | 598,800 | 580,000 | 604,200 | 654,600 | 651,000 | 633,000 | 616,800 | 575,200 |
| 3 | 611,400 | 643,800 | 656,400 | 620,400 | 597,000 | 580,000 | 604,200 | 654,600 | 651,000 | 633,000 | 616,800 | 573,600 |
| 4 | 609,600 | 643,800 | 652,800 | 620,400 | 595,300 | 580,000 | 604,200 | 660,000 | 649,200 | 633,000 | 615,000 | 572,000 |
| 5 | 607,800 | 652,800 | 651,000 | 620,400 | 595,300 | 580,000 | 604,200 | 654,600 | 647,400 | 634,800 | 609,600 | 570,400 |
| 6 | 607,800 | 667,200 | 647,400 | 618,600 | 593,600 | 581,700 | 604,200 | 654,600 | 642,000 | 676,200 | 606,000 | 570,400 |
| 7 | 606,000 | 681,600 | 647,400 | 618,600 | 591,900 | 581,700 | 604,200 | 651,000 | 642,000 | 679,800 | 602,400 | 570,400 |
| 8 | 606,000 | 685,200 | 647,400 | 616,800 | 590,200 | 581,700 | 604,200 | 647,400 | 640,200 | 679,800 | 598,800 | 570,400 |
| 9 | 609,600 | 687,000 | 645,600 | 615,000 | 590,200 | 581,700 | 604,200 | 642,000 | 638,400 | 676,200 | 598,800 | 570,400 |
| 10 | 624,000 | 687,000 | 642,000 | 613,200 | 590,200 | 585,100 | 604,200 | 638,400 | 636,600 | 676,200 | 598,800 | 568,800 |
| 11 | 627,600 | 683,400 | 638,400 | 613,200 | 588,500 | 585,100 | 604,200 | 634,800 | 634,800 | 674,400 | 597,000 | 570,400 |
| 12 | 629,400 | 681,600 | 636,600 | 613,200 | 588,500 | 586,800 | 604,200 | 631,200 | 633,000 | 670,800 | 593,600 | 570,400 |
| 13 | 647,400 | 679,800 | 633,000 | 613,200 | 585,100 | 586,800 | 604,200 | 625,800 | 631,200 | 667,200 | 590,200 | 570,400 |
| 14 | 656,400 | 676,200 | 633,000 | 613,200 | 583,400 | 586,800 | 604,200 | 624,000 | 629,400 | 661,800 | 586,800 | 570,400 |
| 15 | 663,600 | 672,600 | 633,000 | 613,200 | 583,400 | 586,800 | 604,200 | 638,400 | 629,400 | 658,200 | 583,400 | 568,800 |
| 16 | 667,200 | 670,800 | 631,200 | 613,200 | 583,400 | 588,500 | 604,200 | 642,000 | 627,600 | 654,600 | 583,400 | 570,400 |
| 17 | 669,000 | 670,800 | 631,200 | 611,400 | 581,700 | 588,500 | 604,200 | 645,600 | 627,600 | 652,800 | 583,400 | 570,400 |
| 18 | 667,200 | 669,000 | 629,400 | 611,400 | 581,700 | 588,500 | 604,200 | 651,000 | 627,600 | 651,000 | 583,400 | 573,600 |
| 19 | 663,600 | 667,200 | 627,600 | 609,600 | 580,000 | 588,500 | 606,000 | 656,400 | 627,600 | 651,000 | 580,000 | 581,700 |
| 20 | 660,000 | 667,200 | 625,800 | 609,600 | 580,000 | 588,500 | 606,000 | 660,000 | 625,800 | 651,000 | 578,400 | 585,100 |
| 21 | 656,400 | 665,400 | 625,800 | 607,800 | 580,000 | 588,500 | 606,000 | 661,800 | 625,800 | 651,000 | 576,800 | 591,900 |
| 22 | 652,800 | 661,800 | 624,000 | 607,800 | 580,000 | 588,500 | 606,000 | 661,800 | 629,400 | 647,400 | 576,800 | 591,900 |
| 23 | 649,200 | 661,800 | 624,000 | 606,000 | 580,000 | 588,500 | 607,800 | 661,800 | 633,000 | 647,400 | 575,200 | 590,200 |
| 24 | 643,800 | 661,800 | 624,000 | 606,000 | 580,000 | 590,200 | 609,600 | 661,800 | 633,000 | 645,600 | 575,200 | 588,500 |
| 25 | 642,000 | 663,600 | 624,000 | 606,000 | 580,000 | 590,200 | 609,600 | 661,800 | 634,800 | 642,000 | 575,200 | 586,800 |
| 26 | 642,000 | 663,600 | 624,000 | 606,000 | 580,000 | 590,200 | 613,200 | 661,800 | 633,000 | 638,400 | 575,200 | 586,800 |
| 27 | 643,800 | 661,800 | 624,000 | 606,000 | 580,000 | 590,200 | 622,200 | 660,000 | 633,000 | 638,400 | 575,200 | 586,800 |
| 28 | 643,800 | 661,800 | 624,000 | 604,200 | 580,000 | 590,200 | 624,000 | 658,200 | 633,000 | 633,000 | 575,200 | 597,000 |
| 29 | 643,800 | 661,800 | 624,000 | 602,400 | - | 598,800 | 624,000 | 656,400 | 633,000 | 629,400 | 575,200 | 606,000 |
| 30 | 643,800 | 661,800 | 624,000 | 600,600 | ------- | 602,400 | 640,200 | 656,400 | 633,000 | 625,800 | 575,200 | 607,800 |
| 31 | 643,800 | ------- | 624,000 | 598,800 | ------- | 604,200 | ------- | 656,400 | ------- | 622,200 | 575,200 | ------- |
| (†) | 995.6 | 996.6 | 994.5 | 993.1 | 992.0 | 993.4 | 995.4 | 996.3 | 995.0 | 994.4 | 991.7 | 993.6 |
| (‡) | +27,000 | +18,000 | -37,800 | -25,200 | -18,800 | +24,200 | +36,000 | +16,200 | -23,400 | -10,800 | -47,000 | +32,600 |

Calendar year 1957..... ‡ +255,000
Water year 1957-58..... ‡ -9,000

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

## 890. Brazos River near Palo Pinto, Tex.

Location.--Lat 32°51'45", long 98°18'10", on right bank 100 ft (revised) 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 1958. 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 December 1933 (corrected) chain gage at site 19 miles downstream at datum 38.19 ft lower.

Average discharge.--34 years, 1,207 cfs (873,800 acre-ft per year).

Extremes.--Maximum discharge during year, 31,500 cfs July 6 (gage height, 14.61 ft); minimum daily, 33 cfs Oct. 1.

1924-58: Maximum discharge, 95,600 cfs June 16, 1930, at site 19 miles downstream near Mineral Wells (gage height, 30 ft, present site and datum); no flow at times.

Maximum stage known occurred in 1876, according to data by Corps of Engineers and was several feet higher than any flood occurring between 1876 and 1936.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow since 1941 largely regulated by Possum Kingdom Reservoir (see preceding page) and several smaller reservoirs in Clear Fork and other basins, having a combined capacity of about 946,500 acre-ft. Many small diversions above Possum Kingdom Reservoir for irrigation, municipal supply, and oilfield operation.

Revisions ( water years).--WSP 1512: 1924-25, 1929, 1932-34.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 3, 4, 10-12, 24-30, May 6 to Sept. 2)

| | | | | | |
|---|---|---|---|---|---|
| 0.6 | 29 | 2.0 | 328 | 4.0 | 1,890 |
| .8 | 51 | 2.5 | 560 | 6.0 | 5,600 |
| 1.0 | 78 | 3.0 | 880 | 8.0 | 10,600 |
| 1.5 | 178 | 3.5 | 1,310 | 12.0 | 22,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 33 | 110 | 680 | 590 | 462 | a60 | 40 | 9,260 | 102 | 49 | 1,820 | 60 |
| 2 | 589 | 116 | 817 | 107 | 282 | a60 | 40 | 7,960 | 749 | 47 | 1,050 | 130 |
| 3 | 752 | 242 | 1,880 | 644 | 414 | a50 | 40 | 10,600 | 1,780 | 140 | 127 | *150 |
| 4 | 818 | 240 | 1,820 | 645 | 536 | a50 | *318 | 9,520 | 1,590 | 75 | 682 | 920 |
| 5 | 598 | 2,130 | 1,690 | 412 | 788 | a60 | 277 | 8,770 | 1,700 | 68 | 1,670 | 350 |
| 6 | 458 | 2,720 | 1,820 | 110 | 934 | 417 | 85 | 3,600 | 1,780 | 13,800 | 1,720 | 90 |
| 7 | 484 | 3,230 | 1,070 | 708 | 952 | 1,010 | 70 | 3,500 | 1,260 | 19,600 | *1,700 | 50 |
| 8 | *1,040 | 3,230 | 484 | 774 | 574 | 614 | 160 | 3,410 | 467 | *19,300 | 1,380 | 50 |
| 9 | 702 | 3,050 | 650 | 704 | 206 | 376 | 100 | 3,410 | *480 | 15,700 | 976 | 130 |
| 10 | 259 | 2,670 | 1,700 | 648 | 273 | 171 | 421 | 3,410 | 1,450 | 3,750 | 124 | 250 |
| 11 | 210 | 2,780 | 1,790 | 364 | 848 | 139 | 216 | 3,050 | 1,020 | 3,320 | 652 | 1,100 |
| 12 | 108 | *2,570 | 1,610 | 254 | 916 | 200 | 348 | 2,960 | 673 | 3,230 | 1,370 | 360 |
| 13 | 6,070 | 2,580 | 1,690 | 300 | 982 | 233 | 90 | 3,320 | 509 | 3,230 | 1,210 | 120 |
| 14 | 1,800 | 2,520 | 1,000 | 612 | 1,040 | 166 | 70 | 2,180 | 1,060 | 2,100 | 1,660 | 50 |
| 15 | 5,380 | 2,550 | 203 | 765 | 718 | 140 | 70 | 2,840 | 1,200 | 2,010 | 1,420 | 50 |
| 16 | 8,640 | 2,050 | *282 | 726 | 146 | 120 | 70 | 2,820 | 140 | 1,760 | 1,010 | 50 |
| 17 | 3,050 | 1,230 | 1,070 | 1,250 | 204 | 125 | 70 | *1,560 | 354 | 1,620 | 228 | *50 |
| 18 | 2,960 | 1,090 | 976 | 228 | 716 | 376 | 70 | 301 | 111 | 1,530 | 99 | 50 |
| 19 | 2,960 | 1,190 | 1,210 | 86 | 405 | 240 | 60 | 599 | 394 | 1,080 | 214 | 60 |
| 20 | 2,670 | 1,560 | 1,170 | 390 | 374 | 100 | 60 | 1,580 | 506 | 137 | 1,260 | 100 |
| 21 | 2,580 | 1,660 | 632 | 803 | 276 | 80 | 60 | 1,890 | 1,760 | 146 | 1,160 | 50 |
| 22 | 2,800 | 1,820 | 108 | 645 | 80 | 70 | 60 | 1,620 | 993 | 1,180 | 466 | 180 |
| 23 | 2,620 | 1,140 | 71 | 534 | 70 | 70 | 50 | 2,120 | 290 | 1,150 | 391 | 1,000 |
| 24 | 2,590 | 499 | 184 | 334 | *63 | 90 | 214 | 1,920 | 1,020 | 1,270 | 101 | 1,400 |
| 25 | 2,020 | 1,560 | 184 | 358 | 72 | 270 | 88 | 1,310 | 1,190 | 1,790 | 64 | 1,400 |
| 26 | 870 | 2,080 | 118 | 107 | 170 | 95 | 910 | 972 | 740 | 1,320 | 51 | 1,000 |
| 27 | 136 | 2,100 | 220 | *82 | 70 | 70 | 1,390 | 2,020 | 93 | 1,040 | 46 | 400 |
| 28 | 668 | 1,230 | 311 | 828 | 162 | 65 | 883 | 1,720 | 64 | 1,500 | 45 | 90 |
| 29 | 880 | 214 | 102 | 1,570 | - | 346 | 2,470 | 600 | 56 | 1,920 | 266 | 50 |
| 30 | 702 | 873 | 74 | 1,280 | ------- | 58 | 4,980 | 568 | 51 | 1,900 | 476 | 100 |
| 31 | 158 | ------- | 590 | 831 | ------- | 40 | ------- | 580 | ------- | 1,810 | 102 | ------- |
| Total | 55,605 | 51,034 | 26,206 | 17,689 | 12,733 | 5,961 | 13,780 | 99,970 | 23,582 | 107,572 | 23,540 | 9,840 |
| Mean | 1,794 | 1,701 | 845 | 571 | 455 | 192 | 459 | 3,225 | 786 | 3,470 | 759 | 328 |
| Ac-ft | 110,300 | 101,200 | 51,980 | 34,090 | 25,260 | 11,820 | 27,330 | 198,300 | 46,770 | 213,400 | 46,690 | 19,520 |

Calendar year 1957: Max 81,700 Min 18 Mean 4,472 Ac-ft 3,237,000
Water year 1957-58: Max 19,600 Min 33 Mean 1,226 Ac-ft 887,700

* Discharge measurement made on this day.

Note.--No gage-height record Feb. 22, 23, 27, Mar. 1-5, 15-17, 20-23, 26-28, Mar. 31 to Apr. 3, Apr. 6-9, 13-23, Sept. 3-30; discharge estimated on basis of weather records and record of releases from Possum Kingdom Reservoir.

## 905. Palo Pinto Creek near Santo, Tex.

Location.--Lat 32°38', long 98°11', on left bank 0.5 mile upstream from The Texas and Pacific Railway Co. bridge, 1.4 miles downstream from Big Sunday Creek, 2.6 miles northeast of Santo, Palo Pinto County, 2.8 miles upstream from Wusser Creek, and 7.0 miles upstream from mouth.

Drainage area.--567 sq mi.

Records available.--November 1924 to September 1925 (gage heights only), April 1951 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 762.63 ft above mean sea level, datum of 1929. Nov. 20, 1924, to Sept. 30, 1925, staff gage at same site and datum.

Average discharge.--7 years (1951-58), 103 cfs (74,570 acre-ft per year).

Extremes.--Maximum discharge during year, 16,900 cfs July 7 (gage height, 25.64 ft); no flow Oct. 1-7, 12.

1951-58: Maximum discharge, 45,100 cfs May 26, 1957 (gage height, 31.05 ft, from floodmark), from rating curve extended above 18,000 cfs on basis of slope-area measurement of peak flow; no flow at times.

Maximum stages since at least 1880 occurred May 8, 1922, and May 26, 1957. Flood of May 8, 1922, reached about the same stage as in 1957, from information by The Texas and Pacific Railway Co., but probably was slightly lower according to statements by local residents.

Remarks.--Records good except those above 600 cfs, which are fair. No large diversion above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 14, 15, Nov. 5, 6, 24, 25, Jan. 13, Mar. 7, 8, Apr. 27, Apr. 29 to May 4, June 21, 22, July 5-8, Sept. 11)

| | | | | | |
|---|---|---|---|---|---|
| 1.1 | 0 | 2.0 | 88 | 10.0 | 4,280 |
| 1.2 | .5 | 2.3 | 179 | 14.0 | 6,280 |
| 1.3 | 2.6 | 2.6 | 315 | 18.0 | 8,600 |
| 1.4 | 6.6 | 3.0 | 535 | 22.0 | 11,900 |
| 1.5 | 13 | 4.0 | 1,100 | 26.0 | 17,600 |
| 1.7 | 33 | 6.0 | 2,280 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 8.1 | 42 | 8.7 | 13 | 8.7 | 31 | 6,490 | 9.3 | *5.2 | 6.6 | 1.1 |
| 2 | 0 | 8.1 | 38 | 8.1 | 11 | 8.7 | 29 | 3,260 | 8.7 | 4.8 | 5.2 | .9 |
| 3 | 0 | 8.1 | 33 | 7.6 | 9.3 | 7.6 | 25 | 4,430 | 7.6 | 4.0 | 4.8 | .8 |
| 4 | 0 | 11 | 30 | 7.1 | 9.3 | 7.6 | 25 | 694 | 6.6 | 3.2 | 12 | .8 |
| 5 | 0 | 1,500 | 25 | 6.6 | 8.7 | 58 | 21 | 348 | 5.6 | 90 | 7.6 | .8 |
| 6 | 0 | 2,320 | 25 | 6.6 | 8.1 | 212 | 19 | 238 | 5.2 | 6,560 | 6.1 | .9 |
| 7 | 0 | 337 | 25 | 6.6 | 7.6 | 1,350 | 16 | 187 | 5.2 | *9,220 | 4.4 | 1.1 |
| 8 | 8.4 | 403 | 28 | 7.1 | 7.6 | 458 | 16 | 158 | 4.4 | *461 | 3.2 | 1.1 |
| 9 | 4.8 | 154 | 25 | 8.7 | 7.1 | 270 | 15 | 132 | 4.4 | 191 | 4.4 | 122 |
| 10 | .3 | 98 | 20 | 8.1 | 7.6 | 135 | 14 | 114 | 4.0 | 120 | 29 | 61 |
| 11 | .1 | 73 | 15 | 7.6 | 7.6 | 91 | 14 | 111 | 3.2 | 86 | 22 | 251 |
| 12 | 0 | 71 | 14 | 64 | 8.1 | 158 | 13 | 98 | 24 | 65 | 7.6 | 45 |
| 13 | 3,760 | 104 | 13 | 503 | 8.7 | *337 | 21 | 75 | 17 | 52 | 4.4 | 15 |
| 14 | 4,950 | 82 | 12 | 123 | 9.3 | 187 | 117 | *58 | 7.6 | 36 | 3.2 | 7.6 |
| 15 | 1,260 | 61 | 11 | 63 | 8.1 | 129 | 82 | 56 | 5.6 | 30 | 2.6 | 4.8 |
| 16 | 242 | 48 | 11 | 34 | 8.1 | 104 | 40 | 56 | 4.8 | 24 | 2.0 | 9.3 |
| 17 | 111 | 40 | 11 | 25 | 7.6 | 88 | 25 | 67 | 4.0 | 20 | 1.7 | 57 |
| 18 | 61 | 36 | 11 | 19 | 7.1 | 78 | 20 | 58 | 3.6 | 17 | 1.5 | 38 |
| 19 | 38 | 31 | 10 | 18 | 6.6 | 67 | 26 | 102 | 3.2 | 14 | *1.5 | 31 |
| 20 | 25 | 26 | 8.1 | 78 | 6.1 | 63 | 60 | 67 | 2.8 | 13 | 3.6 | 52 |
| 21 | 20 | 24 | 7.6 | 117 | 6.1 | 56 | 63 | 42 | 520 | 11 | 97 | 26 |
| 22 | 23 | 21 | 7.6 | 73 | 9.3 | 56 | 44 | 32 | 1,230 | 11 | 39 | 11 |
| 23 | 237 | 20 | 7.6 | 45 | 11 | 78 | 25 | 28 | 135 | 12 | 11 | *5.6 |
| 24 | 162 | 607 | 7.1 | 32 | 16 | 71 | 14 | 25 | 56 | 35 | 75 | 3.6 |
| 25 | 61 | 1,600 | 37 | 29 | 21 | 56 | 10 | 44 | 32 | 28 | 18 | 2.2 |
| 26 | 32 | *256 | 63 | 25 | 17 | 46 | 24 | 69 | 20 | 22 | 6.6 | 15 |
| 27 | 23 | 141 | 45 | 21 | 12 | 44 | 392 | 32 | 13 | 16 | 3.6 | 150 |
| 28 | 16 | 98 | 28 | 20 | 10 | 39 | 171 | 21 | 9.3 | 14 | 2.2 | 29 |
| 29 | 13 | 69 | 20 | 19 | - | 46 | 1,060 | 15 | 7.6 | 15 | 1.7 | 8.7 |
| 30 | 11 | 56 | 14 | 16 | ------- | 39 | 3,760 | 12 | 6.6 | 13 | 1.3 | 4.4 |
| 31 | 8.7 | ------- | *11 | 14 | ------- | 34 | ------- | 11 | ------- | 9.3 | 1.3 | ------- |
| Total | 11,067.3 | 8,311.3 | 655.0 | 1,420.8 | 269.0 | 4,382.6 | 6,192 | 17,130 | 2,166.3 | 17,202.5 | 390.1 | 956.7 |
| Mean | 357 | 277 | 21.1 | 45.8 | 9.61 | 141 | 206 | 553 | 72.2 | 555 | 12.6 | 31.9 |
| Ac-ft | 21,950 | 16,490 | 1,300 | 2,820 | 534 | 8,690 | 12,280 | 33,980 | 4,300 | 34,120 | 774 | 1,900 |

Calendar year 1957: Max 21,100 Min 0 Mean 350 Ac-ft 253,700
Water year 1957-58: Max 9,220 Min 0 Mean 192 Ac-ft 139,100

Peak discharge (base, 5,000 cfs).--Oct. 14 (3 a.m.) 10,700 cfs (20.83 ft); Nov. 6 (3 a.m.) 5,180 cfs (11.63 ft); May 1 (4 a.m.) 10,800 cfs (20.94 ft); July 7 (1 a.m.) 16,900 cfs (25.64 ft).

* Discharge measurement made on this day.

## 910. Brazos River near Glen Rose, Tex.

Location.--Lat 32°16'15", long 97°39'45", at downstream side of bridge on U. S. Highway 67, 600 ft downstream from Georges Creek, 4.4 miles upstream from Paluxy Creek, 6 miles northeast of Glen Rose, Somervell County, and at mile 511. Prior to Oct. 1, 1957, at site 2.4 miles upstream.

Drainage area.--24,840 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--October 1923 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 567.82 ft above mean sea level, datum of 1929. Prior to May 7, 1931, staff gage at site 2.5 miles downstream at same datum. May 7, 1931, to Sept. 30, 1957, water-stage recorder at site 2.4 miles downstream at same datum, used as supplementary gage since Oct. 1, 1957. Apr. 27, 1950, to Sept. 30, 1957, present gage used as supplementary gage.

Average discharge.--35 years, 1,605 cfs (1,162,000 acre-ft per year).

Extremes.--Maximum discharge during year, 36,100 cfs May 2 (gage height, 21.00 ft); minimum daily discharge, 186 cfs Sept. 2.
1923-58: Maximum discharge, 97,600 cfs May 18, 1935; maximum gage height, 33.89 ft May 27, 1957; no flow at times prior to construction of Possum Kingdom Dam.
Maximum flood since at least 1900 occurred May 8 or 9, 1922, stage unknown, from information by local residents. Stages affected at times by backwater from Paluxy Creek, and since 1945 by medium-water bridge 2.5 miles downstream.

Remarks.--Records fair. Flow since 1941 largely regulated by Possum Kingdom Reservoir (see p. 148) except during major floods, and by several smaller reservoirs in Clear Fork and other basins, having a combined capacity of about 946,000 acre-ft. Many diversions above station for irrigation, municipal supply, and oilfield operation.

Revisions (water years).--WSP 1058: 1932. WSP 1512: 1946-47, 1949.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *369 | 1,030 | 1,380 | 504 | 1,380 | 324 | 2,290 | 18,600 | 1,160 | 408 | 1,730 | 198 |
| 2 | 353 | 920 | 904 | 420 | 1,200 | 312 | 1,080 | 34,600 | 736 | 336 | 1,730 | 186 |
| 3 | 281 | 777 | 1,040 | 366 | *920 | 354 | 744 | 34,100 | 880 | 285 | 1,730 | 208 |
| 4 | 241 | 622 | 936 | 455 | 744 | 348 | 560 | 30,800 | 600 | 250 | 1,680 | 324 |
| 5 | 216 | 1,430 | 1,020 | 624 | 632 | 378 | 546 | 15,500 | 420 | 238 | 1,340 | 280 |
| 6 | 198 | 2,880 | 1,830 | 441 | 539 | 469 | 448 | 12,500 | 1,220 | 285 | 640 | 246 |
| 7 | 644 | 7,550 | 1,880 | 624 | 532 | 414 | 402 | 9,610 | 1,480 | 5,610 | 441 | 218 |
| 8 | 720 | 5,650 | 1,730 | 632 | 680 | 1,210 | 469 | 4,770 | 1,530 | 31,400 | 1,100 | 366 |
| 9 | 632 | 5,400 | 1,730 | 525 | 832 | 3,060 | 504 | 4,060 | 1,530 | 24,200 | 1,530 | 504 |
| 10 | 561 | 5,220 | 1,290 | 434 | 904 | 2,400 | 546 | 3,930 | 1,240 | 23,800 | 1,530 | 360 |
| 11 | 733 | 3,990 | 840 | 768 | 848 | 2,080 | 434 | 3,670 | 1,020 | 14,000 | 1,430 | 300 |
| 12 | 998 | 3,570 | 704 | 864 | 632 | *1,380 | 354 | 3,540 | 584 | 5,060 | 1,200 | 246 |
| 13 | 858 | 3,360 | 1,530 | 1,690 | 490 | 1,120 | 348 | 3,300 | 844 | 3,670 | 624 | 234 |
| 14 | 4,460 | 3,360 | 1,680 | 2,180 | 504 | 1,080 | 546 | 3,060 | 1,160 | 3,300 | 427 | 312 |
| 15 | 17,700 | 3,290 | 1,580 | 1,880 | 816 | 1,240 | 1,080 | 3,180 | 816 | 3,180 | 852 | 441 |
| 16 | 6,360 | 3,150 | 1,580 | 1,430 | 904 | 1,200 | 768 | *2,950 | 704 | 2,730 | 1,200 | 511 |
| 17 | 6,040 | 3,080 | 1,200 | 1,290 | 944 | 984 | *576 | 2,510 | 696 | 2,080 | 1,430 | 414 |
| 18 | 10,600 | 2,940 | 776 | 1,080 | 920 | 816 | 518 | 2,780 | 1,290 | 1,980 | 1,340 | 420 |
| 19 | 5,040 | 2,450 | 576 | 920 | 640 | 696 | 497 | 2,680 | *696 | 1,730 | 1,200 | 1,040 |
| 20 | 3,570 | 1,600 | *752 | 1,340 | 469 | 632 | 497 | 1,680 | 420 | 1,580 | *600 | 856 |
| 21 | 3,500 | *1,270 | 912 | 920 | 396 | 584 | 518 | 1,120 | 420 | 1,580 | 511 | 504 |
| 22 | 3,430 | 1,340 | 1,120 | 792 | 624 | 717 | 525 | 1,120 | 696 | 1,340 | 434 | 427 |
| 23 | 3,080 | 1,530 | 1,160 | 800 | 616 | 832 | 462 | 1,630 | 1,920 | 744 | 959 | 336 |
| 24 | 3,290 | 1,930 | 912 | 1,200 | 568 | 608 | 414 | 1,730 | 2,730 | 525 | 1,930 | 518 |
| 25 | 3,430 | 2,400 | 864 | 1,040 | 546 | 525 | 384 | 1,780 | 1,430 | 594 | 1,080 | *348 |
| 26 | 3,080 | 3,800 | 688 | 840 | 427 | 462 | 616 | 2,030 | 792 | 1,240 | 656 | 295 |
| 27 | 2,800 | 2,950 | 624 | 768 | 378 | 462 | 580 | 1,930 | 648 | 992 | 539 | 1,030 |
| 28 | 1,960 | 2,510 | 518 | 664 | 348 | 441 | 2,580 | 1,580 | 984 | 1,630 | 390 | 1,290 |
| 29 | 1,290 | 2,290 | 518 | 632 | -- | 497 | 4,310 | 1,120 | 1,080 | 1,340 | 312 | 1,240 |
| 30 | 754 | 2,180 | 469 | 525 | ------- | 645 | 3,280 | 1,830 | 648 | 1,200 | 255 | 952 |
| 31 | 561 | ------- | 434 | 434 | ------- | 2,620 | ------- | 1,580 | ------- | 1,080 | 218 | ------- |
| Total | 87,749 | 84,469 | 33,177 | 27,082 | 19,433 | 28,890 | 26,876 | 215,270 | 30,374 | 138,387 | 31,038 | 14,604 |
| Mean | 2,831 | 2,816 | 1,070 | 874 | 694 | 932 | 896 | 6,944 | 1,012 | 4,464 | 1,001 | 487 |
| Ac-ft | 174,000 | 167,500 | 65,810 | 53,720 | 38,540 | 57,300 | 53,310 | 427,000 | 60,250 | 274,500 | 61,560 | 28,970 |

Calendar year 1957: Max 85,100 Min 128 Mean 5,972 Ac-ft 4,323,000
Water year 1957-58: Max 34,600 Min 186 Mean 2,020 Ac-ft 1,462,000

* Discharge measurement made on this day.

## 915. 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 1958.

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.--12 years (1924-25, 1947-58), 63.1 cfs (45,680 acre-ft per year).

Extremes.--Maximum discharge during year, 4,900 cfs July 6 (gage height, 9.5 ft, from floodmark); minimum, 1.9 cfs Oct. 6, Sept. 2-4.
1923-25, 1947-58: Maximum discharge, 48,500 cfs May 17, 1949 (gage height, 25.1 ft, from floodmark); 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 in November 1918 reached about same stage as flood of May 21, 1922, from information by local resident.

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

Revisions (water years).--WSP 1392: 1949, 1952.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 4-8, 17, June 21, 22, July 6, 7, Sept. 11, 19)

| | | | | | |
|---|---|---|---|---|---|
| 1.9 | 0.8 | 2.6 | 51 | 4.5 | 795 |
| 2.0 | 2.1 | 2.8 | 86 | 5.0 | 1,090 |
| 2.1 | 4.6 | 3.0 | 131 | 6.0 | 1,740 |
| 2.2 | 9.0 | 3.4 | 255 | 7.0 | 2,470 |
| 2.4 | 25 | 4.0 | 520 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *2.3 | 14 | 67 | 45 | 62 | 61 | 57 | 777 | 47 | 18 | 4.6 | 2.5 |
| 2 | 2.3 | 14 | 64 | 44 | 59 | 69 | 56 | 917 | 45 | 17 | 4.6 | 2.1 |
| 3 | 2.3 | 246 | 62 | 44 | 59 | 69 | 56 | 2,090 | 41 | 16 | 5.7 | 1.9 |
| 4 | 2.3 | 111 | 59 | 43 | 59 | 69 | 54 | 566 | 40 | 14 | 5.0 | 1.9 |
| 5 | 2.1 | 1,290 | 57 | 43 | 59 | 124 | 48 | 348 | 37 | 15 | 4.6 | 2.1 |
| 6 | 2.1 | 496 | 65 | 41 | 59 | 348 | 45 | 266 | 36 | 1,400 | 4.3 | 2.9 |
| 7 | 2.1 | 157 | 75 | 41 | 56 | 234 | 44 | 224 | 35 | *891 | 4.0 | 5.7 |
| 8 | 3.4 | 114 | 62 | 40 | 54 | 274 | 47 | 194 | 32 | 126 | 3.7 | 36 |
| 9 | 3.4 | 80 | 56 | 40 | 56 | 212 | 212 | 169 | 30 | 73 | 4.0 | 33 |
| 10 | 3.4 | 64 | 54 | 40 | 64 | 134 | 99 | 149 | 29 | 53 | 4.0 | 13 |
| 11 | 3.7 | 61 | 50 | 40 | 65 | 109 | 62 | 139 | 26 | 41 | 3.4 | 71 |
| 12 | 3.7 | 61 | 50 | 131 | 62 | *126 | 53 | 129 | 25 | 35 | 3.4 | 56 |
| 13 | 613 | 61 | 48 | 393 | 59 | 160 | 71 | 126 | 23 | 29 | 3.2 | 22 |
| 14 | 373 | 56 | 47 | 184 | 59 | 121 | 416 | 126 | 21 | 24 | 2.9 | 12 |
| 15 | 1,270 | 50 | 47 | 109 | 59 | 107 | 144 | 126 | 21 | 21 | 3.2 | 9.6 |
| 16 | 148 | 45 | 45 | 92 | 56 | 101 | 88 | 124 | 32 | 18 | 2.7 | 13 |
| 17 | 60 | 44 | 45 | 84 | 53 | 96 | 73 | 325 | 41 | *16 | 2.9 | 25 |
| 18 | 37 | 51 | 45 | 78 | 53 | 88 | *76 | 131 | 32 | 14 | 3.4 | 22 |
| 19 | 27 | 45 | 44 | 78 | 51 | 84 | 76 | 103 | 29 | 12 | 8.1 | 388 |
| 20 | 22 | 41 | *40 | 94 | 51 | 80 | 112 | 94 | *24 | 11 | 7.0 | 74 |
| 21 | 20 | *40 | 38 | 117 | 53 | 76 | 136 | 84 | 151 | 11 | 8.0 | 26 |
| 22 | 30 | 44 | 38 | 94 | 88 | 78 | 88 | 80 | 190 | 11 | 13 | 37 |
| 23 | 24 | 45 | 38 | 84 | 129 | 99 | 75 | *75 | 71 | 14 | 17 | 86 |
| 24 | 35 | 240 | 40 | 80 | 103 | 84 | 65 | 69 | 45 | 11 | 12 | *24 |
| 25 | 24 | 310 | 96 | 76 | 82 | 76 | 62 | 65 | 36 | 9.0 | 7.0 | 14 |
| 26 | 17 | 149 | 84 | 73 | 76 | 75 | 119 | 67 | 30 | 8.0 | 5.3 | 11 |
| 27 | 16 | 112 | 64 | 69 | 71 | 71 | 88 | 62 | 27 | 7.0 | 5.0 | 10 |
| 28 | 15 | 90 | 56 | 69 | 64 | 67 | 78 | 59 | 24 | 6.5 | 4.0 | 22 |
| 29 | 14 | 80 | 53 | 69 | - | 67 | 80 | 54 | 23 | 6.1 | 3.4 | 12 |
| 30 | 14 | 71 | 50 | *67 | ------- | 62 | 882 | 51 | 21 | 5.7 | 2.9 | 10 |
| 31 | 14 | ------- | 48 | 67 | ------- | 59 | ------- | 48 | ------- | 5.0 | 2.7 | ------- |
| Total | 2,806.1 | 4,282 | 1,687 | 2,569 | 1,821 | 3,480 | 3,562 | 7,837 | 1,264 | 2,938.3 | 165.0 | 1,045.7 |
| Mean | 90.5 | 143 | 54.4 | 82.9 | 65.0 | 112 | 119 | 253 | 42.1 | 94.8 | 5.32 | 34.9 |
| Ac-ft | 5,570 | 8,490 | 3,350 | 5,100 | 3,610 | 6,900 | 7,070 | 15,540 | 2,510 | 5,830 | 327 | 2,070 |

Calendar year 1957: Max 6,930 Min 2.1 Mean 184 Ac-ft 133,000
Water year 1957-58: Max 2,090 Min 1.9 Mean 91.7 Ac-ft 66,370

Peak discharge (base, 4,000 cfs).--July 6 (6 p.m.) 4,900 cfs (9.5 ft).

* Discharge measurement made on this day.

## 920. Nolands River at Blum, Tex.

Location.--Lat 32°09'02", long 97°24'10", on right bank 30 ft upstream from bridge on State Farm Road 67, 0.5 mile downstream from Gulf, Colorado and Santa Fe Railway Co. 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 1958.

Gage.--Water-stage recorder. 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 Nov. 14, 1947, to May 28, 1949, staff gage at railway bridge, 0.5 mile upstream at datum 5.0 ft higher.

Average discharge.--11 years (1924-25, 1948-58), 63.2 cfs (45,750 acre-ft per year).

Extremes.--Maximum discharge during year, 11,500 cfs May 3 (gage height, 15.16 ft); minimum, 0.9 cfs Oct. 11.

1924-25, 1947-58: 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 since at least 1887, 35.0 ft May 8, 1922, from information by local resident.

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.1 | 18 | 65 | 82 | 78 | 54 | 55 | 2,510 | 24 | 9.4 | 2.6 | 3.2 |
| 2 | 1.4 | 18 | 64 | 78 | 73 | 61 | 51 | 3,660 | 24 | 9.4 | 2.4 | 2.8 |
| 3 | 1.4 | 89 | 64 | 78 | 72 | 61 | 49 | *5,870 | 22 | 8.7 | 3.0 | 2.4 |
| 4 | 1.4 | 156 | 59 | 75 | 75 | 61 | 44 | 776 | 20 | 8.0 | 6.8 | 1.5 |
| 5 | 1.8 | 2,700 | 58 | 73 | 76 | 106 | 42 | 405 | 19 | 105 | 5.2 | 1.1 |
| 6 | 1.8 | 1,410 | 152 | 72 | 73 | 187 | 35 | 274 | 18 | 213 | 3.5 | 3.3 |
| 7 | 1.8 | 729 | 194 | 70 | 67 | 162 | 33 | 218 | 17 | 543 | 3.0 | 6.2 |
| 8 | 2.0 | 422 | 94 | 65 | 64 | 318 | 36 | 177 | 16 | 166 | 2.4 | 17 |
| 9 | 2.2 | 133 | 65 | 67 | 64 | 169 | 81 | 144 | 15 | 34 | 1.8 | 11 |
| 10 | 1.8 | 96 | 64 | 67 | 88 | *105 | 58 | 125 | 14 | 21 | 1.8 | 7.2 |
| 11 | 1.4 | 90 | 56 | 67 | 90 | 86 | 42 | 112 | 12 | 15 | 1.7 | 5.5 |
| 12 | 2.2 | 90 | 54 | 102 | 78 | 105 | 38 | 98 | 12 | 12 | 1.5 | 4.8 |
| 13 | 126 | 96 | 55 | 868 | 70 | 136 | 51 | 90 | 11 | 10 | 1.8 | 4.2 |
| 14 | 1,480 | 86 | 55 | 213 | 75 | 98 | *290 | 86 | 10 | 8.3 | 1.5 | 4.0 |
| 15 | 2,790 | 72 | 54 | 133 | 78 | 84 | 104 | 84 | 9.4 | *7.6 | 1.8 | 4.0 |
| 16 | 469 | 62 | 54 | 108 | 68 | 78 | 62 | 78 | *307 | 6.9 | 2.0 | 4.8 |
| 17 | 52 | 62 | 54 | 100 | 65 | 75 | 51 | 76 | 76 | 6.5 | 1.7 | 7.6 |
| 18 | 30 | 70 | 54 | 96 | 62 | 68 | 54 | 68 | 20 | 6.5 | 37 | 4.8 |
| 19 | 24 | 58 | 51 | 117 | 61 | 65 | 86 | *59 | 14 | 6.2 | 11 | 2,590 |
| 20 | 22 | 52 | 43 | 278 | 61 | 62 | 512 | 52 | 13 | 5.8 | *10 | 585 |
| 21 | 19 | 48 | *38 | 234 | 61 | 61 | 200 | 47 | 16 | 6.2 | 30 | 58 |
| 22 | 26 | *49 | 38 | 144 | 94 | 61 | 82 | 46 | 64 | 5.2 | 21 | 31 |
| 23 | 47 | 58 | 40 | 120 | 134 | 1,040 | 61 | 43 | 32 | 4.5 | 8.7 | 30 |
| 24 | 28 | 795 | 41 | 108 | 90 | 183 | 51 | 40 | 22 | 4.8 | 7.6 | 24 |
| 25 | 23 | 426 | 891 | 103 | 76 | 96 | 47 | 38 | 14 | 4.2 | 7.6 | 21 |
| 26 | 21 | 159 | 277 | 94 | 73 | 82 | 353 | 35 | 12 | 4.0 | 5.5 | *25 |
| 27 | 19 | 115 | 150 | *88 | 68 | 75 | 2,120 | 33 | 12 | 3.7 | 4.5 | 28 |
| 28 | 18 | 94 | 125 | 98 | 58 | 70 | 438 | 31 | 11 | 3.7 | 4.0 | 21 |
| 29 | 18 | 82 | 103 | 105 | - | 94 | 675 | 30 | 10 | 3.7 | 3.7 | 18 |
| 30 | 18 | 68 | 96 | 94 | ------- | 64 | 3,470 | 28 | 10 | 3.2 | 2.2 | 17 |
| 31 | 18 | ----- - | 94 | 88 | ------- - | 55 | ------- | 27 | ------- | 2.8 | 3.2 | ------- |
| Total | 5,268.3 | 8,403 | 3,302 | 4,085 | 2,092 | 4,022 | 9,271 | 15,360 | 876.4 | 1,248.3 | 200.5 | 3,543.4 |
| Mean | 170 | 280 | 107 | 132 | 74.7 | 130 | 309 | 495 | 29.2 | 40.3 | 6.47 | 118 |
| Ac-ft | 10,450 | 16,670 | 6,550 | 8,100 | 4,150 | 7,980 | 18,390 | 30,470 | 1,740 | 2,480 | 398 | 7,030 |

Calendar year 1957: Max 6,680 Min 0.8 Mean 183 Ac-ft 132,700
Water year 1957-58: Max 5,870 Min 1.1 Mean 158 Ac-ft 114,400

Peak discharge (base, 5,000 cfs).--Oct. 18 (4 p.m.) 6,400 cfs (11.02 ft); Nov. 8 (8 p.m.) 8,080 cfs (12.41 ft); Apr. 27 (1 a.m.) 5,960 cfs (10.58 ft); Apr. 30 (10 p.m.) 10,700 cfs (14.63 ft); May 3 (6 a.m.) 11,500 cfs (15.16 ft); Sept. 19 (4:30 p.m.) 10,600 cfs (14.49 ft).

* Discharge measurement made on this day.

## 925. 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 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--Maximum contents during year, 645,000 acre-ft May 6 (elevation, 533.12 ft); minimum, 360,100 acre-ft Oct. 10 (elevation, 518.24 ft).
1951-58: Maximum contents, 1,980,000 acre-ft May 29, 1957; minimum daily since power pool elevation first reached in April 1954, 250,200 acre-ft Nov. 1, 1956.

Remarks.--Reservoir is formed by concrete gravity and rolled earth-fill dam 17,695 ft long including spillway. Main dam was completed in April 1951 and deliberate impoundment of water began Dec. 10, 1951. Capacity between gage heights 520.0 and 571.0 ft is 1,630,500 acre-ft and is reserved for flood-control storage. Total spillway capacity, 661,000 cfs at elevation 573.0 ft, maximum design level. Figures given herein represent total contents. Reservoir used for flood control and power development. Data regarding dam and reservoir are shown in following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Top of seventeen 40 by 38-foot taintor gates | 571.0 | 2,017,500 |
| Spillway crest | 533.0 | 642,200 |
| Top of designated power storage | 520.0 | 387,000 |
| Invert of two 16-foot diameter penstocks | 476.0 | 43,500 |
| Invert of sixteen 5 by 9-foot flood-control outlet conduits | 448.83 | 5,140 |

Cooperation.--Records furnished by Corps of Engineers.

Capacity table, water year 1957-58 (elevation, in feet, and total contents, in acre-feet)

| | | | |
|---|---|---|---|
| 515 | 314,900 | 530 | 574,300 |
| 520 | 387,000 | 535 | 690,500 |
| 525 | 473,200 | | |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 367,700 | 385,800 | 395,300 | 387,700 | 383,400 | 387,200 | 390,000 | 442,000 | 390,500 | 385,900 | 387,000 | 383,900 |
| 2 | 366,700 | 388,600 | 393,900 | 387,800 | 386,100 | 387,800 | 387,700 | 512,700 | 387,700 | 384,500 | 388,400 | 380,400 |
| 3 | 364,700 | 390,700 | 387,800 | 386,700 | 386,100 | 386,900 | 385,000 | 588,400 | 384,500 | 383,600 | 391,500 | 379,400 |
| 4 | 363,200 | 390,800 | 386,100 | 386,700 | 388,000 | 386,200 | 384,500 | 628,200 | 382,200 | 383,600 | 389,900 | 379,400 |
| 5 | 363,700 | 400,800 | 383,600 | 388,100 | 386,700 | 385,800 | 385,100 | 642,200 | 378,900 | 385,300 | 387,500 | 378,400 |
| 6 | 363,800 | 406,100 | 385,600 | 387,200 | 385,600 | 388,800 | 386,200 | 639,600 | 376,400 | 385,600 | 384,000 | 378,400 |
| 7 | 363,800 | 418,100 | 390,400 | 384,800 | 384,800 | 389,600 | 385,800 | 620,100 | 378,400 | 383,900 | 382,600 | 378,400 |
| 8 | 367,300 | 416,400 | 393,700 | 384,800 | 386,100 | 392,100 | 385,800 | 585,300 | 381,100 | 405,200 | 382,000 | 379,000 |
| 9 | 363,500 | 410,400 | 392,100 | 386,100 | 386,900 | 395,000 | 384,000 | 550,400 | 383,900 | 396,300 | 383,400 | 378,000 |
| 10 | 360,100 | 399,500 | 389,900 | 385,400 | 384,800 | 396,300 | 383,100 | 510,700 | 385,000 | 388,000 | 385,100 | 375,600 |
| 11 | 360,500 | 386,100 | 381,700 | 386,200 | 383,400 | 392,400 | 383,100 | 469,400 | 385,600 | 388,400 | 386,700 | 373,300 |
| 12 | 360,500 | 387,000 | 381,200 | 388,600 | 381,500 | 388,800 | 384,500 | 429,500 | 385,600 | 391,300 | 387,700 | 372,600 |
| 13 | 371,000 | 388,900 | 382,800 | 389,900 | 380,300 | 383,900 | 387,800 | 399,000 | 385,100 | 389,100 | 386,700 | 372,600 |
| 14 | 380,400 | 388,900 | 386,600 | 391,000 | 382,600 | 384,800 | 387,800 | 385,800 | 386,600 | 386,700 | 385,400 | 372,600 |
| 15 | 415,000 | 388,900 | 390,000 | 389,700 | 384,300 | 387,500 | 386,900 | 382,000 | 387,700 | 387,300 | 384,200 | 371,500 |
| 16 | 420,000 | 388,900 | 390,200 | 388,000 | 386,400 | 390,200 | 388,100 | 381,400 | 389,700 | 388,600 | 386,100 | 372,300 |
| 17 | 417,600 | 388,600 | 388,100 | 386,100 | 388,000 | 389,600 | 387,000 | 380,700 | 391,000 | 387,300 | 388,100 | 372,300 |
| 18 | 416,700 | 388,300 | 381,800 | 388,900 | 389,700 | 387,800 | 384,000 | 379,500 | 389,400 | 385,800 | 387,700 | 372,300 |
| 19 | 409,000 | 386,700 | 377,000 | 391,000 | 391,000 | 388,300 | 385,400 | 378,300 | 387,800 | 383,700 | 386,400 | 378,800 |
| 20 | 397,600 | 385,900 | 377,300 | 391,000 | 390,000 | 388,800 | 388,400 | 382,000 | 386,200 | 380,500 | 387,000 | 381,700 |
| 21 | 387,000 | 385,000 | 378,400 | 388,300 | 387,300 | 388,800 | 386,900 | 384,500 | 388,900 | 380,500 | 385,600 | 383,100 |
| 22 | 384,800 | 384,300 | 380,600 | 386,900 | 389,200 | 388,800 | 384,500 | 384,000 | 389,700 | 380,500 | 385,000 | 383,600 |
| 23 | 384,800 | 386,900 | 382,500 | 385,900 | 391,200 | 395,500 | 382,600 | 383,600 | 390,800 | 380,500 | 386,600 | 382,900 |
| 24 | 384,700 | 392,900 | 383,400 | 384,800 | 390,400 | 391,200 | 381,200 | 384,800 | 393,900 | 377,500 | 390,700 | 380,700 |
| 25 | 384,800 | 394,200 | 388,900 | 388,000 | 388,800 | 385,900 | 380,400 | 388,800 | 393,900 | 374,600 | 388,900 | 381,400 |
| 26 | 383,400 | 394,700 | 387,700 | 390,500 | 386,400 | 385,100 | 385,400 | 388,000 | 389,700 | 375,600 | 386,700 | 382,000 |
| 27 | 383,400 | 396,400 | 385,300 | 388,600 | 385,600 | 384,300 | 389,100 | 386,700 | 386,400 | 377,000 | 386,400 | 383,700 |
| 28 | 383,400 | 393,600 | 386,200 | 386,200 | 385,600 | 382,600 | 386,400 | 389,200 | 386,400 | 379,500 | 385,600 | 385,400 |
| 29 | 386,400 | 394,700 | 387,500 | 384,500 | - | 384,300 | 390,000 | 388,600 | 387,700 | 382,000 | 384,700 | 386,400 |
| 30 | 388,300 | 395,300 | 386,400 | 382,800 | ------- | 385,800 | 412,900 | 388,600 | 385,900 | 383,400 | 384,700 | 386,200 |
| 31 | 387,800 | ------- | 387,500 | 381,800 | ------- | 386,900 | ------- | 387,800 | ------- | 385,000 | 384,800 | ------- |
| (†) | 520.05 | 520.52 | 520.03 | 519.67 | 519.91 | 519.99 | 521.59 | 520.05 | 519.93 | 519.87 | 519.86 | 519.95 |
| (‡) | +19,000 | +7,500 | -7,800 | -5,700 | +3,800 | +1,300 | +26,000 | -25,100 | -1,900 | -900 | -200 | +1,400 |

Calendar year 1957..... ‡ +86,500
Water year 1957-58..... ‡ +17,400

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

## 930. 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 1958.

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.--20 years, 1,797 cfs (1,301,000 acre-ft per year).

Extremes.--Maximum discharge during year, 26,100 cfs May 10 (gage height, 18.18 ft); minimum daily, 26 cfs July 27.
1938-58: Maximum discharge, 71,800 cfs May 18, 1949 (gage height, 31.03 ft); minimum daily, 0.4 cfs May 9, 1953.
Maximum stage known since 1853, about 45 ft May 9, 1922, from information by local residents.

Remarks.--Records fair. Flow regulated by Whitney Reservoir (see preceding page) and Possum Kingdom Reservoir (see p. 148) on Brazos River, and several smaller reservoirs in Clear Fork and other basins, having a combined capacity of about 2,964,000 acre-ft. Many small diversions above Whitney Reservoir for irrigation, municipal supply, and oilfield operations. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 627 | 2,040 | 2,120 | 350 | 225 | 134 | 1,760 | 4,460 | 248 | 589 | 35 | 349 |
| 2 | 743 | 165 | 2,120 | 550 | 469 | 336 | 2,580 | 5,070 | 2,260 | 790 | 993 | 1,600 |
| 3 | 1,300 | 84 | 4,100 | 1,130 | 825 | 1,150 | 2,910 | 4,760 | 2,250 | 682 | 70 | 650 |
| 4 | 991 | 1,250 | 2,240 | 653 | 825 | 1,350 | 1,060 | 6,440 | 1,680 | 127 | 2,160 | 250 |
| 5 | 163 | 2,240 | 2,120 | 113 | 1,750 | *1,220 | 318 | 9,560 | 2,200 | 34 | 2,550 | 650 |
| 6 | 111 | 2,530 | 1,600 | 1,480 | 1,720 | 896 | 149 | 13,100 | 1,790 | 64 | 2,390 | 50 |
| 7 | 122 | 3,790 | 215 | 1,690 | 780 | 1,360 | 693 | 20,400 | 3,680 | 4,180 | 1,290 | 40 |
| 8 | 122 | 6,000 | 283 | 621 | 184 | 1,410 | 808 | *24,000 | 40 | 11,900 | 621 | 220 |
| 9 | 2,670 | 8,680 | 2,700 | 604 | 892 | 2,010 | 2,250 | 23,400 | 36 | 21,900 | 330 | 1,000 |
| 10 | 2,330 | 10,900 | 2,900 | 755 | 2,740 | 2,800 | 1,220 | 24,600 | 668 | *21,300 | 516 | 1,600 |
| 11 | 185 | 11,100 | 4,000 | 494 | 2,220 | *4,220 | 505 | 25,500 | 706 | 13,000 | 512 | 1,500 |
| 12 | 908 | 3,410 | 1,000 | 1,400 | 1,780 | 4,100 | 117 | 24,300 | 621 | 4,100 | 710 | 500 |
| 13 | 360 | 2,530 | 550 | 2,880 | 1,020 | 4,100 | 49 | 18,800 | 660 | 4,100 | 1,340 | 50 |
| 14 | 2,700 | 3,230 | 160 | 2,960 | 1,230 | 1,040 | 1,190 | 10,700 | 368 | 4,100 | 929 | 60 |
| 15 | 4,440 | 3,230 | 150 | 2,490 | 44 | 292 | 1,280 | 5,460 | 554 | 2,830 | 847 | 860 |
| 16 | 4,440 | 3,230 | 1,900 | 2,990 | 50 | 136 | 1,510 | 4,100 | 618 | 2,460 | 139 | 600 |
| 17 | 5,770 | 3,230 | 3,000 | 2,640 | 274 | 2,490 | 1,670 | 3,120 | 679 | 2,480 | 95 | 570 |
| 18 | 9,120 | 3,230 | *4,400 | 131 | 396 | 1,710 | 2,520 | 4,100 | *1,600 | 2,540 | 1,350 | 280 |
| 19 | 9,120 | *3,230 | 3,260 | 547 | *380 | 824 | 198 | 3,690 | 1,740 | 2,530 | 1,690 | 1,400 |
| 20 | 9,120 | 2,530 | 720 | 2,630 | 1,240 | 840 | 52 | 734 | 1,000 | 2,540 | 959 | 420 |
| 21 | 8,680 | 2,120 | 439 | 2,620 | 2,250 | 960 | 2,180 | 226 | 118 | 1,640 | 1,100 | 50 |
| 22 | 5,570 | 2,030 | 104 | 2,100 | 1,220 | 375 | 1,620 | 1,410 | 38 | 1,370 | 639 | 200 |
| 23 | *3,230 | 456 | 949 | 1,980 | 938 | 186 | 2,040 | 1,870 | 660 | 985 | 80 | 620 |
| 24 | 2,830 | 1,290 | 724 | 1,720 | 1,650 | 2,700 | 1,530 | 1,060 | 993 | 2,030 | 389 | 1,600 |
| 25 | 3,230 | 3,020 | 101 | 152 | 1,780 | 3,770 | 1,100 | 55 | 2,170 | 1,890 | 1,920 | *160 |
| 26 | 2,880 | 3,650 | 1,700 | 125 | 2,300 | 1,220 | 654 | 2,230 | 2,580 | 100 | 1,650 | *39 |
| 27 | 2,120 | 3,510 | 2,530 | 2,090 | 1,210 | 1,230 | 2,410 | 2,450 | 2,130 | 26 | 640 | 38 |
| 28 | 2,120 | 4,440 | 320 | 2,500 | 791 | 1,270 | 3,840 | 934 | 744 | 35 | 677 | 43 |
| 29 | 504 | 2,240 | 228 | *1,950 | - | 514 | 4,000 | 1,660 | 108 | 35 | 663 | 368 |
| 30 | 134 | 2,120 | 1,420 | 1,800 | ------- | 50 | 4,460 | 1,440 | 1,560 | 37 | 84 | 1,140 |
| 31 | 908 | ------- | 391 | 1,510 | ------- | 952 | ------- | 1,900 | ------- | 35 | 29 | ------- |
| Total | 87,548 | 101,505 | 48,444 | 45,655 | 31,183 | 45,645 | 46,673 | 251,529 | 34,499 | 110,429 | 27,397 | 16,907 |
| Mean | 2,824 | 3,383 | 1,563 | 1,473 | 1,114 | 1,472 | 1,556 | 8,114 | 1,150 | 3,562 | 884 | 564 |
| Ac-ft | 173,600 | 201,300 | 96,090 | 90,560 | 61,850 | 90,540 | 92,570 | 498,900 | 68,430 | 219,000 | 54,340 | 33,530 |

Calendar year 1957: Max 55,700 Min 18 Mean 6,803 Ac-ft 4,925,000
Water year 1957-58: Max 25,500 Min 26 Mean 2,322 Ac-ft 1,681,000

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 9-18, Jan. 1, 2, Sept. 2-25; discharge estimated on basis of record of power releases from Whitney Reservoir furnished by Corps of Engineers and record for Brazos River at Waco.

## 935. 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 1958. Records of daily discharge for December 1924 to August 1925, published in WSP 608, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 451.48 ft above mean sea level (levels by Corps of Engineers). Dec. 9, 1924, to Aug. 31, 1925, chain gage at same site and datum.

Average discharge.--19 years (1939-58), 110 cfs (79,640 acre-ft per year).

Extremes.--Maximum discharge during year, 11,500 cfs May 3 (gage height, 29.32 ft); no flow several days.

1924-25, 1938-58: 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 measurement (drainage area, 370 sq mi).

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

Revisions (water years).--See also Records available.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 18 | 38 | 21 | 27 | 31 | 26 | 7,490 | 11 | 1.3 | 0.4 | 0 |
| 2 | 0 | 16 | 35 | 18 | 25 | 36 | 25 | 4,850 | 10 | 1.2 | .4 | 0 |
| 3 | 0 | 16 | 34 | 18 | 24 | 33 | 25 | 9,260 | 8.0 | 1.1 | .3 | 0 |
| 4 | 0 | 16 | 30 | 17 | 23 | 32 | 23 | 2,600 | 7.2 | 1.0 | .3 | 0 |
| 5 | 0 | 70 | 28 | 17 | 23 | *47 | 22 | 288 | 6.5 | 5.5 | .3 | 0 |
| 6 | 0 | 3,300 | 30 | 16 | 25 | 95 | 18 | 168 | 5.6 | 377 | .3 | 0 |
| 7 | 0 | 700 | 37 | 16 | 23 | 3,090 | 15 | 127 | 5.2 | 913 | .2 | 13 |
| 8 | 0 | 800 | 31 | 17 | 20 | 784 | 15 | 104 | 4.6 | 82 | .2 | 3.8 |
| 9 | 0 | 100 | 25 | 14 | 20 | 411 | 32 | 92 | 4.8 | 18 | .2 | .5 |
| 10 | 0 | 80 | 25 | 14 | 35 | 122 | 27 | 78 | 4.2 | 8.5 | .2 | .1 |
| 11 | 0 | 70 | 22 | 15 | 38 | 92 | 22 | 68 | 3.5 | 5.6 | .2 | .1 |
| 12 | 0 | 60 | 20 | 17 | 31 | 86 | 20 | 59 | 3.4 | 4.2 | .2 | .5 |
| 13 | 900 | 60 | 20 | 293 | 25 | 97 | 22 | 52 | 2.9 | 3.4 | .2 | .1 |
| 14 | 4,030 | 60 | 22 | 136 | 26 | 74 | *98 | 68 | 2.8 | 2.5 | .2 | 0 |
| 15 | 2,220 | 55 | 22 | 52 | 31 | 64 | 74 | 170 | 2.5 | *1.9 | .2 | 0 |
| 16 | 709 | 55 | 22 | 36 | 25 | 58 | 35 | 63 | *3.1 | 1.5 | .2 | 0 |
| 17 | 59 | 50 | *22 | 31 | 23 | 55 | 24 | 47 | 26 | 1.4 | .2 | 0 |
| 18 | 27 | 50 | 22 | 28 | 21 | 49 | 25 | 40 | 30 | 1.3 | *3.0 | 0 |
| 19 | 17 | *47 | 23 | 44 | 21 | 45 | 29 | 34 | 7.8 | 1.5 | 1.7 | 520 |
| 20 | 15 | 43 | 19 | 160 | 21 | 42 | 42 | *31 | 4.6 | 1.2 | 1.0 | *720 |
| 21 | 15 | 38 | 16 | 150 | 21 | 40 | 91 | 29 | 3.4 | 1.1 | 8.4 | 35 |
| 22 | 66 | 54 | 16 | 78 | 138 | 40 | 41 | 27 | 3.2 | 1.0 | 3.7 | 17 |
| 23 | 409 | 58 | 16 | 57 | 314 | 52 | 26 | 24 | 3.5 | 1.0 | 50 | 17 |
| 24 | 76 | 734 | 21 | 50 | 100 | 47 | 23 | 22 | 3.1 | 1.0 | 580 | 3.8 |
| 25 | 36 | 338 | 118 | 45 | 58 | 39 | 21 | 20 | 2.2 | .9 | 6.3 | 2.1 |
| 26 | 25 | 108 | 194 | 42 | 60 | 36 | 248 | 18 | 2.0 | .8 | .6 | 1.3 |
| 27 | 20 | 77 | 50 | 38 | 50 | 34 | 5,840 | 16 | 1.7 | .7 | .2 | 1.1 |
| 28 | 20 | 60 | 36 | *36 | 35 | 33 | 916 | 15 | 1.6 | .6 | .1 | .8 |
| 29 | 20 | 50 | 29 | 36 | - | 30 | 181 | 229 | 1.5 | .6 | 0 | .6 |
| 30 | 18 | 41 | 25 | 34 | ------- | 29 | 2,040 | 20 | 1.4 | .5 | 0 | 1.2 |
| 31 | 18 | ------- | 23 | 32 | ------- | 33 | ------- | 14 | ------- | .5 | 0 | ------- |
| Total | 8,700 | 7,224 | 1,071 | 1,578 | 1,283 | 5,756 | 10,046 | 26,123 | 177.3 | 1,441.8 | 659.2 | 1,338.0 |
| Mean | 281 | 241 | 34.5 | 50.9 | 45.8 | 186 | 335 | 843 | 5.91 | 46.5 | 21.3 | 44.6 |
| Ac-ft | 17,260 | 14,330 | 2,120 | 3,130 | 2,540 | 11,420 | 19,930 | 51,810 | 352 | 2,860 | 1,310 | 2,650 |

Calendar year 1957: Max 5,890 Min 0 Mean 208 Ac-ft 150,900
Water year 1957-58: Max 9,260 Min 0 Mean 179 Ac-ft 129,700

Peak discharge (base, 7,000 cfs).--Apr. 27 (12 m.) 7,500 cfs (27.02 ft); May 1 (5 a.m.) 9,750 cfs (28.47 ft); May 3 (1 a.m.) 11,500 cfs (29.32 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 28 to Nov. 18, May 22-26, July 25 to Aug. 4, Aug. 23-24, Sept. 19-20; discharge estimated on basis of floodmarks and weather records.

945. Green Creek near Alexander, Tex.

Location.--Lat 32°04'20", long 98°14'00", at downstream side of bridge on State Highway 6, 0.2 mile upstream from Missouri, Kansas, Texas Railroad Co. bridge, 1.0 mile upstream from Cottonwood Creek, and 1.7 miles northwest of Alexander, Erath County.

Drainage area.--45.5 sq mi, of which 22.8 sq mi is above flood-detention reservoirs.

Records available.--October 1954 to April 1958 (annual maximum only), May to September 1958.

Gage.--Water-stage recorder and crest-stage gage. Datum of gage is 1,172 ft above mean sea level, datum of 1929. Prior to May 27, 1958, crest-stage gage only.

Extremes.--1954-57: The annual maximum discharge for the water years 1955-57 is given in the following table:

| Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|
| 1955 | May 19, 1955 | 4,000 | 13.24 |
| 1956 | Apr. 30, 1956 | 23,900 | 23.95 |
| 1957 | Apr. 26, 1957 | 5,400 | 14.76 |

1957-58: Maximum discharge during water year, 1,170 cfs in October or November 1957 (gage height, 8.49 ft); no flow for many days.
1954-58: Maximum discharge, 23,900 cfs Apr. 30, 1956 (gage height, 23.95 ft); no flow at times each year.
Maximum stage since at least 1910, 28.0 ft May 23, 1952 (discharge, 55,800 cfs, from contracted-opening measurement).

Remarks.--Records good. At end of year the flow from 22.8 sq mi above this station was partly controlled by eight floodwater detention reservoirs with a total combined capacity of 7,840 acre-ft below flood spillway crests, of which 6,864 acre-ft is floodwater-detention capacity and 976 acre-ft is sediment-storage capacity. Capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. Eleven rain gages (8 standard and 3 recording) are in operation in the basin. Station operated as part of Green Creek basin hydrologic cooperative program of the Geological Survey and Soil Conservation Service to evaluate rainfall-runoff relationships, soil conservation practices, and to assist the Soil Conservation Service in evaluating the effect of flood-detention structures.

Discharge, in cubic feet per second, May to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | - | 1.4 | 0.4 | | |
| 2 | *0 | | | | | | | - | 1.3 | .4 | | |
| 3 | | | | | | | | - | 1.2 | .3 | | |
| 4 | | | | | | | | - | 1.2 | .3 | | |
| 5 | | | | | | | | - | 1.2 | .3 | | |
| 6 | | | | | | | | - | 1.2 | 4.4 | | |
| 7 | | | | | | | | - | 1.1 | 4.7 | | |
| 8 | | | | | | | | - | 1.1 | 2.3 | | |
| 9 | | | | | | | | - | 1.1 | 1.3 | | |
| 10 | | | | | | | | - | 1.0 | .8 | | |
| 11 | | | | | | †4.0 | | - | .9 | .6 | | |
| 12 | | | | | | | | - | .8 | .4 | | |
| 13 | | | | | | | | - | .8 | .3 | | |
| 14 | | | | | | | | - | .7 | .2 | | |
| 15 | | | | | | | | - | .7 | .2 | | |
| 16 | | | | | | | | - | .9 | .1 | | |
| 17 | | | | | | | | - | 1.4 | .1 | | |
| 18 | | | | | | | | - | 1.2 | .1 | | |
| 19 | | | | | | | | - | 1.1 | .1 | (*) | |
| 20 | | †0.2 | | | | | | - | .9 | .1 | | |
| 21 | | | | | | | | - | 1.3 | .1 | | |
| 22 | | | | | | | | - | 2.5 | 11 | | |
| 23 | | | | | | | | - | 1.8 | 6.6 | | |
| 24 | | | | | | | | - | 1.4 | 4.9 | | (*) |
| 25 | | | | | | | | - | 1.1 | 2.1 | | |
| 26 | | | | | | | | - | .9 | 1.1 | | |
| 27 | | | | | | | | *1.8 | .8 | .6 | | |
| 28 | | | | | | | | 1.6 | .7 | .3 | | |
| 29 | | | | | - | | | 1.5 | .6 | .1 | | |
| 30 | | | | †1.9 | ------- | | | 1.5 | .5 | .1 | | |
| 31 | | ------- | | ------- | ------- | | ------- | 1.4 | ------- | 0 | | ------- |
| Total | | | | | | | | - | 32.8 | 44.3 | 0 | 0 |
| Mean | | | | | | | | - | 1.09 | 1.43 | 0 | 0 |
| Ac-ft | | | | | | | | - | 65 | 88 | 0 | 0 |

| | | | | | |
|---|---|---|---|---|---|
| Calendar year | : Max | Min | Mean | Ac-ft | |
| Water year | : Max | Min | Mean | Ac-ft | |

* Discharge measurement or observation of no flow made on this day.
† Result of discharge measurement.

## 950. North Bosque River near Clifton, Tex.

Location.--Lat 31°47'10", long 97°34'00", near left bank on downstream side of left pier of bridge on State Highway 215, 0.5 mile northeast of Clifton, Bosque County, and 2.9 miles downstream from Meridian Creek. Prior to Mar. 26, 1958, at site 1.1 miles upstream.

Drainage area.--988 sq mi.

Records available.--October 1923 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 605.43 ft above mean sea level, datum of 1929, supplementary adjustment of 1942. Prior to Oct. 1, 1955, and from Apr. 23, 1957, to Mar. 26, 1958, staff gage at site 1.1 miles upstream at datum 17.02 ft higher.

Average discharge.--35 years, 202 cfs (146,200 acre-ft per year).

Extremes.--Maximum discharge during year, 32,200 cfs May 2 (gage height, 28.60 ft); minimum, 2.8 cfs Oct. 5-12.

1923-58: Maximum discharge, 39,000 cfs Apr. 22, 1945 (gage height, 23.2 ft, from floodmark, at site 1.1 miles upstream); no flow at times.

Maximum stage since at least 1887, about 25 ft at staff-gage site and about 35 ft at recorder site, May 9, 1922, from information by local resident.

Remarks.--Records good. At end of water year flow from 46.2 sq mi (revised) above this station was partly controlled by 13 floodwater-detention reservoirs with total combined capacity of 15,150 acre-ft below flood spillway crest, of which 13,340 acre-ft is flood-water-detention capacity and 1,810 acre-ft is sediment-storage capacity. The capacity in these reservoirs allocated to sediment-storage will be used for conservation storage until eliminated by sedimentation. Small diversions above station.

Revisions (water years).--WSP 788: 1924-26, 1928, 1930. WSP 1058: 1945(M). WSP 1512: 1924(M), 1927, 1928(M), 1929, 1930(M), 1931-33, 1934(M), 1935-37, 1939.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 30 to May 13, May 15-18, June 18 to July 8, July 23)

| Oct. 1 to Mar. 26 | | | | Mar. 27 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.5 | 3.0 | 1.2 | 166 | 2.3 | 7.2 | 5.0 | 665 |
| .6 | 10 | 1.6 | 423 | 2.4 | 13 | 6.0 | 1,180 |
| .7 | 24 | 2.0 | 780 | 2.6 | 28 | 8.0 | 2,540 |
| .8 | 43 | 3.0 | 2,000 | 3.0 | 77 | 11.0 | 5,400 |
| 1.0 | 98 | 5.0 | 5,590 | 3.5 | 170 | 14.0 | 9,030 |
| | | | | 4.0 | 300 | 18 | 14,600 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.0 | a60 | 218 | 144 | 162 | 292 | 252 | 4,480 | 130 | *36 | 20 | *8.6 |
| 2 | 3.0 | a60 | 208 | 129 | 148 | 333 | 247 | 10,300 | 123 | 34 | 18 | 8.2 |
| 3 | 3.0 | 92 | 202 | 126 | 148 | 361 | 244 | *13,900 | 115 | 31 | 18 | 8.2 |
| 4 | 3.0 | 965 | 176 | 126 | 148 | 354 | 234 | 2,390 | 108 | 30 | 18 | 8.2 |
| 5 | 2.8 | 938 | 166 | 126 | 148 | 416 | 223 | 1,310 | 105 | 27 | 16 | 8.2 |
| 6 | 2.8 | 2,430 | 176 | 123 | 144 | 708 | 206 | 955 | 101 | 654 | 15 | 8.2 |
| 7 | 2.8 | 400 | 176 | 117 | 140 | 1,200 | 194 | 778 | 96 | 5,070 | 15 | 8.2 |
| 8 | 2.8 | 644 | 176 | 117 | 136 | 1,260 | 194 | 642 | 92 | 421 | 15 | 9.1 |
| 9 | 2.8 | 409 | 176 | 114 | a150 | 982 | 258 | 540 | 92 | 177 | 15 | 9.1 |
| 10 | 2.8 | 313 | 171 | 110 | 176 | *580 | 349 | 482 | 89 | 119 | 22 | 9.1 |
| 11 | 2.8 | 326 | 151 | 107 | 187 | 361 | 247 | 440 | 84 | 91 | 13 | 9.1 |
| 12 | 2.8 | 340 | 144 | 117 | 176 | 454 | 213 | 406 | 78 | 75 | 11 | 9.1 |
| 13 | 1,810 | 347 | 140 | 1,490 | 159 | 485 | 231 | 372 | 74 | 64 | 15 | 9.1 |
| 14 | 4,660 | 320 | 136 | 817 | 159 | 454 | 1,020 | 356 | 72 | 57 | 15 | 9.1 |
| 15 | 1,180 | 245 | 133 | 509 | 148 | 388 | 642 | 860 | 71 | *50 | 12 | 9.1 |
| 16 | 527 | 213 | 133 | 313 | 140 | 340 | *318 | 416 | 72 | 44 | 11 | 11 |
| 17 | 528 | 197 | 133 | 238 | 133 | 326 | 258 | 465 | *84 | 40 | 10 | 11 |
| 18 | 171 | 176 | 133 | 225 | 129 | 313 | 241 | 378 | 88 | 36 | *10 | 10 |
| 19 | 129 | 171 | *133 | 354 | 126 | 306 | 241 | *312 | 83 | 32 | 9.6 | 11 |
| 20 | 68 | *155 | 129 | a420 | 129 | *299 | 261 | 278 | 77 | 28 | 9.1 | 15 |
| 21 | 60 | 151 | 129 | 462 | 133 | 272 | 375 | 250 | 71 | 30 | 9.1 | 13 |
| 22 | 92 | 166 | 126 | 333 | 449 | 238 | 292 | 236 | 72 | 33 | 9.1 | 14 |
| 23 | *354 | 218 | 123 | 285 | 2,290 | 1,140 | 244 | 216 | 68 | 231 | 11 | 14 |
| 24 | 159 | 986 | 123 | 265 | 880 | 438 | 216 | 201 | 68 | 77 | 26 | 16 |
| 25 | 110 | 1,220 | a220 | 245 | 572 | 333 | 199 | 189 | 68 | 50 | 12 | 18 |
| 26 | a90 | 730 | 347 | 225 | 477 | 313 | 278 | 180 | 57 | 38 | 9.6 | *16 |
| 27 | a80 | 423 | a280 | 208 | 395 | a300 | 706 | 168 | 50 | 33 | 9.1 | 19 |
| 28 | a70 | 354 | 208 | 197 | 320 | *a297 | 378 | 161 | 46 | 28 | 9.1 | 66 |
| 29 | a60 | a280 | 162 | *192 | - | a297 | 598 | *148 | 44 | 26 | 8.6 | 40 |
| 30 | a60 | 238 | 151 | 176 | ------- | 294 | 5,410 | 146 | 42 | 23 | 8.6 | 24 |
| 31 | a60 | ------- | 151 | 166 | ------- | 269 | ------- | 140 | ------- | *21 | 8.6 | ------- |
| Total | 10,032.4 | 13,567 | 5,230 | 8,576 | 8,502 | 14,403 | 14,769 | 42,095 | 2,420 | 7,706 | 408.5 | 428.6 |
| Mean | 324 | 452 | 169 | 277 | 304 | 465 | 492 | 1,358 | 80.7 | 249 | 13.2 | 14.3 |
| Ac-ft | 19,900 | 26,910 | 10,370 | 17,010 | 16,860 | 28,570 | 29,290 | 83,490 | 4,800 | 15,280 | 810 | 850 |

Calendar year 1957: Max 23,500 Min 0 Mean 635 Ac-ft 459,400
Water year 1957-58: Max 13,900 Min 2.8 Mean 351 Ac-ft 254,100

Peak discharge (base, 8,300 cfs).--Apr. 30 (9:30 p.m.) 14,800 cfs (17.55 ft); May 2 (7:30 p.m.) 32,200 cfs (28.60 ft).

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

## 965. 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 1958 (January 1912 to September 1914 monthly records only, published in WSP 850). Gage-height records collected in this vicinity since 1900 are contained in reports of U. S. 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, and May 6, 1922, to Feb. 12, 1934, staff or chain gages at several sites within about 350 ft of present site at same datum. May 28, 1918, to May 5, 1922, and Feb. 13, 1925, to Sept. 29, 1934, water-stage recorder at site about 300 ft downstream at same datum.

Average discharge.--60 years, 2,562 cfs (1,855,000 acre-ft per year).

Extremes.--Maximum discharge during year, 70,600 cfs May 3 (gage height, 28.10 ft); minimum daily, 117 cfs Oct. 8.

1898-1958: Maximum discharge, 246,000 cfs Sept. 27, 1936 (gage height, 40.90 ft, levee on left bank was overtopped and broken by flood); minimum for periods of daily record 1898-1911, 1914-58, no flow Aug. 20, 21, 1918, and probably for several days in August 1923.

Maximum stage 1854-97, 34.6 ft May 28, 1885, from floodmark. A stage of 39.7 ft was reached Dec. 3, 1913, when levee on left bank was broken by flood, from information by U. S. Weather Bureau.

Remarks.--Records good except those for period of no gage-height record in October, which are fair. Flow regulated by Possum Kingdom and Whitney Reservoirs on Brazos River (see p. ), several small reservoirs in Clear Fork and other basins (combined capacity, 221,800 acre-ft), and Lake Waco on Bosque River (capacity, 22,000 acre-ft); total combined capacity of all reservoirs, about 2,986,000 acre-ft, of which 1,630,500 acre-ft is flood-control storage in Whitney Reservoir. A siltation survey of Lake Waco by the Soil Conservation Service of the U. S. 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 oilfield operation do not appreciably affect flow. The city of Waco discharged an average of about 10 cfs on sewage effluent 2¼ miles below gage.

Revisions (water years).--WSP 568: Drainage area. WSP 850 and 878: 1899-1900, 1907-9 (monthly and yearly summaries only). WSP 1512: 1901-5, 1910, 1914-15, 1925-26(M), 1927-29.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *384 | 1,870 | 2,400 | 694 | 1,530 | 2,340 | 1,430 | 17,800 | 2,180 | 1,450 | 340 | 179 |
| 2 | 611 | 1,660 | 3,460 | 487 | a520 | 1,200 | 2,140 | 24,600 | a620 | 656 | 345 | 207 |
| 3 | 678 | 1,120 | 3,350 | 880 | 632 | 1,420 | 3,690 | 57,800 | 2,500 | 871 | 866 | 1,350 |
| 4 | 1,140 | 826 | 3,490 | 1,320 | 1,510 | *2,970 | 2,220 | 24,500 | 2,490 | 751 | 340 | 680 |
| 5 | 878 | 3,460 | 3,350 | 1,190 | 985 | 2,600 | 1,350 | 13,300 | 1,850 | 518 | 1,850 | 403 |
| 6 | 325 | 8,780 | 2,120 | 514 | 2,290 | 915 | 970 | *12,400 | 2,400 | 654 | 2,200 | 571 |
| 7 | 167 | 6,420 | 2,050 | 1,460 | 1,720 | 4,110 | 517 | 21,100 | 1,950 | 6,110 | 2,070 | 325 |
| 8 | 117 | 9,460 | 676 | 1,780 | 985 | 5,220 | 1,280 | 25,700 | a660 | 6,750 | 1,130 | 159 |
| 9 | 177 | 11,000 | 1,200 | 985 | 1,000 | 3,510 | 1,460 | 24,800 | a680 | 22,200 | 636 | 155 |
| 10 | a2,300 | 9,820 | 3,680 | 820 | 1,460 | 4,220 | 2,110 | 24,200 | 610 | *23,000 | 384 | 821 |
| 11 | a1,500 | 13,900 | 4,460 | 1,060 | 2,990 | 5,300 | 1,350 | 26,300 | 781 | 19,200 | 519 | 1,440 |
| 12 | a1,000 | 6,980 | 3,510 | 1,270 | 2,620 | 5,580 | 1,160 | 25,400 | 867 | 5,050 | 507 | 1,320 |
| 13 | a2,000 | a3,500 | 1,310 | 3,330 | 2,120 | 4,460 | 1,360 | 21,300 | 868 | 4,010 | 726 | 568 |
| 14 | a6,000 | a3,900 | 950 | 4,710 | 1,430 | 3,080 | 1,200 | 16,200 | 804 | 4,010 | 1,140 | 311 |
| 15 | a4,600 | a3,900 | 742 | 3,540 | a570 | 2,080 | *1,890 | 7,730 | a540 | 2,980 | 809 | 148 |
| 16 | a6,000 | a3,700 | 1,270 | 3,440 | a380 | 1,340 | 2,130 | 6,360 | 878 | 2,430 | 757 | 542 |
| 17 | a8,200 | a3,700 | *2,230 | 3,180 | 642 | 1,540 | 2,020 | 3,770 | *2,700 | 2,390 | 205 | 585 |
| 18 | a9,700 | *a3,500 | 4,010 | 2,360 | *634 | 3,030 | 2,200 | 5,220 | 850 | 2,380 | *216 | 541 |
| 19 | a9,500 | 3,350 | 4,340 | 1,630 | 712 | 2,100 | 2,430 | 4,820 | 1,700 | 2,480 | 1,050 | 1,440 |
| 20 | a9,200 | 3,150 | 2,000 | 1,950 | 658 | 1,430 | 1,220 | *3,800 | 1,860 | 2,320 | 1,460 | 4,760 |
| 21 | a8,000 | 2,540 | 1,060 | 3,260 | 1,790 | 1,510 | a510 | 1,060 | 1,100 | 2,250 | 1,070 | 790 |
| 22 | a6,200 | 3,320 | 820 | 3,000 | 7,160 | 1,820 | 2,770 | a540 | 701 | 1,550 | 993 | 442 |
| 23 | a4,600 | 2,110 | 1,200 | 3,100 | 11,900 | 2,040 | 2,300 | 2,580 | 442 | 1,340 | 646 | 285 |
| 24 | a4,100 | 5,090 | 1,000 | 2,560 | 4,560 | 1,990 | 2,190 | 2,110 | 714 | 981 | 7,630 | 698 |
| 25 | a4,000 | 5,580 | 950 | 2,090 | 2,680 | 4,120 | 1,930 | 1,410 | 1,240 | 1,910 | 3,290 | 1,410 |
| 26 | a3,700 | 5,060 | 712 | 850 | 4,540 | 2,900 | 1,990 | a570 | 2,160 | 1,730 | 1,810 | 509 |
| 27 | a3,100 | 5,580 | 2,930 | a440 | 3,670 | 1,360 | 4,850 | 3,150 | 3,800 | 487 | 1,550 | 613 |
| 28 | a2,800 | 5,290 | 2,730 | *3,100 | 1,620 | 1,940 | 9,720 | 2,570 | 1,230 | 275 | 736 | 204 |
| 29 | 2,470 | 3,540 | a650 | 2,590 | - | 2,000 | 4,750 | 1,820 | 850 | 240 | 728 | a150 |
| 30 | 736 | 2,850 | a600 | 2,010 | ------- | 790 | 7,520 | 1,980 | 418 | 301 | 716 | *284 |
| 31 | 574 | ------- | 2,210 | 2,620 | ------- | 807 | ------- | 1,660 | ------- | 280 | 370 | ------- |
| Total | 104,757 | 144,956 | 65,460 | 62,220 | 63,308 | 79,722 | 72,657 | 386,550 | 40,443 | 121,554 | 37,089 | 21,890 |
| Mean | 3,379 | 4,832 | 2,112 | 2,007 | 2,261 | 2,572 | 2,422 | 12,470 | 1,348 | 3,921 | 1,196 | 730 |
| Ac-ft | 207,800 | 287,500 | 129,800 | 123,400 | 125,600 | 158,100 | 144,100 | 766,700 | 80,220 | 241,100 | 73,560 | 43,420 |

Calendar year 1957: Max 65,500 Min 33 Mean 8,470 Ac-ft 6,132,000
Water year 1957-58: Max 57,800 Min 117 Mean 3,289 Ac-ft 2,381,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for Brazos River near Whitney, North Bosque River near Clifton, and Aquilla Creek near Aquilla.

970. Cow Bayou at Mooreville, Tex.

Location.--Lat 31°18'45", long 97°08'16", on right bank at downstream side of county bridge, 500 ft downstream from confluence of North Cow Bayou and South Cow Bayou, 0.8 mile north of Mooreville, Falls County, and 5.0 miles northwest of Chilton.
Drainage area.--79.6 sq mi.
Records available.--September 1954 to May 1958 (annual maximum only), June to September 1958.
Gage.--Water-stage recorder and crest-stage gage. Datum of gage is 399.58 ft above mean sea level, datum of 1929 (levels by Soil Conservation Service). Prior to June 10, 1958, crest-stage gage only.
Extremes.--1954-57: The annual maximum discharge for the water years 1955-57 is given in the following table.

| Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|
| 1955 | Apr. 9, 1955 | 5,100 | 21.65 |
| 1956 | May 1, 1956 | 3,280 | 19.39 |
| 1957 | May 12, 1957 | (a) | 29.4 |

a Not determined.

1957-58: Maximum discharge during water year, 6,460 cfs Oct. 14 (gage height, 22.85 ft); no flow many days.
1954-58: Maximum discharge not determined, occurred May 12, 1957 (gage height, 29.4 ft, from floodmarks); no flow at times each year.
Maximum stage since at least 1900, about 31 ft about May 1, 1944, from information by local resident.
Remarks.--Records good. At end of year flow from 28.0 sq mi above this station was partly controlled by nine floodwater-detention reservoirs with a total combined capacity of 10,660 acre-ft below flood spillway crests, of which 9,190 acre-ft is floodwater-detention capacity and 1,470 acre-ft is sediment-pool capacity. Three of these reservoirs were constructed during the current year and have a total combined capacity below flood spillway crests of 5,080 acre-ft, of which 602 acre-ft is sediment-pool capacity. Capacity of these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The first floodwater-detention reservoir in this basin was completed in April 1955.

Rating table, June 10 to Sept. 30, 1958 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 17, 18)

| | | | | | |
|---|---|---|---|---|---|
| 3.1 | 0.1 | 3.5 | 4.8 | 5.0 | 78 |
| 3.2 | .4 | 3.6 | 7.7 | 7.0 | 181 |
| 3.3 | 1.2 | 3.7 | 11 | 9.0 | 318 |
| 3.4 | 2.6 | 4.0 | 27 | | |

Discharge, in cubic feet per second, June to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | - | 2.0 | 0.5 | 0.9 |
| 2 | | | | | | | | | - | 1.7 | .4 | .7 |
| 3 | | | | | | | | | - | 2.0 | .5 | .7 |
| 4 | | | | | | | | | - | 1.5 | .8 | .7 |
| 5 | | | | | | | | | - | 9.3 | .5 | .7 |
| 6 | | | | | | | | | - | 37 | .3 | 1.4 |
| 7 | | | | | | | | | - | 4.8 | .3 | 4.1 |
| 8 | | | | | | | | | - | 3.6 | .3 | *1.9 |
| 9 | | | | | | | | | - | 3.2 | .2 | 1.4 |
| 10 | | | | | | | | | 4.8 | 2.6 | .2 | .9 |
| 11 | | | | | | | | | - | 2.3 | *.2 | 2.3 |
| 12 | | | | | | | | | 3.4 | 2.3 | .1 | 1.3 |
| 13 | | | | | | | | | 2.0 | 2.3 | .1 | .9 |
| 14 | | | | | | | | | 2.0 | 2.1 | .1 | .9 |
| 15 | | | | | | | | | 6.6 | 1.8 | .1 | .8 |
| 16 | | | | | | | | | 23 | 1.7 | .1 | 1.0 |
| 17 | | | | | †16 | | | | 220 | 1.5 | .1 | 1.3 |
| 18 | | | | | | | | | *26 | 1.4 | 2.9 | 1.2 |
| 19 | | | | | | | | | 12 | 1.4 | .8 | 7.7 |
| 20 | | | | | | †40 | | | 7.7 | 1.3 | .3 | 6.5 |
| 21 | | | | | | | | | 6.5 | 1.3 | 5.6 | 1.5 |
| 22 | | | | | | | | | 6.5 | 1.4 | 1.7 | 2.8 |
| 23 | | | | | | | | | 5.9 | 1.4 | 6.7 | 3.9 |
| 24 | | | | | | | | | 4.6 | 1.3 | *15 | 1.3 |
| 25 | | | | | | | | | 3.8 | 1.2 | 2.2 | 1.2 |
| 26 | | | | | | | | | 2.3 | 1.1 | 1.3 | 28 |
| 27 | | | | | | | | | 2.1 | 1.0 | 1.1 | 61 |
| 28 | | | | | | | | | 2.1 | .9 | 1.0 | 4.8 |
| 29 | | | | | - | | | | 2.1 | .9 | .9 | 2.8 |
| 30 | †53 | | | | ------- | | | | 2.0 | .8 | .9 | 2.0 |
| 31 | ------- | | | | ------- | | ------- | | ------- | *.6 | .9 | ------- |
| Total | | | | | | | | | - | 97.7 | 46.1 | 146.6 |
| Mean | | | | | | | | | - | 3.15 | 1.49 | 4.89 |
| Ac-ft | | | | | | | | | - | 194 | 91 | 291 |

| | | | | |
|---|---|---|---|---|
| Calendar year | : Max | Min | Mean | Ac-ft |
| Water year | : Max | Min | Mean | Ac-ft |

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

## 995. Leon River near Hasse, Tex.

Location.--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 and Santa Fe Railway Co. 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.--1,242 sq mi.

Records available.--January 1939 to September 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,115.01 ft above mean sea level, datum of 1929, Fort Worth Supplementary adjustment of 1942.

Average discharge.--19 years, 160 cfs (115,800 acre-ft per year).

Extremes.--Maximum discharge during year, 3,940 cfs Oct. 17 (gage height, 14.04 ft); no flow at times.

1939-58: Maximum discharge, 38,500 cfs May 24, 1952 (gage height, 21.49 ft); no flow at times.

Maximum stage known since at least 1858, about 27 ft in May 1908, from information by local resident. At location about 2½ miles upstream, flood in May 1908 was 9.1 ft higher than that of May 1952, from floodmarks pointed out by local resident.

Remarks.--Records good. Flow slightly regulated by Leon Reservoir (*see* p. 180). Small diversions above station.

Revisions (water years).--WSP 1342: 1952. WSP 1392: 1952. WSP 1442: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 14-21, Nov. 4, 6, 8-10, 25-27, Jan. 12, 13, Feb. 23, 24, Mar. 6-15, Apr. 9, 14, 15, Apr. 28 to May 5, May 7, 8, 16-18, July 8, 9, 22, 24, Sept. 26-27)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3.0 | 0 | 3.4 | 12 | 4.5 | 213 | 11.0 | 1,460 |
| 3.1 | 1.2 | 3.6 | 24 | 5.0 | 344 | 12.0 | 1,940 |
| 3.2 | 3.7 | 3.8 | 44 | 7.0 | 670 | 13.0 | 3,000 |
| 3.3 | 7.0 | 4.1 | 96 | 10.0 | 1,200 | 14.0 | 4,700 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 20 | 118 | 32 | 31 | 61 | 52 | *1,600 | 31 | 10 | 0.7 | 0 |
| 2 | 0 | 20 | 90 | 30 | 31 | 58 | 48 | 1,400 | 27 | 10 | .4 | 0 |
| 3 | 0 | 76 | 72 | 28 | 31 | 54 | 48 | *2,410 | 23 | 10 | .2 | 0 |
| 4 | 0 | 800 | 61 | 27 | 28 | 50 | 44 | *2,870 | 21 | 35 | 0 | 0 |
| 5 | 0 | 913 | 55 | 28 | 28 | 72 | 41 | 1,750 | 17 | 90 | 0 | 0 |
| 6 | 0 | 755 | 50 | 31 | 28 | 335 | 33 | *948 | 16 | 320 | 0 | 0 |
| 7 | 0 | 991 | 54 | *42 | *26 | 722 | 34 | 555 | 15 | 310 | 0 | 0 |
| 8 | 0 | 753 | 51 | 45 | 25 | 1,230 | *33 | 310 | 14 | *285 | 0 | *0 |
| 9 | 0 | 611 | 48 | 42 | 25 | 1,210 | 232 | 228 | 16 | 258 | 0 | 10 |
| 10 | 0 | 360 | 45 | 36 | 25 | 830 | 137 | 183 | *17 | 192 | 0 | 30 |
| 11 | 0 | 243 | 38 | 32 | 25 | *457 | 48 | 162 | 14 | 120 | 0 | 38 |
| 12 | 0 | 186 | 35 | 229 | 26 | 303 | 31 | 138 | 12 | 77 | 0 | 86 |
| 13 | 0 | 168 | 33 | 539 | 25 | 344 | 37 | 118 | 18 | 55 | *0 | 16 |
| 14 | 496 | 138 | 31 | 222 | 25 | 342 | 228 | 112 | 15 | 41 | 0 | 5.0 |
| 15 | 1,010 | 101 | 30 | 114 | 25 | 240 | 260 | 110 | 10 | 28 | 0 | 2.3 |
| 16 | 1,830 | 81 | 30 | 70 | 24 | 168 | 133 | 196 | 8.3 | 19 | 0 | 4.1 |
| 17 | 3,600 | 66 | 29 | 55 | 23 | 144 | 66 | 349 | 9.6 | 12 | 0 | 59 |
| 18 | 2,500 | 58 | 28 | 47 | 23 | 129 | 54 | 239 | 9.6 | 8.7 | 0 | 8.9 |
| 19 | 1,310 | 54 | 28 | 44 | 23 | 112 | 47 | 183 | 17 | 5.5 | 0 | 4.2 |
| 20 | 542 | 50 | 27 | 47 | 23 | 96 | 58 | 180 | 13 | 3.7 | 0 | 4.8 |
| 21 | 254 | 43 | 28 | 61 | 23 | 90 | 135 | 162 | 9.6 | 6.3 | 0 | 5.1 |
| 22 | 156 | 37 | 29 | 83 | 37 | 86 | 107 | 129 | 40 | 238 | 0 | 2.3 |
| 23 | 150 | 34 | 23 | 65 | 370 | 86 | 79 | 104 | 100 | 466 | 0 | .9 |
| 24 | 189 | 44 | 23 | 55 | 284 | 88 | 55 | 86 | 140 | 154 | 73 | .2 |
| 25 | *129 | 286 | 38 | 50 | 216 | 90 | 45 | 77 | 90 | 54 | 98 | 0 |
| 26 | 65 | 642 | 75 | 45 | 112 | 79 | 42 | 72 | 70 | 20 | 34 | 101 |
| 27 | 48 | *394 | 75 | 43 | 75 | 68 | 41 | 63 | 50 | 9.6 | 11 | 246 |
| 28 | 37 | 269 | 58 | 38 | 66 | 63 | 104 | 54 | 35 | 5.5 | 3.7 | 42 |
| 29 | 31 | 204 | 47 | 36 | - | 61 | 1,110 | 50 | 25 | 3.4 | 1.2 | 23 |
| 30 | 26 | 150 | 42 | 35 | ------- | 58 | 1,180 | 43 | 20 | 2.1 | .2 | 11 |
| 31 | 22 | ------- | 36 | 33 | ------- | 57 | ------- | 37 | ------- | 1.2 | 0 | ------- |
| Total | 12,395 | 8,547 | 1,427 | 2,284 | 1,703 | 7,783 | 4,562 | 14,918 | 903.1 | 2,850.0 | 222.4 | 699.8 |
| Mean | 400 | 285 | 46.0 | 73.7 | 60.8 | 251 | 152 | 481 | 30.1 | 91.9 | 7.17 | 23.3 |
| Ac-ft | 24,590 | 16,950 | 2,830 | 4,530 | 3,380 | 15,440 | 9,050 | 29,590 | 1,790 | 5,650 | 441 | 1,390 |

Calendar year 1957: Max 14,100 Min 0 Mean 436 Ac-ft 315,500
Water year 1957-58: Max 3,600 Min 0 Mean 160 Ac-ft 115,600

Peak discharge (base, 2,800 cfs).--Oct. 17 (9 a.m.) 3,940 cfs (14.04 ft); May 3 (6 p.m.) 3,590 cfs (13.83 ft).

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

Note.--No gage-height record June 22 to July 7; discharge estimated on basis of 1 discharge measurement, engineer's notes, weather records, and record for Leon River at Gatesville.

## 1005. 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 downstream from Dodds Creek and 5.3 miles upstream from Cottonwood Creek.

Drainage area.--2,279 sq mi.

Records available.--October 1950 to September 1958.

Gage.--Water-stage recorder. 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.

Average discharge.--8 years, 231 cfs (167,200 acre-ft per year).

Extremes.--Maximum discharge during year, 7,680 cfs May 4 (gage height, 26.03 ft); minimum daily, 5.7 cfs Oct. 6-8, 10-12, Aug. 20-22, Sept. 15.
1950-58: Maximum discharge, 27,100 cfs May 13, 1957 (gage height, 31.30 ft); no flow at times.
Maximum stage known since at least 1854, 35 ft in May 1908; flood in December 1913 (stage unknown) was the second highest, from information by local residents.

Remarks.--Records good. Small diversions above station for irrigation, municipal supply, and oilfield operation.

Revisions.--WSP 1442: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-14, Apr. 12 to May 1, May 9-28)

| | | | | | |
|---|---|---|---|---|---|
| 2.7 | 1.9 | 4.0 | 129 | 20.0 | 4,280 |
| 2.8 | 7.0 | 5.0 | 276 | 23.0 | 5,580 |
| 3.0 | 24 | 10.0 | 1,260 | 26.0 | 7,680 |
| 3.5 | 69 | 15.0 | 2,580 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.8 | 130 | 470 | 183 | 168 | 498 | 268 | 2,440 | 183 | 66 | 32 | 28 |
| 2 | 7.8 | 122 | 394 | 168 | 161 | 470 | 251 | 3,720 | 165 | 61 | 26 | 22 |
| 3 | 7.0 | 122 | 347 | 156 | 151 | 498 | 251 | 7,170 | 152 | 56 | 23 | 15 |
| 4 | 7.0 | 130 | 311 | 150 | 148 | 498 | 243 | *7,290 | 142 | 51 | 21 | 12 |
| 5 | 6.3 | 227 | 276 | 146 | 145 | 517 | 227 | 6,000 | 130 | 48 | 19 | 8.6 |
| 6 | 5.7 | 890 | 259 | 142 | 146 | 555 | 212 | 3,740 | 122 | 49 | 18 | 7.8 |
| 7 | 5.7 | 1,680 | 259 | 141 | 145 | 1,310 | 204 | 3,390 | 115 | 47 | 15 | 9.4 |
| 8 | 5.7 | 2,280 | 284 | 141 | 139 | 1,110 | 190 | 2,640 | 108 | 51 | 12 | 10 |
| 9 | 6.3 | 1,330 | 259 | 141 | 134 | 1,330 | 197 | 1,580 | 99 | 50 | 11 | *12 |
| 10 | 5.7 | 1,050 | 235 | 143 | 138 | 1,360 | 204 | 990 | 99 | 50 | 10 | 10 |
| 11 | 5.7 | 970 | 220 | 147 | *145 | 1,620 | 302 | 730 | 94 | 197 | 11 | 13 |
| 12 | 5.7 | 870 | 204 | 158 | 152 | 1,700 | 365 | 612 | 91 | 212 | 11 | 9.4 |
| 13 | 32 | 710 | 197 | 182 | 150 | 1,380 | 329 | 536 | 85 | 177 | 13 | 7.8 |
| 14 | 2,760 | 574 | 190 | 611 | 146 | 930 | 320 | 498 | 81 | 136 | 15 | 7.0 |
| 15 | 4,670 | 460 | 190 | 910 | 146 | 730 | *422 | 470 | 79 | 108 | 12 | 5.7 |
| 16 | 3,510 | 374 | 182 | *670 | 143 | 770 | 374 | 479 | 77 | 88 | 8.6 | 12 |
| 17 | 2,250 | 329 | 180 | *356 | 138 | 670 | 432 | 479 | 185 | 73 | 7.8 | 30 |
| 18 | 1,430 | 302 | 180 | 268 | 133 | 555 | 432 | 574 | 93 | 64 | 7.0 | 34 |
| 19 | 1,310 | 293 | 177 | 227 | 129 | 498 | 338 | 498 | *80 | 55 | 6.3 | 28 |
| 20 | 2,250 | 251 | 172 | 212 | 126 | 450 | 311 | 574 | 77 | 49 | 5.7 | 25 |
| 21 | 2,550 | 227 | 162 | 220 | 129 | 412 | 311 | *470 | 99 | 43 | 5.7 | 30 |
| 22 | 1,750 | 220 | 154 | 251 | 737 | 384 | 311 | 394 | 82 | 42 | 5.7 | 48 |
| 23 | 830 | 227 | 148 | 227 | 3,050 | 555 | 293 | 365 | 72 | 40 | 7.8 | 36 |
| 24 | 450 | 519 | 148 | 220 | 1,800 | 790 | 302 | 347 | 73 | 37 | 104 | 28 |
| 25 | 302 | 970 | 152 | 235 | 1,290 | *441 | 276 | 311 | 170 | 37 | 26 | 22 |
| 26 | 235 | 770 | 168 | 227 | 1,090 | 403 | 259 | 284 | 204 | 305 | 15 | 18 |
| 27 | 259 | 593 | 227 | 212 | 810 | 365 | 251 | 268 | 155 | 178 | 11 | 21 |
| 28 | 220 | 631 | 197 | 197 | 631 | 347 | 251 | 386 | 111 | 99 | 7.8 | 41 |
| 29 | 180 | 850 | 204 | 183 | - | 320 | 243 | 362 | 88 | 65 | 6.3 | *78 |
| 30 | *158 | *650 | 212 | 177 | ------- | 302 | 259 | 73 | 49 | 19 | 89 | |
| 31 | 145 | ------- | 197 | 173 | ------- | 284 | ------- | 227 | ------- | *37 | 35 | ------- |
| Total | 23,367.4 | 18,751 | 6,955 | 7,574 | 12,420 | 22,052 | 8,675 | 48,083 | 3,384 | 2,620 | 527.7 | 717.7 |
| Mean | 818 | 625 | 224 | 244 | 444 | 711 | 289 | 1,551 | 113 | 84.5 | 17.0 | 23.9 |
| Ac-ft | 50,320 | 37,190 | 13,800 | 15,020 | 24,630 | 43,740 | 17,210 | 95,370 | 6,710 | 5,200 | 1,050 | 1,420 |

Calendar year 1957: Max 17,200 Min 2.1 Mean 927 Ac-ft 671,300
Water year 1957-58: Max 7,290 Min 5.7 Mean 430 Ac-ft 311,700

Peak discharge (base, 7,000 cfs).--May 4 (4 p.m.) 7,680 cfs (26.03 ft).

* Discharge measurement made on this day.

## 1010. Cowhouse Creek at Pidcoke, Tex.

Location.--Lat 31°17'05", long 97°53'05", on left bank 125 ft downstream from bridge on Farm Road 116, 0.1 mile downstream from Beehouse Creek, 0.6 mile northeast of Pidcoke, Coryell County, and 4.9 miles upstream from Table Rock Creek.

Drainage area.--475 sq mi.

Records available.--October 1950 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 736.7 ft above mean sea level, datum of 1929.

Average discharge.--8 years, 71.9 cfs (52,050 acre-ft per year).

Extremes.--Maximum discharge during year, 11,400 cfs May 3 (gage height, 20.21 ft); minimum, 0.5 cfs Oct. 7-9.
1950-58: Maximum discharge, 55,800 cfs May 1, 1956 (gage height, 38.76 ft), from rating curve extended above 9,000 cfs on basis of slope-area measurements at gage heights 26.97 and 38.76 ft; no flow at times.
Maximum stage known since at least 1882, that of May 1, 1956; a stage of about 37.5 ft occurred in 1900 and in 1944, from information by local resident.

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.8 | 27 | 110 | 58 | 47 | 168 | 112 | 190 | 78 | 18 | *2.3 | 1.5 |
| 2 | .8 | 107 | 110 | 57 | 44 | 261 | 112 | 120 | 70 | 18 | 2.1 | 1.2 |
| 3 | .7 | 110 | 108 | 56 | 43 | 224 | 110 | 3,300 | 66 | 17 | 2.6 | 1.1 |
| 4 | .6 | 58 | 102 | 56 | 41 | 201 | 106 | 820 | 61 | 16 | 2.7 | .8 |
| 5 | .6 | 111 | 95 | 55 | 40 | 309 | 97 | *435 | 56 | 15 | 2.4 | .8 |
| 6 | .6 | 512 | 95 | 112 | 39 | 322 | 87 | 306 | 52 | 17 | 2.1 | .8 |
| 7 | .6 | 224 | 117 | 93 | 58 | 1,350 | 83 | 258 | 48 | 18 | 2.0 | 1.1 |
| 8 | .5 | 214 | 112 | 74 | 36 | 631 | 83 | 221 | 44 | 18 | 1.8 | 11 |
| 9 | 502 | 136 | 89 | 64 | 34 | 306 | 106 | 187 | 44 | 16 | 1.6 | *9.1 |
| 10 | 39 | 117 | 82 | 56 | 36 | 243 | 110 | 170 | 42 | 15 | 1.5 | 5.3 |
| 11 | 15 | 136 | 80 | 53 | *48 | 210 | 91 | 154 | 39 | 13 | 1.6 | 11 |
| 12 | 9.1 | 184 | 79 | 78 | 48 | 215 | 83 | 139 | 36 | 12 | 1.5 | 4.8 |
| 13 | 1,270 | 201 | 78 | 126 | 45 | 243 | 95 | 124 | 34 | 11 | 1.4 | 2.1 |
| 14 | 5,120 | 168 | 76 | 108 | 44 | 196 | 224 | 156 | 30 | 9.9 | 3.8 | 1.6 |
| 15 | *2,600 | 139 | 74 | *74 | 43 | 176 | *157 | 175 | 30 | 8.8 | 3.8 | 1.4 |
| 16 | 875 | 117 | 72 | 58 | 42 | 168 | 108 | 299 | 30 | 8.4 | 2.0 | 1.2 |
| 17 | 198 | 106 | 71 | 50 | 39 | 165 | 95 | 165 | 90 | 7.7 | 1.8 | 1.3 |
| 18 | 106 | 110 | 70 | 49 | 36 | 173 | 95 | 136 | 45 | 7.1 | 1.5 | 1.5 |
| 19 | 69 | 106 | 69 | 49 | 36 | 187 | 91 | 124 | *34 | 6.8 | 1.6 | 2.4 |
| 20 | 49 | 89 | 68 | 58 | 36 | 157 | 119 | 110 | 30 | 6.2 | 1.6 | 4.5 |
| 21 | 43 | 85 | 67 | 83 | 42 | 146 | 157 | 102 | 38 | 6.2 | 1.4 | 5.3 |
| 22 | 52 | 91 | 66 | 74 | 2,140 | 144 | 114 | *99 | 30 | 6.8 | 2.6 | 3.8 |
| 23 | 95 | 112 | 66 | 61 | 4,270 | 187 | 100 | 97 | 28 | 6.8 | 2.6 | 5.1 |
| 24 | 95 | 459 | 65 | 64 | 731 | *165 | 95 | 91 | 27 | 6.5 | 44 | 4.3 |
| 25 | 64 | 558 | 64 | 74 | 421 | 146 | 90 | 83 | 25 | 5.6 | 28 | 2.3 |
| 26 | 40 | 232 | 63 | 66 | 380 | 146 | 190 | 80 | 25 | 4.3 | 15 | 4.5 |
| 27 | 34 | 193 | 62 | 62 | 276 | 141 | 550 | 76 | 22 | 3.8 | 9.1 | 15 |
| 28 | 30 | 165 | 61 | 59 | 193 | 134 | 190 | 117 | 21 | 3.4 | 5.9 | 13 |
| 29 | 28 | 144 | 60 | 56 | - | 129 | 120 | 102 | 20 | 3.1 | 3.8 | *8.1 |
| 30 | 28 | *129 | 59 | 52 | ------- | 124 | 100 | 89 | 19 | 2.9 | 2.6 | 5.1 |
| 31 | *27 | ------- | 59 | 49 | ------- | 114 | ------- | 83 | ------- | 2.7 | 2.1 | ------- |
| Total | 11,382.3 | 5,140 | 2,449 | 2,084 | 9,270 | 7,481 | 3,870 | 8,608 | 1,214 | 311.0 | 158.8 | 131.0 |
| Mean | 367 | 171 | 79.0 | 67.2 | 331 | 241 | 129 | 278 | 40.5 | 10.0 | 5.12 | 4.37 |
| Ac-ft | 22,580 | 10,200 | 4,860 | 4,130 | 18,390 | 14,840 | 7,680 | 17,070 | 2,410 | 617 | 315 | 260 |

Calendar year 1957: Max 20,700 Min 0.1 Mean 271 Ac-ft 196,100
Water year 1957-58: Max 5,120 Min 0.5 Mean 143 Ac-ft 103,400

Peak discharge (base, 3,000 cfs).--Oct. 14 (2 a.m.) 10,600 cfs (19.40 ft); Feb. 22 (12 p.m.) 9,520 cfs (18.34 ft); Mar. 7 (1 a.m.) 3,880 cfs (11.44 ft); May 3 (9 a.m.) 11,400 cfs (20.21 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Dec. 11 to Jan. 14, Jan. 26 to Feb. 10, Apr. 23 to May 3; discharge estimated on basis of recorded range in stage, floodmarks, weather records, and records for nearby stations.

## 1020. Belton Reservoir near Belton, Tex.

Location.--Lat 31°07', long 97°28', in intake structure at Belton Dam on Leon River, 1.4 miles upstream from bridge on State Highway 317, 3.4 miles upstream from Nolan Creek, 4.2 miles north of Belton, Bell County, and 16.7 miles upstream from confluence with Lampasas River.

Drainage area.--3,499 sq mi.

Records available.-- March 1954 to September 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 20, 1955, staff gage at same site and datum.

Extremes.--Maximum contents during year, 312,500 acre-ft May 9 (elevation, 580.87 ft); minimum, 204,600 acre-ft Sept. 15 (elevation, 568.18 ft).
1954-58: Maximum contents, 870,300 acre-ft June 6, 1957 (elevation, 620.45 ft); minimum (since first filling), 113,400 acre-ft Dec. 16, 1956 (elevation, 553.06 ft).

Remarks.--Reservoir is formed by a rolled earth-fill dam 5,524 ft long including a 1,300-foot uncontrolled broadcrested spillway in saddle on left bank and a 418-foot dike. Flood-control outlet works consist of a 22-foot diameter conduit controlled by three 7.0- by 22.0-foot electrically driven broome-type gates (elevation of invert, 483.0 ft). Low-flow outlet works consist of one 36- by 26-inch gated outlet discharging into flood-control conduit (elevation of invert at intake to wet well, 540.0 ft). Deliberate impoundment of water began Mar. 8, 1954, and main dam was completed in December 1954. Reservoir built for flood control and conservation. Fort Hood and adjacent military installations have been allocated 12,000 acre-ft of storage in the reservoir. Data regarding dam and reservoir are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Maximum design water surface | 656.9 | 1,876,700 |
| Spillway crest | 631.0 | 1,097,600 |
| Top of conservation storage | 569.0 | 210,600 |
| Invert of lowest intake | 483.0 | 278 |

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

Revisions.--WSP 1442: Drainage area.

Capacity table, water year 1957-58 (elevation, in feet, and total capacity, in acre-feet)

| | | | |
|---|---|---|---|
| 568.0 | 203,300 | 575.0 | 258,600 |
| 570.0 | 218,100 | 578.0 | 285,300 |
| 572.0 | 233,700 | 581.0 | 313,800 |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 206,700 | 211,300 | 208,600 | 210,800 | 209,900 | 295,500 | 209,100 | 220,200 | 207,800 | 207,900 | 208,200 | 205,500 |
| 2 | 206,600 | 211,300 | 209,300 | 210,600 | 209,500 | 289,500 | 209,400 | 222,700 | 207,800 | 208,000 | 208,200 | 205,300 |
| 3 | 206,500 | 211,700 | 209,700 | 210,500 | 209,300 | 283,700 | 209,600 | 255,600 | 207,800 | 208,000 | 208,400 | 205,300 |
| 4 | 206,400 | 211,600 | 209,900 | 210,400 | 209,300 | 277,500 | 209,800 | 270,600 | 207,800 | 208,000 | 208,300 | 205,100 |
| 5 | 206,400 | 211,800 | 209,900 | 210,200 | 209,400 | 274,100 | 209,800 | 285,300 | 207,800 | 208,300 | 208,200 | 205,100 |
| 6 | 206,400 | 213,200 | 210,200 | 210,000 | 209,400 | 277,000 | 209,900 | 299,800 | 207,800 | 208,400 | 208,000 | 205,100 |
| 7 | 206,200 | 214,200 | 210,400 | 209,800 | 209,400 | 279,300 | 209,500 | 308,900 | 207,600 | 208,600 | 207,800 | 205,100 |
| 8 | 206,300 | 214,000 | 210,200 | 209,700 | 209,700 | 278,300 | 209,800 | 311,900 | 207,200 | 208,800 | 207,700 | 205,100 |
| 9 | 206,900 | 213,600 | 210,300 | 209,400 | 210,500 | 274,800 | 210,100 | 311,900 | 207,300 | 208,800 | 207,600 | 205,000 |
| 10 | 207,000 | 211,800 | 210,800 | 209,200 | 211,000 | 271,900 | 209,900 | 308,900 | 207,400 | 208,600 | 207,400 | 205,000 |
| 11 | 206,900 | 210,500 | 209,900 | 209,100 | 211,600 | 267,900 | 209,700 | 304,200 | 207,500 | 208,400 | 207,100 | 205,100 |
| 12 | 206,800 | 210,500 | 209,800 | 209,800 | 211,900 | 264,200 | 209,700 | 298,700 | 207,600 | 208,300 | 207,000 | 205,100 |
| 13 | 215,500 | 210,500 | 210,000 | 209,900 | 212,300 | 260,500 | 211,000 | 291,800 | 207,800 | 208,000 | 206,700 | 205,000 |
| 14 | 251,700 | 210,100 | 210,200 | 210,000 | 212,800 | 256,300 | 212,000 | 285,300 | 208,000 | 208,100 | 206,700 | 204,800 |
| 15 | 261,600 | 209,400 | 210,200 | 210,300 | 213,300 | 250,100 | 211,100 | 279,300 | 208,000 | 208,300 | 206,700 | 204,600 |
| 16 | 271,700 | 208,200 | 210,400 | 211,300 | 213,600 | 242,800 | 209,400 | 273,400 | 208,600 | 208,600 | 206,500 | 204,700 |
| 17 | 279,500 | 208,000 | 210,500 | 211,500 | 213,900 | 236,400 | 208,800 | 266,600 | 210,100 | 208,700 | 206,300 | 204,800 |
| 18 | 283,000 | 208,600 | 210,600 | 209,400 | 213,800 | 229,300 | 209,700 | 259,400 | 210,700 | 208,700 | 206,200 | 204,700 |
| 19 | 278,000 | 208,900 | 210,600 | 208,800 | 213,400 | 221,200 | 210,100 | 252,100 | 211,000 | 208,600 | 206,100 | 204,800 |
| 20 | 269,000 | 209,600 | 210,600 | 209,100 | 212,900 | 214,700 | 211,100 | 244,600 | 210,900 | 208,600 | 205,900 | 205,000 |
| 21 | 261,800 | 210,400 | 210,500 | 209,400 | 213,600 | 209,300 | 211,000 | 237,600 | 213,200 | 208,600 | 205,900 | 205,000 |
| 22 | 265,300 | 211,600 | 210,500 | 209,600 | 250,300 | 207,700 | 209,800 | 231,300 | 218,100 | 208,400 | 205,900 | 204,900 |
| 23 | 270,000 | 212,300 | 210,600 | 210,100 | 281,500 | 207,500 | 209,700 | 225,200 | 218,400 | 208,400 | 206,000 | 204,900 |
| 24 | 270,800 | 216,400 | 210,500 | 210,200 | 294,100 | 207,200 | 209,700 | 218,900 | 218,100 | 208,300 | 206,500 | 204,900 |
| 25 | 265,500 | 220,000 | 210,800 | 210,600 | 301,700 | 207,800 | 209,100 | 212,700 | 217,000 | 208,200 | 206,400 | 204,900 |
| 26 | 257,600 | 220,200 | 210,500 | 210,900 | 307,600 | 208,200 | 214,700 | 209,100 | 214,400 | 208,000 | 206,300 | 206,200 |
| 27 | 249,700 | 216,600 | 210,800 | 211,000 | 307,200 | 208,500 | 220,200 | 208,600 | 212,700 | 207,900 | 206,200 | 206,300 |
| 28 | 241,500 | 210,400 | 210,800 | 210,900 | 301,600 | 208,600 | 221,500 | 208,400 | 210,200 | 208,300 | 206,100 | 206,100 |
| 29 | 232,700 | 207,600 | 210,800 | 210,600 | - | 209,000 | 222,200 | 208,900 | 208,400 | 208,500 | 205,900 | 206,000 |
| 30 | 223,600 | 207,900 | 210,800 | 210,400 | _____ | 208,800 | 221,300 | 209,200 | 207,700 | 208,400 | 205,900 | 206,600 |
| 31 | 215,100 | _____ | 211,000 | 210,200 | _____ | 208,900 | _____ | 208,600 | _____ | 208,300 | 205,700 | _____ |
| (†) | 569.60 | 568.63 | 569.05 | 568.95 | 579.74 | 568.77 | 570.42 | 568.72 | 568.60 | 568.68 | 568.33 | 568.45 |
| (‡) | +8,200 | -7,200 | +3,100 | -800 | +91,400 | -92,700 | +12,400 | -12,700 | -900 | +600 | -2,600 | +900 |

Calendar year 1957..... ‡ +93,500
Water year 1957-58..... ‡ -300

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

## 1025. Leon River near Belton, Tex.

Location (revised).--Lat 31°04'15", long 97°26'30", on left bank, 1,400 ft upstream from bridge on Farm Road 817, 2,000 ft upstream from masonry dam, 1 mile upstream from bridge on U. S. Highway 81, 2 miles east of Belton, Bell County, 3.2 miles downstream from Belton Dam, and 5 miles upstream from Nolan Creek.

Drainage area.--3,513 sq mi.

Records available.--October 1923 to September 1958.

Gage.--Water-stage recorder above concrete dam. Datum of gage is 476.68 ft (revised) above mean sea level, datum of 1929. Prior to May 21, 1931, staff gage at same site and datum.

Average discharge.--35 years, 642 cfs (464,800 acre-ft per year).

Extremes.--Maximum discharge during year, 6,470 cfs Oct. 22 (gage height, 8.15 ft); minimum, 0.5 cfs Aug. 29.

1923-58: Maximum discharge, 56,500 cfs Apr. 22, 1945 (gage height, 24.41 ft); no flow at times.

Flood in December 1913 reached a stage of 25 ft and flood in September 1921 reached a stage of 21 ft, from information by local residents.

Remarks.--Records good. Small diversions above Belton Reservoir for irrigation, municipal supply, and oilfield operation. During the year the city of Temple diverted an average of about 6 cfs from gage pool for municipal use. Regulation by Belton Reservoir since Mar. 8, 1954 (see preceding page). Records of water temperaturesfor the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1442: 1925(M), 1935(M), 1936, 1938(M), 1941-42(M), 1944-45(M), drainage area.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to Nov. 26 | | | | Nov. 26 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 3.0 | 0.3 | 4.0 | 120 | 3.0 | 0.3 | 3.8 | 60 |
| 3.1 | 1.3 | 4.2 | 215 | 3.1 | 1.3 | 4.0 | 115 |
| 3.2 | 2.6 | 4.4 | 351 | 3.2 | 2.6 | 4.2 | 205 |
| 3.3 | 5.0 | 4.7 | 630 | 3.3 | 5.0 | 4.5 | 415 |
| 3.4 | 9.1 | 5.0 | 970 | 3.4 | 9.1 | 5.0 | 930 |
| 3.5 | 16 | 6.0 | 2,420 | 3.5 | 16 | 6.0 | 2,280 |
| 3.6 | 26 | 7.0 | 4,120 | 3.6 | 26 | 8.0 | 5,670 |
| 3.8 | 60 | 9.0 | 8,200 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 2,210 | 798 | 375 | 460 | 5,100 | 469 | 2,540 | 822 | 30 | 5.0 | 12 |
| 2 | 18 | 509 | 581 | 375 | 460 | 4,740 | 478 | 3,120 | 552 | 24 | 5.0 | 10 |
| 3 | 16 | 590 | 581 | 375 | 398 | 4,740 | 478 | 1,630 | 307 | 12 | 4.7 | 8.6 |
| 4 | 17 | 580 | 572 | 375 | 321 | 4,740 | 487 | 259 | 300 | 12 | 5.0 | *6.4 |
| 5 | 18 | 570 | 572 | 375 | 321 | 3,690 | 487 | 259 | 295 | 10 | 3.6 | 6.0 |
| 6 | 17 | 570 | 562 | 375 | 321 | 78 | 487 | 265 | 286 | 11 | 2.6 | 7.6 |
| 7 | 18 | 1,040 | 562 | 375 | *207 | 908 | 496 | 1,190 | 279 | 12 | 7.0 | 9.6 |
| 8 | 20 | 1,960 | 552 | 367 | 78 | 2,960 | 496 | 2,800 | 272 | 9.6 | 8.6 | *9.1 |
| 9 | 20 | 2,900 | 562 | 359 | 80 | 3,860 | 487 | 3,780 | 216 | 8.6 | 7.6 | 8.6 |
| 10 | 22 | 3,320 | 552 | 359 | 78 | 3,860 | 487 | 4,200 | 82 | 21 | 7.6 | 8.1 |
| 11 | 22 | 2,380 | 552 | 359 | 78 | 4,120 | 487 | 4,380 | 80 | 94 | 8.6 | 7.6 |
| 12 | 22 | 1,560 | 473 | 359 | 75 | 4,290 | 487 | 4,560 | 82 | 80 | 8.6 | 8.1 |
| 13 | 55 | 1,560 | 375 | 351 | 75 | 4,200 | 496 | 4,920 | 82 | 70 | 8.6 | 8.6 |
| 14 | 477 | 1,550 | 367 | 351 | 75 | 4,380 | 736 | 4,740 | 78 | 41 | 8.6 | 9.1 |
| 15 | 38 | 1,560 | 367 | *335 | 75 | 4,920 | 1,320 | 4,920 | 78 | 5.7 | 8.1 | 9.1 |
| 16 | 29 | 1,560 | 367 | 371 | 75 | 5,100 | *1,580 | 5,100 | 80 | 12 | 7.6 | 8.1 |
| 17 | 25 | 1,120 | 375 | 901 | 72 | 5,100 | 990 | 4,920 | 75 | 10 | 7.6 | 9.1 |
| 18 | 686 | 590 | 375 | 1,770 | 243 | 4,920 | 469 | 4,920 | 54 | 10 | 9.6 | 8.6 |
| 19 | 4,550 | 419 | 375 | 1,060 | 460 | 4,920 | 451 | 4,920 | 54 | 10 | 12 | 9.1 |
| 20 | 6,260 | 293 | 375 | 469 | 460 | 4,920 | 460 | 5,100 | 238 | 10 | 12 | 9.1 |
| 21 | 6,260 | 293 | 375 | 469 | 469 | *3,940 | 769 | *4,920 | 460 | 10 | 11 | 9.1 |
| 22 | 3,130 | 293 | 375 | 380 | 513 | 2,130 | 1,080 | 4,290 | 206 | 9.1 | 12 | 8.6 |
| 23 | 70 | 300 | 375 | 286 | 152 | 1,140 | 739 | 4,200 | 54 | 9.1 | 11 | 7.6 |
| 24 | 852 | 307 | 375 | 286 | 94 | 942 | 590 | 4,200 | 169 | 8.1 | 12 | 6.8 |
| 25 | 3,750 | 293 | 383 | 286 | 94 | 930 | 670 | 4,200 | 954 | 7.2 | 12 | 6.0 |
| 26 | 4,880 | 1,430 | 383 | 286 | 366 | 777 | 740 | 2,740 | 1,280 | 7.2 | 11 | 7.6 |
| 27 | 4,880 | 3,600 | 383 | 374 | 2,570 | 660 | 641 | 834 | 1,070 | 6.8 | 8.6 | 8.1 |
| 28 | 5,070 | 4,560 | 383 | 460 | 4,920 | 660 | 407 | 822 | 1,470 | 9.6 | 2.4 | 6.8 |
| 29 | 5,450 | *2,900 | 375 | 460 | - | 660 | 626 | 810 | 1,120 | 8.6 | 1.0 | 6.4 |
| 30 | *5,540 | 954 | 375 | 460 | ------- | 680 | 1,750 | 822 | 515 | 7.2 | 4.7 | *7.2 |
| 31 | 5,260 | ------- | 375 | 451 | ------- | 600 | ------- | 822 | ------- | 6.0 | 11 | ------- |
| Total | 57,600 | 41,771 | 14,052 | 14,234 | 13,590 | 94,665 | 20,340 | 97,183 | 11,608 | 581.8 | 244.7 | 246.7 |
| Mean | 1,858 | 1,392 | 453 | 459 | 485 | 3,054 | 678 | 3,135 | 387 | 18.8 | 7.89 | 8.22 |
| Ac-ft | 114,200 | 82,850 | 27,870 | 28,230 | 26,960 | 187,800 | 40,340 | 192,800 | 23,020 | 1,150 | 485 | 489 |

Calendar year 1957: Max 8,490 Min 0 Mean 1,743 Ac-ft 1,262,000
Water year 1957-58: Max 6,260 Min 1.0 Mean 1,003 Ac-ft 726,200

* Discharge measurement made on this day.

## 1040. Lampasas River at Youngsport, Tex.

Note.--Records for 1958 water year have been withheld pending better definition of the stage-discharge relation for high stage. The 1958 records will be published in a subsequent annual report.

## 1050. 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 Co. 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 1958.
Gage.--Water-stage recorder and concrete control. Datum of gage is 643.24 ft above mean sea level, datum of 1929. Feb. 27, 1924, to Aug. 31, 1925, staff gage at site 1 mile upstream at different datum.
Average discharge.--24 years (1934-58), 135 cfs (97,740 acre-ft per year).
Extremes.--Maximum discharge during year, 21,800 cfs Feb. 22 (gage height, 14.07 ft); minimum, 20 cfs Sept. 3-5.
1924-25, 1934-58: Maximum discharge, 155,000 cfs Apr. 24, 1957 (gage height, 31.89 ft in gage well, 34.10 ft, from floodmarks), from rating curve extended above 24,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in 1954-57.
Maximum stage since at least 1869, 36.1 ft Sept. 10, 1921, present site and datum (discharge, 160,000 cfs, by slope-area measurement of peak flow).
Remarks.--Records good except those for periods of no gage-height record, which are fair. 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 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 13, 14, Oct. 17 to Nov. 22, Dec. 5 to Jan. 18, Feb. 18-21, May 5 to June 2, June 16-24, Sept. 7, 8, 19-30)

| | | | | | |
|---|---|---|---|---|---|
| 1.2 | 18 | 3.0 | 294 | 6.0 | 3,640 |
| 1.5 | 41 | 3.5 | 544 | 7.0 | 5,300 |
| 2.0 | 88 | 4.0 | 930 | 9.0 | 9,200 |
| 2.5 | 155 | 5.0 | 2,100 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 153 | 319 | 183 | 188 | 673 | 251 | 132 | 88 | 58 | *24 | 22 |
| 2 | 25 | 149 | 314 | 176 | 181 | 688 | 247 | 241 | 85 | 55 | 24 | 21 |
| 3 | 26 | 187 | 306 | 176 | 176 | 564 | 241 | 1,610 | 81 | 53 | 24 | 20 |
| 4 | 25 | 186 | 290 | 174 | 174 | 597 | 228 | 429 | 78 | 52 | 29 | *20 |
| 5 | 25 | 166 | 279 | 195 | 170 | 673 | 214 | 306 | 74 | 51 | 24 | 20 |
| 6 | 25 | 170 | 276 | 261 | 170 | 652 | 195 | 257 | 72 | 50 | 23 | 22 |
| 7 | 25 | 172 | 276 | 219 | 170 | 603 | 190 | 238 | 68 | 53 | 22 | 123 |
| 8 | 25 | 179 | 254 | 192 | 166 | 551 | 171 | 225 | 66 | 67 | 22 | 872 |
| 9 | 24 | 155 | 241 | 183 | 166 | 495 | 219 | 214 | 63 | 58 | 22 | 110 |
| 10 | 24 | 153 | 241 | 181 | 166 | 461 | 203 | 205 | 62 | 52 | 22 | 51 |
| 11 | 24 | 214 | 225 | 179 | 164 | 429 | 176 | 195 | 59 | 46 | 22 | 45 |
| 12 | 25 | 276 | 217 | 211 | 164 | 456 | 170 | 183 | 58 | 42 | 22 | 73 |
| 13 | 32 | 268 | 222 | 244 | 163 | 451 | 192 | 176 | 56 | 40 | 23 | 58 |
| 14 | 5,020 | 244 | 219 | 211 | 163 | 395 | 323 | 181 | 54 | 38 | 23 | 42 |
| 15 | 980 | 222 | 211 | 188 | 161 | 385 | 214 | 183 | 55 | 36 | 22 | 37 |
| 16 | 505 | 200 | 203 | 176 | 161 | 371 | *179 | 188 | 62 | 34 | 22 | 36 |
| 17 | 276 | 195 | 200 | *174 | 159 | 362 | 170 | 174 | 814 | 33 | 21 | 58 |
| 18 | 203 | 602 | 197 | 192 | *159 | 404 | 164 | 159 | 188 | 32 | 22 | 43 |
| 19 | 166 | 268 | 188 | 247 | 159 | 461 | 159 | 153 | *113 | 30 | 22 | 251 |
| 20 | 144 | 228 | 174 | 254 | 159 | 362 | 159 | 147 | 88 | 29 | 22 | 108 |
| 21 | 142 | 211 | 164 | 205 | 251 | 335 | 157 | 147 | 79 | 28 | 22 | 67 |
| 22 | 507 | 268 | 164 | 211 | 7,480 | 323 | 147 | 141 | 91 | 27 | 22 | 63 |
| 23 | 357 | 335 | 174 | 327 | 6,810 | 429 | 139 | *136 | 94 | 26 | 28 | 64 |
| 24 | 251 | 559 | 287 | 254 | 1,510 | 344 | 133 | 131 | 82 | 26 | 35 | 55 |
| 25 | 219 | 680 | 366 | 268 | 1,140 | 310 | 128 | 124 | 72 | 25 | 33 | 52 |
| 26 | 192 | 478 | 264 | 254 | 1,010 | *310 | 133 | 118 | 66 | 25 | 27 | 48 |
| 27 | 181 | 429 | 244 | 235 | 885 | 298 | 141 | 111 | 63 | 25 | 24 | 48 |
| 28 | 174 | *380 | 261 | 219 | 728 | 283 | 145 | 104 | 62 | 24 | 22 | 55 |
| 29 | 172 | 358 | 217 | 203 | - | 283 | 132 | 103 | 62 | 24 | 22 | 58 |
| 30 | 170 | 331 | 205 | 197 | ------- | 272 | 131 | 95 | 59 | 24 | 22 | 57 |
| 31 | *161 | ------- | 197 | 192 | ------- | 254 | ------- | 91 | ------- | 24 | 22 | ------- |
| Total | 10,151 | 8,416 | 7,395 | 6,581 | 23,153 | 13,474 | 5,451 | 6,897 | 3,014 | 1,187 | 736 | 2,599 |
| Mean | 327 | 281 | 239 | 212 | 827 | 435 | 182 | 222 | 100 | 38.3 | 23.7 | 86.6 |
| Ac-ft | 20,130 | 16,690 | 14,670 | 13,050 | 45,920 | 26,730 | 10,810 | 13,680 | 5,980 | 2,350 | 1,460 | 5,160 |

Calendar year 1957: Max 24,100 Min 3.0 Mean 321 Ac-ft 232,100
Water year 1957-58: Max 7,480 Min 20 Mean 244 Ac-ft 176,600

Peak discharge (base, 4,000 cfs).--Oct. 14 (7 p.m.) 11,900 cfs (10.19 ft); Feb. 22 (12 p.m.) 21,800 cfs (14.07 ft); May 3 (7 a.m.) 5,130 cfs (6.86 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Jan. 19 to Feb. 17, July 10-31; discharge estimated on basis of recorded range in stage and weather records.

## 1065. 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 and Santa Fe Railway Co. bridge, and 2 miles southeast of Cameron, Milam County.

Drainage area.--7,000 sq mi.

Records available.--November 1916 to September 1958.

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 at site 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, 2,020 ft downstream at datum 1.58 ft lower.

Average discharge.--41 years (1917-58), 1,779 cfs (1,288,000 acre-ft per year).

Extremes.--Maximum discharge during year, 103,000 cfs Oct. 15 (gage height, 38.90 ft); minimum, 70 cfs Oct. 12, 13.

1916-58: Maximum discharge, 647,000 cfs Sept. 10, 1921 (gage height, 53.2 ft, present datum, from floodmark), from rating curve extended above 110,000 cfs on basis of slope-area measurement of peak flow; no flow July 12-27, 1956.

Maximum stage known, that of Sept. 10, 1921; flood in 1852 reached about the same stage. Flood in 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. Some regulation by Belton Reservoir on Leon River beginning Mar. 8, 1954 (see p. ). Records of the Aluminum Co. of America show they diverted 4,070 acre-ft of water from river above gage during the year, for use at their Rockdale plant.

Revisions (water years).--WSP 718: 1918-20, 1922. WSP 1442: Drainage area. WSP 1512: 1918-20(M), 1921, 1922(M), 1924(M), 1926, 1929-30, 1934, 1935(M), 1936, 1940(M), 1941, 1944-45(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 22 to May 3, May 6 to June 3, June 17 to July 1, July 7-9)

| | | | | | |
|---|---|---|---|---|---|
| 3.2 | 70 | 13.0 | 3,050 | 32.0 | 20,600 |
| 3.5 | 108 | 20.0 | 6,500 | 34.0 | 28,200 |
| 4.0 | 200 | 27.0 | 12,400 | 38.0 | 85,000 |
| 8.0 | 1,270 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 215 | 6,020 | 3,540 | 1,300 | 1,330 | 7,710 | 2,110 | 2,220 | 1,540 | 1,420 | 212 | 158 |
| 2 | 192 | 4,950 | 3,010 | 1,240 | 1,270 | 8,760 | 1,940 | 3,210 | 1,480 | 850 | 205 | 147 |
| 3 | 180 | 3,370 | 2,250 | 1,180 | 1,240 | 8,300 | 1,830 | 10,900 | 1,420 | 588 | 202 | 147 |
| 4 | 168 | 2,450 | *2,110 | 1,150 | 1,210 | 8,080 | 1,830 | 27,900 | 1,000 | 550 | 205 | 144 |
| 5 | 156 | 1,860 | 2,000 | 1,150 | 1,120 | 8,920 | 1,760 | 25,100 | 880 | 512 | 198 | *140 |
| 6 | 119 | 1,900 | 1,940 | 1,210 | *1,090 | 10,500 | 1,690 | 8,020 | 850 | 488 | 200 | 146 |
| 7 | 122 | 1,720 | 1,900 | 1,540 | 1,060 | 6,480 | 1,570 | 3,210 | 825 | 1,060 | 196 | 168 |
| 8 | 107 | 2,570 | 1,860 | 1,390 | 1,030 | 3,940 | 1,480 | 2,770 | 800 | 2,490 | 190 | 379 |
| 9 | 113 | 2,810 | 1,800 | 1,240 | 880 | 5,350 | 1,480 | 3,810 | 775 | 973 | 182 | 945 |
| 10 | 133 | 3,250 | 1,760 | 1,210 | 800 | 6,500 | 1,480 | 4,950 | 750 | 588 | 180 | 525 |
| 11 | 129 | 3,720 | 1,690 | 1,150 | 825 | 6,440 | 1,540 | 5,400 | 700 | 500 | 176 | 302 |
| 12 | 75 | 4,300 | 1,630 | 1,150 | 850 | 6,200 | 1,540 | 5,570 | 588 | 462 | 174 | 245 |
| 13 | 100 | 4,120 | 1,570 | 1,420 | 850 | 6,630 | 1,420 | 5,570 | 550 | 500 | 170 | 230 |
| 14 | 12,900 | 3,410 | 1,480 | 1,760 | 850 | 6,560 | 1,480 | 5,790 | 525 | 500 | 182 | 252 |
| 15 | *77,100 | 3,050 | 1,420 | 1,480 | 825 | 6,380 | 2,140 | 5,960 | 525 | 475 | 178 | 215 |
| 16 | *57,700 | 2,810 | 1,390 | 1,360 | 800 | 6,500 | *2,690 | 6,140 | 512 | 450 | 174 | 200 |
| 17 | 28,400 | 2,650 | 1,390 | 1,240 | 750 | 6,760 | 2,730 | 6,320 | *1,550 | 375 | 174 | 327 |
| 18 | 10,800 | 3,290 | 1,360 | 1,240 | 700 | 6,760 | 2,730 | 6,380 | 5,850 | 350 | 188 | 305 |
| 19 | 2,330 | 5,520 | 1,330 | 1,970 | 700 | *6,890 | 1,940 | 6,200 | 8,190 | 325 | 182 | 270 |
| 20 | 2,960 | 3,090 | 1,300 | 2,290 | 850 | 7,150 | 1,510 | *6,080 | 2,530 | 320 | 168 | 2,990 |
| 21 | 5,900 | 1,830 | 1,240 | 1,690 | 1,060 | 6,890 | 1,420 | 5,960 | 880 | 308 | 166 | 9,210 |
| 22 | 12,400 | 1,660 | 1,210 | 1,660 | 4,520 | 6,500 | 1,480 | 5,960 | 2,590 | 298 | 186 | 9,410 |
| 23 | 20,600 | 2,140 | 1,180 | 1,540 | 53,700 | 5,150 | 1,900 | 5,350 | 7,520 | 285 | 196 | 2,360 |
| 24 | 11,000 | 5,300 | 1,180 | 1,800 | 54,100 | 3,860 | 1,940 | 5,050 | 6,340 | 275 | 208 | 1,480 |
| 25 | 2,520 | 8,760 | 1,390 | 2,000 | 27,200 | 3,210 | 1,420 | 4,950 | 1,780 | 262 | 220 | 488 |
| 26 | 3,000 | 5,460 | 2,250 | 1,510 | 13,400 | 2,930 | 1,420 | 4,900 | 1,210 | 255 | 208 | 375 |
| 27 | 5,150 | 3,940 | 2,040 | 1,390 | 6,500 | 2,770 | 2,640 | 4,500 | 1,900 | 245 | 202 | 350 |
| 28 | 5,460 | 4,900 | 2,180 | 1,300 | 5,840 | 2,490 | 6,650 | 2,410 | 1,720 | 238 | 275 | 700 |
| 29 | 5,460 | 6,080 | 1,940 | 1,360 | - | 2,370 | 3,770 | 1,690 | 1,830 | *230 | 252 | 650 |
| 30 | 5,620 | 5,960 | 1,540 | 1,390 | ------- | 2,290 | 1,600 | 1,940 | 1,900 | 228 | 202 | 462 |
| 31 | 5,960 | ------- | 1,390 | 1,360 | ------- | 2,220 | ------- | 1,800 | ------- | 220 | 174 | ------- |
| Total | 227,069 | 112,890 | 54,270 | 44,670 | 185,350 | 181,490 | 61,130 | 196,010 | 59,510 | 16,620 | 6,025 | 33,720 |
| Mean | 8,938 | 3,763 | 1,751 | 1,441 | 6,620 | 5,855 | 2,038 | 6,323 | 1,984 | 536 | 194 | 1,124 |
| Ac-ft | 549,600 | 223,900 | 107,600 | 88,600 | 367,600 | 360,000 | 121,200 | 388,800 | 118,000 | 32,970 | 11,950 | 66,880 |

Calendar year 1957: Max 79,600 Min 15 Mean 4,482 Ac-ft 3,245,000
Water year 1957-58: Max 77,100 Min 75 Mean 3,366 Ac-ft 2,437,000

* Discharge measurement made on this day.

## 1090. 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.--38,400 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--February 1918 to September 1958 in reports of Geological Survey. August 1899 to December 1902 in U. S. Department of Agriculture, Office of Experiment Stations, Bulletins Nos. 104, 119, and 133. Prior to September 1925, published as "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 present datum.

Average discharge.--39 years (1918-25, 1926-58), 5,479 cfs (3,967,000 acre-ft per year).

Extremes.--Maximum discharge during year, 104,000 cfs Oct. 16 (gage height, 39.16 ft); minimum daily, 570 cfs Oct. 11.

1925-58: Maximum gage height, 46.1 ft May 20, 1930, present site and datum (discharge not determined); minimum daily discharge, 89 cfs Aug. 24, 1934.

Maximum stage since at least 1899, about 54.0 ft in September 1921 (correction), present site and datum. Flood of Dec. 5, 1913, reached a stage of about 50 ft, present site and datum, from information by Texas and New Orleans Railroad Co. at their bridge 5 miles upstream and from comparison of maximum stages reached by floods in 1913 and 1921 at gage near College Station 7½ miles downstream.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow regulated by reservoirs above Waco and after Mar. 8, 1954, by Belton Reservoir on Leon River (see p. 164). Many small diversions above station for irrigation, municipal supply, industrial use, and oilfield operation.

Revisions.--WSP 1442: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-14, 20-22, Oct. 25 to Nov. 18, Dec. 20 to Jan. 20, Jan. 30 to Feb. 22, Mar. 24 to May 18, Aug. 31 to Sept. 19)

| | | | | | |
|---|---|---|---|---|---|
| 3.7 | 565 | 8.0 | 5,000 | 20.0 | 34,000 |
| 4.0 | 730 | 11.0 | 10,300 | 30.0 | 66,500 |
| 5.0 | 1,410 | 15.0 | 20,000 | 38.0 | 98,000 |
| 6.0 | 2,340 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,490 | 7,630 | 9,910 | 2,850 | 3,420 | 12,500 | 3,970 | 10,500 | a4,500 | 3,030 | 850 | 1,220 |
| 2 | 1,140 | 7,280 | *7,450 | 3,550 | 3,690 | 12,100 | 3,690 | 19,400 | a4,300 | 2,560 | 790 | 1,110 |
| 3 | 880 | 8,170 | 6,280 | 3,100 | 3,030 | 12,500 | 3,690 | a37,000 | a4,000 | 2,130 | 748 | *850 |
| 4 | 766 | 6,600 | 6,440 | 2,500 | *2,340 | 11,200 | 4,250 | a82,000 | a3,700 | 1,880 | 708 | 697 |
| 5 | 850 | 4,550 | 6,600 | 2,450 | 1,930 | 11,200 | 5,480 | 78,600 | a4,000 | 1,700 | 708 | 850 |
| 6 | 970 | 3,550 | 6,280 | 2,850 | 2,340 | 13,700 | 4,700 | *52,800 | a3,700 | 2,210 | 1,000 | 1,290 |
| 7 | 1,220 | 8,260 | 5,960 | 3,030 | 2,280 | 13,500 | 3,690 | 27,300 | a3,700 | 3,970 | 1,360 | 1,000 |
| 8 | 1,110 | 10,500 | 5,160 | 2,970 | 2,850 | 9,710 | 3,420 | 26,500 | a3,700 | 3,250 | 2,500 | 850 |
| 9 | 820 | 11,800 | 4,700 | 2,910 | 2,790 | 10,100 | 2,910 | 29,900 | 3,550 | 8,120 | 2,500 | 1,000 |
| 10 | 648 | 14,000 | 3,550 | 3,550 | 2,130 | 11,000 | 2,850 | 31,600 | 2,280 | 15,000 | 1,840 | 1,370 |
| 11 | 570 | 13,500 | 3,420 | 2,970 | 1,980 | 11,200 | 3,550 | 32,200 | 1,880 | 20,000 | 1,450 | 1,080 |
| 12 | 879 | 16,200 | 5,640 | 2,730 | 2,180 | 11,400 | 3,830 | 33,400 | 1,660 | 19,200 | 1,180 | 790 |
| 13 | 2,000 | 14,400 | 6,940 | *2,790 | 3,420 | 12,100 | 3,550 | 34,000 | 1,450 | 11,000 | 970 | 1,450 |
| 14 | 15,200 | 10,100 | 5,640 | 3,220 | 3,420 | 12,300 | 3,290 | 31,000 | 1,660 | 6,280 | 940 | 1,750 |
| 15 | 62,300 | 8,920 | 3,830 | 5,800 | 2,970 | 11,200 | *3,550 | 26,000 | 1,620 | 5,800 | 1,000 | 1,330 |
| 16 | 96,600 | 8,730 | 3,160 | 6,600 | 2,400 | 9,710 | 4,550 | 18,200 | *1,620 | 5,640 | 1,250 | 1,080 |
| 17 | 93,000 | 8,170 | 2,910 | 5,640 | 1,980 | *9,110 | 4,700 | 14,700 | 2,410 | 4,550 | 1,450 | 910 |
| 18 | 60,900 | 7,990 | 2,970 | 5,160 | 1,530 | 8,730 | 5,320 | 13,500 | 5,980 | 3,830 | 1,290 | 880 |
| 19 | 28,500 | 12,500 | 4,110 | 5,000 | 1,370 | 8,920 | 6,120 | *11,400 | 9,510 | 3,550 | 1,290 | 1,330 |
| 20 | 17,900 | 11,800 | 5,800 | 7,450 | 1,450 | 9,710 | 5,960 | 12,100 | 9,310 | 3,550 | 970 | 5,140 |
| 21 | 16,400 | 8,350 | 6,280 | 6,120 | 1,620 | 9,310 | 5,000 | 11,600 | 5,160 | 3,550 | 940 | 14,600 |
| 22 | 23,100 | 7,450 | 4,250 | 5,640 | 2,870 | 8,730 | 3,830 | 9,910 | 4,700 | 3,420 | 1,840 | 17,700 |
| 23 | 34,600 | 6,770 | 3,100 | 6,280 | 40,300 | 8,170 | 2,970 | 8,350 | 6,600 | 3,220 | 1,660 | 13,000 |
| 24 | 29,900 | 9,910 | 2,790 | 5,640 | 80,100 | 7,110 | 4,400 | 7,280 | 9,110 | 2,500 | 1,700 | 6,600 |
| 25 | 17,500 | 16,700 | 3,160 | 5,800 | 79,300 | 6,280 | 4,700 | 8,170 | 6,890 | 2,180 | 3,050 | 4,700 |
| 26 | 9,510 | 18,200 | 3,220 | 5,160 | 48,600 | 5,800 | 4,110 | 7,810 | 2,980 | 1,840 | 11,000 | 3,420 |
| 27 | 8,730 | 13,500 | 4,400 | 4,110 | 23,900 | 7,280 | 5,420 | 7,110 | 2,620 | 2,340 | 5,640 | 3,550 |
| 28 | 9,710 | 11,600 | 4,700 | 3,030 | 15,400 | 6,120 | 14,900 | 6,120 | 4,110 | *2,450 | 3,690 | 2,660 |
| 29 | *8,920 | 11,600 | 5,960 | 2,500 | - | 4,550 | 17,400 | a6,000 | 4,850 | 1,620 | *2,970 | 2,500 |
| 30 | 8,540 | 11,600 | 5,640 | 3,760 | ------- | 4,850 | 12,800 | a5,200 | 4,110 | 1,180 | 1,880 | 2,130 |
| 31 | 8,540 | ------- | 3,420 | 3,970 | ------- | 4,850 | ------- | a4,500 | ------- | 970 | 1,330 | ------- |
| Total | 563,193 | 310,330 | 153,670 | 129,130 | 341,590 | 294,940 | 158,600 | 704,150 | 125,660 | 152,520 | 60,494 | 96,837 |
| Mean | 18,170 | 10,340 | 4,957 | 4,165 | 12,200 | 9,514 | 5,287 | 22,710 | 4,189 | 4,920 | 1,951 | 3,228 |
| Ac-ft | ‡1,117 | 615,500 | 304,800 | 256,100 | 677,500 | 585,000 | 314,600 | ‡1,397 | 249,200 | 302,500 | 120,000 | 192,100 |

Calendar year 1957: Max 123,000 Min 155 Mean 15,280 Ac-ft 11,060,000
Water year 1957-58: Max 96,600 Min 570 Mean 8,469 Ac-ft 6,131,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
a No gage-height record; discharge estimated on basis of floodmark, weather records, and records for nearby stations.

## 1100. 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 and Santa Fe Railway Co. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 199.21 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.--34 years, 285 cfs (206,300 acre-ft per year).

Extremes.--Maximum discharge during year, 11,600 cfs Oct. 16 (gage height, 12.01 ft); no flow Aug. 4 to Sept. 8.
1924-58: 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 and Santa Fe Railway Co.

Remarks.--Records good.

Revisions (water years).--WSP 1512: 1926(M), 1929, 1935.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 14, 15, 29-31, Nov. 6-22, Nov. 28 to Dec. 3, Dec. 26 to Jan. 24, Mar. 7, 13-26, May 13-20, 27, 28, July 7, 12, 13, Sept. 9-11, 20)

| | | | | | |
|---|---|---|---|---|---|
| 0.7 | 0 | 2.0 | 8.5 | 5.5 | 380 |
| .9 | .2 | 2.5 | 19 | 6.0 | 620 |
| 1.0 | .3 | 3.0 | 36 | 7.0 | 1,340 |
| 1.1 | .5 | 3.5 | 57 | 8.0 | 2,440 |
| 1.2 | .8 | 4.0 | 84 | 9.0 | 3,890 |
| 1.4 | 1.8 | 4.6 | 133 | 10.0 | 5,830 |
| 1.7 | 4.3 | 5.0 | 210 | 12.0 | 11,600 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 237 | 144 | 590 | 376 | 336 | 1,480 | 58 | 4,240 | 18 | 3.3 | 0.1 | 0 |
| 2 | 91 | 96 | *368 | 284 | 219 | 800 | 56 | 3,340 | 16 | 2.7 | .1 | 0 |
| 3 | 53 | 74 | 243 | 219 | *132 | 456 | 52 | 3,500 | 14 | 2.2 | .1 | 0 |
| 4 | 34 | 62 | 150 | 170 | 102 | 305 | 49 | 3,270 | 13 | 1.7 | 0 | 0 |
| 5 | 21 | 59 | 110 | 118 | 86 | 210 | 46 | *2,070 | 12 | 1.4 | 0 | 0 |
| 6 | 14 | 292 | 91 | 185 | 80 | 161 | 44 | 1,920 | 10 | 2.5 | 0 | 0 |
| 7 | 9.9 | 560 | 84 | 308 | 74 | 145 | 41 | 3,270 | 8.5 | 684 | 0 | 0 |
| 8 | 7.1 | 1,210 | 80 | 213 | 73 | 168 | 37 | 2,840 | 7.4 | 2,640 | 0 | 0 |
| 9 | 5.5 | 1,090 | 76 | 155 | 72 | 316 | 34 | 2,070 | 6.8 | 1,350 | 0 | 16 |
| 10 | 4.1 | 585 | 74 | 148 | 70 | 452 | 32 | 1,340 | 6.2 | 835 | 0 | 161 |
| 11 | 3.4 | 352 | 69 | 117 | 73 | 372 | 29 | 680 | 6.1 | 605 | 0 | 67 |
| 12 | 2.8 | 394 | 62 | 247 | 79 | 219 | 27 | 326 | 5.5 | 226 | 0 | 27 |
| 13 | 2.3 | 662 | 60 | *1,210 | 84 | 144 | 27 | 161 | 4.7 | 67 | 0 | 11 |
| 14 | 107 | 764 | 53 | 1,840 | 90 | 121 | *36 | 97 | 4.1 | 35 | 0 | 6.1 |
| 15 | 2,460 | 686 | 48 | 1,530 | 96 | 111 | 42 | 73 | 3.8 | 21 | 0 | 5.4 |
| 16 | 9,480 | 555 | 47 | 884 | 92 | 104 | 43 | 60 | *3.3 | 14 | 0 | 4.4 |
| 17 | 10,400 | 466 | 47 | 438 | 82 | *96 | 46 | 70 | 3.1 | 9.8 | 0 | 3.9 |
| 18 | 7,250 | 438 | 47 | 326 | 74 | 86 | 43 | 174 | 2.9 | 6.9 | 0 | 4.1 |
| 19 | 5,620 | 434 | 46 | 344 | 68 | 88 | 40 | *122 | 2.7 | 6.1 | 0 | 6.5 |
| 20 | 4,060 | 352 | 46 | 492 | 64 | 90 | 39 | 74 | 2.5 | 5.3 | 0 | 67 |
| 21 | 2,840 | 249 | 44 | 1,010 | 61 | 99 | 53 | 59 | 26 | 3.8 | 0 | 509 |
| 22 | 2,130 | 758 | 42 | 1,210 | 288 | 101 | 64 | 49 | 52 | 5.3 | 0 | 1,080 |
| 23 | 2,250 | 2,410 | 40 | 891 | 3,140 | 111 | 66 | 43 | 42 | 4.3 | 0 | 3,090 |
| 24 | 3,730 | 3,810 | 39 | 1,250 | 9,050 | 166 | 67 | 39 | 29 | 2.7 | 0 | 4,490 |
| 25 | 5,000 | 3,340 | 47 | 2,130 | 10,200 | 113 | 54 | 38 | 21 | 1.6 | 0 | 3,200 |
| 26 | 4,700 | 2,700 | 154 | 2,010 | 6,260 | 91 | 44 | 36 | 14 | 1.0 | 0 | 2,380 |
| 27 | 3,500 | 1,950 | 302 | 1,340 | 3,500 | 83 | 39 | 73 | 9.6 | .7 | 0 | 1,780 |
| 28 | 2,440 | 1,300 | 842 | 788 | 2,380 | 74 | 690 | 91 | 6.9 | *.4 | *0 | 1,170 |
| 29 | 1,430 | 877 | 1,170 | 605 | - | 68 | 1,650 | 44 | 5.3 | .3 | 0 | 728 |
| 30 | 610 | 746 | 933 | 570 | ------- | 66 | 6,750 | 28 | 4.2 | .2 | 0 | 448 |
| 31 | 267 | ------- | 545 | 470 | ------- | 62 | ------- | 21 | ------- | .1 | 0 | ------- |
| Total | 68,759.1 | 27,415 | 6,549 | 21,878 | 36,925 | 6,958 | 10,298 | 30,218 | 360.6 | 6,539.3 | 0.3 | 19,254.4 |
| Mean | 2,218 | 914 | 211 | 706 | 1,319 | 224 | 343 | 975 | 12.0 | 211 | 0.01 | 642 |
| Ac-ft | 136,400 | 54,380 | 12,990 | 43,390 | 73,240 | 13,800 | 20,430 | 59,940 | 715 | 12,970 | 0.6 | 38,190 |

Calendar year 1957: Max 15,400 Min 0 Mean 697 Ac-ft 504,800
Water year 1957-58: Max 10,400 Min 0 Mean 644 Ac-ft 466,400

Peak discharge (base, 1,400 cfs).--Oct. 16 (12 p.m.) 11,600 cfs (12.01 ft); Oct. 25 (9 p.m.) 5,300 cfs (9.77 ft); Nov. 24 (11 a.m.) 4,150 cfs (9.13 ft); Jan. 14 (5 p.m.) 2,070 cfs (7.79 ft); Jan. 25 (6 p.m.) 2,440 cfs (8.06 ft); Feb. 25 (11 a.m.) 10,900 cfs (11.75 ft); Apr. 30 (7 a.m.) 7,510 cfs (10.74 ft); May 3 (6:30 p.m.) 4,150 cfs (9.16 ft); May 7 (3 p.m.) 3,420 cfs (8.72 ft); July 8 (7 a.m.) 3,120 cfs (8.48 ft); Sept. 24 (4 a.m.) 4,900 cfs (9.53 ft).

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

## 1105. 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 Co. bridge and 6 miles northeast of Easterly, Robertson County.

Drainage area.--949 sq mi.

Records available.--March 1924 to September 1958.

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 higher.

Average discharge.--34 years, 408 cfs (295,400 acre-ft per year).

Extremes.--Maximum discharge during year, 24,800 cfs Oct. 16 (gage height, 18.34 ft); minimum, 0.5 cfs Oct. 12, 13.
1924-58: 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 ft in 1900, from information by local residents (discharge, about 71,000 cfs).

Remarks.--Records good except those for periods of no gage-height record, which are fair. Diversions for irrigation, municipal supply, and oilfield operation above station.

Revisions (water years).--WSP 898: 1924, 1926-27, 1928(M), 1929-30, 1931(M). WSP 1512: 1932(M), 1936.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1, 7-20, Dec. 10 to Jan. 20, May 3-9, July 7 to Aug. 15, Aug. 26-29, Sept. 20-27)

| | | | | | |
|---|---|---|---|---|---|
| 0.2 | 0.5 | 3.0 | 74 | 14.0 | 2,820 |
| .4 | 1.1 | 4.0 | 148 | 15.0 | 4,300 |
| .6 | 1.9 | 5.0 | 242 | 15.5 | 5,500 |
| .8 | 2.9 | 6.0 | 372 | 16.0 | 7,800 |
| 1.0 | 4.7 | 8.0 | 740 | 17.0 | 13,500 |
| 1.2 | 7.5 | 11.0 | 1,430 | 18.0 | 20,800 |
| 1.5 | 14 | 13.0 | 2,060 | 18.5 | 24,800 |
| 2.0 | 29 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.0 | 44 | a140 | 76 | 68 | 280 | 45 | 1,060 | 1,070 | 8.0 | 1.0 | a60 |
| 2 | 3.3 | 38 | a105 | 56 | 59 | 207 | 48 | 613 | 424 | 7.4 | 1.0 | a35 |
| 3 | 2.6 | 34 | *91 | 46 | 57 | 148 | 42 | 1,680 | 102 | 6.6 | 1.0 | *24 |
| 4 | 2.2 | 31 | a78 | 41 | 50 | 118 | 36 | 3,310 | 64 | 6.6 | 1.0 | 18 |
| 5 | 2.0 | 34 | a68 | 34 | *44 | 106 | 32 | 3,520 | 45 | 5.5 | 1.0 | 14 |
| 6 | 1.8 | 40 | a60 | 29 | 42 | 106 | 28 | *4,600 | 33 | 4.8 | .9 | 11 |
| 7 | 1.5 | 52 | a56 | 26 | 40 | 110 | 26 | 4,400 | 25 | 5.7 | .9 | 8.9 |
| 8 | 1.1 | 480 | a52 | 24 | 37 | 110 | 24 | 2,990 | 19 | 6.3 | .9 | 7.7 |
| 9 | 1.0 | 861 | a50 | 23 | 38 | 102 | 22 | 1,040 | 15 | 21 | .9 | 9.0 |
| 10 | .8 | 1,360 | *51 | 22 | 45 | 89 | 21 | 198 | 12 | 77 | .9 | 7.8 |
| 11 | .6 | 1,440 | 56 | 23 | 69 | 78 | 19 | 126 | 9.6 | 70 | .9 | 7.0 |
| 12 | .5 | 509 | 45 | 27 | 126 | 87 | 18 | 91 | 7.8 | 42 | 1.0 | 8.4 |
| 13 | .8 | 319 | 34 | 60 | 222 | 134 | 22 | 70 | 6.8 | 28 | 1.0 | 6.0 |
| 14 | 1,670 | 620 | 32 | *217 | 144 | 148 | 37 | 57 | 6.0 | 19 | 1.0 | 30 |
| 15 | 12,700 | 916 | 33 | 452 | 193 | 110 | *51 | 50 | 5.7 | 13 | 1.0 | 15 |
| 16 | 23,100 | 1,210 | 29 | 326 | 247 | 92 | 62 | 47 | *9.8 | 9.0 | a1 | 12 |
| 17 | *15,000 | 1,540 | 28 | 198 | 242 | 75 | 89 | 45 | 896 | 6.6 | a1 | 297 |
| 18 | 8,300 | 1,090 | 28 | 106 | 166 | *65 | 80 | 41 | 1,480 | 4.8 | a1 | 276 |
| 19 | 4,720 | 995 | 33 | 84 | 110 | 60 | 110 | 36 | 905 | 3.5 | a1 | 409 |
| 20 | 2,600 | 1,500 | 35 | 1,120 | 87 | 55 | 97 | *30 | 302 | 2.8 | a1 | 1,730 |
| 21 | 709 | 1,820 | 37 | 1,670 | 76 | 51 | 148 | 27 | 148 | 2.4 | a2 | 2,510 |
| 22 | 402 | 1,340 | 40 | 1,380 | 688 | 46 | 139 | 25 | 114 | 2.2 | a6 | 2,440 |
| 23 | 1,050 | 600 | 48 | 1,050 | 1,960 | 48 | 102 | 22 | 68 | 2.0 | a15 | 2,550 |
| 24 | 1,730 | 1,030 | 39 | 663 | 2,720 | 48 | 157 | 18 | 47 | 1.8 | a80 | 3,590 |
| 25 | 1,950 | 1,540 | 38 | 268 | 3,040 | 46 | 139 | 15 | 32 | 1.7 | 929 | 2,840 |
| 26 | 1,240 | 1,860 | 39 | 193 | 2,200 | 46 | 98 | 13 | 17 | 1.6 | 2,360 | 1,830 |
| 27 | 335 | 2,230 | 79 | 139 | 1,470 | 49 | 78 | 11 | 10 | 1.5 | 4,750 | 1,690 |
| 28 | 140 | 2,060 | 227 | 110 | 472 | 43 | 193 | 10 | 8.0 | 1.4 | 3,470 | 708 |
| 29 | 89 | 930 | 286 | 93 | - | 42 | 416 | 18 | 7.2 | *1.2 | 2,220 | 450 |
| 30 | 67 | 242 | 222 | 80 | ------- | 41 | 1,010 | 141 | 8.9 | 1.1 | 497 | 178 |
| 31 | 53 | ------- | 126 | 74 | ------- | 40 | ------- | 788 | ------- | 1.1 | a120 | ------- |
| Total | 75,877.2 | 26,765 | 2,285 | 8,710 | 14,712 | 2,780 | 3,389 | 25,092 | 5,897.8 | 365.6 | 14,468.4 | 21,771.8 |
| Mean | 2,448 | 892 | 73.7 | 281 | 525 | 89.7 | 113 | 809 | 197 | 11.8 | 467 | 726 |
| Ac-ft | 150,500 | 53,090 | 4,530 | 17,280 | 29,180 | 5,510 | 6,720 | 49,770 | 11,700 | 725 | 28,700 | 43,180 |

Calendar year 1957: Max 28,900 Min 0.3 Mean 1,000 Ac-ft 724,000
Water year 1957-58: Max 23,100 Min 0.5 Mean 554 Ac-ft 400,900

Peak discharge (base, 3,100 cfs).--Oct. 16 (8 a.m.) 24,800 cfs (18.34 ft); Feb. 25 (3 a.m.) 3,240 cfs (14.33 ft); May 6 (6 p.m.) 5,080 cfs (15.52 ft); Aug. 27 (9 a.m.) 5,200 cfs (15.60 ft); Sept. 24 (2 p.m.) 3,840 cfs (14.93 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records, records for station near Bryan, and information from bridge construction crew.

## 1110. 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.--1,439 sq mi.

Records available.--January 1951 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 227.4 ft above mean sea level (Stage Highway Department Survey).

Average discharge.--7 years, 410 cfs (296,800 acre-ft per year).

Extremes.--Maximum discharge during year, 28,300 cfs Oct. 17 (gage height, 15.68 ft); minimum, 0.2 cfs Aug. 12-14, 19-21.
1951-58: Maximum discharge, 35,800 cfs Apr. 26, 1957 (gage height, 16.36 ft); no flow at times.

Remarks.--Records poor. Diversions for irrigation and municipal supply above station.

Revisions.--WSP 1392: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 21 to Dec. 13, Dec. 25-27, Jan. 23 to Apr. 30)

| | | | | | |
|---|---|---|---|---|---|
| 3.5 | 0.1 | 6.0 | 52 | 12.5 | 2,400 |
| 3.6 | .3 | 7.0 | 99 | 13.0 | 3,900 |
| 3.7 | .8 | 8.0 | 159 | 13.5 | 5,950 |
| 3.8 | 1.5 | 9.0 | 241 | 14.0 | 8,600 |
| 4.0 | 3.4 | 10.0 | 380 | 14.5 | 12,500 |
| 4.4 | 8.5 | 11.0 | 650 | 15.0 | 18,000 |
| 5.0 | 20 | 11.5 | 890 | 15.5 | 25,000 |
| 5.5 | 34 | 12.0 | 1,400 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 218 | 2,160 | 289 | 193 | 2,530 | 94 | 670 | a100 | 18 | 2.2 | 2,800 |
| 2 | 14 | 152 | 925 | 232 | 170 | 1,260 | 89 | 755 | a300 | 16 | 2.2 | 1,140 |
| 3 | 12 | 148 | *515 | 170 | 145 | 650 | 89 | 1,090 | a600 | 15 | a2.0 | *398 |
| 4 | 11 | 148 | 332 | 127 | 127 | 412 | 92 | 1,840 | a800 | a14 | 1.8 | 166 |
| 5 | 9.9 | 130 | 256 | 102 | 118 | 295 | 89 | 1,400 | a500 | 13 | 1.7 | 79 |
| 6 | 9.0 | 170 | 193 | 89 | 109 | 412 | 82 | 2,280 | a200 | 92 | 1.5 | 46 |
| 7 | 8.7 | 196 | 159 | 79 | 104 | 500 | 72 | *3,730 | a80 | 121 | 1.3 | a40 |
| 8 | 8.2 | 500 | 142 | 72 | 102 | 425 | 63 | 3,900 | a50 | 74 | 1.3 | 87 |
| 9 | 7.9 | 390 | 142 | 65 | 96 | 323 | 59 | 4,250 | a35 | 37 | 1.2 | 128 |
| 10 | 6.9 | 400 | 136 | 58 | 92 | 278 | 60 | 3,900 | a28 | 24 | a.9 | 70 |
| 11 | 6.6 | 515 | 121 | 55 | 92 | 236 | 67 | 2,800 | a22 | 26 | .6 | 40 |
| 12 | 6.9 | 670 | 106 | 60 | 124 | 205 | 65 | 1,160 | a18 | 48 | .3 | 25 |
| 13 | 8.3 | 925 | 99 | 124 | 159 | 205 | 56 | 470 | a15 | a75 | .2 | a20 |
| 14 | 1,550 | 1,000 | 94 | *181 | 193 | 241 | 53 | 261 | a12 | 51 | .2 | 15 |
| 15 | 6,890 | 710 | 82 | 205 | 218 | 266 | *63 | 181 | a11 | 36 | .3 | 12 |
| 16 | 6,680 | 605 | 76 | 272 | 228 | 251 | 89 | 130 | 10 | 27 | .4 | 12 |
| 17 | 23,200 | 635 | 76 | 323 | 256 | 210 | 106 | 99 | 24 | 21 | a.3 | 36 |
| 18 | 21,800 | 730 | 76 | 308 | 283 | 181 | 109 | 84 | 240 | 18 | .3 | 45 |
| 19 | 11,300 | 890 | 74 | 246 | 266 | 162 | 187 | 74 | 590 | 15 | .2 | 367 |
| 20 | 6,950 | 1,040 | 74 | 289 | 228 | 152 | 159 | a70 | 890 | a13 | .2 | 1,980 |
| 21 | 5,280 | 1,040 | 76 | 690 | 181 | 139 | 166 | a67 | 1,090 | 11 | .3 | 2,800 |
| 22 | 4,250 | 1,330 | 84 | 960 | 230 | 127 | 185 | a63 | 890 | 10 | 2.0 | 2,530 |
| 23 | 3,730 | 2,160 | 84 | 1,560 | 1,330 | 127 | 189 | a60 | 575 | 8.8 | 4.3 | 3,090 |
| 24 | 2,300 | 2,280 | 82 | 1,940 | 2,160 | 130 | 185 | a57 | 370 | 7.8 | a2.2 | 3,730 |
| 25 | 1,560 | 2,160 | 104 | 1,400 | 3,090 | 130 | 156 | a53 | 241 | 5.7 | 1.4 | 3,900 |
| 26 | 1,650 | 1,480 | 159 | 890 | 4,450 | 127 | 162 | a50 | 123 | 4.3 | 20 | 3,900 |
| 27 | 2,050 | 1,480 | 191 | 575 | 4,250 | 115 | 162 | a46 | 72 | a3.8 | 297 | 4,250 |
| 28 | 1,740 | 1,740 | 390 | 380 | 3,560 | 106 | 207 | a43 | 46 | *3.4 | *590 | 4,250 |
| 29 | 945 | 2,050 | 360 | 283 | - | 106 | 390 | a41 | a30 | 3.1 | *890 | 3,730 |
| 30 | 497 | 2,400 | 370 | 246 | ------- | 102 | 560 | a40 | 22 | 2.8 | 1,650 | 2,940 |
| 31 | 308 | ------- | 350 | 218 | ------- | 99 | ------- | a48 | ------- | 2.6 | a3,500 | ------- |
| Total | 102,807.4 | 28,292 | 8,088 | 12,488 | 22,554 | 10,502 | 4,105 | 29,712 | 7,984 | 817.3 | 6,976.3 | 42,626 |
| Mean | 3,316 | 943 | 261 | 403 | 806 | 339 | 137 | 958 | 266 | 26.4 | 225 | 1,421 |
| Ac-ft | 203,900 | 56,120 | 16,040 | 24,770 | 44,740 | 20,830 | 8,140 | 58,930 | 15,840 | 1,620 | 13,840 | 84,550 |

Calendar year 1957: Max 33,700 Min 0 Mean 1,213 Ac-ft 878,300
Water year 1957-58: Max 23,200 Min 0.2 Mean 759 Ac-ft 549,300

Peak discharge (base, 4,600 cfs).--Oct. 17 (8 p.m.) 28,300 cfs (15.68 ft); Feb. 26 (3 p.m.) 4,650 cfs (12.90 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge interpolated or estimated on basis of weather records and records for station near Easterly.
Note.--Discharge computed from twice-daily wire-weight-gage readings June 16 to Sept. 20.

## 1115. 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 and New Orleans Railroad Co. bridge, 6.5 miles northwest of Hempstead, Waller County, 8 miles upstream from Caney Creek, and at mile 196.

Drainage area.--42,640 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--October 1938 to September 1958. Gage-height records collected in this vicinity at intermittent periods since 1903 are contained in report of U. S. Weather Bureau.

Gage.--Wire-weight gage read twice daily, more often during floods. Datum of gage is 117.90 ft above mean sea level, datum of 1929. Prior to Nov. 1, 1940, chain gage at railroad bridge 4,500 ft downstream at datum 5.97 ft lower.

Average discharge.--20 years, 6,802 cfs (4,924,000 acre-ft per year).

Extremes.--Maximum discharge during year, 91,800 cfs Feb. 26; maximum gage height, 38.81 ft Oct. 18; minimum daily discharge, 708 cfs Aug. 5, 6.
1938-58: Maximum discharge, 143,000 cfs May 2, 1957 (gage height, 44.21 ft); minimum daily, 137 cfs Nov. 6, 1952.
Maximum stage known since at least 1899, 56.1 ft Dec. 8, 1913, present site and datum, from information by Texas and New Orleans Railroad Co., 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 and New Orleans Railroad Co.

Remarks.--Records good. Flow largely regulated by reservoirs above Bryan. Many small diversions above station for irrigation, municipal supply, industrial use, and oilfield operations.

Revisions (water years).--WSP 1442: Drainage area. WSP 1512: 1941.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3,480 | 13,900 | 16,000 | 8,220 | 7,440 | 26,000 | 5,400 | 25,400 | 4,740 | *4,920 | 1,100 | 2,050 |
| 2 | 2,750 | *12,000 | 14,100 | *6,430 | 6,430 | 19,000 | 4,830 | 21,900 | 4,740 | 3,880 | 900 | 1,830 |
| 3 | 1,940 | 10,400 | *11,200 | 5,700 | 5,800 | *16,700 | *4,380 | 35,800 | 4,650 | 3,400 | 832 | 1,780 |
| 4 | 1,560 | 10,000 | 8,950 | 5,400 | 5,100 | 16,300 | 4,120 | 59,200 | 4,380 | 2,960 | 768 | *1,720 |
| 5 | 1,280 | 8,800 | 8,500 | 4,560 | *4,290 | 15,100 | 4,380 | *74,600 | *4,040 | 2,750 | *708 | 1,720 |
| 6 | 1,130 | 6,760 | 8,360 | 4,560 | 3,720 | 14,500 | 5,100 | 76,400 | 3,720 | 2,540 | 708 | 1,830 |
| 7 | 1,130 | 6,320 | 8,360 | 4,560 | 3,480 | 16,700 | 5,300 | *53,400 | 4,120 | 3,580 | 728 | 2,000 |
| 8 | *1,260 | 13,200 | 7,440 | 4,380 | 3,640 | 16,700 | 4,470 | 33,900 | 4,040 | 7,680 | *922 | 2,110 |
| 9 | 1,440 | 15,500 | 6,760 | 4,200 | 3,800 | 12,900 | 3,960 | 32,900 | 3,880 | 8,220 | 1,340 | 1,880 |
| 10 | 1,340 | 15,800 | 5,900 | 3,880 | 4,040 | 11,900 | 3,640 | 34,700 | 3,880 | 12,000 | 1,940 | 1,610 |
| 11 | 1,130 | 18,200 | 5,010 | 3,960 | 3,880 | 13,200 | 3,320 | 35,400 | 3,320 | 20,100 | 1,940 | 1,610 |
| 12 | 990 | 18,000 | 4,470 | 4,830 | 3,480 | *13,200 | 3,640 | *35,100 | 2,680 | 22,800 | 1,560 | 1,830 |
| 13 | 855 | 19,800 | 5,200 | 7,090 | 3,320 | 13,400 | 4,040 | 35,800 | 2,410 | 19,800 | 1,280 | 1,500 |
| 14 | 2,190 | 18,200 | 6,430 | 6,650 | 3,960 | 14,100 | 4,120 | 35,800 | 2,230 | 13,600 | 1,060 | 1,560 |
| 15 | 35,300 | 13,400 | 6,320 | 6,650 | 4,560 | 14,100 | 3,960 | 33,200 | 2,110 | 6,870 | 945 | 1,880 |
| 16 | 66,800 | 10,800 | 5,010 | 7,440 | 4,380 | 13,000 | 3,960 | 27,400 | 2,170 | 5,500 | 900 | 1,940 |
| 17 | 79,300 | 10,000 | 4,200 | 9,100 | 3,960 | 11,200 | 4,920 | 20,800 | 2,110 | 5,100 | 922 | 1,610 |
| 18 | 83,600 | 9,700 | 3,800 | 7,800 | 3,560 | 10,200 | 4,560 | 17,200 | 2,230 | 4,560 | 1,100 | 1,390 |
| 19 | 71,600 | 9,550 | 3,720 | 6,650 | 3,100 | 9,700 | 5,100 | 14,900 | 3,020 | 3,880 | 1,230 | 1,280 |
| 20 | 49,900 | 13,200 | 4,040 | 8,080 | 2,750 | 9,700 | 5,700 | 12,500 | 7,980 | 3,400 | 1,130 | 1,660 |
| 21 | 40,500 | 13,900 | 4,920 | 10,000 | 2,680 | 10,600 | 6,210 | 12,200 | 8,800 | 3,240 | 1,130 | 4,690 |
| 22 | 38,800 | 16,300 | 5,800 | 9,550 | 2,950 | 10,400 | 5,900 | 11,600 | 6,320 | 3,100 | 945 | 13,400 |
| 23 | 47,100 | 18,500 | 5,300 | 11,800 | 13,000 | 9,700 | 5,100 | 9,910 | 5,310 | 3,100 | 1,010 | 18,500 |
| 24 | 49,100 | 17,000 | 4,040 | 14,100 | 56,600 | 9,100 | 4,290 | 8,360 | 5,900 | 2,890 | 1,500 | 15,100 |
| 25 | 41,700 | 20,100 | 3,800 | 10,800 | *79,700 | 8,220 | 4,120 | 7,320 | 8,500 | 2,540 | 1,450 | 11,000 |
| 26 | 32,000 | 26,600 | 3,880 | 10,000 | 87,600 | 7,320 | 4,920 | 7,440 | 7,940 | 2,230 | 1,500 | 9,850 |
| 27 | 26,800 | 26,600 | 6,320 | 10,000 | *64,000 | 6,540 | 4,760 | 7,560 | 5,100 | 2,000 | 6,610 | 8,800 |
| 28 | 24,100 | 22,400 | 8,040 | 9,550 | 38,000 | 6,980 | 22,400 | 6,980 | 3,880 | 1,830 | 5,800 | 8,650 |
| 29 | 21,400 | 18,000 | 9,550 | 9,100 | - | 6,870 | 27,600 | 6,320 | 4,380 | 2,110 | 3,960 | 7,680 |
| 30 | 18,500 | 16,500 | 9,850 | 7,800 | ------- | 5,500 | 29,900 | 5,800 | 4,920 | 1,940 | 3,100 | 6,650 |
| 31 | 16,500 | ------- | 10,600 | 7,440 | ------- | 5,200 | ------- | 5,300 | ------- | 1,440 | 2,540 | ------- |
| Total | 765,475 | 449,430 | 215,870 | 230,280 | 429,220 | 374,030 | 204,100 | 805,090 | 133,500 | 183,960 | 51,558 | 139,110 |
| Mean | 24,690 | 14,980 | 6,964 | 7,428 | 15,330 | 12,070 | 6,803 | 25,970 | 4,450 | 5,934 | 1,663 | 4,637 |
| Ac-ft | ‡1,518 | 891,400 | 428,200 | 456,800 | 851,300 | 741,900 | 404,800 | ‡1,597 | 264,800 | 364,900 | 102,300 | 275,900 |

Calendar year 1957: Max 138,000 Min 248 Mean 18,250 Ac-ft 13,210,000
Water year 1957-58: Max 87,600 Min 708 Mean 10,910 Ac-ft 7,897,000

* Discharge measurement made on this day.
‡ Expressed in thousands.

1125. American Canal Co.'s canal near Pulshear, Tex.

Location.--Lat 29°38'32", long 95°53'06", near center of channel at downstream side of bridge, 1.2 miles downstream from point of diversion and 3.4 miles south of Pulshear, Fort Bend County.

Records available.--October 1931 to September 1954, October 1957 to September 1958.

Gage.--Water-stage recorder.

Average discharge.--24 years (1931-54, 1957-58), 92.6 cfs (67,040 acre-ft per year).

Extremes.--Maximum daily discharge during year, 442 cfs July 22; no flow several months. 1931-54, 1957-58: Maximum daily discharge, 466 cfs May 22, 23, Aug. 1, 1954; no flow for several months each year.

Remarks.--Records fair. Station above all diversion from canal. Flow controlled by pumping plant located on left bank of Brazos River 21.7 miles upstream from Richmond. Figures of discharge represent water actually pumped from river for irrigation in the vicinity of Sugarland.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 74 | 0 | 15.3 | 940 |
| November | 0 | 0 | 0 | 0 |
| December | 0 | 0 | 0 | 0 |
| Calendar year 1957 | - | - | - | - |
| January | 0 | 0 | 0 | 0 |
| February | 0 | 0 | 0 | 0 |
| March | 96 | 0 | 23.6 | 1,450 |
| April | 250 | 0 | 82.0 | 4,880 |
| May | 370 | 86 | 212 | 13,010 |
| June | 370 | 212 | 288 | 17,150 |
| July | 442 | 205 | 309 | 19,000 |
| August | 348 | 74 | 203 | 12,500 |
| September | 67 | 0 | 10.4 | 621 |
| Water year 1957-58 | 442 | 0 | 96.1 | 69,550 |

1135. 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 1954, March 1956 to September 1958.

Gage.--Water-stage recorder.

Average discharge.--25 years, 40.8 cfs (29,540 acre-ft per year).

Extremes.--Maximum daily discharge during year, 267 cfs Nov. 15, 28; no flow several months.

1931-54, 1956-58: Maximum daily discharge, that of Nov. 15, 28, 1957; 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.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 92 | 0 | 8.42 | 518 |
| November | 267 | 0 | 144 | 8,560 |
| December | 242 | 0 | 10.7 | 659 |
| Calendar year 1957 | 267 | 0 | 47.2 | 34,200 |
| January | 0 | 0 | 0 | 0 |
| February | 0 | 0 | 0 | 0 |
| March | 0 | 0 | 0 | 0 |
| April | 132 | 0 | 33.0 | 1,960 |
| May | 132 | 95 | 112 | 6,910 |
| June | 170 | 76 | 115 | 6,830 |
| July | 162 | 109 | 123 | 7,570 |
| August | 156 | 0 | 56.5 | 3,470 |
| September | 69 | 0 | 4.93 | 294 |
| Water year 1957-58 | 267 | 0 | 50.8 | 36,770 |

1140. 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 and New Orleans Railroad Co. bridge and at mile 93.

Drainage area.--44,020 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--January 1903 to June 1906 and October 1922 to September 1958 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 U. S. Department of Agriculture, Office of Experiment Stations, Bulletin Nos. 119 and 133. Gage-height records collected in this vicinity since 1914 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 40.94 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. 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.--38 years (1903-5, 1922-58), 7,380 cfs (5,343,000 acre-ft per year).

Extremes.--Maximum discharge during year, 87,600 cfs Oct. 20 (gage height, 31.90 ft); minimum daily discharge, 640 cfs Aug. 9.
1903-6, 1922-58: Maximum discharge, 123,000 cfs June 6, 1929 (gage height, 40.6 ft, from floodmarks), present site and datum; minimum daily discharge, 35 cfs Aug. 23, 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.

Remarks.--Records good. Flow largely regulated by reservoirs above Bryan. Considerable water diverted above station for irrigation and municipal supply. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1392: 1933. WSP 1442: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4,920 | 17,200 | 17,900 | 11,400 | 8,590 | 45,300 | 5,900 | 28,200 | g6,040 | 4,920 | 2,110 | g3,850 |
| 2 | 5,060 | 15,500 | 17,200 | 10,200 | 8,590 | 28,500 | 5,900 | 24,700 | g5,340 | 5,480 | 1,590 | g3,050 |
| 3 | 4,500 | 13,600 | 15,500 | 8,080 | 7,910 | 20,800 | 5,760 | 22,100 | *g4,920 | 5,060 | 1,180 | g2,500 |
| 4 | 3,460 | 12,400 | 13,200 | 6,600 | 6,750 | *18,200 | *5,060 | 37,400 | g4,920 | 3,980 | 1,000 | g2,060 |
| 5 | 2,550 | *11,600 | 11,400 | 6,180 | 6,180 | 17,200 | 4,500 | 58,000 | g4,780 | 3,330 | 910 | g1,980 |
| 6 | 1,880 | 11,000 | 10,600 | 5,760 | g5,620 | 16,000 | g4,370 | *68,100 | g4,500 | 2,850 | 850 | g2,110 |
| 7 | 1,430 | 9,100 | 10,200 | 5,900 | g4,780 | 15,200 | 4,780 | 70,200 | g3,980 | 2,600 | 730 | g2,060 |
| 8 | *1,210 | 8,080 | 10,000 | 5,900 | g4,110 | 16,400 | 5,480 | 57,500 | g3,980 | 2,500 | 675 | g1,880 |
| 9 | 1,240 | 13,000 | 9,480 | g5,060 | g3,980 | 16,200 | 5,340 | *34,500 | g4,370 | 5,270 | 640 | g2,200 |
| 10 | 1,390 | 16,200 | 8,590 | g4,780 | g4,240 | 13,800 | 4,370 | g29,100 | g4,240 | 9,480 | 814 | g2,450 |
| 11 | 1,470 | 16,400 | 7,570 | g4,370 | g5,060 | 12,400 | 3,850 | g29,500 | g4,240 | 12,200 | 1,140 | *2,250 |
| 12 | 1,430 | 18,100 | 6,600 | g4,110 | g5,840 | 13,000 | 3,590 | g30,100 | g3,980 | 18,800 | 2,110 | 2,060 |
| 13 | 1,320 | 18,600 | 6,620 | g5,060 | g4,920 | 13,000 | 3,460 | g29,800 | g3,200 | 21,600 | 2,300 | 1,980 |
| 14 | 1,480 | 20,300 | 5,480 | 8,080 | g4,500 | 13,000 | 4,110 | g30,100 | g2,550 | 19,300 | 2,020 | 2,020 |
| 15 | 15,500 | 18,800 | 6,750 | 10,400 | g4,500 | 13,400 | 4,920 | g30,100 | g2,020 | 14,000 | *1,670 | 1,800 |
| 16 | 56,600 | 15,500 | 7,570 | 8,080 | g5,340 | 13,600 | 5,200 | g28,200 | g2,110 | *9,290 | 1,390 | 1,630 |
| 17 | 75,600 | 13,400 | 6,600 | 8,080 | g5,620 | 12,800 | 4,370 | g24,200 | *1,930 | 6,910 | 1,180 | 2,020 |
| 18 | *g83,000 | 13,200 | g5,480 | 9,670 | g5,200 | 11,800 | 5,110 | g19,600 | 2,650 | 6,040 | 1,070 | 2,200 |
| 19 | g86,000 | 12,800 | *g4,640 | 9,480 | g4,640 | 10,800 | 4,780 | *g16,700 | 3,330 | 6,620 | 1,000 | 1,880 |
| 20 | g86,100 | 12,400 | g4,240 | 10,600 | *4,110 | 10,400 | 5,060 | 15,000 | 2,450 | 4,780 | 1,100 | 1,750 |
| 21 | g74,200 | 14,400 | g3,590 | 15,500 | 3,590 | 10,200 | 5,620 | 13,400 | 5,900 | 4,110 | 1,210 | 2,350 |
| 22 | g56,500 | 19,300 | g4,780 | 14,800 | 3,720 | 10,600 | 6,320 | 12,600 | 9,860 | 3,590 | 1,240 | 2,900 |
| 23 | g46,600 | 28,800 | 6,180 | 13,400 | 5,450 | 11,000 | 6,600 | 12,200 | 9,100 | 3,330 | 1,240 | 12,200 |
| 24 | *g50,700 | 29,500 | 6,460 | 15,500 | 16,800 | 10,400 | 6,040 | 11,200 | 6,750 | 3,330 | 1,210 | 17,600 |
| 25 | 54,400 | 26,300 | 5,620 | 18,100 | 52,600 | 9,860 | 5,200 | g9,860 | 6,460 | 3,250 | 1,140 | g16,000 |
| 26 | 46,300 | 25,100 | g4,500 | 14,600 | *73,500 | 9,100 | 4,370 | g8,590 | 8,420 | 3,050 | 1,630 | g13,000 |
| 27 | 35,400 | 28,500 | g4,240 | 11,800 | *76,400 | 8,420 | 4,500 | g8,080 | 9,860 | 2,700 | 1,710 | g11,400 |
| 28 | *g27,300 | 27,000 | g4,780 | 11,200 | 57,800 | 7,400 | 4,920 | g8,420 | 7,740 | 2,400 | 3,500 | g10,600 |
| 29 | g23,600 | 22,400 | 7,400 | 11,400 | - | 7,230 | 15,100 | g7,910 | 5,340 | 2,020 | 8,250 | g10,400 |
| 30 | 21,400 | 19,300 | 11,200 | *11,600 | ------- | 7,740 | 26,000 | g7,070 | 4,240 | 1,980 | 6,320 | g9,670 |
| 31 | 19,100 | ------- | 10,800 | 9,670 | ------- | 6,750 | ------- | g6,320 | ------- | 2,250 | g4,780 | ------- |
| Total | 891,640 | 527,780 | 254,170 | 295,360 | 410,340 | 430,500 | 179,580 | 788,750 | 149,200 | 196,020 | 57,709 | 149,850 |
| Mean | 28,760 | 17,590 | 8,199 | 9,528 | 14,660 | 13,890 | 5,986 | 25,440 | 4,973 | 6,323 | 1,862 | 4,995 |
| Ac-ft | ‡1,769 | ‡1,047 | 504,100 | 585,800 | 813,900 | 853,900 | 356,200 | ‡1,564 | 295,900 | 388,800 | 114,500 | 297,200 |

Calendar year 1957: Max 118,000 Min 374 Mean 19,630 Ac-ft 14,210,000
Water year 1957-58: Max 86,100 Min 640 Mean 11,870 Ac-ft 8,590,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
g Computed from once-daily wire-weight-gage readings.

## 1145. Brazos River near Juliff, Tex.

Location.--Lat 29°26', long 95°32', on left bank just downstream from South Texas Water Co.'s pumping plant, 3½ miles west of Juliff, Fort Bend County, 5½ miles downstream from Gulf, Colorado and Santa Fe Railway Co. bridge, and at mile 67.

Drainage area.--44,100 sq mi, approximately, of which 9,240 sq mi is probably noncontributing.

Records available.--May 1949 to September 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Prior to Mar. 11, 1958, two water-stage recorders at same site and datum.

Average discharge.--9 years, 4,971 cfs (3,599,000 acre-ft per year).

Extremes.--Maximum discharge during year, about 82,000 cfs Oct. 20 (elevation, 56.65 ft); no flow Aug. 8.

1949-58: Maximum elevation, 59.17 ft May 6, 7, 1957 (discharge not determined); no flow at times due to pumping.

Maximum elevation known since at least 1884, 64.0 ft about Dec. 11, 1913, from floodmark, 4 miles to left of gage, from information by local resident. From same source and at same site, other floods as follows: about May 10, 1922, elevation, 61.0 ft; about June 7, 1929, elevation, 61.0 ft; about Nov. 29, 1940, elevation, 61.5 ft. Flood in July 1899 was probably exceeded only by the flood of 1913.

Remarks.--Records fair. Some regulation of flow by reservoirs above Bryan. Considerable water diverted above station for irrigation and industrial and municipal supply materially affect low flow. The Briscoe Irrigation Co. and the South Texas Water Co. have permits to divert a maximum of 600 and 400 cfs, respectively, between station at Richmond and this station for irrigation, industrial, and municipal supply.

Revisions.--WSP 1442: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4,090 | 18,600 | 17,500 | 10,400 | 8,760 | 42,000 | 5,710 | 25,600 | 5,600 | 3,120 | 1,400 | 3,140 |
| 2 | 4,190 | 16,700 | 16,700 | 10,300 | 8,370 | 26,800 | 5,270 | 24,000 | 5,050 | 3,890 | 1,100 | 2,590 |
| 3 | 3,890 | 14,800 | 15,500 | 7,950 | 8,110 | 20,800 | 5,380 | 21,100 | 4,290 | 3,990 | 683 | 1,960 |
| 4 | 3,300 | 13,200 | 13,400 | 6,720 | 6,960 | *19,600 | *4,940 | 38,900 | *4,390 | 3,210 | 420 | 1,580 |
| 5 | 2,590 | 12,300 | *11,500 | 6,040 | 6,260 | 18,100 | 4,390 | 57,800 | 3,990 | 2,670 | 280 | 1,500 |
| 6 | 1,960 | 11,800 | 10,200 | 5,600 | 5,600 | 17,000 | 4,090 | *66,000 | 3,690 | 2,110 | 180 | 1,720 |
| 7 | *1,380 | 10,300 | 9,740 | 5,380 | 4,830 | 15,800 | 3,990 | 67,100 | 3,390 | 1,820 | 65 | 1,820 |
| 8 | 1,170 | 9,040 | 9,600 | 5,710 | 3,990 | 16,500 | 4,390 | 57,200 | 2,850 | 1,720 | 83 | 1,720 |
| 9 | 1,050 | 11,400 | 9,320 | 5,270 | 3,790 | 17,000 | 5,160 | 34,000 | 3,210 | 2,650 | 102 | 1,750 |
| 10 | 1,260 | 16,800 | 8,500 | *4,720 | 3,990 | 15,100 | 4,500 | 31,800 | 3,210 | 7,390 | 136 | 2,110 |
| 11 | 1,230 | 16,300 | 7,590 | 4,390 | 4,190 | 12,600 | 3,890 | 33,000 | 2,940 | 9,540 | 324 | 2,190 |
| 12 | 1,330 | 18,100 | 6,600 | 4,090 | 5,160 | 12,700 | 3,590 | 33,900 | 3,030 | 17,000 | 1,030 | 2,030 |
| 13 | 1,400 | 18,800 | 5,710 | 4,500 | 4,830 | 12,900 | 3,300 | 33,900 | 2,590 | 20,500 | 1,820 | 1,890 |
| 14 | 1,440 | 20,100 | 5,270 | 6,800 | 4,290 | 13,100 | 3,690 | 34,200 | 1,960 | 20,100 | 1,680 | 1,890 |
| 15 | 11,700 | 19,100 | 5,820 | 10,100 | 3,890 | 13,400 | 4,390 | 34,200 | 1,640 | 13,600 | 1,400 | 1,890 |
| 16 | 68,000 | 15,500 | 6,960 | 8,850 | 4,090 | 13,700 | 5,050 | 32,800 | 1,360 | 9,320 | 1,080 | 1,580 |
| 17 | 71,300 | 13,900 | 6,840 | 7,590 | 4,720 | 13,400 | 4,610 | 27,100 | 1,200 | 6,660 | 900 | 1,580 |
| 18 | *77,200 | 12,700 | 5,600 | 8,630 | 4,610 | 12,400 | 4,090 | 21,400 | *1,200 | 5,330 | 650 | 1,890 |
| 19 | 80,000 | 12,600 | 4,720 | 9,180 | 4,190 | 11,400 | 4,290 | 18,400 | 2,110 | 5,050 | 595 | 1,890 |
| 20 | 81,600 | 12,400 | *4,290 | 10,200 | 3,790 | 10,600 | 4,610 | 16,300 | 1,640 | 4,390 | 559 | 1 750 |
| 21 | 78,000 | 12,400 | 4,000 | 15,500 | 3,390 | 10,300 | 4,940 | 14,000 | 2,850 | 3,590 | 725 | 2,030 |
| 22 | 67,100 | 21,200 | 4,000 | 15,500 | 3,390 | 10,600 | 5,490 | 13,100 | 7,170 | 3,030 | 850 | 2,670 |
| 23 | *46,000 | 33,000 | 5,270 | 13,900 | 4,500 | 11,000 | 5,930 | *12,600 | 7,720 | *2,670 | 1,020 | 9,660 |
| 24 | 47,900 | 32,500 | 6,150 | 15,600 | 13,800 | 10,800 | 5,600 | 11,600 | 6,150 | 2,590 | 1,230 | 17,400 |
| 25 | 53,800 | 27,400 | 5,820 | 18,600 | 50,600 | 10,000 | 4,830 | 10,000 | 4,610 | 2,510 | 1,080 | 16,700 |
| 26 | 46,200 | 25,900 | 4,390 | 15,200 | *70,200 | 9,320 | 4,090 | 8,760 | 5,490 | 2,510 | 1,230 | 13,300 |
| 27 | 35,300 | 28,000 | 3,790 | 12,000 | 71,000 | 8,500 | 3,790 | 7,720 | 7,460 | 2,190 | 1,580 | 12,300 |
| 28 | *27,300 | 28,400 | 3,990 | 11,400 | 71,000 | 7,590 | 4,190 | 7,850 | 6,380 | 1,890 | *1,860 | 11,400 |
| 29 | 24,600 | 22,400 | 5,860 | 11,000 | - | 6,960 | 11,700 | 7,590 | 4,200 | 1,540 | 6,500 | 10,600 |
| 30 | 22,100 | 19,300 | 9,720 | *11,600 | ------- | 7,460 | 23,500 | 6,840 | 3,030 | 1,200 | 5,740 | 10,000 |
| 31 | 20,100 | ------- | 9,880 | 10,400 | ------- | 6,840 | ------- | 6,260 | ------- | 1,300 | 4,430 | ------- |
| Total | 888,480 | 544,940 | 244,230 | 293,120 | 392,300 | 434,270 | 163,390 | 815,020 | 114,400 | 169,080 | 40,732 | 144,530 |
| Mean | 28,660 | 18,160 | 7,878 | 9,455 | 14,010 | 14,010 | 5,446 | 26,290 | 3,813 | 5,454 | 1,314 | 4,818 |
| Ac-ft | ‡1,762 | ‡1,081 | 484,400 | 581,400 | 778,100 | 861,400 | 324,100 | ‡1,617 | 226,900 | 335,400 | 80,790 | 286,700 |

Calendar year 1957: Max 116,000 Min 166 Mean 19,020 Ac-ft 13,770,000
Water year 1957-58: Max 81,600 Min 65 Mean 11,630 Ac-ft 8,419,000

* Discharge measurement made on this day.
‡ Expressed in thousands.
Note.--Computed from once-daily staff-gage readings Oct. 1-6, 16, Oct. 28 to Dec. 20, Feb. 1-8, 25; twice-daily staff-gage readings Mar. 3, 18, Apr. 1-14, 27-29, May 4-23, May 26 to Sept. 30.

## 1150. 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 Kunz 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 1952 to September 1958.

Gage.--Water-stage recorder and wire-weight gage with concrete 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.

Average discharge.--8 years (1947-49, 1952-58), 19.6 cfs (14,190 acre-ft per year).

Extremes.--1956-57: Maximum discharge, 2,570 cfs Mar. 17 (gage height, 11.78 ft); no flow for many days.
1957-58: Maximum discharge, 2,780 cfs Oct. 15 (gage height, 12.31 ft); no flow at times.
1947-50, 1952-58: Maximum discharge, that of Oct. 15, 1957; maximum gage height, 12.99 ft Oct. 8, 1949; no flow at times.
Maximum stage since about 1913, 14.4 ft in August 1945, from information by local resident.

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

Revisions (water years).--WSP 1148: 1947.

Rating table, water years 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 18, 19, Oct. 16, 17, 1957, Sept. 13, 1958)

| | | | | | |
|---|---|---|---|---|---|
| -0.57 | 0 | 0.0 | 13 | 2.0 | 158 |
| -.5 | .1 | .2 | 24 | 3.0 | 262 |
| -.4 | .9 | .5 | 42 | 5.0 | 560 |
| -.3 | 2.6 | 1.0 | 78 | 8.0 | 1,250 |
| -.2 | 5.2 | 1.5 | 118 | 11.0 | 2,250 |

Discharge, in cubic feet per second, water year October 1956 to September 1957

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0 | | 0 | 0 | 166 | 166 | 22 | 0 | 0.1 | 0.9 |
| 2 | | | 0 | | 0 | 0 | 46 | 85 | 100 | 0 | .2 | 2.4 |
| 3 | | | 0 | | 0 | 0 | 15 | 42 | 47 | 0 | .1 | 35 |
| 4 | | | *0 | (*) | 0 | 7.2 | 7.9 | 21 | 5.8 | 0 | .2 | 24 |
| 5 | | | 0 | | 0 | *2.9 | 2.8 | 7.4 | 43 | .1 | .1 | 4.2 |
| 6 | | | 0 | | 0 | .5 | 2.0 | 3.8 | 61 | 0 | 0 | 1.6 |
| 7 | | | 0 | | 0 | .3 | .9 | 2.4 | 79 | 0 | 0 | 1.0 |
| 8 | | | 0 | | 0 | .1 | .2 | 1.4 | 93 | 0 | 0 | .8 |
| 9 | | | 0 | | 0 | 0 | 0 | .6 | 22 | 0 | .2 | **.6 |
| 10 | | | 0 | | 0 | 0 | 0 | 32 | 6.1 | *0 | .2 | .4 |
| 11 | | | 0 | | 0 | 0 | 1.2 | 16 | 3.8 | 0 | .2 | .8 |
| 12 | | | 0 | | 0 | .8 | .4 | 6.8 | 3.3 | 0 | .5 | 1.8 |
| 13 | | | 0 | | 0 | 2.4 | 0 | 3.8 | 2.0 | 0 | .3 | 1.3 |
| 14 | | | 0 | | *0 | 1.0 | 0 | 2.0 | 1.2 | 0 | .6 | 1.2 |
| 15 | | | 0 | | 0 | .4 | 0 | 1.2 | .8 | 0 | .3 | 1.0 |
| 16 | | | 0 | | 0 | .1 | .2 | **.4 | .8 | 0 | .2 | .9 |
| 17 | | | 0 | | 0 | 945 | .2 | .2 | .8 | 0 | .4 | .9 |
| 18 | | | 0 | | 0 | *1,310 | .1 | .1 | .9 | 0 | .4 | .9 |
| 19 | | | 0 | | .1 | *150 | 0 | .3 | 1.6 | 0 | .5 | .9 |
| 20 | | | 0 | | .1 | *50 | .2 | .2 | 1.4 | 0 | .6 | .9 |
| 21 | | | .2 | | 0 | 454 | 472 | .3 | 1.0 | .5 | .3 | .9 |
| 22 | | | 2.4 | | .1 | 70 | 171 | .1 | 1.2 | 1.2 | .3 | 14 |
| 23 | | | 2.2 | | 1.6 | 20 | 11 | .1 | 1.8 | 1.2 | .3 | 120 |
| 24 | (*) | | .7 | | 2.0 | 6.6 | 2.6 | 0 | 1.4 | 2.0 | .2 | 103 |
| 25 | | | .2 | | *.6 | 2.8 | 1.0 | .1 | 1.3 | .9 | .1 | 200 |
| 26 | | | 0 | | .1 | 1.6 | .4 | 0 | 1.0 | 1.2 | 0 | 129 |
| 27 | | | 0 | | 0 | 1.2 | 186 | 0 | .5 | .8 | 0 | 37 |
| 28 | | | 0 | | 0 | 191 | 494 | 0 | .2 | .9 | 0 | 8.7 |
| 29 | | | 0 | | - | 47 | 1,670 | 0 | .2 | .7 | .1 | 3.3 |
| 30 | | | 0 | | ------- | 16 | 538 | 0 | .1 | .5 | .6 | 2.0 |
| 31 | | ------- | 0 | | ------- | 358 | ------- | 0 | ------- | .2 | .6 | ------- |
| Total | 0 | 0 | 5.7 | 0 | 4.6 | 3,638.9 | 3,789.1 | 393.2 | 504.2 | 10.2 | 7.6 | 699.4 |
| Mean | 0 | 0 | 0.18 | 0 | 0.16 | 117 | 126 | 12.7 | 16.8 | 0.33 | 0.25 | 23.3 |
| Ac-ft | 0 | 0 | 11 | 0 | 9.1 | 7,220 | 7,520 | 780 | 1,000 | 20 | 15 | 1,390 |

Calendar year 1956: Max 361 Min 0 Mean 3.53 Ac-ft 2,560
Water year 1956-57: Max 1,670 Min 0 Mean 24.8 Ac-ft 17,970

Peak discharge (base, 500 cfs).--Mar. 17 (11 p.m.) 2,570 cfs (11.78 ft); Mar. 21 (4 a.m.) 1,070 cfs (7.28 ft); Mar. 31 (4:30 p.m.) 1,150 cfs (7.60 ft); Apr. 21 (5:30 p.m.) 1,550 cfs (8.95 ft); Apr. 29 (3 a.m.) 2,140 cfs (10.72 ft); Sept. 25 (5:30 p.m.) 526 cfs (4.77 ft).

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

## 1150. Big Creek near Needville, Tex.--Continued

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.3 | 0.5 | 4.6 | 0.1 | 6.1 | 3.8 | 0 | 0 | 3.0 | 1.2 | 0.5 | 2.6 |
| 2 | .9 | .4 | 3.3 | .1 | 3.5 | 2.4 | 0 | 0 | 3.3 | 1.4 | .4 | 2.2 |
| 3 | .7 | .2 | 2.4 | 0 | 2.2 | 1.6 | 0 | .1 | 3.0 | .9 | 1.2 | 2.2 |
| 4 | .5 | .1 | 1.8 | 0 | 1.6 | 1.4 | 0 | .3 | 3.5 | .5 | .9 | 2.0 |
| 5 | .3 | .1 | 1.3 | 0 | 1.6 | 1.2 | 0 | 1.4 | 2.0 | .7 | .6 | 1.8 |
| 6 | .3 | **.1 | 1.0 | .3 | 1.3 | 1.3 | 0 | 1.4 | 1.4 | 1.0 | .6 | 2.6 |
| 7 | .1 | .7 | 1.6 | **1.4 | .9 | 1.2 | 0 | 1.6 | 1.8 | 4.1 | .4 | 3.0 |
| 8 | 0 | 95 | 1.4 | 2.6 | .7 | .9 | 0 | .9 | 1.8 | 3.5 | .8 | 3.8 |
| 9 | 1.3 | 30 | 1.0 | 1.4 | .7 | .6 | 0 | .6 | 1.6 | 3.8 | .8 | 4.9 |
| 10 | 6.9 | 11 | .6 | *.9 | 61 | .3 | 0 | .2 | 2.2 | 4.6 | 1.0 | 4.1 |
| 11 | 1.0 | 7.4 | .3 | .8 | 31 | .1 | .3 | .1 | 1.6 | 3.8 | 1.6 | 3.3 |
| 12 | .3 | 10 | .3 | 29 | 130 | .1 | .9 | .5 | 2.6 | 3.0 | .8 | *12 |
| 13 | .1 | 23 | .1 | 64 | *47 | *.1 | 1.3 | 1.2 | .5 | 4.4 | .6 | *20 |
| 14 | 185 | 36 | .2 | 19 | 96 | .2 | 3.4 | *2.2 | .2 | 2.2 | .9 | 8.9 |
| 15 | 1,570 | 16 | .2 | 8.5 | 52 | .2 | .6 | 2.4 | 1.2 | *1.2 | *1.2 | 5.2 |
| 16 | 1,990 | 7.8 | .2 | 5.5 | 14 | .2 | *.3 | 3.3 | 2.4 | 1.2 | 1.0 | *4.4 |
| 17 | 377 | 4.9 | .1 | 3.5 | 7.4 | .2 | 1.5 | 4.1 | 3.3 | .9 | .9 | 3.0 |
| 18 | 146 | 439 | .1 | 2.6 | 4.9 | .4 | 1.6 | 3.8 | 3.8 | .3 | .7 | 2.6 |
| 19 | 74 | 161 | .1 | 2.0 | 3.5 | .4 | 1.6 | 4.9 | *1.2 | .6 | .7 | 1.4 |
| 20 | 37 | 74 | .1 | 410 | 2.6 | .2 | 1.6 | 2.2 | 2.2 | .5 | 1.0 | 60 |
| 21 | 19 | 42 | .1 | *198 | 2.2 | .3 | .8 | 1.3 | 1.6 | .4 | 2.2 | 385 |
| 22 | 14 | 909 | .1 | 74 | 322 | .3 | .3 | 1.6 | 1.6 | .3 | 1.8 | 242 |
| 23 | 10 | 445 | .1 | 545 | 236 | .3 | .1 | 2.6 | 1.2 | .3 | 1.6 | 93 |
| 24 | 6.4 | 294 | .1 | 319 | 82 | .6 | 0 | 1.2 | .6 | .3 | 2.8 | 40 |
| 25 | 4.1 | 134 | 0 | 110 | 34 | .2 | 0 | 1.3 | 1.0 | .2 | 2.6 | 17 |
| 26 | 2.6 | 74 | .1 | 51 | 16 | .1 | .1 | 2.4 | 1.1 | .1 | 2.0 | 8.5 |
| 27 | 1.8 | 44 | .1 | 22 | 9.3 | 0 | .1 | 2.4 | .4 | 0 | 1.3 | 5.2 |
| 28 | 1.0 | 25 | .1 | 17 | 5.8 | 0 | 0 | 1.8 | .3 | 0 | 1.3 | 6.1 |
| 29 | .8 | 13 | .2 | 24 | - | 0 | 0 | 1.4 | .1 | 0 | 1.6 | 3.0 |
| 30 | .4 | 7.8 | .1 | 14 | ------- | 0 | 0 | .7 | 1.5 | 0 | 3.0 | 2.0 |
| 31 | .6 | ------- | .1 | 8.5 | ------- | 0 | ------- | 2.0 | ------- | 0 | 2.6 | ------- |
| Total | 4,453.4 | 2,905.0 | 21.8 | 1,934.2 | 1,175.3 | 18.6 | 14.5 | 49.9 | 52.0 | 41.4 | 39.4 | 951.8 |
| Mean | 144 | 96.8 | 0.70 | 62.4 | 42.0 | 0.60 | 0.48 | 1.61 | 1.73 | 1.34 | 1.27 | 31.7 |
| Ac-ft | 8,830 | 5,760 | 43 | 3,840 | 2,330 | 37 | 29 | 99 | 103 | 82 | 78 | 1,890 |

Calendar year 1957: Max 1,990 Min 0 Mean 45.0 Ac-ft 32,590
Water year 1957-58: Max 1,990 Min 0 Mean 31.9 Ac-ft 23,120

Peak discharge (base, 500 cfs).--Oct. 15 (10 p.m.) 2,780 cfs (12.31 ft); Nov. 18 (10:30 a.m.) 967 cfs (6.89 ft); Nov. 27 (8:30 a.m.) 1,460 cfs (8.67 ft); Jan. 20 (2:30 p.m.) 1,020 cfs (7.06 ft); Jan. 23 (3:30 p.m.) 1,150 cfs (7.57 ft); Feb. 22 (3 p.m.) 680 cfs (5.60 ft).

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

## 1165. Dry Creek near Richmond, Tex.

Location.--Lat 29°30'19", long 95°42'39", near right bank on downstream side of pile bent of bridge on county road, 2.0 miles upstream from Farm to Market Road 762, 2.3 miles south of Gulf, Colorado and Santa Fe Railroad at Crabb, about 6 miles upstream from Smither's Lake (Lake George) Spillway, and 6.0 miles southeast of Richmond, Fort Bend County.

Drainage area.--10.3 sq mi.

Records available.--May 1947 to June 1950, October 1956 to November 1957, December 1957 to September 1958 (discharge measurements and flood records), discontinued.

Gage.--Water-stage recorder and concrete control. Datum of gage is 64.5 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Prior to June 30, 1950, staff gage at present site at datum 1.5 ft higher.

Extremes.--Maximum discharge during year, 1,790 cfs Oct. 15 (gage height, 10.13 ft); no flow many days.
1947-50, 1956-58: Maximum discharge, that of Oct. 15, 1957: no flow at times.
Flood in August 1945, highest of recent years, reached a stage of 15.1 ft, present datum, from information by observer. Flood in May 1953, reached a stage of 15.0 ft, present datum, from information by local resident.

Remarks.--Records good. Part of low flow is drainage from areas irrigated with diversions from Brazos River. Sustained flow during November is diversions from Brazos River to Smither's Lake. No known diversion above station.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 213 | - | - | | | | | | | |
| 2 | 0 | 0 | 144 | - | - | | | | | | | |
| 3 | 0 | 0 | - | - | - | | | | | | | |
| 4 | 0 | 0 | - | - | - | | | | | | | |
| 5 | 0 | *0 | - | - | - | | | | | | | |
| 6 | 0 | 0 | - | - | - | | | | | | | |
| 7 | 0 | 0 | - | †0.3 | - | | | | | | | |
| 8 | 0 | 1.7 | - | - | - | | | | | | | |
| 9 | 0 | 1.8 | - | - | - | | | | | | | |
| 10 | 2.7 | 97 | - | *0 | - | | | | | | | |
| 11 | .4 | 125 | - | - | - | | | | | | | |
| 12 | 0 | 112 | - | - | - | | | | | | | †3.1 |
| 13 | 0 | 190 | - | - | †11 | | | | | | | |
| 14 | 82 | 195 | - | - | - | *0 | | †3.3 | | | †5.5 | |
| 15 | 776 | 207 | - | - | - | | | | | †1.2 | | |
| 16 | 591 | 207 | - | - | - | | *0 | | | | | |
| 17 | 63 | 201 | - | - | - | | | | | | | |
| 18 | 24 | *297 | - | - | - | | | | | | | |
| 19 | 8.3 | 195 | †2.5 | - | - | | | | †13 | | | |
| 20 | 4.1 | 190 | - | †161 | - | | | | | | | |
| 21 | 2.1 | 225 | - | †48 | - | | | | | | | |
| 22 | 1.6 | 496 | - | - | 80 | | | | | | | |
| 23 | 1.1 | 237 | - | - | 100 | | | | | | | |
| 24 | .1 | 184 | - | - | 40 | | | | | | | |
| 25 | .2 | 156 | - | - | - | | | | | | | |
| 26 | .1 | 219 | - | - | - | | | | | | | |
| 27 | 0 | 156 | - | - | - | | | | | | | |
| 28 | 0 | 225 | - | - | - | | | | | | | |
| 29 | 0 | 219 | - | - | - | | | | | | | |
| 30 | 0 | 219 | - | - | ------- | | | | | | | |
| 31 | 0 | ------- | - | - | ------- | | ------- | | ------- | | | ------- |
| Total | 1,556.7 | 4,355.5 | - | - | - | - | - | - | - | - | - | - |
| Mean | 50.2 | 145 | - | - | - | - | - | - | - | - | - | - |
| Ac-ft | 3,090 | 8,640 | - | - | - | - | - | - | - | - | - | - |

Calendar year 1957: Max 776 Min 0 Mean - Ac-ft -
Water year 1957-58: Max 776 Min 0 Mean - Ac-ft -

Peak discharge (base, 200 cfs).--Oct. 15 (7 to 8 p.m.) 1,790 cfs (10.13 ft); Nov. 18 (10 a.m.) 452 cfs (5.60 ft); Nov. 22 (11 a.m.) 762 cfs (6.90 ft); Jan. 20 (3 p.m.) 318 cfs (4.75 ft).

* Discharge measurement or observation of no flow made this day.
† Result of discharge measurement.
Note.--Backwater from Smither's Lake Dec. 3 to Sept. 30, except for stages greater than 2.2 ft. Days shown with less than 40 cfs after Dec. 3 are inflow measurements made about half a mile upstream.

Reservoirs in Brazos River basin, Tex.

Lake Sweetwater near Sweetwater, Tex.--Lat 32°26'20", long 100°18'20", on downstream side of intake structure to pump station, near left end of dam on Bitter Creek, 6.5 miles southeast of Sweetwater, Nolan County, and 8.5 miles upstream from mouth. Drainage area, 104 sq mi. Records available, January 1936 to September 1958. Staff gage read at irregular intervals. Datum of gage is 0.53 ft above mean sea level, datum of 1929, supplementary adjustment of 1957. Prior to Apr. 1, 1958, staff gage read once daily at same site and datum. Maximum contents observed during year, 11,180 acre-ft Oct. 13-15; maximum gage height observed, 2,114.78 ft Oct. 13; minimum contents observed, 9,200 acre-ft Sept. 12-14; minimum gage height observed, 2,111.17 ft Sept. 14. Maximum contents observed during period 1936-58, 12,360 acre-ft June 1, 1957 (gage height, 2,116.70 ft); minimum observed, 780 acre-ft Aug. 17, 1953 (gage height, 2,082.54 ft).

Reservoir is formed by a rolled-fill earth dam 2,600 ft long. Dam completed and storage began in 1930; reservoir first filled to spillway elevation in 1936. Reservoir is property of city of Sweetwater and was built to impound water for municipal use. Emergency spillway is located just to the left of the dam and has a concrete ogee-type crest 607.5 ft long. Maximum controlled capacity, 11,900 acre-ft at gage height 2,116.0 ft, crest of emergency spillway. No appreciable dead storage. Figures of contents not adjusted for sediment. Capacity curve furnished by Freese and Nichols, Consulting Engineers. Record of gage heights and diversions furnished by city of Sweetwater.

Fort Phantom Hill Reservoir.--Lat 32°37', long 99°40', at outlet gate tower near right bank, 120 ft upstream from 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 1958. Staff gage. Datum of gage is 1,580.78 ft (revised) above mean sea level. Maximum contents observed during year, 75,960 acre-ft May 14-24 (gage height, 55.5 ft); minimum observed, 66,860 acre-ft Oct. 1-12, Sept. 7-15 (gage height, 53.2 ft). Maximum contents observed 1940-58, 89,910 acre-ft (revised) May 25, 1957 (gage height, 58.7 ft); minimum observed, 19,040 acre-ft (revised) Apr. 23-25, 1953 (gage height, 34.5 ft).

Reservoir is formed by rock-faced, earth-fill dam. Dam completed and storage began in October 1938. Capacity, 74,310 acre-ft at gage height 55.1 ft, revised (crest of spillway). Sill of lowest outlet gate is at gage height 1.6 ft. Dead storage is negligible. Water is used for municipal supply for city of Abilene. Figures given herein represent total contents and are computed from daily gage readings at 8 a.m. An undetermined amount of flood flow was diverted by gravity ditch from Deadman Creek into reservoir. No water was pumped into reservoir from Clear Fork Brazos River. The city of Abilene diverted 8,054 acre-ft from reservoir for municipal use. Beginning October 1952, figures of contents and capacities have been based on capacity table adjusted for sedimentation on basis of sedimentation survey made by the U. S. Department of Agriculture, Soil Conservation Service between July 1, 1953, and Oct. 2, 1953. Gage-height record and record of diversions furnished by city of Abilene.

Revisions.--Figures of month-end contents and change in contents for water years 1953-57, published in WSP 1282, 1342, 1392, 1442, and 1512, are revised on page 182.

Lake Stamford.--Lat 33°05', long 99°35', on left bank at intake structure of West Texas Utilities Co. steam powerplant at Lake Stamford on Paint Creek, 1 mile upstream from dam, 1.7 miles upstream from California Creek, and 10 miles southeast of Haskell, Haskell County. Drainage area, 360 sq mi. Records available, July 1953 to September 1958. Wire-weight gage read once daily. Datum of gage is 2.77 ft above mean sea level, datum of 1929 (levels by Freese and Nichols). Maximum contents observed during year, 56,500 acre-ft Sept. 27-30 (gage height, 1,413.3 ft); minimum observed, 41,100 acre-ft Sept. 4-14 (gage height, 1,409.9 ft). Maximum contents observed 1953-58, that of Sept. 27-30, 1958; minimum observed after first appreciable storage, 5,860 acre-ft July 15, 1953 (gage height, 1,393.7 ft).

Lake is formed by rock-faced, earth-fill dam. Dam completed in March 1953. Storage began in June 1953. Capacity, 60,000 acre-ft (gage height, 1,414.0 ft, crest of spillway). Dead storage, 430 acre-ft (gage height, 1,380.0 ft, invert of 24-inch discharge conduit). Figures given herein represent total contents and are computed from daily gage readings at 8 a.m. Water is used as municipal supply for cities of Stamford and Hamlin; diversions totaled 726 acre-ft during water year. Gage-height record furnished by West Texas Utilities Co. from their powerplant 1 mile upstream from dam. Capacity table computed from data furnished by Freese and Nichols, Consulting Engineers, Fort Worth. Diversions for municipal use furnished by city of Stamford.

Possum Kingdom Reservoir on Brazos River (see p. 148).

Whitney Reservoir on Brazos River (see p. 154).

Leon Reservoir near Ranger, Tex.--Lat 32°21'30", long 98°41'00", at outlet works structure near center of dam, on Leon River, 7 miles south of Ranger, Eastland County, and 9 miles southeast of Eastland. Drainage area, 259 sq mi. Records available, January 1955 to September 1958. Staff gage read once daily. Datum of gage is at mean sea level, datum of 1929. Maximum contents observed during year, 38,770 acre-ft Oct. 14 (elevation, 1,381.3 ft); minimum observed, 23,700 acre-ft Oct. 6-13 (elevation, 1,372.6 ft). Maximum contents observed during period 1955-58, that of Oct. 14, 1957; minimum observed since appreciable storage, 15,880 acre-ft Jan. 11-21, Feb. 5-7, Apr. 29, 30, 1956 (elevation, 1,366.2 ft).

Reservoir is formed by rolled-fill earth dam 3,700 ft long. Storage began April 1954; dam completed June 1954. Dam is property of Eastland County Water Supply District and was built to impound water for municipal use by cities of Ranger, Olden, and Eastland (see table below for diversions). Service spillway is uncontrolled circular drop outlet designed to discharge 5,000 cfs through 11-foot diameter concrete conduit. Emergency spillway 1,200 ft wide cut through natural ground near left end of dam. Reservoir capacity at service spillway, 27,290 acre-ft (elevation, 1,375.0 ft);

Reservoirs in Brazos River basin, Tex.--Continued

Leon Reservoir near Ranger, Tex.--Continued.--reservoir capacity at emergency spillway, 40,210 acre-ft (elevation, 1,382.0 ft). Dead storage, 869 acre-ft (elevation, 1,335.0 ft). Water can be withdrawn for municipal use down to elevation 1,335.0 ft. Capacity curve and table furnished by Freese and Nichols, Consulting Engineers. Record of lake elevations and diversions for municipal use furnished by Eastland County Water Supply District.

Revisions.--WSP 1442: Drainage area.

Belton Reservoir on Leon River (see p. 164).

Month-end elevation or gage height and contents, and monthly diversions, water year October 1957 to September 1958

| Date | Gage height (feet)† | Contents (acre-feet) | Change in contents (acre-feet) | Diversions for municipal use (acre-feet) | Gage height (feet)† | Contents (acre-feet) | Change in contents (acre-feet) | Diversions for municipal use (acre-feet) |
|---|---|---|---|---|---|---|---|---|
| | Lake Sweetwater | | | | Fort Phantom Hill Reservoir | | | |
| Sept.30 | 2,113.54 | 10,420 | - | - | 53.3 | 67,250 | - | - |
| Oct. 31 | 2,114.50 | 11,000 | +580 | 0 | 54.8 | 73,100 | +5,850 | 467 |
| Nov. 30 | 2,114.12 | 10,760 | -240 | 0 | 54.9 | 73,500 | +400 | 348 |
| Dec. 31 | 2,113.85 | 10,590 | -170 | 0 | 54.6 | 72,310 | -1,190 | 544 |
| Calendar year 1957 | - | - | +7,650 | 0 | - | - | +29,250 | - |
| Jan. 31 | 2,113.71 | 10,540 | -50 | 0 | 54.7 | 72,710 | +400 | 552 |
| Feb. 28 | 2,113.68 | 10,540 | 0 | 0 | 54.8 | 73,100 | +390 | 398 |
| Mar. 31 | 2,114.05 | 10,700 | +160 | 0 | 54.9 | 73,500 | +400 | 422 |
| Apr. 30 | 2,113.95 | 10,700 | 0 | 0 | 55.2 | 74,720 | +1,220 | 454 |
| May 31 | - | a10,540 | -160 | 0 | 55.4 | 75,550 | +830 | 593 |
| June 30 | 2,113.07 | 10,200 | -340 | 0 | 55.0 | 73,900 | -1,650 | 1,038 |
| July 31 | 2,112.24 | 9,710 | -490 | 0 | 54.3 | 71,120 | -2,780 | 1,327 |
| Aug. 31 | - | a9,350 | -360 | 0 | 53.5 | 68,010 | -3,110 | 1,299 |
| Sept.30 | 2,111.45 | 9,300 | -50 | 0 | 53.9 | 69,540 | +1,530 | 712 |
| Water year 1957-58 | - | - | -1,120 | 0 | - | - | +2,290 | 8,054 |
| | Lake Stamford | | | | Leon Reservoir‡ | | | |
| Sept.30 | 1,410.6 | 43,900 | - | - | 1,372.8 | 23,980 | - | - |
| Oct. 31 | 1,410.7 | 44,300 | +400 | 50.1 | 1,375.0 | 27,290 | +3,310 | 110 |
| Nov. 30 | 1,411.5 | 47,750 | +3,450 | 36.3 | 1,375.3 | 27,780 | +490 | 93 |
| Dec. 31 | 1,411.3 | 46,850 | -900 | 40.4 | 1,375.1 | 27,450 | -330 | 100 |
| Calendar year 1957 | - | - | +32,250 | 735 | - | - | +6,190 | 1,510 |
| Jan. 31 | 1,411.2 | 46,400 | -450 | 37.2 | 1,375.0 | 27,290 | -160 | 93 |
| Feb. 28 | 1,411.1 | 45,950 | -450 | 34.2 | 1,375.0 | 27,290 | 0 | 82 |
| Mar. 31 | 1,411.1 | 45,950 | 0 | 39.6 | 1,375.1 | 27,450 | +160 | 95 |
| Apr. 30 | 1,410.8 | 44,700 | -1,250 | 45.7 | 1,375.0 | 27,290 | -160 | 102 |
| May 31 | 1,411.3 | 46,850 | +2,150 | 54.0 | 1,375.1 | 27,450 | +160 | 116 |
| June 30 | 1,410.9 | 45,100 | -1,750 | 97.3 | 1,374.9 | 27,140 | -310 | 147 |
| July 31 | 1,410.6 | 43,900 | -1,200 | 114 | 1,374.8 | 26,980 | -160 | 171 |
| Aug. 31 | 1,410.1 | 41,900 | -2,000 | 125 | 1,374.3 | 26,200 | -780 | 185 |
| Sept.30 | 1,413.3 | 56,500 | +14,600 | 52.2 | 1,374.1 | 25,900 | -300 | 120 |
| Water year 1957-58 | - | - | +12,600 | 726 | - | - | +1,930 | 1,410 |

† Gage height at 8 a.m.
‡ Elevation at about 7 a.m.
a No gage-height record; contents estimated.

## Reservoirs in Brazos River basin, Tex.--Continued

Revised month-end gage height and contents, Fort Phantom Hill Reservoir, water years 1953-57

| Date | Gage height (feet)† | Contents (acre-feet) | Change in contents (acre-feet) | Diversions for municipal use (acre-feet) |
|---|---|---|---|---|
| Sept.30 | 37.2 | 23,610 | - | |
| Oct. 31 | 36.3 | 22,030 | -1,580 | |
| Nov. 30 | 36.6 | 22,550 | +520 | |
| Dec. 31 | 36.4 | 22,200 | -350 | |
| Calendar year 1952 | - | - | -13,680 | |
| Jan. 31 | 35.9 | 21,340 | -860 | |
| Feb. 28 | 35.4 | 20,500 | -840 | |
| Mar. 31 | 35.0 | 19,840 | -660 | |
| Apr. 30 | 34.8 | 19,520 | -320 | |
| May 31 | 38.4 | 25,830 | +6,310 | |
| June 30 | 37.0 | 23,250 | -2,580 | |
| July 31 | 43.8 | 37,590 | +14,340 | |
| Aug. 31 | 44.7 | 39,870 | +2,280 | |
| Sept.30 | 43.8 | 37,590 | -2,280 | |
| Water year 1952-53 | - | - | +13,980 | |
| Sept.30 | 43.8 | 37,590 | - | |
| Oct. 31 | 44.8 | 40,130 | +2,540 | |
| Nov. 30 | 44.5 | 39,360 | -770 | |
| Dec. 31 | 44.0 | 38,080 | -1,280 | |
| Calendar year 1953 | - | - | +15,880 | |
| Jan. 31 | 43.7 | 37,340 | -740 | |
| Feb. 28 | 43.3 | 36,370 | -970 | |
| Mar. 31 | 42.- | 35,170 | -1,200 | |
| Apr. 30 | 43.5 | 36,860 | +1,690 | |
| May 31 | 48.9 | 51,920 | +15,060 | |
| June 30 | 48.0 | 49,120 | -2,800 | |
| July 31 | 46.9 | 45,870 | -3,250 | |
| Aug. 31 | 45.6 | 42,250 | -3,620 | |
| Sept.30 | 44.6 | 39,620 | -2,630 | |
| Water year 1953-54 | - | - | +2,030 | |
| Sept.30 | 44.6 | 39,620 | - | |
| Oct. 31 | 44.0 | 38,080 | -1,540 | |
| Nov. 30 | 44.2 | 38,590 | +510 | |
| Dec. 31 | 43.6 | 37,100 | -1,490 | |
| Calendar year 1954 | - | - | -980 | |
| Jan. 31 | 43.2 | 36,120 | -980 | |
| Feb. 28 | 43.2 | 36,120 | 0 | |
| Mar. 31 | 42.6 | 34,700 | -1,420 | |
| Apr. 30 | 41.9 | 33,080 | -1,620 | |
| May 31 | 48.0 | 49,120 | +16,040 | |
| June 30 | 52.8 | 65,360 | +16,240 | |
| July 31 | 52.2 | 63,150 | -2,210 | |
| Aug. 31 | 51.7 | 61,350 | -1,800 | |
| Sept.30 | 54.5 | 71,910 | +10,560 | |
| Water year 1954-55 | - | - | +32,290 | |
| Sept.30 | 54.5 | 71,910 | - | - |
| Oct. 31 | 54.1 | 70,320 | -1,590 | 587 |
| Nov. 30 | 53.6 | 68,390 | -1,930 | 512 |
| Dec. 31 | 53.2 | 66,860 | -1,530 | 434 |
| Calendar year 1955 | - | - | +29,760 | - |
| Jan. 31 | 52.9 | 65,730 | -1,130 | 431 |
| Feb. 29 | 52.8 | 65,360 | -370 | 417 |
| Mar. 31 | 52.2 | 63,150 | -2,210 | 595 |
| Apr. 30 | 51.7 | 61,350 | -1,800 | 715 |
| May 31 | 51.9 | 62,060 | +710 | 961 |
| June 30 | 50.9 | 58,540 | -3,520 | 1,382 |
| July 31 | 49.4 | 53,530 | -5,010 | 1,601 |
| Aug. 31 | 48.4 | 50,370 | -3,160 | 1,813 |
| Sept.30 | 47.2 | 46,750 | -3,620 | 1,565 |
| Water year 1955-56 | - | - | -25,160 | 11,013 |
| Sept.30 | 47.2 | 46,750 | - | - |
| Oct. 31 | 46.4 | 44,460 | -2,290 | 891 |
| Nov. 30 | 46.2 | 43,900 | -560 | 462 |
| Dec. 31 | 45.9 | 43,060 | -840 | 505 |
| Calendar year 1956 | - | - | -23,800 | - |
| Jan. 31 | 45.6 | 42,250 | -810 | 513 |
| Feb. 28 | 47.4 | 47,340 | +5,090 | 418 |
| Mar. 31 | 47.1 | 46,450 | -890 | 592 |
| Apr. 30 | 56.9 | 81,860 | +35,410 | 559 |
| May 31 | 56.0 | 78,020 | -3,840 | 502 |
| June 30 | 55.2 | 74,720 | -3,330 | 727 |
| July 31 | 54.2 | 70,720 | -4,000 | 1,832 |
| Aug. 31 | 53.2 | 66,860 | -3,860 | 1,528 |
| Sept.30 | 53.3 | 67,250 | +390 | 628 |
| Water year 1956-57 | - | - | +20,500 | 9,157 |

† Gage height at 8 a.m.

1175. San Bernard River near Boling, Tex.

Location.--Lat 29°18'45", long 95°53'35", near left bank at downstream side of pile bent of bridge on State Farm Highway 442, 2½ miles downstream from Snake Creek and 4½ miles northeast of Boling, Wharton County.

Drainage area.--720 sq mi, approximately.

Records available.--May 1954 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 30.7 ft above mean sea level (State Highway Department bridge plans).

Extremes.--Maximum discharge during year, 15,400 cfs Oct. 18 (gage height, 40.50 ft), from rating curve extended above 9,200 cfs on basis of velocity-area study; minimum daily, 14 cfs June 20.
1954-58: Maximum discharge, that of Oct. 18, 1957; minimum daily, 2.4 cfs Nov. 27-30, 1956.
Maximum stage since at least 1900, 43.5 ft in 1913 (probably December). Flood in September 1938 reached a stage of 43.3 ft, from information by local resident.

Remarks.--Records good. Part of low flow is drainage from areas irrigated with diversions from Colorado River. Diversions above station for irrigation and other uses.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 20 to Jan. 8, Jan. 20 to Feb. 3, 12-19, Feb. 22 to Mar. 3)

| | | | | | |
|---|---|---|---|---|---|
| 3.0 | 14 | 8.0 | 370 | 25.0 | 5,600 |
| 3.5 | 30 | 10.0 | 650 | 30.0 | 8,500 |
| 4.0 | 50 | 13.0 | 1,210 | 35.0 | 11,700 |
| 5.0 | 97 | 16.0 | 2,000 | 40.0 | 15,000 |
| 6.0 | 162 | 20.0 | 3,350 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 299 | 162 | 1,300 | 115 | 730 | 1,160 | 34 | 16 | 37 | 54 | 33 | 76 |
| 2 | 240 | 130 | 892 | 106 | 570 | 802 | 31 | 15 | 45 | 48 | 36 | 62 |
| 3 | 170 | 109 | 650 | 89 | 430 | 528 | 30 | 15 | 46 | 54 | 30 | 54 |
| 4 | 121 | 92 | 444 | 72 | 310 | 334 | 28 | 16 | 42 | 72 | 24 | 46 |
| 5 | 86 | 81 | 310 | 58 | 225 | 220 | 26 | 167 | 37 | 69 | 20 | 48 |
| 6 | 60 | *72 | 230 | 52 | 170 | 162 | 24 | 852 | 29 | 62 | 23 | 72 |
| 7 | 42 | 67 | 187 | *62 | 134 | 130 | 23 | 2,030 | 30 | 72 | 21 | 97 |
| 8 | 31 | 89 | 152 | 69 | 112 | 106 | 22 | 1,940 | 29 | 60 | 22 | 162 |
| 9 | 23 | 272 | 127 | 166 | 94 | 92 | 24 | 1,210 | 27 | 48 | 20 | 196 |
| 10 | 17 | 334 | 109 | 260 | 97 | 84 | 21 | 748 | 26 | 47 | 25 | 272 |
| 11 | 16 | 322 | 100 | 334 | 230 | 76 | 19 | 528 | 28 | 60 | 42 | 250 |
| 12 | 34 | 310 | 86 | 346 | 384 | 69 | 18 | 358 | 26 | 89 | 49 | 267 |
| 13 | 54 | 370 | 76 | 444 | *528 | 62 | 18 | 225 | 26 | 100 | 52 | 430 |
| 14 | 48 | 418 | 67 | 458 | 682 | 56 | 21 | *155 | 27 | 103 | 67 | 570 |
| 15 | 1,230 | 406 | 60 | 514 | 838 | 52 | 35 | 106 | 26 | 100 | 92 | 500 |
| 16 | 6,750 | 370 | 56 | 500 | 714 | 48 | *22 | 81 | 21 | 84 | 94 | *406 |
| 17 | 11,900 | 346 | 52 | 556 | 586 | 46 | 22 | 67 | 19 | 67 | 86 | 322 |
| 18 | 15,000 | 511 | 52 | 514 | 486 | 46 | 40 | 58 | 20 | 54 | 67 | 250 |
| 19 | 14,900 | 964 | 50 | 394 | 382 | *45 | 49 | 54 | 16 | 49 | *58 | 205 |
| 20 | 13,100 | 982 | 48 | 661 | 282 | 42 | 46 | 50 | 14 | 37 | 52 | 329 |
| 21 | 10,200 | 682 | 47 | 2,270 | 205 | 40 | 40 | 46 | 16 | 29 | 56 | 2,310 |
| 22 | 7,240 | 1,470 | 45 | 2,240 | 757 | 38 | 32 | 40 | 17 | *25 | 62 | 3,350 |
| 23 | 5,200 | 2,180 | 44 | 3,390 | 2,360 | 40 | 27 | 36 | 21 | 22 | 69 | 2,880 |
| 24 | 3,750 | 2,920 | 44 | 4,950 | 2,480 | 40 | 23 | 36 | *23 | 43 | 74 | 2,240 |
| 25 | *2,220 | 4,380 | 43 | 4,420 | *3,350 | 39 | 20 | 35 | 26 | 38 | 78 | 1,730 |
| 26 | 1,080 | 4,950 | 40 | 4,200 | 3,870 | 39 | 23 | 33 | 32 | 36 | 94 | 1,210 |
| 27 | 748 | 4,800 | 38 | 3,950 | 3,030 | 47 | 29 | 30 | 33 | 31 | 118 | 748 |
| 28 | 556 | 4,240 | 38 | 3,230 | 1,760 | 50 | 27 | 32 | 33 | 28 | 138 | 514 |
| 29 | 394 | 3,430 | 43 | 2,000 | - | 46 | 23 | 36 | 42 | 26 | 134 | 346 |
| 30 | *282 | 2,270 | 62 | 1,280 | ------- | 43 | 19 | 38 | 212 | 25 | 118 | 245 |
| 31 | 210 | ------- | 97 | 928 | ------- | 38 | ------- | 34 | ------- | 27 | 97 | ------- |
| Total | 96,001 | 37,729 | 5,589 | 38,628 | 25,796 | 4,620 | 816 | 9,087 | 1,026 | 1,659 | 1,951 | 20,187 |
| Mean | 3,097 | 1,258 | 180 | 1,246 | 921 | 149 | 27.2 | 293 | 34.2 | 53.5 | 62.9 | 673 |
| Ac-ft | 190,400 | 74,830 | 11,090 | 76,620 | 51,170 | 9,160 | 1,620 | 18,020 | 2,040 | 3,290 | 3,870 | 40,040 |

Calendar year 1957: Max 15,000 Min 2.8 Mean 793 Ac-ft 573,900
Water year 1957-58: Max 15,000 Min 14 Mean 666 Ac-ft 482,200

* Discharge measurement made on this day.

## 1190. Bluff Creek near Ira, Tex.

Location.--Lat 32°35'29", long 101°03'05", near left bank on downstream side of pier of bridge on State Farm-to-Market Highway 1606, 1.8 miles upstream from mouth, 2.8 miles east of Ira, Scurry County, and 11.6 miles southwest of Snyder.

Drainage area.--38 sq mi, approximately.

Records available.--October 1947 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 2,177.95 ft above mean sea level, datum of 1929. July 15 to Nov. 5, 1948, staff gage at present site and datum.

Average discharge.--11 years, 2.52 cfs (1,820 acre-ft per year).

Extremes.--Maximum discharge during year, 1,260 cfs June 23 (gage height, 9.05 ft); no flow most of time.

1947-58: Maximum discharge, 5,200 cfs July 5, 1948 (gage height, 16.22 ft, from floodmark), from rating extended above 1,600 cfs on basis of slope-area measurement at gage height 11.92 ft and of peak flow; no flow at times each year.

Maximum stage known, that of July 5, 1948.

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | | | | 0 | 0 | **0.1 | 0 | (*) | 0.4 | 0 |
| 2 | 0 | 0 | | | | 0 | 0 | .9 | 40 | | 0 | 0 |
| 3 | 0 | .7 | | | | *0 | *0 | .1 | *1.9 | | 0 | 0 |
| 4 | 0 | 0 | | | | 0 | 0 | 0 | .2 | | 0 | *0 |
| 5 | 0 | .1 | | | | 0 | 0 | 0 | 0 | | *0 | 0 |
| 6 | 0 | 0 | | | | 0 | 0 | 0 | 0 | | 0 | 0 |
| 7 | 0 | 0 | | | | 0 | 0 | 0 | 0 | | 0 | 0 |
| 8 | 0 | 0 | | | | 0 | 0 | 0 | 0 | | 0 | 0 |
| 9 | 0 | 0 | | | | 0 | 0 | 0 | 0 | | 0 | 0 |
| 10 | 0 | .1 | | | | 0 | 0 | 0 | 0 | | 0 | 0 |
| 11 | 0 | 0 | | | | 0 | 0 | 0 | 0 | | 0 | 0 |
| 12 | 0 | 0 | | | | 0 | 0 | 7.7 | 0 | | 0 | 0 |
| 13 | 0 | 0 | | | | 0 | .2 | 17 | 0 | | 0 | 0 |
| 14 | 0 | 0 | | | | 0 | 0 | 1.3 | 0 | | 0 | 0 |
| 15 | 0 | 0 | | | | 0 | 0 | .2 | 0 | | 0 | .3 |
| 16 | 0 | 0 | | | | 0 | 0 | .1 | 0 | | 0 | 0 |
| 17 | 0 | 0 | | | | 0 | 103 | 1.2 | 0 | | 0 | 0 |
| 18 | 0 | 0 | | | | 0 | *178 | .1 | 0 | | 0 | 0 |
| 19 | 0 | 0 | | | | 0 | *3.2 | .1 | 0 | | 0 | 0 |
| 20 | .2 | *0 | | | | 0 | 2.2 | 0 | 0 | | 0 | 0 |
| 21 | *0 | 0 | | | | 0 | *.3 | 0 | 0 | | 0 | 0 |
| 22 | 0 | 0 | | | | 0 | .1 | 0 | 0 | | 0 | 0 |
| 23 | 0 | 0 | | | | 0 | .1 | 0 | 208 | | .3 | 0 |
| 24 | 0 | 0 | | | | 0 | 0 | 0 | *124 | | .1 | 0 |
| 25 | 0 | 0 | | | | 0 | 0 | 0 | 5.1 | | 0 | .4 |
| 26 | 0 | 0 | (*) | | | 0 | 0 | 0 | 2.4 | | 0 | 0 |
| 27 | 0 | 0 | | | | 0 | 0 | 0 | .7 | | 0 | 0 |
| 28 | 0 | 0 | | (*) | | .4 | 0 | 0 | .1 | | 0 | 0 |
| 29 | 0 | 0 | | | | .1 | 0 | 0 | 0 | | 0 | 0 |
| 30 | 0 | 0 | | | ------- | 0 | .1 | 0 | 0 | | 0 | 0 |
| 31 | 0 | ------- | | | ------- | 0 | ------- | 0 | ------- | | 0 | ------- |
| Total | 0.2 | 0.9 | 0 | 0 | 0 | 0.5 | 287.2 | 28.8 | 382.4 | 0 | 0.8 | 0.7 |
| Mean | 0.006 | 0.03 | 0 | 0 | 0 | 0.02 | 9.57 | 0.93 | 12.7 | 0 | 0.03 | 0.02 |
| Ac-ft | 0.4 | 1.8 | 0 | 0 | 0 | 1.0 | 570 | 57 | 758 | 0 | 1.6 | 1.4 |

Calendar year 1957: Max 536 Min 0 Mean 7.67 Ac-ft 5,540
Water year 1957-58: Max 208 Min 0 Mean 1.92 Ac-ft 1,390

Peak discharge (base, 250 cfs).--Apr. 17 (9:30 p.m.) 1,190 cfs (8.80 ft); June 2 (4 a.m.) 296 cfs (5.86 ft); June 23 (3:30 p.m.) 1,260 cfs (9.05 ft).

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

## 1205. Deep Creek near Dunn, Tex.

Location.--Lat 32°33'50", long 100°53'55", at center of downstream side of bridge on State Farm-to-Market Highway 1606, 2.0 miles northwest of Dunn, Scurry County, 3.0 miles upstream from Sulphur Draw, and 8.0 miles upstream from mouth.

Drainage area.--178 sq mi.

Records available.--April 1953 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 2,172.17 ft above mean sea level, datum of 1929. Prior to Apr. 21, 1955, staff or wire-weight gage at same site and datum.

Average discharge.--5 years, 16.9 cfs (12,240 acre-ft per year).

Extremes.--Maximum discharge during year, 2,580 cfs Apr. 18 (gage height, 17.85 ft); no flow for many days.

1953-58: Maximum discharge, 4,700 cfs May 23, 1955 (gage height, 22.90 ft); no flow at times each year.

Maximum discharge known since at least 1881, 36,400 cfs June 19, 1939, by slope-area measurement of peak flow at site 8.0 miles upstream from present gage. Flood in 1892 reached about same stage as that of June 19, 1939, from information by local residents.

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

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0.2 | 0.7 | 0.9 | 0.7 | 0.6 | *5.3 | 1.8 | (*) | 25 | a0 |
| 2 | 0 | 0 | .7 | .7 | .8 | 1.2 | .8 | 25 | 16 | | a.2 | a0 |
| 3 | 0 | 31 | .6 | .7 | .8 | *1.2 | *.7 | 18 | *2.5 | | a0 | a0 |
| 4 | 0 | 42 | .9 | .9 | .8 | 1.0 | .7 | 3.2 | 1.3 | | a0 | *0 |
| 5 | 0 | 19 | .7 | 1.9 | 1.0 | 1.3 | .8 | 1.8 | a1.0 | | *0 | 0 |
| 6 | 0 | 3.2 | .8 | 1.8 | .8 | 1.1 | .8 | 1.8 | a.8 | | 0 | 0 |
| 7 | 0 | 3.7 | .8 | .8 | .7 | 2.0 | .4 | 1.7 | a.6 | | 0 | 0 |
| 8 | 0 | 1.9 | .6 | .8 | .7 | 2.4 | .4 | 1.2 | a.4 | | 0 | 0 |
| 9 | 0 | .4 | .6 | .8 | .7 | 1.2 | .3 | 1.1 | a.3 | | 0 | 0 |
| 10 | 0 | .6 | .5 | .8 | .7 | .7 | 1.1 | 1.2 | a.2 | | 0 | 0 |
| 11 | 0 | 1.1 | .6 | .7 | .6 | .8 | 1.3 | 1.1 | a.2 | | 0 | 0 |
| 12 | 0 | a1.2 | .6 | .6 | .8 | 1.2 | 1.4 | 1.9 | a.1 | | 0 | 0 |
| 13 | 0 | a1.0 | .8 | .6 | .8 | 2.9 | 8.1 | 146 | a.1 | | 0 | 0 |
| 14 | 0 | a1.0 | 1.0 | .5 | .8 | 1.1 | 3.8 | 12 | a.1 | | 0 | 0 |
| 15 | 0 | a1.0 | .8 | .4 | .9 | .9 | .7 | 5.0 | a0 | | 0 | 152 |
| 16 | 0 | a1.0 | .7 | .3 | .8 | 1.0 | .6 | 4.0 | a0 | | 0 | 3.4 |
| 17 | 0 | a1.0 | .6 | .8 | .9 | .9 | 19 | 3.6 | a0 | | 0 | a.3 |
| 18 | 0 | a.9 | .8 | .8 | .8 | 1.0 | *674 | 3.8 | a0 | | 0 | a0 |
| 19 | 0 | a.8 | .7 | .9 | .6 | .9 | *9.5 | 3.6 | a0 | | 0 | a0 |
| 20 | 0 | *.8 | .7 | 2.2 | .4 | .8 | 14 | 3.3 | a0 | | 1.1 | a0 |
| 21 | *1.3 | .6 | .6 | 1.2 | .4 | 1.0 | *27 | 2.5 | a0 | | 6.0 | a0 |
| 22 | 7.1 | .7 | 1.1 | .8 | 6.9 | 1.0 | 4.5 | 2.5 | a0 | | a.1 | a0 |
| 23 | 3.6 | 2.3 | .8 | .7 | 3.4 | 1.1 | 2.5 | 2.4 | 39 | | a12 | a0 |
| 24 | .7 | 1.2 | .6 | .7 | 1.1 | .9 | 2.0 | 2.2 | *32 | | a1.4 | a0 |
| 25 | .2 | .6 | .7 | .8 | 2.6 | .5 | 3.1 | 1.8 | 4.1 | | a.1 | a0 |
| 26 | 0 | .5 | *.7 | .8 | .7 | .8 | 3.3 | 1.7 | a.8 | | a0 | a0 |
| 27 | 0 | .9 | .6 | .8 | .6 | .8 | 2.7 | 6.3 | a.5 | | a0 | a0 |
| 28 | 0 | .8 | .6 | *.8 | .6 | .8 | 2.0 | 39 | a.3 | | a0 | a0 |
| 29 | 0 | .6 | .8 | .8 | - | 2.7 | 1.7 | 3.6 | a.2 | | a0 | a0 |
| 30 | 0 | .3 | .8 | .8 | ------- | .7 | 9.2 | 2.9 | a.1 | | a0 | a0 |
| 31 | 0 | ------- | .6 | .8 | ------- | .6 | ------- | 2.2 | ------- | | a0 | ------- |
| Total | 12.9 | 120.1 | 21.6 | 26.7 | 31.6 | 35.2 | 797.0 | 311.7 | 102.4 | 0 | 45.9 | 155.7 |
| Mean | 0.42 | 4.00 | 0.70 | 0.86 | 1.13 | 1.14 | 26.6 | 10.1 | 3.41 | 0 | 1.48 | 5.19 |
| Ac-ft | 26 | 238 | 43 | 53 | 63 | 70 | 1,580 | 618 | 203 | 0 | 91 | 309 |

Calendar year 1957: Max 2,340 Min 0 Mean 39.0 Ac-ft 28,220
Water year 1957-58: Max 674 Min 0 Mean 4.55 Ac-ft 3,290

Peak discharge (base, 850 cfs).--Apr. 18 (4 a.m.) 2,580 cfs (17.85 ft).

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for nearby stations.

## 1210. Colorado River at Colorado City, Tex.

Location.--Lat 32°23'33", long 100°52'42", on right bank at Colorado City, Mitchell County, 3,517 ft upstream from bridge on U. S. Highway 80, 4,100 ft upstream from The Texas and Pacific Railway Co. bridge, 1.6 miles upstream from Lone Wolf Creek, and at mile 796.

Drainage area.--4,082 sq mi, approximately, of which 2,590 sq mi is probably noncontributing.

Records available.--November 1923 to August 1925, May 1946 to September 1958.

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 to Aug. 5, 1946, staff gage at site 185 ft upstream at same datum.

Average discharge.--12 years (1946-58), 70.4 cfs (50,970 acre-ft per year).

Extremes.--Maximum discharge during year, 5,040 cfs Apr. 18 (gage height, 10.76 ft); no flow many days.

1923-25, 1946-58: 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 measurement of peak flow at site 2.5 miles upstream from gage).

Remarks.--Records good except those for period computed from once-daily staff-gage readings, which are fair. Some regulation since 1952 by Lake J. B. Thomas (see p. 237). Diversions from Lake J. B. Thomas for municipal use and oilfield operation. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1118: Drainage area. WSP 1512: 1946(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 18, 19, May 13, June 24)

| | | | | | |
|---|---|---|---|---|---|
| 2.5 | 0 | 3.0 | 56 | 4.5 | 1,120 |
| 2.6 | 1.5 | 3.2 | 128 | 5.0 | 1,540 |
| 2.7 | 6.6 | 3.4 | 237 | 6.0 | 2,020 |
| 2.8 | 16 | 3.7 | 430 | 7.0 | 2,610 |
| 2.9 | 32 | 4.0 | 645 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1.2 | 1.5 | 1.2 | 2.2 | 5.2 | 7.3 | 6.6 | 7.8 | 1.8 | 0 | 0.3 |
| 2 | 0 | 1.2 | 1.5 | 1.2 | 2.2 | 4.6 | *4.6 | *20 | 128 | *.9 | 0 | .1 |
| 3 | 0 | 1.2 | 1.2 | 1.2 | 1.8 | 4.0 | 3.0 | 33 | 91 | .3 | 0 | 0 |
| 4 | 0 | 51 | 1.2 | 4.6 | *2.2 | *4.0 | 1.8 | 38 | *28 | .1 | 0 | *0 |
| 5 | 0 | 170 | 1.2 | 9.7 | 1.8 | 5.2 | 1.5 | 18 | 14 | 1.3 | *0 | 0 |
| 6 | 0 | 68 | 1.5 | 7.3 | 1.8 | 6.6 | .9 | 11 | 8.0 | 1.5 | 0 | 0 |
| 7 | 0 | 31 | 1.5 | 5.9 | 1.8 | 5.9 | .4 | 6.6 | 4.0 | .4 | 0 | 0 |
| 8 | 0 | 18 | 1.5 | 4.0 | 2.2 | 5.2 | .3 | 4.0 | 1.8 | .1 | 0 | 0 |
| 9 | 0 | 13 | 1.2 | 3.0 | 2.2 | 4.0 | .4 | 3.0 | .7 | .1 | 0 | 0 |
| 10 | .7 | 26 | 1.2 | 1.8 | 2.2 | 4.6 | .4 | 2.6 | .3 | .2 | 0 | 0 |
| 11 | 4.0 | 28 | 1.2 | 1.2 | 2.2 | 5.2 | .3 | 2.2 | .1 | 0 | 0 | 0 |
| 12 | 3.0 | 30 | 1.2 | 1.2 | 2.6 | 6.6 | .4 | 6.3 | 0 | .1 | 0 | 0 |
| 13 | 4.6 | 18 | 1.2 | 1.2 | 2.2 | 5.2 | 6.2 | 670 | *0 | 0 | 0 | 0 |
| 14 | 6.6 | 11 | 1.5 | 1.2 | 3.0 | 4.0 | 8.7 | 227 | 0 | 0 | 0 | 0 |
| 15 | 4.6 | 7.3 | 1.5 | 1.2 | 2.2 | 4.0 | 13 | 67 | 0 | 0 | 0 | 54 |
| 16 | 4.6 | 5.9 | 1.5 | 1.2 | 2.6 | 4.0 | 11 | 28 | 0 | 0 | 0 | 279 |
| 17 | 2.6 | 4.6 | 1.5 | 1.2 | 2.6 | 4.0 | 11 | 19 | 0 | 0 | 0 | 29 |
| 18 | 1.5 | 4.0 | 1.5 | 1.2 | 2.6 | 4.0 | *2,130 | 14 | 0 | 0 | 0 | 13 |
| 19 | .9 | 3.0 | 1.5 | 1.5 | 2.2 | 3.5 | 497 | 15 | 0 | 0 | 2.5 | 7.3 |
| 20 | 1.8 | *2.6 | 1.5 | 2.6 | 2.6 | 3.0 | 389 | 14 | 0 | 0 | 8.7 | 4.6 |
| 21 | *25 | 1.8 | 1.2 | 3.0 | 4.0 | 3.0 | *208 | 8.7 | 0 | 0 | 51 | 2.6 |
| 22 | 42 | 2.2 | 1.5 | 3.5 | 8.0 | 3.5 | 98 | 5.9 | 0 | 0 | 46 | 1.8 |
| 23 | 22 | 2.2 | 1.8 | 5.2 | 9.7 | 4.6 | 36 | 4.0 | 10 | 0 | 44 | 1.2 |
| 24 | 14 | 2.2 | 1.5 | 5.9 | 13 | 3.5 | 23 | 2.6 | *951 | 0 | 136 | .9 |
| 25 | 8.7 | 1.8 | 2.2 | 4.0 | 11 | 4.0 | 15 | 2.2 | 133 | 0 | 62 | .4 |
| 26 | 5.9 | 1.5 | *2.2 | 3.0 | 8.7 | 3.5 | 12 | 1.2 | 40 | 0 | 20 | .4 |
| 27 | 4.0 | 2.6 | 2.2 | 3.0 | 5.9 | 3.5 | 11 | .9 | 20 | 0 | 9.7 | 93 |
| 28 | 2.6 | 2.6 | 1.8 | 3.0 | 4.6 | 3.0 | 11 | 156 | 12 | 0 | 5.2 | 188 |
| 29 | 2.2 | 2.6 | 1.8 | 3.5 | - | 3.5 | 8.7 | 40 | 6.6 | 0 | 2.2 | 39 |
| 30 | 1.8 | 1.5 | 1.5 | *3.0 | ------- | 6.6 | 8.0 | 13 | 3.0 | 0 | 1.2 | 19 |
| 31 | 1.5 | ------- | 1.5 | 2.6 | ------- | 9.7 | ------- | 6.6 | ------- | 0 | .7 | ------- |
| Total | 164.6 | 516.0 | 46.8 | 93.3 | 110.1 | 141.2 | 3,517.9 | 1,446.4 | 1,459.3 | 6.8 | 389.2 | 733.6 |
| Mean | 5.31 | 17.2 | 1.51 | 3.01 | 3.93 | 4.55 | 117 | 46.7 | 48.6 | 0.22 | 12.6 | 24.5 |
| Ac-ft | 326 | 1,020 | 93 | 185 | 218 | 280 | 6,980 | 2,870 | 2,890 | 13 | 772 | 1,460 |

Calendar year 1957: Max 9,560 Min 0 Mean 145 Ac-ft 104,600
Water year 1957-58: Max 2,130 Min 0 Mean 23.6 Ac-ft 17,110

Peak discharge (base, 4,000 cfs).--Apr. 18 (3 p.m.) 5,040 cfs (10.76 ft).

* Discharge measurement or observation of no flow made on this day.
Note.--Discharge computed from once-daily staff-gage readings Dec. 31 to Jan. 29.

## 1215. Morgan Creek near Westbrook, Tex.

Location.--Lat 32°23'42", long 101°01'32", on left bank on downstream side of bridge on State Farm-to-Market road 670, 1.1 miles upstream from Graze Creek, 2.7 miles north of Westbrook, Mitchell County, and 14 miles upstream from mouth.

Drainage area.--249 sq mi, of which 21 sq mi is probably noncontributing.

Records available.--June 1954 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 2,076.64 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 512 cfs Apr. 20 (gage height, 9.42 ft); no flow most of time.
1954-58: Maximum discharge, 7,180 cfs May 13, 1957 (gage height, 21.92 ft); no flow most of time each year.
Maximum stage since at least 1882, 30.0 ft in April 1922, flood in 1941 reached a stage of 27 ft and flood of May 11, 1954, reached a stage of 21.8 ft; from information by local resident.

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

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | | | | | 0 | *0 | a0.8 | (*) | 0 | 0 |
| 2 | 0 | 0 | | | | | 0 | 0 | a.2 | | 0 | 0 |
| 3 | 0 | 0 | | | | (*) | *0 | 0 | *0 | | 0 | 0 |
| 4 | 0 | 69 | | | | | 0 | 0 | 0 | | 0 | *0 |
| 5 | 0 | 105 | | | | | 0 | 0 | 0 | | *0 | 0 |
| 6 | 0 | 37 | | | | | 0 | 0 | 0 | | 0 | 0 |
| 7 | 0 | 12 | | | | | 0 | 0 | 0 | | 0 | 0 |
| 8 | .2 | 3.8 | | | | | 0 | 0 | 0 | | 0 | 0 |
| 9 | 33 | 2.0 | | | | | 0 | 0 | 0 | | 0 | 0 |
| 10 | a1.5 | 8.6 | | | | | 0 | 0 | 0 | | 0 | 0 |
| 11 | *a.4 | 151 | | | | | 0 | 0 | 0 | | 0 | 0 |
| 12 | 0 | 25 | | | | | 0 | .2 | 0 | | 0 | 3.7 |
| 13 | 17 | 7.9 | | | | | .3 | 84 | *0 | | 0 | 9.5 |
| 14 | a9.0 | 3.1 | | | | | .1 | 48 | 0 | | 0 | 1.1 |
| 15 | .6 | 1.8 | | | | | 0 | 9.1 | 0 | | 0 | .5 |
| 16 | 0 | 1.3 | | | | | 0 | 3.6 | 0 | | 0 | .1 |
| 17 | 0 | .8 | | | | | .2 | 2.2 | 0 | | 0 | 0 |
| 18 | 0 | .6 | | | | | 25 | 64 | 0 | | 0 | 0 |
| 19 | 0 | .3 | | | | | 7.4 | 7.9 | 0 | | .4 | 0 |
| 20 | 8.7 | **.1 | | | | | 168 | 1.5 | 0 | | .5 | 0 |
| 21 | *244 | 0 | | | | | *115 | 1.5 | 0 | | 0 | 0 |
| 22 | *39 | 0 | | | | | 5.2 | .8 | 0 | | 0 | 0 |
| 23 | 13 | 0 | | | | | 1.6 | .4 | 29 | | 0 | 0 |
| 24 | 3.2 | 0 | | | | | .9 | 0 | 100 | | 0 | 0 |
| 25 | 1.5 | 0 | | | | | .6 | 0 | *21 | | 0 | 0 |
| 26 | .9 | 0 | (*) | | | | .5 | 0 | a5.9 | | 0 | 0 |
| 27 | .6 | 0 | | | | | .2 | .1 | a1.6 | | 0 | 64 |
| 28 | .1 | 0 | | (*) | | | 0 | 4.7 | a.6 | | 0 | 5.7 |
| 29 | 0 | 0 | | | - | | 0 | 6.4 | a.1 | | 0 | .6 |
| 30 | 0 | 0 | | | ------- | | 0 | 2.9 | a0 | | 0 | .2 |
| 31 | 0 | ------- | | | ------- | | ------- | a1.4 | ------- | (*) | 0 | ------- |
| Total | 372.7 | 429.3 | 0 | 0 | 0 | 0 | 325.0 | 238.7 | 159.2 | 0 | 0.9 | 85.4 |
| Mean | 12.0 | 14.3 | 0 | 0 | 0 | 0 | 10.8 | 7.70 | 5.31 | 0 | 0.03 | 2.85 |
| Ac-ft | 739 | 852 | 0 | 0 | 0 | 0 | 645 | 473 | 316 | 0 | 0 | 169 |

Calendar year 1957: Max 3,300 Min 0 Mean 54.0 Ac-ft 39,070
Water year 1957-58: Max 244 Min 0 Mean 4.41 Ac-ft 3,200

Peak discharge (base, 300 cfs).--Oct. 21 (11 a.m.) 393 cfs (8.49 ft); Apr. 20 (11 p.m.) 512 cfs (9.42 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated by interpolation.

## 1220. Graze Creek near Westbrook, Tex.

Location.--Lat 32°25'03", long 101°01'10", on right bank 1.2 miles upstream from mouth and 4.2 miles north of Westbrook, Mitchell County.

Drainage area.--21.2 sq mi.

Records available.--June 1954 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 2,092.66 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 156 cfs June 23 (gage height, 2.55 ft); no flow most of time.
1954-58: Maximum discharge, 1,800 cfs May 12, 1957 (gage height, 12.77 ft), from rating curve extended above 570 cfs on basis of slope-area measurement at gage height 12.23 ft; no flow most of time.
Maximum stage since 1919, 19.0 ft June 1939, from information by local residents.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.5 | 0 | 0.8 | 0.4 | 1.1 | 8.0 |
| .6 | .1 | .9 | 1.8 | 1.3 | 23 |
| .7 | .2 | 1.0 | 4.3 | 1.5 | 47 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | | | | | 0 | *0 | a0 | (*) | | 0 |
| 2 | 0 | 0 | | | | | 0 | 0 | a0 | | | 0 |
| 3 | 0 | 0 | | | | (*) | *0 | 0 | *0 | | | 0 |
| 4 | 0 | 1.0 | | | | | 0 | 0 | 0 | | | *0 |
| 5 | 0 | 19 | | | | | 0 | 0 | 0 | | (*) | 0 |
| 6 | 0 | 1.5 | | | | | 0 | 0 | 0 | | | 0 |
| 7 | 0 | .2 | | | | | 0 | 0 | 0 | | | 0 |
| 8 | 2.4 | 0 | | | | | 0 | 0 | 0 | | | 0 |
| 9 | 4.4 | 0 | | | | | 0 | 0 | 0 | | | 0 |
| 10 | .4 | 4.6 | | | | | 0 | 0 | 0 | | | 0 |
| 11 | 0 | 4.9 | | | | | 0 | 0 | 0 | | | 0 |
| 12 | 0 | .6 | | | | | 0 | 0 | 0 | | | 0 |
| 13 | 1.2 | .1 | | | | | 0 | 0 | 0 | | | 0 |
| 14 | .4 | 0 | | | | | 0 | 0 | 0 | | | 0 |
| 15 | 0 | 0 | | | | | 0 | 0 | 0 | | | 0 |
| 16 | 0 | 0 | | | | | 0 | 0 | 0 | | | 0 |
| 17 | 0 | 0 | | | | | 0 | a0 | 0 | | | 0 |
| 18 | 0 | 0 | | | | | 0 | a1 | 0 | | | 0 |
| 19 | 0 | 0 | | | | | 0 | a1.2 | 0 | | | 0 |
| 20 | 8.0 | *0 | | | | | .4 | a.2 | 0 | | | 0 |
| 21 | *11 | 0 | | | | | *.9 | a0 | 0 | | | 0 |
| 22 | 1.4 | 0 | | | | | 0 | a0 | 0 | | | 0 |
| 23 | .2 | 0 | | | | | 0 | a0 | 22 | | | 0 |
| 24 | 0 | 0 | | | | | 0 | a0 | *26 | | | 0 |
| 25 | 0 | 0 | | | | | 0 | a0 | .6 | | | 0 |
| 26 | 0 | 0 | (*) | | | | 0 | a0 | 0 | | | 0 |
| 27 | 0 | 0 | | | | | 0 | a0 | 0 | | | 30 |
| 28 | 0 | 0 | | (*) | | | 0 | a0 | 0 | | | .6 |
| 29 | 0 | 0 | | | - | | 0 | a0 | 0 | | | 0 |
| 30 | 0 | 0 | | | ------- | | 0 | a0 | 0 | | | 0 |
| 31 | 0 | ------- | | | ------- | | ------- | a0 | ------- | | | ------- |
| Total | 29.4 | 31.9 | 0 | 0 | 0 | 0 | 1.3 | 12.4 | 48.6 | 0 | 0 | 30.6 |
| Mean | 0.95 | 1.06 | 0 | 0 | 0 | 0 | 0.04 | 0.40 | 1.62 | 0 | 0 | 1.02 |
| Ac-ft | 58 | 63 | 0 | 0 | 0 | 0 | 2.6 | 25 | 96 | 0 | 0 | 61 |

Calendar year 1957: Max 597 Min 0 Mean 8.23 Ac-ft 5,960
Water year 1957-58: Max 30 Min 0 Mean 0.42 Ac-ft 306

Peak discharge (base, 50 cfs).--Nov. 5 (5 a.m.) 54 cfs (1.55 ft); June 23 (4 p.m.) 156 cfs (2.55 ft); Sept. 27 (10 a.m.) 99 cfs (1.92 ft).

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage and records for nearby stations.

## 1235. 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 1958.

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.--11 years, 13.8 cfs (9,990 acre-ft per year).

Extremes.--Maximum discharge during year, 1,310 cfs Oct. 8 (gage height, 3.98 ft); minimum daily, 0.1 cfs for many days.

1947-58: 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 measurements at gage heights 8.88 and 10.40 ft; no flow at times.

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. No diversion above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.5 | 0 | 1.0 | 18 |
| .6 | .2 | 1.2 | 39 |
| .7 | 1.5 | 1.5 | 90 |
| .8 | 6.2 | 2.0 | 215 |
| .9 | 11 | 2.5 | 395 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.3 | 0.6 | 0.3 | *0.4 | 0.2 | 0.1 | 0.1 | 0.1 |
| 2 | .2 | .3 | .3 | .4 | .3 | .9 | *.3 | .5 | .2 | *.1 | .1 | .1 |
| 3 | .2 | .4 | .3 | .4 | .4 | *.6 | .2 | .4 | .2 | .1 | .1 | .1 |
| 4 | .2 | 1.6 | .3 | .5 | .4 | .6 | .2 | .4 | *.2 | .1 | .1 | **.1 |
| 5 | .1 | 23 | .3 | .6 | .4 | .6 | .2 | .4 | .2 | .1 | **.1 | .1 |
| 6 | .1 | 2.8 | .4 | .5 | .3 | .6 | .2 | .3 | .2 | .5 | .1 | .1 |
| 7 | .2 | 1.2 | .4 | .4 | .3 | .9 | .2 | .2 | .2 | .9 | .1 | .1 |
| 8 | 132 | .6 | .3 | .4 | .3 | .6 | .2 | .2 | .2 | .2 | .1 | 3.3 |
| 9 | 56 | .5 | .2 | .4 | .3 | .6 | .2 | .2 | .2 | .1 | .1 | 4.9 |
| 10 | 7.6 | 3.6 | .2 | .4 | .3 | .5 | .2 | .2 | .2 | .1 | .1 | .2 |
| 11 | *1.9 | 1.5 | .2 | .4 | .4 | .4 | .2 | .2 | .2 | .1 | .1 | .2 |
| 12 | .6 | .6 | .3 | .4 | .4 | .5 | .2 | .4 | .2 | .1 | .1 | .2 |
| 13 | 14 | .6 | .3 | .4 | .5 | .5 | .6 | 87 | .2 | .1 | .1 | .2 |
| 14 | 12 | .4 | .3 | .4 | .4 | .5 | .4 | 12 | .2 | .1 | .1 | .2 |
| 15 | 2.8 | .4 | .3 | .4 | .4 | .5 | .3 | 2.6 | .2 | .1 | .1 | .3 |
| 16 | .6 | .4 | .4 | .3 | .4 | .5 | .2 | .9 | .2 | .1 | .1 | 36 |
| 17 | .4 | .4 | .4 | .3 | .4 | .4 | 1.1 | .9 | .2 | .3 | .1 | 26 |
| 18 | .3 | .4 | .4 | .4 | .4 | .5 | 4.7 | .6 | .2 | .1 | .1 | 2.9 |
| 19 | .3 | .3 | .4 | .5 | .4 | .4 | 1.5 | .5 | .1 | .1 | .1 | .6 |
| 20 | .3 | *.3 | .4 | .5 | .4 | .4 | 3.5 | .4 | .1 | .3 | .1 | .5 |
| 21 | .3 | .3 | .4 | .4 | .6 | .4 | .9 | .4 | .1 | 1.3 | 334 | .4 |
| 22 | *.3 | .3 | .4 | .4 | 1.5 | .4 | .4 | .3 | .1 | .1 | 3.9 | .4 |
| 23 | .2 | .4 | .4 | .5 | 1.5 | .4 | .4 | .3 | .2 | .1 | .6 | .4 |
| 24 | .2 | .3 | .4 | .4 | .9 | .4 | .2 | .4 | .1 | .1 | 53 | .3 |
| 25 | .2 | .3 | .4 | .4 | .6 | .4 | .2 | .5 | .1 | .1 | 2.8 | .3 |
| 26 | .2 | .3 | .4 | .4 | .6 | .4 | .2 | .4 | .1 | .1 | .3 | 54 |
| 27 | .2 | .3 | *.4 | .4 | .5 | .4 | .3 | 1.6 | .1 | .1 | .2 | 6.4 |
| 28 | .2 | .3 | .4 | .4 | .4 | .4 | .3 | 1.2 | .1 | .1 | .2 | .5 |
| 29 | .3 | .3 | .4 | .4 | - | .4 | .2 | .4 | .1 | .1 | .2 | .4 |
| 30 | .3 | .3 | .4 | *.4 | ------- | .4 | .3 | .3 | .1 | .1 | .1 | .4 |
| 31 | .3 | ------- | .4 | .3 | ------- | .4 | ------- | .2 | ------- | .1 | .1 | ------- |
| Total | 232.7 | 42.7 | 10.8 | 12.8 | 14.0 | 15.5 | 18.3 | 114.7 | 4.9 | 6.0 | 397.4 | 139.7 |
| Mean | 7.51 | 1.42 | 0.35 | 0.41 | 0.50 | 0.50 | 0.61 | 3.70 | 0.16 | 0.19 | 12.8 | 4.66 |
| Ac-ft | 462 | 85 | 21 | 25 | 28 | 31 | 36 | 228 | 9.7 | 12 | 788 | 277 |

Calendar year 1957: Max 2,950 Min 0.1 Mean 51.3 Ac-ft 37,140
Water year 1957-58: Max 334 Min 0.1 Mean 2.77 Ac-ft 2,000

Peak discharge (base, 2,000 cfs).--No peak above base.

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

## 1237. Beals Creek at Big Spring, Tex.

Location.--Lat 32°15'45", long 101°26'30", near center of span on downstream side of bridge on U. S. Highway 80, 0.2 mile downstream from Little Sandy Draw, 0.2 mile upstream from Big Sandy Draw, 2.0 miles east of city hall, Big Spring, Howard County, and 3.0 miles downstream from One Mile Lake.

Drainage area.--10,320 sq mi, approximately, of which 7,030 sq mi is probably non-contributing.

Records available.--March 1957 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 2,380.03 ft above mean sea level, datum of 1929.

Extremes.--1957: Maximum discharge during period March to September not determined; maximum gage height, 11.20 ft May 10; no flow at times.
1958: Maximum discharge during water year not determined; maximum gage height, 8.40 ft Aug. 21; no flow at times.
Flood of May 10, 1957, was highest known since 1932, from comparison of floods at a point 4,000 ft downstream, from information by City Engineering Department.

Remarks.--Records poor. No diversions above station. Runoff from contributing drainage area is largely regulated by several natural salt lakes upstream from city of Big Spring. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Monthly discharge, in cubic feet per second, March 1957 to September 1958

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| March 1957 | 3.4 | 3.3 | 0 | 0.11 | 6.7 |
| April | 59.7 | 22 | 0 | 1.99 | 118 |
| May | 1,411.0 | 757 | 0 | 45.5 | 2,800 |
| June | 283.0 | 88 | 0 | 9.43 | 561 |
| July | 5.2 | 4.9 | 0 | 0.17 | 10 |
| August | 103.4 | 73 | 0 | 3.34 | 205 |
| September | 20.8 | 14 | 0 | 0.69 | 41 |
| Water year 1956-57 | - | - | - | - | - |
| October | 90.2 | 73 | 0 | 2.91 | 179 |
| November | 117.1 | 56 | 0 | 3.90 | 232 |
| December | 0 | 0 | 0 | 0 | 0 |
| Calendar year 1957 | - | - | - | - | - |
| January 1958 | 6.5 | 6.0 | 0 | 0.21 | 13 |
| February | 15.2 | 10 | 0 | 0.54 | 30 |
| March | 0 | 0 | 0 | 0 | 0 |
| April | 82.3 | 66 | 0 | 2.74 | 163 |
| May | 11.6 | 5.9 | 0 | 0.37 | 23 |
| June | 18.6 | 15 | 0 | 0.62 | 37 |
| July | 0.6 | 0.6 | 0 | 0.02 | 1.2 |
| August | 481.9 | 460 | 0 | 15.5 | 956 |
| September | 6.0 | 3.8 | 0 | 0.20 | 12 |
| Water year 1957-58 | 830.0 | 460 | 0 | 2.27 | 1,650 |

Note.--No gage-height record May 27-29, June 6-11, June 14 to July 2, Sept. 6-11, 18-30, Oct. 1-20, Oct. 27 to Nov. 7, 1957, Jan. 5-14, Feb. 22 to Mar. 3, 1958; discharge estimated on basis of rainfall records and records for other stations.

## 1239. Colorado River near Silver, Tex.

Location.--Lat 32°00', long 100°44', on downstream side of left pier of county road bridge, 5.4 miles southwest of Silver, Coke County, 11 miles upstream from Pecan Creek, 18.5 miles downstream from Big Silver Creek, and at mile 743.

Drainage area.--15,480 sq mi, approximately, of which 11,600 sq mi is probably noncontributing.

Records available.--October 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,875.15 ft above mean sea level, datum of 1929. Prior to Feb. 7, 1957, wire-weight gage at same site and datum.

Extremes.--Maximum discharge during year, 10,600 cfs Oct. 13 (gage height, 18.30 ft); no flow July 17-19, July 28 to Sept. 20.
1956-58: Maximum discharge, 23,200 cfs May 12, 1957 (gage height, 24.19 ft, from floodmark in gage well); no flow several days each year.
Maximum stage known since at least 1891, about 32 ft in April 1922, from information by local resident.

Remarks.--Records good. Some regulation by Lake J. B. Thomas and Lake Colorado City (see p. 237). Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Nov. 5-7, 11, 12, Apr. 24-28, 30, May 1, 5, 6, 13-22, 29-31, June 3-6, 24, 25, July 21, Aug. 21-28, Sept. 8, 9, 15-19, 26-30)

| | | | | | |
|---|---|---|---|---|---|
| 3.6 | 0 | 4.1 | 11 | 6.0 | 470 |
| 3.7 | .1 | 4.2 | 18 | 7.0 | 900 |
| 3.8 | 1.1 | 4.4 | 42 | 9.0 | 2,000 |
| 3.9 | 3.0 | 4.6 | 73 | 12.0 | 4,200 |
| 4.0 | 5.9 | 5.0 | 158 | 13.0 | 5,100 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.8 | 7.2 | 5.9 | 5.2 | 4.8 | 12 | 3.0 | 58 | 21 | 8.8 | 0 | 2.6 |
| 2 | 4.0 | 6.8 | 5.6 | 5.6 | 4.5 | 12 | *3.0 | 21 | 13 | *6.3 | 0 | 1.6 |
| 3 | 3.5 | 6.3 | 5.6 | 5.6 | 4.2 | *11 | 2.6 | 14 | 21 | 4.8 | 0 | 1.1 |
| 4 | *3.2 | 6.8 | 5.6 | 5.9 | *4.2 | 10 | 3.5 | 9.9 | *120 | 4.0 | 0 | *.6 |
| 5 | 3.2 | *421 | 5.9 | 6.3 | 3.8 | 9.9 | 3.0 | 19 | *61 | 2.6 | *0 | .5 |
| 6 | 3.0 | 688 | 5.9 | 6.8 | 3.8 | 9.9 | 3.0 | 36 | 32 | 2.2 | 0 | .3 |
| 7 | 2.8 | *198 | 5.6 | 7.7 | 3.5 | 9.4 | 2.8 | 23 | 20 | 4.5 | 0 | .3 |
| 8 | 144 | 86 | 4.8 | 8.2 | 3.8 | 8.2 | 2.4 | 15 | 12 | 12 | 0 | 5.1 |
| 9 | 557 | 50 | 4.8 | 8.8 | 3.5 | 10 | 2.0 | 9.9 | 9.4 | 6.8 | 0 | 41 |
| 10 | 147 | 36 | 4.8 | 7.7 | 3.5 | 11 | 2.0 | 8.2 | 6.8 | 4.0 | 0 | 8.9 |
| 11 | *55 | 193 | 4.8 | 7.2 | 3.5 | 8.2 | 2.0 | 7.2 | 5.9 | 2.6 | 0 | 3.5 |
| 12 | 27 | 206 | 5.2 | 7.2 | 3.5 | 7.7 | 2.0 | *5.9 | 4.5 | 1.6 | 0 | 3.5 |
| 13 | 5,020 | 82 | 4.5 | 7.2 | 4.2 | 7.7 | 3.8 | 80 | 3.8 | 1.2 | 0 | 8.2 |
| 14 | 379 | 50 | 4.5 | 6.8 | 3.8 | 7.2 | 4.2 | 750 | 3.2 | .9 | 0 | 4.0 |
| 15 | 123 | 34 | 4.5 | 6.8 | 3.8 | 7.2 | 4.5 | 327 | 3.0 | .4 | 0 | 12 |
| 16 | 62 | 24 | 4.8 | 6.3 | 4.0 | 7.7 | 12 | 136 | 3.0 | .2 | 0 | 254 |
| 17 | 36 | 18 | 4.8 | 6.3 | 3.8 | 5.9 | 12 | 267 | 2.6 | 0 | 0 | 334 |
| 18 | 26 | 16 | 4.5 | 6.3 | 4.0 | 5.9 | 11 | 355 | 4.2 | 0 | *0 | 80 |
| 19 | 18 | 13 | 4.2 | 6.8 | 4.0 | 5.6 | *1,500 | 307 | 4.8 | 0 | 0 | 32 |
| 20 | 16 | *11 | 4.5 | 6.3 | 4.0 | 4.8 | 406 | 78 | 4.2 | 33 | 0 | 18 |
| 21 | 262 | 9.9 | 4.5 | 6.8 | 4.5 | 5.2 | *402 | 36 | 3.2 | 44 | 355 | 12 |
| 22 | *366 | 9.9 | 4.8 | 7.2 | 12 | 4.8 | *327 | 27 | 3.0 | 13 | *485 | 8.8 |
| 23 | 171 | 9.4 | 4.2 | 8.2 | 21 | 4.2 | 192 | 20 | 3.0 | 3.5 | 214 | 6.8 |
| 24 | 76 | 8.8 | 4.2 | 8.8 | 19 | 4.2 | 83 | 15 | 419 | 1.4 | 170 | 5.2 |
| 25 | 40 | 8.2 | 4.8 | 7.7 | 30 | 4.5 | *53 | 10 | *1,010 | .6 | *213 | 4.0 |
| 26 | 25 | 8.2 | 6.3 | 7.2 | 21 | 4.8 | 38 | 9.9 | 223 | .4 | 133 | 126 |
| 27 | 16 | 7.2 | *5.9 | 8.2 | 16 | 4.8 | 28 | 8.2 | 80 | .2 | 65 | 287 |
| 28 | 13 | 6.8 | 5.9 | 7.2 | 14 | 5.2 | 23 | 7.2 | 39 | 0 | 27 | 30 |
| 29 | 9.9 | 6.3 | 5.6 | 7.2 | - | 3.8 | *18 | 45 | 22 | 0 | *16 | 171 |
| 30 | 8.2 | 6.3 | 5.6 | *6.8 | ------ | 3.6 | 34 | 89 | 14 | 0 | 6.8 | 88 |
| 31 | 7.7 | ------- | 5.2 | 5.6 | ------- | 3.8 | ------- | 39 | ------- | 0 | 4.0 | ------- |
| Total | 7,629.3 | 2,234.1 | 157.8 | 215.9 | 215.7 | 220.4 | 3,182.8 | 2,833.4 | 2,171.6 | 159.0 | 1,688.8 | 1,550.0 |
| Mean | 246 | 74.5 | 5.09 | 6.96 | 7.70 | 7.11 | 106 | 91.4 | 72.4 | 5.13 | 54.5 | 51.7 |
| Ac-ft | 15,130 | 4,430 | 313 | 428 | 428 | 437 | 6,310 | 5,620 | 4,310 | 315 | 3,350 | 3,070 |

Calendar year 1957: Max 17,400 Min 0 Mean 510 Ac-ft 369,000
Water year 1957-58: Max 5,020 Min 0 Mean 61.0 Ac-ft 44,140

Peak discharge (base, 7,000 cfs).--Oct. 13 (6:30 a.m.) 10,600 cfs (18.30 ft).

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

## 1265. 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 1958. June 1907 to November 1915 monthly discharge only, published in WSP 850. Gage-height records collected in this vicinity from 1903-29 are contained in reports of U. S. 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.--51 years, 376 cfs (272,200 acre-ft per year).

Extremes.--Maximum discharge during year, 59,000 cfs Oct. 14 (gage height, 27.90 ft, backwater from Elm Creek); no flow Aug. 1, 2, 6-22.
1907-58: 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 sometime 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 backwater from Elm Creek, which are fair. Diversions above station for irrigation, municipal supplies, and oilfield operation. Flow slightly regulated by Lake Colorado City since 1949, Lake J. B. Thomas since 1952, and Oak Creek Reservoir since 1953 (see p. 237).

Revisions (water years).--WSP 1118: Drainage area. WSP 1512: 1916-17, 1919-20, 1921(M), 1922-25, 1928(M), 1930(M).

Rating table, water year 1957-58, except period of backwater (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 15, 16)

| | | | | | |
|---|---|---|---|---|---|
| 0.9 | 0 | 1.6 | 60 | 5.0 | 2,830 |
| 1.0 | .3 | 1.8 | 115 | 7.0 | 5,300 |
| 1.1 | 1.3 | 2.0 | 186 | 11.0 | 10,500 |
| 1.2 | 4.0 | 2.5 | 407 | 15.0 | 16,200 |
| 1.3 | 9.5 | 3.0 | 720 | 21.0 | 28,300 |
| 1.4 | 20 | 4.0 | 1,690 | 27.0 | 51,600 |
| 1.5 | 37 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 37 | 78 | 35 | 27 | 26 | 51 | 26 | 51 | 39 | 44 | 0 | 21 |
| 2 | 33 | 73 | 33 | 26 | 26 | 51 | 24 | 48 | 78 | *29 | 0 | 17 |
| 3 | 27 | 298 | *33 | 26 | 24 | 48 | 22 | 48 | 53 | 17 | .1 | 13 |
| 4 | 24 | 141 | 33 | 27 | 24 | 46 | 21 | 65 | *44 | 15 | .4 | 10 |
| 5 | 21 | 92 | 31 | 33 | 24 | 48 | 20 | 51 | 33 | 12 | .1 | 5.8 |
| 6 | 20 | 83 | 33 | *33 | 22 | 70 | 16 | *42 | 28 | 9.5 | 0 | 4.4 |
| 7 | 20 | 480 | 33 | 31 | 21 | 53 | *17 | 33 | 53 | 8.0 | 0 | 7.4 |
| 8 | 33 | 363 | 33 | 31 | 21 | 48 | 17 | 27 | 58 | 6.2 | 0 | 10 |
| 9 | 1,140 | 216 | 29 | 29 | 20 | 48 | 16 | 26 | 44 | 5.8 | 0 | 5.8 |
| 10 | 574 | 152 | 29 | 27 | 21 | 46 | 15 | 29 | 115 | 5.8 | 0 | 4.0 |
| 11 | 270 | 125 | 31 | 27 | 21 | 44 | 15 | 31 | 259 | 3.3 | 0 | 3.6 |
| 12 | 141 | 112 | 26 | 27 | 21 | 42 | 15 | 26 | 76 | 3.6 | 0 | 2.9 |
| 13 | c7,480 | 138 | 26 | 27 | 20 | 39 | 50 | 151 | 55 | 3.3 | 0 | 2.6 |
| 14 | *c45,800 | 201 | 27 | 27 | 20 | 37 | 281 | 311 | 29 | 1.7 | 0 | 2.5 |
| 15 | 5,260 | 138 | 27 | 26 | 20 | 39 | 98 | *406 | 20 | 1.0 | 0 | 22 |
| 16 | 1,020 | 106 | 27 | 26 | 20 | 39 | 60 | *685 | 20 | .5 | 0 | 252 |
| 17 | 544 | 92 | 27 | 26 | 18 | 39 | 55 | 462 | 21 | .4 | 0 | 164 |
| 18 | 358 | 76 | 29 | 26 | 18 | 39 | 48 | 1,010 | 18 | .7 | 0 | 188 |
| 19 | 249 | 65 | 27 | 26 | 18 | 35 | 44 | *608 | 17 | .5 | 0 | 241 |
| 20 | 163 | 58 | 26 | 35 | 20 | 33 | 1,030 | 550 | 12 | .7 | 0 | 128 |
| 21 | 138 | 53 | 24 | 31 | 32 | 33 | 611 | 311 | 12 | .8 | 0 | 76 |
| 22 | 138 | 55 | 26 | 31 | 90 | 31 | 320 | 178 | 11 | 27 | 0 | 55 |
| 23 | *302 | 51 | 26 | 44 | 232 | 35 | 402 | 118 | 11 | *4.8 | 12 | 39 |
| 24 | 320 | 58 | 27 | 42 | 148 | 31 | 284 | 95 | 12 | 1.7 | 373 | 29 |
| 25 | 245 | 55 | 33 | 44 | 78 | 31 | 182 | 81 | 6.8 | 1.2 | 330 | 22 |
| 26 | 171 | 46 | 33 | 42 | 65 | 31 | 118 | 68 | 495 | .9 | 145 | 18 |
| 27 | 138 | 44 | 31 | 37 | 55 | 31 | 92 | *60 | 394 | .7 | 141 | 1,730 |
| 28 | 115 | 42 | 29 | 33 | *46 | 33 | 76 | 63 | 178 | .8 | 125 | 622 |
| 29 | 98 | 42 | 29 | 33 | - | 29 | 65 | 78 | 112 | 2.4 | *78 | 216 |
| 30 | 89 | 37 | 27 | *29 | ------- | 27 | 58 | 48 | 73 | .7 | 48 | 103 |
| 31 | 83 | ------- | 27 | ------- | ------- | 26 | ------- | 33 | ------- | **.2 | 31 | ------- |
| Total | 65,051 | 3,570 | 907 | 956 | 1,171 | 1,233 | 4,098 | 5,793 | 2,374.8 | 209.2 | 1,283.6 | 4,015.0 |
| Mean | 2,098 | 119 | 29.3 | 30.8 | 41.8 | 39.8 | 137 | 187 | 79.2 | 6.75 | 41.4 | 134 |
| Ac-ft | 129,000 | 7,080 | 1,800 | 1,900 | 2,320 | 2,450 | 8,130 | 11,490 | 4,710 | 415 | 2,550 | 7,960 |

Calendar year 1957: Max 45,800 Min 0.2 Mean 946 Ac-ft 685,100
Water year 1957-58: Max 45,800 Min 0 Mean 248 Ac-ft 179,800

Peak discharge (base, 8,900 cfs).--Oct. 14 (7 a.m.) 59,000 cfs (27.90 ft).

* Discharge measurement made on this day.
** Field estimate made on this day.
c Backwater from Elm Creek.

## 1270. 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 1958.

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.--26 years, 52.4 cfs (37,940 acre-ft per year).

Extremes.--Maximum discharge during year, 50,000 cfs Oct. 13 (gage height, 14.20 ft, from floodmark); no flow many days.
1932-58: Maximum discharge, that of Oct. 13, 1957; no flow at times.
Flood in August 1906 reached a stage of about 14.6 ft, affected by backwater from Colorado River, from information by local residents.

Remarks.--Records good above 100 cfs and fair below. Stage-discharge relation during period of low flow affected by wind action and occasional accumulation of drift on dam. Low flow affected by diversion of Ballinger city pumping plant which diverts water for a part of the municipal supply. Only the flow over the dam is recorded. An unknown amount of low flow is stored in reservoir at gage. City of Winters has permit to divert a total of 1,160 acre-ft from Lake Winters (capacity, 2,670 acre-ft).

Revisions (water years).--WSP 1442: 1935, 1946, 1954.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 3.8 | 0 | 4.4 | 500 | 6.0 | 3,710 |
| 3.9 | 11 | 4.7 | 950 | 7.0 | 7,270 |
| 4.0 | 67 | 5.0 | 1,450 | 8.0 | 12,200 |
| 4.1 | 144 | 5.5 | 2,450 | 9.0 | 21,000 |
| 4.2 | 244 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 15 | 11 | 4.5 | 1.5 | 11 | 7.0 | 11 | 4.5 | 0 | 0 | 0 |
| 2 | 0 | 15 | 11 | 7.0 | 2.5 | 15 | 4.5 | 7.0 | 2.5 | *0 | 0 | 0 |
| 3 | 0 | 145 | *7.0 | 7.0 | 2.5 | 15 | 1.5 | 4.5 | 1.5 | 0 | 0 | 0 |
| 4 | 0 | 67 | 7.0 | 7.0 | 2.5 | 15 | 2.5 | 2.5 | *7.0 | 0 | 0 | 0 |
| 5 | 0 | 55 | 7.0 | 11 | .6 | 15 | .3 | 4.5 | 7.0 | 0 | 0 | 0 |
| 6 | 0 | 61 | 7.0 | *7.0 | 2.5 | 37 | 1.0 | *4.5 | 2.5 | 0 | 0 | 0 |
| 7 | 0 | 55 | 7.0 | 7.0 | 2.5 | 31 | *4.5 | 4.5 | 1.5 | 0 | 0 | 0 |
| 8 | 0 | 40 | 2.5 | 7.0 | 2.5 | 15 | 2.5 | 1.5 | 1.0 | 0 | 0 | 0 |
| 9 | 0 | 43 | 4.5 | 7.0 | 4.5 | 25 | .4 | 1.5 | 1.0 | 0 | 0 | 0 |
| 10 | 0 | 31 | 4.5 | 7.0 | 4.5 | 25 | 1.0 | 4.5 | 272 | 0 | 0 | 0 |
| 11 | 0 | 31 | 4.5 | 7.0 | 4.5 | 25 | 2.5 | 4.5 | 94 | 0 | 0 | 0 |
| 12 | 0 | 31 | 4.5 | 4.5 | 2.5 | 20 | 2.5 | 2.5 | 37 | 0 | 0 | 0 |
| 13 | f16,100 | 31 | 7.0 | 4.5 | 4.5 | 15 | 11 | 55 | 20 | 0 | 0 | 0 |
| 14 | f7,060 | 25 | 4.5 | 1.0 | 1.5 | 15 | 11 | 110 | 15 | 0 | 0 | 0 |
| 15 | 470 | 25 | 7.0 | 2.5 | 1.5 | 11 | 15 | *95 | 11 | 0 | 0 | 5.9 |
| 16 | 198 | 25 | 7.0 | 2.5 | 1.5 | 11 | 11 | *336 | 7.0 | 0 | 0 | 165 |
| 17 | 103 | 20 | 7.0 | 2.5 | 1.5 | 7.0 | 7.0 | 176 | 7.0 | 0 | 0 | 37 |
| 18 | 67 | 11 | 7.0 | 2.5 | 1.5 | 11 | 7.0 | 201 | 7.0 | 0 | 0 | 15 |
| 19 | 49 | 11 | 1.2 | 2.5 | 1.5 | 11 | 4.5 | *87 | 4.5 | 0 | 0 | 11 |
| 20 | 37 | 11 | 1.2 | 2.5 | 2.5 | 11 | 11 | 43 | 2.5 | 0 | 0 | 11 |
| 21 | 25 | 11 | 4.5 | 2.5 | 7.0 | 7.0 | 7.0 | 31 | 2.5 | 0 | 0 | 4.5 |
| 22 | 25 | 11 | 7.0 | 4.5 | 37 | 7.0 | 20 | 25 | 20 | 0 | 0 | 1.5 |
| 23 | 31 | 11 | 7.0 | 11 | 162 | 4.5 | 15 | 20 | 11 | *0 | 0 | 1.0 |
| 24 | 13 | 15 | 7.0 | 11 | 55 | 4.5 | 11 | 20 | 4.5 | 1.8 | 115 | 1.0 |
| 25 | 25 | 20 | 11 | 7.0 | 31 | 4.5 | 11 | 15 | 1.0 | 4.5 | 37 | .4 |
| 26 | 20 | 20 | 11 | 7.0 | 20 | 4.5 | 11 | 15 | .4 | 1.5 | 7.0 | .4 |
| 27 | 20 | 20 | 11 | 7.0 | 1.5 | 7.0 | 11 | *7.0 | .6 | .2 | 1.5 | .4 |
| 28 | 15 | 15 | 11 | 4.5 | *11 | 7.0 | 4.5 | 4.5 | .6 | 0 | 1.0 | .2 |
| 29 | 11 | 7.0 | 11 | 4.5 | - | 4.5 | 4.5 | 4.5 | 0 | 0 | **.4 | .2 |
| 30 | 11 | 11 | 11 | *4.5 | ------- | 7.0 | 4.5 | 2.5 | 0 | 0 | .1 | 0 |
| 31 | 11 | ------- | 7.0 | 1.0 | ------- | 7.0 | ------- | 4.5 | ------- | *0 | 0 | ------- |
| Total | 24,309 | 898.0 | 217.9 | 168.0 | 373.6 | 405.5 | 207.2 | 1,305.0 | 546.1 | 8.0 | 162.0 | 254.5 |
| Mean | 784 | 29.9 | 7.03 | 5.42 | 13.3 | 13.1 | 6.91 | 42.1 | 18.2 | 0.26 | 5.23 | 8.48 |
| Ac-ft | 48,220 | 1,780 | 432 | 333 | 741 | 804 | 411 | 2,590 | 1,080 | 16 | 321 | 505 |

Calendar year 1957: Max 16,100 Min 0 Mean 162 Ac-ft 117,400
Water year 1957-58: Max 16,100 Min 0 Mean 79.1 Ac-ft 57,230

Peak discharge (base, 2,100 cfs).--Oct. 13 (6:30 p.m.) 50,000 cfs (14.20 ft).

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
f Fragmentary gage-height record; discharge estimated on basis of high-water mark, staff-gage readings, and trend of adjacent record.

1275. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 2,017.02 ft above mean sea level, datum of 1929.

Average discharge.--18 years (1940-58), 8.22 cfs (5,950 acre-ft per year).

Extremes.--Maximum daily diversion for irrigation during year (excluding flood flow), 16 cfs Apr. 12; no flow Mar. 18 to Apr. 10.
1939-58: Maximum daily diversion for irrigation (excluding flood flow), 21 cfs June 27, 28, 1941, and Sept. 18, 21, 1942; no flow Apr. 26 to July 9, 1957, Mar. 18 to Apr. 10, 1958.

Remarks.--Records poor. Canal diverts water from right bank of South Concho River, 600 ft upstream from station at Christoval for irrigation. Water cut out of canal Apr. 26 to July 9, 1957, and Mar. 18 to Apr. 10, 1958.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 5.8 | 2.9 | 4.95 | 304 |
| November | 5.5 | 3.0 | 4.31 | 256 |
| December | 3.0 | 1.8 | 2.23 | 137 |
| Calendar year 1957 | 5.9 | 0 | 3.19 | 2,310 |
| January | 1.7 | .7 | 1.10 | 68 |
| February | .8 | .4 | .55 | 31 |
| March | .9 | 0 | .44 | 27 |
| April | 16 | 0 | 6.03 | 359 |
| May | 12 | 4.6 | 8.44 | 519 |
| June | 9.2 | 1.2 | 4.57 | 272 |
| July | 9.7 | 3.7 | 6.83 | 420 |
| August | 5.1 | 3.1 | 3.86 | 237 |
| September | 6.2 | 4.6 | 5.21 | 310 |
| Water year 1957-58 | 16 | 0 | 4.06 | 2,940 |

Note.--No gage-height record Nov. 30 to Dec. 1, Dec. 20-25; discharge estimated on basis of recorded range in stage and record for South Concho River at Christoval.

## 1280. 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 and 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 1958.

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.--28 years, 38.1 cfs (27,580 acre-ft per year).

Extremes.--Maximum discharge during year, 12,000 cfs June 16 (gage height, 10.73 ft); minimum daily, 9.1 cfs Oct. 1-7.
1930-58: Maximum discharge, 100,000 cfs July 23, 1958 (gage height, 21.95 ft, from floodmarks), from rating curve extended above 9,000 cfs on basis of slope-area measurement at gage height 20.5 ft; no flow Feb. 28, Mar. 1, 1955.
Maximum stage 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).--WSP 1118: 1943(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 16-18, 24, Sept. 17, 27)

| | | | | | |
|---|---|---|---|---|---|
| 1.6 | 0 | 2.1 | 42 | 3.5 | 850 |
| 1.7 | 1.2 | 2.3 | 97 | 4.0 | 1,260 |
| 1.8 | 5.1 | 2.5 | 182 | 5.0 | 2,240 |
| 1.9 | 13 | 2.7 | 292 | 7.0 | 4,600 |
| 2.0 | 25 | 3.0 | 480 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *9.1 | 17 | 18 | 17 | 16 | 33 | *33 | 21 | 19 | 31 | 24 | 18 |
| 2 | 9.1 | 18 | *18 | 17 | 16 | 33 | 35 | *18 | 19 | 31 | 24 | 18 |
| 3 | 9.1 | 19 | 17 | 17 | 16 | 33 | 35 | 17 | *19 | *33 | 21 | 18 |
| 4 | 9.1 | 18 | 17 | 17 | 17 | 35 | 33 | 17 | 18 | 35 | 19 | 17 |
| 5 | 9.1 | 17 | 17 | 17 | 17 | 35 | 29 | 18 | 18 | 35 | 18 | 18 |
| 6 | 9.1 | 17 | 17 | 17 | 16 | 35 | 29 | 17 | 17 | 35 | 18 | 21 |
| 7 | 9.1 | 16 | 17 | 16 | 16 | 35 | 31 | 16 | 15 | 35 | 17 | 22 |
| 8 | 9.9 | 16 | 16 | 16 | 16 | 35 | 31 | 16 | 14 | 33 | 17 | 22 |
| 9 | 441 | 16 | 16 | 16 | 15 | 34 | 29 | 16 | 13 | 33 | 17 | 21 |
| 10 | 25 | 16 | 15 | 16 | 15 | 34 | 29 | 12 | 13 | 33 | 19 | 19 |
| 11 | 11 | 17 | 15 | 16 | 15 | *34 | 24 | 12 | 13 | 33 | 17 | 19 |
| 12 | 11 | 17 | 15 | 16 | 15 | 34 | 13 | 12 | 13 | 31 | 17 | 19 |
| 13 | 718 | 17 | 15 | 16 | 14 | 34 | 14 | 18 | 14 | 31 | 18 | 19 |
| 14 | 119 | 17 | 16 | 16 | 14 | 34 | 16 | 13 | 13 | 29 | 18 | 21 |
| 15 | 22 | 17 | 16 | 16 | 14 | 34 | 16 | 12 | 13 | 29 | 18 | 22 |
| 16 | 15 | 17 | 16 | 16 | 14 | 34 | 16 | 12 | *967 | 28 | 18 | 25 |
| 17 | 15 | 17 | 16 | 16 | 14 | 34 | 17 | 13 | *3,360 | 28 | 18 | 110 |
| 18 | 15 | 17 | 16 | 16 | 14 | 34 | 17 | 13 | *111 | 28 | 18 | 22 |
| 19 | 15 | 17 | 16 | 16 | 15 | 34 | 16 | 14 | 33 | 28 | 18 | 24 |
| 20 | 15 | 17 | 15 | 16 | 15 | 34 | 18 | 14 | 24 | 28 | 18 | 25 |
| 21 | 16 | 17 | 15 | 16 | 18 | 33 | 17 | 15 | 25 | 26 | 19 | 25 |
| 22 | 16 | 17 | 16 | 16 | 32 | 33 | 16 | 15 | 26 | 26 | 18 | 26 |
| 23 | 15 | 17 | 16 | 18 | 412 | 33 | 18 | 15 | 26 | 26 | 21 | 26 |
| 24 | 16 | 17 | 17 | *16 | 54 | 33 | 21 | 15 | 637 | 26 | 19 | 26 |
| 25 | 16 | 18 | 17 | 16 | 35 | 33 | 21 | 16 | 63 | 25 | 18 | 26 |
| 26 | 16 | 18 | *17 | 16 | 31 | 33 | 21 | 17 | 35 | 24 | 18 | 26 |
| 27 | 16 | 18 | 17 | 16 | *31 | 33 | 21 | 18 | 31 | 25 | *18 | 1,020 |
| 28 | *17 | 18 | 18 | 15 | 31 | 33 | 21 | 18 | 31 | *24 | 17 | 95 |
| 29 | 16 | 18 | 17 | 15 | - | 33 | 19 | 18 | 31 | 24 | 17 | 33 |
| 30 | 17 | 18 | 17 | 16 | ------- | 33 | 21 | 19 | 31 | 24 | 17 | 28 |
| 31 | 17 | ------- | 17 | 16 | ------- | 33 | ------- | 19 | ------- | 22 | 17 | ------- |
| Total | 1,673.6 | 516 | 508 | 502 | 948 | 1,045 | 677 | 486 | 5,662 | 899 | 571 | 1,831 |
| Mean | 54.0 | 17.2 | 16.4 | 16.2 | 33.9 | 33.7 | 22.6 | 15.7 | 189 | 29.0 | 18.4 | 61.0 |
| Ac-ft | 3,320 | 1,020 | 1,010 | 996 | 1,880 | 2,070 | 1,340 | 964 | 11,230 | 1,780 | 1,130 | 3,630 |

Calendar year 1957: Max 21,600 Min 0.7 Mean 154 Ac-ft 111,400
Water year 1957-58: Max 3,360 Min 9.1 Mean 42.0 Ac-ft 30,370

Peak discharge (base, 160 cfs).--Oct. 9 (4 a.m.) 1,780 cfs (4.53 ft); Oct. 13 (3 p.m.) 3,880 cfs (6.44 ft); Feb. 23 (4:30 a.m.) 1,200 cfs (3.93 ft); June 17 (7 a.m.) 12,000 cfs (10.73 ft); June 24 (1 a.m.) 1,930 cfs (4.91 ft); Sept. 27 (6:30 a.m.) 3,950 cfs (6.68 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 10-12, 24, 25, Nov. 13-16, 27-29, Dec. 20-25, Jan. 1-13, Mar. 6-31; discharge estimated on basis of recorded range in stage.

## 1285. Middle Concho River near Tankersly, Tex.

Location.--Lat 31°22'35", long 100°36'50", on left bank 220 ft upstream from 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 1958.

Gage.--Water-stage recorder. Datum of gage is 1,919.51 ft above mean sea level, datum of 1929.

Average discharge.--28 years, 42.1 cfs (30,480 acre-ft per year).

Extremes.--Maximum discharge during year, 22,500 cfs Oct. 13 (gage height, 23.78 ft); no flow for many days.
1930-58: Maximum discharge, 27,500 cfs Sept. 26, 1946 (gage height, 24.30 ft, from floodmark); no flow at times.
Maximum stage since at least 1900, 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.

Revisions (water years).--WSP 1512: 1932(M), 1935(M), 1936, 1937(M), 1938, 1946, 1948-49.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *0 | *3.5 | 0.9 | 0.4 | 0.8 | 2.4 | 0.8 | a2.9 | 0 | 2.1 | | 0 |
| 2 | 0 | 3.5 | .6 | .4 | .8 | 2.6 | .6 | a2.4 | *0 | 1.2 | | 0 |
| 3 | 0 | 3.5 | .6 | .6 | .9 | 2.6 | .6 | a1.7 | 0 | 0 | | 0 |
| 4 | 0 | 3.5 | .2 | .6 | .8 | 2.6 | *.6 | a1.4 | 0 | 0 | | 0 |
| 5 | 0 | 5.4 | .6 | .8 | 1.0 | 2.6 | .4 | *1.0 | 0 | 0 | | 0 |
| 6 | 0 | 5.4 | .6 | 1.2 | 1.2 | 2.6 | .4 | 1.0 | 0 | 0 | | 0 |
| 7 | 0 | 5.4 | .4 | 1.2 | 1.0 | 2.6 | .4 | .8 | 0 | 0 | | 0 |
| 8 | 0 | 2.9 | .8 | .9 | .9 | 2.1 | .3 | .6 | 0 | 0 | | 0 |
| 9 | *189 | 2.1 | *.6 | .9 | .9 | 1.9 | .1 | .2 | 0 | 0 | | 0 |
| 10 | *12 | 2.1 | .6 | .8 | .9 | 1.7 | .1 | .1 | 0 | 0 | | 0 |
| 11 | *.8 | 2.4 | .4 | .8 | .9 | 1.5 | .2 | .2 | 0 | 0 | | 0 |
| 12 | 0 | 2.4 | .2 | .9 | .9 | 1.5 | .3 | .4 | 0 | 0 | | 0 |
| 13 | *8,810 | 2.1 | .3 | .6 | 1.0 | 1.5 | .4 | 97 | 0 | 0 | | 0 |
| 14 | 8,670 | *1.4 | .2 | .9 | 1.0 | 1.5 | 1.0 | *46 | 0 | 0 | | 0 |
| 15 | 390 | 1.2 | .3 | 1.0 | .9 | 1.5 | 2.7 | 15 | 0 | 0 | | 0 |
| 16 | *123 | 1.2 | .6 | .8 | .9 | 1.5 | 6.2 | *9.2 | 0 | 0 | | 220 |
| 17 | 60 | 1.9 | .6 | .4 | .8 | 1.2 | 3.5 | 7.0 | 0 | 0 | | *293 |
| 18 | 42 | 1.5 | .4 | .3 | .6 | 1.4 | 2.4 | 7.0 | 0 | 0 | | *43 |
| 19 | 27 | 1.7 | .4 | .4 | .8 | 1.4 | 1.7 | 3.5 | 0 | 0 | | 16 |
| 20 | 21 | 1.7 | .3 | .6 | .9 | 1.2 | 182 | 2.1 | 0 | 0 | | 7.0 |
| 21 | *19 | 1.2 | .3 | .6 | 1.6 | 1.2 | 68 | 1.5 | 0 | 0 | | 2.9 |
| 22 | 18 | 1.0 | .3 | .9 | 7.6 | 1.2 | 18 | 1.0 | 0 | 0 | | *1.2 |
| 23 | 13 | 1.0 | .2 | 2.4 | 9.8 | 1.2 | 9.2 | .9 | 300 | 0 | | .1 |
| 24 | 11 | 4.2 | .3 | 2.9 | 6.6 | 1.2 | a6.2 | .6 | *927 | 0 | | 0 |
| 25 | 8.7 | 3.5 | .3 | 1.7 | 5.0 | 1.4 | a5.8 | .3 | *128 | 0 | | 0 |
| 26 | 7.7 | 1.4 | .3 | 1.2 | 4.6 | 1.4 | a5.4 | .1 | *39 | 0 | | 0 |
| 27 | 6.2 | 1.0 | *.6 | 1.4 | *3.2 | 1.4 | a5.0 | 0 | 16 | 0 | (*) | 0 |
| 28 | 5.0 | 1.0 | .6 | 1.2 | 2.6 | 1.4 | a4.6 | 0 | 8.7 | *0 | | 0 |
| 29 | 4.6 | 1.4 | .6 | *1.2 | - | 1.0 | a4.2 | 0 | 4.6 | 0 | | 7.4 |
| 30 | 4.2 | 2.6 | .6 | 1.0 | ------- | .9 | a3.8 | 0 | *3.8 | 0 | | 4.2 |
| 31 | 3.5 | ------- | .4 | 1.0 | ------- | .8 | ------- | 0 | ------- | 0 | | ------- |
| Total | 18,445.7 | 73.1 | 14.1 | 30.0 | 58.9 | 51.0 | 334.9 | 203.9 | 1,427.1 | 3.3 | 0 | 594.8 |
| Mean | 595 | 2.44 | 0.45 | 0.97 | 2.10 | 1.65 | 11.2 | 6.58 | 47.6 | 0.11 | 0 | 19.8 |
| Ac-ft | 36,590 | 145 | 28 | 60 | 117 | 101 | 664 | 404 | 2,830 | 6.5 | 0 | 1,180 |

Calendar year 1957: Max 8,810 Min 0 Mean 174 Ac-ft 126,200
Water year 1957-58: Max 8,810 Min 0 Mean 58.2 Ac-ft 42,120

Peak discharge (base, 1,700 cfs).--Oct. 13 (12 m.) 22,500 cfs (23.78 ft); June 23 (12 p.m.) 5,300 cfs (13.00 ft); Sept. 16 (9:30 p.m.) 1,900 cfs (7.42 ft).

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated.

1295. Dove Creek Spring near Knickerbocker, Tex.

Location.--Lat 31°11', long 100°44', at W. G. Rawls ranchhouse, 200 ft downstream from spring, 300 ft upstream from confluence with Dove Creek, 1.8 miles upstream from Stilson Dam, and 8.5 miles southwest of Knickerbocker, Tom Green County.

Records available.--April 1944 to September 1958 (discharge measurements only).

Extremes.--Maximum discharge measured during year, 16.2 cfs Sept. 26; minimum measured, 5.75 cfs Jan. 29.
1944-58: Maximum discharge measured, 17.2 cfs Aug. 23, 1944; minimum measured, 3.33 cfs Apr. 23, 1956.

Remarks.--Discharge measurements represent total flow of spring. Flow emerges from limestone outcrop at left bank of draw that extends upstream for 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 1957 to September 1958

| | | | |
|---|---|---|---|
| Oct. 2 | 5.93 | May 5 | 6.30 |
| Nov. 14 | 8.53 | June 2 | 8.59 |
| Dec. 27 | 5.89 | July 7 | 14.1 |
| Jan. 29 | 5.75 | July 29 | 8.33 |
| Feb. 27 | 6.99 | Aug. 27 | 13.6 |
| Apr. 8 | 6.72 | Sept. 26 | 16.2 |

## 1310. 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 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,874.61 ft above mean sea level, datum of 1929.

Average discharge.--28 years, 35.7 cfs (25,850 acre-ft per year).

Extremes.--Maximum discharge during year, 18,200 cfs June 23 (gage height, 16.94 ft); no flow for several days.
1930-58: Maximum discharge, 29,400 cfs May 9, 1957 (gage height, 21.35 ft); no flow at times.
Maximum stage known, about 26 ft in 1882, from information by local residents.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Many small diversions above station for irrigation.

Revisions (water years).--WSP 928: 1936.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 9, May 13-14, Aug. 24 to Sept. 30)

| Oct. 1 to June 15 | | | | June 16 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.1 | 0 | 2.2 | 60 | 0.75 | 0 | 2.0 | 55 |
| 1.2 | .6 | 2.6 | 134 | .8 | .1 | 2.3 | 108 |
| 1.3 | 2.5 | 3.0 | 242 | .9 | .7 | 2.6 | 190 |
| 1.4 | 4.7 | 3.5 | 411 | 1.0 | 1.5 | 3.0 | 335 |
| 1.5 | 7.0 | 4.0 | 625 | 1.1 | 2.9 | 4.0 | 820 |
| 1.7 | 14 | 5.0 | 1,150 | 1.3 | 7.3 | 5.0 | 1,390 |
| 1.9 | 26 | 6.0 | 1,720 | 1.5 | 14 | 7.0 | 2,800 |
| | | | | 1.7 | 26 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 12 | 12 | 9.6 | 12 | 15 | 14 | 5.6 | 2.9 | 21 | 0.4 | 6.3 |
| 2 | *0 | 13 | 11 | 8.9 | 11 | 20 | 14 | 7.2 | *2.7 | 16 | .4 | *5.9 |
| 3 | 0 | 17 | 11 | 9.9 | 12 | 17 | 13 | 8.0 | 2.3 | 13 | .2 | 5.4 |
| 4 | 0 | 17 | 11 | 12 | 12 | 16 | *12 | 7.0 | 1.3 | 11 | .2 | a4.9 |
| 5 | 0 | 26 | 11 | 15 | 14 | 16 | 11 | *5.4 | .5 | 8.5 | .1 | a4.5 |
| 6 | 0 | 25 | 11 | 15 | 14 | *16 | 11 | 4.3 | .2 | 6.8 | .1 | a4.1 |
| 7 | 0 | 20 | 11 | 12 | 5.8 | 16 | 8.0 | 2.9 | 0 | *8.5 | 0 | a3.9 |
| 8 | 0 | 18 | 10 | 11 | 7.1 | 17 | *8.9 | 2.0 | 0 | 8.5 | 0 | g4.7 |
| 9 | *1,340 | 15 | *9.2 | 11 | 8.6 | 13 | 11 | 1.8 | 0 | 7.1 | 0 | a4.3 |
| 10 | *75 | 15 | 9.2 | 13 | 8.6 | 12 | 9.2 | 1.4 | 0 | 6.1 | 17 | *g3.9 |
| 11 | *23 | 17 | 9.2 | 15 | 8.6 | 13 | 6.0 | 3.8 | 0 | 4.7 | *140 | a3.7 |
| 12 | 12 | 16 | 8.9 | 17 | 8.9 | 15 | 5.4 | 1.8 | 0 | 4.1 | 15 | a3.5 |
| 13 | 19 | 16 | 9.2 | 14 | 9.2 | 15 | 5.8 | *171 | 0 | 3.7 | 4.0 | a3.3 |
| 14 | 26 | *15 | 9.6 | 12 | 9.2 | 14 | 6.0 | 114 | 0 | 2.9 | 1.5 | a3.1 |
| 15 | 26 | 15 | 9.9 | 12 | 8.6 | 14 | 6.3 | 27 | 0 | 2.6 | *1.0 | 6.4 |
| 16 | 15 | 15 | 10 | 9.9 | 7.8 | 14 | 5.6 | 14 | *2,280 | 1.8 | .8 | *79 |
| 17 | 12 | 14 | 10 | 9.6 | 8.3 | 14 | 4.7 | 14 | 377 | 1.4 | .7 | *148 |
| 18 | 11 | 15 | 10 | 9.9 | 9.9 | 15 | 4.5 | 17 | *86 | 1.1 | .5 | *32 |
| 19 | 11 | 14 | 9.9 | 8.9 | 13 | 15 | 4.7 | 14 | 40 | .9 | .4 | 23 |
| 20 | 11 | 12 | 10 | 9.9 | 14 | 15 | 6.8 | 13 | *24 | .8 | .2 | 23 |
| 21 | *12 | 11 | 7.8 | 11 | 23 | 15 | 12 | 12 | 21 | .6 | .1 | 22 |
| 22 | 13 | 13 | 7.0 | 11 | 60 | 15 | 10 | 12 | 29 | .5 | .1 | *22 |
| 23 | 15 | 11 | 7.2 | 15 | 50 | 17 | 7.2 | 12 | *1,490 | .5 | 233 | 21 |
| 24 | 13 | 18 | 8.0 | 20 | 32 | 14 | 4.9 | 12 | *1,870 | .5 | 291 | 18 |
| 25 | 11 | 23 | 9.9 | 18 | 23 | 16 | 3.4 | 11 | *142 | .6 | 89 | *15 |
| 26 | 11 | 20 | 11 | 15 | 22 | 17 | 2.5 | 9.2 | *62 | .6 | *32 | 22 |
| 27 | 11 | 16 | *11 | 14 | *18 | 15 | 2.5 | 7.5 | 49 | .6 | *16 | *1,050 |
| 28 | 11 | 15 | 11 | 14 | 15 | 14 | 4.9 | 5.4 | 42 | *.7 | *13 | *220 |
| 29 | 12 | 12 | 10 | *12 | - | 14 | 5.6 | 4.9 | 32 | .7 | 9.6 | *51 |
| 30 | 12 | 12 | 11 | 12 | ------- | 15 | 5.4 | 4.0 | *28 | .6 | 7.3 | 37 |
| 31 | 12 | ------- | 11 | 12 | ------- | 14 | ------- | 3.2 | ------- | .5 | 5.9 | ------- |
| Total | 1,714 | 478 | 308.0 | 389.6 | 445.6 | 468 | 226.3 | 528.4 | 6,581.9 | 136.9 | 879.5 | 1,850.9 |
| Mean | 55.3 | 15.9 | 9.94 | 12.6 | 15.9 | 15.1 | 7.54 | 17.0 | 219 | 4.42 | 28.4 | 61.7 |
| Ac-ft | 3,400 | 948 | 611 | 773 | 884 | 928 | 449 | 1,050 | 13,060 | 272 | 1,740 | 3,670 |

Calendar year 1957: Max 11,400 Min 0 Mean 172 Ac-ft 124,200
Water year 1957-58: Max 2,280 Min 0 Mean 38.4 Ac-ft 27,780

Peak discharge (base, 300 cfs).--Oct. 9 (3 a.m.) 8,300 cfs (12.05 ft); May 13 (6:30 p.m.) 725 cfs (3.90 ft); June 16 (1:30 p.m.) 11,900 cfs (14.08 ft); June 23 (11 p.m.) 18,200 cfs (16.94 ft); Aug. 10 (12 p.m.) 430 cfs (3.22 ft); Aug. 23 (7 p.m.) 1,520 cfs (5.20 ft); Sept. 16 (11 p.m.) 398 cfs (2.50 ft); Sept. 27 (4 a.m.) 2,880 cfs (6.62 ft).

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge interpolated.
g Computed from once-daily-gage readings.

## 1335. North Concho River at Sterling City, Tex.

Location.--Lat 31°50', long 100°59', on right bank 100 ft upstream from bridge on State Farm-to-Market Highway 379, 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 1958.

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.--19 years, 11.7 cfs (8,470 acre-ft per year).

Extremes.--Maximum discharge during year, 13,600 cfs Oct. 13 (gage height, 22.70 ft); no flow for many days.
1939-58: Maximum discharge, 16,300 cfs July 6, 1948 (gage height, 23.70 ft); no flow at times each year.
Maximum stage known since at least 1891, that of July 6, 1948.

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

Revisions (water years).--WSP 1512: 1945, 1948.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 20, 23-30, June 23 to July 2, Aug. 22-29)

| | | | | | |
|---|---|---|---|---|---|
| 2.5 | 0 | 3.6 | 24 | 10.0 | 650 |
| 2.6 | .3 | 4.0 | 41 | 12.0 | 1,010 |
| 2.7 | 1.0 | 5.0 | 100 | 15.0 | 1,900 |
| 2.8 | 2.1 | 6.0 | 180 | 17.0 | 3,100 |
| 3.0 | 5.3 | 8.0 | 395 | 20.0 | 6,800 |
| 3.3 | 13 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0.7 | 0.2 | 0.5 | 1.1 | 0.9 | 0.8 | 0.8 | 0.1 | 0.2 | 0 | |
| 2 | 0 | .6 | **.1 | .4 | .9 | 1.2 | .7 | .8 | .1 | .1 | 0 | |
| 3 | 0 | .6 | .2 | .4 | .8 | 2.7 | .6 | 1.0 | .1 | 0 | 0 | |
| 4 | 0 | .6 | .1 | .5 | .9 | 1.6 | .5 | .8 | 0 | 0 | 0 | |
| 5 | 0 | 8.5 | .1 | .5 | .8 | 1.2 | .6 | .9 | 0 | 0 | 0 | |
| 6 | 0 | 1.9 | .1 | .8 | .8 | 1.0 | .6 | .8 | 0 | 0 | 0 | |
| 7 | 0 | *1.0 | .2 | .8 | .8 | 1.1 | .5 | .7 | 0 | 0 | 0 | |
| 8 | 0 | .6 | .1 | .8 | .9 | .9 | .5 | .6 | 0 | 0 | 0 | |
| 9 | 0 | .8 | .1 | .7 | .9 | .8 | .5 | .6 | 0 | 0 | 0 | |
| 10 | 0 | .7 | .1 | .7 | .8 | .8 | .5 | .6 | 0 | 0 | 0 | |
| 11 | 0 | .6 | .1 | .8 | .8 | .8 | .6 | .6 | 0 | 0 | 0 | |
| 12 | 0 | .6 | .1 | 1.8 | .8 | .8 | .6 | *.8 | 0 | 0 | 0 | |
| 13 | *5,290 | .6 | .3 | .6 | 1.0 | .8 | 3.5 | 5.3 | 0 | 0 | 0 | |
| 14 | 56 | .5 | .5 | .9 | .8 | .8 | 3.4 | 2.2 | 0 | 0 | 0 | |
| 15 | 12 | .5 | .5 | .6 | .6 | .8 | 2.0 | 1.7 | 0 | 0 | 0 | |
| 16 | 6.4 | .4 | .5 | 1.7 | 1.1 | .8 | *1.3 | *1.6 | 0 | 0 | 0 | |
| 17 | 4.4 | .4 | .5 | 1.4 | .9 | .8 | 1.2 | 2.6 | 0 | 0 | 0 | |
| 18 | *3.3 | .5 | .5 | 1.0 | .8 | .9 | 1.4 | 16 | 0 | 0 | 0 | |
| 19 | 2.5 | .5 | .4 | .8 | .8 | .9 | 1.3 | 4.8 | 0 | 0 | 0 | |
| 20 | 2.2 | .4 | 1.0 | 1.1 | .8 | .9 | 149 | 2.0 | 0 | 0 | 0 | |
| 21 | 36 | .3 | .7 | 1.2 | 2.8 | .9 | 55 | 1.3 | 0 | 0 | 0 | |
| 22 | 34 | .4 | .6 | 1.3 | 3.0 | .9 | 16 | 1.0 | 0 | 0 | 122 | |
| 23 | 11 | .5 | .5 | *1.2 | 2.8 | .8 | 7.1 | .8 | 37 | 0 | 14 | |
| 24 | 5.7 | .3 | .5 | 1.2 | 1.2 | .8 | 3.8 | .6 | *253 | 0 | 11 | |
| 25 | 3.3 | .3 | .5 | 1.1 | 1.0 | 1.0 | 2.7 | .5 | *61 | 0 | *37 | |
| 26 | 2.5 | .3 | .6 | 1.1 | .8 | 1.1 | 2.2 | .4 | *9.4 | 0 | *6.1 | |
| 27 | 1.9 | .2 | .7 | 1.1 | 1.0 | 1.1 | 2.1 | .4 | *3.2 | 0 | 2.5 | |
| 28 | 1.5 | .4 | .7 | 1.1 | *.9 | 1.0 | 1.6 | .3 | 1.3 | *0 | 1.9 | |
| 29 | 1.2 | .3 | .7 | .9 | - | .9 | *1.2 | **.4 | .7 | 0 | *.2 | |
| 30 | *.8 | .3 | *.6 | .8 | ------- | .8 | .8 | .3 | .4 | 0 | 0 | (*) |
| 31 | .7 | ------- | .5 | .7 | ------- | *.9 | ------- | .1 | ------- | 0 | 0 | ------- |
| Total | 5,475.4 | 24.3 | 12.3 | 28.5 | 30.7 | 30.7 | 262.6 | 51.3 | 366.3 | 0.3 | 194.7 | 0 |
| Mean | 177 | 0.81 | 0.40 | 0.92 | 1.10 | 0.99 | 8.75 | 1.65 | 12.2 | 0.01 | 6.28 | 0 |
| Ac-ft | 10,860 | 48 | 24 | 57 | 61 | 61 | 521 | 102 | 727 | 0.6 | 386 | 0 |

Calendar year 1957: Max 5,290 Min 0 Mean 58.9 Ac-ft 42,650
Water year 1957-58: Max 5,290 Min 0 Mean 17.7 Ac-ft 12,850

Peak discharge (base, 300 cfs).--Oct. 13 (8:30 a.m.) 13,600 cfs (22.70 ft); Apr. 20 (1:30 p.m.) 494 cfs (9.28 ft); June 24 (8 to 9 a.m.) 419 cfs (8.69 ft); Aug. 22 (6 a.m.) 313 cfs (7.77 ft).

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

## 1340. North Concho River near Carlsbad, Tex.

Location.--Lat 31°36', long 100°39', near left bank on downstream side of pier of county road bridge, 0.6 mile southwest of Carlsbad, Tom Green County, 1.5 miles upstream from Mule Creek, and 16.2 miles upstream from San Angelo Dam.

Drainage area.--1,533 sq mi, of which 123 sq mi is probably noncontributing.

Records available.--March 1924 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,968.02 ft above mean sea level, datum of 1929. Prior to Feb. 4, 1925, and Sept. 27, 1936, to Feb. 7, 1937, staff gage; Feb. 4, 1925, to Sept. 26, 1936, and Feb. 8, 1937, to Nov. 6, 1955, water-stage recorder at site 2½ miles upstream at datum 32.76 ft higher.

Average discharge.--34 years, 50.1 cfs (36,270 acre-ft per year).

Extremes.--Maximum discharge during year, 79,200 cfs Oct. 13 (gage height, 25.85 ft in gage well, 27.3 ft from outside gage), from rating curve extended above 9,500 cfs on basis of computed inflow into San Angelo Reservoir at gage heights 22.6 and 25.85 ft, present site, and comparison with rating at former gage site 2½ miles upstream; no flow several days.

1924-58: Maximum discharge, 94,600 cfs Sept. 26, 1936 (gage height, from flood-marks, 16.0 ft at former site, 29.1 ft, present site), from rating curve extended above 11,000 cfs on basis of slope-area measurements at gage heights 14.45 and 16.0 ft at former site; no flow at times.

Maximum stage 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).

Revisions (water years).--WSP 1512: 1924(M), 1925, 1926(M), 1928, 1930, 1932(M), 1935, 1937-38(M), 1941(M), 1945(M), 1947-49(M).

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.1 | *4.8 | 2.0 | 1.7 | 1.3 | 2.8 | 2.2 | 4.8 | 0.7 | 3.0 | 0 | 0.4 |
| 2 | .1 | 4.3 | *2.0 | 1.7 | 1.3 | 3.2 | 2.4 | 4.3 | .6 | 2.3 | 0 | .4 |
| 3 | 0 | 5.1 | 1.9 | 1.7 | 1.3 | 3.1 | 2.3 | 3.9 | .6 | 2.0 | 0 | .3 |
| 4 | 0 | 4.8 | 1.8 | 1.9 | 1.4 | 3.0 | 2.1 | 3.4 | .6 | 1.5 | 0 | .3 |
| 5 | .1 | 4.5 | 1.7 | 2.3 | 1.5 | 2.8 | 1.9 | 3.1 | .4 | 1.4 | 0 | .2 |
| 6 | .1 | 3.9 | 2.0 | 2.1 | 1.4 | 2.8 | 1.7 | 3.0 | .4 | 1.5 | 0 | .3 |
| 7 | .1 | *3.6 | 1.8 | 1.9 | 1.3 | 2.6 | 1.8 | 2.6 | .4 | 1.4 | 0 | .3 |
| 8 | 76 | 3.2 | 1.7 | 1.8 | 1.2 | 2.6 | 1.8 | 2.4 | .4 | .8 | 0 | .3 |
| 9 | 221 | 3.0 | 1.6 | 1.8 | 1.3 | 2.4 | 1.8 | *2.4 | .2 | .7 | 0 | .2 |
| 10 | *9.5 | 3.0 | 1.7 | 1.9 | 1.5 | 2.3 | 1.8 | 2.4 | .1 | .6 | 48 | .2 |
| 11 | *2.3 | 3.0 | 1.7 | 1.8 | 1.6 | 2.4 | 1.8 | 2.4 | .1 | .5 | *23 | 83 |
| 12 | 1.9 | 3.0 | 1.6 | 1.7 | 1.6 | 2.4 | 1.6 | 2.4 | 0 | .5 | .4 | 58 |
| 13 | 35,600 | 2.8 | 1.7 | 1.7 | 1.5 | 2.3 | 24 | *27 | 0 | .4 | .2 | 2.4 |
| 14 | *9,000 | 2.8 | 1.9 | 1.6 | 1.5 | 2.3 | 4.9 | *7.1 | 0 | .4 | 0 | 1.2 |
| 15 | 144 | 2.4 | 2.0 | 1.5 | 1.4 | 2.3 | 3.0 | 4.5 | 0 | .3 | *0 | 1.1 |
| 16 | *64 | 2.5 | 2.0 | 1.3 | 1.4 | 2.3 | 2.4 | *3.7 | .1 | .2 | 0 | 8.9 |
| 17 | *39 | 2.5 | 2.0 | 1.3 | 1.4 | 2.4 | 2.2 | 3.6 | 0 | .2 | 0 | 6.6 |
| 18 | 27 | 2.1 | 2.0 | 1.4 | 1.4 | 2.5 | 2.1 | 13 | 0 | .2 | 0 | 1.7 |
| 19 | *20 | 1.7 | 1.8 | 1.5 | 1.5 | 2.5 | 2.4 | 18 | 0 | .1 | 0 | .9 |
| 20 | 16 | 1.7 | 1.5 | 1.8 | 1.5 | 2.4 | 23 | 10 | 0 | .1 | 0 | .5 |
| 21 | *14 | 2.0 | 1.5 | 1.8 | 2.4 | 2.3 | 228 | 6.0 | 0 | .1 | 20 | .4 |
| 22 | 17 | 1.9 | 1.4 | 1.6 | 6.4 | 2.4 | 65 | 3.7 | .1 | 0 | 60 | .3 |
| 23 | 28 | 2.0 | 1.6 | 2.2 | 6.2 | 2.6 | 38 | 3.0 | .1 | 0 | 58 | .2 |
| 24 | 18 | 1.9 | 1.7 | 2.1 | 4.5 | 2.4 | 18 | 2.4 | *585 | 0 | 110 | .2 |
| 25 | 14 | 1.9 | 1.9 | 1.9 | 3.9 | 2.8 | 12 | 2.0 | *204 | 0 | *83 | *.2 |
| 26 | 11 | 2.0 | 1.8 | 1.5 | 3.4 | 2.8 | 8.3 | 1.7 | *53 | 0 | *26 | .3 |
| 27 | 7.9 | 2.0 | 1.8 | 1.5 | 3.0 | 2.8 | 7.1 | 1.4 | *19 | 0 | 9.3 | .2 |
| 28 | 6.2 | 2.0 | 1.7 | 1.4 | *2.6 | 2.6 | 6.0 | 1.2 | 7.9 | *0 | 3.2 | .2 |
| 29 | 6.0 | 2.0 | 1.7 | 1.3 | - | 2.6 | 5.1 | *1.1 | 4.5 | 0 | *1.9 | .3 |
| 30 | 5.1 | 2.0 | *1.8 | 1.3 | ------- | 2.4 | *4.8 | 1.0 | *3.6 | 0 | 1.0 | **.2 |
| 31 | 5.1 | ------- | 1.8 | *1.3 | ------- | *2.2 | ------- | .9 | ------- | 0 | .6 | ------- |
| Total | 45,353.5 | 84.4 | 55.1 | 52.3 | 60.7 | 79.3 | 479.5 | 148.4 | 881.8 | 18.2 | 444.6 | 169.7 |
| Mean | 1,463 | 2.81 | 1.78 | 1.69 | 2.17 | 2.56 | 16.0 | 4.79 | 29.4 | 0.59 | 14.3 | 5.66 |
| Ac-ft | 89,960 | 167 | 109 | 104 | 120 | 157 | 951 | 294 | 1,750 | 36 | 882 | 337 |

Calendar year 1957: Max 35,600 Min 0 Mean 217 Ac-ft 151,200
Water year 1957-58: Max 35,600 Min 0 Mean 131 Ac-ft 94,870

Peak discharge (base, 1,500 cfs).--Oct. 13 (9:30 a.m.) 79,200 cfs (25.85 ft); June 24 (4:30 a.m.) 1,960 cfs (9.28 ft).

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

## 1345. San Angelo Reservoir at San Angelo, Tex.

Location.--Lat 31°29'04", long 100°28'53", at San Angelo Reservoir dam on North Concho River, 3.1 miles northwest of San Angelo, Tom Green County, 6.2 miles downstream from Dry Creek, and 10.1 miles downstream from Grape Creek.

Drainage area.--1,790 sq mi, of which 123 sq mi is probably noncontributing.

Records available.--February 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to May 12, 1953, staff gage at same site and datum.

Extremes.--Maximum contents during year, 174,100 acre-ft Oct. 14 (elevation, 1,916.47 ft); minimum, 84,900 acre-ft Oct. 8 (elevation, 1,900.70 ft).
1952-58: Maximum contents, that of Oct. 14, 1957; minimum contents since first appreciable storage, 30,550 acre-ft Apr. 28, 29, 1956 (elevation, 1,882.40 ft).

Remarks.--Reservoir is formed by a rolled earth-fill dam 40,885 ft long including spillway. Main dam was completed May 3, 1951. Deliberate impoundment of water began Feb. 1, 1952. Reservoir is operated for flood control and part of municipal water supply for city of San Angelo.
Outlet works consist of 6 gate-controlled outlets opening into two 18-foot diameter concrete conduits, and two 30-inch gate-controlled outlets for water supply outlet. The emergency spillway to the right of the dam is an uncontrolled off-channel concrete gravity dam with ogee weir section 1,150 ft long designed to discharge 356,000 cfs at maximum design level. Data regarding dam and reservoir are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Crest of dam | 1,964.0 | 813,400 |
| Maximum design water surface | 1,958.0 | 696,300 |
| Crest of spillway | 1,938.5 | 396,400 |
| Top of conservation storage | 1,908.0 | 119,200 |
| Intake inverts to wet well for 30-inch outlets | 1,878.5 | 22,970 |
| Invert of 6 gate-controlled outlets | 1,840.0 | - |

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

Capacity table, water year 1957-58 (elevation, in feet, and total contents, in acre-feet)

| | | | |
|---|---|---|---|
| 1,900 | 82,160 | 1,912 | 142,800 |
| 1,903 | 94,560 | 1,915 | 163,300 |
| 1,906 | 108,700 | 1,917 | 178,200 |
| 1,909 | 124,700 | | |

Contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 85,870 | 117,900 | 113,200 | 109,000 | 107,300 | 108,600 | 107,500 | 106,800 | 105,400 | 102,800 | 97,570 | 94,250 |
| 2 | 85,740 | 117,600 | 113,000 | 108,900 | 107,200 | 108,700 | 107,500 | 106,600 | 105,300 | 102,600 | 97,430 | 94,070 |
| 3 | 85,580 | 117,700 | 112,800 | 108,700 | 107,200 | 108,600 | 107,300 | 106,700 | 105,200 | 102,500 | 97,250 | 93,890 |
| 4 | 85,420 | 117,700 | 112,600 | 108,700 | 107,100 | 108,500 | 107,300 | 106,700 | 104,800 | 102,300 | 97,160 | 93,720 |
| 5 | 85,260 | 117,600 | 112,500 | 108,700 | 107,000 | 108,400 | 107,100 | 106,600 | 104,600 | 102,200 | 97,020 | 93,460 |
| 6 | 85,140 | 117,500 | 112,400 | 108,700 | 107,000 | 108,300 | 107,000 | 106,600 | 104,500 | 102,100 | 96,750 | 93,680 |
| 7 | 85,020 | 117,200 | 112,100 | 108,600 | 107,000 | 108,200 | 106,900 | 106,400 | 104,300 | 102,000 | 96,570 | 93,630 |
| 8 | 84,980 | 117,000 | 111,900 | 108,500 | 106,900 | 108,100 | 106,900 | 106,300 | 104,100 | 101,900 | 96,300 | 93,500 |
| 9 | 85,620 | 116,800 | 111,800 | 108,500 | 106,900 | 108,000 | 106,800 | 106,100 | 103,900 | 101,800 | 96,120 | 93,460 |
| 10 | 85,580 | 116,700 | 111,500 | 108,400 | 106,900 | 108,000 | 106,600 | 106,100 | 103,700 | 101,600 | 96,120 | 93,370 |
| 11 | 85,460 | 116,500 | 111,300 | 108,300 | 106,900 | 107,900 | 106,600 | 106,100 | 103,500 | 101,400 | 96,120 | 93,240 |
| 12 | 85,260 | 116,400 | 111,100 | 108,200 | 106,900 | 107,800 | 106,500 | 106,000 | 103,300 | 101,300 | 96,030 | 93,410 |
| 13 | 151,700 | 116,300 | 110,900 | 108,200 | 106,800 | 107,700 | 106,800 | 106,600 | 103,100 | 101,100 | 95,850 | 93,320 |
| 14 | 173,700 | 116,200 | 110,800 | 108,100 | 106,800 | 107,700 | 106,700 | 106,600 | 103,000 | 100,900 | 95,720 | 93,680 |
| 15 | 172,900 | 115,900 | 110,800 | 108,000 | 106,700 | 107,700 | 106,700 | 106,600 | 102,900 | 100,700 | 95,540 | 94,110 |
| 16 | 172,300 | 115,800 | 110,600 | 107,900 | 106,600 | 107,600 | 106,600 | 106,600 | 103,000 | 100,700 | 95,310 | 94,380 |
| 17 | 167,600 | 115,600 | 110,500 | 107,900 | 106,600 | 107,600 | 106,700 | 106,800 | 102,900 | 100,400 | 95,220 | 94,290 |
| 18 | 165,400 | 115,400 | 110,400 | 107,700 | 106,600 | 107,600 | 106,600 | 106,700 | 102,700 | 100,300 | 95,040 | 94,200 |
| 19 | 161,900 | 115,200 | 110,200 | 107,800 | 106,600 | 107,600 | 106,600 | 106,600 | 102,600 | 100,100 | 94,910 | 94,200 |
| 20 | 154,000 | 115,000 | 110,100 | 107,700 | 106,600 | 107,600 | 106,800 | 106,600 | 102,600 | 100,000 | 94,780 | 94,120 |
| 21 | 144,400 | 114,600 | 110,000 | 107,600 | 107,200 | 107,700 | 107,200 | 106,500 | 102,600 | 99,880 | 94,640 | 94,030 |
| 22 | 133,300 | 114,500 | 109,900 | 107,600 | 107,700 | 107,700 | 107,200 | 106,500 | 102,500 | 99,460 | 94,640 | 93,980 |
| 23 | 121,300 | 114,400 | 109,800 | 107,900 | 107,800 | 107,600 | 107,200 | 106,400 | 102,400 | 99,090 | 94,640 | 93,940 |
| 24 | 119,500 | 114,400 | 109,800 | 107,900 | 107,800 | 107,600 | 107,200 | 106,300 | 103,200 | 99,000 | 94,910 | 93,850 |
| 25 | 119,100 | 114,300 | 109,800 | 107,800 | 107,900 | 107,800 | 107,000 | 106,200 | 103,500 | 98,810 | 95,040 | 93,760 |
| 26 | 118,900 | 114,200 | 109,700 | 107,700 | 107,900 | 107,700 | 107,000 | 106,200 | 103,400 | 98,580 | 94,960 | 94,070 |
| 27 | 118,800 | 114,000 | 109,500 | 107,600 | 108,200 | 107,700 | 107,000 | 106,000 | 103,400 | 98,350 | 94,870 | 94,030 |
| 28 | 118,500 | 113,800 | 109,400 | 107,500 | 108,600 | 107,700 | 107,000 | 106,000 | 103,300 | 98,260 | 94,780 | 93,850 |
| 29 | 118,400 | 113,600 | 109,400 | 107,500 | - | 107,600 | 106,900 | 105,800 | 103,100 | 98,120 | 94,600 | 93,810 |
| 30 | 118,200 | 113,300 | 109,300 | 107,400 | ------- | 107,600 | 106,900 | 105,800 | 103,000 | 97,890 | 94,380 | 93,630 |
| 31 | 118,100 | ------- | 109,200 | 107,400 | ------- | 107,500 | ------- | 105,600 | ------- | 97,660 | 94,340 | ------- |
| (†) | 1,907.79 | 1,906.90 | 1,906.09 | 1,905.73 | 1,905.98 | 1,905.76 | 1,905.63 | 1,905.37 | 1,904.82 | 1,903.69 | 1,902.95 | 1,902.79 |
| (‡) | +32,110 | -4,800 | -4,100 | -1,800 | +1,200 | -1,100 | -600 | -1,300 | -2,600 | -5,340 | -3,320 | -710 |

Calendar year 1957..... ‡ +74,720
Water year 1957-58..... ‡ +7,640

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

## 1350. 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, 2.2 miles downstream from San Angelo Dam and 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 1958.

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.--24 years (1916-27, 1929-31, 1947-58), 43.5 cfs (31,490 acre-ft per year).

Extremes.--Maximum discharge during year, 7,750 cfs Oct. 22 (gage height, 8.05 ft); minimum daily, 2.0 cfs July 19, 20.
1915-31, 1947-58: 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 measurement).

Remarks.--Records good except those for period of indefinite stage-discharge relation and those computed from once-daily staff-gage readings, which are poor. Since 1952 flow largely regulated by San Angelo Reservoir (see preceding page).

Revisions (water years).--WSP 568: 1916, 1918-22. WSP 1512: 1916(M), 1917-18, 1919-21(M).

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-16)

| Oct. 1 to June 3 | | | | June 4 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| -0.50 | 3.4 | 2.2 | 180 | 1.1 | 1.8 | 1.8 | 25 |
| -.30 | 5.6 | 2.6 | 460 | 1.2 | 3.4 | 2.0 | 45 |
| 0.0 | 11 | 3.0 | 830 | 1.3 | 5.1 | 2.2 | 85 |
| .3 | 19 | 4.0 | 2,190 | 1.5 | 11 | 2.4 | 148 |
| .7 | 33 | 5.0 | 3,720 | | | | |
| 1.4 | 66 | 7.0 | 6,450 | | | | |
| 2.0 | 112 | | | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *13 | *60 | 62 | 29 | 4.6 | 4.6 | *4.2 | 3.9 | e3.6 | 2.4 | 11 | 2.1 |
| 2 | 13 | 58 | 62 | 29 | 4.9 | 4.4 | 4.2 | 3.8 | e3.6 | 2.8 | 11 | 4.6 |
| 3 | 13 | 60 | 62 | 29 | 5.1 | 4.4 | 4.2 | 3.8 | *e3.6 | *2.8 | 12 | 13 |
| 4 | 12 | 60 | 62 | 31 | 5.9 | 4.4 | 4.2 | 3.8 | *53 | 2.8 | 12 | 30 |
| 5 | 12 | 64 | 62 | 31 | 4.2 | 4.3 | 4.2 | 3.7 | *70 | 2.8 | 14 | 45 |
| 6 | 12 | 62 | 63 | 29 | 3.9 | 4.3 | 4.2 | 3.6 | *5.7 | 3.0 | 25 | 8.9 |
| 7 | 12 | 62 | 63 | 28 | 3.9 | 4.3 | 4.3 | 3.6 | *17 | 3.0 | *52 | 8.3 |
| 8 | 12 | 62 | 63 | 27 | 3.9 | 4.3 | 4.3 | *3.4 | 18 | *2.8 | 64 | 7.4 |
| 9 | 14 | 62 | 63 | 27 | 3.9 | 4.3 | 4.3 | 3.4 | 20 | 2.6 | 58 | 7.1 |
| 10 | 12 | 64 | *63 | 27 | 4.1 | 4.3 | 4.1 | 3.4 | 17 | 3.0 | 20 | 6.3 |
| 11 | 12 | 63 | 64 | 26 | 4.1 | 4.3 | 4.1 | 3.5 | 17 | 2.6 | *18 | 6.0 |
| 12 | 15 | 61 | 61 | 26 | 4.1 | 4.3 | 8.6 | 4.5 | *17 | 2.6 | 20 | 5.7 |
| 13 | 21 | 61 | 54 | *26 | 4.1 | 4.3 | 17 | 21 | *17 | 2.4 | 19 | 5.7 |
| 14 | 16 | 62 | 53 | 26 | 4.0 | 4.3 | 13 | 4.9 | 17 | 2.2 | 18 | 9.1 |
| 15 | 13 | 62 | 53 | 26 | 4.0 | 4.3 | 4.5 | 4.5 | 17 | 2.2 | 18 | 20 |
| 16 | 41 | 62 | 53 | 26 | 4.0 | 4.9 | 3.8 | 4.2 | 16 | 2.2 | 18 | 28 |
| 17 | *1,880 | 64 | 57 | 26 | 4.0 | 4.5 | 3.8 | 4.2 | 3.7 | 2.1 | 18 | 8.0 |
| 18 | *1,190 | 65 | 34 | 26 | 4.0 | 5.0 | 3.8 | 4.5 | 3.2 | 2.1 | 18 | 6.3 |
| 19 | 1,370 | 64 | *34 | 26 | 4.0 | 4.4 | 4.3 | 4.0 | 3.2 | 2.0 | 18 | 6.6 |
| 20 | *3,570 | 64 | 33 | 27 | 4.1 | 4.3 | 6.9 | 3.8 | 3.0 | 2.0 | 18 | 6.6 |
| 21 | *4,980 | 64 | 33 | 25 | 16 | 4.4 | 6.6 | 3.7 | 3.2 | 2.1 | 18 | 6.3 |
| 22 | *5,750 | *62 | 32 | *22 | 32 | 4.4 | 4.9 | 3.6 | 3.4 | *86 | 19 | 6.3 |
| 23 | *6,250 | 62 | 32 | 28 | 9.8 | 5.5 | 4.1 | 3.6 | *3.2 | 145 | 15 | 6.3 |
| 24 | *1,060 | 55 | 32 | 22 | 5.5 | 5.2 | 4.0 | 3.6 | 3.2 | 12 | 5.5 | 6.3 |
| 25 | 83 | 61 | 31 | 21 | 4.9 | 9.4 | 3.9 | 3.6 | 2.6 | 12 | 2.6 | *6.6 |
| 26 | 79 | 62 | 30 | 20 | 4.6 | 4.6 | 3.8 | 3.6 | 2.4 | 12 | 2.4 | 8.8 |
| 27 | 76 | 62 | 30 | 20 | *4.4 | 4.4 | 3.8 | 3.6 | 2.6 | 12 | *2.4 | 23 |
| 28 | 74 | 62 | 30 | 19 | 4.4 | 4.3 | 3.8 | 3.6 | 2.6 | 13 | 2.2 | 6.8 |
| 29 | *72 | 64 | 30 | 12 | - | 4.5 | 3.8 | e3.6 | 2.6 | *12 | 2.1 | 5.3 |
| 30 | 62 | 64 | 30 | 11 | ------- | 4.4 | 3.8 | e3.6 | 2.4 | 11 | 2.1 | 4.7 |
| 31 | 62 | ------- | 29 | *5.2 | ------- | 4.2 | ------- | e3.6 | ------- | 11 | 2.1 | ------- |
| Total | 26,801 | 1,860 | 1,460 | 753.2 | 166.4 | 143.5 | 154.5 | 135.2 | 353.8 | 378.5 | 535.4 | 315.1 |
| Mean | 865 | 62.0 | 47.1 | 24.3 | 5.94 | 4.63 | 5.15 | 4.36 | 11.8 | 12.2 | 17.3 | 10.5 |
| Ac-ft | 53,160 | 3,690 | 2,900 | 1,490 | 330 | 285 | 306 | 268 | 702 | 751 | 1,060 | 625 |

Calendar year 1957: Max 6,250 Min 2.0 Mean 90.8 Ac-ft 65,710
Water year 1957-58: Max 6,250 Min 2.0 Mean 90.6 Ac-ft 65,570

* Discharge measurement made on this day.
e Stage-discharge relation indefinite; discharge estimated.
Note.--Discharge for periods Oct. 1-16, Dec. 18 to May 28, computed from once-daily staff-gage readings.

## 1360. 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 275 sq mi is probably noncontributing.
Records available.--September 1915 to September 1958.
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.--43 years, 163 cfs (118,000 acre-ft per year).
Extremes.--Maximum discharge during year, 19,600 cfs Oct. 13 (gage height, 19.06 ft); minimum daily, 0.3 cfs Aug. 7, 8.
1915-58: 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 measurements at gage heights 42.6 and 46.6 ft; no flow at times in 1921, 1952-53.
Maximum stage known since 1854, 47.5 ft Aug. 6, 1906 (discharge, about 246,000 cfs), from information by local resident. Other large floods are known to have occurred in August 1882 and April 1900.
Remarks.--Records good except those for periods of no gage-height record, which are fair. Many diversions above station for irrigation and municipal supply. The city of San Angelo diverted 9,160 acre-ft for municipal use during the 1958 water year. About 3,300 acre-ft is returned as sewage to sewage disposal plant. Prior to July 1957, part of this amount was returned to the stream about 1,000 ft downstream from the gage, and part of it was used to irrigate about 100 acres of land on left bank opposite the gage. At times the low-flow record was affected by a small amount of seepage from the irrigated land. Beginning in July 1957, all of the sewage was returned to a new sewage disposal plant located about 6 miles downstream from the gage. All of the sewage effluent is now used to irrigate land and none is returned directly to the stream. At times, low and medium flows are regulated by Lake Nasworthy on South Concho River (see p. 237). Since 1952 flow of North Concho River is largely regulated by San Angelo Reservoir (see p. 201).
Revisions (water years).--WSP 568: 1915-16, 1919-22. WSP 588: Drainage area. WSP 1148: 1916-22(M), 1924(M), 1925-26, 1929(M), 1930-32, 1935-37. WSP 1512: 1917-18.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 13-15, 17, 18, 20-24, Dec. 1 to Feb. 23, Mar. 2, May 14, June 16-18, 23-25, Sept. 27, 28)

| | | | | | |
|---|---|---|---|---|---|
| 0.6 | 0 | 1.4 | 39 | 5.0 | 1,830 |
| .7 | .4 | 1.7 | 76 | 6.0 | 2,670 |
| .8 | 1.8 | 2.0 | 127 | 8.0 | 4,600 |
| .9 | 4.2 | 2.5 | 265 | 11.0 | 8,000 |
| 1.0 | 8.0 | 3.0 | 480 | 16.0 | 15,000 |
| 1.2 | 20 | 4.0 | 1,110 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *19 | 75 | 61 | 34 | 27 | 19 | 57 | 34 | 3.4 | 4.8 | 10.0 | 0.6 |
| 2 | 19 | 75 | 62 | 35 | 25 | 227 | 60 | 33 | *3.4 | 3.4 | 8.1 | *.6 |
| 3 | 19 | 85 | 65 | 36 | 25 | *51 | 51 | 29 | 3.2 | *3.4 | 3.7 | .6 |
| 4 | 19 | 76 | 63 | 40 | 26 | 26 | 49 | 25 | 1.1 | 2.7 | 3.4 | .6 |
| 5 | 19 | 84 | 63 | 44 | 26 | 21 | 40 | *24 | 36 | 2.4 | 3.2 | .6 |
| 6 | 20 | 78 | 66 | 48 | *101 | *20 | 34 | 23 | 1.0 | 2.7 | 2.0 | .8 |
| 7 | 20 | 75 | 65 | 69 | 32 | 20 | 31 | 21 | .4 | 4.4 | .3 | 1.0 |
| 8 | 21 | 73 | 63 | 65 | 20 | 17 | *25 | 21 | 1.1 | 4.2 | .3 | 1.1 |
| 9 | 25 | 72 | 63 | 49 | 21 | 20 | 24 | 20 | 4.2 | 3.4 | 11 | 1.0 |
| 10 | 24 | 72 | 63 | 42 | 21 | 37 | 23 | 20 | 1.7 | 3.2 | 24 | 1.0 |
| 11 | 23 | 78 | 62 | 40 | 20 | 43 | 22 | 19 | .4 | 3.0 | 14 | 2.2 |
| 12 | 21 | 72 | 62 | 39 | 19 | 49 | 20 | 18 | **.4 | 3.0 | 5.9 | 7.6 |
| 13 | 8,040 | 60 | *57 | 38 | 18 | 46 | 24 | 139 | .4 | 2.7 | 9.1 | 6.6 |
| 14 | 10,500 | 60 | 54 | 37 | 18 | 44 | 29 | 609 | .4 | 2.7 | 6.5 | 19 |
| 15 | 195 | 66 | 52 | 36 | 17 | 43 | 27 | 126 | .4 | 3.0 | 5.2 | 63 |
| 16 | 58 | 65 | 52 | 37 | 15 | 47 | 23 | 71 | 4,410 | 3.0 | .6 | 135 |
| 17 | 1,840 | 66 | 56 | 35 | 14 | 48 | 21 | 33 | *4,790 | 2.7 | .6 | a59 |
| 18 | *1,140 | 78 | 47 | 34 | 12 | 50 | 21 | 39 | 321 | 2.7 | 1.6 | a295 |
| 19 | a1,370 | 69 | 37 | 38 | 12 | 49 | 27 | 29 | 16 | 3.0 | 2.4 | a34 |
| 20 | *3,790 | 66 | 34 | 46 | 12 | 48 | 39 | 5.1 | 8.5 | 3.0 | 1.7 | 59 |
| 21 | 5,160 | 65 | 33 | 43 | 15 | 52 | 52 | 17 | 4.8 | 3.0 | 1.6 | 37 |
| 22 | 6,050 | 68 | 34 | 39 | 246 | 54 | 56 | 23 | 4.5 | 45 | 1.0 | 44 |
| 23 | *6,910 | 69 | 34 | 61 | 1,050 | 55 | 55 | 21 | *852 | 163 | 3.6 | 38 |
| 24 | 1,160 | 90 | 34 | 63 | 58 | 51 | 49 | 17 | *4,280 | 15 | 15 | 34 |
| 25 | 96 | 79 | 34 | 68 | 34 | 62 | 47 | 15 | 502 | 10 | 5.8 | *37 |
| 26 | 86 | 68 | 33 | 65 | 32 | 57 | 47 | 15 | 28 | 10 | 3.0 | 35 |
| 27 | 84 | 66 | 33 | 49 | 40 | 56 | 46 | 12 | 7.1 | 10 | *.8 | 2,670 |
| 28 | 85 | 65 | 33 | 42 | 22 | 56 | 41 | 14 | 20 | 10 | .8 | 923 |
| 29 | 82 | 65 | 32 | *38 | - | 56 | 36 | 12 | 82 | 11 | .4 | 23 |
| 30 | *73 | 61 | *33 | 35 | ------- | 55 | 34 | 9.0 | 18 | *11 | .6 | 15 |
| 31 | 68 | ------- | 34 | 31 | ------- | 56 | ------- | 4.8 | ------- | 9.5 | .6 | ------- |
| Total | 47,036 | 2,141 | 1,514 | 1,376 | 1,978 | 1,535 | 1,110 | 1,508.9 | 15,401.4 | 360.9 | 146.8 | 4,544.3 |
| Mean | 1,517 | 71.4 | 48.8 | 44.4 | 70.6 | 49.5 | 37.0 | 48.7 | 513 | 11.6 | 4.74 | 151 |
| Ac-ft | 93,290 | 4,250 | 3,000 | 2,730 | 3,920 | 3,040 | 2,200 | 2,990 | 30,550 | 716 | 291 | 9,010 |

Calendar year 1957: Max 39,500 Min 0.1 Mean 640 Ac-ft 463,700
Water year 1957-58: Max 10,500 Min 0.3 Mean 215 Ac-ft 156,000

* Discharge measurement made on this day.
** Field estimate made on this day.
a No gage-height record; discharge estimated on basis of records for nearby stations.

## 1365. 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 1958.

Gage.--Water-stage recorder with masonry dam as 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 present datum. May 19, 1938, to Jan. 14, 1940, wire-weight gage at present site and datum.

Average discharge.--43 years, 219 cfs (158,500 acre-ft per year).

Extremes.--Maximum discharge during year, 15,100 cfs Oct. 15 (gage height, 19.50 ft); minimum daily, 0.2 cfs Aug. 26, 27, but may have been less during period of estimated discharge.

1915-58: 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 measurement at gage heights 35.8 and 43.4 ft; no flow at times.

Flood in August 1882 reached a stage of about 39.9 ft and flood in August 1906 reached a stage of 39.5 ft, from information by local resident.

Remarks.--Records good except for periods when the stage was below the crest of control dam, which are poor. Many diversions above station for irrigation and municipal supply. Flow slightly regulated by Lake Nasworthy on South Concho River (see p. 237), and by San Angelo Reservoir on the North Concho River (see p. 201).

Revisions (water years).--WSP 458: 1915-16. WSP 568: 1919-20. WSP 588: Drainage area.

Rating table, water year 1957-58, except periods when stage below crest of control dam (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 11.7 | 0.2 | 12.3 | 65 | 14.0 | 1,470 |
| 11.8 | 2.0 | 12.5 | 144 | 15.0 | 2,950 |
| 11.9 | 6.0 | 12.7 | 237 | 16.0 | 5,000 |
| 12.0 | 12 | 13.0 | 420 | 18.0 | 10,300 |
| 12.1 | 22 | 13.5 | 860 | 20.0 | 16,600 |
| 12.2 | 37 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 90 | 79 | 45 | 45 | 57 | 59 | 43 | 16 | 59 | | |
| 2 | 21 | 86 | 76 | 48 | 43 | 40 | 65 | 40 | 14 | *27 | | |
| 3 | 20 | 202 | *76 | 48 | 37 | 183 | 65 | 37 | 13 | 20 | | |
| 4 | 17 | 135 | 76 | 51 | 37 | 115 | 76 | 35 | *11 | 14 | | |
| 5 | 16 | 144 | 79 | 59 | 37 | 65 | 59 | 30 | 9.5 | 10 | | |
| 6 | 17 | 104 | 82 | *59 | 33 | 45 | 54 | *28 | 7.8 | 10 | | |
| 7 | 17 | *96 | 82 | 65 | 35 | *40 | *45 | 28 | 7.3 | 9.5 | | |
| 8 | 14 | 86 | 79 | 72 | 90 | 35 | 40 | 27 | 17 | 8.3 | e0.3 | |
| 9 | *1,650 | 82 | 79 | 93 | 57 | 33 | 37 | 24 | 14 | 7.8 | | |
| 10 | *450 | 82 | 76 | 86 | 43 | 33 | 32 | 26 | 9.5 | 7.8 | | e0.2 |
| 11 | 105 | 86 | 76 | 72 | 37 | 32 | 30 | 26 | 7.3 | 7.8 | | |
| 12 | 48 | 90 | 79 | 65 | 37 | 45 | 30 | 24 | 5.8 | 7.3 | | |
| 13 | 2,440 | 90 | 76 | 59 | 35 | 57 | 60 | 41 | 4.8 | 6.3 | | |
| 14 | 12,000 | 82 | 62 | 57 | 35 | 59 | 48 | 388 | 3.8 | 5.3 | | |
| 15 | 5,480 | 68 | 68 | 54 | 33 | 59 | 37 | 250 | 3.5 | 3.8 | | |
| 16 | 306 | 72 | 68 | 54 | 32 | 57 | 33 | 176 | 475 | 3.5 | | |
| 17 | 152 | 79 | 68 | 51 | 32 | 57 | 33 | 315 | 7,490 | 2.9 | | |
| 18 | 1,940 | 76 | 68 | 48 | 32 | 62 | 30 | 196 | 2,900 | 2.1 | | 6.1 |
| 19 | 1,070 | 76 | 68 | 51 | 32 | 65 | 27 | 79 | 241 | 1.0 | | 289 |
| 20 | 2,380 | 86 | 57 | 54 | 30 | 65 | 27 | 51 | 90 | .4 | | 112 |
| 21 | 4,940 | 82 | 51 | 54 | 33 | 65 | 27 | 43 | 54 | .3 | e.2 | 48 |
| 22 | 5,250 | 79 | 45 | 62 | 60 | 65 | 37 | 28 | 1,090 | 1.0 | | 54 |
| 23 | 7,730 | 79 | 48 | 72 | 540 | 76 | 57 | 22 | 140 | 1.8 | | 37 |
| 24 | 2,810 | 93 | 51 | 65 | 1,070 | 72 | 59 | 18 | 3,910 | .9 | | 35 |
| 25 | 760 | 96 | 54 | 76 | 153 | 76 | 54 | 24 | 911 | .3 | .3 | 32 |
| 26 | 182 | 109 | 51 | 79 | 90 | 72 | 51 | 22 | 502 | | .2 | 26 |
| 27 | 131 | 90 | 51 | 82 | 59 | 76 | 51 | 20 | 119 | | .2 | 841 |
| 28 | 113 | 82 | 48 | 79 | *48 | 72 | 48 | 22 | 50 | | | 2,390 |
| 29 | 109 | 82 | 48 | 68 | - | 68 | 48 | 34 | 30 | e.3 | **e.2 | 243 |
| 30 | 100 | 79 | 48 | *57 | ------- | 65 | 48 | 21 | 34 | | | 72 |
| 31 | 96 | ------- | 48 | 51 | ------- | 59 | ------- | 18 | ------- | (**) | | ------- |
| Total | 50,385 | 2,783 | 2,017 | 1,936 | 2,845 | 1,970 | 1,367 | 2,136 | 16,180.3 | 219.9 | 7.8 | 4,188.5 |
| Mean | 1,625 | 92.8 | 65.1 | 62.5 | 102 | 63.5 | 45.6 | 68.9 | 606 | 7.09 | 0.25 | 140 |
| Ac-ft | 99,940 | 5,520 | 4,000 | 3,840 | 5,640 | 3,910 | 2,710 | 4,240 | 36,060 | 436 | 15 | 8,310 |

Calendar year 1957: Max 32,200 Min 0.2 Mean 751 Ac-ft 543,900
Water year 1957-58: Max 12,000 Min 0.2 Mean 241 Ac-ft 174,600

Peak discharge (base, 4,600 cfs).--Oct. 15 (1 a.m.) 15,100 cfs (19.50 ft); Oct. 18 (2 a.m.) 5,220 cfs (16.12 ft); Oct. 23 (8 a.m.) 8,000 cfs (17.24 ft); June 17 (1:30 a.m.) 13,100 cfs (18.93 ft); June 22 (2 a.m.) 5,900 cfs (16.42 ft); June 24 (1 p.m.) 13,100 cfs (18.86 ft); Sept. 27 (10:30 p.m.) 5,450 cfs (16.19 ft).

* Discharge measurement made on this day.
** Field estimate made on this day.
e Stage below crest of control dam; discharge is estimated seepage.

## 1375. Mukewater Creek at Trickham, Tex.

Location.--Lat 31°36', long 99°13', on left bank at Trickham, Coleman County, 750 ft upstream from county road bridge, 2.9 miles upstream from Hay Creek, 6.9 miles upstream from mouth, and 11.8 miles southwest of Santa Anna.

Drainage area.--70.4 sq mi.

Records available.--August 1951 to September 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,394.54 ft above mean sea level (State Highway Department bench mark).

Average discharge.--7 years, 11.5 cfs (8,330 acre-ft per year).

Extremes.--Maximum discharge during year, 670 cfs Aug. 24 (gage height, 4.57 ft); no flow most of time.

1951-58: Maximum discharge, 15,000 cfs May 1, 1956 (gage height, 15.83 ft), from rating curve extended above 3,200 cfs on basis of contracted-opening measurement of peak flow; no flow at times.

Maximum stage known since at least 1919, about 18 ft in 1927, from information by local resident.

Remarks.--Records good. Station maintained to establish rainfall-runoff relationships and to assist the Soil Conservation Service in evaluating the effect of flood detention structures to be constructed in the basin. No structures were built during the year. Nineteen rain gages (15 standard and 4 recording) are operating in the basin above this station. No diversion above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.68 | 0 | 2.2 | 25 |
| 1.7 | .1 | 2.4 | 50 |
| 1.8 | .9 | 2.7 | 107 |
| 1.9 | 2.9 | 3.0 | 186 |
| 2.0 | 6.8 | 3.2 | 242 |
| 2.1 | 14 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0.9 | 0 | 0.1 | 0.4 | 0.6 | 1.3 | 0 | | 0 | |
| 2 | 0 | 0 | .5 | 0 | .1 | .5 | .6 | 9.5 | 0 | | 0 | |
| 3 | 0 | 0 | .4 | 0 | 0 | .8 | .6 | 98 | 0 | | 0 | |
| 4 | 0 | 0 | .2 | 0 | 0 | .6 | .4 | 6.8 | 0 | | 0 | |
| 5 | 0 | 18 | .1 | 0 | *0 | .6 | .4 | 2.1 | 0 | | 0 | |
| 6 | 0 | 19 | .2 | *0 | 0 | 5.9 | .2 | .9 | 0 | | 0 | |
| 7 | 0 | 2.9 | .2 | 0 | 0 | 153 | **0 | *.4 | 0 | (*) | 0 | |
| 8 | 0 | 2.6 | .2 | 0 | 0 | 20 | 0 | .2 | 0 | | 0 | (*) |
| 9 | 0 | 1.5 | .1 | 0 | 0 | 6.3 | 0 | .1 | *0 | | 0 | |
| 10 | 0 | .6 | 0 | 0 | 0 | *2.3 | 0 | .1 | 0 | | 0 | |
| 11 | 0 | .4 | 0 | 0 | 0 | 1.3 | 0 | .1 | 0 | | 0 | |
| 12 | 0 | .4 | 0 | 0 | 0 | 2.1 | 0 | .1 | 0 | | *0 | |
| 13 | 31 | .3 | 0 | 0 | 0 | 2.3 | .1 | 59 | 0 | | 0 | |
| 14 | 88 | .4 | 0 | 0 | 0 | 1.7 | 4.4 | 22 | 0 | | 0 | |
| 15 | 85 | .4 | 0 | 0 | 0 | 1.1 | 2.6 | 4.6 | 0 | | 0 | |
| 16 | 16 | .2 | 0 | 0 | 0 | .9 | .9 | 3.2 | 0 | | 0 | |
| 17 | 2.6 | .2 | 0 | 0 | 0 | .8 | .5 | 1.7 | 0 | | 0 | |
| 18 | .9 | .1 | 0 | 0 | 0 | .6 | .3 | .9 | 0 | | 0 | |
| 19 | .4 | .1 | 0 | 0 | 0 | .8 | .4 | .4 | 0 | | 0 | |
| 20 | .2 | 0 | 0 | 0 | 0 | .6 | 35 | .3 | 0 | | 0 | |
| 21 | 0 | 0 | 0 | 0 | .1 | .5 | 19 | .1 | 6.9 | | 0 | |
| 22 | .8 | 0 | 0 | 0 | 49 | .4 | 3.2 | 0 | 110 | | 0 | |
| 23 | 3.2 | 0 | 0 | .6 | 239 | 12 | 1.3 | 0 | 4.2 | | 0 | |
| 24 | .4 | 2.0 | 0 | 4.2 | 19 | 3.8 | .6 | 0 | 1.0 | | 185 | |
| 25 | **.1 | 16 | 0 | 1.5 | 5.0 | 1.7 | .3 | 0 | .2 | | 7.3 | |
| 26 | 0 | *5.0 | 0 | 1.0 | 2.1 | .8 | .2 | 0 | 0 | | 1.1 | |
| 27 | 0 | 1.9 | 0 | .6 | 1.1 | .4 | .1 | 0 | 0 | | .2 | |
| 28 | 0 | 1.0 | 0 | .4 | .5 | .3 | .1 | 0 | 0 | | 0 | |
| 29 | 0 | .8 | 0 | .3 | - | .2 | 0 | 0 | 0 | (*) | 0 | |
| 30 | 0 | .9 | 0 | .2 | ------- | .4 | 1.9 | 0 | 0 | | 0 | |
| 31 | 0 | ------- | 0 | .2 | ------- | .6 | ---- | 0 | ------- | | 0 | ------- |
| Total | 228.6 | 74.7 | 2.8 | 9.0 | 316.0 | 223.7 | 73.7 | 211.8 | 122.3 | 0 | 193.6 | 0 |
| Mean | 7.37 | 2.49 | 0.09 | 0.29 | 11.3 | 7.22 | 2.46 | 6.83 | 4.08 | 0 | 6.25 | 0 |
| Ac-ft | 453 | 148 | 5.6 | 18 | 627 | 444 | 146 | 420 | 243 | 0 | 384 | 0 |

Calendar year 1957: Max 1,730 Min 0 Mean 26.8 Ac-ft 19,380
Water year 1957-58: Max 239 Min 0 Mean 3.99 Ac-ft 2,890

Peak discharge (base, 600 cfs).--Aug. 24 (9:30 a.m.) 670 cfs (4.57 ft).

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

## 1380. 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, 0.3 mile south of Winchell, Brown County, 6.2 miles downstream 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 1958.

Gage.--Water-stage recorder. Datum of gage is 1,264.86 ft above mean sea level, datum of 1929. November 1923 to September 1934, combination staff and chain gage 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.--29 years (1924-34, 1939-58), 722 cfs (522,700 acre-ft per year).

Extremes.--Maximum discharge during year, 57,600 cfs Oct. 15 (gage height, 44.56 ft); no flow Aug. 8-10, 15-23.

1923-34, 1939-58: Maximum discharge, 76,100 cfs Oct. 15, 1930 (gage height, 51.8 ft, present site and datum); no flow at times.

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

Remarks.--Records good. Diversions above station for irrigation, municipal supply, and oilfield operation. Some regulation by the following: Since July 1952 by Lake J. B. Thomas (see p. 237), since April 1949 by Lake Colorado City (see p. 237), since May 1953 by Oak Creek Reservoir (see p. 237), by Lake Nasworthy (see p. 237), and since February 1952 by San Angelo Reservoir (see p. 201).

Revisions.--WSP 1118: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 110 | 319 | 228 | 117 | 147 | 285 | 143 | 245 | 99 | 216 | 3.6 | 90 |
| 2 | 92 | 748 | 220 | 114 | 134 | 268 | 136 | 216 | 102 | 162 | 1.8 | 68 |
| 3 | 79 | 562 | 207 | 112 | 125 | 237 | 125 | 1,040 | 76 | 126 | 1.1 | 52 |
| 4 | 69 | 339 | 196 | 112 | 117 | 241 | 117 | 304 | 61 | 125 | 1.1 | 40 |
| 5 | 61 | 1,150 | 190 | 136 | *112 | 297 | 109 | 182 | 56 | 95 | .7 | 34 |
| 6 | 56 | 905 | 201 | *149 | 104 | 734 | 104 | 140 | 81 | 75 | .4 | 32 |
| 7 | 51 | 542 | 209 | 138 | 97 | 1,900 | *102 | *136 | 71 | *66 | .2 | 38 |
| 8 | 45 | 430 | 198 | 136 | 92 | 568 | 104 | 121 | 60 | 53 | 0 | *29 |
| 9 | 41 | 860 | 188 | 138 | 90 | 380 | 102 | 98 | 53 | 48 | 0 | 61 |
| 10 | 1,650 | 625 | 184 | 136 | 89 | *282 | 90 | 89 | 46 | 42 | 0 | 26 |
| 11 | 1,460 | 524 | 178 | 140 | 110 | 234 | 79 | 84 | *41 | 39 | 6.4 | 26 |
| 12 | 782 | *450 | 170 | 172 | 117 | 241 | 75 | 84 | 167 | 36 | *7.7 | 27 |
| 13 | 3,190 | 394 | 166 | 160 | 102 | 228 | 79 | 281 | 356 | 32 | 2.2 | 20 |
| 14 | 16,300 | 351 | 166 | 143 | 92 | 205 | 90 | 584 | 198 | 26 | .7 | 15 |
| 15 | *48,900 | 339 | 166 | 132 | 90 | 194 | 84 | 348 | 127 | 23 | 0 | 12 |
| 16 | *30,900 | 430 | 162 | 126 | 87 | 192 | 314 | 2,490 | 95 | 20 | 0 | 48 |
| 17 | *2,120 | 351 | 151 | 121 | 84 | 186 | 252 | 2,550 | 742 | 16 | 0 | 946 |
| 18 | 1,360 | 308 | 149 | 119 | 81 | 190 | 190 | 4,240 | 6,580 | 14 | 0 | 410 |
| 19 | 2,340 | 285 | 147 | 116 | 70 | 190 | 151 | 2,330 | 2,620 | 10 | 0 | 388 |
| 20 | 1,620 | 261 | 245 | 119 | 78 | 180 | 149 | 1,360 | 667 | 8.4 | 0 | 286 |
| 21 | 3,070 | 237 | 143 | 123 | 112 | 178 | 323 | 984 | 357 | 7.0 | 0 | 514 |
| 22 | 5,590 | 237 | 141 | 121 | 501 | 172 | 1,050 | 707 | 1,310 | 23 | 0 | 300 |
| 23 | 5,960 | 234 | 140 | 361 | 2,260 | 178 | 600 | 458 | 1,150 | 108 | 0 | 194 |
| 24 | *7,880 | 319 | 130 | 528 | 1,060 | 217 | 454 | 317 | 440 | 59 | 384 | 140 |
| 25 | 2,930 | 573 | 136 | 303 | 1,850 | 248 | 479 | 239 | 3,160 | 38 | 248 | 116 |
| 26 | 1,570 | 582 | 138 | 241 | 721 | 205 | 390 | 188 | 1,320 | 28 | 118 | 93 |
| 27 | 796 | 377 | 136 | 198 | 419 | 184 | 314 | 151 | 580 | 16 | 365 | 76 |
| 28 | 539 | 322 | 136 | 198 | 311 | 172 | 254 | 126 | 840 | 11 | 228 | 1,460 |
| 29 | 434 | 280 | 134 | 194 | - | 162 | 215 | 114 | 495 | 9.1 | 140 | 3,120 |
| 30 | 387 | 248 | 128 | 186 | ------- | 157 | 237 | 97 | 306 | 8.4 | 134 | 972 |
| 31 | 345 | ------- | 125 | 168 | ------- | 149 | ----- | 87 | ------- | 6.0 | 121 | ------- |
| Total | 140,727 | 13,582 | 5,108 | 5,257 | 9,261 | 9,254 | 6,911 | 20,400 | 22,265 | 1,545.9 | 1,763.9 | 9,633 |
| Mean | 4,540 | 453 | 165 | 170 | 331 | 299 | 230 | 658 | 742 | 49.9 | 56.9 | 321 |
| Ac-ft | 279,100 | 26,940 | 10,130 | 10,430 | 18,370 | 18,360 | 13,710 | 40,460 | 44,160 | 3,070 | 3,500 | 19,110 |

Calendar year 1957: Max 58,300 Min 1.3 Mean 2,400 Ac-ft 1,737,000
Water year 1957-58: Max 48,900 Min 0 Mean 673 Ac-ft 487,300

Peak discharge (base, 9,300 cfs).--Oct. 15 (10 to 11 p.m.) 57,600 cfs (44.56 ft).

* Discharge measurement made on this day.

1395. Deep Creek near Mercury, Tex.

Location.--Lat 31°24'10", long 99°07'15", near left bank on downstream side of bridge on State Farm-to-Market Road 502, 1.5 miles upstream from Dry Prong Deep Creek, 2.3 miles southeast of Mercury, McCulloch County, and 2.5 miles southwest of Milburn.

Drainage area.--43.9 sq mi, of which 19.9 sq mi is above flood-detention structure.

Records available.--October 1953 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,325.64 ft above mean sea level, datum of 1929. Prior to Nov. 25. 1953, reference point at same site and datum.

Average discharge.--5 years, 11.2 cfs (8,110 acre-ft per year).

Extremes.--Maximum discharge during year, 1,770 cfs Nov. 2 (gage height, 13.07 ft); no flow most of time.
1953-58: Maximum discharge, 5,500 cfs Oct. 4, 1953 (gage height, 18.27 ft, from floodmarks); no flow most of time.
Maximum stage since at least 1890, about 21.3 ft July 23, 1938 (discharge, 33,600 cfs), by slope-area measurement of peak flow. Flood in 1906 reached a stage of about 21.0 ft, from information by local resident.

Remarks.--Records fair. The flow from 19.9 sq mi above this station is partly controlled by five floodwater-detention reservoirs with a total combined capacity of 5,810 acre-ft below the flood spillway crests, of which 5,200 acre-ft is floodwater-detention capacity and 610 acre-ft is sediment-storage capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. Station operated as part of the Deep Creek basin hydrologic cooperative program of the Geological Survey and Soil Conservation Service to evaluate rainfall-runoff relation, soil conservation practices, and the effects of flood-detention structures.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0.2 | 0 | 0 | 0.5 | | 0 | 0 | | 0 | |
| 2 | 0 | 256 | 0 | 0 | 0 | .5 | | *4.2 | 0 | | 0 | |
| 3 | 0 | 74 | 0 | 0 | 0 | .5 | | 66 | 0 | | 0 | |
| 4 | 0 | 28 | 0 | 0 | 0 | .3 | | 18 | 0 | | 0 | |
| 5 | 0 | 30 | 0 | 0 | 0 | .3 | | 4.4 | 0 | | 0 | |
| 6 | 0 | 55 | 0 | *0 | *0 | 229 | | 1.5 | 0 | | 0 | |
| 7 | 0 | 4.8 | 0 | 0 | 0 | 194 | (*) | .4 | 0 | (*) | 0 | |
| 8 | 0 | 2.6 | 0 | 0 | 0 | 58 | | **.2 | 0 | | 0 | (*) |
| 9 | 0 | 1.0 | 0 | 0 | 0 | 24 | | 0 | *0 | | 0 | |
| 10 | 0 | .5 | 0 | 0 | 0 | *9.4 | | 0 | 0 | | 0 | |
| 11 | 0 | .4 | 0 | 0 | 0 | 4.4 | | 0 | 0 | | 0 | |
| 12 | 0 | .2 | 0 | 10 | 0 | 2.9 | | 0 | 0 | | *0 | |
| 13 | 281 | .7 | 0 | 7.9 | 0 | 1.8 | | .3 | 0 | | 0 | |
| 14 | 208 | .5 | 0 | 2.0 | 0 | 1.0 | | 0 | 0 | | 0 | |
| 15 | 248 | .1 | 0 | 1.0 | 0 | .7 | | 0 | 0 | | 0 | |
| 16 | *74 | 0 | 0 | .5 | 0 | .4 | | 190 | 0 | | 0 | |
| 17 | 63 | 0 | 0 | .2 | 0 | .4 | | 88 | 0 | | 0 | |
| 18 | 48 | 0 | 0 | .2 | 0 | .5 | | 69 | 0 | | 0 | |
| 19 | 14 | 0 | 0 | 0 | 0 | .4 | | *50 | 0 | | 0 | |
| 20 | 4.4 | 0 | 0 | 0 | 0 | .3 | | 14 | 0 | | 0 | |
| 21 | 1.5 | 0 | 0 | 0 | 0 | .1 | | 4.0 | 1.0 | | 0 | |
| 22 | 5.0 | 0 | 0 | 0 | 114 | 0 | | 1.0 | 0 | | 0 | |
| 23 | .5 | 0 | 0 | 85 | 202 | 0 | | .3 | 0 | | 0 | |
| 24 | **.1 | 3.6 | 0 | 23 | 43 | 0 | | .1 | 0 | | 7.7 | |
| 25 | 0 | 21 | 0 | 7.0 | 18 | 0 | | 0 | 0 | | 0 | |
| 26 | 0 | *7.2 | 0 | 3.3 | 8.5 | 0 | | 0 | 0 | | 0 | |
| 27 | 0 | 4.0 | 0 | 2.3 | 3.4 | 0 | | 0 | 0 | | 0 | |
| 28 | 0 | 2.3 | 0 | 1.8 | 1.0 | 0 | | 0 | 0 | | 0 | |
| 29 | 0 | 1.0 | 0 | 1.3 | - | 0 | | 0 | 0 | | 0 | |
| 30 | 0 | .5 | 0 | .5 | ------- | 0 | | 0 | 0 | | 0 | |
| 31 | 0 | ------- | 0 | 0 | ------- | 0 | ------- | 0 | ------- | | 0 | ------- |
| Total | 947.5 | 493.4 | 0.2 | 146.0 | 389.9 | 529.4 | 0 | 511.4 | 1.0 | 0 | 7.7 | 0 |
| Mean | 30.6 | 16.4 | 0.007 | 4.71 | 13.9 | 17.1 | 0 | 16.5 | 0.03 | 0 | 0.25 | 0 |
| Ac-ft | 1,880 | 979 | 0.4 | 290 | 773 | 1,050 | 0 | 1,010 | 2.0 | 0 | 15 | 0 |

Calendar year 1957: Max 951 Min 0 Mean 19.3 Ac-ft 14,000
Water year 1957-58: Max 281 Min 0 Mean 8.29 Ac-ft 6,000

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

## 1405. Dry Prong Deep Creek near Mercury, Tex.

Location.--Lat 31°24'10", long 99°08'10", near center of span on downstream side of bridge on Farm-to-Market Road 502, 1.3 miles southeast of Mercury, McCulloch County, 1.7 miles downstream from flood-detention reservoir, and 1.8 miles upstream from mouth.

Drainage area.--8.31 sq mi, of which 4.32 sq mi is above Dry Prong Deep Creek Reservoir.

Records available.--June 1951 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,339.02 ft above mean sea level, datum of 1929.

Average discharge.--7 years (1951-58), 1.43 cfs (1,040 acre-ft per year).

Extremes.--Maximum discharge during year, 253 cfs Nov. 2 (gage height, 4.85 ft); no flow most of time.
1951-58: Maximum discharge, 2,000 cfs May 17, 1955 (gage height, 9.00 ft), from rating curve extended above 1,000 cfs by logarithmic plotting; no flow most of time.
Maximum stage known since at least 1924, that of May 17, 1955. Flood of July 23, 1938, reached a stage of 8.7 ft, from information by local resident.

Remarks.--Records fair. The flow from 4.32 sq mi above this station is partly controlled by one floodwater-detention reservoir with a total capacity of 1,410 acre-ft below the flood spillway crest, of which 1,195 acre-ft is floodwater-detention capacity and 215 acre-ft is sediment storage capacity. The capacity allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. Water can be diverted from reservoir to irrigate 104 acres. Station operated as part of the Deep Creek basin hydrologic cooperative program of the Geological Survey and Soil Conservation Service to evaluate rainfall-runoff relation, soil conservation practices, and the effects of flood-detention structures.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | | 0 | 0 | 0 | | 0 | | 0 | 0 | |
| 2 | 0 | 31 | | 0 | 0 | .3 | | *0 | | 0 | 0 | |
| 3 | 0 | 40 | | 0 | 0 | .3 | | .5 | | 0 | 0 | |
| 4 | 0 | 25 | | 0 | 0 | .3 | | 0 | | 0 | 0 | |
| 5 | 0 | 13 | | 0 | 0 | .3 | | 0 | | 0 | 0 | |
| 6 | 0 | 9.9 | | *0 | *0 | 17 | | 0 | | 0 | 0 | |
| 7 | 0 | 4.4 | | 0 | 0 | 35 | (*) | 0 | | *0 | 0 | |
| 8 | 0 | 2.4 | | 0 | 0 | 12 | | *0 | | 0 | 0 | (*) |
| 9 | 0 | 1.2 | | 0 | 0 | 3.8 | | 0 | (*) | 0 | 0 | |
| 10 | 0 | 1.0 | | 0 | 0 | *1.7 | | 0 | | 0 | 0 | |
| 11 | 0 | 1.2 | | 0 | 0 | .5 | | 0 | | 0 | 0 | |
| 12 | 0 | 1.9 | | 0 | 0 | .4 | | 0 | | 0 | *0 | |
| 13 | 4.1 | 3.4 | | 0 | 0 | .3 | | 0 | | 0 | 0 | |
| 14 | 12 | 3.8 | | 0 | 0 | .2 | | 0 | | 0 | 0 | |
| 15 | 8.9 | .2 | | .1 | 0 | .2 | | 0 | | 0 | .1 | |
| 16 | *0 | 0 | | 0 | 0 | .1 | | 14 | | 0 | 0 | |
| 17 | 0 | 0 | | 0 | 0 | .1 | | 8.1 | | 0 | 0 | |
| 18 | 0 | 0 | | 0 | 0 | .1 | | 2.1 | | 0 | 0 | |
| 19 | 0 | 0 | | 0 | 0 | .1 | | *3.3 | | 0 | 0 | |
| 20 | 0 | 0 | | 0 | 0 | .1 | | 1.9 | | .8 | 0 | |
| 21 | 0 | 0 | | 0 | 0 | .1 | | .6 | | 0 | 0 | |
| 22 | 1.3 | 0 | | 0 | 13 | .1 | | .4 | | 0 | 0 | |
| 23 | 2.4 | 0 | | 13 | 33 | .1 | | .1 | | 0 | 0 | |
| 24 | *0 | 1.0 | | 14 | 11 | 0 | | 0 | | 0 | 1.8 | |
| 25 | 0 | 5.4 | | 5.6 | 3.8 | 0 | | 0 | | 0 | 0 | |
| 26 | 0 | *5.9 | | 3.4 | .9 | 0 | | 0 | | 0 | 0 | |
| 27 | 0 | 3.6 | | 3.4 | .3 | 0 | | 0 | | 0 | 0 | |
| 28 | 0 | 2.4 | | 3.2 | -.1 | 0 | | 0 | | 0 | 0 | |
| 29 | 0 | 0 | | 3.2 | - | 0 | | 0 | | 0 | 0 | |
| 30 | 0 | 0 | | 2.0 | ------- | 0 | | 0 | | 0 | 0 | |
| 31 | 0 | ------- | | 0 | ------- | 0 | ------- | 0 | ------- | 0 | 0 | ------- |
| Total | 28.7 | 156.7 | 0 | 47.9 | 62.1 | 73.1 | 0 | 31.0 | 0 | 0.8 | 1.9 | 0 |
| Mean | 0.93 | 5.22 | 0 | 1.55 | 2.22 | 2.36 | 0 | 1.00 | 0 | 0.03 | 0.06 | 0 |
| Ac-ft | 57 | 311 | 0 | 95 | 123 | 145 | 0 | 61 | 0 | 1.6 | 3.8 | 0 |

Calendar year 1957: Max 82 Min 0 Mean 2.74 Ac-ft 1,990
Water year 1957-58: Max 40 Min 0 Mean 1.10 Ac-ft 797

* Discharge measurement or observation of no inflow made on this day.

## 1410. 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 1958.
Gage.--Water-stage recorder and wire-weight gage. Datum of gage is at mean sea level, datum of 1929.
Extremes.--Maximum contents during year, 7,210 acre-ft Oct. 1, 14-16; maximum elevation, 1,897.01 ft Oct. 1, 14; minimum contents, 6,590 acre-ft Sept. 13, 14; minimum elevation, 1,895.52 ft Sept. 14.
1948-58: Maximum contents, 12,790 acre-ft May 1, 1956 (elevation, 1,906.86 ft); minimum since first appreciable storage, 1,220 acre-ft Oct. 9, 1948 (elevation, 1,873.38 ft).
Remarks.--Reservoir is formed by a rolled earth-fill dam 6,800 ft long, including spillway. Deliberate impoundment of water began Apr. 7, 1948, and dam was completed June 1948. Reservoir is operated for flood control and part of municipal water supply for city of Coleman (see table below for diversions).
Outlet works consist of 3 concrete conduits, 2 of which are controlled by slide gates. The third conduit (service spillway) is uncontrolled. In addition, there is a 500-foot uncontrolled broadcrested emergency spillway located in a saddle on the right bank. Data regarding dam and reservoir are given in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Crest of dam | 1,939.0 | 63,150 |
| Maximum design water surface | 1,933.6 | 49,290 |
| Crest of emergency spillway | 1,920.0 | 25,310 |
| Crest of service spillway (top of conservation storage) | 1,900.0 | 8,640 |
| Invert of lowest outlet for water supply | 1,876.5 | 1,690 |
| Invert of slide gates | 1,856.0 | - |

Cooperation.--Records furnished by Corps of Engineers and reviewed by Geological Survey. Diversions from reservoir for municipal use furnished by city of Coleman.

Capacity table, water year 1957-58 (elevations, in feet, and total contents, in acre-feet)

| | |
|---|---|
| 1,895.0 | 6,380 |
| 1,896.0 | 6,780 |
| 1,897.0 | 7,210 |
| 1,898.0 | 7,660 |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7,200 | 7,100 | 7,120 | 7,010 | 6,970 | 7,020 | 7,020 | 6,950 | 6,890 | 6,900 | 7,040 | 6,670 |
| 2 | 7,190 | 7,100 | 7,120 | 7,010 | 6,970 | 7,020 | 7,020 | 6,970 | 6,870 | 6,880 | 7,020 | 6,660 |
| 3 | 7,180 | 7,160 | 7,110 | 7,000 | 6,970 | 7,020 | 7,010 | 6,980 | 6,850 | 6,870 | 7,010 | 6,650 |
| 4 | 7,170 | 7,170 | 7,100 | 7,000 | 6,970 | 7,020 | 7,000 | 6,970 | 6,840 | 6,860 | 7,000 | 6,630 |
| 5 | 7,150 | 7,190 | 7,100 | 7,020 | 6,960 | 7,040 | 6,990 | 6,970 | 6,820 | 6,850 | 6,980 | 6,620 |
| 6 | 7,140 | 7,190 | 7,110 | 7,010 | 6,960 | 7,050 | 6,980 | 6,960 | 6,810 | 6,840 | 6,970 | 6,610 |
| 7 | 7,130 | 7,180 | 7,100 | 7,010 | 6,950 | 7,060 | 6,970 | 6,950 | 6,800 | 6,840 | 6,950 | 6,620 |
| 8 | 7,120 | 7,180 | 7,090 | 7,000 | 6,940 | 7,060 | 6,960 | 6,940 | 6,780 | 6,830 | 6,930 | 6,630 |
| 9 | 7,120 | 7,170 | 7,090 | 7,000 | 6,940 | 7,060 | 6,950 | 6,930 | 6,760 | 6,810 | 6,910 | 6,630 |
| 10 | 7,110 | 7,170 | 7,080 | 7,000 | 6,930 | 7,050 | 6,940 | 6,930 | 6,750 | 6,790 | 6,900 | 6,620 |
| 11 | 7,100 | 7,170 | 7,070 | 7,000 | 6,930 | 7,040 | 6,930 | 6,930 | 6,730 | 6,770 | 6,890 | 6,620 |
| 12 | 7,090 | 7,170 | 7,060 | 7,000 | 6,930 | 7,060 | 6,930 | 6,930 | 6,720 | 6,760 | 6,880 | 6,600 |
| 13 | 7,190 | 7,170 | 7,060 | 6,990 | 6,930 | 7,050 | 6,970 | 7,000 | 6,710 | 6,740 | 6,860 | 6,590 |
| 14 | 7,210 | 7,170 | 7,060 | 6,990 | 6,920 | 7,050 | 6,970 | 7,000 | 6,690 | 6,720 | 6,850 | 6,590 |
| 15 | 7,210 | 7,160 | 7,060 | 6,980 | 6,910 | 7,040 | 6,960 | 7,000 | 6,680 | 6,700 | 6,830 | 6,720 |
| 16 | 7,210 | 7,160 | 7,060 | 6,970 | 6,910 | 7,040 | 6,960 | 7,000 | 6,670 | 6,680 | 6,820 | 6,890 |
| 17 | 7,190 | 7,160 | 7,060 | 6,970 | 6,900 | 7,040 | 6,960 | 7,020 | 6,660 | 6,660 | 6,810 | 6,880 |
| 18 | 7,180 | 7,150 | 7,060 | 6,970 | 6,900 | 7,040 | 6,970 | 7,020 | 6,660 | 6,650 | 6,790 | 6,880 |
| 19 | 7,180 | 7,150 | 7,040 | 6,980 | 6,900 | 7,040 | 6,970 | 7,020 | 6,640 | 6,630 | 6,780 | 6,890 |
| 20 | 7,170 | 7,140 | 7,040 | 6,970 | 6,900 | 7,040 | 7,000 | 7,010 | 6,630 | 6,640 | 6,760 | 6,890 |
| 21 | 7,180 | 7,140 | 7,040 | 6,970 | 6,920 | 7,030 | 6,990 | 7,000 | 7,040 | 6,640 | 6,750 | 6,880 |
| 22 | 7,180 | 7,130 | 7,030 | 6,980 | 7,000 | 7,050 | 6,980 | 6,990 | 7,030 | 7,190 | 6,740 | 6,880 |
| 23 | 7,170 | 7,130 | 7,030 | 7,000 | 7,020 | 7,040 | 6,980 | 6,990 | 7,020 | 7,180 | 6,780 | 6,870 |
| 24 | 7,150 | 7,150 | 7,050 | 7,000 | 7,020 | 7,040 | 6,970 | 6,980 | 7,020 | 7,180 | 6,790 | 6,860 |
| 25 | 7,140 | 7,150 | 7,050 | 7,000 | 7,020 | 7,040 | 6,960 | 6,970 | 6,990 | 7,160 | 6,780 | 6,860 |
| 26 | 7,130 | 7,150 | 7,040 | 7,000 | 7,020 | 7,030 | 6,960 | 6,960 | 6,970 | 7,140 | 6,760 | 6,860 |
| 27 | 7,120 | 7,150 | 7,040 | 7,000 | 7,020 | 7,030 | 6,960 | 6,950 | 6,960 | 7,120 | 6,750 | 6,850 |
| 28 | 7,110 | 7,140 | 7,030 | 6,990 | 7,010 | 7,030 | 6,960 | 6,940 | 6,950 | 7,110 | 6,730 | 6,830 |
| 29 | 7,110 | 7,140 | 7,030 | 6,990 | - | 7,030 | 6,960 | 6,920 | 6,940 | 7,090 | 6,720 | 6,820 |
| 30 | 7,100 | 7,130 | 7,030 | 6,980 | ------- | 7,020 | 6,950 | 6,910 | 6,910 | 7,070 | 6,700 | 6,820 |
| 31 | 7,110 | ------- | 7,020 | 6,980 | ------- | 7,020 | ------- | 6,910 | ------- | 7,050 | 6,690 | ------- |
| (†) | 1,896.76 | 1,896.81 | 1,896.56 | 1,896.46 | 1,896.54 | 1,896.56 | 1,896.39 | 1,896.29 | 1,896.31 | 1,896.63 | 1,895.77 | 1,896.08 |
| (‡) | -100 | +20 | -110 | -40 | +30 | +10 | -70 | -40 | 0 | +140 | -360 | +130 |
| (††) | 50 | 38 | 41 | 38 | 35 | 38 | 42 | 53 | 97 | 108 | 111 | 59 |

Calendar year 1957..... ‡ +890
Water year 1957-58..... ‡ -390

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

## 1415. Hords Creek near Valera, Tex.

Location.--Lat 31°50', long 99°33', on left bank 7,500 ft downstream from Hords Creek Reservoir, 5.5 miles north of Valera, Coleman County, and 7.0 miles west of Coleman.

Drainage area.--53 sq mi, approximately.

Records available.--April 1947 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,819.88 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Average discharge.--11 years, 1.81 cfs (1,310 acre-ft per year).

Extremes.--Maximum discharge during year, 236 cfs June 21 (gage height, 4.06 ft); no flow for many days.

1947-58: Maximum discharge, 3,860 cfs Apr. 30, 1956 (gage height, 14.73 ft), from rating curve extended above 1,900 cfs by logarithmic plotting; no flow at times each year.

Maximum stage known, 23.0 ft July 3, 1932, from information by local residents (discharge not determined). Flood in July or September 1900 reached a stage 3.7 ft higher than that of July 1932 at a site 12 miles downstream at Coleman, from information by local residents.

Remarks.--Records good. Flow largely regulated by Hords Creek Reservoir (see preceding page). At times runoff results from rainfall on area between reservoir and gage site.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.6 | 0 | 2.1 | 4.0 |
| 1.7 | .2 | 2.2 | 6.1 |
| 1.8 | .6 | 2.4 | 12 |
| 1.9 | 1.4 | 2.7 | 25 |
| 2.0 | 2.5 | 3.0 | 48 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0.4 | 0 | 0.2 | 0.7 | 0.2 | 0.2 | 0.2 | 0 | | 0 |
| 2 | 0 | 0 | .4 | 0 | .2 | .9 | .2 | 1.3 | .2 | 0 | | 0 |
| 3 | 0 | .8 | .3 | 0 | .2 | .7 | .2 | 1.0 | .1 | 0 | | 0 |
| 4 | 0 | .4 | .2 | 0 | .2 | .6 | .1 | .4 | 0 | 0 | | 0 |
| 5 | 0 | .8 | .2 | .2 | *.2 | 1.0 | .1 | .3 | 0 | 0 | | 0 |
| 6 | 0 | .4 | .3 | .2 | .2 | 1.2 | .1 | .3 | 0 | 0 | | 0 |
| 7 | 0 | .3 | .3 | *.2 | .2 | 1.4 | .1 | *.2 | 0 | 0 | | 0 |
| 8 | 0 | .3 | .2 | .1 | .1 | 2.0 | .1 | .2 | 0 | 0 | | 0 |
| 9 | 0 | .2 | .2 | .1 | .1 | 1.0 | *.1 | .2 | 0 | *0 | | *0 |
| 10 | 0 | .2 | .2 | .1 | .2 | .7 | .1 | .2 | 0 | 0 | | 0 |
| 11 | 0 | .2 | .1 | 0 | .2 | *.6 | .1 | .2 | 0 | 0 | | 0 |
| 12 | 0 | .2 | .1 | 0 | .2 | 1.0 | .1 | .2 | 0 | 0 | | 0 |
| 13 | .1 | .2 | .1 | 0 | .2 | .8 | .5 | 3.5 | 0 | 0 | (*) | 0 |
| 14 | .1 | .2 | .1 | 0 | .1 | .6 | .4 | .7 | 0 | 0 | | 0 |
| 15 | 0 | .2 | .1 | 0 | .1 | .6 | .2 | .7 | 0 | 0 | | 0 |
| 16 | 0 | .2 | .1 | 0 | .1 | .5 | .2 | .6 | 0 | 0 | | 9.6 |
| 17 | 0 | .2 | .1 | 0 | .1 | .5 | .2 | .7 | 0 | 0 | | *.4 |
| 18 | 0 | .2 | .1 | 0 | .1 | .6 | .2 | 1.0 | 0 | 0 | | .1 |
| 19 | 0 | .2 | .1 | 0 | .1 | .6 | .2 | .5 | 0 | 0 | | .3 |
| 20 | 0 | .2 | .1 | .2 | .1 | .5 | .6 | .4 | 0 | 0 | | .4 |
| 21 | 0 | .2 | .1 | .2 | .2 | .4 | .3 | .4 | 35 | 0 | | .2 |
| 22 | 0 | .2 | .1 | .1 | 3.3 | .5 | .2 | .3 | 3.1 | 7.5 | | .2 |
| 23 | 0 | .2 | .1 | .9 | 4.8 | .5 | .2 | *.2 | .3 | .2 | | .2 |
| 24 | 0 | 1.2 | .1 | .6 | 1.9 | .4 | .1 | .2 | .2 | .1 | | .2 |
| 25 | *0 | 1.0 | .2 | .4 | 1.4 | .4 | .1 | .2 | .1 | 0 | | .2 |
| 26 | 0 | .7 | .2 | .3 | 1.1 | .4 | .2 | .2 | .1 | 0 | | .2 |
| 27 | 0 | *.7 | .1 | .3 | .8 | .3 | .2 | .2 | 0 | 0 | | .2 |
| 28 | 0 | .6 | .1 | .3 | .7 | .3 | .2 | .5 | 0 | 0 | | .2 |
| 29 | 0 | .5 | .1 | .2 | - | .3 | .1 | .4 | 0 | 0 | | .2 |
| 30 | 0 | .4 | .1 | .2 | ------- | .2 | .2 | .4 | 0 | 0 | | .1 |
| 31 | 0 | ------- | 0 | .2 | ------- | .2 | ------- | .3 | ------- | 0 | | ------- |
| Total | 0.2 | 11.1 | 4.9 | 4.8 | 17.3 | 20.4 | 5.8 | 16.1 | 39.3 | 7.8 | 0 | 12.7 |
| Mean | 0.006 | 0.37 | 0.16 | 0.15 | 0.62 | 0.66 | 0.19 | 0.52 | 1.31 | 0.25 | 0 | 0.42 |
| Ac-ft | 0.4 | 22 | 9.7 | 9.5 | 34 | 40 | 12 | 32 | 78 | 15 | 0 | 25 |

Calendar year 1957: Max 349 Min 0 Mean 6.92 Ac-ft 5,010
Water year 1957-58: Max 35 Min 0 Mean 0.38 Ac-ft 278

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

## 1420. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 1,676.83 ft above mean sea level, datum of 1929, Forth 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.--18 years, 9.24 cfs (6,690 acre-ft per year).

Extremes.--Maximum discharge during year, 1,580 cfs June 21 (gage height, 6.80 ft); no flow for many days.

1940-58: Maximum discharge, 25,100 cfs Apr. 30, 1956 (gage height, 21.50 ft) from rating curve extended above 4,800 cfs on basis of slope-area measurement at gage height 16.50 ft and contracted-opening measurement of peak flow; no flow at times.

Maximum stage known since at least 1876 occurred in June or September 1900 and reached a stage about 6.3 ft higher than that of Apr. 30, 1956, at a point near municipal light and power plant about 6,000 ft downstream from the present gage. Flood of July 3, 1932, reached a stage about 2.6 ft higher than that of Apr. 30, 1956, at the same downstream point. Data pertaining to stage of floods in 1900 and 1932 from information by local residents.

Remarks.--Records good. Since 1948 flow largely regulated by Hords Creek Reservoir (see p. 209), from which city of Coleman obtains part of its municipal water supply.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0 | | 0 |
| 2 | 0 | 0 | .1 | .1 | .1 | .1 | .1 | **4.5 | .1 | 0 | | 0 |
| 3 | 0 | 0 | .1 | .1 | .1 | .1 | .1 | 11 | .1 | 0 | | 0 |
| 4 | 0 | 0 | .2 | .1 | .1 | .1 | .1 | 6.2 | 0 | 0 | | 0 |
| 5 | 0 | .4 | .2 | .2 | **.1 | .1 | 0 | 2.0 | 0 | 0 | | 0 |
| 6 | 0 | .1 | .2 | .1 | .1 | .1 | 0 | .7 | 0 | 0 | | 0 |
| 7 | 0 | .1 | .2 | **.1 | 0 | .1 | .1 | *.5 | .1 | 0 | | 0 |
| 8 | 0 | .1 | .2 | .1 | .1 | .1 | .1 | .3 | .1 | 0 | | 0 |
| 9 | 0 | .1 | .2 | .1 | .1 | .1 | **.1 | .2 | *0 | *0 | | *0 |
| 10 | 0 | .1 | .2 | .1 | .1 | .1 | .1 | .2 | 0 | 0 | | 0 |
| 11 | 0 | .1 | .2 | .1 | .1 | **.1 | .1 | .2 | 0 | 0 | | 0 |
| 12 | 0 | .2 | .2 | .1 | 0 | .1 | .1 | .2 | 0 | 0 | | 0 |
| 13 | .4 | .2 | .3 | .1 | .1 | .1 | .2 | *60 | 0 | 0 | (*) | 0 |
| 14 | .3 | .1 | .3 | .1 | 0 | .1 | .1 | *20 | 0 | 0 | | 0 |
| 15 | 0 | .1 | .2 | .1 | 0 | .1 | .1 | *7.8 | 0 | 0 | | 0 |
| 16 | 0 | .1 | .1 | .1 | 0 | .1 | .1 | 4.3 | 0 | 0 | | 75 |
| 17 | 0 | .1 | .1 | .1 | 0 | .1 | .1 | 3.4 | 0 | 0 | | *8.5 |
| 18 | 0 | .1 | .1 | .1 | 0 | .1 | .1 | 7.2 | 0 | 0 | | .3 |
| 19 | 0 | .1 | .1 | .2 | 0 | .1 | .1 | 2.9 | 0 | 0 | | 0 |
| 20 | 0 | .1 | .1 | .1 | 0 | .1 | .3 | 1.5 | 0 | 0 | | 0 |
| 21 | 0 | .1 | .1 | .1 | .1 | .1 | .1 | 1.1 | 158 | 0 | | 0 |
| 22 | 0 | .1 | .1 | .1 | 1.9 | .1 | .1 | .7 | 53 | *74 | | 0 |
| 23 | 0 | .1 | .1 | .5 | .6 | .1 | .1 | *.5 | 4.9 | *15 | | 0 |
| 24 | 0 | .6 | .1 | .1 | .1 | .1 | .1 | .3 | .8 | 1.3 | | 0 |
| 25 | *0 | .1 | .1 | .1 | .1 | .1 | .1 | .3 | .1 | .1 | | 0 |
| 26 | 0 | .1 | .1 | .1 | .1 | .1 | .1 | .3 | 0 | 0 | | .1 |
| 27 | 0 | **.1 | .1 | .1 | .1 | .1 | .1 | .2 | 0 | 0 | | 0 |
| 28 | 0 | .1 | .1 | .1 | .1 | .1 | .1 | .1 | 0 | 0 | | 0 |
| 29 | 0 | .1 | .1 | .1 | - | .1 | .1 | .1 | 0 | 0 | | 0 |
| 30 | 0 | .1 | .1 | .1 | ------- | .1 | .1 | .1 | 0 | 0 | | 0 |
| 31 | 0 | ------- | .1 | ------- | ------- | .1 | ------- | .1 | ------- | 0 | | ------- |
| Total | 0.7 | 3.6 | 4.5 | 3.7 | 4.2 | 3.1 | 3.1 | 137.0 | 217.3 | 90.4 | 0 | 83.9 |
| Mean | 0.02 | 0.12 | 0.15 | 0.12 | 0.15 | 0.10 | 0.10 | 4.42 | 7.24 | 2.92 | 0 | 2.80 |
| Ac-ft | 1.4 | 7.1 | 8.9 | 7.3 | 8.3 | 6.1 | 6.1 | 272 | 431 | 179 | 0 | 166 |

Calendar year 1957: Max 1,190 Min 0 Mean 22.9 Ac-ft 16,610
Water year 1957-58: Max 158 Min 0 Mean 1.51 Ac-ft 1,090

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

1425. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 1,403.96 ft above mean sea level, datum of 1929.

Average discharge.--8 years, 29.6 cfs (21,430 acre-ft per year).

Extremes.--Maximum daily discharge during year, 67 cfs Aug. 13; minimum daily, 2.2 cfs Apr. 2.
1950-58: Maximum daily discharge, 77 cfs July 17, 1957; minimum daily, 0.4 cfs Feb. 10, 1955.

Remarks.--Records good. Canal diverts from Brownwood Reservoir on right bank of Pecan Bayou. Small amount of water pumped from canal upstream from gage for recreational area. About 3,860 acre-ft of water passing gage during the year was used for municipal and industrial supply, from records furnished by Brown County Water Improvement District No. 1. According to records furnished the Texas Board of Water Engineers by the District, 2,796 acres were irrigated during 1958.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 46 | 21 | 28.4 | 1,750 |
| November | 22 | 21 | 21.2 | 1,260 |
| December | 21 | 15 | 17.1 | 1,050 |
| Calendar year 1957 | 77 | 3.5 | 25.9 | 18,780 |
| January | 15 | 15 | 15.0 | 922 |
| February | 16 | 11 | 13.1 | 728 |
| March | 11 | 10 | 10.7 | 657 |
| April | 15 | 2.2 | 10.5 | 622 |
| May | 31 | 11 | 14.4 | 887 |
| June | 44 | 18 | 28.2 | 1,680 |
| July | 56 | 19 | 42.2 | 2,600 |
| August | 67 | 29 | 46.5 | 2,860 |
| September | 61 | 13 | 28.3 | 1,680 |
| Water year 1957-58 | 67 | 2.2 | 23.1 | 16,700 |

1430. 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 1958.
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, 155,100 acre-ft Oct. 15 (gage height, 1,427.4 ft); minimum observed, 101,700 acre-ft Sept. 7, 12-15 (gage height, 1,419.6 ft). 1933-41, 1944-58: Maximum contents observed, 192,300 acre-ft May 2, 1956 (gage height, 1,431.4 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. Reservoir is formed by earth-fill dam, 1,580 ft long. Uncontrolled emergency spillway consisting of broad-crested weir 479 ft long, located 800 ft to left of dam. Reservoir can be drained by two 12-foot (horseshoe-shaped) reinforced concrete conduits. Water is withdrawn for irrigation canal through a 5-foot circular concrete conduit. Figures given herein represent total contents. Water used for irrigation, municipal, and industrial supply for city of Brownwood. (see records for Brown County Water Improvement District No. 1 canal near Brownwood.) Data regarding dam is shown in the following table:

| | Gage height (feet) | Capacity (acre-feet) |
|---|---|---|
| Crest of dam | 1,450.0 | 460,000 |
| Design water surface | 1,435.0 | 230,600 |
| Crest of spillway (total capacity) | 1,425.1 | 137,300 |
| Invert to irrigation canal | 1,406.0 | 41,200 |
| Invert to 12-foot outlet conduits | 1,330.0 | - |

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).--WSP 1212: 1948-50.

Capacity table, water year 1957-58 (gage height, in feet, and total contents, in acre-feet)

| | | | |
|---|---|---|---|
| 1,419.0 | 98,200 | 1,425.0 | 136,600 |
| 1,421.0 | 110,100 | 1,427.0 | 151,800 |
| 1,423.0 | 122,900 | 1,429.0 | 169,000 |

Total contents, in thousands of acre-feet, at 6 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 112.6 | 130.3 | 121.6 | 114.5 | 114.5 | 118.4 | 113.9 | 115.8 | 122.9 | 124.2 | 110.7 | 103.4 |
| 2 | 112.0 | 129.6 | 121.0 | 114.5 | 114.5 | 118.4 | 113.9 | 116.4 | 122.9 | 123.6 | 110.7 | 103.4 |
| 3 | 112.0 | 129.6 | 120.3 | 114.5 | 114.5 | 118.4 | 113.9 | 124.2 | 122.9 | 122.9 | 110.1 | 102.8 |
| 4 | 112.0 | 129.6 | 119.6 | 114.5 | 114.5 | 117.7 | 113.9 | 126.2 | 122.9 | 122.2 | 110.1 | 102.8 |
| 5 | 112.0 | 130.3 | 119.0 | 114.5 | 114.5 | 117.7 | 113.9 | 126.2 | 122.9 | 122.2 | 109.5 | 102.3 |
| 6 | 111.4 | 131.7 | 118.4 | 114.5 | 114.5 | 117.0 | 113.9 | 126.2 | 122.2 | 122.2 | 109.5 | 102.3 |
| 7 | 111.4 | 131.7 | 117.7 | 114.5 | 114.5 | 119.0 | 113.2 | 126.2 | 122.2 | 122.2 | 108.9 | 101.7 |
| 8 | 111.4 | 131.0 | 117.0 | 114.5 | 114.5 | 119.6 | 113.9 | 126.2 | 122.2 | 121.6 | 108.9 | 102.3 |
| 9 | 111.4 | 131.0 | 116.4 | 114.5 | 114.5 | 119.6 | 114.5 | 125.6 | 121.6 | 121.6 | 108.3 | 102.3 |
| 10 | 111.4 | 131.0 | 116.4 | 114.5 | 114.5 | 119.6 | 114.5 | 124.9 | 121.6 | 121.6 | 108.3 | 102.3 |
| 11 | 111.4 | 131.0 | 115.8 | 114.5 | 114.5 | 119.6 | 114.5 | 124.9 | 121.6 | 121.0 | 107.7 | 102.3 |
| 12 | 111.4 | 131.0 | 115.1 | 114.5 | 113.9 | 119.0 | 114.5 | 124.2 | 121.6 | 120.3 | 107.7 | 101.7 |
| 13 | 113.2 | 130.3 | 114.5 | 114.5 | 113.9 | 119.0 | 114.5 | 126.2 | 121.0 | 119.6 | 107.0 | 101.7 |
| 14 | 153.5 | 130.3 | 114.5 | 114.5 | 113.9 | 118.4 | 115.1 | 128.3 | 121.0 | 118.4 | 107.0 | 101.7 |
| 15 | 151.8 | 129.6 | 114.5 | 114.5 | 113.9 | 118.4 | 115.1 | 128.3 | 121.0 | 117.7 | 107.0 | 101.7 |
| 16 | 146.3 | 128.9 | 114.5 | 114.5 | 113.9 | 117.0 | 115.1 | 128.3 | 120.3 | 116.4 | 106.4 | 102.3 |
| 17 | 142.5 | 128.3 | 114.5 | 114.5 | 113.9 | 117.0 | 115.1 | 128.3 | 120.3 | 115.8 | 106.4 | 108.9 |
| 18 | 140.3 | 127.6 | 114.5 | 114.5 | 113.9 | 116.4 | 115.8 | 130.3 | 120.3 | 115.1 | 105.8 | 108.9 |
| 19 | 139.6 | 126.9 | 114.5 | 114.5 | 113.9 | 115.8 | 115.8 | 131.7 | 120.3 | 114.5 | 105.8 | 109.5 |
| 20 | 138.8 | 126.2 | 114.5 | 114.5 | 113.9 | 115.1 | 116.4 | 131.7 | 119.6 | 113.9 | 105.8 | 109.5 |
| 21 | 138.1 | 125.6 | 114.5 | 114.5 | 113.9 | 114.5 | 117.0 | 131.0 | 122.2 | 113.2 | 105.8 | 110.1 |
| 22 | 137.3 | 124.9 | 114.5 | 114.5 | 115.1 | 114.5 | 117.0 | 130.3 | 125.6 | 113.2 | 105.2 | 110.1 |
| 23 | 136.6 | 124.2 | 114.5 | 114.5 | 119.6 | 114.5 | 116.4 | 129.6 | 126.2 | 112.6 | 105.2 | 110.1 |
| 24 | 135.9 | 123.6 | 114.5 | 114.5 | 120.3 | 113.9 | 115.8 | 128.9 | 126.2 | 112.6 | 105.2 | 110.1 |
| 25 | 135.2 | 123.6 | 114.5 | 114.5 | 120.3 | 113.9 | 115.1 | 128.3 | 126.2 | 112.6 | 105.2 | 110.1 |
| 26 | 134.5 | 122.9 | 114.5 | 114.5 | 119.6 | 113.9 | 114.5 | 128.3 | 126.2 | 112.0 | 104.6 | 110.1 |
| 27 | 133.8 | 122.9 | 114.5 | 114.5 | 119.0 | 113.9 | 114.5 | 127.6 | 125.6 | 112.0 | 104.6 | 110.1 |
| 28 | 133.1 | 122.2 | 114.5 | 114.5 | 119.0 | 113.9 | 113.9 | 126.9 | 125.6 | 112.0 | 104.6 | 110.1 |
| 29 | 132.4 | 122.2 | 114.5 | 114.5 | - | 113.9 | 115.1 | 126.2 | 125.6 | 111.4 | 104.0 | 110.1 |
| 30 | 131.7 | 121.6 | 114.5 | 114.5 | ------- | 113.9 | 115.1 | 125.6 | 124.9 | 111.4 | 104.0 | 110.1 |
| 31 | 131.0 | ------- | 114.5 | 114.5 | ------- | 113.9 | ------- | 124.2 | ------- | 110.7 | 104.0 | ------- |
| (†) | 1,424.2 | 1,422.8 | 1,421.7 | 1,421.7 | 1,422.4 | 1,421.6 | 1,421.8 | 1,423.2 | 1,423.3 | 1,421.1 | 1,420.0 | 1,421.0 |
| (‡) | +18,400 | -9,400 | -7,100 | 0 | +4,500 | -5,100 | +1,200 | +9,100 | +700 | -14,200 | -6,700 | +6,100 |

Calendar year 1957..... ‡ +21,340
Water year 1957-58..... ‡ -2,500

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

## 1435. Pecan Bayou at Brownwood, Tex.

Location.--Lat 31°44'10", long 98°58'30", on left bank at downstream side of pier of abandoned Gulf, Colorado and Santa Fe Railway Co. 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 1958.

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 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, staff gage at site 1,300 ft downstream at datum 3.49 ft lower. Oct. 16, 1923, to July 10, 1929, staff gage at site about 1,300 ft downstream at datum 0.10 ft lower.

Average discharge.--33 years (1924-28, 1929-58), 165 cfs (119,500 acre-ft per year).

Extremes.--Maximum discharge during year, 7,400 cfs Oct. 15 (gage height, 8.03 ft); minimum daily determined, 0.1 cfs at times.

1917-18, 1923-58: Maximum discharge, 31,600 cfs Oct. 14, 1930 (gage height, 16.92 ft); no flow at times.

Maximum stage known, 21.7 ft in September 1900, from information by Gulf, Colorado and 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 above 20 cfs and fair below. Flow largely regulated by Brownwood Reservoir (see p. 213). There was uncontrolled flow over spillway at Brownwood Reservoir Oct. 14-21. Diversion at Brownwood Reservoir, 10 miles upstream (see records for Brown County Water Improvement District No. 1 Canal on p. 212).

Revisions (water years).--WSP 1512: 1924(M), 1926-27, 1928(M), 1930-32, 1935(M), 1936, 1941.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.3 | 0 | 0.9 | 12 | 2.5 | 1,030 |
| .4 | .3 | 1.0 | 26 | 3.0 | 1,590 |
| .5 | 1.2 | 1.3 | 130 | 4.0 | 2,990 |
| .6 | 2.8 | 1.6 | 270 | 5.0 | 4,700 |
| .7 | 4.8 | 2.0 | 570 | 7.0 | 6,600 |
| .8 | 7.3 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 289 | 289 | 1.8 | 1.8 | 283 | 3.2 | 22 | 283 | 264 | 0.2 | |
| 2 | | 289 | 296 | 1.4 | 1.6 | 283 | 3.2 | 12 | 166 | 270 | .2 | |
| 3 | | 349 | 296 | 1.6 | 1.8 | 283 | 3.0 | 99 | 8.2 | 254 | .1 | |
| 4 | | 302 | 296 | 1.5 | 2.0 | 283 | 2.8 | 13 | 3.9 | 23 | .1 | |
| 5 | | 479 | 296 | 2.5 | 2.0 | 283 | 2.6 | 8.4 | 2.3 | 3.3 | .1 | |
| 6 | | 302 | 296 | *2.6 | *2.2 | 289 | 2.4 | *6.0 | 1.6 | 1.4 | .1 | |
| 7 | e0.2 | 296 | 296 | 2.2 | 2.0 | 334 | 2.0 | 4.8 | 1.1 | 1.0 | .1 | |
| 8 | | 289 | 296 | 1.7 | 1.4 | 321 | *3.0 | 104 | 1.0 | *.7 | .1 | (**) |
| 9 | | 174 | 296 | 1.7 | 1.6 | 289 | 42 | 270 | *1.0 | .6 | .1 | |
| 10 | | 11 | 296 | 1.7 | 1.7 | 283 | 9.7 | 276 | .8 | .5 | | |
| 11 | | 6.0 | 296 | 1.7 | 1.8 | *283 | 5.0 | 283 | .7 | 37 | | |
| 12 | | *120 | 296 | 4.5 | 2.2 | 283 | 3.4 | 276 | .6 | 270 | (**) | |
| 13 | 104 | 289 | 187 | 9.7 | 2.0 | 283 | 4.7 | 283 | .5 | 270 | e.1 | |
| 14 | 1,860 | 289 | 13 | 6.3 | 2.2 | 283 | 15 | 283 | .5 | 270 | | |
| 15 | 6,220 | 289 | 6.0 | 4.4 | 2.0 | 283 | 9.2 | 283 | .5 | 270 | | e0.1 |
| 16 | 3,080 | 289 | 4.4 | 3.2 | 1.8 | 283 | 6.0 | 283 | .6 | 270 | | |
| 17 | 1,650 | 289 | 3.8 | 2.6 | 1.7 | 283 | 4.8 | 283 | .6 | 270 | .1 | |
| 18 | 1,000 | 289 | 3.4 | 2.4 | 1.6 | 283 | 4.6 | 283 | .6 | 276 | .4 | |
| 19 | 656 | 289 | 3.0 | 2.4 | 1.7 | 283 | 4.8 | 283 | .5 | 276 | .5 | |
| 20 | 455 | 289 | 3.0 | 3.6 | 1.8 | 283 | 14 | 283 | .5 | 283 | .3 | |
| 21 | 341 | 289 | 2.4 | 3.4 | 2.6 | 283 | 65 | 283 | 37 | 192 | .2 | |
| 22 | 308 | 289 | 2.6 | 2.8 | 16 | 289 | 264 | 283 | 81 | 15 | .2 | |
| 23 | 302 | 289 | 2.6 | 3.2 | 127 | 334 | 264 | 283 | 9.6 | 5.8 | .1 | |
| 24 | 289 | 328 | 3.0 | 3.4 | 113 | 210 | 264 | 283 | 4.7 | 3.4 | .2 | |
| 25 | 289 | 308 | 7.2 | 3.2 | 276 | 16 | 270 | 283 | 3.0 | 2.1 | .1 | |
| 26 | 289 | 289 | 8.2 | 2.4 | 276 | 7.5 | 270 | 283 | 1.8 | 1.2 | .1 | |
| 27 | 289 | *289 | 4.8 | 2.2 | 270 | 5.3 | 270 | 283 | 1.0 | .8 | .1 | |
| 28 | 289 | 289 | 3.3 | 2.2 | 276 | 4.2 | 163 | 283 | .7 | .5 | .1 | |
| 29 | 289 | 289 | 3.1 | 1.8 | - | 4.0 | 16 | 283 | .6 | .3 | | |
| 30 | 289 | 289 | 2.4 | 1.8 | ------- | 3.6 | 29 | 283 | 94 | .2 | e.1 | |
| 31 | 289 | ------- | 2.6 | 2.0 | ------- | 3.4 | ------- | 283 | ------- | .2 | ------- | |
| Total | 18,290.4 | 8,166.0 | 3,810.8 | 87.9 | 1,393.5 | 6,921.0 | 2,020.4 | 6,751.2 | 707.9 | 3,532.0 | 4.5 | 3.0 |
| Mean | 590 | 272 | 123 | 2.84 | 49.8 | 223 | 67.3 | 218 | 23.6 | 114 | 0.15 | 0.10 |
| Ac-ft | 36,280 | 16,200 | 7,560 | 174 | 2,760 | 13,730 | 4,010 | 13,390 | 1,400 | 7,010 | 8.9 | 6.0 |

Calendar year 1957: Max 12,500 Min 0.1 Mean 563 Ac-ft 407,800
Water year 1957-58: Max 6,220 Min 0.1 Mean 142 Ac-ft 102,500

* Discharge measurement made on this day.
** Field estimate made on this day.
e Stage below crest of control dam; flow is seepage estimated on basis of field estimates.

1440. 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 1958.

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.--34 years, 13.9 cfs (10,060 acre-ft per year).

Extremes.--Maximum daily discharge during year, 26 cfs Oct. 15; no flow most of time.
1924-58: 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 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 26 | 0 | 10.6 | 651 |
| November | 0 | 0 | 0 | 0 |
| December | 0 | 0 | 0 | 0 |
| Calendar year 1957 | 29 | 0 | 9.20 | 6,660 |
| January | 19 | 0 | 4.97 | 306 |
| February | 0 | 0 | 0 | 0 |
| March | 0 | 0 | 0 | 0 |
| April | 22 | 0 | 12.7 | 754 |
| May | 24 | 0 | 18.0 | 1,110 |
| June | 23 | .6 | 15.8 | 939 |
| July | 21 | 0 | 18.1 | 1,120 |
| August | 20 | 0 | 13.3 | 817 |
| September | 22 | 0 | 7.33 | 436 |
| Water year 1957-58 | 26 | 0 | 8.46 | 6,130 |

## 1445. San Saba River at Menard, Tex.

Location.--Lat 30°55', long 99°48', on downstream side of fifth pier from right end of 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 1958.

Gage.--Water-stage recorder. Datum of gage is 1,863.05 ft above mean sea level, datum of 1929. Sept. 14, 1915, to Mar. 12, 1924, chain gage at site 635 ft downstream at datum 2.20 ft lower. Mar. 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 present site and datum. Jan. 26, 1940, to Sept. 19, 1957, water-stage recorder at site 240 ft to right at present datum.

Average discharge.--43 years, 73.2 cfs (52,990 acre-ft per year).

Extremes.--Maximum discharge during year, 31,900 cfs June 17 (gage height, 16.70 ft in well, 16.3 ft, from floodmark); minimum, 3.1 cfs Oct. 4.

1915-58: Maximum discharge, 130,000 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 measurements 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 and diversions by pumping at several locations upstream. Records of the Texas Board of Water Engineers show permits have been granted to irrigate 3,338 acres above station. See record of Noyes Canal on preceding page.

Revisions (water years).--WSP 568: Drainage area. WSP 1512: 1918-20, 1922-25, 1926(M), 1927-32, 1934(M), 1936, 1938(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 22-24, June 16-25, Sept. 1-4)

| | | | | | |
|---|---|---|---|---|---|
| 4.1 | 1.7 | 5.0 | 52 | 9.0 | 3,600 |
| 4.2 | 4.0 | 5.3 | 108 | 10.0 | 5,300 |
| 4.3 | 6.6 | 5.6 | 225 | 11 | 7,400 |
| 4.4 | 9.6 | 6.0 | 440 | 12 | 9,800 |
| 4.5 | 13 | 7.0 | 1,200 | 13 | 15,700 |
| 4.7 | 24 | 8.0 | 2,220 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.0 | 57 | 50 | 45 | 43 | 74 | 55 | 30 | 14 | *60 | 13 | 28 |
| 2 | 5.8 | 58 | 50 | 45 | 44 | 74 | 56 | 31 | 13 | 46 | 13 | 28 |
| 3 | 5.6 | 61 | 50 | 45 | 44 | 70 | 53 | 38 | 12 | 33 | 12 | *22 |
| 4 | 3.5 | 65 | 50 | 50 | 45 | *69 | 53 | 32 | 12 | 31 | 12 | 9.9 |
| 5 | 5.0 | 65 | 50 | 60 | 45 | 69 | 51 | 26 | 12 | 33 | 12 | 9.9 |
| 6 | 5.6 | 61 | 51 | 61 | 44 | 76 | 50 | 26 | 12 | 38 | 14 | 13 |
| 7 | 5.8 | 58 | 52 | 55 | 43 | 88 | 50 | 29 | 11 | 37 | 26 | 19 |
| 8 | 13 | *55 | 50 | 50 | 44 | 70 | 51 | 30 | 9.9 | 34 | 24 | 21 |
| 9 | 182 | 51 | 49 | 49 | 44 | 67 | 52 | 28 | 9.6 | 31 | 11 | 19 |
| 10 | 83 | 53 | 49 | 48 | 46 | 64 | 51 | 27 | 9.3 | 30 | 9.6 | 20 |
| 11 | 35 | 61 | 48 | 46 | 46 | 62 | 41 | 28 | 9.0 | 28 | 10 | *35 |
| 12 | 19 | 61 | 48 | 46 | 46 | 67 | 29 | 26 | 8.7 | 27 | 12 | 27 |
| 13 | 9,390 | 57 | 48 | 45 | 46 | 65 | 29 | 23 | 8.1 | 26 | 12 | 16 |
| 14 | *7,630 | 52 | 49 | 44 | 45 | 64 | 30 | 26 | 8.1 | 25 | 12 | 15 |
| 15 | 7,830 | 50 | 49 | 43 | 44 | 62 | 29 | 23 | 8.1 | 23 | 14 | 15 |
| 16 | *1,730 | 50 | 49 | 43 | 43 | 62 | 28 | 30 | *4,210 | 20 | 15 | 22 |
| 17 | *277 | 50 | 49 | 44 | 43 | 61 | 29 | 34 | *12,900 | 19 | 13 | 26 |
| 18 | *132 | 49 | 49 | 44 | 43 | 67 | 39 | 35 | *1,530 | 19 | 12 | 40 |
| 19 | 98 | 49 | 48 | 44 | 44 | 65 | 36 | 27 | *270 | 19 | 11 | 134 |
| 20 | 79 | 48 | *46 | 46 | 44 | 62 | 35 | 26 | 146 | 19 | 9.9 | 115 |
| 21 | *72 | 48 | 44 | 49 | 49 | 61 | 35 | 46 | 103 | 16 | 12 | 57 |
| 22 | 72 | 50 | 44 | 39 | 1,040 | 60 | 30 | 46 | 86 | *18 | 13 | 46 |
| 23 | 65 | 52 | 44 | *30 | *4,310 | 61 | 30 | 45 | 76 | 16 | 14 | 43 |
| 24 | *61 | 65 | 49 | 35 | *547 | 58 | 26 | 44 | *70 | 15 | 29 | 41 |
| 25 | 61 | 64 | 51 | 30 | 207 | 62 | *26 | 44 | 65 | 15 | 24 | 40 |
| 26 | 60 | 60 | 49 | 26 | *115 | *62 | 27 | *39 | 139 | 14 | 36 | 40 |
| 27 | 58 | 56 | 46 | 26 | 86 | 61 | 30 | 19 | 81 | 13 | 30 | 41 |
| 28 | 58 | 55 | 46 | 26 | 76 | 58 | 30 | 19 | 56 | 14 | 31 | 40 |
| 29 | 58 | 51 | 46 | 24 | - | 58 | 30 | 17 | 48 | 14 | 32 | 36 |
| 30 | 58 | 50 | 46 | 24 | ------- | 56 | 27 | 16 | 62 | 14 | 29 | 32 |
| 31 | *56 | ------- | 46 | 30 | ------- | 55 | ------- | 14 | ------- | 13 | 27 | ------- |
| Total | 28,213.3 | 1,662 | 1,495 | 1,292 | 7,316 | 2,010 | 1,138 | 924 | 19,998.8 | 760 | 544.5 | 1,050.8 |
| Mean | 910 | 55.4 | 48.2 | 41.7 | 261 | 64.8 | 37.9 | 29.8 | 667 | 24.5 | 17.6 | 35.0 |
| Ac-ft | 55,960 | 3,300 | 2,970 | 2,560 | 14,510 | 3,990 | 2,260 | 1,830 | 39,670 | 1,510 | 1,080 | 2,080 |

Calendar year 1957: Max 12,700 Min 0 Mean 305 Ac-ft 220,800
Water year 1957-58: Max 12,900 Min 3.5 Mean 182 Ac-ft 131,700

Peak discharge (base, 670 cfs).--Oct. 13 (4 p.m.) 30,200 cfs (14.88 ft); Feb. 23 (5:30 a.m.) 8,840 cfs (11.50 ft); June 17 (3 p.m.) 31,900 cfs (16.70 ft).

* Discharge measurement made on this day.

## 1450. 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 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 1958.

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.--19 years, 27.9 cfs (20,200 acre-ft per year).

Extremes.--Maximum discharge during year, 7,190 cfs Oct. 13 (gage height, 12.98 ft); no flow for many days.
1939-58: Maximum discharge, 39,100 cfs Sept. 10, 1952 (gage height, 24.80 ft); no flow at times.
Maximum stage known since at least 1904, 29.1 ft July 23, 1938, present site and datum (discharge at site 5 miles downstream, 86,000 cfs by slope-area measurement of peak flow). Flood of Oct. 6, 1930, reached a stage of 27.47 ft, present site and datum, from information by local residents.

Remarks.--Records good above 5 cfs and fair below. City of Brady has permit to divert 730 acre-ft per year for municipal use. At end of year, flow from 159 sq mi above this station was partly controlled by 26 floodwater-detention reservoirs with a total combined capacity of 52,260 acre-ft below the flood spillway crests, of which 49,020 acre-ft is floodwater detention capacity and 3,240 acre-ft is sediment storage capacity. Eight of these reservoirs were constructed during the current year and have a total combined capacity below flood spillway crests of 16,770 acre-ft, of which 1,150 acre-ft is sediment pool capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation.

Revisions (water years).--WSP 1512: 1941(M), 1951(M).

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 3.8 | 13 | 5.2 | 7.4 | 17 | 6.6 | 1.9 | 5.8 | 0.2 | 0 | 0.1 |
| 2 | .1 | 4.9 | 12 | 5.2 | 7.0 | 18 | *6.6 | *8.7 | 3.5 | .2 | 0 | .1 |
| 3 | .2 | 18 | 10 | 5.0 | 6.6 | 15 | 6.1 | 81 | 2.0 | .2 | 0 | 0 |
| 4 | .2 | 15 | 9.2 | 8.5 | 6.6 | 14 | 5.8 | 23 | 1.7 | .2 | 0 | 0 |
| 5 | .1 | 16 | 8.6 | 18 | 6.8 | *16 | 5.0 | 8.5 | 1.2 | .2 | 0 | *0 |
| 6 | .1 | 16 | 9.8 | 18 | 6.1 | 193 | 4.3 | 5.3 | .6 | .2 | 0 | .3 |
| 7 | .1 | 12 | 10 | 14 | 5.3 | 233 | 4.2 | *3.8 | .5 | .2 | 0 | .7 |
| 8 | 15 | 9.4 | 8.8 | 12 | 5.3 | 68 | 4.2 | 3.1 | .4 | .2 | 0 | .4 |
| 9 | 225 | 7.8 | 7.8 | 12 | 5.6 | 32 | 4.0 | 2.7 | .4 | .2 | 0 | .3 |
| 10 | 11 | 10 | 7.8 | 11 | 6.1 | 21 | 3.9 | 2.4 | .4 | .1 | 0 | .2 |
| 11 | 3.2 | 14 | 7.2 | 9.8 | 6.4 | 16 | 3.9 | 2.2 | .4 | .1 | 0 | .2 |
| 12 | 1.8 | *14 | 6.8 | 9.2 | 6.4 | 15 | 3.9 | 2.0 | .3 | .1 | 0 | .2 |
| 13 | 2,570 | 12 | 6.4 | 8.6 | 6.3 | 14 | 5.7 | 2.1 | .3 | .1 | 0 | .1 |
| 14 | 3,380 | 9.6 | 6.3 | 8.2 | 6.3 | 12 | 4.8 | 2.3 | .2 | 0 | 0 | .1 |
| 15 | 1,890 | 9.8 | 6.3 | 7.6 | 6.1 | 11 | 3.4 | 2.6 | .2 | 0 | 0 | .1 |
| 16 | 480 | 8.8 | 6.0 | 7.2 | 6.1 | 11 | 3.1 | 2.8 | 1.0 | 0 | 0 | .3 |
| 17 | *164 | 8.0 | 6.1 | 6.8 | 6.6 | 11 | 3.1 | 30 | 1.6 | 0 | 0 | .4 |
| 18 | *86 | 7.0 | 6.6 | 6.8 | 6.6 | 20 | 3.4 | 42 | 1.6 | 0 | 0 | .3 |
| 19 | 68 | 6.0 | 7.0 | 6.8 | 6.6 | 18 | 3.5 | 5.2 | 1.0 | 0 | 1.5 | .3 |
| 20 | 50 | 5.6 | *5.6 | 8.1 | 7.0 | *12 | 3.9 | *12 | .5 | 0 | .9 | .4 |
| 21 | 40 | 6.3 | 5.2 | 7.6 | 9.3 | 10 | 3.5 | 5.2 | 6.5 | 0 | .2 | .3 |
| 22 | *39 | 7.2 | 5.2 | 7.6 | 30 | 9.4 | 3.2 | 3.3 | 1.8 | 0 | 3.8 | .6 |
| 23 | 34 | 8.2 | 4.8 | *25 | 72 | 9.0 | 2.8 | 2.1 | .5 | *0 | .8 | .4 |
| 24 | 30 | 28 | 5.3 | 26 | *61 | 8.4 | 2.5 | 2.0 | .3 | 0 | 4.5 | .3 |
| 25 | *28 | 29 | 5.8 | 21 | 44 | 8.4 | 2.3 | 1.8 | **.3 | 0 | .7 | .2 |
| 26 | 27 | 31 | 5.6 | 22 | *30 | 8.2 | 2.2 | 1.2 | .4 | 0 | .4 | .2 |
| 27 | 14 | 24 | 6.8 | 16 | 21 | 8.2 | 2.2 | .9 | .4 | 0 | .3 | .1 |
| 28 | 7.0 | 20 | 6.6 | *14 | 15 | 8.2 | 2.0 | *.5 | .3 | 0 | .2 | .1 |
| 29 | 5.5 | 19 | 7.2 | 11 | - | 8.0 | 1.9 | .4 | .3 | 0 | .1 | .1 |
| 30 | 4.5 | 16 | 6.6 | 9.6 | ------- | 7.4 | *1.9 | 4.3 | .2 | 0 | .1 | .1 |
| 31 | *3.8 | ------- | 5.8 | 8.6 | ------- | 7.0 | ------- | 10 | ------- | 0 | .1 | ------- |
| Total | 9,177.8 | 396.4 | 226.2 | 356.4 | 409.5 | 859.2 | 113.9 | 275.3 | 34.6 | 2.2 | 13.6 | 6.9 |
| Mean | 296 | 13.2 | 7.30 | 11.5 | 14.6 | 27.7 | 3.80 | 8.88 | 1.15 | 0.07 | 0.44 | 0.23 |
| Ac-ft | 18,200 | 786 | 449 | 707 | 812 | 1,700 | 226 | 546 | 69 | 4.4 | 27 | 14 |

Calendar year 1957: Max 4,650 Min 0 Mean 153 Ac-ft 111,000
Water year 1957-58: Max 3,380 Min 0 Mean 32.5 Ac-ft 23,540

Peak discharge (base, 2,400 cfs).--Oct. 13 (5 p.m.) 7,190 cfs (12.98 ft).

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

## 1460. San Saba River at San Saba, Tex.

Location.--Lat 31°12'50", long 98°42'40", on right bank at downstream side of pier of bridge on State Highway 16, 1.2 miles north of San Saba, San Saba County, 4.8 miles downstream from China Creek, 5.0 miles upstream from Simpson Creek, and 15.5 miles upstream from mouth.

Drainage area.--3,042 sq mi.

Records available.--December 1904 to December 1906 (gage heights only), September 1915 to September 1958. Published as "near San Saba" December 1904 to December 1906, September 1915 to August 1930.

Gage.--Water-stage recorder. Datum of gage is 1,162.16 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. December 1904 to December 1906, reference point on bridge at site 2.7 miles upstream at different datum. September 1915 to Aug. 27, 1930, staff gage at site 2.4 miles upstream at datum 5.99 ft higher. Aug. 28, 1930, to Sept. 30, 1952, recording gage at site 1.8 miles downstream at datum 8.80 ft lower. Oct. 1, 1952, to July 8, 1953, wire-weight gage at present site and datum. Since Oct. 1, 1956, supplementary water-stage recorder on overflow channel, 2,780 ft to right of regular gage, at same datum, used for stages above 19 ft.

Average discharge.--43 years (1915-58), 255 cfs (184,600 acre-ft per year).

Extremes.--Maximum discharge during year, 32,000 cfs Oct. 14 (gage height, 28.76 ft); minimum, 24 cfs Oct. 10.

1915-58: Maximum discharge, 203,000 cfs July 23, 1938 (gage height, 45.18 ft, from floodmarks, at site and datum then in use), from rating curve extended above 41,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1918, 1930, 1954-56.

Maximum stage known since at least 1899, that of July 23, 1938. Flood of June 6, 1899, reached a stage of 42.6 ft at site and datum of gage in use 1930-52, from information by local resident.

Remarks.--Records good. Diversions above station for irrigation and municipal use affect low flow. Since 1954 flow slightly affected by several flood-detention reservoirs on Brady Creek. (See records for Brady Creek on preceding page).

Revisions (water years).--WSP 458: 1915-16. WSP 1282: Drainage area. WSP 1512: 1918-19(M), 1922, 1931(M), 1935-36.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 33 | 161 | 222 | 141 | 186 | 397 | 272 | 152 | 121 | 156 | 42 | 72 |
| 2 | 31 | 156 | 211 | 139 | 175 | 405 | 278 | 220 | 117 | 143 | 46 | 71 |
| 3 | 30 | 515 | 204 | 139 | 173 | 390 | 278 | 1,240 | 111 | 133 | 49 | 68 |
| 4 | 29 | 211 | 196 | 141 | 168 | 352 | 275 | 707 | 109 | 129 | 51 | *67 |
| 5 | 28 | 488 | 189 | 163 | 177 | *365 | 269 | 335 | 109 | 123 | 51 | 66 |
| 6 | 27 | 536 | 189 | 219 | 182 | 428 | 261 | 250 | 105 | 117 | 55 | 74 |
| 7 | 27 | 311 | 191 | 233 | 180 | 1,380 | 255 | 211 | 98 | 111 | 56 | 98 |
| 8 | 26 | 238 | 189 | 214 | 182 | 988 | 261 | 186 | 95 | 109 | 52 | 107 |
| 9 | 25 | 208 | 180 | 196 | 184 | 555 | 281 | 170 | 91 | 105 | 53 | 105 |
| 10 | 34 | 191 | 173 | 186 | 186 | 412 | 255 | 163 | 90 | 105 | 55 | 105 |
| 11 | 172 | 206 | 163 | 180 | 191 | 355 | 247 | 159 | 88 | 102 | 55 | 98 |
| 12 | 184 | *272 | 159 | 198 | 196 | 339 | 244 | 154 | 90 | 96 | 52 | 144 |
| 13 | 1,760 | 302 | 156 | 272 | 196 | 332 | 255 | 168 | 85 | 90 | 51 | 233 |
| 14 | 17,600 | 269 | 156 | 258 | 194 | 317 | 261 | 159 | 83 | 82 | 49 | 137 |
| 15 | *19,600 | 238 | 154 | 208 | 189 | 302 | 247 | 154 | 82 | 80 | 44 | 102 |
| 16 | *13,200 | 216 | 152 | 198 | 184 | 290 | 227 | 266 | 85 | 74 | 44 | 96 |
| 17 | *3,530 | 198 | 152 | 194 | 182 | 278 | 216 | 572 | 1,370 | 80 | 46 | 98 |
| 18 | *1,190 | 189 | 150 | 196 | 184 | 281 | 216 | 362 | *9,610 | 74 | 43 | 102 |
| 19 | 685 | 177 | 147 | 198 | 186 | 339 | 216 | 284 | 3,930 | 68 | 42 | 109 |
| 20 | 464 | 173 | *145 | 211 | 191 | *326 | 230 | 241 | 906 | 70 | 43 | 123 |
| 21 | 362 | 163 | 145 | 227 | 204 | 293 | 224 | 211 | 526 | 72 | 60 | 123 |
| 22 | *332 | 163 | 143 | 224 | 609 | 278 | 206 | 186 | 601 | 68 | 91 | 156 |
| 23 | 305 | 170 | 143 | 364 | 3,770 | 272 | 191 | 175 | 342 | *66 | 402 | 159 |
| 24 | 264 | 268 | 145 | 575 | *5,050 | 269 | 182 | 163 | 269 | 74 | 206 | 133 |
| 25 | 233 | 475 | 145 | 441 | *1,630 | 266 | 173 | 156 | *222 | 66 | 214 | 113 |
| 26 | 216 | 433 | 145 | 320 | 920 | 272 | 170 | 150 | 194 | 56 | 184 | 113 |
| 27 | 201 | 342 | 147 | 269 | 618 | 281 | 170 | *145 | 177 | 55 | 125 | 182 |
| 28 | 194 | 299 | 150 | *244 | 464 | 272 | 166 | 141 | 184 | 51 | 103 | 133 |
| 29 | 186 | 281 | 150 | 224 | - | 272 | *156 | 137 | 204 | 51 | 91 | 113 |
| 30 | 175 | 244 | 145 | 208 | ------- | 269 | 152 | 135 | 177 | 46 | 79 | 113 |
| 31 | 168 | ------- | 143 | 198 | ------- | 269 | ------- | 127 | ------- | 43 | 76 | ------- |
| Total | 61,311 | 8,093 | 5,079 | 7,178 | 16,951 | 11,844 | 6,834 | 7,879 | 20,171 | 2,695 | 2,610 | 3,413 |
| Mean | 1,978 | 270 | 164 | 232 | 605 | 382 | 228 | 254 | 672 | 86.9 | 84.2 | 114 |
| Ac-ft | 121,600 | 16,050 | 10,070 | 14,240 | 33,620 | 23,490 | 13,560 | 15,630 | 40,010 | 5,350 | 5,180 | 6,770 |

Calendar year 1957: Max 20,300 Min 10 Mean 662 Ac-ft 479,200
Water year 1957-58: Max 19,600 Min 25 Mean 422 Ac-ft 305,600

Peak discharge (base, 4,500 cfs).--Oct. 14 (10:30 p.m.) 32,000 cfs (28.76 ft); Feb. 24 (7:30 a.m.) 6,940 cfs (20.15 ft); June 18 (7 p.m.) 16,600 cfs (26.90 ft).

* Discharge measurement made on this day.

1470. 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 1958.

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 Apr. 16, 1925, chain gage and Apr. 17, 1925, to December 1934, water-stage recorder, at site 44 miles downstream at different datum. Aug. 30, 1930, to Mar. 18, 1940 (corrected), water-stage recorder and Mar. 19 to May 23, 1940, staff gage, at site 2,230 ft downstream at present datum.

Average discharge.--40 years (1916-19, 1920-22, 1923-58), 1,475 cfs (1,068,000 acre-ft per year).

Extremes.--Maximum discharge during year, 44,400 cfs Oct. 17 (gage height, 28.95 ft); minimum, 91 cfs Aug. 20, 21.

1915-22, 1923-58: Maximum discharge, 224,000 cfs July 23, 1938 (gage height, 63.2 ft, present site, based on floodmarks at site then in use); no flow Aug. 27-31, 1954.

Maximum stage known during period 1878 to July 22, 1938, 58.4 ft Sept. 25, 1900 (discharge, 184,000 cfs), present site, from floodmarks at former site.

Remarks.--Records good. Diversions above station for irrigation, municipal use, and oilfield operation. Flow slightly regulated by 5 reservoirs in the Colorado and Concho Rivers and Oak Creek basins above Winchell, and by 2 reservoirs in the Pecan Bayou basin; combined capacity, 838,300 acre-ft. At the end of the year the flow from 201 sq mi above this station and below the Winchell station was partly controlled by 37 floodwater-detention reservoirs with a total combined capacity of 67,540 acre-ft below the flood spillway crests, of which 62,910 acre-ft is floodwater-detention capacity and 4,630 acre-ft is sediment-storage capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The first of these floodwater-detention reservoirs was completed in January 1952. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 458: 1916. WSP 858: 1900(M), 1922(M), 1936(M). WSP 1118: Drainage area. WSP 1512: 1916-18(M), 1936.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 240 | 922 | 908 | 311 | 418 | 1,280 | 462 | 1,890 | 532 | 620 | 130 | 215 |
| 2 | 198 | 1,650 | 870 | 301 | 380 | 1,230 | *452 | 1,800 | 532 | 578 | 128 | 215 |
| 3 | 173 | 4,120 | 832 | 292 | 345 | 1,230 | 435 | 8,470 | 520 | 655 | 122 | 191 |
| 4 | 156 | 2,140 | 892 | 287 | 335 | 1,100 | 408 | 4,380 | 418 | 606 | 120 | 169 |
| 5 | 140 | 2,080 | 795 | 306 | 325 | 1,230 | 386 | 1,380 | 301 | 532 | 115 | *156 |
| 6 | 128 | 3,760 | 788 | 355 | 320 | 1,810 | 360 | 818 | 261 | 380 | 110 | 166 |
| 7 | 122 | 2,030 | 802 | 435 | 306 | 5,960 | 340 | *613 | 240 | 335 | 115 | 176 |
| 8 | 120 | 1,320 | 818 | 440 | 296 | 6,010 | 335 | 514 | 227 | 311 | 115 | 180 |
| 9 | 112 | 1,100 | 788 | 396 | 287 | 2,420 | 350 | 462 | 232 | 287 | 125 | 176 |
| 10 | 108 | 1,230 | 758 | 360 | 287 | 1,600 | 355 | 520 | 215 | 278 | 143 | 176 |
| 11 | 814 | 1,060 | 735 | 345 | 287 | 1,280 | 408 | 627 | 202 | 261 | 125 | 180 |
| 12 | 1,700 | 982 | 720 | 391 | 287 | 1,140 | 350 | 676 | 198 | 240 | 118 | 173 |
| 13 | 4,530 | 982 | 712 | 908 | 296 | 1,100 | 340 | 627 | 187 | 223 | 108 | 301 |
| 14 | 25,500 | 1,060 | 705 | 810 | 311 | 1,100 | 345 | 690 | 206 | 380 | 105 | 244 |
| 15 | 39,400 | 1,060 | 564 | 538 | 301 | 1,030 | 380 | 1,060 | 360 | 424 | 103 | 180 |
| 16 | *42,500 | 982 | 430 | 418 | 292 | 982 | 396 | 1,030 | 292 | 408 | 100 | 166 |
| 17 | 43,900 | 990 | 408 | 365 | 282 | 952 | 370 | 3,400 | 305 | 396 | 98 | 173 |
| 18 | 34,600 | 968 | 391 | 340 | 274 | 952 | 520 | 3,880 | 6,300 | 408 | 98 | 451 |
| 19 | 6,260 | 885 | *370 | 325 | 274 | 990 | 468 | 4,870 | *13,000 | 391 | 93 | 550 |
| 20 | 3,880 | 855 | 360 | 330 | 265 | 1,030 | 452 | 3,160 | 4,240 | 386 | 91 | 526 |
| 21 | 2,920 | 825 | 350 | 350 | 287 | 952 | 496 | 2,030 | 3,000 | 391 | 91 | 502 |
| 22 | *3,760 | 810 | 340 | 355 | 1,530 | 908 | 538 | 1,460 | 5,230 | 418 | 122 | 490 |
| 23 | 6,080 | 810 | 335 | 396 | 10,500 | 892 | 1,100 | 1,230 | 2,510 | *468 | 303 | 613 |
| 24 | 6,500 | 1,280 | 335 | 1,540 | 10,500 | 952 | 1,100 | 990 | 1,550 | 274 | 592 | 440 |
| 25 | 7,980 | 2,030 | 335 | 1,500 | 4,250 | 892 | 908 | 855 | *960 | 219 | 287 | 330 |
| 26 | 4,210 | *1,860 | 335 | 930 | *3,520 | 788 | 915 | 758 | 2,850 | 223 | 606 | 278 |
| 27 | 2,250 | 1,550 | 340 | 712 | 2,140 | 655 | 862 | 676 | 1,680 | 206 | 391 | 296 |
| 28 | 1,460 | 1,230 | 345 | *592 | 1,550 | 585 | 825 | *641 | 878 | 187 | 278 | 306 |
| 29 | 1,190 | 1,060 | 340 | 526 | - | 544 | 1,660 | 613 | 990 | 169 | 396 | 561 |
| 30 | 1,060 | 990 | 335 | 479 | ------- | 508 | 1,300 | 578 | 840 | 156 | 311 | 3,160 |
| 31 | 975 | ------- | 325 | 446 | ------- | 479 | ------- | 564 | ------- | 140 | 240 | ------- |
| Total | 242,966 | 42,621 | 17,361 | 16,079 | 40,445 | 42,581 | 17,616 | 51,262 | 49,256 | 10,950 | 5,879 | 11,740 |
| Mean | 7,838 | 1,421 | 560 | 519 | 1,444 | 1,374 | 587 | 1,654 | 1,642 | 353 | 190 | 391 |
| Ac-ft | 481,900 | 84,540 | 34,440 | 31,890 | 80,220 | 84,460 | 34,940 | 101,700 | 97,700 | 21,720 | 11,660 | 23,290 |

Calendar year 1957: Max 64,600 Min 38 Mean 4,060 Ac-ft 2,939,000
Water year 1957-58: Max 43,900 Min 91 Mean 1,503 Ac-ft 1,088,000

Peak discharge (base, 19,300 cfs).--Oct. 17 (11 a.m.) 44,400 cfs (28.95 ft).

* Discharge measurement made on this day.

## 1480. 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 1958.

Gage.--Indicating gage. 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, 1,001,000 acre-ft Oct. 25, 26 (gage height, 1,020.4 ft); minimum observed, 781,000 acre-ft Oct. 11 (gage height, 1,010.3 ft).

1937-58: Maximum contents observed, 1,006,000 acre-ft May 15, 1954, and May 21, 1955 (gage height, 1,020.6 ft); minimum after filling of reservoir in July 1938, 340,800 acre-ft Sept. 8-10, 1952 (gage height, 983.4 ft).

Remarks.--Reservoir is formed by 2 reinforced concrete multiple-arch sections, 3 banks of taintor gates, and a 1,088-foot reinforced concrete spillway section. Dam completed and storage began May 20, 1937. Figures given herein represent total contents. Water used for power development and irrigation of rice in several districts below Columbus. Power unit consists of three 12,500 kva generators. There is also a 14,500 hp pumpback unit designed to pump back 840 cfs at a head of 130 ft. Data regarding dam and reservoir are shown in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Total capacity, top of 1,088-foot gravity overflow spillway | 1,020.0 | 992,000 |
| Bottom of 30-33 ft wide by 15 ft high taintor gates | 1,005.0 | 678,000 |
| Bottom of 7-40 ft wide by 25 ft high taintor gates | 995.0 | 505,000 |
| Invert to penstocks | 937.0 | 36,800 |
| Invert to two 5-foot Bunger gates | 890.0 | 63 |

Cooperation.--Records of daily gage height and capacity table furnished by Lower Colorado River Authority.

Revisions.--WSP 1118: Drainage area.

Capacity table, water year 1957-58 (gage height, in feet, and total contents, in acre-feet)

| | |
|---|---|
| 1,010 | 775,000 |
| 1,015 | 880,000 |
| 1,020 | 992,000 |
| 1,021 | 1,015,000 |

Total contents, in acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 789,000 | 978,200 | 980,500 | 948,300 | 886,600 | 946,000 | 957,500 | 928,400 | 959,800 | 966,700 | 871,200 | 841,200 |
| 2 | 789,000 | 975,900 | 978,200 | 946,000 | 884,400 | 950,600 | 952,900 | 939,400 | 957,500 | 964,400 | 871,200 | 841,200 |
| 3 | 789,000 | 978,200 | 975,900 | 941,600 | 880,000 | 952,900 | 950,600 | 966,700 | 952,900 | 959,800 | 871,200 | 839,100 |
| 4 | 789,000 | 980,500 | 975,900 | 941,600 | 880,000 | 955,200 | 948,300 | 978,200 | 948,300 | 957,500 | 869,000 | 839,100 |
| 5 | 789,000 | 980,500 | 973,600 | 941,600 | 877,800 | 959,800 | 948,300 | 980,500 | 943,800 | 955,200 | 866,800 | 839,100 |
| 6 | 789,000 | 982,800 | 973,600 | 939,400 | 873,400 | 964,400 | 946,000 | 978,200 | 939,400 | 952,900 | 864,600 | 839,100 |
| 7 | 789,000 | 985,100 | 975,900 | 937,200 | 869,000 | 971,300 | 946,000 | 980,500 | 935,000 | 952,900 | 864,600 | 843,300 |
| 8 | 789,000 | 982,800 | 975,900 | 935,000 | 866,800 | 985,100 | 941,600 | 982,800 | 932,800 | 946,000 | 860,200 | 845,400 |
| 9 | 785,000 | 980,500 | 975,900 | 930,600 | 864,600 | 985,100 | 941,600 | 982,800 | 926,200 | 943,800 | 860,200 | 843,300 |
| 10 | 783,000 | 978,200 | 975,900 | 928,400 | 860,200 | 985,100 | 941,600 | 982,800 | 924,000 | 937,200 | 860,200 | 843,300 |
| 11 | 781,000 | 978,200 | 973,600 | 926,200 | 855,900 | 895,100 | 937,200 | 982,800 | 919,600 | 932,800 | 858,000 | 843,300 |
| 12 | 783,000 | 973,600 | 971,300 | 928,400 | 851,700 | 982,800 | 937,200 | 982,800 | 913,000 | 928,400 | 855,900 | 841,200 |
| 13 | 785,000 | 973,600 | 971,300 | 926,200 | 849,600 | 982,800 | 937,200 | 980,500 | 910,800 | 924,000 | 853,800 | 841,200 |
| 14 | 851,700 | 973,600 | 971,300 | 926,200 | 845,400 | 982,800 | 935,000 | 978,200 | 904,200 | 917,400 | 853,800 | 841,200 |
| 15 | 926,200 | 973,600 | 971,300 | 921,800 | 843,300 | 985,100 | 932,800 | 978,200 | 899,800 | 915,200 | 849,600 | 841,200 |
| 16 | 969,000 | 973,600 | 971,300 | 919,600 | 841,200 | 987,400 | 932,800 | 975,900 | 899,800 | 910,800 | 849,600 | 841,200 |
| 17 | 992,000 | 973,600 | 969,000 | 917,400 | 839,100 | 989,700 | 928,400 | 978,200 | 902,000 | 906,400 | 847,500 | 841,200 |
| 18 | 998,900 | 973,600 | 966,700 | 913,000 | 837,000 | 987,400 | 928,400 | 982,800 | 904,200 | 899,800 | 845,400 | 839,100 |
| 19 | 992,000 | 973,600 | 966,700 | 910,800 | 837,000 | 987,400 | 928,400 | 987,400 | 928,400 | 895,400 | 845,400 | 841,200 |
| 20 | 992,000 | 973,600 | 964,400 | 906,400 | 837,000 | 987,400 | 928,400 | 987,400 | 939,400 | 893,200 | 841,200 | 841,200 |
| 21 | 992,000 | 978,200 | 959,800 | 902,000 | 841,200 | 987,400 | 928,400 | 987,400 | 948,300 | 888,800 | 841,200 | 843,300 |
| 22 | 992,000 | 978,200 | 957,500 | 899,800 | 860,200 | 987,400 | 926,200 | 985,100 | 962,100 | 888,800 | 841,200 | 843,300 |
| 23 | 992,000 | 978,200 | 957,500 | 897,600 | 888,800 | 987,400 | 926,200 | 982,800 | 964,400 | 886,600 | 841,200 | 843,300 |
| 24 | 996,600 | 982,800 | 957,500 | 897,600 | 910,800 | 982,800 | 926,200 | 982,800 | 966,700 | 884,400 | 845,400 | 841,200 |
| 25 | 1,001,000 | 989,700 | 957,500 | 902,000 | 924,000 | 978,200 | 924,000 | 978,200 | 969,000 | 880,000 | 845,400 | 841,200 |
| 26 | 1,001,000 | 992,000 | 955,200 | 904,200 | 932,800 | 975,900 | 924,000 | 975,900 | 969,000 | 880,000 | 845,400 | 841,200 |
| 27 | 996,600 | 992,000 | 957,500 | 902,000 | 937,200 | 973,600 | 924,000 | 973,600 | 971,300 | 880,000 | 845,400 | 841,200 |
| 28 | 992,000 | 989,700 | 957,500 | 899,800 | 943,800 | 969,000 | 924,000 | 969,000 | 971,300 | 877,800 | 845,400 | 841,200 |
| 29 | 987,400 | 989,700 | 955,200 | 897,600 | - | 966,700 | 926,200 | 966,700 | 971,300 | 875,600 | 845,400 | 839,100 |
| 30 | 982,800 | 982,800 | 952,900 | 893,200 | ------- | 964,400 | 926,200 | 964,400 | 969,000 | 875,600 | 845,400 | 843,300 |
| 31 | 978,200 | ------- | 950,600 | 891,000 | ------- | 959,800 | ------- | 962,100 | ------- | 873,400 | 845,400 | ------- |
| (†) | 1,019.4 | 1,019.6 | 1,018.2 | 1,015.5 | 1,017.9 | 1,018.6 | 1,017.1 | 1,018.7 | 1,019.0 | 1,014.7 | 1,013.4 | 1,013.3 |
| (‡) | +189,200 | +4,600 | -32,200 | -59,600 | +52,800 | +16,000 | -33,600 | +35,900 | +6,900 | -95,600 | -28,000 | -2,100 |

Calendar year 1957..... ‡ +173,600
Water year 1957-58..... ‡ +54,300

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

## 1485. 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 1958.

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.--43 years, 70.4 cfs (50,970 acre-ft per year).

Extremes.--Maximum discharge during year, 19,900 cfs Oct. 14 (gage height, 11.76 ft); minimum, 3.3 cfs Oct. 6, 7.

1915-58: 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 measurement of peak flow; no flow at times.

Maximum stage known since at least 1875, that of Sept. 16, 1936; maximum stage known during period 1875 to Sept. 15, 1936, about 27.2 ft in 1889, from information by local resident.

Remarks.--Records good. Diversions for irrigation materially affect low flow.

Revisions (water years).--WSP 568: 1920, 1922; WSP 1512: 1915, 1918-19, 1923(M), 1924-26, 1928, 1930(M), 1931-33, 1934(M), 1935.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Feb. 24 to Mar. 1, June 18, 23-25)

| | | | |
|---|---|---|---|
| 1.1 | 3.9 | 2.5 | 270 |
| 1.2 | 7.5 | 3.0 | 510 |
| 1.3 | 12 | 4.0 | 1,300 |
| 1.5 | 28 | 5.0 | 2,590 |
| 1.7 | 53 | 6.0 | 4,300 |
| 2.0 | 112 | 8.0 | 8,700 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.6 | 63 | 47 | 33 | 32 | 193 | 67 | 45 | 24 | 74 | 18 | 25 |
| 2 | 6.6 | 56 | 47 | *34 | 32 | 177 | 67 | 46 | 23 | 68 | 18 | 25 |
| 3 | 6.2 | 86 | 46 | 34 | 32 | 161 | 65 | 49 | 21 | 67 | 18 | *25 |
| 4 | 6.2 | 67 | 46 | 38 | 33 | *146 | 63 | 46 | 21 | 68 | 18 | 25 |
| 5 | 5.1 | 65 | 46 | 43 | 33 | 140 | 63 | 46 | 20 | 67 | 17 | 23 |
| 6 | 4.2 | 62 | 46 | 42 | 31 | 134 | 60 | 43 | 20 | 65 | 16 | 25 |
| 7 | 4.5 | 62 | 46 | 40 | 32 | 134 | 60 | 40 | 19 | 65 | 16 | 2,710 |
| 8 | 4.5 | 56 | 45 | 39 | 32 | 124 | 60 | 39 | 18 | 62 | 15 | 587 |
| 9 | 8.5 | 53 | 43 | 37 | 32 | 117 | 60 | 39 | 18 | 58 | 15 | 179 |
| 10 | 8.0 | 58 | 43 | 35 | 33 | 112 | 58 | 39 | 17 | 53 | 15 | 110 |
| 11 | 8.5 | 67 | 42 | 34 | 33 | 108 | 55 | 43 | 15 | 50 | 15 | 88 |
| 12 | 9.0 | 65 | 40 | 33 | 33 | 108 | 55 | 39 | 13 | 46 | 15 | 74 |
| 13 | 11 | 60 | 40 | 33 | 33 | 103 | 55 | 38 | 12 | 43 | 17 | 63 |
| 14 | 8,650 | 58 | 40 | 33 | 33 | 101 | 55 | 39 | 12 | 40 | 21 | 58 |
| 15 | 7,110 | 55 | 39 | 31 | 33 | 99 | 55 | 39 | 12 | 37 | 19 | 70 |
| 16 | *1,520 | 53 | 39 | 30 | 30 | 97 | 53 | 39 | 20 | 32 | 19 | 197 |
| 17 | 366 | 53 | 39 | 30 | 30 | 92 | 53 | 38 | 3,240 | 32 | 19 | *214 |
| 18 | 238 | 52 | 39 | 30 | 31 | 99 | 58 | 37 | *712 | 30 | 18 | 97 |
| 19 | 187 | 50 | 38 | 30 | 31 | 97 | 55 | 38 | 214 | 28 | 18 | 80 |
| 20 | 158 | *49 | 37 | 32 | 31 | 88 | 60 | 38 | 124 | 28 | 18 | 99 |
| 21 | 140 | 49 | 35 | 32 | 37 | 86 | 53 | 38 | 97 | 28 | 18 | 92 |
| 22 | 132 | 50 | 37 | 30 | 5,230 | 84 | 50 | 35 | 589 | *26 | 65 | 82 |
| 23 | 114 | 50 | 38 | 37 | *4,900 | 80 | 49 | 34 | 506 | 26 | 70 | 80 |
| 24 | *101 | 58 | 37 | 39 | *690 | 78 | 46 | 32 | 415 | 25 | 53 | 80 |
| 25 | 94 | 55 | 38 | 38 | 375 | 80 | 46 | 31 | 237 | 23 | 39 | 78 |
| 26 | 88 | 53 | 38 | 37 | *286 | *80 | 46 | *32 | 132 | 23 | 34 | 78 |
| 27 | 84 | 53 | 38 | *35 | 242 | 76 | 46 | 31 | 105 | 21 | 32 | 76 |
| 28 | 74 | 50 | 35 | 34 | 214 | 74 | *46 | 30 | 92 | 20 | 29 | 76 |
| 29 | 72 | 49 | 35 | 34 | - | 72 | 45 | 29 | 86 | 20 | 28 | 76 |
| 30 | 70 | 47 | 34 | 33 | ------- | 70 | 45 | 28 | 80 | 18 | 26 | 76 |
| 31 | 67 | ------- | 33 | 33 | ------- | 68 | ------- | 25 | ------- | 18 | 26 | ------- |
| Total | 19,3539 | 1,704 | 1,246 | 1,073 | 12,614 | 3,278 | 1,649 | 1,163 | 6,914 | 1,261 | 765 | 5,568 |
| Mean | 624 | 56.8 | 40.2 | 34.6 | 450 | 106 | 55.0 | 37.5 | 230 | 40.7 | 24.7 | 186 |
| Ac-ft | 38,390 | 3,380 | 2,470 | 2,130 | 25,020 | 6,500 | 3,270 | 2,310 | 13,710 | 2,500 | 1,520 | 11,040 |

Calendar year 1957 : Max 13,800 Min 0 Mean 153 Ac-ft 110,900
Water year 1957-58 : Max 8,650 Min 4.2 Mean 155 Ac-ft 112,200

Peak discharge (base, 1,200 cfs).--Oct. 14 (9 p.m.) 19,900 cfs (11.76 ft); Feb. 22 (9:30 p.m.) 16,000 cfs (10.60 ft); June 17 (12:30 p.m.) 8,700 cfs (8.02 ft); June 22 (5:30 p.m.) 2,290 cfs (4.78 ft); Sept. 7 (1 p.m.) 9,700 cfs (8.38 ft).

* Discharge measurement made on this day.

## 1500. Llano River near Junction, Tex.

Location.--Lat 30°30', long 99°44', on right bank 250 ft north of old Kerrville-Junction road, 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 4¾ miles upstream from Johnson Fork.

Drainage area.--1,874 sq mi.

Records available.--September 1915 to September 1958.

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 5,330 ft upstream at datum 6.0 ft higher. Since Aug. 18, 1944, gage at site 5,330 ft upstream has been used as a supplementary gage for stages above 5 ft.

Average discharge.--43 years, 194 cfs (140,400 acre-ft per year).

Extremes.--Maximum discharge during year, 63,600 cfs Oct. 14 (gage height, 24.37 ft at supplementary gage); minimum, 60 cfs Oct. 8.
1915-58: Maximum discharge, 319,000 cfs June 14, 1935 (gage height, 41.4 ft at supplementary gage, from floodmarks), from rating curve extended above 54,000 cfs on basis of slope-area measurements at gage heights 32.8 and 41.4 ft at supplementary gage; minimum, 3.1 cfs Aug. 16, 17, 1956.
Maximum stage known since at least 1888, that of June 14, 1935.

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

Revisions (water years).--WSP 568: 1915-16, 1918-20, 1922. WSP 1342: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 68 | 220 | 206 | 133 | 142 | 433 | 210 | 155 | 117 | 258 | 109 | 155 |
| 2 | 64 | 210 | 206 | *133 | 142 | 409 | 206 | 174 | 117 | 238 | 105 | 142 |
| 3 | 64 | 229 | 210 | 133 | 146 | 376 | *201 | 164 | 105 | 224 | 105 | *133 |
| 4 | 62 | 215 | 210 | 151 | 151 | *365 | 187 | 151 | 105 | 215 | 109 | 133 |
| 5 | 62 | 206 | 210 | 164 | 146 | 349 | 183 | 142 | 105 | 210 | 105 | 133 |
| 6 | 62 | 197 | 210 | 155 | 151 | 338 | 174 | 138 | 102 | 210 | 105 | 138 |
| 7 | 62 | 192 | 210 | 151 | 151 | 338 | 174 | 133 | 99 | 215 | 105 | 3,290 |
| 8 | 62 | 183 | 206 | 146 | 151 | 328 | 169 | 133 | 97 | 206 | 102 | 1,170 |
| 9 | 91 | 174 | 206 | 142 | 151 | 312 | 169 | 133 | 97 | 197 | 102 | 409 |
| 10 | 94 | 183 | 206 | 138 | 151 | 297 | 169 | 133 | 97 | 187 | 102 | 312 |
| 11 | 85 | 315 | 201 | 138 | 151 | 287 | 164 | 142 | 91 | 183 | 102 | 267 |
| 12 | 80 | 292 | 197 | 138 | 151 | 282 | 164 | 138 | 88 | 174 | 99 | 248 |
| 13 | 77 | 258 | 197 | 138 | 151 | 272 | 164 | 133 | 85 | 169 | 99 | 224 |
| 14 | *27,200 | 243 | 197 | 133 | 146 | 262 | 164 | 133 | 85 | 160 | 102 | 215 |
| 15 | *13,700 | 233 | 197 | 129 | 146 | 253 | 164 | 142 | 85 | 151 | 109 | 206 |
| 16 | 3,780 | 229 | 197 | 125 | 142 | 243 | 160 | 142 | 102 | 151 | 109 | 2,160 |
| 17 | 1,050 | 224 | 192 | 125 | 142 | 243 | 164 | 142 | 3,210 | 151 | 109 | *3,070 |
| 18 | 670 | 215 | 183 | 125 | 142 | 258 | 174 | 208 | *3,140 | 146 | 105 | 606 |
| 19 | 530 | 215 | 169 | 125 | 142 | 253 | 169 | 155 | 786 | 142 | 105 | 433 |
| 20 | 438 | *210 | 164 | 129 | 142 | 238 | 178 | 151 | 319 | 138 | 109 | 791 |
| 21 | 398 | 210 | 160 | 129 | 155 | 229 | 164 | 151 | 225 | 138 | 117 | 844 |
| 22 | 381 | 210 | 155 | 129 | 5,750 | 229 | 160 | 146 | 1,400 | *133 | 170 | 482 |
| 23 | 338 | 210 | 151 | 146 | 9,930 | 233 | 155 | 142 | 2,280 | 133 | 387 | 427 |
| 24 | *312 | 224 | 155 | 151 | *1,620 | 233 | 155 | 142 | *2,640 | 129 | 262 | 365 |
| 25 | 297 | 220 | 155 | 146 | 822 | 238 | 155 | 138 | 1,130 | 129 | 220 | 343 |
| 26 | 277 | 215 | 151 | 142 | *630 | 233 | 155 | *133 | 508 | 122 | 192 | 328 |
| 27 | 262 | 210 | 151 | *142 | 522 | *224 | 169 | 133 | 387 | 113 | 183 | 318 |
| 28 | 248 | 210 | 142 | 142 | 470 | 224 | *164 | 133 | 338 | 113 | 174 | 307 |
| 29 | 243 | 210 | 142 | 146 | - | 224 | 160 | 129 | 302 | 113 | 164 | 297 |
| 30 | 233 | 206 | 142 | 142 | ------- | 220 | 155 | 125 | 277 | 113 | 160 | 292 |
| 31 | 224 | ------- | 138 | 146 | ------- | 215 | ------- | 121 | ------- | 113 | 155 | ------- |
| Total | 51,514 | 6,568 | 5,616 | 4,312 | 22,836 | 8,638 | 5,099 | 4,435 | 18,519 | 5,074 | 4,281 | 18,238 |
| Mean | 1,662 | 219 | 181 | 139 | 816 | 279 | 170 | 143 | 617 | 164 | 138 | 608 |
| Ac-ft | 102,200 | 13,030 | 11,140 | 8,550 | 45,290 | 17,130 | 10,110 | 8,800 | 36,730 | 10,060 | 8,490 | 36,170 |

Calendar year 1957: Max 27,200 Min 24 Mean 467 Ac-ft 338,000
Water year 1957-58: Max 27,200 Min 62 Mean 425 Ac-ft 307,700

Peak discharge (base, 2,100 cfs).--Oct. 14 (2 p.m.) 63,600 cfs (24.37 ft); Feb. 23 (3 a.m.) 20,600 cfs (14.60 ft); June 17 (2 p.m.) 8,290 cfs (9.15 ft); June 22 (11 p.m.) 7,400 cfs (8.51 ft); Sept. 7 (2:30 p.m.) 11,600 cfs (10.76 ft); Sept. 16 (10 p.m.) 13,100 cfs (11.38 ft).

* Discharge measurement made on this day.

## 1515. 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.--4,233 sq mi.

Records available.--September 1939 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 970.01 ft above mean sea level, datum of 1929.

Average discharge.--19 years, 303 cfs (219,400 acre-ft per year).

Extremes.--Maximum discharge during year, 83,700 cfs Oct. 14 (gage height, 21.78 ft); minimum, 52 cfs Oct. 7.

1939-58: Maximum discharge, 232,000 cfs Sept. 10, 1952 (gage height, 32.6 ft), from rating curve extended above 129,000 cfs on basis of slope-area measurement of peak flow; no flow at times 1952-56.

Maximum stage known since at least 1899, 41.5 ft June 14, 1935 (discharge, 380,000 cfs), from information by local resident.

Remarks.--Records good. Many small diversions above station. Part of low flow of Llano River disappears into the formations between Llano and station near Junction.

Revisions.--WSP 1342: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 78 | 373 | 507 | 256 | 362 | 1,100 | 474 | 309 | 189 | 373 | 136 | 181 |
| 2 | 75 | 427 | 494 | *242 | 351 | 1,180 | *474 | 2,600 | 170 | 335 | 136 | 166 |
| 3 | 69 | 1,320 | 481 | 238 | 340 | 1,010 | 474 | 6,330 | 156 | 309 | 130 | 166 |
| 4 | 67 | 612 | 468 | 270 | 340 | 926 | 449 | 1,290 | 149 | 293 | 130 | *166 |
| 5 | 69 | 520 | 449 | 698 | 346 | *917 | 419 | 605 | 143 | 274 | 130 | 162 |
| 6 | 64 | 590 | 449 | 780 | 346 | 908 | 384 | 449 | 140 | 247 | 130 | 166 |
| 7 | 58 | 527 | 468 | 500 | 324 | 1,450 | 373 | 384 | 133 | 324 | 136 | 212 |
| 8 | 64 | 462 | 431 | 390 | 309 | 1,780 | 373 | 330 | 130 | 368 | 133 | 1,510 |
| 9 | 64 | 373 | 384 | 346 | 309 | 1,300 | 401 | 304 | 127 | 293 | 130 | 1,750 |
| 10 | 234 | 368 | 368 | 330 | 330 | 934 | 378 | 283 | 124 | 270 | 130 | 836 |
| 11 | 286 | 997 | 351 | 314 | 340 | 796 | 356 | 274 | 121 | 251 | 127 | 569 |
| 12 | 162 | 1,450 | 340 | 362 | 346 | 788 | 351 | 265 | 118 | 238 | 124 | 462 |
| 13 | 121 | 1,200 | 335 | 569 | 340 | 828 | 395 | 265 | 116 | 225 | 124 | 368 |
| 14 | 29,100 | 884 | 335 | 413 | 330 | 718 | 449 | 265 | 113 | 212 | 127 | 319 |
| 15 | *48,800 | 710 | 330 | 335 | 314 | 665 | 413 | 270 | 113 | 208 | 130 | 293 |
| 16 | *15,700 | 620 | 330 | 298 | 293 | 628 | 373 | 319 | 113 | 200 | 127 | 314 |
| 17 | *4,690 | 583 | 324 | 283 | 288 | 605 | 356 | 304 | 553 | 196 | 130 | *1,210 |
| 18 | *2,050 | 562 | 324 | 279 | 283 | 882 | 437 | 270 | 5,480 | 189 | 133 | *2,920 |
| 19 | 1,300 | 513 | 314 | 274 | 288 | 1,110 | 437 | 283 | *3,780 | 185 | 146 | 1,150 |
| 20 | 1,010 | 494 | 298 | 340 | 293 | 788 | 431 | 351 | 1,350 | 181 | 140 | 836 |
| 21 | *868 | 455 | 279 | 413 | 384 | *680 | 413 | 335 | 1,120 | 177 | 140 | 689 |
| 22 | 934 | 555 | 270 | 346 | 5,860 | 628 | 390 | 270 | 1,570 | *173 | 159 | 1,010 |
| 23 | 844 | 650 | 279 | 912 | 18,300 | 905 | 346 | 247 | 2,170 | 170 | 192 | 812 |
| 24 | 665 | 2,000 | 474 | 1,390 | *8,100 | 756 | 314 | 229 | 3,060 | 166 | 346 | 576 |
| 25 | 569 | 2,340 | 378 | 836 | *3,340 | 628 | 293 | 217 | *2,600 | 152 | 641 | 527 |
| 26 | 513 | 1,250 | 330 | 628 | 2,050 | 725 | 293 | 208 | 1,700 | 149 | 401 | 494 |
| 27 | 462 | *892 | 319 | *541 | 1,400 | 620 | 298 | *200 | 892 | 152 | 283 | 488 |
| 28 | 437 | 732 | 304 | 488 | 1,130 | 569 | *309 | 196 | 620 | 152 | 238 | 449 |
| 29 | 413 | 635 | 283 | 462 | - | 548 | 293 | 762 | 488 | 149 | 212 | 425 |
| 30 | 395 | 555 | 270 | 425 | ------- | 513 | 298 | 413 | 419 | 143 | 196 | 395 |
| 31 | 384 | ------- | 260 | 395 | ------- | 488 | ------- | 247 | ------- | 140 | 185 | ------- |
| Total | 110,545 | 23,649 | 11,226 | 14,353 | 47,036 | 26,373 | 11,444 | 19,074 | 27,957 | 6,894 | 5,622 | 19,621 |
| Mean | 3,566 | 788 | 362 | 463 | 1,680 | 851 | 381 | 615 | 932 | 222 | 181 | 654 |
| Ac-ft | 219,300 | 46,910 | 22,270 | 28,470 | 93,290 | 52,310 | 22,700 | 37,830 | 55,450 | 13,670 | 11,150 | 38,920 |

Calendar year 1957: Max 48,800 Min 15 Mean 1,025 Ac-ft 742,300
Water year 1957-58: Max 48,800 Min 58 Mean 887 Ac-ft 642,300

Peak discharge (base, 8,500 cfs).--Oct. 14 (7 p.m.) 83,700 cfs (21.78 ft); Feb. 23 (3 p.m.) 25,800 cfs (13.39 ft); May 3 (3 a.m.) 13,400 cfs (9.58 ft).

* Discharge measurement made on this day.

## 1535. Pedernales River near Johnson City, Tex.

Location.--Lat 30°18', long 98°24', near center of span at downstream side of bridge on U. S. Highway 281, 0.2 mile downstream from Flat Creek, 1.2 miles northeast of Johnson City, Blanco County, and 2.0 miles downstream from Buffalo Creek.

Drainage area.--947 sq mi.

Records available.--May 1939 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,096.70 ft above mean sea level, datum of 1929, supplementary adjustment of 1942. May 4 to Sept. 13, 1939, wire-weight gage and Sept. 14, 1939, to Sept. 10, 1952, water-stage recorder, at upstream side of bridge at same datum. Sept. 11, 1952, to June 29, 1953, staff gage and June 30, 1953, to Oct. 7, 1954, water-stage recorder at site 360 ft downstream at same datum.

Average discharge.--19 years, 159 cfs (115,100 acre-ft per year).

Extremes.--Maximum discharge during year, 41,600 cfs June 17 (gage height, 17.45 ft); minimum, 14 cfs Oct. 12.

1939-58: Maximum discharge, 441,000 cfs Sept. 11, 1952 (gage height, 42.5 ft, from floodmark), from rating curve extended above 42,000 cfs on basis of slope-area measurements at gage heights 27.6 and 42.5 ft; no flow at times in 1951-52, 1954, 1956.

Maximum stage since at least July 1869, that of Sept. 11, 1952; flood in July 1869 reached a stage of about 33 ft, from information by local residents.

Remarks.--Records fair. Some diversions above station for irrigation.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-13, Feb. 26 to Mar. 5, June 18 to Sept. 30)

| | | | | | |
|---|---|---|---|---|---|
| 2.4 | 12 | 3.5 | 352 | 6.0 | 3,250 |
| 2.5 | 20 | 4.0 | 675 | 8.0 | 6,810 |
| 2.7 | 50 | 4.5 | 1,120 | 10.0 | 11,300 |
| 2.9 | 103 | 5.0 | 1,730 | 13.0 | 21,600 |
| 3.1 | 174 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 88 | 198 | 103 | 148 | 395 | 210 | 137 | 82 | 206 | 35 | 30 |
| 2 | 25 | 91 | 194 | 97 | 144 | 406 | 218 | 3,060 | 76 | 190 | 33 | 28 |
| 3 | 24 | 134 | 186 | 94 | 144 | 379 | 218 | 3,850 | 68 | 174 | 42 | 25 |
| 4 | 23 | 134 | 174 | 103 | 144 | 363 | 202 | 697 | 62 | 159 | 42 | 24 |
| 5 | 21 | 120 | 167 | 249 | 148 | 555 | 186 | 384 | 57 | 148 | 42 | 25 |
| 6 | 20 | *110 | 167 | 342 | 148 | 418 | 174 | 308 | 52 | 144 | 35 | 35 |
| 7 | *20 | 113 | 163 | 223 | 144 | 728 | 167 | 275 | 50 | 206 | 33 | *1,800 |
| 8 | 20 | 120 | 148 | 178 | 134 | 412 | 170 | 257 | 47 | 374 | 32 | 465 |
| 9 | 20 | 100 | 141 | 163 | 137 | 342 | 186 | 240 | *47 | 244 | 32 | 257 |
| 10 | 20 | 113 | *134 | 156 | 144 | 328 | 159 | 227 | 45 | 163 | 28 | 123 |
| 11 | 20 | 332 | 120 | 152 | 156 | 308 | 152 | 210 | 42 | 137 | 28 | 88 |
| 12 | 19 | 441 | 120 | 156 | 159 | 323 | 152 | 198 | 40 | 123 | 26 | 71 |
| 13 | 27 | 323 | 120 | 156 | 156 | 328 | 174 | 202 | *38 | 110 | *25 | 68 |
| 14 | 3,560 | 248 | 120 | 144 | 152 | 298 | 323 | 198 | 36 | *88 | 24 | 64 |
| 15 | 4,930 | 214 | 120 | *134 | 148 | 289 | 202 | 202 | 36 | 79 | 23 | 52 |
| 16 | *1,780 | 194 | 120 | 127 | 141 | 280 | 174 | 198 | 38 | 73 | 23 | 52 |
| 17 | 386 | 182 | 120 | 123 | 134 | 280 | 159 | 186 | 19,000 | 68 | 24 | 88 |
| 18 | 186 | 486 | 120 | 120 | 134 | 352 | 159 | 174 | 3,050 | 64 | 28 | 198 |
| 19 | 141 | 288 | 117 | 127 | 137 | 406 | 167 | 163 | 968 | 59 | 62 | 5,080 |
| 20 | 117 | 182 | 103 | 137 | 144 | 303 | 170 | 174 | 622 | 57 | 38 | 1,250 |
| 21 | 121 | 167 | 103 | 141 | 224 | 280 | 174 | 170 | 436 | 57 | 29 | 379 |
| 22 | 454 | 227 | 103 | 137 | 3,810 | 275 | 156 | 156 | 2,240 | 55 | 256 | 271 |
| 23 | 240 | 274 | 106 | 302 | 3,820 | 285 | 141 | 144 | 1,470 | 55 | 540 | 227 |
| 24 | 148 | 739 | 127 | 464 | 867 | 285 | 130 | 134 | 608 | 50 | 368 | *198 |
| 25 | 123 | 660 | 163 | 280 | 638 | 280 | 127 | 123 | 430 | 48 | 163 | 170 |
| 26 | 106 | 430 | 156 | 223 | 558 | *294 | 130 | 113 | 347 | 45 | 73 | 305 |
| 27 | 103 | 313 | 144 | 198 | *453 | 262 | 159 | 106 | 298 | 43 | 55 | 318 |
| 28 | 97 | 266 | 144 | *186 | 406 | 244 | 152 | 97 | 262 | 40 | 45 | 190 |
| 29 | 94 | 214 | 127 | 182 | - | 244 | 141 | 88 | 248 | 40 | 38 | 159 |
| 30 | 94 | 210 | 120 | 167 | ------- | 227 | *137 | 82 | 223 | 35 | 35 | 148 |
| 31 | 91 | ------- | 110 | 156 | ------- | 214 | ------- | 73 | ------- | 30 | 32 | ------- |
| Total | 13,056 | 7,513 | 4,255 | 5,520 | 13,672 | 10,383 | 5,169 | 12,626 | 31,019 | 3,364 | 2,289 | 12,188 |
| Mean | 421 | 250 | 137 | 178 | 488 | 335 | 172 | 407 | 1,034 | 109 | 73.8 | 406 |
| Ac-ft | 25,900 | 14,900 | 8,440 | 10,950 | 27,120 | 20,590 | 10,250 | 25,040 | 61,530 | 6,670 | 4,540 | 24,170 |

Calendar year 1957 : Max 26,100 Min 1.0 Mean 302 Ac-ft 218,400
Water year 1957-58 : Max 19,000 Min 19 Mean 332 Ac-ft 240,100

Peak discharge (base, 8,300 cfs).--Oct. 15 (5 p.m.) 15,600 cfs (11.30 ft); Feb. 22 (9 p.m.) 9,680 cfs (9.39 ft); May 2 (5:30 p.m.) 15,200 cfs (11.18 ft); June 17 (5:30 a.m.) 41,600 cfs (17.45 ft); Sept. 7 (12 m.) 8,380 cfs (8.80 ft); Sept. 19 (12 m.) 20,900 cfs (12.80 ft).

* Discharge measurement made on this day.

## 1545. 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.--38,130 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--September 1940 to September 1958. Prior to October 1948, published as Marshall Ford Reservoir near Austin.

Gage.--Indicating gage. 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, datum at mean sea level, unadjusted.

Extremes.--Maximum contents observed during year, 1,375,000 acre-ft Oct. 19 (gage height, 691.1 ft); minimum observed, 956,800 acre-ft Sept. 6 (gage height, 668.7 ft).
1940-58: Maximum contents observed, 1,770,000 acre-ft May 18, 1957 (gage height, 707.4 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. Capacity between gage heights 681.0 and 714.0 ft is 778,000 acre-ft and is reserved for flood control. Figures given herein represent total contents. Water used for power development and for irrigation of rice in several districts below Columbus. Data regarding dam and reservoir are shown in following table:

| | Gage height (feet) | Capacity (acre-feet) |
|---|---|---|
| Maximum design level - top of spillway... | 714.0 | 1,950,000 |
| Maximum power pool..... | 681.0 | 1,172,000 |
| Bottom of penstocks..... | 552.0 | 54,800 |
| Bottom of twenty-four 8½-foot diameter paradox gates..... | 535.8 | 27,900 |

Cooperation.--Records of daily gage heights and capacity curve furnished by Lower Colorado River Authority.

Revisions.--WSP 1342: Drainage area.

Capacity table, water year 1957-58 (gage height, in feet, and total contents, in acre-feet)

| | | | |
|---|---|---|---|
| 665 | 899,700 | 685 | 1,252,000 |
| 670 | 976,900 | 690 | 1,352,000 |
| 675 | 1,062,000 | 695 | 1,461,000 |
| 680 | 1,152,000 | | |

Total contents, in thousands of acre-feet, at 12 p.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,015 | 1,348 | 1,258 | 1,138 | 1,127 | 1,294 | 1,200 | 1,112 | 1,158 | 1,206 | 1,076 | 964.5 |
| 2 | 1,013 | 1,346 | 1,256 | 1,138 | 1,136 | 1,290 | 1,194 | 1,143 | 1,158 | 1,204 | 1,073 | 966.0 |
| 3 | 1,008 | 1,338 | 1,254 | 1,134 | 1,136 | 1,286 | 1,192 | 1,178 | 1,158 | 1,200 | 1,069 | 959.8 |
| 4 | 1,005 | 1,336 | 1,250 | 1,130 | 1,138 | 1,284 | 1,188 | 1,188 | 1,156 | 1,192 | 1,066 | 958.3 |
| 5 | 1,001 | 1,334 | 1,242 | 1,132 | 1,141 | 1,284 | 1,184 | 1,190 | 1,154 | 1,190 | 1,060 | 958.3 |
| 6 | 999.6 | 1,330 | 1,236 | 1,136 | 1,141 | 1,284 | 1,174 | 1,192 | 1,152 | 1,186 | 1,057 | 956.8 |
| 7 | 996.3 | 1,328 | 1,230 | 1,138 | 1,143 | 1,280 | 1,166 | 1,190 | 1,148 | 1,182 | 1,051 | 961.4 |
| 8 | 991.4 | 1,324 | 1,220 | 1,136 | 1,143 | 1,272 | 1,164 | 1,186 | 1,143 | 1,176 | 1,048 | 964.5 |
| 9 | 991.4 | 1,318 | 1,210 | 1,136 | 1,143 | 1,268 | 1,164 | 1,180 | 1,141 | 1,178 | 1,046 | 963.0 |
| 10 | 991.4 | 1,312 | 1,200 | 1,134 | 1,145 | 1,274 | 1,164 | 1,176 | 1,139 | 1,174 | 1,040 | 964.5 |
| 11 | 986.6 | 1,308 | 1,194 | 1,132 | 1,148 | 1,276 | 1,160 | 1,168 | 1,139 | 1,170 | 1,032 | 964.5 |
| 12 | 993.0 | 1,308 | 1,186 | 1,132 | 1,150 | 1,274 | 1,158 | 1,168 | 1,136 | 1,164 | 1,028 | 963.0 |
| 13 | 994.6 | 1,308 | 1,184 | 1,130 | 1,152 | 1,266 | 1,156 | 1,168 | 1,136 | 1,156 | 1,026 | 963.0 |
| 14 | 1,062 | 1,308 | 1,178 | 1,130 | 1,152 | 1,262 | 1,156 | 1,168 | 1,134 | 1,150 | 1,021 | 961.4 |
| 15 | 1,188 | 1,308 | 1,172 | 1,129 | 1,150 | 1,256 | 1,152 | 1,168 | 1,129 | 1,147 | 1,015 | 961.4 |
| 16 | 1,254 | 1,304 | 1,170 | 1,127 | 1,147 | 1,256 | 1,150 | 1,168 | 1,134 | 1,143 | 1,010 | 959.8 |
| 17 | 1,314 | 1,298 | 1,170 | 1,127 | 1,145 | 1,240 | 1,150 | 1,166 | 1,242 | 1,141 | 1,010 | 959.8 |
| 18 | 1,360 | 1,302 | 1,168 | 1,130 | 1,139 | 1,240 | 1,147 | 1,160 | 1,250 | 1,139 | 1,006 | 961.4 |
| 19 | 1,373 | 1,288 | 1,166 | 1,127 | 1,136 | 1,236 | 1,145 | 1,162 | 1,252 | 1,138 | 1,003 | 973.8 |
| 20 | 1,369 | 1,280 | 1,168 | 1,129 | 1,134 | 1,232 | 1,141 | 1,164 | 1,252 | 1,138 | 996.3 | 983.3 |
| 21 | 1,367 | 1,276 | 1,164 | 1,132 | 1,139 | 1,232 | 1,138 | 1,164 | 1,248 | 1,134 | 996.3 | 989.8 |
| 22 | 1,369 | 1,270 | 1,158 | 1,134 | 1,176 | 1,228 | 1,136 | 1,166 | 1,246 | 1,130 | 991.4 | 996.3 |
| 23 | 1,362 | 1,266 | 1,156 | 1,134 | 1,248 | 1,226 | 1,134 | 1,168 | 1,236 | 1,130 | 980.1 | 996.3 |
| 24 | 1,362 | 1,262 | 1,152 | 1,134 | 1,280 | 1,224 | 1,130 | 1,168 | 1,238 | 1,123 | 998.2 | 993.0 |
| 25 | 1,362 | 1,260 | 1,154 | 1,134 | 1,294 | 1,216 | 1,129 | 1,168 | 1,238 | 1,118 | 986.6 | 998.0 |
| 26 | 1,360 | 1,260 | 1,154 | 1,132 | 1,302 | 1,216 | 1,125 | 1,172 | 1,234 | 1,114 | 981.7 | 996.3 |
| 27 | 1,360 | 1,266 | 1,152 | 1,132 | 1,300 | 1,214 | 1,120 | 1,172 | 1,228 | 1,114 | 980.1 | 996.3 |
| 28 | 1,360 | 1,264 | 1,154 | 1,132 | 1,298 | 1,210 | 1,120 | 1,168 | 1,224 | 1,103 | 976.9 | 993.0 |
| 29 | 1,358 | 1,266 | 1,148 | 1,132 | - | 1,208 | 1,120 | 1,168 | 1,214 | 1,098 | 973.8 | 993.0 |
| 30 | 1,358 | 1,264 | 1,145 | 1,132 | ------- | 1,206 | 1,114 | 1,164 | 1,210 | 1,093 | 972.2 | 994.6 |
| 31 | 1,354 | ------- | 1,141 | 1,132 | ------- | 1,204 | ------- | 1,162 | ------- | 1,085 | 967.6 | ------- |
| (†) | 690.1 | 685.6 | 679.4 | 678.9 | 687.3 | 682.6 | 677.9 | 680.5 | 682.9 | 676.3 | 669.4 | 671.1 |
| (‡) | +336,000 | -90,000 | -123,000 | -9,000 | +166,000 | -94,000 | -90,000 | +48,000 | +48,000 | -125,000 | -117,400 | +27,000 |

Calendar year 1957..... ‡ +218,400
Water year 1957-58..... ‡ -23,400

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

## 1555. Barton Springs at Austin, Tex.

Location.--Lat 30°15'50", long 97°46'15". 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 1958 (discharge measurements only). Summary of all discharge measurements prior to October 1937 is contained in WSP 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, 133 cfs Mar. 3; minimum measured, 42.8 cfs Oct. 2.
1894-1958: Maximum discharge measured, 166 cfs May 10, 1941; minimum measured, 9.59 cfs Mar. 29, 1956.

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 the 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 1957 to September 1958

| Date | Barton Creek below springs | Barton Creek above springs | Barton Springs |
|---|---|---|---|
| Oct. 2, 1957..... | 76.8 | 34.0 | 42.8 |
| Nov. 9..... | 117 | 65.0 | 52.0 |
| Dec. 14..... | 159 | 67.3 | 91.4 |
| Jan. 22, 1958..... | 129 | 54.1 | 74.6 |
| Mar. 3..... | 368 | 235 | 133 |
| Apr. 2..... | 184 | 78.2 | a105 |
| May 13..... | 236 | 162 | 74.6 |
| June 24..... | 177 | 81.3 | a95.5 |
| July 29..... | 72.7 | .52 | 72.2 |
| Aug. 26..... | 56.1 | 0 | 56.1 |
| 29..... | 49.6 | 0 | a49.6 |

a Swimming pool above measuring section filled.

## 1570. Waller Creek at 38th Street, Austin, Tex.

Location.--Lat 30°17'49", long 96°43'36", on right bank 200 ft upstream from bridge at East 38th Street at Austin, Travis County, 1.1 miles upstream from West Branch of Waller Creek, and 3.3 miles upstream from Colorado River.

Drainage area.--2.31 sq mi.

Records available.--April 1955 to September 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 555.44 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Extremes.--Maximum discharge during year, 518 cfs Oct. 14 (gage height, 5.54 ft); minimum, 0.1 cfs Oct. 4, caused by regulation upstream.
1955-58: Maximum discharge, 596 cfs May 26, 1957; no flow many days each year 1955-57.

Remarks.--Records good. Flow slightly regulated at times by a small reservoir at St. Mary's Academy on West 41st Street, and a small swimming pool at the academy which is drained into the creek every week or two during the summer. Other swimming pools drain into the creek, causing rises which are not from rainfall.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 2.1 | 0.5 | 3.0 | 16 |
| 2.2 | .9 | 3.2 | 27 |
| 2.4 | 2.0 | 3.4 | 42 |
| 2.6 | 4.3 | 3.6 | 63 |
| 2.8 | 8.7 | 4.0 | 117 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.7 | 1.0 | 1.2 | 1.0 | 0.8 | 2.1 | 2.0 | 1.2 | 0.9 | 1.2 | 1.1 | 1.1 |
| 2 | .7 | 1.0 | 1.1 | 1.0 | .8 | 1.7 | 1.2 | 26 | .8 | 1.2 | 1.1 | .7 |
| 3 | .6 | 1.1 | 1.0 | .9 | .8 | 1.6 | 1.1 | 27 | .8 | *1.2 | 1.2 | .7 |
| 4 | .5 | 1.6 | 1.1 | 1.3 | 1.0 | 1.7 | 1.2 | 2.5 | .8 | .8 | .9 | .7 |
| 5 | .5 | 1.4 | 1.1 | 4.6 | 1.3 | 8.2 | .9 | 1.7 | .9 | 1.3 | 1.1 | 1.0 |
| 6 | .5 | 1.0 | *1.2 | 1.7 | 1.3 | 1.7 | .6 | 1.4 | 1.1 | 21 | 1.1 | .8 |
| 7 | .7 | 1.0 | 1.1 | 1.1 | *1.3 | 2.3 | .6 | 1.4 | 1.1 | 1.9 | 1.1 | 18 |
| 8 | .6 | .9 | 1.1 | 1.1 | 1.3 | 1.6 | 1.2 | 1.3 | 1.1 | 1.5 | 1.1 | 2.1 |
| 9 | .6 | .9 | 1.0 | *1.1 | 1.3 | 1.4 | 2.1 | 1.3 | .9 | 1.5 | .7 | 1.0 |
| 10 | .6 | 2.0 | 1.0 | 1.1 | 1.5 | 1.4 | 1.1 | 1.1 | 1.1 | 1.4 | .8 | 1.0 |
| 11 | .5 | 4.2 | 1.0 | 1.1 | 1.4 | 1.4 | 1.0 | 1.1 | 1.1 | 1.3 | .6 | 1.0 |
| 12 | .5 | 3.0 | 1.0 | 8.8 | 1.8 | 4.2 | 1.3 | 1.0 | 1.1 | 1.2 | .8 | 1.0 |
| 13 | 3.3 | 1.0 | 1.1 | 1.9 | 1.3 | 1.5 | 14 | 1.0 | 1.1 | 1.2 | .8 | .9 |
| 14 | *111 | .7 | 1.2 | 1.4 | 1.3 | *1.4 | 3.5 | 1.0 | .9 | .9 | .9 | .9 |
| 15 | *84 | .7 | 1.0 | 1.2 | 1.2 | 1.3 | 1.2 | 4.5 | 1.1 | 1.2 | .8 | .9 |
| 16 | 11 | 1.1 | .9 | 1.2 | 1.1 | 1.3 | 1.2 | 1.3 | 2.1 | 1.1 | .8 | 1.0 |
| 17 | 5.6 | 1.1 | .9 | .8 | 1.2 | 1.3 | 1.1 | 1.1 | 48 | 1.1 | .7 | 1.0 |
| 18 | 3.6 | 1.5 | 1.0 | 1.1 | 1.1 | 5.6 | 1.1 | 1.1 | 1.8 | 1.1 | 1.1 | 1.0 |
| 19 | 2.3 | 1.0 | .9 | 1.2 | 1.1 | 1.4 | 1.1 | 1.0 | 1.6 | .9 | 1.3 | 4.2 |
| 20 | 1.6 | 1.0 | .9 | 2.5 | 1.2 | 1.3 | 4.5 | 1.0 | 1.5 | 1.1 | 1.2 | 19 |
| 21 | 5.7 | 1.6 | .9 | 1.3 | 47 | 1.3 | *1.1 | 1.0 | 2.1 | .9 | 1.1 | 1.3 |
| 22 | 38 | 2.7 | .9 | 1.7 | *114 | 1.4 | 1.1 | 1.0 | 1.6 | 1.1 | *1.6 | 1.5 |
| 23 | 6.6 | 6.0 | *.9 | 9.5 | 20 | 1.4 | 1.1 | 1.0 | 1.1 | 1.1 | 1.3 | 1.3 |
| 24 | 4.3 | 4.8 | .9 | 1.6 | 6.2 | 1.2 | 1.1 | .9 | 1.4 | 1.1 | 1.8 | 1.1 |
| 25 | *2.7 | 1.7 | 4.4 | 1.1 | 3.7 | 1.5 | 1.0 | .9 | 1.4 | 1.1 | 1.0 | 1.2 |
| 26 | 2.0 | 1.6 | .6 | 1.0 | 2.7 | 1.3 | 31 | *.9 | 1.1 | 1.1 | 1.1 | 1.1 |
| 27 | 1.6 | 1.6 | 3.5 | .9 | 2.0 | 1.2 | 2.1 | .9 | 1.3 | 1.1 | 1.2 | 1.1 |
| 28 | 1.4 | 1.4 | .6 | .9 | 1.8 | 1.2 | 1.6 | .8 | 1.3 | .9 | 1.0 | 1.0 |
| 29 | 1.3 | 1.2 | .6 | .8 | - | 2.5 | 1.3 | .9 | 1.2 | 1.1 | 1.2 | *1.0 |
| 30 | 1.2 | 1.1 | .6 | .8 | ------- | 1.1 | 1.3 | .9 | .9 | 1.2 | 1.1 | 10 |
| 31 | 1.0 | ------- | .6 | .8 | ------- | 1.1 | ------- | .9 | ------- | 1.1 | 1.1 | ------- |
| Total | 295.2 | 50.9 | 35.3 | 56.5 | 221.5 | 59.6 | 84.7 | 89.1 | 83.2 | 55.9 | 32.7 | 78.6 |
| Mean | 9.52 | 1.70 | 1.14 | 1.82 | 7.91 | 1.92 | 2.82 | 2.87 | 2.77 | 1.80 | 1.05 | 2.62 |
| Ac-ft | 586 | 101 | 70 | 112 | 439 | 118 | 168 | 177 | 165 | 111 | 65 | 156 |

Calendar year 1957: Max 111 Min 0 Mean 2.75 Ac-ft 1,990
Water year 1957-58: Max 114 Min 0.5 Mean 3.13 Ac-ft 2,260

Peak discharge (base, 200 cfs).--Oct. 14 (1:15 p.m.) 518 cfs (5.54 ft); Feb. 22 (5 p.m.) 304 cfs (4.87 ft); Apr. 13 (10:30 p.m.) 318 cfs (4.92 ft); Apr. 26 (5:30 p.m.) 464 cfs (5.39 ft); May 2 (5:15 p.m.) 241 cfs (4.63 ft); June 17 (3:30 a.m.) 315 cfs (4.91 ft); July 6 (7 p.m.) 500 cfs (5.51 ft).

* Discharge measurement made on this day.

## 1575. Waller Creek at 23d Street, Austin, Tex.

Location.--Lat 30°17'08", long 97°44'01", on San Jacinto Boulevard, 50 ft upstream from bridge on East 23d Street at Austin, Travis County, and 2.1 miles upstream from Colorado River.

Drainage area.--4.13 sq mi.

Records available.--December 1954 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 509.95 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Extremes.--Maximum discharge during year, 1,700 cfs Apr. 26 (gage height, 5.47 ft); minimum daily, 1.2 cfs Oct. 12.

1954-58: Maximum discharge, 2,050 cfs June 12, 1957 (gage height, 5.85 ft); minimum daily, 0.2 cfs at times.

Maximum flood since about 1885 occurred Apr. 22, 1915, when stream was 30 to 40 ft deep, probably near mouth of creek, from information by U. S. Weather Bureau.

Remarks.--Records good. Some regulation by small dam upstream. Diversion of city water into channel during the summer months from municipal and private swimming pools. Probability of diversions into and out of drainage area by storm sewers. Station is part of hydrologic research project to study rainfall-runoff relation for small urban areas. Records of water temperatures for the water year 1958 are given in WSP 1573.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 1.0 | 0.9 | 1.6 | 7.8 | 2.3 | 62 |
| 1.2 | 1.9 | 1.8 | 16 | 2.6 | 116 |
| 1.4 | 3.8 | 2.0 | 29 | 3.0 | 232 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.4 | 2.2 | 2.3 | 1.9 | 1.8 | 4.5 | 6.6 | 2.6 | 1.8 | 2.2 | 2.4 | 2.2 |
| 2 | 1.4 | 2.1 | 2.4 | 2.1 | 1.8 | 3.6 | 2.8 | *64 | 1.8 | 2.4 | 2.3 | 2.3 |
| 3 | 1.4 | 2.3 | 2.3 | 2.0 | 1.8 | 3.5 | 2.6 | 54 | 1.8 | *2.2 | 2.4 | 2.2 |
| 4 | 1.3 | 2.9 | 2.3 | 2.9 | 2.0 | 3.5 | 2.6 | 5.1 | 1.8 | 2.0 | 2.2 | 1.9 |
| 5 | 1.3 | 3.4 | 2.4 | 9.7 | 2.6 | 20 | 2.1 | 4.2 | 2.1 | 2.9 | 2.5 | 3.3 |
| 6 | 1.4 | 2.0 | *2.5 | 3.7 | 2.5 | 4.0 | 1.7 | 3.6 | 2.2 | 56 | 2.4 | 2.0 |
| 7 | 1.5 | 2.5 | 2.3 | 2.3 | *2.3 | 4.9 | 1.8 | 3.3 | 2.3 | 4.6 | 2.9 | 43 |
| 8 | 1.4 | 1.9 | 2.0 | 2.3 | 2.2 | 3.6 | 2.7 | 3.1 | 2.3 | 2.8 | 2.5 | 4.9 |
| 9 | 1.4 | 1.8 | 2.0 | *2.3 | 2.3 | 3.2 | 5.0 | 3.1 | 2.2 | 2.9 | 2.0 | 2.3 |
| 10 | 1.6 | 4.8 | 2.1 | 2.2 | 3.0 | 3.2 | 2.5 | 3.0 | 2.2 | 2.7 | 1.7 | 2.0 |
| 11 | 1.4 | 9.5 | 2.0 | 2.1 | 2.5 | 3.1 | 2.2 | 2.8 | 2.2 | 2.6 | 2.4 | 1.9 |
| 12 | 1.2 | 6.7 | 2.0 | 20 | 3.5 | 11 | 3.2 | 2.7 | 2.3 | 2.4 | 1.8 | 1.9 |
| 13 | 19 | 2.3 | 2.2 | 4.4 | 2.3 | 3.1 | 28 | 2.7 | 2.2 | 2.4 | 2.1 | 1.8 |
| 14 | *218 | 1.8 | 2.1 | 3.0 | 2.4 | *3.0 | 6.6 | 2.6 | 2.2 | 2.1 | 2.4 | 1.8 |
| 15 | 156 | 1.7 | 2.1 | 2.7 | 2.3 | 3.0 | 2.6 | 9.2 | 2.2 | 2.2 | 2.0 | 2.1 |
| 16 | 14 | 2.0 | 2.0 | 2.6 | 2.2 | 2.9 | 2.4 | 3.1 | 4.7 | 2.5 | 1.9 | 2.8 |
| 17 | 8.4 | 2.0 | 2.1 | 2.0 | 2.3 | 2.8 | 2.4 | 2.4 | 90 | 2.4 | 2.0 | 2.7 |
| 18 | 6.1 | 3.5 | 2.1 | 2.3 | 2.0 | 13 | 2.7 | 2.3 | 3.6 | 2.5 | 2.9 | 2.0 |
| 19 | 4.2 | 2.0 | 2.0 | 2.6 | 2.0 | 3.2 | 2.3 | 2.3 | 3.1 | 2.1 | 2.6 | 11 |
| 20 | 3.1 | 2.0 | 1.9 | 5.8 | 2.2 | 3.0 | 10 | 2.2 | 3.1 | 2.0 | 2.7 | 40 |
| 21 | 12 | 3.5 | 2.0 | 2.7 | 99 | 2.9 | *2.5 | 2.2 | 5.9 | 2.0 | 2.5 | 2.8 |
| 22 | 68 | 6.0 | 1.9 | 3.8 | *213 | 3.3 | 2.4 | 2.1 | 3.1 | 2.1 | 3.2 | 3.7 |
| 23 | 8.8 | 12 | 2.0 | 21 | 26 | 3.2 | 2.3 | 2.1 | 2.6 | 2.5 | 2.4 | 2.6 |
| 24 | 6.1 | 11 | 2.0 | 3.8 | 8.8 | 2.7 | 2.0 | 2.0 | 2.5 | 2.9 | 3.9 | 2.4 |
| 25 | *4.8 | 3.6 | 10 | 2.9 | 6.3 | 3.7 | 2.1 | 2.0 | 2.8 | 3.8 | *2.3 | 2.6 |
| 26 | 3.7 | 3.2 | 1.6 | 2.5 | 4.9 | 2.8 | 92 | *1.8 | 2.5 | 3.6 | 2.1 | 2.5 |
| 27 | 3.1 | 3.1 | 8.6 | 2.4 | 4.3 | 2.9 | 4.4 | 2.1 | 2.5 | 3.2 | 2.2 | 2.3 |
| 28 | 2.7 | 2.5 | 1.7 | 2.3 | 4.2 | 2.7 | 3.4 | 1.8 | 2.4 | 2.3 | 2.3 | 2.2 |
| 29 | 2.5 | 2.4 | 1.6 | 2.3 | - | 5.5 | 2.8 | 1.8 | 2.4 | 2.3 | 2.3 | *2.2 |
| 30 | 2.3 | 2.3 | 1.5 | 2.1 | ------- | 2.5 | 2.6 | 2.0 | 2.2 | 2.8 | 2.2 | 26 |
| 31 | 2.2 | ------- | 1.6 | 2.0 | ------- | 2.8 | ------- | 1.8 | ------- | 2.4 | 2.1 | ------- |
| Total | 561.7 | 109.0 | 77.6 | 126.7 | 412.5 | 137.1 | 209.3 | 200.0 | 165.0 | 133.8 | 73.6 | 183.4 |
| Mean | 18.1 | 3.63 | 2.50 | 4.09 | 14.7 | 4.42 | 6.98 | 6.45 | 5.50 | 4.32 | 2.37 | 6.11 |
| Ac-ft | 1,110 | 216 | 154 | 251 | 818 | 272 | 415 | 397 | 327 | 265 | 146 | 364 |

Calendar year 1957: Max 218 Min 0.4 Mean 5.94 Ac-ft 4,300
Water year 1957-58: Max 218 Min 1.2 Mean 6.55 Ac-ft 4,740

Peak discharge (base, 600 cfs).--Oct. 14 (1:15 p.m.) 1,120 cfs (4.75 ft); Feb. 22 (4 p.m.) 655 cfs (3.98 ft); Apr. 26 (5 p.m.) 1,700 cfs (5.47 ft); May 2 (6 p.m.) 1,010 cfs (4.58 ft); June 17 (3 a.m.) 804 cfs (4.24 ft); July 6 (7:30 p.m.) 1,340 cfs (5.02 ft).

* Discharge measurement made on this day.

1580. 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 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.--38,400 sq mi, approximately, of which 11,900 sq mi is probably non-contributing.

Records available.--February 1898 to September 1958. Gage-height records collected in this vicinity since 1903 are contained in reports of U. S. 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 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.--60 years, 2,522 cfs (1,826,000 acre-ft per year).

Extremes.--Maximum discharge during year, 33,300 cfs June 17 (gage height, 15.13 ft); minimum daily discharge, 330 cfs Oct. 13.

1898-1958: 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 known since at least 1843, 46.0 ft July 7, 1969, 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.

Revisions.--The maximum discharge for the water year 1929 has been revised to 154,000 cfs May 29, 1929 (gage height, 27.35 ft), superseding figure published in WSP 688.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow largely regulated by Buchanan Reservoir and Lake Travis (see p. 220, 225 ), and other smaller reservoirs, having a combined capacity of 3,979,000 acre-ft. About 36,000 acres irrigated above station. During year city of Austin diverted an average of about 41 cfs for municipal use above station and returned about 25 cfs of treated sewage below station. Many other diversions above Buchanan Reservoir for irrigation, municipal supply, and oilfield operations. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 508: 1915(m). WSP 528: 1900(M), 1918(m). WSP 548: 1901-6. WSP 1342: Drainage area. Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1908 and 1936, superseding those published in WSP 288 and 808, are given herewith:

| 1908 | | 1908-Con. | |
|---|---|---|---|
| Apr. 21 | 36,200 | May 27 | 40,700 |
| 22 | 58,000 | 28 | 44,400 |
| 23 | 100,000 | | |
| 24 | 75,400 | 1936 | |
| May 25 | 64,600 | May 28 | 31,900 |
| 26 | 36,700 | | |

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| April 1908 | - | 100,000 | 183 | 11,600 | 690,000 |
| May | - | 64,600 | 543 | 11,600 | 711,000 |
| Water year 1907-8 | - | 100,000 | 183 | 3,400 | 2,470,000 |
| Calendar year 1908 | - | 100,000 | 183 | 2,880 | 2,090,000 |
| May 1936 | 214,030 | 56,200 | 394 | 6,904 | 424,500 |
| Water year 1935-36 | 1,988,707 | 166,000 | 154 | 5,433 | 3,945,000 |
| Calendar year 1936 | 2,496,797 | 166,000 | 154 | 6,841 | 4,952,000 |

## 1580. Colorado River at Austin, Tex.--Continued

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,950 | 6,520 | 6,340 | 3,680 | 4,100 | 5,800 | 5,620 | 3,540 | 3,680 | 5,440 | 3,680 | *1,840 |
| 2 | 2,300 | 6,520 | 6,340 | 3,680 | 3,710 | 5,620 | 5,620 | 5,500 | 3,680 | 5,440 | 3,400 | 1,730 |
| 3 | 2,500 | 6,520 | 6,160 | 3,680 | 3,680 | 5,260 | *5,620 | 10,900 | 3,680 | 5,440 | 2,860 | 2,420 |
| 4 | 2,250 | 6,520 | 6,160 | 3,680 | 3,820 | 5,260 | 5,620 | 3,960 | 3,470 | 5,260 | 2,860 | 2,460 |
| 5 | 2,350 | 6,520 | 6,160 | 3,820 | 3,960 | 5,440 | 5,980 | 4,100 | 3,680 | 5,260 | 2,920 | 2,090 |
| 6 | 1,760 | 6,520 | 6,160 | 3,280 | 3,960 | 5,440 | 5,800 | 4,100 | *3,680 | 5,440 | 3,040 | 1,670 |
| 7 | 1,620 | 6,340 | 6,340 | 3,280 | 3,820 | 6,340 | 4,740 | 4,420 | 3,680 | 4,740 | 2,980 | 2,100 |
| 8 | 1,950 | 6,340 | 6,520 | 3,680 | 3,540 | 6,160 | 3,680 | 5,800 | 3,820 | 5,440 | 2,520 | 1,480 |
| 9 | 2,450 | 6,340 | 6,160 | 3,680 | 3,960 | 5,800 | *3,680 | 5,440 | 3,820 | 3,960 | 2,550 | 1,580 |
| 10 | 2,700 | 6,340 | 6,160 | 3,680 | 2,700 | 5,980 | 3,220 | 5,080 | 3,540 | 3,960 | 2,340 | 1,660 |
| 11 | 1,100 | 6,520 | 6,160 | 3,680 | 2,250 | 6,160 | 3,470 | 4,900 | 3,680 | 5,260 | 2,650 | 1,710 |
| 12 | 762 | 6,520 | 6,160 | 3,960 | 2,920 | 5,980 | 3,540 | 4,100 | 3,470 | 5,260 | 2,890 | 1,530 |
| 13 | a330 | 6,520 | 4,740 | 3,820 | 2,050 | 5,440 | 3,820 | *4,100 | 3,680 | 5,260 | 2,500 | 1,530 |
| 14 | 6,280 | 6,520 | 4,100 | 3,680 | 1,900 | *5,440 | 3,680 | 4,100 | 3,680 | *5,260 | 2,570 | 991 |
| 15 | 7,550 | 6,340 | 4,100 | 3,680 | 1,480 | 5,620 | 3,470 | 4,100 | 3,680 | 4,740 | 2,980 | 1,550 |
| 16 | 8,140 | 6,340 | *4,260 | 3,220 | 2,800 | 5,800 | 3,470 | 4,100 | 3,820 | 4,740 | 2,700 | 1,480 |
| 17 | 8,700 | 6,340 | 4,100 | 3,280 | 3,540 | 5,980 | 3,540 | 3,820 | 13,700 | 4,900 | 2,470 | 1,350 |
| 18 | 14,400 | 6,340 | 4,100 | 3,680 | 3,960 | 6,160 | 3,470 | 3,960 | 6,100 | 3,820 | 2,750 | 1,350 |
| 19 | 16,200 | 5,260 | 3,680 | 3,280 | 3,820 | 5,620 | 3,540 | 3,540 | 5,800 | 3,680 | 2,750 | 1,190 |
| 20 | 9,900 | 5,440 | 3,680 | 3,820 | 4,260 | 5,590 | 3,680 | 3,040 | 5,660 | 1,560 | 2,770 | 1,820 |
| 21 | *6,880 | 5,800 | 3,820 | 3,820 | 5,620 | 5,980 | 3,680 | 3,400 | 6,060 | *2,040 | *2,810 | 1,130 |
| 22 | 13,500 | *5,980 | 3,680 | 3,220 | 8,670 | 5,980 | 3,680 | 3,470 | 4,740 | 2,870 | *2,680 | 920 |
| 23 | 9,700 | 5,980 | 3,820 | 3,860 | 10,900 | 5,620 | 3,540 | 3,540 | 5,700 | 2,750 | 2,700 | 1,400 |
| 24 | 6,700 | 6,160 | 3,680 | *4,260 | 6,520 | 5,620 | 3,540 | 3,540 | 5,440 | 3,540 | 2,100 | 1,420 |
| 25 | 6,700 | 6,160 | 3,680 | 4,260 | 5,620 | 5,620 | 3,540 | 3,400 | 5,440 | 2,960 | 2,090 | 1,530 |
| 26 | 6,520 | 5,980 | 3,680 | 4,100 | 6,340 | 5,620 | 4,100 | 3,470 | 5,440 | 3,340 | *2,520 | 1,660 |
| 27 | 6,520 | 6,160 | 3,820 | 3,960 | 6,520 | 5,620 | 3,680 | 4,100 | 5,440 | 3,220 | 2,510 | 1,480 |
| 28 | 6,520 | 6,520 | 3,680 | 3,820 | *5,620 | 5,980 | *3,680 | 4,100 | 4,740 | 3,540 | 2,530 | 1,260 |
| 29 | 6,340 | 6,340 | 3,680 | 3,960 | - | 5,980 | 3,680 | 3,820 | 4,900 | 3,680 | 2,480 | 1,440 |
| 30 | 6,520 | 6,340 | 3,960 | 3,960 | ------- | 5,620 | 3,540 | 3,680 | 5,440 | 3,680 | 2,550 | 1,580 |
| 31 | 6,520 | ------- | 3,680 | 4,100 | ------- | 5,620 | ------- | 3,680 | ------- | 3,820 | 1,850 | ------- |
| Total | 177,612 | 188,040 | 148,760 | 115,560 | 122,040 | 178,150 | 121,920 | 132,800 | 143,340 | 130,300 | 83,000 | 47,351 |
| Mean | 5,729 | 6,268 | 4,799 | 3,728 | 4,359 | 5,747 | 4,064 | 4,284 | 4,778 | 4,203 | 2,677 | 1,578 |
| Ac-ft | 352,300 | 373,000 | 295,100 | 229,200 | 242,100 | 353,400 | 241,800 | 263,400 | 284,300 | 258,400 | 164,600 | 93,920 |

Calendar year 1957: Max 37,900 Min 131 Mean 6,254 Ac-ft 4,528,000
Water year 1957-58: Max 16,200 Min 330 Mean 4,353 Ac-ft 3,152,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for Austin dam furnished by Lower Colorado River Authority.

## 1595. Colorado River at Smithville, Tex.

Location.--Lat 30°01', long 97°10', on right bank 360 ft downstream from 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.--39,880 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--July 1930 to September 1958. Gage-height records collected in this vicinity since 1920 are contained in reports of U. S. 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.--28 years, 2,877 cfs (2,083,000 acre-ft per year).

Extremes.--Maximum discharge during year, 104,000 cfs Feb. 23 (gage height, 25.40 ft); minimum, 750 cfs Oct. 14.

1930-58: Maximum discharge, 305,000 cfs June 16, 1935 (gage height, 42.5 ft, from floodmarks), from rating curve extended above 209,000 cfs on basis of slope-area measurement 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.--WSP 1342: Drainage area. Revised figures of discharge, in cubic feet per second, for periods in the water year 1934, superseding those published in WSP 763, are given herewith:

| Date | Discharge | Date | Discharge | Date | Discharge | Date | Discharge | Date | Discharge |
|---|---|---|---|---|---|---|---|---|---|
| 1934 | | 1934-Con. | | 1934-Con. | | 1934-Con. | | 1934-Con. | |
| Feb. 4 | 1,350 | Feb. 17 | 1,350 | Feb. 26 | 689 | Mar. 12 | 905 | Mar. 20 | 528 |
| 5 | 1,130 | 18 | 1,420 | 27 | 636 | 13 | 827 | 21 | 528 |
| 6 | 962 | 20 | 1,110 | 28 | 610 | 14 | 763 | 22 | 514 |
| 7 | 844 | 21 | 943 | Mar. 1 | 1,050 | 15 | 696 | 23 | 492 |
| 8 | 810 | 22 | 879 | 8 | 1,190 | 16 | 655 | 24 | 492 |
| 9 | 2,060 | 23 | 862 | 9 | 1,140 | 17 | 597 | 25 | 2,100 |
| 10 | 1,880 | 24 | 818 | 10 | 1,090 | 18 | 557 | 28 | 1,400 |
| 11 | 1,960 | 25 | 755 | 11 | 972 | 19 | 518 | 29 | 2,890 |

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| February 1934 | 4,720 | 610 | 1,540 | 85,300 |
| March | 6,970 | 492 | 1,740 | 107,000 |
| Water year 1933-34 | 37,100 | 146 | 1,410 | 1,020,000 |
| Calendar year 1934 | 37,100 | 79 | 1,448 | 1,050,000 |

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1-14 | | Oct. 15 to Sept. 30 | | | |
|---|---|---|---|---|---|
| 3.1 | 1,120 | 3.1 | 1,510 | 14.0 | 26,800 |
| 4.0 | 2,200 | 4.0 | 2,550 | 19.0 | 55,000 |
| 6.0 | 5,200 | 6.0 | 5,450 | 25.0 | 100,000 |
| | | 9.0 | 11,900 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,810 | 7,110 | 6,910 | 4,050 | 4,350 | 7,910 | 6,710 | 4,500 | 3,900 | 5,810 | 4,050 | 2,370 |
| 2 | 2,140 | 6,910 | 6,910 | 3,900 | 4,350 | 7,710 | 6,910 | 4,500 | 3,900 | 5,810 | 3,900 | 2,130 |
| 3 | 2,260 | 6,910 | 6,910 | 3,900 | 4,050 | 7,310 | 6,910 | 14,500 | 3,900 | 5,810 | 3,410 | 2,010 |
| 4 | 2,330 | 6,910 | 6,710 | 3,900 | 3,760 | 6,910 | 6,910 | *38,300 | 3,900 | 5,810 | 3,200 | 2,370 |
| 5 | 2,260 | 6,910 | 6,710 | 3,900 | 4,050 | 6,910 | 6,710 | 7,310 | 3,760 | 5,810 | 3,140 | 2,680 |
| 6 | 2,330 | 6,910 | 6,530 | 4,200 | 4,200 | 8,130 | 6,910 | 6,170 | 3,900 | 5,810 | 3,340 | 2,490 |
| 7 | 2,000 | 6,910 | 6,710 | 3,900 | 4,050 | 7,510 | *6,910 | 5,450 | 3,900 | 8,130 | 3,410 | 2,250 |
| 8 | 1,620 | 6,910 | 6,710 | 3,620 | 3,900 | 8,130 | 5,990 | 5,450 | 3,900 | 6,350 | 3,410 | 3,420 |
| 9 | 1,880 | 6,710 | 6,910 | 3,900 | 3,620 | 7,710 | 4,810 | 6,710 | 4,050 | 5,990 | 3,000 | 2,960 |
| 10 | 2,260 | 6,710 | 6,530 | 3,900 | 3,900 | 7,310 | 4,810 | 6,350 | 3,900 | 4,970 | 2,940 | 2,070 |
| 11 | 2,810 | 6,710 | 6,530 | 3,900 | 3,140 | 7,310 | 4,350 | 6,170 | 3,900 | 4,500 | 2,810 | 1,950 |
| 12 | 1,940 | 8,350 | 6,530 | 7,040 | 2,740 | 7,710 | 4,350 | 5,990 | 3,900 | 5,450 | 3,000 | 2,010 |
| 13 | 1,130 | 9,010 | 6,530 | 11,900 | 3,000 | 7,510 | 4,500 | 4,970 | 3,760 | 5,810 | 3,270 | 1,900 |
| 14 | 4,320 | 7,510 | 5,450 | 5,450 | 2,740 | 6,910 | 4,970 | *4,810 | 3,900 | 5,810 | 3,070 | 1,780 |
| 15 | 35,500 | 7,110 | 4,650 | 4,350 | 2,310 | 6,710 | 5,290 | 4,810 | 3,900 | 5,630 | 2,940 | 1,560 |
| 16 | 50,300 | 6,910 | 4,500 | 4,200 | 1,730 | 6,910 | 4,500 | 4,810 | 4,050 | 5,450 | 3,340 | 1,510 |
| 17 | 15,300 | 6,910 | 4,500 | 3,900 | 2,190 | 7,110 | 4,500 | 4,810 | 4,050 | 5,130 | 3,140 | 1,780 |
| 18 | 10,100 | 6,910 | 4,500 | 3,480 | 2,940 | 7,310 | 4,500 | 4,500 | 15,300 | 5,450 | 2,940 | 1,620 |
| 19 | 15,500 | *6,910 | 4,500 | 4,050 | 3,270 | 7,710 | 4,350 | 4,350 | 8,370 | 4,500 | 3,070 | 1,680 |
| 20 | 9,000 | 5,990 | 4,200 | 3,620 | 3,070 | 7,310 | 4,500 | 4,200 | 6,530 | 4,200 | 3,140 | 8,570 |
| 21 | 13,100 | 5,990 | 4,050 | 4,200 | 5,850 | 6,710 | 4,650 | 3,550 | 6,170 | 2,870 | 3,070 | 29,700 |
| 22 | 17,400 | 8,130 | 3,900 | 4,200 | 51,000 | 7,510 | 4,500 | 3,620 | 6,910 | 2,310 | 3,140 | 3,320 |
| 23 | *35,400 | 7,710 | 3,900 | 4,380 | 97,300 | 7,310 | 4,500 | 3,900 | *5,630 | 3,410 | 3,000 | 2,690 |
| 24 | 14,400 | 10,900 | 3,900 | 12,100 | 33,300 | 7,110 | 4,500 | 3,900 | 5,810 | *3,340 | 3,000 | 1,950 |
| 25 | 8,790 | 11,900 | 4,200 | 6,170 | 11,400 | 7,110 | 4,500 | 3,900 | 6,170 | 3,760 | 2,810 | 1,840 |
| 26 | 8,130 | 7,710 | 4,970 | 4,970 | 9,010 | 6,910 | 4,500 | 3,900 | 5,990 | 3,410 | 2,250 | 1,900 |
| 27 | 7,910 | 7,110 | 4,810 | *4,650 | 9,010 | 6,910 | 5,430 | 3,760 | 5,810 | 3,760 | *2,680 | 2,010 |
| 28 | 7,510 | 7,110 | 6,350 | 4,500 | 9,230 | 6,910 | 6,170 | 4,200 | 5,810 | 3,760 | 2,740 | 1,900 |
| 29 | 7,510 | 7,310 | 4,500 | 4,200 | - | 7,310 | 4,970 | 4,350 | 5,290 | 4,050 | 2,810 | 1,680 |
| 30 | 7,310 | 6,910 | *4,050 | 4,350 | ------- | 7,310 | 4,650 | 4,200 | 5,290 | 4,050 | 2,740 | 1,680 |
| 31 | 7,310 | ------- | 4,200 | 4,200 | ------- | 6,910 | ------- | 4,050 | ------- | 4,050 | 2,740 | ------- |
| Total | 311,760 | 222,000 | 168,260 | 148,980 | 293,460 | 226,050 | 157,760 | 191,990 | 155,550 | 151,000 | 95,500 | 97,780 |
| Mean | 10,060 | 7,400 | 5,428 | 4,806 | 10,480 | 7,292 | 5,259 | 6,193 | 5,185 | 4,871 | 3,081 | 3,259 |
| Ac-ft | 618,400 | 440,300 | 333,700 | 295,500 | 582,100 | 448,400 | 312,900 | 380,800 | 308,500 | 299,500 | 189,400 | 193,900 |

Calendar year 1957: Max 50,300 Min 166 Mean 7,743 Ac-ft 5,606,000
Water year 1957-58: Max 97,300 Min 1,130 Mean 6,082 Ac-ft 4,403,000

* Discharge measurement made on this day.

## 1600. Dry Creek at Buescher Lake near Smithville, Tex.

Location.--Lat 30°03', long 97°09', on left bank 225 ft upstream from 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 1958.

Gage.--Water-stage recorder. Datum of gage is 327.86 ft above mean sea level, datum of 1929.

Average discharge.--19 years, 0.42 cfs (304 acre-ft per year).

Extremes.--Maximum recorded inflow during year, 206 cfs Feb. 22; maximum gage height, 23.00 ft Oct. 16 (outflow, 212 cfs); no inflow most of time.
1939-58: 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 fair except those for period of no gage-height record, which are poor. Records given herein represent flow into Buescher Lake. No runoff except during and immediately following precipitation. Discharge below gage height 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 cubic feet per second). There was flow over spillway Oct. 16, 17, 22-24, Nov. 22-27, 1957, Jan. 23-27, Feb. 21-27, 1958. No adjustments made for evaporation or seepage losses. Capacity of lake, 248 acre-ft. No diversions above station or from lake.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | a0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 2 | a0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 3 | a0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.5 | 0 | 0 | | 0 |
| 4 | a0 | 0 | 0 | 0 | 0 | *0 | 0 | 0 | 0 | 0 | | 0 |
| 5 | a0 | 0 | 0 | .5 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 6 | a0 | 0 | 0 | .1 | 0 | 0 | 0 | 0 | 0 | .7 | | 0 |
| 7 | a0 | **.4 | 0 | 0 | 0 | 0 | *0 | 0 | 0 | 0 | | 1.6 |
| 8 | a0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 9 | a0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 10 | a0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 11 | a0 | .7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 12 | a0 | 6.0 | 0 | 6.2 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 13 | a0 | 1.1 | 0 | 2.0 | 0 | 0 | .9 | 0 | 0 | 0 | | 0 |
| 14 | a4 | .3 | 0 | .7 | 0 | 0 | .04 | *0 | 0 | 0 | | 0 |
| 15 | a50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 16 | a100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .1 | 0 | | .4 |
| 17 | a4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 18 | a0 | .1 | 0 | 0 | 0 | .6 | 0 | 0 | 0 | 0 | | .6 |
| 19 | a0 | *0 | 0 | .2 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 20 | a0 | 0 | 0 | .3 | 0 | 0 | 0 | 0 | 0 | 0 | | 20 |
| 21 | a0 | .3 | 0 | 0 | 14 | 0 | 0 | 0 | .6 | 0 | | .9 |
| 22 | a50 | 19 | 0 | 0 | 73 | 0 | 0 | 0 | .1 | *0 | | 10 |
| 23 | *7.3 | 10 | 0 | 8.9 | 22 | 0 | 0 | 0 | *0 | 0 | | .1 |
| 24 | .4 | 15 | 0 | 6.7 | 8.1 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 25 | 0 | 5.4 | 1.0 | 1.3 | 3.5 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 26 | 0 | 2.5 | 0 | .4 | .4 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 27 | 0 | .5 | 5.8 | *.1 | 0 | 0 | 0 | 0 | 0 | 0 | (*) | 0 |
| 28 | 0 | 0 | .8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 |
| 29 | 0 | 0 | .2 | 0 | - | 0 | 0 | 0 | 0 | 0 | | 0 |
| 30 | 0 | 0 | *.1 | 0 | ------- | 0 | 0 | 0 | 0 | 0 | | 1.0 |
| 31 | 0 | ------- | 0 | 0 | ------- | 0 | ------- | 0 | ------- | 0 | | ------- |
| Total | 215.7 | 61.3 | 7.9 | 27.4 | 121.0 | 0.6 | 1.4 | 3.5 | 0.8 | 0.7 | 0 | 34.6 |
| Mean | 6.96 | 2.04 | 0.25 | 0.88 | 4.32 | 0.02 | 0.05 | 0.11 | 0.03 | 0.02 | 0 | 1.15 |
| Ac-ft | 428 | 122 | 16 | 54 | 240 | 1.2 | 2.8 | 6.9 | 1.6 | 1.4 | 0 | 69 |

Calendar year 1957: Max 100 Min 0 Mean 1.52 Ac-ft 1,100
Water year 1957-58: Max 100 Min 0 Mean 1.30 Ac-ft 943

* Discharge measurement of inflow and/or outflow, or observation of no inflow and/or outflow made on this day.
** Field estimate of inflow or outflow made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage and weather records.

1610. 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 and New Orleans Railroad Co. bridge, 2.6 miles downstream from Cummins Creek, and at mile 135.

Drainage area.--41,070 sq mi, approximately, of which 11,900 sq mi is probably noncontributing; 41,170 sq mi, approximately, at site "near Eagle Lake."

Records available.--January 1903 to December 1911 (gage heights and discharge measurements only). Discharge records for January 1904 to December 1911, published in WSP 84, 99, 132, 174, 210, 288, and 308 have been found unreliable and should not be used. May 1916 to November 1930, May 1939 to September 1958. 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 U. S. Weather Bureau.

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. Sept. 17, 1930, to June 12, 1939 (Oct. 1, 1930, to May 31, 1939, used herein), water-stage recorder at site 23 miles downstream at different datum. May 17 to Nov. 14, 1939, wire-weight gage at present site and datum.

Average discharge.--42 years (1916-58), 3,404 cfs (revised), 2,464,000 acre-ft per year.

Extremes.--Maximum discharge during year, 74,800 cfs Oct. 15; maximum gage height, 27.17 ft Feb. 24; minimum discharge, 1,390 cfs Sept. 17.

1916-58: Maximum discharge, 190,000 cfs June 18, 1935 (gage height, 38.5 ft), computed on basis of records for station near Eagle Lake; minimum, 93 cfs Sept. 1, 1918.

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 29, 1938, observed stage, 38.4 ft, furnished by U. S. Weather Bureau (discharge, 175,000 cfs, computed on basis of records for station near Eagle Lake). Flood of June 18, 1935, reached a stage of 29.45 ft June 19, 1935, at station "near Eagle Lake" 23 miles downstream (discharge, 177,000 cfs).

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

| WSP | Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|---|
| 508 | 1920 | Oct. 14, 1919 | 63,900 | 34.6 |
| 528 | 1921 | Sept.13, 1921 | 67,400 | 35.1 |
| 548 | 1922 | May 5, 1922 | 117,000 | 38.3 |

Remarks.--Records good. Many diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin. Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1342: Drainage area. See also Records available. Revised figures of discharge, in cubic feet per second, for high-water period in the water year 1922, superseding those published in WSP 548, are given herewith:

| 1922 | | 1922-Con. | | 1922-Con. | |
|---|---|---|---|---|---|
| May 1 | 71,000 | May 4 | 112,000 | May 7 | 92,000 |
| 2 | 77,000 | 5 | 112,000 | 8 | 77,000 |
| 3 | 92,000 | 6 | 103,000 | 9 | 70,200 |

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| May 1922 | 112,000 | 5,160 | 40,600 | 2,500,000 |
| Water year 1921-22 | 112,000 | 364 | 5,970 | 4,320,000 |
| Calendar year 1922 | 112,000 | 260 | 6,010 | 4,350,000 |

## 1610. Colorado River at Columbus, Tex.--Continued

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-14, Oct. 26 to Nov. 22, Jan. 26 to Feb. 22, Feb. 25 to Mar. 31, Sept. 23-30; rate of change in stage used as a factor Oct. 14-18, 22-25, Feb. 22-26, May 3-6, Sept. 20-23)

| | | | |
|---|---|---|---|
| 3.3 | 1,440 | 16.0 | 23,900 |
| 4.0 | 2,140 | 20.0 | 37,600 |
| 6.0 | 4,250 | 24.0 | 54,900 |
| 9.0 | 8,200 | 27.0 | 69,900 |
| 12.0 | 13,800 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2,740 | 6,540 | 7,080 | 4,250 | 4,490 | 8,360 | 6,800 | 4,730 | 4,250 | *5,110 | 3,770 | 2,540 |
| 2 | 2,390 | *6,410 | 6,940 | *4,370 | 4,370 | 7,500 | 6,800 | 4,610 | 4,010 | 5,500 | 3,770 | 2,490 |
| 3 | 2,740 | 6,280 | *6,800 | 4,130 | 4,490 | *7,220 | *6,800 | 10,200 | 4,010 | 5,630 | 3,770 | 2,040 |
| 4 | 2,640 | 6,280 | 6,800 | 4,130 | 4,370 | 7,220 | 6,800 | *19,000 | 4,010 | 5,500 | 3,240 | *1,890 |
| 5 | 2,840 | 6,280 | 6,670 | 4,130 | *3,770 | 6,670 | 6,800 | *25,000 | *4,010 | 5,500 | *3,140 | 1,990 |
| 6 | *2,740 | 6,280 | 6,670 | 4,370 | 4,010 | 6,670 | 6,670 | 9,500 | 4,130 | 5,500 | 2,940 | 2,490 |
| 7 | 2,540 | 6,410 | 6,540 | 4,490 | 4,250 | 7,360 | 6,670 | 6,800 | 4,010 | 5,760 | 3,140 | 5,130 |
| 8 | 2,440 | 6,540 | 6,670 | 4,250 | 4,010 | 7,080 | 6,670 | 6,280 | 4,130 | 7,500 | 3,140 | 5,190 |
| 9 | 1,940 | 6,410 | 6,540 | 4,010 | 3,890 | 7,360 | 6,280 | 5,890 | 4,130 | 6,670 | 3,240 | 3,040 |
| 10 | 1,940 | 6,150 | 6,800 | 4,130 | 3,890 | 7,360 | 4,980 | 6,800 | 4,130 | 5,890 | 2,940 | 3,340 |
| 11 | 2,090 | 6,150 | 6,540 | 4,130 | 4,250 | 6,940 | 4,850 | 6,670 | 4,130 | 5,110 | 2,840 | 2,240 |
| 12 | 2,740 | 6,540 | 6,410 | 4,660 | 3,660 | 6,800 | 4,610 | 6,280 | 4,130 | 4,490 | 2,740 | 1,940 |
| 13 | 2,390 | 8,520 | 6,410 | 11,500 | 3,140 | 7,080 | 4,370 | 6,150 | 4,130 | 4,980 | 2,640 | 1,940 |
| 14 | 7,680 | 8,060 | 6,410 | 12,000 | 3,040 | 7,080 | 5,630 | 5,500 | 4,010 | 5,500 | 2,940 | 1,840 |
| 15 | 56,500 | 6,800 | 5,890 | 7,360 | 3,140 | 6,540 | 6,150 | 5,110 | 3,890 | 5,500 | 3,040 | 1,740 |
| 16 | 56,900 | 6,410 | 4,980 | 5,370 | 2,640 | 6,410 | 5,760 | 5,110 | 4,010 | 5,500 | 2,740 | 1,690 |
| 17 | *40,800 | 5,890 | 4,730 | 4,850 | 2,240 | 6,410 | 4,730 | 5,110 | 4,010 | 5,240 | 2,940 | 1,440 |
| 18 | 18,400 | 6,020 | 4,730 | 4,610 | 2,140 | 6,540 | 4,610 | 5,110 | 4,010 | 4,980 | 3,040 | 1,740 |
| 19 | 11,000 | 6,150 | 4,730 | 4,130 | 2,840 | 6,800 | 4,610 | 4,730 | 9,910 | 5,240 | 2,940 | 2,440 |
| 20 | 13,400 | 6,020 | 4,610 | 5,110 | 3,240 | 7,080 | 4,490 | 4,610 | 9,110 | 4,490 | 2,740 | 3,020 |
| 21 | 16,000 | 7,210 | 4,370 | 6,280 | 3,240 | 6,800 | 4,610 | 4,610 | 6,410 | 4,130 | 2,940 | 14,000 |
| 22 | 15,900 | 14,500 | 4,130 | 5,240 | 12,800 | 6,410 | 4,730 | 3,890 | 5,890 | 3,440 | 2,940 | *22,800 |
| 23 | 25,400 | 18,400 | 4,010 | 5,980 | 56,000 | 7,080 | 4,610 | 3,770 | 6,800 | 2,290 | 2,940 | 8,700 |
| 24 | 27,900 | 16,000 | 4,010 | 11,000 | *68,700 | 7,080 | 4,490 | 4,130 | 5,760 | 3,140 | 2,940 | 3,660 |
| 25 | 13,900 | 12,800 | 4,010 | 11,600 | 37,000 | 6,800 | 4,490 | 4,130 | 5,500 | 3,240 | 2,840 | 2,940 |
| 26 | 8,680 | 10,100 | 4,490 | 7,600 | *12,600 | 6,800 | 4,490 | 4,130 | 5,890 | 3,340 | 2,840 | 2,340 |
| 27 | 7,640 | 8,060 | 5,500 | 5,630 | 7,840 | 6,800 | 4,490 | 4,130 | 5,630 | 3,340 | 2,190 | 2,190 |
| 28 | 7,360 | 7,360 | 7,500 | 5,240 | 8,520 | 6,670 | 4,850 | 3,890 | 5,630 | 3,440 | 2,390 | 2,190 |
| 29 | 7,080 | 7,220 | 7,360 | 5,240 | - | 6,670 | 6,280 | 4,250 | 5,630 | 3,550 | 2,540 | 2,140 |
| 30 | 6,800 | 7,220 | 5,500 | 4,730 | ------- | 6,940 | 4,980 | 4,370 | 5,370 | 3,660 | 2,540 | 1,940 |
| 31 | 6,670 | ------- | 4,250 | 4,610 | ------- | 6,940 | ------- | 4,250 | ------- | 3,770 | 2,540 | ------- |
| Total | 380,180 | 239,010 | 178,080 | 179,130 | 278,570 | 215,470 | 163,100 | 198,740 | 150,670 | 146,930 | 91,330 | 113,070 |
| Mean | 12,260 | 7,967 | 5,745 | 5,778 | 9,949 | 6,951 | 5,437 | 6,411 | 5,022 | 4,740 | 2,946 | 3,769 |
| Ac-ft | 754,100 | 474,100 | 353,200 | 355,300 | 552,500 | 427,400 | 323,500 | 394,200 | 298,800 | 291,400 | 181,200 | 224,300 |

Calendar year 1957: Max 59,800 Min 192 Mean 8,400 Ac-ft 6,082,000
Water year 1957-58: Max 68,700 Min 1,440 Mean 6,395 Ac-ft 4,630,000

* Discharge measurement made on this day.
Note.--Discharge computed from once-daily wire-weight-gage readings Oct. 24 to Nov. 1, Nov. 5 to Dec. 2, June 6-16.

## 1620. 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 and New Orleans Railroad Co. bridge, 12 miles upstream from Jones Creek, and at mile 67.

Drainage area.--41,380 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 1958. June to November 1901 and May to September 1902, daily records published in U. S. Department of Agriculture, Office of Experiment Stations, Bulletin Nos. 119 and 133. Gage-height records collected in this vicinity since 1935 are contained in reports of U. S. 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, Mar. 19, 1919, to July 17, 1921, water-stage recorder, July 18 to Dec. 12, 1921, chain gage, and Dec. 13, 1921, to Sept. 30, 1925, water-stage recorder, at site about 700 ft upstream at different datum.

Average discharge.--25 years (1919-21, 1922-25, 1938-58), 2,926 cfs (2,118,000 acre-ft per year).

Extremes.--Maximum discharge during year, 58,500 cfs Oct. 17 (gage height, 30.00 ft); minimum daily, 1,580 cfs Sept. 18.

1919-25, 1938-58: 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 since at least 1869, 38.9 ft Dec. 8, 1913, present datum, from information by local residents; below Wharton floodwater combined with floodwater of Brazos River. Flood of about July 12, 1869, reached about same height. Flood of June 20, 1935, reached a stage of 38.2 ft, present datum (discharge, 159,000 cfs, from rating curve extended above 145,000 cfs), furnished by U. S. 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. Many diversions above station for irrigation, municipal supply, and oilfield operation. Regulation same as that for Colorado River at Austin. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).--WSP 878: 1938(M). WSP 1342: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3,790 | 6,780 | 7,170 | 4,390 | 4,800 | 9,300 | 6,650 | 4,590 | 3,520 | 4,290 | 2,710 | 2,220 |
| 2 | 3,160 | 6,530 | 6,910 | 4,290 | 4,690 | 8,880 | 6,530 | 4,290 | 3,430 | 4,190 | 2,710 | 2,140 |
| 3 | 2,710 | *6,410 | 6,780 | 4,290 | 4,590 | 7,950 | 6,410 | 4,390 | 3,160 | 4,590 | 2,800 | 2,140 |
| 4 | 2,890 | 6,290 | 6,650 | 4,090 | 4,690 | 7,560 | 6,530 | 13,600 | 3,160 | 4,590 | 2,800 | 1,760 |
| 5 | 2,800 | 6,170 | *6,650 | 3,990 | 4,490 | *7,560 | 6,530 | 22,000 | 3,160 | 4,690 | 2,380 | 1,680 |
| 6 | *2,980 | 6,170 | 6,530 | 4,090 | 4,090 | 7,040 | 6,530 | 18,800 | 3,160 | 4,690 | 2,220 | 1,860 |
| 7 | 2,890 | 6,170 | 6,530 | 4,490 | 4,290 | 6,910 | 6,410 | *8,580 | 3,070 | 4,690 | 2,000 | 2,300 |
| 8 | 2,800 | 6,530 | 6,410 | *4,290 | 4,490 | 7,690 | 6,410 | 6,540 | 2,980 | 4,800 | 2,070 | 4,440 |
| 9 | 2,710 | 6,780 | 6,410 | 4,190 | 4,290 | 7,300 | *6,410 | 5,690 | 3,160 | 6,410 | 2,140 | 5,110 |
| 10 | 2,380 | 6,290 | 6,410 | 3,890 | 4,190 | 7,560 | 5,930 | 5,350 | 3,160 | 5,810 | 2,300 | 3,250 |
| 11 | 2,300 | 5,930 | 6,530 | 3,890 | 4,090 | 7,430 | 4,910 | 6,050 | 3,160 | 5,020 | 2,220 | 3,520 |
| 12 | 2,380 | 6,050 | 6,290 | 4,090 | 4,490 | 7,040 | 4,800 | 5,930 | 3,160 | 4,390 | 2,070 | 2,380 |
| 13 | 2,710 | 6,910 | 6,170 | 5,050 | 3,990 | 6,910 | 4,490 | 5,460 | 3,160 | 3,890 | 2,070 | 2,000 |
| 14 | 3,160 | 8,600 | 6,170 | 10,600 | *3,520 | 7,170 | 4,390 | 5,350 | 3,070 | 4,290 | 2,000 | 1,930 |
| 15 | 21,200 | 7,950 | 6,170 | 10,600 | 3,340 | 7,040 | 5,460 | 4,690 | 2,980 | 4,590 | 2,140 | 1,930 |
| 16 | 50,200 | 6,650 | 5,570 | 6,650 | 3,520 | 6,650 | 5,930 | 4,390 | 2,980 | 4,490 | 2,300 | *1,790 |
| 17 | 57,300 | 6,290 | 5,020 | 5,020 | 2,890 | 6,410 | 5,570 | 4,390 | 2,890 | 4,490 | 2,070 | 1,790 |
| 18 | 42,100 | 6,290 | 4,800 | 4,590 | 2,540 | 6,530 | 4,690 | 4,390 | 3,160 | 4,190 | 2,300 | 1,580 |
| 19 | 17,300 | 6,050 | 4,800 | 4,390 | 2,300 | 6,650 | 4,390 | 4,390 | 3,340 | 3,890 | *2,460 | 1,650 |
| 20 | 10,800 | 6,290 | 4,690 | 4,590 | 2,890 | 6,780 | 4,490 | 4,090 | 8,120 | 4,090 | 2,460 | 2,380 |
| 21 | 13,300 | 6,050 | 4,590 | 6,050 | 3,430 | 7,040 | 4,390 | 3,890 | 7,170 | 3,520 | 2,300 | 4,030 |
| 22 | 14,500 | 6,800 | 4,490 | 5,930 | 4,660 | 6,780 | 4,390 | 3,890 | 5,460 | *3,160 | 2,460 | 13,500 |
| 23 | 16,300 | 18,900 | 4,290 | 5,570 | 24,700 | 6,530 | 4,490 | 3,340 | 5,130 | 2,540 | 2,460 | 19,100 |
| 24 | 25,300 | 19,700 | 4,190 | 7,950 | 47,400 | 6,910 | 4,390 | 3,160 | *5,570 | 1,620 | 2,540 | 7,560 |
| 25 | 23,800 | 16,200 | 4,190 | 11,400 | 55,900 | 6,910 | 4,290 | 3,340 | 4,800 | 2,000 | 2,540 | 3,990 |
| 26 | 12,800 | 13,800 | 4,190 | 10,600 | *36,500 | 6,650 | 4,290 | 3,520 | 4,490 | 2,220 | 2,460 | 3,250 |
| 27 | 8,880 | 11,000 | 4,390 | 7,300 | *13,400 | 6,530 | 4,190 | 3,610 | 4,910 | 2,220 | 2,540 | 2,620 |
| 28 | 7,950 | 8,210 | 5,240 | 5,690 | 10,000 | 6,530 | 4,290 | 3,430 | 4,690 | 2,300 | 1,930 | 2,460 |
| 29 | 7,430 | 7,560 | 6,780 | 5,350 | - | 6,530 | 4,390 | 3,160 | 4,590 | 2,380 | 2,000 | 2,380 |
| 30 | 7,170 | 7,170 | 6,650 | 5,350 | ------- | 6,410 | 5,810 | 3,430 | 4,590 | 2,540 | 2,140 | 2,300 |
| 31 | 6,910 | ------- | 5,130 | 4,910 | ------- | 6,650 | ------- | 3,520 | ------- | 2,620 | 2,220 | ------- |
| Total | 382,900 | 246,520 | 176,790 | 177,570 | 274,170 | 219,830 | 158,380 | 181,250 | 119,380 | 119,200 | 71,810 | 109,040 |
| Mean | 12,350 | 8,217 | 5,703 | 5,728 | 9,792 | 7,091 | 5,279 | 5,847 | 3,979 | 3,845 | 2,316 | 3,635 |
| Ac-ft | 759,500 | 489,000 | 350,700 | 352,200 | 543,800 | 436,000 | 314,100 | 359,500 | 236,800 | 236,400 | 142,400 | 216,300 |

Calendar year 1957: Max 57,300 Min 215 Mean 8,076 Ac-ft 5,846,000
Water year 1957-58: Max 57,300 Min 1,580 Mean 6,128 Ac-ft 4,437,000

* Discharge measurement made on this day.

## 1625. 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 and New Orleans Railroad Co. bridge, 2.8 miles west of Bay City, Matagorda County, and at mile 32.6.

Drainage area.--41,650 sq mi, approximately, of which 11,900 sq mi is probably noncontributing.

Records available.--July 1940 (in WSP 1046), April 1948 to September 1958. Gage-height records collected in this vicinity since 1946 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, Houston supplementary adjustment of 1943. July 2-6, 1940, reference point at highway bridge, 6,300 ft upstream at datum 30.60 ft lower.

Average discharge.--10 years (1948-58), 2,099 cfs (1,520,000 acre-ft per year).

Extremes.--Maximum discharge during year, 59,200 cfs Oct. 17 (elevation, 42.77 ft); minimum, 1,120 cfs July 25.

1940, 1948-58: Maximum discharge, 83,300 cfs July 4, 1940 (elevation, 48.2 ft, present datum), at site 6,300 ft upstream at bridge on State Highway 35, observed by Corps of Engineers (elevation, 46.6 ft, adjusted to present site); no flow at times in 1951-53, 1956.

Maximum elevation known since 1869, 56.1 ft Dec. 10, 1913. Flood in July 1869 probably reached about the same elevation. Elevations 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 and New Orleans Railroad Co. and adjusted to present site.

Remarks.--Records good. Diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin.

Revisions.--WSP 1342: Drainage area.

Rating table, water year 1957-58 (elevation, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 1-15, 20-23, Oct. 26 to Nov. 23, Jan. 16-20, Jan. 29 to Feb. 11, Feb. 14-19, 23, Sept. 24-30)

| | | | |
|---|---|---|---|
| 16.5 | 1,300 | 28.0 | 16,100 |
| 17.0 | 1,640 | 32.0 | 25,100 |
| 19.0 | 3,160 | 38.0 | 42,000 |
| 21.0 | 5,040 | 42 | 56,000 |
| 24.0 | 9,000 | 43 | 60,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4,400 | 6,800 | 7,780 | 5,150 | 4,930 | 10,800 | 6,660 | 4,500 | 3,160 | 4,020 | 2,200 | 1,920 |
| 2 | 3,320 | 6,660 | 7,640 | 4,600 | 4,820 | a11,000 | 6,540 | 3,930 | 3,080 | 3,750 | 2,200 | 1,920 |
| 3 | 2,760 | *6,540 | 7,360 | 4,500 | 4,710 | a9,600 | 6,420 | 3,840 | 2,920 | 3,840 | 2,200 | 1,920 |
| 4 | 2,600 | 6,420 | 7,220 | 4,400 | 4,710 | a8,800 | 6,300 | 8,220 | 2,840 | 4,110 | 2,360 | 1,780 |
| 5 | 2,680 | 6,300 | *7,220 | 4,200 | 4,710 | *8,200 | 6,300 | 19,200 | 2,760 | 4,110 | 2,200 | 1,710 |
| 6 | *2,600 | 6,300 | a7,100 | 4,200 | 4,200 | 7,640 | 6,180 | 22,600 | 2,760 | 4,110 | 1,920 | 1,780 |
| 7 | 2,600 | 6,300 | a6,900 | 4,400 | 4,020 | 7,360 | 6,060 | *11,800 | 2,760 | 4,200 | 1,780 | 2,130 |
| 8 | 2,520 | 6,540 | a6,900 | *4,600 | 4,200 | 7,640 | 5,940 | 7,100 | 2,600 | 4,300 | 1,670 | 2,600 |
| 9 | 2,440 | 6,800 | 6,800 | 4,500 | 4,200 | 7,920 | *6,180 | 5,820 | 2,680 | 4,930 | 1,780 | 5,880 |
| 10 | 2,360 | 6,660 | 6,800 | 4,200 | 4,110 | 8,060 | 5,940 | 5,150 | 2,760 | 5,940 | 1,850 | 3,990 |
| 11 | 2,200 | 6,180 | 6,800 | 4,110 | 4,110 | 7,920 | 5,150 | 5,370 | 2,680 | 4,710 | 2,060 | 3,320 |
| 12 | 2,130 | 6,180 | 6,800 | 4,200 | a4,000 | 7,360 | 4,500 | 5,590 | 2,680 | 4,400 | 1,920 | 3,080 |
| 13 | 2,360 | 6,540 | 6,660 | 4,500 | a4,000 | 7,220 | 4,400 | 5,150 | 2,680 | 3,660 | 1,850 | 2,280 |
| 14 | 2,680 | 8,520 | 6,540 | 9,680 | *3,930 | 7,360 | 4,300 | 4,930 | 2,600 | 3,570 | 1,920 | 1,920 |
| 15 | 9,170 | 9,000 | 6,540 | 12,500 | 3,660 | 7,360 | 4,600 | 4,500 | 2,600 | 3,930 | 1,850 | 1,920 |
| 16 | 42,000 | 7,360 | 6,420 | 8,730 | 3,480 | 7,080 | 5,940 | 4,020 | 2,520 | 4,020 | 2,060 | 1,780 |
| 17 | 56,800 | 6,660 | 5,700 | 5,590 | 3,240 | 6,800 | 5,700 | 3,930 | 2,520 | 4,020 | 2,060 | *1,710 |
| 18 | 54,000 | 6,540 | 5,260 | 4,820 | 2,920 | 6,660 | 5,040 | 3,930 | 2,600 | 3,750 | 1,920 | 1,670 |
| 19 | 30,200 | 6,420 | 5,260 | 4,500 | 2,520 | 6,800 | 4,400 | 4,110 | 2,760 | 3,400 | *2,130 | 1,600 |
| 20 | 13,700 | 6,540 | 5,150 | 4,500 | a2,400 | 6,800 | 4,300 | 3,930 | *4,670 | 3,400 | 2,280 | 1,920 |
| 21 | 13,600 | 6,420 | 5,040 | a7,200 | a2,500 | 6,940 | 4,200 | 3,660 | 8,510 | 3,320 | 2,280 | 3,500 |
| 22 | 16,300 | 6,800 | 5,040 | a7,200 | a4,400 | 6,940 | 4,020 | 3,570 | 5,260 | *2,840 | 2,280 | 11,400 |
| 23 | 15,900 | 16,400 | 4,710 | a6,400 | 16,500 | 7,080 | 4,200 | 3,400 | 4,930 | 2,600 | 2,360 | 19,100 |
| 24 | 23,700 | 21,100 | 4,500 | a7,500 | 39,000 | 7,080 | 4,110 | 3,000 | 5,040 | 1,920 | 2,360 | *12,200 |
| 25 | 27,100 | 17,500 | 4,400 | a10,000 | *52,200 | 7,080 | 4,020 | 3,160 | 4,820 | 1,400 | 2,360 | 5,480 |
| 26 | 17,000 | 14,500 | 4,400 | a11,800 | 49,700 | 7,080 | 3,930 | 3,480 | 4,020 | 1,780 | 2,440 | 3,930 |
| 27 | 10,300 | 12,700 | 4,400 | a9,200 | 22,000 | 6,660 | 3,840 | 3,400 | 4,400 | 1,780 | 2,440 | 3,320 |
| 28 | 8,200 | 9,800 | 5,150 | a6,700 | 12,300 | 6,540 | 3,840 | 3,320 | 4,400 | 1,920 | 2,200 | 3,000 |
| 29 | 7,500 | 8,360 | 6,540 | 5,700 | - | 6,540 | 3,660 | 3,080 | 4,200 | 1,850 | 1,780 | 2,760 |
| 30 | 7,220 | 7,920 | 7,780 | 5,590 | ------- | 6,660 | 4,820 | 3,000 | 4,110 | 2,060 | 1,850 | 2,600 |
| 31 | 6,940 | ------- | 6,540 | 5,370 | ------- | 6,660 | ------- | 3,240 | ------- | 2,130 | 1,920 | ------- |
| Total | 397,280 | 256,760 | 191,350 | 190,540 | 277,470 | 233,640 | 151,490 | 173,930 | 106,320 | 105,770 | 64,480 | 114,120 |
| Mean | 12,820 | 8,559 | 6,173 | 6,146 | 9,910 | 7,537 | 5,050 | 5,611 | 3,544 | 3,412 | 2,080 | 3,804 |
| Ac-ft | 788,000 | 509,300 | 379,500 | 377,900 | 550,400 | 463,400 | 300,500 | 345,000 | 210,900 | 209,800 | 127,900 | 226,400 |

Calendar year 1957: Max 56,800 Min 219 Mean 8,228 Ac-ft 5,956,000
Water year 1957-58: Max 56,800 Min 1,400 Mean 6,200 Ac-ft 4,489,000

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of weather records and records for Colorado River at Wharton.
Note.--Discharge computed from twice-daily staff-gage readings Feb. 25, Mar. 5 to Apr. 19.

Reservoirs in Colorado River basin, Tex.

Lake J. B. Thomas.--Lat 32°35'09", long 101°12'18", at Big Spring pump station on south side of reservoir, 4.0 miles upstream from dam on Colorado River, 7.3 miles north of Vincent, Howard County, 12.5 miles west of Ira, and at mile 845. Drainage area, 3,524 sq mi, of which 2,590 sq mi is probably noncontributing. Contributing area includes 363 sq mi above Bull Creek diversion dam. Records available, October 1953 to September 1958. Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. From Nov. 4, 1953, to Feb. 7, 1955, Colorado River Municipal Water District staff gage located 4.0 miles downstream at same datum. Maximum contents during year, 197,300 acre-ft May 18-23 (elevation, 2,257.2 ft); minimum, 165,200 acre-ft Oct. 4-7 (elevation, 2,252.8 ft). Maximum contents during period 1953-58, that of May 18-23, 1958; minimum since first appreciable storage, 72,340 acre-ft Apr. 29, May 2-4, 8, 9, 1955 (elevation, 2,235.1 ft).

Reservoir is formed by rolled-fill earthen dam, 14,500 ft long; storage began in July 1952; dam completed in September 1952. No appreciable storage prior to July 1953. The service spillway is a reinforced concrete structure of cloverleaf design, with two 14- by 14-foot uncontrolled openings designed to discharge a total of 10,000 cfs. Two emergency spillways, one 500 ft wide located at left end of dam and one 1,600 ft wide located at right end of dam, are designed to discharge 161,000 cfs at elevation 2,275.0 ft (maximum design level). Capacity of reservoir, 255,000 acre-ft at elevation 2,264.0 ft (top of lower emergency spillway), 204,000 acre-ft at elevation 2,258.0 ft (top of service spillway), and 1,300 acre-ft at elevation 2,200.0 ft (lip of intake to service outlet). Dam built by Colorado River Municipal Water District to impound water for municipal and industrial use for the cities of Big Spring, Odessa, and Snyder. All flow of Bull Creek is diverted into Lake J. B. Thomas by means of a diversion dam across the creek and a gravity canal through the intervening ridge except that which will flow through the spillway at one end of the dam during extreme floods. Capacity curve prepared and furnished by Freese and Nichols, Consulting Engineers. Record of diversions furnished by Colorado River Municipal Water District. Oilfields nearby used 7,770 acre-ft, of the total amount diverted, to repressurize oil wells by injection process.

Lake Colorado City.--Lat 32°20'40", long 100°55'10", 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 The Texas and Pacific Railway Co. 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 1958. 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. Maximum contents during year, 28,890 acre-ft Nov. 13 (elevation, 2,068.68 ft); minimum, 23,400 acre-ft Sept. 22-26, 29, 30; minimum elevation, 2,065.17 ft Sept. 26. Maximum contents during period 1949-58, 38,520 acre-ft May 13, 1957 (elevation, 2,073.62 ft); minimum since first appreciable storage, 5,800 acre-ft Apr. 11-13, 1950 (elevation, 2,045.72 ft).

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 following page). 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, 38,700 acre-ft at elevation 2,073.7 ft (top of emergency spillway), 31,800 acre-ft at elevation 2,070.3 ft (top of service spillway), and 158 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. Capacity curve prepared and furnished by Texas Electric Service Co. Record of diversions for municipal use furnished by Colorado City.

Oak Creek Reservoir.--Lat 32°04', long 100°17', on left bank at municipal pump station 2 miles upstream from dam on Oak Creek, 3 miles southeast of Blackwell, Nolan County, 14 miles north of Bronte, Coke County, and 20 miles upstream from mouth. Drainage area, 222 sq mi. Records available, May 1953 to September 1958. Staff gage read once daily. Datum of gage is at mean sea level, datum of 1929. Maximum contents observed during year, 49,100 acre-ft Oct. 13 (elevation, 2,003.80 ft); minimum observed, 33,620 acre-ft Sept. 9-15; minimum elevation, 1,997.37 ft Sept. 14-15. Maximum contents observed during period 1953-58, that of Oct. 13, 1957; minimum observed, 7,060 acre-ft Aug. 1, 1953 (elevation, 1,976.2 ft).

Reservoir is formed by a rolled-fill earthen dam, 3,800 ft long. Dam completed in May 1952; no appreciable storage prior to May 12, 1953. Reservoir is property of City of Sweetwater and was built to impound water for municipal use by cities of Sweetwater, Blackwell, and Bronte. Uncontrolled service spillway is channel 300 ft wide located to right of dam with crest at elevation 2,000 ft (reservoir capacity, 39,360 acre-ft). Emergency spillway is channel 800 ft wide located between dam and service spillway with crest at elevation 2,005.0 ft (reservoir capacity, 52,940 acre-ft). Service outlet (elevation, 1,951.0 ft) can release water to Oak Creek through 24-inch pipeline. Dead storage is 100 acre-ft. See table below for total diversions for municipal use. Capacity curve furnished by Freese and Nichols, Consulting Engineers. Record of lake elevations and diversions furnished by City of Sweetwater.

Lake Nasworthy.--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 1958. Water-stage recorder. Datum of gage is 1,840.00 ft above mean sea level, datum of 1929. Maximum contents during year, 13,030 acre-ft Feb. 23, May 13 (gage height, 32.60 ft); minimum, 6,870 acre-ft Oct. 6-8; minimum gage height, 27.95 ft Oct. 8. Maximum contents during period 1930-58, 26,900 acre-ft Sept. 15, 1936 (gage height, 38.36 ft); minimum, 480 acre-ft May 10, 1955 (gage height, 15.63 ft).

Reservoirs in Colorado River basin, Tex.--Continued

Lake Nasworthy--Continued.

Lake is formed by 5,480-foot dam comprised of a 3,780-foot earthen section, 2 emergency spillways, 300 and 600 ft in length, and a concrete service spillway having a bank of fifteen 25-foot taintor gates and 1 collapsible floodgate. Dam completed and storage began Mar. 28, 1930. Capacity of reservoir, 27,470 acre-ft, at gage height 39.0 ft (top of 300-foot emergency spillway); 13,990 acre-ft at gage height 33.2 ft (top of taintor gates); 12,390 acre-ft at gage height 32.2 ft (top of collapsible floodgates). Capacity at top of 600-foot emergency spillway (gage height, 41.0 ft) not determined. There is no dead storage. Beginning 1955 figures of contents and the capacities shown herein have been adjusted for sedimentation. Siltation surveys made by the U. S. Department of Agriculture, Soil Conservation Service, in December 1938 and May 1953 show that for the period March 1930 to December 1938, 1,191 acre-ft of silt was deposited, and from December 1938 to May 1953 an additional 1,023 acre-ft was deposited, making a total siltation of 2,214 acre-ft at gage height 32.2 ft. Water is used for San Angelo municipal supply.

Month-end elevation or gage height and contents, and monthly diversions, water year October 1957 to September 1958

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) | Diversions for municipal and industrial use (acre-feet) | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) | Diversions for municipal and industrial use (acre-feet) |
|---|---|---|---|---|---|---|---|---|
| | Lake J. B. Thomas† | | | | Lake Colorado City† | | | |
| Sept.30 | 2,252.9 | 165,900 | - | - | 2,067.98 | 27,700 | - | - |
| Oct. 31 | 2,254.3 | 175,700 | +9,800 | 1,330 | 2,068.04 | 27,700 | 0 | 120 |
| Nov. 30 | 2,254.2 | 175,000 | -700 | 1,180 | 2,068.45 | 28,380 | +680 | 87 |
| Dec. 31 | 2,253.8 | 172,200 | -2,800 | 1,200 | 2,068.13 | 27,870 | -510 | 88 |
| Calendar year 1957. | - | - | +33,500 | 18,100 | - | - | +9,020 | 1,290 |
| Jan. 31 | 2,253.5 | 170,000 | -2,200 | 1,090 | 2,068.00 | 27,700 | -170 | 85 |
| Feb. 28 | 2,253.3 | 168,600 | -1,400 | 984 | 2,067.85 | 27,380 | -320 | 89 |
| Mar. 31 | 2,253.2 | 167,900 | -700 | 1,060 | 2,067.68 | 27,220 | -160 | 84 |
| Apr. 30 | 2,255.4 | 183,700 | +15,800 | 1,070 | 2,067.82 | 27,380 | +160 | 108 |
| May 31 | 2,257.0 | 195,800 | +12,100 | 1,250 | 2,067.87 | 27,540 | +160 | 128 |
| June 30 | 2,256.2 | 189,700 | -6,100 | 1,960 | 2,067.31 | 26,580 | -960 | 175 |
| July 31 | 2,255.2 | 182,200 | -7,500 | 2,510 | 2,066.25 | 24,900 | -1,680 | 180 |
| Aug. 31 | 2,254.7 | 178,600 | -3,600 | 2,360 | 2,065.69 | 24,150 | -750 | 212 |
| Sept.30 | 2,254.5 | 177,200 | -1,400 | 1,470 | 2,065.18 | 23,400 | -750 | 142 |
| Water year 1957-58. | - | - | +11,300 | 17,460 | - | - | -4,300 | 1,500 |
| | Oak Creek Reservoir†† | | | | Lake Nasworthy‡ | | | |
| Sept.30 | 1,998.51 | 35,980 | - | - | 28.26 | 7,200 | - | |
| Oct. 31 | 2,000.13 | 39,600 | +3,620 | 135 | 31.13 | 10,630 | +3,430 | |
| Nov. 30 | 1,999.89 | 39,130 | -470 | 124 | 31.93 | 11,910 | +1,280 | |
| Dec. 31 | 1,999.66 | 38,670 | -460 | 117 | 32.30 | 12,550 | +640 | |
| Calendar year 1957. | - | - | +20,330 | 1,460 | - | - | +4,220 | |
| Jan. 31 | 1,999.56 | 38,440 | -230 | 121 | 32.35 | 12,710 | +160 | |
| Feb. 28 | 1,999.66 | 38,670 | +230 | 114 | 32.18 | 12,390 | -320 | |
| Mar. 31 | 1,999.79 | 38,900 | +230 | 125 | 32.36 | 12,710 | +320 | |
| Apr. 30 | 1,999.79 | 38,900 | 0 | 128 | 32.27 | 12,550 | -160 | |
| May 31 | 2,000.01 | 39,360 | +460 | 124 | 32.28 | 12,550 | 0 | |
| June 30 | 1,999.18 | 37,530 | -1,830 | 129 | 32.41 | 12,710 | +160 | |
| July 31 | 1,998.28 | 35,540 | -1,990 | 208 | 31.17 | 10,790 | -1,920 | |
| Aug. 31 | 1,997.65 | 34,040 | -1,500 | 235 | 31.45 | 11,110 | +320 | |
| Sept.30 | 1,997.59 | 34,040 | 0 | 141 | 31.15 | 10,790 | -320 | |
| Water year 1957-58. | - | - | -1,940 | 1,700 | - | - | +3,590 | |

† Elevation at 12 p.m.
‡ Gage height at 12 p.m.
†† Elevation at 8 a.m.

## 1635. 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 and New Orleans Railroad Co. bridge.

Drainage area.--101 sq mi.

Records available.--July 1939 to September 1958.

Gage.--Water-stage recorder for high stages, and moveable wire-weight gage read twice daily for stages below about 6.2 ft. Datum of gage is 186.72 ft above mean sea level, datum of 1929.

Average discharge.--19 years, 39.9 cfs (28,890 acre-ft per year).

Extremes.--Maximum discharge during year, 20,600 cfs Oct. 15 (gage height, 30.55 ft); minimum, 0.3 cfs Aug. 19-24, 26.

1939-58: 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 measurement of peak flow; no flow at times in 1953, 1956.

Maximum stage known since about 1870, that of June 30, 1940; maximum stage prior to 1940, 32.8 ft July 16, 1938, from information by local resident.

Remarks.--Records poor. No known diversions above station. Most of extreme low-water flow is from poultry-dressing plant 1,000 ft above station.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.0 | 4.8 | 16 | 8.8 | 18 | 26 | 8.0 | 5.4 | 2.5 | 54 | 0.9 | 0.4 |
| 2 | 5.7 | 4.1 | 16 | 9.2 | 19 | 25 | 8.0 | 5.7 | 2.5 | 30 | .8 | .4 |
| 3 | 4.4 | 4.1 | 16 | 9.6 | 17 | 25 | 8.0 | 523 | 2.2 | 22 | .8 | .4 |
| 4 | 3.8 | 3.8 | 14 | 8.8 | 14 | 23 | 7.6 | 93 | 2.3 | 18 | .8 | .4 |
| 5 | 3.6 | 3.8 | 14 | 11 | 14 | 21 | 7.3 | 16 | 2.3 | 16 | .7 | .4 |
| 6 | 2.5 | 4 | 13 | 26 | 14 | 24 | 7.3 | 10 | 2.3 | 35 | .7 | 15 |
| 7 | 2.0 | *10 | 13 | 16 | 12 | *21 | *6.5 | 7.6 | 2.5 | 116 | .7 | 14 |
| 8 | 1.8 | 6.0 | 12 | 11 | 11 | 18 | 6.3 | 6.6 | 2.2 | 52 | .6 | 2.2 |
| 9 | 1.8 | 4.6 | 9.6 | *9.6 | 11 | 16 | 7.0 | 6.0 | 2.2 | 12 | .6 | 1.0 |
| 10 | 1.8 | 4.1 | 9.2 | 8.8 | 46 | 15 | 6.6 | 5.4 | 2.2 | 11 | .6 | 1.2 |
| 11 | 1.8 | 9.7 | 8.8 | 8.4 | 34 | 15 | 6.6 | 5.4 | 2.2 | 4.1 | .6 | 1.2 |
| 12 | 1.8 | 399 | 8.8 | 648 | 36 | 15 | 7.0 | 4.8 | 2.2 | 2.3 | .6 | 1.0 |
| 13 | 1.7 | 60 | 8.4 | 122 | 29 | 14 | 9.2 | 4.4 | 2.2 | 2.3 | .6 | 1.0 |
| 14 | 1,290 | 35 | 8.4 | 30 | 25 | 14 | 19 | 6.6 | 2.9 | 1.8 | .6 | 1.0 |
| 15 | *7,800 | 23 | 8.4 | 18 | 24 | 13 | 20 | *11 | 2.2 | 1.0 | .6 | 1.0 |
| 16 | *758 | 19 | 8.8 | 12 | 16 | 12 | 10 | 8.8 | 2.0 | 1.0 | .6 | 1.2 |
| 17 | 40 | 17 | 9.2 | 11 | 14 | 13 | 9.2 | 7.3 | 3.1 | 1.0 | .6 | 1.4 |
| 18 | 20 | 27 | 9.2 | 11 | 14 | 14 | 9.2 | 4.8 | 3.4 | 1.0 | .6 | 18 |
| 19 | 16 | *26 | 9.2 | 14 | 14 | 14 | 8.4 | 4.1 | 2.9 | .9 | .4 | 11 |
| 20 | 11 | 16 | 10 | 60 | 13 | 13 | 8.0 | 4.1 | 2.2 | 1.0 | .3 | 17 |
| 21 | 10 | 19 | 11 | 29 | 49 | 12 | 7.6 | 3.8 | 2.0 | .7 | .3 | 47 |
| 22 | 992 | *1,780 | 11 | 18 | 3,300 | 12 | 7.6 | 3.6 | 3.1 | *.8 | .3 | 93 |
| 23 | 144 | 430 | 12 | 721 | 1,600 | 13 | 7.6 | 3.6 | 3.4 | .9 | .3 | 7.3 |
| 24 | 27 | 499 | 12 | 157 | 114 | 13 | 7.3 | 3.6 | 2.9 | .8 | .3 | 3.1 |
| 25 | 12 | 57 | 10 | 44 | 56 | 11 | 6.6 | 3.4 | *2.2 | .7 | .5 | *2.5 |
| 26 | 10 | 39 | 9.6 | 28 | 46 | 10 | 6.3 | 3.1 | 1.8 | .8 | .3 | 2.0 |
| 27 | 8.4 | 29 | 11 | 21 | 34 | 10 | 6.3 | 3.4 | 1.6 | .8 | .5 | 2.0 |
| 28 | 7.3 | 24 | 30 | *64 | 28 | 9.6 | 6.3 | 3.1 | 1.4 | .9 | *.5 | 2.3 |
| 29 | 6.3 | 21 | 11 | 66 | - | 10 | 6.3 | 2.9 | 1.4 | .9 | .4 | 2.2 |
| 30 | 5.4 | 18 | 8.8 | 29 | ------- | 11 | 5.7 | 2.7 | 82 | .9 | .4 | 2.2 |
| 31 | 5.1 | ------- | 8.8 | 22 | ------- | 8.4 | ------- | 2.5 | ------- | .9 | .4 | ------- |
| Total | 11,203.2 | 3,597.0 | 357.2 | 2,252.2 | 5,622 | 471.0 | 246.8 | 775.5 | 150.3 | 391.5 | 16.9 | 252.8 |
| Mean | 361 | 120 | 11.5 | 72.7 | 201 | 15.2 | 8.23 | 25.0 | 5.01 | 12.6 | 0.55 | 8.43 |
| Ac-ft | 22,220 | 7,130 | 708 | 4,470 | 11,150 | 934 | 490 | 1,540 | 298 | 777 | 34 | 501 |

Calendar year 1957: Max 7,800 Min 0.2 Mean 101 Ac-ft 73,210
Water year 1957-58: Max 7,800 Min 0.3 Mean 69.4 Ac-ft 50,250

Peak discharge (base, 3,100 cfs).--Oct. 15 (3 p.m.) 20,600 cfs (30.55 ft); Oct. 22 (1 p.m.) 3,440 cfs (19.10 ft); Nov. 22 (8 a.m.) 4,140 cfs (20.17 ft); Feb. 22 (10 to 11 p.m.) 6,210 cfs (22.86 ft).

* Discharge measurement made on this day.

## 1640. Lavaca River near Edna, Tex.

Location.--Lat 28°57'35", long 96°41'10", at downstream side near center of upstream bridge of two bridges on U. S. Highway 59, 660 ft upstream from Texas and New Orleans Railroad Co. bridge and 2.8 miles southwest of Edna, Jackson County.

Drainage area.--887 sq mi.

Records available.--August 1938 to September 1958.

Gage.--Wire-weight gage or staff gage read twice daily, more often 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) and June 6, 1939, to Apr. 3, 1957, wire-weight or staff gage at site 110 ft downstream at same datum.

Average discharge.--20 years, 251 cfs (181,700 acre-ft per year).

Extremes.--Maximum discharge during year, 24,500 cfs Oct. 17 (gage height, 26.66 ft, from graph based on gage readings); minimum, 7.4 cfs Aug. 28, Sept. 3, 4, 5.
1938-58: Maximum discharge, 73,000 cfs July 1, 1940 (gage height, 32.51 ft); no flow at times.
Maximum stage known, 33.8 ft May 25, 1936 (discharge, 83,400 cfs), from information by local resident.

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

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 1 to Jan. 6, Jan. 9-12, 16-20, 23, Mar. 2-14)

| Oct. 1-17 | | | | Oct. 18 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.0 | 19 | 14.0 | 2,400 | 2.24 | 7.4 | 10.0 | 1,370 |
| 3.0 | 32 | 18.0 | 4,180 | 2.4 | 16 | 15.0 | 3,000 |
| 3.5 | 78 | 21.0 | 6,380 | 2.7 | 37 | 20.0 | 5,700 |
| 4.0 | 139 | 24.0 | 11,000 | 3.0 | 62 | 22.0 | 7,490 |
| 5.0 | 286 | 26.0 | 20,400 | 4.0 | 175 | 24.0 | 11,000 |
| 10.0 | 1,200 | 27.0 | 26,300 | 6.0 | 489 | 25.0 | 15,100 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 52 | 151 | 222 | 88 | 175 | 318 | 95 | 59 | 39 | 30 | 19 | 12 |
| 2 | 41 | 139 | 194 | 81 | 156 | 287 | 91 | 58 | 38 | 74 | 18 | 9.7 |
| 3 | 35 | 130 | 182 | 75 | 140 | 264 | 92 | 213 | 36 | 106 | 18 | 7.8 |
| 4 | 33 | 124 | 170 | 73 | 132 | 250 | 91 | 4,360 | 34 | 66 | 18 | 7.4 |
| 5 | 28 | 118 | 158 | 75 | 127 | 236 | 90 | 4,660 | 33 | 36 | 16 | 7.8 |
| 6 | 26 | 113 | 152 | 569 | 125 | *229 | 83 | 456 | 34 | 32 | 15 | 11 |
| 7 | 25 | 113 | 148 | 886 | 120 | 215 | 80 | 257 | 33 | 31 | 13 | 153 |
| 8 | 23 | 154 | 140 | 302 | 117 | 208 | *74 | 188 | 34 | 904 | 12 | 151 |
| 9 | 24 | 137 | 131 | 167 | 116 | 194 | 74 | 149 | 32 | 927 | 14 | 88 |
| 10 | 24 | 115 | 125 | 123 | 119 | 182 | 70 | 128 | 31 | 384 | 18 | 37 |
| 11 | 21 | 136 | 118 | 107 | 473 | 171 | 70 | 113 | 29 | 349 | 18 | 24 |
| 12 | 24 | 1,680 | 110 | 186 | 507 | 165 | 71 | 102 | 29 | 161 | 20 | 29 |
| 13 | 22 | 2,780 | 106 | 2,760 | 601 | 156 | 70 | 90 | 29 | 94 | 18 | 25 |
| 14 | 40 | 717 | 106 | 1,770 | 444 | 151 | 78 | 84 | 28 | 80 | 16 | 16 |
| 15 | 3,430 | 367 | 106 | 376 | 272 | 144 | 91 | *77 | 27 | 52 | 14 | 30 |
| 16 | 7,830 | 264 | 106 | 236 | 208 | 140 | 112 | 86 | 27 | 43 | 13 | 88 |
| 17 | 21,800 | 201 | 102 | 172 | 160 | 139 | 102 | 83 | 26 | 40 | 12 | 55 |
| 18 | *13,400 | 175 | 105 | 145 | 134 | 136 | 83 | 92 | 31 | 36 | 11 | 23 |
| 19 | 2,470 | 162 | 105 | 132 | 123 | 132 | 73 | 77 | 32 | 33 | 13 | 243 |
| 20 | 525 | *188 | 104 | 312 | 116 | 128 | 73 | 74 | 43 | 32 | 25 | 204 |
| 21 | 384 | 148 | 94 | 384 | 117 | 128 | 70 | 63 | 33 | 29 | 20 | 1,190 |
| 22 | 334 | 1,450 | 90 | 257 | 2,180 | 126 | 68 | 61 | 32 | *28 | 15 | 1,260 |
| 23 | 3,340 | 5,390 | 90 | 550 | 7,570 | 134 | 63 | 62 | 32 | 26 | 31 | 4,590 |
| 24 | 3,130 | 8,040 | 88 | 3,940 | 11,900 | 125 | 61 | 58 | *32 | 25 | 13 | 1,820 |
| 25 | 601 | 8,040 | 88 | 4,820 | 5,430 | 124 | 58 | 54 | 32 | 23 | 10 | *272 |
| 26 | 350 | 2,140 | 89 | 669 | 787 | 119 | 58 | 53 | 30 | 22 | 9.7 | 416 |
| 27 | 272 | 563 | 90 | 367 | 489 | 120 | 58 | 53 | 27 | 20 | 9.7 | 392 |
| 28 | 229 | 418 | 96 | *272 | 384 | 118 | 58 | 48 | 22 | 19 | *8.2 | 250 |
| 29 | 188 | 318 | 93 | 257 | - | 114 | 58 | 47 | 22 | 19 | 8.2 | 128 |
| 30 | 175 | 264 | 116 | 342 | ------- | 103 | 58 | 44 | 22 | 19 | 8.2 | 84 |
| 31 | 163 | ------- | *92 | 222 | ------- | 98 | ------- | 43 | ------- | 20 | 9.2 | ------- |
| Total | 59,039 | 34,735 | 3,716 | 20,715 | 33,222 | 5,154 | 2,273 | 11,992 | 929 | 3,760 | 463.2 | 11,623.7 |
| Mean | 1,904 | 1,158 | 120 | 668 | 1,186 | 166 | 75.8 | 387 | 31.0 | 121 | 14.9 | 387 |
| Ac-ft | 117,100 | 68,900 | 7,370 | 41,090 | 65,890 | 10,220 | 4,510 | 23,790 | 1,840 | 7,460 | 919 | 23,060 |

Calendar year 1957: Max 21,800 Min 0 Mean 509 Ac-ft 368,300
Water year 1957-58: Max 21,800 Min 7.4 Mean 514 Ac-ft 372,100

Peak discharge (base, 4,100 cfs).--Oct. 17 (2 p.m.) 24,500 cfs (26.66 ft); Oct. 24 (3 a.m.) 5,000 cfs (19.00 ft); Nov. 25 (4 a.m.) 9,000 cfs (23.00 ft); Jan. 25 (6 a.m.) 6,680 cfs (21.19 ft); Feb. 24 (10 a.m.) 13,200 cfs (24.57 ft); May 5 (8 a.m.) 6,860 cfs (21.38 ft); Sept. 23 (10 p.m.) 5,560 cfs (19.81 ft).

* Discharge measurement made on this day.

## 1645. Navidad River near Ganado, Tex.

Location.--Lat 29°02', long 96°33', at downstream side near center of upstream bridge on U. S. Highway 59, 170 ft upstream from Texas and New Orleans Railroad Co. bridge, a quarter of a mile downstream from Sandy Creek, and 2¼ miles southwest of Ganado, Jackson County. Prior to Mar. 7, 1958, at bridge 70 ft downstream.

Drainage area.--1,116 sq mi.

Records available.--May 1939 to September 1958.

Gage.--Staff and wire-weight gages read twice daily, more often during floods. Datum of gages is 13.62 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 7, 1958, wire-weight gage at site 70 ft downstream at same datum.

Average discharge.--19 years, 440 cfs (318,500 acre-ft per year).

Extremes.--Maximum discharge during year, 24,800 cfs Oct. 17 (gage height, 30.90 ft, from graph based on gage readings); minimum, 3.2 cfs Aug. 5, 6.

1939-58: Maximum discharge, 64,500 cfs July 2, Nov. 26, 1940; maximum gage height, 36.54 ft July 2, 1940, from floodmark; no flow many days 1955-56.

Maximum stage known since at least 1909, 39.8 ft May 27, 1936, from information by Texas and New Orleans Railroad Co. (discharge, 94,000 cfs, from rating curve extended above 60,000 cfs).

Remarks.--Records good. Diversions for irrigation above station. Much of low flow during irrigation season, April to September, is drainage from rice fields irrigated by water diverted from Colorado River by way of Sandy Creek. Below are discharge measurements, in cubic feet per second, of Sandy Creek made near mouth of creek, a quarter of a mile upstream from gaging station, during water year 1958.

| | |
|---|---|
| Dec. 31 | †15.8 |
| May 15 | †9.18 |
| June 24 | 46.4 |
| July 22 | 0 |
| Aug. 28 | 84.2 |

† Probably natural runoff.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 21 to Nov. 1, Nov. 27 to Dec. 5, Dec. 29 to Jan. 13, Jan. 16-20, 26, 27, Feb. 27 to Mar. 17, May 6-13, Aug. 12 to Sept. 7, Sept. 22-30)

Oct. 1 to Feb. 24

| | | | |
|---|---|---|---|
| 4.5 | 45 | 25.0 | 6,700 |
| 5.0 | 90 | 27.0 | 9,000 |
| 6.0 | 210 | 28.0 | 11,200 |
| 10.0 | 940 | 30.0 | 19,000 |
| 15.0 | 2,180 | 31.0 | 25,500 |
| 20.0 | 4,000 | | |

Feb. 25 to Sept. 30

| | | | |
|---|---|---|---|
| 3.38 | 3.2 | 5.0 | 125 |
| 3.5 | 7 | 6.0 | 243 |
| 3.7 | 16 | 8.0 | 560 |
| 4.0 | 36 | 10.0 | 940 |

Note.--Same as preceding table above 10.0 ft.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 269 | 184 | 388 | 92 | 335 | 456 | 67 | 44 | 27 | 12 | 5.6 | 41 |
| 2 | 190 | 163 | 310 | 79 | 238 | 358 | 65 | 42 | 27 | 13 | 5.4 | 35 |
| 3 | 132 | 156 | 261 | 71 | 180 | 285 | 64 | 40 | 27 | 178 | 5.0 | 30 |
| 4 | 106 | 145 | 210 | 67 | 145 | 250 | 64 | 2,740 | 26 | 152 | 4.4 | 38 |
| 5 | 88 | 132 | 176 | 76 | 127 | 224 | 64 | 6,560 | 23 | 103 | 3.8 | 47 |
| 6 | 69 | 139 | 162 | 123 | 114 | *205 | 63 | 3,560 | 23 | 73 | 3.2 | 85 |
| 7 | 65 | 129 | 151 | 460 | 101 | 181 | 56 | 914 | 21 | 128 | 4.4 | 440 |
| 8 | 62 | 238 | 140 | 293 | 85 | 163 | *55 | 373 | 20 | 1,230 | 8.6 | 1,750 |
| 9 | 58 | 550 | 128 | 167 | 71 | 163 | 53 | 230 | 25 | 780 | 6.3 | 1,600 |
| 10 | 52 | 424 | 115 | 112 | 160 | 139 | 49 | 152 | 29 | 632 | 16 | 650 |
| 11 | 48 | 361 | 103 | 91 | 568 | 124 | 49 | 117 | 25 | 560 | 36 | 439 |
| 12 | 61 | 1,080 | 91 | 171 | 660 | 117 | 54 | 93 | 19 | 313 | 70 | 313 |
| 13 | 58 | 2,130 | 85 | 686 | 800 | 110 | 52 | 74 | 18 | 199 | 107 | 224 |
| 14 | 374 | 1,700 | 87 | 1,860 | 586 | 102 | 75 | 65 | 16 | 131 | 103 | 157 |
| 15 | 4,930 | 984 | 83 | 890 | 496 | 98 | 177 | *62 | 15 | 91 | 104 | 130 |
| 16 | 11,700 | 700 | 80 | 318 | 388 | 96 | 486 | 69 | 15 | 73 | 117 | 295 |
| 17 | *22,600 | 433 | 78 | 224 | 204 | 92 | 163 | 65 | 13 | 49 | 122 | 542 |
| 18 | 22,900 | 397 | 76 | 162 | 135 | 97 | 102 | 63 | 21 | 30 | 105 | 388 |
| 19 | 15,200 | 318 | 71 | 153 | 104 | 91 | 77 | 57 | 88 | 23 | 82 | 320 |
| 20 | 6,500 | 261 | 69 | 632 | 92 | 90 | 72 | 52 | 163 | 15 | 81 | 422 |
| 21 | 2,360 | *231 | 67 | 2,300 | 97 | 92 | 62 | 47 | 92 | 14 | 105 | 1,630 |
| 22 | 1,120 | 1,270 | 62 | 1,910 | 1,590 | 94 | 56 | 45 | 72 | *13 | 103 | 2,700 |
| 23 | 1,640 | 5,380 | 58 | 2,120 | 6,320 | 199 | 52 | 46 | 62 | 11 | 115 | 2,640 |
| 24 | 2,840 | 7,720 | 55 | 4,920 | 9,360 | 111 | 49 | 60 | *70 | 10 | 87 | 1,540 |
| 25 | 1,180 | 9,360 | 51 | 6,280 | 8,680 | 181 | 45 | 40 | 66 | 9.0 | 90 | *578 |
| 26 | 478 | 8,520 | 51 | 3,360 | 7,500 | 131 | 45 | 36 | 42 | 7.0 | 91 | 490 |
| 27 | 361 | 3,800 | 59 | 1,330 | 3,140 | 90 | 42 | 50 | 27 | 6.3 | 96 | 366 |
| 28 | 285 | 1,400 | 69 | *700 | 578 | 77 | 45 | 64 | 19 | 5.6 | *82 | 271 |
| 29 | 246 | 860 | 277 | 900 | - | 77 | 49 | 43 | 15 | 5.4 | 68 | 181 |
| 30 | 210 | 622 | 175 | 940 | ------- | 74 | 48 | 31 | 18 | 6.3 | 81 | 136 |
| 31 | 204 | ------- | *100 | 532 | ------- | 69 | ------- | 28 | ------- | 6.3 | 50 | ------- |
| Total | 96,386 | 49,787 | 3,888 | 32,019 | 42,854 | 4,636 | 2,400 | 15,863 | 1,124 | 4,878.9 | 1,966.7 | 18,478 |
| Mean | 3,109 | 1,660 | 125 | 1,033 | 1,530 | 150 | 80.0 | 512 | 37.5 | 157 | 63.4 | 616 |
| Ac-ft | 191,200 | 98,750 | 7,710 | 63,510 | 85,000 | 9,200 | 4,760 | 31,460 | 2,230 | 9,680 | 3,900 | 36,650 |

Calendar year 1957: Max 22,900 Min 0.1 Mean 951 Ac-ft 688,800
Water year 1957-58: Max 22,900 Min 3.2 Mean 751 Ac-ft 544,000

Peak discharge (base, 6,600 cfs).--Oct. 17 (6 p.m.) 24,800 cfs (30.90 ft); Nov. 25 (8 p.m.) 9,720 cfs (27.40 ft); Feb. 24 (7 p.m.) 9,720 cfs (27.45 ft); May 5 (12 m.) 6,940 cfs (25.32 ft).

* Discharge measurement made on this day.

## 1660. 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.--115 sq mi.

Records available.--September 1941 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,721.30 ft above mean sea level, datum of 1929.

Average discharge.--17 years, 12.4 cfs (8,980 acre-ft per year).

Extremes.--Maximum discharge during year, 4,800 cfs June 17 (gage height, 9.59 ft), from rating curve extended above 1,800 cfs on basis of weir formula study; minimum, 4.6 cfs Oct. 6.

1941-58: 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 measurements at gage heights 9.67 and 11.76 ft; minimum daily, 0.4 cfs July 26, 27, 1956.

Maximum stage since at least 1852, about 35 ft July 2, 1932, from information by local resident; discharge, 138,000 cfs, by slope-area measurement 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 except those for periods of no gage-height record, which are poor. Small diversions above station for irrigation.

Revisions (water years).--WSP 1058: 1942-45. WSP 1342: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 17 to Sept. 30)

| | | | | | |
|---|---|---|---|---|---|
| 5.75 | 4.6 | 6.0 | 47 | 6.7 | 397 |
| 5.8 | 8.7 | 6.2 | 105 | 7.0 | 667 |
| 5.9 | 24 | 6.4 | 196 | 8.0 | 1,820 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.7 | 9.8 | 14 | 14 | 18 | 37 | 20 | 20 | 16 | 28 | 14 | 15 |
| 2 | 8.7 | 11 | 14 | 14 | 18 | 37 | 20 | 24 | 15 | 26 | 14 | 15 |
| 3 | 7.7 | 14 | 14 | 15 | 18 | 34 | 20 | 251 | 14 | 26 | 14 | 15 |
| 4 | 6.8 | 11 | 14 | 14 | 18 | 34 | 18 | 67 | 12 | 26 | 14 | 15 |
| 5 | 6.0 | 12 | 14 | 22 | 20 | 32 | 16 | 47 | 11 | 24 | 12 | 16 |
| 6 | 6.0 | *11 | 14 | 26 | 18 | 32 | 16 | 42 | 9.8 | 26 | 9.8 | 20 |
| 7 | *6.0 | 10 | 14 | 16 | 16 | 30 | 16 | 34 | 11 | 50 | 8.7 | 30 |
| 8 | 6.8 | 9 | 14 | 15 | 16 | 28 | 18 | 32 | 12 | 32 | 8.7 | 26 |
| 9 | 15 | 8.5 | 14 | 14 | 16 | 28 | 16 | 30 | *12 | 26 | 9.8 | 22 |
| 10 | 18 | 8 | 14 | 14 | 16 | 28 | 16 | 30 | 12 | 24 | 11 | 20 |
| 11 | 9.8 | 17 | *14 | 14 | 18 | 28 | 16 | 28 | 12 | 22 | 11 | 18 |
| 12 | 7.7 | 15 | 14 | 14 | 17 | 28 | 16 | 28 | 11 | 22 | 11 | 16 |
| 13 | 6.8 | 14 | 15 | 15 | 17 | 28 | 20 | 28 | 9.8 | 20 | 11 | 16 |
| 14 | 31 | 13 | 15 | 14 | 16 | 26 | 18 | 28 | 9.8 | 20 | 14 | 16 |
| 15 | *455 | 13 | 15 | *12 | 15 | 26 | 18 | 28 | 9.8 | *18 | *16 | 16 |
| 16 | *142 | 12 | 15 | 12 | 14 | 24 | 16 | 32 | 11 | 16 | 11 | 221 |
| 17 | *44 | 12 | 15 | 12 | 14 | 24 | 20 | 30 | 1,350 | 15 | 11 | 67 |
| 18 | 32 | 15 | 15 | 12 | 13 | 28 | 24 | 28 | 120 | 15 | 15 | 42 |
| 19 | 28 | 14 | 14 | 12 | 12 | 26 | 18 | 26 | 50 | 14 | 15 | 172 |
| 20 | 24 | 13 | 14 | 14 | 12 | 24 | 16 | 24 | 40 | 14 | 9.8 | 120 |
| 21 | 24 | 13 | 14 | 12 | 20 | 24 | 16 | 22 | 38 | 15 | 9.8 | 64 |
| 22 | *26 | 14 | 14 | 11 | 400 | 24 | 16 | 22 | 333 | 15 | 18 | 78 |
| 23 | 18 | 13 | 15 | 26 | 200 | 24 | 16 | 22 | 107 | 14 | 140 | 60 |
| 24 | 15 | 15 | 16 | 28 | 100 | 22 | 15 | 20 | 57 | 14 | 42 | *47 |
| 25 | 14 | 14 | 15 | 22 | 60 | *24 | 15 | 20 | 47 | 15 | 28 | 44 |
| 26 | 14 | 14 | 15 | 22 | 45 | 24 | 15 | 20 | 42 | 15 | 26 | 42 |
| 27 | 14 | 14 | 15 | 22 | *40 | 24 | 16 | 18 | 37 | 15 | 20 | 455 |
| 28 | 14 | 14 | 18 | 22 | 40 | 24 | 16 | 16 | 32 | 14 | 20 | 64 |
| 29 | 12 | 14 | 15 | 20 | - | 24 | 16 | 18 | 32 | 14 | 18 | 47 |
| 30 | 11 | 14 | 14 | 20 | ------- | 20 | *18 | 18 | 30 | 15 | 16 | 44 |
| 31 | 9.8 | ------- | 14 | 18 | ------- | 20 | ------- | 16 | ------- | 14 | 16 | ------- |
| Total | 1,041.8 | 381.3 | 451 | 518 | 1,227 | 836 | 517 | 1,069 | 2,503.2 | 624 | 594.6 | 1,843 |
| Mean | 33.6 | 12.7 | 14.5 | 16.7 | 43.8 | 27.0 | 17.2 | 34.5 | 83.4 | 20.1 | 19.2 | 61.4 |
| Ac-ft | 2,070 | 756 | 895 | 1,030 | 2,430 | 1,660 | 1,030 | 2,120 | 4,970 | 1,240 | 1,180 | 3,660 |

Calendar year 1957: Max 455 Min 2.4 Mean 14.4 Ac-ft 10,430
Water year 1957-58: Max 1,350 Min 6.0 Mean 31.8 Ac-ft 23,040

Peak discharge (base, 1,000 cfs).--Oct. 15 (4 p.m.) 2,030 cfs (8.14 ft); Feb. 22 (time unknown) 1,290 cfs (7.56 ft); June 17 (8:30 a.m.) 4,800 cfs (9.59 ft); Sept. 27 (6 a.m.) 2,170 cfs (8.06 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 7 to Dec. 10, Feb. 12-26; discharge estimated on basis of recorded range in stage, weather records, and records for nearby stations.

## 1670. 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.--836 sq mi.

Records available.--December 1917 to September 1932, May 1939 to September 1958. Published as "near Comfort" December 1917 to September 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. May to Nov. 28, 1939, wire-weight gage at same site and datum. 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 datum.

Average discharge.--29 years (1922-32, 1939-58), 135 cfs (97,740 acre-ft per year).

Extremes.--Maximum discharge during year, 24,200 cfs Oct. 15 (gage height, 21.68 ft); minimum, 23 cfs Oct. 6, 7.

1917-32, 1939-58: 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 measurement of peak flow (flood originated above Cypress Creek); no flow at times 1952-57.

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. Small diversions above station for irrigation.

Revisions.--WSP 1342: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 27 | 182 | 268 | 164 | 365 | 735 | 352 | *198 | 108 | 162 | 63 | 60 |
| 2 | 26 | 176 | 265 | 160 | 352 | 705 | 352 | 242 | 106 | 151 | 62 | 57 |
| 3 | 24 | 190 | 260 | 156 | 352 | 660 | 340 | 1,180 | 101 | 142 | 61 | 55 |
| 4 | 24 | 184 | 245 | 174 | 340 | 645 | 298 | 889 | 98 | 135 | 59 | 53 |
| 5 | 24 | 178 | 242 | 537 | 340 | 705 | 270 | 405 | 98 | 128 | 56 | 54 |
| 6 | 23 | *168 | 240 | 450 | 325 | 660 | 248 | 330 | 96 | 120 | 55 | 63 |
| 7 | *24 | 172 | 234 | 352 | 308 | 1,560 | 245 | 290 | 94 | 170 | 55 | 115 |
| 8 | 24 | 164 | 224 | 315 | 302 | 630 | 260 | 268 | 88 | 329 | 52 | 135 |
| 9 | 32 | 151 | 218 | 288 | 305 | 585 | 288 | 252 | *82 | 190 | 48 | 137 |
| 10 | 48 | 171 | *216 | 280 | 320 | 570 | 268 | 238 | 84 | 158 | 44 | 114 |
| 11 | 40 | 420 | 208 | 285 | 298 | 540 | 260 | 230 | 82 | 140 | 45 | 100 |
| 12 | 38 | 510 | 206 | 318 | 282 | 570 | 262 | 216 | 79 | 132 | 46 | 98 |
| 13 | 463 | 405 | 206 | 288 | 278 | 525 | 275 | 212 | 75 | 124 | 48 | 86 |
| 14 | 6,590 | 330 | 198 | 270 | 300 | 495 | 278 | 220 | 72 | *118 | 53 | 82 |
| 15 | 7,530 | 292 | 194 | *250 | 290 | 480 | 262 | 214 | 79 | 110 | *55 | 76 |
| 16 | 2,260 | 265 | 196 | 236 | 285 | 480 | 252 | 204 | 92 | 106 | 62 | 96 |
| 17 | 810 | 245 | 194 | 226 | 275 | 465 | 242 | 208 | 4,060 | 106 | 65 | 729 |
| 18 | 495 | 288 | 192 | 230 | 272 | 585 | 250 | 202 | 1,190 | 101 | 60 | 465 |
| 19 | 365 | 260 | 190 | 232 | 272 | 540 | 255 | 196 | 390 | 98 | 65 | *3,100 |
| 20 | 302 | 234 | 184 | 242 | 285 | 465 | 250 | 184 | 268 | 98 | 76 | 5,210 |
| 21 | 275 | 224 | 174 | 230 | 490 | 450 | 240 | 164 | 218 | 92 | 68 | 1,130 |
| 22 | 660 | 230 | 182 | 218 | 1,730 | 435 | 228 | 156 | 460 | 89 | 62 | 930 |
| 23 | 405 | 218 | 184 | 611 | 2,420 | 465 | 212 | 158 | 779 | 89 | 70 | 930 |
| 24 | 318 | 338 | 200 | 720 | 1,300 | 420 | 206 | 155 | 450 | 84 | 168 | 705 |
| 25 | 272 | 390 | 208 | 585 | 990 | 420 | 198 | 144 | 302 | 82 | 128 | 645 |
| 26 | 238 | 352 | 192 | 495 | 900 | *420 | 206 | 142 | 248 | 80 | 104 | 615 |
| 27 | 222 | 340 | 196 | 465 | *780 | 390 | 214 | 137 | 216 | 76 | 90 | 805 |
| 28 | 214 | 322 | 194 | 435 | 735 | 378 | 204 | 134 | 200 | 75 | 75 | 990 |
| 29 | 206 | 305 | 182 | 405 | - | 390 | 200 | 128 | 188 | 71 | 68 | 660 |
| 30 | 200 | 275 | 176 | 390 | ------- | 378 | 196 | 119 | 174 | 70 | 63 | 615 |
| 31 | 192 | ------- | 172 | 390 | ------- | 365 | ------- | 113 | ------- | 67 | 62 | ------- |
| Total | 22,371 | 7,979 | 6,440 | 10,397 | 15,491 | 17,111 | 7,611 | 7,928 | 10,577 | 3,693 | 2,088 | 18,910 |
| Mean | 722 | 266 | 208 | 335 | 553 | 552 | 254 | 256 | 353 | 119 | 67.4 | 630 |
| Ac-ft | 44,370 | 15,830 | 12,770 | 20,620 | 30,730 | 33,940 | 15,100 | 15,720 | 20,980 | 7,320 | 4,140 | 37,510 |

Calendar year 1957: Max 10,300 Min 0.9 Mean 216 Ac-ft 156,400
Water year 1957-58: Max 7,530 Min 23 Mean 358 Ac-ft 259,000

Peak discharge (base, 3,900 cfs).--Oct. 15 (11:30 a.m.) 24,200 cfs (21.68 ft); Feb. 22 (9 p.m.) 4,810 cfs (12.69 ft); Mar. 7 (3 a.m.) 5,070 cfs (12.86 ft); June 17 (10 a.m.) 11,100 cfs (16.69 ft); Sept. 19 (10 p.m.) 13,500 cfs (17.77 ft).

* Discharge measurement made on this day.

## 1675. 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.--1,282 sq mi.

Records available.--June 1922 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 948.13 ft above mean sea level, datum of 1929.

Average discharge.--36 years, 259 cfs (187,500 acre-ft per year).

Extremes.--Maximum discharge during year, 55,200 cfs May 2 (gage height, 33.60 ft); minimum, 66 cfs Oct. 9.

1922-58: Maximum discharge, 121,000 cfs July 3, 1932 (gage height, 42.10 ft), from rating curve extended above 70,000 cfs by logarithmic plotting; no flow at times in 1951-52, 1954-56.

Maximum stage known since at least 1859, about 53 ft in 1869; flood in July 1900 reached a stage of about 49 ft, from information by local resident.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

| WSP | Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|---|
| 588 | 1924 | May 26, 1924 | 4,950 | 9.50 |
| 648 | 1927 | June 5, 1927 | 7,070 | 11.80 |
| 668 | 1928 | Mar. 9, 1928 | 6,570 | 11.32 |
| 703 | 1930 | June 12, 1930 | 11,800 | 15.80 |

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

Revisions (water years).--WSP 1342: Drainage area. Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1923-24, 1926, and 1929, superseding those published in WSP 568, 588, 628, and 688 are given herewith:

| 1923 | | 1923-Con. | | 1929 | |
|---|---|---|---|---|---|
| Sept. 18 | 5,180 | Nov. 3 | 2,620 | May 28 | 4,720 |
| 19 | 8,950 | | | 29 | 16,100 |
| 20 | 2,010 | 1926 | | 30 | 5,410 |
| 21 | 2,600 | Apr. 21 | 9,900 | 31 | 1,850 |
| 22 | 1,960 | 22 | 2,160 | | |
| Nov. 2 | 2,740 | 23 | 1,550 | | |

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| September 1923 | 8,950 | 20 | 842 | 50,100 |
| Water year 1922-23 | 8,950 | 5.4 | 142 | 103,000 |
| November 1923 | 2,740 | - | 533 | 31,700 |
| Calendar year 1923 | 8,950 | 5.4 | 252 | 182,000 |
| Water year 1923-24 | 3,100 | 59 | 432 | 314,000 |
| April 1926 | 9,900 | 121 | 723 | 43,000 |
| Water year 1925-26 | 9,900 | 31 | 211 | 152,000 |
| Calendar year 1926 | 9,900 | 32 | 189 | 137,000 |
| May 1929 | 16,100 | 29 | 1,090 | 66,900 |
| Water year 1928-29 | 16,100 | 24 | 187 | 135,000 |
| Calendar year 1929 | 16,100 | 22 | 190 | 137,000 |

1675. Guadalupe River near Spring Branch, Tex.--Continued

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-14, 27, Nov. 18-20, 30, Dec. 1, Jan. 5-23, Jan. 25 to Feb. 22)

| | | | | | |
|---|---|---|---|---|---|
| 2.3 | 68 | 3.5 | 480 | 7.0 | 2,770 |
| 2.6 | 140 | 4.0 | 720 | 12.0 | 7,270 |
| 3.0 | 275 | 5.0 | 1,320 | 19.0 | 16,100 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 152 | 512 | 750 | 343 | 810 | 1,320 | *710 | 399 | 343 | 399 | 131 | 93 |
| 2 | 134 | 476 | 720 | 331 | 780 | 1,290 | 715 | 14,000 | 327 | 427 | 126 | 88 |
| 3 | 117 | 543 | 715 | 319 | 750 | 1,230 | 700 | 15,000 | 319 | 415 | 123 | 86 |
| 4 | 102 | 476 | 670 | 319 | 720 | 1,140 | 660 | 3,520 | *303 | 387 | 123 | 82 |
| 5 | 93 | *431 | 645 | 681 | 720 | *1,350 | 605 | 2,150 | 299 | 363 | 120 | 82 |
| 6 | 84 | 411 | 635 | 1,200 | 710 | 1,290 | 543 | 1,480 | 287 | 351 | 117 | 88 |
| 7 | 78 | 407 | 620 | 900 | 675 | 2,190 | *516 | 1,260 | 279 | 343 | 111 | 120 |
| 8 | 70 | 399 | 575 | *810 | 645 | 1,740 | 520 | 1,110 | 268 | 415 | 109 | 216 |
| 9 | *68 | 375 | 543 | 750 | 640 | 1,290 | 605 | 1,020 | 264 | *484 | 104 | 198 |
| 10 | 84 | 359 | 525 | 710 | 645 | 1,200 | 556 | *930 | 254 | 359 | 102 | 184 |
| 11 | 109 | 763 | 502 | 695 | 655 | 1,110 | 520 | 840 | 247 | 319 | *97 | 167 |
| 12 | 180 | 1,450 | 476 | 715 | 630 | 1,110 | 512 | 780 | 236 | 291 | 95 | 149 |
| 13 | 164 | 1,260 | 466 | 750 | 605 | 1,080 | 520 | 750 | 226 | 275 | 95 | 134 |
| 14 | 3,540 | 1,050 | 462 | 695 | 595 | 1,020 | 561 | 710 | 219 | 258 | 95 | 126 |
| 15 | 8,300 | 930 | 440 | 660 | 600 | 990 | 534 | 715 | 216 | 244 | 93 | 114 |
| 16 | 11,300 | 810 | 419 | 630 | 580 | 960 | 507 | 695 | 212 | 233 | 95 | 114 |
| 17 | 2,640 | 810 | *419 | 610 | 570 | 930 | 494 | 645 | 2,140 | 222 | 100 | 123 |
| 18 | 1,260 | 810 | 415 | 590 | 556 | 930 | 484 | 630 | 4,380 | 212 | 111 | 899 |
| 19 | 900 | 810 | 411 | 595 | 552 | 1,140 | 489 | 590 | 1,140 | 205 | 134 | 2,010 |
| 20 | 720 | 750 | 395 | 605 | 556 | 960 | 494 | 585 | 605 | 198 | 109 | *5,620 |
| 21 | 640 | 695 | 371 | 605 | 665 | 900 | 480 | 548 | 466 | 194 | 114 | 3,520 |
| 22 | 4,390 | 680 | 359 | 585 | 1,850 | 900 | 466 | 516 | 1,780 | 191 | 117 | 1,080 |
| 23 | 1,880 | 685 | 351 | 694 | 4,410 | 900 | 448 | 494 | 1,540 | 180 | 111 | *840 |
| 24 | 1,140 | 810 | 355 | 1,580 | 3,430 | 870 | 427 | 476 | 1,020 | 174 | 109 | 720 |
| 25 | 930 | 1,080 | 403 | 1,350 | 2,380 | 840 | 415 | 458 | 705 | 170 | 161 | 525 |
| 26 | 840 | 990 | 419 | 1,110 | 1,930 | 840 | 407 | 431 | 534 | 164 | 177 | 484 |
| 27 | 750 | 930 | 391 | 1,020 | 1,680 | 810 | 415 | 419 | 471 | 158 | 149 | 448 |
| 28 | 675 | 900 | 399 | 960 | 1,420 | 780 | 427 | 403 | 431 | 152 | 131 | 671 |
| 29 | 635 | 840 | 383 | 930 | - | 780 | 411 | 387 | 411 | 146 | 114 | 750 |
| 30 | 590 | 780 | 363 | 870 | ------- | 750 | 403 | 375 | 391 | 143 | 104 | 543 |
| 31 | 552 | ------- | 359 | 870 | ------- | 720 | ------- | 355 | ------- | 140 | 95 | ------- |
| Total | 43,117 | 22,222 | 14,956 | 23,482 | 30,759 | 33,360 | 15,544 | 52,671 | 20,313 | 8,212 | 3,572 | 20,274 |
| Mean | 1,391 | 741 | 482 | 757 | 1,099 | 1,076 | 518 | 1,699 | 677 | 265 | 115 | 676 |
| Ac-ft | 85,520 | 44,080 | 29,660 | 46,580 | 61,010 | 66,170 | 30,830 | 104,500 | 40,290 | 16,290 | 7,080 | 40,210 |

Calendar year 1957: Max 15,900 Min 7.9 Mean 511 Ac-ft 370,300
Water year 1957-58: Max 15,000 Min 68 Mean 790 Ac-ft 572,200

Peak discharge (base, 4,000 cfs).--Oct. 16 (10 a.m.) 18,600 cfs (20.66 ft); Oct. 22 (9 a.m.) 7,880 cfs (12.56 ft); Feb. 23 (4:30 p.m.) 5,580 cfs (10.15 ft); Mar. 7 (8 p.m.) 4,320 cfs (8.76 ft); May 2 (7 p.m.) 55,200 cfs (33.60 ft); June 17 (9 p.m.) 6,770 cfs (11.47 ft); June 22 (9 p.m.) 4,230 cfs (8.73 ft); Sept. 20 (11 p.m.) 8,660 cfs (13.27 ft).

* Discharge measurement made on this day.

## 1685. 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.--1,516 sq mi.
Records available.--December 1927 to September 1958. March 1898 to December 1899 (gage heights only), 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.--30 years (1928-58), 359 cfs (259,900 acre-ft per year).
Extremes.--Maximum discharge during year, 47,900 cfs May 3 (gage height, 24.44 ft); minimum, 151 cfs Sept. 5.
1927-58: Maximum discharge, 101,000 cfs June 15, 1935 (gage height, 32.95 ft); no flow July 8, 9, July 17 to Aug. 20, 1956.
Maximum stage, about 38 ft sometime in 1869 and in December 1913, from information by local residents.
Remarks.--Records good. Small diversions above station for irrigation. No regulation by small powerplants for several years.
Revisions (water years).--WSP 898: 1935. WSP 1342: Drainage area. Revised figures of discharge, in cubic feet per second, for high-water period in the water year 1932, superseding those published in WSP 733, are given herewith:

July 3, 1932..... 63,200
July 4, 1932..... 20,900

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| July 1932 | 63,200 | 92 | 3,440 | 212,000 |
| Water year 1931-32 | 63,200 | 71 | 535 | 389,000 |
| Calendar year 1932 | 63,200 | 76 | 567 | 412,000 |

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 3-5)

| | | | | | |
|---|---|---|---|---|---|
| 0.8 | 0 | 1.6 | 49 | 4.0 | 2,320 |
| .9 | .7 | 1.9 | 94 | 8.0 | 8,120 |
| 1.0 | 2.6 | 2.1 | 164 | 12.0 | 14,200 |
| 1.1 | 6.3 | 2.5 | 426 | 15.0 | 19,500 |
| 1.3 | 19 | 3.0 | 940 | 20.0 | 31,900 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 434 | 798 | 976 | 519 | 1,110 | 1,860 | 976 | 564 | 582 | 546 | 254 | 175 |
| 2 | 395 | 765 | 940 | 502 | 1,060 | 1,790 | 964 | 621 | 555 | 519 | 248 | 164 |
| 3 | 364 | 721 | 928 | 493 | 1,020 | 1,730 | 952 | *29,800 | 546 | 502 | 235 | 160 |
| 4 | 341 | 765 | 892 | 493 | 1,010 | 1,640 | 940 | 5,360 | 528 | 485 | 241 | 155 |
| 5 | 320 | 688 | 832 | 555 | 988 | 1,600 | 904 | 3,130 | *510 | 468 | 229 | 155 |
| 6 | 299 | 655 | 809 | 1,160 | 988 | 1,800 | 832 | 2,180 | 502 | 468 | 223 | 169 |
| 7 | 285 | 633 | 798 | 1,300 | 940 | 1,700 | 787 | 1,860 | 493 | 485 | 223 | 201 |
| 8 | 266 | *611 | 765 | 1,080 | 904 | 2,530 | 776 | 1,690 | 485 | 434 | 217 | 254 |
| 9 | *254 | 582 | 732 | 988 | 880 | 1,800 | 776 | 1,560 | 468 | 564 | 201 | 266 |
| 10 | 241 | 564 | 699 | 952 | 868 | 1,610 | 832 | 1,460 | 460 | *600 | 206 | 272 |
| 11 | 229 | 611 | 655 | 916 | 880 | 1,540 | 776 | 1,340 | 451 | 493 | 206 | 254 |
| 12 | 217 | 1,360 | 633 | 1,010 | 880 | 1,470 | 754 | *1,280 | 434 | 451 | *201 | 241 |
| 13 | 229 | 1,630 | 611 | 1,070 | 844 | 1,440 | 743 | 1,210 | 426 | 418 | 190 | 217 |
| 14 | 271 | 1,410 | 611 | *1,050 | 809 | 1,400 | 798 | 1,160 | 418 | 395 | 185 | 206 |
| 15 | 7,730 | 1,230 | 600 | 976 | 809 | 1,320 | 798 | 1,130 | 410 | 379 | 185 | 201 |
| 16 | 13,200 | 1,130 | 582 | 928 | 798 | 1,300 | 765 | 1,110 | 410 | 364 | 185 | 196 |
| 17 | 5,620 | 1,050 | 573 | 892 | 776 | 1,260 | 732 | 1,050 | 403 | 348 | 185 | 190 |
| 18 | 1,830 | 1,000 | *564 | 868 | 754 | 1,260 | 710 | 1,010 | 4,420 | 341 | 185 | 240 |
| 19 | 1,230 | 976 | 555 | 844 | 743 | 1,320 | 699 | 1,040 | 2,450 | 334 | 190 | 904 |
| 20 | 988 | 952 | 537 | 844 | 754 | 1,410 | 710 | 952 | 1,140 | 327 | 206 | 4,750 |
| 21 | 868 | 868 | 510 | 844 | 940 | 1,240 | 699 | 940 | 798 | 320 | 196 | 6,820 |
| 22 | 4,070 | 844 | 502 | 820 | 1,820 | 1,190 | 688 | 892 | 710 | 313 | 190 | 1,800 |
| 23 | 3,820 | 844 | 493 | 844 | 4,210 | 1,190 | 666 | 856 | 2,120 | 313 | 196 | 1,180 |
| 24 | 1,960 | 1,000 | 493 | 1,320 | 5,370 | 1,190 | 644 | 820 | 1,320 | 306 | 196 | *1,080 |
| 25 | 1,570 | 1,230 | 573 | 1,860 | 3,200 | 1,140 | 611 | 787 | 1,120 | 292 | 196 | 880 |
| 26 | 1,320 | 1,370 | 622 | 1,530 | 2,540 | 1,120 | 600 | 754 | 844 | 292 | 206 | 743 |
| 27 | 1,140 | 1,260 | 611 | 1,350 | 2,250 | 1,110 | 591 | 721 | 710 | 285 | 254 | 699 |
| 28 | 1,040 | 1,190 | 582 | 1,270 | *2,040 | *1,080 | 600 | 688 | 644 | 278 | 229 | 633 |
| 29 | 964 | 1,120 | 564 | 1,220 | - | 1,050 | 600 | 666 | 591 | 272 | 206 | 965 |
| 30 | 916 | 1,050 | 555 | 1,170 | ------- | 1,040 | 591 | 633 | 564 | 260 | 196 | 820 |
| 31 | 856 | ------- | 537 | 1,120 | ------- | 1,010 | ------- | 611 | ------- | 260 | 185 | ------- |
| Total | 53,267 | 28,907 | 20,334 | 30,788 | 40,185 | 44,140 | 22,514 | 67,875 | 25,512 | 12,112 | 6,445 | 24,990 |
| Mean | 1,718 | 964 | 656 | 993 | 1,435 | 1,424 | 750 | 2,190 | 850 | 391 | 208 | 833 |
| Ac-ft | 105,700 | 57,340 | 40,330 | 61,070 | 79,710 | 87,550 | 44,660 | 134,600 | 50,600 | 24,020 | 12,780 | 49,570 |

Calendar year 1957: Max 18,800 Min 9.4 Mean 705 Ac-ft 510,500
Water year 1957-58: Max 29,800 Min 155 Mean 1,033 Ac-ft 747,900

Peak discharge (base, 3,100 cfs).--Oct. 16 (9 p.m.) 20,200 cfs (15.26 ft); Oct. 22 (8 p.m.) 9,000 cfs (8.65 ft); Feb. 24 (4:30 a.m.) 6,530 cfs (6.86 ft); Mar. 8 (9 a.m.) 3,780 cfs (5.00 ft); May 3 (8 a.m.) 47,900 cfs (24.44 ft); June 18 (9:30 a.m.) 6,680 cfs (7.00 ft); June 23 (8:30 a.m.) 3,480 cfs (4.80 ft); Sept. 20 (5 a.m.) 10,600 cfs (9.74 ft).

* Discharge measurement made on this day.

## 1690. 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. Normal flow of river comes from springs, drainage area of stream not applicable.

Records available.--1882 to September 1958 (1882 to November 1927, discharge measurements only).

Gage.--Water-stage recorder. Concrete control since Oct. 1, 1955. Datum of gage is 582.80 ft above mean sea level, datum of 1929.

Average discharge.--26 years (1932-58), 285 cfs (206,300 acre-ft per year).

Extremes.--Maximum discharge during year, 2,520 cfs Sept. 20; maximum gage height, 19.58 ft May 3 (backwater from Guadalupe River); minimum daily discharge, 180 cfs Oct. 12, 18, 19.

1927-58: Maximum discharge, 35,000 cfs Sept. 11, 1952 (gage height, 36.14 ft, from floodmark), from rating curve extended above 1,600 cfs on basis of slope-area measurements at gage heights 14.87 and 36.14 ft; minimum daily, 5.5 cfs June 7, 1956.

Maximum stages known, 36.91 ft July 8, 1869, and 37.65 ft Oct. 17, 1870, at site half a mile downstream, from painted and dated marks in old Remmert Brewery (probably some backwater from Guadalupe River).

Remarks.--Records good except those for periods of backwater, which are fair. Diurnal fluctuations from steam powerplant half a mile upstream. Flow of river is primarily from Comal Springs about 1 mile upstream, except during periods of local rain. Comal powerplant released daily about 10.5 cfs of pumpage from well in Edwards limestone Oct. 1-15, 3.9 cfs Oct. 16, and 1.8 cfs Feb. 6, May 16, Aug. 28. Comal Springs emerge from the Edwards limestone in the Balcones fault zone.

Rating table, water year 1957-58, except periods of backwater from Guadalupe River (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 3.7 | 120 | 5.0 | 770 |
| 4.0 | 211 | 6.0 | 1,480 |
| 4.5 | 440 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 184 | 222 | 250 | 254 | 294 | 340 | 340 | 335 | 330 | 308 | 278 | 254 |
| 2 | 187 | 226 | 250 | 254 | 294 | 340 | *340 | 335 | 326 | 308 | 274 | 254 |
| 3 | 184 | 226 | 250 | 254 | 294 | 335 | 340 | c385 | 322 | 308 | 274 | 250 |
| 4 | *184 | 226 | 250 | 254 | 299 | 335 | 340 | c360 | *322 | 299 | 278 | 250 |
| 5 | 191 | 226 | 250 | 340 | 299 | 335 | 340 | 370 | 322 | 304 | 270 | 254 |
| 6 | 191 | 226 | 250 | 294 | 299 | 335 | 340 | 345 | 322 | 326 | 270 | 254 |
| 7 | 184 | 226 | 250 | 266 | 299 | 340 | 335 | 345 | 312 | 326 | 270 | 262 |
| 8 | 187 | *226 | 250 | 262 | 299 | 340 | 335 | 345 | 317 | 345 | 270 | 258 |
| 9 | 184 | 226 | 250 | 266 | 299 | 335 | 335 | 345 | 317 | 308 | 266 | 262 |
| 10 | 184 | 226 | 250 | 266 | 299 | 335 | 335 | *345 | 312 | *308 | 266 | 266 |
| 11 | 184 | 238 | 250 | 266 | 299 | 340 | 330 | 345 | 312 | 312 | 266 | 266 |
| 12 | 180 | 242 | 250 | 440 | 299 | 340 | 335 | 345 | 312 | 304 | 262 | 270 |
| 13 | 187 | 238 | 250 | 304 | 299 | 340 | 340 | 345 | 312 | 308 | 266 | 266 |
| 14 | 194 | 238 | 250 | *278 | 304 | 340 | 345 | 345 | 308 | 312 | 266 | 270 |
| 15 | c230 | 234 | 250 | 278 | 294 | 340 | 340 | 345 | 312 | 308 | 266 | 278 |
| 16 | c210 | 234 | 254 | 278 | 294 | 340 | 340 | 350 | 312 | 208 | 266 | 278 |
| 17 | c200 | 234 | 254 | 282 | 304 | 340 | 345 | 350 | 312 | 304 | 266 | 274 |
| 18 | 180 | 234 | *254 | 282 | 299 | 340 | 345 | 355 | c310 | 308 | 266 | 274 |
| 19 | 180 | 234 | 250 | 286 | 294 | 340 | 345 | 380 | 308 | 299 | 262 | 282 |
| 20 | 184 | 234 | 254 | 286 | 304 | 335 | 345 | 350 | 304 | 304 | 262 | c1,200 |
| 21 | 201 | 238 | 250 | 286 | 850 | 335 | 345 | 355 | 304 | 304 | 262 | c450 |
| 22 | c1,100 | 250 | 250 | 286 | 986 | 335 | 340 | 350 | 304 | 299 | 262 | 429 |
| 23 | c250 | 258 | 250 | 330 | c550 | 335 | 340 | 350 | 304 | 299 | 258 | 317 |
| 24 | 222 | 350 | 250 | 335 | c420 | 340 | 340 | 345 | 304 | 299 | 258 | 312 |
| 25 | 219 | 258 | 258 | 294 | 365 | 340 | 335 | 345 | 304 | 299 | 262 | 312 |
| 26 | 219 | 250 | 258 | 294 | 350 | 340 | 335 | 345 | 304 | 290 | 258 | 308 |
| 27 | 219 | 250 | 262 | 290 | 345 | 340 | 335 | 335 | 308 | 290 | 258 | 312 |
| 28 | 219 | 250 | 258 | 290 | *340 | 340 | 335 | 335 | 308 | 286 | 258 | 317 |
| 29 | 219 | 250 | 258 | 290 | - | 340 | 330 | 335 | 308 | 282 | 254 | 317 |
| 30 | 219 | 250 | 258 | 290 | ------- | 340 | 330 | 340 | 322 | 278 | 254 | 322 |
| 31 | 219 | ------- | 254 | 290 | ------- | 340 | ------- | 335 | ------- | 278 | 254 | ------- |
| Total | 7,095 | 7,220 | 7,822 | 8,965 | 10,171 | 10,490 | 10,155 | 10,790 | 9,374 | 9,411 | 8,202 | 9,618 |
| Mean | 229 | 241 | 252 | 289 | 363 | 338 | 338 | 348 | 312 | 304 | 265 | 321 |
| Ac-ft | 14,070 | 14,320 | 15,510 | 17,780 | 20,170 | 20,810 | 20,140 | 21,400 | 18,590 | 18,670 | 16,270 | 19,080 |

Calendar year 1957: Max 3,110 Min 39 Mean 192 Ac-ft 138,700
Water year 1957-58: Max 1,200 Min 180 Mean 299 Ac-ft 216,800

Peak discharge (base, 1,100 cfs).--Oct. 22 (7 a.m.) 1,500 cfs (6.07 ft); Feb. 21 (6 a.m.) 1,420 cfs (5.88 ft); Sept. 20 (4 p.m.) 2,520 cfs (c).

* Discharge measurement made on this day.
c Stage-discharge relation affected by backwater from Guadalupe River.

## 1700. San Marcos River spring flow at San Marcos, Tex.

Location.--Lat 29°52', long 97°55', on left bank 500 ft downstream from the Cape Ginning Co. mill, about half a mile downstream from bridge on U. S. Highway 81, 1 mile southeast of San Marcos, Hays County, and 1.2 miles upstream from Blanco River.

Drainage area.--83.7 sq mi. Normal flow of river comes from springs; drainage area of stream not applicable.

Records available.--May 1956 to September 1958. June 1915 to January 1916, March 1916 to September 1921, and May to September 1956, published as San Marcos River at San Marcos; records include some surface runoff. Periodic measurements of spring flow have been made at this location since Nov. 14, 1894, and published as miscellaneous measurements.

Gage.--Water-stage recorder. Datum of gage is 536.82 ft above mean sea level, datum of 1929. June 10, 1915, to Jan. 19, 1916, staff gage at site 1.2 miles upstream and Mar. 13, 1916, to Sept. 7, 1921, recording gage near present site, datum relations unknown.

Extremes.--Maximum daily spring discharge during year, 292 cfs May 9; maximum gage height, 28.5 ft May 3 (backwater from Blanco River); minimum daily spring discharge, 154 cfs Sept. 24.

1956-58: Maximum daily spring discharge, that of May 9, 1958; maximum gage height, that of May 3, 1958; minimum daily spring discharge, 46 cfs Aug. 15, 16, 1956.

Maximum stage known since at least 1913, 38.6 ft, present datum, Sept. 10, 1921 (backwater from Blanco River).

Remarks.--Records good except those for days affected by local runoff, which are fair, and those for periods of no gage-height record, which are poor. Flow slightly regulated by millpond just above gage and by utilities dam about 1½ miles upstream. Entire flow of river is from San Marcos Springs, about 1¾ miles upstream, except during periods of local runoff. Springs emerge from the Edwards limestone in the Balcones fault zone. Small diversion for operation of State fish hatchery, of which some is returned above gage.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 180 | 222 | 227 | 198 | 200 | 280 | 240 | 227 | 258 | 217 | 175 | 175 |
| 2 | 180 | 222 | 227 | 193 | 200 | 280 | 240 | e227 | 253 | 212 | 170 | 170 |
| 3 | 175 | 222 | 227 | 193 | 200 | 280 | 240 | e242 | *253 | 212 | 175 | 170 |
| 4 | *180 | 222 | 222 | 198 | 200 | 275 | 240 | e270 | 248 | 212 | 175 | 170 |
| 5 | 180 | *222 | 222 | 198 | 200 | 275 | 240 | e286 | 248 | 207 | 175 | 170 |
| 6 | 180 | 222 | 222 | 198 | 200 | 275 | 240 | e286 | 242 | e207 | 175 | e170 |
| 7 | 184 | 222 | 222 | 193 | 200 | *270 | 240 | 286 | 242 | e207 | 170 | e170 |
| 8 | 184 | 222 | 217 | 188 | 200 | 270 | 235 | 286 | 237 | e212 | 166 | e170 |
| 9 | 180 | 222 | 217 | 188 | 200 | 264 | 235 | 292 | 237 | 212 | 166 | 170 |
| 10 | 180 | 222 | 217 | 188 | 200 | 264 | 235 | 286 | 237 | 207 | 166 | 166 |
| 11 | 180 | e222 | 217 | 193 | 200 | 264 | 235 | 286 | 237 | 202 | 175 | 166 |
| 12 | 175 | e227 | 217 | e198 | 200 | 264 | 235 | *286 | 232 | 202 | *170 | 166 |
| 13 | 180 | 222 | 217 | *e202 | 200 | 258 | 235 | 280 | 232 | 202 | 170 | 170 |
| 14 | e180 | 222 | 212 | 200 | 200 | 258 | 235 | 280 | 237 | 202 | 162 | 170 |
| 15 | e184 | 222 | 212 | 200 | 200 | 258 | 240 | 275 | 237 | 198 | 170 | 166 |
| 16 | e184 | 217 | 212 | 200 | 200 | 258 | 240 | 270 | 237 | *198 | 175 | 162 |
| 17 | e188 | 217 | 207 | 200 | 200 | 258 | 240 | 270 | e237 | 193 | 170 | 162 |
| 18 | 188 | e217 | *212 | 200 | 200 | e258 | 240 | 270 | e232 | 193 | 166 | 158 |
| 19 | 193 | e217 | 202 | 200 | 200 | 253 | 237 | 270 | 222 | 188 | 162 | e162 |
| 20 | 193 | 217 | 207 | 200 | 200 | 253 | 237 | 270 | 222 | 188 | 166 | e162 |
| 21 | 198 | 217 | 207 | 200 | 200 | 253 | 232 | 270 | 232 | 188 | 166 | e162 |
| 22 | e222 | e217 | 207 | 200 | 230 | 253 | 232 | 264 | e237 | 184 | 170 | 162 |
| 23 | e242 | e217 | 198 | 200 | 260 | 253 | 232 | 270 | e237 | 184 | 170 | 158 |
| 24 | 248 | e222 | e202 | 200 | 290 | 253 | 232 | 264 | 232 | 184 | 170 | *154 |
| 25 | 242 | e222 | e202 | 200 | 290 | 253 | 227 | 270 | 232 | 184 | 175 | 158 |
| 26 | 232 | 227 | 202 | 200 | 280 | 248 | 227 | 264 | 227 | 184 | 170 | 158 |
| 27 | 232 | 227 | 202 | 200 | 280 | *248 | 227 | 258 | 222 | 184 | 170 | 158 |
| 28 | 232 | 227 | 198 | 200 | 280 | 245 | 227 | 258 | 222 | 180 | 170 | 158 |
| 29 | 232 | 227 | 193 | 200 | - | 245 | 227 | 253 | 222 | 180 | 170 | 158 |
| 30 | 227 | 227 | 198 | 200 | ------- | 245 | 227 | 253 | 217 | 180 | 166 | 158 |
| 31 | 222 | ------- | 198 | 200 | ------- | 245 | ------- | 253 | ------- | 180 | 166 | ------- |
| Total | 6,177 | 6,650 | 6,542 | 6,128 | 6,110 | 8,056 | 7,049 | 8,322 | 7,060 | 6,083 | 5,262 | 4,929 |
| Mean | 199 | 222 | 211 | 198 | 218 | 260 | 235 | 268 | 235 | 196 | 170 | 164 |
| Ac-ft | 12,250 | 13,190 | 12,980 | 12,150 | 12,120 | 15,980 | 13,980 | 16,510 | 14,000 | 12,070 | 10,440 | 9,780 |

Calendar year 1957: Max 248 Min 65 Mean 152 Ac-ft 110,300
Water year 1957-58: Max 292 Min 154 Mean 215 Ac-ft 155,400

* Discharge measurement made on this day.
e Gage-height not representative of spring flow; discharge interpolated.
Note.--No gage-height record Jan. 14 to Mar. 5, Mar. 28 to Apr. 18; discharge estimated on basis of recorded range in stage, weather records, and records for Blanco River near Kyle.

1710. 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.--364 sq mi.

Records available.--August 1924 to September 1926, June 1928 to September 1958.

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.--32 years, 107 cfs (77,460 acre-ft per year).

Extremes.--Maximum discharge during year, 96,400 cfs May 2 (gage height, 30.3 ft, from floodmark), from rating curve extended above 30,000 cfs as explained below; minimum, 45 cfs Sept. 3-5.

1924-26, 1928-58: Maximum discharge, 113,000 cfs May 28, 1929 (gage height, 31.10 ft, from floodmarks), from rating curve extended above 30,000 cfs on basis of slope-area measurements at gage heights 30.1 and 31.1 ft; minimum, 0.6 cfs Aug. 16, 1956.

Maximum stage known since at least 1869, that of May 28, 1929, from information by local residents.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

| WSP | Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|---|
| 628 | 1926 | Apr. 21, 1926 | 37,700 | 19.3 |
| 703 | 1930 | May 6, 1930 | 10,400 | 9.26 |
| 718 | 1931 | July 18, 1931 | 13,100 | 10.66 |
| 788 | 1935 | June 15, 1935 | 14,700 | 11.40 |
| 808 | 1936 | July 1, 1936 | 29,600 | 16.87 |
| 858 | 1938 | Apr. 27, 1938 | 12,900 | 10.65 |
| 928 | 1941 | June 7, 1941 | 27,800 | 16.27 |
| 958 | 1942 | Sept. 8, 1942 | 13,100 | 10.66 |
| 1088 | 1947 | Nov. 3, 1946 | 15,600 | 11.80 |
| 1148 | 1949 | Apr. 25, 1949 | 21,700 | 14.20 |

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

Revisions (water years).--WSP 1282: Drainage area. Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1926 and 1929, superseding those published in WSP 628 and 688, are given herewith:

Apr. 20, 1926..... 1,790
Apr. 21, 1926..... 12,300
May 28, 1929..... 31,800
May 29, 1929..... 6,710

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| April 1926 | 12,300 | 84 | 776 | 46,200 |
| Water year 1925-26 | 12,300 | - | 152 | 110,000 |
| May 1929 | 31,800 | 26 | 1,470 | 90,400 |
| Water year 1928-29 | 31,800 | 7.4 | 198 | 143,000 |
| Calendar year 1929 | 31,800 | 8.2 | 200 | 145,000 |

## 1710. Blanco River at Wimberley, Tex.--Continued

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to May 2 | | | | May 3 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.6 | 67 | 3.0 | 1,500 | 0.4 | 38 | 3.0 | 1,580 |
| .7 | 90 | 5.0 | 3,850 | 1.0 | 225 | 5.0 | 3,850 |
| 1.0 | 178 | 7.0 | 6,600 | 1.5 | 465 | 7.0 | 6,600 |
| 1.5 | 380 | 11.0 | 13,800 | 2.0 | 770 | | |
| 2.0 | 660 | | | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 130 | 317 | 410 | 162 | 254 | 681 | 260 | 160 | 185 | 163 | 58 | 51 |
| 2 | 119 | 294 | 400 | 155 | 246 | 667 | 360 | 11,900 | 178 | 153 | 58 | 47 |
| 3 | *111 | 299 | 390 | 152 | 239 | 600 | 300 | *6,400 | *171 | 149 | 56 | 47 |
| 4 | 108 | *286 | 360 | 155 | 235 | 570 | 280 | 2,370 | 167 | 142 | 58 | 45 |
| 5 | 100 | 278 | 340 | 185 | 235 | *830 | 260 | 1,360 | 163 | 139 | 56 | 45 |
| 6 | 98 | 262 | 330 | 262 | 228 | 674 | 250 | 1,020 | 156 | 132 | 58 | 53 |
| 7 | 95 | 262 | 330 | 217 | 217 | 667 | 240 | 875 | 149 | 142 | 56 | 960 |
| 8 | 93 | 258 | 310 | 206 | 206 | 588 | 230 | 770 | 146 | 149 | 56 | 354 |
| 9 | 88 | 235 | 280 | 202 | 206 | 520 | 280 | 686 | 142 | 153 | 53 | 129 |
| 10 | 85 | 232 | 270 | 199 | 217 | 500 | 240 | 616 | 136 | 126 | 53 | 98 |
| 11 | 83 | 342 | 270 | 196 | 217 | 480 | 220 | 562 | 132 | *116 | 53 | 81 |
| 12 | 81 | 600 | 250 | 232 | 213 | 470 | 210 | 514 | 129 | 113 | 53 | 70 |
| 13 | 91 | 507 | 240 | *232 | 206 | 450 | 400 | 498 | 123 | 107 | *51 | 60 |
| 14 | 1,320 | 446 | 230 | 217 | 202 | 420 | 540 | 482 | 123 | 101 | 51 | 58 |
| 15 | 1,770 | 400 | 220 | 213 | 192 | 400 | 300 | 454 | 119 | 98 | 51 | 58 |
| 16 | 1,030 | 370 | *210 | 206 | 178 | 390 | 250 | 432 | 116 | 95 | 51 | 60 |
| 17 | 480 | 350 | 210 | 206 | 175 | 390 | 220 | 395 | 2,520 | 92 | 51 | 56 |
| 18 | 380 | 370 | 200 | 202 | 171 | 450 | 210 | 375 | 434 | 89 | 53 | 56 |
| 19 | 326 | 340 | 200 | 202 | 168 | 550 | 200 | *365 | 213 | 86 | 51 | 320 |
| 20 | 290 | 320 | 192 | 210 | 171 | 420 | 190 | 338 | 167 | 86 | 53 | 741 |
| 21 | 294 | 320 | 185 | 213 | 353 | 380 | 185 | 328 | 149 | 81 | 56 | 234 |
| 22 | 2,500 | 350 | 178 | 202 | 1,880 | 370 | 180 | 315 | 1,420 | 78 | 56 | 281 |
| 23 | 1,090 | 420 | 178 | 257 | 2,450 | 440 | 178 | 297 | 682 | 78 | 53 | 163 |
| 24 | 752 | 720 | 175 | 463 | 1,400 | 380 | 174 | 279 | 324 | 81 | 56 | *136 |
| 25 | 630 | 700 | 235 | 366 | 1,140 | 350 | 170 | 266 | 252 | 81 | 53 | 123 |
| 26 | 540 | 630 | 232 | 340 | 1,020 | 330 | 170 | 248 | 213 | 78 | 53 | 116 |
| 27 | 474 | 570 | 202 | 322 | 845 | *310 | 180 | 238 | 193 | 76 | 53 | 113 |
| 28 | 436 | 510 | 206 | 308 | 730 | 300 | 185 | 221 | 185 | 70 | 51 | 113 |
| 29 | 405 | 470 | 188 | 290 | - | 290 | 175 | 209 | 178 | 68 | 51 | 110 |
| 30 | 371 | 440 | 182 | 282 | ------- | 280 | 165 | 205 | 171 | 63 | 49 | 110 |
| 31 | 344 | ------- | 175 | 274 | ------- | 270 | ------- | 193 | ------- | 60 | 49 | ------- |
| Total | 14,714 | 11,898 | 7,778 | 7,328 | 13,994 | 14,417 | 7,202 | 33,371 | 9,436 | 3,245 | 1,660 | 4,888 |
| Mean | 475 | 397 | 251 | 236 | 500 | 465 | 240 | 1,076 | 315 | 105 | 53.5 | 163 |
| Ac-ft | 29,180 | 23,600 | 15,430 | 14,530 | 27,760 | 28,600 | 14,280 | 66,190 | 18,720 | 6,440 | 3,290 | 9,700 |

Calendar year 1957: Max 10,300 Min 6.0 Mean 277 Ac-ft 200,400
Water year 1957-58: Max 11,900 Min 45 Mean 356 Ac-ft 257,700

Peak discharge (base, 1,800 cfs).--Oct. 15 (3:30 p.m.) 5,620 cfs (6.27 ft); Oct. 22 (12:30 p.m.) 3,850 cfs (4.96 ft); Feb. 22 (11 p.m.) 4,390 cfs (5.42 ft); May 2 (8 p.m.) 96,400 cfs (30.3 ft); June 17 (12 m.) 12,100 cfs (10.16 ft); June 22 (5 p.m.) 7,350 cfs (7.51 ft); Sept. 7 (5 p.m.) 4,390 cfs (5.37 ft).

* Discharge measurement made on this day.
Note.--Doubtful or no gage-height record Nov. 15 to Dec. 19, Mar. 9 to May 2; discharge estimated on basis of 2 discharge measurements, floodmarks, weather records, and records for station near Kyle.

## 1713. Blanco River near Kyle, Tex.

Location.--Lat 29°58'42", long 97°54'30", on left bank 800 ft downstream from Tarbutton Ranch House (Hatchett Ranch), 2.3 miles west of Kyle, Hays County, 3.6 miles upstream from Kushla, 3.9 miles downstream from mouth of Halifax Creek, and 5 miles upstream from bridge on U. S. Highway 81.

Drainage area.--424 sq mi.

Records available.--May 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 620.12 ft above mean sea level, Corps of Engineers bench mark.

Extremes.--Maximum discharge during year, 66,500 cfs May 2 (gage height, 36.30 ft, from floodmark), from rating curve extended above 1,100 cfs on basis of slope-area measurements at gage heights 21.80 and 34.0 ft; minimum, 33 cfs Sept. 3-5.
1956-58: Maximum discharge, that of May 2, 1958; no flow at times in 1956-57.
Maximum stage since at least 1882, about 40 ft in May 1929, from information by local residents. Flood of Sept. 11, 1952, reached a stage of 38.0 ft.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 4.4 | 31 | 7.0 | 550 |
| 4.7 | 59 | 9.0 | 1,300 |
| 5.0 | 99 | 11.0 | 2,400 |
| 5.5 | 189 | 14.0 | 4,800 |
| 6.0 | 300 | 18.0 | 9,400 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 148 | 340 | 398 | 175 | 300 | 722 | 279 | 167 | 169 | 152 | 45 | 36 |
| 2 | 132 | 320 | 398 | 165 | 279 | 705 | 330 | 8,400 | 160 | 137 | 44 | 35 |
| 3 | *122 | 310 | 385 | 165 | 279 | 640 | 290 | 8,640 | *150 | 132 | 44 | 33 |
| 4 | 113 | *310 | 350 | 169 | 268 | 595 | 279 | 1,750 | 145 | 125 | 44 | 33 |
| 5 | 102 | 290 | 340 | 196 | 268 | 719 | 257 | 1,260 | 136 | 120 | 44 | 33 |
| 6 | 96 | 268 | 330 | 290 | 268 | 775 | 246 | 1,040 | 132 | 134 | 44 | 37 |
| 7 | 90 | 257 | 320 | 268 | 250 | *670 | 234 | 880 | 125 | 139 | 44 | 482 |
| 8 | 87 | 257 | 310 | 241 | 234 | 625 | 229 | 792 | 120 | 127 | 43 | 604 |
| 9 | 81 | 236 | 279 | 232 | 234 | 550 | 250 | 705 | 115 | 148 | 43 | 152 |
| 10 | 80 | 227 | 279 | 229 | 246 | 520 | 255 | 625 | 112 | 117 | 42 | 94 |
| 11 | 74 | 290 | 268 | 225 | 250 | 490 | 218 | 565 | 109 | *104 | 41 | 76 |
| 12 | 71 | 565 | 246 | 300 | 246 | 490 | 213 | 505 | 102 | 96 | 40 | 61 |
| 13 | 70 | 535 | 250 | *310 | 232 | 475 | 227 | 475 | 99 | 92 | *39 | 52 |
| 14 | 994 | 435 | 243 | 279 | 225 | 435 | 497 | 460 | 94 | 86 | 39 | 48 |
| 15 | 2,180 | 398 | 229 | 268 | 213 | 410 | 310 | 435 | 93 | 83 | 40 | 47 |
| 16 | 1,260 | 372 | *222 | 255 | 200 | 398 | 246 | 410 | 93 | 80 | 39 | 47 |
| 17 | 613 | 350 | 216 | 248 | 193 | 385 | 227 | 385 | 1,630 | 76 | 38 | 46 |
| 18 | 460 | 340 | 211 | 243 | 191 | 398 | 222 | 360 | 591 | 74 | 38 | 44 |
| 19 | 385 | 340 | 207 | 241 | 187 | 520 | 216 | 350 | 232 | 71 | 41 | 48 |
| 20 | 340 | 320 | 193 | 250 | 189 | 398 | 211 | 330 | 169 | 70 | 39 | 1,480 |
| 21 | 320 | 310 | 179 | 255 | 348 | 372 | 211 | 320 | 143 | 66 | 40 | 324 |
| 22 | 2,110 | 320 | 175 | 239 | 1,630 | 360 | 202 | 300 | 774 | 63 | 43 | 278 |
| 23 | 1,230 | 340 | 175 | 300 | 2,350 | 398 | 193 | 279 | 822 | 61 | 44 | 198 |
| 24 | 862 | 640 | 171 | 505 | 1,400 | 372 | 187 | 268 | 310 | 60 | 43 | *150 |
| 25 | 722 | 705 | 243 | 410 | 1,160 | 350 | 179 | 255 | 241 | 58 | 43 | 129 |
| 26 | 610 | 595 | 255 | 372 | 1,040 | 350 | 179 | 239 | 202 | 56 | 40 | 120 |
| 27 | 535 | 550 | 225 | 350 | 900 | *330 | 183 | 227 | 177 | 52 | 40 | 115 |
| 28 | 475 | 505 | 218 | 340 | 792 | 320 | 191 | 216 | 169 | 51 | 40 | 112 |
| 29 | 435 | 475 | 204 | 330 | - | 310 | 179 | 202 | 160 | 50 | 38 | 109 |
| 30 | 410 | 422 | 193 | 320 | ------- | 300 | 171 | 191 | 156 | 48 | 37 | 109 |
| 31 | 372 | ------- | 187 | 310 | ------- | 290 | ------- | 181 | ------- | 47 | 37 | ------- |
| Total | 15,579 | 11,622 | 7,899 | 8,480 | 14,372 | 14,672 | 7,111 | 31,212 | 7,730 | 2,775 | 1,276 | 5,132 |
| Mean | 503 | 387 | 255 | 274 | 513 | 473 | 237 | 1,007 | 258 | 89.5 | 41.2 | 171 |
| Ac-ft | 30,900 | 23,050 | 15,670 | 16,820 | 28,510 | 29,100 | 14,100 | 61,910 | 15,330 | 5,500 | 2,530 | 10,180 |

Calendar year 1957: Max 7,530 Min 0 Mean 252 Ac-ft 182,700
Water year 1957-58: Max 8,640 Min 33 Mean 350 Ac-ft 253,600

Peak discharge (base, 1,500 cfs).--Oct. 15 (9:30 a.m.) 4,350 cfs (13.54 ft); Oct. 22 (4 p.m.) 2,960 cfs (11.80 ft); Feb. 22 (12 p.m.) 3,740 cfs (12.85 ft); May 2 (10 p.m.) 66,500 cfs (36.30 ft); June 17 (3:30 p.m.) 8,620 cfs (17.35 ft); June 22 (8 p.m.) 4,710 cfs (13.94 ft); Sept. 7 (9:30 p.m.) 2,820 cfs (11.62 ft); Sept. 20 (6:30 a.m.) 3,900 cfs (12.95 ft).

* Discharge measurement made on this day.

## 1720. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 322.05 ft above mean sea level, datum of 1929.

Average discharge.--19 years, 320 cfs (231,700 acre-ft per year).

Extremes.--Maximum discharge during year, 41,400 cfs May 3 (gage height, 33.87 ft); minimum daily, 165 cfs Aug. 29.
1939-58: Maximum discharge, 57,000 cfs Sept. 12, 1952 (gage height, 34.95 ft); minimum daily, 43 cfs Aug. 12, 1951.
Maximum stage since at least 1859, 40.4 ft in 1869 or 1870, from information by State Highway Department. Flood of May 29, 1929, reached a stage of 37.1 ft and is the second highest known.

Remarks.--Records good except those for period of no gage-height record, which are fair. Regulation by powerplant 800 ft upstream. Base flow is mostly from large springs near San Marcos. Diversions above station for irrigation and fish hatchery.

Revisions (water years).--WSP 958: 1940.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 8 to Aug. 22)

| | | | | | |
|---|---|---|---|---|---|
| 3.6 | 159 | 15.0 | 1,950 | 28.0 | 9,480 |
| 4.0 | 207 | 20.0 | 3,230 | 30.0 | 14,700 |
| 6.0 | 487 | 24.0 | 4,880 | 31.0 | 18,500 |
| 10.0 | 1,110 | 26.0 | 6,530 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 397 | 679 | 727 | *442 | 583 | 1,190 | 631 | 457 | 487 | 412 | 220 | 201 |
| 2 | 368 | 647 | 695 | 427 | 567 | 1,150 | 631 | 457 | 472 | 412 | 214 | 207 |
| 3 | 340 | 615 | 695 | 412 | 551 | 1,120 | 679 | 16,300 | 457 | 397 | 207 | 207 |
| 4 | 326 | 599 | 679 | 412 | 551 | 1,060 | 631 | *8,730 | 442 | 368 | 207 | 201 |
| 5 | 319 | 583 | 647 | 427 | 535 | 1,040 | 615 | 2,430 | 427 | 368 | 207 | 201 |
| 6 | 305 | 567 | 615 | 551 | 535 | 1,170 | 599 | 1,610 | 427 | 368 | 207 | 214 |
| 7 | 298 | 551 | 615 | 567 | 519 | *1,140 | 567 | 1,370 | 412 | 427 | 207 | 292 |
| 8 | 292 | 535 | 599 | 519 | 503 | 1,100 | *551 | 1,250 | 412 | 503 | 207 | 677 |
| 9 | 285 | 519 | 583 | 487 | 487 | 1,020 | 567 | 1,150 | 397 | 354 | 201 | 673 |
| 10 | 285 | 503 | 551 | 472 | 535 | 960 | 567 | 1,080 | 397 | 340 | 201 | 368 |
| 11 | 272 | 519 | 551 | 472 | 503 | 930 | 567 | 1,000 | 382 | 312 | 201 | 298 |
| 12 | 266 | 809 | 535 | 1,120 | 519 | 900 | 535 | 945 | 382 | 305 | 207 | 292 |
| 13 | 266 | 915 | 519 | 2,300 | 503 | 900 | 551 | 900 | 368 | 298 | 201 | 246 |
| 14 | 346 | 807 | 519 | 695 | 503 | 885 | 727 | 870 | 368 | 285 | 214 | 240 |
| 15 | 1,450 | 743 | 503 | 583 | 487 | 839 | 885 | 839 | 368 | 278 | 201 | 226 |
| 16 | *3,060 | 695 | 503 | 551 | 472 | 823 | 647 | *823 | 368 | 272 | 207 | 226 |
| 17 | 1,920 | 663 | 487 | 519 | 457 | 807 | 583 | 791 | 382 | 272 | 207 | 226 |
| 18 | 885 | 647 | 472 | 519 | 442 | 791 | 551 | 759 | 1,890 | 266 | 259 | 220 |
| 19 | 743 | 615 | 472 | 503 | 442 | 839 | 535 | 727 | 820 | 259 | 220 | 220 |
| 20 | 647 | 615 | 457 | 519 | 442 | 900 | 535 | 711 | 551 | 252 | 207 | a1,490 |
| 21 | 599 | 583 | 442 | 519 | 3,760 | 807 | 519 | 679 | 472 | 252 | 214 | a3,480 |
| 22 | 2,930 | 995 | 442 | 519 | 11,300 | 775 | 519 | 663 | 503 | 246 | 214 | 711 |
| 23 | 4,670 | 799 | 427 | 844 | 12,200 | 775 | 503 | 631 | 1,160 | *240 | 226 | 631 |
| 24 | *1,520 | 2,350 | 427 | 1,810 | 3,540 | 775 | 487 | 615 | 962 | 240 | 220 | 487 |
| 25 | 1,120 | 1,310 | 442 | 870 | 1,890 | 759 | 472 | 599 | *631 | 240 | 220 | 412 |
| 26 | 1,000 | *990 | 655 | 727 | 1,580 | 727 | 472 | 599 | 535 | 233 | 177 | *412 |
| 27 | 900 | 900 | 578 | 679 | 1,430 | 727 | 472 | 567 | 487 | 233 | 259 | 382 |
| 28 | 839 | 855 | 732 | 647 | 1,280 | 711 | 472 | 535 | 457 | 226 | 183 | 354 |
| 29 | 791 | 807 | 503 | *631 | - | 695 | 487 | 519 | 427 | 226 | *165 | 347 |
| 30 | 759 | 775 | 472 | 615 | ------- | 679 | 472 | 503 | 427 | 220 | 207 | 354 |
| 31 | 727 | ------- | 457 | 599 | ------- | 663 | ------- | 487 | ------- | 220 | 201 | ------- |
| Total | 28,925 | 23,190 | 17,001 | 20,957 | 47,116 | 27,657 | 17,029 | 49,596 | 16,270 | 9,234 | 6,488 | 14,495 |
| Mean | 933 | 773 | 548 | 676 | 1,683 | 892 | 568 | 1,600 | 542 | 301 | 209 | 483 |
| Ac-ft | 57,370 | 46,000 | 33,720 | 41,570 | 93,450 | 54,860 | 33,780 | 98,370 | 32,270 | 18,490 | 12,870 | 28,750 |

Calendar year 1957: Max 12,600 Min 70 Mean 626 Ac-ft 453,400
Water year 1957-58: Max 16,300 Min 165 Mean 762 Ac-ft 551,500

Peak discharge (base, 2,900 cfs).--Oct. 16 (4 p.m.) 3,760 cfs (21.64 ft); Oct. 23 (3 a.m.) 7,120 cfs (26.48 ft); Nov. 24 (6 p.m.) 3,490 cfs (20.82 ft); Jan. 13 (8:30 a.m.) 3,420 cfs (20.64 ft); Feb. 23 (4:30 a.m.) 16,100 cfs (30.45 ft); May 3 (3 p.m.) 41,400 cfs (33.87 ft); June 18 (1:30 p.m.) 3,230 cfs (19.97 ft); Sept. 21 (3 a.m.) 7,120 cfs (26.46 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of peak mark on inside gage and a study of flood peaks for nearby stations.

## 1730. 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 and New Orleans Railroad Co. bridge, and 3 miles northeast of Luling, Caldwell County.

Drainage area.--356 sq mi.

Records available.--March 1930 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 326.57 ft above mean sea level, datum of 1929.

Average discharge.--28 years, 88.4 cfs (64,000 acre-ft per year).

Extremes.--Maximum discharge during year, 19,600 cfs Feb. 22 (gage height, 19.45 ft, from floodmark); minimum, 0.4 cfs Sept. 2.
1930-58: 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 at times.
Maximum stage known, that of July 1, 1936; flood in December 1913 reached about same stage, from information by local residents.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Slight regulation at low flow by oilfield operation above station. No diversion above station.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to Jan. 24 | | | | Jan. 25 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| -0.1 | 3.3 | 1.0 | 105 | 0.0 | 0.3 | 6.0 | 564 |
| 0.0 | 6.6 | 2.0 | 224 | .1 | 1.0 | 11.0 | 1,200 |
| .1 | 11 | 4.0 | 375 | .2 | 2.3 | 14.0 | 2,000 |
| .2 | 18 | 6.0 | 564 | .3 | 4.4 | 15.0 | 2,550 |
| .4 | 34 | | | .4 | 7.6 | 16.0 | 3,600 |
| | | | | .5 | 12 | 17.0 | 6,200 |
| Note.--Same as following table above 6.0 ft. | | | | .7 | 25 | 18.0 | 10,500 |
| | | | | 1.0 | 56 | 19.0 | 16,200 |
| | | | | 2.0 | 188 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 19 | 30 | *37 | 31 | 62 | 26 | 16 | 6.9 | 3.6 | 1.3 | 0.6 |
| 2 | 10 | 18 | 29 | 31 | 28 | 59 | 25 | 15 | 6.5 | 3.2 | 1.1 | .5 |
| 3 | 9.0 | 16 | 27 | 30 | 25 | 56 | 23 | 217 | 6.2 | 4.9 | 1.1 | .6 |
| 4 | 8.6 | 15 | 27 | 29 | 24 | 54 | 22 | 2,610 | 6.2 | 3.8 | .9 | .6 |
| 5 | 10 | 14 | 26 | 30 | 23 | *50 | 21 | 881 | 5.5 | 3.2 | .9 | .7 |
| 6 | 8.6 | 15 | 25 | 63 | 24 | 56 | 20 | 79 | 5.5 | 2.6 | .9 | 1.3 |
| 7 | 6.2 | 17 | 25 | 132 | 23 | 72 | 18 | 41 | 4.9 | 17 | .9 | 19 |
| 8 | 6.6 | 19 | 24 | 67 | 21 | 68 | *15 | 32 | 4.1 | 503 | .9 | 91 |
| 9 | 5.6 | 18 | 24 | 38 | 20 | 60 | 15 | 30 | 3.8 | 106 | .9 | 21 |
| 10 | 4.8 | 15 | 23 | 29 | 23 | 44 | 17 | 23 | 4.1 | 22 | .8 | 7.6 |
| 11 | 4.5 | 17 | 20 | 28 | 26 | 36 | 20 | 22 | 4.4 | 11 | .8 | 4.6 |
| 12 | 3.9 | 185 | 19 | 487 | 35 | 35 | 19 | 18 | 4.1 | 8.0 | .8 | 4.4 |
| 13 | 3.9 | 422 | 19 | 1,640 | 36 | 37 | 18 | 16 | 4.1 | 6.2 | .8 | 3.6 |
| 14 | 125 | 126 | 18 | 319 | 37 | 36 | 69 | 15 | 4.1 | 4.9 | .7 | 2.6 |
| 15 | 1,760 | 58 | 18 | 132 | 33 | 33 | 501 | 15 | 4.1 | 3.8 | .8 | 2.4 |
| 16 | 3,240 | 34 | 18 | 95 | 30 | 30 | 66 | *16 | 4.1 | 4.1 | .8 | 2.3 |
| 17 | 1,210 | 29 | 18 | 67 | 26 | 30 | 33 | 15 | 4.9 | 3.6 | .9 | 2.3 |
| 18 | 87 | 28 | 20 | 50 | 23 | 60 | 26 | 15 | 4.9 | 3.2 | .9 | 2.6 |
| 19 | 45 | 25 | 20 | 45 | 22 | 100 | 22 | 16 | 4.6 | 2.8 | .9 | 3.6 |
| 20 | 26 | 24 | 19 | 47 | 23 | 55 | 20 | 14 | 4.1 | 2.6 | .9 | 317 |
| 21 | 17 | 23 | 19 | 56 | 760 | 45 | 20 | 12 | 4.1 | 2.3 | .9 | 2,370 |
| 22 | 1,340 | 251 | 18 | 66 | 11,200 | 40 | 20 | 11 | 8.4 | 2.3 | .8 | 1,170 |
| 23 | 4,370 | 379 | 15 | 232 | 540 | 38 | 19 | 11 | 16 | *2.1 | .8 | 68 |
| 24 | *360 | 1,000 | 15 | 1,930 | 230 | 36 | 16 | 10 | 8.4 | 2.0 | .7 | 35 |
| 25 | 84 | 1,460 | 27 | 695 | 170 | 34 | 14 | 10 | *5.2 | 1.8 | .6 | 23 |
| 26 | 46 | *184 | 745 | 110 | 140 | 33 | 14 | 9.6 | 4.4 | 1.7 | .9 | *16 |
| 27 | 30 | 100 | 173 | 72 | 110 | 31 | 14 | 9.6 | 4.1 | 1.6 | 1.6 | 11 |
| 28 | 24 | 64 | 574 | 54 | 80 | 30 | 15 | 9.2 | 3.8 | 1.4 | 1.0 | 18 |
| 29 | 21 | 47 | 180 | *45 | - | 29 | 16 | 8.4 | 3.6 | 1.2 | *.8 | 12 |
| 30 | 20 | 34 | 85 | 40 | ------- | 28 | 16 | 7.6 | 3.4 | 1.2 | .6 | 10 |
| 31 | 19 | ------- | 58 | 35 | ------- | 27 | ------- | 6.9 | ------- | 1.1 | .6 | ------- |
| Total | 12,918.7 | 4,656 | 2,358 | 6,731 | 13,763 | 1,404 | 1,160 | 4,211.3 | 158.5 | 738.2 | 27.3 | 4,221.3 |
| Mean | 417 | 155 | 76.1 | 217 | 492 | 45.3 | 38.7 | 136 | 5.28 | 23.8 | 0.88 | 141 |
| Ac-ft | 25,620 | 9,240 | 4,680 | 13,350 | 27,300 | 2,780 | 2,300 | 8,350 | 314 | 1,460 | 54 | 8,370 |

Calendar year 1957: Max 8,630 Min 0 Mean 183 Ac-ft 132,700
Water year 1957-58: Max 11,200 Min 0.5 Mean 143 Ac-ft 103,800

Peak discharge (base, 2,600 cfs).--Oct. 16 (6 a.m.) 3,520 cfs (15.97 ft); Oct. 23 (8:30 a.m.) 6,900 cfs (17.19 ft); Jan. 24 (8 p.m.) 2,620 cfs (15.08 ft); Feb. 22 (12 m.) 19,600 cfs (19.45 ft); May 4 (6 p.m.) 4,380 cfs (16.35 ft); Sept. 21 (8 p.m.) 4,120 cfs (16.27 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Feb. 15-18, Feb. 21 to Mar. 1, Mar. 17 to Apr. 7; discharge estimated on basis of recorded range in stage, floodmarks, weather records, and records for San Marcos River near Luling.

## 1765. 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 and New Orleans Railroad Co. bridge, 10 miles upstream from Coleto Creek, and at mile 51.

Drainage area.--5,161 sq mi.

Records available.--November 1934 to September 1958. Gage-height records collected in this vicinity since 1904 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 29.15 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Average discharge.--23 years (1935-58), 1,556 cfs (1,126,000 acre-ft per year).

Extremes.--Maximum discharge during year, 58,300 cfs Feb. 26 (gage height, 30.28 ft); minimum daily, 638 cfs Sept. 1, 2, 6.
1934-58: Maximum discharge, 179,000 cfs July 3, 1936 (gage height, 31.22 ft); minimum daily, 14 cfs Aug. 20, 1956.
Maximum stage known, that of July 3, 1936.

Remarks.--Records good except those for period of no gage-height record, which are poor. Many small diversions above station. Some regulation by powerplants above station. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions.--WSP 1342: Drainage area.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1, 2, Sept. 26-30)

| Oct. 1-14 | | | | Oct. 15 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 6.0 | 990 | 25.0 | 13,000 | 4.6 | 625 | 28.0 | 16,700 |
| 10.0 | 2,450 | 28.0 | 10,000 | 6.0 | 1,040 | 28.5 | 18,700 |
| 15.0 | 5,100 | 29.0 | 22,000 | 10.0 | 2,520 | 29.0 | 23,000 |
| 20.0 | 8,500 | 29.5 | 25,500 | 15.0 | 4,850 | 29.6 | 34,400 |
| | | | | 20.0 | 7,800 | 30.2 | 54,000 |
| | | | | 25.0 | 12,200 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22,600 | 2,800 | 2,960 | 1,800 | 2,720 | *16,000 | 2,440 | 1,480 | 1,840 | 1,440 | 920 | 638 |
| 2 | 7,110 | 2,600 | *2,760 | 1,600 | 2,560 | *7,470 | 2,400 | 1,560 | 1,800 | 1,480 | 830 | 638 |
| 3 | 2,170 | 2,440 | 2,640 | 1,440 | 2,440 | 5,200 | 2,360 | 2,110 | 1,560 | 1,400 | 800 | 680 |
| 4 | 1,890 | 2,320 | 2,520 | 1,600 | 2,360 | 4,700 | 2,320 | 3,950 | 1,370 | 1,520 | 770 | 695 |
| 5 | 1,730 | 2,200 | 2,400 | 1,570 | 2,320 | 4,400 | 2,280 | 5,060 | 1,520 | 1,480 | 800 | 650 |
| 6 | *1,580 | 2,160 | 2,320 | 2,920 | 2,240 | *4,200 | 2,200 | 8,260 | 1,560 | 1,280 | 800 | 638 |
| 7 | 1,510 | 2,160 | 2,240 | 2,440 | 2,160 | 4,000 | 2,160 | 11,100 | 1,480 | *1,280 | 770 | 770 |
| 8 | 1,400 | *2,120 | 2,240 | 2,320 | 2,040 | 3,900 | 2,120 | 14,800 | 1,520 | 1,440 | 760 | 860 |
| 9 | 1,300 | 2,040 | 2,160 | 2,320 | 2,040 | 3,950 | 2,080 | *17,000 | 1,280 | 1,560 | 680 | 1,130 |
| 10 | 1,230 | 1,880 | 2,080 | 2,240 | 2,160 | 3,950 | 2,040 | 11,000 | 1,280 | 2,000 | 700 | 1,070 |
| 11 | 1,200 | 2,340 | 2,000 | 2,120 | 2,360 | 4,250 | 1,920 | 4,860 | 1,310 | 1,920 | 740 | 1,310 |
| 12 | 1,110 | 6,050 | 2,000 | 2,480 | 2,480 | 3,950 | 1,840 | 3,950 | 1,370 | 1,480 | 770 | 1,220 |
| 13 | 990 | 4,450 | 1,960 | 5,090 | 2,480 | 3,550 | 1,800 | 3,600 | 1,280 | 1,440 | 800 | 1,100 |
| 14 | 1,140 | 4,350 | 1,920 | 7,960 | 2,280 | 3,350 | 2,040 | 3,350 | 1,250 | 1,280 | 720 | 1,250 |
| 15 | 3,080 | 4,850 | 1,760 | 9,850 | 2,120 | 3,200 | 1,920 | 3,120 | 1,220 | 1,280 | 760 | 1,100 |
| 16 | 12,100 | 4,400 | 1,720 | 11,500 | 2,000 | 3,160 | 2,080 | 2,920 | 1,280 | 1,190 | 720 | 890 |
| 17 | 15,000 | 3,120 | 1,680 | 7,730 | 1,960 | 3,080 | 2,560 | 2,920 | 1,190 | 1,220 | 740 | 830 |
| 18 | 20,800 | 2,760 | 1,720 | 2,960 | 1,880 | 3,000 | 2,520 | 2,840 | 1,250 | 1,160 | 660 | *890 |
| 19 | 33,200 | 2,600 | 1,760 | 2,480 | 1,880 | 2,920 | 2,080 | 2,800 | 1,250 | 1,160 | 680 | 920 |
| 20 | 32,000 | 2,640 | 1,600 | 2,360 | 1,800 | *2,880 | 1,920 | 2,600 | 1,680 | 1,160 | *695 | 980 |
| 21 | 21,300 | 2,560 | 1,720 | 2,200 | 1,780 | 2,840 | 1,920 | 2,520 | 3,440 | 1,010 | 770 | 1,190 |
| 22 | 11,800 | 3,740 | 1,520 | *2,240 | 9,990 | 2,920 | 1,880 | 2,480 | 3,350 | 1,010 | 710 | 5,810 |
| 23 | 4,930 | 6,320 | 1,520 | 2,720 | 17,800 | 3,040 | *1,720 | 2,440 | 2,440 | 950 | 710 | *7,590 |
| 24 | 4,550 | 8,600 | 1,520 | 5,120 | 17,800 | 2,880 | 1,760 | 2,280 | 2,200 | 1,100 | 695 | 8,120 |
| 25 | 6,920 | 8,920 | 1,560 | 6,620 | 29,800 | 2,880 | 1,760 | 2,240 | 2,120 | 920 | 695 | 7,350 |
| 26 | 8,760 | 9,320 | 1,560 | 7,800 | *54,000 | 2,960 | 1,720 | 2,200 | 2,640 | 920 | 740 | 3,520 |
| 27 | 9,240 | 9,760 | 1,440 | 9,080 | 41,400 | 2,760 | 1,520 | 2,040 | 2,440 | 980 | 725 | 2,400 |
| 28 | 5,820 | 8,880 | 1,680 | 6,110 | *24,200 | 2,640 | 1,760 | 1,880 | 2,160 | 920 | 725 | 2,160 |
| 29 | 3,700 | 4,640 | 2,200 | 3,350 | - | 2,560 | 1,680 | *2,000 | 2,000 | 800 | 740 | 2,080 |
| 30 | 3,160 | 3,250 | 2,120 | 3,160 | ------- | 2,520 | 1,640 | 1,880 | 1,840 | 980 | 725 | 1,920 |
| 31 | 2,960 | ------- | 2,200 | 3,000 | ------- | 2,480 | ------ | 1,840 | ------- | 920 | 680 | ------- |
| Total | 246,280 | 126,270 | 61,680 | 126,180 | 242,050 | 121,590 | 60,440 | 133,080 | 52,920 | 38,680 | 23,030 | 60,399 |
| Mean | 7,945 | 4,209 | 1,990 | 4,070 | 8,645 | 3,922 | 2,015 | 4,293 | 1,764 | 1,248 | 743 | 2,013 |
| Ac-ft | 488,500 | 250,500 | 122,300 | 250,300 | 480,100 | 241,200 | 119,900 | 264,000 | 105,000 | 76,720 | 45,680 | 119,800 |

Calendar year 1957: Max 33,200 Min 97 Mean 3,103 Ac-ft 2,247,000
Water year 1957-58: Max 54,000 Min 638 Mean 3,541 Ac-ft 2,564,000

Peak discharge (base, 7,800 cfs).--Oct. 19 (7 p.m.) 37,000 cfs (29.70 ft); Oct. 27 (9 a.m.) 9,580 cfs (22.16 ft); Nov. 27 (12 p.m.) 10,000 cfs (22.71 ft); Jan. 16 (5 p.m.) 11,900 cfs (24.67 ft); Jan. 27 (1 p.m.) 9,320 cfs (21.93 ft); Feb. 26 (8 a.m.) 58,300 cfs (30.28 ft); May 9 (7 a.m.) 17,400 cfs (28.18 ft); Sept. 22 (7 p.m.) 9,160 cfs (21.66 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Aug. 2-19; discharge estimated on basis of once-daily wire-weight-gage readings by U. S. Weather Bureau and recorded range in stage.

## 1770. Coleto Creek near Schroeder, Tex.

Location.--Lat 28°50', long 97°11', on downstream side of left abutment of bridge on Farm Road 622, 2½ miles northeast of Schroeder, Goliad County, 4.8 miles downstream from Cottonwood Creek, 8.0 miles upstream from Perdido Creek, and 11.5 miles west of Victoria.

Drainage area.--365 sq mi.

Records available.--January 1930 to December 1933, October 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 87.59 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Prior to Dec. 31, 1933, staff gage at site 0.7 mile downstream at same datum; Oct. 20, 1952, to Jan. 17, 1955, staff gage at site 0.6 mile downstream at same datum.

Average discharge.--9 years, 66.7 cfs (48,290 acre-ft per year).

Extremes.--Maximum discharge during year, 27,900 cfs Feb. 22 (gage height, 18.85 ft); minimum, 0.4 cfs Aug. 25, 26.
1930-33, 1952-58: Maximum discharge, 39,000 cfs Apr. 28, 1957 (gage height, 21.00 ft); no flow July 16-25, Aug. 4-31, Oct. 10, 11, 1956.
Maximum stages known since at least 1872, at site 0.7 mile downstream, 22.90 ft Oct. 16, 1946, and 20.0 ft in October 1925, from information by local resident.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-14, Nov. 29 to Feb. 21, Mar. 26 to May 3, July 7, 8, Sept. 24-30)

| | | | |
|---|---|---|---|
| 2.6 | 0.4 | 4.5 | 325 |
| 2.7 | 1.4 | 5.0 | 550 |
| 2.8 | 3.4 | 6.0 | 1,070 |
| 2.9 | 6.4 | 7.0 | 1,750 |
| 3.0 | 11 | 9.0 | 3,700 |
| 3.2 | 26 | 11 | 6,400 |
| 3.4 | 49 | 14 | 12,500 |
| 3.7 | 100 | 17 | 21,200 |
| 4.0 | 170 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 7.2 | 32 | 37 | 23 | 118 | 30 | 14 | 12 | 10 | 1.0 | 0.6 |
| 2 | 8.6 | 6.4 | *30 | 26 | 22 | 108 | 30 | 13 | 11 | 5.8 | .9 | .6 |
| 3 | 7.2 | 5.7 | 28 | 14 | 21 | 96 | 30 | 3,830 | 10 | 13 | .8 | .6 |
| 4 | 5.7 | 5.4 | 26 | 12 | 21 | 90 | 30 | 2,530 | 10 | 10 | .7 | .6 |
| 5 | *4.8 | 5.4 | 24 | 1,210 | 20 | 86 | 26 | 399 | 10 | 9.0 | .6 | .6 |
| 6 | 4.2 | 4.8 | 24 | 1,850 | 17 | 82 | 25 | 151 | 10 | 7.6 | .6 | 1.1 |
| 7 | 3.6 | 6.0 | 23 | 282 | 14 | 78 | 24 | 92 | 9.0 | 18 | .6 | 13 |
| 8 | 3.1 | *6.4 | 21 | 81 | 14 | 72 | 23 | 75 | 8.6 | *113 | .6 | 12 |
| 9 | 3.1 | 3.8 | 19 | 52 | 15 | 63 | 25 | 60 | 8.6 | 35 | .6 | 11 |
| 10 | 2.4 | 12 | 18 | 41 | 245 | 60 | 21 | 53 | 8.1 | 75 | .6 | 5.4 |
| 11 | 2.0 | 2,670 | 15 | 36 | 172 | 55 | 20 | 47 | 7.6 | 39 | .6 | 3.6 |
| 12 | 1.8 | 4,610 | 16 | 871 | 171 | 55 | 20 | 43 | 7.2 | 16 | .6 | 2.6 |
| 13 | 1.6 | 492 | 16 | 1,620 | 173 | 49 | 21 | 37 | 6.8 | 9.0 | .6 | 1.9 |
| 14 | 17 | 146 | 15 | 180 | 74 | 45 | 39 | 36 | 6.4 | 6.4 | .6 | 1.8 |
| 15 | 1,660 | 77 | 15 | g74 | 44 | 44 | 34 | 38 | 6.8 | 5.4 | .6 | 1.4 |
| 16 | 2,130 | 55 | 14 | g52 | 33 | 43 | 37 | 42 | 7.2 | 5.0 | .6 | 4.8 |
| 17 | 232 | 44 | 14 | g44 | 26 | 42 | 26 | 35 | 6.4 | 4.2 | 1.8 | 11 |
| 18 | 74 | 36 | 14 | g37 | 24 | 38 | 24 | 32 | 36 | 4.2 | 1.0 | *4.4 |
| 19 | 48 | 41 | 14 | g36 | 23 | 37 | 24 | 34 | 67 | 3.8 | .6 | 51 |
| 20 | 36 | 32 | 12 | g38 | 23 | 35 | 21 | 31 | 20 | 3.4 | *.6 | 40 |
| 21 | 29 | 26 | 12 | *g34 | 4,520 | *33 | 21 | 47 | 13 | 3.1 | .6 | 975 |
| 22 | 224 | 1,110 | 12 | g32 | *20,700 | 33 | 19 | 32 | 14 | 2.8 | .6 | 1,670 |
| 23 | 144 | 1,580 | 12 | 392 | *3,770 | 99 | *18 | 26 | 21 | 2.6 | .6 | 474 |
| 24 | 52 | 1,390 | 12 | 1,320 | 495 | 54 | 17 | 21 | 13 | 2.4 | .6 | 100 |
| 25 | 31 | 368 | 12 | 233 | 266 | 47 | 15 | 21 | 10 | 2.2 | .6 | 50 |
| 26 | 19 | 118 | 13 | g81 | 201 | 43 | 16 | 30 | 8.6 | 1.9 | .5 | 35 |
| 27 | 14 | 68 | 13 | g48 | 160 | 37 | 16 | 26 | 8.1 | 1.8 | .6 | 31 |
| 28 | 11 | 52 | 13 | 41 | 135 | 35 | 16 | 19 | 8.1 | 1.6 | .6 | 24 |
| 29 | 9.5 | 43 | 12 | 35 | - | 35 | 16 | *16 | 8.1 | 1.4 | .6 | 20 |
| 30 | 9.0 | 35 | 11 | 30 | ------- | 32 | 15 | 15 | 7.6 | 1.3 | .6 | 19 |
| 31 | 8.1 | ------- | 12 | 26 | ------- | 30 | ------- | 14 | ------- | 1.2 | .6 | ------- |
| Total | 4,805.7 | 13,056.1 | 524 | 8,865 | 31,422 | 1,774 | 699 | 7,859 | 380.2 | 415.1 | 21.1 | 3,566.0 |
| Mean | 155 | 435 | 16.9 | 286 | 1,122 | 57.2 | 23.3 | 254 | 12.7 | 13.4 | 0.68 | 119 |
| Ac-ft | 9,530 | 25,900 | 1,040 | 17,580 | 62,320 | 3,520 | 1,390 | 15,590 | 754 | 823 | 42 | 7,070 |

Calendar year 1957: Max 8,930 Min 0.2 Mean 153 Ac-ft 111,000
Water year 1957-58: Max 20,700 Min 0.5 Mean 201 Ac-ft 145,600

Peak discharge (base, 2,000 cfs).--Oct. 15 (8 p.m.) 6,100 cfs (10.78 ft); Nov. 11 (11:30 p.m.) 12,300 cfs (13.92 ft); Nov. 23 (7:30 p.m.) 2,550 cfs (7.89 ft); Jan. 5 (9 p.m.) 4,540 cfs (9.69 ft); Jan. 13 (2 a.m.) 3,050 cfs (8.35 ft); Feb. 22 (2 p.m.) 27,900 cfs (18.85 ft); May 3 (6 p.m.) 15,400 cfs (15.10 ft); Sept. 22 (8:30 a.m.) 4,420 cfs (9.59 ft).

* Discharge measurement made on this day.
g Computed from once-daily wire-weight-gage readings.

## 1780. 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 formerly came from springs, but now comes largely from artesian wells; drainage area of stream not applicable.

Records available.--January 1915 to November 1929, February 1939 to September 1958. Ground-water discharge into river is discussed by Petit and George (1956, p. 45), Texas Board of Water Engineers Bulletin 5608, vol. 1. December 1895 to June 1906, periodic discharge measurements only.

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.--33 years, 56.2 cfs (40,690 acre-ft per year).

Extremes.--Maximum discharge during year, 1,210 cfs June 22 (gage height, 7.34 ft), from rating curve extended above 580 cfs; minimum daily, 6.9 cfs Aug. 17.
1915-29, 1939-58: Maximum discharge, 15,300 cfs Sept. 10, 1921 (gage height, 20.14 ft, from floodmark), from rating curve extended above 2,000 cfs on basis of slope-area measurement of peak flow; no flow at times because of regulation.
Maximum stage known since at least 1819, that of Sept. 10, 1921; flood of July 5, 1819, equaled or exceeded that of Sept. 10, 1921.

Remarks.--Records fair. 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.

Revisions.--WSP 1058: Drainage area.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to May 2 | | | | May 3 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.9 | 5.2 | 2.0 | 80 | 0.8 | 5.0 | 2.0 | 90 |
| 1.0 | 8.5 | 3.0 | 212 | .9 | 8.3 | 3.0 | 225 |
| 1.2 | 18 | 4.0 | 373 | 1.1 | 17 | 5.0 | 584 |
| 1.5 | 37 | 6.0 | 765 | 1.5 | 44 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *10 | 11 | 7.8 | 7.1 | 12 | 20 | 12 | 12 | 12 | 12 | 13 | 7.9 |
| 2 | 10 | 12 | 10 | 8.9 | 14 | 19 | 12 | 20 | 14 | 11 | 13 | 13 |
| 3 | 11 | 8.5 | 10 | 8.9 | 12 | *19 | 13 | 195 | 14 | 12 | 8.7 | 12 |
| 4 | 10 | 11 | 9.3 | 33 | 14 | 19 | 12 | 88 | 13 | 8.7 | 14 | 13 |
| 5 | 10 | 12 | 10 | 211 | 14 | 25 | 10 | 15 | 13 | 12 | 14 | 13 |
| 6 | 8.9 | 9.3 | 14 | 90 | 15 | 21 | 9.3 | 21 | 13 | 28 | 12 | 36 |
| 7 | 10 | 11 | 7.1 | 19 | 13 | 18 | *10 | 21 | 12 | 168 | 14 | 120 |
| 8 | 10 | 10 | 7.4 | 14 | 12 | 16 | 14 | 23 | 8.7 | 367 | 13 | 49 |
| 9 | 40 | 10 | 10 | 12 | 13 | 15 | 21 | *22 | 13 | 28 | 13 | 27 |
| 10 | 12 | 29 | 9.7 | 12 | 22 | 18 | 10 | 23 | 12 | 32 | 7.9 | 16 |
| 11 | 10 | 98 | 8.9 | 11 | 17 | 20 | 11 | 21 | 12 | 19 | 34 | 13 |
| 12 | 10 | 42 | 8.9 | 250 | 30 | 19 | 14 | 23 | 12 | 16 | 21 | 49 |
| 13 | 20 | 29 | 9.3 | 32 | 15 | 19 | 8.9 | 22 | 12 | 14 | 11 | 12 |
| 14 | 15 | 16 | 8.9 | 17 | 19 | 10 | 46 | 26 | 12 | *17 | 13 | 8.7 |
| 15 | 13 | 12 | 8.2 | 14 | 13 | 16 | 16 | 35 | 8.7 | 15 | 9.9 | 14 |
| 16 | 14 | 12 | 10 | 14 | 10 | 15 | 12 | 22 | 12 | 16 | 12 | 56 |
| 17 | 12 | 9.7 | 11 | 12 | 12 | 16 | 16 | 23 | 12 | 17 | 6.9 | 65 |
| 18 | 10 | *12 | 11 | 12 | 12 | 39 | 23 | 39 | 24 | 16 | 39 | 28 |
| 19 | 10 | 11 | 11 | 11 | 12 | 22 | 14 | 52 | 13 | 16 | 21 | 47 |
| 20 | 8.2 | 11 | *11 | 17 | 86 | 16 | 10 | 24 | 11 | 12 | 11 | 212 |
| 21 | 57 | 30 | 12 | 13 | 360 | 16 | 14 | 22 | 15 | 18 | 11 | 416 |
| 22 | 549 | 37 | 9.7 | 12 | 260 | 16 | 12 | 23 | *259 | 15 | *11 | 120 |
| 23 | 203 | 57 | 12 | 119 | 83 | 16 | 12 | 21 | 82 | 14 | 11 | *26 |
| 24 | 20 | 52 | 14 | 56 | 36 | 16 | 12 | 21 | 15 | 14 | 27 | 21 |
| 25 | 14 | 25 | 26 | 43 | 28 | 19 | 12 | 17 | 14 | 13 | 14 | 41 |
| 26 | 13 | 21 | 12 | 22 | 22 | 16 | 13 | 20 | 13 | 15 | 12 | 124 |
| 27 | 10 | 16 | 22 | *14 | 20 | 16 | 11 | 19 | 12 | 13 | 12 | 149 |
| 28 | 11 | 9.3 | 11 | 13 | 18 | 15 | 14 | 17 | 12 | 15 | 12 | 31 |
| 29 | 11 | 11 | 7.4 | 12 | - | 14 | 12 | 14 | 11 | 14 | 11 | 33 |
| 30 | 11 | 10 | 8.9 | 13 | ------- | 11 | 11 | 13 | 12 | 14 | 12 | 31 |
| 31 | 12 | ------- | 8.9 | 12 | ------- | 12 | ------- | 14 | ------- | 14 | 7.6 | ------- |
| Total | 1,165.1 | 644.8 | 337.4 | 1,134.9 | 1,194 | 549 | 417.2 | 928 | 698.4 | 995.7 | 442.0 | 1,803.6 |
| Mean | 37.6 | 21.5 | 10.9 | 36.6 | 42.6 | 17.7 | 13.9 | 29.9 | 23.3 | 32.1 | 14.3 | 60.1 |
| Ac-ft | 2,310 | 1,280 | 669 | 2,250 | 2,370 | 1,090 | 828 | 1,840 | 1,390 | 1,970 | 877 | 3,580 |

Calendar year 1957: Max 611 Min 2.1 Mean 32.9 Ac-ft 23,830
Water year 1957-58: Max 549 Min 6.9 Mean 28.2 Ac-ft 20,450

* Discharge measurement made on this day.

## 1790. Medina River near Pipe Creek, Tex.

Location.--Lat 29°40', long 98°59', on left bank 600 ft upstream from Bandera Falls, 0.8 mile upstream from Red Bluff Creek, and 4 miles southwest of town of Pipe Creek, Bandera County.

Drainage area.--457 sq mi.

Records available.--December 1922 to September 1934, December 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,067.37 ft above mean sea level, unadjusted. December 1922 to September 1934 water-stage recorder at site 2 miles upstream at different datum.

Average discharge.--16 years (1923-34, 1953-58), 107 cfs (77,460 acre-ft per year).

Extremes.--Maximum discharge during year, 37,100 cfs June 17 (gage height, 27.3 ft, from floodmark); minimum, 45 cfs Oct. 7-9.
1922-34, 1952-58: Maximum discharge, 64,000 cfs July 1, 1932 (gage height, 33.8 ft, from floodmarks, datum then in use), by slope-area measurement of peak flow; minimum, 0.2 cfs July 14-16, 1956.
Maximum stage since at least 1880, about 43 ft in 1919, from information by local resident.

Remarks.--Records good. Small diversion above gage.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to June 16 | | | | June 17 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 4.1 | 34 | 6.0 | 630 | 4.3 | 50 | 7.0 | 1,140 |
| 4.4 | 82 | 7.0 | 1,210 | 4.5 | 84 | 9.0 | 2,660 |
| 4.7 | 148 | 8.0 | 1,950 | 5.0 | 204 | 13.0 | 7,100 |
| 5.0 | 232 | 11.0 | 5,100 | 5.5 | 374 | 17.0 | 13,300 |
| 5.5 | 400 | | | 6.0 | 585 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 62 | 188 | 257 | 143 | 436 | 640 | 348 | *199 | 106 | 355 | 96 | 53 |
| 2 | 59 | 177 | 254 | 141 | 420 | 615 | 351 | 939 | 104 | 336 | 94 | 53 |
| 3 | 56 | 171 | 251 | 141 | 404 | 570 | 348 | 490 | 100 | 322 | 92 | 52 |
| 4 | 54 | 174 | 235 | 153 | 393 | 555 | 330 | 376 | 96 | 290 | 88 | 50 |
| 5 | 53 | 174 | 229 | 743 | 390 | 595 | 316 | 296 | 94 | 283 | 86 | 50 |
| 6 | 48 | 166 | 226 | 525 | 362 | 555 | 296 | 260 | 90 | 269 | 82 | 52 |
| 7 | 45 | *164 | 223 | 424 | 340 | 2,620 | 289 | 244 | 88 | 266 | 79 | 315 |
| 8 | *45 | 158 | 205 | 379 | 334 | 1,030 | 309 | 229 | 84 | 311 | 77 | 131 |
| 9 | 69 | 146 | 196 | 354 | 330 | 850 | 316 | 223 | 84 | 266 | 75 | 113 |
| 10 | 64 | 153 | 196 | 337 | 340 | 772 | 276 | 211 | *84 | 244 | 73 | 108 |
| 11 | 58 | 673 | *188 | 323 | 323 | 705 | 266 | 202 | 78 | 228 | 71 | 86 |
| 12 | 53 | 545 | 185 | 440 | 323 | 685 | 263 | 194 | 73 | 216 | 75 | 80 |
| 13 | 53 | 485 | 185 | 362 | 306 | 640 | 276 | 188 | 71 | 207 | 75 | 77 |
| 14 | 1,170 | 408 | 182 | 327 | 299 | 600 | 266 | 188 | 75 | 196 | *73 | 71 |
| 15 | 4,410 | 372 | 177 | 303 | 280 | 575 | 257 | 191 | 77 | *184 | 75 | 68 |
| 16 | *1,560 | 340 | 174 | *289 | 266 | 555 | 244 | 229 | 77 | 176 | 77 | 118 |
| 17 | 485 | 320 | 171 | 286 | 263 | 540 | 244 | 211 | *11,800 | 168 | 71 | 1,730 |
| 18 | 337 | 313 | 171 | 280 | 260 | 555 | 244 | 191 | *2,670 | 166 | 70 | 642 |
| 19 | 266 | 286 | 166 | 283 | 260 | 555 | 241 | 196 | 990 | 160 | 71 | 1,870 |
| 20 | 223 | 273 | 153 | 283 | 266 | 480 | 229 | 180 | 735 | 153 | 70 | *2,750 |
| 21 | 208 | 263 | 151 | 286 | 653 | 464 | 223 | 166 | 590 | 150 | 68 | 1,240 |
| 22 | 817 | 266 | 151 | 270 | 1,410 | 456 | 220 | 161 | 1,680 | 145 | 66 | 889 |
| 23 | 510 | 260 | 151 | 903 | 1,280 | 515 | 214 | 156 | 1,230 | 140 | 66 | *685 |
| 24 | 376 | 330 | 171 | 1,030 | 970 | 428 | 205 | 151 | 762 | 136 | 90 | 572 |
| 25 | 320 | 354 | 180 | 784 | 880 | *424 | 199 | 143 | 625 | 128 | 106 | 536 |
| 26 | 283 | 327 | 164 | 665 | *790 | 412 | 205 | 134 | 544 | 124 | 80 | 527 |
| 27 | 254 | 316 | 166 | 605 | 705 | 393 | 211 | 131 | 492 | 119 | 68 | 488 |
| 28 | 235 | 299 | 164 | 570 | 660 | 382 | 205 | 124 | 450 | 113 | 63 | 446 |
| 29 | 223 | 286 | 153 | 515 | - | 393 | 202 | 120 | 418 | 108 | 60 | 410 |
| 30 | 214 | 266 | 153 | 495 | ------- | 368 | 199 | 117 | 386 | 104 | 56 | 557 |
| 31 | 199 | ------- | 151 | 468 | ------- | 358 | ------- | 113 | ------- | 100 | 56 | ------- |
| Total | 12,809 | 8,653 | 5,779 | 13,107 | 13,943 | 19,285 | 7,792 | 6,953 | 24,753 | 6,163 | 2,349 | 14,819 |
| Mean | 413 | 288 | 186 | 423 | 498 | 622 | 260 | 224 | 825 | 199 | 75.8 | 494 |
| Ac-ft | 25,410 | 17,160 | 11,460 | 26,000 | 27,660 | 38,250 | 15,460 | 13,790 | 49,100 | 12,220 | 4,660 | 29,390 |

Calendar year 1957: Max 7,710 Min 0.8 Mean 212 Ac-ft 153,600
Water year 1957-58: Max 11,800 Min 45 Mean 374 Ac-ft 270,600

Peak discharge (base, 1,600 cfs).--Oct. 15 (2 p.m.) 13,000 cfs (16.22 ft); Feb. 22 (8:30 p.m.) 3,500 cfs (9.60 ft); Mar. 7 (4 a.m.) 5,340 cfs (11.21 ft); May 2 (5 p.m.) 4,140 cfs (10.24 ft); June 17 (1:30 p.m.) 37,100 cfs (27.3 ft); June 22 (1 p.m.) 4,260 cfs (10.63 ft); Sept. 17 (1 p.m.) 6,330 cfs (12.36 ft); Sept. 20 (2 p.m.) 5,610 cfs (11.85 ft).

* Discharge measurement made on this day.

## 1791. Red Bluff Creek near Pipe Creek, Tex.

Location.--Lat 29°40'48", long 98°57'20", on left bank 0.8 mile upstream from bridge on county road, 1.7 miles downstream from Pipe Creek, 1.9 miles upstream from mouth, and 3.2 miles south of town of Pipe Creek, Bandera County.

Drainage area.--55.3 sq mi.

Records available.--April 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,107.2 ft above mean sea level, unadjusted.

Extremes.--Maximum discharge during year, 5,630 cfs May 2 (gage height, 11.08 ft); no flow for many days.
1956-58: Maximum discharge, that of May 2, 1958; no flow for many days each year. Maximum stage known since at least 1905, about 17 ft in July 1937. Flood in October 1953 reached a stage of 13.8 ft.

Remarks.--Records good. Small dams on tributaries affect flow during time of storm runoff. No known diversion.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 2 to June 30, Sept. 7-10, 17-30)

| | | | | | |
|---|---|---|---|---|---|
| 2.3 | 0 | 2.8 | 14 | 4.5 | 290 |
| 2.4 | .4 | 3.0 | 31 | 5.0 | 460 |
| 2.5 | 1.6 | 3.5 | 90 | 6.0 | 870 |
| 2.6 | 3.9 | 4.0 | 170 | 7.0 | 1,420 |
| 2.7 | 8.2 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 7.7 | 21 | 5.0 | 41 | 58 | 18 | 5.7 | 6.7 | | | 0 |
| 2 | 0 | 6.7 | 20 | 5.0 | 36 | 54 | 18 | *1,140 | 6.2 | | | 0 |
| 3 | 0 | 5.7 | 18 | 5.0 | 33 | 50 | 18 | *355 | 5.7 | | | 0 |
| 4 | 0 | 5.7 | 17 | 6.5 | 31 | 48 | 16 | 210 | 5.3 | | | 0 |
| 5 | 0 | 5.3 | 16 | 72 | 29 | 49 | 15 | 156 | 5.0 | | | 0 |
| 6 | 0 | 5.0 | 16 | 82 | 25 | 42 | 14 | 125 | 4.6 | | | 0 |
| 7 | 0 | *5.3 | 15 | 70 | 22 | 152 | 14 | 103 | 4.2 | | | 308 |
| 8 | *0 | 4.6 | 12 | 64 | 21 | 61 | 22 | 89 | 3.9 | | | 7.1 |
| 9 | 0 | 3.9 | 12 | 57 | 19 | 58 | 27 | 77 | 3.6 | | | 3.3 |
| 10 | 0 | 23 | 11 | 52 | 19 | 54 | 13 | 69 | *3.3 | (*) | | .2 |
| 11 | 0 | 98 | *10 | 46 | 18 | 51 | 11 | 58 | 2.6 | | | 0 |
| 12 | 0 | 90 | 11 | 53 | 18 | 50 | 11 | 50 | 2.1 | | | 0 |
| 13 | 0 | 80 | 11 | 42 | 17 | 45 | 11 | 44 | 1.9 | | | 0 |
| 14 | 0 | 64 | 9.7 | 38 | 16 | 44 | 17 | 45 | 1.7 | | (*) | 0 |
| 15 | 75 | 53 | 9.2 | 32 | 15 | 41 | 9.7 | 42 | 2.1 | (*) | | 0 |
| 16 | *5.0 | 45 | 9.2 | *30 | 14 | 40 | 8.2 | 36 | 1.7 | | | 0 |
| 17 | .4 | 40 | 9.2 | 29 | 13 | 36 | 7.7 | 33 | 3.9 | | | 92 |
| 18 | 0 | 32 | 8.7 | 27 | 13 | 41 | 8.2 | 27 | 2.6 | | | 19 |
| 19 | 0 | 28 | 7.7 | 26 | 13 | 34 | 7.7 | 24 | *1.6 | | | 12 |
| 20 | 0 | 24 | 7.2 | 25 | 13 | 30 | 7.7 | 23 | .5 | | | 141 |
| 21 | 0 | 23 | 7.2 | 23 | 28 | 28 | 7.2 | 20 | .1 | | | 53 |
| 22 | 105 | 22 | 6.7 | 22 | 56 | 28 | 7.2 | 18 | 120 | | | 40 |
| 23 | 42 | 31 | 6.7 | 65 | 97 | 30 | 6.7 | 17 | 8.9 | | | *33 |
| 24 | 24 | 35 | 6.7 | 77 | 89 | 24 | 6.2 | 16 | 3.3 | | | 24 |
| 25 | 19 | 31 | 9.2 | 72 | 82 | *25 | 6.2 | 13 | 1.9 | | | 22 |
| 26 | 16 | 29 | 7.2 | 67 | *78 | 24 | 6.7 | 11 | 1.1 | | | 22 |
| 27 | 13 | 27 | 8.7 | 65 | 69 | 22 | 6.7 | 10 | .7 | | | 18 |
| 28 | 12 | 24 | 7.2 | 59 | 64 | 21 | 6.2 | 9.7 | .2 | | | 15 |
| 29 | 11 | 22 | 6.7 | 54 | - | 20 | *5.3 | 8.7 | .1 | | | 13 |
| 30 | 10 | 21 | 6.2 | 51 | ------- | 18 | 5.7 | 7.7 | 0 | | | 36 |
| 31 | 8.7 | ------- | 5.3 | 45 | ------- | 18 | ------- | 7.2 | ------- | | | ------- |
| Total | 341.1 | 891.9 | 328.7 | 1,366.5 | 989 | 1,296 | 338.3 | 2,850.0 | 205.5 | 0 | 0 | 858.6 |
| Mean | 11.0 | 29.7 | 10.6 | 44.1 | 35.3 | 41.8 | 11.3 | 91.9 | 6.85 | 0 | 0 | 28.6 |
| Ac-ft | 677 | 1,770 | 652 | 2,710 | 1,960 | 2,570 | 671 | 5,650 | 408 | 0 | 0 | 1,700 |

Calendar year 1957: Max 568 Min 0 Mean 15.1 Ac-ft 10,900
Water year 1957-58: Max 1,140 Min 0 Mean 25.9 Ac-ft 18,770

Peak discharge (base, 1,000 cfs).--May 2 (5 p.m.) 5,630 cfs (11.08 ft); June 22 (11:30 a.m.) 1,040 cfs (6.40 ft); Sept. 7 (9 a.m.) 1,830 cfs (7.60 ft).

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

1795. 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 28 miles west of San Antonio, Bexar County.

Drainage area.--609 sq mi (revised).

Records available.--May 1913 to September 1958.

Gage.--Wire-weight gage read once daily if stage 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, 258,600 acre-ft June 23, Sept. 21 (gage height, 1,072.8 ft); minimum observed, 88,730 acre-ft Oct. 12 (gage height, 1,031.0 ft). 1913-58: Maximum contents observed, 288,800 acre-ft Sept. 16, 1919 (gage height, 1,078.0 ft); minimum observed since reservoir first 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 cutoff wall. 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. Data regarding dam and reservoir are shown in the following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Spillway crest | 1,072.0 | 254,000 |
| Bottom of 60-inch water supply-outlet pipes | 966.5 | 4,780 |
| Bottom of 30-inch sluice pipes | 920.0 | 0 |

Cooperation.--Gage-height records and capacity table furnished by Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1.

Month-end gage height and total contents, water year October 1957 to September 1958

| Date | Gage height (feet)† | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept.30 | 1,031.2 | 89,300 | - |
| Oct. 31 | (a) | 109,600 | +20,300 |
| Nov. 30 | 1,042.5 | 123,400 | +13,800 |
| Dec. 31 | 1,044.5 | 130,500 | +7,100 |
| Calendar year 1957 | - | - | +123,500 |
| Jan. 31 | (a) | 155,000 | +24,500 |
| Feb. 28 | 1,057.0 | 179,400 | +24,400 |
| Mar. 31 | 1,064.0 | 212,200 | +32,800 |
| Apr. 30 | (a) | 218,700 | +6,500 |
| May 31 | 1,068.2 | 233,400 | +14,700 |
| June 30 | 1,072.2 | 255,200 | +21,800 |
| July 31 | 1,071.4 | 250,500 | -4,700 |
| Aug. 31 | 1,069.3 | 238,900 | -11,600 |
| Sept.30 | 1,072.3 | 255,700 | +16,800 |
| Water year 1957-58 | - | - | +166,400 |

† Gage read at irregular intervals on last day of month.
a No gage-height record; contents interpolated.

## 1800. Medina Canal near Riomedina, Tex.

Location.--Lat 29°30', long 98°54', in center of canal, 54 ft upstream from center pier of double-barrel flume, 350 ft downstream from county highway bridge, a third of a mile below head of canal and diversion dam, about 4 miles below Medina Dam, 6 miles north of Riomedina, Medina County, and 32 miles northwest of San Antonio.

Records available.--March 1922 to May 1934, July 1957 to September 1958.

Gage.--Water-stage recorder.

Average discharge.--12 years (1922-33, 1957-58), 28.6 cfs (20,710 acre-ft per year).

Extremes.--Maximum discharge during year, 119 cfs June 19 (gage height, 2.03 ft); no flow for many days.
1922-34, 1957-58: Maximum discharge, about 150 cfs Oct. 17, 1932 (gage height, 2.40 ft); no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are fair. Station is above all diversions from canal. Canal diverts from right bank of Medina River for irrigation near Lacoste and Natalia.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 59 | 0 | 0 | 0 | 0 | 43 | 40 | 94 | 73 | 81 | 71 |
| 2 | 0 | 48 | 0 | 0 | 0 | 0 | 42 | *27 | 96 | 72 | 82 | 71 |
| 3 | 0 | 39 | 0 | 0 | 0 | 0 | 44 | .4 | 91 | 72 | 92 | 71 |
| 4 | 0 | 37 | 0 | 0 | 0 | 0 | 46 | 0 | 89 | 71 | 94 | 71 |
| 5 | 0 | 14 | 0 | .1 | 0 | 0 | 45 | 0 | 89 | 71 | 102 | 70 |
| 6 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 100 | 71 | 111 | 58 |
| 7 | 0 | *0 | 0 | 0 | 15 | 0 | 46 | 0 | 104 | 42 | 112 | 20 |
| 8 | *17 | 0 | 0 | 0 | 43 | 0 | 50 | 0 | 106 | .2 | 112 | 0 |
| 9 | 27 | 0 | 0 | 0 | 42 | 0 | 48 | 0 | 111 | .4 | 111 | 0 |
| 10 | 0 | 0 | 0 | 0 | 26 | 0 | 47 | 7.7 | *46 | .2 | 111 | 0 |
| 11 | 0 | 0 | 51 | 0 | 0 | 0 | 46 | 22 | 58 | 0 | 111 | 0 |
| 12 | 0 | 0 | 48 | 0 | 0 | 0 | 45 | 26 | 104 | 27 | 111 | 0 |
| 13 | 0 | 0 | 41 | 11 | 0 | 0 | 44 | 40 | 104 | 46 | 110 | 0 |
| 14 | 0 | 0 | 35 | 7.8 | 0 | 0 | 44 | 40 | 104 | 46 | *108 | 0 |
| 15 | 0 | 0 | 35 | 0 | 0 | 0 | 42 | 40 | 105 | *45 | 107 | 23 |
| 16 | 0 | 0 | *40 | *0 | 0 | 0 | 40 | 40 | 105 | 45 | 107 | 40 |
| 17 | 0 | 0 | 46 | 0 | 0 | 17 | 40 | 40 | 105 | 57 | 107 | 27 |
| 18 | 0 | 0 | 50 | 0 | 0 | 26 | 40 | 39 | 106 | 71 | 107 | .4 |
| 19 | 0 | 0 | 50 | 0 | 0 | .2 | 30 | 39 | 111 | 65 | 107 | .3 |
| 20 | 0 | 0 | 39 | 0 | 0 | .2 | 21 | 39 | 108 | 62 | 107 | .5 |
| 21 | 0 | 0 | 30 | 9.0 | 0 | 9.3 | 30 | 38 | 101 | 61 | 107 | .4 |
| 22 | .2 | 0 | 25 | 9.9 | 0 | 12 | 51 | 38 | 74 | 69 | 106 | .3 |
| 23 | 0 | 0 | 17 | .2 | 0 | 3.7 | 51 | 38 | 56 | 80 | 106 | *0 |
| 24 | 0 | 0 | .6 | 0 | 0 | *9.3 | 49 | 37 | 60 | 78 | 105 | 0 |
| 25 | 0 | 0 | .4 | 0 | 0 | 21 | 48 | 36 | 32 | 75 | 96 | 0 |
| 26 | 0 | 0 | 0 | 0 | *0 | 31 | 46 | 36 | 31 | 73 | 80 | 0 |
| 27 | 0 | 0 | 0 | 0 | 0 | 40 | 46 | 63 | 78 | 76 | 71 | 0 |
| 28 | 0 | 0 | 0 | 0 | 0 | 47 | 44 | 98 | 74 | 76 | 71 | 0 |
| 29 | 0 | 0 | 0 | 0 | - | 46 | 43 | 94 | 74 | 79 | 71 | 0 |
| 30 | 25 | 0 | 0 | 0 | ------- | 44 | 42 | 89 | 73 | 81 | 71 | 0 |
| 31 | 58 | ------- | 0 | 0 | ------- | 44 | ------- | 85 | ------- | 81 | 71 | ------- |
| Total | 127.2 | 197 | 508.0 | 38.0 | 126 | 350.7 | 1,297 | 1,092.1 | 2,589 | 1,765.8 | 3,045 | 523.9 |
| Mean | 4.10 | 6.6 | 16.4 | 1.22 | 4.5 | 11.3 | 43.2 | 35.2 | 86.3 | 57.0 | 98.2 | 17.5 |
| Ac-ft | 252 | 391 | 1,010 | 75 | 250 | 696 | 2,570 | 2,170 | 5,140 | 3,500 | 6,040 | 1,040 |

Calendar year 1957: Max - Min - Mean - Ac-ft -
Water year 1957-58: Max 112 Min 0 Mean 31.9 Ac-ft 23,130

* Discharge measurement or observation of no flow made on this day.
Note.--No gage-height record Nov. 19 to Dec. 15; discharge estimated on basis of daily records of depth of water in canal at headgate furnished by Bexar, Medina, Atascosa Counties Water Control and Improvement District.

## 1805. Medina River near Riomedina, Tex.

Location.--Lat 29°30', long 98°54', on left bank 233 ft upstream from bridge at Haby's Crossing, 0.8 mile downstream from Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1 diversion dam, 4.3 miles northwest of Riomedina, Medina County, 9 miles upstream from San Geronimo Creek, and 10 miles north of Castroville.

Drainage area.--623 sq mi.

Records available.--January 1922 to September 1934 (daily record of flow over dam and monthly or annual record of seepage under or around dam), January 1953 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 857.6 ft above mean sea level, datum of 1929 (river-profile survey). Jan. 21, 1922, to Sept. 30, 1934, water-stage recorder on upstream side of diversion dam 0.8 mile upstream at different datum.

Average discharge.--17 years, 22.8 cfs (16,510 acre-ft per year).

Extremes.--Maximum discharge during year, 1,450 cfs Sept. 22; maximum gage height, 6.90 ft June 23; minimum discharge, 5.9 cfs Oct. 19-21.
1922-34, 1953-58: Maximum discharge, about 11,800 cfs Apr. 21, 1926; no flow at times.

Remarks.--Records good. Flow regulated by Medina Reservoir, about 5 miles upstream, and diversion reservoir, 0.8 mile upstream. All flow is seepage under and around dam except for occasional flow over spillway of dam. Diversion for irrigation above station.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.5 | 9.0 | 11 | 13 | 30 | 59 | 25 | a15 | 23 | 212 | 22 | 17 |
| 2 | 7.1 | 9.0 | 11 | 13 | 30 | 53 | 24 | a160 | 23 | *186 | 22 | 17 |
| 3 | 7.1 | 9.5 | 12 | 13 | 30 | 62 | 24 | a100 | 22 | 158 | 22 | 17 |
| 4 | 6.8 | 9.5 | 12 | 14 | 31 | 51 | 24 | a90 | 21 | 136 | 22 | 17 |
| 5 | 7.1 | 9.5 | 12 | 17 | 31 | 64 | 23 | a84 | 22 | 116 | 22 | 17 |
| 6 | 7.1 | 9.5 | 12 | 18 | 31 | 58 | 22 | a82 | 22 | 101 | 21 | 17 |
| 7 | 7.1 | *9.0 | 13 | 19 | 31 | 67 | 22 | a80 | 22 | 104 | 21 | 19 |
| 8 | *6.8 | 8.6 | 13 | 20 | 31 | 58 | 22 | *80 | 22 | 148 | 21 | 17 |
| 9 | 8.2 | 8.2 | 13 | 21 | 31 | 51 | 22 | 79 | 22 | 145 | 21 | 18 |
| 10 | 8.6 | 8.2 | 13 | 22 | 31 | 56 | 21 | 72 | *22 | 122 | 21 | 18 |
| 11 | 8.6 | 8.2 | 13 | 22 | 31 | 53 | 21 | 53 | 23 | 101 | 20 | 18 |
| 12 | 8.6 | 9.5 | 13 | 24 | 31 | 57 | 21 | 46 | 23 | 79 | 19 | 18 |
| 13 | 8.6 | 9.0 | 13 | 25 | 31 | 51 | 20 | 34 | 24 | 48 | 18 | 18 |
| 14 | 7.8 | 9.0 | 13 | 25 | 30 | 48 | 20 | 28 | 24 | 39 | *19 | 18 |
| 15 | 7.5 | 8.2 | 12 | 25 | 30 | 51 | 19 | 28 | 24 | 30 | 19 | 19 |
| 16 | 6.8 | 8.2 | 13 | *26 | 30 | 51 | 19 | 28 | 23 | 29 | 19 | 21 |
| 17 | 6.6 | 8.6 | *13 | 26 | 30 | 51 | 19 | 28 | 24 | 29 | 19 | 138 |
| 18 | 6.2 | 9.5 | 13 | 25 | 30 | 30 | 18 | 28 | 23 | 28 | 19 | a90 |
| 19 | 6.2 | 9.0 | 14 | 25 | 30 | 29 | 18 | 28 | 23 | 28 | 18 | a80 |
| 20 | 5.9 | 9.0 | 14 | 27 | 30 | 43 | 18 | 28 | 36 | 28 | 18 | a760 |
| 21 | 6.6 | 9.0 | 13 | 27 | 31 | 46 | 18 | 28 | 295 | 28 | 18 | a760 |
| 22 | 9.0 | 9.5 | 13 | 27 | 31 | 32 | 18 | 27 | *616 | 27 | 18 | *a880 |
| 23 | 7.1 | 9.9 | 13 | 27 | 31 | 47 | 18 | 27 | *1,230 | 25 | 18 | 1,010 |
| 24 | 7.1 | 9.9 | 12 | 28 | 31 | *38 | 17 | 26 | 976 | 23 | 18 | 858 |
| 25 | 7.5 | 9.9 | 12 | 28 | 34 | 30 | 17 | 26 | *784 | 22 | 18 | 730 |
| 26 | 7.5 | 10 | 12 | 28 | *69 | 26 | 16 | 26 | 661 | 21 | 18 | a650 |
| 27 | 7.5 | 10 | 12 | 28 | 67 | 26 | a16 | 27 | 452 | 21 | 18 | a600 |
| 28 | 7.5 | 10 | 12 | 28 | 64 | 26 | a15 | 27 | 358 | 21 | 18 | a530 |
| 29 | 7.8 | 11 | 13 | 29 | - | 25 | a15 | 26 | *297 | 21 | 18 | a460 |
| 30 | 8.2 | 11 | 13 | 29 | ------- | 25 | a15 | 26 | 250 | 21 | 18 | a410 |
| 31 | 8.6 | ------- | 13 | 29 | ------- | 25 | ------- | 24 | ------- | 21 | 17 | ------- |
| Total | 230.6 | 278.4 | 391 | 728 | 968 | 1,389 | 587 | 1,461 | 6,387 | 2,118 | 600 | 8,242 |
| Mean | 7.44 | 9.28 | 12.6 | 23.5 | 34.6 | 44.8 | 19.6 | 47.1 | 213 | 68.3 | 19.4 | 275 |
| Ac-ft | 457 | 552 | 776 | 1,440 | 1,920 | 2,760 | 1,160 | 2,900 | 12,670 | 4,200 | 1,190 | 16,350 |

Calendar year 1957: Max 15 Min 0 Mean 5.42 Ac-ft 3,920
Water year 1957-58: Max 1,230 Min 5.9 Mean 64.1 Ac-ft 46,380

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 1 discharge measurement, recorded range in stage, and computed flow over spillway 0.8 mile upstream.

1818. 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 1958. October 1929 to December 1930 records below about 50 cfs in connection with seepage investigation (published as "at Losoya").

Gage.--Water-stage recorder. Datum of gage is 439.0 ft 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.--19 years (1939-58), 97.0 cfs (70,230 acre-ft per year).

Extremes.--Maximum discharge during year, 9,220 cfs May 3 (gage height, 27.79 ft); minimum daily, 29 cfs Oct. 7.

1939-58: 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, 3.3 cfs Apr. 18, Nov. 1, 1956, Jan. 24, 1957.

Maximum stage known, about 55 ft sometime prior to construction of Medina Dam in 1913, from information by State Highway Department.

Revisions.--The maximum discharge for the water year 1957 has been revised to 5,180 cfs Apr. 29, 1957 (gage height, 22.83 ft), superseding figure published in WSP 1512.

Remarks.--Records good. Flow slightly regulated by Medina Lake (see p. 259), 60 miles upstream, and diversion dam reservoir (capacity, 4,500 acre-ft). The Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1 has a permit to divert 300,000 acre-ft of water to irrigate 150,000 acres of land (see p. 260 for diversion canal records). Several small diversions below diversion dam reservoir. The city of San Antonio discharged approximately 14,060 acre-ft of sewage effluent from Mitchell Lake into the river above the gage during periods of high water. A considerable part of the low flow is waste water from Kelly Field which enters via Leon Creek.

Revisions (water years).--Revised figures of discharge, in cubic feet per second, for the water year 1957, superseding those published in WSP 1512, are given herewith:

| Date | Discharge | Date | Discharge | Date | Discharge | Date | Discharge |
|---|---|---|---|---|---|---|---|
| 1957 | | 1957-Con. | | 1957-Con. | | 1957-Con. | |
| Apr. 25 | 1,240 | May 1 | 506 | May 30 | 487 | Sept.22 | 366 |
| 26 | 948 | 19 | 1,460 | 31 | 517 | 23 | 892 |
| 27 | 3,480 | 20 | 590 | June 1 | 1,370 | 25 | 1,300 |
| 28 | 2,500 | 27 | 413 | 2 | 2,740 | 26 | 750 |
| 29 | 3,710 | 28 | 2,210 | 3 | 1,320 | | |
| 30 | 1,290 | 29 | 1,380 | 4 | 550 | | |

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| April 1957 | 16,720 | 3,710 | 10 | 557 | 33,160 |
| May | 9,779 | 2,210 | 34 | 315 | 19,400 |
| June | 8,504 | 2,740 | 33 | 283 | 16,870 |
| September | 4,565 | 1,300 | 10 | 152 | 9,050 |
| Water year 1956-57 | 45,212.0 | 3,710 | 3.3 | 124 | 89,680 |

Revised peak discharge.--1956-57: Apr. 29 (12 m.) 5,180 cfs (22.83 ft); May 19 (10 a.m.) 1,950 cfs (15.81 ft); May 28 (3 p.m.) 3,240 cfs (19.37 ft); June 2 (12 m.) 3,090 cfs (19.05 ft); Sept. 25 (8 p.m.) 2,100 cfs (16.33 ft).

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *36 | 45 | 42 | 35 | 76 | 151 | 73 | 70 | 97 | 335 | 62 | 43 |
| 2 | 34 | 44 | 40 | 33 | 72 | 144 | 74 | 74 | 94 | 295 | 62 | 43 |
| 3 | 32 | 42 | 42 | 34 | 69 | *134 | 74 | *5,010 | 94 | 259 | 60 | 43 |
| 4 | 32 | 42 | 41 | 38 | 65 | 120 | 72 | *4,430 | 91 | 241 | 58 | 44 |
| 5 | 31 | 43 | 41 | 392 | 63 | 123 | 72 | *1,390 | 91 | 214 | 58 | 45 |
| 6 | 30 | 43 | 42 | 706 | 62 | 123 | 67 | 678 | 88 | 193 | 55 | 109 |
| 7 | 29 | 45 | 43 | 306 | 59 | 120 | *66 | 517 | 82 | 471 | 55 | 324 |
| 8 | 30 | 45 | 38 | 85 | 56 | 120 | 68 | 435 | 79 | 923 | 56 | 375 |
| 9 | 36 | 43 | 37 | 68 | 55 | 113 | 85 | 345 | 76 | 401 | 58 | 305 |
| 10 | 52 | 44 | 40 | 60 | 58 | 116 | 78 | 277 | 75 | 218 | 57 | 193 |
| 11 | 32 | 69 | 40 | 56 | 59 | 110 | 77 | 250 | 77 | 210 | 55 | 97 |
| 12 | 34 | 227 | 39 | 294 | 61 | 106 | 72 | 223 | 85 | 181 | 57 | 59 |
| 13 | 36 | 241 | 39 | 358 | 63 | 116 | 72 | 205 | 82 | 169 | 57 | 85 |
| 14 | 38 | 109 | 41 | 97 | 63 | 113 | 88 | 232 | 73 | 154 | 58 | 63 |
| 15 | 42 | 48 | 40 | 88 | 58 | 116 | 77 | *205 | 73 | 134 | 57 | 58 |
| 16 | 42 | 46 | *40 | 76 | 55 | 110 | 79 | 177 | 71 | 116 | 56 | 70 |
| 17 | 40 | 43 | 42 | 68 | 53 | 106 | 79 | 165 | 72 | 106 | 52 | 143 |
| 18 | 38 | *42 | 42 | 63 | 54 | 110 | 82 | 162 | 76 | 100 | 51 | 375 |
| 19 | 36 | 42 | 42 | 60 | 52 | 116 | 78 | 158 | 78 | 97 | 51 | 395 |
| 20 | 35 | 41 | 41 | 59 | 100 | 106 | 73 | 144 | 77 | 91 | 50 | 1,200 |
| 21 | 38 | 43 | 40 | 61 | 1,600 | 100 | 69 | 137 | 75 | 88 | 48 | 4,320 |
| 22 | 1,030 | 79 | 41 | 58 | 2,280 | 97 | 69 | 130 | 125 | *85 | *48 | 1,550 |
| 23 | 1,040 | 72 | 41 | 328 | 1,300 | 94 | 67 | 126 | 214 | 82 | 48 | 1,390 |
| 24 | 223 | 126 | 42 | 968 | 574 | 91 | 66 | 120 | 588 | 82 | 47 | 1,920 |
| 25 | 91 | 106 | 48 | 517 | 385 | 88 | 64 | 116 | 846 | 79 | 52 | 1,090 |
| 26 | 67 | 69 | 52 | 244 | 315 | 91 | 65 | 113 | 721 | 82 | 49 | 894 |
| 27 | 55 | 55 | 218 | *106 | 205 | 88 | 66 | 110 | *637 | 74 | 48 | 846 |
| 28 | 50 | 51 | 265 | 97 | 154 | 82 | 66 | 106 | 517 | 70 | 46 | 721 |
| 29 | 47 | 45 | *8 | 88 | - | 82 | 68 | 103 | 435 | 71 | 46 | 624 |
| 30 | 46 | 44 | 36 | 82 | ------- | 82 | 69 | 100 | 375 | 69 | 45 | 539 |
| 31 | 45 | ------- | 36 | 77 | ------- | 77 | ------- | 97 | ------- | 66 | 43 | ------- |
| Total | 3,447 | 2,034 | 1,689 | 5,602 | 8,066 | 3,345 | 2,175 | 16,405 | 6,164 | 5,756 | 1,645 | 17,963 |
| Mean | 111 | 67.8 | 53.8 | 181 | 288 | 108 | 72.5 | 529 | 205 | 186 | 53.1 | 599 |
| Ac-ft | 6,840 | 4,030 | 3,310 | 11,110 | 16,000 | 6,630 | 4,310 | 32,540 | 12,230 | 11,420 | 3,260 | 35,630 |

Calendar year 1957: Max 3,710 Min 3.3 Mean 135 Ac-ft 97,650
Water year 1957-58: Max 5,010 Min 29 Mean 203 Ac-ft 147,300

Peak discharge (base, 1,500 cfs).--Oct. 22 (11:30 p.m.) 2,250 cfs (16.80 ft); Feb. 22 (8 a.m.) 2,470 cfs (17.47 ft); May 3 (1 p.m.) 9,220 cfs (27.79 ft); Sept. 21 (3:30 a.m.) 6,000 cfs (24.00 ft); Sept. 24 (10 a.m.) 2,250 cfs (16.75 ft).

* Discharge measurement made on this day.

## 1825. Calaveras Creek near Elmendorf, Tex.

Location.--Lat 29°15'30", long 98°17'30", near center of span on downstream side of bridge on U. S. Highway 181 from San Antonio to Floresville, 2.5 miles east of Elmendorf, Bexar County, 5 miles upstream from mouth, and 10 miles southeast from city limits of San Antonio.

Drainage area.--77.2 sq mi, of which 37.08 sq mi is above 9 flood-detention structures.

Records available.--August 1954 to September 1958.

Gage.--Water-stage recorder with concrete control. Datum of gage is 406.45 ft above mean sea level, datum of 1929, supplementary adjustment of 1943.

Extremes.--Maximum discharge during year, 2,010 cfs Feb. 21 (gage height, 14.74 ft); maximum gage height, 15.67 ft May 3 (backwater from vegetation); no flow most of time.
1954-58: Maximum discharge, 5,310 cfs Sept. 25, 1957; no flow most of time.
Maximum stage known since at least 1860, about 35 ft Sept. 29, 1946, from information by local residents.

Remarks.--Records fair. Station operated as part of the Calaveras Creek hydrologic program to evaluate rainfall-runoff relation, soil conservation practices, and the effects of flood-detention structures. At the end of the year, the flow from 37.08 sq mi above this station was partly controlled by 9 floodwater-detention reservoirs with a total combined capacity of 13,250 acre-ft below the flood spillway crests, of which 11,330 acre-ft is floodwater-detention capacity and 1,920 acre-ft is sediment-storage capacity. Two of these reservoirs were constructed during current year and have a capacity below flood spillway crest of 3,680 acre-ft, of which 395 acre-ft is sediment-pool capacity. The capacity in these reservoirs allocated to sediment-storage will be used for conservation storage until eliminated by sedimentation.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 3-9, June 22, 23, July 7, 8, Sept. 8, 15, 19-22)

| | | | |
|---|---|---|---|
| 4.6 | 0.1 | 6.5 | 66 |
| 4.7 | .7 | 7.0 | 108 |
| 4.8 | 1.5 | 8.0 | 223 |
| 5.0 | 4.0 | 9.0 | 383 |
| 5.2 | 7.6 | 10.0 | 580 |
| 5.5 | 15 | 13.0 | 1,400 |
| 6.0 | 36 | 17.0 | 2,950 |

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 132 | a1.5 | 2.1 | 0.4 | 3.2 | 88 | *1.5 | 0 | 0.3 | 0 | 3.1 | 0 |
| 2 | 125 | a1.5 | 1.9 | .4 | 4.0 | 76 | 1.5 | 0 | .3 | 0 | 2.8 | 0 |
| 3 | 109 | a1.5 | 1.9 | .4 | 2.5 | 60 | 1.5 | *940 | .2 | .8 | 2.5 | 0 |
| 4 | 95 | a1 | 1.6 | .8 | 2.1 | 38 | 1.4 | *393 | .3 | .9 | 2.1 | 0 |
| 5 | 81 | a1 | 1.4 | 159 | 2.0 | 27 | 1.2 | 226 | .3 | .1 | 1.4 | 0 |
| 6 | 68 | a1 | 1.2 | 116 | 1.8 | 22 | 1.0 | *152 | .3 | 0 | .9 | *0 |
| 7 | 51 | a.5 | 1.2 | 36 | 1.5 | 14 | .8 | 88 | .3 | 144 | 0 | .1 |
| 8 | 31 | a.5 | 1.0 | 22 | 1.3 | 9.4 | .7 | 69 | .4 | 145 | 0 | 32 |
| 9 | 21 | a.5 | .9 | 7.8 | 1.4 | *6.8 | .7 | 54 | .4 | 22 | 0 | 6.0 |
| 10 | 8.7 | a.5 | .8 | 4.3 | 12 | 6.0 | .5 | 31 | .3 | 13 | 0 | 0 |
| 11 | *3.9 | 3.0 | .5 | 3.1 | 3.1 | 5.4 | .5 | 22 | .3 | 5.6 | 0 | 0 |
| 12 | 2.6 | 4.7 | .5 | 714 | 2.7 | 5.4 | .5 | *12 | .3 | 2.6 | 0 | 0 |
| 13 | 2.0 | a3 | .5 | 162 | 2.0 | 4.7 | .5 | 6.2 | .2 | a2 | 0 | 0 |
| 14 | 2.0 | a2 | .5 | 67 | 1.8 | 4.4 | 1.9 | 6.6 | .2 | a1 | 0 | 0 |
| 15 | 2.8 | *.6 | .6 | 38 | 3.2 | 4.0 | 2.1 | 6.9 | .2 | a.7 | 0 | 111 |
| 16 | 2.7 | .5 | *.6 | 21 | 1.5 | 3.9 | 1.6 | 11 | .2 | a.4 | 0 | 6.6 |
| 17 | 1.1 | .4 | .5 | 11 | 1.5 | 3.6 | 1.1 | 4.7 | .3 | a.2 | 0 | 3.2 |
| 18 | .8 | .4 | .5 | 6.4 | 1.0 | 3.5 | .8 | 3.3 | .3 | *0 | 0 | 2.5 |
| 19 | .6 | .3 | .6 | 4.7 | 1.0 | 3.9 | .6 | 2.8 | .4 | 0 | 0 | 33 |
| 20 | .5 | .3 | .5 | 4.1 | 16 | 4.0 | .4 | 2.5 | .4 | 0 | 0 | 4.4 |
| 21 | .8 | .5 | .5 | 3.7 | 1,710 | 3.1 | .3 | 2.0 | .4 | 0 | *0 | .7 |
| 22 | 502 | 117 | .5 | 3.5 | 1,290 | 3.1 | .2 | 1.5 | 28 | 4.2 | 0 | .1 |
| 23 | 108 | 51 | .5 | 55 | 289 | 3.0 | .1 | 1.4 | 38 | 4.9 | 0 | *0 |
| 24 | 76 | 224 | .5 | 102 | 164 | 2.7 | .1 | 1.2 | 4.0 | 4.7 | 0 | 0 |
| 25 | 48 | 57 | .9 | 29 | 146 | 2.6 | 0 | 1.0 | 1.0 | 4.4 | 0 | 0 |
| 26 | 29 | 27 | 1.0 | 16 | 128 | 2.5 | 0 | 1.0 | .4 | 4.1 | 0 | .8 |
| 27 | 14 | 11 | .8 | 8.9 | 105 | 2.3 | 0 | .8 | *.2 | 4.0 | 0 | .8 |
| 28 | 7.2 | 6.0 | .6 | 6.0 | 94 | 2.3 | 0 | .7 | 0 | 3.7 | 0 | 0 |
| 29 | a4 | 3.9 | .6 | 4.6 | - | 2.2 | 0 | .6 | 0 | 3.5 | 0 | 0 |
| 30 | a2 | 2.7 | .5 | 3.9 | ------- | 1.4 | 0 | .5 | 0 | 3.3 | 0 | 0 |
| 31 | a2 | ------- | .4 | *3.2 | ------- | 2.2 | ------- | .4 | ------- | 3.2 | 0 | ------- |
| Total | 1,533.7 | 524.8 | 26.1 | 1,614.2 | 3,991.6 | 417.4 | 21.5 | 2,042.1 | 77.9 | 378.3 | 12.8 | 201.2 |
| Mean | 49.5 | 17.5 | 0.84 | 52.1 | 143 | 13.5 | 0.72 | 65.9 | 2.60 | 12.2 | 0.41 | 6.71 |
| Ac-ft | 3,040 | 1,040 | 52 | 3,200 | 7,920 | 828 | 43 | 4,050 | 155 | 750 | 25 | 399 |

**Calendar year** 1957: **Max** 2,740 **Min** 0 **Mean** 44.0 **Ac-ft** 31,850
**Water year** 1957-58: **Max** 1,710 **Min** 0 **Mean** 29.7 **Ac-ft** 21,500

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of weather records and engineer's notes.

## 1835. 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 State 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 1958.

Gage.--Water-stage recorder. Datum of gage is 285.49 ft above mean sea level, datum of 1929.

Average discharge.--33 years, 300 cfs (217,200 acre-ft per year).

Extremes.--Maximum discharge during year, 7,320 cfs Feb. 23 (gage height, 11.13 ft); minimum, 108 cfs Sept. 3.
1925-58: Maximum discharge, 47,400 cfs Sept. 29, 1946 (gage height, 33.80 ft, from floodmark); minimum, 15 cfs June 27, 28, 1956.
Maximum stage known since at least 1875, that of Sept. 29, 1946. Flood in October 1913 reached a stage of 28.4 ft, from floodmark, from information by local residents.

Remarks.--Records good. Flow slightly regulated by Medina Lake (see p. 259) 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. Flow also slightly regulated by Soil Conservation Service floodwater detention reservoirs (see Remarks for Calaveras Creek near Elmendorf). Water diverted above station from Medina River for irrigation in vicinity of Devine and Lytle and some water diverted for irrigation near San Antonio. The city of San Antonio discharged an average of 77 cfs of sewage effluent into the San Antonio River about 8 miles below the Station San Antonio River at San Antonio. See Medina River near San Antonio for additional information relative to sewage effluent.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.0 | 93 | 4.0 | 2,130 |
| 1.5 | 302 | 7.0 | 4,450 |
| 2.0 | 570 | 11.0 | 7,520 |
| 3.0 | 1,280 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 466 | 243 | 204 | 204 | 293 | 682 | 261 | 243 | 247 | 588 | 166 | 126 |
| 2 | 422 | 234 | 199 | 195 | 284 | 612 | 270 | 243 | 243 | 534 | 162 | 119 |
| 3 | 380 | 225 | *199 | 178 | 270 | 576 | 265 | 1,480 | 234 | 482 | 158 | 112 |
| 4 | 355 | 221 | 204 | 174 | 256 | 516 | 256 | 2,190 | 234 | 422 | 158 | 119 |
| 5 | 331 | *199 | 204 | 450 | 256 | 472 | 247 | *3,590 | 234 | 390 | 154 | 123 |
| 6 | 302 | 195 | 212 | 989 | 256 | 433 | 247 | *5,760 | 221 | 375 | 170 | 138 |
| 7 | 279 | 204 | 221 | 1,660 | 234 | 422 | 256 | 3,810 | 216 | 370 | 158 | 154 |
| 8 | 252 | 199 | 216 | 1,600 | 230 | 395 | 243 | 1,670 | 221 | 529 | 146 | 384 |
| 9 | 234 | 199 | 199 | 707 | 243 | 365 | 230 | 960 | 216 | 1,510 | 142 | 960 |
| 10 | 221 | 199 | 183 | 370 | 261 | 360 | 252 | 795 | 199 | *1,790 | 142 | *938 |
| 11 | *265 | 243 | 178 | 302 | 279 | 340 | 297 | 662 | 204 | 851 | 146 | 612 |
| 12 | 243 | 455 | 187 | 1,920 | 288 | 340 | 261 | 582 | 199 | 488 | *158 | 375 |
| 13 | 204 | 564 | 195 | 1,910 | 288 | 331 | 247 | 516 | 178 | 422 | 158 | 284 |
| 14 | 191 | 656 | 199 | *2,170 | 312 | 321 | 307 | 482 | 178 | 370 | 216 | 390 |
| 15 | 208 | 482 | 199 | 1,420 | 274 | 326 | 307 | 504 | 199 | 345 | 170 | 297 |
| 16 | 212 | 302 | 199 | 522 | 252 | 331 | 422 | 788 | 166 | 316 | 150 | 265 |
| 17 | 238 | 256 | 204 | 385 | 230 | 326 | 302 | 477 | 183 | 293 | 154 | 284 |
| 18 | 243 | 225 | 204 | 326 | 221 | 321 | 265 | 411 | 191 | 279 | 146 | 355 |
| 19 | 195 | 216 | 195 | 293 | 230 | *321 | 265 | 406 | 183 | 265 | 138 | 682 |
| 20 | 183 | 208 | 191 | 279 | 238 | 370 | 297 | 499 | 178 | 256 | 138 | 682 |
| 21 | 166 | 204 | 195 | 270 | 2,020 | 365 | 261 | 438 | 216 | 247 | 162 | 824 |
| 22 | 170 | 490 | 195 | 265 | 4,680 | 331 | *256 | 360 | 261 | 243 | 146 | 1,840 |
| 23 | 838 | 365 | 204 | 534 | 7,040 | 326 | 252 | 345 | 354 | 234 | 134 | 2,820 |
| 24 | 2,490 | 728 | 204 | 1,010 | 6,300 | 312 | 252 | 326 | 1,120 | 230 | 123 | 3,040 |
| 25 | 2,830 | 714 | 208 | 1,520 | *3,510 | 302 | 243 | 302 | 915 | 225 | 130 | 2,200 |
| 26 | 1,170 | 851 | 216 | 1,670 | 1,600 | 293 | 234 | *302 | 886 | 221 | 146 | 1,820 |
| 27 | 450 | 477 | 256 | 970 | 1,010 | 293 | 234 | 321 | 1,010 | 216 | 154 | 1,480 |
| 28 | 345 | 336 | 261 | 510 | 851 | 297 | 238 | 312 | 908 | 199 | 138 | 1,440 |
| 29 | 297 | 265 | 433 | 360 | - | 284 | 238 | 288 | 809 | 187 | 134 | 1,440 |
| 30 | 270 | 225 | 428 | 336 | ------- | 265 | 243 | 261 | 669 | 174 | 126 | 1,120 |
| 31 | 256 | ------- | 230 | 312 | ------- | 252 | ------- | 247 | ------- | 170 | 126 | ------- |
| Total | 14,706 | 10,380 | 6,822 | 23,811 | 32,206 | 11,480 | 7,948 | 29,570 | 11,272 | 13,221 | 4,649 | 25,423 |
| Mean | 474 | 346 | 220 | 768 | 1,150 | 370 | 265 | 954 | 376 | 426 | 150 | 847 |
| Ac-ft | 29,170 | 20,590 | 13,530 | 47,230 | 63,880 | 22,770 | 15,760 | 58,650 | 22,360 | 26,220 | 9,220 | 50,430 |

Calendar year 1957: Max 6,560 Min 48 Mean 509 Ac-ft 368,100
Water year 1957-58: Max 7,040 Min 112 Mean 525 Ac-ft 379,800

Peak discharge (base, 1,800 cfs).--Oct. 25 (6 a.m.) 3,140 cfs (5.15 ft); Jan. 7 (11 p.m.) 1,900 cfs (3.75 ft); Jan. 12 (1 p.m.) 3,060 cfs (5.14 ft); Jan. 14 (4 p.m.) 2,310 cfs (4.18 ft); Jan. 25 (12 p.m.) 1,860 cfs (3.68 ft); Feb. 23 (6 p.m.) 7,320 cfs (11.13 ft); May 6 (12 m.) 6,060 cfs (9.31 ft); July 10 (6 a.m.) 1,950 cfs (3.80 ft); Sept. 24 (5 a.m.) 3,220 cfs (5.27 ft).

* Discharge measurement made on this day.

## 1840. Cibolo Creek near Bulverde, Tex.

Location.--Lat 29°43'35", long 98°25'40", on left bank at William Classen ranchhouse, 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 1958.

Gage.--Water-stage recorder. Altitude of gage is 1,013 ft (by barometer).

Average discharge.--12 years, 9.79 cfs (7,090 acre-ft per year).

Extremes.--Maximum discharge during year, 21,100 cfs May 2 (gage height, 22.5 ft, from floodmarks), from rating curve extended above 4,400 cfs on basis of slope-area measurement at gage height 15.16 ft; no flow most of year.
1946-58: Maximum discharge, that of May 2, 1958; no flow most of time.
Maximum stage since at least 1868 occurred about 1889 (stage unknown); the second and third highest stages occurred in 1913 and 1937 or 1938, respectively (stages unknown); the fourth highest stage, about 25 ft, occurred in 1943; from information by local residents.

Remarks.--Records good except those for periods of no gage-height record, which are poor. The purpose of the station is to determine the streamflow losses during periods of medium and low flow. Small diversion above station. Much of the flow enters sinkholes and caverns in the Glen Rose limestone above station.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to May 8 | | | | May 9 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.9 | 0 | 3.0 | 74 | 1.4 | 0 | 2.2 | 14 |
| 2.0 | .3 | 3.5 | 159 | 1.5 | .2 | 2.5 | 27 |
| 2.1 | 1.1 | 4.0 | 275 | 1.6 | .5 | 2.8 | 53 |
| 2.2 | 3.9 | 4.5 | 455 | 1.7 | 1.0 | 3.2 | 108 |
| 2.3 | 8.0 | 5.0 | 700 | 1.8 | 2.4 | 3.6 | 178 |
| 2.4 | 13 | 6.0 | 1,480 | 2.0 | 7.2 | 4.0 | 275 |
| 2.6 | 26 | 9.0 | 4,600 | | | | |
| 2.8 | 46 | | | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 1.0 | 0 | 19 | 90 | 0.1 | 0 | | | | 0 |
| 2 | 0 | 0 | .2 | 0 | 13 | 75 | 0 | 3,610 | | | | 0 |
| 3 | 0 | 0 | 0 | 0 | 9.6 | 65 | 0 | 4,070 | | | | 0 |
| 4 | 0 | 0 | 0 | 0 | 7.2 | *60 | 0 | 487 | (*) | | | .0 |
| 5 | 0 | *0 | 0 | 0 | 5.5 | 59 | 9 | 251 | | | | 0 |
| 6 | 0 | 0 | 0 | 134 | 3.6 | 70 | 0 | 188 | | | | 0 |
| 7 | 0 | 0 | 0 | 104 | .9 | 293 | *0 | 150 | | | | 0 |
| 8 | *0 | 0 | 0 | *76 | .2 | 135 | 0 | 122 | | | | 0 |
| 9 | 0 | 0 | 0 | 62 | 0 | 87 | 0 | *105 | | (*) | | 0 |
| 10 | 0 | 0 | 0 | 52 | 0 | 72 | 0 | 89 | | | | 0 |
| 11 | 0 | 53 | 0 | 45 | 0 | 60 | 0 | 72 | | | (*) | 0 |
| 12 | 0 | 150 | 0 | 51 | 0 | 54 | 0 | 57 | | | | 0 |
| 13 | 0 | 110 | 0 | 72 | 0 | 64 | 0 | 43 | | | | 0 |
| 14 | 0 | 76 | 0 | 37 | 0 | 45 | 0 | 35 | | | | 0 |
| 15 | 0 | 55 | 0 | 30 | 0 | 36 | 0 | 32 | | | | 0 |
| 16 | 0 | 38 | 0 | 23 | 0 | 30 | 0 | 31 | | | | 0 |
| 17 | 0 | 28 | *0 | *20 | 0 | 26 | 0 | 20 | | | | 0 |
| 18 | 0 | 20 | 0 | 18 | 0 | 24 | 0 | 14 | | | | 0 |
| 19 | 0 | 12 | 0 | 16 | 0 | 37 | 0 | 6.9 | | | | 0 |
| 20 | 0 | 8.5 | 0 | 17 | 0 | 27 | 0 | 2.8 | | | | 230 |
| 21 | 0 | 7.2 | 0 | 17 | 20 | 18 | 0 | 1.4 | | | | 150 |
| 22 | 1,340 | 11 | 0 | 12 | 40 | 12 | 0 | .8 | | | | 1 |
| 23 | *155 | 21 | 0 | 14 | 500 | 13 | 0 | .4 | | | | *1.2 |
| 24 | 60 | 71 | 0 | 197 | 350 | 27 | 0 | .2 | | | | 5.3 |
| 25 | 26 | 49 | 0 | 104 | 250 | 10 | 0 | 0 | | | | 0 |
| 26 | 12 | 32 | 0 | 77 | 190 | 6.8 | 0 | 0 | | | | 18 |
| 27 | 5.1 | 24 | 0 | 59 | 140 | 5.6 | 0 | 0 | | | | 40 |
| 28 | .8 | 17 | 0 | 50 | 110 | *2.8 | 0 | 0 | | | | .3 |
| 29 | 0 | 9.6 | 0 | 40 | - | 1.0 | 0 | 0 | | | | 0 |
| 30 | 0 | 5.1 | 0 | *31 | ------- | .7 | 0 | 0 | | | | 0 |
| 31 | 0 | ------- | 0 | 26 | ------- | .3 | ------- | 0 | ------- | | | ------- |
| Total | 1,598.9 | 797.4 | 1.2 | 1,384 | 1,659.0 | 1,506.2 | 0.1 | 9,388.5 | 0 | 0 | 0 | 445.8 |
| Mean | 51.6 | 26.6 | 0.04 | 44.6 | 59.2 | 48.6 | 0.003 | 303 | 0 | 0 | 0 | 14.9 |
| Ac-ft | 3,170 | 1,580 | 2.4 | 2,750 | 3,290 | 2,990 | 0.2 | 18,620 | 0 | 0 | 0 | 884 |

Calendar year 1957: Max 4,500 Min 0 Mean 52.0 Ac-ft 37,610
Water year 1957-58: Max 4,070 Min 0 Mean 46.0 Ac-ft 33,290

Peak discharge (base, 500 cfs).--Oct. 22 (12 m.) 3,170 cfs (7.73 ft); Feb. 23 (time unknown) 620 cfs (4.85 ft); Mar. 7 (1 p.m.) 844 cfs (5.22 ft); May 2 (11 p.m.) 21,100 cfs (22.5 ft); Sept. 20 (time unknown) 1,800 cfs (6.37 ft).

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

Note.--No gage-height record Feb. 17 to Mar. 4, Aug. 12 to Sept. 22; discharge estimated on basis of recorded range in stage, 1 discharge measurement, weather records, and records for station at Selma.

## 1850. 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 Co. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 728.34 ft above mean sea level, datum of 1929.

Average discharge.--12 years, 11.3 cfs (8,180 acre-ft per year).

Extremes.--Maximum discharge during year, 49,200 cfs May 3 (gage height, 21.7 ft, from floodmark), from rating curve extended above 7,000 cfs on basis of slope-area measurement at gage height 19.37 ft; no flow most of time.
1946-58: Maximum discharge, that of May 3, 1958; no flow most of time.
Maximum stage known since at least 1869, about 26 ft in 1889; flood in 1913 was probably about 1 ft (revised) lower, from information by local residents.

Remarks.--Records fair. Small diversion above station. Much of flow enters the Edwards limestone in the Balcones fault zone which crosses the basin between this station and station near Bulverde.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 3, 4, Sept. 20, 21)

| | | | | | |
|---|---|---|---|---|---|
| 2.52 | 0 | 3.1 | 14 | 5.0 | 575 |
| 2.6 | .6 | 3.3 | 30 | 6.0 | 1,400 |
| 2.7 | 1.5 | 3.5 | 51 | 8.0 | 3,540 |
| 2.8 | 2.7 | 3.7 | 80 | 10.0 | 6,300 |
| 2.9 | 4.7 | 4.0 | 147 | 12.0 | 10,300 |
| 3.0 | 8.2 | 4.5 | 310 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | | | 0 | 0 | 61 | | 0 | | | | 0 |
| 2 | 0 | | | 0 | 0 | 50 | | 0 | | | | 0 |
| 3 | 0 | | | 0 | 0 | 43 | | *9,320 | | | | 0 |
| 4 | 0 | | | 0 | 0 | *30 | | 708 | (*) | | | 0 |
| 5 | 0 | (*) | | 0 | 0 | 22 | | 348 | | | | 0 |
| 6 | 0 | | | 0 | 0 | 13 | | 244 | | | | 0 |
| 7 | 0 | | | 0 | 0 | 26 | | 189 | | | | 0 |
| 8 | *0 | | | *0 | 0 | 205 | | 144 | | | | 0 |
| 9 | 0 | | | 0 | 0 | 54 | | *113 | | (*) | | 0 |
| 10 | 0 | (*) | | 0 | 0 | 29 | | 90 | | | | 0 |
| 11 | 0 | | | 0 | 0 | 16 | | 70 | | | (*) | 0 |
| 12 | 0 | | | 0 | 0 | 8.6 | | 52 | | | | 0 |
| 13 | 0 | | | 0 | 0 | 3.7 | | 39 | | | | 0 |
| 14 | 0 | | | 0 | 0 | 5.4 | | 24 | | | | 0 |
| 15 | 0 | | | 0 | 0 | .8 | | 14 | | | | 0 |
| 16 | 0 | | | 0 | 0 | 0 | | 7.0 | | | | 0 |
| 17 | 0 | | (*) | 0 | 0 | 0 | | 3.2 | | | | 0 |
| 18 | 0 | | | 0 | 0 | 0 | | 2.0 | | | | 0 |
| 19 | 0 | | | 0 | 0 | *0 | | 1.9 | | | | 0 |
| 20 | 0 | | | 0 | 0 | 0 | | 1.4 | | | | 404 |
| 21 | 0 | | | 0 | 18 | 0 | | 1.1 | | | | 175 |
| 22 | 745 | | | 0 | 27 | 0 | | 1.0 | | | | 27 |
| 23 | *517 | | | 0 | 392 | 0 | | .8 | | | | *0 |
| 24 | 112 | | | 0 | 291 | *0 | | .6 | | | | 0 |
| 25 | 44 | | | 16 | 204 | 0 | | .3 | | | | 0 |
| 26 | 13 | | | 24 | 158 | 0 | | 0 | | | | 0 |
| 27 | 2.0 | | | 8.4 | 124 | 0 | | 0 | | | | 0 |
| 28 | 0 | | | .3 | 86 | 0 | | 0 | | | | 0 |
| 29 | 0 | | | 0 | - | 0 | | 0 | | | | 0 |
| 30 | 0 | | | 0 | ------- | 0 | | 0 | | | | 0 |
| 31 | 0 | ------- | | 0 | ------- | 0 | ------- | 0 | ------- | | | ------- |
| Total | 1,433.0 | 0 | 0 | 48.7 | 1,300 | 567.5 | 0 | 11,374.3 | 0 | 0 | 0 | 606 |
| Mean | 46.2 | 0 | 0 | 1.57 | 46.4 | 18.3 | 0 | 367 | 0 | 0 | 0 | 20.2 |
| Ac-ft | 2,840 | 0 | 0 | 97 | 2,580 | 1,130 | 0 | 22,560 | 0 | 0 | 0 | 1,200 |

Calendar year 1957: Max 5,120 Min 0 Mean 59.6 Ac-ft 43,170
Water year 1957-58: Max 9,320 Min 0 Mean 42.0 Ac-ft 30,410

Peak discharge (base, 1,000 cfs).--Oct. 22 (7:30 p.m.) 2,250 cfs (6.86 ft); May 3 (2 a.m.) 49,200 cfs (21.7 ft); Sept. 20 (7 a.m.) 3,180 cfs (7.86 ft).

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

## 1860. Cibolo Creek near Falls City, Tex.

Location.--Lat 29°01', long 97°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 1958.
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 to Sept. 13, 1940, wire-weight gage at present site and datum.
Average discharge.--27 years (1931-58), 115 cfs (83,260 acre-ft per year).
Extremes.--Maximum discharge during year, 12,800 cfs Feb. 22 (gage height, 24.47 ft); minimum, 11 cfs Sept. 3, 4, 5 (gage height, 0.88 ft).
1930-58: Maximum discharge, 33,600 cfs July 6, 1942 (gage height, 34.45 ft); no flow July 30, 31, Aug. 4-22, 1956.
Flood in October 1913 reached a stage about half a foot higher than that of July 6, 1942.
Revisions.--Figures of maximum discharge for the water years 1931 and 1933 have been revised to 7,020 cfs July 19, 1931 (gage height, 19.15 ft), and 9,550 cfs July 30, 1933 (gage height, 21.5 ft), superseding those published in WSP 733 and 748, respectively.
Remarks.--Records good except those for period of backwater from sand on control and aquatic vegetation, which are fair. Diversions for irrigation above station. Much of the flow of the creek enters sinkholes and caverns in the Glen Rose limestone and in the Edwards limestone in the Balcones fault zone which crosses the basin above station at Selma.
Revisions (water years).--WSP 733: 1931. WSP 1058: 1935. Revised figures of discharge, in cubic feet per second, for high-water period in the water year 1933, superseding those published in WSP 748, are given herewith:

July 30, 1933..... 5,370

| | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| July 1933..... | 5,370 | - | 276 | 17,000 |
| Water year 1932-33..... | 5,370 | - | 53.6 | 38,800 |
| Calendar year 1933..... | 5,370 | - | 53.8 | 39,000 |

*Rating table, water year 1957-58, except period of backwater from sand on control and aquatic vegetation (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Apr. 20 to May 3)*

| | | | |
|---|---|---|---|
| 0.8 | 9.8 | 5.0 | 540 |
| 1.0 | 22 | 9.0 | 1,470 |
| 1.5 | 59 | 15.0 | 3,450 |
| 2.0 | 103 | 19.0 | 6,000 |
| 3.0 | 218 | 24.0 | 12,000 |

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 61 | 43 | 37 | 37 | 34 | 131 | 36 | 34 | 46 | 31 | 19 | 12 |
| 2 | 53 | 41 | *35 | 35 | 32 | 96 | 36 | 34 | 45 | 30 | 18 | 12 |
| 3 | 47 | 38 | 34 | 34 | 30 | 80 | 36 | 1,990 | 43 | 30 | 18 | 11 |
| 4 | 43 | *37 | 32 | 34 | 30 | 70 | 36 | *7,060 | 43 | 42 | 17 | 12 |
| 5 | 41 | 35 | 31 | 168 | 30 | 62 | 35 | 3,080 | 42 | 34 | 17 | 12 |
| 6 | 39 | 34 | 32 | 924 | 33 | 58 | 34 | 624 | 41 | 30 | 16 | 19 |
| 7 | 37 | 34 | 32 | 551 | 33 | 56 | 33 | 387 | 41 | 33 | 15 | 28 |
| 8 | 34 | 32 | 31 | 142 | 32 | 54 | 32 | 302 | 40 | 72 | 15 | 27 |
| 9 | 34 | 32 | 30 | 80 | 32 | 53 | 31 | 253 | 40 | 116 | 15 | *27 |
| 10 | *35 | 32 | 30 | 58 | 43 | 137 | 30 | 218 | 40 | 54 | 15 | 29 |
| 11 | 34 | 149 | 29 | 49 | *49 | 69 | 30 | 187 | 39 | *40 | 16 | 25 |
| 12 | 33 | 418 | 29 | 2,150 | 46 | 63 | 30 | 163 | 37 | 33 | *15 | 25 |
| 13 | 32 | 74 | 30 | *3,110 | 46 | 58 | 30 | 138 | 37 | 33 | 15 | 29 |
| 14 | 34 | 64 | 29 | 568 | 39 | 55 | 71 | 128 | 36 | 30 | 15 | 24 |
| 15 | 142 | 57 | 29 | 146 | 38 | 54 | 162 | 121 | 35 | 28 | 15 | 23 |
| 16 | 173 | 46 | 30 | 90 | 37 | 55 | 98 | 123 | 35 | 27 | 15 | 21 |
| 17 | 96 | 40 | 30 | 69 | 37 | 56 | 61 | 101 | 35 | 26 | 15 | 22 |
| 18 | 69 | 38 | 32 | 57 | 37 | 57 | 52 | 89 | 35 | 25 | 15 | 21 |
| 19 | 49 | 35 | 32 | 51 | 37 | 57 | 43 | 88 | 35 | 25 | 15 | 22 |
| 20 | 38 | 32 | 32 | 50 | 43 | *57 | 40 | 180 | 34 | 24 | 14 | 22 |
| 21 | 33 | 32 | 31 | 46 | 3,000 | 58 | 37 | 124 | 34 | 25 | 13 | 30 |
| 22 | 34 | 567 | 32 | 44 | 11,000 | 55 | *36 | 85 | 65 | 25 | 13 | 1,420 |
| 23 | 2,310 | 345 | 33 | 422 | 7,040 | 52 | 34 | 69 | 58 | 24 | 14 | 677 |
| 24 | 1,000 | 774 | 32 | 755 | 1,390 | 48 | 33 | 65 | 41 | 23 | 14 | 134 |
| 25 | 285 | 797 | 34 | 568 | 623 | *44 | 32 | 61 | 40 | 22 | 14 | 75 |
| 26 | 157 | 202 | 36 | 144 | 338 | 43 | 32 | *60 | 39 | 21 | 13 | 60 |
| 27 | 109 | 94 | 40 | 80 | 246 | 41 | 33 | 58 | 34 | 21 | 13 | 40 |
| 28 | 80 | 63 | 43 | 57 | 175 | 40 | 35 | 53 | 32 | 21 | 13 | 34 |
| 29 | 62 | 49 | 41 | 46 | - | 39 | 35 | 51 | 31 | 21 | 13 | 33 |
| 30 | 53 | 41 | 40 | 41 | ------- | 38 | 34 | 50 | 30 | 20 | 12 | 28 |
| 31 | 47 | ------- | 39 | 38 | ------- | 37 | ------- | 48 | ------- | 19 | 12 | ------- |
| Total | 5,294 | 4,275 | 1,027 | 10,644 | 24,550 | 1,873 | 1,297 | 16,024 | 1,183 | 1,005 | 459 | 2,954 |
| Mean | 171 | 142 | 33.1 | 343 | 877 | 60.4 | 43.2 | 517 | 39.4 | 32.4 | 14.8 | 98.5 |
| Ac-ft | 10,500 | 8,480 | 2,040 | 21,110 | 48,690 | 3,720 | 2,570 | 31,780 | 2,350 | 1,990 | 910 | 5,860 |

Calendar year 1957: Max 10,400 Min 8.9 Mean 272 Ac-ft 196,800
Water year 1957-58: Max 11,000 Min 11 Mean 193 Ac-ft 140,000

Peak discharge (base, 4,400 cfs).--Feb. 22 (10:30 a.m.) 12,800 cfs (24.47 ft); May 4 (5:30 p.m.) 11,000 cfs (23.28 ft).

* Discharge measurement made on this day.
Note.--Backwater from sand deposits on control and aquatic vegetation Feb. 25 to Apr. 15.

## 1875. Escondido Creek at Kenedy, Tex.

Location.--Lat 28°49', long 97°52', near center of span on downstream side of bridge on U. S. Highway 181, in northwest edge of Kenedy, Karnes County, 3½ miles upstream from Dry Escondido Creek and 8½ miles upstream from mouth.

Drainage area.--82.2 sq mi, of which 36.5 sq mi is above flood-detention structures.

Records available.--July 1954 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 246.40 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 3,330 cfs May 3 (gage height, 19.78 ft); no flow most of time.

1954-58: Maximum discharge, 3,370 cfs Aug. 31, 1955 (gage height, 19.82 ft); no flow most of time.

Maximum stage since at least 1887, 22.81 ft (gage datum, at site a quarter of a mile downstream) Aug. 29, 1946, from information by local residents.

Remarks.--Records good. At end of year flow from 36.5 sq mi above this station was partly controlled by 10 floodwater-detention reservoirs with a total combined capacity of 13,870 acre-ft below flood spillway crests, of which 11,340 acre-ft is floodwater-detention capacity and 2,520 acre-ft is sediment-storage capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. Twelve rain gages (10 standard and 2 recording) are in operation in the basin above the station. Station operated as part of the Escondido Creek basin hydrologic cooperative program of the Geological Survey and Soil Conservation Service to evaluate rainfall-runoff relation, soil conservation practices, and to assist the Soil Conservation Service in evaluating the effect of flood-detention structures.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25 | 0 | 1.7 | 4.9 | 6.1 | 28 | 0.1 | 0 | 0.1 | 0.4 | 0 | 1.2 |
| 2 | 19 | 0 | 1.6 | 1.6 | 4.8 | 19 | .1 | 0 | .1 | 2.4 | 0 | 1.2 |
| 3 | 17 | 0 | *2.2 | 1.3 | 4.2 | 14 | .1 | 1,100 | .1 | .3 | 0 | 1.2 |
| 4 | 16 | *0 | 1.9 | 1.2 | 3.9 | 10 | .1 | 230 | 0 | .2 | 0 | 1.2 |
| 5 | 14 | 0 | 1.8 | 387 | 3.1 | 7.3 | 0 | 147 | 0 | .2 | 0 | 1.2 |
| 6 | 12 | 0 | 1.8 | 100 | 2.4 | 6.1 | 0 | 112 | *0 | .2 | 0 | 1.8 |
| 7 | 11 | 0 | 2.0 | 66 | 1.7 | 4.5 | 0 | 76 | 0 | 68 | 0 | 1.2 |
| 8 | 5.5 | 0 | 1.6 | 50 | 1.6 | 4.0 | 0 | 57 | 0 | 37 | 0 | 4.1 |
| 9 | 5.4 | 0 | 1.3 | 33 | 1.7 | 3.1 | 0 | 40 | 0 | 5.9 | 0 | 3.5 |
| 10 | 6.6 | 0 | 1.5 | 20 | 12 | 1.4 | 0 | 30 | 0 | 4.2 | 0 | *2.3 |
| 11 | *2.2 | 164 | 1.4 | 13 | *5.5 | 1.0 | 0 | 22 | 0 | *3.1 | *0 | 2.3 |
| 12 | 1.2 | 138 | 1.9 | 315 | 8.8 | .8 | 0 | 16 | 0 | 1.4 | 0 | 2.3 |
| 13 | .8 | 33 | 2.3 | 85 | 5.2 | .6 | 0 | 10 | 0 | .8 | 1.2 | 2.3 |
| 14 | .4 | 18 | 2.1 | *70 | 3.3 | .4 | 0 | 8.2 | 0 | .6 | 1.2 | 2.3 |
| 15 | .4 | 14 | 2.1 | 50 | 2.2 | .3 | *0 | 7.3 | 0 | .4 | 1.2 | 3.3 |
| 16 | .4 | 12 | 2.0 | 33 | 1.8 | .3 | 0 | 5.4 | 0 | .3 | 1.1 | 4.8 |
| 17 | .2 | 9.5 | 2.0 | 22 | 1.8 | .3 | 0 | 4.0 | 0 | .3 | 1.1 | 2.1 |
| 18 | .1 | 9.3 | 1.8 | 18 | 1.6 | **.2 | 0 | 13 | 0 | .2 | 1.1 | 2.1 |
| 19 | 0 | 6.1 | 1.7 | 14 | 1.6 | .2 | 0 | 81 | 2.0 | .2 | 1.1 | 3.8 |
| 20 | 0 | 3.9 | 1.4 | 11 | 1.8 | .2 | 0 | 11 | 1.2 | .1 | 1.4 | 5.0 |
| 21 | 0 | 2.8 | 1.0 | 8.2 | 211 | .2 | *0 | 6.5 | 1.2 | .1 | 2.6 | 35 |
| 22 | 0 | 60 | .8 | 7.6 | 555 | .2 | 0 | 4.2 | 90 | .1 | 3.7 | 563 |
| 23 | 0 | 54 | 1.5 | 123 | 123 | 4.5 | 0 | 2.5 | 9.3 | 0 | 4.0 | 54 |
| 24 | 0 | 141 | 1.3 | 91 | 101 | .4 | 0 | 1.4 | 3.6 | 0 | 3.7 | 31 |
| 25 | 0 | 39 | 1.4 | 46 | 83 | .3 | 0 | 4.8 | 2.4 | 0 | 1.5 | 24 |
| 26 | 0 | 22 | 1.3 | 29 | 74 | .2 | 0 | 4.3 | 1.5 | 0 | 1.4 | 21 |
| 27 | 0 | 14 | 1.3 | 19 | 52 | .2 | 0 | .5 | 1.0 | 0 | 1.3 | 14 |
| 28 | 0 | 9.1 | 1.2 | 14 | 38 | .1 | 0 | .4 | .6 | 0 | 1.4 | 6.0 |
| 29 | 0 | 4.6 | 1.2 | 10 | - | .1 | 0 | .3 | .5 | 0 | 1.3 | 4.0 |
| 30 | 0 | 2.3 | 1.2 | 7.3 | ------- | .1 | 0 | .2 | .4 | 0 | 1.3 | 3.6 |
| 31 | 0 | ------- | 1.2 | 6.1 | ------- | .1 | ------- | .2 | ------- | 0 | 1.2 | ------- |
| Total | 137.2 | 756.6 | 49.5 | 1,657.2 | 1,312.1 | 108.1 | 0.4 | 1,995.2 | 114.0 | 126.4 | 32.8 | 804.8 |
| Mean | 4.43 | 25.2 | 1.60 | 53.5 | 46.9 | 3.49 | 0.01 | 64.4 | 3.80 | 4.08 | 1.06 | 26.8 |
| Ac-ft | 272 | 1,500 | 98 | 3,290 | 2,600 | 214 | 0.8 | 3,960 | 226 | 251 | 65 | 1,600 |

Calendar year 1957: Max 1,320 Min 0 Mean 21.6 Ac-ft 15,670
Water year 1957-58: Max 1,100 Min 0 Mean 19.4 Ac-ft 14,080

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

1880. Dry Escondido Creek near Kenedy, Tex.

Location.--Lat 28°52', long 97°50', near left bank at downstream side of bridge on State Farm Road 792, 3.5 miles north of Kenedy, Karnes County, 4.0 miles upstream from Escondido Creek, and 4.0 miles southeast of Karnes City.

Drainage area.--9.43 sq mi, of which 8.43 sq mi is above flood-detention reservoir.

Records available.--July 1954 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 276.55 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 155 cfs Sept. 22 (gage height, 7.10 ft); no flow most of time.
1954-58: Maximum discharge, 706 cfs Apr. 21, 1957 (gage height, 10.53 ft); no flow most of time.
Maximum stage since at least 1906, about 16 ft May 18, 1953, from information by local resident.

Remarks.--Records fair. Station operated as part of the hydrologic cooperative program of the Geological Survey and U. S. Soil Conservation Service to evaluate rainfall-runoff relation, soil conservation practices, and the effects of flood-detention structures. At end of year flow from 8.43 sq mi above this station was partly controlled by one flood-detention structure.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.4 | 0 | 1.8 | 0 | 3.3 | 4.0 | | 0 | 0 | | | 0 |
| 2 | 1.8 | 0 | *1.0 | 0 | 3.1 | 4.0 | | 0 | 0 | | | 0 |
| 3 | 1.8 | 0 | 1.6 | 0 | 3.0 | 4.0 | | 20 | 0 | | | *0 |
| 4 | .7 | *0 | 1.4 | 0 | 2.5 | 4.0 | | *20 | 0 | | | 0 |
| 5 | 0 | 0 | 1.2 | 5.4 | 2.2 | 3.7 | | 9.6 | 0 | | | 0 |
| 6 | 0 | 0 | 1.7 | 4.4 | 1.9 | 3.5 | | 5.8 | *0 | | | *0 |
| 7 | 0 | 0 | 1.8 | 4.2 | 1.2 | 3.5 | | 4.2 | 0 | | | 0 |
| 8 | 0 | 0 | 1.7 | 4.0 | .8 | 3.1 | | 4.0 | 0 | | | .1 |
| 9 | 0 | 0 | 1.1 | 3.7 | .6 | 3.0 | | 4.0 | 0 | | | 0 |
| 10 | *0 | 0 | 0 | 3.5 | 1.7 | 2.5 | | 4.0 | 0 | | | *0 |
| 11 | 0 | 1.8 | 0 | 3.1 | *1.8 | 2.2 | | 4.2 | 0 | (*) | (*) | 0 |
| 12 | 0 | .4 | 0 | 7.2 | 2.0 | 1.8 | | 4.0 | 0 | | | 0 |
| 13 | 0 | 0 | 0 | 4.4 | 1.9 | 1.3 | | 4.0 | 0 | | | 0 |
| 14 | 0 | .6 | 0 | *4.2 | 1.6 | .8 | | 3.3 | 0 | | | 0 |
| 15 | .7 | 1.8 | 0 | 4.0 | 1.2 | .5 | | 3.0 | 0 | | | 0 |
| 16 | .2 | 2.0 | 0 | 3.7 | .8 | .3 | | 2.8 | 0 | | | 0 |
| 17 | 0 | 1.9 | 0 | 3.5 | .6 | .2 | | 2.2 | 0 | | | 0 |
| 18 | 0 | 1.6 | 0 | 3.3 | .4 | **.2 | | 1.6 | 0 | | | 0 |
| 19 | 0 | 1.4 | 0 | 3.1 | .2 | .1 | | 1.6 | 0 | | | 0 |
| 20 | 0 | 1.5 | 0 | 3.0 | .3 | .1 | | 1.3 | 0 | | | 0 |
| 21 | 0 | 1.2 | 0 | 2.6 | 8.1 | 0 | (*) | .8 | 0 | | | 0 |
| 22 | 0 | .3 | 0 | 2.5 | 68 | 0 | | .5 | .2 | | | 99 |
| 23 | 0 | .4 | 0 | 5.0 | 53 | .6 | | .4 | 0 | | | 57 |
| 24 | 0 | .5 | 0 | 5.0 | 23 | .4 | | .3 | 0 | | - | 24 |
| 25 | 0 | 1.9 | 0 | 5.0 | 16 | .3 | | .2 | 0 | | | 14 |
| 26 | 0 | 1.8 | 0 | 4.4 | 7.8 | .2 | | .2 | 0 | | | 4.0 |
| 27 | 0 | 1.7 | 0 | 4.4 | 4.7 | .2 | | .1 | 0 | | | 1.5 |
| 28 | 0 | 1.5 | 0 | 4.2 | 4.0 | .2 | | .1 | 0 | | | .6 |
| 29 | 0 | 1.3 | 0 | 4.0 | - | .1 | | 0 | 0 | | | .1 |
| 30 | 0 | 1.8 | 0 | 3.7 | ------- | 0 | | 0 | 0 | | | 0 |
| 31 | 0 | ------- | 0 | *3.4 | ------- | 0 | ------- | 0 | ------- | | | ------- |
| Total | 6.6 | 25.4 | 13.3 | 108.9 | 215.7 | 44.8 | 0 | 102.2 | 0.2 | 0 | 0 | 200.3 |
| Mean | 0.21 | 0.85 | 0.43 | 3.51 | 7.70 | 1.45 | 0 | 3.30 | 0.007 | 0 | 0 | 6.68 |
| Ac-ft | 13 | 50 | 26 | 216 | 428 | 89 | 0 | 203 | 0.4 | 0 | 0 | 397 |

Calendar year 1957: Max 325 Min 0 Mean 1.85 Ac-ft 1,340
Water year 1957-58: Max 99 Min 0 Mean 1.97 Ac-ft 1,420

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

## 1885. 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, 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 1958.

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 and New Orleans Railroad Co. bridge 0.9 mile upstream at same datum.

Average discharge.--23 years (1924-28, 1939-58), 523 cfs (378,600 acre-ft per year).

Extremes.--Maximum discharge during year, 16,000 cfs Feb. 25 (gage height, 36.21 ft); minimum, 150 cfs Sept. 4, 5.
1924-29, 1939-58: Maximum discharge, 33,800 cfs July 9, 1942 (gage height, 44.9 ft); minimum observed, 1.2 cfs June 16, 1956.
Floods in October 1913 and June 15, 1935, reached about same stage as that of July 9, 1942.

Remarks.--Records good. Diversions and regulations above station (see Remarks for San Antonio River near Falls City, and Escondido Creek at Kenedy).

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5,120 | 422 | 422 | 438 | 470 | 1,650 | 382 | 310 | 398 | 748 | 222 | 164 |
| 2 | 1,320 | 398 | 374 | 310 | 454 | 1,280 | 366 | 310 | 390 | 640 | 215 | 162 |
| 3 | 730 | 374 | *350 | 278 | 422 | 1,060 | 374 | 752 | 382 | 606 | 215 | 164 |
| 4 | 623 | 358 | 334 | 262 | 406 | 964 | 382 | 5,790 | 374 | 555 | 210 | 157 |
| 5 | *572 | 350 | 318 | 666 | 390 | 892 | 374 | 7,650 | 366 | 521 | 205 | 157 |
| 6 | 504 | 334 | 318 | 2,450 | 374 | 820 | 358 | 8,360 | 358 | 487 | 202 | 173 |
| 7 | 470 | *318 | 310 | 2,780 | 374 | 766 | 342 | 8,490 | 358 | 454 | 197 | 222 |
| 8 | 438 | 310 | 310 | 2,340 | 358 | 712 | 350 | 7,460 | 350 | *606 | 210 | 270 |
| 9 | 406 | 310 | 310 | 2,030 | 342 | 676 | 350 | 6,000 | 350 | 606 | 201 | 246 |
| 10 | 374 | 318 | 302 | 1,490 | 438 | 640 | 334 | 3,340 | 342 | 766 | 192 | 470 |
| 11 | 358 | 438 | 286 | 745 | 572 | 640 | 318 | 1,390 | 326 | 1,400 | 187 | 838 |
| 12 | 334 | 1,480 | 262 | 597 | 521 | 640 | 342 | 1,100 | 318 | 1,480 | 185 | 802 |
| 13 | 350 | 2,440 | 254 | 2,090 | 470 | 572 | 374 | 946 | 310 | 748 | 192 | 555 |
| 14 | 358 | 1,800 | 262 | 5,120 | 454 | 555 | 358 | 856 | 302 | 538 | 197 | 398 |
| 15 | 443 | 874 | 270 | 6,620 | 406 | 521 | 382 | 802 | 286 | 470 | 207 | 342 |
| 16 | 717 | 748 | 270 | 4,800 | 398 | 504 | 504 | 784 | 286 | 438 | 254 | 422 |
| 17 | 1,620 | 572 | 262 | 1,760 | 358 | 504 | 521 | 982 | 294 | 406 | 222 | 334 |
| 18 | 967 | 438 | 262 | 748 | 334 | 487 | 504 | 910 | 270 | 382 | 196 | *318 |
| 19 | 470 | 390 | 270 | 606 | 318 | 470 | 406 | 748 | 302 | 358 | *192 | 318 |
| 20 | 374 | 350 | 270 | 521 | 318 | *470 | 366 | 892 | 310 | 342 | 187 | 422 |
| 21 | 310 | 334 | 262 | *487 | 985 | 470 | 358 | 730 | 286 | 334 | 182 | 640 |
| 22 | 310 | 398 | 246 | 454 | 5,570 | 504 | *374 | 784 | 302 | 318 | 175 | 838 |
| 23 | 270 | 1,330 | 254 | 470 | 9,780 | 504 | 342 | 640 | 606 | 310 | 197 | 2,170 |
| 24 | 753 | 2,200 | 246 | 1,300 | 12,400 | 487 | 334 | 572 | 766 | 294 | 194 | 3,340 |
| 25 | 2,350 | 2,770 | 262 | 3,000 | *15,500 | 470 | 334 | 538 | 606 | 286 | 178 | *3,580 |
| 26 | 2,920 | 2,910 | 262 | 2,800 | 14,300 | 438 | 326 | 504 | 1,000 | 278 | 168 | 3,270 |
| 27 | 2,900 | 1,780 | 262 | 2,080 | 9,740 | 422 | 318 | 504 | 820 | 278 | 166 | 2,620 |
| 28 | 1,530 | 982 | 270 | 1,560 | 4,300 | 422 | 310 | 504 | 856 | 270 | 177 | 1,850 |
| 29 | 658 | 640 | 302 | 928 | - | 422 | 310 | *487 | 892 | 262 | 194 | 1,380 |
| 30 | 521 | 504 | 318 | 623 | ------- | 422 | 310 | 470 | 820 | 246 | 182 | 1,340 |
| 31 | 454 | ------- | 470 | 521 | ------- | 398 | ------- | 422 | ------- | 238 | 175 | ------- |
| Total | 29,524 | 26,870 | 9,170 | 50,874 | 80,752 | 19,782 | 11,003 | 64,027 | 13,626 | 15,665 | 6,076 | 27,962 |
| Mean | 952 | 896 | 296 | 1,641 | 2,884 | 638 | 367 | 2,065 | 454 | 505 | 196 | 932 |
| Ac-ft | 58,560 | 53,300 | 18,190 | 100,900 | 160,200 | 39,240 | 21,820 | 127,000 | 27,030 | 31,070 | 12,050 | 55,460 |

Calendar year 1957: Max 10,200 Min 80 Mean 1,077 Ac-ft 780,000
Water year 1957-58: Max 15,500 Min 157 Mean 974 Ac-ft 704,800

Peak discharge (base, 2,200 cfs).--Oct. 27 (5 a.m.) 3,030 cfs (16.63 ft); Nov. 13 (5 p.m.) 2,520 cfs (14.71 ft); Nov. 26 (2:30 a.m.) 3,150 cfs (17.02 ft); Jan. 7 (2 a.m.) 3,000 cfs (16.53 ft); Jan. 15 (2 p.m.) 6,760 cfs (26.24 ft); Jan. 25 (7:30 p.m.) 3,270 cfs (17.35 ft); Feb. 25 (6:30 p.m.) 16,000 cfs (36.21 ft); May 7 (6 a.m.) 8,640 cfs (29.47 ft); Sept. 25 (3 a.m.) 3,660 cfs (18.66 ft).

* Discharge measurement made on this day.

## 1895. Mission River at Refugio, Tex.

Location.--Lat 28°17'30", long 97°16'44", near center of span on downstream side of bridge on U. S. Highway 77, 500 ft upstream from Missouri-Pacific Railroad Co. bridge and a quarter of a mile southwest of Refugio, Refugio County.

Drainage area.--643 sq mi.

Records available.--July 1939 to September 1958.

Gage.--Wire-weight or staff gage read twice daily, more often during floods. Datum of gage is 1.68 ft above mean sea level, datum of 1929.

Average discharge.--19 years, 74.5 cfs (53,940 acre-ft per year).

Extremes.--Maximum discharge during year, 22,000 cfs Feb. 23 (gage height, 30.14 ft); minimum observed, 2.0 cfs Aug. 15-17.

1939-58: 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 poor. No large diversions above station.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Dec. 3, Dec. 31 to Jan. 4, Jan. 18-22, 26-30, Feb. 9, 22-25, May 9, 10, 15, 28, June 1, 2, 12, July 18 to Sept. 4, Sept. 6)

| Oct. 1 to Feb. 24 | | | | | | Feb. 25 to Sept. 30 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.2 | 2.5 | 4.0 | 133 | 25.0 | 5,500 | 1.55 | 1.6 | 5.0 | 146 | | |
| 1.4 | 5.3 | 5.0 | 220 | 26.0 | 6,100 | 2.0 | 9.4 | 6.0 | 227 | | |
| 1.6 | 10 | 7.0 | 455 | 27.0 | 7,600 | 2.5 | 21 | 8.0 | 460 | | |
| 2.0 | 26 | 11.0 | 1,140 | 29.0 | 12,600 | 3.0 | 38 | 10.0 | 780 | | |
| 3.0 | 72 | 17.0 | 2,620 | 31.0 | 23,200 | 3.5 | 57 | 12.0 | 1,180 | | |
| | | | | | | 4.0 | 82 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.8 | 3.0 | 8.7 | 5.3 | 7.8 | 20 | 32 | 15 | 12 | 7 | 3.2 | 2.4 |
| 2 | 4.0 | 2.8 | 7.5 | 5.3 | 7.6 | 15 | 30 | 14 | 12 | 7 | 3.0 | 2.1 |
| 3 | 3.7 | 2.8 | *7.3 | 5.3 | 7.4 | 10 | 28 | 14 | 11 | 7 | 3.0 | 2.1 |
| 4 | 3.7 | 2.8 | 7.2 | 138 | 7.2 | 8 | 27 | 103 | 11 | 7 | 3.0 | 2.1 |
| 5 | *4.3 | 2.8 | 7.2 | 556 | 7.0 | 7.5 | 26 | 550 | 11 | 6 | 2.7 | 19 |
| 6 | 4.2 | 2.6 | 7.0 | 3,200 | 6.8 | 6.5 | 25 | 183 | 11 | 6 | 2.6 | 8.4 |
| 7 | 4.2 | *2.6 | 7.0 | 3,040 | 6.6 | 6 | 25 | 77 | 10 | 6 | 2.6 | 210 |
| 8 | 4.0 | 2.9 | 7.0 | 1,580 | 6.4 | 5 | 24 | 41 | 10 | *5.5 | 2.6 | 76 |
| 9 | 4.0 | 2.9 | 6.8 | 602 | 26 | 4.5 | 24 | 24 | 10 | 5.9 | 2.6 | 20 |
| 10 | 4.0 | 2.9 | 6.8 | 236 | 212 | 3.7 | 24 | 23 | 10 | 6.8 | 2.4 | 11 |
| 11 | 4.0 | 2.9 | 6.8 | 170 | 856 | 19 | 23 | 21 | 10 | 7.3 | 2.6 | 8.6 |
| 12 | 4.0 | 25 | 6.6 | 231 | 902 | 54 | 23 | 19 | 9.4 | 7.9 | 2.6 | 8.6 |
| 13 | 3.8 | 172 | 6.6 | 910 | 540 | 82 | 23 | 18 | 9 | 6.8 | 2.6 | 8.6 |
| 14 | 3.8 | 69 | 6.4 | 624 | 304 | 80 | 35 | 17 | 9 | 6.2 | 2.2 | 8.4 |
| 15 | 3.8 | 11 | 6.4 | 204 | 157 | 62 | 50 | 20 | 9 | 6.1 | 2.0 | 8.3 |
| 16 | 3.8 | 6 | 6.4 | 75 | 71 | 48 | 35 | 22 | 9 | 6.2 | 2.0 | 17 |
| 17 | 3.6 | 4 | 6.2 | 38 | 20 | 46 | 25 | 25 | 8 | 6.2 | 2.0 | *14 |
| 18 | 3.6 | 3.7 | 6.2 | 23 | 15 | 46 | 23 | 28 | 8 | 6.2 | 2.1 | 10 |
| 19 | 3.6 | 3.7 | 6.2 | 24 | 10 | 46 | 22 | 43 | 8 | 6.1 | *2.2 | 14 |
| 20 | 3.6 | 3.7 | 6.0 | 26 | 8 | *46 | 21 | 30 | 8 | 5.7 | 2.2 | 11 |
| 21 | 3.6 | 3.7 | 6.0 | 25 | 927 | 45 | 20 | 20 | 8 | 5.4 | 2.2 | 331 |
| 22 | 3.4 | 4.0 | 5.8 | *24 | 6,260 | 45 | *19 | 17 | 20 | 4.8 | 2.2 | 1,070 |
| 23 | 3.4 | 105 | 5.8 | 60 | *17,600 | 45 | 19 | 16 | 35 | 4.8 | 2.2 | 598 |
| 24 | 3.4 | 296 | 5.8 | 49 | 3,780 | 45 | 18 | 15 | 25 | 4.5 | 3.4 | 89 |
| 25 | 3.4 | 297 | 5.6 | 29 | *782 | 45 | 18 | 14 | 15 | 4.5 | 4.3 | 43 |
| 26 | 3.2 | 130 | 5.6 | 22 | 310 | 45 | 17 | 14 | 10 | 3.7 | 4.3 | 101 |
| 27 | 3.2 | 47 | 5.6 | 16 | 120 | 45 | 17 | 13 | 9 | 3.7 | 3.5 | 77 |
| 28 | 3.2 | 24 | 5.6 | 12 | 40 | 45 | 16 | *13 | 8 | 3.7 | 2.7 | 82 |
| 29 | 3.2 | 16 | 5.4 | 10 | - | 45 | 16 | 13 | 8 | 3.7 | 2.4 | 72 |
| 30 | 3.0 | 10 | 5.4 | 8.4 | ------ | 39 | 15 | 12 | 7 | 3.5 | 2.4 | 107 |
| 31 | 3.0 | ------ | 5.3 | 8.0 | ------ | 36 | ---- | 12 | ---- | 3.5 | 2.4 | ---- |
| Total | 117.5 | 1,261.8 | 198.2 | 11,956.3 | 32,996.8 | 1,095.2 | 720 | 1,446 | 340.4 | 174.7 | 82.2 | 3,031.6 |
| Mean | 3.79 | 42.1 | 6.39 | 386 | 1,178 | 35.3 | 24.0 | 46.6 | 11.3 | 5.64 | 2.65 | 101 |
| Ac-ft | 233 | 2,500 | 393 | 23,710 | 65,450 | 2,170 | 1,430 | 2,870 | 675 | 347 | 163 | 6,010 |

Calendar year 1957: Max 3,470 Min 1.2 Mean 105 Ac-ft 75,740
Water year 1957-58: Max 17,600 Min 2.0 Mean 146 Ac-ft 106,000

Peak discharge (base, 2,500 cfs).--Jan. 6 (6 p.m.) 3,900 cfs (21.00 ft); Feb. 23 (5 a.m.) 22,000 cfs (30.14 ft).

* Discharge measurement made on this day.

Note.--Doubtful or no gage-height record Oct. 6 to Nov. 6, Nov. 16-21, Dec. 1, 2, 4-30, Jan. 31 to Feb. 8, Feb. 17-20, Feb. 26 to Mar. 9, Mar. 13-15, 25-28, Apr. 4, 7, 11-21, Apr. 23 to May 3, May 11-13, 16, 17, 20-27, 29-31, June 3-11, June 13 to July 7, Aug. 18; discharge interpolated or estimated on basis of weather records.

1900. 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 1958.

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.--35 years, 134 cfs (97,010 acre-ft per year).

Extremes.--Maximum discharge during year, 45,100 cfs June 17 (gage height, 17.50 ft); minimum daily, 24 cfs Oct. 4-8.

1923-58: Maximum discharge, 307,000 cfs Sept. 24, 1955 (gage height, 29.95 ft in gage well, 32.7 ft, from floodmarks), from rating curve extended above 40,000 cfs on basis of slope-area measurement of peak flow; minimum, 2.6 cfs Mar. 14-16, 1957.

Maximum stage since at least 1854, that of Sept. 24, 1955. Flood in June 1913 reached a stage of about 29 ft; flood of Sept. 21, 1923, reached a stage of about 26.5 ft; from information by local residents.

Revisions.--The figures for maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

| WSP | Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|---|
| 703 | 1930 | June 15, 1930 | a87,200 | 20.10 |
| 718 | 1931 | Oct. 6, 1930 | 34,400 | 15.91 |
| 733 | 1932 | Sept. 1, 1932 | a67,400 | 18.90 |

a About.

Remarks.--Records good. Many small diversions above station for irrigation.

Revisions (water years).--Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1930, 1932, and 1939, superseding those published in WSP 703, 733, and 878, are given herewith:

| | |
|---|---|
| June 15, 1930 | 17,300 |
| July 2, 1932 | 15,600 |
| Sept. 1, 1932 | 25,500 |
| July 13, 1939 | 39,300 |
| July 14, 1939 | 4,080 |

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| June 1930 | 26,634 | 17,300 | 51 | 888 | 52,800 |
| Water year 1929-30 | 37,961 | 17,300 | - | 104 | 75,300 |
| Calendar year 1930 | 61,002 | 17,300 | - | 167 | 121,000 |
| July 1932 | 24,687 | 15,600 | 129 | 796 | 49,000 |
| September | 60,339 | 25,500 | 440 | 2,010 | 120,000 |
| Water year 1931-32 | 111,984 | 25,500 | 35 | 306 | 222,000 |
| Calendar year 1932 | 128,382 | 25,500 | 35 | 351 | 255,000 |
| July 1939 | 48,991 | 39,300 | 20 | 1,580 | 97,170 |
| Water year 1938-39 | 67,443 | 39,300 | 20 | 185 | 133,800 |
| Calendar year 1939 | 79,870 | 39,300 | 20 | 219 | 158,400 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 128 | 119 | 111 | 115 | 321 | 205 | 130 | 117 | 584 | 170 | 128 |
| 2 | 27 | 123 | 119 | 107 | 113 | 310 | 205 | 140 | 115 | 560 | 170 | 125 |
| 3 | 25 | 119 | 117 | 107 | 111 | 300 | 200 | 213 | 113 | 536 | 170 | 125 |
| 4 | 24 | 117 | 117 | 119 | 111 | 297 | 198 | 255 | 111 | 516 | 168 | 123 |
| 5 | 24 | 115 | 115 | 121 | 111 | 294 | 188 | 200 | 109 | 496 | 162 | 123 |
| 6 | 24 | 115 | 115 | 123 | 111 | *304 | 180 | 180 | 107 | 476 | 162 | 128 |
| 7 | 24 | 115 | 115 | 123 | 109 | 568 | 175 | 168 | 103 | 441 | 160 | 138 |
| 8 | *24 | 111 | 113 | 121 | 109 | 433 | 170 | 160 | 101 | 398 | 156 | 134 |
| 9 | 272 | 107 | 111 | 121 | 109 | 377 | *160 | 158 | 99 | 370 | 153 | 132 |
| 10 | 160 | 119 | 111 | 119 | 107 | 346 | 156 | 156 | 97 | 352 | 153 | 130 |
| 11 | 99 | 130 | 107 | 117 | 107 | 321 | 153 | 151 | 95 | 338 | 170 | 128 |
| 12 | 77 | 136 | 107 | 113 | 113 | 310 | 149 | 149 | 93 | 324 | 175 | 128 |
| 13 | 68 | 134 | 107 | 109 | 111 | 297 | 145 | *151 | 90 | 314 | 162 | 128 |
| 14 | 65 | *130 | 107 | 109 | 109 | 288 | 145 | 153 | 95 | 300 | 158 | 128 |
| 15 | 62 | 130 | 109 | 107 | 107 | 279 | 142 | 151 | 101 | 291 | 156 | 125 |
| 16 | 63 | 123 | 109 | 107 | 105 | 273 | 140 | 151 | 109 | *280 | 151 | 3,580 |
| 17 | 162 | 119 | 107 | 107 | 105 | 267 | 136 | 158 | 14,300 | 264 | 149 | 2,910 |
| 18 | 208 | 117 | *109 | 103 | 105 | 270 | 134 | 160 | 5,310 | 252 | 145 | 920 |
| 19 | 190 | 115 | 109 | 103 | 105 | 267 | 134 | 158 | 1,880 | 243 | *145 | 1,530 |
| 20 | 168 | 115 | 107 | 103 | 105 | 255 | 134 | 149 | *1,310 | 237 | 142 | 2,980 |
| 21 | 170 | 113 | 105 | 103 | 200 | 246 | 132 | 147 | 1,070 | 225 | 138 | 1,170 |
| 22 | 198 | 113 | 105 | 103 | 405 | 240 | 128 | 145 | 920 | 225 | 136 | 4,450 |
| 23 | 198 | 115 | 119 | 134 | 480 | 234 | 123 | 140 | 920 | 216 | 136 | 1,660 |
| 24 | 175 | 125 | 138 | 151 | 452 | 228 | 119 | 138 | 950 | 210 | 136 | 1,170 |
| 25 | 156 | 121 | 136 | 151 | 430 | 228 | 117 | 140 | 920 | 202 | 138 | 950 |
| 26 | 156 | 119 | 128 | 147 | 394 | 228 | 117 | 142 | 800 | 198 | 136 | 860 |
| 27 | 149 | 121 | 128 | 138 | 363 | 222 | 119 | 138 | 750 | 190 | 134 | 830 |
| 28 | 145 | 125 | 125 | 128 | 335 | 216 | 119 | 134 | 700 | 185 | 132 | 980 |
| 29 | 140 | 123 | 123 | *121 | - | 216 | 121 | 132 | 675 | 182 | 130 | 775 |
| 30 | 138 | 121 | 117 | 117 | ------- | 213 | 125 | 125 | 620 | 178 | 130 | 700 |
| 31 | 132 | ------- | 113 | 115 | ------- | 205 | ------- | 121 | ------- | 175 | 128 | ------- |
| Total | 3,552 | 3,614 | 3,567 | 3,658 | 5,237 | 8,853 | 4,469 | 4,793 | 32,780 | 9,758 | 4,651 | 27,388 |
| Mean | 115 | 120 | 115 | 118 | 187 | 286 | 149 | 155 | 1,093 | 315 | 150 | 913 |
| Ac-ft | 7,050 | 7,170 | 7,080 | 7,260 | 10,390 | 17,560 | 8,860 | 9,510 | 65,020 | 19,350 | 9,230 | 54,320 |

Calendar year 1957: Max 1,400 Min 3.0 Mean 86.3 Ac-ft 62,480
Water year 1957-58: Max 14,300 Min 24 Mean 308 Ac-ft 222,800

Peak discharge (base, 1,200 cfs).--June 17 (12 m.) 45,100 cfs (17.50 ft); Sept. 16 (8:30 p.m.) 15,900 cfs (11.88 ft); Sept. 20 (2:30 a.m.) 5,780 cfs (7.00 ft); Sept. 22 (6:30 a.m.) 9,020 cfs (8.52 ft).

* Discharge measurement made on this day.

## 1905. West Nueces River near Brackettville, Tex.

Location.--Lat 29°28'55", long 100°14'20", at Wilson Ranch, 9 miles downstream from Loss Creek, 11 miles upstream from Livecak Creek, and 15.8 miles northeast of Brackettville, Kinney County.

Drainage area.--700 sq mi.

Records available.--September 1939 to September 1950, April 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,326.79 ft above mean sea level, datum of 1929. Prior to Mar. 14, 1940, staff gage at same site and datum.

Average discharge.--13 years (1939-50, 1956-58), 31.7 cfs (22,950 acre-ft per year).

Extremes.--Maximum discharge during year, 104,000 cfs June 17 (gage height, 25.15 ft), from rating curve extended above 3,400 cfs on basis of slope-area measurements at gage heights 11.56, 20.95, and 27.1 ft; no flow most of time.
1939-50, 1956-58: Maximum discharge, that of June 17, 1958; no flow most of time. Maximum stage known since at least 1879, about 40 ft June 14, 1935, present site and datum, from gage-height relation of 1935 and 1955 flood peaks at site 0.6 mile upstream (discharge at site 33 miles upstream from gage, 580,000 cfs, by slope-area measurement; and discharge at site 24 miles downstream from gage, 536,000 cfs, by slope-area measurement). Flood in 1900 reached a stage of about 34 ft, and flood of Sept. 24, 1955, reached a stage of 27.1 ft, from floodmark at present site (discharge, 150,000 cfs, by slope-area measurement).

Remarks.--Records good except those below 10 cfs, which are poor. In ordinary years most of runoff from basin is lost by seepage into Edwards limestone above station. No known diversion above station.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 18, 19, Sept. 17-20)

| Oct. 1 to Feb. 22 | | Feb. 23 to Sept. 30 | | | | | |
|---|---|---|---|---|---|---|---|
| 2.9 | 0 | 2.7 | 0 | 3.6 | 43 | 8.0 | 3,060 |
| 3.0 | 1.9 | 2.8 | .4 | 4.0 | 97 | 10.0 | 6,500 |
| 3.1 | 4.7 | 2.9 | 1.6 | 4.3 | 160 | 13.0 | 14,000 |
| 3.2 | 8.2 | 3.0 | 3.8 | 4.6 | 265 | 16.0 | 24,700 |
| 3.5 | 25 | 3.1 | 6.8 | 5.0 | 470 | 18.0 | 34,000 |
| 3.8 | 51 | 3.2 | 12 | 6.0 | 1,100 | | |
| | | 3.3 | 17 | 7.0 | 1,930 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 0 | 0 | 81 | 5 | | 0 | 155 | 13 | 0.1 |
| 2 | | | | 0 | 0 | 71 | 5 | | 0 | 140 | 12 | .1 |
| 3 | | | | 0 | 0 | 58 | 4.5 | | 0 | 129 | 11 | 0 |
| 4 | | | | 0 | 0 | 47 | 4 | | 0 | 121 | 10 | 0 |
| 5 | | | | 0 | 0 | 40 | 4 | | 0 | 111 | 9.5 | 0 |
| 6 | | | | 0 | 0 | *36 | 3.5 | | 0 | 99 | 9.0 | 0 |
| 7 | | | | 0 | 0 | 42 | 3.5 | | 0 | 102 | 8.2 | 0 |
| 8 | (*) | | | 0 | 0 | 77 | 3 | | 0 | 95 | 7.7 | 0 |
| 9 | (*) | | | 0 | 0 | 77 | *3.0 | | 0 | 87 | 6.8 | 0 |
| 10 | | | | 0 | 0 | 63 | 2.8 | | 0 | 78 | 6.2 | 0 |
| 11 | | | | 0 | 0 | 51 | 2.6 | | 0 | 74 | 6.2 | 0 |
| 12 | | | | 0 | 0 | 42 | 2.4 | | 0 | 67 | 5.2 | 0 |
| 13 | | | | 0 | 0 | 34 | 2.6 | | 0 | 62 | 4.3 | 0 |
| 14 | | (*) | | 0 | 0 | 29 | 1.8 | (*) | 0 | 57 | 4.0 | 0 |
| 15 | | | | 0 | 0 | 25 | 1.4 | | 0 | 52 | 3.8 | 0 |
| 16 | | | | 0 | 0 | 22 | 1.2 | | 15,200 | *47 | 3.5 | 12,500 |
| 17 | | | | 0 | 0 | 18 | 1.0 | | 31,100 | 45 | 3.2 | 3,760 |
| 18 | | | (*) | 0 | 0 | 15 | .6 | | *5,150 | 34 | 3.0 | 720 |
| 19 | | | | 0 | 0 | 13 | .5 | | 1,190 | 34 | *2.8 | 619 |
| 20 | | | | 0 | 0 | 11 | .2 | | 586 | 35 | 2.8 | 3,780 |
| 21 | | | | 0 | 0 | 9.5 | .1 | | 442 | 31 | 2.6 | 1,120 |
| 22 | | | | 0 | 51 | 9.0 | 0 | | 376 | 30 | 2.4 | 492 |
| 23 | | | | 0 | 1,410 | 8.5 | 0 | | 447 | 27 | 2.0 | 481 |
| 24 | | | | 0 | 348 | 8 | 0 | | 492 | 25 | 1.8 | 330 |
| 25 | | | | 0 | 150 | 7.5 | 0 | | *325 | 23 | 1.4 | *229 |
| 26 | | | | 0 | 121 | 7.5 | 0 | | 265 | 21 | 1.1 | 190 |
| 27 | | | | .2 | 102 | 7 | 0 | | 241 | 19 | .8 | 169 |
| 28 | | | | 0 | 91 | 6.5 | 0 | | 218 | 12 | .6 | 169 |
| 29 | | | | *0 | - | 6 | 0 | | 194 | 6.8 | .4 | 181 |
| 30 | | | | 0 | ------- | 6 | 0 | | 175 | 8.2 | .3 | 166 |
| 31 | | ------- | | 0 | ------- | 5.5 | ------- | | ------- | 14 | .2 | ------- |
| Total | 0 | 0 | 0 | 0.2 | 2,273 | 933.0 | 52.7 | 0 | 56,401 | 1,841.0 | 145.8 | 24,906.2 |
| Mean | 0 | 0 | 0 | 0.006 | 81.2 | 30.1 | 1.76 | 0 | 1,880 | 59.4 | 4.70 | 830 |
| Ac-ft | 0 | 0 | 0 | 0.4 | 4,510 | 1,850 | 105 | 0 | 111,900 | 3,650 | 289 | 49,400 |

Calendar year 1957: Max 4,990 Min 0 Mean 25.2 Ac-ft 18,280
Water year 1957-58: Max 31,100 Min 0 Mean 237 Ac-ft 171,700

Peak discharge (base, 1,000 cfs).--Feb. 23 (12:30 a.m.) 2,560 cfs (7.61 ft); June 17 (10 a.m.) 104,000 cfs (25.15 ft); Sept. 16 (5:30 p.m.) 59,100 cfs (21.91 ft); Sept. 19 (12 p.m.) 8,700 cfs (11.01 ft).

* Discharge measurement or observation of no flow made on this day.
Note.--No gage-height record Mar. 23 to Apr. 8; discharge estimated on basis of weather records.

## 1920. Nueces River below Uvalde, Tex.

Location.--Lat 29°08', long 99°54', on right bank at McDaniel Ranch, 5¾ 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 1958. 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, at site 4.5 miles upstream at different datum.

Average discharge.--19 years, 70.8 cfs (51,260 acre-ft per year).

Extremes.--Maximum discharge during year, 146,000 cfs June 17 (gage height, 21.4 ft, in gage well, 21.8 ft, from floodmarks), from rating curve extended above 29,000 cfs on basis of slope-conveyance studies; mimimum, 0.7 cfs Feb. 26.

1939-58: Maximum discharge, 189,000 cfs Sept. 24, 1955 (gage height, 24.61 ft, from floodmark), from rating curve extended above 34,000 cfs on basis of slope-area measurement of peak flow; no flow at times 1951-57.

Maximum stage since at least 1836, 40.4 ft June 14, 1935, from floodmarks (discharge at former site, 616,000 cfs, by slope-area measurement). Large floods occurred in 1901 and 1913, stages unknown.

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. Many small diversions above station for irrigation.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Dec. 29, Apr. 28 to June 17, Sept. 17-30)

| Oct. 1 to June 16 | | | | June 17 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 3.4 | 0.2 | 3.8 | 24 | 2.3 | 24 | 5.5 | 1,970 |
| 3.5 | 1.6 | 4.0 | 66 | 2.6 | 62 | 6.0 | 2,820 |
| 3.6 | 5.4 | 4.2 | 127 | 3.0 | 138 | 7.0 | 5,150 |
| 3.7 | 12 | 4.5 | 257 | 3.5 | 286 | 8.0 | 8,400 |
| | | | | 4.0 | 510 | 10.0 | 17,300 |
| | | | | 4.5 | 840 | 12.0 | 30,000 |
| | | | | 5.0 | 1,320 | 15.0 | 54,800 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.8 | 3.1 | 2.4 | 1.6 | 2.1 | 1.6 | 39 | 23 | 14 | 405 | 64 | 32 |
| 2 | 3.1 | 3.1 | 2.8 | 1.4 | 2.1 | 1.6 | 39 | 23 | 14 | 369 | 61 | 31 |
| 3 | 2.8 | 3.1 | 2.8 | 1.4 | 2.1 | 1.6 | 39 | 23 | 14 | 344 | 59 | 30 |
| 4 | 2.8 | 3.1 | 2.8 | 2.8 | 2.4 | 1.6 | 36 | 19 | 14 | 316 | 56 | 30 |
| 5 | 2.4 | 3.1 | 3.1 | 3.5 | 2.1 | 1.6 | 34 | 19 | 13 | 293 | 55 | 29 |
| 6 | 2.4 | 3.1 | 3.1 | 2.4 | 1.8 | *2.3 | 34 | 18 | 13 | 276 | 52 | 30 |
| 7 | 2.1 | 3.1 | 3.1 | 1.8 | 1.8 | 30 | 36 | 18 | 13 | 293 | 51 | 38 |
| 8 | *2.1 | 2.8 | 2.8 | 2.1 | 1.8 | 228 | 36 | 16 | 13 | 335 | 49 | 33 |
| 9 | 11 | 2.8 | 2.8 | 2.1 | 1.8 | 169 | 34 | 16 | 13 | 301 | 48 | 31 |
| 10 | 9.1 | 3.1 | 3.1 | 1.8 | 2.1 | 135 | *34 | 16 | 13 | 266 | 51 | 30 |
| 11 | 5.9 | 4.0 | 2.4 | 1.8 | 1.8 | 110 | 34 | 16 | 13 | 246 | 62 | 29 |
| 12 | 4.9 | 3.5 | 1.6 | 1.8 | 2.4 | 97 | 34 | 16 | 13 | 230 | 48 | 28 |
| 13 | 4.9 | 3.1 | 1.2 | 1.6 | 2.1 | 86 | 34 | *18 | 13 | 211 | 45 | 31 |
| 14 | 4.4 | *2.4 | 1.2 | 1.6 | 1.6 | 80 | 32 | 19 | 14 | 196 | 44 | 29 |
| 15 | 4.0 | 2.4 | 1.2 | 1.6 | 1.4 | 77 | 32 | 18 | 15 | 182 | 43 | 30 |
| 16 | 4.0 | 2.4 | 1.4 | 1.6 | 1.6 | 72 | 32 | 16 | 16 | 168 | 42 | 34 |
| 17 | 4.0 | 2.4 | *1.4 | 1.8 | 1.6 | 66 | 34 | 16 | *48,900 | 160 | 42 | *17,800 |
| 18 | 3.5 | 2.1 | 1.4 | 1.8 | 1.6 | 64 | 36 | 15 | *36,400 | 150 | 40 | *3,190 |
| 19 | 3.5 | 2.1 | 1.2 | 1.8 | 1.6 | 61 | 31 | 18 | 7,870 | 140 | 39 | 1,510 |
| 20 | 3.5 | 2.8 | 1.2 | 1.6 | 1.6 | 59 | 29 | 19 | 3,180 | 134 | 38 | 6,800 |
| 21 | 4.4 | 2.8 | 1.2 | 1.8 | 3.5 | 57 | 29 | 18 | 1,760 | 125 | 37 | 3,920 |
| 22 | 8.4 | 3.1 | 1.2 | 1.8 | 3.5 | 54 | 27 | 16 | *1,200 | 116 | 37 | 4,460 |
| 23 | 4.4 | 3.1 | 1.6 | 4.9 | 2.4 | 50 | 27 | 16 | 896 | 112 | 35 | 2,790 |
| 24 | 4.0 | 3.5 | 2.4 | 4.9 | 2.1 | 48 | 26 | 16 | 848 | 104 | 34 | 1,550 |
| 25 | 4.0 | 3.5 | 2.1 | 3.1 | 1.8 | 45 | 24 | 15 | 792 | *98 | *34 | 1,130 |
| 26 | 3.5 | 3.1 | 1.8 | 3.1 | 1.4 | 43 | 24 | 15 | 718 | 89 | 34 | 1,000 |
| 27 | 4.0 | 3.1 | 2.4 | 3.1 | 1.0 | 41 | 26 | 15 | 613 | 82 | 34 | 880 |
| 28 | 3.5 | 3.1 | 2.1 | *2.8 | 1.4 | 41 | 24 | 15 | 548 | 76 | 33 | 947 |
| 29 | 3.1 | 2.8 | 1.8 | 2.8 | - | 39 | 24 | 15 | 490 | *73 | 33 | 856 |
| 30 | 3.1 | 2.4 | 1.8 | 2.8 | ------- | 39 | 24 | 14 | 445 | 70 | 32 | 711 |
| 31 | 3.1 | ------- | 1.8 | 2.1 | ------- | 39 | ------- | 14 | ------- | 67 | 32 | ------- |
| Total | 128.7 | 88.1 | 63.2 | 71.1 | 54.5 | 1,840.3 | 944 | 531 | 104,878 | 6,027 | 1,364 | 48,039 |
| Mean | 4.15 | 2.94 | 2.04 | 2.29 | 1.95 | 59.4 | 31.5 | 17.1 | 3,496 | 194 | 44.0 | 1,601 |
| Ac-ft | 255 | 175 | 125 | 141 | 108 | 3,650 | 1,870 | 1,050 | 208,000 | 11,950 | 2,710 | 95,280 |

Calendar year 1957: Max 1,910 Min 0 Mean 27.5 Ac-ft 19,900
Water year 1957-58: Max 48,900 Min 1.0 Mean 449 Ac-ft 325,300

Peak discharge (base, 1,000 cfs).--June 17 (9 p.m.) 146,000 cfs (2.18 ft, from floodmark); Sept. 17 (6 a.m.) 49,100 cfs (14.44 ft, from floodmark); Sept. 20 (1:30 p.m.) 14,800 cfs (9.44 ft); Sept. 22 (1:30 p.m.) 7,880 cfs (7.74 ft).

* Discharge measurement made on this day.

## 1930. Nueces River near Asherton, Tex.

Location (revised).--Lat 28°29'55", long 99°40'55", on right bank 28 ft downstream from bridge on Farm to Market Road 190 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 1958.

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 same site and datum.

Average discharge.--19 years, 159 cfs (115,100 acre-ft per year).

Extremes.--Maximum discharge during year, 21,800 cfs June 20 (gage height, 30.23 ft); no flow many days.
1939-58: Maximum discharge, 24,000 cfs Sept. 2, 1944 (gage height, 30.40 ft); no flow at times.
Maximum stage known since 1900, about 33 ft June 17, 1935, 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. Considerable losses of flood-flows into various permeable formations occur downstream from the Balcones fault zone. Flow slightly regulated by several small reservoirs above station. Many diversions above station for irrigation.

Revisions (water years).--WSP 1118: 1944.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-11, Jan. 29 to Feb. 1, Mar. 6-9, 13-18)

| | | | | | |
|---|---|---|---|---|---|
| 1.5 | 0 | 2.5 | 32 | 22.0 | 3,900 |
| 1.6 | .4 | 3.0 | 54 | 26.0 | 5,900 |
| 1.7 | 1.2 | 4.0 | 117 | 28.0 | 8,200 |
| 1.8 | 2.6 | 5.0 | 202 | 29.0 | 10,800 |
| 1.9 | 5.1 | 7.0 | 436 | 29.5 | 14,400 |
| 2.0 | 9.2 | 12.0 | 1,300 | 30.0 | 19,600 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 41 | 0.8 | 0 | 54 | 165 | 0.2 | | 0 | 708 | 27 | 0 |
| 2 | 0 | 28 | .5 | 0 | 40 | 100 | .1 | | 0 | 628 | 20 | 0 |
| 3 | 0 | 20 | .4 | 0 | 30 | 66 | .1 | | 0 | 566 | 11 | 0 |
| 4 | 0 | 15 | .4 | 0 | 25 | 46 | 0 | | *0 | 492 | 5.1 | 0 |
| 5 | 0 | 11 | .4 | 43 | 17 | 34 | 0 | | *0 | 450 | 2.6 | 0 |
| 6 | 0 | 6.3 | .3 | 235 | 12 | 27 | 0 | | 0 | 423 | 1.6 | 0 |
| 7 | *0 | 3.8 | .3 | 254 | 7.6 | 22 | 0 | (*) | 0 | 436 | .8 | 0 |
| 8 | 0 | 2.4 | .2 | 74 | 4.5 | *17 | *0 | | 0 | 384 | .4 | 0 |
| 9 | 1.8 | 1.7 | .1 | 30 | 3.8 | 12 | 0 | | 0 | 371 | .2 | 0 |
| 10 | 24 | 1.8 | 0 | 30 | 3.2 | 8.8 | 0 | | 0 | 397 | 0 | 0 |
| 11 | 108 | 10 | 0 | 44 | 2.8 | 4.8 | 0 | | 0 | 371 | 0 | 0 |
| 12 | 63 | 23 | 0 | 47 | 3.2 | 4.5 | 0 | | 0 | 310 | 0 | 0 |
| 13 | 24 | 24 | 0 | 39 | 3.0 | 31 | 0 | | 0 | 264 | 0 | 0 |
| 14 | 109 | 26 | 0 | 31 | 2.8 | 41 | 0 | | 0 | 253 | 0 | 0 |
| 15 | 103 | 19 | 0 | 24 | 3.5 | 35 | 0 | | 0 | 222 | 0 | .4 |
| 16 | 63 | 12 | 0 | 18 | 3.5 | 28 | 0 | | 0 | 192 | 2.0 | **.1 |
| 17 | 40 | 5.9 | *0 | 13 | 3.2 | 20 | 0 | | 1.3 | *170 | 83 | 1,190 |
| 18 | 26 | 3.5 | 0 | 9.7 | 2.8 | 12 | 0 | | 845 | 152 | 69 | 5,760 |
| 19 | 16 | 2.0 | 0 | 7.2 | 2.4 | 8.8 | 0 | | 7,310 | 136 | 49 | 9,240 |
| 20 | 11 | 1.4 | 0 | 4.5 | 2.3 | 6.3 | 0 | | 18,900 | 124 | 36 | 6,820 |
| 21 | 8.0 | *1.7 | 0 | 2.3 | 19 | 4.5 | 0 | | 19,600 | 114 | 26 | 5,370 |
| 22 | 907 | 1.7 | 0 | 1.4 | 58 | 3.5 | 0 | | 15,200 | 106 | 19 | 6,840 |
| 23 | 1,500 | 1.7 | 0 | 1.7 | 91 | 2.8 | 0 | | 10,800 | 96 | 11 | 7,320 |
| 24 | 1,890 | 5.1 | 0 | 2.2 | 389 | 2.2 | 0 | | 7,750 | 86 | 4.8 | 6,980 |
| 25 | 2,250 | 11 | 0 | 1.8 | 1,100 | 1.7 | 0 | | 5,030 | 73 | 2.8 | 5,310 |
| 26 | 2,350 | 10 | 0 | 20 | 1,240 | 1.2 | 0 | | 2,820 | 60 | 1.7 | 3,200 |
| 27 | 1,620 | 8.4 | 0 | 248 | 796 | .8 | 0 | | 1,650 | 51 | .9 | 1,920 |
| 28 | 661 | 4.2 | 0 | 292 | 337 | .6 | 0 | | 1,240 | 47 | **.4 | 1,400 |
| 29 | 232 | 2.3 | 0 | 188 | - | .5 | 0 | | 992 | 40 | .1 | 1,180 |
| 30 | 110 | 1.3 | 0 | *120 | ------- | .4 | 0 | | 830 | 36 | 0 | 1,180 |
| 31 | 66 | ------- | 0 | 80 | ------- | .4 | ------- | | ------- | 32 | 0 | ------- |
| Total | 12,183.0 | 305.2 | 3.4 | 1,860.8 | 4,256.6 | 707.8 | 0.4 | 0 | 92,968.3 | 7,790 | 374.4 | 63,710.5 |
| Mean | 393 | 10.2 | 0.11 | 60.0 | 152 | 22.8 | 0.01 | 0 | 3,099 | 251 | 12.1 | 2,124 |
| Ac-ft | 24,160 | 605 | 6.7 | 3,690 | 8,440 | 1,400 | 0.8 | 0 | 184,400 | 15,450 | 743 | 126,400 |

Calendar year 1957: Max 7,460 Min 0 Mean 409 Ac-ft 295,900
Water year 1957-58: Max 19,600 Min 0 Mean 505 Ac-ft 365,300

Peak discharge (base, 3,000 cfs).--June 20 (6 p.m.) 21,800 cfs (30.23 ft); Sept. 19 (8 a.m.) 9,500 cfs (28.63 ft); Sept. 23 (2 a.m.) 7,440 cfs (27.47 ft).

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

1940. 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.--November 1923 to September 1958 (November 1923 to September 1926 monthly discharge only, published in WSP 1312; figures of daily discharge for Oct. 31, 1923, to Sept. 30, 1926, published in WSP 588, 608, and 628, have been found to be unreliable and should not be used). Records for July 1915 to June 1918, published as "near Cotulla" in WSP 408, 438, 458, and 478, have been found to be unreliable and should not be used. Gage-height records collected in this vicinity, 1914-17 and since 1922, are contained in reports of U. S. Weather Bureau.

Gage.--Wire-weight gage read once daily. Datum of gage is 368.08 ft above mean sea level, datum of 1929. 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.--34 years (1924-58), 279 cfs (202,000 acre-ft per year).

Extremes.--Maximum discharge during year, 13,700 cfs June 24 (gage height, 19.70 ft); no flow for many days.

1923-58: 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 measurement of peak flow; no flow at times.

Maximum stage known since at least 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 the headwater flow enters this formation. Considerable losses of floodflows into various permeable formations occur downstream from the Balcones fault zone. 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 U. S. Weather Bureau.

Revisions.--See Records available.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 7.44 | 0 | 8.0 | 37 | 11.0 | 1,280 |
| 7.5 | .2 | 8.2 | 88 | 12.0 | 2,000 |
| 7.6 | 1.2 | 8.5 | 173 | 13.0 | 2,920 |
| 7.7 | 4.4 | 9.0 | 325 | 15.0 | 5,250 |
| 7.8 | 11 | 9.5 | 493 | 19.3 | 12,800 |
| 7.9 | 21 | 10.0 | 713 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 130 | 285 | 11 | 0.2 | 144 | 1,400 | 0.6 | 0 | 0 | 1,840 | 27 | 0 |
| 2 | 79 | 161 | 7.1 | .5 | 122 | 926 | .5 | 0 | 0 | 1,400 | 24 | 0 |
| 3 | 48 | 116 | 5.4 | .5 | 91 | 387 | .5 | .3 | 0 | 1,010 | 21 | 0 |
| 4 | 14 | 70 | 3.5 | .5 | 52 | 239 | .5 | .3 | 0 | 713 | 16 | 0 |
| 5 | 11 | 48 | 2.7 | 173 | 34 | 176 | .3 | .2 | 0 | 575 | 12 | 0 |
| 6 | 11 | 21 | 1.9 | 188 | 15 | 122 | .2 | .1 | 0 | 517 | 11 | 0 |
| 7 | *7.1 | 14 | 1.6 | 263 | 11 | 91 | .2 | *0 | 0 | 713 | 5.9 | 0 |
| 8 | 33 | 12 | .9 | 689 | 11 | *52 | **.1 | 0 | 0 | 1,040 | 3.1 | 0 |
| 9 | 533 | 9.2 | .4 | 953 | 11 | 21 | 0 | 0 | 0 | 1,500 | 3.9 | .2 |
| 10 | 789 | 7.1 | .4 | 897 | 12 | 15 | 0 | 0 | 0 | 1,460 | .6 | .2 |
| 11 | 815 | 7.1 | .4 | 642 | 8.4 | 11 | 0 | 0 | 0 | 1,240 | .4 | 0 |
| 12 | 558 | 21 | .2 | 387 | 5.4 | 11 | 0 | 0 | 0 | 869 | .1 | 0 |
| 13 | 738 | 27 | .2 | 236 | 1.6 | 11 | 0 | 0 | 0 | 541 | 0 | .1 |
| 14 | 619 | 70 | .2 | 188 | 3.1 | 8.4 | 1.1 | 0 | 0 | 400 | 0 | .1 |
| 15 | 337 | 127 | .2 | 127 | 1.6 | 8.4 | .5 | 0 | 0 | 325 | 0 | **.2 |
| 16 | 263 | 133 | .2 | 91 | 1.2 | 8.4 | .3 | .5 | 0 | 272 | 0 | .3 |
| 17 | 239 | 122 | **.5 | 73 | .9 | 14 | .2 | .5 | 0 | *236 | 0 | 51 |
| 18 | 179 | 91 | .6 | 48 | .9 | 30 | .1 | .2 | *0 | 206 | 0 | 569 |
| 19 | 127 | 50 | .8 | 32 | .9 | 29 | .1 | .2 | 0 | 188 | 0 | 1,950 |
| 20 | 73 | 37 | .8 | 34 | 3.1 | 18 | .1 | .1 | 0 | 173 | 0 | 4,070 |
| 21 | 37 | *14 | .8 | 19 | 80 | 12 | .1 | 0 | 508 | 158 | .1 | 7,020 |
| 22 | 29 | 16 | .8 | 19 | 282 | 11 | .1 | 0 | 1,280 | 136 | 12 | *8,530 |
| 23 | 62 | 19 | 2.4 | 21 | 493 | 7.7 | 0 | 0 | 6,040 | 122 | 23 | 7,180 |
| 24 | 470 | 20 | .9 | 29 | 981 | 7.1 | 0 | 0 | *12,800 | 116 | 14 | 6,100 |
| 25 | 953 | 13 | .9 | 21 | 1,220 | 4.4 | 0 | 0 | 12,800 | 102 | 11 | 6,250 |
| 26 | 1,220 | 11 | .6 | 15 | 1,370 | 1.9 | 0 | 0 | 10,500 | 88 | 7.7 | 7,020 |
| 27 | 1,460 | 11 | .6 | 11 | 1,540 | 3.1 | 0 | 0 | 8,010 | 70 | 4.4 | 6,400 |
| 28 | 1,760 | 21 | .6 | 37 | 1,570 | 1.6 | 0 | 0 | 5,810 | 52 | 1.4 | 5,120 |
| 29 | 1,920 | 21 | .6 | 310 | - | 1.2 | 0 | 0 | 3,890 | 45 | **.4 | 3,230 |
| 30 | 1,600 | 15 | .4 | *310 | ------- | .2 | 0 | 0 | 2,540 | 37 | .1 | 2,000 |
| 31 | 671 | ------- | .3 | 218 | ------- | .6 | ------- | 0 | ------- | 32 | .1 | ------- |
| Total | 15,785.1 | 1,589.4 | 47.9 | 6,032.7 | 8,066.1 | 3,629.0 | 5.5 | 2.4 | 64,178 | 16,176 | 199.2 | 65,491.1 |
| Mean | 509 | 53.0 | 1.55 | 195 | 288 | 117 | 0.18 | 0.08 | 2,139 | 522 | 6.43 | 2,183 |
| Ac-ft | 31,310 | 3,150 | 95 | 11,970 | 16,000 | 7,200 | 11 | 4.8 | 127,300 | 32,080 | 395 | 129,900 |

Calendar year 1957: Max 9,000 Min 0 Mean 533 Ac-ft 385,800
Water year 1957-58: Max 12,800 Min 0 Mean 496 Ac-ft 359,400

Peak discharge (base, 3,200 cfs).--June 24 (9 a.m.) 13,700 cfs (19.70 ft); Sept. 22 (2 p.m.) 8,530 cfs (17.12 ft).

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

1945. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 183.5 ft above mean sea level, datum of 1929 (levels by Topographic Division).

Average discharge.--15 years (1943-58), 416 cfs (301,200 acre-ft per year).

Extremes.--Maximum discharge during year, 50,600 cfs Feb. 24 (gage height, 24.80 ft); no flow many days.
1942-58: Maximum discharge, 70,000 cfs Oct. 11, 1946 (gage height, 26.46 ft), from rating curve extended above 45,000 cfs; no flow at times..
Maximum stage since about 1900, that of Oct. 11, 1946.

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 stage most of headwater flow enters this formation. Considerable losses of flood-flows into various permeable formations occur downstream from the Balcones fault zone. Diversions for irrigation above station.

Revisions (water years).--WSP 1512: 1947.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 15 to May 16, May 26-28, July 30 to Sept. 20)

| | | | | | |
|---|---|---|---|---|---|
| 2.0 | 0 | 4.0 | 41 | 18.0 | 4,620 |
| 2.1 | .3 | 5.0 | 88 | 19.0 | 7,290 |
| 2.2 | 1.3 | 7.0 | 252 | 20.0 | 11,000 |
| 2.3 | 2.8 | 9.0 | 496 | 22.0 | 22,400 |
| 2.5 | 6.5 | 12.0 | 940 | 23.0 | 30,800 |
| 2.7 | 9.8 | 14.0 | 1,320 | 24.0 | 41,500 |
| 3.0 | 15 | 16.0 | 2,250 | 25.0 | 52,900 |
| 3.5 | 26 | 17.0 | 3,100 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,560 | 1,010 | 22 | 115 | 126 | 3,280 | 8.7 | 0.2 | 7.0 | 2,440 | 21 | 0 |
| 2 | 1,110 | 1,100 | 16 | 36 | 262 | 2,460 | 7.4 | .3 | 6.3 | 6,310 | 14 | 0 |
| 3 | 347 | 1,200 | 16 | 211 | 247 | 1,890 | 6.3 | 1.4 | 4.9 | 8,070 | 9.3 | 0 |
| 4 | *152 | 1,260 | *17 | 349 | 176 | 1,500 | 5.3 | 1.2 | 3.6 | 7,120 | 6.8 | 0 |
| 5 | 94 | 542 | 15 | 1,890 | 127 | 1,330 | 4.0 | .6 | 3.4 | 5,640 | 4.4 | 0 |
| 6 | 60 | *155 | 14 | 2,850 | 97 | 1,170 | 2.8 | .3 | 2.8 | 4,360 | 2.8 | 0 |
| 7 | 39 | 97 | 13 | 3,160 | 74 | *473 | 1.6 | .2 | 2.2 | 3,440 | 2.0 | 0 |
| 8 | 27 | 67 | 12 | 5,040 | 58 | 217 | 1.2 | .1 | 1.7 | 2,770 | 1.6 | 0 |
| 9 | 24 | 44 | 9.6 | 8,720 | 44 | 147 | .9 | .1 | 1.2 | *1,690 | 1.4 | 0 |
| 10 | 18 | 41 | 7.7 | 7,740 | 36 | 110 | .6 | .1 | .7 | 755 | 1.2 | 0 |
| 11 | 275 | 98 | 6.3 | 4,680 | 34 | 82 | 2.3 | 0 | .4 | 784 | .9 | .1 |
| 12 | 739 | 172 | 5.5 | 3,100 | 80 | 64 | 2.3 | 0 | .2 | 908 | .5 | .1 |
| 13 | 976 | 198 | 4.6 | 2,320 | 72 | 50 | 1.4 | 0 | *0 | 1,010 | **.2 | .1 |
| 14 | 1,120 | 252 | 2.8 | 1,640 | 70 | 39 | 1.0 | 0 | 0 | 1,080 | .2 | .1 |
| 15 | 1,140 | 175 | 3.2 | *1,350 | 55 | 33 | .7 | 0 | 0 | 1,120 | .1 | **.1 |
| 16 | 799 | 97 | 3.2 | 1,600 | 40 | 29 | .2 | 17 | 0 | 994 | .1 | .1 |
| 17 | 650 | 88 | 3.0 | 2,000 | 27 | 24 | .2 | 519 | 0 | 489 | .1 | .1 |
| 18 | 429 | 94 | 2.2 | 1,050 | 21 | 19 | .5 | 799 | 0 | 273 | .1 | .1 |
| 19 | 262 | 106 | 2.2 | 284 | 18 | 16 | .5 | 994 | 38 | 217 | .1 | 1.6 |
| 20 | 222 | 106 | 1.7 | 143 | 33 | 14 | .4 | 1,120 | 539 | 176 | .1 | 131 |
| 21 | 159 | 91 | 1.2 | 103 | 1,290 | *13 | .6 | 588 | 754 | 143 | 0 | 121 |
| 22 | 116 | 80 | .9 | 77 | 3,860 | 22 | *.5 | 227 | 844 | 124 | 0 | 508 |
| 23 | 85 | 64 | 8.6 | 539 | 20,900 | 28 | .2 | 135 | 309 | 110 | 0 | 724 |
| 24 | 60 | 108 | 43 | 1,680 | *43,600 | 24 | .1 | 77 | 52 | 94 | 0 | 860 |
| 25 | 40 | 82 | 28 | 1,680 | 27,900 | 21 | .1 | 52 | 320 | 82 | 0 | 958 |
| 26 | 28 | 85 | 8.0 | 1,560 | *18,400 | 17 | .1 | 43 | 616 | 72 | 0 | 1,120 |
| 27 | 233 | 82 | 30 | 1,480 | 11,100 | 15 | .1 | *30 | 780 | 64 | 0 | 1,350 |
| 28 | 552 | 58 | 116 | 1,640 | 5,470 | 13 | .1 | 20 | 917 | 58 | 0 | 2,060 |
| 29 | 724 | 43 | 82 | 1,580 | - | 12 | .1 | 13 | 1,060 | 49 | 0 | 3,720 |
| 30 | 814 | 33 | 43 | 506 | ------- | 11 | .2 | 10 | 1,280 | 41 | 0 | 5,320 |
| 31 | 908 | ------- | 35 | 159 | ------- | 9.8 | ------- | 8.0 | ------- | 32 | 0 | ------- |
| Total | 13,762 | 7,628 | 572.7 | 59,282 | 134,217 | 13,132.8 | 50.4 | 4,656.5 | 7,543.4 | 50,515 | 66.9 | 16,874.4 |
| Mean | 444 | 254 | 18.5 | 1,912 | 4,793 | 424 | 1.68 | 150 | 251 | 1,630 | 2.16 | 562 |
| Ac-ft | 27,300 | 15,130 | 1,140 | 117,600 | 266,200 | 26,050 | 100 | 9,240 | 14,960 | 100,200 | 133 | 33,470 |

Calendar year 1957: Max 20,700 Min 0 Mean 919 Ac-ft 665,100
Water year 1957-58: Max 43,600 Min 0 Mean 845 Ac-ft 611,500

Peak discharge (base, 3,600 cfs).--Jan. 9 (4 p.m.) 9,300 cfs (1,958 ft); Feb. 24 (3 a.m.) 50,600 cfs (24.80 ft); July 3 (9 a.m.) 8,250 cfs (19.31 ft).

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

## 1950. 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.--405 sq mi.

Records available.--October 1923 to September 1958.

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.--33 years (1924-29, 1930-58), 95.7 cfs (69,280 acre-ft per year).

Extremes.--Maximum discharge during year, 28,400 cfs Sept. 19 (gage height, 16.12 ft), from rating curve extended above 1,300 cfs as explained below; minimum, 15 cfs Oct. 1-3.
1923-58: 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 measurements at gage heights 16.40 and 34.44 ft; no flow Aug. 5, 1956, to Jan. 6, 1957.
Maximum stage known since at least 1869, that of July 1, 1932.

Remarks.--Records good. 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. Many small diversions for irrigation above station.

Revisions (water years).--WSP 1342: Drainage area. WSP 1512: 1926, 1931-32, 1934(M), 1935-36.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 21 to May 20)

| | | | | | |
|---|---|---|---|---|---|
| 3.5 | 11 | 4.3 | 212 | 6.0 | 1,750 |
| 3.6 | 18 | 4.6 | 370 | 7.0 | 3,400 |
| 3.7 | 30 | 5.0 | 660 | 8.0 | 5,650 |
| 3.8 | 48 | 5.5 | 1,140 | 9.0 | 8,520 |
| 4.0 | 98 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 105 | 98 | 70 | 140 | 226 | 132 | 98 | 52 | 324 | 118 | 105 |
| 2 | 15 | 101 | 98 | 73 | 136 | 222 | 132 | 105 | 50 | 307 | 115 | 101 |
| 3 | 16 | 101 | 95 | 73 | 136 | 212 | 132 | 143 | 48 | 286 | 112 | 101 |
| 4 | 16 | 105 | 95 | 81 | 136 | 212 | 129 | 147 | 46 | 276 | 108 | 101 |
| 5 | 16 | 105 | 95 | 90 | 132 | *208 | 122 | 122 | 46 | 265 | 108 | 101 |
| 6 | 16 | 98 | 95 | 81 | 125 | 209 | 118 | 118 | 46 | 255 | 101 | 108 |
| 7 | 16 | 98 | 92 | 76 | 125 | 628 | 122 | 118 | 46 | 338 | 101 | 147 |
| 8 | 16 | 92 | 87 | 76 | 122 | 324 | *122 | *112 | 44 | 341 | 98 | 125 |
| 9 | 245 | 87 | 87 | 78 | 122 | 276 | 118 | 112 | 41 | 286 | 98 | 118 |
| 10 | *135 | 92 | 84 | 78 | 118 | 255 | 112 | 112 | 41 | 255 | 98 | 108 |
| 11 | 62 | 105 | 81 | 76 | 118 | 241 | 108 | 108 | 39 | 241 | 655 | 108 |
| 12 | 46 | 115 | 81 | 78 | 115 | 231 | 108 | 108 | 39 | 226 | 187 | 105 |
| 13 | 41 | 112 | 81 | 78 | 115 | 226 | 112 | 105 | 37 | 217 | 147 | 108 |
| 14 | 39 | 115 | 81 | 78 | 112 | 212 | 115 | *108 | 36 | 208 | 155 | 105 |
| 15 | 57 | 112 | 81 | 76 | 108 | 204 | 108 | 105 | 39 | *204 | 132 | 101 |
| 16 | 376 | 112 | 81 | 78 | 108 | 195 | 108 | 108 | 42 | 187 | 159 | 184 |
| 17 | 258 | 108 | 81 | 78 | 108 | 191 | 108 | 98 | 5,790 | 183 | 136 | 105 |
| 18 | 178 | 98 | *81 | 78 | 108 | 191 | 108 | 90 | 2,150 | 178 | 129 | 440 |
| 19 | 143 | 105 | 78 | 78 | 105 | 187 | 108 | 84 | 812 | 174 | 125 | 6,950 |
| 20 | 125 | *105 | 73 | 81 | 105 | 187 | 108 | 78 | *556 | 170 | 118 | 4,220 |
| 21 | 123 | 98 | 73 | 78 | 140 | 183 | 101 | 78 | 460 | 162 | 118 | 1,550 |
| 22 | 211 | 98 | 76 | 81 | 241 | 178 | 101 | 70 | 936 | 159 | 118 | 1,770 |
| 23 | 170 | 98 | 76 | *108 | 286 | 162 | 98 | 68 | 1,140 | 155 | 118 | 997 |
| 24 | 155 | 112 | 87 | 129 | 270 | 155 | 95 | 68 | 676 | 147 | 125 | 812 |
| 25 | 143 | 108 | 84 | 122 | 265 | 159 | 95 | 68 | 532 | 143 | *125 | 708 |
| 26 | 132 | 108 | 78 | 132 | 255 | 151 | 95 | 68 | 467 | 140 | 122 | 716 |
| 27 | 125 | 105 | 78 | 136 | 236 | 147 | 101 | 61 | 427 | 136 | 118 | 644 |
| 28 | 122 | 101 | 78 | 136 | 231 | 147 | 101 | 59 | 395 | 132 | 112 | 596 |
| 29 | 118 | 101 | 78 | 140 | - | 143 | 101 | 56 | 370 | 129 | 112 | 556 |
| 30 | 115 | 98 | 78 | 140 | ------- | 140 | 98 | 54 | 347 | 125 | 108 | 516 |
| 31 | 108 | ------- | 76 | 136 | ------- | 140 | ------- | 54 | ------- | 118 | 105 | ------- |
| Total | 3,354 | 3,098 | 2,587 | 2,893 | 4,318 | 6,542 | 3,316 | 2,883 | 15,750 | 6,467 | 4,281 | 22,406 |
| Mean | 108 | 103 | 83.5 | 93.3 | 154 | 211 | 111 | 93.0 | 525 | 209 | 138 | 747 |
| Ac-ft | 6,650 | 6,140 | 5,130 | 5,740 | 8,560 | 12,980 | 6,580 | 5,720 | 31,240 | 12,830 | 8,490 | 44,440 |

Calendar year 1957: Max 1,810 Min 0 Mean 67.5 Ac-ft 48,880
Water year 1957-58: Max 6,950 Min 15 Mean 213 Ac-ft 154,500

Peak discharge (base, 750 cfs).--May 7 (3:30 a.m.) 1,420 cfs (5.74 ft); June 17 (12:30 p.m.) 18,800 cfs (12.51 ft); June 22 (9 p.m.) 3,400 cfs (7.00 ft); Aug. 11 (5 a.m.) 1,890 cfs (6.04 ft); Sept. 17 (1 a.m.) 920 cfs (5.24 ft); Sept. 19 (6 p.m.) 28,400 cfs (16.12 ft); Sept. 21 (11 p.m.) 3,600 cfs (7.05 ft).

* Discharge measurement made on this day.

1960. Dry Frio River near Reagan Wells, Tex.

Location.--Lat 29°30', long 99°47', on right bank 1,000 ft upstream from Aldine School, 2 miles upstream from Rock Creek, and 4 miles southeast of Reagan Wells, Uvalde County.

Drainage area.--117 sq mi.

Records available.--September 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,335.2 ft above mean sea level, adjustment unknown (levels by Ground Water Branch).

Average discharge.--6 years, 25.7 cfs (18,610 acre-ft per year).

Extremes.--Maximum discharge during year, 10,700 cfs Sept. 19 (gage height, 13.72 ft, from floodmarks), from rating curve explained below; minimum, 12 cfs June 13, 14.
1952-58: Maximum discharge, 23,200 cfs Sept. 24, 1955 (gage height, 18.68 ft, from floodmarks), from rating curve extended above 700 cfs on basis of slope-area measurements at gage heights 14.12 and 26.0 ft (made at site 2.6 miles upstream); no flow at times.
Flood of June 14, 1935, reached a stage of 26.0 ft, from information by local resident (discharge at site 2.6 miles upstream, 64,700 cfs by slope-area measurement of peak flow).

Remarks.--Records good except those above 1,000 cfs and those for periods of no gage-height record, which are fair. Part of flow of Dry Frio River enters Edwards limestone in Balcones fault zone which corsses basin just north of Uvalde and below station. Most of low flow enters this formation. Small diversions above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 5 to Sept. 30)

| | | | |
|---|---|---|---|
| 2.5 | 11 | 4.0 | 494 |
| 2.6 | 18 | 4.5 | 790 |
| 2.8 | 39 | 5.0 | 1,110 |
| 3.0 | 75 | 6.0 | 1,840 |
| 3.3 | 158 | 7.0 | 2,620 |
| 3.6 | 288 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | 48 | 30 | 24 | 49 | 112 | 53 | 28 | 20 | 96 | 39 | 21 |
| 2 | 19 | 46 | 29 | 23 | 48 | 109 | 53 | 28 | 19 | 89 | 37 | 20 |
| 3 | 18 | 45 | 29 | 21 | 46 | 101 | 51 | 35 | 18 | 82 | 36 | 19 |
| 4 | 18 | 45 | 28 | 26 | 43 | 96 | 49 | 36 | 18 | 75 | 35 | 18 |
| 5 | 17 | 43 | 27 | 34 | 43 | *93 | 46 | 37 | 17 | 73 | 32 | 18 |
| 6 | 16 | 40 | 26 | 35 | 40 | 98 | 45 | 36 | 17 | 68 | 31 | 19 |
| 7 | 16 | 39 | 26 | 36 | 39 | *395 | 43 | 34 | 16 | 136 | 30 | 40 |
| 8 | 2,530 | 36 | 25 | 37 | 37 | 216 | 42 | *32 | 16 | 254 | 29 | 39 |
| 9 | *2,410 | 35 | 24 | 36 | 36 | 172 | *40 | 31 | 15 | 152 | 28 | 35 |
| 10 | *233 | 35 | 23 | 35 | 36 | 148 | 39 | 31 | 14 | 120 | 29 | 32 |
| 11 | 110 | 42 | 23 | 34 | 35 | 129 | 39 | 30 | 14 | 109 | 56 | 30 |
| 12 | 90 | 49 | 23 | 34 | 35 | 123 | 37 | 29 | 14 | 98 | 58 | 29 |
| 13 | 80 | 49 | 22 | 32 | 34 | 112 | 37 | 29 | 13 | 96 | 46 | 32 |
| 14 | 70 | 49 | 22 | 32 | 34 | 106 | 36 | 31 | 12 | 89 | 45 | 34 |
| 15 | 60 | 49 | 22 | 30 | 32 | 101 | 36 | 31 | 14 | *86 | 43 | 31 |
| 16 | 170 | 49 | 22 | *29 | 31 | 96 | 36 | 31 | 17 | 82 | 45 | 36 |
| 17 | 110 | 48 | 22 | 28 | 30 | 91 | 36 | 31 | 2,270 | 77 | 45 | 68 |
| 18 | 80 | 46 | *22 | 27 | 29 | 91 | 36 | 31 | 1,920 | 73 | 39 | 132 |
| 19 | 65 | 43 | 22 | 27 | 28 | 86 | 36 | 31 | 500 | 68 | 36 | 2,470 |
| 20 | 60 | *42 | 22 | 27 | 28 | 82 | 36 | 31 | 308 | 64 | 34 | 1,870 |
| 21 | 55 | 40 | 21 | 27 | 66 | 75 | 36 | 30 | *243 | 62 | 32 | 562 |
| 22 | 95 | 39 | 21 | 26 | 468 | 73 | 35 | 29 | 207 | 60 | 31 | 533 |
| 23 | 75 | 37 | 20 | 51 | 416 | 71 | 34 | 28 | 203 | 56 | 30 | *343 |
| 24 | 70 | 43 | 25 | 104 | 258 | 66 | 32 | 27 | 220 | 54 | 35 | 263 |
| 25 | 65 | 42 | 28 | 101 | 203 | 64 | 31 | 26 | 187 | 51 | *34 | 216 |
| 26 | 60 | 37 | 28 | 80 | 169 | 64 | 30 | 26 | 152 | 48 | 30 | 266 |
| 27 | 55 | 36 | 27 | 71 | 145 | 62 | 30 | 25 | 136 | 45 | 28 | 370 |
| 28 | 55 | 35 | 27 | 62 | 120 | 60 | 29 | 24 | 120 | *43 | 26 | 323 |
| 29 | 50 | 32 | 26 | *58 | - | 58 | 29 | 23 | 112 | 43 | 24 | 234 |
| 30 | 49 | 30 | 26 | 56 | ------- | 56 | 29 | 22 | 104 | 42 | 22 | 198 |
| 31 | 49 | ------- | 25 | 53 | ------- | 54 | ------- | 21 | ------- | 40 | 21 | ------- |
| Total | 6,870 | 1,249 | 763 | 1,296 | 2,578 | 3,260 | 1,141 | 914 | 6,936 | 2,531 | 1,086 | 8,301 |
| Mean | 222 | 41.6 | 24.6 | 41.8 | 92.1 | 105 | 38.0 | 29.5 | 231 | 81.6 | 35.0 | 277 |
| Ac-ft | 13,630 | 2,480 | 1,510 | 2,570 | 5,110 | 6,470 | 2,260 | 1,810 | 13,760 | 5,020 | 2,150 | 16,460 |

Calendar year 1957: Max 2,530 Min 0.2 Mean 44.2 Ac-ft 32,030
Water year 1957-58: Max 2,530 Min 12 Mean 101 Ac-ft 73,230

Peak discharge (base, 330 cfs).--Oct. 8 (time unknown) 10,000 cfs (13.34 ft); Feb. 22 (6 p.m.) 580 cfs (4.15 ft); Mar. 7 (2 a.m.) 718 cfs (4.38 ft); June 17 (11 p.m.) 8,000 cfs (12.0 ft); July 7 (10 p.m.) 544 cfs (3.97 ft); Sept. 19 (2 p.m.) 10,700 cfs (13.72 ft); Sept. 27 (6 p.m.) 1,010 cfs (4.65 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 8, 11-29, Dec. 11-17; discharge estimated on basis of recorded range in stage, floodmarks, weather records, and records for nearby stations.

1975. Frio River below Dry Frio River, near Uvalde, Tex.

Location.--Lat 29°14'55", long 99°40'24", on right bank 1 mile upstream from crossing of old Uvalde-Sabinal road, 4.3 miles downstream from Dry Frio River, 5 miles downstream from bridge on U. S. Highway 90, and 7.4 miles northeast of Uvalde, Uvalde County.

Drainage area.--661 sq mi.

Records available.--September 1952 to September 1958. Sum of records published as Frio River at Knippa and Dry Frio River at Knippa for period September 1952 to September 1953 is equivalent to record for this station.

Gage.--Water-stage recorder. Datum of gage is 882.47 ft above mean sea level, datum of 1929.

Average discharge.--6 years, 23.4 cfs (16,940 acre-ft per year).

Extremes.--Maximum discharge during year, 53,000 cfs June 17 (gage height, 19.7 ft, from floodmark), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow; no flow most of time.
1952-58: Maximum discharge, that of June 17, 1958; no flow most of time.
Maximum stage since at least 1887, about 35 ft in 1894. Flood of July 1, 1932, reached a stage of about 30 ft. A higher flood than that of 1894 occurred prior to 1887. Above information by local residents.

Remarks.--Records good except those for October and June 16-20, which are fair. Part of flow of Frio River enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde and above station. Most of low flow enters this formation. Many diversions for irrigation above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 9, 10)

| | | | |
|---|---|---|---|
| 2.0 | 0 | 3.5 | 92 |
| 2.1 | .21 | 4.0 | 185 |
| 2.2 | .78 | 4.5 | 320 |
| 2.3 | 1.9 | 5.0 | 520 |
| 2.4 | 3.6 | 6.0 | 1,170 |
| 2.6 | 9.1 | 7.0 | 2,270 |
| 2.8 | 17 | 9.0 | 5,800 |
| 3.0 | 30 | 11.0 | 11,100 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | | | | | 0 | | | 0 | 35 | | 0 |
| 2 | 0 | | | | | 0 | | | 0 | 20 | | 0 |
| 3 | 0 | | | | | 0 | | | 0 | 9.2 | | 0 |
| 4 | 0 | | | | | 0 | | | 0 | 2.9 | | 0 |
| 5 | 0 | | | | | 0 | | | 0 | .8 | | 0 |
| 6 | 0 | | | | | 0 | | | 0 | .6 | | 0 |
| 7 | 0 | | | (*) | | 0 | (*) | (*) | 0 | .6 | | 0 |
| 8 | *0 | | | | | 64 | | | 0 | **.4 | | 0 |
| 9 | *3,410 | | | | | *18 | | | 0 | .1 | | 0 |
| 10 | *466 | | | | | 1.8 | | | 0 | 0 | | 0 |
| 11 | *27 | | | | | .1 | | | 0 | 0 | | 0 |
| 12 | 3.6 | | | | | 0 | | | 0 | 0 | | 0 |
| 13 | 1.0 | | | | | 0 | | | 0 | 0 | | 0 |
| 14 | .5 | | | | | 0 | | | 0 | 0 | | 0 |
| 15 | .4 | | | | | 0 | | | 0 | 0 | | 0 |
| 16 | .4 | | | | | 0 | | | 0 | 0 | | *0 |
| 17 | .2 | | (*) | | | 0 | | | *4,900 | 0 | | 0 |
| 18 | .1 | | | | | 0 | | | 750 | 0 | | 88 |
| 19 | .1 | | | | | 0 | | | 280 | 0 | | 4,630 |
| 20 | .2 | (*) | | | | 0 | | | 250 | 0 | (*) | *9,050 |
| 21 | .1 | | | | | 0 | | | *222 | 0 | | 1,910 |
| 22 | .6 | | | | | 0 | | | 195 | 0 | | *1,840 |
| 23 | .4 | | | (*) | | 0 | | | 1,220 | *0 | | *877 |
| 24 | .2 | | | | | 0 | | | 475 | 0 | | 570 |
| 25 | .1 | | | | | 0 | | | 281 | 0 | | 434 |
| 26 | 0 | | | | | 0 | | | *192 | 0 | | 406 |
| 27 | 0 | | | | | 0 | | | 139 | 0 | | 394 |
| 28 | 0 | | | | | 0 | | | 105 | 0 | | 302 |
| 29 | 0 | | | | - | 0 | | | 78 | 0 | | 255 |
| 30 | 0 | | | | ------- | 0 | | | 55 | 0 | | 225 |
| 31 | *0 | ------- | | (*) | ------- | 0 | ------- | | ------- | 0 | | ------- |
| Total | 3,910.9 | 0 | 0 | 0 | 0 | 83.9 | 0 | 0 | 9,142 | 69.6 | 0 | 20,981 |
| Mean | 126 | 0 | 0 | 0 | 0 | 2.71 | 0 | 0 | 305 | 2.25 | 0 | 699 |
| Ac-ft | 7,760 | 0 | 0 | 0 | 0 | 166 | 0 | 0 | 18,130 | 138 | 0 | 41,620 |

Calendar year 1957: Max 3,410 Min 0 Mean 28.3 Ac-ft 20,480
Water year 1957-58: Max 9,050 Min 0 Mean 93.7 Ac-ft 67,810

Peak discharge (base, 1,000 cfs).--Oct. 9 (12 m.) 18,400 cfs (13.1 ft); June 17 (4 p.m.) 53,000 cfs (19.7 ft); June 23 (4 a.m.) 2,700 cfs (7.29 ft); Sept. 19 (11 p.m.) 30,000 cfs (15.7 ft).

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

Note.--No gage-height record Oct. 13, 14, 26-30, Nov. 17-19, Nov. 29 to Dec. 16, Jan. 26-30, May 2-6, May 22 to June 20; discharge estimated on basis of recorded range in stage, floodmarks, weather records, and records for nearby stations.

## 1980. Sabinal River near Sabinal, Tex.

Location.--Lat 29°30', long 99°29', on right bank, 470 ft upstream from low-water crossing on old 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 1958.

Gage.--Water-stage recorder. Datum of gage is 1,131.20 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 27.9 cfs (20,200 acre-ft per year).

Extremes.--Maximum discharge during year, 55,200 cfs June 17 (gage height, 24.6 ft), from rating curve extended above 1,200 cfs on basis of slope-area measurements at gage heights 9.60, 11.10, and 24.6 ft; minimum, 4.4 cfs Oct. 2, 5.
1942-58: Maximum discharge, that of June 17, 1958; no flow at times.
Flood of July 2, 1932, reached a stage of about 29 ft, from information by local residents.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 21 to July 15, Sept. 20-30)

| | | | | | |
|---|---|---|---|---|---|
| 1.2 | 1.4 | 1.8 | 120 | 4.0 | 1,460 |
| 1.3 | 8.6 | 2.0 | 195 | 6.0 | 3,560 |
| 1.4 | 21 | 2.5 | 420 | 10.0 | 9,000 |
| 1.5 | 38 | 3.0 | 710 | 13.0 | 13,900 |
| 1.6 | 60 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.2 | 53 | 72 | 44 | 145 | 222 | 131 | 86 | 66 | 288 | 66 | 44 |
| 2 | 5.2 | 50 | 72 | 42 | 142 | 218 | 131 | 95 | 66 | 271 | 63 | 44 |
| 3 | 5.2 | 50 | 69 | 42 | 138 | 203 | 127 | 117 | 63 | 259 | 63 | 42 |
| 4 | 5.2 | 53 | 69 | 50 | 134 | 199 | 124 | 127 | 60 | 242 | 60 | 40 |
| 5 | 5.2 | 50 | 69 | 92 | 134 | *203 | 117 | 104 | 58 | 234 | 60 | 40 |
| 6 | 5.2 | 46 | 69 | 86 | 131 | 199 | 114 | 95 | 58 | 218 | 60 | 44 |
| 7 | 5.2 | 46 | 66 | 74 | 124 | *1,510 | 111 | 89 | 60 | 242 | 60 | 74 |
| 8 | 6.0 | 42 | 66 | 72 | 124 | 410 | *111 | *89 | 58 | 214 | 58 | 55 |
| 9 | 17 | 40 | 66 | 72 | 124 | 345 | *111 | 89 | 55 | 203 | 58 | 50 |
| 10 | *22 | 44 | 63 | 72 | 127 | 316 | 104 | 89 | 53 | 191 | 58 | 48 |
| 11 | 17 | 77 | 58 | 69 | 120 | 284 | 101 | 86 | 53 | 179 | 130 | 46 |
| 12 | 14 | 89 | 60 | 74 | 120 | 284 | 101 | 83 | 44 | 168 | 74 | 55 |
| 13 | 13 | 92 | 60 | 72 | 114 | 254 | 101 | 83 | 44 | 164 | 66 | 48 |
| 14 | 13 | 89 | 60 | 66 | 114 | 242 | 101 | 95 | 46 | 152 | 63 | 46 |
| 15 | 284 | 83 | 60 | 66 | 108 | 234 | 98 | 164 | 50 | *145 | 60 | 52 |
| 16 | 278 | 80 | 60 | 63 | 104 | 226 | 95 | 151 | 60 | 142 | 60 | 316 |
| 17 | 104 | 80 | 60 | 63 | 101 | 222 | 95 | 108 | *a13,000 | 138 | 58 | 355 |
| 18 | 74 | 72 | *60 | 60 | 98 | 222 | 95 | 95 | a1,300 | 131 | 55 | 230 |
| 19 | 58 | *72 | 58 | 66 | 98 | 214 | 95 | 95 | a750 | 124 | 55 | 214 |
| 20 | 50 | 72 | 55 | 69 | 98 | 191 | 92 | 92 | a600 | 117 | 53 | 2,020 |
| 21 | 53 | 72 | 53 | 66 | 199 | 183 | 89 | 86 | *508 | 111 | 42 | 572 |
| 22 | 195 | 74 | 53 | 66 | 298 | 187 | 86 | 83 | 1,000 | 104 | 48 | 475 |
| 23 | 164 | 74 | 53 | 154 | 284 | 179 | 86 | 80 | 656 | 104 | 48 | 426 |
| 24 | 120 | 86 | 58 | 222 | 275 | 160 | 83 | 80 | 530 | 98 | 72 | *390 |
| 25 | 98 | 86 | 58 | 195 | 267 | 160 | 80 | 80 | 458 | 92 | 66 | 370 |
| 26 | 89 | 83 | 53 | 176 | 259 | 156 | 86 | 80 | 410 | 86 | 53 | 370 |
| 27 | 77 | 80 | 53 | 164 | 238 | 152 | 89 | 74 | 380 | 86 | *50 | 340 |
| 28 | 69 | 77 | 53 | 160 | 226 | 145 | 86 | 72 | 350 | 80 | 50 | 320 |
| 29 | 66 | 74 | 48 | *156 | - | 145 | 86 | 72 | 335 | 77 | 48 | 311 |
| 30 | 63 | 74 | 48 | 152 | ------- | 138 | 83 | 69 | 306 | 74 | 46 | 302 |
| 31 | 60 | ------- | 46 | 149 | ------- | 131 | ------- | 66 | ------- | 72 | 46 | ------- |
| Total | 2,040.4 | 2,060 | 1,848 | 2,974 | 4,444 | 7,934 | 3,009 | 2,874 | 21,477 | 4,806 | 1,849 | 7,739 |
| Mean | 65.8 | 68.7 | 59.6 | 95.9 | 159 | 256 | 100 | 92.7 | 716 | 155 | 59.6 | 258 |
| Ac-ft | 4,050 | 4,090 | 3,670 | 5,900 | 8,810 | 15,740 | 5,970 | 5,700 | 42,600 | 9,530 | 3,670 | 15,350 |

Calendar year 1957: Max 2,350 Min 0 Mean 45.9 Ac-ft 33,230
Water year 1957-58: Max 13,000 Min 5.2 Mean 173 Ac-ft 125,100

Peak discharge (base, 500 cfs).--Oct. 15 (8 p.m.) 910 cfs (3.30 ft); Mar. 7 (3 a.m.) 6,340 cfs (8.20 ft); Mar. 15 (9 p.m.) 536 cfs (2.79 ft); June 17 (8:30 a.m.) 55,200 cfs (24.6 ft); June 22 (1 p.m.) 2,370 cfs (4.74 ft); Sept. 16 (7 a.m.) 814 cfs (3.14 ft); Sept. 20 (6 a.m.) 6,200 cfs (8.05 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of field inspection, floodmarks, weather records, and information by local residents.

1985. Sabinal River at Sabinal, Tex.

Location.--Lat 29°19', long 99°29', near center of span at downstream side of bridge on U. S. Highway 90, about 1,000 ft downstream from Texas and New Orleans Railroad Co. bridge, 0.8 mile west of Sabinal, Uvalde County, and 6.5 miles upstream from Ranchero Creek.

Drainage area.--247 sq mi.

Records available.--September 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 882.17 ft above mean sea level, datum of 1929. Prior to July 29, 1958, wire-weight gage at same site and datum.

Average discharge.--6 years, 29.0 cfs (21,000 acre-ft per year).

Extremes.--Maximum discharge during year, 73,300 cfs June 17 (gage height, 33.3 ft); minimum, 1.4 cfs Aug. 7.
1952-58: Maximum discharge, that of June 17, 1958; no flow at times.
Maximum stage since at least 1890, about 40 ft Aug. 24, 1919, from information by local residents. Flood of July 2, 1932, reached a stage of 31 ft, from information by Southern Pacific Railway Co. Local residents report a flood occurred in 1858 that may have been the highest since at least 1850, stage unknown.

Remarks.--Records fair. Small diversions for irrigation above station. Most of low flow of the Sabinal River enters formations in the Balcones fault zone which crosses basin upstream from this station and below the next upstream station. Part of the flow enters the Edwards and associated limestones which lie upstream from other formations that receive water. Beginning August 1958, discharge measurements will be made at the lower edge of the outcrop of the Edwards and associated limestones to determine what part of the flow enters this formation. A discharge measurement of 18.6 cfs was made on Aug. 27, 1958, at a point 11.7 miles upstream from gage, showing losses in Edwards and associated limestones and partial losses into Buda limestone.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Apr. 29 to May 23, June 14 to July 9, Sept. 20-30)

| Oct. 1 to June 16 | | | | June 17 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 4.0 | 2.1 | 5.4 | 118 | 3.5 | 1.4 | 5.5 | 200 |
| 4.1 | 3.6 | 6.0 | 251 | 3.6 | 2.5 | 6.0 | 310 |
| 4.2 | 5.6 | 7.0 | 530 | 3.7 | 4.2 | 7.0 | 613 |
| 4.4 | 12 | 8.0 | 915 | 3.9 | 9.5 | 9.0 | 1,590 |
| 4.7 | 28 | 9.0 | 1,430 | 4.1 | 18 | 11.0 | 3,050 |
| 5.0 | 57 | | | 4.4 | 40 | 14.0 | 6,350 |
| | | | | 4.7 | 73 | 17.0 | 11,200 |
| | | | | 5.0 | 115 | 20.0 | 17,800 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.5 | 5.4 | 21 | 2.8 | 57 | 148 | 77 | 16 | 7 | 293 | 3.8 | 3.0 |
| 2 | 2.5 | 5.2 | 20 | 2.8 | 61 | 138 | 70 | 15 | 7 | 265 | 3.6 | 2.8 |
| 3 | 2.5 | 4.7 | 19 | 2.8 | 64 | 130 | 70 | 16 | 7 | 256 | 3.1 | 2.7 |
| 4 | 2.4 | 4.1 | 18 | 3.3 | 64 | 122 | 66 | 18 | 7 | 239 | 2.7 | 2.7 |
| 5 | 2.1 | 3.6 | 18 | 5.6 | 64 | *126 | 62 | 21 | 6 | 218 | 2.3 | 3.0 |
| 6 | 2.1 | 3.3 | 16 | 9.5 | 64 | 124 | 60 | 18 | 6 | 202 | 2.2 | 3.3 |
| 7 | 2.1 | 3.0 | 14 | 16 | 64 | 1,100 | *56 | 14 | 6 | 230 | 2.0 | 3.0 |
| 8 | 2.1 | 2.5 | 12 | 15 | 64 | 420 | 55 | *11 | 6 | 233 | 2.2 | 3.0 |
| 9 | 25 | 2.7 | 11 | 13 | 64 | 290 | 53 | 9.8 | 6 | 185 | 2.2 | 2.8 |
| 10 | 7.6 | 3.3 | 10 | 15 | 62 | 261 | 50 | 9.1 | 6 | 149 | 2.2 | 2.7 |
| 11 | *3.8 | 3.6 | 9.8 | 17 | 58 | 244 | *47 | 8.4 | 5 | 132 | 2.2 | 2.7 |
| 12 | 3.4 | *12 | 9.5 | 16 | 55 | 225 | 45 | 7.3 | 5 | 124 | 2.2 | 2.7 |
| 13 | 3.1 | 30 | 9.8 | 16 | 53 | 211 | 41 | 6.4 | 5 | 112 | 2.0 | 2.5 |
| 14 | 2.7 | 28 | 10 | 15 | 52 | 195 | 47 | 7.6 | 5.2 | 99 | 2.2 | 2.3 |
| 15 | 3.5 | 25 | 11 | 14 | 49 | 177 | 42 | 7.3 | 5.2 | *77 | 2.5 | 3.9 |
| 16 | 235 | 22 | 9.5 | 14 | 47 | 170 | 37 | 76 | 4.9 | 68 | 2.3 | 8.2 |
| 17 | 78 | 21 | *8.1 | 13 | 46 | 166 | 36 | 26 | *17,100 | 59 | 2.2 | 392 |
| 18 | 30 | 19 | 7.6 | 13 | 46 | 157 | 36 | 18 | *2,330 | 51 | 2.3 | 300 |
| 19 | 16 | 18 | 6.4 | 13 | 50 | 148 | 33 | 12 | 1,050 | 45 | 2.3 | 185 |
| 20 | 13 | 18 | 5.6 | 14 | 55 | 140 | 32 | 9.8 | 810 | 35 | 2.3 | 2,050 |
| 21 | 10 | 20 | 4.7 | 16 | 82 | 132 | 25 | 9.1 | 632 | 32 | 2.3 | 710 |
| 22 | 41 | 23 | 4.1 | 16 | 199 | 126 | 23 | 9.1 | 1,050 | 28 | 2.4 | 460 |
| 23 | 65 | 25 | 3.6 | 58 | 206 | 120 | 23 | 8.4 | 980 | 27 | 2.5 | *374 |
| 24 | 45 | 27 | 3.3 | 113 | 188 | 114 | 22 | 8 | 670 | 20 | 2.8 | 322 |
| 25 | 34 | 28 | 2.8 | 105 | 179 | 111 | 21 | 8 | 577 | 16 | 3.1 | 288 |
| 26 | 27 | 28 | 2.8 | 97 | 170 | 107 | 20 | 8 | *492 | 14 | 3.3 | 288 |
| 27 | 21 | 28 | 6.2 | 94 | 163 | 104 | 19 | 8 | 430 | 11 | *3.3 | 261 |
| 28 | 19 | 26 | 4.9 | 89 | 155 | 97 | 18 | 8 | 388 | 8.5 | 3.1 | 226 |
| 29 | 14 | 24 | 4.0 | *83 | - | 90 | 16 | 7 | 361 | 6.0 | 3.0 | 208 |
| 30 | 12 | 23 | 3.1 | 76 | ------- | 87 | 16 | 7 | 325 | 5.2 | 2.8 | 194 |
| 31 | 8.1 | ------- | 2.8 | 66 | ------- | 83 | ------- | 7 | ------- | 4.8 | 2.8 | ------- |
| Total | 735.5 | 486.4 | 288.6 | 1,043.8 | 2,481 | 5,863 | 1,218 | 414.3 | 27,289.3 | 3,244.5 | 80.2 | 6,309.3 |
| Mean | 23.7 | 16.2 | 9.31 | 33.7 | 88.6 | 189 | 40.6 | 13.4 | 910 | 105 | 2.59 | 210 |
| Ac-ft | 1,460 | 965 | 572 | 2,070 | 4,920 | 11,630 | 2,420 | 822 | 54,130 | 6,440 | 159 | 12,510 |

Calendar year 1957: Max 1,760 Min 0 Mean 27.7 Ac-ft 20,060
Water year 1957-58: Max 17,100 Min 2.0 Mean 135 Ac-ft 98,100

Peak discharge (base, 600 cfs).--Mar. 7 (9 a.m.) 4,190 cfs (12.3 ft); June 17 (12:30 p.m.) 73,300 cfs (33.3 ft); June 22 (7 p.m.) 2,570 cfs (10.00 ft); Sept. 17 (5 p.m.) 810 cfs (7.51 ft); Sept. 20 (10 a.m.) 5,580 cfs (13.37 ft).

* Discharge measurement made on this day.
Note.--Doubtful or no gage-height record May 24 to June 13, Sept. 11-15; discharge estimated on basis of recorded range in stage, weather records, and records for station near Sabinal.

## 2000. Hondo Creek near Tarpley, Tex.

Location.--Lat 29°34', long 99°15', on left bank 460 ft downstream from county low-water crossing, 6.2 miles southeast of Tarpley, Bandera County, and 16.7 miles northwest of Hondo.

Drainage area.--86.2 sq mi.

Records available.--August 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,169.1 ft above mean sea level, adjustment unknown (Magnolia Oil Co. bench mark).

Average discharge.--6 years, 30.1 cfs (21,790 acre-ft per year).

Extremes.--Maximum discharge during year, 69,800 cfs June 17 (gage height, 28.2 ft, from floodmark), from rating curve extended above 360 cfs on basis of slope-area measurements at gage heights 7.77, 15.46, and 28.2 ft; minimum, 7.6 cfs June 11.
1952-58: Maximum discharge, that of June 17, 1958; no flow at times 1952-57.
Maximum stage known since at least 1907, that of June 17, 1958. Flood in July 1932, reached a stage of about 26 ft, from information by local resident.

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

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 18-22)

| Oct. 1 to Jan. 11 | | | | Jan. 12 to Sept. 30 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.8 | 14 | 3.0 | 161 | 1.65 | 8.9 | 3.0 | 178 | 6.0 | 1,580 |
| 2.0 | 26 | 3.5 | 280 | 1.8 | 17 | 3.5 | 303 | 8.0 | 3,580 |
| 2.2 | 43 | 4.0 | 437 | 2.1 | 40 | 4.0 | 470 | 11.0 | 8,240 |
| 2.5 | 78 | 5.0 | 885 | 2.5 | 88 | 5.0 | 930 | 13.0 | 12,400 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 18 | 85 | 72 | 35 | 140 | 200 | 74 | 36 | 20 | 124 | 26 | 10 |
| 2 | 17 | 61 | 69 | 34 | 131 | 185 | 74 | 40 | 19 | 113 | 25 | 9.8 |
| 3 | 18 | 58 | 66 | 34 | 124 | 172 | *70 | 91 | 18 | 105 | 24 | 9.4 |
| 4 | 16 | 59 | 62 | 70 | 120 | 163 | 68 | 38 | 18 | 100 | 23 | 8.9 |
| 5 | 15 | 58 | 59 | 130 | 115 | 176 | 64 | 34 | 18 | 92 | 22 | 8.9 |
| 6 | 15 | 51 | 57 | 100 | 108 | 224 | *61 | 31 | 17 | 88 | 22 | 10 |
| 7 | 15 | 52 | 55 | 95 | 102 | 563 | 60 | 30 | 17 | 94 | 20 | 51 |
| 8 | 15 | 47 | 53 | 92 | 98 | 249 | 60 | 30 | 16 | 85 | 19 | 26 |
| 9 | 81 | 44 | 51 | 89 | 100 | 224 | 59 | 30 | 16 | 77 | 18 | 20 |
| 10 | 27 | 58 | 49 | 86 | 97 | 205 | 56 | 29 | 15 | 71 | 18 | 23 |
| 11 | *21 | 242 | 47 | 85 | 92 | 187 | 54 | 28 | 13 | 68 | 19 | 16 |
| 12 | 20 | 161 | 46 | 176 | 91 | 182 | 54 | 27 | 14 | 65 | 17 | 16 |
| 13 | 21 | 153 | 45 | 106 | 85 | 163 | 58 | *29 | 14 | 61 | 16 | 15 |
| 14 | 21 | 137 | 44 | 102 | 81 | 153 | 54 | 30 | 14 | *58 | 17 | 14 |
| 15 | 801 | 123 | 42 | 94 | 78 | 144 | 50 | 53 | 15 | 57 | 17 | 14 |
| 16 | 85 | 113 | 41 | 92 | 77 | 138 | 50 | 208 | 16 | 53 | 17 | 45 |
| 17 | 64 | 104 | 40 | 90 | 73 | 131 | 48 | 35 | *11,900 | 50 | 15 | 554 |
| 18 | 51 | 96 | 40 | 87 | 70 | 136 | 47 | 32 | 705 | 48 | *16 | 112 |
| 19 | 47 | *91 | *39 | 88 | 69 | 120 | 47 | 33 | *408 | 46 | 17 | 262 |
| 20 | 43 | 88 | 39 | 88 | 80 | 112 | 46 | 32 | 295 | 44 | 15 | 1,430 |
| 21 | 152 | 85 | 38 | 81 | 330 | 108 | 43 | 29 | 234 | 43 | 14 | 359 |
| 22 | 151 | 81 | 38 | *80 | 390 | 110 | 42 | 28 | 548 | 40 | 14 | 281 |
| 23 | 100 | 81 | 39 | 380 | 310 | 108 | 41 | 27 | 303 | 38 | 14 | 229 |
| 24 | 95 | 104 | 49 | 290 | 290 | 96 | 40 | 25 | 249 | 37 | 29 | *196 |
| 25 | 90 | 92 | 43 | 250 | *270 | 97 | 39 | 25 | 219 | 36 | 18 | 176 |
| 26 | 85 | 91 | 38 | 220 | 249 | 91 | 40 | 24 | 189 | 35 | 14 | 161 |
| 27 | 80 | 88 | 38 | 200 | 222 | 88 | 40 | 23 | 172 | 32 | 14 | 146 |
| 28 | 76 | 82 | 40 | 185 | 207 | 85 | 39 | 22 | 157 | 32 | 13 | 129 |
| 29 | 73 | 79 | 38 | 170 | - | 82 | 38 | 22 | 144 | 31 | 12 | 120 |
| 30 | 70 | 74 | 37 | 161 | ------- | 77 | 38 | 21 | 133 | 29 | 12 | 131 |
| 31 | 68 | ------- | 36 | 148 | ------- | 75 | ------- | 20 | ------- | 28 | 12 | ------- |
| Total | 2,451 | 2,718 | 1,450 | 3,938 | 4,199 | 4,844 | 1,554 | 1,162 | 15,916 | 1,880 | 549 | 4,583.0 |
| Mean | 79.1 | 90.6 | 46.8 | 127 | 150 | 156 | 51.8 | 37.5 | 531 | 60.6 | 17.7 | 153 |
| Ac-ft | 4,860 | 5,390 | 2,880 | 7,810 | 8,330 | 9,610 | 3,080 | 2,300 | 31,570 | 3,730 | 1,090 | 9,090 |

Calendar year 1957: Max 3,340 Min 0 Mean 56.5 Ac-ft 40,910
Water year 1957-58: Max 11,900 Min 8.9 Mean 124 Ac-ft 89,740

Peak discharge (base, 1,000 cfs).--Oct. 15 (6 a.m.) 7,520 cfs (10.6 ft); Feb. 21 (time unknown) 1,040 cfs (5.19 ft); Mar. 7 (1 a.m.) 2,700 cfs (7.23 ft); June 17 (9 a.m.) 69,800 cfs (28.2 ft); June 22 (11 a.m.) 2,450 cfs (6.94 ft); Sept. 17 (10:30 a.m.) 3,580 cfs (about 8 ft); Sept. 20 (4 a.m.) 8,240 cfs (11.03 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 23-30, Dec. 4-18, Dec. 26 to Jan. 6, Jan. 23-26, Feb. 16, 17, 19-25; discharge estimated on basis of recorded range in stage, floodmarks, discharge measurement, weather records, and records for station near Hondo.

## 2005. Hondo Creek near Hondo, Tex.

Location.--Lat 29°27', long 99°11', on left bank 43 ft upstream from Schlentz's Crossing, 7.8 miles northwest of Hondo, Medina County, and 13.5 miles upstream from Verde Creek.

Drainage area.--132 sq mi.

Records available.--August 1952 to September 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 986.4 ft above mean sea level (Western Geophysical bench mark).

Average discharge.--6 years, 25.3 cfs (18,320 acre-ft per year).

Extremes.--Maximum discharge during year, 71,700 cfs June 17 (gage height, 23.4 ft, from floodmarks), from rating curve extended above 450 cfs on basis of slope-area measurements at gage heights 10.34 and 23.4 ft; no flow many days.
1952-58: Maximum discharge, that of June 17, 1958; no flow most of time.
Maximum stage known since at least 1910, 25.8 ft in September 1919, from information by local resident.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Most of the low flow of Hondo Creek enters Edwards and associated limestones in Balcones fault zone which crosses basin upstream from station. Small diversions above station for irrigation.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.6 | 0 | 2.0 | 384 |
| .7 | 1.5 | 2.5 | 650 |
| .8 | 10 | 3.0 | 985 |
| .9 | 26 | 4.0 | 1,840 |
| 1.0 | 46 | 6.0 | 4,300 |
| 1.2 | 92 | 8.0 | 7,600 |
| 1.5 | 180 | 10.0 | 11,700 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 32 | 48 | 10 | 103 | 154 | 46 | 8.7 | 0 | 82 | | 0 |
| 2 | 0 | 26 | 46 | 8.7 | 97 | 145 | 46 | 11 | 0 | 75 | | 0 |
| 3 | 0 | 23 | 44 | 8.7 | 90 | 134 | *44 | 47 | 0 | 66 | | 0 |
| 4 | 0 | 23 | 40 | 14 | 87 | 125 | *40 | 14 | 0 | 61 | | 0 |
| 5 | 0 | 25 | 38 | 148 | 85 | 142 | 36 | 4.5 | 0 | 55 | (*) | 0 |
| 6 | 0 | 19 | 36 | 78 | 75 | 119 | 34 | 3.0 | 0 | 48 | | 0 |
| 7 | 0 | 18 | 34 | 70 | 68 | 648 | *32 | 1.9 | 0 | 50 | | 0 |
| 8 | 0 | 16 | 32 | 64 | 66 | 238 | 36 | 1.5 | 0 | 53 | | 0 |
| 9 | 0 | 10 | 30 | 61 | 64 | *201 | 34 | 1.5 | 0 | 40 | | 0 |
| 10 | 36 | 10 | 28 | 55 | 66 | 180 | *30 | 1.5 | 0 | 32 | | 0 |
| 11 | *2.4 | 172 | 26 | 50 | 59 | 164 | 28 | 1.1 | 0 | 26 | | 0 |
| 12 | 0 | 145 | 26 | 125 | 61 | 158 | 28 | .8 | 0 | 25 | | 0 |
| 13 | 0 | 131 | 24 | 70 | 57 | 142 | 30 | *.3 | 0 | 21 | | 0 |
| 14 | 0 | 111 | 22 | 61 | 50 | 131 | 30 | 1.1 | 0 | *16 | | 0 |
| 15 | 687 | 100 | 22 | 53 | 46 | 122 | 26 | 1.9 | 0 | 13 | | 0 |
| 16 | 134 | 82 | 22 | 50 | 42 | 114 | 23 | 32 | 0 | 11 | | 0 |
| 17 | 64 | 64 | 20 | 48 | 40 | 108 | 21 | 17 | *9,790 | 10 | | 435 |
| 18 | 50 | 50 | 18 | 48 | 38 | 111 | 21 | 3.7 | 1,140 | 8.7 | (*) | 140 |
| 19 | 42 | *48 | *18 | 44 | 38 | 103 | 19 | 2.4 | *405 | 6.4 | | 280 |
| 20 | 36 | 48 | 16 | 42 | 40 | 87 | 18 | 1.9 | 253 | 5.4 | | 1,900 |
| 21 | 100 | 44 | 16 | 40 | 237 | 82 | 16 | 1.5 | 194 | 4.5 | | 290 |
| 22 | 120 | 44 | 16 | *38 | 372 | 82 | 13 | 1.1 | 475 | 3.7 | | 190 |
| 23 | 70 | 42 | 16 | 433 | 327 | 92 | 11 | .5 | 261 | 2.4 | | 150 |
| 24 | 60 | 66 | 26 | 264 | 257 | 73 | *11 | .1 | 204 | 1.5 | | *136 |
| 25 | 54 | 66 | 23 | 201 | 223 | 70 | 10 | 0 | 177 | .2 | | 114 |
| 26 | 52 | 64 | 16 | 177 | 208 | 68 | 10 | 0 | 148 | 0 | | 100 |
| 27 | 50 | 60 | 16 | 158 | 180 | 64 | 11 | 0 | 128 | 0 | | 85 |
| 28 | 48 | 58 | 18 | 142 | 164 | 59 | 11 | 0 | 119 | *0 | | 73 |
| 29 | 45 | 54 | 14 | 131 | - | 55 | 10 | 0 | 106 | *0 | | 66 |
| 30 | 42 | 50 | 13 | 125 | ------- | 50 | 10 | 0 | 95 | 0 | | 64 |
| 31 | 40 | ------- | 11 | 114 | ------- | 48 | ------- | 0 | ------- | 0 | | ------- |
| Total | 1,732.4 | 1,701 | 775 | 2,931.4 | 3,240 | 4,069 | 735 | 160.0 | 13,495 | 716.8 | 0 | 4,023 |
| Mean | 55.9 | 56.7 | 25.0 | 94.6 | 116 | 131 | 24.5 | 5.16 | 450 | 23.1 | 0 | 134 |
| Ac-ft | 3,440 | 3,370 | 1,540 | 5,810 | 6,430 | 8,070 | 1,460 | 317 | 26,770 | 1,420 | 0 | 7,980 |

Calendar year 1957: Max 3,270 Min 0 Mean 52.5 Ac-ft 38,040
Water year 1957-58: Max 9,790 Min 0 Mean 92.0 Ac-ft 66,610

Peak discharge (base, 1,000 cfs).--Oct. 15 (8:30 a.m.) 5,850 cfs (7.02 ft); Jan. 23 (3 p.m.) 1,060 cfs (3.08 ft); Feb. 21 (5 p.m.) 1,020 cfs (3.04 ft); Mar. 7 (4 a.m.) 2,950 cfs (5.02 ft); June 17 (10:30 a.m.) 71,700 cfs (23.4 ft); June 22 (2 p.m.) 1,890 cfs (4.07 ft); Sept. 17 (1:30 p.m.) 2,420 cfs (4.56 ft); Sept. 20 (time unknown) 10,800 cfs (9.6 ft).

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

Note.--No gage-height record Oct. 17-29, Nov. 17, 18, Nov. 25 to Dec. 18, June 14-18, Sept. 18-23; discharge estimated on basis of recorded range in stage, floodmarks, 1 discharge measurement, weather records, and records for station near Tarpley.

## 2020. Seco Creek near Utopia, Tex.

Location.--Lat 29°33', long 99°24', on right bank half a mile downstream from county road crossing, 7.6 miles upstream from Bartz Spring Creek, and 9 miles southeast of Utopia, Uvalde County.

Drainage area.--53.2 sq mi.

Records available.--August 1952 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,245.8 ft above mean sea level, adjustment unknown (Magnolia Oil Co. bench mark).

Average discharge.--6 years, 13.9 cfs (10,060 acre-ft per year).

Extremes.--Maximum discharge during year, 52,600 cfs June 17 (gage height, 21.4 ft, from floodmark), from rating curve extended above 290 cfs on basis of slope-area measurements at gage heights 5.88, 10.3, and 21.4 ft; minimum, 1.7 cfs Sept. 4, 5.
1952-58: Maximum discharge, that of June 17, 1958; no flow at times.
Flood in 1935 reached a stage of about 19 ft, from information by local residents.

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

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 23 to July 21)

| | | | | | |
|---|---|---|---|---|---|
| 1.9 | 0 | 2.4 | 11 | 4.0 | 510 |
| 2.0 | .1 | 2.6 | 30 | 5.0 | 1,150 |
| 2.1 | .7 | 2.8 | 64 | 6.0 | 2,030 |
| 2.2 | 2.3 | 3.0 | 120 | 8.0 | 4,660 |
| 2.3 | 5.5 | 3.5 | 295 | 9.0 | 6,400 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 24 | 24 | 12 | 51 | 69 | 32 | 13 | 6.0 | 96 | 12 | 2.1 |
| 2 | 11 | 24 | 24 | 12 | 47 | 64 | 32 | 16 | 6.0 | 90 | 12 | 1.9 |
| 3 | 9.5 | 22 | 23 | 12 | 45 | 60 | *30 | 38 | 5.5 | 82 | 11 | 1.9 |
| 4 | 9.0 | 23 | 22 | 15 | 44 | 58 | 28 | 15 | 5.5 | 77 | 10 | 1.7 |
| 5 | 8.4 | 21 | 22 | 44 | 42 | 69 | 26 | 13 | 5.1 | 69 | 9.5 | 1.7 |
| 6 | 7.8 | 19 | 22 | 42 | 39 | 89 | 25 | 12 | 5.5 | 67 | 9.0 | 2.1 |
| 7 | 7.3 | 18 | 21 | 42 | 38 | 278 | 25 | 12 | 4.7 | 69 | 8.4 | 17 |
| 8 | 6.9 | 17 | 19 | 39 | 36 | *114 | 25 | 12 | 4.4 | 58 | 7.8 | 5.5 |
| 9 | 40 | 16 | 19 | 39 | 36 | 99 | 24 | 12 | 4.4 | 54 | 7.8 | 8.4 |
| 10 | *14 | 17 | 18 | 36 | 36 | 90 | 22 | 11 | 4.0 | 51 | 9.0 | 4.0 |
| 11 | 11 | 66 | 17 | 36 | 33 | 82 | 22 | 10 | 3.7 | 49 | 9.5 | 3.4 |
| 12 | 10 | 42 | 17 | 47 | 33 | 80 | 22 | 9.5 | 3.4 | 44 | 7.8 | 3.4 |
| 13 | 10 | 44 | 17 | 36 | 32 | 72 | 22 | *9.5 | 3.1 | 42 | 7.3 | 3.7 |
| 14 | 10 | 40 | 17 | 34 | 30 | 64 | 21 | 12 | 3.4 | 38 | 8.7 | 3.1 |
| 15 | 168 | 38 | 17 | 33 | 28 | 62 | 20 | 19 | 5.5 | *36 | 6.0 | 8.3 |
| 16 | 32 | 34 | 17 | 32 | 28 | 58 | 20 | 16 | 5.5 | 34 | 5.5 | 38 |
| 17 | 26 | 33 | 16 | 32 | 26 | 56 | 19 | 14 | *a5,800 | 33 | 6.0 | 215 |
| 18 | 23 | 30 | 16 | 30 | 25 | 60 | 19 | 11 | a650 | 29 | 4.7 | 86 |
| 19 | 22 | *30 | *15 | 29 | 25 | 53 | 18 | 14 | *a310 | 26 | 4.4 | 125 |
| 20 | 19 | 29 | 14 | 30 | 25 | 49 | 17 | 13 | a180 | 25 | 4.0 | 1,280 |
| 21 | 26 | 28 | 14 | 29 | 100 | 47 | 16 | 10 | a140 | 24 | 3.7 | 255 |
| 22 | 70 | 28 | 14 | *28 | 102 | 45 | 16 | 9.5 | a420 | 22 | 3.4 | 206 |
| 23 | 51 | 29 | 14 | 121 | 102 | 44 | 15 | 9.5 | *244 | 22 | 3.4 | 171 |
| 24 | 44 | 34 | 16 | 99 | 93 | 42 | 14 | 9.0 | 206 | 21 | 16 | *144 |
| 25 | 39 | 30 | 15 | 82 | 87 | 42 | 13 | 8.4 | 174 | 19 | 4.4 | 132 |
| 26 | 34 | 30 | 14 | 74 | 85 | 39 | 14 | 8.4 | 154 | 17 | *3.7 | 123 |
| 27 | 32 | 29 | 15 | 69 | 74 | 38 | 14 | 7.8 | 138 | 16 | 3.4 | 114 |
| 28 | 30 | 29 | 14 | 62 | 69 | 36 | 14 | 7.3 | 129 | 16 | 3.1 | 102 |
| 29 | 29 | 28 | 13 | 58 | - | 36 | 13 | 7.3 | 117 | 15 | 2.8 | 93 |
| 30 | 26 | 24 | 13 | 56 | ------- | 33 | 13 | 6.9 | 105 | 14 | 2.3 | 90 |
| 31 | 25 | ------- | 12 | 53 | ------- | 32 | ------- | 6.4 | ------- | 13 | 2.3 | ------- |
| Total | 862.9 | 876 | 531 | 1,363 | 1,411 | 2,060 | 611 | 372.5 | 8,842.7 | 1,268 | 208.9 | 3,242.2 |
| Mean | 27.8 | 29.2 | 17.1 | 44.0 | 50.4 | 66.5 | 20.4 | 12.0 | 295 | 40.9 | 6.74 | 108 |
| Ac-ft | 1,710 | 1,740 | 1,050 | 2,700 | 2,800 | 4,090 | 1,210 | 739 | 17,540 | 2,520 | 414 | 6,430 |

Calendar year 1957: Max 1,570 Min 0 Mean 21.4 Ac-ft 15,500
Water year 1957-58: Max 5,800 Min 1.7 Mean 59.3 Ac-ft 42,940

Peak discharge (base, 1,000 cfs).--Oct. 15 (6:30 a.m.) 1,190 cfs (5.06 ft); Mar. 7 (1 a.m.) 1,420 cfs (5.45 ft); June 17 (6 a.m.) 52,600 cfs (21.4 ft); June 22 (12 m.) 2,880 cfs (6.77 ft); Sept. 20 (2:30 a.m.) 9,500 cfs (10.47 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of floodmarks, 2 discharge measurements, weather records, and records for station near D'Hanis.

## 2025. Seco Creek near D'Hanis, Tex.

Location.--Lat 29°29', long 99°23', on right bank a quarter of a mile downstream from concrete dam and road crossing at Woodward Ranch headquarters, 2.8 miles upstream from Bartz Spring Creek, and 12.8 miles northwest of D'Hanis, Medina County.
Drainage area.--87.4 sq mi.
Records available.--August 1952 to September 1958.
Gage.--Water-stage recorder. Datum of gage is 1,142.8 ft above mean sea level (levels by Ground Water Branch).
Average discharge.--6 years, 15.1 cfs (10,930 acre-ft per year).
Extremes.--Maximum discharge during year, 72,000 cfs June 17 (gage height, 20.8 ft, from floodmark), from rating curve extended above 250 cfs on basis of slope-area measurement at gage height 9.30 ft and slope-area measurement made at site 6½ miles downstream; no flow for many days.
1952-58: Maximum discharge, that of June 17, 1958; no flow most of time.
Maximum stage since at least 1866, 26.2 ft in May 1935. Flood of Aug. 31, 1894, reached a stage about 10 ft lower than that of May 1935, and was second highest prior to June 17, 1958, from information by local residents.
Remarks.--Records good prior to June 3, fair thereafter except for periods of no gage-height record, which are poor. All of low flow of Seco Creek enters Edwards and associated limestones in the Balcones fault zone which crosses basin just north of Uvalde and above this station. No known diversion above station.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.7 | 22 | 21 | 5.8 | 53 | 70 | 29 | 11 | 0.1 | 67 | | 0 |
| 2 | 1.8 | 21 | 21 | 6.1 | 51 | 65 | 29 | 13 | .1 | 60 | | 0 |
| 3 | 1.4 | 19 | 20 | 6.4 | 49 | 60 | *26 | 44 | 0 | 55 | | 0 |
| 4 | 1.2 | 20 | 19 | 8.8 | 48 | 58 | 24 | 14 | 0 | 47 | | 0 |
| 5 | .8 | 20 | 18 | 44 | 46 | 66 | 22 | 10 | 0 | 44 | | 0 |
| 6 | .8 | 20 | 17 | 40 | 41 | 77 | 21 | 8.4 | 0 | 39 | | 0 |
| 7 | .7 | 17 | 17 | 37 | 38 | 357 | 21 | 7.2 | 0 | 43 | | 0 |
| 8 | .6 | 13 | 14 | 36 | 38 | *116 | 20 | 6.8 | 0 | 34 | | 0 |
| 9 | 32 | 12 | 14 | 34 | 38 | 103 | 20 | 6.4 | 0 | 31 | | 0 |
| 10 | *9.8 | 12 | 14 | 33 | 38 | 94 | 18 | 6.1 | 0 | 28 | | 0 |
| 11 | 4.9 | 68 | 11 | 31 | 34 | 84 | 18 | 5.5 | 0 | 25 | | 0 |
| 12 | 3.6 | 51 | 12 | 43 | 34 | 82 | 18 | 4.3 | 0 | 22 | | 0 |
| 13 | 3.1 | 49 | 12 | 37 | 31 | 75 | 19 | *4.3 | 0 | 21 | | 0 |
| 14 | 2.5 | 45 | 12 | 33 | 29 | 68 | 18 | 7.6 | 0 | 17 | | 0 |
| 15 | 231 | 41 | 10 | 30 | 26 | 65 | 16 | 18 | 0 | *16 | | 0 |
| 16 | 38 | 40 | 10 | 30 | 25 | 64 | 16 | 17 | 0 | 14 | | 114 |
| 17 | 28 | 38 | 9.6 | 29 | 24 | 58 | 16 | 11 | 9,140 | 14 | | 395 |
| 18 | 23 | 33 | 9.6 | 28 | 23 | 60 | 15 | 7.6 | 680 | 12 | | 160 |
| 19 | 21 | *32 | *9.2 | 28 | 22 | 54 | 15 | 7.6 | *275 | 11 | | 182 |
| 20 | 18 | 32 | 7.6 | 28 | 23 | 51 | 14 | 12 | 190 | 10 | | 1,970 |
| 21 | 22 | 30 | 8.0 | 28 | 123 | 48 | 13 | 6.8 | 155 | 10 | | 270 |
| 22 | 90 | 29 | 8.0 | *27 | 103 | 49 | 12 | 5.2 | 580 | 8.2 | | 200 |
| 23 | 54 | 29 | 7.6 | 116 | 101 | 46 | 12 | 4.6 | *226 | 6.6 | | 161 |
| 24 | 48 | 37 | 10 | 114 | 92 | 42 | 10 | 3.8 | 179 | *4.0 | | *135 |
| 25 | 41 | 33 | 9.2 | 90 | 86 | 43 | 10 | 3.1 | 150 | .2 | | 118 |
| 26 | 38 | 29 | 6.8 | 81 | 82 | 41 | 12 | 2.9 | 128 | 0 | (*) | 105 |
| 27 | 33 | 28 | 8.4 | 75 | 73 | 40 | 13 | 2.5 | 110 | 0 | | 95 |
| 28 | 31 | 26 | 9.2 | 70 | 68 | 39 | 12 | 1.8 | 99 | 0 | | 85 |
| 29 | 29 | 25 | 7.2 | 65 | - | 37 | 11 | 1.5 | 87 | 0 | | 75 |
| 30 | 28 | 21 | 7.2 | 62 | ------- | 32 | 10 | 1.0 | 75 | 0 | | 71 |
| 31 | 25 | ------- | 7.1 | 56 | ------- | 31 | ------- | .3 | ------- | 0 | | ------- |
| Total | 863.9 | 892 | 366.7 | 1,352.1 | 1,439 | 2,175 | 510 | 255.3 | 12,074.2 | 639.0 | 0 | 4,136 |
| Mean | 27.9 | 29.7 | 11.8 | 43.6 | 51.4 | 70.2 | 17.0 | 8.24 | 402 | 20.6 | 0 | 138 |
| Ac-ft | 1,710 | 1,770 | 727 | 2,680 | 2,850 | 4,310 | 1,010 | 506 | 23,950 | 1,270 | 0 | 8,200 |

Calendar year 1957: Max 1,800 Min 0 Mean 23.4 Ac-ft 16,900
Water year 1957-58: Max 9,140 Min 0 Mean 67.7 Ac-ft 48,980

Peak discharge (base, 800 cfs).--Oct. 15 (7:30 a.m.) 1,410 cfs (4.22 ft); Mar. 7 (1:30 a.m.) 1,650 cfs (4.52 ft); June 17 (7 a.m.) 72,000 cfs (20.8 ft); June 22 (12 m.) 3,580 cfs (6.62 ft); Sept. 16 (7:30 a.m.) 1,360 cfs (4.68 ft); Sept. 17 (1 p.m.) 1,100 cfs (4.42 ft); Sept. 20 (4:30 a.m.) 14,100 cfs (11.71 ft).

* Discharge measurement or observation of no flow made on this day.
Note.--No gage-height record June 3-20; discharge estimated on basis of recorded range in stage, floodmarks, 1 discharge measurement, weather records, and records for station near Utopia.

## 2040. 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 1958. 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.--19 years, 7.86 cfs (5,690 acre-ft per year).
Extremes.--No spring discharge during year; maximum gage height, 13.89 ft Oct. 9 (from floodmark, result of surface flow).
1939-58: Maximum daily spring discharge, 33 cfs Feb. 15-18, 1942, maximum gage height, 18.42 ft Aug. 31, 1953 (from floodmark, result of surface flow); no flow at times in 1948-49, 1951-58.
Remarks.--No spring discharge since Mar. 5, 1951. 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 channel above station.

## 2055. 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 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 449.47 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.--43 years, 138 cfs (99,910 acre-ft per year).

Extremes.--Maximum discharge during year, 22,200 cfs June 20 (gage height, 14.84 ft); no flow for many days.
1915-58: 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 measurement of peak flow; no flow at times.
Maximum stage since at least 1860, that of July 4, 1932.

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. Considerable losses of flood-flows into various permeable formations occur downstream from the Balcones fault zone. Many diversions for irrigation above station.

Revisions (water years).--WSP 568: 1915-16, 1918-22, drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.08 | 0 | 0.7 | 51 | 4.0 | 1,140 |
| .1 | .05 | 1.0 | 105 | 6.0 | 1,970 |
| .2 | .5 | 1.3 | 180 | 8.0 | 3,080 |
| .3 | 5.4 | 1.7 | 302 | 10.0 | 6,900 |
| .4 | 14 | 2.0 | 402 | 12.0 | 12,800 |
| .5 | 25 | 3.0 | 750 | 14.0 | 19,300 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.2 | 12 | 20 | 0 | 146 | 335 | 88 | 1.4 | 0 | 419 | 1.8 | 0 |
| 2 | 1.8 | 7.8 | 15 | 0 | 133 | 296 | 79 | 1.0 | 0 | 361 | 1.0 | 0 |
| 3 | .5 | 4.6 | 12 | 0 | 112 | 270 | 71 | 32 | 0 | 315 | .3 | 0 |
| 4 | .3 | 2.6 | 10 | 0 | 99 | 248 | 68 | 1,330 | 0 | 270 | .1 | 0 |
| 5 | .2 | 1.0 | 10 | 19 | 88 | 227 | 63 | 2,710 | 0 | 239 | 0 | 0 |
| 6 | .1 | .3 | 10 | 28 | 82 | 212 | 58 | 471 | 0 | 209 | 0 | 0 |
| 7 | *0 | .2 | 7.8 | 223 | 77 | 215 | 50 | *92 | 0 | 206 | 0 | 0 |
| 8 | 0 | .1 | 6.2 | 224 | 70 | *617 | *44 | 30 | 0 | 402 | 0 | 0 |
| 9 | 24 | .1 | 4.6 | 130 | 63 | 1,440 | 40 | 17 | 0 | 305 | 0 | 0 |
| 10 | 2,520 | .1 | 3.8 | 110 | 58 | 660 | 38 | 10 | 0 | 180 | 0 | 0 |
| 11 | 6,760 | .3 | 2.6 | 68 | 56 | 487 | 36 | 6.2 | 0 | 143 | 0 | 0 |
| 12 | 2,510 | .3 | 2.2 | 92 | 58 | 433 | 33 | 3.2 | 0 | 121 | 0 | 0 |
| 13 | 750 | .2 | 1.4 | 314 | 58 | 382 | 30 | 2.6 | 0 | 101 | 0 | 0 |
| 14 | 385 | 50 | .4 | 142 | 58 | 361 | 27 | 1.8 | 0 | 90 | 0 | 0 |
| 15 | 128 | 86 | .3 | 119 | 56 | 328 | 26 | .8 | 0 | 77 | 0 | 0 |
| 16 | 47 | 82 | .2 | 62 | 52 | 292 | 29 | .5 | 0 | 68 | 0 | *0 |
| 17 | 438 | 70 | *.2 | 40 | 47 | 267 | 29 | .5 | 0 | 60 | 0 | 0 |
| 18 | 158 | 54 | .1 | 30 | 43 | 245 | 29 | 19 | 1,010 | 52 | 0 | 32 |
| 19 | 71 | 44 | .1 | 27 | 38 | 227 | 24 | 13 | 7,240 | 47 | 0 | 345 |
| 20 | 50 | 33 | 0 | 23 | 36 | 215 | 23 | 5.4 | 18,900 | 38 | 0 | 493 |
| 21 | 24 | 24 | 0 | 22 | 43 | 215 | 18 | 2.2 | 8,510 | 33 | 0 | 3,180 |
| 22 | 13 | 20 | 0 | 22 | 97 | 186 | 16 | 1.0 | 3,040 | 31 | 0 | 9,470 |
| 23 | 13 | 20 | 0 | 30 | 476 | 175 | 14 | .4 | 1,590 | 26 | 0 | 6,530 |
| 24 | 152 | 20 | 0 | 79 | 1,030 | 180 | 10 | .3 | 2,270 | 23 | 0 | 3,300 |
| 25 | 175 | 17 | 0 | 1,100 | 841 | 172 | 9.4 | .2 | 2,700 | 20 | 0 | 1,760 |
| 26 | 138 | 17 | 0 | 837 | 589 | 143 | 7.0 | .1 | 1,600 | 17 | 0 | 1,020 |
| 27 | 128 | 26 | 0 | 416 | 487 | 128 | 4.6 | .1 | 864 | 14 | 0 | 826 |
| 28 | 73 | 31 | 0 | 309 | 416 | 123 | 4.6 | 0 | 660 | 9.4 | 0 | 845 |
| 29 | 44 | 30 | 0 | 245 | - | 114 | 2.6 | 0 | 555 | 7.8 | *0 | 678 |
| 30 | 29 | 23 | 0 | *203 | ------- | 105 | 2.2 | 0 | 487 | 4.6 | 0 | 572 |
| 31 | 18 | ------- | 0 | 169 | ------- | 94 | ------- | 0 | ------- | 2.2 | 0 | ------- |
| Total | 14,654.1 | 676.6 | 106.9 | 5,083 | 5,409 | 9,392 | 973.4 | 4,751.7 | 49,426 | 3,891.0 | 3.2 | 29,051 |
| Mean | 473 | 22.6 | 3.45 | 164 | 193 | 303 | 32.4 | 153 | 1,648 | 126 | 0.10 | 968 |
| Ac-ft | 29,070 | 1,340 | 212 | 10,080 | 10,730 | 18,630 | 1,930 | 9,420 | 98,040 | 7,720 | 6.3 | 57,620 |

Calendar year 1957: Max 7,790 Min 0 Mean 315 Ac-ft 228,000
Water year 1957-58: Max 18,900 Min 0 Mean 338 Ac-ft 244,800

Peak discharge (base, 1,100 cfs).--Oct. 11 (12 m.) 7,440 cfs (10.22 ft); Jan. 25 (9 p.m.) 1,470 cfs (4.76 ft); Feb. 24 (7 p.m.) 1,300 cfs (4.38 ft); Mar. 9 (7 a.m.) 1,680 cfs (5.31 ft); May 5 (2 p.m.) 3,200 cfs (8.08 ft); June 20 (5 a.m.) 22,200 cfs (14.84 ft); June 25 (5 a.m.) 2,980 cfs (7.93 ft); Sept 22 (2 p.m.) 10,600 cfs (11.33 ft).

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

## 2070. Frio River at Calliham, Tex.

Location (revised).--Lat 28°29'30", long 98°20'45", on right bank at upstream side of county bridge, 0.5 mile upstream from bridge on Farm Road 99, 1 mile north of Calliham, McMullen County, and 10.4 miles (revised) downstream from San Miguel Creek.
Drainage area.--5,491 sq mi.
Records available.--October 1924 to April 1926 (monthly discharge only), April 1932 to September 1958.
Gage.--Water-stage recorder and concrete control. Datum of gage is 153.47 ft above mean sea level, datum of 1929. Prior to Apr. 30, 1926, staff gage at present site and datum.
Average discharge.--27 years (1924-25, 1932-58), 257 cfs (186,100 acre-ft per year).
Extremes.--Maximum discharge during year, 16,000 cfs Feb. 23 (gage height, 29.95 ft); minimum, 0.1 cfs Sept. 4.
1924-26, 1932-58: Maximum discharge, 70,000 cfs (revised) July 6, 1932 (gage height, 39.2 ft, from floodmarks), from rating curve extended above 16,000 cfs on basis of logarithmic extension; no flow at times.
Maximum stage since at least 1870, that of July 6, 1932, from information by local resident.
Revisions.--The maximum discharge for the water year 1932 has been revised to 70,000 cfs July 6, 1932 (gage height, 39.2 ft), superseding figure published in WSP 733.
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. Considerable losses of flood-flows into various permeable formations occur downstream from the Balcones fault zone. Many diversions above station for irrigation.
Revisions.--WSP 788: Drainage area. Revised figures of discharge, in cubic feet per second, for high-water periods in the water year 1932, superseding those published in WSP 733, are given herewith:

July 6, 1932..... 33,000
July 7, 1932..... 60,200

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| July 1932..... | 60,200 | 0 | 6,100 | 375,000 |

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 2.2 | 0 | 2.9 | 28 | 16.0 | 2,900 |
| 2.3 | .6 | 3.2 | 64 | 22.0 | 5,100 |
| 2.4 | 2.5 | 3.6 | 140 | 26.0 | 7,900 |
| 2.5 | 5.4 | 4.0 | 250 | 29.0 | 12,600 |
| 2.6 | 8.5 | 5.0 | 480 | 30.0 | 16,000 |
| 2.7 | 13 | 10.0 | 1,430 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 125 | 84 | 38 | 338 | 289 | 958 | 125 | 17 | 13 | 1,180 | 12 | 0.3 |
| 2 | 84 | 64 | 40 | 276 | 238 | 718 | 118 | 16 | 11 | 820 | 9.8 | .2 |
| 3 | 58 | 51 | 43 | 148 | 202 | 570 | 114 | 57 | 11 | 552 | 8.5 | .2 |
| 4 | *42 | 43 | *39 | 143 | 172 | 480 | 106 | 397 | 9.8 | 440 | 7.9 | .2 |
| 5 | 30 | 35 | 35 | 3,680 | 158 | 420 | 98 | 291 | 9.8 | 370 | 7.0 | .2 |
| 6 | 24 | *31 | 33 | 6,900 | 140 | 370 | 91 | 1,200 | 9.4 | 307 | 6.0 | 32 |
| 7 | 18 | 27 | 30 | 6,510 | 127 | 330 | 84 | 1,860 | 9.0 | 274 | 5.4 | 208 |
| 8 | 14 | 25 | 26 | 5,920 | 114 | 289 | 80 | 840 | 8.2 | 631 | 4.8 | 157 |
| 9 | 1,800 | 21 | 24 | 2,790 | 108 | 259 | 74 | 1,030 | 7.9 | 394 | 4.2 | 17 |
| 10 | 5,660 | 23 | 21 | 1,040 | 106 | 244 | 70 | 941 | 7.6 | *672 | 3.6 | 32 |
| 11 | 5,740 | 52 | 19 | 464 | 160 | 452 | 63 | 160 | 7.0 | 624 | 3.3 | 90 |
| 12 | 1,720 | 1,230 | 18 | 2,570 | 168 | 844 | 56 | 80 | 6.6 | 496 | 3.1 | 53 |
| 13 | 1,180 | 545 | 18 | 3,550 | 172 | 990 | 50 | 61 | 6.0 | 271 | 3.1 | 111 |
| 14 | 1,910 | 337 | 17 | 1,300 | 138 | 711 | 67 | 53 | 5.7 | 178 | *2.8 | 20 |
| 15 | 3,260 | 148 | 16 | 500 | 118 | 498 | 78 | 45 | 5.7 | 140 | 2.2 | *22 |
| 16 | 2,750 | 110 | 16 | *410 | 94 | 430 | 57 | 115 | 5.4 | 112 | 2.0 | 14 |
| 17 | 1,270 | 98 | 15 | 335 | 84 | 390 | 69 | 77 | 5.1 | 96 | 2.0 | 209 |
| 18 | 359 | 80 | 14 | 217 | 77 | 360 | 56 | 44 | 6.6 | 84 | 2.5 | 310 |
| 19 | 142 | 112 | 14 | 170 | 74 | 318 | 44 | 43 | 18 | 74 | 2.0 | 480 |
| 20 | 285 | 104 | 13 | 131 | 77 | 280 | 39 | 53 | 11 | 64 | 1.8 | 854 |
| 21 | 293 | 93 | 12 | 102 | 3,030 | *256 | *40 | 44 | 154 | 56 | 2.0 | 874 |
| 22 | 133 | 153 | 12 | 84 | 11,100 | 232 | 39 | 30 | 627 | 50 | 1.6 | 566 |
| 23 | 100 | 112 | 13 | 827 | *15,600 | 238 | 36 | 26 | 969 | 44 | 1.4 | 1,480 |
| 24 | 80 | 384 | 29 | 4,260 | *12,000 | 217 | 33 | 29 | 2,040 | 39 | 1.0 | 2,230 |
| 25 | 61 | 338 | 141 | 3,150 | 6,780 | 205 | 30 | 29 | 5,260 | 33 | .8 | 1,280 |
| 26 | 61 | 158 | 255 | 1,850 | *2,580 | 180 | 26 | 25 | 6,900 | 29 | .7 | 2,530 |
| 27 | 46 | 112 | 131 | 795 | 1,470 | 178 | 25 | *22 | 4,270 | 25 | .6 | 4,940 |
| 28 | 138 | 74 | 127 | 674 | 1,220 | 172 | 23 | 24 | 2,010 | 22 | .4 | 5,380 |
| 29 | 152 | 57 | 127 | 874 | - | 155 | 21 | 20 | 1,770 | 18 | .3 | 3,390 |
| 30 | 131 | 44 | 77 | 694 | ------- | 138 | 18 | 17 | 1,750 | 16 | .3 | 1,910 |
| 31 | 112 | ------- | 60 | 385 | ------- | 131 | ------- | 15 | ------- | 14 | .3 | ------- |
| Total | 27,778 | 4,745 | 1,473 | 51,087 | 56,596 | 12,013 | 1,830 | 7,661 | 25,923.8 | 8,125 | 103.4 | 27,190.1 |
| Mean | 896 | 158 | 47.5 | 1,648 | 2,021 | 388 | 61.0 | 247 | 864 | 262 | 3.34 | 906 |
| Ac-ft | 55,100 | 9,410 | 2,920 | 101,300 | 112,300 | 23,830 | 3,630 | 15,200 | 51,420 | 16,120 | 205 | 53,930 |

Calendar year 1957: Max 8,340 Min 0 Mean 593 Ac-ft 429,500
Water year 1957-58: Max 15,600 Min 0.2 Mean 615 Ac-ft 445,400

Peak discharge (base, 4,000 cfs).--Oct. 11 (9:30 a.m.) 6,300 cfs (24.01 ft); Jan. 6 (7 p.m.) 7,450 cfs (25.50 ft); Jan. 24 (3:30 p.m.) 4,560 cfs (20.91 ft); Feb. 23 (1 p.m.) 16,000 cfs (29.95 ft); June 26 (10 a.m.) 7,180 cfs (25.19 ft); Sept. 28 (5 a.m.) 5,940 cfs (23.35 ft).

* Discharge measurement made on this day.

## 2080. Atascosa River at Whitsett, Tex.

Location.--Lat 28°37'20", long 98°17'05", on right bank 1,400 ft upstream from bridge on Farm Road 99, 0.9 mile west of Whitsett, Live Oak County, and 4 miles downstream from LaParita Creek.

Drainage area.--1,171 sq mi.

Records available.--September 1924 to May 1926, May 1932 to September 1958.

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.--27 years (1924-25, 1932-58), 139 cfs (100,600 acre-ft per year).

Extremes.--Maximum discharge during year, 17,500 cfs Feb. 23 (gage height, 32.52 ft); minimum, 1.3 cfs Aug. 30 to Sept. 5.
1924-26, 1932-58: 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 measurement at gage height 38.0 ft; no flow at times.
Maximum stage since at least April 1922, that of July 7, 1942.

Remarks.--Records good. Considerable losses of floodflows into various permeable formations occur upstream from station. Records of the Lower Nueces River Water Supply District indicate that during the 1958 water year an average of about 0.4 cfs was discharged into the river from several artesian wells near Campbellton to supplement the supply for the city of Corpus Christi. Small diversions above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 15-23, Feb. 25 to Mar. 1, July 9-11)

| | | | | | |
|---|---|---|---|---|---|
| 3.6 | 0.7 | 5.0 | 53 | 22.0 | 2,750 |
| 3.7 | 1.6 | 6.0 | 112 | 24.0 | 3,750 |
| 3.8 | 3.2 | 9.0 | 353 | 26.0 | 5,600 |
| 3.9 | 5.3 | 13.0 | 810 | 30.0 | 12,500 |
| 4.0 | 8.3 | 18.0 | 1,640 | 32.5 | 17,500 |
| 4.5 | 28 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 75 | 18 | 33 | 64 | 62 | 133 | 38 | 30 | 23 | 13 | 5.0 | 1.3 |
| 2 | 62 | 17 | 29 | 39 | 58 | 116 | 36 | 29 | 22 | 13 | 4.8 | 1.4 |
| 3 | 54 | 17 | *26 | 28 | 54 | 105 | 36 | 277 | 21 | 14 | 4.8 | 1.4 |
| 4 | *49 | 17 | 25 | 49 | 51 | 99 | 36 | 921 | 20 | 12 | 4.6 | 1.4 |
| 5 | 46 | *16 | 24 | 1,260 | 50 | 96 | 34 | 1,860 | 20 | 11 | 4.4 | 1.6 |
| 6 | 42 | 17 | 24 | 3,120 | 48 | 90 | 33 | 1,370 | 19 | 10 | 4.2 | 73 |
| 7 | 38 | 16 | 24 | 3,040 | 46 | 84 | 31 | 679 | 19 | 11 | 4.0 | 366 |
| 8 | 35 | 16 | 23 | 1,130 | 44 | 81 | 29 | 144 | 18 | 256 | 3.8 | 327 |
| 9 | 351 | 16 | 23 | 199 | 43 | 75 | 28 | 99 | 18 | 446 | 3.4 | 124 |
| 10 | 908 | 17 | 22 | 119 | 68 | 69 | 28 | 78 | 17 | *272 | 3.2 | 43 |
| 11 | 665 | 98 | 22 | 96 | 442 | 64 | 27 | 68 | 17 | 130 | 3.0 | 149 |
| 12 | 147 | 1,050 | 21 | 2,320 | 406 | 62 | 27 | 60 | 17 | 46 | 3.2 | 138 |
| 13 | 64 | 1,470 | 21 | 4,450 | 192 | 58 | 27 | 55 | 16 | 29 | 3.2 | 124 |
| 14 | 46 | 308 | 21 | 4,480 | 128 | 56 | 29 | 48 | 16 | 23 | *2.8 | 70 |
| 15 | 38 | 105 | 21 | 1,090 | 75 | 55 | 32 | 44 | 16 | 20 | 3.0 | 23 |
| 16 | 32 | 62 | 21 | *200 | 56 | 52 | 56 | 44 | 16 | 18 | 5.1 | *17 |
| 17 | 28 | 46 | 22 | 130 | 47 | 52 | 45 | 44 | 16 | 16 | 4.4 | 40 |
| 18 | 25 | 38 | 22 | 105 | 42 | 50 | 36 | 40 | 29 | 14 | 3.4 | 54 |
| 19 | 24 | 32 | 22 | 90 | 40 | 48 | 32 | 77 | 23 | 14 | 3.4 | 82 |
| 20 | 22 | 28 | 21 | 81 | 55 | *48 | 30 | 101 | 20 | 13 | 3.0 | 163 |
| 21 | 22 | 28 | 21 | 75 | 1,430 | 47 | *28 | 59 | 17 | 12 | 2.5 | 497 |
| 22 | 23 | 318 | 20 | 69 | *9,280 | 46 | 26 | 46 | 32 | 11 | 2.2 | 106 |
| 23 | 25 | 655 | 20 | 334 | *16,600 | 53 | 25 | 43 | 78 | 10 | 2.1 | 293 |
| 24 | 54 | 894 | 20 | 2,080 | 9,230 | 56 | 25 | 36 | 82 | 9.4 | 1.9 | 259 |
| 25 | 84 | 1,120 | 21 | 2,880 | 2,560 | 51 | 24 | 31 | 34 | 8.6 | 1.8 | 67 |
| 26 | 42 | 502 | 22 | 1,020 | *465 | 48 | 24 | *29 | 24 | 7.6 | 1.6 | 48 |
| 27 | 29 | 138 | 32 | 222 | 224 | 46 | 23 | 27 | 18 | 7.0 | 1.5 | 48 |
| 28 | 22 | 74 | 27 | 126 | 164 | 44 | 23 | 26 | 16 | 6.4 | 1.4 | 109 |
| 29 | 20 | 52 | 24 | 96 | --- | 42 | 24 | 25 | 15 | 5.8 | 1.4 | 247 |
| 30 | 19 | 40 | 23 | 78 | ------ | 41 | 30 | 24 | 14 | 5.6 | 1.3 | 61 |
| 31 | 18 | ------ | 27 | 70 | ------ | 40 | ------ | 23 | ------ | 5.6 | 1.3 | ------ |
| Total | 3,109 | 7,225 | 724 | 29,140 | 41,960 | 2,007 | 922 | 6,437 | 713 | 1,470.0 | 95.7 | 3,535.1 |
| Mean | 100 | 241 | 23.4 | 940 | 1,499 | 64.7 | 30.7 | 208 | 23.8 | 47.4 | 3.09 | 118 |
| Ac-ft | 6,170 | 14,330 | 1,440 | 57,800 | 83,230 | 3,980 | 1,830 | 12,770 | 1,410 | 2,920 | 190 | 7,010 |

Calendar year 1957: Max 7,100 Min 5.0 Mean 343 Ac-ft 248,600
Water year 1957-58: Max 16,600 Min 1.3 Mean 267 Ac-ft 193,100

Peak discharge (base, 1,500 cfs).--Nov. 13 (7 a.m.) 1,820 cfs (18.81 ft); Jan. 6 (11 p.m.) 3,750 cfs (24.01 ft); Jan. 13 (11 p.m.) 6,700 cfs (26.76 ft); Jan. 25 (5:30 a.m.) 3,210 cfs (23.10 ft); Feb. 23 (11:30 a.m.) 17,500 cfs (32.52 ft); May 5 (7 p.m.) 2,120 cfs (20.04 ft).

* Discharge measurement made on this day.

## 2100. 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 1958. U. S. Weather Bureau has collected gage-height records in this vicinity since 1922.

Gage.--Water-stage recorder and concrete control. Datum of gage is 101.13 ft above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Prior to Apr. 5, 1932, staff gage at railroad bridge 100 ft upstream at same datum.

Average discharge.--41 years (1915-18, 1920-58), 805 cfs (582,800 acre-ft per year).

Extremes.--Maximum discharge during year, 56,500 cfs Feb. 25 (gage height, 42.99 ft); minimum, 1.0 cfs Sept. 5 (gage height, 1.26 ft).

1915-58: 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 since about 1875, that of Sept. 18, 1919.

Revisions.--Figures of maximum discharge for some water years have been revised as shown in the following table. They supersede figures published in the water-supply papers indicated.

| WSP | Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|---|
| 438 | 1916 | Aug. 25, 1916 | 9,550 | 30.0 |
| 478 | 1918 | Sept.21, 1918 | 9,110 | 29.2 |
| 548 | 1920 | Oct. 19, 1919 | 16,200 | 36.1 |
| 548 | 1922 | May 5, 1922 | 15,000 | 35.4 |
| 568 | 1923 | Feb. 24, 1923 | 39,300 | 41.9 |
| 688 | 1929 | May 31, 1929 | 37,900 | 41.7 |

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. Considerable losses of floodflows into various permeable formations occur downstream from the Balcones fault zone. Diversions above station for irrigation. Records of the Lower Nueces River Water Supply District indicate that during the 1958 water year an average of about 0.4 cfs was discharged from several artesian wells into the Atascosa River upstream from this station to supplement the supply for the city of Corpus Christi.

Revisions (water years).--WSP 548: 1920-21. Revised figures of discharge, in cubic feet per second, for the water years 1916, 1918-21, 1923, and 1929, superseding those published in WSP 438, 508, 548, 568, and 688, are given herewith:

| Date | Discharge | Date | Discharge | Date | Discharge | Date | Discharge | Date | Discharge |
|---|---|---|---|---|---|---|---|---|---|
| 1916 | | 1918-Con. | | 1919-Con. | | 1920 | | 1923-Con. | |
| Aug. 21 | 3,240 | Nov. 2 | 4,710 | Oct. 1 | 11,000 | July 5 | 5,970 | Aug. 31 | 4,120 |
| 22 | 3,980 | 3 | 5,520 | 2 | 8,800 | 6 | 8,600 | Sept. 9 | 4,710 |
| 23 | 5,480 | 4 | 6,400 | 3 | 8,100 | 7 | 6,480 | 16 | 3,980 |
| 24 | 7,120 | 5 | 5,160 | 4 | 7,480 | 8 | 5,660 | 17 | 4,460 |
| 25 | 8,800 | 6 | 3,590 | 5 | 7,080 | 9 | 4,180 | 18 | 6,400 |
| 26 | 7,000 | 7 | 4,220 | 6 | 7,600 | | | 19 | 7,640 |
| 27 | 7,040 | Dec. 19 | 7,200 | 7 | 9,940 | 1921 | | 20 | 7,200 |
| 28 | 7,920 | 20 | 11,000 | 8 | 11,000 | Sept. 9 | 6,110 | 21 | 6,600 |
| 29 | 7,300 | 21 | 8,800 | 9 | 9,940 | 10 | 8,750 | 22 | 5,800 |
| 30 | 6,320 | 24 | 5,380 | 10 | 8,320 | 11 | 7,960 | 23 | 5,160 |
| 31 | 5,660 | 25 | 6,080 | 11 | 6,880 | | | 24 | 5,860 |
| | | | | 12 | 5,900 | 1923 | | 25 | 5,690 |
| 1918 | | 1919 | | 13 | 6,000 | Feb. 22 | 12,800 | 26 | 5,520 |
| Sept.20 | 6,400 | Jan. 23 | 6,760 | 14 | 6,840 | 23 | 29,900 | 27 | 5,160 |
| 21 | 8,800 | 24 | 6,840 | 15 | 8,230 | 24 | 37,200 | | |
| 22 | 4,220 | 27 | 3,590 | 16 | 10,800 | 25 | 18,700 | 1929 | |
| 26 | 4,010 | 28 | 3,940 | 17 | 12,800 | 26 | 12,100 | May 31 | 35,100 |
| Oct. 23 | 7,600 | Mar. 25 | 3,590 | 18 | 15,000 | 27 | 9,220 | June 1 | 33,000 |
| 24 | 8,700 | 26 | 9,000 | 19 | 15,800 | 28 | 8,180 | 2 | 26,500 |
| 25 | 5,970 | 27 | 17,800 | 20 | 13,000 | Aug. 29 | 5,690 | | |
| 27 | 4,920 | 28 | 16,000 | 21 | 10,400 | | | | |
| 28 | 4,430 | 29 | 11,000 | 22 | 9,380 | 1923 | | | |
| Nov. 1 | 3,980 | 30 | 6,720 | 23 | 9,550 | Aug. 30 | 7,000 | | |

2100. Nueces River near Three Rivers, Tex.--Continued

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| August 1916 | 8,800 | 261 | 2,990 | 184,000 |
| Water year 1915-16 | 8,800 | 0 | 661 | 481,000 |
| Calendar year 1916 | 8,800 | 0 | 643 | 468,000 |
| September 1918 | 8,800 | 0 | 1,004 | 59,700 |
| Water year 1917-18 | 8,800 | 0 | 359 | 260,000 |
| October 1918 | 8,700 | 14 | 1,790 | 110,000 |
| November | 6,400 | 6.2 | 1,720 | 102,000 |
| December | 11,000 | 2.4 | 1,790 | 110,000 |
| Calendar year 1918 | 11,000 | 0 | 801 | 580,000 |
| January 1919 | 6,840 | 16 | 1,140 | 70,200 |
| March | 17,800 | 14 | 2,190 | 135,000 |
| Water year 1918-19 | 72,400 | 2.4 | 2,320 | 1,680,000 |
| Calendar year 1919 | 72,400 | 14 | 3,140 | 2,270,000 |
| July 1920 | 8,600 | 22 | 1,300 | 79,800 |
| September 1921 | 8,750 | 0 | 1,100 | 65,700 |
| Water year 1920-21 | 8,750 | 0 | 396 | 287,000 |
| Calendar year 1921 | 8,750 | 0 | 390 | 282,000 |
| February 1923 | 37,200 | 9.2 | 5,050 | 280,000 |
| August | 7,000 | .1 | 758 | 46,600 |
| September | 7,640 | 60 | 3,520 | 209,000 |
| Water year 1922-23 | 37,200 | .1 | 1,310 | 947,000 |
| Calendar year 1923 | 37,200 | .1 | 1,480 | 1,070,000 |
| May 1929 | 35,100 | 2.4 | 3,890 | 239,000 |
| June | 33,000 | 38 | 4,970 | 296,000 |
| Water year 1928-29 | 35,100 | 0 | 1,070 | 771,000 |
| Calendar year 1929 | 35,100 | 0 | 1,110 | 800,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3,130 | 1,070 | g112 | 290 | 605 | 12,700 | 200 | 57 | 46 | 2,860 | 66 | 1.7 |
| 2 | 2,070 | 1,150 | g101 | 641 | 479 | 7,650 | 191 | 56 | 41 | 2,650 | 57 | 1.7 |
| 3 | 1,410 | 1,240 | g95 | 245 | 569 | *4,780 | 184 | 268 | 38 | 2,920 | 47 | 1.6 |
| 4 | 515 | 1,320 | *90 | 335 | 497 | *3,070 | 175 | 2,990 | 36 | 3,910 | 41 | 1.4 |
| 5 | 290 | 1,390 | 82 | 3,040 | 398 | 2,210 | 166 | 2,050 | 34 | 5,360 | 34 | 1.1 |
| 6 | 205 | *g666 | 80 | g8,530 | 335 | *1,940 | 153 | 2,420 | 34 | 5,880 | 30 | 63 |
| 7 | 160 | g227 | 76 | g11,500 | 272 | 1,700 | 141 | 2,920 | 33 | 5,320 | 25 | 2,090 |
| 8 | 130 | *g168 | 69 | g12,300 | 236 | 957 | 134 | 1,880 | 31 | 4,840 | 20 | 2,170 |
| 9 | 1,340 | 127 | 60 | g10,600 | 209 | 678 | 127 | 1,130 | 28 | *4,480 | 17 | 461 |
| 10 | 4,900 | 112 | 56 | g9,260 | 204 | 569 | 120 | 1,280 | 26 | 3,580 | 14 | 130 |
| 11 | 5,420 | 210 | 51 | g9,080 | 333 | 533 | 112 | 659 | 24 | 1,980 | 12 | 171 |
| 12 | 5,110 | 1,440 | 47 | g8,210 | 866 | 830 | 105 | 216 | 24 | 1,560 | 11 | 214 |
| 13 | 2,630 | 2,450 | 44 | g10,600 | 515 | 1,130 | 100 | 162 | 22 | 1,450 | 10 | 245 |
| 14 | 2,320 | 1,630 | 44 | g11,000 | 425 | 1,070 | 122 | 134 | 20 | 1,390 | *8.7 | 198 |
| 15 | 3,310 | 716 | 42 | g9,180 | 299 | 716 | 127 | 117 | 19 | 1,390 | 8.4 | 70 |
| 16 | 4,060 | 398 | 42 | *4,690 | 216 | 587 | 117 | 117 | 19 | 1,390 | 7.9 | 50 |
| 17 | 3,110 | 272 | 41 | 2,300 | 175 | 515 | 132 | 186 | 19 | 1,240 | 7.6 | *179 |
| 18 | 1,510 | 214 | 40 | 2,190 | 151 | 479 | 125 | 611 | 26 | 678 | 8.4 | 282 |
| 19 | 735 | 209 | 40 | 1,560 | 135 | *425 | 103 | 1,030 | 128 | 461 | 8.2 | 587 |
| 20 | 497 | *223 | 39 | 569 | 139 | 389 | 86 | 1,260 | 40 | 371 | 7.3 | 852 |
| 21 | 623 | 213 | 37 | 398 | 1,580 | 362 | 81 | 1,340 | 553 | 317 | 6.0 | 1,360 |
| 22 | 434 | 354 | 36 | 308 | 8,260 | 344 | *80 | 773 | 1,170 | 263 | 5.1 | 2,190 |
| 23 | 299 | 754 | 37 | 444 | 19,600 | 344 | 76 | 344 | 1,650 | 227 | 4.6 | 1,760 |
| 24 | g236 | 1,360 | 38 | 4,320 | *34,300 | 353 | 74 | 227 | 1,670 | 204 | 4.0 | 3,030 |
| 25 | g220 | 1,670 | 97 | 7,350 | *52,700 | 344 | 64 | 171 | 2,900 | 177 | 3.7 | 2,700 |
| 26 | g209 | 1,320 | 281 | 7,600 | 46,000 | 299 | 62 | 128 | 4,690 | 153 | 3.3 | 2,790 |
| 27 | b166 | 515 | 204 | 4,770 | 30,600 | 272 | 60 | *108 | 5,720 | 132 | 3.1 | 4,310 |
| 28 | 317 | 272 | 146 | 2,470 | *20,200 | 263 | 58 | 89 | 4,750 | 115 | 2.9 | 5,660 |
| 29 | *773 | 178 | 223 | 2,400 | - | 245 | 54 | 74 | 3,070 | 100 | 2.5 | 6,130 |
| 30 | 910 | g135 | 187 | 2,450 | ------- | 222 | 53 | 60 | 2,920 | 86 | 2.1 | 5,510 |
| 31 | 1,010 | ------- | 132 | 1,200 | ------- | 205 | ------- | 51 | ------- | 78 | 1.8 | ------- |
| Total | 48,049 | 22,003 | 2,669 | 149,830 | 220,298 | 46,181 | 3,382 | 22,908 | 29,781 | 55,562 | 479.6 | 43,209.5 |
| Mean | 1,550 | 733 | 86.1 | 4,833 | 7,868 | 1,490 | 113 | 739 | 993 | 1,792 | 15.5 | 1,440 |
| Ac-ft | 95,300 | 43,640 | 5,290 | 297,200 | 437,000 | 91,600 | 6,710 | 45,440 | 59,070 | 110,200 | 951 | 85,700 |

Calendar year 1957: Max 21,500 Min 1.8 Mean 2,040 Ac-ft 1,477,000
Water year 1957-58: Max 52,700 Min 1.1 Mean 1,765 Ac-ft 1,278,000

Peak discharge (base, 6,000 cfs).--Jan. 8 (7 a.m.) 12,400 cfs (34.32 ft); Jan. 14 (9:30 a.m.) 11,200 cfs (33.34 ft); Jan. 26 (3 a.m.) 8,050 cfs (29.81 ft); Feb. 25 (5 p.m.) 56,500 cfs (42.99 ft); Sept. 29 (10 a.m.) 6,200 cfs (26.08 ft).

* Discharge measurement made on this day.
g Computed from once-daily staff-gage readings.

## 2105. Lake Corpus Christi near Mathis, Tex.

Location (revised).--Lat 28°02'52", long 97°52'16", near left end of old Mathis Dam on Nueces River, 1,000 to 1,500 ft upstream from Wesley E. Seale Dam (dedicated Apr. 26, 1958), 0.8 mile upstream from bridge on State Highway 359, 4 miles southwest of Mathis, San Patricio County, and at mile 48.

Drainage area.--16,656 sq mi.

Records available.--September 1948 to September 1958. The Soil Conservation Service, U. S. 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 at mean sea level, datum of 1929. Prior to Sept. 10, 1948, a painted gage at datum 0.52 ft higher on left side of first buttress wall of left taintor gate. Sept. 10, 1948, to Sept. 30, 1957, wire-weight gage at present site at datum 0.52 ft higher.

Extremes.--Maximum contents observed during year, 204,900 acre-ft Sept. 30 (elevation, 89.10 ft); minimum observed, 34,820 acre-ft May 3, 4; minimum elevation observed, 73.69 ft May 3.

1948-58: Maximum contents observed, that of Sept. 30, 1958; minimum observed, 14,740 acre-ft May 5, 1951 (elevation, 67.62 ft).

Remarks.--Mathis Dam was formed by a rolled-fill earthen-type dam, 4,080 ft long, containing an unregulated service spillway 1,048 ft long (elevation, 74.5 ft) and five taintor gates, each 35 ft wide and 20 ft high (elevation of invert, 54.5 ft). Water for municipal use was released through sluice gate (elevation, 43.5 ft). Dam completed and storage began July 24, 1934; dam abandoned Apr. 25, 1958. Siltation surveys made by the Soil Conservation Service, Department of Agriculture, found the original capacity of the reservoir to have been 54,000 acre-ft, the capacity as of March 1942 as 43,400 acre-ft, and March 1948 to have been 39,400 acre-ft at spillway crest. Capacity for 1958 based on study by Reagan & McCaughan, Consulting Engineers, Corpus Christi. Reservoir was used for municipal supply for city of Corpus Christi. Data regarding dam and reservoir are shown in following table:

| | Elevation (feet) | Capacity (acre-feet) |
|---|---|---|
| Top of dam | 96.5 | Unknown |
| Spillway crest | 74.5 | 39,280 |
| Invert of taintor gates | 54.5 | 0 |

Wesley E. Seale Dam is a rolled-fill earthen-type dam, 5,930 ft long, consisting of two service spillways. The north spillway is 1,320 ft long and the south spillway 1,080 ft long. Elevation of top of both spillways, 88.0 ft (capacity, 185,900 acre-ft). Spillways equipped with 33 and 27 Ambursen type gates, respectively, which are 37.5 ft wide and 6 ft high and when closed will raise the elevation of the lake to 94.0 ft. Gates on north spillway are in position but those on south spillway are bolted down to spillway elevation. Water for municipal use released through 5.0-foot diameter cylinder valve and three rectangular openings 2½ ft by 4 ft (invert elevation, 55.5 ft, capacity, 140 acre-ft). Dam completed and storage began Apr. 26, 1958.

Cooperation.--Capacity curve prepared from data furnished by Reagan & McCaughan, Consulting Engineers. Elevation record furnished by city of Corpus Christi.

Month-end elevation and contents, water year October 1957 to September 1958

| Date | Elevation (feet)† | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| Sept. 30 | 76.32 | 49,060 | - |
| Oct. 31 | 74.74 | 40,460 | -8,600 |
| Nov. 30 | - | a39,860 | -600 |
| Dec. 31 | 74.32 | 38,120 | -1,740 |
| Calendar year 1957 | - | - | -260 |
| Jan. 31 | 75.36 | 44,840 | +6,720 |
| Feb. 28 | 83.84 | 123,400 | +78,560 |
| Mar. 31 | 73.97 | 36,440 | -86,960 |
| Apr. 30 | 73.79 | 35,360 | -1,080 |
| May 31 | 78.77 | 70,320 | +34,960 |
| June 30 | 82.22 | 103,900 | +33,580 |
| July 31 | 87.70 | 180,900 | +77,000 |
| Aug. 31 | 86.09 | 155,700 | -25,200 |
| Sept. 30 | 89.10 | 204,900 | +49,200 |
| Water year 1957-58 | - | - | +155,840 |

† Elevation at 8 a.m.
a No elevation record, contents interpolated.

## 2110. Nueces River near Mathis, Tex.

Location (revised).--Lat 28°02'17", long 97°51'36", on left bank 6 ft downstream from pier of bridge on State Highway 359, 200 ft downstream from Texas and New Orleans Railroad Co. bridge, 0.6 mile downstream from Wesley E. Seale Dam, 4 miles southwest of Mathis, San Patricio County, and at mile 47.

Drainage area.--16,660 sq mi.

Records available.--August 1939 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 27.53 ft above mean sea level, datum of 1929.

Average discharge.--19 years, 880 cfs (637,100 acre-ft per year).

Extremes.--Maximum discharge during year, 31,400 cfs Mar. 1 (gage height, 32.06 ft); minimum daily, 27 cfs Dec. 13, Sept. 7.
1939-58: Maximum discharge, 49,400 cfs July 12, 1942 (gage height, 37.38 ft); minimum daily, 6.8 cfs Aug. 15, 1940.
Maximum stage since at least 1888 was about 40 ft about Sept. 20, 1919 (discharge, about 59,000 cfs), from information by Texas and New Orleans Railroad Co.

Remarks.--Records good except those for May and June, which are poor. 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 1958 are given in WSP 1573.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7,840 | 740 | 160 | 193 | 1,680 | *31,000 | 112 | 67 | 94 | 115 | 139 | 106 |
| 2 | 5,340 | 878 | 140 | 91 | 1,070 | 30,200 | 39 | *71 | 92 | 124 | 131 | 106 |
| 3 | 2,910 | 970 | 184 | 199 | 740 | 28,200 | 107 | 76 | 89 | 126 | 131 | 118 |
| 4 | 1,800 | 1,020 | *124 | 334 | 605 | 16,300 | 166 | 78 | 89 | 118 | 131 | 126 |
| 5 | *855 | 1,090 | 80 | 1,550 | 627 | *5,940 | 207 | 74 | 89 | 113 | 124 | 93 |
| 6 | 308 | 1,240 | 96 | 3,500 | 673 | *3,290 | 166 | 70 | 89 | 115 | 123 | 52 |
| 7 | 140 | *878 | 146 | 5,780 | 475 | 2,550 | 165 | 43 | 89 | 113 | 131 | 27 |
| 8 | 65 | 483 | 238 | 7,680 | 314 | 2,190 | 81 | 118 | 96 | 101 | 131 | 28 |
| 9 | 495 | 296 | 37 | 9,200 | 305 | 1,440 | 43 | 117 | 97 | *101 | 124 | 74 |
| 10 | 2,340 | 314 | 61 | 10,400 | 891 | 1,070 | *82 | 91 | 100 | 101 | 113 | 92 |
| 11 | 3,940 | 440 | 232 | 10,800 | 940 | 970 | 84 | 82 | 111 | 85 | 113 | 97 |
| 12 | 5,300 | 481 | 36 | 10,300 | 867 | 832 | 79 | 88 | 113 | 65 | 105 | 84 |
| 13 | 5,780 | 948 | 27 | 9,400 | 694 | 832 | 65 | 105 | 117 | 80 | 106 | 87 |
| 14 | 4,170 | 1,890 | 62 | 9,200 | 863 | 924 | 62 | 98 | 104 | 117 | 117 | 60 |
| 15 | 3,220 | 1,770 | 64 | 9,550 | 457 | 970 | *62 | 92 | 97 | 236 | *113 | 60 |
| 16 | 3,190 | 1,090 | 64 | 10,000 | 350 | 786 | 39 | *89 | 108 | 377 | 113 | 60 |
| 17 | 3,900 | 627 | 64 | *9,200 | 332 | 740 | 63 | 88 | 124 | 443 | 113 | *59 |
| 18 | 3,580 | 577 | 64 | 5,470 | 248 | 786 | *71 | 88 | 124 | 491 | 115 | 93 |
| 19 | 2,130 | 204 | 65 | 2,910 | 213 | *717 | 73 | 84 | 131 | 383 | 126 | 97 |
| 20 | 1,190 | *234 | 65 | 2,220 | 314 | 627 | 75 | 74 | 130 | 253 | 140 | 91 |
| 21 | 763 | 296 | 65 | 1,160 | 1,260 | 671 | 78 | 73 | 130 | 188 | 145 | 91 |
| 22 | 627 | 556 | 65 | 763 | 10,100 | 697 | 78 | 73 | 131 | 163 | 132 | 140 |
| 23 | 627 | 359 | 67 | 809 | 10,800 | 498 | *78 | 74 | 98 | 134 | 123 | 483 |
| 24 | 434 | 613 | 67 | 908 | 10,200 | 469 | 67 | 74 | 78 | 120 | 123 | 850 |
| 25 | 341 | 870 | 67 | 3,040 | 14,600 | 649 | *43 | 73 | 87 | 122 | 104 | 1,460 |
| 26 | 301 | 1,360 | 67 | 5,600 | 24,600 | 627 | *93 | 71 | 105 | 117 | 91 | 1,920 |
| 27 | 161 | 1,340 | 67 | 7,280 | *29,400 | 402 | *87 | 82 | 114 | 118 | 91 | 2,220 |
| 28 | *123 | 901 | 76 | 7,280 | 31,000 | 396 | 84 | *94 | 102 | 117 | 91 | 2,850 |
| 29 | 160 | 561 | 69 | 4,420 | - | 350 | 84 | 94 | 88 | 134 | 94 | 3,580 |
| 30 | 374 | 374 | 68 | 2,850 | ------- | 314 | 82 | 94 | 94 | 143 | 109 | 4,570 |
| 31 | 627 | ------- | 144 | 2,730 | ------- | 240 | ------- | 94 | ------- | 134 | 108 | ------- |
| Total | 63,031 | 23,400 | 2,831 | 154,817 | 144,618 | 135,677 | 2,615 | 2,589 | 3,110 | 5,147 | 3,650 | 19,774 |
| Mean | 2,033 | 780 | 91.3 | 4,994 | 5,165 | 4,377 | 87.2 | 83.5 | 104 | 166 | 118 | 659 |
| Ac-ft | 125,000 | 46,410 | 5,620 | 307,100 | 286,800 | 269,100 | 5,190 | 5,140 | 6,170 | 10,210 | 7,240 | 39,220 |

Calendar year 1957: Max 18,900 Min 27 Mean 2,136 Ac-ft 1,546,000
Water year 1957-58: Max 31,000 Min 27 Mean 1,538 Ac-ft 1,113,000

* Discharge measurement made on this day.
Note.--Computed from twice-daily staff-gage readings Mar. 9-23.

## 2135. 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 1958 in reports of Geological Survey. June 1909 to September 1923 and May 1925 to September 1944 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.--45 years (1910-23, 1926-58), 222 cfs (160,700 acre-ft per year).

Extremes.--Maximum discharge during year, 2,410 cfs May 24 (gage height, 4.82 ft); minimum daily, 22 cfs Nov. 7 to Mar. 13.
1909-23, 1925-58: Maximum discharge, 7,500 cfs June 28, 1927 (gage height, 7.03 ft, present datum); minimum daily, 0.4 cfs Nov. 22, 1951, to Apr. 11, 1952.

Remarks.--Records excellent above 30 cfs and good below. 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. 309).

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to May 9 | | | | May 10 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.8 | 20 | 2.0 | 226 | 1.1 | 49 | 3.0 | 710 |
| .9 | 25 | 2.5 | 406 | 1.3 | 76 | 3.5 | 1,060 |
| 1.1 | 40 | 3.0 | 657 | 1.5 | 113 | 4.0 | 1,500 |
| 1.3 | 65 | 3.5 | 1,000 | 2.0 | 240 | 5.0 | 2,640 |
| 1.6 | 120 | 4.0 | 1,480 | 2.5 | 430 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 87 | 89 | 22 | 22 | 22 | 22 | 34 | 304 | 1,200 | 931 | 502 | 54 |
| 2 | 95 | 89 | 22 | 22 | 22 | 22 | 34 | 432 | 1,270 | 1,000 | 470 | 53 |
| 3 | 95 | 91 | 22 | 22 | 22 | 22 | 86 | 479 | 1,200 | 1,000 | 513 | 53 |
| 4 | 95 | 70 | 22 | 22 | 22 | 22 | 127 | 508 | 801 | 847 | 562 | 59 |
| 5 | 95 | 51 | 22 | 22 | 22 | 22 | 108 | 618 | 736 | 440 | 608 | 60 |
| 6 | 95 | 47 | 22 | 22 | 22 | 22 | 108 | 785 | 973 | 220 | 674 | 61 |
| 7 | 95 | 22 | 22 | 22 | 22 | 22 | 108 | 894 | 1,940 | 546 | 698 | 57 |
| 8 | 95 | 22 | 22 | 22 | 22 | 22 | 108 | 1,040 | 1,540 | 768 | 698 | 61 |
| 9 | 95 | 22 | 22 | 22 | 22 | 22 | 108 | 1,090 | 1,410 | *814 | 662 | 62 |
| 10 | 95 | 22 | 22 | 22 | 22 | 22 | 108 | 1,100 | 1,220 | 834 | 321 | 57 |
| 11 | 89 | 22 | 22 | 22 | 22 | 22 | 108 | 903 | 1,160 | 910 | 103 | 53 |
| 12 | 87 | 22 | 22 | 22 | 22 | 22 | 108 | 834 | 1,010 | 820 | 86 | 56 |
| 13 | 87 | 22 | 22 | 22 | 22 | 22 | 108 | 650 | 945 | 794 | 90 | 198 |
| 14 | 87 | 22 | 22 | 22 | 22 | 33 | 108 | 480 | 1,150 | 801 | 84 | 111 |
| 15 | 87 | 22 | 22 | 22 | 22 | 39 | 136 | 460 | 1,090 | 814 | 88 | 83 |
| 16 | 87 | 22 | 22 | 22 | 22 | 39 | 127 | 460 | *959 | 847 | 88 | 73 |
| 17 | 87 | 22 | 22 | 22 | 22 | 38 | 134 | 465 | 1,240 | 834 | 97 | 67 |
| 18 | 87 | 22 | 22 | 22 | 22 | 37 | 169 | 513 | 1,170 | 840 | 97 | *73 |
| 19 | 87 | 22 | 22 | 22 | 22 | 36 | 200 | 668 | 1,180 | 814 | 103 | 72 |
| 20 | 87 | 22 | 22 | 22 | 22 | 35 | 151 | *756 | 1,080 | 794 | 84 | 64 |
| 21 | 87 | 22 | 22 | 22 | 22 | 34 | 161 | 788 | 1,090 | 782 | 84 | 59 |
| 22 | *87 | 22 | 22 | 22 | 22 | 34 | 238 | 861 | 1,100 | 710 | 115 | 56 |
| 23 | 87 | 22 | 22 | 22 | 22 | 34 | 342 | 1,200 | 1,090 | 638 | 86 | 60 |
| 24 | 87 | 22 | 22 | 22 | 22 | 34 | 248 | 2,170 | 980 | 574 | 76 | 76 |
| 25 | 87 | 22 | 22 | 22 | 22 | 34 | 203 | 1,840 | 910 | 496 | 72 | 88 |
| 26 | 87 | 22 | 22 | 22 | 22 | 34 | 203 | 1,620 | 980 | 590 | 67 | 83 |
| 27 | 87 | 22 | 22 | 22 | 22 | 34 | 203 | 1,490 | 980 | 562 | 64 | 76 |
| 28 | 87 | 22 | 22 | 22 | 22 | 34 | 203 | 1,200 | 889 | 491 | *62 | 78 |
| 29 | 87 | 22 | 22 | 22 | - | 34 | 203 | 1,130 | 854 | 486 | 61 | 74 |
| 30 | 87 | 22 | 22 | 22 | ------- | 34 | 203 | 1,190 | 889 | *486 | 60 | 70 |
| 31 | 87 | ------- | 22 | 22 | ------- | 34 | ------- | 1,190 | ------- | 508 | 56 | ------- |
| Total | 2,771 | 965 | 682 | 682 | 616 | 917 | 4,485 | 28,118 | 33,036 | 21,991 | 7,431 | 2,147 |
| Mean | 89.4 | 32.2 | 22.0 | 22.0 | 22.0 | 29.6 | 150 | 907 | 1,101 | 709 | 240 | 71.6 |
| Ac-ft | 5,500 | 1,910 | 1,350 | 1,350 | 1,220 | 1,820 | 8,900 | 55,770 | 65,530 | 43,620 | 14,740 | 4,260 |

Calendar year 1957: Max 2,010 Min 1.4 Mean 256 Ac-ft 185,100
Water year 1957-58: Max 2,170 Min 22 Mean 284 Ac-ft 206,000

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 7 to Mar. 13; discharge estimated on basis of gate openings at Rio Grande Reservoir.

## 2145. Clear Creek below Continental Reservoir, Colo.

Location.--Lat 37°53'15", long 107°12'10", 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.

Drainage area.--51.7 sq mi.

Records available.--October 1933 to September 1958 in reports of Geological Survey. May 1929 to September 1944 in reports of State engineer.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 10,200 ft (corrected), from topographic map. Prior to Oct. 2, 1951, at site 150 ft upstream at different datum.

Average discharge.--29 years (1929-58), 31.6 cfs (22,880 acre-ft per year).

Extremes.--Maximum discharge during year, 268 cfs July 20 (gage height, 2.76 ft); minimum daily, 1.0 cfs Nov. 6 to Apr. 30.
1929-58: Maximum discharge, 362 cfs May 8, 1952 (gage height, 3.66 ft), from rating curve extended above 120 cfs; no flow June 22, 23, 1935.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow regulated by Continental Reservoir (capacity, 26,700 acre-ft).

Revisions.--WSP 1008: Drainage area.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to June 8 | | | | June 8 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.3 | 1.0 | 0.9 | 16 | 1.2 | 12 | 2.0 | 96 |
| .4 | 2.0 | 1.1 | 28 | 1.3 | 17 | 2.5 | 195 |
| .5 | 3.5 | 1.3 | 47 | 1.5 | 32 | 3.0 | 340 |
| .6 | 5.5 | 1.6 | 92 | 1.7 | 54 | | |
| .7 | 8.5 | 2.0 | 190 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9.6 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 21 | 68 | 210 | 190 | 44 |
| 2 | 9.9 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 71 | 215 | 202 | 38 |
| 3 | 9.6 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 42 | 229 | 208 | 23 |
| 4 | 9.2 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 17 | 247 | 229 | 20 |
| 5 | 9.2 | 5.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 4.7 | 241 | 232 | 23 |
| 6 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 24 | 235 | 238 | 26 |
| 7 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 135 | 232 | 218 | 18 |
| 8 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 193 | 232 | 200 | 13 |
| 9 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 164 | *223 | 166 | 14 |
| 10 | 8.8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 144 | 218 | 140 | 13 |
| 11 | 8.8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 36 | 127 | 232 | 133 | 12 |
| 12 | 9.6 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 60 | 110 | 241 | 140 | 20 |
| 13 | 9.6 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 106 | 96 | 226 | 162 | 40 |
| 14 | 8.8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 128 | 80 | 226 | 185 | 31 |
| 15 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 130 | 71 | 229 | 192 | 26 |
| 16 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 120 | *71 | 229 | 192 | 22 |
| 17 | 8.8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 128 | 74 | 229 | 185 | 20 |
| 18 | 8.8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 130 | 70 | 232 | 166 | *19 |
| 19 | 9.6 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 130 | 71 | 238 | 166 | 19 |
| 20 | 8.8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 132 | 84 | 259 | 127 | 20 |
| 21 | 8.5 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | *135 | 101 | 250 | 71 | 18 |
| 22 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 135 | 126 | 250 | 54 | 17 |
| 23 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 135 | 124 | 250 | 50 | 17 |
| 24 | 8.5 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 138 | 122 | 253 | 44 | 18 |
| 25 | 8.8 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 138 | 172 | 250 | 31 | 22 |
| 26 | 9.6 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 135 | 212 | 247 | 29 | 18 |
| 27 | 9.6 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 104 | 178 | 241 | 33 | 19 |
| 28 | 9.2 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 70 | 129 | 232 | *33 | 18 |
| 29 | 9.2 | 1.0 | 1.0 | 1.0 | - | 1.0 | 1.0 | 70 | 108 | 229 | 38 | 19 |
| 30 | 9.2 | 1.0 | 1.0 | 1.0 | ------- | 1.0 | 1.0 | 70 | 210 | *232 | 40 | 19 |
| 31 | 9.2 | ------- | 1.0 | 1.0 | ------- | 1.0 | ------- | 71 | ------- | 202 | 39 | ------- |
| Total | 284.5 | 66.8 | 31.0 | 31.0 | 28.0 | 31.0 | 30.0 | 2,646 | 3,198.7 | 7,259 | 4,133 | 646 |
| Mean | 9.18 | 2.23 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 85.4 | 107 | 234 | 133 | 21.5 |
| Ac-ft | 564 | 132 | 61 | 61 | 56 | 61 | 60 | 5,250 | 6,340 | 14,400 | 8,200 | 1,280 |

Calendar year 1957: Max 188 Min 1.0 Mean 31.6 Ac-ft 22,850
Water year 1957-58: Max 259 Min 1.0 Mean 50.4 Ac-ft 36,460

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 29 to Nov. 3, Nov. 5, Nov. 7 to Apr. 30 (stage-discharge relation affected by ice during part of period), Sept. 9-18; discharge estimated on basis of 1 discharge measurement and gate openings at Continental Reservoir.

## 2165. 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, 8 ft 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 1958.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 8,880 ft (from topographic map). Prior to Sept. 2, 1953, at site 17 ft upstream at same datum.

Average discharge.--7 years, 22.6 cfs (16,360 acre-ft per year).

Extremes.--Maximum discharge during year, 410 cfs May 23 (gage height, 4.16 ft), from rating curve extended above 250 cfs; minimum daily, 3.7 cfs Mar. 29, 30.
1951-58: Maximum discharge, 430 cfs June 5, 1957; maximum gage height, 4.16 ft May 23, 1958; minimum daily discharge, 0.2 cfs Mar. 25, 1956, probably caused by snow-slide upstream.

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 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.3 | 3.5 | 2.0 | 42 |
| 1.4 | 6.5 | 2.5 | 95 |
| 1.6 | 16 | 3.0 | 166 |
| 1.8 | 27 | 4.0 | 370 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 12 | 8.8 | 5.8 | 4.4 | 5.6 | 3.9 | 24 | 220 | 40 | 16 | 14 |
| 2 | 11 | 12 | 7.8 | 6.2 | 4.7 | 5.6 | 4.3 | 26 | 210 | 38 | 15 | 14 |
| 3 | 11 | 12 | 7.8 | 6.2 | 4.4 | 5.3 | 4.5 | 29 | 200 | 36 | 14 | 13 |
| 4 | 12 | 14 | 7.8 | 6.2 | 4.7 | 4.7 | 4.5 | 37 | 184 | 32 | 15 | 14 |
| 5 | 12 | 13 | 7.8 | 6.2 | 4.7 | 4.7 | 6.2 | 52 | 182 | 30 | 16 | 14 |
| 6 | 12 | 12 | 7.4 | 6.2 | 4.4 | 4.4 | 6.6 | 70 | 195 | 29 | 15 | 14 |
| 7 | 11 | 11 | 7.4 | 6.2 | 4.4 | 4.4 | 6.8 | 89 | 184 | 28 | 14 | 14 |
| 8 | 11 | 8.8 | 7.4 | 6.0 | 4.4 | 4.4 | 7.0 | 102 | 180 | 27 | 14 | 14 |
| 9 | 11 | 11 | 7.4 | 5.9 | 4.4 | 4.4 | 6.8 | 103 | 158 | 25 | 14 | 14 |
| 10 | 10 | 11 | 7.0 | 5.6 | 4.4 | 4.4 | 7.0 | 119 | 136 | 25 | *15 | 12 |
| 11 | 10 | 11 | 6.5 | 5.9 | 4.4 | 4.4 | 7.0 | 120 | 121 | 24 | 14 | 12 |
| 12 | 12 | 12 | 6.5 | 5.8 | 4.7 | 4.4 | 7.0 | *111 | *111 | 25 | 13 | 12 |
| 13 | *12 | 12 | 7.0 | 5.8 | 4.4 | 4.4 | 7.0 | 111 | 100 | *24 | 14 | 16 |
| 14 | 12 | *12 | *7.4 | 5.8 | 4.4 | 4.1 | 7.0 | 111 | 93 | 23 | 15 | *13 |
| 15 | 11 | 11 | 6.5 | 5.6 | 4.4 | 4.1 | 8.0 | 112 | 87 | 22 | 14 | 12 |
| 16 | 12 | 11 | 6.5 | 5.4 | 4.4 | *4.1 | 10 | 134 | 80 | 22 | 14 | 12 |
| 17 | 12 | 10 | 6.5 | 5.2 | *4.4 | 4.1 | 12 | 156 | *76 | 22 | 25 | 12 |
| 18 | 11 | 8.8 | 7.0 | 5.6 | 4.4 | 4.0 | 15 | 172 | 74 | 24 | 20 | 12 |
| 19 | 12 | 9.2 | 7.0 | 5.6 | 4.4 | 4.0 | 21 | 180 | 73 | 24 | 22 | 12 |
| 20 | 14 | 8.8 | 6.5 | 5.0 | 4.7 | 4.0 | *26 | 206 | 72 | 22 | 18 | 11 |
| 21 | 14 | 9.2 | 7.0 | 4.6 | 4.7 | 4.1 | 27 | 246 | 71 | 21 | 20 | 11 |
| 22 | 14 | 8.4 | 6.2 | 4.7 | 5.0 | 4.3 | 30 | 278 | 66 | 20 | 22 | 10 |
| 23 | 11 | 8.6 | 7.0 | 4.8 | 5.0 | 4.3 | 28 | 291 | 63 | 19 | 20 | 11 |
| 24 | 12 | 9.6 | 7.0 | 4.8 | 4.7 | 4.3 | 26 | 309 | 60 | 20 | 18 | 12 |
| 25 | 12 | 9.2 | 7.0 | 4.7 | 4.7 | 4.1 | 25 | 302 | 55 | 22 | 18 | 11 |
| 26 | 11 | 8.8 | 7.0 | 4.4 | 4.7 | 3.9 | 24 | 289 | 52 | 22 | 17 | 11 |
| 27 | 11 | 8.3 | 7.0 | 4.4 | 4.7 | 4.0 | 26 | 291 | 49 | 20 | 17 | 10 |
| 28 | 12 | 8.8 | 5.9 | 4.7 | 4.7 | 4.0 | 26 | 289 | 46 | 18 | 17 | 10 |
| 29 | 12 | 8.3 | 6.2 | 4.7 | - | 3.7 | 24 | 293 | 45 | 18 | 16 | 10 |
| 30 | 12 | 9.6 | 5.6 | 4.7 | ------- | 3.7 | 23 | *262 | 43 | 18 | 16 | 9.6 |
| 31 | 12 | ------- | 5.8 | 4.4 | ------- | 3.9 | ------- | 224 | ------- | 17 | 14 | ------- |
| Total | 364 | 311.4 | 215.7 | 167.1 | 127.7 | 133.8 | 436.6 | 5,138 | 3,286 | 757 | 512 | 366.6 |
| Mean | 11.7 | 10.4 | 6.96 | 5.39 | 4.56 | 4.32 | 14.6 | 166 | 110 | 24.4 | 16.5 | 12.2 |
| Ac-ft | 722 | 618 | 428 | 331 | 253 | 265 | 866 | 10,190 | 6,520 | 1,500 | 1,020 | 727 |

Calendar year 1957: Max 365 Min 3.0 Mean 38.9 Ac-ft 28,160
Water year 1957-58: Max 309 Min 3.7 Mean 32.4 Ac-ft 23,440

Peak discharge (base, 120 cfs).--May 10 (6 p.m.) 148 cfs (2.89 ft); May 23 (7:30 p.m.) 410 cfs (4.16 ft); June 6 (8 p.m.) 220 cfs (3.30 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 19-23, Dec. 31 to Jan. 8, Jan. 10, 12-18, 21-24. No gage-height record Mar. 17 to Apr. 19; discharge estimated on basis of weather records and records for nearby stations.

## 2175. 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 bridge on State Highway 149, 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 1958.

Gage.--Water-stage recorder. Altitude of gage is 8,440 ft (from topographic map).

Average discharge.--7 years, 507 cfs (367,100 acre-ft per year).

Extremes.--Maximum discharge during year, 4,550 cfs May 24 (gage height, 5.32 ft); minimum daily, 96 cfs Mar. 29.
1951-58: Maximum discharge, 4,870 cfs July 26, 1957 (gage height, 5.38 ft); minimum daily, 46 cfs Dec. 9, 1956.

Remarks.--Records excellent except those for periods of ice effect, 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. 309).

Rating table, water year 1957-58, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 24-31)

| | | | |
|---|---|---|---|
| 1.1 | 75 | 3.0 | 1,110 |
| 1.4 | 140 | 4.0 | 2,380 |
| 1.8 | 278 | 5.0 | 4,110 |
| 2.2 | 490 | 5.4 | 4,910 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 291 | 325 | 125 | 130 | 120 | 130 | 129 | 602 | 2,730 | 1,790 | 1,280 | 278 |
| 2 | 303 | 320 | 130 | 130 | 140 | 110 | 140 | 780 | 2,830 | 1,850 | 1,250 | 266 |
| 3 | 316 | 330 | 130 | 130 | 150 | 110 | 129 | 892 | 2,810 | 1,950 | 1,220 | 282 |
| 4 | 320 | 330 | 130 | 130 | 160 | 120 | 167 | 940 | 2,340 | 1,830 | 1,210 | 312 |
| 5 | 325 | 307 | 130 | 130 | 160 | 110 | 214 | 1,100 | 2,210 | 1,620 | 1,240 | 278 |
| 6 | 325 | 278 | 130 | 130 | 160 | 120 | 207 | 1,420 | 2,610 | 1,130 | 1,280 | 262 |
| 7 | 320 | 251 | 130 | 130 | 140 | 130 | 225 | 1,660 | 3,520 | 1,220 | 1,290 | 258 |
| 8 | 312 | 200 | 130 | 130 | 150 | 130 | 200 | 1,890 | 3,320 | 1,640 | 1,240 | 251 |
| 9 | 307 | 200 | 140 | 140 | 150 | 140 | 210 | 1,970 | 2,850 | 1,620 | 1,210 | 270 |
| 10 | 307 | 210 | 130 | 120 | 150 | 140 | 207 | 2,090 | 2,540 | 1,620 | *1,080 | 266 |
| 11 | 303 | 210 | 130 | 130 | 160 | 130 | 207 | 2,090 | 2,230 | 1,720 | 630 | 251 |
| 12 | 320 | 210 | 130 | 130 | 150 | 130 | 203 | *2,090 | *2,070 | 1,700 | 497 | 243 |
| 13 | *344 | 205 | 130 | 130 | 150 | 130 | 200 | 1,830 | 1,890 | *1,620 | 497 | 458 |
| 14 | 334 | *190 | *125 | 150 | 150 | 120 | 221 | 1,610 | 2,040 | 1,640 | 504 | *477 |
| 15 | 325 | 180 | 120 | 140 | 160 | 130 | 258 | 1,510 | 2,200 | 1,660 | 511 | 334 |
| 16 | 320 | 160 | 140 | 120 | 170 | *130 | 320 | 1,620 | *1,860 | 1,690 | 546 | 291 |
| 17 | 320 | 150 | 140 | 130 | *180 | 130 | 368 | 1,760 | 2,140 | 1,730 | 574 | 258 |
| 18 | 316 | 160 | 140 | 120 | 190 | 120 | 546 | 1,900 | 2,130 | 1,760 | 546 | 251 |
| 19 | 363 | 170 | 130 | 130 | 180 | 120 | 812 | 2,170 | 2,090 | 1,810 | 546 | 255 |
| 20 | 396 | 180 | 120 | 140 | 200 | 120 | *876 | 2,320 | 2,000 | 1,730 | 477 | 247 |
| 21 | 396 | 160 | 130 | 130 | 190 | 130 | 868 | 2,440 | 1,970 | 1,700 | 402 | 228 |
| 22 | 363 | 170 | 140 | 140 | 180 | 140 | 892 | 2,490 | 1,970 | 1,660 | 408 | 217 |
| 23 | 320 | 160 | 130 | 140 | 180 | 140 | 964 | 2,750 | 1,950 | 1,640 | 368 | 217 |
| 24 | 325 | 160 | 120 | 150 | 170 | 130 | 788 | 4,230 | 1,900 | 1,610 | 325 | 239 |
| 25 | 325 | 160 | 130 | 150 | 160 | 120 | 698 | 4,030 | 1,780 | 1,570 | 307 | 278 |
| 26 | 316 | 150 | 130 | 160 | 150 | 124 | 652 | 3,960 | 1,930 | 1,500 | 291 | 262 |
| 27 | 320 | 140 | 130 | 160 | 140 | 118 | 652 | 3,670 | 1,920 | 1,500 | 278 | 251 |
| 28 | 316 | 130 | 130 | 160 | 140 | 100 | 675 | 3,500 | 1,740 | 1,340 | 278 | 243 |
| 29 | 325 | 140 | 130 | 160 | - | 96 | 623 | 3,090 | 1,610 | 1,260 | 266 | 251 |
| 30 | 320 | 140 | 140 | 150 | ------- | 113 | 595 | *3,020 | 1,650 | 1,260 | 282 | 251 |
| 31 | 325 | ------- | 130 | 130 | ------- | 124 | ------- | 2,770 | ------- | 1,260 | 286 | ------- |
| Total | 10,118 | 6,076 | 4,050 | 4,250 | 4,480 | 3,835 | 13,246 | 68,194 | 66,830 | 49,630 | 21,119 | 8,225 |
| Mean | 326 | 203 | 131 | 137 | 160 | 124 | 442 | 2,200 | 2,228 | 1,601 | 681 | 274 |
| Ac-ft | 20,070 | 12,050 | 8,030 | 8,430 | 8,860 | 7,610 | 26,270 | 135,300 | 132,600 | 98,440 | 41,890 | 16,310 |

Calendar year 1957: Max 4,470 Min 46 Mean 736 Ac-ft 532,700
Water year 1957-58: Max 4,230 Min 96 Mean 712 Ac-ft 515,900

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 9 to Mar. 25 (no gage-height record Jan. 26 to Feb. 11, Feb. 13-17, Feb. 26 to Mar. 2; discharge estimated on basis of 1 discharge measurement, weather records, and records for nearby stations).

## 2185. Goose Creek at Wagonwheel Gap, Colo.

Location.--Lat 37°45'00", long 106°49'40", in NE¼ sec. 2, T. 40 N., R. 1 E., on left bank about 500 ft downstream from Pierce Creek, 1 mile upstream from mouth, 1 mile south of Wagonwheel Gap, and 8 miles southeast of Creede.

Drainage area.--90 sq mi, approximately.

Records available.--June 1954 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 8,480 ft (from topographic map).

Extremes.--Maximum discharge during year, 590 cfs June 6 (gage height, 4.32 ft); minimum daily, 12 cfs Oct. 11.
1954-58: Maximum discharge, 645 cfs July 27, 1957 (gage height, 4.44 ft); minimum daily, 9.6 cfs Nov. 15, 16, Dec. 5, 1956.

Remarks.--Records good except those for period of no gage-height record, which are fair. Discharge measurements generally made twice a month. Several small diversions above station for irrigation. Lake Humphreys (capacity, 842 acre-ft) above station with a fixed spillway and no gates has slight effect on flow.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 2.3 | 10 | 3.5 | 234 |
| 2.5 | 21 | 4.0 | 435 |
| 2.7 | 40 | 4.5 | 675 |
| 3.0 | 92 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28 | 27 | 28 | | | | 22 | 92 | 404 | 88 | 29 | 20 |
| 2 | 29 | 26 | 28 | | | | 23 | 94 | 404 | 80 | 27 | 19 |
| 3 | 23 | 29 | 27 | | | | 23 | 99 | 382 | 78 | 27 | 19 |
| 4 | 20 | 29 | 27 | | | | 22 | 117 | 369 | 62 | 27 | 22 |
| 5 | 27 | 30 | 29 | | | 18 | 18 | 163 | 377 | 65 | 28 | 23 |
| 6 | 43 | 29 | 29 | | | | 20 | 207 | 494 | 62 | 27 | 21 |
| 7 | 43 | 28 | 28 | | | | 23 | 234 | 462 | 54 | 27 | 20 |
| 8 | 27 | 27 | 29 | | | | 23 | 259 | 417 | 55 | 27 | 21 |
| 9 | 16 | 27 | 27 | | | | 22 | 263 | 365 | 54 | 26 | 20 |
| 10 | 14 | 27 | 23 | | | 19 | 20 | 266 | 324 | 50 | 27 | 21 |
| 11 | 12 | 27 | 23 | | | 17 | 21 | 281 | 293 | 49 | 27 | 20 |
| 12 | 14 | 27 | 23 | | | 17 | 19 | 281 | 263 | 44 | 24 | 21 |
| 13 | 14 | 27 | 24 | | | 17 | 19 | 263 | 238 | 43 | 24 | 55 |
| 14 | 14 | 27 | 24 | | | 17 | 24 | 256 | 231 | 43 | 26 | 44 |
| 15 | 13 | 27 | 23 | | | 17 | 37 | 256 | 220 | 40 | 27 | 32 |
| 16 | 13 | 27 | | 20 | 18 | 17 | 52 | 266 | 224 | 39 | 30 | 29 |
| 17 | 13 | 27 | | | | 17 | 69 | 285 | 220 | 40 | 27 | 27 |
| 18 | 13 | 27 | | | | 17 | 94 | 300 | 203 | 43 | 39 | 27 |
| 19 | 16 | 27 | | | | 17 | 103 | 320 | 200 | 43 | 40 | 28 |
| 20 | 17 | 30 | | | | 17 | 110 | 336 | 197 | 39 | 20 | 27 |
| 21 | 17 | 28 | | | | 19 | 119 | 328 | 191 | 36 | 27 | 26 |
| 22 | 17 | 33 | | | | 19 | 135 | 328 | 178 | 33 | 37 | 25 |
| 23 | 17 | 33 | | | | 19 | 117 | 344 | 160 | 31 | 27 | 26 |
| 24 | 17 | 32 | 22 | | | 19 | 110 | 399 | 149 | 37 | 26 | 27 |
| 25 | 17 | 32 | | | | 20 | 105 | 430 | 132 | 43 | 24 | 32 |
| 26 | 16 | 30 | | | | 20 | 105 | 426 | 122 | 43 | 23 | 28 |
| 27 | 16 | 29 | | | | 19 | 117 | 453 | 114 | 42 | 23 | 27 |
| 28 | 16 | 27 | | | | 20 | 117 | 471 | 105 | 36 | 24 | 28 |
| 29 | 17 | 28 | | | - | 20 | 103 | 462 | 101 | 34 | 24 | 30 |
| 30 | 22 | 28 | | | ------- | 20 | 94 | 448 | 94 | 33 | 23 | 28 |
| 31 | 27 | ------- | | | ------- | 22 | ------- | 408 | ------- | 31 | 21 | ------- |
| Total | 608 | 852 | 744 | 620 | 504 | 568 | 1,886 | 9,135 | 7,633 | 1,470 | 835 | 793 |
| Mean | 19.6 | 28.4 | 24.0 | 20 | 18 | 18.3 | 62.9 | 295 | 254 | 47.4 | 26.9 | 26.4 |
| Ac-ft | 1,210 | 1,690 | 1,480 | 1,230 | 1,000 | 1,130 | 3,740 | 18,120 | 15,140 | 2,920 | 1,660 | 1,570 |

Calendar year 1957: Max 540 Min 11 Mean 97.5 Ac-ft 70,570
Water year 1957-58: Max 494 Min 12 Mean 70.3 Ac-ft 50,890

Peak discharge (base, 200 cfs).--May 11 (10 p.m.) 328 cfs (3.75 ft); May 27 (11:30 p.m.) 550 cfs (4.25 ft); June 6 (8:15 p.m.) 590 cfs (4.32 ft).

Note.--No gage-height record Dec. 15 to Mar. 9 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 3 discharge measurements, weather records, typical recession, and records for nearby stations.

## 2195. 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 1958 in reports of Geological Survey. August 1910 to September 1922 and May 1936 to September 1944 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, water-stage recorder, staff or chain gage at bridges about 1 mile downstream at different datums.

Average discharge.--34 years (1910-22, 1936-58), 219 cfs (158,500 acre-ft per year).

Extremes.--Maximum discharge during year, 1,760 cfs May 27 (gage height, 5.18 ft); minimum not determined.
1910-22, 1936-58: 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, 15 cfs Nov. 1, 1955.

Remarks.--Records good except those for period of ice effect, which are poor. Trans-mountain diversions to drainage area above station from Colorado River basin (see p. 309). A few small diversions and several storage reservoirs above station for irrigation.

Revisions (water years).--WSP 898: 1911(M).

Rating table, water year 1957-58, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 25 to June 10, July 6 to Aug. 7)

| | | | |
|---|---|---|---|
| 1.2 | 41 | 3.0 | 425 |
| 1.5 | 79 | 4.0 | 950 |
| 2.0 | 168 | 5.0 | 1,500 |
| 2.5 | 277 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 66 | 69 | | | | | 50 | 230 | 1,400 | 188 | 204 | 53 |
| 2 | 65 | 79 | | | | | 43 | 230 | 1,380 | 174 | 221 | 50 |
| 3 | 66 | 101 | | | | | 46 | 228 | 1,310 | 164 | 226 | 50 |
| 4 | 68 | 116 | | | (*) | | 41 | 246 | 1,190 | 154 | 180 | 61 |
| 5 | 72 | 98 | | | | | 43 | 314 | *1,210 | 142 | *97 | 61 |
| 6 | 71 | 122 | | | | | 56 | 390 | 1,440 | 133 | 93 | 56 |
| 7 | 73 | 206 | | | | | 55 | 453 | 1,300 | 124 | 53 | 60 |
| 8 | 69 | 204 | | | | | 52 | 502 | 1,190 | 118 | 48 | 64 |
| 9 | 68 | 212 | | | | | 46 | 530 | 1,070 | 106 | 51 | 60 |
| 10 | 62 | 206 | | | | (*) | 55 | 554 | 905 | 101 | 48 | 60 |
| 11 | 61 | 204 | | | | | 53 | 578 | 790 | 98 | 50 | 56 |
| 12 | 68 | 196 | (*) | | | | 49 | 740 | 696 | 93 | 45 | 55 |
| 13 | 75 | 186 | | (*) | | | 50 | 668 | 632 | 92 | 65 | 198 |
| 14 | 71 | 196 | | | | | 64 | 610 | 586 | 90 | 61 | 164 |
| 15 | 69 | 178 | | | | 50 | 89 | *655 | 558 | *84 | 60 | *105 |
| 16 | 69 | 113 | 40 | 35 | 37 | | 120 | 790 | 546 | 82 | 66 | 82 |
| 17 | 69 | 62 | | | | | 154 | 830 | 526 | 82 | 58 | 69 |
| 18 | 71 | 56 | | | | | *200 | 922 | 498 | 92 | 78 | 65 |
| 19 | 84 | (*) | | | | | 237 | 1,010 | 481 | 98 | 79 | 72 |
| 20 | 100 | | | | | | 272 | 1,090 | 453 | 89 | 76 | 57 |
| 21 | 100 | | | | | (*) | 308 | 1,040 | 432 | 79 | 71 | 56 |
| 22 | 90 | | | | | | 336 | 1,040 | 394 | 138 | 131 | 46 |
| 23 | 79 | | | | | | 316 | 1,070 | 351 | 239 | 98 | 44 |
| 24 | 93 | 56 | | | | | 285 | 1,220 | 319 | 235 | 73 | 81 |
| 25 | *164 | | | | | | 280 | 1,350 | 290 | 230 | 75 | 105 |
| 26 | 246 | | | | | | 275 | 1,390 | *265 | 219 | 71 | 81 |
| 27 | 202 | | | | | | 293 | 1,450 | 246 | 215 | *69 | 71 |
| 28 | 158 | | | | | 52 | 293 | 1,460 | 228 | 200 | 65 | 72 |
| 29 | 172 | | | | - | 52 | 265 | 1,420 | 212 | 194 | 64 | 72 |
| 30 | 188 | | | | ------- | 49 | 239 | 1,480 | 200 | 196 | 65 | 65 |
| 31 | 172 | ------- | | | ------- | 52 | ------- | 1,420 | ------- | 206 | 58 | ------- |
| Total | 3,081 | 3,276 | 1,240 | 1,085 | 1,036 | 1,555 | 4,665 | 25,910 | 21,098 | 4,455 | 2,679 | 2,191 |
| Mean | 99.4 | 109 | 40 | 35 | 37 | 50.2 | 156 | 836 | 703 | 144 | 86.4 | 73.0 |
| Ac-ft | 6,110 | 6,500 | 2,460 | 2,150 | 2,050 | 3,080 | 9,250 | 51,390 | 41,850 | 8,840 | 5,310 | 4,350 |

Calendar year 1957: Max 2,020 Min - Mean 305 Ac-ft 220,900
Water year 1957-58: Max 1,480 Min - Mean 198 Ac-ft 143,300

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 19 to Mar. 27 (no gage-height record Dec. 12 to Mar. 21; discharge estimated on basis of 5 discharge measurements, weather records, and records for nearby stations).

## 2200. 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 county 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 1958, in reports of Geological Survey. July 1889 to September 1906 and April 1908 to September 1944, in reports of State engineer. May to September 1907 in files of State engineer.

Gage.--Water-stage recorder. Datum of gage is 7,980.25 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.--69 years (1889-1958), 932 cfs (674,700 acre-ft per year).

Extremes.--Maximum discharge during year, 7,100 cfs May 25 (gage height, 5.06 ft); minimum daily, 135 cfs Jan. 21.
1889-1958: 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 good except those for periods of ice effect or no gage-height record, which are fair. Discharge measurements generally made twice a month. Small diversions above station for irrigation. Flow regulated by three main reservoirs (total capacity, 122,900 acre-ft) and several smaller ones. Transmountain diversions to drainage area above station from Colorado River basin (see p. 309).

Revisions.--WSP 763: Drainage area.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 11 to June 2)

| | | | |
|---|---|---|---|
| 0.6 | 124 | 3.0 | 2,320 |
| .8 | 180 | 3.5 | 3,230 |
| 1.1 | 335 | 4.0 | 4,240 |
| 1.5 | 588 | 5.0 | 6,520 |
| 2.0 | 1,010 | 6.0 | 9,100 |
| 2.5 | 1,570 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 365 | 455 | 300 | 160 | 170 | 205 | 269 | 983 | 5,070 | 1,970 | 1,450 | 371 |
| 2 | 383 | 443 | 290 | 165 | 165 | 195 | 269 | 1,100 | 5,070 | 1,980 | 1,440 | 353 |
| 3 | 389 | 488 | 280 | 165 | 170 | 185 | 258 | 1,260 | 4,960 | 2,100 | 1,390 | 359 |
| 4 | 383 | 507 | 290 | 170 | 190 | 177 | 269 | 1,340 | 4,390 | 2,000 | 1,370 | 413 |
| 5 | 395 | 488 | 310 | 170 | 195 | 180 | 313 | 1,650 | 4,030 | 1,830 | 1,300 | 401 |
| 6 | 413 | 462 | 320 | 170 | 190 | 177 | 324 | 2,210 | 4,760 | 1,380 | 1,350 | 365 |
| 7 | 425 | 520 | 280 | 167 | 180 | 180 | 341 | 2,660 | 5,510 | 1,250 | 1,330 | 359 |
| 8 | 401 | 455 | 340 | 160 | 195 | 171 | 335 | 3,020 | 5,370 | 1,700 | 1,300 | 353 |
| 9 | 371 | 449 | 280 | 160 | 220 | 177 | 341 | 3,250 | 4,710 | 1,670 | 1,250 | 365 |
| 10 | 353 | 455 | 260 | 155 | 215 | 171 | 347 | 3,440 | 4,140 | 1,670 | 1,130 | 371 |
| 11 | 353 | 455 | 210 | 155 | 200 | 185 | 347 | 3,520 | 3,600 | 1,700 | 813 | 353 |
| 12 | 359 | 455 | 210 | 150 | 190 | 185 | 353 | 3,600 | 3,290 | 1,710 | 574 | 341 |
| 13 | 401 | 455 | 230 | 145 | 200 | 177 | 324 | 3,310 | 2,930 | 1,650 | 574 | 534 |
| 14 | 395 | 449 | 235 | 145 | 195 | 190 | 365 | 3,040 | 2,950 | 1,640 | 596 | 788 |
| 15 | 377 | 455 | 240 | 140 | 230 | 210 | 431 | 2,860 | 3,100 | 1,660 | 581 | 534 |
| 16 | 371 | 389 | 240 | 150 | 255 | 230 | 540 | 3,190 | 2,790 | 1,690 | 611 | 443 |
| 17 | 365 | 330 | 250 | 160 | 245 | 220 | 603 | 3,360 | 2,930 | 1,760 | 641 | 389 |
| 18 | 371 | 275 | 240 | 175 | 240 | 220 | 813 | 3,660 | 2,930 | 1,780 | 649 | 371 |
| 19 | 431 | 237 | 250 | 185 | 240 | 220 | 1,090 | 3,990 | 2,810 | 1,860 | 672 | 377 |
| 20 | 468 | 269 | 220 | 170 | 245 | 230 | 1,250 | 4,340 | 2,720 | 1,800 | 603 | 359 |
| 21 | 507 | 250 | 225 | 135 | 270 | 242 | 1,310 | 4,410 | 2,640 | 1,770 | 534 | 330 |
| 22 | 494 | 200 | 230 | 150 | 280 | 258 | 1,380 | 4,540 | 2,550 | 1,780 | 574 | 313 |
| 23 | 437 | 250 | 220 | 160 | 280 | 253 | 1,440 | 4,650 | 2,460 | 1,780 | 534 | 313 |
| 24 | 443 | 280 | 240 | 165 | 270 | 253 | 1,280 | 6,350 | 2,340 | 1,740 | 455 | 335 |
| 25 | 481 | 350 | 200 | 175 | 250 | 248 | 1,190 | 6,620 | 2,180 | 1,700 | 425 | 413 |
| 26 | 561 | 350 | 210 | 180 | 230 | 253 | 1,100 | 6,500 | 2,220 | 1,650 | 407 | 401 |
| 27 | 540 | 300 | 220 | 200 | 200 | 242 | 1,130 | 6,180 | 2,260 | 1,740 | 389 | 371 |
| 28 | 481 | 220 | 180 | 180 | 215 | 253 | 1,190 | 6,180 | 2,080 | 1,550 | 383 | 365 |
| 29 | 494 | 240 | 200 | 170 | - | 231 | 1,080 | 5,580 | 1,860 | 1,470 | 383 | 365 |
| 30 | 514 | 280 | 230 | 180 | ------- | 231 | 1,010 | 5,630 | 1,860 | 1,440 | 371 | 371 |
| 31 | 547 | ------- | 170 | 190 | ------- | 258 | ------- | 5,210 | ------- | 1,450 | 377 | ------- |
| Total | 13,268 | 11,211 | 7,600 | 5,102 | 6,125 | 6,607 | 21,292 | 117,633 | 100,510 | 52,870 | 24,456 | 11,776 |
| Mean | 428 | 374 | 245 | 165 | 219 | 213 | 710 | 3,795 | 3,350 | 1,705 | 789 | 393 |
| Ac-ft | 26,320 | 22,240 | 15,070 | 10,120 | 12,150 | 13,100 | 42,230 | 233,300 | 199,400 | 104,900 | 48,510 | 23,360 |

Calendar year 1957: Max 6,700 Min 80 Mean 1,165 Ac-ft 843,400
Water year 1957-58: Max 6,620 Min 135 Mean 1,037 Ac-ft 750,700

Note.--Stage-discharge relation affected by ice Nov. 21 to Dec. 31. No gage-height record Jan. 1 to Mar. 3 (stage-discharge relation affected by ice during most of period), Mar. 14-20; discharge estimated on basis of 4 discharge measurements, weather records, and records for nearby stations.

## 2205. 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 1958 in reports of Geological Survey. May 1919 to September 1924 and May 1936 to September 1944 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.--14 years (1940-41, 1943-47, 1949-58), 24.5 cfs (17,740 acre-ft per year).

Extremes.--Maximum discharge during year, 200 cfs May 27 (gage height, 2.08 ft); minimum not determined.
1919-24, 1936-58: 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 period of no gage-height record, which are poor. One small diversion above station.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to May 25 | | | | May 26 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.2 | 6.0 | 1.0 | 64 | 0.1 | 3.0 | 0.8 | 50 |
| .4 | 15 | 1.5 | 118 | .2 | 7.0 | 1.4 | 112 |
| .6 | 29 | 2.0 | 185 | .4 | 18 | 2.0 | 189 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 12 | | | | | 8.8 | 23 | 153 | 24 | 12 | 6.6 |
| 2 | 12 | 12 | | | | | 8.8 | 24 | 149 | 24 | 11 | 6.6 |
| 3 | 12 | 12 | | | | | 8.8 | 23 | 144 | *23 | 9.0 | 7.0 |
| 4 | 12 | 12 | | | (*) | | 9.2 | 25 | 134 | 21 | 9.0 | 7.5 |
| 5 | 12 | 12 | | | | 5.8 | 7.6 | 35 | 139 | 21 | 9.5 | *7.5 |
| 6 | 10 | 9.6 | | | | | 8.8 | 57 | 161 | 20 | 8.5 | 8.0 |
| 7 | 10 | 12 | | (*) | | | 9.2 | 77 | 136 | 20 | 8.5 | 6.6 |
| 8 | 9.6 | 14 | | | | | 8.4 | 93 | 120 | 19 | 8.0 | 6.2 |
| 9 | 9.6 | 14 | (*) | | | | 8.8 | 97 | 108 | 17 | 7.5 | 6.2 |
| 10 | 10 | 12 | | | | | 9.6 | 86 | 96 | 16 | 7.0 | 6.6 |
| 11 | 10 | 11 | | | | | 8.8 | 104 | *87 | 15 | 9.5 | 6.2 |
| 12 | 11 | 9.6 | | | | | 8.4 | 128 | 80 | 14 | 11 | 5.8 |
| 13 | 12 | *9.6 | | | | | 8.8 | 117 | 76 | 15 | 10 | 15 |
| 14 | *11 | | | | | | 10 | *110 | 73 | 14 | 9.5 | 14 |
| 15 | 11 | | 7 | 5.8 | 5.5 | 7.6 | 14 | 108 | 70 | 14 | *10 | 11 |
| 16 | 11 | | | | | | 18 | 110 | 67 | 15 | 10 | 11 |
| 17 | 11 | | | | | | 24 | 110 | 63 | 15 | 11 | 10 |
| 18 | 11 | | | | | | *31 | 110 | 62 | 15 | 13 | 10 |
| 19 | 12 | | | | | | 34 | 114 | 61 | 15 | 11 | 11 |
| 20 | 14 | | | | | | 35 | 120 | 54 | 14 | 10 | 9.5 |
| 21 | 14 | 8 | | | | *9.9 | 37 | 122 | 44 | 12 | 10 | 9.0 |
| 22 | 12 | | | | | 9.6 | 39 | 146 | 40 | 11 | 16 | 8.5 |
| 23 | 10 | | | | | 8.8 | 33 | 147 | 37 | 10 | 10 | 8.5 |
| 24 | 12 | | | | | 8.8 | 29 | 153 | 33 | 12 | 8.5 | *9.0 |
| 25 | 12 | | | | | 8.8 | 28 | 168 | 31 | *13 | 7.5 | 9.0 |
| 26 | 10 | | | | | 8.4 | 29 | 171 | 31 | 13 | 7.5 | 8.0 |
| 27 | 9.6 | | | | | 9.2 | 35 | 175 | 28 | 14 | 7.5 | 8.0 |
| 28 | 11 | | | | | 8.4 | 34 | 172 | 27 | 13 | 7.0 | 8.0 |
| 29 | 12 | | | | - | 8.0 | 28 | 170 | 27 | 13 | 6.6 | 8.0 |
| 30 | 10 | | | | ------- | 8.4 | 24 | 168 | 26 | 14 | 6.6 | 7.5 |
| 31 | 12 | ------- | | | ------- | 9.2 | ------- | 158 | ------- | 13 | 6.2 | ------- |
| Total | 348.8 | 287.8 | 217 | 179.8 | 154.0 | 231.5 | 596.0 | 3,421 | 2,357 | 489 | 288.4 | 255.8 |
| Mean | 11.3 | 9.59 | 7 | 5.8 | 5.5 | 7.47 | 19.9 | 110 | 78.6 | 15.8 | 9.30 | 8.53 |
| Ac-ft | 692 | 571 | 430 | 357 | 305 | 459 | 1,180 | 6,790 | 4,680 | 970 | 572 | 507 |

Calendar year 1957: Max 343 Min 4.0 Mean 50.3 Ac-ft 36,440
Water year 1957-58: Max 175 Min - Mean 24.2 Ac-ft 17,510

Peak discharge (base, 120 cfs).--May 11 (10 p.m.) 163 cfs (1.84 ft); May 27 (10 p.m.) 200 cfs (2.08 ft); June 5 (11 p.m.) 181 cfs (1.94 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 14 to Mar. 21 (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.

## 2215. 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 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 1958 in reports of Geological Survey. May 1926 to September 1944 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.--25 years (1933-58), 333 cfs (241,100 acre-ft per year).

Extremes.--Maximum discharge during year, 4,090 cfs May 25 (gage height, 6.73 ft); minimum daily, 19 cfs Apr. 3.
1926-58: Maximum discharge, 18,500 cfs June 30, 1927 (gage height, 8.35 ft, present datum); minimum daily, 3.0 cfs Mar. 26, 1954, Mar. 18, 19, 1957.

Remarks.--Records good 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.--WSP 928: Drainage area.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 25 to Apr. 22, May 22-29, June 27 to July 6)

| Oct. 1 to May 25 | | | | May 26 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.8 | 13 | 3.0 | 635 | 1.5 | 17 | 3.3 | 615 |
| .9 | 21 | 4.0 | 1,250 | 1.6 | 27 | 4.0 | 1,050 |
| 1.2 | 56 | 5.0 | 2,210 | 1.9 | 72 | 5.0 | 1,830 |
| 1.5 | 107 | 7.0 | 4,660 | 2.3 | 163 | 7.0 | 4,200 |
| 2.0 | 237 | | | 2.7 | 310 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 78 | 68 | 310 | 210 | 200 | 230 | 33 | 74 | 2,470 | 342 | 242 | 104 |
| 2 | 83 | 201 | 315 | 175 | 187 | 225 | 28 | 62 | 2,350 | *310 | 242 | 91 |
| 3 | 94 | 228 | 310 | 175 | 182 | 220 | 19 | 118 | 2,100 | 337 | 257 | 83 |
| 4 | 96 | 279 | 308 | 180 | 198 | 205 | 23 | 166 | 1,580 | 314 | 235 | 104 |
| 5 | 99 | 296 | 320 | 183 | 205 | 195 | 29 | 339 | 1,140 | 230 | 163 | 123 |
| 6 | 109 | 296 | 330 | 185 | 210 | 192 | 196 | 710 | 1,430 | 210 | 140 | 83 |
| 7 | 118 | 389 | 330 | 190 | 204 | 190 | 250 | 1,070 | 2,550 | 130 | 118 | 89 |
| 8 | 105 | 381 | 310 | 185 | 200 | 190 | 187 | 1,460 | 3,070 | 110 | 98 | 89 |
| 9 | 90 | 354 | *300 | 180 | 212 | 185 | 68 | 1,700 | 2,650 | 100 | *82 | 100 |
| 10 | 86 | 369 | 280 | *180 | 225 | 130 | 26 | 1,860 | 2,050 | 90 | 85 | 95 |
| 11 | 74 | 369 | 270 | 178 | *210 | 153 | 30 | 2,240 | *1,500 | 102 | 89 | 85 |
| 12 | 73 | 373 | 250 | 170 | 205 | *166 | 97 | 2,250 | 1,200 | 250 | 27 | 87 |
| 13 | 88 | *412 | 245 | 168 | 203 | 122 | 247 | 1,980 | 915 | 140 | 22 | 125 |
| 14 | 86 | 393 | 250 | 165 | 118 | 107 | *207 | *1,510 | 928 | *64 | 142 | 370 |
| 15 | 96 | 424 | 256 | 158 | 105 | 111 | 71 | 1,160 | 1,130 | 64 | 172 | 135 |
| 16 | 88 | 416 | 258 | 155 | 120 | 105 | 56 | 1,330 | 1,040 | 145 | 142 | *42 |
| 17 | *78 | 366 | 265 | 168 | 165 | 99 | 74 | 1,410 | 1,030 | 163 | 142 | 98 |
| 18 | 78 | 289 | 270 | 178 | 150 | 58 | 196 | 1,670 | 1,180 | 147 | 120 | 106 |
| 19 | 99 | 225 | 260 | 192 | 140 | 50 | 500 | 2,130 | 994 | 155 | 113 | 120 |
| 20 | 125 | 247 | 260 | 188 | 150 | 47 | 826 | 2,040 | 941 | 109 | 87 | 106 |
| 21 | 116 | 250 | 247 | 178 | 136 | 50 | 868 | 1,940 | 954 | 104 | 74 | 80 |
| 22 | 90 | 245 | 250 | 170 | 101 | 51 | 892 | 2,170 | 941 | 113 | 80 | 76 |
| 23 | 56 | 230 | 250 | 165 | 76 | 81 | 1,190 | 2,130 | 808 | 203 | 98 | 87 |
| 24 | 35 | 250 | 250 | 175 | 73 | 213 | 936 | 3,110 | 718 | 238 | 58 | 98 |
| 25 | 66 | 285 | 255 | 190 | 80 | 122 | 635 | 3,920 | 632 | *350 | 76 | 115 |
| 26 | 101 | 320 | 220 | 198 | 62 | 78 | 416 | 3,900 | 588 | 324 | 82 | 85 |
| 27 | 83 | 330 | 230 | 206 | 51 | 60 | 362 | 3,740 | 598 | 306 | *100 | 74 |
| 28 | 96 | 310 | 230 | 211 | 80 | 52 | 385 | 3,710 | 510 | 220 | 102 | 76 |
| 29 | 48 | 285 | 205 | 198 | - | 47 | 222 | 3,220 | 440 | 242 | 102 | 82 |
| 30 | 47 | 300 | 230 | 182 | ------- | 43 | 148 | 3,060 | 380 | 257 | 102 | 85 |
| 31 | 30 | ------- | 240 | 193 | ------- | 38 | ------- | 2,680 | ------- | 261 | 100 | ------- |
| Total | 2,611 | 9,180 | 8,304 | 5,629 | 4,248 | 3,815 | 9,217 | 58,859 | 38,817 | 6,130 | 3,629 | 3,093 |
| Mean | 84.2 | 306 | 268 | 182 | 152 | 123 | 307 | 1,899 | 1,294 | 198 | 119 | 103 |
| Ac-ft | 5,180 | 18,210 | 16,470 | 11,160 | 8,430 | 7,570 | 18,280 | 116,700 | 76,990 | 12,160 | 7,320 | 6,130 |

Calendar year 1957: Max 4,040 Min 3.0 Mean 382 Ac-ft 276,700
Water year 1957-58: Max 3,920 Min 19 Mean 421 Ac-ft 304,600

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 22 to Feb. 20, Mar. 1-10. No gage-height record Dec. 19 to Jan. 10, July 5-10; discharge estimated on basis of 1 discharge measurement, records for station near Del Norte, and diversion records.

## 2230. 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 1958 in reports of Geological Survey. May 1912 to September 1944 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 bridges 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.--46 years (1912-58), 281 cfs (203,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,960 cfs May 27 (gage height, 6.97 ft); minimum daily, 11 cfs Sept. 27-30.
1912-58: 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 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.--WSP 928: Drainage area.

Rating table, water year 1957-58, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 1.4 | 10 | 2.5 | 118 | 5.0 | 1,000 |
| 1.6 | 19 | 3.0 | 215 | 6.0 | 1,860 |
| 1.8 | 32 | 3.5 | 340 | 7.0 | 3,000 |
| 2.0 | 50 | 4.0 | 510 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30 | 52 | 285 | 180 | 185 | 139 | 103 | 161 | 1,880 | 45 | 24 | 13 |
| 2 | 28 | 49 | 290 | 160 | 180 | 173 | 98 | 149 | 1,670 | 44 | 23 | 16 |
| 3 | 25 | 48 | 290 | 160 | 175 | 201 | 94 | 137 | 1,510 | *43 | 21 | 17 |
| 4 | 23 | 52 | 295 | 160 | 185 | 222 | 90 | 125 | 1,230 | 43 | *21 | 18 |
| 5 | 23 | 65 | 295 | 165 | 185 | 242 | 85 | 112 | 645 | 44 | 20 | 18 |
| 6 | 23 | 70 | 300 | 165 | *190 | 238 | 81 | 104 | 315 | 44 | 20 | 20 |
| 7 | 23 | 77 | 305 | *165 | 195 | 258 | 167 | 355 | 680 | 42 | 18 | 24 |
| 8 | 24 | 92 | 310 | 165 | 190 | 260 | 252 | 730 | 1,350 | 41 | 18 | 28 |
| 9 | 26 | 120 | 290 | 160 | 200 | 258 | 211 | *958 | 1,900 | 38 | 18 | 30 |
| 10 | 26 | 242 | *275 | 160 | 205 | 258 | 153 | 1,170 | 1,790 | 38 | 17 | *31 |
| 11 | 26 | 300 | 250 | 155 | 200 | 220 | 135 | 1,310 | 1,220 | 36 | 16 | 30 |
| 12 | 26 | 312 | 240 | 150 | 190 | *195 | 120 | 1,470 | 574 | 34 | 15 | 29 |
| 13 | 27 | 328 | 230 | 150 | 190 | 209 | 125 | 1,560 | 252 | 36 | 14 | 28 |
| 14 | 26 | 407 | 235 | 145 | 190 | 189 | 139 | 1,480 | 185 | 40 | 13 | 28 |
| 15 | 26 | *414 | 240 | 145 | 160 | 179 | 220 | 1,130 | 161 | 36 | 12 | 41 |
| 16 | 24 | 442 | 240 | 150 | 170 | 177 | 147 | 820 | 191 | 32 | 12 | 21 |
| 17 | *25 | 407 | 245 | 155 | 230 | 175 | *133 | 860 | 183 | 30 | 16 | 15 |
| 18 | 30 | 346 | 250 | 170 | 255 | 169 | 121 | 892 | 153 | *30 | 16 | 15 |
| 19 | 32 | 285 | 235 | 175 | 240 | 155 | 225 | 1,070 | *123 | 35 | 16 | 15 |
| 20 | 34 | 272 | 230 | 180 | 230 | 139 | 534 | 1,250 | 71 | 32 | 16 | 15 |
| 21 | 36 | 280 | 225 | 170 | 240 | 133 | 750 | 1,420 | 65 | 30 | 14 | 15 |
| 22 | 45 | 280 | 225 | 165 | 230 | 130 | 800 | 1,540 | 61 | 28 | 15 | 15 |
| 23 | 46 | 270 | 225 | 160 | 210 | 126 | 870 | 1,580 | 58 | 27 | 14 | 14 |
| 24 | 45 | 260 | 225 | 160 | 190 | 143 | 1,070 | 1,630 | 54 | 26 | 13 | 13 |
| 25 | 42 | 270 | 220 | 165 | 175 | 215 | 815 | 1,890 | 50 | 26 | 12 | *12 |
| 26 | 40 | 290 | 215 | 170 | 169 | 163 | 566 | 2,650 | 48 | 26 | *12 | 12 |
| 27 | 43 | 310 | 210 | 175 | 157 | 147 | 397 | 2,900 | 47 | 31 | 12 | 11 |
| 28 | 47 | 310 | 200 | 190 | 139 | 137 | 312 | *2,810 | 47 | 31 | 12 | 11 |
| 29 | 52 | 285 | 195 | 185 | - | 123 | 260 | 2,740 | 46 | 30 | 12 | 11 |
| 30 | 56 | 275 | 200 | 180 | ------- | 115 | 191 | 2,400 | 46 | 28 | 12 | 11 |
| 31 | 52 | ------- | 205 | 180 | ------- | 109 | ------- | 2,150 | ------- | 27 | 12 | ------- |
| Total | 1,031 | 7,210 | 7,675 | 5,115 | 5,455 | 5,597 | 9,264 | 39,553 | 16,585 | 1,073 | 486 | 577 |
| Mean | 33.3 | 240 | 248 | 165 | 195 | 181 | 309 | 1,276 | 553 | 34.6 | 15.7 | 19.2 |
| Ac-ft | 2,040 | 14,300 | 15,220 | 10,150 | 10,820 | 11,100 | 18,370 | 78,450 | 32,900 | 2,130 | 964 | 1,140 |

Calendar year 1957: Max 3,060 Min 7.5 Mean 174 Ac-ft 126,200
Water year 1957-58: Max 2,900 Min 11 Mean 273 Ac-ft 197,600

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 22 to Feb. 25.

Closed basin in San Luis Valley, Colo.

## 2245. 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 1958 in reports of Geological Survey. June 1923 to September 1926 (published as "near Villa Grove") and May 1936 to September 1944 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is about 9,300 ft (from topographic map).

Average discharge.--12 years (1940-41, 1947-58), 13.6 cfs (9,850 acre-ft per year).

Extremes.--Maximum discharge during year, 212 cfs May 26 (gage height, 2.05 ft); minimum not determined.
1923-26, 1936-58: 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 poor. No diversion above station.

Revisions (water years).--WSP 1512: 1943.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | 38 | 122 | 20 | 5.5 | 4.0 |
| 2 | | | | | | | | 35 | 113 | 19 | 5.5 | 4.0 |
| 3 | | | | | | | | 34 | 108 | 18 | 6.1 | 4.0 |
| 4 | | | | | | | | 38 | 102 | 17 | 7.0 | 4.4 |
| 5 | | | | | | | | 50 | 100 | 16 | 7.0 | 4.8 |
| 6 | | | | | | | | 61 | 96 | 16 | 7.0 | 4.5 |
| 7 | | | | | | | | 76 | 94 | 13 | 6.7 | 4.6 |
| 8 | | | | | | | | 90 | 84 | 13 | 6.7 | 4.5 |
| 9 | | | | | | | | 90 | 80 | 13 | *5.5 | 4.4 |
| 10 | | | | | | | | 96 | 66 | 12 | 13 | 4.4 |
| 11 | | | | | (*) | | | 94 | 56 | 11 | 20 | 4.6 |
| 12 | | | (*) | | | | | 115 | 50 | 11 | 19 | 4.8 |
| 13 | | | | | | | | 104 | 46 | 11 | 19 | 5.4 |
| 14 | | | | (*) | | | | 108 | 40 | 11 | 20 | 6.6 |
| 15 | (*) | (*) | | | | | (*) | 102 | 37 | 12 | 17 | 9.0 |
| | 14 | 10 | 5.5 | 5 | 6 | 8 | 27 | | | | | |
| 16 | | | | | | | | 104 | 37 | 11 | 18 | 5.5 |
| 17 | | | | | | (*) | | 113 | 36 | *10 | 24 | 5.2 |
| 18 | | | | | | | | 113 | 34 | 14 | 20 | 5.2 |
| 19 | | | | | | | | 122 | 34 | 16 | 20 | 5.2 |
| 20 | | | | | | | | 124 | 34 | 12 | 16 | 5.2 |
| 21 | | | | | | | | 135 | 34 | 9.0 | 17 | 4.9 |
| 22 | | | | | | | | 161 | 34 | 8.0 | 19 | *4.3 |
| 23 | | | | | | | | 163 | 34 | 8.0 | 15 | 4.3 |
| 24 | | | | | | | | 168 | 34 | 8.0 | 11 | 4.6 |
| 25 | | | | | | | | 185 | *34 | 8.8 | 9.0 | 5.8 |
| 26 | | | | | | | | *192 | 28 | 9.1 | 8.0 | 5.5 |
| 27 | | | | | | | | 198 | 26 | 8.5 | 7.0 | 5.2 |
| 28 | | | | | | | (*) | 185 | 24 | 7.0 | 6.0 | 5.8 |
| 29 | | | | | - | | | 163 | 22 | 7.0 | *5.5 | 6.1 |
| 30 | | | | | ------- | | (*) | 141 | 20 | 7.0 | 4.6 | 6.1 |
| 31 | | ------- | | | ------- | | ------- | 130 | ------- | 6.1 | 4.3 | ------- |
| Total | 434 | 300 | 170.5 | 155 | 168 | 248 | 810 | 3,528 | 1,659 | 362.5 | 369.4 | 152.9 |
| Mean | 14 | 10 | 5.5 | 5 | 6 | 8 | 27 | 114 | 55.3 | 11.7 | 11.9 | 5.10 |
| Ac-ft | 861 | 595 | 338 | 307 | 333 | 492 | 1,610 | 7,000 | 3,290 | 719 | 733 | 303 |

Calendar year 1957: Max 160 Min - Mean 26.0 Ac-ft 18,840
Water year 1957-58: Max 198 Min - Mean 22.9 Ac-ft 16,580

Peak discharge (base, 70 cfs).--May 10 (8 p.m.) 117 cfs (1.84 ft); May 26 (8 p.m.) 212 cfs (2.05 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 9 to Apr. 30 (stage-discharge relation affected by ice during most of period), June 17-24, July 24-27, Sept. 3-14; discharge estimated on basis of 8 discharge measurements, weather records, recorded range in stage, and records for Saguache Creek near Saguache.

Closed basin in San Luis Valley, Colo.

## 2270. 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 from Ford Creek, 10 miles northwest of Saguache.

Drainage area.--595 sq mi.

Records available.--August 1910 to September 1912 and October 1933 to September 1958 in reports of Geological Survey. August 1910 to September 1912 and June 1914 to September 1944 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 8,000 ft. Prior to Apr. 9, 1934, at site three-quarters of a mile downstream at different datum.

Average discharge.--41 years (1910-12, 1914-36, 1940-42, 1943-58), 75.6 cfs (54,730 acre-ft per year).

Extremes.--Maximum discharge during year, 672 cfs May 27 (gage height, 2.26 ft); minimum daily, 22 cfs Nov. 22, Jan. 15.
1910-12, 1914-58: 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.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Revisions (water years).--WSP 1242: 1948-49.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 31)

| | | | |
|---|---|---|---|
| 0.4 | 16 | 1.0 | 110 |
| .5 | 23 | 1.5 | 269 |
| .6 | 33 | 2.0 | 495 |
| .8 | 65 | 2.5 | 795 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 58 | 67 | 31 | 30 | 26 | 39 | 46 | 100 | 445 | 150 | 41 | 43 |
| 2 | 58 | 69 | 34 | 25 | 29 | 39 | 49 | 113 | 405 | 129 | 39 | 43 |
| 3 | 56 | 73 | 36 | 24 | 31 | 38 | 41 | 121 | 395 | *84 | 37 | 43 |
| 4 | 56 | 69 | 37 | 23 | 29 | 38 | 49 | 115 | 368 | 81 | 36 | 47 |
| 5 | 58 | 67 | 37 | 24 | 31 | 38 | 34 | 152 | 400 | 77 | 44 | 60 |
| 6 | 60 | 65 | 37 | 25 | *32 | 39 | 40 | 206 | 460 | 74 | 47 | 54 |
| 7 | 60 | 63 | 39 | *25 | 31 | 39 | 46 | 223 | 470 | 66 | 41 | 49 |
| 8 | 54 | 56 | 41 | 26 | 31 | 43 | 49 | 262 | 460 | 64 | 39 | 47 |
| 9 | 52 | 52 | *52 | 25 | 32 | 36 | 49 | 265 | 359 | 61 | *37 | 47 |
| 10 | 52 | 56 | 46 | 25 | 33 | 40 | 51 | 281 | 288 | 58 | 41 | 46 |
| 11 | 52 | 56 | 34 | 24 | 33 | 34 | 49 | 321 | *247 | 56 | 47 | 43 |
| 12 | 54 | 56 | 31 | 24 | 33 | 41 | 47 | 364 | 231 | 50 | 47 | 41 |
| 13 | 69 | 60 | 31 | 23 | 33 | 39 | 43 | 382 | 226 | 47 | 43 | 44 |
| 14 | 69 | 56 | 32 | 23 | 33 | 36 | 51 | 368 | 226 | 45 | 41 | 51 |
| 15 | *63 | *56 | 34 | 22 | 33 | 34 | *58 | *350 | 223 | 43 | 43 | 43 |
| 16 | 61 | 49 | 37 | 23 | 34 | 39 | 76 | 325 | 220 | 42 | 44 | 44 |
| 17 | 60 | 49 | 44 | 24 | 35 | 39 | 76 | 346 | 216 | 43 | 54 | 43 |
| 18 | 60 | 52 | 44 | 25 | 35 | 32 | 113 | 377 | 212 | 44 | 61 | 39 |
| 19 | 73 | 39 | 37 | 26 | 37 | 36 | 158 | 386 | 209 | 43 | 78 | 39 |
| 20 | 82 | 40 | 36 | 27 | 38 | 34 | 155 | 364 | 206 | 40 | 67 | 37 |
| 21 | 86 | 30 | 39 | 25 | 39 | *46 | 167 | 395 | 204 | 37 | 60 | 33 |
| 22 | 88 | 22 | 40 | 23 | 41 | 47 | 143 | 400 | 199 | 38 | 82 | *31 |
| 23 | 76 | 43 | 40 | 24 | 40 | 47 | 155 | 517 | 183 | 39 | 76 | 32 |
| 24 | 69 | 45 | 39 | 25 | 39 | 54 | 118 | 500 | 181 | *41 | 61 | 34 |
| 25 | 67 | 45 | 40 | 26 | 39 | 52 | 115 | 566 | 180 | 53 | 54 | 40 |
| 26 | 58 | 40 | 37 | 27 | 38 | 49 | 121 | 605 | 180 | 61 | 51 | 39 |
| 27 | 58 | 40 | 39 | 28 | 38 | 44 | 115 | 594 | 180 | 60 | 49 | 39 |
| 28 | 61 | 30 | 40 | 28 | 40 | 49 | 129 | 556 | 180 | 52 | 49 | 39 |
| 29 | 69 | 31 | 41 | 27 | - | 40 | 103 | 572 | 176 | 46 | *49 | 37 |
| 30 | 65 | 28 | 43 | 26 | ------- | 43 | 93 | 539 | 169 | 43 | 46 | 36 |
| 31 | 65 | ------- | 39 | 26 | ------- | 47 | ------- | 490 | ------- | 43 | 44 | ------- |
| Total | 1,969 | 1,504 | 1,187 | 778 | 963 | 1,271 | 2,539 | 11,155 | 8,098 | 1,810 | 1,548 | 1,263 |
| Mean | 63.5 | 50.1 | 38.3 | 25.1 | 34.4 | 41.0 | 84.6 | 360 | 270 | 58.4 | 49.9 | 42.1 |
| Ac-ft | 3,910 | 2,980 | 2,350 | 1,540 | 1,910 | 2,520 | 5,040 | 22,130 | 16,060 | 3,590 | 3,070 | 2,510 |

Calendar year 1957: Max 678 Min - Mean 119 Ac-ft 86,380
Water year 1957-58: Max 605 Min 22 Mean 93.4 Ac-ft 67,610

Peak discharge (base, 210 cfs).--Apr. 21 (2 p.m.) 223 cfs (1.33 ft); May 12 (11 p.m.) 420 cfs (1.80 ft); May 27 (2:30 a.m.) 672 cfs (2.26 ft); June 7 (9 p.m.) 495 cfs (1.95 ft).

* Discharge measurement made on this day.

Note.--No gage-height record June 12, 14-16, 18, 24-27, June 29 to July 2, July 4-17, 19-23, 25, 26; discharge estimated on basis of weather records and records for nearby stations. Stage-discharge relation affected by ice Nov. 21, 24-28, Jan. 1 to Mar. 6.

Closed basin in San Luis Valley, Colo.

## 2275. 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 1958 (no winter records prior to 1948).

Gage.--Water-stage recorder. Altitude of gage is about 8,300 ft (from topographic map).

Average discharge.--11 years (1947-58), 10.8 cfs (7,820 acre-ft per year).

Extremes.--Maximum discharge during year, 143 cfs May 25 (gage height, 1.99 ft); minimum not determined.
1936-58: Maximum discharge, 735 cfs Aug. 6, 1936 (gage height, 4.33 ft), from rating curve extended above 180 cfs on basis of slope-area measurement of peak flow; minimum daily recorded, 0.4 cfs Apr. 3, 1945.

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

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 16 to June 12)

| | | | |
|---|---|---|---|
| 0.7 | 1.0 | 1.4 | 27 |
| .8 | 2.5 | 1.7 | 62 |
| 1.0 | 7.0 | 2.1 | 127 |
| 1.2 | 14 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.0 | 6.0 | | | | | 2.7 | 8.2 | 113 | 18 | 5.0 | 5.0 |
| 2 | 6.0 | 6.2 | | | | | 2.7 | 8.2 | 111 | 16 | 5.0 | 4.5 |
| 3 | 6.0 | 6.2 | | | | 1.5 | 2.7 | 8.5 | 106 | 16 | 5.2 | 4.5 |
| 4 | 5.8 | 6.2 | | | | | 2.7 | 9.1 | 104 | 14 | 5.8 | 5.0 |
| 5 | 5.8 | 6.5 | | | | | 2.7 | 13 | 106 | 14 | 5.8 | 5.5 |
| 6 | 5.8 | 6.2 | | | | | 3.1 | 24 | 114 | 14 | 5.5 | 5.5 |
| 7 | 5.8 | 7.0 | | | | | 3.1 | 36 | 102 | 13 | 5.2 | 5.0 |
| 8 | 5.5 | 6.8 | | | | 1.8 | 3.1 | 45 | 100 | 12 | 5.0 | 4.8 |
| 9 | 5.5 | 6.5 | | | | | 2.9 | 43 | 95 | 12 | *4.8 | 4.5 |
| 10 | 5.5 | 6.8 | | | | | 2.9 | 41 | 82 | 12 | 4.5 | 4.5 |
| 11 | 5.5 | 6.8 | | | (*) | | 2.5 | 47 | 75 | 11 | 4.8 | 4.5 |
| 12 | 7.0 | 6.5 | (*) | | | | 2.5 | 54 | 66 | 11 | 4.5 | 4.5 |
| 13 | 6.5 | 6.2 | | | | 1.9 | 2.9 | 56 | 57 | 10 | 4.5 | 8.2 |
| 14 | 6.5 | 6.0 | | (*) | | | 3.3 | 53 | 53 | 9.4 | 4.3 | 8.5 |
| 15 | *6.2 | *5.8 | | | | | *4.8 | 56 | 50 | 9.1 | 4.3 | 8.2 |
| 16 | 6.2 | 7.6 | 3 | 1.6 | 1.1 | 2.1 | 6.2 | 66 | 45 | 9.1 | 4.3 | 8.2 |
| 17 | 6.2 | 7.0 | | | | *2.1 | 7.9 | 76 | 43 | *8.8 | 4.5 | 7.9 |
| 18 | 6.2 | 6.8 | | | | 2.0 | 9.0 | 82 | 42 | 9.1 | 7.0 | 7.9 |
| 19 | 6.2 | 8.2 | | | | 2.0 | 11 | 82 | 41 | 10 | 7.9 | 7.3 |
| 20 | 6.5 | 6.5 | | | | 2.0 | 14 | 95 | 39 | 8.8 | 7.6 | 7.0 |
| 21 | 6.2 | 7.0 | | | | 2.2 | 14 | 106 | 38 | 8.5 | 7.6 | 6.5 |
| 22 | 6.2 | 6.0 | | | | 2.2 | 14 | 100 | 34 | 7.9 | 9.1 | *6.2 |
| 23 | 6.0 | 5.8 | | | | 2.2 | 12 | 107 | 30 | 7.6 | 8.5 | 6.2 |
| 24 | 5.5 | 5.2 | | | | 2.2 | 10 | 116 | 26 | 7.3 | 7.9 | 6.2 |
| 25 | 5.5 | 4.8 | | | | 2.2 | 9.7 | 120 | *24 | 7.3 | 7.3 | 5.8 |
| 26 | 5.2 | 4.8 | | | | 2.4 | 8.8 | *113 | 21 | 7.3 | 6.8 | 5.8 |
| 27 | 5.2 | 4.8 | | | | 2.4 | 8.5 | 113 | 21 | 7.0 | 6.5 | 5.2 |
| 28 | 5.2 | 4.5 | | | | 2.4 | 8.8 | 113 | 19 | 6.2 | 6.2 | 5.2 |
| 29 | 5.5 | 4.0 | | | - | 2.4 | 8.2 | 114 | 18 | 5.8 | *6.0 | 5.2 |
| 30 | 5.5 | 4.0 | | | ------- | 2.5 | *8.2 | 106 | 18 | 5.8 | 5.5 | 5.5 |
| 31 | 6.0 | ------- | | | ------- | 2.7 | ------- | 106 | ------- | 5.5 | 5.2 | ------- |
| Total | 182.7 | 182.7 | 93 | 49.6 | 30.8 | 62.0 | 194.9 | 2,117.0 | 1,793 | 313.5 | 182.1 | 178.8 |
| Mean | 5.89 | 6.09 | 3 | 1.6 | 1.1 | 2.00 | 6.50 | 68.3 | 59.8 | 10.1 | 5.87 | 5.96 |
| Ac-ft | 362 | 362 | 184 | 98 | 61 | 123 | 387 | 4,200 | 3,560 | 622 | 361 | 355 |

Calendar year 1957: Max 111 Min 0 Mean 19.8 Ac-ft 14,310
Water year 1957-58: Max 120 Min - Mean 14.7 Ac-ft 10,680

Peak discharge (base, 60 cfs).--May 25 (8 p.m.) 143 cfs (1.99 ft); June 6 (8 p.m.) 120 cfs (1.86 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 21-23, Nov. 27 to Mar. 17, Apr. 18-20 (stage-discharge relation affected by ice during most of periods); discharge estimated on basis of 4 discharge measurements, weather records, and records for nearby stations.

Closed basin in San Luis Valley, Colo.

## 2305. 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 1958 in reports of Geological Survey. April 1919 to September 1944 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.--13 years (1925-26, 1940-41, 1947-58), 12.2 cfs (8,830 acre-ft per year).

Extremes.--Maximum discharge during year, 333 cfs May 7 (gage height, 2.12 ft), from rating curve extended above 82 cfs; minimum not determined.
1919-58: Maximum discharge, 1,600 cfs July 21, 1945 (gage height, 5.75 ft), from rating curve extended above 160 cfs; no flow for several days during summer months in 1951, 1955-56.

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 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 20, July 14-17)

| Oct. 1 to Apr. 20 | | Apr. 21 to July 13 | | July 14 to Sept. 30 | |
|---|---|---|---|---|---|
| 0.2 | 3.0 | 0.1 | 9.0 | 0.2 | 1.5 |
| .3 | 5.5 | .2 | 11 | .3 | 3.0 |
| .4 | 9.0 | .3 | 15 | .4 | 5.0 |
| .6 | 20 | .4 | 21 | .5 | 8.0 |
| .8 | 39 | .6 | 40 | .7 | 17 |
| 1.0 | 64 | 1.0 | 97 | .9 | 31 |
| 1.5 | 145 | 1.7 | 230 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.6 | 10 | | | | | 12 | 64 | 99 | 13 | 8.8 | 2.6 |
| 2 | 6.6 | 11 | | | | | 8.6 | 73 | 86 | 13 | 6.2 | 2.1 |
| 3 | 6.6 | 11 | | | | | *12 | 72 | 82 | 17 | 5.3 | 1.8 |
| 4 | 7.6 | 11 | | | (*) | | 8.3 | 78 | 78 | 15 | 5.3 | 3.2 |
| 5 | 7.6 | 10 | | | | | 13 | *108 | *68 | 13 | *5.9 | 5.9 |
| 6 | 7.6 | 9.5 | | | | 5.0 | 12 | 163 | 84 | 12 | 6.2 | 4.8 |
| 7 | 6.9 | 8.6 | | (*) | | | 11 | 210 | 73 | 12 | 5.6 | 4.4 |
| 8 | 6.9 | 6.2 | | | | | 7.6 | 212 | 70 | 11 | 5.3 | 4.0 |
| 9 | 5.8 | 14 | (*) | | | | 8.0 | 173 | 56 | 11 | 5.3 | 4.6 |
| 10 | 5.8 | 15 | | | | | 9.5 | 173 | 54 | 10 | 5.0 | 4.6 |
| 11 | 6.2 | 14 | | | | | 9.0 | 165 | 46 | 9.6 | 5.9 | 4.6 |
| 12 | 6.6 | 13 | | | | *5.5 | 7.2 | 191 | 40 | 9.4 | 5.0 | 4.4 |
| 13 | 8.3 | *12 | | | | 5.5 | 8.6 | 165 | 37 | 9.4 | 5.0 | 5.0 |
| 14 | *9.5 | 12 | | | | 5.2 | 12 | 158 | 34 | *8.4 | 5.3 | 5.3 |
| 15 | 8.0 | 10 | | | | 5.2 | 20 | 150 | 31 | 7.7 | 4.8 | 4.8 |
| 16 | 7.6 | | 6 | 3 | 4.5 | 5.2 | 35 | 150 | 30 | 8.0 | 4.6 | 5.0 |
| 17 | 7.6 | | | | | 5.0 | 60 | 154 | 30 | 8.0 | 7.4 | 4.8 |
| 18 | 8.0 | | | | | 4.8 | 103 | 158 | 29 | 8.8 | 7.7 | 4.4 |
| 19 | 10 | | | | | 8.6 | 111 | 148 | 27 | 14 | 8.0 | 4.4 |
| 20 | 14 | | | | | 11 | 109 | 144 | 27 | 12 | 9.2 | 4.2 |
| 21 | 15 | | | | | 6.9 | 111 | 156 | 26 | 8.8 | 14 | 3.8 |
| 22 | 15 | | | | | 8.3 | 125 | 171 | 23 | 7.4 | 20 | 3.4 |
| 23 | 10 | 7.2 | | | | 6.9 | 99 | 156 | 21 | 6.2 | 6.2 | 3.0 |
| 24 | 12 | | | | | 6.9 | 78 | 169 | *20 | 7.4 | 4.4 | *3.6 |
| 25 | 10 | | | | | 6.9 | 74 | 156 | 19 | 18 | 2.8 | 4.0 |
| 26 | 8.3 | | | | | 10 | 84 | 158 | 20 | 13 | 3.0 | 4.0 |
| 27 | 9.0 | | | | | 14 | 72 | 139 | 19 | 11 | 3.2 | 3.8 |
| 28 | 8.6 | | | | | 6.2 | 85 | 134 | 16 | 8.8 | 3.4 | 3.8 |
| 29 | 10 | | | | - | 11 | 74 | 125 | 16 | 8.4 | *4.2 | 4.0 |
| 30 | 9.0 | | | | ------- | 10 | 64 | 116 | 14 | 8.0 | 3.6 | 4.2 |
| 31 | 10 | ------- | | | ------- | 12 | ------- | 108 | ------- | 8.0 | 2.8 | ------- |
| Total | 270.7 | 275.3 | 186 | 93 | 126.0 | 210.1 | 1,442.8 | 4,497 | 1,275 | 327.3 | 189.4 | 122.5 |
| Mean | 8.73 | 9.18 | 6 | 3 | 4.5 | 6.78 | 48.1 | 145 | 42.5 | 10.6 | 6.11 | 4.08 |
| Ac-ft | 537 | 546 | 369 | 184 | 250 | 417 | 2,860 | 8,920 | 2,530 | 649 | 376 | 243 |

Calendar year 1957: Max 151 Min - Mean 21.2 Ac-ft 15,360
Water year 1957-58: Max 212 Min - Mean 24.7 Ac-ft 17,880

Peak discharge (base, 110 cfs).--Apr. 21 (8 p.m.) 219 cfs (1.74 ft); May 7 (12 p.m.) 333 cfs (2.12 ft); May 12 (2:30 a.m.) 253 cfs (1.80 ft); May 22 (7 p.m.) 217 cfs (1.64 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 21 to Mar. 11 (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. Stage-discharge relation affected by ice Nov. 16-20.

Closed basin in San Luis Valley, Colo.

## 2310. 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 1958 in reports of Geological Survey. April 1919 to September 1944 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.--13 years (1925-26, 1940-41, 1947-58), 14.4 cfs (10,430 acre-ft per year).

Extremes.--Maximum discharge during year, 236 cfs May 17 (gage height, 1.78 ft); minimum daily, 2.8 cfs Sept. 2, 3.
1919-58: Maximum discharge, 530 cfs July 9, 1957 (gage height, 3.00 ft), from rating curve extended above 140 cfs; minimum daily recorded, 0.2 cfs Sept. 28, 29, 1956.

Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to May 31 | | | | June 1 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.3 | 2.0 | 0.8 | 32 | 0.2 | 1.5 | 0.6 | 19 |
| .4 | 5.0 | 1.0 | 63 | .3 | 4.0 | .8 | 38 |
| .5 | 9.0 | 1.5 | 172 | .4 | 7.5 | 1.0 | 66 |
| .7 | 22 | | | .5 | 12 | 1.2 | 104 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.8 | 8.2 | | | | | 7.4 | 22 | 94 | 13 | 6.1 | 3.0 |
| 2 | 7.8 | 8.2 | | | | | 7.0 | 25 | 88 | 13 | 6.1 | 2.8 |
| 3 | 7.8 | 8.2 | | | | | *6.6 | 21 | 80 | 14 | 6.1 | 2.8 |
| 4 | 7.8 | 8.2 | | | (*) | | 5.0 | 31 | 75 | 13 | 6.1 | 4.0 |
| 5 | 7.8 | 8.6 | | | | | 4.4 | *58 | *79 | 12 | *7.2 | 5.4 |
| 6 | 8.2 | 8.2 | | | | | 6.2 | 83 | 94 | 12 | 6.8 | 4.7 |
| 7 | 8.2 | 7.4 | | (*) | | | 5.4 | 94 | 79 | 11 | 6.4 | 6.4 |
| 8 | 8.2 | 7.0 | | | | | 6.6 | 102 | 71 | 11 | 6.1 | 5.0 |
| 9 | 7.4 | 7.0 | (*) | | | | 5.4 | 102 | 62 | 9.8 | 6.1 | 6.4 |
| 10 | 8.2 | 8.2 | | | | | 4.7 | 113 | 56 | 8.8 | 6.4 | 5.4 |
| 11 | 8.2 | 7.9 | | | | | 4.4 | 133 | 51 | 7.5 | 5.4 | 6.1 |
| 12 | 7.8 | 8.0 | | | | (*) | 4.7 | 135 | 44 | 8.0 | 5.0 | 4.7 |
| 13 | 9.0 | *9.6 | | | | | 4.4 | 115 | 41 | 8.0 | 5.0 | 5.8 |
| 14 | *9.0 | 7.7 | | | | | 5.0 | 119 | 37 | *7.2 | 5.0 | 5.4 |
| 15 | 8.6 | 7.6 | | | | | 8.2 | 128 | 35 | 7.5 | 5.0 | 4.7 |
| 16 | 8.2 | | 6 | 5.8 | 6 | 7 | 13 | 149 | 34 | 7.2 | 5.8 | 5.0 |
| 17 | 8.2 | | | | | | 16 | 156 | 32 | 6.4 | 6.4 | 4.7 |
| 18 | 7.8 | | | | | | 21 | 163 | 31 | 7.5 | 8.4 | 4.4 |
| 19 | 9.0 | | | | | | 35 | 151 | 29 | 11 | 7.5 | 4.7 |
| 20 | 11 | 7.1 | | | | | 43 | 149 | 26 | 9.3 | 6.1 | 4.0 |
| 21 | 11 | | | | | | 46 | 138 | 25 | 8.0 | 5.8 | 3.8 |
| 22 | 10 | | | | | | 48 | 144 | 24 | 7.2 | 9.3 | 3.8 |
| 23 | 7.0 | | | | | | 43 | 128 | 23 | 6.8 | 5.8 | 3.8 |
| 24 | 9.6 | | | | | | 35 | 135 | *22 | 6.8 | 4.4 | *4.0 |
| 25 | 8.6 | | | | | | 36 | 131 | 22 | 10 | 3.8 | 4.7 |
| 26 | 6.6 | | | | | | 35 | 131 | 21 | 9.3 | 3.5 | 4.4 |
| 27 | 7.0 | | | | | | 35 | 122 | 18 | 9.3 | 3.5 | 4.0 |
| 28 | 8.2 | 6.8 | | | | | 39 | 111 | 17 | 7.5 | 3.5 | 4.0 |
| 29 | 8.2 | | | | - | | 26 | 115 | 16 | 7.5 | *3.5 | 4.7 |
| 30 | 7.8 | | | | ------- | | 23 | 111 | 14 | 6.8 | 3.5 | 4.4 |
| 31 | 8.2 | ------- | | | ------- | | ------- | 100 | ------- | 6.8 | 3.0 | ------- |
| Total | 258.2 | 225.0 | 186 | 179.8 | 168 | 217 | 579.4 | 3,415 | 1,340 | 283.2 | 172.6 | 137.0 |
| Mean | 8.33 | 7.50 | 6 | 5.8 | 6 | 7 | 19.3 | 110 | 44.7 | 9.14 | 5.57 | 4.57 |
| Ac-ft | 512 | 446 | 369 | 357 | 333 | 430 | 1,150 | 6,770 | 2,660 | 562 | 342 | 272 |

Calendar year 1957: Max 195 Min 1.8 Mean 24.5 Ac-ft 17,750
Water year 1957-58: Max 163 Min 2.8 Mean 19.6 Ac-ft 14,200

Peak discharge (base, 80 cfs).--May 12 (12:15 a.m.) 177 cfs (1.52 ft); May 17 (11:45 p.m.) 236 cfs (1.78 ft); June 6 (4 p.m.) 126 cfs (1.30 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 22 to Apr. 2 (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. 9-12, 14-21.

Transmountain diversions from Colorado River basin to Rio Grande basin

The following 7 ditches, 6 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. 35, T. 43 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 (water years).--WSP 1242: 1948-51.

Inflow from transmountain diversions, in acre-feet, water year October 1957 to September 1958

| Month | Raber-Lohr ditch | Fuchs ditch | Squaw Pass ditch | Tabor ditch | Piedra Pass ditch | Treasure Pass ditch | Total |
|---|---|---|---|---|---|---|---|
| October 1957 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| November | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| December | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| January 1958 | 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 | 98 | 0 | 0 | 98 |
| June | 734 | 321 | 0 | 557 | 155 | 0 | 1,770 |
| July | 695 | 118 | 153 | 125 | 89 | 0 | 1,180 |
| August | 346 | 67 | 19 | 14 | 0 | 0 | 446 |
| September | 40 | 16 | 0 | 0 | 0 | 0 | 56 |
| Water year 1957-58 | 1,820 | 522 | 172 | 794 | 244 | 0 | 3,550 |

## 2360. 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 and October 1934 to September 1958 in reports of Geological Survey. April 1915 to October 1919, October 1923 to September 1927, and October 1934 to September 1944 in reports of State engineer. (No winter records most years.) September 1911 to June 1912 published as Rio Alamosa near Monte Vista.

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 1½ 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.--17 years (1923-24, 1940-41, 1943-58), 115 cfs (83,260 acre-ft per year).

Extremes.--Maximum discharge during year, 1,120 cfs May 27 (gage height, 3.32 ft), from rating curve extended above 930 cfs; minimum not determined.
1911-12, 1915-19, 1923-27, 1934-58: 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).--WSP 898: 1911(M).

Rating tables, water year 1957-58, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 23 to May 5)

| Oct. 1 to June 29 | | | | June 30 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.0 | 18 | 2.5 | 460 | 0.8 | 17 | 1.6 | 116 |
| 1.3 | 60 | 3.0 | 800 | 1.0 | 32 | 2.0 | 225 |
| 1.6 | 116 | 4.0 | 1,700 | 1.3 | 66 | | |
| 2.0 | 225 | | | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28 | 30 | | | | | 19 | 104 | 720 | 110 | 32 | 23 |
| 2 | 30 | 31 | | | | | 21 | 104 | 712 | 101 | 30 | 23 |
| 3 | 28 | 32 | | | | | 19 | 106 | 652 | 101 | 30 | 23 |
| 4 | 28 | 32 | | | | | 21 | 114 | 619 | 92 | 34 | 23 |
| 5 | 28 | 32 | | | | | 26 | 164 | 586 | 84 | *44 | 25 |
| 6 | 28 | 31 | | | (*) | | 21 | 228 | 776 | 78 | 42 | 29 |
| 7 | 28 | 30 | | | | | 23 | 305 | 668 | 76 | 37 | 28 |
| 8 | 28 | 28 | | | | | 22 | 365 | 556 | 72 | 34 | 26 |
| 9 | 27 | 27 | | | | | 22 | 390 | 496 | 69 | 31 | 26 |
| 10 | 26 | 26 | (*) | (*) | | | 19 | 412 | 430 | *65 | 27 | 29 |
| 11 | 24 | | | | | (*) | *21 | 442 | 395 | 63 | 30 | 34 |
| 12 | 26 | | | | | | 22 | 496 | 360 | 58 | 29 | 29 |
| 13 | 30 | | | | | 18 | 32 | 418 | 325 | 57 | 30 | 94 |
| 14 | 28 | | | | | | 23 | 406 | 296 | 52 | *30 | 105 |
| 15 | 30 | 21 | 23 | 18 | 20 | | 31 | 412 | 284 | 51 | 34 | 69 |
| 16 | 28 | | | | | | 42 | 484 | 292 | 50 | 31 | *58 |
| 17 | *28 | | | | | | 62 | 490 | 284 | 50 | 35 | 51 |
| 18 | 28 | (*) | | | | | 83 | 593 | *268 | 49 | 39 | 46 |
| 19 | 34 | | | | | | 102 | 645 | 256 | 51 | 42 | 49 |
| 20 | 38 | | | | | | 104 | 682 | 256 | 45 | 44 | 42 |
| 21 | 38 | | | | | | 123 | 668 | 250 | 41 | 38 | 39 |
| 22 | 37 | | | | | | 132 | *760 | 219 | 39 | 61 | 36 |
| 23 | 39 | | | | | | 121 | 808 | 196 | 38 | 50 | 34 |
| 24 | 30 | | | | | | 102 | 808 | 184 | 36 | 39 | 38 |
| 25 | 30 | 15 | | | | | 110 | 840 | 173 | 38 | 35 | 43 |
| 26 | 28 | | | | | 15 | 114 | 856 | 149 | 39 | 31 | 38 |
| 27 | 27 | | | | | 15 | 130 | 904 | 142 | 39 | *30 | 35 |
| 28 | 28 | | | | | 15 | 139 | 840 | 123 | 34 | 30 | 37 |
| 29 | 28 | | | | - | 16 | *123 | 816 | 121 | 33 | 27 | 35 |
| 30 | 28 | | | | ------- | 17 | 110 | 824 | 118 | 35 | 26 | 34 |
| 31 | 31 | ------- | | | ------- | 22 | ------- | 728 | ------- | 34 | 26 | ------- |
| Total | 917 | 659 | 713 | 558 | 560 | 550 | 1,939 | 16,212 | 10,906 | 1,780 | 1,078 | 1,201 |
| Mean | 29.6 | 22.0 | 23 | 18 | 20 | 17.7 | 64.6 | 532 | 364 | 57.4 | 34.8 | 40.0 |
| Ac-ft | 1,820 | 1,310 | 1,410 | 1,110 | 1,110 | 1,090 | 3,850 | 32,160 | 21,630 | 3,530 | 2,140 | 2,380 |

Calendar year 1957: Max 1,400 Min - Mean 182 Ac-ft 131,500
Water year 1957-58: Max 904 Min - Mean 102 Ac-ft 73,540

Peak discharge (base, 670 cfs).--May 19 (9 p.m.) 784 cfs (2.95 ft); May 27 (10 p.m.) 1,120 cfs (3.32 ft); June 6 (7 p.m.) 944 cfs (3.10 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 22 to Mar. 26 (stage-discharge relation affected by ice during most of period), Mar. 28; discharge estimated on basis of 4 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation affected by ice Nov. 9-21.

2380. La Jara Creek at Gallegos Ranch, near Capulin, Colo.

Location.--Lat 37°12'10", long 106°12'00", in sec. 10, T. 34 N., R. 7 E., on left bank 21 miles downstream from Canyon Del Ranch, 7½ miles southwest of Capulin, and 16 miles downstream from La Jara Reservoir.

Drainage area.--98 sq mi, approximately.

Records available.--May 1936 to September 1958 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.

Gage.--Water-stage recorder. Altitude of gage is 8,100 ft (from topographic map). Apr. 1, 1916, to Nov. 30, 1917, and Apr. 1, 1919, to Nov. 30, 1923, near present site at different datums.

Average discharge.--10 years (1943-44, 1949-58), 16.6 cfs (12,020 acre-ft per year).

Extremes.--Maximum discharge during year, 351 cfs Aug. 22 (gage height, 5.58 ft); minimum not determined.
1916-17, 1919-23, 1936-58: Maximum discharge, 653 cfs Apr. 22, 1919, Apr. 15, 1937 (gage height, 5.94 ft, present site and datum); minimum daily recorded, 2.2 cfs Nov. 6, 1951.

Remarks.--Records good 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).

Revisions.--WSP 1242: Drainage area.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.5 | 8.0 | | | | | 9.2 | 45 | 16 | 7.6 | 37 | 5.5 |
| 2 | 5.5 | 8.0 | | | | | 8.4 | 56 | 13 | 8.2 | 37 | 5.5 |
| 3 | 5.2 | 8.3 | | | | | 9.6 | 50 | 11 | 8.4 | 37 | 5.5 |
| 4 | 5.5 | 8.6 | | | | | 9.6 | 62 | 11 | 8.0 | 35 | 6.3 |
| 5 | 5.8 | 10 | | | | | 9.2 | 83 | 15 | 7.8 | 32 | *5.9 |
| 6 | 6.2 | 40 | | | | | 10 | 94 | 24 | 7.6 | 32 | 5.9 |
| 7 | 6.6 | 40 | | | | | 9.6 | 109 | 24 | 7.6 | 24 | 5.9 |
| 8 | 6.2 | 44 | | | | | 10 | 114 | 16 | 7.4 | 22 | 6.6 |
| 9 | 6.2 | 52 | | | | | 9.6 | 105 | 12 | 6.8 | 19 | 7.4 |
| 10 | 6.2 | 54 | (*) | (*) | (*) | | 10 | 102 | 10 | *6.6 | 14 | 6.3 |
| 11 | 6.9 | 54 | | | | | 8.8 | 90 | *9.6 | 6.4 | *20 | 7.0 |
| 12 | 7.6 | 53 | | | | | 8.8 | 129 | 9.0 | 6.2 | 20 | 6.3 |
| 13 | 8.3 | 53 | | | | | 10 | 101 | 8.6 | 6.0 | 20 | 8.9 |
| 14 | 7.6 | 58 | | | | | 11 | 85 | 8.2 | 6.0 | 18 | 7.8 |
| 15 | 6.9 | 61 | 6 | 5 | 7 | 7 | 11 | *74 | 9.6 | 6.0 | 18 | 6.6 |
| 16 | 6.6 | 54 | | | | | 12 | 72 | 11 | 6.0 | 14 | 6.6 |
| 17 | *6.6 | 10 | | | | | *12 | 66 | 12 | 6.4 | 9.9 | 6.6 |
| 18 | 6.2 | (*) | | | | | 20 | 62 | 12 | 6.8 | 7.6 | 6.3 |
| 19 | 8.0 | | | | | | 46 | 58 | 12 | 7.8 | 9.3 | 7.0 |
| 20 | 8.3 | | | | | (*) | 100 | 58 | 12 | 8.4 | 9.6 | 6.3 |
| 21 | 8.6 | | | | | | 140 | 50 | 11 | 51 | 9.0 | 5.9 |
| 22 | 9.4 | | | | | | 168 | 48 | 9.6 | 54 | 30 | 5.9 |
| 23 | 8.3 | | | | | | 142 | 43 | 8.4 | 52 | 10 | 5.9 |
| 24 | 8.6 | 6 | | | | | 97 | 38 | 8.0 | *52 | 8.5 | 6.3 |
| 25 | 8.0 | | | | | | 96 | 33 | 7.8 | 58 | 7.8 | *6.3 |
| 26 | 8.0 | | | | | | 119 | 29 | 7.8 | 60 | 7.0 | 6.3 |
| 27 | 7.6 | | | | | | 124 | 25 | 8.0 | 58 | 6.6 | 6.6 |
| 28 | 8.0 | | | | | | 93 | 22 | 7.8 | 58 | 6.6 | 7.0 |
| 29 | 8.0 | | | | - | | 55 | 21 | 7.6 | 58 | 6.6 | 7.0 |
| 30 | 7.6 | | | | ------- | | 51 | 20 | 7.6 | 58 | 7.0 | 7.4 |
| 31 | 7.6 | ------- | | | ------- | | ------- | 18 | ------- | 38 | 6.3 | ------- |
| Total | 221.6 | 693.9 | 186 | 155 | 196 | 217 | 1,419.8 | 1,962 | 339.6 | 739.0 | 540.8 | 194.8 |
| Mean | 7.15 | 23.1 | 6 | 5 | 7 | 7 | 47.3 | 63.3 | 11.3 | 23.8 | 17.4 | 6.49 |
| Ac-ft | 440 | 1,380 | 369 | 307 | 389 | 430 | 2,820 | 3,890 | 674 | 1,470 | 1,070 | 386 |

Calendar year 1957: Max 160 Min 3.5 Mean 23.9 Ac-ft 17,310
Water year 1957-58: Max 168 Min - Mean 18.8 Ac-ft 13,620

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 17, 18, Nov. 22 to Mar. 20 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 5 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation affected by ice Nov. 19-21, Mar. 21 to Apr. 1, Apr. 3, 5, 6.

2400. Rio Grande above mouth of Trinchera Creek, near La Sauses, Colo.

Location.--Lat 37°19', 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 1958.

Gage.--Water-stage recorder.

Average discharge.--22 years, 267 cfs (193,300 acre-ft per year).

Extremes.--Maximum discharge during year, 2,990 cfs May 30 (gage height, 7.44 ft); minimum daily, 13 cfs Sept. 5-7.
1936-58: 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 period of 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.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 24 to Nov. 17, Mar. 9 to Apr. 23, May 17-22, June 11 to July 7)

| | | | | | |
|---|---|---|---|---|---|
| 0.8 | 13 | 1.9 | 135 | 4.0 | 770 |
| 1.1 | 35 | 2.5 | 257 | 6.0 | 1,870 |
| 1.4 | 64 | 3.0 | 390 | 7.4 | 3,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 69 | 133 | 360 | 265 | 228 | 280 | *232 | 500 | 2,510 | 102 | 31 | 21 |
| 2 | 67 | 132 | 360 | 255 | 230 | 290 | 227 | *472 | 2,230 | 99 | 29 | 24 |
| 3 | 64 | 118 | 360 | 245 | 240 | 310 | 221 | 452 | 2,000 | 89 | 40 | 21 |
| 4 | 56 | 132 | 365 | 245 | 246 | 350 | 206 | 393 | *1,790 | 78 | *28 | 14 |
| 5 | 57 | 178 | 360 | 240 | 243 | 390 | 194 | 357 | 1,410 | 74 | 24 | 13 |
| 6 | 61 | 192 | 365 | *235 | 235 | 380 | 194 | 360 | 975 | 70 | 23 | 13 |
| 7 | 64 | 219 | 370 | 235 | 240 | 372 | 227 | 504 | 865 | 68 | 24 | 13 |
| 8 | 67 | 267 | 400 | 236 | 252 | 370 | 329 | 792 | 1,210 | 63 | 24 | 14 |
| 9 | 70 | 340 | 395 | 236 | 250 | 369 | 384 | 1,050 | 1,550 | 56 | 23 | 14 |
| 10 | 73 | 357 | 380 | 238 | 248 | 363 | 314 | 1,310 | 1,790 | *52 | 24 | 21 |
| 11 | 73 | 409 | *370 | 240 | 240 | 352 | 255 | 1,490 | 1,630 | 48 | 26 | 22 |
| 12 | 74 | 419 | 360 | 240 | 230 | 338 | 227 | 1,640 | 1,090 | 44 | 28 | *21 |
| 13 | 77 | 416 | 365 | 235 | 225 | 349 | 225 | 1,760 | 697 | 41 | 26 | 21 |
| 14 | 78 | *442 | 365 | 225 | 230 | 311 | 296 | 1,790 | 494 | 85 | 23 | 24 |
| 15 | 78 | 494 | 360 | 230 | 250 | 296 | 372 | 1,610 | 387 | 65 | 21 | 44 |
| 16 | *74 | 514 | 390 | 235 | 260 | 291 | 309 | 1,300 | 354 | 58 | 19 | 46 |
| 17 | 76 | 529 | 380 | 240 | 268 | 296 | 252 | 1,180 | 403 | 49 | 26 | 49 |
| 18 | 94 | 505 | 365 | 220 | 268 | 286 | 227 | 1,160 | *294 | 46 | 32 | 48 |
| 19 | 94 | 420 | 350 | 205 | 272 | 264 | 255 | *1,200 | 343 | 48 | 37 | 36 |
| 20 | 93 | 350 | 340 | 185 | 280 | *234 | 387 | 1,310 | 257 | 46 | 35 | 33 |
| 21 | 96 | 315 | 325 | 185 | 300 | 223 | 701 | 1,440 | 206 | 43 | 32 | 32 |
| 22 | 112 | 305 | 315 | 195 | 315 | 219 | 828 | 1,580 | 172 | 43 | 33 | 31 |
| 23 | 115 | 300 | 320 | 205 | 320 | 225 | 885 | 1,590 | 159 | 42 | 33 | 31 |
| 24 | 108 | 320 | 330 | 210 | *330 | 236 | 1,020 | 1,610 | 126 | 48 | 33 | 32 |
| 25 | 106 | 350 | 310 | 210 | 320 | 327 | 1,100 | 1,670 | 115 | 51 | 33 | 29 |
| 26 | 99 | 365 | 280 | 220 | 305 | 340 | 900 | 2,010 | 108 | 48 | *30 | 21 |
| 27 | 102 | 350 | 275 | 230 | 285 | 304 | 743 | 2,370 | 104 | 46 | 28 | 16 |
| 28 | 121 | 320 | 275 | *235 | 270 | 276 | 641 | 2,820 | 100 | 40 | 26 | 19 |
| 29 | 130 | 330 | 285 | 235 | - | 259 | 581 | 2,950 | 100 | 35 | 26 | 20 |
| 30 | 139 | 350 | 280 | 230 | ------- | 250 | 565 | 2,970 | 99 | 32 | 24 | 20 |
| 31 | 135 | ------- | 275 | 232 | ------- | 239 | ------- | 2,810 | ------- | 32 | 23 | ------- |
| Total | 2,722 | 9,871 | 10,630 | 7,072 | 7,380 | 9,389 | 13,297 | 44,450 | 23,568 | 1,741 | 864 | 763 |
| Mean | 87.8 | 329 | 343 | 228 | 264 | 303 | 443 | 1,434 | 786 | 56.2 | 27.9 | 25.4 |
| Ac-ft | 5,400 | 19,580 | 21,080 | 14,030 | 14,640 | 18,620 | 26,370 | 88,170 | 46,750 | 3,450 | 1,710 | 1,510 |

Calendar year 1957: Max 2,800 Min 7.0 Mean 274 Ac-ft 198,100
Water year 1957-58: Max 2,970 Min 13 Mean 361 Ac-ft 261,300

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 18 to Mar. 8 (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.

2405. 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 1958 in reports of Geological Survey. April 1923 to September 1944 in reports of State engineer.

Gage.--Water-stage recorder.

Average discharge.--12 years (1927-28, 1947-58), 22.4 cfs (16,220 acre-ft per year).

Extremes.--Maximum discharge during year, 159 cfs May 26 (gage height, 3.17 ft); minimum not determined.
1923-58: 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 ice effect or no gage-height record, which are poor. No regulation or diversion above station.

Rating table, water year 1957-58, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 9 to June 22)

| | | | |
|---|---|---|---|
| 1.9 | 7.0 | 2.8 | 72 |
| 2.1 | 16 | 3.2 | 138 |
| 2.5 | 42 | 3.6 | 260 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 15 | | | | | 12 | 34 | 130 | 36 | 16 | 11 |
| 2 | 16 | 16 | | | | | 12 | 33 | 124 | 36 | 15 | 11 |
| 3 | 16 | 15 | | | | | 11 | 32 | 120 | 36 | 15 | 11 |
| 4 | 16 | 15 | | | | | 11 | 33 | 115 | 34 | 16 | 12 |
| 5 | 16 | 16 | | | | | 12 | 42 | 115 | 33 | 16 | 12 |
| 6 | 16 | 16 | | | | | 12 | 57 | 110 | 32 | 16 | 12 |
| 7 | 16 | 14 | | | | 8.8 | 14 | 70 | 104 | 30 | 16 | 12 |
| 8 | 16 | 14 | | | | | 12 | 75 | 101 | *27 | 16 | 12 |
| 9 | 16 | 14 | | | | | 12 | 78 | 95 | 26 | 15 | 11 |
| 10 | 16 | 15 | | | (*) | | 11 | 80 | *92 | 26 | 14 | *12 |
| 11 | 16 | 15 | (*) | | | | 11 | 92 | 88 | 25 | *16 | 11 |
| 12 | 17 | 15 | | | | | 10 | *101 | 85 | 24 | 16 | 11 |
| 13 | 17 | 14 | | (*) | | | 11 | 108 | 78 | 23 | 16 | 15 |
| 14 | 16 | *14 | | | | *8.6 | *12 | 108 | 71 | 22 | 16 | 12 |
| 15 | 16 | 14 | 11 | 9 | 9 | 8.6 | 17 | 106 | 70 | 22 | 16 | 12 |
| 16 | *17 | 14 | | | | 8.2 | 23 | 108 | 66 | 22 | 20 | 12 |
| 17 | 17 | 15 | | | | 8.6 | 23 | 111 | 64 | 22 | 27 | 12 |
| 18 | 16 | 16 | | | | 8.6 | 30 | 111 | 59 | 23 | 20 | 12 |
| 19 | 17 | 14 | | | | 9.4 | 33 | 110 | 57 | 22 | 18 | 12 |
| 20 | 17 | 13 | | | | 11 | 33 | 111 | 56 | 20 | 17 | 11 |
| 21 | 18 | 11 | | | | 12 | 36 | 115 | 55 | 19 | 17 | 11 |
| 22 | 18 | *10 | | | | 11 | 38 | 124 | 53 | 18 | 21 | 10 |
| 23 | 16 | 12 | | | | 10 | 38 | 128 | 48 | 18 | 18 | 10 |
| 24 | 16 | 14 | | | | 11 | 35 | 136 | 47 | 18 | 17 | 10 |
| 25 | 17 | 15 | | | | 12 | 35 | 145 | 47 | 18 | 16 | 11 |
| 26 | 15 | 14 | | | | 11 | 36 | 154 | 46 | 18 | 16 | 11 |
| 27 | 15 | 14 | | | | 11 | 38 | 147 | 44 | 17 | 14 | 11 |
| 28 | 15 | 13 | | | | 10 | 39 | 143 | 43 | *16 | 14 | 12 |
| 29 | 16 | 12 | | | - | 9.8 | 38 | 140 | 41 | 16 | 13 | *12 |
| 30 | 15 | 11 | | | ------- | 10 | 36 | 138 | 38 | 16 | 12 | 12 |
| 31 | 15 | ------- | | | ------- | 11 | ------- | 136 | ------- | 16 | 12 | ------- |
| Total | 503 | 420 | 341 | 279 | 252 | 296.2 | 691 | 3,106 | 2,262 | 731 | 507 | 346 |
| Mean | 16.2 | 14.0 | 11 | 9 | 9 | 9.55 | 23.0 | 100 | 75.4 | 23.6 | 16.4 | 11.5 |
| Ac-ft | 998 | 833 | 676 | 553 | 500 | 588 | 1,370 | 6,160 | 4,490 | 1,450 | 1,010 | 686 |

Calendar year 1957: Max 253 Min - Mean 37.4 Ac-ft 27,050
Water year 1957-58: Max 154 Min - Mean 26.7 Ac-ft 19,310

Peak discharge (base, 50 cfs).--May 26 (6 p.m.) 159 cfs (3.17 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 22 to Mar. 13, Mar. 22-27 (stage-discharge relation affected by ice during most of periods); discharge estimated on basis of 4 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation affected by ice Nov. 19-21.

## 2415. 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, 1½ miles east of Fort Garland, and 6 miles upstream from Ute Creek.

Drainage area.--187 sq mi.

Records available.--October 1933 to September 1958 in reports of Geological Survey. February to October 1916 and May 1923 to September 1944 in reports of State engineer. (No winter records most years.)

Gage.--Water-stage recorder. Altitude of gage is 7,940 ft (estimated from nearby U. S. Coast and Geodetic Survey level line). Feb. 16 to Oct. 31, 1916, staff gage and Cippoletti weir near present site at different datum.

Average discharge.--14 years (1940-41, 1945-58), 22.8 cfs (16,510 acre-ft per year).

Extremes.--Maximum discharge during year, 202 cfs May 13 (gage height, 7.25 ft); minimum daily, 1.0 cfs Sept. 12, 24.
1916, 1923-58: Maximum discharge, 1,520 cfs Aug. 31, 1936, from rating curve extended above 280 cfs on basis of slope-area measurement at gage height 6.10 ft; maximum gage height, 7.82 ft June 4, 1957; no flow at times many years.

Remarks.--Records good except those for periods of no gage-height record, which are poor. A few diversions above station for irrigation.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 23 to July 13, Sept. 10-30)

| Oct. 1 to Aug. 30 | | | | Aug. 31 to Sept. 30 | |
|---|---|---|---|---|---|
| 4.9 | 1.4 | 5.4 | 17 | 4.2 | 0.5 |
| 5.0 | 2.9 | 6.0 | 58 | 4.3 | 2.2 |
| 5.1 | 4.9 | 7.0 | 151 | 4.4 | 4.3 |
| 5.2 | 7.7 | 8.0 | 300 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.5 | 12 | | | | | 16 | 78 | 90 | 13 | 2.0 | |
| 2 | 5.5 | 13 | | | | | 18 | 89 | 79 | 13 | 1.4 | |
| 3 | 5.5 | 14 | | | | | 13 | 92 | 67 | 14 | 1.4 | |
| 4 | 5.5 | 13 | | | | | 18 | 97 | 60 | 13 | 1.4 | |
| 5 | 5.5 | 15 | | | | | 15 | 120 | 60 | 11 | 1.7 | 2.0 |
| 6 | 5.7 | 16 | | | | | 16 | 139 | 68 | 13 | 1.8 | |
| 7 | 6.0 | 15 | | | | | 22 | 155 | 57 | 14 | 2.8 | |
| 8 | 6.3 | 18 | | | | 9 | 21 | 176 | 52 | *12 | 2.9 | |
| 9 | 6.9 | 16 | | | | | 18 | 181 | 48 | 11 | 3.1 | |
| 10 | 6.9 | 16 | | | (*) | | 16 | 177 | *45 | 8.8 | 2.8 | *1.4 |
| 11 | 6.9 | 16 | (*) | | | | 15 | 177 | 40 | 8.1 | *2.8 | 1.5 |
| 12 | 8.1 | 15 | | | | | 14 | *185 | 38 | 8.5 | 3.9 | 1.0 |
| 13 | 9.2 | 15 | | (*) | | | 13 | 199 | 34 | 7.1 | 3.5 | 1.7 |
| 14 | 10 | *15 | | | | (*) | *16 | 195 | 31 | 6.3 | 2.9 | 3.7 |
| 15 | 9.2 | 14 | | | | 9.2 | 21 | 190 | 30 | 5.5 | 3.5 | 3.2 |
| 16 | *10 | | 8 | 7.2 | 11 | 10 | 30 | 190 | 29 | 5.5 | 4.9 | 2.6 |
| 17 | 11 | | | | | 8.8 | 42 | 193 | 29 | 4.7 | 9.2 | 2.2 |
| 18 | 11 | | | | | 11 | 55 | 195 | 28 | 5.5 | 10 | 2.2 |
| 19 | 11 | | | | | 9.6 | 87 | 195 | 24 | 9.2 | 8.1 | 2.4 |
| 20 | 11 | | | | | 8.8 | 80 | 190 | 23 | 7.1 | 6.6 | 2.2 |
| 21 | 14 | | | | | 13 | 90 | 180 | 24 | 5.7 | 6.9 | 1.9 |
| 22 | 16 | (*) | | | | 21 | 93 | 160 | 23 | 5.2 | 9.6 | 1.4 |
| 23 | 15 | 8 | | | | 15 | 97 | 143 | 21 | 4.3 | 22 | 1.2 |
| 24 | 13 | | | | | 16 | 83 | 146 | 18 | 3.9 | 10 | 1.0 |
| 25 | 13 | | | | | 14 | 77 | 139 | 18 | 4.1 | 7.4 | 1.2 |
| 26 | 13 | | | | | 15 | 78 | 130 | 20 | 4.1 | 6 | 1.4 |
| 27 | 12 | | | | | 15 | 79 | 125 | 19 | 3.7 | 4.9 | 2.2 |
| 28 | 12 | | | | | 15 | 81 | 115 | 18 | *3.3 | 4.3 | 2.4 |
| 29 | 13 | | | | - | 13 | 75 | 107 | 15 | 2.8 | 3.7 | *2.4 |
| 30 | 13 | | | | ------- | 13 | 68 | 103 | 14 | 2.4 | 3.6 | 2.4 |
| 31 | 12 | ------- | | | ------- | 15 | ------- | 95 | ------- | 2.6 | 3.5 | ------- |
| Total | 302.7 | 343 | 248 | 223.2 | 308 | 348.4 | 1,367 | 4,656 | 1,122 | 232.4 | 158.6 | 59.6 |
| Mean | 9.76 | 11.4 | 8 | 7.2 | 11 | 11.2 | 45.6 | 150 | 37.4 | 7.50 | 5.12 | 1.99 |
| Ac-ft | 600 | 680 | 492 | 443 | 611 | 691 | 2,710 | 9,240 | 2,230 | 461 | 315 | 118 |

Calendar year 1957: Max 263 Min - Mean 38.3 Ac-ft 27,740
Water year 1957-58: Max 199 Min 1.0 Mean 25.7 Ac-ft 18,590

Peak discharge (base, 75 cfs).--Apr. 19 (5 a.m.) 97 cfs (6.39 ft); Apr. 23 (4 a.m.) 118 cfs (6.59 ft); May 13 (2 a.m.) 202 cfs (7.25 ft); June 6 (6 a.m.) 75 cfs (6.07 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 16 to Mar. 14 (stage-discharge relation affected by ice during most of period), May 15-22, Aug. 30 to Sept. 9; discharge estimated on basis of 5 discharge measurements, weather records, and records for nearby stations.

## 2425. 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 1958 in reports of Geological Survey. March to October 1916 and May 1923 to September 1944 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 8,800 ft. Mar. 18 to Oct. 9, 1916, staff gage and Cippoletti weir at different datum.

Average discharge.--12 years (1940-41, 1947-58), 19.4 cfs (14,050 acre-ft per year).

Extremes.--Maximum discharge during year, 156 cfs May 24 (gage height, 2.40 ft); minimum daily, 4.6 cfs Mar. 17.
1916, 1923-58: Maximum daily discharge, 630 cfs May 15, 1941; no flow July 28-31, Sept. 6-29, 1956.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. A few diversions above station for irrigation.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(*Shifting-control method* used May 18-31)

| Oct. 1 to Mar. 13, June 1 to July 27 | | | | Mar. 14 to May 31, July 28 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.5 | 4.0 | 1.0 | 33 | 0.7 | 4.0 | 1.5 | 54 |
| .6 | 8.0 | 2.0 | 125 | .8 | 7.0 | 2.0 | 98 |
| .8 | 19 | | | .9 | 11 | 3.0 | 205 |
| | | | | 1.1 | 24 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.2 | 12 | | | | | 7.8 | 56 | 132 | 20 | 6.4 | 12 |
| 2 | 7.2 | 12 | | | | | 8.2 | 50 | 128 | 17 | 6.1 | 11 |
| 3 | 7.2 | 12 | | | | | 7.0 | 42 | 123 | 18 | 6.1 | 10 |
| 4 | 7.2 | 12 | | | | | 7.4 | 40 | 121 | 15 | 5.5 | 9.4 |
| 5 | 7.2 | 13 | | | | | 5.8 | 47 | 120 | 15 | 5.5 | 7.8 |
| 6 | 6.4 | 14 | | | | | 7.0 | 64 | 120 | 15 | 8.2 | 9.0 |
| 7 | 5.2 | 14 | | | | 7.0 | 12 | 75 | 114 | 15 | 12 | 12 |
| 8 | 6.0 | 12 | | | | | 11 | 84 | 113 | *15 | 16 | 14 |
| 9 | 9.0 | 12 | | | | | 11 | 86 | 98 | 16 | 13 | 13 |
| 10 | 9.5 | 12 | | | (*) | | 9.8 | 86 | *84 | 17 | 10 | *12 |
| 11 | 9.5 | 14 | (*) | | | | 6.7 | 93 | 74 | 18 | *10 | 10 |
| 12 | 10 | 14 | | | | | 6.4 | *100 | 67 | 14 | 13 | 10 |
| 13 | 13 | 13 | | (*) | | | 7.4 | 100 | *60 | 12 | 13 | 31 |
| 14 | 13 | *13 | | | | *7.0 | *7.4 | 95 | 55 | 12 | 10 | 36 |
| 15 | 13 | 12 | | | | 5.8 | 8.6 | 86 | 54 | 11 | 17 | 26 |
| 16 | *12 | 9.5 | 6.5 | 6.7 | 7.0 | 5.5 | 12 | 91 | 53 | 10 | 26 | 23 |
| 17 | 12 | 10 | | | | 4.6 | 21 | 98 | 52 | 9.5 | 68 | 20 |
| 18 | 12 | 8.0 | | | | 5.5 | 30 | 104 | 52 | 12 | 56 | 18 |
| 19 | 12 | 9.0 | | | | 6.1 | 37 | 105 | 49 | 24 | 37 | 18 |
| 20 | 12 | 10 | | | | 7.4 | 42 | 110 | 47 | 15 | 30 | 15 |
| 21 | 15 | 9.0 | | | | 7.4 | 48 | 112 | 45 | 12 | 30 | 14 |
| 22 | 16 | *7.9 | | | | 7.4 | 52 | 122 | 43 | 9.5 | 48 | 12 |
| 23 | 12 | 9.0 | | | | 9.8 | 54 | 139 | 41 | 7.2 | 44 | 12 |
| 24 | 12 | 10 | | | | 12 | 48 | 144 | 38 | 6.8 | 33 | 11 |
| 25 | 12 | 9.0 | | | | 11 | 49 | 149 | 35 | 6.4 | 26 | 11 |
| 26 | 11 | 10 | | | | 9.4 | 47 | 142 | 32 | 6.4 | 21 | 11 |
| 27 | 10 | 10 | | | | 8.6 | 49 | 145 | 30 | 6.4 | 19 | 9.8 |
| 28 | 11 | 10 | | | | 8.6 | 49 | 145 | 28 | *6.7 | 16 | 11 |
| 29 | 12 | *10 | | | - | 7.4 | 48 | 142 | 27 | 6.1 | 15 | *10 |
| 30 | 12 | 9.0 | | | ------- | 7.8 | 48 | 140 | 25 | 7.0 | 13 | 9.4 |
| 31 | 12 | ------- | | | ------- | 7.8 | ------- | 138 | ------- | 7.4 | 12 | ------- |
| Total | 325.6 | 331.4 | 201.5 | 207.7 | 196.0 | 230.1 | 757.5 | 3,130 | 2,060 | 382.4 | 645.8 | 428.4 |
| Mean | 10.5 | 11.0 | 6.5 | 6.7 | 7.0 | 7.42 | 25.2 | 101 | 68.7 | 12.3 | 20.8 | 14.3 |
| Ac-ft | 646 | 657 | 400 | 412 | 389 | 456 | 1,500 | 6,210 | 4,090 | 758 | 1,280 | 850 |

Calendar year 1957: Max 189 Min - Mean 30.7 Ac-ft 22,220
Water year 1957-58: Max 149 Min 4.6 Mean 24.4 Ac-ft 17,650

Peak discharge (base, 100 cfs).--May 12 (12 p.m.) 104 cfs (1.98 ft); May 24 (1:30 a.m.) 156 cfs (2.40 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 20-22, Nov. 26 to Mar. 13 (stage-discharge relation affected by ice during part of periods), May 30 to June 5, July 5-8; discharge estimated on basis of 6 discharge measurements, weather records, recorded range in stage, typical recession, and records for nearby stations. Stage-discharge relation affected by ice Nov. 23.

## 2435. 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 1958 in reports of Geological Survey. October 1929 to September 1944 in reports of State engineer.

Gage.--Water-stage recorder. Prior to Apr. 19, 1943, at datum 1.00 ft higher.

Average discharge.--20 years (1930-31, 1933-36, 1937-38, 1943-58), 12.4 cfs (8,980 acre-ft per year).

Extremes.--Maximum discharge during year, 247 cfs May 15 (gage height, 3.01 ft); minimum daily, 0.3 cfs Sept. 20, 22.
1929-58: Maximum daily discharge, 1,340 cfs May 11, 1942; no flow Sept. 13, 14, 16, 17, 1957.

Remarks.--Records good. Diversions above station for irrigation. Flow regulated by Smith Reservoir (capacity, 5,335 acre-ft).

Revisions (water years).--WSP 1512: 1937, 1950(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 24 to May 30, Sept. 10-13)

| | | | | | |
|---|---|---|---|---|---|
| 0.3 | 0 | 0.6 | 5.5 | 1.5 | 65 |
| .4 | 1.0 | .8 | 13 | 2.0 | 113 |
| .5 | 3.0 | 1.0 | 24 | 3.0 | 229 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.2 | 0.7 | 0.9 | 1.0 | 1.1 | 1.1 | 18 | 132 | 93 | 14 | 12 | 2.6 |
| 2 | 1.0 | .9 | .9 | 1.0 | 1.1 | 1.1 | 18 | 144 | 83 | 14 | 11 | 2.4 |
| 3 | .9 | .8 | .9 | 1.0 | 1.1 | 1.1 | 18 | 143 | 62 | 14 | 9.8 | 2.2 |
| 4 | .9 | .7 | .9 | 1.0 | 1.1 | 1.1 | 15 | 127 | 42 | 13 | 9.8 | 2.0 |
| 5 | .9 | .8 | .9 | 1.0 | 1.1 | 1.1 | 16 | 120 | 34 | 13 | 9.8 | 1.6 |
| 6 | .9 | .8 | .9 | 1.0 | 1.1 | 1.1 | 16 | 123 | 25 | 13 | 8.0 | 1.2 |
| 7 | .7 | .8 | .9 | 1.0 | 1.1 | 1.1 | 15 | 135 | 22 | 14 | 6.9 | .9 |
| 8 | .7 | .9 | .9 | 1.0 | 1.1 | 1.1 | 16 | 162 | 21 | *14 | 6.9 | .8 |
| 9 | .7 | .9 | .9 | 1.0 | 1.1 | 1.1 | 16 | 179 | 21 | 14 | 6.9 | .6 |
| 10 | .7 | .9 | .9 | *1.0 | *1.1 | 1.1 | 16 | 186 | *16 | 14 | 6.9 | *.5 |
| 11 | .7 | 1.0 | *.9 | 1.0 | 1.1 | 1.1 | 16 | 193 | 11 | 14 | *6.9 | .4 |
| 12 | .7 | .8 | .9 | 1.0 | 1.1 | 1.1 | 13 | *212 | 6.9 | 13 | 5.2 | .4 |
| 13 | .7 | .8 | .9 | 1.0 | 1.1 | 1.1 | 11 | 225 | 6.6 | 12 | 4.2 | .4 |
| 14 | .7 | *.8 | .9 | 1.0 | 1.1 | *4.6 | *11 | 229 | 8.3 | 13 | 4.2 | .8 |
| 15 | .7 | .8 | .9 | 1.0 | 1.1 | 14 | 11 | 228 | 8.0 | 14 | 4.2 | .8 |
| 16 | *.7 | .8 | .9 | 1.0 | 1.1 | 15 | 11 | 216 | 8.0 | 14 | 4.2 | .7 |
| 17 | .7 | .8 | .9 | 1.0 | 1.1 | 15 | 12 | 208 | 8.0 | 14 | 4.2 | .4 |
| 18 | .6 | .8 | .9 | 1.0 | 1.1 | 15 | 14 | 207 | 11 | 14 | 4.2 | .4 |
| 19 | .7 | .8 | .9 | 1.0 | 1.1 | 14 | 19 | 210 | 13 | 14 | 4.2 | .4 |
| 20 | .6 | .8 | .9 | 1.0 | 1.1 | 14 | 30 | 198 | 14 | 14 | 4.2 | .3 |
| 21 | .7 | .8 | .9 | 1.0 | 1.1 | 14 | 46 | 195 | 13 | 14 | 3.0 | .4 |
| 22 | .6 | .8 | .9 | 1.0 | 1.1 | 16 | 60 | 191 | 13 | 14 | 3.0 | .3 |
| 23 | .7 | .8 | .9 | 1.0 | 1.1 | 19 | 74 | 188 | 13 | 14 | 3.0 | .6 |
| 24 | .6 | .8 | .9 | 1.0 | 1.1 | 19 | 95 | 191 | 13 | 14 | 3.0 | 1.0 |
| 25 | .6 | .8 | .9 | 1.0 | 1.1 | 21 | 89 | 202 | 13 | 14 | 3.0 | 1.4 |
| 26 | .6 | .8 | .9 | 1.0 | 1.1 | 21 | 89 | 202 | 12 | 14 | 2.8 | 1.2 |
| 27 | .7 | .8 | .9 | 1.0 | 1.1 | 20 | 90 | 173 | 12 | 13 | 2.8 | 1.2 |
| 28 | .7 | .8 | .9 | 1.0 | 1.1 | 20 | 97 | 151 | 12 | *13 | 2.8 | 1.2 |
| 29 | .7 | *.8 | .9 | 1.0 | - | 19 | 102 | 133 | 11 | 12 | 2.8 | *1.2 |
| 30 | .8 | .8 | .9 | 1.0 | ------- | 19 | 122 | 119 | 12 | 13 | 2.8 | 1.4 |
| 31 | .8 | ------- | .9 | 1.0 | ------- | 18 | ------- | 100 | ------- | 13 | 2.8 | ------- |
| Total | 22.9 | 24.4 | 27.9 | 31.0 | 30.8 | 311.9 | 1,176 | 5,422 | 637.8 | 421 | 165.5 | 29.7 |
| Mean | 0.74 | 0.81 | 0.90 | 1.00 | 1.10 | 10.1 | 39.2 | 175 | 21.3 | 13.6 | 5.34 | 0.99 |
| Ac-ft | 45 | 48 | 55 | 61 | 61 | 619 | 2,330 | 10,750 | 1,270 | 835 | 328 | 59 |

Calendar year 1957: Max 282 Min 0 Mean 17.9 Ac-ft 12,970
Water year 1957-58: Max 229 Min 0.3 Mean 22.7 Ac-ft 16,460

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 30 to Mar. 13; discharge estimated on basis of 3 discharge measurements and gate leakage at Smith Reservoir.

## 2445. Platoro Reservoir at Platoro, Colo.

Location.--Lat 37°21'00", long 106°32'35", in NW¼SW¼ sec. 22, T. 36 N., R. 4 E., on right bank in gate chamber 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 1958.

Gage.--Water-stage recorder for elevations above 9,921.0 ft and inclined gage read once daily for those below. Datum of gage is 9,911.5 ft above mean sea level (Bureau of Reclamation bench mark). Gage readings have been reduced to elevations above mean sea level. Prior to June 9, 1955, mercury manometer in valve house 400 ft downstream at same datum.

Extremes.--Maximum contents during year, 61,420 acre-ft June 9, 11 (elevation, 10,035.5 ft); minimum determined, 30,390 acre-ft Nov. 9, 30, Dec. 1, Dec. 31 to May 6 (elevation, 9,998.5 ft).
1951-58: Maximum contents, those of June 9, 11, 1958; no storage for long periods in most years.

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 (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, water year 1957-58 (elevation, in feet, and usable contents, in acre-feet)
(Furnished by Bureau of Reclamation)

| | |
|---|---|
| 9,980 | 18,460 |
| 10,000 | 31,450 |
| 10,020 | 47,300 |
| 10,040 | 65,800 |

Usable contents, in acre-feet, at about 8:00 a.m., water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 49,500 | 41,550 | 30,390 | 30,390 | 30,390 | 30,390 | 30,390 | 30,390 | 54,180 | 54,000 | 37,070 | 34,030 |
| 2 | - | 39,830 | - | 30,390 | 30,390 | 30,390 | 30,390 | 30,390 | 55,250 | 54,000 | 36,060 | 34,030 |
| 3 | - | 38,320 | - | 30,390 | 30,390 | 30,390 | 30,390 | 30,390 | 56,490 | 54,000 | 34,990 | 34,030 |
| 4 | - | 37,140 | - | 30,390 | 30,390 | 30,390 | 30,390 | 30,390 | 57,500 | 54,000 | 34,170 | 34,030 |
| 5 | - | 35,830 | - | 30,390 | 30,390 | 30,390 | 30,390 | 30,390 | 58,410 | 54,000 | 34,240 | 34,030 |
| 6 | - | 34,620 | - | 30,390 | 30,390 | 30,390 | 30,390 | 30,390 | 59,240 | 54,000 | 34,320 | 34,030 |
| 7 | - | 33,060 | - | 30,390 | 30,390 | 30,390 | 30,390 | 31,450 | 60,380 | 54,000 | 34,320 | 34,030 |
| 8 | - | 31,800 | - | 30,390 | 30,390 | 30,390 | 30,390 | 31,590 | 61,040 | 54,000 | 34,320 | 34,030 |
| 9 | - | 30,390 | - | 30,390 | 30,390 | 30,390 | 30,390 | 31,860 | 61,420 | 54,000 | 34,030 | 34,030 |
| 10 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 32,500 | 61,330 | 54,000 | 34,030 | 34,030 |
| 11 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 32,850 | 61,420 | 54,000 | 34,030 | 34,030 |
| 12 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 33,550 | 61,140 | 54,000 | 34,030 | 34,030 |
| 13 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 33,960 | 60,190 | 54,000 | 34,030 | 34,030 |
| 14 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 34,460 | 59,340 | 54,000 | 34,030 | 34,030 |
| 15 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 34,840 | 58,140 | 54,000 | 34,030 | 34,030 |
| 16 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 35,370 | 57,040 | 53,640 | 34,030 | 34,030 |
| 17 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 35,900 | 55,860 | 52,840 | 34,030 | 34,030 |
| 18 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 36,520 | 54,720 | 51,750 | 34,030 | 34,030 |
| 19 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 37,380 | 54,180 | 50,640 | 34,030 | 34,030 |
| 20 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 38,480 | 54,360 | 49,590 | 34,030 | 34,030 |
| 21 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 39,350 | 54,360 | 48,540 | 34,030 | 34,030 |
| 22 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 40,160 | 54,270 | 47,390 | 34,030 | 34,030 |
| 23 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 41,300 | 54,000 | 46,280 | 34,030 | 34,030 |
| 24 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 42,540 | 54,000 | 45,250 | 34,030 | 34,030 |
| 25 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 43,880 | 54,000 | 44,130 | 34,030 | 34,030 |
| 26 | - | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 45,510 | 54,000 | 43,030 | 34,030 | 34,030 |
| 27 | 49,500 | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 47,110 | 54,000 | 42,040 | 34,030 | 34,030 |
| 28 | 49,070 | - | - | 30,390 | 30,390 | 30,390 | 30,390 | 48,710 | 54,000 | 41,050 | 34,030 | 34,030 |
| 29 | 47,110 | - | - | 30,390 | - | 30,390 | 30,390 | 50,140 | 54,000 | 40,240 | 34,030 | 34,030 |
| 30 | 45,170 | 30,390 | - | 30,390 | ------- | 30,390 | 30,390 | 51,750 | 54,000 | 39,110 | 34,030 | 34,030 |
| 31 | 43,370 | ------- | 30,390 | 30,390 | ------- | 30,390 | ------- | 53,110 | ------- | 38,080 | 34,030 | ------- |
| (†) | 10,015.5 | 9,998.5 | 9,998.5 | 9,998.5 | 9,998.5 | 9,998.5 | 9,998.5 | 10,026.4 | 10,027.4 | 10,009.0 | 10,003.7 | 10,003.7 |
| (‡) | -6,130 | -12,980 | 0 | 0 | 0 | 0 | 0 | +22,720 | +890 | -15,920 | -4,050 | 0 |

Calendar year 1957..... ‡ +26,910
Water year 1957-58..... ‡ -15,470

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

## 2450. 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., on left bank 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 1952 to September 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 9,866.60 ft above mean sea level (levels by Bureau of Reclamation).

Average discharge.--6 years, 79.8 cfs (57,770 acre-ft per year).

Extremes.--Maximum discharge during year, 1,160 cfs Nov. 1; maximum gage height, 4.29 ft June 15; minimum daily discharge, 1.8 cfs May 21.
1952-58: Maximum discharge, that of Nov. 1, 1957; maximum gage height, 4.29 ft June 15, 1958; no flow Oct. 16-20, 1955.

Remarks.--Records good. No diversion above station. Flow completely regulated by Platoro Reservoir (see preceding page).

Cooperation.--Seven discharge measurements furnished by Bureau of Reclamation.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 27 to Nov. 9, May 9-22, June 8, 9)

| Oct. 1 to June 8 | | | | June 9 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.4 | 1.0 | 1.5 | 82 | 1.1 | 8.5 | 2.5 | 225 |
| .5 | 2.5 | 2.0 | 172 | 1.2 | 13 | 3.0 | 385 |
| .6 | 4.5 | 2.5 | 300 | 1.4 | 26 | 3.5 | 590 |
| .8 | 10 | 3.0 | 490 | 1.6 | 49 | 4.0 | 860 |
| 1.0 | 21 | 4.0 | 1,020 | 1.8 | 81 | 4.4 | 1,110 |
| 1.2 | 39 | 4.3 | 1,200 | 2.0 | 116 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.2 | *1,090 | 17 | 17 | 17 | 17 | 17 | 36 | 204 | 144 | 568 | 22 |
| 2 | 6.2 | 846 | 17 | 17 | 17 | 17 | 17 | 35 | 204 | *142 | 568 | 21 |
| 3 | 6.2 | 840 | 17 | 17 | 17 | 17 | 17 | 33 | *204 | 142 | 488 | 17 |
| 4 | 6.2 | 829 | 17 | 17 | 17 | 17 | 17 | 47 | 314 | 142 | *140 | *11 |
| 5 | 6.2 | 818 | 17 | 17 | 17 | 17 | 17 | 54 | 421 | 132 | 12 | 9.4 |
| 6 | 6.0 | 812 | 17 | 17 | 17 | 17 | 17 | 48 | 405 | 114 | *24 | 9.4 |
| 7 | 6.0 | 824 | 17 | 17 | 17 | 17 | 17 | 48 | 454 | 72 | 33 | 9.4 |
| 8 | 6.0 | 824 | 17 | 17 | 17 | 17 | 17 | 24 | 468 | 56 | 33 | 9.4 |
| 9 | 6.0 | 353 | 17 | 17 | 17 | 17 | 17 | 4.1 | 413 | 56 | 31 | *14 |
| 10 | 6.0 | 17 | 17 | 17 | 17 | 17 | 17 | 3.3 | 413 | 56 | 31 | 18 |
| 11 | 5.8 | 17 | 17 | 17 | 17 | 17 | 17 | 3.3 | 500 | 55 | 31 | 18 |
| 12 | 5.8 | 17 | 17 | 17 | 17 | 17 | 17 | 5.5 | 824 | 76 | 29 | 18 |
| 13 | 5.8 | 17 | 17 | 17 | 17 | 17 | 17 | 3.7 | 842 | 84 | 29 | 40 |
| 14 | 5.8 | 17 | 17 | 17 | 17 | 17 | 17 | 2.2 | *950 | *84 | *29 | 96 |
| 15 | 5.8 | 17 | 17 | 17 | 17 | 17 | 17 | 1.9 | 1,030 | 203 | 29 | 111 |
| 16 | 5.5 | 17 | 17 | 17 | 17 | 17 | 17 | *1.9 | *1,050 | *492 | 30 | 109 |
| 17 | 5.5 | 17 | 17 | 17 | 17 | 17 | 17 | 1.9 | 1,050 | 558 | 30 | 109 |
| 18 | 5.5 | 17 | 17 | 17 | 17 | 17 | 17 | 1.9 | 842 | *595 | 32 | 109 |
| 19 | 5.5 | 17 | 17 | 17 | 17 | 17 | 17 | 1.9 | 399 | 590 | 33 | 93 |
| 20 | 5.5 | 17 | 17 | 17 | 17 | 17 | 17 | 1.9 | 385 | 590 | 33 | 90 |
| 21 | *5.5 | 17 | 17 | 17 | 17 | 17 | 17 | 1.8 | 488 | 590 | 34 | 37 |
| 22 | 5.5 | 17 | 17 | 17 | 17 | 17 | 17 | 3.1 | 540 | *590 | 36 | 18 |
| 23 | 5.5 | 17 | 17 | 17 | 17 | 17 | 17 | 5.5 | 416 | 590 | 46 | 18 |
| 24 | 5.2 | 17 | 17 | 17 | 17 | 17 | 17 | 5.5 | 291 | 586 | 46 | 23 |
| 25 | 5.2 | 17 | 17 | 17 | 17 | 17 | 17 | 5.2 | 249 | 581 | 45 | *39 |
| 26 | 5.2 | 17 | 17 | 17 | 17 | 17 | 17 | 5.2 | 208 | 576 | 37 | 39 |
| 27 | 168 | 17 | 17 | 17 | 17 | 17 | 17 | 5.2 | 174 | 532 | 35 | 40 |
| 28 | 1,150 | 17 | 17 | 17 | 17 | 17 | 17 | 5.0 | 153 | 522 | 30 | 40 |
| 29 | 1,150 | 17 | 17 | 17 | - | 17 | 25 | 4.8 | 146 | 558 | 28 | 40 |
| 30 | 1,150 | 17 | 17 | 17 | ------- | 17 | 33 | 4.5 | 144 | 532 | 25 | 40 |
| 31 | 1,140 | ------- | *17 | 17 | ------- | 17 | ------- | 119 | ------- | 568 | 22 | ------- |
| Total | 4,907.6 | 7,593 | 527 | 527 | 476 | 527 | 534 | 523.3 | 14,181 | 10,608 | 2,617 | 1,267.6 |
| Mean | 158 | 253 | 17 | 17 | 17 | 17 | 17.8 | 16.9 | 473 | 342 | 84.4 | 42.3 |
| Ac-ft | 9,730 | 15,060 | 1,050 | 1,050 | 944 | 1,050 | 1,060 | 1,040 | 28,130 | 21,040 | 5,190 | 2,510 |

Calendar year 1957: Max 1,150 Min 1.8 Mean 123 Ac-ft 89,220
Water year 1957-58: Max 1,150 Min 1.8 Mean 121 Ac-ft 87,850

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 10 to Apr. 28; discharge estimated on basis of 1 discharge measurement and gate openings at Platoro Reservoir.

## 2465. 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 25 ft upstream 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 1958 in reports of Geological Survey. September 1899 to March 1900 and April 1903 to September 1944 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 8,300 ft (from topographic map). 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 upstream at different datum. Jan. 1, 1912, to early 1915 chain gage at present site and datum.

Average discharge.--56 years (1902-58), 357 cfs (258,500 acre-ft per year).

Extremes.--Maximum discharge during year, 2,100 cfs June 6 (gage height, 4.09 ft); minimum daily, 40 cfs Jan. 10, Feb. 1.
1899-1900, 1903-58: Maximum discharge, 9,000 cfs Oct. 5, 1911 (gage height, 8.50 ft, from floodmarks, present site and datum), from rating curve extended above 3,000 cfs; minimum daily, 12 cfs Jan. 30, 1957.

Remarks.--Records good except those for periods of no gage-height record, which are fair, and those for periods of ice effect, which are poor. Discharge measurements generally made three times a month. Diversions for irrigation of about 500 acres of hay meadows above station. Some regulation by Platoro Reservoir (see p. 317).

Revisions (water years).--WSP 898: 1911(M).

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-28, Nov. 9-21, Feb. 1-11, May 30 to June 19, July 21 to Aug. 4)

| Oct. 1 to Jan. 31 | | | | Feb. 1 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.8 | 31 | 1.5 | 229 | 0.4 | 35 | 2.0 | 570 |
| .9 | 47 | 2.0 | 494 | .7 | 92 | 3.0 | 1,190 |
| 1.1 | 88 | 3.0 | 1,190 | 1.0 | 169 | 4.0 | 2,130 |
| 1.3 | 146 | | | 1.5 | 340 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | a70 | 1,100 | 65 | 50 | 40 | 65 | 79 | 321 | 1,650 | 340 | 595 | 82 |
| 2 | a67 | 892 | 60 | 55 | 51 | 67 | 88 | 329 | 1,690 | 310 | 600 | 75 |
| 3 | 72 | 829 | 60 | 55 | 57 | 69 | 71 | 325 | 1,670 | 310 | 580 | 75 |
| 4 | 81 | 815 | 65 | 55 | 67 | 78 | 79 | 372 | 1,630 | 295 | 425 | 67 |
| 5 | 72 | 822 | 68 | 55 | 63 | 76 | 48 | 864 | 1,740 | 272 | 149 | 65 |
| 6 | 65 | 815 | 70 | 54 | 59 | 76 | 69 | 826 | 1,970 | 255 | 191 | 73 |
| 7 | 63 | 787 | 65 | 65 | 53 | 88 | 86 | a980 | 1,860 | 232 | 138 | 71 |
| 8 | 63 | 794 | 75 | 65 | 71 | 82 | 86 | 1,010 | 1,700 | 191 | 120 | 71 |
| 9 | 63 | 726 | 70 | 61 | 79 | 84 | 82 | 1,050 | 1,740 | 176 | 110 | 65 |
| 10 | 63 | 173 | 65 | 40 | 63 | 80 | 71 | 1,080 | 1,530 | 169 | 104 | 63 |
| 11 | 63 | 121 | 65 | 55 | 69 | 78 | 77 | 1,070 | 1,420 | 163 | 104 | 63 |
| 12 | 70 | 107 | 62 | 53 | 73 | 84 | 71 | 1,340 | 1,570 | 154 | 99 | 59 |
| 13 | 86 | 99 | 60 | 49 | 94 | 88 | 67 | 1,210 | 1,620 | 160 | 92 | 154 |
| 14 | 79 | 91 | 65 | 57 | 84 | 93 | 75 | 1,120 | 1,550 | 157 | 92 | 210 |
| 15 | 76 | 93 | 70 | 43 | 77 | 97 | 92 | 1,030 | 1,660 | 154 | 97 | 181 |
| 16 | 70 | 86 | 76 | 51 | 86 | 88 | 132 | 1,080 | 1,660 | 371 | 97 | 166 |
| 17 | 70 | 83 | 67 | 46 | 75 | 82 | 154 | 1,070 | 1,630 | 510 | 104 | 154 |
| 18 | 70 | 76 | 75 | 59 | 69 | 80 | 239 | 1,250 | 1,520 | 626 | 120 | 143 |
| 19 | 86 | 65 | 70 | 61 | 67 | 84 | 332 | 1,360 | 1,090 | 658 | 110 | 140 |
| 20 | 102 | 74 | 65 | 57 | 77 | 91 | 380 | 1,420 | 906 | 631 | 108 | 125 |
| 21 | 107 | 67 | 65 | 45 | 77 | 101 | 456 | 1,250 | 1,010 | 631 | 106 | 120 |
| 22 | 110 | 50 | 65 | 51 | 82 | 99 | 510 | 1,230 | 1,050 | 620 | 163 | 90 |
| 23 | 91 | 55 | 65 | 69 | 84 | 86 | 480 | 1,580 | 942 | 610 | 138 | 77 |
| 24 | 96 | 65 | 75 | 61 | 88 | 86 | 412 | 1,780 | 752 | 610 | 135 | 82 |
| 25 | 93 | 75 | 65 | 57 | 90 | 84 | 407 | 1,760 | 590 | 615 | 181 | 92 |
| 26 | 86 | 75 | 60 | 55 | 79 | 82 | 416 | 1,830 | 525 | 631 | 146 | 94 |
| 27 | 76 | 60 | 65 | 55 | 74 | 75 | 485 | 1,880 | 452 | 575 | 118 | 97 |
| 28 | 612 | 55 | 60 | 48 | 52 | 84 | 475 | 1,870 | 394 | 545 | 104 | 97 |
| 29 | 1,040 | 60 | 65 | 48 | - | 65 | 372 | 1,770 | 360 | 560 | 92 | 94 |
| 30 | 1,070 | 65 | 75 | 49 | ------- | 73 | 336 | 1,710 | 344 | 595 | 90 | 92 |
| 31 | 1,090 | ------- | 65 | 43 | ------- | 79 | ------- | 1,490 | ------- | 575 | 90 | ------- |
| Total | 5,922 | 9,275 | 2,063 | 1,667 | 2,000 | 2,544 | 6,727 | 37,017 | 38,225 | 12,701 | 5,398 | 3,037 |
| Mean | 191 | 309 | 66.5 | 53.8 | 71.4 | 82.1 | 224 | 1,194 | 1,274 | 410 | 174 | 101 |
| Ac-ft | 11,750 | 18,400 | 4,090 | 3,310 | 3,970 | 5,050 | 13,340 | 73,420 | 75,820 | 25,190 | 10,710 | 6,020 |

Calendar year 1957: M. x 2,510 Min 12 Mean 489 Ac-ft 353,700
Water year 1957-58: Max 1,970 Min 40 Mean 347 Ac-ft 251,100

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

Note.--Stage-discharge relation affected by ice Nov. 22 to Jan. 31, Feb. 27 to Mar. 6, Mar. 9-14, 18-20.

## 2475. San Antonio River at Ortiz, Colo.

Location.--Lat 37°00', long 106°20', in New Mexico, in sec. 19, T. 32 N., R. 9 E., on left bank a quarter of a mile south of New Mexico-Colorado 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 1958 in reports of Geological Survey. January to October 1915, May 1919 to October 1920, and October 1924 to September 1944 in reports of State engineer. (No winter records prior to 1941).

Gage.--Water-stage recorder. Altitude of gage is 8,000 ft (from topographic map). Prior to Apr. 7, 1926, staff gage at various locations near present site at different datums. Apr. 7, 1926, to June 24, 1954, water-stage recorder at site 200 ft downstream at present datum.

Average discharge.--18 years (1940-58), 27.3 cfs (19,760 acre-ft per year).

Extremes.--Maximum discharge during year, 884 cfs Apr. 20 (gage height, 4.24 ft); no flow for many days.
1915, 1919-20, 1924-58: 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 fair. Discharge measurements or observations of no flow generally made twice a month. A few small diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.4 | 4.0 | | | | | 38 | 254 | 43 | | 0 | 0 |
| 2 | 1.2 | 6.0 | | | | | 19 | 317 | 36 | | 0 | 0 |
| 3 | 1.4 | 5.5 | | | | | 18 | 260 | 30 | | 0 | 0 |
| 4 | 1.4 | 5.5 | | | | | 11 | 300 | 25 | | 0 | 0 |
| 5 | 1.4 | 6.5 | | | | | 15 | 511 | 24 | | 0 | 0 |
| 6 | 1.5 | 8.0 | | | | 3.1 | 12 | 646 | 24 | | 0 | 0 |
| 7 | 1.5 | 7.0 | | | | | 19 | 651 | 28 | | 0 | 0 |
| 8 | 1.4 | 5.0 | | | | | 13 | 630 | 22 | | 0 | 0 |
| 9 | 1.5 | 4.0 | | | | | 11 | 575 | 17 | | 0 | 0 |
| 10 | 1.5 | 5.5 | | | | | 11 | 564 | 11 | | 0 | 0 |
| 11 | 1.5 | 4.6 | | | | | 9.0 | 553 | 10 | | 0 | 0 |
| 12 | 2.9 | 5.5 | | | | | 9.0 | 564 | 5.5 | | 0 | .8 |
| 13 | 9.5 | 5.5 | | | | | 12 | 432 | 4.3 | | 0 | 0 |
| 14 | 5.0 | 4.6 | | | | | 7.0 | 366 | 2.2 | | 0 | 0 |
| 15 | 4.0 | 5.5 | | | | | 7.5 | 331 | 1.5 | | 0 | 0 |
| 16 | 2.9 | 2.2 | 2 | 1.2 | 2 | 3.5 | 18 | 342 | 1.5 | | 0 | 0 |
| 17 | 2.2 | .6 | | | | | 37 | 310 | 1.5 | | 0 | 0 |
| 18 | 1.8 | 2.2 | | | | | 104 | 266 | 2.9 | | 6.2 | 0 |
| 19 | 2.6 | 2.5 | | | | | 300 | 222 | 2.6 | | 22 | 0 |
| 20 | 5.5 | 3.0 | | | | | 429 | 193 | 1.2 | | 1.2 | 0 |
| 21 | 7.5 | 2.0 | | | | | 429 | 172 | .8 | | 0 | 0 |
| 22 | 10 | 1.0 | | | | | 376 | 154 | .4 | | 0 | 0 |
| 23 | 8.5 | 1.5 | | | | | 300 | 140 | .3 | | 2.2 | 0 |
| 24 | 5.0 | 2.0 | | | | | 219 | 121 | .2 | | 1.0 | 0 |
| 25 | 4.3 | 2.5 | | | | 17 | 307 | 100 | 0 | | 1.2 | 0 |
| 26 | 4.0 | 2.5 | | | | | 362 | 88 | 0 | | 2.2 | 0 |
| 27 | 3.2 | 2.0 | | | | | 412 | 79 | 0 | | 0 | 0 |
| 28 | 2.9 | 1.5 | | | | 71 | 348 | 68 | 0 | | 0 | 0 |
| 29 | 3.6 | 2.0 | | | - | 51 | 216 | 60 | 0 | | 0 | 0 |
| 30 | 4.3 | 2.0 | | | ------- | 50 | 203 | 56 | 0 | | 0 | 0 |
| 31 | 3.6 | ------- | | | ------- | 47 | ------- | 48 | ------- | | 0 | ------- |
| Total | 109.0 | 112.2 | 62 | 37.2 | 56 | 404.0 | 4,271.5 | 9,373 | 294.9 | 0 | 36.0 | 0.8 |
| Mean | 3.52 | 3.74 | 2 | 1.2 | 2 | 13.0 | 142 | 302 | 9.83 | 0 | 1.16 | 0.03 |
| Ac-ft | 216 | 223 | 123 | 74 | 111 | 801 | 8,470 | 18,590 | 585 | 0 | 71 | 1.6 |

Calendar year 1957: Max 492 Min - Mean 45.1 Ac-ft 32,650
Water year 1957-58: Max 651 Min 0 Mean 40.4 Ac-ft 29,270

Peak discharge (base, 330 cfs).--Apr. 20 (7:20 p.m.) 884 cfs (4.24 ft); Apr. 26 (10 p.m.) 614 cfs (3.61 ft); May 1 (11 p.m.) 477 cfs (3.25 ft); May 7 (10:30 p.m.) 848 cfs (4.16 ft).

Note.--No gage-height record Nov. 20 to Mar. 27 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 6 discharge measurements, weather records and records for nearby stations.

## 2480. 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 New Mexico-Colorado State line, 2 miles southwest of Ortiz, and 2½ miles upstream from mouth.

Drainage area.--167 sq mi.

Records available.--October 1933 to September 1958 in reports of Geological Survey. January 1914 to November 1920 and October 1924 to September 1944, in reports of State engineer. (No winter records most years).

Gage.--Water-stage recorder. Altitude of gage is 8,100 ft (from topographic map). Prior to Apr. 15, 1955, at site 350 ft upstream at datum 2.52 ft higher.

Average discharge.--19 years (1927-28, 1940-58), 120 cfs (86,880 acre-ft per year).

Extremes.--Maximum discharge during year, 1,490 cfs May 12 (gage height, 5.95 ft), from rating curve extended above 1,200 cfs; minimum not determined.
1914-20, 1924-58: Maximum discharge, 3,160 cfs May 12, 1941 (gage height, 5.77 ft, site and datum then in use), from rating curve extended above 1,600 cfs; minimum observed, 4.0 cfs Dec. 17, 1945 (discharge measurement), but may have been less during periods of no gage-height record.

Remarks.--Records good above 200 cfs and fair below 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.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 22 | 32 | | | | | 30 | 308 | 628 | 55 | 14 | 18 |
| 2 | 22 | 36 | | | | | 27 | 344 | 620 | 52 | 13 | 15 |
| 3 | 21 | 35 | | | | | 27 | 332 | 588 | 58 | 15 | 13 |
| 4 | 21 | 35 | | | | | 26 | 480 | 561 | 50 | 14 | 14 |
| 5 | 21 | 35 | | | | | 22 | 772 | 552 | 44 | 16 | 14 |
| | | | 20 | | | 27 | | | | | | |
| 6 | 21 | 36 | | | | | 26 | 1,020 | 570 | 43 | 29 | 17 |
| 7 | 20 | 28 | | | | | 32 | 1,160 | 498 | 43 | 20 | 17 |
| 8 | 20 | 30 | | | | | 32 | 1,200 | 440 | 39 | 18 | 19 |
| 9 | 20 | 27 | | | | | 30 | 1,220 | 400 | 35 | 16 | 16 |
| 10 | 20 | 29 | | | | | 28 | 1,230 | 336 | 33 | 16 | 15 |
| 11 | 20 | 30 | | | | | 29 | 1,170 | 288 | 28 | 18 | 15 |
| 12 | 22 | 29 | | | | | 29 | 1,340 | 252 | 26 | 19 | 15 |
| 13 | 25 | 29 | | | | | 26 | 1,160 | 227 | 24 | 16 | 23 |
| 14 | 25 | 29 | | | | | 29 | 1,050 | 209 | 23 | 16 | 58 |
| 15 | 26 | 27 | | | | | 35 | 1,010 | 197 | 22 | 16 | 34 |
| | | | 18 | 15 | 21 | 33 | | | | | | |
| 16 | 24 | 27 | | | | | 47 | 1,090 | 185 | 21 | 23 | 24 |
| 17 | 23 | 32 | | | | | 52 | 1,080 | 177 | 22 | 28 | 21 |
| 18 | 23 | 32 | | | | | 68 | 1,040 | 165 | 23 | 21 | 19 |
| 19 | 24 | 28 | | | | | 112 | 1,020 | 154 | 32 | 23 | 19 |
| 20 | 32 | 26 | | | | | 154 | 986 | 144 | 25 | 16 | 17 |
| 21 | 34 | 24 | | | | b29 | 200 | 870 | 135 | 22 | 19 | 16 |
| 22 | 39 | 21 | | | | b28 | 280 | 848 | 128 | 20 | 33 | 15 |
| 23 | 40 | 22 | | | | 27 | 344 | 882 | 114 | 19 | 30 | 15 |
| 24 | 30 | 24 | | | | 28 | 304 | 832 | 103 | 17 | 49 | 20 |
| 25 | 29 | 25 | | | | 29 | 344 | 826 | 90 | 18 | 46 | 24 |
| | | | 15 | | | | | | | | | |
| 26 | 24 | 25 | | | | 30 | 380 | 826 | 82 | 19 | 35 | 19 |
| 27 | 25 | 22 | | | | 28 | 456 | 810 | 74 | 18 | 24 | 18 |
| 28 | 28 | 19 | | | | 30 | 424 | 794 | 68 | 16 | 22 | 19 |
| 29 | 27 | 20 | | | - | b25 | 332 | 760 | 63 | 15 | 18 | 19 |
| 30 | 28 | 21 | | | ------- | 29 | 304 | 720 | 60 | 16 | 16 | 17 |
| 31 | 30 | ------- | | | ------- | 32 | ------- | 669 | ------- | 15 | 17 | ------- |
| Total | 786 | 835 | 545 | 465 | 588 | 915 | 4,229 | 27,849 | 8,108 | 893 | 676 | 585 |
| Mean | 25.4 | 27.8 | 17.6 | 15 | 21 | 29.5 | 141 | 898 | 270 | 28.8 | 21.8 | 19.5 |
| Ac-ft | 1,560 | 1,660 | 1,080 | 922 | 1,170 | 1,810 | 8,390 | 55,240 | 16,080 | 1,770 | 1,340 | 1,160 |

Calendar year 1957: Max 1,500 Min - Mean 193 Ac-ft 139,500
Water year 1957-58: Max 1,340 Min - Mean 127 Ac-ft 92,180

Peak discharge (base, 900 cfs).--May 9 (9:30 p.m.) 1,470 cfs (5.97 ft); May 12 (1 a.m.) 1,490 cfs (5.95 ft); May 16 (10:30 p.m.) 1,370 cfs (5.71 ft); May 22 (10 p.m.) 1,050 cfs (5.17 ft).

b Stage-discharge relation affected by ice.
Note.--No gage-height record Oct. 29 to Nov. 1, Nov. 20 to Mar. 19 (stage-discharge relation affected by ice during most of period), Apr. 5-7, 13; discharge estimated on basis of 6 discharge measurements, weather records, and records for nearby stations.

## 2485. 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 a quarter of a mile 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 1958 in reports of Geological Survey. April 1923 to September 1944 in reports of State engineer.

Gage.--Water-stage recorder. Prior to Apr. 23, 1936, at former bridge site 200 ft upstream at same datum.

Average discharge.--35 years, 88.8 cfs (64,290 acre-ft per year).

Extremes.--Maximum discharge during year, 1,190 cfs May 9, 10, 12 (gage height, 6.10 ft); no flow many days.
1923-58: Maximum discharge, 2,620 cfs May 14, 1941, from rating curve extended above 2,200 cfs; maximum gage height, 6.42 ft May 6, 1952; no flow at times most years.

Remarks.--Records fair above 200 cfs and poor below. Diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.4 | 7.6 | | | | | 7.3 | *379 | 431 | 0.4 | | |
| 2 | .2 | 8.3 | | | | | *8.7 | 443 | *394 | .4 | | |
| 3 | *.1 | 10 | | | | | 11 | 465 | 345 | 3.2 | | (*) |
| 4 | 0 | 8.6 | | | | | 11 | 475 | 321 | 3.8 | (*) | |
| 5 | 0 | 7.6 | | | | | 10 | 738 | 305 | 7.2 | | |
| 6 | 0 | 12 | | (*) | | | 10 | 1,020 | 299 | 9.6 | | |
| 7 | 0 | 15 | | | | | 11 | 1,080 | 303 | 13 | | |
| 8 | .2 | 21 | | | | | 16 | 1,130 | 325 | 13 | | |
| 9 | *.4 | 18 | | | | | 21 | 1,140 | 307 | 10 | | |
| 10 | .6 | 15 | (*) | | | 6.4 | 21 | 1,150 | 275 | 6.0 | | |
| 11 | .9 | 14 | | | | | 19 | 1,140 | 235 | *3.8 | | |
| 12 | 1.2 | 14 | | | | | 25 | 1,150 | 202 | 4.9 | | |
| 13 | 2.1 | 13 | | | | | 25 | 1,140 | 171 | 5.4 | | |
| 14 | 2.6 | 12 | | | | | 26 | 1,080 | 113 | 4.4 | | |
| 15 | 2.8 | 12 | | | | | 24 | 1,020 | 95 | 2.7 | | |
| 16 | 2.8 | | 2.5 | 1 | 7 | | 24 | 1,000 | 92 | .5 | | |
| 17 | 3.0 | | | | | | 30 | *1,020 | 84 | .4 | | |
| 18 | 2.9 | | | | (*) | | 43 | 968 | 74 | 2.7 | | |
| 19 | 3.5 | | | | | *7.3 | 84 | 904 | 66 | 8.4 | | |
| 20 | .1 | | | | | 7.3 | 206 | 860 | 50 | 6.6 | | |
| 21 | 5.3 | (*) | | | | 8.3 | 303 | 790 | 31 | 6.6 | | |
| 22 | 8.0 | | | | | 8.6 | 325 | 693 | 23 | 3.8 | | |
| 23 | *13 | 7 | | | | 8.9 | 360 | 678 | *18 | .1 | | |
| 24 | 14 | | | | | 8.6 | 319 | 651 | 13 | 0 | | |
| 25 | 14 | | | | | 8.3 | 335 | 615 | 11 | 0 | | |
| 26 | 15 | | | | | 8.0 | 388 | 633 | 8.4 | 0 | | |
| 27 | 14 | | | | | 7.6 | 478 | 592 | 6.0 | 0 | | |
| 28 | 14 | | | (*) | | 7.0 | 535 | 558 | 2.7 | 0 | | |
| 29 | 14 | | | | - | 7.6 | 431 | 522 | 2.2 | 0 | | |
| 30 | 14 | | | | ------- | 7.3 | 401 | 505 | 1.6 | 0 | | |
| 31 | 11 | ------- | | | ------- | 7.3 | ------- | 455 | ------- | 0 | | ------- |
| Total | 164.1 | 293.1 | 77.5 | 31 | 196 | 217.3 | 4,508 | 24,994 | 4,603.9 | 116.9 | 0 | 0 |
| Mean | 5.29 | 9.77 | 2.5 | 1 | 7 | 7.01 | 150 | 806 | 153 | 3.77 | 0 | 0 |
| Ac-ft | 325 | 581 | 154 | 61 | 389 | 431 | 8,940 | 49,570 | 9,130 | 232 | 0 | 0 |

Calendar year 1957: Max 1,040 Min 0 Mean 124 Ac-ft 89,820
Water year 1957-58: Max 1,150 Min 0 Mean 96.4 Ac-ft 69,810

Peak discharge (base, 500 cfs).--Apr. 28 (9:30 a.m.) 612 cfs (4.75 ft); May 9 (1 p.m.) 1,190 cfs (6.10 ft); May 12 (3:30 p.m.) 1,190 cfs (6.10 ft); May 17 (11 a.m.) 1,090 cfs (5.88 ft).

* Discharge measurement or observation of no flow made on this day.
Note.--No gage-height record Nov. 19 to Mar. 18 (stage-discharge relation affected by ice during most of period); discharge estimated on basis of 5 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation affected by ice Nov. 16-18.

## 2490. 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 1958 in reports of Geological Survey. March 1921 to September 1944 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.--37 years, 207 cfs (149,900 acre-ft per year).

Extremes.--Maximum discharge during year, 1,880 cfs May 13; no flow many days. 1921-58: Maximum discharge, 3,890 cfs May 15, 1941; no flow at times in 1934, 1948, 1950-51, 1953-58.

Remarks.--Records fair. Discharge measurements or observations of no flow generally made at least twice a month. Many diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 17 | 794 | 72 | 78 | 70 | 78 | 64 | 589 | 726 | 2.0 | 0 | 0 |
| 2 | 19 | 798 | 68 | 70 | 70 | 79 | 64 | 560 | 720 | 3.5 | 0 | 0 |
| 3 | 19 | 687 | 68 | 72 | 68 | 78 | 67 | 590 | 621 | 5.0 | 0 | 0 |
| 4 | 18 | 635 | 71 | 66 | 74 | 78 | 64 | 535 | 537 | 5.0 | 0 | 0 |
| 5 | 18 | 671 | 77 | 66 | 80 | 80 | 63 | 696 | 461 | 5.0 | 0 | 0 |
| 6 | 19 | 693 | 82 | 66 | 76 | 80 | 61 | 1,080 | 462 | 4.7 | 0 | 0 |
| 7 | 20 | 684 | 84 | 66 | 76 | 78 | 60 | 1,370 | 684 | 4.5 | 0 | 0 |
| 8 | 22 | 685 | 83 | 64 | 78 | 81 | 64 | 1,560 | 1,040 | 4.0 | 0 | 0 |
| 9 | 22 | 691 | 84 | 64 | 82 | 76 | 72 | 1,730 | 1,170 | 3.2 | 0 | .7 |
| 10 | 22 | 475 | 84 | 67 | 84 | 76 | 74 | 1,720 | 1,020 | 1.5 | 0 | .8 |
| 11 | 22 | 184 | 84 | 68 | 84 | 71 | 77 | 1,720 | 811 | 1.4 | 0 | .8 |
| 12 | 24 | 142 | 86 | 70 | 80 | 66 | 79 | 1,700 | 653 | 1.9 | 0 | .8 |
| 13 | 25 | 125 | 84 | 70 | 80 | 65 | 81 | 1,830 | 531 | 1.6 | 0 | 1.5 |
| 14 | 25 | 106 | 89 | 77 | 84 | 67 | 83 | 1,490 | 380 | 1.5 | 0 | 1.5 |
| 15 | 26 | 98 | 89 | 74 | 77 | 68 | 79 | 1,180 | 348 | 1.2 | 0 | 1.5 |
| 16 | 26 | 89 | 92 | 74 | 78 | 67 | 74 | 1,080 | 364 | .9 | 0 | 1.5 |
| 17 | 28 | 89 | 95 | 77 | 76 | 68 | 72 | 1,150 | 320 | .9 | 0 | 2.0 |
| 18 | 28 | 90 | 90 | 77 | 77 | 68 | 71 | 1,140 | 295 | 2.4 | 0 | 1.9 |
| 19 | 30 | 88 | 92 | 92 | 79 | 66 | 91 | 1,150 | 212 | 3.3 | 0 | 1.8 |
| 20 | 23 | 83 | 89 | 95 | 84 | 64 | 232 | 1,030 | 136 | 25 | 0 | 1.8 |
| 21 | 15 | 89 | 90 | 76 | 81 | 62 | 406 | 922 | 82 | 16 | 0 | .9 |
| 22 | 18 | 72 | 90 | 78 | 88 | 65 | 576 | 801 | 63 | 2.9 | .4 | .6 |
| 23 | 19 | 78 | 88 | 68 | 91 | 68 | 751 | 783 | 47 | .8 | .7 | .1 |
| 24 | 25 | 81 | 82 | 66 | 93 | 68 | 695 | 837 | 26 | 0 | 1.4 | 0 |
| 25 | 34 | 80 | 80 | 68 | 98 | 66 | 673 | 880 | 7.6 | 0 | 1.4 | 0 |
| 26 | 38 | 86 | 81 | 68 | 91 | 62 | 700 | 1,050 | 4.8 | 0 | .8 | 0 |
| 27 | 38 | 86 | 70 | 70 | 80 | 66 | 781 | 1,120 | 3.7 | 0 | .5 | 0 |
| 28 | 39 | 86 | 80 | 70 | 72 | 66 | 817 | 1,070 | 3.3 | 0 | 0 | 0 |
| 29 | 412 | 80 | 78 | 68 | - | 66 | 725 | 980 | 2.9 | 0 | 0 | 0 |
| 30 | 680 | 76 | 81 | 70 | ------- | 68 | 635 | 888 | 2.1 | 0 | 0 | 0 |
| 31 | 762 | ------- | 76 | 72 | ------- | 66 | ------- | 874 | ------- | 0 | 0 | ------- |
| Total | 2,533 | 8,721 | 2,559 | 2,227 | 2,251 | 2,178 | 8,351 | 34,105 | 11,733.4 | 98.2 | 5.2 | 18.2 |
| Mean | 81.7 | 291 | 82.5 | 71.8 | 80.4 | 70.3 | 278 | 1,100 | 391 | 3.17 | 0.17 | 0.61 |
| Ac-ft | 5,020 | 17,300 | 5,080 | 4,420 | 4,460 | 4,320 | 16,560 | 67,650 | 23,270 | 195 | 10 | 36 |

Calendar year 1957: Max 1,800 Min 3.6 Mean 320 Ac-ft 232,000
Water year 1957-58: Max 1,830 Min 0 Mean 205 Ac-ft 148,300

Note.--No gage-height record on main channel Nov. 22-24, Dec. 21, 22, May 10, 11, and on secondary channel Nov. 18-21, Dec. 21, 22, Jan. 27 to Feb. 17, May 10, 11, Aug. 22-27, Sept. 9-18 (stage-discharge relation affected by ice during part of periods); discharge estimated on basis of 4 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation affected by ice on main channel Dec. 1-4 and on secondary channel Nov. 22 to Jan. 9, Jan. 15, 16, 19-26.

## 2500. 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 Secco.

Drainage area.--220 sq mi.

Records available.--January 1910 to December 1911 and October 1933 to September 1958 in reports of Geological Survey. May 1909 to September 1919 and April 1927 to September 1944 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 (from topographic map). 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.--41 years (1909-19, 1927-58), 58.9 cfs (42,640 acre-ft per year).

Extremes.--Maximum discharge during year, 448 cfs May 30 (gage height, 3.94 ft), from rating curve extended above 260 cfs; minimum daily, 23 cfs Jan. 22, Sept. 30.
1909-19, 1927-58: Maximum discharge, 654 cfs July 1, 1947 (gage height, 5.09 ft), from rating curve extended above 260 cfs; minimum daily, 4.6 cfs Oct. 31, 1950.

Remarks.--Records good 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 table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | |
|---|---|
| 0.4 | 20 |
| .8 | 46 |
| 1.4 | 100 |
| 2.0 | 166 |
| 3.0 | 296 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 27 | 50 | 47 | 32 | 29 | 29 | 28 | 31 | 89 | 190 | 188 | 89 |
| 2 | 27 | 51 | 47 | 32 | 29 | 28 | 28 | 28 | 105 | 189 | 151 | 88 |
| 3 | 27 | 50 | 46 | 33 | *28 | *29 | 29 | 28 | 106 | 171 | 107 | 91 |
| 4 | *28 | 51 | 47 | 33 | 28 | 30 | 30 | 27 | 113 | 37 | 107 | 92 |
| 5 | 30 | 57 | 50 | 33 | 29 | 30 | 28 | 26 | 110 | 38 | 80 | 92 |
| 6 | 31 | 58 | 51 | 31 | 29 | 30 | 27 | 26 | 152 | 78 | 43 | 89 |
| 7 | 31 | 56 | 48 | 33 | 28 | 30 | 28 | 26 | 159 | 197 | 192 | 33 |
| 8 | 31 | 56 | 48 | 31 | 28 | 31 | 29 | 26 | 168 | *205 | 197 | 31 |
| 9 | 30 | 55 | 40 | 27 | 29 | 30 | 30 | 37 | 203 | 241 | 197 | 36 |
| 10 | 29 | 56 | 38 | *27 | 29 | 31 | 28 | 28 | *223 | 240 | 197 | *41 |
| 11 | 27 | 56 | *36 | 27 | 30 | 30 | *28 | 24 | 200 | 240 | *167 | 54 |
| 12 | 30 | 58 | 36 | 28 | 30 | 30 | 27 | *27 | 178 | 236 | 140 | 52 |
| 13 | 30 | 55 | 35 | 27 | 30 | 30 | 27 | 65 | *165 | 201 | 140 | 56 |
| 14 | 30 | 58 | 36 | 27 | 30 | 30 | 27 | 76 | 164 | 200 | 159 | 56 |
| 15 | 30 | 56 | 36 | 26 | 29 | 30 | 30 | 36 | 196 | 200 | 162 | 48 |
| 16 | 30 | 56 | 37 | 26 | 30 | 30 | 32 | 44 | 194 | 201 | 161 | 33 |
| 17 | 30 | 55 | 38 | 27 | 30 | 31 | 30 | 36 | 218 | 200 | 162 | 34 |
| 18 | 30 | 53 | 37 | 27 | 31 | 32 | 28 | 31 | 219 | 200 | 170 | 30 |
| 19 | 35 | 50 | 37 | 27 | 33 | 32 | 38 | 48 | 219 | 194 | 159 | 27 |
| 20 | 33 | 48 | 36 | 27 | 37 | 32 | 36 | 159 | 246 | 134 | 147 | 25 |
| 21 | 38 | *44 | 36 | 24 | 38 | 38 | 37 | 196 | 254 | 133 | 130 | 24 |
| 22 | 37 | 43 | 36 | 23 | 36 | 33 | 35 | 109 | 236 | 143 | 105 | 25 |
| 23 | 30 | 44 | 36 | 25 | 33 | 31 | 31 | 86 | 214 | 150 | 92 | 25 |
| 24 | 30 | 46 | 36 | 28 | 33 | 31 | 26 | 112 | 211 | 210 | 90 | 25 |
| 25 | *28 | 48 | 35 | 27 | 33 | 32 | 29 | 141 | 208 | 211 | 60 | 25 |
| 26 | 28 | 49 | 34 | 28 | 31 | 30 | 27 | 185 | 211 | 211 | 32 | 25 |
| 27 | 28 | 47 | 35 | 29 | 29 | 28 | 25 | 166 | 211 | 210 | 31 | 25 |
| 28 | 28 | 44 | 33 | 29 | 29 | 28 | 26 | 151 | 207 | *211 | 29 | 25 |
| 29 | 40 | 46 | 35 | 29 | - | 28 | 30 | 160 | 176 | 211 | 54 | *24 |
| 30 | 43 | 47 | 37 | 29 | ------- | 28 | 34 | 288 | 195 | 211 | 92 | 23 |
| 31 | 44 | ------- | 34 | 28 | ------- | 28 | ------- | 118 | ------- | 207 | 89 | ------- |
| Total | 970 | 1,543 | 1,213 | 880 | 858 | 940 | 888 | 2,541 | 5,550 | 5,700 | 3,830 | 1,343 |
| Mean | 31.3 | 51.4 | 39.1 | 28.4 | 30.6 | 30.3 | 29.6 | 82.0 | 185 | 184 | 124 | 44.8 |
| Ac-ft | 1,920 | 3,060 | 2,410 | 1,750 | 1,700 | 1,860 | 1,760 | 5,040 | 11,010 | 11,310 | 7,600 | 2,660 |

Calendar year 1957: Max 231 Min 9.5 Mean 47.1 Ac-ft 34,070
Water year 1957-58: Max 288 Min 23 Mean 71.9 Ac-ft 52,080

* Discharge measurement made on this day.
Note.--No gage-height record Nov. 18 to Dec. 2, Dec. 18-20, Jan. 21-27; discharge estimated on basis of 1 discharge measurement, weather records, and records for nearby stations.

## 2515. 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, approximately (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 1958 in reports of Geological Survey. June 1899 to September 1944, in records 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.--59 years, 659 cfs (477,100 acre-ft per year).

Extremes.--Maximum discharge during year, 4,270 cfs May 29 (gage height, 5.04 ft); minimum daily, 15 cfs Sept. 7.
1899-1958: Maximum daily discharge, 13,100 cfs June 8, 1905, from rating curve extended above 8,000 cfs; no flow at times in 1950-51, 1956.

Remarks.--Records excellent above 200 cfs and fair below. Discharge measurements generally made twice a month during winter and three times a month the rest of the year. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas. Records of chemical analyses for the water year 1958 are given in WSP 1573.

Revisions.--WSP 210: Drainage area.

Rating table, water year 1957-58, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Feb. 24 to Mar. 14, June 5-16, June 30 to July 15)

| | | | |
|---|---|---|---|
| 0.5 | 15 | 2.0 | 554 |
| .6 | 26 | 2.5 | 940 |
| .8 | 58 | 3.0 | 1,510 |
| 1.1 | 134 | 4.0 | 2,790 |
| 1.5 | 284 | 5.0 | 4,320 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100 | 912 | 420 | 285 | 255 | 395 | 294 | 1,120 | 3,490 | 122 | 36 | 25 |
| 2 | 90 | 921 | 420 | 270 | 245 | 390 | 294 | 1,010 | 3,180 | 125 | 37 | 23 |
| 3 | 92 | 845 | 400 | 265 | 253 | 423 | 289 | 1,030 | 2,800 | 125 | 36 | 20 |
| 4 | 88 | 777 | 410 | 260 | 270 | 474 | 289 | 921 | 2,460 | 111 | 47 | 26 |
| 5 | 80 | 845 | 420 | 265 | 280 | 490 | 255 | 892 | 2,020 | 105 | 37 | 19 |
| 6 | 82 | 912 | 430 | 250 | 275 | 513 | 239 | 1,250 | 1,410 | 98 | 32 | 18 |
| 7 | 88 | a921 | 420 | 260 | 265 | 485 | 239 | 1,760 | 1,230 | 95 | 27 | 15 |
| 8 | 88 | a930 | 460 | 265 | 280 | 490 | 332 | 2,260 | 1,990 | 92 | 29 | 16 |
| 9 | 92 | a995 | 430 | 270 | 300 | 485 | 423 | 2,690 | 2,620 | 85 | 27 | 17 |
| 10 | 98 | a820 | 410 | 270 | 285 | 457 | 423 | 3,000 | 2,890 | 71 | 25 | 17 |
| 11 | 100 | a700 | 400 | 275 | 275 | 446 | 342 | 3,110 | 2,650 | 65 | 24 | 19 |
| 12 | 100 | 605 | 390 | 280 | 270 | 418 | 313 | 3,260 | 1,970 | 54 | 26 | 24 |
| 13 | 105 | 573 | 380 | 280 | 265 | 446 | 298 | 3,550 | 1,250 | 49 | 29 | 25 |
| 14 | 108 | 560 | 400 | 270 | 265 | 479 | 318 | 3,460 | 836 | 44 | 29 | 25 |
| 15 | 108 | 599 | 420 | 260 | 275 | 390 | 412 | 3,060 | 632 | 88 | 27 | 25 |
| 16 | 105 | 605 | 443 | 275 | 290 | 390 | 418 | 2,570 | 599 | 71 | 32 | 45 |
| 17 | 102 | 632 | 450 | 275 | 301 | 390 | 337 | 2,390 | 639 | 67 | 24 | 51 |
| 18 | 105 | 632 | 410 | 290 | 295 | 384 | 308 | 2,410 | 567 | 60 | 26 | 56 |
| 19 | 131 | 537 | 390 | 265 | 300 | 368 | 298 | 2,390 | 525 | 67 | 39 | 56 |
| 20 | 131 | 401 | 370 | 230 | 320 | 332 | 434 | 2,440 | 446 | 60 | 44 | 42 |
| 21 | 120 | 401 | 360 | 200 | 340 | 308 | 930 | 2,510 | 308 | 67 | 44 | 37 |
| 22 | 131 | 348 | 350 | 210 | 400 | 303 | 1,380 | 2,520 | 259 | 60 | 45 | 36 |
| 23 | 147 | 380 | 350 | 220 | 440 | 303 | 1,580 | 2,520 | 231 | 53 | 39 | 36 |
| 24 | 150 | 390 | 370 | 230 | 502 | 318 | 1,670 | 2,580 | 203 | 47 | 39 | 37 |
| 25 | 150 | 410 | 340 | 225 | 519 | 348 | 1,760 | 2,620 | 160 | 53 | 37 | 36 |
| 26 | 153 | 420 | 310 | 230 | 525 | 423 | 1,620 | 3,070 | 140 | 62 | 37 | 34 |
| 27 | 153 | 430 | 290 | 250 | 508 | 390 | 1,460 | 3,550 | 134 | 54 | 34 | 29 |
| 28 | 170 | 350 | 290 | 245 | 406 | 353 | 1,460 | 4,030 | 125 | 53 | 32 | 23 |
| 29 | 266 | 390 | 300 | 250 | - | 332 | 1,390 | 4,180 | 122 | 45 | 32 | 23 |
| 30 | 746 | 410 | 320 | 260 | ------- | 313 | 1,240 | 4,110 | 122 | 40 | 32 | 25 |
| 31 | 864 | ------- | 290 | 255 | ------- | 313 | ------- | 3,940 | ------- | 37 | 27 | ------- |
| Total | 5,043 | 18,651 | 11,843 | 7,935 | 9,204 | 12,349 | 21,045 | 80,203 | 36,008 | 2,225 | 1,031 | 880 |
| Mean | 163 | 622 | 382 | 256 | 329 | 398 | 702 | 2,587 | 1,200 | 71.8 | 33.3 | 29.3 |
| Ac-ft | 10,000 | 36,990 | 23,490 | 15,740 | 18,260 | 24,490 | 41,740 | 159,100 | 71,420 | 4,410 | 2,040 | 1,750 |

Calendar year 1957: Max 3,680 Min 32 Mean 615 Ac-ft 444,900
Water year 1957-58: Max 4,180 Min 15 Mean 566 Ac-ft 409,400

a No gage-height record; discharge estimated on basis of 1 discharge measurement, weather records, and records for nearby stations.
Note.--Stage-discharge relation affected by ice Nov. 23 to Feb. 23.

## 2520. Rio Grande at Colorado-New Mexico State line

Location.--Lat 37°00', long 105°43', in SE¼ sec. 36, T. 1 N., R. 75 W., Beaubien Grant survey, on left bank a quarter of a mile upstream from Colorado-New Mexico State line, 1½ miles upstream from Costilla Creek, and 5¼ miles west of Jarosa.

Records available.--October 1953 to September 1958.

Gage.--Water-stage recorder.

Average discharge.--5 years, 278 cfs (201,300 acre-ft per year).

Extremes.--Maximum discharge during year, 4,150 cfs May 29 (gage height, 7.07 ft); minimum daily, 18 cfs Sept. 8, 11.
1953-58: Maximum discharge, that of May 29, 1958; no flow at times in 1956.

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 table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.1 | 16 | 3.0 | 555 |
| 1.2 | 27 | 4.0 | 1,040 |
| 1.4 | 61 | 5.0 | 1,790 |
| 2.0 | 222 | 7.0 | 4,060 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *103 | 860 | 400 | 330 | 280 | 375 | 311 | *1,100 | 3,390 | *113 | 36 | 27 |
| 2 | 96 | 875 | 400 | 315 | 275 | 352 | *305 | 1,000 | *3,090 | 122 | 36 | 25 |
| 3 | 93 | 820 | 410 | 305 | 280 | 381 | 302 | 1,020 | 2,730 | 122 | 36 | *22 |
| 4 | 90 | 752 | 415 | 300 | 290 | 431 | 289 | 962 | 2,410 | 113 | 36 | 26 |
| 5 | 86 | 795 | 420 | 295 | 300 | 470 | 277 | 905 | 2,020 | 103 | 48 | 25 |
| 6 | 88 | 850 | 430 | 290 | 310 | 476 | 258 | 1,160 | 1,490 | 98 | 33 | 22 |
| 7 | 90 | 860 | 450 | 290 | 300 | 462 | 252 | 1,600 | 1,260 | 96 | 27 | 19 |
| 8 | 93 | 865 | 460 | 295 | 305 | 462 | 324 | 2,060 | 1,800 | 93 | 27 | 18 |
| 9 | 96 | 932 | 460 | 300 | 320 | 459 | 425 | 2,470 | 2,490 | 90 | 26 | 19 |
| 10 | 98 | 956 | 470 | 300 | 315 | 445 | 452 | 2,780 | 2,790 | 86 | 26 | 19 |
| 11 | 100 | 666 | 460 | 300 | 305 | 431 | 375 | 2,990 | 2,670 | 81 | 26 | 18 |
| 12 | 106 | 567 | 450 | 305 | 300 | 394 | 343 | 3,150 | *2,010 | 76 | *25 | 25 |
| 13 | 106 | 523 | 435 | 310 | 290 | 365 | 320 | 3,450 | 1,370 | 68 | 26 | 32 |
| 14 | 108 | 504 | 430 | 305 | 290 | 401 | 327 | 3,390 | 974 | 61 | 27 | 33 |
| 15 | 108 | 535 | 425 | 300 | 300 | 388 | 414 | 3,040 | 743 | 70 | 26 | 33 |
| 16 | 103 | 559 | 435 | 295 | 310 | 375 | 442 | 2,530 | 684 | 111 | 26 | 46 |
| 17 | 100 | 543 | *455 | 300 | 320 | 388 | 372 | *2,340 | 702 | 88 | 36 | 63 |
| 18 | 103 | 547 | 460 | 310 | 325 | 385 | 327 | 2,350 | 640 | 81 | 30 | 70 |
| 19 | 124 | 501 | 455 | 315 | 320 | *368 | 314 | 2,350 | 563 | 79 | 40 | 76 |
| 20 | 127 | *356 | 440 | 300 | 360 | 333 | 401 | 2,450 | 512 | 79 | 40 | 65 |
| 21 | 122 | b270 | 425 | 270 | 380 | 305 | 770 | 2,510 | 359 | 74 | 42 | 53 |
| 22 | 111 | b275 | 420 | 245 | 420 | 302 | 1,170 | 2,510 | 286 | 68 | 52 | 50 |
| 23 | *132 | b280 | 420 | 250 | 468 | 311 | 1,380 | 2,490 | 243 | *57 | 46 | 50 |
| 24 | 141 | b310 | 420 | 255 | *b480 | 311 | 1,510 | 2,510 | 213 | 50 | 42 | 50 |
| 25 | 138 | 430 | 410 | 250 | b500 | 333 | 1,600 | 2,570 | 169 | 52 | 40 | 52 |
| 26 | 143 | 520 | 400 | 255 | 501 | 428 | 1,500 | 2,900 | 146 | 63 | 39 | 55 |
| 27 | 146 | 525 | 390 | 260 | 466 | 401 | 1,360 | 3,390 | 135 | 61 | 39 | 44 |
| 28 | 152 | 515 | 385 | *255 | b400 | 365 | 1,350 | 3,850 | 130 | 55 | 34 | 33 |
| 29 | 178 | 460 | 390 | 265 | - | 346 | 1,320 | 4,030 | 119 | 50 | 32 | 28 |
| 30 | 680 | 400 | 395 | 275 | ------- | 327 | 1,200 | 3,970 | 116 | 44 | 34 | 30 |
| 31 | 825 | ------- | 380 | 280 | ------- | 317 | ------- | 3,840 | ------- | 39 | 32 | ------- |
| Total | 4,786 | 17,851 | 13,195 | 8,920 | 9,710 | 11,887 | 19,990 | 77,667 | 36,254 | 2,443 | 1,065 | 1,128 |
| Mean | 154 | 595 | 426 | 288 | 347 | 383 | 666 | 2,505 | 1,208 | 78.8 | 34.4 | 37.6 |
| Ac-ft | 9,490 | 35,410 | 26,170 | 17,690 | 19,260 | 23,580 | 39,650 | 154,100 | 71,910 | 4,850 | 2,110 | 2,240 |

Calendar year 1957: Max 3,630 Min 28 Mean 618 Ac-ft 447,600
Water year 1957-58: Max 4,030 Min 18 Mean 561 Ac-ft 406,500

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Nov. 25 to Feb. 23 (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.

2525. Costilla Creek above Costilla Dam, N. Mex.

Location.--Lat 36°53'50", long 105°15'20", on left bank in Sangre de Cristo Grant, 2 miles upstream from Costilla Dam and 17 miles southeast of Costilla, Taos County.

Drainage area.--26 sq mi, approximately.

Records available.--April 1937 to September 1958 (no winter records). Published as "above reservoir, near Costilla" 1937-51.

Gage.--Water-stage recorder. Altitude of gage is 9,280 ft (from topographic map). Prior to July 9, 1940, at wooden control 460 ft downstream at datum 12.06 ft lower. July 9, 1940, to July 22, 1954, at concrete control 400 ft downstream at datum 10.28 ft lower.

Extremes.--Maximum discharge during year, 105 cfs May 20 (gage height, 3.17 ft); minimum daily recorded, 3.5 cfs Oct. 4, 8-11.
1937-58: Maximum discharge, 3,870 cfs July 22, 1954 (gage height, 4.8 ft, from floodmarks, at site and datum then in use; 7.3 ft, from floodmarks, at present site and datum), on basis of slope-area measurement of peak flow; minimum daily recorded, 1.2 cfs Nov. 7, 1944, Sept. 19, 1956.

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

Revisions (water years).--WSP 878: 1937. WSP 1282: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | |
|---|---|
| 2.2 | 1.3 |
| 2.3 | 4.2 |
| 2.4 | 9.8 |
| 2.6 | 26 |
| 2.8 | 45 |
| 3.0 | 72 |
| 3.2 | 105 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.7 | | | | | | | | 54 | 9.8 | 4.7 | 4.2 |
| 2 | 4.2 | | | | | | | a22 | 50 | 11 | 4.2 | 4.2 |
| 3 | 3.8 | | | | | | | | 48 | 11 | 4.7 | 7.2 |
| 4 | 3.5 | | | | | | | | 44 | 9.8 | 4.7 | 8.6 |
| 5 | 3.8 | | | | | | | | 48 | 13 | 15 | 4.7 |
| | | | | | | | | a40 | | | | |
| 6 | 3.8 | | | | | | | | 54 | 15 | 9.2 | 5.8 |
| 7 | 3.8 | | | | | | | | 48 | 9.8 | 7.4 | 5.8 |
| 8 | 3.5 | | | | | | | a50 | 42 | 8.6 | *6.9 | 5.2 |
| 9 | 3.5 | | | | | | | a60 | 34 | 7.4 | 5.8 | 5.2 |
| 10 | 3.5 | | | | | | | a68 | 29 | 7.4 | 4.7 | 6.9 |
| 11 | 3.5 | | | | | | | 74 | 25 | 6.9 | 9.2 | 5.8 |
| 12 | 5.8 | | | | | | | 77 | 23 | 7.4 | 9.2 | 5.2 |
| 13 | 5.8 | | | | | | | 77 | 21 | 7.4 | 6.9 | 8.0 |
| 14 | 5.2 | | | | | | | 75 | 20 | 5.8 | 4.7 | 5.2 |
| 15 | 4.7 | | | | | | | *78 | 19 | 5.2 | 5.2 | 5.2 |
| 16 | 5.8 | | | | | | | 83 | 19 | 6.3 | 5.8 | 4.7 |
| 17 | *5.2 | | | | | | | 74 | *18 | 8.0 | 6.9 | *4.2 |
| 18 | - | | | | | | | 74 | 17 | 14 | 6.9 | 4.7 |
| 19 | - | | | | | | | 77 | 16 | 13 | 8.5 | 5.2 |
| 20 | - | | | | | | | 78 | 15 | 6.9 | 6.4 | 4.2 |
| 21 | - | | | | | | | 78 | 16 | *5.8 | 10 | 4.2 |
| 22 | - | | | | | | | 78 | 18 | 5.2 | 11 | 4.2 |
| 23 | - | | | | | | | 78 | 13 | 4.7 | 6.9 | 4.2 |
| 24 | - | | | | | | | 82 | 12 | 4.7 | 6.4 | 3.8 |
| 25 | - | | | | | | | 80 | *12 | 5.2 | 5.2 | 4.2 |
| 26 | - | | | | | | | 77 | 11 | 5.2 | 4.7 | 4.2 |
| 27 | - | | | | | | | 77 | 9.8 | 4.7 | 4.2 | 4.7 |
| 28 | - | | | | | | | 72 | 9.8 | 6.8 | *4.7 | 4.7 |
| 29 | - | | | | | | | 69 | 11 | 6.9 | 5.2 | 4.7 |
| 30 | - | | | | ------- | | *22 | 62 | 11 | 5.8 | 4.7 | 4.7 |
| 31 | - | ------- | | | ------- | | ------- | 59 | ------- | 4.7 | 4.2 | ------- |
| Total | - | - | - | - | - | - | - | 1,983 | 767.6 | 243.4 | 204.2 | 153.8 |
| Mean | - | - | - | - | - | - | - | 64.0 | 25.6 | 7.85 | 6.59 | 5.13 |
| Ac-ft | - | - | - | - | - | - | - | 3,930 | 1,520 | 483 | 405 | 305 |

| Calendar year | : Max | Min | Mean | Ac-ft |
|---|---|---|---|---|
| Water year | : Max | Min | Mean | Ac-ft |

Peak discharge (base, 40 cfs).--May 20 (6:30 p.m.) 105 cfs (3.17 ft); June 6 (1 a.m.) 78 cfs (3.06 ft); Aug. 5 (5:30 p.m.) 46 cfs (2.78 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of discharge measurements, fragments of recorder trace, and weather records.

## 2530. Casias Creek near Costilla, N. Mex.

Location.--Lat 36°53'50", long 105°15'35", in Sangre de Cristo Grant, on left bank 200 ft downstream from road crossing, 2 miles upstream from Costilla Dam, and 17 miles southeast of Costilla, Taos County.

Drainage area.--19 sq mi, approximately.

Records available.--April 1937 to September 1958 (no winter records). Nov. 1-7, 1947, and Nov. 1-16, 1948, gage heights only, discharge records unreliable and should not be used.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 9,270 ft (from topographic map). Prior to July 18, 1940, water-stage recorder and wooden control 100 ft downstream at datum 1.56 ft lower.

Extremes.--Maximum discharge during year, 118 cfs June 5 (gage height, 1.68 ft); minimum daily recorded, 3.1 cfs Sept. 1.
1937-58: Maximum discharge, 122 cfs June 11, 1957; maximum gage height recorded, 1.90 ft June 14, 1938 (backwater from Costilla Reservoir); minimum daily discharge recorded, 1.3 cfs Sept. 11-15, 26-28, 1951, Aug. 10, 1956.

Remarks.--Records good. Diversions for irrigation of about 1,300 acres above station.

Revisions (water years).--WSP 1282: 1948-51, drainage area. See also Records available.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.5 | 1.8 | 0.8 | 9.0 | 1.4 | 64 |
| .6 | 3.3 | 1.0 | 20 | 1.6 | 104 |
| .7 | 5.7 | 1.2 | 37 | 1.7 | 127 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7.0 | | | | | | | 18 | 84 | 13 | 4.3 | 3.1 |
| 2 | 7.0 | | | | | | | 14 | 75 | 13 | 4.3 | 3.3 |
| 3 | 7.0 | | | | | | | 14 | 68 | 13 | 4.3 | 7.0 |
| 4 | 6.7 | | | | | | | 15 | 66 | 12 | 4.3 | 8.3 |
| 5 | 6.7 | | | | | | | 19 | 69 | 12 | 7.4 | 6.4 |
| 6 | 7.0 | | | | | | | 22 | 80 | 12 | 6.7 | 6.4 |
| 7 | 6.7 | | | | | | | 25 | 68 | 10 | 6.0 | 6.4 |
| 8 | 6.7 | | | | | | | 26 | 68 | 9.4 | *5.2 | 6.0 |
| 9 | 6.7 | | | | | | | 27 | 69 | 8.3 | 4.7 | 6.0 |
| 10 | 6.7 | | | | | | | 30 | 56 | 7.7 | 4.3 | 7.7 |
| 11 | 6.4 | | | | | | | 34 | 44 | 7.0 | 4.7 | 6.4 |
| 12 | 8.0 | | | | | | | 41 | *43 | 7.7 | 4.5 | 5.7 |
| 13 | 8.0 | | | | | | | 43 | 44 | 7.4 | 4.0 | 8.7 |
| 14 | 7.4 | | | | | | | 45 | 41 | 7.0 | 3.8 | 6.4 |
| 15 | 7.4 | | | | | | | *49 | 38 | 7.0 | 3.8 | 5.7 |
| 16 | 8.0 | | | | | | | 52 | 36 | *7.0 | 3.8 | 5.7 |
| 17 | *7.4 | | | | | | | 54 | 34 | 8.0 | 4.7 | *5.7 |
| 18 | - | | | | | | | 60 | 32 | 11 | 4.3 | 6.0 |
| 19 | - | | | | | | | 61 | 26 | 9.0 | 4.0 | 6.4 |
| 20 | - | | | | | | | 68 | 24 | 7.0 | 4.3 | 5.5 |
| 21 | - | | | | | | | 71 | 24 | 6.4 | 5.2 | 5.2 |
| 22 | - | | | | | | | 66 | 23 | 6.0 | 6.7 | 5.2 |
| 23 | - | | | | | | | 73 | 22 | 5.7 | 4.7 | 5.2 |
| 24 | - | | | | | | | 97 | 20 | 5.7 | 4.3 | 5.2 |
| 25 | - | | | | | | | 104 | *20 | 5.7 | 4.3 | 5.0 |
| 26 | - | | | | | | | 106 | 19 | 5.7 | 4.0 | 5.0 |
| 27 | - | | | | | | | 106 | 18 | 5.5 | 4.0 | 5.0 |
| 28 | - | | | | | | | 104 | 15 | 5.7 | *3.8 | 5.2 |
| 29 | - | | | | - | | | 106 | 16 | 6.0 | 3.8 | 5.0 |
| 30 | - | | | | ------- | | *17 | 95 | 15 | 5.5 | 3.5 | 4.7 |
| 31 | - | ------- | | | ------- | | ------- | 91 | ------- | 5.0 | 3.3 | ------- |
| Total | - | - | - | - | - | - | - | 1,736 | 1,255 | 251.4 | 141.0 | 173.5 |
| Mean | - | - | - | - | - | - | - | 56.0 | 41.8 | 8.11 | 4.55 | 5.78 |
| Ac-ft | - | - | - | - | - | - | - | 3,440 | 2,490 | 499 | 280 | 344 |

| | | | | |
|---|---|---|---|---|
| Calendar year | : Max | Min | Mean | Ac-ft |
| Water year | : Max | Min | Mean | Ac-ft |

Peak discharge (base, 50 cfs).--June 5 (11:30 p.m.) 118 cfs (1.68 ft); June 7 (8:30 p.m.) 102 cfs (1.61 ft).

* Discharge measurement made on this day.

## 2535. Santistevan Creek near Costilla, N. Mex.

Location.--Lat 36°53'05", long 105°16'50", in Sangre de Cristo Grant, on left bank 200 ft upstream from road crossing, 0.9 mile upstream from Costilla Dam, and 16 miles southeast of Costilla, Taos County.

Drainage area.--2.5 sq mi, approximately.

Records available.--April 1937 to September 1958 (no winter records).

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 9,300 ft (from topographic map). Prior to June 27, 1940, water-stage recorder and wooden control at same site at datum 0.99 ft lower.

Extremes.--Maximum discharge recorded during year, 17 cfs June 5, 7 (gage height, 1.37 and 1.38 ft, respectively); minimum daily recorded, 1.0 cfs Sept. 22, 23, 25-30.
1937-58: Maximum discharge recorded, 18 cfs Aug. 11, 1941, July 12, 1957; maximum gage height recorded, 1.73 ft Aug. 11, 1941; minimum daily discharge recorded, 0.1 cfs Nov. 13-17, 1948.

Remarks.--Records fair. No diversion above or below station.

Revisions.--WSP 1282: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used July 26 to Aug. 28)

| | | | |
|---|---|---|---|
| 0.2 | 0.9 | 0.9 | 7.7 |
| .3 | 1.5 | 1.2 | 13 |
| .5 | 3.0 | 1.4 | 17 |
| .7 | 5.1 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.6 | | | | | | | 1.6 | 14 | 4.7 | 2.1 | 1.5 |
| 2 | 1.6 | | | | | | | 1.6 | 14 | 4.9 | 2.1 | 1.4 |
| 3 | 1.6 | | | | | | | 1.5 | 13 | 4.6 | 2.0 | 2.5 |
| 4 | 1.6 | | | | | | | 1.6 | 13 | 4.4 | 1.9 | 1.6 |
| 5 | 1.5 | | | | | | | 1.9 | 13 | 4.4 | 2.1 | 1.4 |
| 6 | 1.5 | | | | | | | 2.2 | 13 | 4.3 | 2.1 | 1.4 |
| 7 | 1.5 | | | | | | | 2.6 | 13 | 4.0 | 2.1 | 1.4 |
| 8 | 1.6 | | | | | | | 2.9 | 13 | 3.8 | *1.9 | 1.4 |
| 9 | 1.6 | | | | | | | 3.3 | 12 | 3.7 | 2.0 | 1.3 |
| 10 | 1.5 | | | | | | | 3.7 | 11 | 3.5 | 1.8 | 1.4 |
| 11 | 1.5 | | | | | | | 4.1 | 11 | 3.5 | 2.3 | 1.2 |
| 12 | 1.6 | | | | | | | 4.6 | *10 | 3.3 | 2.0 | 1.2 |
| 13 | 1.6 | | | | | | | 4.8 | 9.2 | 3.2 | 1.8 | 1.5 |
| 14 | 1.6 | | | | | | | 5.1 | 8.6 | 3.0 | 1.8 | 1.3 |
| 15 | 1.5 | | | | | | | *5.6 | 8.0 | 2.8 | 2.0 | 1.2 |
| 16 | 1.5 | | | | | | | 6.3 | 7.8 | *2.8 | 1.8 | 1.2 |
| 17 | *1.5 | | | | | | | 6.4 | 7.3 | 3.0 | 1.9 | *1.1 |
| 18 | - | | | | | | | 6.9 | 7.2 | 3.2 | 1.8 | 1.1 |
| 19 | - | | | | | | | 7.3 | 6.7 | 3.0 | 1.6 | 1.1 |
| 20 | - | | | | | | | 7.7 | 6.4 | 2.5 | 1.5 | 1.1 |
| 21 | - | | | | | | | 8.6 | 6.4 | 2.5 | 1.8 | 1.1 |
| 22 | - | | | | | | | 9.9 | 6.1 | 2.5 | 1.9 | 1.0 |
| 23 | - | | | | | | | 11 | 5.8 | 2.4 | 1.6 | 1.0 |
| 24 | - | | | | | | | 12 | 5.6 | 2.4 | 1.6 | 1.1 |
| 25 | - | | | | | | | 13 | *5.5 | 2.4 | 1.6 | 1.0 |
| 26 | - | | | | | | | 14 | 5.4 | 2.4 | 1.6 | 1.0 |
| 27 | - | | | | | | | 14 | 5.2 | 2.3 | 1.6 | 1.0 |
| 28 | - | | | | | | | 15 | 5.0 | 2.2 | *1.6 | 1.0 |
| 29 | - | | | | | - | | 15 | 5.0 | 2.2 | 1.6 | 1.0 |
| 30 | - | | | | ------- | | *1.6 | 15 | 4.8 | 2.1 | 1.6 | 1.0 |
| 31 | - | ------- | | | ------- | | ------- | 15 | ------- | 2.1 | 1.5 | ------- |
| Total | - | - | - | - | - | - | - | 224.2 | 266.0 | 98.1 | 56.6 | 37.5 |
| Mean | - | - | - | - | - | - | - | 7.23 | 8.87 | 3.16 | 1.83 | 1.25 |
| Ac-ft | - | - | - | - | - | - | - | 445 | 528 | 195 | 112 | 74 |

| Calendar year | : Max | Min | Mean | Ac-ft |
|---|---|---|---|---|
| Water year | : Max | Min | Mean | Ac-ft |

Peak discharge (base, 5 cfs).--June 5 (9:30 p.m.) 17 cfs (1.37 ft); June 7 (6:30 p.m.) 17 cfs (1.38 ft); July 2 (6 p.m.) 6.5 cfs (0.76 ft); July 5 (4 p.m.) 5.1 cfs (0.64 ft); Sept. 3 (7:30 p.m.) 10 cfs (1.06 ft).

* Discharge measurement made on this day.

## 2540. Costilla Creek below Costilla Dam, N. Mex.

Location.--Lat 36°52'35", long 105°16'45", in Sangre de Cristo Grant, on left bank 125 ft downstream from outlet of reservoir and 16 miles southeast of Costilla, Taos County.

Drainage area.--55 sq mi, approximately.

Records available.--April 1937 to September 1958 (no winter records 1937-44, 1948-49). Prior to October 1951, published as "below reservoir near Costilla."

Gage.--Water-stage recorder and concrete control. Altitude of gage is 9,180 ft (from topographic map).

Average discharge.--12 years (1944-47, 1949-58), 17.2 cfs (12,450 acre-ft per year).

Extremes.--Maximum discharge during year, 209 cfs May 31 (gage height, 2.59 ft); minimum daily, 0.1 cfs Oct. 1, 2.
1937-58: Maximum discharge, 286 cfs May 9, 10, 1942 (gage height, 2.65 ft); no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are poor. Flow regulated by Costilla Reservoir (capacity, 15,700 acre-ft, original survey). Diversions for irrigation of about 1,300 acres above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.1 | 0.05 | 1.5 | 64 |
| .3 | .9 | 1.8 | 98 |
| .6 | 5.8 | 2.1 | 137 |
| .9 | 17 | 2.4 | 179 |
| 1.2 | 36 | 2.6 | 209 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.1 | 4.1 | | | | | | 49 | 207 | 84 | 45 | 9.2 |
| 2 | .1 | .2 | | | | | | 51 | 207 | 90 | 12 | 17 |
| 3 | 3.3 | .2 | | | | | | 51 | 207 | 78 | 20 | 38 |
| 4 | 8.5 | .2 | | | | | | 51 | 207 | 51 | 60 | 34 |
| 5 | 8.5 | *.2 | | | | | | 51 | 160 | 51 | 104 | 15 |
| 6 | 8.5 | .2 | | | | | | 70 | 134 | 61 | 94 | .4 |
| 7 | 8.5 | .2 | | | | | a0.2 | 108 | 140 | 90 | 71 | .4 |
| 8 | 8.5 | .2 | | | | | | 108 | 140 | 97 | *31 | .4 |
| 9 | 8.5 | .2 | | | | | | 109 | 140 | 97 | 11 | .4 |
| 10 | 8.5 | .2 | | | | | | 109 | 140 | 97 | 28 | .4 |
| 11 | 8.5 | .2 | | | | | | 109 | 97 | 65 | 83 | .4 |
| 12 | 8.5 | .2 | | | | | | 134 | *55 | 27 | 83 | .4 |
| 13 | 8.5 | .2 | | | | | | 190 | 55 | 31 | *68 | .4 |
| 14 | 8.5 | .2 | | | | | .2 | 188 | 55 | 88 | 35 | .4 |
| 15 | 8.5 | .2 | a0.2 | a0.2 | a0.2 | a0.2 | .2 | *188 | 55 | 88 | 17 | .4 |
| 16 | 8.5 | .2 | | | | | .2 | 188 | 55 | *94 | 8.5 | .4 |
| 17 | *8.5 | | | | | | .2 | 188 | 56 | 111 | 29 | *4.5 |
| 18 | 8.8 | | | | | | .2 | 188 | 65 | 48 | 83 | 7.9 |
| 19 | 8.8 | | | | | | .2 | 188 | 88 | 17 | 65 | 7.6 |
| 20 | 8.8 | | | | | | 12 | 188 | 88 | 34 | 36 | 7.6 |
| 21 | 8.8 | | | | | | 40 | 188 | 88 | 103 | 36 | 7.6 |
| 22 | 8.8 | | | | | | 69 | 161 | 90 | 104 | 18 | 7.6 |
| 23 | 8.8 | | | | | | 96 | 110 | 90 | 104 | 9.6 | 7.6 |
| 24 | 8.8 | a.2 | | | | | 99 | 111 | 90 | 104 | 15 | 7.6 |
| 25 | 8.8 | | | | | | 74 | 111 | *90 | 60 | 21 | 7.6 |
| 26 | 8.8 | | | | | | 58 | 120 | 90 | 38 | 32 | 7.6 |
| 27 | 8.5 | | | | | | 109 | 160 | 51 | 61 | 34 | 7.6 |
| 28 | 8.5 | | | | | | 119 | 207 | 28 | 116 | *46 | 20 |
| 29 | 8.5 | | | | - | | 119 | 207 | 28 | 106 | 9.2 | 44 |
| 30 | 8.5 | | | | ------- | | *92 | 207 | 28 | 40 | 9.2 | 44 |
| 31 | 8.5 | ------- | | | ------- | | ------- | 207 | ------- | 109 | 9.2 | ------- |
| Total | 244.2 | 9.9 | 6.2 | 6.2 | 5.6 | 6.2 | 890.8 | 4,295 | 3,024 | 2,344 | 1,222.7 | 306.4 |
| Mean | 7.88 | 0.33 | 0.2 | 0.2 | 0.2 | 0.2 | 29.7 | 139 | 101 | 75.6 | 39.4 | 10.2 |
| Ac-ft | 484 | 20 | 12 | 12 | 11 | 12 | 1,770 | 8,520 | 6,000 | 4,650 | 2,430 | 608 |

Calendar year 1957: Max 105 Min 0 Mean 21.1 Ac-ft 15,280
Water year 1957-58: Max 207 Min 0.1 Mean 33.9 Ac-ft 24,530

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of discharge measurements and reservoir operation records.

## 2545. Costilla Creek near Amalia, N. Mex.

Location.--Lat 36°52'15", long 105°23'10", in Sangre de Cristo Grant, on right bank 50 ft downstream from third bridge upstream from Amalia, 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 1958 (no winter records).

Gage.--Water-stage recorder. Altitude of gage is 8,500 ft (from topographic map). Prior to May 3, 1956, at site 50 ft upstream at datum 1.0 ft higher.

Extremes.--Maximum discharge recorded during year, 689 cfs Apr. 25 (gage height, 3.70 ft), from rating curve extended above 366 cfs; maximum gage height recorded, 3.85 ft May 13 (backwater from debris on control); minimum daily discharge recorded, 9.5 cfs Oct. 3, Sept. 12.

1949-58: Maximum discharge recorded, that of Apr. 25, 1958; maximum gage height recorded, that of May 13, 1958; minimum daily discharge recorded, 5.4 cfs July 22, 1956.

Remarks.--Records fair except those for period of doubtful gage-height record, which are poor. Flow regulated by Costilla Reservoir (capacity, 15,700 acre-ft, original survey). Diversions for irrigation of about 1,300 acres above station.

Rating table, water year 1957-58, except periods of uncertain stage-discharge relation May 13, 23-27 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.3 | 9.5 | 2.3 | 99 |
| 1.5 | 17 | 2.6 | 163 |
| 1.7 | 29 | 2.9 | 253 |
| 2.0 | 56 | 3.3 | 433 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | | | | | | - | 135 | 264 | 90 | 94 | 16 |
| 2 | 10 | | | | | | - | 128 | 264 | 100 | 22 | 16 |
| 3 | 9.5 | | | | | | - | 108 | 253 | 95 | 22 | 49 |
| 4 | 15 | | | | | | - | 116 | 250 | 60 | 60 | 50 |
| 5 | 16 | | | | | | - | 151 | 230 | 60 | 114 | 39 |
| 6 | 17 | | | | | | - | 176 | 230 | 80 | 114 | 13 |
| 7 | 17 | | | | | | - | 246 | 240 | 100 | *87 | 12 |
| 8 | 17 | | | | | | - | 283 | 220 | 100 | 55 | 12 |
| 9 | 17 | | | | | | - | 273 | 200 | 100 | 23 | 11 |
| 10 | 16 | | | | | | - | 272 | 180 | 100 | 24 | 10 |
| 11 | 16 | | | | | | - | 286 | 160 | 80 | 92 | 10 |
| 12 | 20 | | | | | | - | 342 | 120 | 45 | 96 | 9.5 |
| 13 | 21 | | | | | | - | 420 | 110 | 35 | *87 | 17 |
| 14 | 19 | | | | | | - | 346 | 110 | 90 | 49 | 13 |
| 15 | 18 | | | | | | - | 328 | 105 | 90 | 37 | 11 |
| 16 | 18 | | | | | | - | 351 | 100 | *103 | 20 | 10 |
| 17 | *18 | | | | | | - | 361 | 100 | 120 | 29 | 10 |
| 18 | - | | | | | | - | 356 | 100 | 75 | 87 | *17 |
| 19 | - | | | | | | - | 361 | 110 | 34 | 82 | 19 |
| 20 | - | | | | | | - | *351 | 110 | 32 | 52 | 17 |
| 21 | - | | | | | | - | 351 | 110 | 104 | 52 | 16 |
| 22 | - | | | | | | - | 356 | 110 | 112 | 46 | 15 |
| 23 | - | | | | | | - | 320 | 110 | 110 | 22 | 15 |
| 24 | - | | | | | | - | 310 | 110 | 110 | 21 | 15 |
| 25 | - | | | | | | *321 | 300 | 110 | 82 | 36 | 15 |
| 26 | - | | | | | | 243 | 290 | 100 | 48 | 25 | 15 |
| 27 | - | | | | | | 275 | 310 | *90 | 56 | *94 | 15 |
| 28 | - | | | | | | 230 | 324 | 50 | 124 | 67 | 20 |
| 29 | - | | | | - | | 193 | 328 | 40 | 124 | 20 | 55 |
| 30 | - | | | | ------- | | 174 | 311 | 40 | 41 | 17 | 55 |
| 31 | - | ------- | | | ------- | | ------- | 286 | ------- | 114 | 16 | ------- |
| Total | - | - | - | - | - | - | - | 8,878 | 4,326 | 2,614 | 1,662 | 597.5 |
| Mean | - | - | - | - | - | - | - | 286 | 144 | 84.3 | 53.6 | 19.9 |
| Ac-ft | - | - | - | - | - | - | - | 17,610 | 8,580 | 5,180 | 3,300 | 1,190 |

Calendar year 1957: Max Min Mean Ac-ft
Water year 1957-58: Max Min Mean Ac-ft

Note.--Doubtful gage-height record June 6 to July 15; discharge estimated on basis of discharge measurements, available recorder trace, weather records, and records for nearby stations.

## 2550. Ute Creek near Amalia, N. Mex.

Location.--Lat 36°57'10", long 105°24'35", in Sangre de Cristo Grant, on right bank 100 ft downstream from road crossing, 2.6 miles northeast of Amalia, Taos County, and 3 miles upstream from mouth.

Drainage area.--12 sq mi, approximately.

Records available.--April 1949 to September 1958 (no winter records).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 8,500 ft (from topographic map).

Extremes.--Maximum discharge during year, 47 cfs May 21 (gage height, 1.68 ft); minimum daily recorded, 1.4 cfs Sept. 1, 3.
1949-58: Maximum discharge, 69 cfs June 8, 1955 (gage height, 2.30 ft), from rating curve extended above 18 cfs by logarithmic plotting; minimum daily recorded, 0.4 cfs at times in July, August, and September 1956.

Remarks.--Records good. Diversions for irrigation of about 100 acres above station.

Revisions (water years).--WSP 1282: 1949(P), 1951(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.2 | 1.0 | 1.0 | 17 |
| .3 | 2.0 | 1.2 | 24 |
| .4 | 3.3 | 1.4 | 33 |
| .6 | 6.8 | 1.6 | 43 |
| .8 | 12 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.9 | 2.8 | | | | | - | 6.0 | 31 | 6.4 | 2.0 | 1.4 |
| 2 | 2.9 | 2.7 | | | | | - | 5.4 | 30 | 6.2 | 1.7 | 1.5 |
| 3 | 2.9 | 2.7 | | | | | - | 5.2 | 29 | 5.8 | 1.5 | 1.4 |
| 4 | 2.9 | 2.5 | | | | | - | 5.6 | 26 | 5.2 | 1.7 | 1.7 |
| 5 | 2.9 | 2.8 | | | | | - | 7.0 | 26 | 5.2 | 2.0 | 1.7 |
| 6 | 2.9 | *2.4 | | | | | - | 10 | 28 | 4.8 | 2.2 | 1.7 |
| 7 | 2.9 | 2.4 | | | | | - | 12 | 27 | 4.5 | *1.9 | 1.6 |
| 8 | 2.9 | 2.4 | | | | | - | 13 | 24 | 4.1 | 1.6 | 1.6 |
| 9 | 2.8 | 2.4 | | | | | - | 13 | 21 | 3.8 | 1.8 | 1.5 |
| 10 | *2.8 | 2.5 | | | | | - | 14 | 18 | 3.5 | 1.5 | 1.6 |
| 11 | 2.7 | 2.5 | | | | | - | 18 | 17 | 3.2 | 2.4 | 1.5 |
| 12 | 3.1 | 2.5 | | | | | - | 22 | *15 | 3.1 | 2.2 | 1.5 |
| 13 | 2.9 | 2.5 | | | | | - | *23 | 14 | 2.9 | 2.1 | 2.0 |
| 14 | 3.1 | 2.5 | | | | | - | 24 | 13 | 2.9 | 2.0 | 1.8 |
| 15 | 3.1 | 2.3 | | | | | - | 26 | 12 | 2.4 | 2.1 | 1.7 |
| 16 | 3.1 | 2.4 | | | | | 2.7 | 27 | 12 | 2.5 | 2.0 | 1.6 |
| 17 | *3.1 | - | †1.2 | | | | 2.9 | 27 | 11 | *3.1 | 2.1 | *1.6 |
| 18 | 3.2 | - | | | | | 4.1 | 29 | 11 | 3.5 | 2.0 | 1.7 |
| 19 | 3.6 | - | | | | | 4.8 | 27 | 10 | 3.3 | 1.8 | 2.0 |
| 20 | 3.6 | - | | | | | 5.4 | 34 | 9.5 | 2.7 | 1.6 | 1.6 |
| 21 | 3.8 | - | | | | | 5.8 | 38 | 10 | 2.4 | 2.0 | 1.5 |
| 22 | 3.5 | - | | | | | 5.8 | 39 | 9.2 | 2.4 | 2.1 | 1.5 |
| 23 | 3.5 | - | | | | | 5.8 | 38 | 8.8 | 2.0 | 2.0 | 1.6 |
| 24 | 3.2 | - | | | | | 6.0 | 40 | 8.1 | 2.2 | 1.8 | 1.6 |
| 25 | 3.1 | - | | | | | *6.8 | 40 | 8.1 | 2.2 | 1.7 | 1.7 |
| 26 | 2.8 | - | | | | | 7.5 | 38 | 7.2 | 2.2 | 1.7 | 1.6 |
| 27 | 2.7 | - | | | | | 7.9 | 37 | *7.2 | 2.0 | *1.7 | 1.7 |
| 28 | 2.9 | - | | | | | 7.7 | 37 | 6.8 | 1.8 | 1.7 | 1.8 |
| 29 | 2.9 | - | | | | - | 7.0 | 36 | 7.2 | 1.7 | 1.7 | 1.7 |
| 30 | 2.8 | - | | | ------- | | 6.4 | 33 | 7.0 | 1.7 | 1.7 | 1.7 |
| 31 | 2.7 | ------- | | | ------- | | ------- | 32 | ------- | 1.7 | 1.6 | ------- |
| Total | 94.2 | - | - | - | - | - | - | 756.2 | 464.1 | 101.4 | 57.9 | 49.1 |
| Mean | 3.04 | - | - | - | - | - | - | 24.4 | 15.5 | 3.27 | 1.87 | 1.64 |
| Ac-ft | 187 | - | - | - | - | - | - | 1,500 | 921 | 201 | 115 | 97 |

| | | | | |
|---|---|---|---|---|
| Calendar year | : Max | Min | Mean | Ac-ft |
| Water year | : Max | Min | Mean | Ac-ft |

Peak discharge (base, 15 cfs).--May 21 (7:30 p.m.) 47 cfs (1.68 ft); June 5 (11:30 p.m.) 40 cfs (1.54 ft); June 7 (8 p.m.) 36 cfs (1.46 ft).

* Discharge measurement made on this day.
† Result of discharge measurement.
Note.--No gage-height record Aug. 8-26; discharge estimated on basis of discharge measurements, recorded range in stage, weather records, and records for nearby and associated stations.

## 2555. Costilla Creek near Costilla, N. Mex.

Location.--Lat 36°57'55", 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 1958 (no winter records 1936-43).

Gage.--Water-stage recorder. Concrete control since Oct. 13, 1952. Altitude of gage is 7,810 ft (from topographic map). Prior to June 18, 1944, at site half a mile downstream at different datum.

Average discharge.--15 years (1943-58), 43.5 cfs (31,490 acre-ft per year).

Extremes.--Maximum discharge during year, 418 cfs May 18 (gage height, 3.92 ft); minimum daily, 9 cfs Jan. 21, 22, Feb. 27.
1936-58: 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 periods of ice effect or no gage-height record, which are poor. Regulation by Costilla Reservoir 20 miles upstream (capacity, 15,700 acre-ft, original survey). Diversions for irrigation of about 2,000 acres above station.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.3 | 6.7 | 2.5 | 98 |
| 1.5 | 13 | 3.0 | 181 |
| 1.8 | 29 | 3.5 | 293 |
| 2.1 | 52 | 4.0 | 450 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 29 | 14 | 11 | 10 | 11 | 22 | 173 | 326 | 74 | 88 | 18 |
| 2 | 21 | 24 | 14 | 11 | 10 | 13 | 26 | 175 | 315 | 98 | 34 | 17 |
| 3 | 16 | 21 | 14 | 11 | 11 | 13 | *21 | 152 | 306 | 101 | 29 | 33 |
| 4 | 21 | 20 | 14 | 11 | 11 | 15 | 25 | 152 | 298 | 73 | 48 | 49 |
| 5 | 24 | 22 | 14 | 11 | 11 | 15 | 17 | *181 | 283 | 70 | 104 | 42 |
| 6 | 24 | 21 | 14 | 11 | 11 | 15 | 21 | 212 | 268 | 77 | 114 | 20 |
| 7 | 24 | 20 | 14 | 11 | 11 | 16 | 27 | 270 | 273 | 94 | *97 | 17 |
| 8 | 22 | 16 | 14 | 11 | 11 | 16 | 23 | 296 | 260 | 104 | 75 | 16 |
| 9 | 22 | 20 | 14 | *11 | 11 | 15 | 21 | 286 | 234 | 102 | 33 | 15 |
| 10 | *22 | 17 | 14 | 11 | 11 | 16 | 19 | 290 | 220 | 102 | 29 | 14 |
| 11 | 22 | 17 | 14 | 11 | 11 | 10 | 18 | 312 | 200 | 92 | 74 | 13 |
| 12 | 25 | 20 | 14 | 11 | 11 | 13 | 17 | 329 | 135 | 63 | 90 | 12 |
| 13 | 29 | 22 | 14 | 11 | 11 | 12 | 16 | *395 | 126 | 35 | 92 | 17 |
| 14 | 28 | 19 | 14 | 11 | 11 | *14 | 16 | 398 | 118 | 76 | 55 | 17 |
| 15 | 25 | 21 | 15 | 11 | 12 | 14 | 23 | 401 | 114 | *89 | 48 | 13 |
| 16 | 25 | 16 | *15 | 12 | 13 | 15 | 40 | 407 | 109 | 89 | 28 | 12 |
| 17 | 24 | 14 | 15 | 13 | 14 | 15 | 45 | 395 | 105 | 106 | 26 | 12 |
| 18 | 24 | 13 | 14 | 13 | 14 | 15 | 55 | 404 | 105 | 95 | 78 | *15 |
| 19 | 34 | 11 | 13 | 12 | *15 | 15 | 99 | 404 | 122 | 49 | 68 | 19 |
| 20 | 35 | 11 | 13 | 10 | 15 | 14 | 137 | 401 | 124 | 38 | 57 | 17 |
| 21 | 43 | *11 | 13 | 9 | 16 | 17 | 183 | 392 | 122 | 82 | 53 | 16 |
| 22 | 48 | 11 | 13 | 9 | 17 | 21 | 200 | 392 | 121 | 102 | 58 | 16 |
| 23 | 36 | 13 | 12 | 10 | 16 | 21 | 266 | 350 | 118 | 104 | 33 | 16 |
| 24 | 32 | 14 | 12 | 10 | 17 | 21 | 236 | 338 | *114 | 106 | 28 | 16 |
| 25 | 31 | 15 | 12 | 11 | 17 | 21 | 286 | 335 | 112 | 94 | 37 | 16 |
| 26 | 28 | 15 | 12 | 11 | 14 | 21 | 225 | 317 | 112 | 58 | 27 | 16 |
| 27 | 27 | 14 | 12 | 11 | 9 | 20 | 266 | 329 | 97 | 55 | *79 | 16 |
| 28 | 29 | 14 | 12 | 11 | 10 | 21 | 253 | 356 | 60 | 101 | 73 | 17 |
| 29 | 29 | 14 | 12 | 11 | - | 18 | 214 | 359 | 56 | 112 | 31 | 38 |
| 30 | 28 | 14 | 12 | *11 | ------- | 19 | 200 | 350 | 55 | 56 | 22 | 47 |
| 31 | *28 | ------- | 12 | 11 | ------- | 22 | ------- | 329 | ------- | 98 | 20 | ------- |
| Total | 852 | 509 | 415 | 340 | 351 | 504 | 3,019 | 9,880 | 5,008 | 2,595 | 1,748 | 602 |
| Mean | 27.5 | 17.0 | 13.4 | 11.0 | 12.5 | 16.3 | 101 | 319 | 167 | 83.7 | 56.4 | 20.1 |
| Ac-ft | 1,690 | 1,010 | 823 | 674 | 696 | 1,000 | 5,990 | 19,600 | 9,930 | 5,150 | 3,470 | 1,190 |

Calendar year 1957: Max 212 Min 3.8 Mean 59.9 Ac-ft 43,380
Water year 1957-58: Max 407 Min 9 Mean 70.7 Ac-ft 51,220

Peak discharge (base, 250 cfs).--Apr. 25 (11:30 p.m.) 365 cfs (3.73 ft); May 18 (5 p.m.) 418 cfs (3.92 ft).

* Discharge measurement made on this day.

Note.--Stage-discharge relation affected by ice Nov. 8, 10, 11, Nov. 17 to Feb. 23, Feb. 27 to Mar. 6 (no gage-height record Jan. 14-30; discharge estimated on basis of weather records).

## 2605. 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 1952 to September 1958 (no winter records).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,790 ft (from topographic map).

Extremes.--Maximum discharge recorded during year, 411 cfs May 13 (gage height, 3.41 ft); minimum daily recorded, 0.2 cfs Sept. 9-14.
1952-58: Maximum discharge recorded, 525 cfs July 22, 1954; maximum gage height, 5.05 ft July 24, 1957; minimum daily discharge recorded, 0.1 cfs Sept. 28-30, 1953, Sept. 12-28, 1956.

Remarks.--Records good. Flow partly regulated by Costilla Reservoir about 21 miles upstream (capacity, 15,700 acre-ft, original survey). Diversions above station for irrigation of about 5,000 acres, 3,000 of which are below station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.55 | 0.1 | 1.2 | 21 | 2.3 | 153 |
| .7 | 1.1 | 1.4 | 36 | 2.6 | 210 |
| .8 | 2.8 | 1.6 | 55 | 3.0 | 295 |
| .9 | 5.8 | 1.8 | 78 | 3.5 | 425 |
| 1.0 | 10 | 2.0 | 105 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.6 | | | | | | - | 167 | 236 | 13 | 7.9 | 4.8 |
| 2 | 7.8 | | | | | | - | 171 | 222 | 12 | 4.8 | 4.8 |
| 3 | 2.0 | | | | | | - | 149 | 214 | 12 | 4.8 | 4.8 |
| 4 | 2.8 | | | | | | - | 146 | 206 | 14 | 5.4 | 6.6 |
| 5 | 4.2 | | | | | | - | 184 | 184 | 15 | 14 | 5.4 |
| 6 | 4.5 | | | | | | - | 218 | 166 | 21 | *20 | 4.8 |
| 7 | 4.8 | | | | | | - | 271 | 167 | 16 | 8.8 | 4.5 |
| 8 | 4.5 | | | | | | - | 287 | 158 | 18 | 6.4 | 2.5 |
| 9 | 5.1 | | | | | | - | 282 | 138 | 14 | 4.2 | .2 |
| 10 | 7.1 | | | | | | - | 282 | 118 | 12 | 3.1 | .2 |
| 11 | 8.3 | | | | | | - | 300 | 95 | 29 | 5.1 | .2 |
| 12 | 11 | | | | | | - | 329 | 34 | 25 | 6.2 | .2 |
| 13 | 17 | | | | | | - | 394 | *18 | 5.4 | 4.5 | .2 |
| 14 | 14 | | | | | | - | *392 | 15 | 7.4 | 5.4 | .2 |
| 15 | 14 | | | | | | - | 386 | 12 | 7.1 | 8.3 | 1.9 |
| 16 | 14 | | | | | | - | 400 | 9.2 | 7.5 | 5.8 | 3.6 |
| 17 | 13 | | | | | | - | 386 | 8.7 | *9.6 | 5.4 | 1.4 |
| 18 | *13 | | | | | | - | 386 | 9.6 | 27 | 6.4 | *1.4 |
| 19 | - | | | | | | - | 381 | 14 | 20 | 7.1 | 1.2 |
| 20 | - | | | | | | - | 370 | 13 | 8.3 | 6.2 | 1.1 |
| 21 | - | | | | | | - | 365 | 14 | 11 | 5.4 | 1.1 |
| 22 | - | | | | | | - | 357 | 14 | 8.3 | 7.9 | 1.1 |
| 23 | - | | | | | | - | 282 | 9.6 | 8.3 | 5.1 | 1.1 |
| 24 | - | | | | | | †219 | 269 | *7.1 | 8.7 | 5.4 | 2.2 |
| 25 | - | | | | | | 273 | 273 | 6.6 | 11 | 6.6 | 2 |
| 26 | - | | | | | | 218 | 247 | 7.5 | 8.7 | 5.8 | 4.2 |
| 27 | - | | | | | | 271 | 247 | 25 | 8.3 | 10 | 1.2 |
| 28 | - | | | | | | 251 | 271 | 25 | 11 | 5.4 | 1.2 |
| 29 | - | | | | - | | 220 | 271 | 12 | 11 | *5.2 | 1.4 |
| 30 | - | | | | ------- | | 206 | 264 | 12 | 11 | 5.1 | 4.6 |
| 31 | - | ------- | | | ------- | | ------- | 249 | ------- | 7.9 | 4.8 | ------- |
| Total | - | - | - | - | - | - | - | 8,976 | 2,170.3 | 398.6 | 206.5 | 70.1 |
| Mean | - | - | - | - | - | - | - | 290 | 72.3 | 12.9 | 6.66 | 2.34 |
| Ac-ft | - | - | - | - | - | - | - | 17,800 | 4,300 | 791 | 410 | 139 |

| | | | | |
|---|---|---|---|---|
| Calendar year | : Max | Min | Mean | Ac-ft |
| Water year | : Max | Min | Mean | Ac-ft |

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

## 2610. 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 1958 (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 during year, 408 cfs May 15 (gage height, 4.60 ft); no flow Sept. 20-23, 27, 28.
1944-58: Maximum discharge, 460 cfs July 24, 1957 (gage height, 4.76 ft); no flow at times in most years.
Flood of May 11, 1942, probably reached a discharge of 1,000 cfs.

Remarks.--Records good. Flow partly regulated by Costilla Reservoir about 23 miles upstream (capacity, 15,700 acre-ft, original survey). Diversions above station for irrigation of about 5,500 acres, 2,000 of which are below station.

Rating table, water year 1957-58, except period of indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 1.8 | 0 | 2.6 | 9.7 | 3.6 | 83 |
| 1.9 | .2 | 2.8 | 18 | 3.9 | 143 |
| 2.0 | .6 | 3.0 | 28 | 4.2 | 239 |
| 2.2 | 1.8 | 3.3 | 48 | 4.6 | 445 |
| 2.4 | 4.6 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 9.4 | 14 | | | | | | *170 | 238 | 7.8 | 4.3 | 1.4 |
| 2 | 5.8 | 9.4 | | | | | | 171 | 225 | 8.1 | 2.0 | 1.1 |
| 3 | 1.5 | 8.1 | | | | | | 150 | 215 | 7.3 | 1.9 | 1.4 |
| 4 | 1.4 | 6.5 | | | | | | 150 | 200 | 10 | 1.8 | 3.1 |
| 5 | 2.2 | 6.8 | | | | | | 180 | 180 | 12 | *6.3 | 2.0 |
| 6 | 2.5 | *5.3 | | | | | | 215 | 165 | 18 | 16 | 1.5 |
| 7 | 2.5 | - | | | | | | 270 | 170 | 13 | 6.3 | 1.5 |
| 8 | 2.6 | - | | | | | | 290 | 160 | 14 | 4.6 | 1.7 |
| 9 | *2.6 | - | | | | | | 286 | 138 | 10 | 2.2 | 1.4 |
| 10 | 3.3 | - | | | | | | 285 | 118 | 8.6 | 1.1 | 1.4 |
| 11 | 3.9 | - | | | | | | 305 | 90 | 22 | 2.1 | 1.1 |
| 12 | 6.3 | - | | | | | | 325 | 30 | 25 | 2.1 | .8 |
| 13 | 12 | - | | | | | | 390 | 18 | 2.5 | 1.3 | 1.6 |
| 14 | 9.2 | - | | | | | | *390 | 12 | *2.8 | 1.4 | 1.9 |
| 15 | 8.6 | - | | | | | | 387 | 7.3 | 2.5 | 2.7 | 1.4 |
| 16 | 8.4 | - | | | | | | 397 | 6.5 | 2.6 | 2.4 | 1.5 |
| 17 | 8.1 | - | | | | | | 385 | 6.0 | 3.6 | 2.4 | .6 |
| 18 | *8.1 | - | | | | | | 385 | 5.3 | 22 | 2.7 | *.2 |
| 19 | 20 | - | | | | | | 382 | *7.5 | 20 | 4.1 | .2 |
| 20 | 20 | - | | | | | | 375 | 7.3 | 5.3 | 3.6 | 0 |
| 21 | 25 | - | | | | | | 370 | 7.5 | 6.3 | 2.8 | 0 |
| 22 | 33 | - | | | | | | 365 | 9.4 | 5.1 | 5.3 | 0 |
| 23 | 20 | - | | | | | | 290 | 6.5 | 4.6 | 3.6 | 0 |
| 24 | 18 | - | | | | | | 276 | 6.3 | 4.3 | 3.0 | .1 |
| 25 | 17 | - | | | | | | 278 | *3.4 | 5.1 | 5.1 | .1 |
| 26 | 13 | - | | | | | | 250 | 3.9 | 5.1 | 3.1 | 1.4 |
| 27 | 13 | - | | | | | | 250 | 20 | 4.1 | 8.2 | 0 |
| 28 | 13 | - | | | | | | 270 | 22 | 4.6 | 4.3 | 0 |
| 29 | 15 | - | | | - | | | 273 | 7.8 | 4.1 | 3.9 | .1 |
| 30 | 13 | - | | | ------- | | | 265 | 6.8 | 6.5 | 2.7 | 1.2 |
| 31 | *13 | ------- | | | ------- | | ------- | 245 | ------- | 3.4 | 2.2 | ------- |
| Total | 331.4 | - | - | - | - | - | - | 9,020 | 2,092.5 | 270.3 | 115.5 | 28.7 |
| Mean | 10.7 | - | - | - | - | - | - | 291 | 69.8 | 8.72 | 3.72 | 0.96 |
| Ac-ft | 657 | - | - | - | - | - | - | 17,890 | 4,150 | 536 | 229 | 57 |

| | | | | |
|---|---|---|---|---|
| Calendar year | : Max | Min | Mean | Ac-ft |
| Water year | : Max | Min | Mean | Ac-ft |

Peak discharge (base, 200 cfs).--May 15 (2 a.m.) 408 cfs (4.60 ft).

* Discharge measurement made on this day.
Note.--Stage-discharge relation indefinite May 2 to June 11; discharge estimated on basis of records for upstream stations.

## 2625. 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, Costilla County.

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 1958.

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.

Average discharge.--10 years (1948-58), 2.95 cfs (2,140 acre-ft per year).

Extremes.--Maximum discharge during year, 360 cfs May 19 (gage height, 4.10 ft); no flow for long periods.
1912-13 (prior to completion of Costilla Reservoir): Maximum daily discharge, 344 cfs May 23, 24, June 7, 1912; no flow at times.
1936, 1948-58 (subsequent to completion of Costilla Reservoir): Maximum discharge, that of May 19, 1958; no flow for long periods each year.

Remarks.--Records good. 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 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.8 | 0.03 | 1.5 | 6.8 | 2.6 | 76 |
| .9 | .1 | 1.7 | 14 | 3.0 | 124 |
| 1.1 | .6 | 2.0 | 30 | 3.5 | 210 |
| 1.3 | 2.2 | 2.3 | 50 | 4.1 | 360 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.0 | | | | | | 0 | 104 | 186 | | 0 | |
| 2 | 0 | | | | | | 0 | 106 | 163 | | 0 | |
| 3 | 0 | | | | | | 0 | 97 | 106 | | 0 | |
| 4 | 0 | | | | | | 0 | 80 | a77 | | 0 | |
| 5 | 0 | | | | | | 0 | 108 | 90 | | *0 | (*) |
| 6 | 1.2 | | | | | | 0 | 130 | 91 | | 0 | |
| 7 | 0 | | | | | | 0 | 149 | 96 | | 0 | |
| 8 | 0 | | | (*) | | | 0 | 179 | 90 | | 0 | |
| 9 | *0 | | | | | | 0 | 186 | 72 | | 0 | |
| 10 | 0 | | | | | | 0 | 186 | a36 | | 0 | |
| 11 | 0 | | | | | (*) | 0 | 196 | a12 | | 0 | |
| 12 | 0 | | | | | | 0 | 218 | a.8 | | 0 | |
| 13 | 0 | | | | | | 0 | 252 | *0 | | 0 | |
| 14 | 0 | | | | | | 0 | *270 | 0 | | 0 | |
| 15 | 0 | | | | | | 0 | 234 | 0 | (*) | 0 | |
| 16 | 0 | | (*) | | | | 0 | 218 | 0 | | 0 | |
| 17 | 0 | | | | | | 0 | 228 | 0 | | 0 | |
| 18 | 0 | | | | | | 0 | 234 | 0 | | .3 | |
| 19 | .1 | | | | | | 0 | 342 | 0 | | 0 | |
| 20 | .4 | | | | | | 0 | 318 | 0 | | 0 | |
| 21 | .1 | (*) | | | | | 3.6 | 309 | 0 | | 0 | |
| 22 | 0 | | | | | | 27 | 300 | 0 | | 0 | |
| 23 | 0 | | | | | | 58 | 250 | *0 | | 0 | |
| 24 | 0 | | | | (*) | | 60 | 212 | 0 | | 0 | |
| 25 | 0 | | | | | | 81 | 214 | *0 | | 0 | |
| 26 | 0 | | | | | | 74 | 196 | 0 | | *0 | |
| 27 | 0 | | | | | | 117 | 185 | 0 | | 0 | |
| 28 | 0 | | | (*) | | | 165 | 208 | 0 | | 0 | |
| 29 | 0 | | | | - | | *154 | 212 | 0 | | 0 | |
| 30 | 0 | | | | ------- | | 141 | 218 | 0 | | 0 | |
| 31 | 0 | ------- | | | ------- | | ------- | 210 | ------- | | 0 | ------- |
| Total | 4.8 | 0 | 0 | 0 | 0 | 0 | 880.6 | 6,349 | 1,019.8 | 0 | 0.3 | 0 |
| Mean | 0.15 | 0 | 0 | 0 | 0 | 0 | 29.4 | 205 | 34.0 | 0 | 0.01 | 0 |
| Ac-ft | 9.5 | 0 | 0 | 0 | 0 | 0 | 1,750 | 12,590 | 2,020 | 0 | 0.6 | 0 |

Calendar year 1957 : Max 70 Min 0 Mean 6.27 Ac-ft 4,530
Water year 1957-58 : Max 342 Min 0 Mean 22.6 Ac-ft 16,370

Peak discharge (base, 100 cfs).--Apr. 28 (12 m.) 194 cfs (3.42 ft); May 19 (2 p.m.) 360 cfs (4.10 ft).

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of discharge measurements, weather records, and records for nearby stations.

## Principal diversions from Costilla Creek, N. Mex.-Colo.

Records of discharge are collected at 10 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 on Costilla Creek near Costilla, N. Mex. 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 1958. 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 1958. Ditch diverts from right bank of 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 1958. 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 1958. Canal diverts from left bank of Costilla Creek.

Association ditch at Costilla, N. Mex.--Lat 36°57'45", long 105°32'10", 100 ft downstream from diversion from Cerro Canal. Records available, May 1955 to September 1958. Ditch diverts from left bank of Cerro Canal.

Cerro Canal near Jaroso, Colo.--Lat 36°59'35", long 105°34'35", Records available, June 1944 to September 1958. 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 1958. Canal diverts from left bank of Cerro Canal for irrigation in New Mexico.

Penasquito ditch at Costilla, N. Mex.--Lat 36°57'50", long 105°31'10", 1,200 ft downstream from point of diversion which is 100 ft below Costilla diversion dam. Records available, May 1955 to September 1958. Ditch diverts from left bank of Costilla Creek.

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 1958. 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 1958. Canal diverts from right bank of Costilla Creek to Eastdale Reservoir No. 1 for irrigation in Colorado.

Diversions, in acre-feet, water year October 1957 to September 1958

| Month | Acequia Madre | Mesa ditch | Cordillera ditch | Cerro Canal at Costilla | Association ditch at Costilla | Cerro Canal near Jaroso, Colo. | New Mexico Branch Cerro Canal | Penasquito ditch at Costilla | Alire ditch | Eastdale No. 1 intake canal |
|---|---|---|---|---|---|---|---|---|---|---|
| October 1957.. | - | - | - | - | - | - | - | - | - | 177 |
| November..... | - | - | - | - | - | - | - | - | - | 18 |
| December..... | - | - | - | - | - | - | - | - | - | 0 |
| January 1958.. | - | - | - | - | - | - | - | - | - | 0 |
| February..... | - | - | - | - | - | - | - | - | - | 0 |
| March..... | - | - | - | - | - | - | - | - | - | 0 |
| April..... | - | - | - | - | - | - | - | - | - | 1,560 |
| May..... | 317 | 3.0 | 60 | 1,220 | 193 | 829 | 8.7 | 105 | 6.5 | 1,420 |
| June..... | 1,310 | 180 | 140 | 4,130 | 1,150 | 2,400 | 113 | 103 | 0 | 643 |
| July..... | 1,080 | 270 | 116 | 3,120 | 1,190 | 1,650 | 105 | 128 | 0 | .8 |
| August..... | 1,000 | 151 | 110 | 1,960 | 917 | 811 | 21 | 83 | 0 | 1.4 |
| September..... | 431 | 91 | 103 | 607 | 192 | 283 | 4.2 | 29 | 0 | 0 |
| Water year 1957-58. | - | - | - | - | - | - | - | - | - | 3,820 |

## 2630. 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 1958 (no winter records prior to 1946).

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 8,250 ft (from topographic map).

Average discharge.--13 years (1945-58), 6.02 cfs (4,360 acre-ft per year).

Extremes.--Maximum discharge during year, 63 cfs May 29 (gage height, 1.60 ft); minimum daily, 2.2 cfs at times in December, January, and April.
1937-58: 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 good except those for periods of ice effect, no gage-height record, or those above 30 cfs, which are poor.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 11 to June 7 )

| | | | |
|---|---|---|---|
| 0.2 | 1.8 | 1.0 | 22 |
| .3 | 3.3 | 1.4 | 38 |
| .5 | 7.2 | 1.7 | 52 |
| .7 | 12 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.3 | 5.1 | 3.8 | 2.3 | 2.8 | b2.6 | 2.3 | 7.2 | 37 | 11 | 4.3 | 3.6 |
| 2 | 4.3 | 5.1 | 3.8 | 2.6 | 2.8 | b2.8 | 2.3 | 6.4 | 38 | 11 | 4.3 | 4.9 |
| 3 | *4.3 | 5.1 | 3.8 | 2.2 | 2.8 | 2.9 | *2.3 | 5.7 | 37 | 11 | 4.5 | 4.2 |
| 4 | 4.3 | 5.1 | 3.8 | 2.6 | 2.8 | 2.9 | 2.5 | 7.0 | 36 | 10 | 4.7 | 5.3 |
| 5 | 4.3 | 5.1 | 3.6 | 2.6 | 2.8 | 2.9 | 2.5 | 12 | 41 | 11 | 5.5 | 4.2 |
| 6 | 4.9 | 4.7 | 3.6 | 2.6 | 2.8 | 2.8 | 2.5 | 20 | 46 | 12 | a5.3 | 4.0 |
| 7 | 4.7 | 5.1 | 3.4 | *2.8 | 2.9 | 2.8 | 2.3 | 20 | 40 | 10 | a5.2 | 4.2 |
| 8 | 4.5 | *4.9 | 3.4 | 2.9 | 2.9 | 2.8 | 2.3 | 22 | 25 | 9.1 | a5.0 | 4.2 |
| 9 | 4.3 | 4.7 | 3.4 | 2.9 | 2.9 | 2.8 | 2.3 | 21 | 21 | 8.6 | a4.9 | 4.2 |
| 10 | 4.3 | 4.7 | 3.3 | 2.9 | 2.9 | 2.8 | 2.2 | 23 | 18 | 8.4 | a4.8 | 4.0 |
| 11 | 4.3 | 4.5 | 3.1 | 3.1 | 2.8 | 2.8 | 2.2 | 25 | *25 | 7.9 | a4.7 | 3.8 |
| 12 | 4.7 | 4.5 | 3.1 | 2.8 | 2.8 | *2.8 | 2.2 | *30 | 25 | 7.9 | a4.6 | 3.8 |
| 13 | 4.5 | 4.5 | 2.9 | 2.8 | 2.8 | 2.8 | 2.5 | 29 | 20 | 7.4 | 4.5 | 15 |
| 14 | 4.5 | 4.5 | a2.8 | 2.6 | 2.8 | 2.6 | 2.5 | 27 | 20 | 7.4 | 4.5 | 9.4 |
| 15 | 4.3 | 4.3 | a2.7 | 2.8 | 2.8 | 2.6 | 2.5 | 28 | 19 | 7.4 | 4.5 | 7.0 |
| 16 | 4.3 | 4.3 | a2.6 | 2.8 | 2.8 | 2.6 | 2.8 | 28 | 18 | 7.0 | 5.5 | 5.9 |
| 17 | 4.2 | 4.3 | *2.5 | 2.8 | 2.8 | 2.6 | 2.8 | 28 | 18 | *7.4 | 6.6 | 5.5 |
| 18 | *4.2 | 4.3 | 2.5 | 2.8 | *2.8 | 2.6 | 3.1 | 31 | 18 | 8.4 | 5.5 | *6.8 |
| 19 | 4.2 | 4.9 | 2.3 | 2.9 | 2.8 | 2.5 | 3.8 | 31 | 17 | 8.9 | 5.1 | 7.2 |
| 20 | 4.5 | b5 | 2.2 | 2.9 | 2.8 | 2.5 | 4.5 | 34 | 16 | 7.2 | 5.5 | 5.9 |
| 21 | 4.5 | b5 | 2.2 | 2.9 | 2.8 | 2.6 | 4.9 | 35 | 16 | 6.8 | 5.9 | 5.3 |
| 22 | 4.3 | b4.5 | 2.2 | 2.8 | 2.9 | 2.6 | 4.9 | 36 | 15 | 6.4 | 7.7 | 4.9 |
| 23 | 4.9 | b3.5 | 2.2 | 2.8 | 2.9 | 2.3 | 5.1 | 38 | 15 | 5.9 | 5.9 | 4.5 |
| 24 | 4.5 | b3.8 | 2.2 | 2.9 | 2.9 | 2.3 | 5.7 | 39 | 14 | 5.9 | 5.3 | 4.3 |
| 25 | 4.5 | b3.8 | 2.2 | 2.9 | 2.9 | 2.3 | 7.4 | 44 | 14 | 6.2 | 5.1 | 4.3 |
| 26 | 4.5 | 4.0 | 2.2 | 2.9 | 2.8 | 2.3 | 7.9 | 45 | 13 | 5.9 | *4.9 | 4.0 |
| 27 | 4.3 | 3.8 | 2.2 | 2.9 | b2.7 | 2.3 | 7.9 | 49 | *12 | 5.5 | 4.7 | 4.0 |
| 28 | 4.7 | 3.8 | 2.2 | 2.9 | b2.6 | 2.3 | *7.2 | 49 | 12 | 5.1 | 4.3 | 4.2 |
| 29 | 4.7 | 3.8 | 2.5 | *2.9 | - | 2.5 | 6.4 | 50 | 12 | 5.1 | 4.2 | 3.4 |
| 30 | 4.7 | 3.8 | 2.5 | 2.8 | ------- | 2.3 | 6.8 | 37 | 11 | 5.3 | 4.0 | 3.3 |
| 31 | 4.7 | ------- | 2.3 | 2.8 | ------- | 2.3 | ------- | 38 | ------- | 4.9 | 3.6 | ------- |
| Total | 138.2 | 134.5 | 87.5 | 86.2 | 78.9 | 80.6 | 116.6 | 895.3 | 669 | 242.0 | 155.1 | 155.3 |
| Mean | 4.46 | 4.48 | 2.82 | 2.78 | 2.82 | 2.60 | 3.89 | 28.9 | 22.3 | 7.81 | 5.00 | 5.18 |
| Ac-ft | 274 | 267 | 174 | 171 | 156 | 160 | 231 | 1,780 | 1,330 | 480 | 308 | 308 |

Calendar year 1957: Max 59 Min 1.4 Mean 9.28 Ac-ft 6,720
Water year 1957-58: Max 50 Min 2.2 Mean 7.78 Ac-ft 5,640

Peak discharge (base, 40 cfs).--May 29 (3 p.m.) 63 cfs (1.60 ft); June 7 (4:30 p.m.) 59 cfs (1.60 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.

## 2635. 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, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo).

Records available.--May 1948 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 7,100 ft (from river-profile map).

Average discharge.--10 years, 379 cfs (274,400 acre-ft per year).

Extremes.--Maximum discharge during year, 4,640 cfs May 29 (gage height, 11.72 ft); minimum daily, 67 cfs Sept. 10.
1948-58: Maximum discharge, 9,740 cfs June 22, 1949 (gage height, 15.78 ft); minimum daily, 44 cfs Sept. 20 to Oct. 2, 1956.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Diversions for irrigation of about 626,000 acres above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Dec. 17 to Jan. 7)

| | | | | | |
|---|---|---|---|---|---|
| 1.1 | 42 | 5.0 | 645 | 9.0 | 2,350 |
| 1.5 | 73 | 6.0 | 920 | 10.0 | 3,100 |
| 2.0 | 120 | 7.0 | 1,280 | 11.0 | 3,950 |
| 3.0 | 259 | 8.0 | 1,740 | 11.7 | 4,620 |
| 4.0 | 437 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 128 | 944 | 429 | 395 | 342 | 358 | 355 | 1,370 | 3,990 | a150 | 84 | 76 |
| 2 | 128 | 974 | 424 | 376 | 344 | 369 | 348 | 1,240 | 3,660 | a150 | 81 | 73 |
| 3 | 127 | 960 | 420 | 351 | 344 | 399 | 339 | 1,220 | 3,250 | 151 | 80 | 72 |
| 4 | *124 | 866 | 429 | 348 | 340 | 464 | 330 | 1,190 | 2,790 | 150 | 82 | 72 |
| 5 | 122 | 878 | 441 | 330 | *340 | 503 | 316 | 1,110 | 2,480 | 141 | *85 | 74 |
| 6 | 118 | 941 | 462 | 319 | 348 | 523 | 306 | 1,280 | 1,930 | 135 | 95 | 75 |
| 7 | 129 | 957 | 475 | 312 | 355 | 537 | 294 | 1,680 | 1,520 | 128 | 83 | 71 |
| 8 | 122 | 971 | 491 | *326 | 362 | 517 | 302 | 2,240 | 1,810 | 126 | 78 | 69 |
| 9 | 123 | 1,020 | 497 | 326 | 373 | 519 | 426 | 2,740 | 2,720 | 123 | 76 | 71 |
| 10 | 128 | 1,090 | 495 | 328 | 380 | 499 | 499 | 3,100 | 3,080 | 121 | 76 | 67 |
| 11 | 131 | 911 | 505 | 333 | 386 | 479 | 475 | 3,400 | 3,040 | 116 | 75 | 68 |
| 12 | 135 | 688 | 491 | 337 | 384 | 446 | 410 | 3,580 | 2,500 | 109 | 73 | 68 |
| 13 | 139 | 615 | 469 | 337 | 388 | 403 | 375 | 3,860 | 1,700 | a100 | 73 | 73 |
| 14 | 144 | 581 | 451 | 344 | 401 | 437 | 367 | 3,990 | 1,220 | a90 | 74 | 77 |
| 15 | 152 | 579 | 445 | 335 | 414 | 437 | 403 | 3,650 | 923 | a100 | 76 | 77 |
| 16 | 143 | 635 | 450 | 333 | 403 | 422 | 497 | *3,180 | 794 | *108 | 75 | 77 |
| 17 | 139 | 602 | 469 | 333 | 355 | *418 | 466 | 2,850 | a780 | 123 | 77 | *79 |
| 18 | 139 | 620 | *481 | 331 | 340 | 429 | 401 | 2,860 | *773 | 114 | 86 | 96 |
| 19 | 152 | a580 | 489 | 340 | *360 | 416 | 366 | 2,880 | 662 | 112 | 88 | 102 |
| 20 | 169 | 475 | 477 | 314 | 386 | 399 | 364 | 3,010 | 618 | 109 | 92 | 104 |
| 21 | 184 | 358 | 467 | 309 | 429 | 355 | 638 | 3,040 | 489 | 108 | 88 | 96 |
| 22 | 172 | *280 | 443 | 324 | 460 | 339 | 1,190 | 3,080 | 355 | 106 | 93 | 86 |
| 23 | 159 | 295 | 441 | 316 | 505 | 342 | 1,440 | 3,040 | 302 | 104 | 96 | 84 |
| 24 | 175 | 437 | 443 | 294 | 513 | 344 | 1,660 | 3,000 | 267 | 98 | 88 | 82 |
| 25 | 179 | 491 | 445 | 304 | 511 | 360 | 1,780 | 3,040 | 249 | 93 | 86 | 82 |
| 26 | 176 | 541 | 431 | 312 | 529 | 414 | 1,780 | 3,280 | 220 | 96 | 85 | 82 |
| 27 | 182 | 573 | 408 | 323 | 499 | 475 | 1,600 | 3,800 | a190 | 103 | *84 | 84 |
| 28 | 183 | 573 | 407 | 324 | 386 | 435 | *1,610 | 4,250 | a170 | 100 | 82 | 83 |
| 29 | 197 | 541 | 399 | 331 | - | 397 | 1,610 | 4,560 | a160 | 96 | 80 | 78 |
| 30 | 420 | 460 | 408 | 344 | ------- | 376 | 1,470 | 4,510 | a150 | 93 | 78 | 74 |
| 31 | 863 | ------- | 412 | 344 | ------- | 364 | ------- | 4,390 | ------- | 89 | 78 | ------- |
| Total | 5,580 | 20,436 | 13,994 | 10,273 | 11,177 | 13,175 | 22,417 | 90,420 | 42,792 | 3,542 | 2,547 | 2,372 |
| Mean | 180 | 681 | 451 | 331 | 399 | 425 | 747 | 2,917 | 1,426 | 114 | 82.2 | 79.1 |
| Ac-ft | 11,070 | 40,530 | 27,760 | 20,380 | 22,170 | 26,130 | 44,460 | 179,300 | 84,880 | 7,030 | 5,050 | 4,700 |

Calendar year 1957: Max 3,940 Min 77 Mean 687 Ac-ft 497,500
Water year 1957-58: Max 4,560 Min 67 Mean 654 Ac-ft 473,500

Peak discharge (base, 1,000 cfs).--Nov. 10 (1 p.m.) 1,110 cfs (6.57 ft); Apr. 26 (12 m.) 1,910 cfs (8.28 ft); May 14 (7 a.m.) 4,100 cfs (11.17 ft); May 29 (10:30 a.m.) 4,640 cfs (11.72 ft); June 11 (6 a.m.) 3,160 cfs (10.07 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.

## 2650. 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 1¼ miles upstream from Cabresto Creek and 1.5 miles east of Questa.

Drainage area.--112 sq mi.

Records available.--April to October 1910 and January to September 1911 (gage heights and discharge measurements only), October 1912 to August 1915 (fragmentary), and October 1930 to September 1958 in reports of Geological Survey. October 1912 to December 1931 in reports of State engineer. Published as Rio Colorado above Questa 1910, 1911, 1926-30 and as "near Questa" 1912-15, 1930-47.

Gage.--Water-stage recorder. Wood or concrete control since Mar. 20, 1936. Datum of gage is 7,451.72 ft above mean sea level, datum of 1929. Apr. 5 to Oct. 14, 1910, and Jan. 27 to Sept. 4, 1911, staff gages at sites 1½ and 3½ miles upstream, respectively, each at different datum. Oct. 6, 1912, to Aug. 21, 1920, chain gage at site 200 ft upstream at various datums. Aug. 22, 1920, to June 16, 1921, staff gage at present site at datum 2.29 ft lower. June 17, 1921, to Apr. 30, 1934, water-stage recorder at present site at datum 2.55 ft lower and May 1, 1934, to Oct. 3, 1938, at datum 1.41 ft lower.

Average discharge.--42 years (1915-25, 1926-58), 60.5 cfs (43,800 acre-ft per year).

Extremes.--Maximum discharge during year, 380 cfs May 30 (gage height, 2.31 ft); minimum daily, 6.8 cfs Nov. 23.
1930-58: 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 cfs Dec. 5, 1955.

Remarks.--Records good except those for periods of ice effect, which are poor. Diversions for irrigation of a few hundred acres above station.

Revisions (water years).--WSP 808: 1935. WSP 1392: 1913, 1932, 1941, 1947-48.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.6 | 5.4 | 1.5 | 102 |
| .7 | 9.0 | 1.8 | 178 |
| .9 | 20 | 2.3 | 375 |
| 1.2 | 50 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 32 | 39 | 22 | b18 | 18 | b16 | 22 | 116 | 321 | 92 | 36 | 26 |
| 2 | 32 | 39 | 25 | b20 | 19 | 18 | *23 | 120 | 321 | 88 | 35 | 26 |
| 3 | *32 | 37 | 25 | 22 | 22 | 19 | 22 | 102 | 285 | 82 | 34 | 33 |
| 4 | 31 | 37 | 24 | 27 | 24 | 22 | 22 | 109 | 277 | 79 | 35 | 36 |
| 5 | 32 | 39 | 25 | 29 | 22 | 20 | 19 | 142 | 265 | 79 | 39 | 31 |
| 6 | 35 | 39 | 26 | 24 | 20 | 19 | 22 | 172 | 277 | 92 | *44 | 29 |
| 7 | 32 | *37 | 26 | 25 | 19 | 20 | 24 | 197 | 257 | 75 | 44 | 32 |
| 8 | 32 | 36 | 27 | 25 | 20 | 19 | 23 | 210 | 245 | 70 | 40 | 32 |
| 9 | 31 | 37 | 28 | *25 | 20 | 19 | 22 | 197 | 234 | 68 | 38 | 31 |
| 10 | 30 | 36 | 27 | 21 | 20 | 18 | 22 | 200 | 220 | 65 | 36 | 28 |
| 11 | 30 | 34 | 28 | 22 | 20 | 18 | 22 | 249 | 207 | 62 | 34 | 26 |
| 12 | 34 | 34 | 28 | 22 | 20 | *19 | 22 | 273 | 194 | 60 | 33 | 27 |
| 13 | 34 | 34 | 28 | 19 | 21 | 19 | 19 | 303 | 175 | 58 | 37 | 57 |
| 14 | 33 | 33 | 27 | 22 | 21 | 19 | 21 | *303 | 161 | 56 | 34 | 44 |
| 15 | 32 | 34 | 29 | 19 | 20 | 18 | 26 | 303 | 158 | *54 | 36 | 37 |
| 16 | 31 | 31 | 29 | 20 | 21 | 19 | 31 | 312 | 156 | 53 | 37 | 33 |
| 17 | 31 | 30 | *30 | 20 | 21 | 19 | 32 | 294 | 150 | 54 | 38 | *31 |
| 18 | *30 | 24 | 28 | 21 | *20 | 19 | 35 | 312 | 148 | 58 | 42 | 29 |
| 19 | 38 | 22 | 27 | 21 | 20 | 18 | 49 | 316 | 142 | 65 | 40 | 29 |
| 20 | 42 | *19 | 23 | 19 | 20 | 18 | 59 | 308 | 140 | 54 | 38 | 27 |
| 21 | 45 | 18 | 26 | b14 | 21 | 19 | 74 | 312 | 138 | 50 | 37 | 26 |
| 22 | 49 | b13 | 27 | b15 | 21 | 21 | 90 | 334 | 132 | 48 | 42 | 26 |
| 23 | 42 | 6.8 | 26 | b17 | 21 | 20 | *100 | 330 | 125 | 46 | 37 | 26 |
| 24 | 40 | 15 | 27 | b19 | 22 | 20 | 94 | 334 | 118 | 45 | 36 | 26 |
| 25 | 39 | 21 | 25 | b21 | 22 | 21 | 109 | 344 | 114 | 45 | 34 | 26 |
| 26 | 37 | 27 | 24 | 22 | 21 | 21 | 116 | 339 | *109 | 45 | *32 | 26 |
| 27 | 36 | 28 | 26 | 21 | 16 | 21 | 130 | 339 | 104 | 42 | 31 | 26 |
| 28 | 36 | 26 | 24 | 19 | b15 | 22 | 125 | 344 | 100 | 40 | 31 | 27 |
| 29 | 35 | 28 | 25 | *19 | - | 19 | 107 | 330 | 96 | 42 | 30 | 26 |
| 30 | 35 | 21 | 26 | 22 | ------- | 20 | 102 | 348 | 94 | 39 | 28 | 25 |
| 31 | 37 | ------- | b23 | 21 | ------- | 22 | ------- | 334 | ------- | 38 | 26 | ------- |
| Total | 1,085 | 874.8 | 811 | 651 | 567 | 602 | 1,584 | 8,226 | 5,463 | 1,844 | 1,114 | 904 |
| Mean | 35.0 | 29.2 | 26.2 | 21.0 | 20.2 | 19.4 | 52.8 | 265 | 182 | 59.5 | 35.9 | 30.1 |
| Ac-ft | 2,150 | 1,740 | 1,610 | 1,290 | 1,120 | 1,190 | 3,140 | 16,320 | 10,840 | 3,660 | 2,210 | 1,790 |

Calendar year 1957: Max 326 Min 6.8 Mean 66.2 Ac-ft 47,920
Water year 1957-58: Max 348 Min 6.8 Mean 65.0 Ac-ft 47,060

Peak discharge (base, 160 cfs).--May 30 (1 a.m.) 380 cfs (2.31 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

2665. Llano ditch near Questa, N. Mex.

Location.--Lat 36°43'45", long 105°33'00", in SE¼ sec. 21, T. 29 N., R. 13 E., on left bank 150 ft downstream from heading, 3 ¼ miles northeast of Questa, and 3¾ miles upstream from mouth of Cabresto Creek.

Records available.--September 1943 to September 1958 (no winter records).

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 7,877 ft above mean sea level (river-profile survey).

Extremes.--1943-58: Maximum daily discharge recorded, 42 cfs June 6, 7, 1958; no flow at times.

Remarks.--Records good. 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 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 1.0 | 0 | 0.22 | 14 |
| November | - | - | - | - |
| December | - | - | - | - |
| Calendar year 1957 | - | - | - | - |
| January | - | - | - | - |
| February | - | - | - | - |
| March | - | - | - | - |
| April | 0 | 0 | 0 | 0 |
| May | 33 | 0 | 10.2 | 625 |
| June | 42 | 10 | 27.8 | 1,650 |
| July | 8.3 | 0 | 1.73 | 107 |
| August | 0 | 0 | 0 | 0 |
| September | 0 | 0 | 0 | 0 |
| Water year 1957-58 | - | - | - | - |

## 2660. 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, 2½ miles downstream from Lake Fork, 3 miles northeast of Questa, and 3½ miles upstream from mouth.

Drainage area.--36.3 sq mi.

Records available.--September 1943 to September 1958.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 7,845 ft above mean sea level (river-profile survey).

Average discharge.--15 years, 10.6 cfs (7,670 acre-ft per year).

Extremes.--Maximum discharge during year, 157 cfs May 16 (gage height, 4.27 ft); minimum daily, 4.8 cfs Feb. 28.
1943-58: Maximum discharge, 176 cfs June 8, 1957 (gage height, 4.44 ft); minimum daily, 1.2 cfs Dec. 9, 1956.
The high water of May 25, 1942, reached a stage of 4.18 ft (discharge probably exceeded 200 cfs).

Remarks.--Records fair except those for periods of doubtful or no gage-height record, which are poor. Llano ditch (the only diversion above station) diverts from right bank a quarter of a mile above gage for irrigation of about 800 acres below. Flow regulated by Cabresto Reservoir (capacity, 732 acre-ft) on Lake Fork 1 mile above its mouth.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 2 to July 31, Sept. 6-30)

| | | | | | |
|---|---|---|---|---|---|
| 0.4 | 4.5 | 1.5 | 25 | 3.0 | 70 |
| .6 | 7.4 | 2.0 | 38 | 3.5 | 96 |
| .8 | 11 | 2.5 | 52 | 4.2 | 150 |
| 1.1 | 16 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 11 | 8.7 | 5.9 | a5.5 | 5.8 | 7.0 | 37 | 51 | 17 | 8.0 | 7.7 |
| 2 | 10 | 11 | 9.3 | 6.4 | a5.5 | 6.2 | *7.2 | 41 | 38 | 17 | 8.0 | 7.7 |
| 3 | 10 | 11 | 8.7 | 7.2 | a6 | 6.0 | 7.0 | 38 | 32 | 17 | 8.0 | 9.1 |
| 4 | 9.7 | 11 | 8.8 | 7.6 | a7 | 7.0 | 7.0 | 37 | 28 | 16 | 8.4 | 9.2 |
| 5 | 9.7 | 11 | 9.0 | 7.4 | a7 | 6.8 | 5.8 | 47 | d24 | 16 | 9.2 | 8.4 |
| 6 | 9.7 | 11 | 9.0 | 7.2 | a6.5 | 6.6 | 6.0 | 66 | d22 | 17 | *9.0 | 8.4 |
| 7 | 9.8 | *10 | 8.4 | *7.7 | a6.5 | 6.5 | 6.5 | 95 | d19 | 16 | 8.7 | 8.4 |
| 8 | 9.3 | 10 | 8.4 | 7.1 | a6.5 | 6.5 | 6.4 | 90 | 19 | 16 | 8.5 | 8.7 |
| 9 | 9.5 | 10 | 8.2 | 7.1 | a6.5 | 6.5 | 6.4 | 82 | 18 | 17 | 7.9 | 8.7 |
| 10 | 9.2 | 9.8 | 8.4 | 7.0 | a6.5 | 6.4 | 6.8 | 90 | *17 | 18 | 7.6 | 8.5 |
| 11 | 9.2 | 11 | 7.9 | 7.0 | a6.5 | 6.0 | 7.2 | 100 | 16 | 17 | 7.6 | 9.0 |
| 12 | 10 | 12 | 7.9 | 6.8 | a6.5 | *6.2 | 7.1 | 120 | 15 | 16 | 7.9 | 8.5 |
| 13 | 11 | 12 | 8.0 | 6.6 | a6.5 | 6.4 | 5.9 | 127 | 16 | 15 | 7.9 | 12 |
| 14 | 10 | 11 | 8.2 | a6.5 | a6.5 | 6.2 | 6.2 | 128 | 19 | *15 | 8.0 | 9.7 |
| 15 | 10 | 11 | 8.2 | a6.5 | a6.5 | 6.2 | 7.7 | 136 | 18 | 15 | 8.2 | 9.2 |
| 16 | 10 | 11 | 8.2 | a6.5 | a6.5 | 6.4 | 9.5 | *145 | 17 | 15 | 7.9 | 9.2 |
| 17 | 10 | 9.8 | *8.0 | a6.5 | a6.5 | 5.8 | 10 | 141 | 17 | 14 | 7.7 | *9.2 |
| 18 | *10 | 9.2 | 8.0 | a7 | *6.5 | 5.6 | 12 | 134 | 17 | 14 | 8.5 | 8.8 |
| 19 | 11 | 7.6 | 8.0 | a7 | 6.5 | 5.5 | 16 | 130 | 17 | 15 | 8.5 | 8.7 |
| 20 | 12 | *8.0 | 7.4 | a6.5 | 6.6 | 5.5 | 21 | 122 | 17 | 13 | 8.4 | 8.7 |
| 21 | 11 | 8.8 | 7.9 | a5.5 | 6.8 | 6.2 | 26 | 119 | 17 | 12 | 8.5 | 9.5 |
| 22 | 12 | 7.0 | 8.2 | a5.5 | 7.0 | 6.5 | 29 | 118 | 17 | 12 | 10 | 9.5 |
| 23 | 11 | 8.0 | 8.0 | a6 | 7.2 | 6.4 | *34 | 113 | 17 | 11 | 9.0 | 9.0 |
| 24 | 11 | 9.8 | 8.0 | a6 | 7.2 | 6.4 | 34 | 114 | 17 | 10 | 8.4 | 8.8 |
| 25 | 11 | 10.0 | 8.0 | a6 | 7.4 | 6.5 | 36 | 112 | 17 | 9.8 | 8.2 | 8.8 |
| 26 | 11 | 9.8 | 7.7 | a6 | 7.0 | 6.4 | 40 | 106 | *17 | 9.7 | *7.9 | 8.8 |
| 27 | 10 | 10 | 7.9 | a6 | 5.9 | 6.4 | 42 | 103 | 17 | 9.5 | 7.9 | 9.2 |
| 28 | 10 | 8.2 | 7.6 | *5.9 | 4.8 | 6.8 | 43 | 91 | 16 | 9.2 | 7.9 | 9.2 |
| 29 | 11 | 7.9 | 7.9 | 6.0 | - | 6.0 | 39 | 78 | 17 | 8.8 | 7.9 | 9.2 |
| 30 | 11 | 7.1 | 7.9 | a6 | ------- | 6.2 | 36 | 72 | 17 | 9.2 | 7.9 | 9.0 |
| 31 | 11 | ------- | 6.5 | a6 | ------- | 6.8 | ------- | 66 | ------- | 8.8 | 7.7 | ------- |
| Total | 320.1 | 295.0 | 252.3 | 202.4 | 181.9 | 194.7 | 527.7 | 2,998 | 606 | 426.0 | 255.2 | 268.8 |
| Mean | 10.3 | 9.83 | 8.14 | 6.53 | 6.50 | 6.28 | 17.6 | 96.7 | 20.2 | 13.7 | 82.3 | 8.96 |
| Ac-ft | 635 | 585 | 500 | 401 | 361 | 386 | 1,050 | 5,950 | 1,200 | 845 | 506 | 533 |

Calendar year 1957: Max 146 Min 1.6 Mean 15.0 Ac-ft 10,850
Water year 1957-58: Max 145 Min 4.8 Mean 17.9 Ac-ft 12,950

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 2 discharge measurements, weather records, and records for nearby stations.
d Doubtful gage-height record; discharge estimated on basis of weather records and records for nearby stations.

## 2670. 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 1958.

Gage.--Water-stage recorder. Altitude of gage is 6,600 ft (from topographic map).

Average discharge.--7 years (1951-58), 87.9 cfs (63,640 acre-ft per year).

Extremes.--Maximum discharge during year, 523 cfs May 19 (gage height, 5.44 ft); minimum daily, 49 cfs Feb. 28.
1950-58: Maximum discharge, 647 cfs Jan. 18, 1953 (gage height, 5.72 ft); minimum daily, 38 cfs Feb. 2, 1951, Jan. 6, 23, Feb. 20, 22, 1955.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Diversions for irrigation of about 3,000 acres above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.8 | 43 | 3.5 | 212 |
| 2.0 | 59 | 4.0 | 279 |
| 2.3 | 84 | 4.5 | 358 |
| 2.6 | 113 | 5.0 | 446 |
| 3.0 | 154 | 5.5 | 547 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 70 | 85 | 63 | 53 | 53 | 51 | 55 | 188 | 394 | a120 | 69 | 66 |
| 2 | 69 | 83 | 68 | 55 | 54 | 52 | 57 | *199 | 368 | a115 | 69 | 65 |
| 3 | 68 | 81 | 69 | 59 | 57 | 53 | 56 | 182 | 350 | *111 | 67 | 66 |
| 4 | 66 | 81 | 69 | 63 | 61 | 57 | 57 | 180 | 339 | 108 | 70 | 67 |
| 5 | 66 | 88 | 69 | 67 | *60 | 56 | 53 | 218 | 330 | 106 | 75 | 67 |
| 6 | 68 | 86 | 71 | 62 | 57 | 55 | 55 | 266 | 336 | 115 | 81 | 65 |
| 7 | 67 | 83 | 69 | 62 | 55 | 55 | 59 | 309 | 323 | 107 | *82 | 67 |
| 8 | *66 | 80 | 71 | 63 | 56 | 55 | 61 | 339 | 320 | 105 | 81 | 66 |
| 9 | 66 | 80 | 72 | 63 | 55 | 55 | 60 | a330 | 294 | 103 | 77 | 65 |
| 10 | 66 | 80 | 72 | 61 | 55 | 53 | 59 | a330 | 276 | 95 | 75 | 63 |
| 11 | 67 | 78 | 70 | 61 | 55 | 54 | 59 | a370 | 259 | 93 | 73 | 62 |
| 12 | 70 | 80 | 69 | 61 | 54 | 54 | 59 | a400 | 243 | 91 | 70 | 63 |
| 13 | 70 | 80 | 71 | *57 | 56 | 54 | 56 | a450 | 229 | 84 | 72 | 92 |
| 14 | 69 | 79 | 71 | 62 | 55 | 54 | 58 | a460 | 217 | 78 | 75 | 82 |
| 15 | 70 | 79 | 71 | 57 | 54 | 54 | 61 | a470 | 202 | 77 | 73 | 73 |
| 16 | 69 | 79 | 73 | 61 | 55 | 55 | 65 | *475 | 184 | 77 | 74 | *71 |
| 17 | 69 | 77 | 73 | 62 | 55 | 55 | 68 | 467 | *182 | 77 | 73 | 69 |
| 18 | 69 | 71 | 72 | 63 | 55 | *54 | 70 | 471 | 178 | 82 | 77 | 67 |
| 19 | 89 | 62 | *72 | 62 | 55 | 53 | 84 | 490 | 175 | 94 | 82 | 67 |
| 20 | 93 | *64 | 65 | 61 | 55 | 53 | 100 | 452 | 170 | 86 | 80 | 64 |
| 21 | 103 | 62 | 68 | 51 | 56 | 53 | 117 | 448 | 169 | 82 | 77 | 64 |
| 22 | 113 | 53 | 70 | 51 | 56 | 55 | 137 | 457 | 165 | 83 | 85 | 63 |
| 23 | 93 | 52 | 69 | 56 | 56 | 55 | 154 | 452 | 163 | 86 | 80 | 61 |
| 24 | 90 | 57 | 69 | 57 | *56 | 55 | 154 | 461 | 157 | 86 | 78 | 61 |
| 25 | 89 | 64 | 68 | 62 | 57 | 55 | 170 | 459 | a150 | 80 | 75 | 61 |
| 26 | 86 | 69 | 65 | 61 | 56 | 55 | 189 | 456 | a145 | 77 | 73 | 59 |
| 27 | 83 | 71 | 67 | 61 | 52 | 54 | 208 | 463 | a140 | 73 | *71 | 60 |
| 28 | 84 | 65 | 64 | 59 | 49 | 56 | 206 | 452 | a135 | 72 | 70 | 61 |
| 29 | 83 | 69 | 66 | 57 | - | 53 | 187 | 448 | a130 | 72 | 71 | 62 |
| 30 | 83 | 64 | 67 | 60 | ------- | 54 | 172 | 450 | a125 | 71 | 70 | 61 |
| 31 | 82 | ------- | 61 | 57 | ------- | 55 | ------- | 428 | ------- | 70 | 68 | ------- |
| Total | 2,396 | 2,202 | 2,134 | 1,847 | 1,550 | 1,682 | 2,946 | 12,020 | 6,848 | 2,776 | 2,313 | 1,980 |
| Mean | 77.3 | 73.4 | 68.8 | 59.6 | 55.4 | 54.3 | 98.2 | 388 | 228 | 89.5 | 74.6 | 66.0 |
| Ac-ft | 4,750 | 4,370 | 4,230 | 3,660 | 3,070 | 3,340 | 5,840 | 23,840 | 13,580 | 5,510 | 4,590 | 3,930 |

Calendar year 1957: Max 510 Min 42 Mean 109 Ac-ft 79,120
Water year 1957-58: Max 490 Min 49 Mean 111 Ac-ft 80,710

Peak discharge (base, 220 cfs).--Apr. 27 (11 p.m.) 226 cfs (3.66 ft); May 19 (2 a.m.) 523 cfs (5.44 ft).

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

## 2675. Rio Hondo near Valdez, N. Mex.

Location.--Lat 36°32'30", long 105°33'20", in S½ sec. 28, T. 27 N., R. 13 E. (projected), on left bank 500 ft upstream from first diversion, a quarter of a mile upstream from Forest Service gate, 1½ miles east of Valdez, 4 miles downstream from South Fork, and 9 miles upstream from mouth.

Drainage area.--38 sq mi, approximately.

Records available.--August 1934 to September 1958.

Gage.--Water-stage recorder. Concrete control since Oct. 28, 1938. Altitude of gage is 7,700 ft (from topographic map). Prior to Oct. 28, 1938, at datum 1.92 ft lower.

Average discharge.--24 years, 39.0 cfs (28,230 acre-ft per year).

Extremes.--Maximum discharge during year, 264 cfs May 24 (gage height, 2.37 ft); minimum daily, 9 cfs Jan. 21, 22.
1934-58: Maximum discharge, 541 cfs May 13, 1941, from rating curve extended above 300 cfs by logarithmic plotting; maximum gage height, 4.05 ft Dec. 15, 1953 (ice jam); minimum daily discharge, 3 cfs Jan. 21, 1935.

Remarks.--Records good except those for periods of ice effect, which are poor. No diversion above station.

Revisions (water years).--WSP 1342: 1935.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 27, 28, June 24-28)

| Oct. 1 to Apr. 3 | | Apr. 4 to Sept. 30 | | | |
|---|---|---|---|---|---|
| 0.7 | 9 | 0.7 | 12 | 1.6 | 108 |
| .8 | 13 | .8 | 18 | 2.0 | 178 |
| 1.0 | 24 | 1.0 | 34 | 2.3 | 241 |
| 1.3 | 49 | 1.3 | 66 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 34 | b20 | b11 | b10 | b10 | 14 | 64 | 219 | 72 | 28 | 22 |
| 2 | 26 | 33 | b20 | b12 | b10 | b11 | 14 | 67 | 232 | *69 | 27 | 22 |
| 3 | 25 | 33 | b19 | b14 | b11 | b12 | *14 | 65 | 237 | 66 | 28 | 22 |
| 4 | 25 | 32 | b18 | 15 | 13 | 13 | 14 | 66 | 230 | 61 | 28 | 22 |
| 5 | 25 | 32 | 19 | 14 | 13 | 13 | 15 | *83 | *232 | 60 | 30 | 22 |
| 6 | 27 | 31 | 19 | *14 | 13 | 13 | 15 | 108 | 217 | 64 | *29 | 22 |
| 7 | 26 | 30 | b18 | 16 | 13 | 13 | 15 | 126 | 206 | 55 | 28 | 23 |
| 8 | 25 | 30 | 18 | 14 | 13 | 13 | 15 | 146 | 202 | 51 | 27 | 22 |
| 9 | 25 | 30 | 18 | 14 | 13 | 13 | 15 | 154 | 184 | 47 | 26 | 22 |
| 10 | *24 | 29 | *b17 | 14 | 13 | *13 | 15 | 157 | 168 | 45 | 24 | 21 |
| 11 | 23 | 29 | b16 | 14 | 13 | 13 | 14 | 163 | 174 | 42 | 24 | 21 |
| 12 | 26 | 29 | b15 | 14 | 13 | 12 | 14 | 172 | 163 | 41 | 25 | 21 |
| 13 | 26 | 29 | b16 | b14 | 13 | 13 | 15 | 192 | 152 | 39 | 24 | 46 |
| 14 | 26 | 28 | b16 | 14 | 13 | 13 | 15 | 186 | 146 | 38 | 24 | 35 |
| 15 | 25 | 27 | 16 | b13 | 13 | 12 | 18 | 184 | 139 | *37 | 24 | 28 |
| 16 | 25 | 26 | 17 | b13 | 13 | 12 | 22 | 190 | 132 | 37 | 24 | 24 |
| 17 | 25 | 26 | 16 | 13 | *13 | 13 | 23 | 206 | 132 | 37 | 25 | 24 |
| 18 | 24 | 25 | 16 | 13 | 13 | 12 | 29 | 208 | 131 | 39 | 25 | *24 |
| 19 | 28 | *b20 | *16 | 13 | 14 | 12 | 43 | *208 | 126 | 39 | 25 | 23 |
| 20 | 32 | b20 | b15 | 13 | 13 | 12 | 54 | 223 | 122 | 35 | 24 | 22 |
| 21 | 34 | b20 | b15 | b9 | 14 | 14 | 60 | 213 | 122 | 34 | 24 | 22 |
| 22 | 41 | b13 | 17 | b9 | 14 | 14 | 70 | 203 | 114 | 32 | 28 | 22 |
| 23 | 36 | b15 | 16 | b10 | 14 | 14 | 72 | 217 | 108 | 32 | 24 | 22 |
| 24 | 34 | b22 | 16 | b10 | 14 | 14 | 71 | 237 | 104 | 31 | 24 | 24 |
| 25 | 33 | 21 | 16 | b12 | 10 | 14 | 72 | 234 | 99 | 31 | 23 | 24 |
| 26 | 30 | 22 | b15 | b12 | b13 | 14 | 74 | 228 | 94 | 31 | *23 | 24 |
| 27 | 29 | 22 | b15 | *b12 | b11 | 14 | 80 | 232 | 90 | 30 | 23 | 23 |
| 28 | 29 | b20 | b15 | b12 | b10 | 14 | 80 | 226 | 85 | 30 | 22 | 24 |
| 29 | 30 | b21 | b16 | b12 | - | 15 | 67 | 219 | 80 | 30 | 22 | 22 |
| 30 | 30 | b20 | 15 | b12 | ------- | 14 | 60 | 221 | 76 | 30 | 22 | 22 |
| 31 | *33 | ------- | b13 | b11 | ------- | 14 | ------- | 228 | ------- | 29 | 22 | ------- |
| Total | 873 | 769 | 514 | 393 | 353 | 403 | 1,099 | 5,426 | 4,516 | 1,314 | 776 | 717 |
| Mean | 28.2 | 25.6 | 16.6 | 12.7 | 12.6 | 13.0 | 36.6 | 175 | 151 | 42.4 | 25.0 | 23.9 |
| Ac-ft | 1,730 | 1,530 | 1,020 | 780 | 700 | 799 | 2,180 | 10,760 | 8,960 | 2,610 | 1,540 | 1,420 |

Calendar year 1957: Max 288 Min 6.3 Mean 52.4 Ac-ft 37,970
Water year 1957-58: Max 237 Min 9 Mean 47.0 Ac-ft 34,030

Peak discharge (base, 100 cfs).--May 24 (2:50 a.m.) 264 cfs (2.37 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

## 2685. 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. (projected), 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 June 1912 (gage heights and discharge measurements only), July 1912 to August 1915, and January 1932 to September 1958 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. Concrete control since Aug. 12, 1938. Altitude of gage is 6,670 ft (from topographic map). Prior to Feb. 29, 1928, staff gage at site 1.1 miles downstream at different datums. Feb. 29 to Dec. 31, 1928, and 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.--26 years (1932-58), 28.0 cfs (20,270 acre-ft per year).

Extremes.--Maximum discharge during year, 259 cfs May 26 (gage height, 2.60 ft); minimum daily, 7.0 cfs Aug. 11-12.
1932-58: Maximum gage height, 5.45 ft (site and datum then in use) Aug. 23, 1935 (discharge uncertain); minimum daily discharge, 4.0 cfs July 13-16, 1934.

Remarks.--Records good below 50 cfs and fair above except those for periods of doubtful gage-height record, which are poor. Diversions above station for irrigation of about 2,500 acres, most of which is outside of basin.

Revisions (water years).--WSP 1342: 1915, 1932(M), 1934-38(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 29 to Nov. 18, May 3-6)

| | | | |
|---|---|---|---|
| 0.8 | 7 | 1.5 | 45 |
| .9 | 10 | 1.8 | 81 |
| 1.1 | 18 | 2.1 | 137 |
| 1.3 | 29 | 2.5 | 253 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 46 | 27 | 18 | 18 | d18 | d15 | 66 | 166 | 26 | 8.8 | 18 |
| 2 | 25 | 48 | 28 | 19 | 18 | d19 | *14 | 66 | 172 | *25 | 8.8 | 17 |
| 3 | 25 | 50 | 27 | 21 | 20 | d20 | 14 | 63 | 163 | 25 | 8.5 | 16 |
| 4 | 25 | 48 | 26 | 22 | 20 | 21 | 14 | 66 | 160 | 24 | 8.2 | 16 |
| 5 | 25 | 52 | 28 | 23 | 20 | 20 | 14 | *74 | 153 | 25 | 8.8 | 16 |
| 6 | 25 | 50 | 28 | *22 | 20 | 20 | 14 | 111 | 178 | 25 | *7.9 | 13 |
| 7 | 25 | *48 | 26 | 22 | 18 | 20 | 18 | 128 | 155 | 24 | 7.9 | 9.1 |
| 8 | 25 | 44 | 27 | 22 | 19 | 20 | 19 | 128 | 147 | 24 | 7.6 | 8.8 |
| 9 | 27 | 43 | 26 | 22 | 19 | 20 | 18 | 135 | *145 | 23 | 7.3 | 9.7 |
| 10 | 27 | 42 | 25 | 22 | 19 | 18 | 18 | 126 | 126 | 20 | 7.3 | 9.7 |
| 11 | 26 | 41 | 24 | 22 | 18 | 18 | 18 | 124 | 106 | 17 | 7.0 | 8.5 |
| 12 | 28 | 42 | 24 | 22 | 18 | 20 | 18 | 147 | 102 | 16 | 7.0 | 8.5 |
| 13 | 31 | 40 | 24 | 20 | 18 | 20 | 18 | 169 | 94 | 16 | 7.9 | 25 |
| 14 | 30 | 41 | 24 | 22 | 18 | 18 | 18 | *184 | 87 | 14 | 12 | 22 |
| 15 | 29 | 40 | 24 | 19 | 18 | 18 | 18 | 175 | 78 | 12 | 8.2 | 20 |
| 16 | *28 | 40 | 24 | 20 | 18 | 18 | 20 | 160 | 74 | 12 | 7.3 | 20 |
| 17 | 28 | 37 | 24 | 20 | *18 | 18 | 21 | 163 | 70 | *12 | 7.6 | 19 |
| 18 | 27 | 37 | *24 | 20 | 20 | *18 | 24 | 190 | 66 | 13 | 12 | *20 |
| 19 | 41 | 31 | 24 | 20 | 20 | 17 | 41 | 181 | 62 | 11 | 18 | 19 |
| 20 | 42 | 31 | 21 | 20 | 20 | 17 | 60 | 181 | 61 | 9.7 | 24 | 18 |
| 21 | 53 | 31 | 23 | 16 | 20 | 18 | 66 | 190 | 59 | 9.7 | 22 | 14 |
| 22 | 60 | 23 | 24 | 16 | 20 | 18 | 70 | 202 | 55 | 10 | 26 | 11 |
| 23 | 50 | 25 | 24 | 18 | 20 | 18 | 73 | 211 | 51 | 9.7 | 21 | 11 |
| 24 | 48 | 34 | 24 | 18 | 21 | 18 | 67 | 226 | 48 | 9.7 | 19 | 11 |
| 25 | 48 | 32 | 23 | 21 | 22 | 18 | 68 | 220 | 42 | 10 | 19 | 11 |
| 26 | 43 | 30 | 22 | 20 | 21 | 18 | 74 | 250 | 36 | 10 | *21 | 12 |
| 27 | 40 | 28 | 24 | *20 | d19 | 18 | 83 | 232 | 34 | 9.7 | 19 | 12 |
| 28 | 40 | 28 | 22 | 20 | d17 | 18 | 86 | 187 | 31 | 9.4 | 18 | 12 |
| 29 | 43 | 29 | 24 | 20 | - | 16 | 71 | 166 | 29 | 9.1 | 18 | 12 |
| 30 | 42 | 26 | 23 | 20 | ------- | d16 | 63 | 166 | 27 | 9.1 | 18 | 12 |
| 31 | 43 | ------- | 20 | 20 | ------- | d15 | ------- | 175 | ------- | 9.1 | 18 | ------- |
| Total | 1,075 | 1,137 | 758 | 627 | 537 | 569 | 1,135 | 4,862 | 2,777 | 479.2 | 411.1 | 431.3 |
| Mean | 34.7 | 37.9 | 24.5 | 20.2 | 19.2 | 18.4 | 37.8 | 157 | 92.6 | 15.5 | 13.3 | 14.4 |
| Ac-ft | 2,130 | 2,260 | 1,500 | 1,240 | 1,070 | 1,130 | 2,250 | 9,640 | 5,510 | 950 | 815 | 855 |

Calendar year 1957: Max 288 Min 6.5 Mean 44.1 Ac-ft 31,950
Water year 1957-58: Max 250 Min 7.0 Mean 40.5 Ac-ft 29,350

Peak discharge (base, 100 cfs).--Oct. 21 (7:30 p.m.) 106 cfs (1.87 ft); May 26 (3 p.m.) 259 cfs (2.60 ft).

* Discharge measurement made on this day.
d Doubtful gage-height record; discharge estimated on basis of available fragments of recorder trace, reconstructed recorder graph, weather records, and records for nearby stations.

## 2753. Rio Pueblo de Taos near Ranchito, N. Mex.

Location.--Lat 36°23'30", long 105°37'30", on left bank 300 ft downstream from Rio Fernando de Taos and 2 miles southwest of Ranchito, Taos County.

Drainage area.--199 sq mi.

Records available.--March 1957 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 6,730 ft (from topographic map).

Extremes.--Maximum discharge during year, 600 cfs May 13 (gage height, 3.72 ft); minimum daily, 4.0 cfs July 25, Aug. 4.
1957-58: Maximum discharge, that of May 13, 1957; minimum, that of July 25, Aug. 4, 1957.

Remarks.--Records good except those for period of ice effect, which are poor. Diversions for irrigation of about 9,000 acres above station. Anderson ditch diverts from right bank about 125 ft below gage.

Rating tables, water year 1957-58, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 6-15)

| Oct. 1 to May 5 | | | | May 6 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.5 | 9.0 | 2.3 | 80 | 1.2 | 2.7 | 2.5 | 200 |
| 1.6 | 14 | 2.6 | 134 | 1.3 | 6.9 | 3.0 | 360 |
| 1.8 | 28 | 2.9 | 209 | 1.5 | 20 | 3.5 | 580 |
| 2.0 | 44 | 3.3 | 365 | 2.0 | 88 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 66 | 38 | b29 | b24 | 30 | 35 | 250 | 279 | 24 | 5.2 | 12 |
| 2 | *13 | 62 | 40 | b29 | b24 | 29 | 40 | 280 | 273 | *24 | 5.2 | 11 |
| 3 | 13 | 61 | 36 | b29 | b25 | *28 | 37 | 272 | 267 | 24 | 4.4 | 10 |
| 4 | 13 | 59 | 36 | b28 | 25 | 32 | 37 | 246 | *246 | 18 | 4.0 | 10 |
| 5 | 13 | 70 | *40 | b28 | 26 | 31 | 33 | *288 | 234 | 16 | 6.1 | 10 |
| 6 | 15 | 65 | 40 | b28 | 25 | 30 | 35 | 320 | 231 | 15 | 6.1 | 11 |
| 7 | 15 | 69 | 38 | b28 | 23 | 31 | 40 | 376 | 218 | 14 | 6.5 | 11 |
| 8 | 15 | 65 | 40 | b28 | 24 | 30 | 49 | 460 | 218 | 11 | 6.1 | *12 |
| 9 | 15 | 58 | 39 | b28 | 24 | 28 | 51 | 460 | 205 | 10 | 6.1 | 12 |
| 10 | 15 | 55 | 36 | *b28 | 25 | 25 | 47 | 460 | 185 | 10 | 6.1 | 12 |
| 11 | 15 | 54 | 35 | b28 | 24 | 23 | 44 | 432 | 160 | 8.6 | 5.2 | 11 |
| 12 | 24 | 55 | 36 | b27 | 23 | 27 | 42 | 472 | 140 | 8.6 | 5.6 | 11 |
| 13 | 26 | 52 | 36 | b27 | 25 | 28 | 40 | 530 | 125 | 9.1 | *7.5 | 48 |
| 14 | 24 | 51 | 34 | b27 | 25 | 28 | 40 | 460 | 121 | 8.0 | 7.5 | 22 |
| 15 | *24 | 50 | 33 | b27 | 24 | 26 | 47 | 416 | 115 | *8.0 | 8.0 | 20 |
| 16 | 23 | 49 | 37 | b26 | 24 | 28 | 66 | 416 | 109 | 8.0 | 9.7 | 17 |
| 17 | 24 | 53 | 39 | b25 | *23 | 29 | *74 | 408 | 100 | 6.9 | 10 | 16 |
| 18 | 23 | 49 | *37 | b23 | 26 | 28 | 86 | 400 | *90 | 6.9 | 11 | 15 |
| 19 | 160 | *40 | 34 | b22 | 27 | 25 | 154 | 396 | 85 | 8.6 | 15 | *15 |
| 20 | 132 | 40 | 33 | b22 | 28 | 25 | 222 | 388 | 80 | 6.5 | 12 | 15 |
| 21 | 96 | 40 | 33 | b22 | 28 | 28 | *261 | 360 | 77 | 6.1 | 15 | 14 |
| 22 | 152 | 41 | 34 | b23 | 30 | 32 | 308 | 356 | 72 | 5.2 | 26 | 14 |
| 23 | 82 | 38 | 33 | b24 | 29 | 35 | 342 | 344 | 67 | 4.8 | 17 | 14 |
| 24 | 66 | 42 | 33 | b24 | 31 | *33 | 300 | 352 | 62 | 4.4 | 15 | 13 |
| 25 | 61 | 45 | 33 | b24 | 43 | 36 | 300 | 344 | 55 | 4.0 | 14 | 12 |
| 26 | 58 | 47 | 33 | b24 | 45 | 33 | 329 | 344 | 45 | 4.4 | 12 | 13 |
| 27 | 54 | 48 | 31 | b24 | 33 | 32 | 338 | 352 | 42 | 5.2 | 12 | 15 |
| 28 | 52 | 45 | 32 | *b23 | 30 | 36 | 324 | 340 | 37 | *5.2 | 12 | 16 |
| 29 | 52 | 42 | 32 | b24 | - | 33 | 272 | 340 | 32 | 6.1 | 12 | 31 |
| 30 | 52 | 40 | 33 | b24 | ------- | 32 | 239 | 340 | 28 | 5.2 | 12 | 25 |
| 31 | 54 | ------- | 30 | b24 | ------- | 34 | ------- | 306 | ------- | 5.2 | 11 | ------- |
| Total | 1,397 | 1,551 | 1,094 | 797 | 763 | 925 | 4,234 | 11,508 | 3,998 | 301.0 | 305.3 | 468 |
| Mean | 45.1 | 51.7 | 35.3 | 25.7 | 27.2 | 29.8 | 141 | 371 | 133 | 9.71 | 9.85 | 15.6 |
| Ac-ft | 2,770 | 3,080 | 2,170 | 1,580 | 1,510 | 1,830 | 8,400 | 22,830 | 7,930 | 597 | 606 | 928 |

Calendar year 1957: Max - Min - Mean - Ac-ft -
Water year 1957-58: Max 530 Min 4.0 Mean 74.9 Ac-ft 54,230

Peak discharge (base, 130 cfs).--Oct. 19 (11 a.m.) 442 cfs (3.44 ft); Oct. 22 (5 a.m.) 201 cfs (2.84 ft); May 13 (5 a.m.) 600 cfs (3.72 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

## 2755. Rio Grande de Ranchos near Talpa, N. Mex.

Location.--Lat 36°17'55", long 105°34'55", in Rancho del Rio Grande Grant, on right bank 1¾ miles downstream from Pot Creek, 3.5 miles upstream from Rio Chiquito, and 3.0 miles south of Talpa.

Drainage area.--83 sq mi, approximately.

Records available.--October 1952 to September 1958. Prior to October 1955, published as Rio Grande del Rancho near Ranchos de Taos.

Gage.--Water-stage recorder. Altitude of gage is 7,250 ft (from topographic map). Prior to Nov. 11, 1952, staff gage at site 35 ft downstream at datum 0.39 ft lower.

Average discharge.--6 years, 19.6 cfs (14,190 acre-ft per year).

Extremes.--Maximum discharge during year, 342 cfs May 19 (gage height, 3.78 ft); minimum daily, 6 cfs Feb. 6-12.
1952-58: Maximum discharge, that of May 19, 1958; minimum daily, 0.6 cfs Jan. 5, 1955.

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. Minor diversions upstream for operation of sawmill and for irrigation.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 29, 30, May 2-17, May 29 to June 10)

| Oct. 1 to Apr. 30 | | | | May 1 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.47 | 1.4 | 2.3 | 39 | 1.5 | 6.1 | 2.4 | 62 |
| 1.5 | 1.8 | 2.6 | 70 | 1.6 | 9.0 | 2.7 | 99 |
| 1.6 | 3.3 | 3.0 | 132 | 1.7 | 12 | 3.0 | 147 |
| 1.8 | 9.0 | 3.4 | 220 | 1.9 | 22 | 3.4 | 235 |
| 2.0 | 18 | | | 2.1 | 35 | 3.8 | 348 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 12 | b10 | b10 | b7 | b10 | 14 | 159 | 153 | 25 | 11 | 9.7 |
| 2 | 9.8 | 11 | b11 | b10 | b8 | b10 | 15 | 167 | 138 | 25 | 15 | 9.7 |
| 3 | 9.4 | 11 | b12 | b10 | b8 | b9 | 16 | 171 | 132 | 28 | 13 | 9.7 |
| 4 | 9.0 | 11 | b13 | b10 | 8.3 | b10 | 16 | 167 | 127 | 25 | 13 | 9.4 |
| 5 | 9.0 | 11 | 14 | b10 | 7.0 | b9 | 15 | 179 | 117 | 24 | 14 | 9.4 |
| 6 | 11 | 11 | 12 | b10 | 6.0 | 7.7 | 15 | 194 | 138 | 24 | 13 | 11 |
| 7 | 11 | 11 | b11 | a10 | b6 | 7.4 | 17 | 210 | 157 | 23 | 15 | 16 |
| 8 | 9.8 | 12 | b10 | a10 | a6 | 7.4 | 18 | 240 | 144 | 21 | 12 | 12 |
| 9 | 9.8 | 11 | b10 | a10 | a6 | b7 | 17 | 235 | 128 | 20 | 12 | 11 |
| 10 | 9.4 | 11 | b10 | a10 | 6.0 | b8 | 17 | 220 | 111 | 20 | 12 | 12 |
| 11 | 9.4 | 10 | b10 | a10 | 6.0 | b8 | 17 | 235 | 95 | 18 | 11 | 14 |
| 12 | 14 | 11 | b10 | a10 | b6 | b8 | 15 | 252 | 81 | 18 | 14 | 11 |
| 13 | 15 | 11 | b10 | a10 | 6.4 | b8 | 14 | 260 | 74 | 18 | 12 | 18 |
| 14 | 13 | 11 | b10 | a10 | b7 | 8.0 | 15 | 250 | 70 | 17 | 11 | 18 |
| 15 | 12 | 11 | b10 | a10 | b7 | 8.0 | 21 | 252 | 65 | 17 | 11 | 14 |
| 16 | 12 | 11 | 10 | a10 | b7 | 9.0 | 24 | 280 | 60 | 17 | 11 | 12 |
| 17 | 12 | 11 | 9.8 | a9 | b7 | 9.0 | 27 | 306 | 57 | 16 | 12 | 11 |
| 18 | 12 | b10 | 9.8 | a9 | b7 | 9.0 | 35 | 315 | 54 | 19 | 14 | 10 |
| 19 | 28 | b10 | b10 | a8 | b7 | 9.0 | 56 | 324 | 50 | 22 | 15 | 10 |
| 20 | 24 | b10 | b10 | a8 | 8.0 | 9.8 | 77 | 300 | 48 | 18 | 14 | 9.7 |
| 21 | 23 | b10 | b10 | a8 | 9.0 | 12 | 90 | 260 | 47 | 16 | 16 | 9.4 |
| 22 | 29 | b10 | b10 | a9 | 9.8 | 14 | 107 | 232 | 41 | 15 | 18 | 9.4 |
| 23 | 21 | b10 | b10 | b9 | 10 | 14 | 112 | 210 | 39 | 13 | 16 | 9.0 |
| 24 | 18 | b11 | b10 | b9 | 11 | 14 | 112 | 220 | 37 | 13 | 13 | 9.0 |
| 25 | 17 | b11 | b10 | a9 | 12 | 14 | 120 | 238 | 34 | 13 | 12 | 8.7 |
| 26 | 15 | b11 | b10 | a8 | 12 | 14 | 134 | 218 | 32 | 13 | 11 | 8.7 |
| 27 | 14 | b11 | b10 | a8 | b10 | 14 | 145 | 212 | 32 | 12 | 11 | 9.0 |
| 28 | 14 | b11 | b10 | a8 | b10 | 14 | 157 | 201 | 31 | 12 | 11 | 10 |
| 29 | 14 | b11 | b10 | a8 | - | 12 | 151 | 187 | 29 | 12 | 11 | 9.7 |
| 30 | 13 | b10 | b10 | a8 | ------- | 13 | 151 | 185 | 27 | 12 | 10 | 9.0 |
| 31 | 13 | ------- | b10 | a7 | ------- | 14 | ------- | 173 | ------- | 11 | 10 | ------- |
| Total | 441.6 | 324 | 322.6 | 285 | 220.5 | 320.3 | 1,740 | 7,052 | 2,348 | 557 | 394 | 329.5 |
| Mean | 14.2 | 10.8 | 10.4 | 9.19 | 7.88 | 10.3 | 58.0 | 227 | 78.3 | 18.0 | 12.7 | 11.0 |
| Ac-ft | 876 | 643 | 640 | 565 | 437 | 635 | 3,450 | 13,990 | 4,660 | 1,100 | 781 | 654 |

Calendar year 1957: Max 200 Min 2.1 Mean 34.1 Ac-ft 24,710
Water year 1957-58: Max 324 Min 6.0 Mean 39.3 Ac-ft 28,430

Peak discharge (base, 75 cfs).--May 19 (11:30 a.m.) 342 cfs (3.71 ft); June 7 (2:30 p.m.) 165 cfs (3.22 ft).

a No gage-height record; discharge estimated on basis of discharge measurements, weather records, and records for nearby stations.
b Stage-discharge relation affected by ice.

## 2756. Rio Chiquito near Talpa, N. Mex.

Location.--Lat 36°19'50", long 105°34'50", on right bank in Rancho del Rio Grande Grant, 1 mile southeast of Talpa, Taos County, and 1¼ miles upstream from mouth.

Drainage area.--37.0 sq mi.

Records available.--March 1957 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 7,230 ft (from topographic map).

Extremes.--Maximum discharge during year, about 144 cfs May 13 (gage height, 2.24 ft), from rating curve extended above about 50 cfs by logarithmic plotting; minimum daily, 1.7 cfs Nov. 22.
1957-58: Maximum discharge, that of May 13, 1958; minimum daily, that of Nov. 22, 1957.

Remarks.--Records fair except those for periods of ice effect, indefinite stage-discharge relation, or no gage-height record, which are poor. Discharge measurements generally made twice a month.

Rating tables, water year 1957-58, except periods of ice effect or indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to May 5 | | | | May 6 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.6 | 1.4 | 1.3 | 23 | 1.2 | 3.5 | 2.0 | 62 |
| .7 | 2.5 | 1.5 | 39 | 1.4 | 8.5 | 2.2 | 101 |
| .9 | 6.1 | 1.8 | 82 | 1.6 | 18 | 2.4 | 152 |
| 1.1 | 13 | | | 1.8 | 35 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.5 | 7.8 | 5 | 3 | 3 | 2.8 | 5.0 | 57 | 58 | 12 | 6.4 | 4.9 |
| 2 | 5.3 | 7.3 | 5.5 | 3.5 | 3 | 3.2 | 5.0 | 67 | 50 | 12 | 7.0 | 4.7 |
| 3 | 5.3 | 7.3 | 5 | 3.5 | 3 | 3.5 | 4.6 | 57 | 37 | a13 | 6.7 | 4.7 |
| 4 | 5.3 | 7.0 | 5 | 4 | 3 | 4.8 | 5.3 | 50 | 36 | a12 | 6.7 | 4.7 |
| 5 | 5.3 | 6.7 | 5.5 | 4 | 3.4 | 4.4 | 4.6 | 67 | 35 | a11 | 7.0 | 4.7 |
| 6 | 5.9 | 6.1 | 5.5 | 4 | 3.6 | 4.2 | 5.0 | e80 | 40 | a11 | 7.9 | 5.8 |
| 7 | 5.9 | 6.1 | 5.5 | 4 | 3.6 | 4.0 | 6.4 | e90 | 46 | a11 | 10 | 6.4 |
| 8 | 5.7 | 6.4 | 5.5 | 4 | 3.6 | 3.8 | 6.4 | e100 | 39 | a10 | 8.2 | 5.3 |
| 9 | 5.3 | 5.7 | 5.5 | 4 | 3.6 | 3.7 | 6.4 | e100 | 34 | a10 | 7.6 | 5.1 |
| 10 | 5.3 | 5.5 | 5 | 4 | 3.6 | 3.4 | 5.7 | e100 | 31 | a10 | 7.3 | 5.8 |
| 11 | 5.0 | 5.0 | 4.5 | 4 | 3.6 | 3.4 | 5.5 | e110 | 32 | a10 | 7.0 | 6.1 |
| 12 | 7.0 | 5.7 | 4 | 4 | 3.6 | 3.6 | 5.5 | e110 | 28 | a9 | 7.9 | 5.1 |
| 13 | 7.8 | 6.1 | 4.5 | 4 | 3.6 | 4.0 | 4.6 | e130 | 27 | a9 | 7.9 | 7.9 |
| 14 | 7.0 | 5.9 | 4.5 | 4 | 3.6 | 3.8 | 5.0 | e120 | 24 | a9 | 7.3 | 8.2 |
| 15 | 7.0 | 5.9 | 4.5 | 4 | 3.6 | 3.7 | 6.1 | e110 | 22 | 8.9 | 7.0 | 6.4 |
| 16 | 6.7 | 5.9 | 5.0 | 4 | 3.8 | 3.8 | 8.1 | e120 | 21 | 8.9 | 7.0 | 5.5 |
| 17 | 6.7 | 6.1 | 5.0 | 3.5 | 3.8 | 3.7 | 8.4 | e120 | 20 | 8.9 | 7.3 | 5.1 |
| 18 | 6.4 | 4.5 | 5.0 | 3.5 | 3.8 | 3.7 | 10 | e130 | 19 | 11 | 7.9 | 4.9 |
| 19 | 10 | 2.5 | 4.6 | 3.0 | 4.0 | 3.4 | 17 | e130 | 17 | 14 | 7.3 | 4.9 |
| 20 | 10 | 3 | 3.7 | 2.5 | 4.0 | 3.4 | 29 | e115 | 17 | 10 | 7.0 | 4.7 |
| 21 | 11 | 3 | 4.8 | 2.5 | 4.2 | 4.0 | 39 | 113 | 17 | 8.9 | 7.3 | 4.5 |
| 22 | 12 | 1.7 | 5.3 | 3 | 4.4 | 4.2 | 45 | 103 | 17 | 8.5 | 8.5 | 4.5 |
| 23 | 9.4 | 2 | 5.0 | 3 | 4.4 | 4.2 | 50 | 99 | 16 | 8.2 | 8.2 | 4.5 |
| 24 | 8.4 | 2.5 | 4.8 | 3 | 4.4 | 4.0 | 51 | 95 | 16 | 7.9 | 7.3 | 4.5 |
| 25 | 8.1 | 3 | 4.2 | 3 | 4.6 | 4.0 | 54 | 99 | 15 | 7.9 | 6.7 | 4.5 |
| 26 | 7.8 | 3 | 4.0 | 2.5 | 4.4 | 4.0 | 65 | 95 | 15 | 8.2 | 6.1 | 4.5 |
| 27 | 7.6 | 3 | 4.4 | 2.5 | 3.5 | 4.0 | 74 | 88 | 14 | 7.9 | 5.5 | 4.7 |
| 28 | 7.3 | 3 | 4.0 | 2.5 | 2.5 | 4.4 | 80 | 84 | 13 | 7.6 | 5.5 | 5.5 |
| 29 | 7.3 | 3 | 4.5 | 2.5 | - | 3.8 | 82 | 78 | 13 | 7.3 | 5.3 | 5.1 |
| 30 | 7.3 | 3 | 3.5 | 3 | ------- | 4.2 | 50 | 73 | 13 | 6.4 | 5.3 | 4.7 |
| 31 | 7.0 | ------- | 3 | 3 | ------- | 4.8 | ------- | 66 | ------- | 6.4 | 4.9 | ------- |
| Total | 221.6 | 143.5 | 145.8 | 105.0 | 103.2 | 119.9 | 723.6 | 2,956 | 782 | 295.9 | 219.0 | 157.9 |
| Mean | 7.15 | 4.78 | 4.70 | 3.39 | 3.69 | 3.87 | 24.1 | 95.4 | 26.1 | 9.55 | 7.06 | 5.26 |
| Ac-ft | 440 | 285 | 289 | 208 | 205 | 238 | 1,440 | 5,860 | 1,550 | 587 | 434 | 313 |

Calendar year 1957: Max - Min - Mean - Ac-ft -
Water year 1957-58: Max 130 Min 1.7 Mean 16.4 Ac-ft 11,850

Peak discharge (base, 35 cfs).--Apr. 28 (4 a.m.) 88 cfs (1.85 ft); May 13 (8 a.m.) about 144 cfs (2.24 ft); June 7 (2 p.m.) 53 cfs (1.88 ft).

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for nearby stations.
e Stage-discharge relation indefinite; discharge estimated as for "a".
Note.--Stage-discharge relation affected by ice Nov. 18 to Dec. 15, Dec. 29 to Feb. 4, Feb. 27 to Mar. 5.

## 2760. Rio Pueblo de 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 Grande de Ranchos, 0.2 mile 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 1958 in reports of Geological Survey. Published as Rio Pueblo de Taos near Cordovas April 1910 to December 1911. April 1910 to December 1931 in reports of State engineer. Prior to October 1955 published as Rio Taos at Los Cordovas. All records include flow of Rio Grande de Ranchos.

Gage.--Water-stage recorder. Datum of inside gage is 6,709.59 ft above mean sea level, datum of 1929. Prior to Oct. 4, 1921, staff gages at nearby sites at different datums. Oct. 4, 1921, to Sept. 30, 1934, water-stage recorder at site 200 ft upstream at datum about 1.26 ft higher and Oct. 1, 1934, to Apr. 30, 1957, at site 200 ft upstream at datum 1.00 ft higher.

Average discharge.--47 years (1910-25, 1926-58), 60.4 cfs (43,730 acre-ft per year).

Extremes.--Maximum discharge during year, 885 cfs May 13 (gage height, 4.80 ft); minimum daily, 6.4 cfs Aug. 3.
1930-58: Maximum discharge, 1,830 cfs May 14, 1941 (gage height, 5.81 ft, site and datum then in use ), from rating curve extended above 1,300 cfs by logarithmic plotting; minimum daily, 1.3 cfs July 17, Aug. 18, 1951.

Remarks.--Records good 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.

Revisions (water years).--WSP 1342: 1910-12, 1915, 1940.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 3-16, July 2-25, Aug. 24 to Sept. 12)

| | | | |
|---|---|---|---|
| 1.5 | 4.7 | 2.4 | 89 |
| 1.6 | 8.0 | 3.0 | 211 |
| 1.7 | 13 | 3.5 | 355 |
| 1.8 | 19 | 4.0 | 545 |
| 2.0 | 37 | 4.7 | 885 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | 82 | 52 | b36 | 38 | 45 | 50 | 389 | 467 | a35 | 7.0 | 15 |
| 2 | 21 | 78 | 54 | b37 | 38 | 47 | 59 | 452 | 433 | *29 | 7.0 | 15 |
| 3 | *20 | 76 | 50 | b39 | 42 | 45 | 54 | 436 | 407 | 28 | 6.4 | 14 |
| 4 | 19 | 76 | 53 | 40 | 45 | 50 | 61 | 389 | 372 | 23 | 6.7 | 15 |
| 5 | 20 | 92 | *60 | 41 | 46 | 48 | 53 | 467 | 358 | 20 | 10 | *15 |
| 6 | 23 | 84 | 60 | b38 | 44 | 47 | 56 | 644 | 372 | 19 | 11 | 16 |
| 7 | 23 | 89 | 55 | b38 | 40 | 49 | *66 | 760 | 393 | 18 | 9.5 | 18 |
| 8 | 23 | 84 | 60 | b39 | 41 | 46 | 78 | 820 | 369 | 16 | 10 | 18 |
| 9 | 22 | 76 | 59 | b39 | 42 | 42 | 80 | 825 | 333 | 14 | 10 | 18 |
| 10 | 22 | 73 | *58 | *35 | 42 | 39 | 76 | 795 | 287 | 12 | 9.5 | 18 |
| 11 | 22 | 71 | 58 | 35 | 41 | 38 | 73 | 795 | 248 | 10 | 9.0 | 17 |
| 12 | 34 | 74 | 54 | 37 | 39 | 42 | 70 | 800 | 211 | 10 | 8.5 | 18 |
| 13 | 37 | 74 | 56 | 32 | 42 | *46 | 60 | *863 | 189 | 11 | *11 | 64 |
| 14 | 34 | 71 | 56 | 35 | 41 | 44 | 63 | 841 | 173 | 10 | 12 | 42 |
| 15 | *35 | 70 | 58 | 30 | 39 | 42 | 64 | 795 | 156 | *9.0 | 12 | 30 |
| 16 | 36 | 68 | 63 | 36 | 41 | 44 | 105 | 825 | 147 | 9.0 | 12 | 24 |
| 17 | 37 | 74 | 63 | 35 | 41 | 48 | 114 | 805 | 137 | 9.0 | 14 | 22 |
| 18 | 36 | 68 | 61 | 35 | 44 | 45 | 137 | 750 | *123 | 9.5 | 15 | 20 |
| 19 | 251 | *52 | 58 | 36 | 45 | 39 | 224 | 770 | 127 | 12 | 20 | *19 |
| 20 | 135 | 54 | b48 | 34 | *46 | 40 | 323 | 720 | a110 | 10 | 18 | a19 |
| 21 | 135 | 55 | b53 | 31 | 46 | 45 | 379 | 653 | a100 | 8.5 | 22 | a19 |
| 22 | 209 | 45 | b57 | 34 | 48 | 50 | 396 | 648 | a90 | 8.0 | 37 | a19 |
| 23 | 109 | 45 | b55 | 36 | 49 | 55 | 433 | 612 | a80 | 7.0 | 26 | a19 |
| 24 | 89 | 55 | 52 | 37 | 52 | *54 | 414 | 617 | a70 | 6.7 | 21 | a18 |
| 25 | 82 | 61 | b49 | 39 | 70 | 56 | 414 | 640 | a60 | 6.7 | 20 | a18 |
| 26 | 76 | 63 | b46 | 39 | 73 | 50 | 459 | 635 | a54 | 7.3 | 18 | a18 |
| 27 | 71 | 68 | b49 | 38 | 55 | 49 | 475 | 599 | a50 | 7.3 | 18 | a20 |
| 28 | 67 | 59 | b44 | 38 | 47 | 55 | 487 | 563 | a45 | 7.3 | 16 | a22 |
| 29 | 66 | 61 | b48 | 38 | - | 52 | 407 | 558 | a41 | *7.0 | 17 | a28 |
| 30 | 66 | 47 | 50 | *41 | ------- | 50 | 365 | 558 | a38 | 6.7 | 17 | a29 |
| 31 | 67 | ------- | b40 | 41 | ------- | 52 | ------- | 520 | ------- | 7.0 | 15 | ------- |
| Total | 1,908 | 2,045 | 1,679 | 1,139 | 1,277 | 1,454 | 6,095 | 20,544 | 6,040 | 393.0 | 445.6 | 647 |
| Mean | 61.5 | 68.2 | 54.2 | 36.7 | 45.6 | 46.9 | 203 | 663 | 201 | 12.7 | 14.4 | 21.6 |
| Ac-ft | 3,780 | 4,060 | 3,330 | 2,260 | 2,530 | 2,880 | 12,090 | 40,750 | 11,980 | 780 | 884 | 1,280 |

Calendar year 1957: Max 554 Min 15 Mean 94.0 Ac-ft 68,030
Water year 1957-58: Max 863 Min 6.4 Mean 120 Ac-ft 86,600

Peak discharge (base, 200 cfs).--Oct. 19 (10:50 a.m.) 715 cfs (4.37 ft); Oct. 22 (6 a.m.) 308 cfs (3.35 ft); Apr. 27 (1 a.m.) 495 cfs (3.95 ft); May 13 (9 a.m.) 885 cfs (4.80 ft); May 26 (6 a.m.) 666 cfs (4.34 ft); June 7 (5 p.m.) 418 cfs (3.64 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of recorded range in stage, 2 discharge measurements, weather records, and records for nearby stations.
b Stage-discharge relation affected by ice.

## 2763. Rio Pueblo de Taos below Los Cordovas, N. Mex.

Location.--Lat 36°22'30", long 105°40'10", in Gijosa Grant, on left bank 2 miles southwest of Los Cordovas, 2½ miles downstream from Rio Grande de Ranchos, 4½ miles upstream from mouth, Taos County.

Drainage area.--380 sq mi.

Records available.--March 1957 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 6,630 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,360 cfs Oct. 19 (gage height, 4.84 ft); minimum daily, 10 cfs Aug. 3, 4, 12.
1957-58: Maximum discharge, 2,070 cfs Aug. 24, 1957 (gage height, 5.81 ft); minimum daily discharge, 10 cfs Aug. 3, 4, 12, 1958.

Remarks.--Records good except those for periods of ice effect, doubtful, or no gage-height record, which are poor. Discharge measurements generally made twice a month. Diversions for irrigation of about 12,000 acres above station.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 20 to Nov. 18, Dec. 19-30, Jan. 5, 14, 19, 20, 25, 27, 28, 31, Feb. 5-27, Mar. 4 to Apr. 22, Aug. 10-22)

| | | | | | |
|---|---|---|---|---|---|
| 0.8 | 9.4 | 2.0 | 124 | 3.5 | 510 |
| .9 | 15 | 2.5 | 212 | 4.0 | 750 |
| 1.0 | 21 | 3.0 | 330 | 4.5 | 1,070 |
| 1.5 | 63 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | a21 | 92 | 50 | b39 | b40 | b45 | 56 | 446 | 474 | 34 | 12 | 20 |
| 2 | a21 | 87 | 52 | b39 | b40 | b47 | 64 | 498 | 442 | 34 | 12 | 19 |
| 3 | a20 | 85 | 52 | b40 | b43 | b46 | 59 | 486 | 410 | 31 | 10 | 18 |
| 4 | a20 | 81 | 53 | b41 | b45 | 51 | 66 | 430 | 375 | 28 | 10 | 18 |
| 5 | a21 | 98 | 54 | 42 | 46 | 49 | 55 | 502 | 357 | 27 | 14 | 19 |
| 6 | a23 | 92 | 54 | b41 | 42 | 47 | 60 | 685 | 366 | 25 | 14 | 19 |
| 7 | a23 | 100 | 54 | b41 | 40 | 48 | 71 | 774 | 384 | 25 | 13 | 20 |
| 8 | 23 | 93 | 54 | b41 | 40 | 45 | 86 | 828 | 366 | 23 | 13 | 20 |
| 9 | 22 | 84 | 53 | b41 | 41 | 42 | 89 | 840 | 330 | 20 | 13 | 20 |
| 10 | 21 | 80 | 52 | b40 | 41 | 39 | 83 | 834 | 292 | 18 | 12 | 20 |
| 11 | 21 | 78 | 52 | b39 | 40 | 37 | 80 | 846 | 265 | 16 | 11 | 21 |
| 12 | 44 | 81 | 50 | b39 | 38 | 41 | 73 | 834 | 231 | 15 | 10 | 21 |
| 13 | 39 | 80 | 52 | b38 | 40 | 46 | 64 | 894 | 210 | 16 | 12 | 69 |
| 14 | 34 | 75 | 52 | 39 | 39 | 44 | 67 | 888 | 190 | 15 | 13 | 38 |
| 15 | 34 | 73 | 52 | b36 | 38 | 42 | 86 | 822 | 171 | 14 | 13 | 28 |
| 16 | 37 | 73 | 56 | b39 | 39 | 45 | 121 | 840 | 163 | 14 | 14 | 24 |
| 17 | 39 | 84 | 56 | b39 | 38 | 48 | 132 | 834 | 148 | 14 | 14 | 24 |
| 18 | 39 | 68 | 54 | b38 | 39 | 44 | 148 | 798 | 132 | 14 | 17 | 22 |
| 19 | 418 | 50 | 48 | 38 | 40 | 40 | 240 | 816 | 124 | 17 | 21 | 22 |
| 20 | 176 | 53 | 40 | 37 | 42 | 40 | 328 | 768 | 113 | 15 | 20 | 21 |
| 21 | 173 | 54 | 46 | b36 | 42 | 43 | 390 | 714 | 106 | 13 | 21 | 20 |
| 22 | 269 | 43 | 48 | b38 | 43 | 50 | 430 | 675 | 95 | 13 | 30 | 20 |
| 23 | 126 | 43 | 47 | b39 | 45 | 52 | 490 | 650 | 83 | 12 | 25 | 20 |
| 24 | 101 | 52 | 45 | b39 | 48 | 53 | 438 | 645 | 72 | 12 | 22 | 20 |
| 25 | 92 | 60 | 42 | 40 | 67 | 59 | 438 | 660 | 64 | 11 | 21 | 20 |
| 26 | 86 | 65 | 40 | b40 | 77 | 54 | 494 | 650 | 55 | 11 | 21 | 20 |
| 27 | 80 | 70 | 46 | 39 | 53 | 51 | 530 | 625 | 52 | 13 | 20 | 23 |
| 28 | 77 | 58 | 40 | 38 | b46 | 59 | 546 | 600 | 48 | 13 | 20 | 25 |
| 29 | 74 | 60 | 42 | b40 | - | 53 | 470 | 586 | 44 | 12 | 20 | 36 |
| 30 | 73 | 45 | 45 | b40 | ------- | 52 | 410 | 574 | 39 | 12 | 20 | 36 |
| 31 | 74 | ------- | b40 | 40 | ------- | 54 | ------- | 530 | ------- | 12 | 20 | ------- |
| Total | 2,321 | 2,157 | 1,521 | 1,216 | 1,232 | 1,466 | 6,664 | 21,572 | 6,201 | 549 | 508 | 724 |
| Mean | 74.9 | 71.9 | 49.1 | 39.2 | 44.0 | 47.3 | 222 | 696 | 207 | 17.7 | 16.4 | 24.1 |
| Ac-ft | 4,600 | 4,280 | 3,020 | 2,410 | 2,440 | 2,910 | 13,220 | 42,790 | 12,300 | 1,090 | 1,010 | 1,440 |

Calendar year 1957: Max - Min - Mean - Ac-ft -
Water year 1957-58: Max 894 Min 10 Mean 126 Ac-ft 91,510

Peak discharge (base, 230 cfs).--Oct. 19 (8:30 a.m.) 1,360 cfs (4.84 ft); Oct. 22 (2:30 a.m.) 490 cfs (3.47 ft); Apr. 28 (5 a.m.) 566 cfs (3.71 ft); May 14 (10 a.m.) 930 cfs (4.30 ft).

a No gage-height record; discharge estimated on basis of 1 discharge measurement, available fragments of recorder trace, reconstructed recorder graph, weather records, and records for nearby upstream stations.
b Stage-discharge relation affected by ice.
Note.--Doubtful gage-height record Nov. 19 to Dec. 18; discharge estimated on same basis as for "a".

2765. 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 Pueblo de Taos (formerly known as Rio Taos) and bridge on State Highway 96 and 12 miles southwest of Taos.

Drainage area.--9,730 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--October 1930 to September 1958 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.--33 years (1925-58), 791 cfs (572,700 acre-ft per year).

Extremes.--Maximum discharge during year, 6,160 cfs May 29 (gage height, 7.80 ft); minimum daily, 225 cfs Sept. 11, 12.
1930-58: Maximum discharge, 9,730 cfs June 7, 1948, June 22, 1949; maximum gage height, 9.41 ft May 17, 1941; minimum daily discharge, 159 cfs Oct. 8-11, 1956.

Remarks.--Records good. Diversions for irrigation of about 650,000 acres above station.

Revisions (water years).--WSP 788: 1934(M). WSP 1392: 1931-32, 1935, 1937, 1945, 1950.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 3.5 | 220 | 5.5 | 1,970 |
| 4.0 | 500 | 6.0 | 2,680 |
| 4.5 | 875 | 7.0 | 4,440 |
| 5.0 | 1,360 | 8.0 | 6,630 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 348 | 1,210 | 640 | 577 | 535 | 563 | 570 | 2,210 | 5,280 | 411 | *260 | 245 |
| 2 | 342 | 1,250 | 640 | 563 | 535 | 563 | 591 | 2,110 | 4,840 | 405 | 255 | 240 |
| 3 | 320 | 1,270 | 640 | 556 | *542 | 577 | *563 | 2,070 | 4,310 | 405 | 250 | 230 |
| 4 | 310 | 1,190 | 640 | 549 | 549 | 648 | 584 | 2,010 | 3,830 | 393 | 245 | 230 |
| 5 | 315 | 1,180 | 662 | 556 | 549 | *692 | 556 | 2,020 | 3,480 | 387 | 255 | 230 |
| 6 | 315 | 1,240 | 692 | 549 | 549 | 708 | 549 | 2,320 | 3,030 | 387 | 280 | 230 |
| 7 | 320 | 1,260 | 700 | *535 | 549 | 731 | 549 | 2,840 | 2,540 | 370 | 270 | 235 |
| 8 | 326 | *1,270 | 715 | 535 | 549 | 708 | 556 | 3,490 | 2,650 | 353 | 260 | *235 |
| 9 | 320 | 1,290 | 739 | 535 | 556 | 700 | 619 | *3,980 | 3,460 | 342 | 250 | 240 |
| 10 | *326 | 1,370 | 723 | 535 | 563 | 692 | 708 | 4,290 | 3,690 | *336 | 245 | 240 |
| 11 | 326 | 1,320 | 723 | 549 | 584 | 670 | 755 | 4,600 | 3,670 | 320 | 245 | 225 |
| 12 | 364 | 1,030 | *708 | 549 | 584 | 670 | 678 | 4,860 | 3,200 | 310 | *240 | 225 |
| 13 | 370 | 934 | 700 | 535 | 570 | 619 | 626 | 5,330 | 2,420 | 300 | 240 | 410 |
| 14 | 364 | 875 | 670 | 542 | 591 | 598 | 612 | 5,520 | 1,880 | 285 | 250 | 305 |
| 15 | 361 | 859 | 662 | 542 | 598 | 633 | 633 | 5,200 | 1,520 | 270 | 305 | 275 |
| 16 | 364 | 892 | 662 | 535 | 612 | 619 | 755 | *4,640 | 1,280 | 270 | 250 | 270 |
| 17 | 364 | 926 | 678 | 535 | 570 | 619 | 803 | 4,210 | *1,220 | 300 | 245 | 260 |
| 18 | 364 | 875 | 708 | 542 | 556 | 619 | 763 | 4,060 | 1,230 | 300 | 275 | 265 |
| 19 | 1,000 | 827 | 692 | 542 | 556 | 619 | 835 | 4,140 | 1,130 | 315 | 275 | 280 |
| 20 | 584 | 755 | 670 | 542 | 570 | 605 | 952 | 4,230 | 1,040 | 300 | 310 | 280 |
| 21 | 708 | 626 | 662 | 487 | 598 | 570 | 1,140 | 4,170 | 960 | 295 | 295 | 280 |
| 22 | 884 | 577 | 662 | 521 | 626 | 556 | 1,810 | 4,210 | 795 | 290 | 320 | 270 |
| 23 | 542 | 480 | 662 | 521 | 670 | 549 | 2,230 | 4,210 | 715 | 290 | 315 | 265 |
| 24 | 494 | 626 | 662 | 494 | 708 | 556 | 2,420 | 4,210 | 640 | 290 | 300 | 255 |
| 25 | 494 | 708 | 640 | 500 | 739 | 563 | 2,500 | 4,330 | 605 | 285 | 295 | 250 |
| 26 | 487 | 739 | 640 | 521 | 755 | 577 | 2,620 | 4,520 | 542 | 275 | 305 | 250 |
| 27 | 480 | 811 | 633 | 521 | 739 | 670 | 2,480 | 5,050 | 500 | 280 | 275 | 260 |
| 28 | 480 | 795 | 605 | 521 | 648 | 648 | *2,500 | 5,720 | 480 | 280 | 265 | 270 |
| 29 | 480 | 787 | 612 | 521 | - | 619 | 2,410 | 6,110 | 461 | 270 | 260 | 270 |
| 30 | 494 | 708 | 619 | 535 | ------- | 605 | 2,240 | 5,980 | 442 | 270 | 255 | 280 |
| 31 | 1,010 | ------- | 612 | 542 | ------- | 584 | ------- | 5,840 | ------- | 265 | 245 | ------- |
| Total | 14,276 | 28,680 | 20,673 | 16,587 | 16,750 | 19,350 | 35,607 | 128,480 | 61,840 | 9,849 | 8,335 | 7,800 |
| Mean | 461 | 956 | 667 | 535 | 598 | 624 | 1,187 | 4,145 | 2,061 | 318 | 269 | 260 |
| Ac-ft | 28,320 | 56,890 | 41,000 | 32,900 | 33,220 | 38,380 | 70,630 | 254,800 | 122,700 | 19,540 | 16,530 | 15,470 |

Calendar year 1957: Max 4,340 Min 220 Mean 1,051 Ac-ft 760,700
Water year 1957-58: Max 6,110 Min 225 Mean 1,009 Ac-ft 730,400

Peak discharge (base, 1,600 cfs).--Oct. 19 (10 a.m.) 2,500 cfs (5.89 ft); Apr. 26 (7 p.m.) 2,650 cfs (6.01 ft); May 29 (2 p.m.) 6,160 cfs (7.80 ft).

* Discharge measurement made on this day.

## 2795. Rio Grande at Embudo, N. Mex.

Location.--Lat 36°12'20", long 105°57'50", 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 San Luis Valley, Colo.).

Records available.--January 1889 to December 1903, September 1912 to September 1916, and October 1930 to September 1958 in reports of Geological Survey. January 1889 to December 1903 and September 1912 to December 1931 in reports of State engineer. Figures of daily discharge for Oct. 4 to Nov. 30, 1896, published in WSP 358, have been found to be unreliable and should not be used.

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 1,300 ft upstream at different datum. September 1912 to June 1914 on downstream end of bridge pier at site 200 ft upstream at present datum.

Average discharge.--58 years (1889-93, 1894-1903, 1912-16, 1917-58), 1,003 cfs (726,100 acre-ft per year).

Extremes.--Maximum discharge during year, 6,840 cfs May 30 (gage height, 9.65 ft); minimum daily, 267 cfs Aug. 12-13, Sept. 11-12.
1889-1903, 1912-58: Maximum discharge, 15,900 cfs June 19, 1903 (gage height, 15.8 ft); minimum daily, 130 cfs June 30, 1902.

Remarks.--Records good. Diversions for irrigation of about 660,000 acres above station. Records of suspended sediment loads for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 358: 1900-1902. WSP 878: 1915-16. WSP 1512: 1892-99, 1904, 1916, 1931-32, 1939, 1944-45, 1950. See also Records available.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-8, Nov. 12-16, May 2-6, Sept. 13-30)

| Oct. 1 to May 14 | | | | May 15 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.5 | 300 | 6.0 | 3,000 | 2.7 | 260 | 6.0 | 2,620 |
| 3.0 | 515 | 7.0 | 4,000 | 3.0 | 380 | 7.0 | 3,710 |
| 3.5 | 790 | 8.0 | 5,060 | 3.5 | 630 | 8.0 | 4,860 |
| 4.0 | 1,130 | 9.0 | 6,160 | 4.0 | 920 | 9.0 | 6,060 |
| 5.0 | 2,000 | 10.0 | 7,260 | 5.0 | 1,680 | 10.0 | 7,260 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 371 | 1,250 | 675 | 626 | 570 | 598 | 642 | 2,800 | 6,240 | 525 | *274 | 284 |
| 2 | *367 | 1,300 | 692 | 609 | 582 | 620 | 653 | 2,800 | 5,700 | 480 | 274 | 278 |
| 3 | 347 | 1,330 | 692 | 598 | *592 | 620 | *636 | 2,680 | 5,220 | 480 | 270 | 274 |
| 4 | 328 | 1,270 | 680 | 592 | 604 | 692 | 648 | 2,540 | 4,680 | 480 | 274 | 270 |
| 5 | 328 | 1,280 | 730 | 598 | 604 | *736 | 604 | *2,630 | 4,270 | 475 | 292 | 270 |
| 6 | 335 | 1,290 | 742 | 576 | 604 | 754 | 598 | 3,070 | 4,040 | 515 | 292 | 278 |
| 7 | 335 | 1,350 | 742 | *565 | 604 | 784 | 614 | 3,760 | 3,590 | 480 | 299 | 281 |
| 8 | 335 | 1,350 | 772 | 570 | 604 | 772 | 636 | 4,410 | 3,460 | 430 | 284 | 278 |
| 9 | 324 | 1,350 | 760 | 576 | 614 | 748 | 670 | *4,930 | 3,930 | 395 | 281 | 274 |
| 10 | 324 | 1,420 | *760 | 570 | 614 | 742 | 790 | 5,270 | 4,120 | *380 | 274 | 270 |
| 11 | 328 | 1,420 | 760 | 576 | 636 | 724 | 832 | 5,580 | 4,150 | 353 | 274 | *267 |
| 12 | 380 | 1,140 | 760 | 587 | 631 | 714 | 760 | 5,940 | 3,750 | 344 | *267 | 267 |
| 13 | 424 | 1,010 | 742 | 555 | 631 | 680 | 692 | 6,360 | 3,090 | 327 | 267 | 616 |
| 14 | 402 | *952 | 730 | 587 | 626 | 642 | 664 | 6,630 | 2,370 | 307 | 270 | 445 |
| 15 | 411 | 924 | 742 | 560 | 642 | 680 | 714 | 6,400 | 1,970 | 295 | 335 | 353 |
| 16 | 411 | 945 | 736 | 560 | 653 | 670 | 856 | 6,050 | *1,630 | 284 | 281 | 323 |
| 17 | 402 | 980 | 742 | 570 | 620 | 680 | 966 | 5,530 | 1,500 | 299 | 278 | 315 |
| 18 | 398 | 938 | 760 | 587 | 598 | 664 | 980 | 5,290 | 1,430 | 323 | 288 | 323 |
| 19 | 1,320 | 874 | 754 | 592 | 592 | 658 | 1,230 | 5,280 | 1,330 | 348 | 327 | 344 |
| 20 | 708 | 808 | 736 | 587 | 631 | 642 | 1,560 | *5,280 | 1,200 | 340 | 307 | 344 |
| 21 | 826 | 697 | 724 | 510 | 675 | 631 | 1,810 | 5,240 | 1,130 | 315 | 353 | 335 |
| 22 | 1,130 | 609 | 736 | 520 | 719 | 620 | 2,480 | 5,270 | 980 | 307 | 405 | 323 |
| 23 | 648 | 500 | 719 | 540 | 754 | 614 | 3,060 | 5,210 | 866 | 299 | 395 | 319 |
| 24 | 570 | 614 | 708 | 530 | 790 | 620 | 3,090 | 5,180 | 794 | 299 | 348 | 311 |
| 25 | 580 | 748 | 697 | 545 | 808 | 631 | 3,200 | 5,290 | 734 | 299 | 335 | 311 |
| 26 | 540 | 808 | 686 | 545 | 820 | 636 | 3,470 | 5,470 | 674 | 295 | 323 | 303 |
| 27 | 520 | 880 | 686 | 560 | 784 | 697 | 3,430 | 5,900 | 620 | 292 | 327 | 311 |
| 28 | 520 | 880 | 642 | 555 | 697 | 719 | 3,400 | 6,340 | 585 | 295 | 299 | 331 |
| 29 | *525 | 856 | 653 | 550 | - | 670 | 3,170 | *6,710 | 570 | 295 | 295 | 311 |
| 30 | 530 | 772 | 664 | 587 | ------- | 648 | 2,900 | 6,780 | 540 | 288 | 292 | 331 |
| 31 | *917 | ------- | 642 | 592 | ------- | 642 | ------- | 6,880 | ------- | 278 | 288 | ------- |
| Total | 15,864 | 30,545 | 22,264 | 17,675 | 18,299 | 20,948 | 45,755 | 157,280 | 75,163 | 11,122 | 9,368 | 9,540 |
| Mean | 512 | 1,018 | 718 | 570 | 654 | 676 | 1,525 | 5,074 | 2,505 | 359 | 302 | 318 |
| Ac-ft | 31,470 | 60,590 | 44,160 | 35,060 | 36,300 | 41,550 | 90,750 | 312,000 | 149,100 | 22,060 | 18,580 | 18,920 |

Calendar year 1957: Max 4,870 Min 256 Mean 1,170 Ac-ft 847,400
Water year 1957-58: Max 6,780 Min 267 Mean 1,189 Ac-ft 860,500

Peak discharge (base, 2,000 cfs).--Oct. 19 (2 p.m.) 2,760 cfs (5.68 ft); Apr. 27 (3 a.m.) 3,610 cfs (6.66 ft); May 14 (3 p.m.) 6,690 cfs (9.52 ft); May 30 (10 a.m.) 6,840 cfs (9.65 ft); June 10 (8 p.m.) 4,130 cfs (7.38 ft).

* Discharge measurement made on this day.

## 2841. Rio Chama near La Puente, N. Mex.

Location.--Lat 36°39'45", long 106°38'00", on right bank in Tierra Amarilla Grant, 0.7 mile downstream from Rito de Tierra Amarilla (formerly Nutritas Creek), 3 miles southwest of La Puente, and 6.7 miles upstream from flow line of El Vado Reservoir, Rio Arriba County.

Drainage area.--480 sq mi, approximately.

Records available.--October 1955 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 7,083 ft (from river-profile map).

Extremes.--Maximum discharge during year, 5,770 cfs May 17 (gage height, 5.62 ft), from rating curve extended above 3,300 cfs as explained below; minimum daily, 25 cfs July 17.
1955-58: Maximum discharge, 8,040 cfs June 7, 1957 (gage height, 6.07 ft), from rating curve extended above 3,300 cfs on basis of logarithmic plotting and an inflow-outflow study of El Vado Reservoir; minimum daily, 4.4 cfs Sept. 19, 1956.

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 for irrigation of about 7,500 acres above station.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to May 17 | | | | May 18 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.0 | 51 | 3.5 | 630 | 1.5 | 20 | 3.5 | 850 |
| 2.2 | 75 | 4.0 | 1,150 | 1.7 | 37 | 4.0 | 1,500 |
| 2.4 | 109 | 4.5 | 1,980 | 2.0 | 77 | 4.5 | 2,400 |
| 2.7 | 184 | 5.0 | 3,280 | 2.3 | 140 | 5.0 | 3,700 |
| 3.0 | 305 | 5.5 | 5,080 | 2.6 | 230 | 5.5 | 5,500 |
| | | | | 3.0 | 440 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 60 | 140 | 105 | 70 | 70 | 140 | 273 | 1,600 | 1,880 | 103 | 32 | 39 |
| 2 | 60 | 150 | 105 | 70 | 80 | 150 | 255 | 1,690 | 1,740 | 99 | 30 | 39 |
| 3 | 59 | 140 | 105 | 70 | 80 | 140 | 219 | 1,780 | 1,610 | 106 | 28 | 37 |
| 4 | 55 | 132 | 105 | 70 | 80 | 132 | 227 | 2,180 | 1,470 | 95 | 29 | 39 |
| 5 | 55 | 148 | 110 | 70 | 80 | 126 | 184 | 2,730 | 1,400 | 84 | 28 | 42 |
| 6 | 56 | 170 | 110 | 75 | 70 | 122 | 212 | 3,040 | 1,360 | 76 | 31 | 43 |
| 7 | 58 | 140 | 105 | 75 | 70 | 115 | 310 | 3,040 | 1,140 | 72 | 37 | 62 |
| 8 | 58 | 164 | 105 | 75 | 70 | 113 | 350 | 3,250 | 1,130 | 71 | 35 | 57 |
| 9 | 56 | 138 | 105 | 75 | 80 | 109 | 291 | 3,470 | 984 | 62 | 35 | 49 |
| 10 | 56 | 138 | 105 | 75 | 80 | 100 | 310 | 3,470 | 850 | 54 | 34 | 42 |
| 11 | 56 | 138 | 105 | 70 | 70 | 96 | 335 | 3,470 | 750 | 49 | 34 | 36 |
| 12 | 70 | 142 | 100 | 70 | 70 | 107 | 264 | 4,490 | 669 | 47 | 35 | 37 |
| 13 | 105 | 142 | 97 | 70 | 70 | 105 | 231 | 3,600 | 588 | 43 | 35 | 265 |
| 14 | 117 | 135 | 97 | 70 | 70 | 102 | 305 | 3,540 | 524 | 42 | 34 | 254 |
| 15 | 109 | 138 | 100 | 70 | 70 | 102 | 522 | 3,570 | a470 | 39 | 33 | 138 |
| 16 | 102 | 138 | 104 | 80 | 75 | 109 | 780 | 3,870 | a430 | 34 | 49 | 99 |
| 17 | 95 | 135 | 104 | 80 | 90 | 115 | 953 | 4,120 | a390 | 25 | 66 | 82 |
| 18 | 96 | 132 | 95 | 80 | 100 | 138 | 1,320 | 3,950 | a350 | 27 | 65 | 74 |
| 19 | 104 | 120 | 90 | 70 | 120 | 142 | 1,920 | 3,760 | a320 | 56 | 52 | 70 |
| 20 | 124 | 110 | 82 | 70 | 150 | 148 | 2,130 | 3,490 | a285 | 43 | 48 | 64 |
| 21 | 148 | 100 | 83 | a70 | 200 | 205 | 2,370 | 3,200 | a262 | 35 | 52 | 61 |
| 22 | 164 | 95 | 86 | a60 | 400 | 239 | 2,470 | 3,020 | a242 | 32 | 116 | 57 |
| 23 | 124 | 100 | 90 | a60 | 448 | 259 | 2,390 | 3,120 | a220 | 28 | 118 | 58 |
| 24 | 120 | 110 | 92 | a60 | 345 | 259 | 1,940 | 2,910 | a200 | 27 | 86 | 59 |
| 25 | 120 | 120 | 94 | a70 | 282 | 239 | 1,960 | 2,840 | a180 | 29 | 90 | 68 |
| 26 | 107 | 130 | 82 | a70 | 184 | 239 | 2,000 | 2,810 | a165 | 32 | 84 | 64 |
| 27 | 104 | 130 | 82 | a70 | 170 | 247 | 2,220 | 2,670 | a150 | 32 | 70 | 59 |
| 28 | 102 | 118 | 82 | a70 | 140 | 247 | 2,110 | 2,510 | a140 | 31 | 57 | 61 |
| 29 | 111 | 105 | 82 | a70 | - | 198 | 1,870 | 2,380 | a125 | 31 | 50 | 61 |
| 30 | 120 | 105 | 80 | a70 | ------- | 205 | 1,570 | 2,200 | 116 | 32 | 47 | 57 |
| 31 | 120 | ------- | 70 | a70 | ------- | 268 | ------- | 2,050 | ------- | 32 | 43 | ------- |
| Total | 2,891 | 3,900 | 2,957 | 2,195 | 3,814 | 5,016 | 32,091 | 94,020 | 20,140 | 1,568 | 1,581 | 2,173 |
| Mean | 93.3 | 130 | 95.4 | 70.8 | 136 | 162 | 1,070 | 3,033 | 671 | 50.6 | 51.0 | 72.4 |
| Ac-ft | 5,730 | 7,740 | 5,870 | 4,350 | 7,560 | 9,950 | 63,650 | 186,500 | 39,950 | 3,110 | 3,140 | 4,310 |

Calendar year 1957: Max 5,760 Min 25 Mean 561 Ac-ft 406,100
Water year 1957-58: Max 4,490 Min 25 Mean 472 Ac-ft 341,900

Peak discharge (base, 2,700 cfs).--Apr. 23 (1 a.m.) 3,100 cfs (4.94 ft); May 12 (4 a.m.) 5,460 cfs (5.55 ft); May 17 (10:45 p.m.) 5,770 cfs (5.62 ft).

a No gage-height record; discharge estimated on basis of recorded range in stage, weather records, and records for nearby stations.
Note.--Stage-discharge relation affected by ice Nov. 20 to Jan. 20, Feb. 1-22, Feb. 28 to Mar. 2, Mar. 10.

## 2845. 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 8½ miles southwest of Park View, Rio Arriba County.

Drainage area.--193 sq mi.

Records available.--May 1936 to September 1958 (no winter records prior to 1943).

Gage.--Water-stage recorder. Altitude of gage is 6,950 ft (from river-profile map). Prior to Oct. 1, 1937, at datum 0.79 ft higher.

Average discharge.--19 years (1939-58), 21.1 cfs (15,280 acre-ft per year).

Extremes.--Maximum discharge during year, 2,060 cfs Apr. 18 (gage height, 6.70 ft); no flow many days.
1936-58: 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 measurement of peak flow; no flow at times.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions for irrigation of about 300 acres above station.

Revisions (water years).--WSP 858: 1936.

Rating tables, water year 1957-58, except period of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to Feb. 21 | | | | Feb. 22 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.2 | 0.0 | 0.6 | 1.6 | 0.3 | 0.3 | 1.5 | 50 |
| .3 | .1 | .8 | 5.5 | .4 | .9 | 2.0 | 105 |
| .4 | .3 | 1.0 | 14 | .5 | 2.0 | 2.5 | 185 |
| .5 | .8 | | | .6 | 4.0 | 3.0 | 295 |
| | | | | .8 | 9.5 | 4.0 | 605 |
| | | | | 1.0 | 17 | 5.0 | 1,050 |

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 4 | 0 | 0 | 0 | 50 | *300 | 130 | 5 | 4 | 2 | 1 |
| 2 | 1 | 4 | 0 | 0 | 0 | 49 | 282 | 98 | 4 | 5 | 1 | 1 |
| 3 | 1 | 4 | 0 | 0 | 0 | 47 | 195 | 78 | 4 | 5 | 1 | 1 |
| 4 | 1 | 3 | 0 | 0 | 0 | 47 | 221 | 71 | 5 | 5 | 1 | 1 |
| 5 | 1 | 4 | 0 | 0 | 0 | 47 | 131 | 62 | 5 | 6 | 1 | 1 |
| 6 | 1 | 5 | 1 | 0 | 0 | 40 | 229 | 54 | 6 | 6 | 1 | 1 |
| 7 | 1 | 9 | 1 | 0 | 0 | 21 | 339 | 48 | 8 | 6 | 1 | 1 |
| 8 | 1 | 8 | 0 | 0 | 0 | 29 | 357 | 39 | 7 | 5 | 4 | 3 |
| 9 | 1 | 8 | 0 | 0 | 0 | 27 | 320 | 33 | 6 | 4 | 4 | 4 |
| 10 | 1 | 6 | 0 | 0 | 0 | 18 | 441 | 28 | 4 | 3 | 3 | 4 |
| 11 | 1 | 4 | 0 | 0 | 0 | 30 | 345 | 25 | 3 | 3 | 3 | 4 |
| 12 | 1 | 4 | 0 | 0 | 0 | 30 | 528 | 42 | 2 | 3 | 7 | *2 |
| 13 | 2 | 3 | *0 | 1 | 0 | 30 | 278 | 35 | 1 | 2 | 7 | 7 |
| 14 | 2 | 3 | 1 | *1 | 0 | 50 | 381 | *23 | 3 | *2 | 5 | 13 |
| 15 | 2 | 2 | 0 | 2 | 0 | 80 | 560 | 18 | 2 | 1 | 4 | 7 |
| 16 | 2 | 2 | 0 | 2 | 0 | 110 | 685 | 15 | 2 | 2 | 5 | 4 |
| 17 | *1 | 2 | 0 | 2 | 1 | 110 | *752 | 13 | 3 | 2 | 17 | 3 |
| 18 | 2 | 1 | 0 | 1 | 2 | 110 | *946 | 13 | 6 | 7 | 11 | 2 |
| 19 | 2 | 1 | 0 | 0 | 6 | 130 | 942 | 12 | 7 | 6 | *6 | 1 |
| 20 | 2 | 1 | 0 | 0 | 10 | 150 | 748 | 11 | 6 | 5 | 7 | 1 |
| 21 | 8 | 1 | 0 | 0 | 15 | 150 | 605 | 11 | 6 | 4 | 5 | 1 |
| 22 | 13 | 1 | 0 | 0 | 22 | 200 | 510 | 12 | 6 | 3 | 11 | 1 |
| 23 | 8 | 1 | 0 | 0 | 61 | 200 | 390 | 11 | 6 | 3 | 10 | 1 |
| 24 | 5 | 1 | 0 | 0 | 115 | 250 | 255 | 10 | 6 | 3 | 8 | 1 |
| 25 | 4 | 1 | 0 | 0 | 132 | 250 | 250 | 9 | 6 | 3 | 6 | 1 |
| 26 | 3 | 1 | 0 | 0 | 106 | 250 | 205 | 10 | 6 | 4 | 5 | 1 |
| 27 | 3 | 1 | 0 | 0 | 70 | 250 | 174 | *10 | 7 | 4 | 4 | 1 |
| 28 | 3 | 1 | 0 | 0 | *46 | 250 | 134 | 8 | 5 | 3 | 3 | 1 |
| 29 | 3 | *1 | 0 | 0 | - | 250 | *90 | 7 | 4 | 2 | 2 | 1 |
| 30 | *3 | 0 | 0 | 0 | ------- | 250 | 119 | 6 | *4 | 2 | 2 | 1 |
| 31 | 4 | ------- | *0 | *0 | ------- | 250 | ------- | 6 | ------- | 2 | 2 | ------- |
| Total | 84 | 87 | 3 | 9 | 586 | 3,755 | 11,712 | 948 | 145 | 115 | 149 | 72 |
| Mean | 2.7 | 2.9 | 0.1 | 0.3 | 20.9 | 121 | 390 | 30.6 | 4.8 | 3.7 | 4.8 | 2.4 |
| Ac-ft | 167 | 173 | 6.0 | 18 | 1,160 | 7,450 | 23,230 | 1,880 | 288 | 228 | 296 | 143 |

Calendar year 1957: Max 542 Min 0 Mean 20.9 Ac-ft 15,120
Water year 1957-58: Max 946 Min 0 Mean 48.4 Ac-ft 35,040

Peak discharge (base, 800 cfs).--Apr. 10 (8:15 p.m.) 901 cfs (4.68 ft); Apr. 18 (8 to 10 p.m.) 2,060 cfs (6.70 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Jan. 18, Feb. 17-21, 27, Mar. 11 to Apr. 1; discharge estimated on basis of 2 discharge measurements, available fragments of recorder trace, recorded range in stage, weather records, and records for nearby stations. Stage-discharge relation affected by ice Nov. 18 to Jan. 17.

## 2855. Rio Chama below El Vado Dam, N. Mex.

Location.--Lat 36°34'50", long 106°43'30", in Tierra Amarilla Grant, 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 1958 (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. Datum of gage is 6,696.12 ft above mean sea level, datum of 1929. 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 30.34 ft higher.

Average discharge.--22 years (1936-58), 387 cfs (280,200 acre-ft per year), subsequent to completion of El Vado Dam.

Extremes.--Maximum discharge during year, 4,760 cfs May 18 (gage height, 6.40 ft); minimum daily, 0.4 cfs Dec. 20 to Jan. 1.
1935-58: 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; no flow Mar. 25, 26, 31, 1955.

Remarks.--Records good except those for periods of ice effect, which are poor. Flow regulated since 1935 by El Vado Reservoir (see p. 432). Diversions for irrigation of about 8,000 acres above station.

Revisions (water years).--WSP 1392: 1949.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.8 | 0.2 | 1.7 | 97 |
| .9 | .7 | 2.0 | 191 |
| 1.0 | 2.2 | 2.5 | 410 |
| 1.1 | 5.7 | 3.0 | 700 |
| 1.2 | 12 | 4.0 | 1,510 |
| 1.3 | 22 | 5.0 | 2,630 |
| 1.5 | 52 | 6.0 | 4,100 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 45 | 968 | 69 | 0.4 | *0.6 | 73 | 777 | 1,370 | 2,530 | 100 | 1,950 | 38 |
| 2 | 45 | 952 | 49 | .5 | .6 | 97 | 777 | 1,360 | 2,490 | 78 | 1,920 | 760 |
| 3 | 44 | 922 | 1.2 | .5 | .6 | *97 | 770 | 1,370 | 2,630 | 60 | 1,930 | 997 |
| 4 | 44 | 900 | .8 | .5 | .6 | 103 | 604 | 1,380 | 2,910 | 58 | 1,400 | 478 |
| 5 | 44 | 870 | .8 | .5 | .6 | 103 | 425 | 1,010 | 1,560 | 58 | 975 | 764 |
| 6 | 44 | 833 | .6 | .5 | .6 | 103 | 415 | 266 | 785 | 56 | 990 | 1,080 |
| 7 | 44 | 812 | .6 | .5 | .6 | 103 | 420 | 17 | 1,100 | 54 | 998 | 1,080 |
| 8 | 44 | 777 | .6 | .5 | .6 | 125 | 842 | 18 | 1,170 | 52 | 998 | 1,070 |
| 9 | 44 | 742 | .6 | .5 | .6 | 163 | 1,140 | 18 | 1,030 | 56 | 1,050 | 1,070 |
| 10 | 44 | 676 | .6 | .5 | .6 | 184 | 1,130 | 20 | 735 | 38 | 1,040 | 789 |
| 11 | 44 | 338 | .5 | .5 | .6 | 184 | 1,140 | 21 | 676 | 35 | 1,080 | 502 |
| 12 | 45 | 163 | .5 | .5 | .6 | 184 | 1,130 | 36 | *540 | 32 | 491 | *275 |
| 13 | 60 | 156 | *.5 | .5 | .6 | *184 | 1,130 | *26 | 466 | 26 | 28 | 49 |
| 14 | 85 | 147 | .5 | .5 | *.6 | 177 | *1,110 | 279 | 466 | *23 | 31 | 80 |
| 15 | 163 | *150 | .5 | .5 | .6 | 174 | 1,110 | 720 | 466 | 22 | 31 | 137 |
| 16 | 203 | 150 | .5 | .5 | .7 | 177 | 1,120 | 1,070 | 286 | 22 | 31 | 160 |
| 17 | *90 | 153 | .5 | .5 | 2 | 180 | 1,130 | 1,500 | 262 | 21 | 31 | 160 |
| 18 | 49 | 150 | .5 | .5 | 4 | 177 | 1,130 | 2,010 | 310 | 22 | 34 | 160 |
| 19 | 111 | 122 | .5 | .5 | 5.7 | 177 | 1,170 | 2,140 | 310 | 21 | *42 | 89 |
| 20 | 163 | 87 | .4 | .5 | 5.7 | 174 | 1,180 | 2,330 | 315 | 20 | 85 | 50 |
| 21 | 160 | 65 | .4 | .5 | 7.6 | 174 | 30 | 2,530 | 315 | 19 | 111 | 50 |
| 22 | 160 | 50 | .4 | .5 | 4.8 | 174 | 12 | 2,730 | 320 | 19 | 111 | 49 |
| 23 | 191 | 50 | .4 | .5 | 3.3 | 174 | 12 | 2,870 | 1,300 | 486 | 108 | 36 |
| 24 | 226 | 50 | .4 | .5 | 9.1 | 184 | 572 | 3,070 | 3,620 | 562 | 108 | 11 |
| 25 | 108 | 50 | .4 | .5 | 11 | 188 | 1,320 | 3,180 | 2,940 | 526 | 111 | 70 |
| 26 | 37 | 50 | .4 | .5 | 5.2 | 191 | 882 | 3,010 | 207 | 372 | 108 | 108 |
| 27 | 65 | 69 | .4 | .6 | 3.3 | 191 | 722 | 2,960 | 180 | 701 | 67 | 68 |
| 28 | 87 | 70 | .4 | .6 | *11 | 195 | 975 | 3,040 | 125 | 1,090 | 52 | 42 |
| 29 | 147 | 71 | .4 | .6 | - | 195 | 1,210 | *2,780 | 117 | 1,170 | *56 | 54 |
| 30 | 774 | *71 | .4 | .6 | ------- | 195 | *1,370 | 2,450 | *108 | *1,150 | 56 | *62 |
| 31 | *982 | ------- | *.4 | .6 | ------- | *546 | ------- | 2,300 | ------- | 1,620 | 56 | ------- |
| Total | 4,392 | 10,664 | 133.1 | 15.9 | 82.4 | 5,346 | 25,775 | 47,881 | 30,269 | 8,569 | 16,079 | 10,338 |
| Mean | 142 | 355 | 4.29 | 0.51 | 2.94 | 172 | 858 | 1,545 | 1,009 | 276 | 519 | 345 |
| Ac-ft | 8,710 | 21,150 | 264 | 32 | 163 | 10,600 | 51,080 | 94,970 | 60,040 | 17,000 | 31,890 | 20,510 |

Calendar year 1957: Max 2,820 Min 0.4 Mean 597 Ac-ft 432,200
Water year 1957-58: Max 3,620 Min 0.4 Mean 437 Ac-ft 316,400

* Discharge measurement made on this day.
Note.--Stage-discharge relation affected by ice Nov. 22-26, 28, Dec. 11 to Feb. 18, Mar. 2.

## 2875. Rio Chama near Abiquiu, N. Mex.

Location.--Lat 36°13'00", long 106°15'00", in Juan Jose Lobato Grant, at downstream end of bridge pier on State Highway 96, 1¾ miles upstream from El Rito Creek, 5 miles downstream from Abiquiu, Rio Arriba County, and 13.5 miles downstream from Abiquiu dam site (dam under construction).

Drainage area.--2,170 sq mi, approximately.

Records available.--January 1942 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 5,873.17 ft above mean sea level, datum of 1929.

Average discharge.--16 years, 374 cfs (270,800 acre-ft per year).

Extremes.--Maximum discharge during year, 4,400 cfs June 25 (gage height, 5.65 ft); minimum daily not determined, probably occurred during ice period.
1942-58: Maximum discharge, 7,870 cfs July 28, 1952 (gage height, 6.18 ft, from floodmark), from rating curve extended above 2,900 cfs; minimum daily, 1 cfs June 11, 1947.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Flow regulated by El Vado Reservoir (see p. 432). Diversions for irrigation of about 18,500 acres above station.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 12 to Nov. 5, Apr. 10-30, May 17-27, and July 20-23)

| | | | |
|---|---|---|---|
| 2.0 | 17 | 3.4 | 590 |
| 2.1 | 27 | 3.8 | 950 |
| 2.3 | 59 | 4.2 | 1,440 |
| 2.5 | 110 | 4.6 | 2,060 |
| 2.7 | 179 | 5.1 | 3,010 |
| 3.0 | 320 | 5.6 | 4,260 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 85 | 1,050 | 80 | | 15 | 90 | 850 | 2,140 | 2,300 | 142 | 1,980 | 52 |
| 2 | 73 | 1,040 | 90 | | 18 | 90 | *930 | 2,340 | 2,660 | *123 | 1,830 | 50 |
| 3 | 70 | 1,060 | 80 | | 22 | *149 | 900 | 2,040 | 2,230 | 123 | 1,860 | *948 |
| 4 | 66 | 1,090 | 70 | | *28 | 180 | 890 | 2,360 | 2,760 | 93 | 1,860 | 555 |
| 5 | 64 | 1,240 | 61 | | 33 | 160 | 522 | 2,520 | 2,670 | 82 | 940 | 432 |
| 6 | 61 | 983 | 55 | | 30 | 175 | 438 | 1,660 | 679 | 75 | 972 | 872 |
| 7 | 61 | 890 | 45 | | 28 | 183 | 508 | 1,130 | 1,070 | *73 | 1,040 | 983 |
| 8 | *57 | 870 | 35 | (*) | 28 | 196 | 715 | *1,000 | 1,280 | 68 | 1,040 | 994 |
| 9 | 57 | 823 | 35 | | 28 | 254 | 1,320 | 930 | 1,210 | 64 | 1,060 | 994 |
| 10 | 59 | 778 | 35 | | 33 | 235 | 1,230 | 930 | 940 | 59 | 1,100 | 994 |
| 11 | 59 | 697 | *30 | 15 | 38 | 244 | 1,280 | 920 | 724 | 59 | *983 | 560 |
| 12 | 158 | 358 | 30 | | 57 | 244 | 1,230 | 950 | 715 | 52 | a1,050 | 466 |
| 13 | 107 | 221 | 30 | | 52 | 230 | 1,220 | 950 | *530 | 50 | a400 | 369 |
| 14 | 85 | 208 | 30 | | 54 | 235 | 1,390 | 832 | 508 | 41 | a200 | 157 |
| 15 | 90 | 200 | 30 | | 37 | 235 | 1,360 | 1,110 | 501 | 37 | 102 | 120 |
| 16 | 142 | 200 | 30 | | 37 | 263 | 1,470 | 1,700 | 464 | 35 | 68 | 132 |
| 17 | 183 | 204 | 30 | | 106 | 426 | 1,390 | 1,990 | 304 | 33 | 55 | 160 |
| 18 | 126 | 200 | 30 | | 357 | 452 | 1,540 | 2,320 | 284 | 40 | 102 | 164 |
| 19 | 149 | 192 | 25 | | 458 | 487 | 2,090 | 2,790 | 326 | 68 | *93 | 164 |
| 20 | 430 | 160 | 20 | | 524 | 412 | 2,390 | 2,900 | 326 | 52 | 116 | 153 |
| 21 | 424 | 130 | 20 | 10 | *602 | 445 | 1,850 | 2,900 | 338 | 37 | 68 | a90 |
| 22 | *380 | 110 | 20 | 10 | 795 | 575 | 1,480 | *3,170 | 338 | *27 | 256 | a80 |
| 23 | 254 | 90 | 20 | 10 | 783 | 560 | 1,540 | 3,380 | 320 | 23 | 179 | a70 |
| 24 | 235 | 80 | 20 | | 588 | 522 | 994 | 3,480 | *2,250 | 368 | 132 | *64 |
| 25 | 268 | 80 | 15 | | 581 | 466 | *2,410 | 3,600 | 4,180 | 560 | 123 | 55 |
| 26 | 187 | *80 | 15 | | 659 | 380 | 2,560 | 3,660 | *1,160 | 568 | 120 | 31 |
| 27 | 70 | 80 | 15 | 15 | *278 | 338 | 1,780 | 3,290 | 294 | 350 | 123 | 79 |
| 28 | 61 | 80 | 15 | | 142 | 350 | 2,130 | 3,240 | 254 | 975 | 104 | 116 |
| 29 | 113 | 80 | 15 | | - | 294 | 1,830 | 3,170 | 196 | 1,220 | 66 | 68 |
| 30 | *160 | 80 | 15 | | ------- | 226 | 2,300 | 2,560 | 157 | 1,310 | 57 | 55 |
| 31 | *1,030 | ------- | 15 | | ------- | 249 | ------- | 2,280 | ------- | 1,230 | 55 | ------- |
| Total | 5,364 | 13,334 | 1,056 | 450 | 6,389 | 9,325 | 42,537 | 68,242 | 31,998 | 8,037 | 18,134 | 10,027 |
| Mean | 173 | 444 | 34.1 | 14.5 | 228 | 301 | 1,418 | 2,201 | 1,067 | 259 | 585 | 334 |
| Ac-ft | 10,640 | 26,450 | 2,090 | 893 | 12,670 | 18,500 | 84,370 | 135,400 | 63,470 | 15,940 | 35,970 | 19,890 |

Calendar year 1957: Max 3,010 Min 15 Mean 681 Ac-ft 493,100
Water year 1957-58: Max 4,180 Min - Mean 589 Ac-ft 426,300

* 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 upstream and downstream stations.
Note.--Stage-discharge relation affected by ice Nov. 20 to Dec. 4, Dec. 7 to Feb. 3.

## 2890. Rio Ojo Caliente at La Madera, N. Mex.

Location.--Lat 36°20'59", long 106°02'38", in NW¼NE¼ sec. 1, T. 24 N., R. 8 E., on left bank 400 ft upstream from bridge on State Highway 111, 2¼ miles south of La Madera, 2¾ miles downstream from confluence of Rio Vallecitos and Rio Tusas, and 3¼ miles north of Ojo Caliente.

Drainage area.--419 sq mi.

Records available.--April 1932 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 6,358.84 ft above mean sea level, datum of 1929. Prior to Apr. 23, 1934, at site about 2⅝ miles upstream at different datums. Apr. 23, 1934, to June 22, 1936, at datum 12.58 ft lower and June 23, 1936, to Oct. 27, 1956, at datum 13.84 ft lower, both at site 1,400 ft downstream.

Average discharge.--26 years, 76.4 cfs (55,310 acre-ft per year).

Extremes.--Maximum discharge during year, 3,140 cfs Apr. 21 (gage height, 6.42 ft), from rating curve extended above 1,300 cfs by logarithmic plotting; minimum daily, 4.2 cfs Aug. 9-12.
1932-58: Maximum discharge, that of Apr. 21, 1958; maximum gage height, 7.60 ft July 15, 1933, site and datum then in use; minimum daily discharge, 0.6 cfs Aug. 18, Sept. 17, 1956.

Remarks.--Records good. Diversions above station for irrigation of about 8,400 acres.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-3, May 1-22)

| Oct. 3 to Apr. 30 | | | | May 1 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.6 | 5.8 | 4.0 | 143 | 2.5 | 4.2 | 4.0 | 215 |
| 2.8 | 11 | 4.5 | 315 | 2.6 | 6.5 | 4.5 | 420 |
| 3.0 | 18 | 5.0 | 650 | 2.8 | 14 | 5.0 | 780 |
| 3.3 | 36 | 5.5 | 1,240 | 3.0 | 27 | 5.5 | 1,330 |
| 3.6 | 69 | 6.0 | 2,090 | 3.3 | 60 | 6.0 | 2,090 |
| | | | | 3.6 | 111 | | |

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.7 | 28 | 36 | 20 | 20 | 42 | 141 | 807 | 130 | 5.1 | 4.7 | 5.4 |
| 2 | 7.2 | 34 | 36 | 20 | 20 | 40 | *151 | 890 | 115 | 5.4 | 4.7 | 5.4 |
| 3 | 7.5 | 35 | 33 | 24 | 23 | 38 | 116 | 834 | *100 | 5.4 | 4.7 | 5.1 |
| 4 | 6.9 | 35 | 35 | 27 | *25 | *46 | 148 | 1,080 | 85 | 5.1 | 4.9 | *5.8 |
| 5 | 6.9 | 54 | 40 | 26 | 28 | 38 | 99 | 1,510 | 82 | 4.7 | 4.9 | 6.3 |
| 6 | 7.1 | 72 | 36 | 22 | 27 | 41 | 107 | 1,610 | 74 | 7.8 | 4.9 | 9.7 |
| 7 | 7.1 | 74 | 31 | 23 | 28 | 42 | 159 | 1,540 | 96 | 7.8 | *5.1 | 13 |
| 8 | *7.1 | 61 | 37 | *24 | 25 | 40 | 164 | *1,680 | 80 | 6.3 | 4.7 | 9.8 |
| 9 | 8.0 | 64 | 36 | 22 | 28 | 42 | 143 | 1,600 | 63 | *5.6 | 4.2 | 9.8 |
| 10 | 8.3 | 55 | 32 | 22 | 27 | 34 | 146 | 1,330 | 54 | 5.6 | 4.2 | 12 |
| 11 | 7.6 | 49 | *31 | 23 | 26 | 36 | 178 | 1,160 | 48 | 5.6 | 4.2 | 9.8 |
| 12 | 11 | 55 | 31 | 22 | 24 | 40 | 129 | 1,050 | 44 | 5.1 | 4.2 | 8.2 |
| 13 | 14 | 50 | 31 | 20 | 27 | 39 | 148 | 726 | *40 | 4.9 | 4.4 | 81 |
| 14 | 14 | 46 | 32 | 24 | 25 | 38 | 269 | 589 | 33 | 4.9 | 5.4 | 33 |
| 15 | 13 | 47 | 33 | 21 | 25 | 39 | 438 | 527 | 27 | 4.9 | 4.9 | 22 |
| 16 | 13 | 45 | 35 | 22 | 28 | 47 | 470 | 534 | 21 | 4.9 | 4.9 | 17 |
| 17 | 13 | 45 | 35 | 22 | 28 | 61 | 535 | 501 | 18 | 4.7 | 5.1 | 14 |
| 18 | 11 | 42 | 33 | 23 | 22 | 68 | 891 | 458 | 16 | 5.4 | 5.6 | 13 |
| 19 | 22 | 41 | 30 | 23 | 36 | *70 | 1,480 | 426 | 15 | 6.5 | 5.8 | 13 |
| 20 | 54 | 43 | 24 | 24 | 44 | 69 | 1,580 | 415 | 12 | 5.6 | 6.0 | 12 |
| 21 | 80 | *37 | 32 | 20 | *52 | 89 | 1,720 | 395 | 11 | 5.4 | 6.5 | 11 |
| 22 | *157 | 29 | 33 | 22 | 57 | 112 | *1,970 | 385 | 9.8 | *5.1 | 11 | 10 |
| 23 | 55 | 40 | 29 | 25 | 56 | 116 | *1,800 | 395 | 8.8 | 5.1 | 14 | 9.8 |
| 24 | 40 | 52 | 32 | 25 | 59 | 116 | 1,230 | 338 | 8.2 | 5.4 | 38 | *9.8 |
| 25 | 35 | 52 | 28 | 26 | 74 | 125 | 1,340 | 297 | *6.8 | 5.4 | 17 | 9.1 |
| 26 | 32 | 54 | 25 | 25 | 74 | 143 | 1,530 | 274 | 6.5 | 5.1 | 9.1 | 9.1 |
| 27 | 28 | 53 | 28 | 25 | 54 | 127 | 1,670 | 246 | 6.3 | 4.9 | 7.5 | 9.5 |
| 28 | 26 | 40 | 26 | 24 | 42 | 134 | 1,240 | 218 | 5.6 | 4.7 | 6.5 | 10 |
| 29 | 25 | 42 | 27 | 23 | - | 89 | 787 | 194 | 5.6 | 4.9 | 6.0 | 10 |
| 30 | 25 | 32 | 28 | 24 | ------- | 92 | 688 | 171 | 5.6 | 4.9 | 5.8 | 10 |
| 31 | 27 | ------- | 20 | 23 | ------- | 134 | ------- | 154 | ------- | 4.9 | 5.4 | ------- |
| Total | 775.4 | 1,406 | 975 | 716 | 1,012 | 2,187 | 21,467 | 22,334 | 1,227.2 | 167.1 | 224.3 | 403.6 |
| Mean | 25.0 | 46.9 | 31.5 | 23.1 | 36.1 | 70.5 | 716 | 720 | 40.9 | 5.39 | 7.24 | 13.5 |
| Ac-ft | 1,540 | 2,790 | 1,930 | 1,420 | 2,010 | 4,340 | 42,580 | 44,300 | 2,430 | 331 | 445 | 801 |

Calendar year 1957: Max 984 Min 6.2 Mean 105 Ac-ft 75,820
Water year 1957-58: Max 1,970 Min 4.2 Mean 145 Ac-ft 104,900

Peak discharge (base, 600 cfs).--Apr. 21 (11:30 p.m.) 3,140 cfs (6.42 ft); Apr. 27 (12:10 a.m.) 2,370 cfs (6.11 ft); May 6 (3 a.m.) 2,250 cfs (6.33 ft).

* Discharge measurement made on this day.

## 2900. Rio Chama near Chamita, N. Mex.

Location.--Lat 36°04'25", long 106°06'39", in NE¼NE¼ sec. 8, T. 21 N., R. 8 E., on left bank 200 ft downstream from bridge on U. S. Highway 285, half a mile west of Chamita, 2½ miles northwest of San Juan Pueblo, and 3 miles upstream from mouth.

Drainage area.--3,200 sq mi, approximately.

Records available.--October 1912 to June 1915 and October 1930 to September 1958 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 datums. Oct. 4, 1933, to Mar. 1, 1942, at site 150 ft upstream at datum 0.22 ft higher.

Average discharge.--45 years (1912-17, 1918-58), 608 cfs (440,200 acre-ft per year).

Extremes.--Maximum discharge during year, 4,830 cfs Apr. 20 (gage height, 5.94 ft); minimum daily, 5.9 cfs July 14.
1912-13, 1929-58: Maximum discharge, 10,400 cfs Aug. 12, 1929; maximum gage height, 8.33 ft May 16, 1941; no flow at times.

Remarks.--Records fair except those for periods of ice effect or doubtful gage-height record, which are poor. Discharge measurements generally made 2 or 3 times a month. Diversions above station for irrigation of about 30,000 acres, a few hundred of which are below station. Flow partly regulated by El Vado Reservoir (see p. 432) 77 miles upstream. Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1512: 1913-15, 1929(M), 1934, 1936.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-17, Oct. 31 to Nov. 24, Dec. 18 to Feb. 27, Apr. 4-15, May 12 to June 5, June 24, 25, July 7-10, July 28 to Sept. 16)

| Oct. 1 to Feb. 18 | | | | Feb. 19 to Sept. 30 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.7 | 25 | 2.5 | 322 | 1.2 | 3.8 | 1.8 | 100 | 3.0 | 800 |
| 1.8 | 43 | 3.0 | 680 | 1.3 | 8.6 | 2.0 | 180 | 4.0 | 1,960 |
| 1.9 | 66 | 3.5 | 1,230 | 1.4 | 17 | 2.3 | 310 | 5.0 | 3,370 |
| 2.0 | 100 | 4.0 | 2,000 | 1.6 | 47 | 2.6 | 480 | 6.0 | 4,940 |
| 2.2 | 174 | | | | | | | | |

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 54 | 1,100 | 129 | 69 | 52 | 188 | 836 | 3,300 | 2,470 | d150 | 1,940 | 10 |
| 2 | 50 | 1,130 | 147 | 69 | 59 | 188 | 1,010 | 3,610 | 2,750 | d100 | 1,920 | 8.6 |
| 3 | 45 | 1,110 | 140 | b70 | 59 | 224 | 1,020 | 3,340 | 2,320 | d80 | 1,900 | 557 |
| 4 | 45 | 1,110 | 136 | b68 | 64 | 236 | 1,020 | 3,600 | 2,810 | 61 | 1,910 | 706 |
| 5 | 43 | 1,870 | 122 | 66 | 80 | 236 | 800 | 4,120 | 2,980 | 40 | 1,140 | 408 |
| 6 | 45 | 1,180 | 114 | 57 | 66 | 228 | 755 | 3,850 | 1,080 | 35 | 950 | 763 |
| 7 | 45 | 1,040 | 93 | 61 | 73 | 248 | 791 | 3,180 | 1,070 | 34 | 960 | 960 |
| 8 | 41 | 969 | 100 | 61 | 59 | 236 | 970 | 2,850 | 1,290 | 35 | 950 | 940 |
| 9 | 39 | 1,000 | 97 | 69 | 66 | 260 | 1,460 | 2,630 | 1,280 | 33 | 960 | 930 |
| 10 | 37 | 914 | 83 | 73 | 80 | 270 | 1,570 | 2,510 | 1,110 | 21 | 1,020 | 930 |
| 11 | 39 | 780 | 90 | b70 | 80 | 275 | 1,590 | 2,430 | 800 | 14 | 940 | 648 |
| 12 | 203 | 485 | 90 | b62 | 100 | 280 | 1,600 | 2,370 | 764 | 10 | 970 | 480 |
| 13 | 216 | 328 | 90 | 52 | 97 | 285 | 1,520 | 2,140 | 598 | 7.6 | 541 | 908 |
| 14 | 151 | 300 | 86 | 54 | 100 | 280 | 1,760 | 1,750 | 522 | 5.9 | 118 | 320 |
| 15 | 132 | 256 | 93 | 57 | 86 | 295 | 1,870 | 1,780 | 474 | 7.0 | 54 | 160 |
| 16 | 147 | 277 | 90 | 59 | 69 | 310 | 2,170 | 2,260 | 462 | 8.6 | 27 | 144 |
| 17 | 294 | 277 | 86 | 66 | 83 | 438 | 2,090 | 2,460 | 438 | 8.6 | 17 | 232 |
| 18 | 208 | 256 | 93 | 61 | 374 | 508 | 2,480 | 3,020 | 402 | 34 | 16 | 240 |
| 19 | 1,100 | 241 | b85 | b58 | 606 | 522 | 3,500 | 3,340 | 432 | 34 | 73 | 240 |
| 20 | 488 | 221 | b80 | b50 | 746 | 487 | 4,150 | 3,420 | 408 | 15 | 64 | 236 |
| 21 | 714 | b190 | 76 | b35 | 791 | 474 | 3,870 | 3,430 | 402 | 17 | 29 | 120 |
| 22 | 612 | b170 | 86 | b40 | 965 | 614 | 3,630 | 3,540 | 402 | 14 | 173 | 61 |
| 23 | 316 | b160 | 97 | b40 | 936 | 646 | 3,670 | 3,740 | 426 | 10 | 228 | 56 |
| 24 | 261 | b160 | 90 | b45 | 764 | 622 | 2,790 | 3,740 | 1,760 | 193 | 166 | 54 |
| 25 | 277 | 170 | b70 | b45 | 755 | 606 | 3,680 | 3,870 | 3,750 | 590 | 140 | 44 |
| 26 | 256 | 166 | b80 | b50 | 830 | 543 | 4,080 | 3,880 | 1,860 | 566 | 97 | 30 |
| 27 | 166 | 163 | 90 | b50 | 488 | 494 | 3,520 | 3,550 | 355 | 420 | 68 | 56 |
| 28 | 170 | 136 | 86 | b50 | 265 | 508 | 3,730 | 3,550 | 310 | 723 | 44 | 200 |
| 29 | 178 | 132 | 90 | b50 | - | 480 | 2,920 | 3,520 | 232 | 1,110 | 24 | 115 |
| 30 | 174 | 140 | 93 | b50 | ------- | 432 | 3,280 | 3,130 | 188 | 1,200 | 13 | 49 |
| 31 | 797 | ------- | 73 | b50 | ------- | 426 | ------- | 2,670 | ------- | 1,190 | 14 | ------- |
| Total | 7,343 | 16,431 | 2,975 | 1,757 | 8,793 | 11,839 | 68,112 | 96,580 | 34,145 | 6,766.7 | 17,466 | 10,605.6 |
| Mean | 237 | 548 | 96.0 | 56.7 | 314 | 382 | 2,270 | 3,115 | 1,138 | 218 | 563 | 354 |
| Ac-ft | 14,560 | 32,590 | 5,900 | 3,480 | 17,440 | 23,480 | 135,100 | 191,600 | 67,730 | 13,420 | 34,640 | 21,040 |

Calendar year 1957: Max 3,020 Min 37 Mean 790 Ac-ft 571,700
Water year 1957-58: Max 4,150 Min 5.9 Mean 775 Ac-ft 561,000

b Stage-discharge relation affected by ice.
d Doubtful gage-height record; discharge estimated on basis of 1 discharge measurement, recorder trace, reconstructed recorder graph, weather records, and records for nearby stations.

## 2910. Santa Cruz River 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 0.6 mile northwest of Cundiyo.

Drainage area.--86 sq mi, approximately.

Records available.--September 1931 to September 1958 in reports of Geological Survey. September 1915 to December 1931 (published as Rio Medio at Cundiyo prior to 1930 and Rio Santa Cruz above Chimayo in 1930-31) in reports of State engineer.

Gage.--Water-stage recorder. Concrete control since Jan. 3, 1954. Altitude of gage is 6,460 ft (from topographic map). Prior to January 1930, staff gage at approximately same site at different datum. Sept. 1, 1930, to Aug. 12, 1932, water-stage recorder at site about 1 mile downstream at different datum. Aug. 13, 1932, to Oct. 29, 1934, water-stage recorder at site 35 ft upstream at datum 0.42 ft higher. Oct. 30, 1934, to Jan. 2, 1954, water-stage recorder at present site at datum 0.64 ft lower.

Average discharge.--42 years (1915-29, 1930-58), 32.3 cfs (23,380 acre-ft per year).

Extremes.--Maximum discharge during year, 370 cfs May 27 (gage height, 3.20 ft); minimum daily, 8 cfs Feb. 13.
1931-58: Maximum discharge, 2,420 cfs Sept. 24, 1931 (gage height, 7.8 ft), 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.

Revisions (water years).--WSP 1392: 1931(M), 1932-33, 1934-39(M), 1942, 1943(M).

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 20-28)

| | | | |
|---|---|---|---|
| 1.6 | 8.2 | 2.3 | 78 |
| 1.7 | 13 | 2.6 | 145 |
| 1.8 | 19 | 2.9 | 240 |
| 2.0 | 37 | 3.2 | 370 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 19 | 24 | a21 | 10 | 10 | 17 | 39 | 169 | 248 | 46 | 15 | 13 |
| 2 | 19 | 22 | a22 | 11 | 10 | 18 | 42 | 184 | 248 | 42 | 14 | 12 |
| 3 | 18 | 23 | a21 | 12 | 11 | 18 | 38 | 160 | 256 | 42 | 14 | *12 |
| 4 | 18 | 23 | *20 | 12 | *11 | *18 | 42 | 154 | 272 | 37 | 16 | 12 |
| 5 | 18 | 25 | 20 | 12 | 10 | 15 | 33 | 181 | 268 | 37 | 22 | 11 |
| 6 | 23 | 24 | 18 | *12 | 10 | 16 | 29 | 212 | 252 | 39 | 23 | 16 |
| 7 | 20 | 23 | 18 | 11 | 9.1 | 16 | 39 | 212 | 240 | 37 | 28 | 17 |
| 8 | 18 | 23 | 16 | 12 | 8.6 | 17 | *48 | 208 | 240 | 34 | 25 | 16 |
| 9 | *18 | 22 | 15 | 12 | 9.1 | 16 | 48 | 212 | 216 | 30 | 25 | 14 |
| 10 | 18 | 22 | 14 | 11 | 9.1 | 15 | 51 | 208 | 190 | 31 | 22 | 14 |
| 11 | 17 | 21 | 14 | 11 | 9.1 | 14 | 49 | 216 | 172 | 28 | 19 | 14 |
| 12 | 24 | *24 | 14 | 10 | 9.1 | 12 | 51 | 219 | 166 | 26 | 20 | 14 |
| 13 | 20 | 23 | 14 | 12 | 9 | 12 | 45 | 230 | 154 | 25 | 19 | 46 |
| 14 | 20 | 22 | 14 | 11 | 8.5 | 13 | 47 | 236 | 142 | 23 | *20 | 44 |
| 15 | 20 | 21 | 14 | 12 | 9 | 13 | 70 | 226 | 132 | 24 | 18 | 22 |
| 16 | 20 | 21 | 14 | 11 | 9.6 | 14 | 96 | 248 | 120 | *26 | 15 | 18 |
| 17 | 20 | 20 | 13 | 11 | 11 | 16 | 105 | 244 | *111 | 30 | 14 | 16 |
| 18 | 20 | 18 | 13 | 12 | 11 | 18 | 113 | 248 | 105 | 44 | 14 | 15 |
| 19 | 30 | 17 | 13 | 12 | 12 | 20 | 142 | 236 | 96 | 33 | 16 | 17 |
| 20 | 33 | 17 | 12 | 11 | 13 | 20 | 166 | 244 | 88 | 28 | 16 | 14 |
| 21 | 33 | 16 | 13 | 10 | 14 | *24 | 205 | 244 | 86 | 25 | 24 | 13 |
| 22 | 33 | a15 | 13 | 9 | 17 | 29 | *216 | 244 | 80 | 24 | 27 | 13 |
| 23 | 27 | a16 | 13 | 10 | 18 | 37 | 216 | 233 | 72 | 21 | 21 | 13 |
| 24 | 25 | a18 | 13 | 10 | 22 | 37 | 202 | 268 | 70 | *20 | 21 | 13 |
| 25 | 24 | a17 | 12 | 12 | 28 | 31 | 199 | 296 | *61 | 19 | 18 | 11 |
| 26 | 22 | a16 | 12 | 12 | 25 | 28 | 202 | 304 | 55 | 18 | 17 | 11 |
| 27 | 20 | a17 | 13 | 12 | 19 | 30 | 196 | 335 | 54 | 18 | 15 | 13 |
| 28 | 20 | a16 | 13 | 11 | *16 | 33 | 187 | *355 | 49 | 18 | 15 | 18 |
| 29 | *20 | a17 | 12 | 12 | - | 27 | 151 | 325 | 47 | 17 | 16 | 14 |
| 30 | 20 | a19 | 12 | 12 | ------- | 27 | 154 | 308 | 45 | 18 | 16 | 12 |
| 31 | 20 | ------- | 11 | 11 | ------- | 33 | ------- | 272 | ------- | 16 | 13 | ------- |
| Total | 677 | 602 | 457 | 349 | 357.2 | 654 | 3,221 | 7,431 | 4,335 | 876 | 578 | 488 |
| Mean | 21.8 | 20.1 | 14.7 | 11.3 | 12.8 | 21.1 | 107 | 240 | 144 | 28.3 | 18.6 | 16.3 |
| Ac-ft | 1,340 | 1,190 | 906 | 692 | 708 | 1,300 | 6,390 | 14,740 | 8,600 | 1,740 | 1,150 | 968 |

Calendar year 1957: Max 149 Min 4 Mean 39.0 Ac-ft 28,250
Water year 1957-58: Max 355 Min 8 Mean 54.9 Ac-ft 39,720

Peak discharge (base, 200 cfs).--Apr. 21 (11 p.m.) 244 cfs (2.91 ft); May 27 (8 p.m.) 370 cfs (3.20 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of reconstructed recorder graph, weather records, and records for nearby stations.
Note.--Stage-discharge relation affected by ice Nov. 19-21, Dec. 9 to Jan. 25, Feb. 3, 13-15, Feb. 27 to Mar. 3, Mar. 5, 10-14 (no gage-height record Jan. 26 to Feb. 2).

## 3130. Rio Grande at Otowi Bridge, near San Ildefonso, N. Mex.

Location.--Lat 35°52'25", long 106°08'15", near right bank on downstream side of pier of former railway bridge, 400 ft downstream from bridge on State Highway 4, 1¼ miles southwest of San Ildefonso Pueblo, 2½ miles downstream from Pojoaque River, and 7 miles west of Pojoaque.

Drainage area.--14,300 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--February 1895 to December 1905, June 1909 to December 1914, and October 1930 to September 1958 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, as "at Rio Grande", and as "near Buckman."

Gage.--Water-stage recorder. Datum of gage is 5,488.48 ft above mean sea level, datum of 1929. Prior to May 19, 1904, and July 25 to Oct. 1, 1904, staff gage at site 180 ft upstream at datum 2.02 ft lower. May 19 to July 24, 1904, Oct. 2, 1904, to Dec. 31, 1905, and June 23, 1909, to May 31, 1910, staff gage or chain gage at same site and datum.

Average discharge.--55 years (1895-1905, 1909-14, 1915-16, 1919-58), 1,608 cfs (1,164,000 acre-ft per year).

Extremes.--Maximum discharge during year, 11,000 cfs May 29 (gage height, 8.71 ft); minimum daily, 257 cfs July 15.
1898-99, 1904-5, 1930-58: Maximum discharge determined, 22,500 cfs May 16, 1941; maximum gage height, 13.70 ft May 14, 1941; minimum daily discharge, 62 cfs July 12-14, 1904.

Remarks.--Records good. Discharge measurements generally made three times a month. Flow partly regulated by El Vado Reservoir (see p. 432) 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, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1512: 1895-99, 1904-6, 1911-12, 1914, 1931(M), 1935.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 456 | 2,410 | 940 | 754 | 689 | 837 | 1,530 | 6,400 | 9,540 | 601 | 1,860 | 291 |
| 2 | 447 | 2,440 | 948 | 734 | 683 | 809 | 1,850 | 6,710 | 9,030 | 547 | 2,030 | 272 |
| 3 | 447 | 2,450 | 940 | 740 | 702 | 858 | 1,600 | 6,080 | 8,330 | 514 | 2,030 | 574 |
| 4 | 434 | 2,390 | 940 | 767 | 728 | 988 | 1,790 | 6,160 | 8,150 | 501 | 2,020 | 1,170 |
| 5 | 422 | 3,080 | 996 | 774 | 734 | 1,040 | 1,530 | 6,780 | 7,970 | 470 | 1,550 | 703 |
| 6 | 434 | 2,460 | 1,050 | 754 | 734 | 1,080 | 1,290 | 7,050 | 6,020 | 496 | 1,245 | 984 |
| 7 | 426 | 2,490 | 1,000 | 740 | 714 | 1,130 | 1,350 | 6,980 | 5,120 | 547 | 1,270 | 1,200 |
| 8 | 434 | 2,480 | 1,030 | 747 | 708 | 1,130 | 1,620 | 7,470 | 5,330 | 474 | 1,254 | 1,170 |
| 9 | 438 | 2,350 | 1,080 | 754 | 728 | 1,120 | 2,170 | 7,820 | 5,500 | 423 | 1,254 | 1,140 |
| 10 | 438 | 2,390 | 1,080 | 740 | 734 | 1,120 | 2,410 | 8,060 | 5,700 | 376 | 1,288 | 1,110 |
| 11 | 430 | 2,350 | 1,060 | 760 | 734 | 1,080 | 2,540 | 8,480 | 5,500 | 318 | 1,288 | 878 |
| 12 | 852 | 1,900 | 1,040 | 781 | 747 | 1,050 | 2,670 | 9,010 | 5,100 | 300 | 1,288 | 642 |
| 13 | 740 | 1,480 | 988 | 754 | 760 | 1,080 | 2,500 | 9,230 | 4,350 | 286 | 953 | 1,900 |
| 14 | 602 | 1,360 | 964 | 767 | 760 | 996 | 2,710 | 9,030 | 3,220 | 280 | 415 | 912 |
| 15 | 560 | 1,310 | 948 | 760 | 754 | 1,040 | 2,840 | 9,010 | 2,740 | 257 | 338 | 561 |
| 16 | 586 | 1,350 | 972 | 740 | 767 | 1,080 | 3,340 | 9,230 | 2,390 | 259 | 321 | 492 |
| 17 | 665 | 1,400 | 980 | 754 | 760 | 1,210 | 3,420 | 8,990 | 2,160 | 278 | a286 | 519 |
| 18 | 647 | 1,310 | 988 | 760 | 996 | 1,320 | 3,860 | 8,960 | 1,850 | 344 | 286 | 533 |
| 19 | 4,220 | 1,240 | 972 | 788 | 1,170 | 1,310 | 5,100 | 9,450 | 1,740 | 372 | 341 | 533 |
| 20 | 1,570 | 1,130 | 932 | 781 | 1,270 | 1,270 | 6,440 | 9,470 | 1,580 | 380 | 341 | 519 |
| 21 | 2,300 | 1,080 | 924 | 689 | 1,380 | 1,250 | 6,560 | 9,560 | 1,520 | 334 | 380 | 465 |
| 22 | 2,350 | 908 | 924 | 630 | 1,710 | 1,390 | 6,360 | 9,520 | 1,430 | 291 | 470 | 411 |
| 23 | 1,380 | 754 | 908 | 665 | 1,680 | 1,440 | 7,240 | 9,770 | 1,230 | 280 | 616 | 387 |
| 24 | 1,040 | 788 | 893 | 677 | 1,530 | 1,370 | 6,420 | 9,650 | 2,210 | 272 | 593 | 365 |
| 25 | 1,020 | 1,040 | 886 | 714 | 1,540 | 1,370 | 7,110 | 9,860 | 4,350 | 731 | 542 | 354 |
| 26 | 1,000 | 1,110 | 865 | 728 | 1,680 | 1,300 | 7,890 | 10,100 | 3,060 | 708 | 448 | 351 |
| 27 | 830 | 1,180 | 858 | 747 | 1,330 | 1,260 | 7,620 | 10,100 | 989 | 669 | 411 | 347 |
| 28 | 788 | 1,150 | 823 | 734 | 1,040 | 1,380 | 7,400 | 10,400 | 900 | 730 | 395 | 403 |
| 29 | 837 | 1,110 | 809 | 721 | - | 1,280 | 6,560 | 10,900 | 767 | 1,260 | 369 | 440 |
| 30 | 823 | 1,060 | 844 | 721 | ------- | 1,110 | 6,460 | 10,700 | 686 | 1,380 | 324 | 395 |
| 31 | 1,620 | ------- | 809 | 734 | ------- | 1,110 | ------- | 10,000 | -------- | 1,340 | a302 | ------- |
| Total | 29,236 | 49,950 | 29,391 | 22,909 | 27,742 | 35,748 | 122,180 | 270,930 | 118,462 | 16,018 | 26,508 | 20,021 |
| Mean | 943 | 1,665 | 948 | 739 | 991 | 1,153 | 4,073 | 8,740 | 3,949 | 517 | 855 | 667 |
| Ac-ft | 57,990 | 99,070 | 58,300 | 45,440 | 55,030 | 70,910 | 242,300 | 537,400 | 235,000 | 31,770 | 52,580 | 39,710 |

Calendar year 1957: Max 6,040 Min 344 Mean 2,022 Ac-ft 1,464,000
Water year 1957-58: Max 10,900 Min 257 Mean 2,107 Ac-ft 1,526,000

Peak discharge (base, 5,200 cfs).--Oct. 19 (7:45 a.m.) 8,590 cfs (8.20 ft); Apr. 26 (9:45 a.m.) 8,440 cfs (7.83 ft); May 29 (5 p.m.) 11,000 cfs (8.71 ft); Sept. 13 (9:45 a.m.) 5,210 cfs (6.17 ft).

a No gage-height record; discharge estimated on basis of associated upstream stations, weather records, and preceding and subsequent flow.

### 3135. Cochiti east side main canal near Cochiti, N. Mex.

Location.--Lat 35°36'40", long 106°19'35", in SW¼SE¼ sec. 17, T. 16 N., R. 6 E., on right bank 285 ft downstream from roadway, 0.5 mile downstream from Cochiti east side acequia, 0.8 mile downstream from wasteway, 2.2 miles downstream from point of diversion from Rio Grande, and 1 mile east of Cochiti Pueblo, Sandoval County.
Records available.--April 1936 to May 1937, August 1954 to September 1958 (monthly discharge only), discontinued. Published as "Cochiti main canal at Cochiti" 1936-37.
Gage.--Water-stage recorder. Datum of gage is 5,231.72 ft above mean sea level, datum of 1929. April 1936 to May 1937 at site half a mile upstream at datum 0.58 ft lower.
Extremes.--1936-37, 1954-58: Maximum daily discharge, 156 cfs July 27, 1936; no flow at times.
Remarks.--Records fair. Discharge measurements made four times a month during irrigation season. This canal bypasses Rio Grande at Cochiti station and irrigates land below. Part or all of canal flow can be returned to river through ungaged wasteways. One small diversion for irrigation about 0.5 mile above gage. Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.
Cooperation.--Records for July to September 1958 furnished by Bureau of Reclamation.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 92 | 0 | 47.4 | 2,920 |
| November | 60 | 0 | 3.20 | 190 |
| December | 0 | 0 | 0 | 0 |
| Calendar year 1957 | 96 | 0 | 35.9 | 25,970 |
| January | 0 | 0 | 0 | 0 |
| February | 0 | 0 | 0 | 0 |
| March | 75 | 0 | 24.3 | 1,490 |
| April | 82 | 45 | 63.1 | 3,760 |
| May | 98 | 57 | 83.0 | 5,100 |
| June | 110 | 0 | 70.4 | 4,190 |
| July | 107 | 0 | 77.0 | 4,740 |
| August | 91 | 0 | 61.5 | 3,780 |
| September | 95 | 0 | 37.4 | 2,220 |
| Water year 1957-58 | 110 | 0 | 39.2 | 28,400 |

### 3140. Sili main canal near Cochiti, N. Mex.

Location.--Lat 35°37'15", long 106°19'00", in SW¼NW¼ sec. 16, T. 16 N., R. 6 E., on right bank 90 ft downstream from wasteway, 0.2 mile upstream from highway, 0.9 mile downstream from heading at Cochiti diversion dam, and 1⅞ miles northeast of Cochiti Pueblo, Sandoval County.
Records available.--May 1937 to November 1939, August 1954 to September 1958 monthly discharge only, discontinued. Published as "at head at Cochiti" 1937-39.
Gage.--Water-stage recorder. Datum of gage is 5,240.64 ft above mean sea level, datum of 1929. May 1937 to November 1939 at site 0.2 mile downstream at different datum.
Extremes.--1937-39, 1954-58: Maximum daily discharge, 93 cfs Aug. 13, 1937; no flow at times.
Remarks.--Records good except for periods of no gage-height record, which are fair. Discharge measurements generally made four times a month. This canal bypasses Rio Grande at Cochiti station and irrigates land below. Part or all of canal flow can be returned to river through ungaged wasteways. One small diversion just above station irrigates approximately 5 acres. Records of suspended sediment loads and water temperatures for the 1958 water year are given in WSP 1573.
Cooperation.--Records for July to September furnished by Bureau of Reclamation.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 42 | 0 | 24.5 | 1,510 |
| November | 39 | 0 | 2.0 | 117 |
| December | 0 | 0 | 0 | 0 |
| Calendar year 1957 | 52 | 0 | 19.4 | 14,080 |
| January | 0 | 0 | 0 | 0 |
| February | 0 | 0 | 0 | 0 |
| March | 38 | 0 | 11.8 | 367 |
| April | 39 | 30 | 34.7 | 2,060 |
| May | 47 | 24 | 39.8 | 2,450 |
| June | 44 | 0 | 23.5 | 1,400 |
| July | 48 | 0 | 26.9 | 1,660 |
| August | 45 | 0 | 22.4 | 1,380 |
| September | 47 | 0 | 12.1 | 723 |
| Water year 1957-58 | 48 | 0 | 16.6 | 11,870 |

## 3145. Rio Grande at Cochiti, N. Mex.

Location.--Lat 35°37'10", long 106°19'20", in SE¼NE¼ 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, 3¼ 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 San Luis Valley, Colo.).

Records available.--October 1930 to September 1958 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 July 16, 1925, staff gage at site 1 mile upstream at different datum. July 16, 1925, to Jan. 28, 1947, water-stage recorder at present site and datum. Jan. 28 to May 15, 1947, water-stage recorder 600 ft upstream at present datum.

Average discharge.--33 years (1925-58), 1,422 cfs (1,029,000 acre-ft per year).

Extremes.--Maximum discharge during year, 10,900 cfs May 29 (gage height, 8.50 ft); minimum daily, 132 cfs July 15, 17.
1930-58: Maximum discharge, 23,400 cfs May 15, 1941 (gage height, 10.93 ft); minimum daily, 1 cfs Aug. 10-12, 1934.

Remarks.--Records good. Discharge measurements generally made once a week. Diversions above station for irrigation of about 700,000 acres; of that acreage Cochiti east side main canal and Sili main canal divert above and bypass station to irrigate about 6,000 acres below. Possible regulation by storage reservoir on Rio Chama and by flood-and-silt detention reservoir on Jemez Reservoir (see p. 432). Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1512: 1931-33, 1935, 1939-40(M).

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 20-25, Nov. 5-11, Nov. 22 to Dec. 7, May 17 to Aug. 18)

| Oct. 1 to Dec. 22 | | | | Dec. 23 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 3.1 | 250 | 4.5 | 1,710 | 2.8 | 108 | 5.0 | 2,560 |
| 3.5 | 550 | 5.0 | 2,560 | 3.1 | 228 | 6.0 | 4,580 |
| 4.0 | 1,040 | 6.0 | 4,750 | 3.4 | 408 | 8.3 | 10,800 |
| | | | | 4.0 | 990 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 345 | 2,190 | 1,100 | 710 | 690 | 837 | 1,200 | 6,670 | 9,790 | 509 | 1,700 | 241 |
| 2 | 324 | 2,300 | 1,090 | 690 | 670 | 750 | 1,780 | 6,880 | 9,320 | 431 | 2,370 | 146 |
| 3 | 331 | 2,390 | 1,090 | 710 | 660 | 771 | 1,860 | 6,800 | 8,560 | 388 | 2,320 | 135 |
| 4 | 324 | 2,350 | 1,040 | 700 | 710 | 870 | 1,830 | 6,670 | 8,160 | 394 | 2,260 | 1,130 |
| 5 | 310 | 3,220 | 1,040 | 700 | 750 | 954 | 1,700 | 7,200 | 7,800 | 476 | 1,830 | 642 |
| 6 | 310 | 2,670 | 1,100 | 710 | 771 | 990 | 1,300 | 7,520 | 6,210 | 423 | 1,120 | 826 |
| 7 | 310 | 2,600 | 1,080 | 700 | 771 | 1,060 | 1,190 | 7,470 | 5,250 | 416 | 1,160 | 1,620 |
| 8 | 298 | 2,500 | 1,040 | 700 | 760 | 1,070 | 1,430 | 7,530 | 5,250 | 347 | 1,150 | 1,540 |
| 9 | 294 | 2,390 | 1,050 | 700 | 750 | 1,060 | 2,070 | 8,020 | 5,140 | 292 | 1,220 | 1,420 |
| 10 | 298 | 2,370 | 1,040 | 690 | 740 | 1,030 | 2,390 | 8,360 | 5,410 | 249 | 1,200 | 1,440 |
| 11 | 346 | 2,370 | 1,040 | 710 | 730 | 966 | 2,480 | 8,500 | 5,360 | 228 | 1,200 | 1,330 |
| 12 | 863 | 2,070 | 996 | 710 | 740 | 954 | 2,640 | 8,850 | 5,000 | 310 | 1,150 | 750 |
| 13 | 750 | 1,560 | 974 | 740 | 750 | 954 | 2,350 | 8,880 | 4,290 | 228 | 1,030 | 1,990 |
| 14 | 620 | 1,450 | 952 | 730 | 750 | 918 | 2,520 | 8,940 | 3,510 | 150 | 408 | 1,500 |
| 15 | 560 | 1,380 | 920 | 740 | 760 | 918 | 2,560 | 8,710 | 2,950 | 132 | 238 | 670 |
| 16 | 570 | 1,370 | 920 | 720 | 760 | 954 | 3,010 | 8,710 | 2,390 | 142 | 304 | 534 |
| 17 | 631 | 1,420 | 963 | 720 | 760 | 990 | 3,150 | 8,710 | 2,140 | 132 | 249 | 509 |
| 18 | 658 | 1,380 | 963 | 730 | 815 | 1,220 | 3,510 | 8,650 | 1,780 | 214 | 196 | 509 |
| 19 | 4,250 | 1,280 | 985 | 760 | 1,060 | 1,190 | 4,520 | 8,940 | 1,800 | 388 | 187 | 492 |
| 20 | 2,100 | 1,210 | 974 | 760 | 1,180 | 1,190 | 5,940 | 9,170 | 1,640 | 322 | 210 | 501 |
| 21 | 3,090 | 1,150 | 930 | 750 | 1,270 | 1,090 | 6,440 | 9,200 | 1,660 | 214 | 233 | 476 |
| 22 | 2,270 | 963 | 920 | 710 | 1,500 | 1,220 | 6,360 | 9,380 | 1,540 | 182 | 347 | 316 |
| 23 | 1,430 | 800 | 906 | 730 | 1,520 | 1,400 | 7,140 | 9,610 | 1,200 | 154 | 586 | 254 |
| 24 | 996 | 750 | 870 | 740 | 1,430 | 1,260 | 6,720 | 9,730 | 1,820 | 158 | 501 | 233 |
| 25 | 880 | 1,010 | 859 | 690 | 1,390 | 1,300 | 6,880 | 9,760 | 4,580 | 425 | 492 | 219 |
| 26 | 860 | 1,110 | 826 | 710 | 1,490 | 1,260 | 7,940 | 9,940 | 4,020 | 690 | 328 | 259 |
| 27 | 750 | 1,200 | 815 | 710 | 1,390 | 1,150 | 7,830 | 10,100 | 1,270 | 614 | 280 | 328 |
| 28 | 676 | 1,240 | 782 | 730 | 1,040 | 1,230 | 7,630 | 10,300 | 1,070 | 408 | 254 | 394 |
| 29 | 685 | 1,190 | 771 | 700 | - | 1,190 | 6,950 | 10,600 | 804 | 1,090 | 254 | 446 |
| 30 | 685 | 1,190 | 771 | 690 | ------- | 1,030 | 6,510 | 10,500 | 596 | 1,230 | 334 | 328 |
| 31 | 1,130 | ------- | 771 | 700 | ------- | 942 | ------- | 10,100 | ------- | 1,300 | 310 | ------- |
| Total | 27,948 | 51,073 | 29,578 | 22,190 | 26,607 | 32,718 | 119,830 | 270,400 | 120,310 | 12,636 | 25,421 | 21,178 |
| Mean | 902 | 1,702 | 954 | 716 | 950 | 1,055 | 3,994 | 8,723 | 4,010 | 408 | 820 | 706 |
| Ac-ft | 55,430 | 101,300 | 58,670 | 44,010 | 52,770 | 64,900 | 237,700 | 536,300 | 238,600 | 25,060 | 50,420 | 42,010 |

Calendar year 1957: Max 6,000 Min 298 Mean 1,954 Ac-ft 1,414,000
Water year 1957-58: Max 10,600 Min 132 Mean 2,082 Ac-ft 1,507,000

Peak discharge (base, 4,500 cfs).--Oct. 19 (12 m.) 8,850 cfs (7.64 ft); Nov. 5 (12:30 p.m.) 4,720 cfs (5.84 ft); Apr. 26 (8 p.m.) 8,520 cfs (7.55 ft); May 29 (9:30 p.m.) 10,900 cfs (8.50 ft); June 26 (2 a.m.) 5,320 cfs (6.58 ft); Sept. 13 (4 p.m.) 4,760 cfs (6.08 ft).

## 3160. Santa Fe River near Santa Fe, N. Mex.

Location.--Lat 35°41'10", 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.--18.2 sq mi.

Records available.--April 1913 to December 1914 and October 1930 to September 1958 in reports of Geological Survey. January 1913 to December 1931 in reports of State engineer. Prior to October 1953, published as Santa Fe Creek near Santa Fe.

Gage.--Water-stage recorder and concrete control. Datum of gage is 7,718 ft above mean sea level, datum of 1929. Prior to Nov. 4, 1930, at site 1.5 miles downstream and Apr. 11, 1931, to September 1947 at site 0.3 mile upstream, each at different datum.

Average discharge.--43 years (1913-18, 1919-27, 1928-58), 8.43 cfs (6,100 acre-ft per year).

Extremes.--Maximum daily discharge during year, 169 cfs Apr. 21; minimum daily, 2.1 cfs July 3-6.
1913-18, 1919-27, 1928-58: Maximum discharge, 1,500 cfs Aug. 14, 1921 (gage height, 5.17 ft, site and datum then in use); minimum daily, 0.1 cfs Aug. 1-4, 1951.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Flow regulated by McClure Reservoir (see p. 432), completed in 1926, raised in 1935 and again in 1947.

Revisions (water years).--WSP 1512: 1933, 1936-37(M), 1942.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 1.6 | 1.9 | 1.9 | 8.4 | 2.6 | 53 |
| 1.7 | 3.4 | 2.0 | 12 | 3.0 | 105 |
| 1.8 | 5.6 | 2.3 | 27 | 3.4 | 179 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.7 | 7.6 | 10 | 4.5 | 2.9 | 3.3 | 16 | 36 | 60 | 8.4 | 11 | 5.9 |
| 2 | 4.7 | 8.4 | 7.8 | 3.4 | 3.0 | 3.4 | 18 | 32 | 42 | 4.9 | 11 | 5.9 |
| 3 | 4.7 | 8.1 | 6.2 | *2.2 | 3.0 | 3.6 | 18 | 40 | 65 | 2.1 | 11 | 5.6 |
| 4 | *4.7 | 8.8 | 5.6 | 2.2 | 3.0 | 3.9 | 18 | 47 | 43 | 2.1 | 11 | 5.6 |
| 5 | 4.7 | 11 | *5.6 | 2.2 | 3.0 | 4.5 | 17 | 47 | 46 | 2.1 | 11 | 4.5 |
| 6 | 4.7 | 12 | 5.6 | 2.2 | *3.0 | 4.9 | 16 | 64 | 57 | 2.1 | 11 | 3.4 |
| 7 | 4.7 | *12 | 5.4 | 2.2 | 3.1 | 4.9 | *16 | 82 | 50 | 2.4 | 11 | 3.4 |
| 8 | 4.5 | 11 | 5.4 | 2.2 | 3.1 | 4.9 | 15 | *73 | 46 | 2.8 | 11 | 3.4 |
| 9 | 4.5 | 9.4 | 5.4 | 2.2 | 3.1 | 4.9 | 14 | 68 | 46 | 4.7 | 11 | 3.4 |
| 10 | 4.5 | 9.4 | 5.4 | 2.2 | 3.1 | 4.9 | 14 | 68 | 41 | 6.7 | 11 | 3.4 |
| 11 | 4.5 | 9.1 | 5.6 | 2.2 | 3.1 | 4.9 | 14 | 68 | *33 | 7.3 | 11 | 3.4 |
| 12 | 4.7 | 9.4 | 5.6 | 2.2 | 3.1 | 4.9 | 15 | 62 | 25 | 7.6 | *11 | *3.4 |
| 13 | 4.7 | 9.8 | 5.4 | 2.2 | 3.1 | 4.9 | 16 | 59 | 29 | 7.6 | 10 | 3.6 |
| 14 | 4.7 | 9.8 | 5.4 | 2.2 | 3.1 | *4.9 | 29 | 61 | 26 | 7.3 | 10 | 3.6 |
| 15 | 4.7 | 9.8 | 5.2 | 2.2 | 3.1 | 4.9 | 29 | 61 | 22 | 7.3 | 10 | 3.6 |
| 16 | 4.5 | 9.8 | 5.2 | 2.4 | 3.1 | 4.9 | 50 | 69 | 18 | 7.3 | 9.8 | 3.6 |
| 17 | 4.1 | 9.8 | 5.2 | 2.5 | 3.1 | 4.7 | 77 | 84 | 17 | 7.3 | 10 | 3.6 |
| 18 | 3.9 | 8.8 | 5.0 | 2.5 | 3.1 | 4.9 | 62 | 89 | 17 | 7.3 | 10 | 3.6 |
| 19 | 3.9 | 7.6 | 4.5 | 2.7 | 3.1 | 4.9 | 67 | 75 | 19 | 7.3 | 10 | 3.4 |
| 20 | 4.3 | 5.4 | 4.3 | 2.7 | 3.1 | 4.9 | 146 | 56 | 19 | 7.3 | 7.8 | 3.4 |
| 21 | 6.7 | 4.3 | 4.1 | 2.7 | 3.1 | 6.7 | 169 | 56 | 15 | 7.3 | 6.2 | 3.4 |
| 22 | 23 | 4.3 | 4.1 | 2.7 | 3.1 | 9.1 | 148 | 57 | 16 | 7.6 | 6.2 | 3.4 |
| 23 | 16 | 4.3 | 4.1 | 2.7 | 3.1 | 11 | 107 | 50 | 14 | 9.9 | 6.2 | 3.4 |
| 24 | 19 | 4.3 | 4.1 | 2.7 | 3.0 | 14 | 84 | 57 | 13 | 12 | 6.2 | 3.4 |
| 25 | 20 | 5.0 | 4.3 | 2.7 | 3.0 | 18 | 58 | 73 | 13 | 12 | 6.2 | 3.4 |
| 26 | 16 | 6.4 | 4.3 | 2.8 | 3.1 | *17 | 56 | 89 | 13 | 12 | 6.2 | 3.6 |
| 27 | 14 | 9.8 | 4.1 | 2.8 | 3.1 | 13 | 56 | 75 | 11 | 12 | 5.9 | 3.9 |
| 28 | 11 | 12 | 4.1 | 2.8 | 3.1 | 11 | 56 | 84 | 8.1 | 12 | 6.2 | 3.9 |
| 29 | 7.8 | 12 | 4.1 | 2.9 | - | 12 | 49 | 85 | 8.1 | 12 | 6.2 | 3.9 |
| 30 | 6.4 | 11 | 4.5 | 2.9 | ------- | 12 | 43 | 85 | 8.1 | 12 | 6.2 | 3.9 |
| 31 | 6.7 | ------- | 6.8 | 2.9 | ------- | 14 | ------- | 73 | ------- | 12 | 5.9 | ------- |
| Total | 237.0 | 260.4 | 162.4 | 79.9 | 85.9 | 229.8 | 1,493 | 2,025 | 840.3 | 232.7 | 277.2 | 115.9 |
| Mean | 7.64 | 8.68 | 5.24 | 2.58 | 3.07 | 7.41 | 49.8 | 65.3 | 28.0 | 7.51 | 8.94 | 3.86 |
| Ac-ft | 470 | 516 | 322 | 158 | 170 | 456 | 2,960 | 4,020 | 1,670 | 462 | 550 | 230 |

Calendar year 1957: Max 47 Min 0.6 Mean 6.39 Ac-ft 4,620
Water year 1957-58: Max 169 Min 2.1 Mean 16.5 Ac-ft 11,980

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 1-3, Jan. 21 to Feb. 5, Apr. 4-6, 13, 14; discharge estimated on basis of 3 discharge measurements, available fragments of recorder trace, and recorded range in stage.

## 3180. 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, 160 ft downstream from 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 1958.

Gage.--Water-stage recorder. Datum of gage is 5,255.5 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 20, 1956, at site 160 ft upstream at same datum.

Average discharge.--17 years, 10.6 cfs (7,670 acre-ft per year).

Extremes.--Maximum discharge during year, 7,600 cfs Oct. 20 (gage height, 5.90 ft); no flow most of time.
1941-58: Maximum discharge, 19,600 cfs Sept. 25, 1955 (gage height, 12.1 ft, from floodmark), from rating curve extended above 11,000 cfs on basis of slope-area measurement of peak flow; no flow at times.

Remarks.--Records poor. Discharge measurements generally made four times a month. Diversions for irrigation of about 50 acres above station. Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1148: 1942, 1943(M), 1944, 1945(M), 1946-47.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 15 | | | 0 | 0 | 2 | 6 | 0 | 0 | 0 | 0 |
| 2 | 0 | 6 | | | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 |
| 3 | 0 | 6 | | | 0 | 0 | 6 | 4 | 0 | 0 | 0 | 0 |
| 4 | 0 | 7 | | | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 |
| 5 | 0 | 143 | | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 6 | 0 | 30 | | | 0 | 1 | 1 | 0 | 0 | 0 | 29 | 70 |
| 7 | 0 | 14 | | | 0 | 4 | 2 | 1 | 0 | 0 | 2 | 29 |
| 8 | 0 | 9 | | | 0 | 4 | 6 | 1 | 0 | 0 | 0 | 2 |
| 9 | 0 | 5 | | | 0 | 1 | 9 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | | | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 130 |
| 11 | 0 | 0 | | | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 12 |
| 12 | 858 | 0 | | | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 |
| 13 | 147 | 0 | | | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 17 |
| 14 | 7 | 0 | | | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 21 |
| 15 | 1 | 0 | | | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | | | 0 | 0 | 32 | 0 | 0 | 0 | 0 | 0 |
| 17 | 3 | 0 | | | 0 | 0 | 43 | 0 | 222 | 0 | 0 | 0 |
| 18 | 1 | 0 | | | 0 | 0 | 62 | 0 | 12 | 12 | 0 | 0 |
| 19 | 578 | 0 | | | 0 | 0 | 64 | 0 | 0 | 7 | 0 | 0 |
| 20 | 2,660 | 0 | | | 0 | 1 | 57 | 0 | 0 | 1 | 5 | 0 |
| 21 | 121 | 0 | | | 0 | 3 | 43 | 0 | 0 | 0 | 3 | 0 |
| 22 | 50 | 0 | | | 0 | 6 | 31 | 0 | 0 | 0 | 4 | 0 |
| 23 | 44 | 0 | | | 0 | 7 | 14 | 0 | 0 | 0 | 1 | 0 |
| 24 | 23 | 0 | | | 0 | 7 | 16 | 0 | 0 | 0 | 2 | 0 |
| 25 | 14 | 0 | | | 0 | 8 | 17 | 0 | 0 | 0 | 2 | 0 |
| 26 | 10 | 0 | | | 1 | 9 | 12 | 0 | 0 | 0 | 0 | 1 |
| 27 | 5 | 0 | | | 0 | 10 | 8 | 0 | 0 | 0 | 0 | 3 |
| 28 | 0 | 0 | | | 0 | 11 | 14 | 0 | 0 | 6 | 0 | 2 |
| 29 | 0 | 0 | | | - | 9 | 12 | 0 | 0 | 7 | 0 | 1 |
| 30 | 0 | 0 | | | ------- | 4 | 8 | 0 | 0 | 0 | 0 | 0 |
| 31 | 3 | ------- | | | ------- | 3 | ------- | 0 | ------- | 0 | 0 | ------- |
| Total | 4,525 | 235 | 0 | 0 | 1 | 88 | 567 | 19 | 234 | 33 | 48 | 288 |
| Mean | 146 | 7.8 | 0 | 0 | 0.04 | 2.8 | 18.9 | 0.61 | 7.8 | 1.1 | 1.5 | 9.6 |
| Ac-ft | 8,980 | 466 | 0 | 0 | 2 | 175 | 1,120 | 38 | 464 | 65 | 95 | 571 |

Calendar year 1957: Max 2,660 Min 0 Mean 36.4 Ac-ft 26,360
Water year 1957-58: Max 2,660 Min 0 Mean 16.5 Ac-ft 11,980

Peak discharge (base, 3,000 cfs).--Oct. 12 (5:30 p.m.) 3,180 cfs (3.86 ft); Oct. 20 (1 a.m.) 7,600 cfs (5.90 ft); June 17 (7:30 p.m.) 3,800 cfs (4.10 ft).

## 3190. Rio Grande at San Felipe, N. Mex.

Location.--Lat 35°26'40", long 106°26'20", in SW¼NW¼ sec. 17, T. 14 N., R. 5 E., in San Felipe Grant, on right bank 200 ft below mouth of Tonque Arroyo, 1,800 ft above steel highway bridge, three-quarters of a mile upstream from San Felipe Pueblo, and 11 miles northeast of Bernalillo.

Drainage area.--16,100 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--October 1930 to September 1958 in reports of Geological Survey. January 1926 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 5,115.73 ft above mean sea level, datum of 1929, 1951 adjustment. Prior to May 16, 1945, and Oct. 1, 1946, to Sept. 27, 1957, at site 0.4 mile downstream at datum 5.35 ft lower, and May 16, 1945, to Sept. 30, 1946, at same site at datum 5.94 ft lower than present datum.

Average discharge.--32 years, 1,494 cfs (1,082,000 acre-ft per year).

Extremes.--Maximum discharge during year, 10,200 cfs May 30 (gage height, 6.68 ft); minimum daily, 190 cfs Sept. 3.
1930-58: Maximum discharge, 27,300 cfs June 26, 1937 (gage height, 11.13 ft), from rating curve extended above 15,000 cfs by logarithmic plotting; minimum daily, 34 cfs July 7, 1934.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Discharge measurements generally made four times a month. Diversions for irrigation of about 705,000 acres above station. Possible regulation by storage reservoir on Rio Chama and by flood-and-silt detention reservoir on Jemez River (see p. 432). Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1392: 1937(M). WSP 1512: 1931-32, 1933(M), 1934-36, 1938(M).

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 16-18, Sept. 11-30)

| Oct. 1 to May 16 | | | | May 17 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.7 | 380 | 5.0 | 4,500 | 2.0 | 170 | 4.0 | 3,010 |
| 3.0 | 620 | 6.0 | 7,400 | 2.3 | 350 | 5.0 | 5,440 |
| 3.5 | 1,250 | 7.0 | 10,400 | 2.7 | 730 | 7.0 | 11,300 |
| 4.0 | 2,100 | | | 3.1 | 1,270 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 422 | 2,200 | 1,020 | 764 | 742 | 882 | 1,140 | 6,230 | 9,460 | 610 | 1,240 | a260 |
| 2 | 401 | 2,320 | 988 | 731 | 710 | 753 | 1,730 | 6,410 | 8,970 | 520 | 2,030 | a220 |
| 3 | 401 | 2,380 | 974 | 720 | 710 | 775 | 1,780 | 6,410 | 8,520 | 475 | 1,890 | 190 |
| 4 | 401 | 2,360 | 974 | 720 | 720 | 895 | 1,700 | 6,170 | 7,930 | 448 | 1,950 | 729 |
| 5 | 401 | 3,420 | 960 | 742 | 753 | 1,000 | 1,710 | 6,560 | 7,780 | 484 | 1,860 | 631 |
| 6 | 401 | 2,660 | 988 | 753 | 764 | 1,020 | 1,260 | 7,020 | 6,620 | 457 | 1,150 | 706 |
| 7 | 387 | 2,690 | 1,020 | 720 | 742 | 1,100 | 1,250 | 7,130 | 5,080 | 406 | 1,150 | 1,500 |
| 8 | 387 | 2,550 | 974 | 720 | 742 | 1,120 | 1,430 | 7,220 | 5,180 | 422 | 1,120 | 1,200 |
| 9 | 380 | 2,470 | 1,020 | 720 | 742 | 1,070 | 1,890 | 7,520 | 5,150 | 374 | 1,150 | 1,180 |
| 10 | 380 | 2,400 | 1,040 | 731 | 753 | 1,060 | 2,260 | 7,760 | 5,600 | 336 | 1,210 | 1,330 |
| 11 | 387 | 2,430 | 1,030 | 742 | 753 | 1,060 | 2,300 | 7,880 | 5,390 | 301 | 1,220 | 1,120 |
| 12 | 1,430 | 2,160 | 1,000 | 753 | 764 | 1,060 | 2,580 | 8,060 | 5,050 | 350 | 1,160 | 742 |
| 13 | 1,220 | 1,640 | 988 | 764 | 786 | 1,040 | 2,400 | 8,390 | 4,400 | 336 | 1,210 | 1,520 |
| 14 | 731 | 1,430 | 974 | 731 | 775 | 1,000 | 2,450 | 8,540 | a3,600 | 238 | 631 | 1,600 |
| 15 | 660 | 1,360 | 947 | 731 | 775 | a980 | a2,700 | 8,420 | a2,900 | 226 | 366 | 742 |
| 16 | 630 | 1,380 | 947 | 710 | 775 | a1,000 | 2,910 | 8,480 | a2,600 | 205 | 358 | 580 |
| 17 | 650 | 1,450 | 947 | 731 | 786 | a1,050 | 3,450 | 8,550 | 2,490 | 200 | 358 | 530 |
| 18 | 700 | 1,420 | 960 | 742 | 797 | 1,180 | 3,920 | 8,520 | a2,000 | 228 | 287 | 530 |
| 19 | 3,820 | 1,310 | 988 | 786 | 1,040 | 1,180 | 4,740 | 8,940 | 1,740 | 398 | 294 | 530 |
| 20 | 5,860 | 1,260 | 974 | 775 | 1,100 | 1,220 | 6,170 | 9,090 | 1,580 | 382 | 301 | 530 |
| 21 | 3,080 | 1,160 | 895 | 764 | 1,200 | 1,120 | 6,710 | 9,210 | 1,640 | 280 | 322 | 511 |
| 22 | 2,380 | 1,020 | 882 | 700 | 1,430 | 1,200 | 6,560 | 9,120 | 1,530 | 256 | 422 | 466 |
| 23 | 1,750 | 908 | 882 | 680 | 1,640 | 1,380 | 6,950 | 9,310 | 1,270 | 210 | 570 | a350 |
| 24 | 1,160 | 819 | 830 | 710 | 1,480 | 1,310 | 6,950 | 9,430 | 1,180 | 205 | 610 | a300 |
| 25 | 1,030 | 934 | 830 | 720 | 1,430 | 1,340 | 6,590 | 9,430 | 3,640 | 243 | 560 | a270 |
| 26 | 1,030 | 1,090 | 830 | 731 | 1,480 | 1,310 | 7,640 | 9,680 | 4,150 | 620 | 438 | a280 |
| 27 | 974 | 1,140 | 819 | 742 | 1,510 | 1,220 | 7,760 | 9,710 | 1,330 | 590 | 382 | a330 |
| 28 | 797 | 1,200 | 819 | 753 | 1,090 | 1,280 | 7,310 | 9,710 | 1,010 | 484 | 336 | a420 |
| 29 | 808 | 1,130 | 786 | 731 | - | 1,300 | 6,860 | 9,990 | 876 | 813 | a325 | 457 |
| 30 | 830 | 1,100 | 808 | 720 | ------- | 1,130 | 6,290 | 10,100 | 730 | 1,080 | 315 | 430 |
| 31 | 947 | ------- | 808 | 742 | ------- | 1,060 | ------- | 9,830 | ------- | 1,140 | 301 | ------- |
| Total | 34,835 | 51,791 | 28,902 | 22,779 | 26,889 | 34,095 | 119,390 | 258,820 | 119,396 | 13,295 | 25,517 | 20,184 |
| Mean | 1,124 | 1,726 | 932 | 735 | 960 | 1,100 | 3,980 | 8,349 | 3,980 | 429 | 823 | 673 |
| Ac-ft | 69,090 | 102,700 | 57,330 | 45,180 | 53,330 | 67,630 | 236,800 | 513,400 | 236,800 | 26,370 | 50,610 | 40,030 |

Calendar year 1957: Max 6,220 Min 352 Mean 2,016 Ac-ft 1,460,000
Water year 1957-58: Max 10,100 Min 190 Mean 2,071 Ac-ft 1,499,000

Peak discharge (base, 5,000 cfs).--Oct. 20 (4 a.m.) 9,290 cfs (6.63 ft); May 30 (3 p.m.) 10,200 cfs (6.68 ft).

a No gage-height record; discharge estimated on basis of hydrographic comparison with other Rio Grande stations.

## 3215. 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.

Records available.--May 1951 to September 1958 (irrigation seasons only).

Gage.--Water-stage recorder. Datum of gage is 6,702.7 ft above mean sea level (planetable survey).

Extremes.--Maximum discharge during season, 207 cfs Sept. 10 (gage height, 2.46 ft); minimum daily, 11 cfs July 14-15, Aug. 2.
1951-58: Maximum discharge determined, 287 cfs Aug. 19, 1955 (gage height, 3.61 ft); minimum daily, 7.6 cfs May 31, June 15, 16, 1956.
Maximum discharge known, 2,520 cfs Apr. 21, 1958 (gage height, 7.35 ft), extended above 1,100 cfs on basis of slope-area, contracted-opening measurement of peak flow.

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

Revisions (water years).--WSP 1242: Drainage area. WSP 1512: 1951-54(M), 1955, 1956(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.8 | 10 | 1.6 | 69 |
| 1.0 | 18 | 1.9 | 108 |
| 1.2 | 31 | | |

Discharge, in cubic feet per second, May to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | †11 | | | | | | | - | 54 | 18 | 12 | 13 |
| 2 | | | | | | | | †326 | 47 | 18 | 11 | 13 |
| 3 | | | | | | | | - | 44 | 18 | 12 | 13 |
| 4 | | | | | | | | - | 42 | 17 | 16 | 13 |
| 5 | | | | | | | | - | 60 | 16 | 15 | 13 |
| 6 | | | | | | | | - | 46 | 16 | 20 | 21 |
| 7 | | | | | | | | - | 44 | 16 | 29 | 20 |
| 8 | | | | | | | | - | 45 | 16 | 28 | 22 |
| 9 | | | | | | | | - | 35 | 15 | 32 | 27 |
| 10 | | | | | | | | - | 32 | *14 | 35 | 32 |
| 11 | | | | | | | | - | 30 | a13 | 26 | 25 |
| 12 | | | | | | | | - | 28 | a12 | 19 | 18 |
| 13 | | | | | | | | - | *27 | a11 | 16 | 105 |
| 14 | | | | | | | | †161 | 27 | a11 | 14 | 92 |
| 15 | | | | | | | | 144 | 25 | a11 | 14 | 30 |
| 16 | | | | | | | | 148 | 24 | a12 | 26 | 22 |
| 17 | | | | | | | | 131 | 23 | a12 | 25 | 19 |
| 18 | | | | | | | | 125 | 23 | a13 | 28 | 18 |
| 19 | | | | | | | | 122 | 23 | a14 | 25 | 17 |
| 20 | | | | | | | | 117 | 22 | a16 | *37 | 15 |
| 21 | | | | | | | †1,050 | 122 | 29 | a15 | 29 | 15 |
| 22 | | | | | | | | 116 | 38 | a14 | 28 | 14 |
| 23 | | | | | | | | 114 | 23 | a13 | 26 | 14 |
| 24 | | | | | | | | 91 | 21 | a13 | 19 | 14 |
| 25 | | | | | | †27 | | 85 | 18 | a13 | 17 | 14 |
| 26 | | | | | | | | 89 | 18 | a14 | 16 | *15 |
| 27 | | | | | | | | 80 | 18 | a13 | 15 | 18 |
| 28 | | | | | †14 | | | 69 | 18 | a13 | 14 | 22 |
| 29 | | | | | - | | | 75 | 18 | a12 | 15 | 19 |
| 30 | | | | | ------- | | | 61 | 18 | *13 | 14 | 17 |
| 31 | | ------- | | | ------- | | ------- | 64 | ------- | 12 | 13 | ------- |
| Total | - | - | - | - | - | - | - | - | 920 | 434 | 646 | 710 |
| Mean | - | - | - | - | - | - | - | - | 30.7 | 14.0 | 20.8 | 23.7 |
| Ac-ft | - | - | - | - | - | - | - | - | 1,820 | 861 | 1,280 | 1,410 |

Calendar year : Max Min Mean Ac-ft
Water year : Max Min Mean Ac-ft

* Discharge measurement made on this day.
† Result of discharge measurement.
a No gage-height record; discharge estimated on basis of hydrographic comparisons, 2 discharge measurements, and recorded range in stage.
Note.--Result of slope-area measurement made Apr. 21: 2,520 cfs.

### 3230. 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.--226 sq mi.

Records available.--May 1951 to September 1958 (irrigation season only).

Gage.--Water-stage recorder. Datum of gage is 6,015.5 ft above mean sea level, datum of 1929 (planetable survey).

Extremes.--Maximum discharge during season, 453 cfs May 15 (gage height, 5.50 ft); minimum daily, 7 cfs Sept. 3.
1951-58: Maximum discharge recorded, that of May 15, 1958; minimum daily, 3.0 cfs for several days in July and September 1956.
Maximum discharge known, 1,440 cfs Apr. 21, 1958 (gage height, 7.6 ft, from floodmarks), from rating curve extended above 750 cfs on basis of slope-area measurements of peak flow.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Some regulation by San Gregorio Reservoir on Clear Creek, tributary to Rio de Las Vacas, to Rio Guadalupe (constructed July to October 1958, capacity, 345 acre-ft), and by transmountain diversion into Rio Puerco basin for irrigation of 200 to 300 acres in vicinity of Cuba.

Revisions.--WSP 1282: Drainage area.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 3.0 | 6.8 | 3.7 | 34 |
| 3.2 | 10 | 4.0 | 66 |
| 3.4 | 16 | 4.4 | 129 |

Discharge, in cubic feet per second, May to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | †5.3 | | | | | | | - | 129 | 15 | 8.3 | 8 |
| 2 | | | | | | | | - | 111 | 15 | 8.0 | 8 |
| 3 | | | | | | | | - | 94 | 14 | 8.0 | 7 |
| 4 | | | | | | | | - | 88 | 13 | 8.7 | 8 |
| 5 | | | | | | | | - | 81 | 13 | 13 | 9 |
| 6 | | | | | | | | - | 71 | 13 | 13 | 17 |
| 7 | | | | | | | | - | 74 | 12 | 13 | 12 |
| 8 | | | | | | | | - | 77 | 12 | 16 | 12 |
| 9 | | | | | | | | - | 56 | 12 | 14 | 11 |
| 10 | | | | | | | | - | 49 | *11 | 14 | 14 |
| 11 | | | | | | | | - | 45 | 11 | 13 | 12 |
| 12 | | | | | | | | - | 39 | 11 | 14 | 11 |
| 13 | | | | | | | | - | *35 | 11 | 13 | 50 |
| 14 | | | | | | | | †449 | 32 | 10 | 12 | 20 |
| 15 | | | | | | | | 431 | 30 | 10 | 11 | 15 |
| 16 | | | | | | | | 434 | 28 | 9 | 12 | 13 |
| 17 | | | | | | | | 412 | 26 | 9 | 15 | 12 |
| 18 | | | | | | | | 359 | 25 | 9 | 12 | 11 |
| 19 | | | | | | | | 321 | 23 | 11 | 10 | 11 |
| 20 | | | | | | | | 308 | 22 | 12 | *17 | 11 |
| 21 | | | | | | | †1,440 | 295 | 22 | 11 | 14 | 10 |
| 22 | | | | | | | | 279 | 23 | 9 | 16 | 10 |
| 23 | | | | | | | | 273 | 21 | 9 | 19 | 10 |
| 24 | | | | | | | | 252 | 18 | 9 | 14 | 10 |
| 25 | | | | | | †47 | | 221 | 17 | 9 | 12 | 10 |
| 26 | | | | | | | | 227 | 16 | 9 | 10 | *10 |
| 27 | | | | | | | | 208 | 16 | 9 | 10 | 11 |
| 28 | | | | | †26 | | | 188 | 16 | 9 | 10 | 12 |
| 29 | | | | | - | | | 171 | 15 | 9 | 10 | 12 |
| 30 | | | | | ------- | | | 149 | 15 | *9.1 | 9 | 11 |
| 31 | | ------- | | | ------- | | ------- | 181 | ------- | 8.9 | 9 | ------- |
| Total | - | - | - | - | - | - | - | - | 1,314 | 334.0 | 378.0 | 378 |
| Mean | - | - | - | - | - | - | - | - | 43.8 | 10.8 | 12.2 | 12.6 |
| Ac-ft | - | - | - | - | - | - | - | - | 2,610 | 662 | 750 | 750 |

| Calendar year | : Max | Min | Mean | Ac-ft |
|---|---|---|---|---|
| Water year | : Max | Min | Mean | Ac-ft |

* Discharge measurement made on this day.
† Result of discharge measurement.
Note.--No gage-height record July 11-29, Aug. 23 to Sept. 25; discharge estimated on basis of hydrographic comparison with downstream and nearby stations and recorded range in stage.

## 3240. 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), in Canyon de San Diego Grant, on left bank 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 September 1951, May to September 1952, March 1953 to September 1954, May to September 1955, May to September 1956, May to September 1957, May to September 1958.

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 present site at datum 0.90 ft higher.

Average discharge.--6 years (1936-40, 1949-50, 1953-54), 63.9 cfs (46,260 acre-ft per year).

Extremes.--Maximum discharge during period, 919 cfs May 14 (gage height, 4.54 ft); minimum daily, 15 cfs July 14, 15.
1936-41, 1949-58: Maximum discharge recorded, 3,590 cfs May 6, 1941 (gage height, 8.60 ft, present datum); minimum daily recorded, 5.8 cfs July 11, 12, 1951.
Maximum discharge known, 5,900 cfs Apr. 21, 1958 (gage height, 8.2 ft), from rating curve extended above 2,200 cfs on basis of a contracted-opening measurement.

Remarks.--Records good. Diversions for irrigation of about 300 acres above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.3 | 10 | 2.2 | 108 |
| 1.6 | 32 | 2.5 | 166 |
| 1.9 | 63 | | |

Discharge, in cubic feet per second, May to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | †16 | | | | | | - | - | 166 | 32 | 17 | 22 |
| 2 | - | | | | | | - | †944 | 144 | 32 | 17 | 21 |
| 3 | - | | | | | | - | - | 128 | 31 | 17 | 19 |
| 4 | - | | | | | | - | - | 122 | 30 | 19 | 20 |
| 5 | - | | | | | | - | - | 128 | 29 | 23 | 22 |
| 6 | - | | | | | | - | - | 113 | 28 | 31 | 38 |
| 7 | - | | | | | | - | - | 108 | 27 | 35 | 39 |
| 8 | - | †137 | | | | | - | - | 117 | 26 | 44 | 35 |
| 9 | - | | | | | | - | - | 95 | 24 | 46 | 39 |
| 10 | - | | | | | | - | - | 82 | *23 | 49 | 38 |
| 11 | - | | | | | | - | - | 78 | 21 | 51 | 44 |
| 12 | - | | | | | | - | - | 72 | 19 | 44 | 34 |
| 13 | - | | | | | | - | - | *68 | 17 | 37 | 158 |
| 14 | - | | | | | | - | *668 | 64 | 15 | 33 | 126 |
| 15 | - | | | | | | - | 565 | 61 | 15 | 31 | 62 |
| 16 | - | | | | | | - | 556 | 56 | 16 | 32 | 45 |
| 17 | - | | | | | | - | 501 | 55 | 17 | 46 | 39 |
| 18 | - | | | | | | - | 424 | 53 | 21 | 40 | 36 |
| 19 | - | | | | | | - | 382 | 51 | 21 | 42 | 34 |
| 20 | - | | | | | | - | 359 | 49 | 26 | *52 | 32 |
| 21 | - | | | | | | †2,020 | 350 | 49 | 21 | 51 | 31 |
| 22 | - | | | | | | - | 315 | 63 | 19 | 49 | 30 |
| 23 | - | | | | | | †2,120 | 315 | 52 | 17 | 57 | 30 |
| 24 | - | | | | | | - | 277 | 42 | 18 | 40 | 29 |
| 25 | - | | | | | †91 | †1,880 | 241 | 39 | 19 | 42 | 29 |
| 26 | - | | | | | | - | 244 | 37 | 21 | 29 | *30 |
| 27 | - | | †37 | | | | - | 228 | 36 | 19 | 28 | 33 |
| 28 | - | | | | †34 | | - | 206 | 36 | 19 | 27 | 39 |
| 29 | - | | | †45 | - | | - | 201 | 35 | 17 | 25 | 37 |
| 30 | - | | | | ------- | | - | 164 | 34 | *19 | 24 | 32 |
| 31 | †66 | ------- | | | ------- | | ------- | 182 | ------- | 18 | 24 | ------- |
| Total | - | - | - | - | - | - | - | - | 2,233 | 677 | 1,102 | 1,223 |
| Mean | - | - | - | - | - | - | - | - | 74.4 | 21.8 | 35.5 | 40.8 |
| Ac-ft | - | - | - | - | - | - | - | - | 4,430 | 1,340 | 2,190 | 2,430 |

| | | | | | |
|---|---|---|---|---|---|
| Calendar year | : Max | | Min | Mean | Ac-ft |
| Water year | : Max | | Min | Mean | Ac-ft |

* Discharge measurement made on this day.
† Result of discharge measurement.
Note.--Result of slope-area measurement made on Apr. 21: 5,900 cfs.

3280. Jemez River above Jemez Canyon Dam, N. Mex.

Location.--Lat 35°25'30", long 106°37'00", in SW¼ sec. 22, T. 14 N., R. 3 E., on left bank 1,000 ft downstream from bridge at Santa Ana Pueblo, 1 mile north of State Highway 44, 4½ miles upstream from Jemez Canyon Dam, and 10 miles northwest of Bernalillo, Sandoval County.

Drainage area.--961 sq mi.

Records available.--October 1953 to September 1958 (discontinued).

Gage.--Water-stage recorder. Datum of gage is 5,223.04 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 14, 1954, at site 1,000 ft upstream at datum 1.50 ft higher.

Average discharge.--5 years (1953-58), 67.5 cfs (48,870 acre-ft per year).

Extremes.--Maximum discharge during year, 23,100 cfs Nov. 5 (gage height, 3.64 ft, from floodmarks), from rating curve extended above 5,500 cfs on basis of contracted-opening measurement of peak flow; no flow for many days.
1953-58: Maximum discharge, that of Nov. 5, 1957; no flow at times.

Remarks.--Records poor. Discharge measurements generally made eight times a month. Diversions for irrigation of about 3,000 acres above station.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 115 | 40 | 25 | 25 | 35 | 172 | 1,170 | 162 | | 0 | 0 |
| 2 | 0 | 210 | 50 | 15 | 20 | 50 | 255 | 1,170 | 92 | | 0 | 0 |
| 3 | 0 | 115 | 55 | 30 | 20 | 60 | 172 | 1,040 | 92 | | 0 | 0 |
| 4 | 0 | 162 | 65 | 40 | 35 | 65 | 225 | 910 | 86 | | 0 | 0 |
| 5 | 0 | 4,000 | 70 | 25 | 44 | 25 | 144 | 953 | 74 | | 0 | 0 |
| 6 | 0 | 475 | 80 | 35 | 44 | 51 | 57 | 910 | 63 | | 0 | 0 |
| 7 | 0 | 103 | 92 | 40 | 40 | 47 | 124 | 878 | 54 | | 0 | 0 |
| 8 | 0 | 134 | 47 | 45 | 50 | 57 | 144 | 846 | 92 | | 0 | 0 |
| 9 | 0 | 124 | 57 | 55 | 47 | 69 | 115 | 910 | 69 | | 0 | 0 |
| 10 | 0 | 144 | 50 | 65 | 41 | 51 | 134 | 814 | 63 | | 0 | 15 |
| 11 | 0 | 124 | 30 | 55 | 41 | 70 | 124 | 782 | 51 | | 10 | 5 |
| 12 | 420 | 144 | 20 | 45 | 40 | 60 | 92 | 750 | 38 | | 30 | 57 |
| 13 | 115 | 144 | 30 | 35 | 30 | 75 | 255 | 718 | 24 | | 25 | 115 |
| 14 | 57 | 103 | 40 | 30 | 20 | 69 | 200 | 654 | 12 | | 20 | 162 |
| 15 | 31 | 103 | 55 | 20 | 25 | 31 | 182 | 622 | 8 | | 14 | 54 |
| 16 | 28 | 124 | 65 | 15 | 35 | 41 | 475 | 590 | 10 | | 4 | 38 |
| 17 | 24 | 103 | 70 | 30 | 50 | 57 | 429 | 567 | 6 | | 4 | 30 |
| 18 | 38 | 134 | 75 | 40 | 55 | 41 | 590 | 544 | 10 | | 12 | 25 |
| 19 | 1,220 | 100 | 80 | 55 | 45 | 54 | 910 | 544 | 12 | | 6 | 28 |
| 20 | 1,780 | 70 | 70 | 50 | 65 | 44 | 1,340 | 475 | 10 | | 3 | 5 |
| 21 | 2,500 | 65 | 60 | 15 | 74 | 54 | 1,890 | 406 | 20 | | 9 | 0 |
| 22 | 940 | 60 | 50 | 25 | 63 | 109 | 3,360 | 360 | 6 | | 6 | 20 |
| 23 | 210 | 55 | 40 | 30 | 44 | 47 | 2,960 | 330 | 9 | | 3 | 25 |
| 24 | 172 | 65 | 20 | 40 | 74 | 134 | 2,220 | 300 | 9 | | 20 | 14 |
| 25 | 115 | 74 | 30 | 60 | 92 | 134 | 1,960 | 255 | 5 | | 20 | 5 |
| 26 | 86 | 76 | 45 | 70 | 75 | 172 | 1,890 | 225 | 0 | | 10 | 10 |
| 27 | 86 | 78 | 50 | 50 | 60 | 153 | 1,890 | 200 | 0 | | 0 | 20 |
| 28 | 86 | 80 | 47 | 40 | 30 | 109 | 1,450 | 162 | 0 | | 0 | 35 |
| 29 | 57 | 40 | 45 | 35 | - | 103 | 1,340 | 153 | 0 | | 0 | 31 |
| 30 | 41 | 35 | 50 | 50 | ------- | 144 | 1,120 | 124 | 0 | | 0 | 25 |
| 31 | 69 | ------- | 55 | 30 | ------- | 153 | ------- | 191 | ------- | | 0 | ------- |
| Total | 8,075 | 7,359 | 1,633 | 1,195 | 1,284 | 2,364 | 26,219 | 18,553 | 1,077 | 0 | 196 | 719 |
| Mean | 260 | 245 | 52.7 | 38.5 | 45.9 | 76.3 | 874 | 598 | 35.9 | 0 | 6.3 | 24.0 |
| Ac-ft | 16,020 | 14,600 | 3,240 | 2,370 | 2,550 | 4,690 | 52,000 | 36,800 | 2,140 | 0 | 389 | 1,430 |

Calendar year 1957: Max 4,000 Min 0 Mean 102 Ac-ft 74,150
Water year 1957-58: Max 4,000 Min 0 Mean 188 Ac-ft 136,200

Peak discharge (base, 2,000 cfs).--Oct. 19 (3 p.m.) 3,920 cfs (2.75 ft); Oct. 21 (11 p.m.) 10,800 cfs (2.90 ft); Nov. 5 (2 a.m.) 23,000 cfs (3.64 ft); Apr. 22 (3 a.m.) 4,300 cfs (1.70 ft).

Note.--No gage-height record June 17-22, 25, Aug. 11-13, Sept. 10-11, 17-22, 25-27, 30; discharge estimated on basis of hydrographic comparison of upstream and downstream stations. Stage-discharge relation affected by ice Nov. 19 to Dec. 5, Dec. 10 to Feb. 4, Feb. 7, 8, 12-20, Feb. 26 to Mar. 4, Mar. 11-13.

### 3290. Jemez River below Jemez Canyon Dam, N. Mex.

Location.--Lat 35°23'10", long 106°31'45", in NE¼ sec. 5, T. 13 N., R. 4 E., on right bank three-quarters of a mile downstream from Jemez Canyon Dam, 1½ miles upstream from mouth, and 6 miles north of Bernalillo. Prior to June 25, 1958, at site 37 ft upstream.

Drainage area.--1,040 sq mi, approximately.

Records available.--March 1936 to January 1938, March 1943 to September 1958. Prior to October 1953, published as "near Bernalillo."

Gage.--Water-stage recorder. Datum of gage is 5,095.60 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Apr. 24, 1951, at site three-quarters of a mile upstream at datum 24.51 ft higher. Apr. 24, 1951, to June 25, 1958, at site 37 ft upstream at datum 4.40 ft above present datum. Supplementary water-stage recorder at gates of Jemez Canyon Dam at datum 5,125.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark) used at times since January 1953.

Average discharge.--16 years (1936-37, 1943-58), 50.9 cfs (36,850 acre-ft per year).

Extremes.--Maximum discharge during year, 4,870 cfs June 16 (gage height, 7.20 ft); no flow Oct. 1-4, 7-10.
1936-38, 1943-58: Maximum discharge, 16,300 cfs Aug. 29, 1943 (gage height, 5.62 ft, site and datum then in use), from rating curve extended above 3,000 cfs by logarithmic plotting; no flow at times.

Remarks.--Records fair prior to June 26, others good except those for periods of ice effect or no gage-height record, which are poor. Discharge measurements generally made eight times a month when flow is sufficient. Subsequent to October 1953, flow at this station can be completely regulated by Jemez Canyon Reservoir (see p. 432). However, reservoir is designed essentially for desilting and flood control rather than storage. Diversions for irrigation of about 3,000 acres above station. Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1178: 1949. WSP 1212: 1950. WSP: 1512: 1936, 1943, 1945, 1947-48, 1949(M), 1950.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 61 | 48 | a40 | 30 | 46 | 61 | 14 | 5.0 | 585 | 4.3 | 2.3 |
| 2 | 0 | 77 | 58 | b10 | 10 | 48 | 63 | 14 | 4.6 | 560 | 4.0 | 2.1 |
| 3 | 0 | 80 | 58 | a25 | 28 | 61 | 86 | 14 | 4.6 | 466 | 4.0 | 2.1 |
| 4 | 0 | 98 | 51 | a35 | 50 | 82 | 143 | 14 | 4.6 | 285 | 4.3 | 2.7 |
| 5 | .3 | 101 | 55 | a30 | 55 | 54 | 147 | 14 | 4.6 | 275 | 4.0 | 3.3 |
| 6 | .3 | 615 | 63 | 32 | 52 | 43 | 138 | 9.8 | 4.6 | 266 | 4.0 | 2.7 |
| 7 | 0 | 970 | 62 | 35 | 40 | 98 | 147 | 4.2 | 5.0 | 366 | 4.0 | 2.7 |
| 8 | 0 | 753 | 64 | 36 | 45 | 148 | 168 | 4.6 | 5.0 | 980 | 3.8 | 2.5 |
| 9 | 0 | 496 | 56 | 48 | 39 | 148 | 116 | 4.2 | 309 | 290 | 3.8 | 2.5 |
| 10 | 0 | 371 | 49 | 64 | 46 | 65 | 106 | 3.8 | 281 | 17 | 3.6 | 2.3 |
| 11 | .1 | 100 | 49 | 51 | 45 | 35 | 181 | 3.8 | 37 | 12 | 3.3 | 5.4 |
| 12 | 98 | 73 | 42 | 35 | 43 | 62 | 178 | 3.4 | 151 | 8.0 | 4.6 | 6.2 |
| 13 | 172 | 78 | 44 | 27 | 36 | 60 | 181 | 3.8 | 432 | 8.4 | 12 | 25 |
| 14 | 114 | 94 | 51 | 25 | 31 | 50 | 178 | 3.8 | 1,260 | 7.6 | 20 | 151 |
| 15 | 35 | 86 | 59 | b25 | 35 | 50 | 190 | 3.8 | 1,950 | 7.2 | 16 | 159 |
| 16 | 26 | 86 | 61 | b20 | 38 | 56 | 342 | 3.8 | 3,050 | 8.0 | 9.8 | 48 |
| 17 | 22 | 86 | 61 | 37 | 41 | 64 | 448 | 4.2 | 2,970 | 7.6 | 7.2 | 28 |
| 18 | 17 | 198 | 58 | 47 | 39 | 64 | 448 | 4.2 | 3,600 | 7.2 | 9.8 | 24 |
| 19 | 100 | 165 | 56 | 67 | 40 | 56 | 232 | 5.0 | 3,640 | 7.6 | 8.4 | 25 |
| 20 | 63 | 90 | 48 | 50 | 44 | 56 | 30 | 4.6 | 2,870 | 7.2 | 9.8 | 9.8 |
| 21 | 289 | 80 | 44 | b15 | 47 | 54 | 34 | 4.2 | 2,570 | 7.2 | 9.8 | 7.6 |
| 22 | 496 | 73 | 42 | b20 | 55 | 64 | 28 | 4.2 | 2,180 | 7.2 | 31 | 13 |
| 23 | 1,170 | 65 | 34 | b25 | 63 | 74 | 17 | 4.2 | 728 | 7.2 | 18 | 16 |
| 24 | 1,720 | 76 | 26 | b40 | 63 | 146 | 11 | 4.6 | a20 | 6.6 | 14 | 17 |
| 25 | 764 | 70 | a36 | b50 | 80 | 190 | 9.6 | 5.0 | 163 | 6.6 | 15 | 5.2 |
| 26 | a80 | 73 | 42 | 61 | 86 | 90 | 11 | 5.0 | 396 | 6.2 | 11 | 8.8 |
| 27 | 77 | 75 | 42 | 56 | 69 | 74 | 12 | 5.0 | 608 | 5.5 | 6.2 | 17 |
| 28 | 75 | 74 | 47 | 45 | 52 | 69 | 12 | 5.0 | 866 | 4.6 | 4.3 | 26 |
| 29 | 63 | 62 | 46 | 44 | - | 70 | 13 | 5.0 | 833 | 4.9 | 3.3 | 23 |
| 30 | 64 | 50 | 50 | 50 | ------- | 72 | 13 | 5.0 | 700 | 4.9 | 2.7 | 19 |
| 31 | 64 | ------- | 52 | 35 | ------- | 75 | ------- | 5.0 | ------- | 4.6 | 2.3 | ------- |
| Total | 5,509.7 | 5,376 | 1,554 | 1,180 | 1,302 | 2,324 | 3,743.6 | 189.2 | 29,652.0 | 4,236.3 | 258.3 | 659.2 |
| Mean | 178 | 179 | 50.1 | 38.1 | 46.5 | 75.0 | 125 | 6.10 | 988 | 137 | 8.33 | 22.0 |
| Ac-ft | 10,930 | 10,660 | 3,080 | 2,340 | 2,580 | 4,610 | 7,430 | 375 | 58,810 | 8,400 | 512 | 1,310 |

Calendar year 1957: Max 1,720 Min 0 Mean 81.4 Ac-ft 58,920
Water year 1957-58: Max 3,640 Min 0 Mean 153 Ac-ft 111,000

a No gage-height record; discharge estimated on basis of recorded range in stage, engineer's notes, and weather records.
b Stage-discharge relation affected by ice.

## 3295. 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 San Luis Valley, Colo.).

Records available.--May 1941 to September 1958.

Gage.--Water-stage recorder. Supplemental water-stage recorder at site 1,900 ft downstream. Datum of both gages is 5,030.57 ft above mean sea level, datum of 1929, 1951 adjustment.

Average discharge.--17 years, 1,206 cfs (873,100 acre-ft per year).

Extremes.--Maximum discharge during year, 11,800 cfs May 30 (gage height, 4.63 ft); minimum daily, 7 cfs Sept. 3.
1941-58: Maximum discharge, 25,400 cfs May 16, 1941; maximum gage height, 6.83 ft Sept. 20, 1941; no flow July 10-15, 1956.
Other major floods occurred as follows (based primarily on records for station at San Felipe): Sept. 23, 1929, about 23,000 cfs; Aug. 21, 1935, about 22,000 cfs; June 26, 1937, about 27,000 cfs.

Remarks.--Records poor. Discharge measurements generally made once a week. Diversion for irrigation of about 710,000 acres above station. Possible regulation by operation of storage reservoir on Rio Chama and flood-and-silt-detention reservoir on Jemez River (see p. 432). Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 204 | 1,630 | 865 | 811 | 650 | 1,020 | 976 | 5,850 | 10,500 | 895 | 442 | 36 |
| 2 | 186 | 2,100 | 875 | 716 | 724 | 1,020 | 1,200 | 5,850 | 9,830 | 786 | 1,490 | 15 |
| 3 | 158 | 1,990 | 976 | 650 | 716 | 1,000 | 1,400 | 6,020 | 9,220 | 659 | 1,980 | 7 |
| 4 | 154 | 2,130 | 905 | 758 | 758 | 955 | 1,380 | 5,620 | 8,880 | 282 | 1,390 | 68 |
| 5 | 146 | 2,930 | 965 | 758 | 820 | 1,080 | 1,290 | 6,380 | 8,430 | 315 | 1,480 | 331 |
| 6 | 340 | 3,460 | 1,000 | 811 | 820 | 1,110 | 1,260 | 8,160 | 7,040 | 605 | 596 | 162 |
| 7 | 166 | 3,740 | 945 | 793 | 784 | 1,120 | 1,400 | 6,540 | 4,910 | 338 | 1,070 | 1,240 |
| 8 | 140 | 3,460 | 988 | 793 | 802 | 1,090 | 1,610 | 7,650 | 5,100 | 855 | 982 | 786 |
| 9 | 129 | 2,690 | 1,070 | 829 | 802 | 1,220 | 1,800 | 7,180 | 4,820 | 730 | 1,040 | 713 |
| 10 | 118 | 2,940 | 1,110 | 865 | 793 | 1,290 | 2,160 | 7,180 | 5,800 | 78 | 1,110 | 998 |
| 11 | 118 | 2,270 | 1,120 | 758 | 793 | 1,290 | 2,200 | 7,650 | 5,000 | 66 | 864 | 1,180 |
| 12 | 968 | 2,100 | 1,010 | 698 | 766 | 1,060 | 2,740 | 7,750 | 5,000 | 56 | 740 | 520 |
| 13 | 1,060 | 1,660 | 775 | 766 | 811 | 1,030 | 2,940 | 8,670 | 4,630 | 194 | 848 | 1,340 |
| 14 | 784 | 1,520 | 775 | 707 | 838 | 988 | 2,940 | 8,890 | 4,860 | 37 | 677 | 2,910 |
| 15 | 528 | 1,380 | 811 | 732 | 820 | 1,000 | 2,840 | 8,570 | 4,960 | 31 | 190 | 730 |
| 16 | 446 | 1,450 | 820 | 690 | 847 | 1,180 | 3,350 | 8,890 | 4,500 | 23 | 92 | 355 |
| 17 | 439 | 1,310 | 905 | 640 | 895 | 1,190 | 3,870 | 8,890 | 5,200 | 16 | 149 | 282 |
| 18 | 507 | 1,400 | 915 | 690 | 905 | 1,270 | 4,650 | 9,190 | 4,720 | 12 | 49 | 270 |
| 19 | 3,510 | 1,520 | 965 | 775 | 1,050 | 1,110 | 4,720 | 9,330 | 4,720 | 25 | 28 | 433 |
| 20 | 6,830 | 1,310 | 925 | 775 | 965 | 1,060 | 6,280 | 9,440 | 4,770 | 45 | 19 | 424 |
| 21 | 2,180 | 1,220 | 895 | 741 | 1,220 | 1,020 | 7,080 | 8,670 | 4,720 | 33 | 19 | 395 |
| 22 | 2,280 | 1,080 | 865 | 698 | 1,520 | 1,030 | 6,110 | 9,220 | 4,960 | 17 | 26 | 235 |
| 23 | 2,400 | 1,020 | 925 | 634 | 1,520 | 1,150 | 7,180 | 9,770 | 2,690 | 14 | 43 | 178 |
| 24 | 2,310 | 915 | 847 | 682 | 1,520 | 1,140 | 7,630 | 10,400 | 490 | 12 | 250 | 168 |
| 25 | 1,600 | 965 | 955 | 775 | 1,420 | 1,240 | 5,770 | 10,500 | 5,220 | 22 | 143 | 154 |
| 26 | 732 | 1,150 | 895 | 634 | 1,920 | 1,240 | 7,960 | 9,890 | 5,800 | 102 | 139 | 142 |
| 27 | 838 | 1,180 | 820 | 741 | 1,610 | 1,220 | 8,260 | 10,400 | 1,810 | 175 | 86 | 156 |
| 28 | 698 | 1,260 | 784 | 724 | 1,160 | 1,220 | 8,060 | 11,000 | 1,600 | 156 | 59 | 240 |
| 29 | 690 | 1,240 | 775 | 724 | - | 1,210 | 6,900 | 11,200 | 1,720 | 190 | 47 | 171 |
| 30 | 698 | 1,050 | 766 | 650 | ------- | 1,210 | 5,610 | 11,600 | 1,140 | 570 | 16 | 178 |
| 31 | 716 | ------- | 875 | 618 | ------- | 1,000 | ------- | 11,000 | ------- | 570 | 130 | ------- |
| Total | 32,073 | 54,070 | 28,122 | 22,646 | 28,249 | 34,763 | 121,566 | 267,350 | 153,040 | 7,909 | 16,194 | 14,817 |
| Mean | 1,035 | 1,802 | 907 | 731 | 1,009 | 1,121 | 4,052 | 8,624 | 5,101 | 255 | 522 | 494 |
| Ac-ft | 63,620 | 107,200 | 55,780 | 44,920 | 56,030 | 68,950 | 241,100 | 530,300 | 303,600 | 15,690 | 32,120 | 29,390 |

Calendar year 1957: Max 8,160 Min 118 Mean 1,946 Ac-ft 1,409,000
Water year 1957-58: Max 11,600 Min 7 Mean 2,138 Ac-ft 1,549,000

Peak discharge (base, 5,000 cfs).--Oct. 20 (7 a.m.) 10,400 cfs (4.55 ft); May 30 (7 p.m.) 11,800 cfs (4.63 ft); June 26 (12:30 a.m.) 6,220 cfs (4.10 ft).

## 3300. 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), at downstream side of bridge on U. S. Highway 66, at Albuquerque.

Drainage area.--17,440 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--January 1942 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 4,946.16 ft above mean sea level, datum of 1951. Prior to Sept. 18, 1947, at datum about 2.00 ft higher.

Average discharge.--16 years, 1,037 cfs (750,800 acre-ft per year).

Extremes.--Maximum discharge during year, 12,700 cfs May 30 (gage height, 6.80 ft); minimum daily, 6 cfs July 23.

1942-58: Maximum discharge, 25,000 cfs Apr. 24, 1942, from rating curve extended above 13,900 cfs by logarithmic plotting; maximum gage height, 7.0 ft July 18, 1953; no flow at times.

Floods of about 20,000 cfs probably occurred May 26 and Sept. 23, 1929, Aug. 21, 1935, June 26, 1937, and May 16, 1941, based on records for upstream and downstream stations.

Remarks.--Records good except those below 100 cfs, which are fair. Discharge measurements generally made twice a week. Possible regulation by operation of storage reservoir on Rio Chama and by flood-and-silt detention reservoir on Jemez River (see p. 432). Diversions above station for irrigation of about 718,000 acres, several hundred of which are below station. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 166 | 2,680 | 1,040 | 808 | 744 | 1,040 | 1,110 | 6,550 | 10,500 | 804 | 486 | 40 |
| 2 | 137 | 3,500 | 971 | 780 | 684 | 808 | 1,800 | 7,050 | 10,000 | 728 | 863 | 25 |
| 3 | 134 | 3,850 | 892 | 732 | 708 | 794 | 2,380 | 7,250 | 9,420 | 647 | 1,350 | 23 |
| 4 | 110 | 3,180 | 954 | 744 | 672 | 988 | 1,860 | 6,700 | 7,760 | 464 | 1,270 | 35 |
| 5 | 100 | 4,100 | 920 | 720 | 756 | 1,070 | 1,720 | 6,200 | 8,360 | 360 | 1,420 | 165 |
| 6 | 140 | 3,430 | 954 | 744 | 808 | 1,090 | 1,270 | 6,850 | 7,600 | 442 | 1,080 | 291 |
| 7 | 137 | 4,200 | 1,040 | 744 | 794 | 1,150 | 1,340 | 6,600 | 4,710 | 360 | 864 | 741 |
| 8 | 110 | 4,340 | 1,020 | 696 | 768 | 1,190 | 1,580 | 6,850 | 4,960 | 412 | 864 | 748 |
| 9 | 98 | 3,820 | 1,070 | 744 | 708 | 1,210 | 1,890 | 7,400 | 4,790 | 808 | 864 | 656 |
| 10 | 96 | 3,680 | 1,130 | 756 | 756 | 1,130 | 2,520 | 7,400 | 5,920 | 196 | 968 | 770 |
| 11 | 98 | 3,080 | 1,070 | 708 | 756 | 1,110 | 2,800 | 8,200 | 5,120 | 79 | 759 | 940 |
| 12 | 592 | 2,800 | 1,090 | 660 | 780 | 954 | 3,180 | 8,260 | 4,670 | 60 | 675 | 717 |
| 13 | 2,740 | 1,750 | 1,020 | 780 | 744 | 864 | 2,840 | 8,480 | 4,430 | 80 | 666 | 486 |
| 14 | 822 | 1,530 | 937 | 732 | 768 | 906 | 2,700 | 9,020 | 4,240 | 69 | 541 | 2,160 |
| 15 | 560 | 1,580 | 937 | 708 | 708 | 808 | 3,150 | 8,700 | 4,910 | 24 | 205 | 780 |
| 16 | 442 | 1,430 | 971 | 732 | 732 | 878 | 3,780 | 8,800 | 4,350 | 17 | 100 | 500 |
| 17 | 400 | 1,560 | 1,070 | 696 | 822 | 937 | 4,100 | 9,140 | 4,050 | 23 | 90 | 378 |
| 18 | 428 | 1,640 | 1,040 | 696 | 920 | 971 | 4,340 | 9,360 | 4,830 | 23 | 78 | 262 |
| 19 | 2,390 | 1,610 | 1,020 | 780 | 1,210 | 1,170 | 4,690 | 9,360 | 4,280 | 16 | 80 | 321 |
| 20 | 6,980 | 1,290 | 971 | 822 | 1,410 | 1,090 | 5,810 | 9,600 | 4,430 | 22 | 70 | 332 |
| 21 | 4,490 | 1,310 | 878 | 780 | 1,580 | 1,000 | 6,480 | 9,660 | 4,790 | 23 | 61 | 360 |
| 22 | 3,440 | 1,270 | 920 | 630 | 1,720 | 1,070 | 6,370 | 9,840 | 5,040 | 8 | 51 | 237 |
| 23 | 3,500 | 1,070 | 954 | 610 | 1,830 | 1,460 | 6,790 | 10,300 | 3,320 | 6 | 51 | 134 |
| 24 | 2,940 | 906 | 920 | 630 | 1,860 | 1,210 | 7,210 | 10,200 | 780 | 8 | 64 | 108 |
| 25 | 2,370 | 954 | 878 | 620 | 1,580 | 1,530 | 6,200 | 10,700 | 1,730 | 11 | 140 | 95 |
| 26 | 1,600 | 1,130 | 920 | 732 | 1,920 | 1,460 | 7,280 | 10,600 | 4,550 | 63 | 157 | 64 |
| 27 | 1,150 | 1,230 | 864 | 794 | 1,830 | 1,390 | 8,090 | 9,900 | 1,480 | 183 | 140 | 83 |
| 28 | 720 | 1,150 | 864 | 780 | 1,410 | 1,270 | 7,700 | 10,300 | 1,250 | 228 | 97 | 205 |
| 29 | 640 | 1,110 | 864 | 732 | - | 1,560 | 7,600 | 11,400 | 1,610 | 151 | 75 | 194 |
| 30 | 720 | 1,150 | 864 | 768 | ------- | 1,430 | 6,400 | 11,900 | 1,080 | 241 | 60 | 173 |
| 31 | 808 | ------- | 850 | 720 | ------- | 1,060 | ------- | 11,200 | ------- | 390 | 50 | ------- |
| Total | 39,058 | 66,330 | 29,893 | 22,578 | 29,978 | 34,598 | 124,980 | 273,770 | 144,960 | 6,946 | 14,239 | 12,023 |
| Mean | 1,260 | 2,210 | 964 | 728 | 1,070 | 1,120 | 4,170 | 8,830 | 4,830 | 224 | 459 | 401 |
| Ac-ft | 77,470 | 131,600 | 59,290 | 44,780 | 59,460 | 68,620 | 247,900 | 543,000 | 287,500 | 13,780 | 28,240 | 23,850 |

Calendar year 1957: Max 6,980 Min 0 Mean 2,000 Ac-ft 1,447,000
Water year 1957-58: Max 11,900 Min 6 Mean 2,190 Ac-ft 1,585,000

Peak discharge (base, 4,000 cfs).--Oct. 20 (11:30 p.m.) 8,580 cfs (6.62 ft); Nov. 5 (9:30 p.m.) 5,420 cfs (5.58 ft); May 30 (10 p.m.) 12,700 cfs (6.80 ft); June 26 (4:30 a.m.) 5,000 cfs (5.22 ft).

## 3320. Rio Grande near Bernardo, N. Mex.

Location.--Lat 34°25'00", long 106°48'06", in NE¼ sec. 11, T. 2 N., R. 1 E., at bridge on U. S. Highway 60, 2 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 San Luis Valley, Colo.).

Records available.--June 1936 to January 1939, October 1941 to September 1958. Prior to October 1951, flow of Bernardo interior drain was included only when it carried river overflow; since that date entire flow is included.

Gage.--Water-stage recorder. There are 3 gages, 1 on a conveyance channel designed to carry 2,000 cfs, 5 miles downstream from heading, formerly San Francisco riverside drain, 1 on the floodway (former river channel which will now carry water when total flow exceeds about 1,700 cfs), and 1 on Bernardo interior drain. Datum of conveyance channel gage is 4,719.23 ft above mean sea level, adjustment of 1951. Prior to October 1952, main gage was on river channel (the present floodway gage) at datum 4,722.55 ft above mean sea level, adjustment of 1951. Datum of Bernardo interior drain supplementary recording gage is 4,713.99 ft above mean sea level, datum of 1929, 1951 adjustment.

Average discharge.--18 years (1936-38, 1941-42, 1943-58), 1,171 cfs (847,800 acre-ft per year).

Extremes.--Maximum daily discharge during year, 11,600 cfs June 1; minimum daily, 11 cfs July 31.
1936-39, 1941-42, 1943-58: Maximum discharge not determined, probably occurred Apr. 25, 1942; maximum daily, 19,600 cfs Apr. 25, 1942; no flow at times.

Remarks.--Records fair. Records represent total discharge of the river and are a summation of discharge in river channel (now called floodway), conveyance channel, and Bernardo interior drain, but do not include flow in a drain (gaged since July 1954) and a small canal on left side of floodway. Diversions for irrigation of about 740,000 acres above station. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 210 | 985 | 1,130 | 906 | 727 | 1,150 | 918 | 5,620 | 11,600 | 843 | 13 | 39 |
| 2 | 179 | 2,040 | 1,100 | 884 | 760 | 952 | 949 | 5,610 | 10,000 | 749 | 23 | 32 |
| 3 | 152 | 2,430 | 1,060 | 865 | 743 | 802 | 1,540 | 5,880 | 8,380 | 605 | 20 | 24 |
| 4 | 138 | 2,540 | 1,060 | 829 | 760 | 886 | 1,650 | 6,080 | 7,730 | 546 | 30 | 32 |
| 5 | 154 | 2,790 | 1,100 | 823 | 756 | 888 | 1,730 | 6,090 | 6,830 | 506 | 406 | 35 |
| 6 | 153 | 3,660 | 1,130 | 809 | 782 | 851 | 1,770 | 6,220 | 6,290 | 377 | 259 | 38 |
| 7 | 194 | 3,730 | 1,160 | 815 | 771 | 933 | 1,310 | 7,200 | 5,220 | 348 | 297 | 86 |
| 8 | 196 | 3,990 | 1,140 | 791 | 777 | 1,220 | 1,290 | 7,480 | 4,150 | 344 | 173 | 73 |
| 9 | 124 | 3,480 | 1,130 | 771 | 758 | 1,110 | 1,490 | 7,170 | 4,220 | 227 | 255 | 205 |
| 10 | 198 | 3,060 | 1,140 | 767 | 742 | 1,020 | 1,680 | 7,060 | 4,250 | 229 | 295 | 223 |
| 11 | 194 | 2,840 | 1,140 | 770 | 758 | 1,030 | 1,950 | 6,930 | 4,500 | 211 | 400 | 295 |
| 12 | 521 | 2,530 | 1,100 | 770 | 756 | 1,020 | 2,200 | 7,970 | 4,150 | 160 | 423 | 492 |
| 13 | 1,070 | 2,130 | 1,080 | 742 | 785 | 969 | 2,520 | 8,360 | 3,980 | 117 | 367 | 505 |
| 14 | 1,190 | 1,680 | 1,060 | 768 | 838 | 906 | 2,130 | 8,420 | 3,800 | 67 | 359 | 571 |
| 15 | 769 | 1,600 | 995 | 730 | 814 | 909 | 2,130 | 8,840 | 3,990 | 46 | 427 | 1,370 |
| 16 | 650 | 1,540 | 955 | 752 | 786 | 884 | 2,280 | 9,160 | 3,920 | 41 | 304 | 652 |
| 17 | 629 | 1,640 | 921 | 762 | 783 | 886 | 3,710 | 8,230 | 3,470 | 36 | 178 | 495 |
| 18 | 604 | 1,560 | 925 | 756 | 776 | 900 | 3,630 | 8,100 | 3,720 | 36 | 171 | 366 |
| 19 | 604 | 1,610 | 972 | 787 | 790 | 987 | 3,760 | 7,670 | 3,750 | 30 | 145 | 292 |
| 20 | 3,300 | 1,580 | 1,010 | 803 | 900 | 1,040 | 4,390 | 7,520 | 3,900 | 29 | 104 | 264 |
| 21 | 5,270 | 1,450 | 1,000 | 823 | 1,110 | 1,020 | 5,590 | 7,730 | 3,840 | 27 | 73 | 246 |
| 22 | 2,630 | 1,350 | 974 | 799 | 1,160 | 964 | 6,060 | 6,980 | 4,190 | 24 | 91 | 273 |
| 23 | 2,910 | 1,240 | 948 | 725 | 1,360 | 1,280 | 6,740 | 7,370 | 4,150 | 22 | 97 | 247 |
| 24 | 2,750 | 1,160 | 966 | 680 | 1,460 | 1,380 | 7,700 | 7,610 | 2,450 | 20 | 95 | 224 |
| 25 | 2,190 | 1,000 | 961 | 699 | 1,430 | 1,530 | 8,520 | 7,960 | 1,310 | 18 | 89 | 194 |
| 26 | 1,670 | 999 | 941 | 731 | 1,460 | 1,370 | 6,350 | 8,880 | 2,410 | 16 | 62 | 205 |
| 27 | 1,120 | 1,120 | 959 | 765 | 1,480 | 1,260 | 6,770 | 9,570 | 3,320 | 12 | 47 | 184 |
| 28 | 1,110 | 1,150 | 932 | 759 | 1,440 | 1,160 | 8,950 | 9,550 | 1,320 | 12 | 44 | 207 |
| 29 | 846 | 1,170 | 918 | 747 | - | 1,210 | 8,800 | 10,000 | 1,080 | 12 | 38 | 243 |
| 30 | 794 | 1,120 | 910 | 755 | ------- | 1,400 | 7,060 | 10,900 | 1,140 | 12 | 48 | 238 |
| 31 | 822 | ------- | 904 | 738 | ------- | 1,090 | ------- | 11,500 | ------- | 11 | 41 | ------- |
| Total | 33,341 | 59,174 | 31,721 | 24,121 | 26,462 | 33,109 | 115,367 | 243,660 | 133,060 | 5,733 | 5,374 | 8,350 |
| Mean | 1,076 | 1,972 | 1,023 | 778 | 945 | 1,068 | 3,846 | 7,860 | 4,435 | 185 | 173 | 278 |
| Ac-ft | 66,130 | 117,400 | 62,920 | 47,840 | 52,490 | 65,870 | 228,800 | 483,300 | 265,900 | 11,370 | 10,660 | 16,560 |

Calendar year 1957: Max 6,220 Min 45 Mean 1,741 Ac-ft 1,260,000
Water year 1957-58: Max 11,600 Min 11 Mean 1,971 Ac-ft 1,427,000

## 3340. 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 right bank 1.6 miles upstream from Chico Arroyo and 5½ miles northeast of the village of Guadalupe, Sandoval County.

Drainage area.--420 sq mi, approximately.

Records available.--July 1951 to September 1958.

Average discharge.--7 years, 14.7 cfs (10,640 acre-ft per year).

Gage.--Water-stage recorder. Altitude of gage is 5,925 ft (by barometer).

Extremes.--Maximum discharge during year, 3,900 cfs Oct. 20 (gage height, 11.3 ft, from poorly-defined floodmark inside well), from rating curve extended above 1,800 cfs; no flow many days.
1951-58: Maximum discharge, 4,000 cfs Aug. 12, 1952 (gage height, 13.2 ft), from rating curve extended above 1,300 cfs on basis of slope-area measurement of peak flow; no flow for many days each year.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Diversions for irrigation of about 3,700 acres above station in past years, but present diversion negligible. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 3 | 0 | 1 | 0 | 4 | 8 | 156 | 50 | 0 | 0 | 0 |
| 2 | 0 | 3 | 0 | 0 | 0 | 5 | 9 | 159 | 45 | *1 | 0 | 0 |
| 3 | *0 | 3 | 0 | 0 | 0 | 4 | 9 | 165 | 38 | 0 | 0 | 0 |
| 4 | 0 | 68 | 0 | 0 | 1 | 7 | 8 | 159 | 30 | 0 | 0 | 0 |
| 5 | 0 | 220 | 0 | 1 | 1 | 7 | 8 | 179 | 22 | 0 | 0 | 0 |
| 6 | 0 | 88 | 0 | 1 | 8 | 8 | 7 | 216 | *18 | 0 | 2 | 8 |
| 7 | 0 | 44 | 0 | 1 | *55 | 12 | 4 | 239 | 16 | 0 | 0 | 1 |
| 8 | 0 | *20 | 0 | 1 | 68 | 23 | 13 | *228 | 18 | 0 | 18 | 0 |
| 9 | 0 | 12 | 0 | 1 | 78 | 29 | 31 | 243 | 14 | 0 | 1 | 0 |
| 10 | 0 | 8 | 0 | 0 | 95 | 7 | 52 | 237 | 11 | 0 | 0 | 0 |
| 11 | 0 | 2 | 0 | 1 | 74 | 4 | 18 | 224 | 11 | 0 | 0 | 0 |
| 12 | 99 | 1 | 0 | 1 | 24 | 2 | 37 | 226 | 8 | 0 | 0 | *2 |
| 13 | 34 | 1 | 0 | 0 | 16 | 9 | 53 | 243 | 6 | 0 | *0 | 293 |
| 14 | 31 | 1 | 0 | 0 | 6 | 7 | 150 | 216 | 4 | 0 | 0 | 9 |
| 15 | *4 | 1 | 0 | 0 | 5 | 5 | 32 | *181 | 2 | 0 | 0 | 2 |
| 16 | 1 | 0 | 0 | 0 | 64 | 11 | 47 | 172 | 1 | 0 | 0 | 0 |
| 17 | 1 | 0 | 15 | 0 | 200 | 34 | 67 | 147 | 0 | 0 | 0 | 0 |
| 18 | 0 | 6 | 18 | 0 | 210 | 61 | 81 | 131 | 0 | 0 | 0 | 2 |
| 19 | 1,000 | 2 | 4 | 0 | 168 | 54 | 126 | 119 | 0 | 0 | 43 | 1 |
| 20 | 2,000 | 1 | 15 | 0 | 125 | *21 | 166 | 112 | 0 | 0 | 15 | 0 |
| 21 | 500 | 1 | 5 | 0 | 86 | 17 | 206 | 122 | 0 | 0 | 9 | 0 |
| 22 | 200 | 0 | 2 | 0 | 72 | 29 | 231 | 70 | 0 | 0 | 11 | 0 |
| 23 | *65 | 0 | 2 | 0 | 31 | 134 | 259 | 50 | 0 | 0 | 8 | 0 |
| 24 | 27 | 0 | 1 | 0 | *26 | 56 | 228 | 70 | 0 | *0 | 1 | 0 |
| 25 | 15 | 0 | 2 | 0 | 45 | 40 | 204 | 60 | 0 | 0 | *0 | 0 |
| 26 | 8 | 0 | 1 | 0 | 38 | 27 | 202 | 50 | 0 | 0 | 0 | 0 |
| 27 | 6 | 0 | *4 | 0 | 12 | 16 | 212 | 45 | 0 | 0 | 0 | 0 |
| 28 | 4 | 0 | 2 | 0 | 14 | *14 | 181 | 40 | 0 | 0 | 0 | 0 |
| 29 | 4 | 0 | 2 | 0 | - | 16 | 170 | 50 | 0 | 0 | 0 | 0 |
| 30 | 3 | 0 | 1 | 0 | ------- | 9 | 161 | 45 | 0 | 0 | 0 | 0 |
| 31 | *3 | ------- | 1 | 0 | ------- | 7 | ------- | 40 | ------- | 0 | 0 | ------- |
| Total | 4,005 | 485 | 75 | 8 | 1,522 | 679 | 2,980 | 4,394 | 294 | 1 | 108 | 318 |
| Mean | 129 | 16.2 | 2.42 | 0.27 | 54.4 | 21.9 | 99.3 | 142 | 9.80 | 0.03 | 3.48 | 10.6 |
| Ac-ft | 7,940 | 962 | 149 | 16 | 3,020 | 1,350 | 5,910 | 8,720 | 583 | 2 | 214 | 631 |

Calendar year 1957: Max 2,000 Min 0 Mean 30.3 Ac-ft 21,930
Water year 1957-58: Max 2,000 Min 0 Mean 40.7 Ac-ft 29,500

Peak discharge (base, 1,800 cfs).--Oct. 20 (about 11 p.m.) 3,900 cfs (11.6 ft); Sept. 13 (6:30 a.m.) 2,240 cfs (7.85 ft).

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

Note.--No gage-height record Oct. 18-22, 28-30, Nov. 12-17, Nov. 19 to Dec. 16, Mar. 11-12, May 22 to June 2, June 12 to July 1, Aug. 9-12, 24, Sept. 7-11, 15-17, 19-30; discharge estimated on basis of adjoining good record, weather records, and records for other Rio Puerco stations.

## 3405. 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 1958.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,895 ft (by barometer).

Average discharge.--15 years, 26.2 cfs (18,970 acre-ft per year).

Extremes.--Maximum discharge during year, 4,740 cfs Oct. 20 (gage height, 7.62 ft); no flow for many days.
1943-58: Maximum discharge, 12,200 cfs July 17, 1953 (gage height, 15.1 ft), from rating curve extended above 2,900 cfs on basis of slope-area measurements at gage heights 9.6 and 12.8 ft; no flow at times.

Remarks.--Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions for irrigation of about 100 acres above station.

Revisions (water years).--WSP 1282: 1940-50.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.9 | 0 | 2.8 | 21 |
| 2.0 | .3 | 2.9 | 32 |
| 2.1 | .9 | 3.0 | 49 |
| 2.4 | 4.9 | 3.2 | 108 |
| 2.5 | 6.8 | 3.5 | 260 |
| 2.6 | 10 | 4.1 | 720 |
| 2.7 | 14 | 4.6 | 1,220 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | a1 | 1 | 2 | 2 | 1 | | | 0 | 0 | 0 |
| 2 | 0 | 1 | a1 | 1 | 2 | a2 | 1 | | | *0 | 0 | 0 |
| 3 | 0 | 2 | a0 | 1 | 4 | a1 | 0 | | | 0 | 0 | 0 |
| 4 | 0 | 4 | a0 | 1 | 4 | a1 | 0 | | | 0 | 0 | 0 |
| 5 | 0 | 3 | a0 | 1 | b14 | a1 | 0 | | | 0 | 0 | 0 |
| 6 | 0 | 39 | 1 | 1 | b14 | 1 | a0 | | (*) | 0 | 65 | 2 |
| 7 | 0 | 42 | 1 | 1 | *b70 | 3 | a0 | | | 0 | 5 | 188 |
| 8 | 0 | *13 | a1 | 1 | 30 | 5 | 2 | (*) | | 0 | 106 | a10 |
| 9 | 0 | 5 | a1 | 1 | 14 | 6 | 2 | | | 0 | 21 | 710 |
| 10 | 0 | 11 | a1 | 1 | 6 | a2 | 1 | | | 0 | 23 | a10 |
| 11 | 0 | 5 | a1 | 1 | 9 | a2 | 0 | | | 0 | a8 | a5 |
| 12 | 437 | 3 | a1 | 1 | a4 | a1 | 16 | | | 0 | a2 | *2 |
| 13 | 209 | 3 | a1 | 1 | a3 | a1 | 11 | | | 0 | *0 | 18 |
| 14 | a50 | 3 | a1 | 1 | a3 | a1 | 86 | | | 0 | 0 | 2 |
| 15 | *12 | 3 | a1 | 1 | a2 | a1 | 31 | (*) | | 0 | 0 | a1 |
| 16 | 4 | 4 | 1 | 1 | a2 | a1 | a20 | | | 0 | 0 | a0 |
| 17 | 1 | 4 | 2 | 1 | a2 | 6 | a10 | | | 0 | 59 | a0 |
| 18 | 5 | 6 | 2 | 1 | a3 | 59 | a5 | | | 0 | 14 | a0 |
| 19 | 137 | 4 | 2 | 2 | 47 | 49 | a3 | | | 0 | 3 | a0 |
| 20 | 1,160 | 3 | 2 | 2 | 66 | *35 | a2 | | | 0 | 70 | a0 |
| 21 | 555 | 3 | 1 | 2 | 40 | 39 | a1 | | | 0 | 32 | a0 |
| 22 | 175 | 2 | 2 | 1 | 37 | 52 | a0 | | | 0 | 190 | a0 |
| 23 | *30 | a1 | 2 | 1 | 16 | 37 | a0 | | | 0 | 18 | a0 |
| 24 | 10 | 2 | a1 | 1 | *8 | 26 | a0 | | | *0 | a5 | a0 |
| 25 | 4 | 3 | a1 | 1 | 7 | 26 | a0 | | | 0 | *2 | a0 |
| 26 | a2 | 4 | a1 | 2 | 5 | 10 | a0 | | | 0 | 0 | a0 |
| 27 | a1 | 4 | *1 | 2 | 3 | 8 | a0 | | | 0 | 0 | a0 |
| 28 | a1 | 2 | b1 | 2 | 3 | *4 | a0 | | | 0 | 0 | a0 |
| 29 | 2 | 1 | b1 | b1 | - | 3 | a0 | | | 1 | 0 | a0 |
| 30 | a1 | a1 | 1 | b1 | ------- | 2 | a0 | | | 0 | 0 | a0 |
| 31 | *1 | ------- | 1 | 2 | ------- | 2 | ------- | | ------- | 0 | 0 | ------- |
| Total | 2,797 | 182 | 34 | 38 | 420 | 389 | 192 | 0 | 0 | 1 | 623 | 948 |
| Mean | 90.2 | 6.1 | 1.1 | 1.2 | 15.0 | 12.5 | 6.4 | 0 | 0 | 0.003 | 20.1 | 31.6 |
| Ac-ft | 5,550 | 361 | 67 | 75 | 833 | 772 | 381 | 0 | 0 | 2 | 1,240 | 1,880 |

Calendar year 1957: Max 4,330 Min 0 Mean 70.1 Ac-ft 50,720
Water year 1957-58: Max 1,160 Min 0 Mean 15.4 Ac-ft 11,160

Peak discharge (base, 2,900 cfs).--Oct. 20 (4 p.m.) 4,740 cfs (7.62 ft); Sept. 9 (7 a.m.) 2,830 cfs (5.94 ft).

* Discharge measurement or observation of no flow made on this day.
b Stage-discharge relation affected by ice.
a No gage-height record; discharge estimated on basis of weather records, hydrographic comparisons with Rio Puerco stations, and engineers' notes.

## 3415. Bluewater Creek below Bluewater Dam, N. Mex.

Location.--Lat 35°17'35", long 108°06'35", in SE¼ sec. 4, T. 12 N., R. 12 W., on left bank 350 ft downstream from Bluewater Dam and 9.3 miles west of Bluewater.

Drainage area.--215 sq mi.

Records available.--March 1951 to September 1958.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,320 ft (by barometer).

Average discharge.--7 years, 1.37 cfs (992 acre-ft per year).

Extremes.--Maximum discharge during year, 17 cfs June 14 (gage height, 2.45 ft); minimum daily, 0.1 cfs Nov. 7 to Feb. 28.
1951-58: Maximum discharge, 58 cfs July 1-3, 1952 (gage height, 2.75 ft); no flow at times in 1955, 1957.

Remarks.--Records good. Flow regulated by operation of Bluewater Lake (capacity, 38,500 acre-ft at crest of uncontrolled siphon spillways).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 18-20, June 26 to July 15, Aug. 16-20)

| | | | |
|---|---|---|---|
| 1.3 | 0 | 1.8 | 1.6 |
| 1.4 | .1 | 1.9 | 2.7 |
| 1.5 | .3 | 2.0 | 4.2 |
| 1.6 | .6 | 2.1 | 6.5 |
| 1.7 | 1.0 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.2 | 0.5 | 0.8 | 2.2 | 2.2 | 0.4 | 2.7 |
| 2 | .2 | .2 | .1 | .1 | .1 | .2 | .5 | .8 | 2.7 | 3.3 | 2.4 | 4.6 |
| 3 | .2 | .2 | .1 | .1 | .1 | .2 | .5 | .8 | 3.4 | 3.3 | 3.2 | 4.6 |
| 4 | .2 | .2 | .1 | .1 | .1 | .2 | .5 | .8 | 1.7 | 3.3 | 2.8 | 4.4 |
| 5 | .2 | .2 | .1 | .1 | .1 | .2 | .5 | .8 | .7 | 3.3 | *2.7 | 4.2 |
| 6 | .2 | .2 | .1 | .1 | .1 | .2 | .6 | .8 | *.7 | 3.2 | 2.3 | 4.4 |
| 7 | .2 | *.1 | .1 | .1 | .1 | .2 | .6 | .9 | .7 | 3.3 | .3 | 4.6 |
| 8 | *.2 | .1 | .1 | .1 | .1 | .2 | *.6 | .8 | .7 | 3.3 | .3 | 4.1 |
| 9 | .2 | .1 | .1 | .1 | .1 | .2 | .6 | .8 | .7 | 3.4 | .3 | .3 |
| 10 | .2 | .1 | .1 | .1 | .1 | .2 | .6 | .8 | .7 | 3.4 | .3 | .3 |
| 11 | .2 | .1 | .1 | .1 | .1 | *.2 | .6 | .8 | .7 | 3.6 | .3 | .3 |
| 12 | .2 | .1 | .1 | .1 | .1 | .2 | .6 | .8 | .7 | 3.6 | .3 | .3 |
| 13 | .2 | .1 | .1 | .1 | .1 | .2 | .6 | .8 | .7 | 3.6 | .3 | .4 |
| 14 | .2 | .1 | .1 | *.1 | *.1 | .2 | .7 | .8 | 1.7 | 3.6 | .3 | .4 |
| 15 | .2 | .1 | .1 | .1 | .1 | .2 | .7 | .8 | .4 | *3.5 | .3 | .4 |
| 16 | .2 | .1 | .1 | .1 | .1 | .2 | .8 | .8 | .4 | 3.2 | 2.0 | .4 |
| 17 | .2 | .1 | *.1 | .1 | .1 | .2 | .8 | 1.0 | .4 | 3.2 | 3.4 | .4 |
| 18 | .2 | .1 | .1 | .1 | .1 | .2 | .8 | 2.0 | 1.1 | 3.3 | 3.4 | .4 |
| 19 | .2 | .1 | .1 | .1 | .1 | .2 | .8 | 2.4 | 3.8 | 2.0 | 3.4 | .4 |
| 20 | .2 | .1 | .1 | .1 | .1 | .2 | .8 | 2.3 | *2.1 | .4 | 3.1 | .4 |
| 21 | .2 | *.1 | .1 | .1 | .1 | .2 | .8 | .7 | .4 | .4 | .3 | .4 |
| 22 | .2 | .1 | .1 | .1 | .1 | .2 | .8 | .7 | .4 | .4 | .3 | .4 |
| 23 | .2 | .1 | .1 | .1 | .1 | .3 | .8 | .7 | .4 | .4 | .3 | *.4 |
| 24 | *.2 | .1 | .1 | .1 | .1 | .3 | .8 | .7 | .4 | .4 | .3 | .4 |
| 25 | .2 | .1 | .1 | .1 | .1 | .4 | .8 | .8 | .4 | .4 | .3 | .4 |
| 26 | .2 | .1 | .1 | .1 | .1 | .4 | .8 | .8 | 1.0 | .4 | *.3 | .4 |
| 27 | .2 | .1 | .1 | .1 | .1 | .4 | .8 | .8 | 1.9 | .4 | .3 | .4 |
| 28 | .2 | .1 | .1 | .1 | .1 | .4 | .8 | .8 | 1.7 | .4 | .3 | .4 |
| 29 | .2 | .1 | .1 | .1 | - | .4 | .8 | .8 | 1.7 | .4 | .3 | .4 |
| 30 | .2 | .1 | .1 | .1 | ------- | .4 | .8 | 1.6 | 1.9 | .4 | .3 | .4 |
| 31 | .2 | ------- | .1 | .1 | ------- | .4 | ------- | 3.2 | ------- | .4 | .3 | ------- |
| Total | 6.2 | 3.6 | 3.1 | 3.1 | 2.8 | 7.8 | 20.7 | 32.2 | 36.4 | 66.4 | 35.1 | 42.0 |
| Mean | 0.20 | 0.12 | 0.10 | 0.10 | 0.10 | 0.25 | 0.69 | 1.04 | 1.21 | 2.14 | 1.13 | 1.40 |
| Ac-ft | 12 | 7.1 | 6.1 | 6.1 | 5.6 | 15 | 41 | 64 | 72 | 132 | 70 | 83 |

Calendar year 1957: Max 0.2 Min 0 Mean 0.11 Ac-ft 83
Water year 1957-58: Max 4.6 Min 0.1 Mean 0.71 Ac-ft 514

* Discharge measurement made on this day.

## 3420. 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 3½ miles northwest of Bluewater Village and 8 miles downstream from Bluewater Dam.

Drainage area.--235 sq mi.

Records available.--July 1912 to December 1914 and October 1930 to September 1958 in reports of Geological Survey. Figures of daily discharge for July 20-23, 1912, published in WSP 358 have been found to be unreliable and should not be used. July 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 (by barometer). Prior to Mar. 4, 1918, at site 113 ft upstream at different datums. Mar. 4, 1918, to Mar. 17, 1939, at site 83 ft upstream; Mar. 4, 1918, to June 28, 1919 (destroyed by flood), at datum 1.92 ft higher, Apr. 6, 1921, to Mar. 17, 1939, at datum 1.57 ft higher.

Average discharge.--30 years (1912-14, 1930-58), 10.3 cfs (7,460 acre-ft per year).

Extremes.--Maximum discharge during year, 79 cfs Aug. 7 (gage height, 3.78 ft); minimum daily, 0.6 cfs Feb. 12, 27.
1912-14, 1930-58: Maximum discharge, 1,210 cfs July 23, 1954 (gage height, 7.28 ft); no flow at times.

Remarks.--Records good except those for periods of ice effect, which are fair. Flow regulated by Bluewater Lake (capacity, 38,500 acre-ft at crest of uncontrolled siphon spillways).

Revisions (water years).--WSP 1512: 1912-15, 1931, 1943(M), 1945(M). See also Records available.

Rating table, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 24 to Sept. 2)

| | | | |
|---|---|---|---|
| 2.6 | 0 | 3.0 | 5.6 |
| 2.7 | .4 | 3.1 | 9.9 |
| 2.8 | 1.3 | 3.2 | 16 |
| 2.9 | 3.0 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.8 | 1.6 | b0.8 | b0.8 | b0.8 | b0.8 | 1.6 | 4.2 | 6.0 | 5.3 | 2.0 | 1.9 |
| 2 | .8 | 1.4 | b.9 | b.7 | b.9 | .9 | 1.7 | 4.2 | 5.6 | 5.6 | 1.9 | 6.2 |
| 3 | .9 | 1.3 | b1.0 | b.7 | 1.1 | 1.0 | 1.7 | 4.2 | 6.9 | 6.5 | 4.4 | 8.6 |
| 4 | .9 | 1.3 | b1.1 | b.8 | 1.2 | 1.2 | 1.9 | 4.2 | 6.9 | 6.0 | 4.4 | 9.5 |
| 5 | 1.0 | 1.4 | 1.4 | 1.1 | 1.1 | 1.1 | 2.0 | *4.2 | 3.9 | 5.6 | *4.2 | 8.6 |
| 6 | 1.0 | 1.4 | 1.2 | 1.1 | .9 | 1.3 | 2.0 | 4.2 | *3.9 | 5.6 | 4.4 | 8.6 |
| 7 | 1.0 | *1.3 | b1.1 | 1.2 | .9 | 1.3 | 2.2 | 4.2 | 3.9 | 5.6 | 11 | 9.0 |
| 8 | *.9 | 1.3 | 1.0 | 1.2 | .8 | 1.3 | *2.2 | 4.4 | 3.7 | 5.4 | 5.0 | 9.9 |
| 9 | .9 | 1.3 | 1.0 | b1.2 | .7 | 1.2 | 2.0 | 4.4 | 3.0 | 5.3 | 2.8 | 5.3 |
| 10 | .8 | 1.2 | 1.0 | b1.1 | .7 | 1.1 | 2.0 | 4.4 | 3.0 | 5.3 | 2.4 | 3.0 |
| 11 | .8 | 1.2 | 1.0 | b1.2 | .7 | *1.1 | 2.2 | 4.7 | 2.8 | 5.3 | 3.2 | 2.8 |
| 12 | 1.4 | 1.2 | b.9 | b1.1 | .6 | 1.6 | 2.8 | 4.4 | 2.6 | 5.3 | 2.4 | 2.8 |
| 13 | 1.2 | 1.2 | b1.0 | b1.2 | .7 | 1.0 | 2.6 | 4.2 | 2.4 | 5.3 | 2.4 | 3.2 |
| 14 | 1.0 | 1.2 | b1.0 | *b1.2 | *.8 | 1.0 | 2.6 | 4.2 | 2.4 | 5.0 | 2.0 | 2.6 |
| 15 | .9 | 1.2 | 1.1 | b1.1 | .8 | .9 | 2.6 | 4.4 | 3.9 | *5.0 | 1.9 | 2.6 |
| 16 | 1.1 | 1.3 | 1.1 | b1.0 | .8 | 1.0 | 3.0 | 4.4 | 2.8 | 5.0 | 2.0 | 2.4 |
| 17 | 1.2 | 1.3 | *1.0 | b1.0 | .8 | 1.0 | 3.0 | 4.2 | 2.8 | 4.7 | 5.3 | 2.6 |
| 18 | 1.1 | 1.2 | .9 | b1.2 | .8 | 1.0 | 3.0 | 5.0 | 2.6 | 4.4 | 6.5 | 2.6 |
| 19 | 1.1 | 1.2 | .8 | 1.3 | .8 | 1.0 | 3.0 | 5.6 | 4.4 | 4.4 | 7.3 | 2.6 |
| 20 | 1.2 | 1.1 | b.8 | b1.1 | .9 | 1.0 | 3.2 | 6.5 | *5.3 | 2.0 | 7.0 | 2.4 |
| 21 | 1.3 | *1.1 | .9 | b.9 | .9 | 1.0 | 3.2 | 5.6 | 3.9 | 1.2 | 7.4 | 2.4 |
| 22 | 1.3 | b.9 | 1.0 | b.7 | .9 | 1.2 | 3.4 | 5.0 | 3.2 | 1.1 | 3.2 | 2.4 |
| 23 | 1.2 | b1.0 | 1.0 | b.8 | .9 | 1.3 | 3.4 | 4.7 | 3.0 | 1.0 | 3.6 | *2.8 |
| 24 | *1.2 | b1.1 | 1.0 | b.9 | .9 | 1.3 | 3.7 | 4.6 | 3.0 | 3.1 | 2.4 | 2.8 |
| 25 | 1.2 | 1.1 | .9 | b1.0 | .9 | 1.3 | 3.7 | 5.0 | 3.0 | 3.4 | 2.2 | 2.6 |
| 26 | 1.3 | 1.1 | .8 | 1.3 | 1.1 | 1.3 | 3.7 | 5.0 | 3.0 | 2.4 | *2.2 | 2.6 |
| 27 | 1.3 | 1.1 | 1.0 | 1.4 | b.6 | 1.3 | 3.9 | 4.4 | 4.2 | 2.2 | 2.2 | 2.6 |
| 28 | 1.3 | b1.0 | 1.0 | 1.2 | b.7 | 1.4 | 3.9 | 3.9 | 4.7 | 2.2 | 2.0 | 2.8 |
| 29 | 1.6 | b.9 | 1.0 | 1.2 | - | 1.4 | 4.2 | 3.9 | 4.7 | 2.0 | 2.2 | 2.8 |
| 30 | 1.3 | b.8 | 1.0 | 1.1 | ------- | 1.4 | 4.2 | 3.7 | 5.0 | 2.0 | 2.0 | 2.6 |
| 31 | 1.4 | ------- | .9 | 1.0 | ------- | 1.4 | ------- | 5.6 | ------- | 2.0 | 1.9 | ------- |
| Total | 34.4 | 35.7 | 30.6 | 32.8 | 23.7 | 36.1 | 84.6 | 141.6 | 116.5 | 125.2 | 112.8 | 123.6 |
| Mean | 1.11 | 1.19 | 0.99 | 1.06 | 0.85 | 1.17 | 2.82 | 4.57 | 3.88 | 4.04 | 3.64 | 4.12 |
| Ac-ft | 68 | 71 | 61 | 65 | 47 | 72 | 168 | 281 | 231 | 248 | 224 | 245 |

Calendar year 1957: Max 29 Min 0 Mean 0.68 Ac-ft 247
Water year 1957-58: Max 11 Min 0.6 Mean 2.46 Ac-ft 898

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

## 3430. 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 to December 1912 (fragmentary), January 1913 to September 1914 (gage heights and discharge measurements only March to May, July to September 1914), and April 1949 to September 1958 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). Oct. 30, 1912, to Apr. 23, 1915, staff gage, Apr. 24, 1915, to Dec. 5, 1917, chain gage, and Dec. 6, 1917, to Dec. 31, 1926, staff gage, at nearby sites at different datums.

Average discharge.--20 years (1914-25, 1949-58), 6.04 cfs (4,370 acre-ft per year).

Extremes.--Maximum discharge during year, 165 cfs Aug. 7 (gage height, 3.03 ft); no flow most of the year.

1912-26, 1949-58: Maximum discharge recorded, 1,760 cfs Aug. 28, 1952 (gage height, 5.35 ft), from rating curve extended above 300 cfs on basis of velocity-area studies; no flow for long periods.

Remarks.--Records fair. Flow partly regulated by Bluewater Lake (capacity, 38,500 acre-ft at crest of uncontrolled siphon spillways). Diversions and ground-water withdrawals for irrigation of about 4,500 acres above station.

Revisions (water years).--WSP 1212: Drainage area. WSP 1512: 1913-14.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.15 | 0 | 1.6 | 4.1 |
| 1.2 | .1 | 1.7 | 6.9 |
| 1.3 | .4 | 1.9 | 16 |
| 1.4 | 1.0 | 2.1 | 29 |
| 1.5 | 2.2 | 2.4 | 60 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.4 | 0 | | | | | | | 0 | 0 | 0 | 0 |
| 2 | 1.4 | 0 | | | | | | | 0 | .8 | 0 | .1 |
| 3 | 1.4 | 0 | | | | | | | 0 | .8 | 0 | 0 |
| 4 | 1.4 | 0 | | | | | | | 0 | 1.1 | 0 | 0 |
| 5 | 1.5 | 0 | | | | | | (*) | 0 | .4 | *0 | .3 |
| 6 | 1.5 | 0 | | | | | | | *0 | 0 | 0 | .9 |
| 7 | 1.5 | *0 | | | | | | | 0 | 0 | 24 | 0 |
| 8 | *1.4 | .2 | | | | | (*) | | 0 | 0 | 24 | .1 |
| 9 | 1.4 | .8 | | | | | | | 0 | 0 | 58 | 0 |
| 10 | 1.4 | .5 | | | | | | | 0 | 0 | 14 | .3 |
| 11 | 12 | .7 | | | | (*) | | | 0 | 0 | .7 | .6 |
| 12 | *18 | .5 | | | | | | | 0 | 0 | .1 | 0 |
| 13 | .5 | .7 | | | | | | | 0 | 0 | 0 | 0 |
| 14 | 1.5 | .6 | | (*) | (*) | | | | 0 | 0 | 0 | 0 |
| 15 | .9 | .6 | | | | | | | 0 | *0 | 0 | 0 |
| 16 | .9 | .7 | | | | | | | 0 | 0 | 0 | 0 |
| 17 | .9 | .6 | (*) | | | | | | 0 | 0 | 0 | 0 |
| 18 | .8 | .3 | | | | | | | 0 | 0 | 0 | 0 |
| 19 | .8 | .6 | | | | | | | 0 | 0 | 0 | 0 |
| 20 | .8 | .5 | | | | | | | *0 | 0 | 0 | 0 |
| 21 | .8 | *.5 | | | | | | | 0 | 0 | 0 | 0 |
| 22 | .8 | 0 | | | | | | | 0 | 0 | 0 | 0 |
| 23 | .8 | 0 | | | | | | | 0 | 0 | 0 | *0 |
| 24 | *.9 | 0 | | | | | | | 0 | 0 | 0 | .4 |
| 25 | 1.1 | 0 | | | | | | | .3 | 0 | 0 | 0 |
| 26 | .9 | 0 | | | | | | | 0 | 0 | *0 | 0 |
| 27 | .8 | 0 | | | | | | | 0 | 0 | 0 | 0 |
| 28 | .9 | 0 | | | | | | | 0 | 0 | .1 | 0 |
| 29 | .9 | 0 | | | - | | | | 0 | 0 | .1 | 0 |
| 30 | .9 | 0 | | | ------- | | | | 0 | 0 | .1 | 0 |
| 31 | .7 | ------- | | | ------- | | ------- | | ------- | 0 | 0 | ------- |
| Total | 65.5 | 7.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3 | 3.1 | 121.1 | 2.7 |
| Mean | 2.11 | 0.26 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 | 0.10 | 3.91 | 0.09 |
| Ac-ft | 130 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 6.1 | 240 | 5.4 |

Calendar year 1957: Max 278 Min 0 Mean 3.84 Ac-ft 2,780
Water year 1957-58: Max 58 Min 0 Mean 0.55 Ac-ft 397

Peak discharge (base, 200 cfs).--No peak above base.

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

## 3435. Rio San Jose near Grants, N. Mex.

Location.--Lat 35°04'30", long 107°45'00", in SE¼SE¼ sec. 23, T. 10 N., R. 9 W., on right bank at west boundary of Acoma Pueblo Grant, 8½ miles southeast of Grants.

Drainage area.--1,070 sq mi, approximately.

Records available.--June 1936 to September 1958. Prior to October 1955, published as San Jose River near Grants.

Gage.--Water-stage recorder and concrete control. Datum of gage is 6,269.47 ft above mean sea level, datum of 1929.

Average discharge.--22 years, 7.07 cfs (5,120 acre-ft per year).

Extremes.--Maximum discharge during year, 81 cfs July 16 (gage height, 1.46 ft); minimum daily, 3.7 cfs Aug. 31 to Sept. 4.
1936-58: 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, 3.7 cfs at times in 1943, 1946, 1958.

Remarks.--Records good. Flow partly regulated by Bluewater Lake (capacity, 38,500 acre-ft at crest of siphon spillways). Diversions and ground-water withdrawals for irrigation of about 5,100 acres above station.

Revisions (water years).--WSP 898: 1936-39(M), WSP 1512: 1943.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.3 | 3.7 | 0.8 | 23 |
| .4 | 6.3 | 1.0 | 36 |
| .5 | 9.5 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.6 | 6.3 | 5.3 | 4.5 | 4.7 | 5.3 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 3.7 |
| 2 | 6.6 | 5.8 | 5.3 | 4.5 | 4.7 | 5.3 | 5.0 | 4.7 | 4.7 | 4.7 | 4.7 | 3.7 |
| 3 | 6.6 | 5.5 | 5.3 | 4.5 | 4.7 | 5.3 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 3.7 |
| 4 | 6.6 | 5.5 | 5.3 | 4.5 | 5.0 | 5.3 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 3.7 |
| 5 | 6.9 | 5.5 | 5.5 | 4.5 | 5.3 | 5.3 | 4.7 | *4.7 | 4.7 | 4.7 | *4.7 | 4.0 |
| 6 | 7.3 | 5.5 | 5.5 | 4.5 | 5.3 | 5.3 | 4.7 | 4.7 | *4.7 | 5.0 | 5.0 | 4.5 |
| 7 | 7.3 | *5.5 | 5.3 | 4.5 | 5.3 | 5.3 | 4.7 | 4.7 | 5.0 | 5.0 | 5.0 | 4.2 |
| 8 | *6.9 | 5.5 | 5.3 | 4.5 | 5.3 | 5.0 | *4.7 | 4.7 | 5.0 | 5.0 | 5.0 | 4.2 |
| 9 | 6.6 | 5.5 | 5.3 | 4.5 | 5.3 | 5.0 | 4.7 | 4.7 | 5.0 | 5.0 | 5.3 | 4.2 |
| 10 | 6.3 | 5.5 | 5.3 | 4.5 | 5.3 | 5.0 | 4.7 | 4.7 | 5.0 | 5.0 | 22 | 4.2 |
| 11 | 6.6 | 5.8 | 5.3 | 4.5 | 5.3 | *5.0 | 4.7 | 4.7 | 5.0 | 5.0 | 16 | 5.0 |
| 12 | *36 | 5.8 | 5.3 | 4.5 | 5.3 | 5.0 | 5.0 | 4.7 | 5.0 | 4.7 | 6.9 | 6.9 |
| 13 | 27 | 5.8 | 5.3 | 4.5 | 5.3 | 5.0 | 4.7 | 4.7 | 5.0 | 4.7 | 5.0 | 5.0 |
| 14 | 9.5 | 5.8 | 5.3 | *4.5 | *5.3 | 5.0 | 5.0 | 4.7 | 5.0 | 5.0 | 5.0 | 4.5 |
| 15 | 6.9 | 5.8 | 5.3 | 4.5 | 5.5 | 5.0 | 4.7 | 4.7 | 5.0 | *5.0 | 5.0 | 4.5 |
| 16 | 7.9 | 6.0 | 5.3 | 4.5 | 5.5 | 5.0 | 4.7 | 4.7 | 5.0 | 8.7 | 4.7 | 4.5 |
| 17 | 6.6 | 6.9 | *5.3 | 4.5 | 5.5 | 4.7 | 5.0 | 4.7 | 5.0 | 5.5 | 6.9 | 4.2 |
| 18 | 6.0 | 6.0 | 5.3 | 4.5 | 5.3 | 4.7 | 5.0 | 4.7 | 5.0 | 5.3 | 5.3 | 4.2 |
| 19 | 14 | 5.8 | 5.0 | 4.7 | 5.3 | 4.7 | 4.7 | 5.0 | 5.0 | 5.3 | 5.0 | 4.2 |
| 20 | 6.3 | 5.8 | 5.0 | 4.7 | 5.5 | 4.7 | 4.7 | 4.7 | *5.0 | 5.0 | 5.0 | 4.2 |
| 21 | 10 | *5.8 | 4.7 | 4.5 | 5.3 | 5.0 | 4.5 | 4.7 | 5.0 | 5.0 | 5.0 | 4.2 |
| 22 | 20 | 5.8 | 4.7 | 4.5 | 5.3 | 5.0 | 4.5 | 5.0 | 5.0 | 5.0 | 4.7 | 4.2 |
| 23 | 6.3 | 5.8 | 4.7 | 4.7 | 5.3 | 5.0 | 4.2 | 4.7 | 5.0 | 5.0 | 4.7 | *4.2 |
| 24 | *6.0 | 5.8 | 4.7 | 4.7 | 5.3 | 5.0 | 4.2 | 5.0 | 5.0 | 5.0 | 4.7 | 4.2 |
| 25 | 6.0 | 5.5 | 4.7 | 5.0 | 5.3 | 5.0 | 4.2 | 4.7 | 5.0 | 5.0 | 4.5 | 4.2 |
| 26 | 6.3 | 5.5 | 4.7 | 5.0 | 5.5 | 5.0 | 4.5 | 5.0 | 5.0 | 5.0 | *4.2 | 4.2 |
| 27 | 6.0 | 5.5 | 4.7 | 5.0 | 5.3 | 5.0 | 4.5 | 5.0 | 4.7 | 5.0 | 4.0 | 4.2 |
| 28 | 6.3 | 5.3 | 4.7 | 5.0 | 5.3 | 5.0 | 4.5 | 5.0 | 4.7 | 5.0 | 4.0 | 4.2 |
| 29 | 6.9 | 5.3 | 4.7 | 5.0 | - | 5.0 | 4.5 | 4.7 | 4.7 | 5.0 | 4.0 | 4.5 |
| 30 | 6.6 | 5.3 | 4.7 | 5.0 | ------ | 5.0 | 4.7 | 4.7 | 4.7 | 5.0 | 4.0 | 4.2 |
| 31 | 6.3 | ------ | 4.5 | 4.7 | ------ | 5.0 | ------ | 5.0 | ------ | 5.0 | 3.7 | ------ |
| Total | 281.2 | 171.2 | 157.3 | 143.5 | 147.3 | 155.9 | 139.8 | 147.8 | 147.0 | 157.7 | 178.1 | 129.6 |
| Mean | 9.07 | 5.71 | 5.07 | 4.63 | 5.26 | 5.03 | 4.66 | 4.77 | 4.90 | 5.09 | 5.75 | 4.32 |
| Ac-ft | 558 | 340 | 312 | 285 | 292 | 309 | 277 | 293 | 292 | 313 | 353 | 257 |

Calendar year 1957: Max 538 Min 3.9 Mean 11.2 Ac-ft 8,140
Water year 1957-58: Max 36 Min 3.7 Mean 5.36 Ac-ft 3,880

Peak discharge (base, 100 cfs).--No peak above base.

* Discharge measurement made on this day.

## 3515. Rio San Jose 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 1958. Prior to October 1955, published as San Jose River at Correo.

Gage.--Water-stage recorder and concrete control. Datum of gage is 5,474.88 ft above mean sea level, unadjusted.

Average discharge.--15 years, 13.3 cfs (9,630 acre-ft per year).

Extremes.--Maximum discharge during year, 6,130 cfs Aug. 22 (gage height, 20.7 ft, from floodmark, backwater from dam), from slope-area measurement of peak flow; no flow for much of year.
1943-58: Maximum discharge, 7,150 cfs Aug. 11, 1955 (gage height, 11.1 ft); maximum gage height, that of Aug. 22, 1958; no flow for long periods.
A stage of 15.4 ft (based on drift marks found near gage in 1950) probably occurred in flood of August 1929.

Remarks.--Records fair except those for periods of ice effect, no gage-height record, or backwater from dam, which are poor. Flow partly regulated by Bluewater Lake (capacity, 38,500 acre-ft at crest of uncontrolled siphon spillways) and three small reservoirs. Diversions and ground-water withdrawals for irrigation of about 7,800 acres (revised) above station.

Revisions (water years).--WSP 1442: 1944, 1945(M), 1946-48, 1949(M), 1950, 1951(P), 1952.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 5 | 0 | 2 | 2 | 5 | 3 | | | 0 | 0 | 0 |
| 2 | 0 | 4 | 0 | 1 | 2 | 4 | 4 | | | 0 | 0 | 0 |
| 3 | 0 | 4 | 0 | 2 | 3 | *4 | 6 | | | 0 | 0 | 0 |
| 4 | 0 | 4 | 0 | 2 | 5 | 6 | 4 | | | 0 | 0 | 0 |
| 5 | 0 | 401 | 0 | 3 | 9 | 6 | 5 | (*) | | 0 | *7 | 0 |
| 6 | 0 | 49 | 0 | 3 | 8 | 6 | 4 | | | 0 | 20 | 0 |
| 7 | 0 | *26 | 0 | 2 | 6 | 7 | 1 | | | 0 | 5 | 263 |
| 8 | 0 | 11 | 0 | 2 | 5 | 9 | 0 | | | 0 | 0 | 17 |
| 9 | 0 | 7 | 1 | 2 | 6 | 5 | 1 | | | *0 | 0 | 15 |
| 10 | 0 | 5 | 1 | 2 | 6 | 5 | 1 | | | 0 | 0 | 5 |
| 11 | 0 | 3 | 1 | 2 | 6 | 4 | 0 | | | 0 | 0 | 60 |
| 12 | *527 | 4 | 1 | 2 | 7 | 5 | 0 | | | 0 | 0 | *15 |
| 13 | 221 | 4 | 2 | 1 | 6 | 6 | 5 | | | 0 | 0 | 7 |
| 14 | *39 | 4 | 2 | 2 | 6 | 6 | 5 | | | 0 | 0 | 6 |
| 15 | 16 | 4 | 2 | *2 | 6 | 5 | 3 | | | 0 | 0 | 2 |
| 16 | 7 | 5 | 1 | 3 | 6 | 4 | *8 | | | 0 | 0 | 1 |
| 17 | 5 | 6 | 1 | 3 | 6 | 4 | 20 | | | 0 | 0 | 0 |
| 18 | 9 | 6 | 1 | 3 | 6 | 4 | 13 | | | 0 | 0 | 0 |
| 19 | 493 | 4 | 2 | 5 | 6 | 4 | 16 | | | 0 | 0 | 0 |
| 20 | 598 | 2 | 2 | 6 | 6 | 5 | 19 | | | 0 | 0 | 0 |
| 21 | *138 | 2 | 2 | 5 | *6 | 9 | 15 | | | 0 | *0 | 0 |
| 22 | 125 | 0 | 2 | 5 | 6 | 17 | 10 | | | 0 | *1,000 | 0 |
| 23 | 24 | 0 | 2 | 5 | 5 | 19 | *8 | | | 0 | 19 | 0 |
| 24 | 11 | 0 | 2 | 4 | 5 | 11 | 5 | | | 0 | 20 | 0 |
| 25 | 7 | 1 | 2 | 5 | 5 | 14 | 4 | | | 1 | 10 | 0 |
| 26 | 4 | 1 | 2 | 6 | 6 | 8 | 3 | | | 0 | *0 | 0 |
| 27 | 3 | 1 | *2 | 9 | 6 | 7 | 0 | | | 0 | 0 | 0 |
| 28 | 4 | 1 | 1 | 9 | 4 | 6 | 0 | | | 0 | 0 | 0 |
| 29 | 5 | *1 | 1 | *5 | - | 6 | 0 | | | *0 | 0 | 0 |
| 30 | *5 | 0 | 2 | 5 | ------- | 5 | 0 | | | 0 | 0 | 0 |
| 31 | 5 | ------- | 2 | 7 | ------- | *4 | ------- | | -------- | 0 | 0 | ------- |
| Total | 2,246 | 565 | 37 | 115 | 156 | 210 | 163 | 0 | 0 | 1 | 1,081 | 391 |
| Mean | 72.5 | 18.8 | 1.2 | 3.7 | 5.6 | 6.8 | 5.4 | 0 | 0 | 0.03 | 34.9 | 13.0 |
| Ac-ft | 4,450 | 1,120 | 73 | 228 | 309 | 417 | 323 | 0 | 0 | 2 | 2,140 | 776 |

**Calendar year 1957: Max** 2,650 **Min** 0 **Mean** 48.1 **Ac-ft** 34,860
**Water year 1957-58: Max** 1,000 **Min** 0 **Mean** 13.6 **Ac-ft** 9,840

Peak discharge (base, 800 cfs).--Oct. 12 (4 p.m.) 1,600 cfs (5.21 ft); Oct. 19 (9 p.m.) 3,160 cfs (7.56 ft); Nov. 5 (3:30 p.m.) 847 cfs (3.86 ft); Aug. 22 (6 a.m.) 6,130 cfs (20.7 ft, from floodmark, backwater from dam).

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

Note.--Stage-discharge relation affected by ice Nov. 25 to Jan. 26 (no gage-height record Nov. 28 to Dec. 26), Feb. 2-4; no gage-height record Mar. 27-28, 30; stage-discharge relation affected by backwater from dam Aug. 6-15, 24-31, Sept. 9-30; discharge estimated on basis of weather records, field notes, recession curves, adjoining good record, and records for Rio Puerco stations.

## 3525. Rio Puerco at Rio Puerco, N. Mex.

Location.--Lat 34°47'35", long 106°59'20", in NW¼ sec. 31, T. 7 N., R. 1 W., in San Clemente Grant, on downstream end of pier nearest left abutment of The Atchison, Topeka and Santa Fe Railway Co. bridge, 7 miles downstream from Rio San Jose.

Drainage area.--5,160 sq mi, approximately.

Records available.--September 1910 to December 1912 (records fragmentary, gage heights only) and March 1934 to September 1958 in reports of Geological Survey. January 1915 to December 1925 and September 1926 to December 1927 in reports of State engineer. Records for January 1913 to December 1914, published in WSP 358, 388, and 408, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder and concrete control. Datum of gage is 5,008.49 ft above mean sea level, datum of 1929.

Average discharge.--31 years (1915-17, 1919-20, 1921-24, 1926-27, 1934-58), 71.5 cfs (51,760 acre-ft per year).

Extremes.--Maximum discharge during year, 7,600 cfs Oct. 21 (gage height, 4.60 ft); no flow many days.
1934-58: Maximum discharge, 28,000 cfs Aug. 21, 1935 (gage height, 7.24 ft), by computation of peak flow over dam; no flow at times.
Flood of Sept. 23, 1929, indicated a discharge of approximately 40,000 cfs. A higher discharge possibly occurred Oct. 4, 1913, at a recorded stage of about 9.7 ft.

Remarks.--Records fair except those for periods of no gage-height record and those below 5 cfs, which are poor. Diversions for irrigation of about 11,500 acres (revised) above station (includes 3,700 acres, revised, irrigated wholly or partly from wells).

Revisions (water years).--WSP 1512: 1941, 1944. See also Records available.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 12, 13, 19-21, Apr. 20 to May 18)

| | | | | | |
|---|---|---|---|---|---|
| 0.23 | 0 | 0.7 | 10 | 1.5 | 355 |
| .3 | .2 | .8 | 21 | 1.8 | 670 |
| .4 | 1.0 | .9 | 43 | 2.1 | 1,130 |
| .5 | 2.5 | 1.0 | 70 | 2.5 | 1,950 |
| .6 | 4.8 | 1.2 | 150 | 3.3 | 4,200 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 1 | 1 | 11 | 10 | 90 | 25 | | 0 | 0 |
| 2 | 0 | 1 | 0 | 1 | 2 | 11 | 4 | 98 | 20 | | 0 | *0 |
| 3 | 0 | 1 | 0 | 0 | 1 | *7 | 2 | 115 | 15 | | 0 | 0 |
| 4 | 0 | 5 | 0 | 0 | 1 | 6 | 4 | 110 | 10 | | 0 | 0 |
| 5 | 0 | *1,770 | 0 | 1 | 3 | 8 | 1 | *80 | 8 | | 0 | 0 |
| 6 | 0 | 260 | 0 | 6 | 4 | 9 | 1 | 124 | 5 | | 0 | 0 |
| 7 | 0 | 124 | 1 | 7 | 4 | 10 | 2 | 172 | 2 | | 0 | 533 |
| 8 | 0 | 75 | 5 | 4 | 2 | 11 | 1 | 188 | 0 | | 0 | 177 |
| 9 | 0 | 18 | 3 | 4 | 18 | 14 | 0 | 178 | 0 | (*) | 0 | 38 |
| 10 | 0 | 12 | 3 | 4 | 48 | 8 | 0 | 166 | 0 | | 0 | *510 |
| 11 | 0 | 8 | 2 | 5 | 66 | 10 | 0 | 166 | 0 | | 0 | 124 |
| 12 | 243 | 6 | 1 | 4 | 43 | 10 | 14 | 166 | 0 | | 0 | 0 |
| 13 | 1,300 | 2 | 0 | 2 | 33 | 9 | 23 | *178 | 0 | | 0 | 44 |
| 14 | *292 | *2 | 0 | 3 | 19 | 10 | 46 | 188 | 0 | | 0 | 190 |
| 15 | 80 | 1 | 3 | *1 | 11 | 6 | 188 | 161 | 0 | | 0 | 15 |
| 16 | 29 | 2 | 5 | 2 | 8 | 4 | *64 | 146 | 0 | | 0 | 0 |
| 17 | 13 | 2 | 4 | 1 | 4 | 4 | 70 | 132 | 8 | | 0 | 0 |
| 18 | 9 | 1 | 4 | 1 | 70 | 4 | 70 | 106 | 1 | | 0 | 10 |
| 19 | 139 | 1 | 3 | 4 | 139 | 29 | 53 | 90 | 0 | | 0 | 34 |
| 20 | 2,990 | 0 | 2 | 4 | 146 | 119 | 83 | 70 | 0 | | 0 | 0 |
| 21 | *3,940 | 0 | 1 | 2 | *146 | 93 | 137 | 60 | 0 | | *0 | 0 |
| 22 | 2,380 | 0 | 1 | 1 | 86 | 98 | 146 | 70 | 0 | | *1,050 | 0 |
| 23 | 458 | 0 | 1 | 0 | 73 | 137 | *150 | 35 | 0 | | 209 | 0 |
| 24 | 58 | 0 | 3 | 0 | 38 | 205 | 178 | 45 | 0 | | 106 | 0 |
| 25 | 15 | 0 | 4 | 3 | 25 | 106 | 156 | 45 | 0 | | 13 | 0 |
| 26 | 9 | 0 | 2 | 8 | 18 | 70 | 132 | 40 | 0 | | 8 | 0 |
| 27 | 6 | 0 | *3 | 11 | 29 | 56 | 137 | 35 | 0 | | 0 | 0 |
| 28 | 2 | 0 | 3 | 6 | 21 | 35 | 128 | 30 | 0 | | 0 | 0 |
| 29 | 1 | *0 | 1 | *5 | - | 25 | 128 | 30 | 0 | (*) | 0 | 0 |
| 30 | *0 | 0 | 3 | 3 | ------- | 15 | 128 | 35 | 0 | | 0 | 0 |
| 31 | 0 | ------- | 3 | 2 | ------- | *11 | ------- | 30 | ------- | | 0 | ------- |
| Total | 11,964 | 2,291 | 61 | 96 | 1,059 | 1,151 | 2,056 | 3,179 | 94 | 0 | 1,386 | 1,624 |
| Mean | 386 | 76.4 | 2.0 | 3.1 | 37.8 | 37.1 | 68.5 | 103 | 3.1 | 0 | 44.7 | 54.1 |
| Ac-ft | 23,730 | 4,540 | 121 | 190 | 2,100 | 2,280 | 4,080 | 6,310 | 186 | 0 | 2,750 | 3,220 |

Calendar year 1957: Max 4,830 Min 0 Mean 166 Ac-ft 119,800
Water year 1957-58: Max 3,940 Min 0 Mean 68.4 Ac-ft 49,510

Peak discharge (base, 6,000 cfs).--Oct. 21 (7:30 a.m.) 7,600 cfs (4.60 ft); Nov. 5 (10:30 a.m.) 6,320 cfs (3.95 ft); Aug. 22 (12 m.) 6,280 cfs (3.80 ft).

* Discharge measurement or observation of no flow made on this day.
Note.--No gage-height record Mar. 28-30, May 19 to July 9; discharge estimated on basis of adjoining good record, weather records, and records for nearby stations.

## 3530. 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 18 miles south of Belen.

Drainage area.--5,860 sq mi, approximately.

Records available.--September 1910 to August 1914 (published as "near La Joya", discharge measurements only), November 1939 to September 1958. Fragmentary gage-height record and footnotes concerning no flow for the period September 1910 to August 1914, published in WSP 358 and 388, have been found to be in error and should not be used.

Gage.--Water-stage recorder. Datum of gage is 4,725.44 ft above mean sea level, 1951 adjustment. September 1910 to August 1914, at site 1½ miles downstream at different datum.

Average discharge.--18 years (1940-58), 59.8 cfs (43,290 acre-ft per year).

Extremes.--Maximum discharge during year, 5,340 cfs Oct. 21 (gage height, 11.48 ft); no flow for extended periods.
1939-58: Maximum discharge, 18,800 cfs Sept. 23, 1941, from rating curve extended above 7,800 cfs by logarithmic plotting; maximum gage height, 13.8 ft Aug. 12, 1955; no flow for extended periods.

Remarks.--Records fair except those below 10 cfs, which are poor. Discharge measurements made 2 to 5 times a week during periods of flow. Diversions for irrigation of about 11,500 acres above station, of which about 3,700 acres are irrigated from ground-water sources. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1512: 1941-42, 1944-45, 1946(P), 1947-49. See also Records available.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | | | 0 | 10 | 5 | 110 | 20 | | 0 | 0 |
| 2 | 0 | 0 | | | 0 | 13 | 4 | 97 | 9 | | 0 | 0 |
| 3 | 0 | 0 | | | 0 | 2 | 2 | 97 | 9 | | 0 | 0 |
| 4 | 0 | 0 | | | 0 | 4 | 0 | 110 | 5 | | 0 | 0 |
| 5 | 0 | 1,030 | | | 0 | 3 | 0 | 97 | 1 | | 0 | 0 |
| 6 | 0 | 910 | | | 0 | 3 | 0 | 84 | 0 | | 0 | 0 |
| 7 | 1 | 196 | | | 0 | 3 | 0 | 112 | 0 | | 0 | 187 |
| 8 | 0 | 154 | | | 0 | 5 | 0 | 163 | 0 | | 0 | 226 |
| 9 | 0 | 60 | | | 0 | 4 | 0 | 169 | 0 | | 0 | 71 |
| 10 | 0 | 17 | | | 0 | 4 | 0 | 160 | 0 | | 0 | 177 |
| 11 | 0 | 6 | | | 6 | 7 | 0 | 151 | 0 | | 0 | 462 |
| 12 | 371 | 2 | | | 39 | 3 | 0 | 139 | 0 | | 0 | 38 |
| 13 | 975 | 1 | | | 26 | 3 | 0 | 166 | 0 | | 0 | 9 |
| 14 | 588 | 0 | | | 25 | 3 | 0 | 160 | 0 | | 0 | 162 |
| 15 | 193 | 0 | | | 11 | 2 | 9 | 148 | 0 | | 0 | 108 |
| 16 | 82 | 0 | | | 4 | 2 | 147 | 125 | 0 | | 0 | 10 |
| 17 | 40 | 0 | | | 3 | 0 | 60 | 118 | 0 | | 0 | 1 |
| 18 | 14 | 0 | | | 1 | 0 | 58 | 99 | 0 | | 0 | 0 |
| 19 | 3 | 0 | | | 23 | 0 | 33 | 71 | 0 | | 0 | 11 |
| 20 | 1,810 | 0 | | | 108 | 0 | 28 | 58 | 0 | | 0 | 8 |
| 21 | 3,600 | 0 | | | 130 | 46 | 55 | 53 | 0 | | 0 | 1 |
| 22 | 2,220 | 0 | | | 105 | 60 | 120 | 34 | 0 | | 0 | 0 |
| 23 | 1,290 | 0 | | | 68 | 84 | 131 | 58 | 0 | | 801 | 0 |
| 24 | 250 | 0 | | | 61 | 145 | 151 | 24 | 0 | | 196 | 0 |
| 25 | 99 | 0 | | | 19 | 145 | 166 | 36 | 0 | | 44 | 0 |
| 26 | 44 | 0 | | | 10 | 75 | 105 | 39 | 0 | | 5 | 0 |
| 27 | 19 | 0 | | | 7 | 44 | 105 | 30 | 0 | | 1 | 0 |
| 28 | 7 | 0 | | | 5 | 28 | 112 | 28 | 0 | | 0 | 0 |
| 29 | 5 | 0 | | | - | 15 | 110 | 27 | 0 | | 0 | 0 |
| 30 | 0 | 0 | | | ------- | 8 | 115 | 28 | 0 | | 0 | 0 |
| 31 | 0 | ------- | | | ------- | 5 | ------- | 20 | ------- | | 0 | ------- |
| Total | 11,611 | 2,376 | 0 | 0 | 651 | 728 | 1,516 | 2,811 | 44 | 0 | 1,047 | 1,471 |
| Mean | 375 | 79.2 | 0 | 0 | 23.2 | 23.5 | 50.5 | 90.7 | 1.5 | 0 | 33.8 | 49.0 |
| Ac-ft | 23,030 | 4,710 | 0 | 0 | 1,290 | 1,440 | 3,010 | 5,580 | 87 | 0 | 2,080 | 2,920 |

Calendar year 1957: Max 5,010 Min 0 Mean 159 Ac-ft 115,400
Water year 1957-58: Max 3,600 Min 0 Mean 61.0 Ac-ft 44,150

Peak discharge (base, 3,000 cfs).--Oct. 21 (11 p.m.) 5,340 cfs (11.48 ft); Nov. 5 (8:30 p.m.) 4,750 cfs (11.16 ft).

## 3540. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 4,710.68 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 13.3 cfs (9,630 acre-ft per year).

Extremes.--Maximum discharge during year, 636 cfs Oct. 13 (gage height, 10.65 ft); no flow most of time.
1947-58: Maximum discharge, 16,600 cfs Sept. 25, 1954 (gage height, 12.80 ft), from rating curve extended above 2,000 cfs by logarithmic plotting; no flow for long periods.
A major flood occurred in August 1929 when discharge near mouth was computed as about 27,000 cfs, by slope-area measurement, from report of State engineer.

Remarks.--Records poor. Diversions for irrigation of about 100 acres above station.

Revisions (water years).--WSP 1512: 1948-49, 1955.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | | | | | | | | | 0 | 0 | 0 |
| 2 | *0 | | | | | | | | | 0 | 0 | 0 |
| 3 | 0 | | | | | | | | | 0 | 0 | 0 |
| 4 | 0 | | | | | | | | | 0 | 0 | 0 |
| 5 | 0 | | | | | | | | | 0 | 0 | *0 |
| 6 | 10 | | | | | | | | | 0 | 0 | *60 |
| 7 | a2 | | | | | | | | | 0 | *10 | 50 |
| 8 | 0 | | | | | | | | | 0 | **a1 | a10 |
| 9 | 0 | | | | | | | | | 0 | 0 | 0 |
| 10 | 0 | | | | | | | | | 0 | 0 | a15 |
| 11 | 0 | | | | | | | | | 0 | a5 | a20 |
| 12 | *75 | | | | | | | | | 0 | 0 | a5 |
| 13 | 90 | | | | | | | | | 0 | 0 | 30 |
| 14 | a0 | | | | | | | | | 0 | *0 | a5 |
| 15 | 0 | | | | | | | | | 0 | 0 | a0 |
| 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 | *a2 | 0 |
| 22 | 0 | | | | | | | | | 0 | 5 | 0 |
| 23 | 0 | | | | | | | | | 0 | 15 | 0 |
| 24 | 0 | | | | | | | | | 0 | a1 | 0 |
| 25 | 0 | | | | | | | | | 0 | **a1 | 0 |
| 26 | 0 | | | | | | | | | 0 | 0 | 0 |
| 27 | 0 | | | | | | | | | 10 | 0 | 0 |
| 28 | 0 | | | | | | | | | 0 | 0 | 0 |
| 29 | 0 | | | | - | | | | | 0 | 0 | 0 |
| 30 | 0 | | | | ------- | | | | | 0 | 0 | 0 |
| 31 | 0 | ------- | | | ------- | | ------- | | ------- | 0 | 0 | ------- |
| Total | 177 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 40 | 195 |
| Mean | 5.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.3 | 1.3 | 6.5 |
| Ac-ft | 351 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 79 | 387 |

Calendar year 1957: Max 1,100 Min 0 Mean 27.3 Ac-ft 19,740
Water year 1957-58: Max 90 Min 0 Mean 1.2 Ac-ft 837

Peak discharge (base, 3,000 cfs).--No peak above base.

* Discharge measurement or observation of no flow made on this day.
** Field estimate made on this day.
*a No gage-height record; discharge estimated on basis of 1 discharge measurement, 2 field estimates, and weather records.*

### 3545. 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 right bank at San Acacia, half a mile downstream from point of diversion. Prior to Mar. 8, 1958, gage on left bank.

Records available.--April 1936 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 4,660.16 ft above mean sea level, datum of 1929. Prior to Mar. 8, 1958, at datum 0.42 ft lower.

Extremes.--1936-58: Maximum daily discharge, 234 cfs Aug. 26, 1938; no flow at times.

Remarks.--Records fair except those for period of backwater, which are poor. Discharge measurements generally made once a week during periods of flow. New headgates installed and canal relocated about 100 ft to the right during winter of 1958 water year. 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 (water years).--WSP 1242: 1951.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 203 | 0 | 85.3 | 5,250 |
| November | 187 | 0 | 13.1 | 781 |
| December | 3 | 0 | .8 | 50 |
| Calendar year 1957 | 203 | 0 | 84.4 | 61,130 |
| January | 3 | 0 | .8 | 52 |
| February | 0 | 0 | 0 | 0 |
| March | 164 | 0 | 99.4 | 6,110 |
| April | 173 | 92 | 136 | 8,070 |
| May | 193 | 0 | 117 | 7,220 |
| June | 197 | 107 | 176 | 10,500 |
| July | 210 | 43 | 110 | 6,790 |
| August | 182 | 0 | 105 | 6,470 |
| September | 111 | 0 | 69.9 | 4,160 |
| Water year 1957-58 | 210 | 0 | 76.6 | 55,450 |

Note.--Stage-discharge relation affected by backwater Nov. 19 to Jan. 15; discharge estimated on basis of engineer's notes, 2 observations of no flow, and recovery or loss in pond head.

## 3550. Rio Grande at San Acacia, N. Mex.

Location.--Lat 34°15'13", long 106°53'45", in NE¼SW¼ sec. 1, T. 1 S., R. 1 W., on right bank an eighth of a mile southeast of San Acacia, 0.7 mile downstream from San Acacia diversion dam, and 2½ miles downstream from Rio Salado.

Drainage area.--26,770 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--April 1936 to September 1958 in reports of Geological Survey. February 1925 to September 1927 (gage heights and discharge measurements only) in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 4,658.10 ft above mean sea level, datum of 1929. February 1925 to September 1927, staff gage on old highway bridge half a mile upstream at different datum. Apr. 17, 1936, to Mar. 19, 1953, water-stage recorders on both banks at site half a mile upstream at various datums.

Average discharge.--22 years (1936-58), 1,192 cfs (863,000 acre-ft per year).

Extremes.--Maximum discharge during year, 10,100 cfs Oct. 21 (gage height, 7.43 ft); no flow July 17 to Aug. 6.
1936-58: Maximum discharge, 27,400 cfs Aug. 5, 1936 (gage height, 10.75 ft, former site, at datum 2.06 ft higher); no flow at times.

Remarks.--Records poor. Discharge measurements made about 24 times a month. Diversions above station for irrigation of about 760,000 acres; this includes Socorro main canal north (see preceding page), which bypasses station and irrigates about 8,000 acres. Records of chemical analyses and suspended sediment loads for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1242: 1951.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 95 | 625 | 1,240 | 872 | 732 | 1,240 | 766 | 5,120 | 9,810 | 850 | 0 | 5 |
| 2 | 119 | 1,870 | 1,150 | 872 | 766 | 1,130 | 746 | 4,800 | 9,050 | 575 | 0 | 7 |
| 3 | 71 | 2,480 | 1,080 | 834 | 798 | 891 | 1,460 | 5,540 | 8,100 | 508 | 0 | 5 |
| 4 | 55 | 2,380 | 1,080 | 872 | 766 | 948 | 1,440 | 5,920 | 7,490 | 365 | 0 | 5 |
| 5 | 52 | 3,400 | 1,020 | 798 | 732 | 910 | 1,600 | 5,640 | 6,480 | 328 | 0 | 7 |
| 6 | 75 | 4,360 | 1,020 | 834 | 798 | 1,070 | 1,720 | 5,600 | 6,430 | 294 | 0 | 18 |
| 7 | 75 | 3,820 | 1,080 | 800 | 782 | 967 | 1,560 | 5,920 | 5,790 | 224 | 100 | 117 |
| 8 | 95 | 4,120 | 1,180 | 872 | 834 | 948 | 1,270 | 6,370 | 4,210 | 165 | 81 | 391 |
| 9 | 91 | 3,540 | 1,110 | 749 | 782 | 1,090 | 1,370 | 6,050 | 4,360 | 145 | 65 | 186 |
| 10 | 119 | 3,070 | 1,060 | 834 | 732 | 986 | 1,580 | 6,460 | 4,550 | 120 | 158 | 179 |
| 11 | 119 | 2,880 | 1,150 | 749 | 798 | 1,050 | 1,840 | 6,250 | 4,940 | 120 | 201 | 546 |
| 12 | 1,230 | 2,700 | 1,150 | 815 | 872 | 1,030 | 1,990 | 6,500 | 4,060 | 81 | 294 | 400 |
| 13 | 2,030 | 2,280 | 1,080 | 834 | 910 | 1,050 | 2,490 | 7,660 | 3,860 | 61 | 276 | 600 |
| 14 | 2,100 | 1,930 | 1,020 | 798 | 867 | 834 | 2,250 | 7,350 | 3,450 | 45 | 258 | 713 |
| 15 | 1,010 | 1,750 | 986 | 815 | 815 | 853 | 2,150 | 7,500 | 3,620 | 21 | 254 | 1,400 |
| 16 | 565 | 1,720 | 1,030 | 815 | 798 | 766 | 2,380 | 7,560 | 3,780 | 15 | 282 | 745 |
| 17 | 457 | 1,670 | 1,000 | 834 | 815 | 636 | 3,400 | 8,220 | 3,260 | 0 | 119 | 508 |
| 18 | 405 | 1,640 | 948 | 872 | 782 | 872 | 3,440 | 8,220 | 3,300 | 0 | 64 | 382 |
| 19 | 449 | 1,610 | 967 | 948 | 798 | 834 | 3,740 | 8,270 | 3,720 | 0 | 43 | 292 |
| 20 | 5,020 | 1,610 | 1,000 | 872 | 1,000 | 1,110 | 4,000 | 7,300 | 3,750 | 0 | 38 | 292 |
| 21 | 8,760 | 1,350 | 986 | 815 | 1,390 | 1,090 | 4,190 | 7,450 | 3,780 | 0 | 110 | 242 |
| 22 | 5,430 | 1,320 | 1,000 | 853 | 1,410 | 986 | 4,970 | 7,720 | 4,100 | 0 | 150 | 237 |
| 23 | 3,950 | 1,200 | 910 | 766 | 1,600 | 1,290 | 5,610 | 8,050 | 4,170 | 0 | 720 | 264 |
| 24 | 3,000 | 1,040 | 986 | 732 | 1,820 | 1,340 | 6,030 | 7,830 | 2,210 | 0 | 355 | 242 |
| 25 | 2,410 | 1,020 | 929 | 683 | 1,760 | 1,540 | 6,300 | 8,050 | 810 | 0 | 84 | 183 |
| 26 | 1,960 | 1,020 | 929 | 782 | 1,620 | 1,440 | 5,530 | 8,160 | 1,300 | 0 | 32 | 158 |
| 27 | 1,220 | 1,240 | 1,030 | 782 | 1,620 | 1,290 | 6,720 | 8,600 | 3,530 | 0 | 29 | 205 |
| 28 | 1,100 | 1,320 | 967 | 815 | 1,700 | 1,160 | 6,970 | 8,860 | 1,100 | 0 | 22 | 225 |
| 29 | 697 | 1,150 | 986 | 834 | - | 1,180 | 6,430 | 9,230 | 750 | 0 | 7 | 213 |
| 30 | 516 | 1,270 | 929 | 782 | ------- | 1,440 | 6,460 | 9,300 | 894 | 0 | 5 | 205 |
| 31 | 625 | ------- | 891 | 766 | ------- | 1,160 | ------- | 9,420 | ------- | 0 | 5 | ------- |
| Total | 43,900 | 61,385 | 31,894 | 25,299 | 29,197 | 33,131 | 100,402 | 224,920 | 126,654 | 3,917 | 3,752 | 8,972 |
| Mean | 1,416 | 2,046 | 1,029 | 816 | 1,043 | 1,069 | 3,347 | 7,255 | 4,222 | 126 | 121 | 299 |
| Ac-ft | 87,070 | 121,800 | 63,260 | 50,180 | 57,910 | 65,710 | 199,100 | 446,100 | 251,200 | 7,770 | 7,440 | 17,800 |

Calendar year 1957: Max 8,760 Min 6 Mean 1,810 Ac-ft 1,310,000
Water year 1957-58: Max 9,810 Min 0 Mean 1,900 Ac-ft 1,375,000

3560. 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 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 1958.

Gage.--Water-stage recorder. Datum of gage is 4,526.41 ft 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, 1948-58: Maximum daily discharge, 50 cfs Apr. 23, 1958; no flow at times.

Remarks.--Records fair. Discharge measurements generally made three times a month. Canal diverts water from San Antonio Riverside drain for irrigation above and below station. Some diversion occurs between gage and north boundary of U. S. Fish and Wildlife Refuge (Bosque del Apache Grant). This is 1 of 3 stations gaging flow into refuge.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 47 | 0.5 | 22.0 | 1,350 |
| November | 15 | 0 | .91 | 54.1 |
| December | 0 | 0 | 0 | 0 |
| Calendar year 1957 | 47 | 0 | 14.6 | 10,590 |
| January | 0 | 0 | 0 | 0 |
| February | 0 | 0 | 0 | 0 |
| March | 46 | 0 | 18.0 | 1,110 |
| April | 50 | 7 | 24.8 | 1,470 |
| May | 46 | 12 | 25.6 | 1,580 |
| June | 39 | 0 | 22.4 | 1,330 |
| July | 40 | 0 | 15.9 | 976 |
| August | 35 | 0 | 19.7 | 1,210 |
| September | 31 | 0 | 19.2 | 1,140 |
| Water year 1957-58 | 50 | 0 | 14.1 | 10,220 |

3565. 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 1958. May 1936 to February 1938, at site 50 ft downstream from 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, 1949, at site 1.2 miles downstream at datum 1.14 ft lower.

Extremes.--1948-58: Maximum daily discharge, 161 cfs May 31, 1957; minimum daily, 0.2 cfs Aug. 29, 1958.

Remarks.--Records fair. Discharge measurements generally made four times a month. Diversions from drain above station, canal wasteways, and interior drains entering channel above station. Flow represents 1 of 3 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 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 82 | 9.5 | 20.3 | 1,250 |
| November | 33 | 11 | 16.9 | 1,010 |
| December | 41 | 13 | 22.8 | 1,400 |
| Calendar year 1957 | 161 | 9.5 | 48.4 | 35,060 |
| January | 16 | 9.2 | 13.8 | 846 |
| February | 11 | 7.0 | 9.41 | 522 |
| March | 37 | 7.9 | 12.5 | 766 |
| April | 30 | 11 | 18.3 | 1,090 |
| May | 34 | 14 | 18.9 | 1,160 |
| June | 55 | 13 | 24.9 | 1,480 |
| July | 18 | 3.0 | 9.23 | 568 |
| August | 26 | .2 | 7.52 | 462 |
| September | 87 | 0.9 | 9.56 | 569 |
| Water year 1957-58 | 87 | 0.2 | 15.4 | 11,120 |

### 3570. Elmendorf interior drain near San Antonio, N. Mex.

Location.--Lat 33°51'50", long 106°51'25", in NE¼ sec. 20, T. 5 S., R. 1 E. (projected), in Bosque del Apache Grant (wildlife refuge), on right bank 2,000 ft downstream from north boundary of refuge, 1.0 mile east of railroad, and 3.7 miles south of junction of U. S. Highways 85 and 380.

Records available.--July 1936 to January 1938, March 1948 to September 1958.

Gage.--Water-stage recorder and wooden control. Datum of gage is 4,518.9 ft, 1951 adjustment (levels by Bureau of Reclamation). July 1936 to January 1938 at site half a mile upstream in former channel at datum of 4,519.24 ft, datum of 1929. Mar. 11, 1948, to Nov. 10, 1949, at site about 2,500 ft upstream (in old channel) at different datum. Nov. 11, 1949, to Feb. 7, 1956, at site 2,000 ft upstream (present channel) at datum about 0.26 ft lower than present datum.

Extremes.--1948-58: Maximum daily discharge, 51 cfs June 3, 1956; minimum daily, 0.2 cfs Aug. 29 to Sept. 2, 1948.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Discharge measurements generally made about three times a month. Flow past station represents part of inflow to wildlife refuge.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 42 | 5.2 | 20.8 | 1,280 |
| November | 11 | 1.7 | 2.59 | 154 |
| December | 3.7 | 1.4 | 1.88 | 116 |
| Calendar year 1957 | 42 | .8 | 13.1 | 9,480 |
| January | 2.6 | 2.0 | 2.24 | 137 |
| February | 3.2 | 2.0 | 2.29 | 127 |
| March | 19 | 2.0 | 7.91 | 487 |
| April | 35 | 4.9 | 19.5 | 1,160 |
| May | 32 | 7.6 | 19.9 | 1,230 |
| June | 35 | 12 | 23.6 | 1,410 |
| July | 40 | 2.3 | 16.3 | 1,000 |
| August | 36 | 3.9 | 17.9 | 1,100 |
| September | 37 | 3.5 | 17.7 | 1,050 |
| Water year 1957-58 | 42 | 1.4 | 12.8 | 9,250 |

### 3575. 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 1 mile upstream from outlet to Rio Grande conveyance channel, 5 miles northeast of San Marcial, and 12 miles south of San Antonio.

Records available.--March 1948 to September 1958.

Gage.--Water-stage recorder and wooden control. Datum of gage is 4,489.12 ft above mean sea level, datum of 1929.

Extremes.--1948-58: Maximum daily discharge, 226 cfs May 22, 1957; no flow Sept. 7-9, Nov. 20, 21, 25-27, 29, Dec. 4, 1956.

Remarks.--Records good. Discharge measurements generally made three times a month. Flow represents seepage from river and waste from wildlife refuge. Diversions for irrigation of a few hundred acres above station.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 127 | 37 | 66.2 | 4,070 |
| November | 49 | 2.2 | 21.5 | 1,280 |
| December | 23 | 15 | 18.7 | 1,150 |
| Calendar year 1957 | 226 | 2.2 | 60.0 | 43,420 |
| January | 55 | 17 | 28.5 | 1,750 |
| February | 20 | 15 | 17.9 | 994 |
| March | 77 | 15 | 40.2 | 2,470 |
| April | 110 | 20 | 62.2 | 3,700 |
| May | 96 | 30 | 63.0 | 3,870 |
| June | 78 | 34 | 53.4 | 3,180 |
| July | 51 | 9.3 | 25.2 | 1,550 |
| August | 64 | 4.6 | 25.1 | 1,540 |
| September | 106 | 9.3 | 26.1 | 1,550 |
| Water year 1957-58 | 127 | 2.2 | 37.5 | 27,100 |

## 3585. Rio Grande at San Marcial, N. Mex.

Location.--Lat 33°40'50", long 106°59'15", in Pedro Armendaris Grant 33, on pier of The Atchison, Topeka and Santa Fe Railway Co. bridge, 1.1 miles downstream from former site of San Marcial, Socorro County, and 18½ miles southwest of San Antonio.

Drainage area.--27,700 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--January 1895 to September 1958 in reports of Geological Survey. January 1931 to September 1949 in Water Bulletins of International Boundary Commission.

Gage.--Water-stage recorder at present site and datum since June 25, 1943. Datum of gage is 4,455.19 ft above mean sea level, datum of 1929, supplementary adjustment of 1952. Prior to June 15, 1920, and July 23, 1920, to Feb. 10, 1922, inclined staff, wire-weight, or inverted rod gages at site 0.3 mile upstream at datum 10.6 ft lower. June 15 to July 22, 1920, and March to June 1922 inverted rod gage, Dec. 29, 1923, to Mar. 13, 1932, and Feb. 17 to June 24, 1943, water-stage recorder, at highway bridge 1.8 miles upstream at different datums. Mar. 13, 1932, to Feb. 17, 1943, water-stage recorder alternately at 2 sites on present bridge, 1 at present datum, 1 at datum 3.70 ft higher. To measure bypass flow, supplementary recorder on Tiffany Channel 4 miles upstream Apr. 14, 1950, to Feb. 28, 1954, and on conveyance channel opposite river gage Mar. 1, 1954, to Sept. 30, 1958.

Average discharge.--62 years (1896-1958), 1,395 cfs (1,010,000 acre-ft per year).

Extremes.--Maximum daily discharge during year, 9,340 cfs June 2; minimum daily, 79 cfs Aug. 12.
1895-1958: Maximum discharge, about 50,000 cfs Oct. 11, 1904; no flow at times.

Remarks.--Records fair. Record is composite of main stem and conveyance channel. Discharge measurements generally made 2 to 4 times a week on each channel, less often during low flow periods. Diversions for irrigation of about 775,000 acres above station. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 219 | 790 | 1,130 | 868 | 723 | 1,570 | 1,010 | 6,190 | 7,560 | 1,070 | 98 | 109 |
| 2 | 207 | 1,220 | 1,150 | 944 | 723 | 1,300 | 792 | 5,410 | 9,340 | 923 | 98 | 102 |
| 3 | 196 | 2,330 | 1,040 | 920 | 762 | 1,080 | 824 | 5,380 | 9,130 | 718 | 92 | 96 |
| 4 | 193 | 2,530 | 1,010 | 928 | 768 | 920 | 1,510 | 5,550 | 8,220 | 581 | 89 | 91 |
| 5 | 197 | 2,470 | 1,020 | 898 | 742 | 968 | 1,840 | 5,680 | 7,380 | 472 | 89 | 92 |
| 6 | 200 | 3,900 | 1,020 | 831 | 742 | 976 | 1,870 | 5,680 | 6,910 | 436 | 89 | 93 |
| 7 | 200 | 3,730 | 992 | 831 | 762 | 1,050 | 1,770 | 5,770 | 6,440 | 450 | 94 | 106 |
| 8 | 215 | 3,750 | 1,040 | 845 | 775 | 960 | 1,170 | 6,060 | 5,230 | 357 | 86 | 140 |
| 9 | 204 | 3,550 | 1,060 | 852 | 789 | 1,240 | 1,290 | 6,020 | 4,220 | 321 | 98 | 250 |
| 10 | 211 | 3,060 | 1,040 | 824 | 789 | 1,200 | 1,480 | 6,070 | 4,220 | 266 | 103 | 156 |
| 11 | 247 | 2,950 | 1,020 | 845 | 768 | 1,080 | 1,670 | 6,190 | 4,460 | 233 | 100 | 247 |
| 12 | 718 | 2,730 | 1,100 | 831 | 768 | 1,160 | 2,110 | 6,370 | 4,540 | 254 | 79 | 752 |
| 13 | 1,990 | 2,510 | 1,110 | 789 | 817 | 1,180 | 2,440 | 6,700 | 4,050 | 266 | 81 | 864 |
| 14 | 2,450 | 2,020 | 1,060 | 796 | 860 | 1,140 | 2,610 | 7,120 | 3,610 | 244 | 85 | 614 |
| 15 | 1,630 | 1,630 | 1,030 | 789 | 890 | 968 | 2,060 | 7,300 | 3,420 | 240 | 94 | 668 |
| 16 | 1,020 | 1,500 | 992 | 782 | 928 | 952 | 2,280 | 7,570 | 3,740 | 117 | 100 | 1,130 |
| 17 | 707 | 1,480 | 1,010 | 742 | 824 | 936 | 3,010 | 7,640 | 3,300 | 166 | 105 | 573 |
| 18 | 669 | 1,580 | 984 | 762 | 796 | 944 | 3,570 | 8,010 | 3,280 | 153 | 148 | 457 |
| 19 | 611 | 1,550 | 960 | 796 | 775 | 960 | 3,550 | 8,060 | 3,700 | 143 | 162 | 330 |
| 20 | 1,400 | 1,600 | 944 | 868 | 810 | 1,010 | 3,900 | 7,810 | 3,830 | 140 | 151 | 249 |
| 21 | 5,790 | 1,480 | 1,020 | 912 | 1,100 | 1,110 | 4,330 | 7,860 | 3,870 | 140 | 140 | 253 |
| 22 | 7,700 | 1,380 | 1,010 | 905 | 1,340 | 1,140 | 4,840 | 7,860 | 3,800 | 134 | 145 | 244 |
| 23 | 5,000 | 1,320 | 1,000 | 890 | 1,380 | 1,110 | 5,290 | 7,830 | 4,100 | 132 | 145 | 233 |
| 24 | 3,650 | 1,180 | 936 | 762 | 1,630 | 1,390 | 5,750 | 8,100 | 3,820 | 136 | 351 | 230 |
| 25 | 2,820 | 1,050 | 992 | 704 | 1,740 | 1,730 | 6,110 | 8,190 | 1,830 | 122 | 231 | 210 |
| 26 | 2,350 | 984 | 992 | 698 | 1,620 | 1,780 | 6,330 | 8,260 | 931 | 116 | 182 | 195 |
| 27 | 1,680 | 1,040 | 976 | 796 | 1,620 | 1,470 | 5,730 | 8,570 | 2,020 | 109 | 167 | 182 |
| 28 | 1,240 | 1,100 | 1,010 | 845 | 1,600 | 1,300 | 6,060 | 8,600 | 2,790 | 108 | 127 | 182 |
| 29 | 1,060 | 1,140 | 944 | 810 | - | 1,200 | 6,840 | 8,630 | 1,200 | 109 | 130 | 202 |
| 30 | 849 | 1,150 | 890 | 789 | ------- | 1,240 | 6,800 | 8,930 | 923 | 105 | 122 | 203 |
| 31 | 744 | ------- | 860 | 768 | ------- | 1,360 | ------- | 8,740 | ------- | 102 | 114 | ------- |
| Total | 46,397 | 58,704 | 31,342 | 25,620 | 27,841 | 36,424 | 98,836 | 222,150 | 131,864 | 8,913 | 3,895 | 9,253 |
| Mean | 1,497 | 1,957 | 1,011 | 826 | 994 | 1,175 | 3,295 | 7,166 | 4,395 | 288 | 126 | 308 |
| Ac-ft | 92,030 | 116,400 | 62,170 | 50,820 | 55,220 | 72,250 | 196,000 | 440,600 | 261,500 | 17,680 | 7,730 | 18,350 |

Calendar year 1957: Max 7,700 Min 59 Mean 1,713 Ac-ft 1,240,000
Water year 1957-58: Max 9,340 Min 79 Mean 1,921 Ac-ft 1,391,000

## 3600. Alamosa River near Monticello, N. Mex.

Location.--Lat 33°34'10" (revised), long 107°36'20", in SW¼ sec. 31, T. 8 S., R. 7 W., on left bank at Alamosa dam site and old Fort Ojo Caliente, just downstream from Wildhorse Creek and 15 miles northwest of Monticello.

Drainage area.--470 sq mi, approximately.

Records available.--May 1931 to April 1942, July 1956 to June 1958 (annual maximum only), and July to September 1958 in reports of Geological Survey. October to December 1929 (monthly discharge only) and February to August 1930 (discharge measurements only) in reports of State engineer.

Gage.--Water-stage recorder and crest-stage gage. Datum of gage is 6,142.04 ft above mean sea level, datum of 1929. Prior to Aug. 17, 1930, at different datum, May 1, 1931, to Dec. 14, 1939, at datum 0.20 ft lower, Dec. 15, 1939, to Apr. 17, 1942, at present datum. July 16, 1956, to July 27, 1958, crest-stage gage only at present site and datum.

Average discharge.--10 years (1931-41), 8.42 cfs, revised (6,100 acre-ft per year).

Extremes.--1956-57: The annual maximum discharge for water years 1956-57 is given in the following table:

| Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|
| 1956 | Aug. 22, 1956 | a8,390 | 12.0 |
| 1957 | Aug. 24-25, 1957 | b5,700 | 8.77 |

a Result of slope-area measurement.
b From rating curve extended above 120 cfs on basis of slope-area measurement at gage heights 6.66 and 12.0 ft.

1957-58: Maximum discharge during water year, 3,390 cfs, Aug. 21 (gage height, 7.55 ft); minimum daily recorded, 6.0 cfs, Sept. 1.

1930-42, 1956-58: Maximum discharge, 10,300 cfs Aug. 21, 1936 (gage height, 13.6 ft), from rating curve extended above 120 cfs on basis of slope-area measurements at gage heights 6.66 and 12.0 ft; minimum daily recorded, 5.6 cfs Jan. 9, 1932, Aug. 28-30, Sept. 3, 1936.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

| WSP | Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|---|
| 733 | 1931 | Aug. 5, 1931 | 2,130 | 6.30 |
| 733 | 1932 | Aug. 28, 1932 | 955 | 4.78 |
| 748 | 1933 | July 17, 1933 | 955 | 4.79 |
| 763 | 1934 | Aug. 29, 1934 | 3,700 | 7.86 |
| 788 | 1935 | Aug. 18, 1935 | 2,670 | 6.83 |
| 808 | 1936 | Aug. 21, 1936 | 10,300 | 13.6 |
| 828 | 1937 | Sept.10, 1937 | 836 | 4.61 |
| 858 | 1938 | July 20, 1938 | 1,370 | 5.32 |
| 898 | 1940 | Aug. 7, 1940 | 3,500 | 7.66 |
| 928 | 1941 | Aug. 15, 1941 | 1,200 | 5.16 |

Remarks.--Records fair below 10 cfs, poor above. No diversion above station. Entire normal flow diverted below station for irrigation.

Revisions.--Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1931, 1935, and 1936, superseding those published in WSP 733, 788, and 808, are given herewith:

Aug. 4, 1931..... 146
Aug. 5, 1931..... 104
Aug. 12, 1935..... 80
Aug. 18, 1935..... 108
Aug. 21, 1936..... 550

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| August 1931 | - | 146 | 7.1 | 22.5 | 1,390 |
| August 1935 | 530.5 | 108 | 7.1 | 17.1 | 1,050 |
| Water year 1934-35 | 2,998.3 | 108 | 5.8 | 8.21 | 5,940 |
| Calendar year 1935 | 3,001.5 | 108 | 5.8 | 8.22 | 5,950 |
| August 1936 | 844.8 | 550 | 6.1 | 27.3 | 1,680 |
| Water year 1935-36 | 3,270.5 | 550 | 6 | 8.94 | 6,490 |
| Calendar year 1936 | 3,271.7 | 550 | 6 | 8.94 | 6,490 |

Discharge, in cubic feet per second, 1958

| Day | July | Aug. | Sept. | Day | July | Aug. | Sept. | Day | July | Aug. | Sept. | Day | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | 7.0 | 6.0 | 9 | - | 13 | 7.5 | 17 | - | 7.5 | 7.8 | 25 | - | 6.8 | 7.8 |
| 2 | - | 6.8 | 6.6 | 10 | - | 7.8 | 40 | 18 | - | 8.3 | 7.5 | 26 | - | 6.4 | 8.0 |
| 3 | - | 7.5 | 6.2 | 11 | - | 8.3 | 13 | 19 | - | *26 | 7.8 | 27 | - | 6.4 | 8.3 |
| 4 | - | 7.5 | 6.4 | 12 | - | *7.8 | 23 | 20 | - | 15 | 7.5 | 28 | *7.0 | 6.6 | 8.0 |
| 5 | - | 7.0 | 6.4 | 13 | - | 7.8 | 13 | 21 | - | 119 | 7.8 | 29 | 7.3 | 6.4 | 8.0 |
| 6 | - | 7.0 | *6.6 | 14 | - | 7.5 | 9.1 | 22 | - | 35 | 8.0 | 30 | 7.3 | 6.2 | 8.3 |
| 7 | - | *15 | 7.5 | 15 | - | 7.3 | 8.6 | 23 | - | 6.2 | 8.0 | 31 | 7.0 | 6.2 | - |
| 8 | - | 6.8 | 7.5 | 16 | - | 7.5 | 8.3 | 24 | - | 6.8 | *8.0 | | | | |
| Total | | | | | | | | | | | | | - | 400.4 | 286.5 |
| Mean | | | | | | | | | | | | | - | 12.9 | 9.55 |
| Runoff in acre-feet | | | | | | | | | | | | | - | 794 | 568 |

Peak discharge (base, 1,000 cfs).--Aug. 21 (time unknown) 3,390 cfs (7.55 ft).

* Discharge measurement made on this day.
Note.--Result of discharge measurement, 6.8 cfs June 10.

### 3610. 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), in Pedro Armendaris Grant, on left bank 1.0 mile downstream from dam and 1½ miles upstream from Cuchillo Negro River.

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 1958.

Gage.--Water-stage recorder. Datum of gage is 4,242.09 ft above mean sea level, datum of 1929. Prior to Jan. 1, 1931, at 1 of 3 sites 0.1 mile to 1 mile upstream at different datums. Jan. 1, 1931, to Jan. 16, 1939, at site 400 ft downstream from dam at datum 12.80 ft higher than present datum. Jan. 17 to Mar. 29, 1939, at site 0.7 mile upstream at datum 0.06 ft lower. Mar. 30, 1939, to Dec. 31, 1940, at site 0.7 mile upstream at datum 1.36 ft lower. Jan. 1, 1941, to Apr. 23, 1942, at site 128 ft upstream from preceding gage at datum 0.91 ft lower than present datum.

Average discharge.--42 years, 1,070 cfs (774,600 acre-ft per year).

Extremes.--Maximum daily discharge during year, 2,279 cfs Aug. 13-15; minimum daily, 4 cfs Oct. 30 to Nov. 3.

1916-58: Maximum daily discharge, 8,220 cfs May 22, 1942; no flow at times prior to 1929.

Remarks.--Records good except those for periods of doubtful or no gage-height record, and uncertain stage-discharge relation, which are poor. Discharge measurements generally made three times a month. Flow regulated by Elephant Butte Reservoir (see p. 433 ). Diversions for irrigation of about 800,000 acres above station.

Revisions.--Revised figures of discharge, in cubic feet per second, for Jan. 1-6, 1920, superseding those published in WSP 508, are given herewith:

| 1920 | |
|---|---|
| Jan. 1 | 702 |
| 2 | 702 |
| 3 | 702 |
| 4 | 702 |
| 5 | 702 |
| 6 | 763 |

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| January 1920 | 888 | 2 | 246 | 15,100 |
| Water year 1919-20 | 2,170 | 2 | 1,110 | 806,000 |
| Calendar year 1920 | 2,170 | 1 | 1,240 | 901,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.2 | 4 | 7 | 11 | 1,250 | 1,950 | 1,920 | 1,420 | 1,930 | 1,790 | 2,210 | 569 |
| 2 | a8 | 4 | 7 | 11 | 772 | 1,930 | 1,920 | 1,420 | 1,900 | 1,820 | 2,200 | 573 |
| 3 | a8 | 4 | 7 | 11 | 1,240 | 1,940 | 1,920 | 1,420 | 1,900 | 1,810 | 2,200 | 1,160 |
| 4 | a8 | 5 | 8 | 10 | 1,250 | 1,950 | 1,900 | 1,420 | 1,860 | 1,830 | 2,200 | 1,120 |
| 5 | a7 | 5 | 8 | 8.8 | 1,250 | 1,960 | 1,890 | 1,360 | 1,860 | 1,860 | 2,200 | 1,130 |
| 6 | a7 | 5 | 8 | 8.8 | 1,260 | 1,950 | 1,900 | 1,390 | 1,880 | 1,820 | 2,210 | 1,090 |
| 7 | a7 | d6 | 9 | 9.4 | 1,250 | 1,930 | 1,930 | 1,390 | 1,890 | 1,810 | 2,220 | 1,090 |
| 8 | 7.1 | d6 | 9 | 9.4 | 1,250 | 1,940 | 1,900 | 1,420 | 1,890 | 1,830 | 2,220 | 1,090 |
| 9 | 6.1 | d6 | 9 | 9.4 | 772 | 1,940 | 1,890 | 1,430 | 1,910 | 1,830 | 2,220 | 1,070 |
| 10 | 6.6 | d7 | 10 | 634 | 1,230 | 1,940 | 1,880 | 1,420 | 1,920 | 1,830 | 2,240 | 530 |
| 11 | 5.6 | 7 | 10 | 1,040 | 1,240 | 1,950 | 1,900 | 1,430 | 1,920 | 1,820 | 2,260 | 544 |
| 12 | 6 | 7 | 10 | 40 | 1,230 | 1,960 | 1,890 | 1,420 | 1,920 | 1,820 | 2,260 | 544 |
| 13 | 6 | 7 | 10 | 987 | 1,230 | 1,940 | 1,880 | 1,420 | 1,900 | 1,810 | 2,270 | 550 |
| 14 | 7 | 7 | 9 | 1,060 | 1,230 | 1,950 | 1,900 | 1,320 | 1,890 | 1,820 | 2,270 | 562 |
| 15 | d8 | 7 | 9 | 1,100 | 1,240 | 1,940 | 1,910 | 1,240 | 1,900 | 1,830 | 2,270 | 562 |
| 16 | d8 | 7 | 8 | 1,070 | 785 | 1,920 | 1,920 | 1,240 | 1,890 | 1,840 | 1,390 | 562 |
| 17 | d8 | 7 | 8 | 1,120 | 1,240 | 1,920 | 1,900 | 1,240 | 1,890 | 1,860 | 1,300 | 562 |
| 18 | d8 | 7 | 7 | 1,270 | 1,240 | 1,920 | a1,900 | 1,240 | 1,880 | 1,870 | 1,200 | a560 |
| 19 | d8 | 7 | 7 | 744 | 1,240 | 1,910 | a1,900 | 1,250 | 1,890 | 1,890 | 1,320 | 565 |
| 20 | d8 | 7 | 7 | 1,250 | 1,220 | 1,910 | a1,900 | 1,240 | 1,910 | 1,880 | 1,330 | 573 |
| 21 | d8 | 7 | 7 | 1,290 | 1,230 | 1,910 | a1,900 | 1,250 | 1,900 | 1,900 | 1,330 | 573 |
| 22 | 8 | 7 | 7 | 1,290 | 1,250 | 1,910 | 1,900 | 1,240 | 1,910 | 1,940 | 1,330 | 555 |
| 23 | 8 | 7 | 7 | 1,280 | 777 | 1,900 | 1,260 | 1,250 | 1,650 | 1,930 | 1,290 | 519 |
| 24 | 8 | 7 | 8 | 1,230 | 1,240 | 1,900 | 1,240 | 1,260 | 2,050 | 1,920 | 1,310 | 516 |
| 25 | 8 | 7 | 9 | 1,040 | 1,450 | 1,900 | 1,220 | 1,240 | 1,920 | 1,900 | 1,320 | 512 |
| 26 | 8 | 7 | 9 | 564 | 1,860 | 1,910 | 1,230 | 1,260 | 1,950 | 1,910 | 1,310 | 508 |
| 27 | 7 | 7 | 9 | 1,060 | 1,970 | 1,900 | 1,240 | 1,260 | 1,950 | 1,900 | 1,280 | 512 |
| 28 | 5 | 7 | 9 | 1,040 | 1,970 | 1,920 | 1,240 | 1,280 | 1,930 | 1,600 | 1,280 | 516 |
| 29 | 5 | 7 | 10 | 1,050 | - | 1,930 | 1,240 | 1,270 | 1,950 | 1,910 | 1,290 | 516 |
| 30 | 4 | 7 | 10 | 536 | ------- | 1,910 | 1,240 | 1,260 | 1,940 | 1,900 | 1,310 | 522 |
| 31 | 4 | ------- | 11 | 939 | ------- | 1,920 | ------ | 1,260 | ------- | 1,940 | 1,300 | ------- |
| Total | 218.6 | 192 | 263 | 21,722.8 | 35,166 | 59,760 | 51,760 | 40,960 | 57,080 | 57,420 | 54,340 | 20,255 |
| Mean | 7.05 | 6.4 | 8.5 | 701 | 1,256 | 1,928 | 1,725 | 1,321 | 1,903 | 1,852 | 1,753 | 675 |
| Ac-ft | 434 | 381 | 522 | 43,090 | 69,750 | 118,500 | 102,700 | 81,240 | 113,200 | 113,900 | 107,800 | 40,180 |

Calendar year 1957: Max 2,510 Min 4 Mean 531 Ac-ft 384,700
Water year 1957-58: Max 2,270 Min 4 Mean 1,094 Ac-ft 791,700

a No gage-height record; discharge estimated on basis of 1 discharge measurement, reconstructed recorder graph, adjoining good record, and records of release at Dam.
d Doubtful gage-height record; discharge estimated as for "a."
Note.--Stage-discharge relation uncertain Oct. 12-14, Oct. 22 to Nov. 6, Nov. 11 to Dec. 31, Sept. 13, 24; discharge estimated on basis of recorder trace, discharge measurements, records of release, and weather records.

3625. 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 1958.

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. 31, 1945, at datum 5.0 ft higher than present datum.

Average discharge.--20 years, 951 cfs (688,500 acre-ft per year).

Extremes.--Maximum daily discharge during year, 3,020 cfs July 12; minimum daily, 0.5 cfs Nov. 25 to Dec. 1.
1938-58: Maximum daily discharge, 7,650 cfs May 20, 1942; minimum daily, 0.1 cfs Oct. 31 to Nov. 14, 1954, Nov. 7 to Dec. 31, 1955.

Remarks.--Records good. Flow regulated by Caballo Reservoir (capacity, 344,000 acre-ft, 1958 survey) and Elephant Butte Reservoir (capacity, 2,206,800 acre-ft). 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 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.7 | 0.9 | 0.5 | 0.6 | 0.8 | 891 | 2,170 | 1,620 | 1,950 | 2,160 | 1,730 | 1,760 |
| 2 | 1.7 | .8 | .6 | .6 | .8 | 1,490 | 2,140 | 1,280 | 1,960 | 2,080 | 1,730 | 2,000 |
| 3 | 1.6 | .8 | .6 | .6 | .8 | 1,500 | 1,980 | 1,170 | 1,970 | 2,140 | 1,730 | 2,330 |
| 4 | 1.6 | .8 | .6 | .6 | .8 | 1,510 | 1,980 | 1,200 | 1,980 | 2,320 | 1,610 | 2,360 |
| 5 | 1.7 | .8 | .7 | .6 | .8 | 1,630 | 1,970 | 1,220 | 2,100 | 2,710 | 1,610 | 2,370 |
| 6 | 1.7 | .8 | .7 | .6 | .8 | 738 | 1,890 | 1,220 | 2,190 | 2,660 | 1,960 | 2,380 |
| 7 | 2.9 | .8 | .7 | .6 | .8 | 731 | 1,870 | 1,370 | 2,200 | 2,610 | 2,160 | 2,310 |
| 8 | 4.0 | .8 | .6 | .6 | .9 | 1,230 | 1,790 | 1,440 | 2,240 | 2,580 | 2,330 | 2,160 |
| 9 | 3.9 | .8 | .6 | .6 | 1.0 | 1,230 | 1,570 | 1,480 | 2,200 | 2,490 | 2,760 | 1,890 |
| 10 | 3.6 | .8 | .6 | .6 | 1.0 | 1,240 | 1,500 | 1,600 | 2,100 | 2,580 | 2,770 | 1,570 |
| 11 | 3.3 | .7 | .6 | .6 | 1.1 | 1,120 | 1,500 | 1,640 | 2,120 | 2,740 | 2,760 | 571 |
| 12 | 3.0 | .7 | .6 | .6 | 1.1 | 178 | 1,460 | 1,650 | 2,200 | 3,020 | 2,740 | 212 |
| 13 | 2.7 | .7 | .6 | .6 | 1.0 | 187 | 1,410 | 1,560 | 2,120 | 2,990 | 2,520 | 76 |
| 14 | 2.5 | .7 | .6 | .6 | 1.0 | 1,010 | 1,280 | 1,490 | 2,040 | 2,930 | 2,620 | 21 |
| 15 | 2.3 | .7 | .6 | .6 | 1.0 | 1,500 | 1,210 | 1,500 | 2,220 | 2,800 | 2,750 | 241 |
| 16 | 2.1 | .7 | .6 | .6 | 1.0 | 1,510 | 1,200 | 1,490 | 2,210 | 2,660 | 2,740 | 544 |
| 17 | 1.9 | .7 | .6 | .6 | 1.1 | 1,530 | 1,300 | 1,450 | 2,150 | 2,680 | 2,460 | 621 |
| 18 | 1.7 | .7 | .6 | .6 | 1.1 | 1,720 | 1,260 | 1,460 | 2,150 | 2,750 | 2,400 | 868 |
| 19 | 1.5 | .6 | .6 | .6 | 1.2 | 2,170 | 1,110 | 1,460 | 2,150 | 2,770 | 2,320 | 1,110 |
| 20 | 1.5 | .6 | .6 | .6 | 1.3 | 2,370 | 1,010 | 1,480 | 2,280 | 2,600 | 2,120 | 1,150 |
| 21 | 1.4 | .6 | .6 | .6 | 1.4 | 2,330 | 876 | 1,480 | 2,410 | 2,500 | 2,120 | 884 |
| 22 | 1.4 | .6 | .6 | .6 | 1.4 | 2,410 | 837 | 1,500 | 2,460 | 2,480 | 1,070 | 588 |
| 23 | 1.5 | .6 | .6 | .6 | 1.3 | 2,440 | 1,060 | 1,480 | 2,280 | 2,390 | 1,200 | 394 |
| 24 | 1.5 | .6 | .6 | .6 | 1.3 | 2,180 | 1,260 | 1,550 | 2,190 | 2,330 | 1,350 | 212 |
| 25 | 1.6 | .5 | .6 | .7 | 1.3 | 1,760 | 1,270 | 1,650 | 2,140 | 2,430 | 1,020 | 86 |
| 26 | 1.5 | .5 | .6 | .7 | 1.3 | 1,870 | 1,370 | 1,640 | 2,090 | 2,580 | 1,040 | 14 |
| 27 | 1.4 | .5 | .6 | .7 | 1.2 | 2,000 | 1,430 | 1,680 | 2,160 | 2,540 | 1,080 | 8.8 |
| 28 | 1.3 | .5 | .6 | .8 | 1.2 | 2,020 | 1,430 | 1,790 | 2,180 | 2,380 | 1,100 | 7.0 |
| 29 | 1.2 | .5 | .6 | .8 | - | 2,050 | 1,600 | 1,820 | 2,250 | 1,940 | 1,210 | 6.1 |
| 30 | 1.1 | .5 | .6 | .8 | ------- | 2,060 | 1,690 | 1,830 | 2,240 | 1,710 | 1,470 | 8.3 |
| 31 | 1.0 | ------- | .6 | .8 | ------- | 2,100 | ------- | 1,910 | ------- | 1,770 | 1,640 | ------- |
| Total | 61.8 | 20.3 | 18.8 | 19.7 | 29.8 | 48,705 | 44,423 | 47,110 | 64,930 | 77,320 | 60,120 | 28,752.2 |
| Mean | 1.99 | 0.68 | 0.61 | 0.64 | 1.06 | 1,571 | 1,481 | 1,520 | 2,164 | 2,494 | 1,939 | 958 |
| (†) | 0 | 0 | 0 | 0 | 0 | 200 | 45 | 95 | 134 | 264 | 122 | 44 |
| Ac-ft | 123 | 40 | 37 | 39 | 59 | 96,600 | 88,110 | 93,440 | 128,800 | 153,400 | 119,200 | 57,030 |

Calendar year 1957: Max 2,540 Min 0.2 Mean 548 Ac-ft 397,100
Water year 1957-58: Max 3,020 Min 0.5 Mean 1,018 Ac-ft 736,900

† Diversion, in acre-feet, by Bonita ditch. Bonita ditch diverts directly from Caballo Dam and this diversion is not included in river records.

### 3565. McKelligon Canyon at El Paso, Tex.

Location.--Lat 31°49'20", long 106°28'15", on left bank 200 ft south of McKelligon Canyon drive, 0.5 mile south of crest of Sugarloaf Mountain, 1.6 miles west of U. S. Highway 54, and 4 miles north of El Paso business center.

Drainage area.--2.3 sq mi, approximately.

Records available.--June to September 1958.

Gage.--Water-stage recorder and small earth fill dam with uncontrolled concrete outlet tower. Altitude of gage is 4,250 ft (from topographic map).

Extremes.--Maximum discharge during period, 76 cfs Sept. 11 (on basis of culvert measurement of peak flow); no flow except Sept. 11, 12.

Remarks.--Records poor. Station not rated. Flood flow controlled by two small reservoirs upstream. Records began June 1; no flow except as shown below.

Discharge, in cubic feet per second, 1958

Sept. 11..... 14
12..... 1

| Month | Cfs-days | Maximum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| September 1958.. | 15 | 14 | 0.50 | 30 |

### 3657. Inlet to Fort Bliss Sump area at El Paso, Tex.

Location.--Lat 31°50'20", long 106°25'23", on right bank at culvert No. 1303.10 on Southern Pacific Railroad at northeast corner of El Paso Golf course, 1 mile east of U. S. Highway 54 and 5 miles northeast of El Paso business section.

Drainage area.--3.5 sq mi, approximately.

Records available.--June to September 1958.

Gage.--Water-stage recorder. Datum of gage is 3,868.47 ft above mean sea level, datum of 1954.

Extremes.--Maximum discharge during period, 675 cfs Sept. 11 (gage height, 4.94 ft), on basis of contracted-opening measurement of peak flow; no flow most of time.

Remarks.--Records poor. Records began June 1; no flow except as shown below.

Discharge, in cubic feet per second, 1958

June 14..... 30
15..... 1
20..... *22
June 21..... 1
July 28..... 6
29..... 19
Aug. 23..... 3
Sept.11..... *184
27..... 42

| Month | Cfs-days | Maximum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| July 1958..... | 25 | 19 | 0.8 | 50 |
| August..... | 3 | 3 | .1 | 6 |
| September..... | 226 | 184 | 7.5 | 448 |

* Discharge measurement made on this day.

## 3785. 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 1958 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.--28 years (1930-58), 99.6 cfs (72,110 acre-ft per year).

Extremes.--Maximum discharge during year, 1,370 cfs May 27 (gage height, 4.52 ft); minimum daily, 20 cfs Jan. 21, but may have been less during periods of ice effect.
1930-58: Maximum discharge, 1,960 cfs May 14, 1941 (gage height, 4.57 ft); minimum daily, 6 cfs Dec. 22, 23, 1956, Jan. 18, 22, 30, 1957.

Remarks.--Records good except those for periods of ice effect, which are poor. Discharge measurements generally made twice a month. Diversions for irrigation of about 75 acres above station.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 28 to May 18)

| Oct. 1 to May 17 | | | | May 18 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.7 | 13 | 3.0 | 343 | 2.0 | 27 | 3.5 | 470 |
| 1.8 | 22 | 3.5 | 660 | 2.3 | 70 | 4.0 | 810 |
| 2.1 | 68 | 4.0 | 1,140 | 2.6 | 132 | 4.5 | 1,360 |
| 2.5 | 158 | | | 3.0 | 245 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 61 | 110 | b98 | b55 | b30 | b35 | 78 | 483 | 1,060 | 162 | 50 | 44 |
| 2 | 63 | 110 | b83 | b50 | b30 | b35 | 83 | 536 | 1,010 | 154 | 47 | 41 |
| 3 | 61 | 113 | b81 | b48 | b30 | b35 | 76 | 477 | 960 | 152 | 47 | 37 |
| 4 | 60 | 108 | b76 | b45 | 30 | b35 | 83 | 457 | 910 | 140 | 48 | 40 |
| 5 | 60 | 115 | 66 | b48 | b30 | b35 | 72 | 550 | 846 | 137 | 75 | 47 |
| 6 | 83 | 115 | 63 | b48 | b30 | b35 | 70 | 652 | 837 | 132 | 75 | 56 |
| 7 | 70 | 108 | b63 | b50 | b30 | b35 | 81 | 720 | 794 | 125 | 70 | 53 |
| 8 | 63 | 102 | b61 | b50 | b30 | b35 | 89 | 745 | 778 | 118 | 59 | 51 |
| 9 | 61 | 102 | b58 | b50 | b25 | b35 | 83 | 720 | 702 | 107 | 56 | 46 |
| 10 | 60 | 93 | b60 | b45 | b28 | b35 | 81 | 736 | 625 | 103 | 54 | 59 |
| 11 | 58 | 91 | 58 | b45 | b30 | b30 | 83 | 799 | 560 | 96 | 51 | 62 |
| 12 | 83 | 95 | b63 | b45 | b30 | b32 | 79 | 844 | 512 | 92 | 53 | 57 |
| 13 | 74 | 93 | b61 | b45 | b22 | b32 | 76 | 873 | 459 | 88 | 51 | 160 |
| 14 | 68 | 89 | b58 | b45 | b23 | b32 | 83 | 892 | 420 | 84 | 48 | 123 |
| 15 | 68 | 89 | 56 | b50 | b24 | b32 | 110 | 940 | 405 | 79 | 53 | 90 |
| 16 | 70 | 85 | 54 | b45 | 25 | 35 | 170 | 1,100 | 390 | 86 | 57 | 77 |
| 17 | 72 | 89 | 53 | b40 | b28 | 38 | 178 | 1,080 | 365 | 88 | 68 | 70 |
| 18 | 66 | 79 | 53 | b35 | b30 | b40 | 210 | 1,000 | 338 | 107 | 70 | 65 |
| 19 | 120 | b76 | 51 | b32 | b32 | b40 | 330 | 891 | 312 | 92 | 64 | 64 |
| 20 | 200 | b78 | b58 | b30 | 35 | b42 | 422 | 864 | 300 | 75 | 65 | 57 |
| 21 | 204 | b70 | b60 | b20 | 36 | 50 | 464 | 873 | 300 | 68 | 77 | 54 |
| 22 | 227 | b65 | b60 | b22 | 38 | 54 | 522 | 846 | 276 | 65 | 96 | 54 |
| 23 | 184 | b70 | b53 | b24 | 40 | 53 | 564 | 873 | 256 | 62 | 74 | 56 |
| 24 | 158 | b100 | b54 | b26 | 40 | 54 | 496 | 1,040 | 235 | 59 | 67 | 53 |
| 25 | 145 | b95 | b54 | b28 | 44 | 58 | 496 | 1,080 | 223 | 57 | 60 | 51 |
| 26 | 125 | b85 | b61 | b30 | 39 | 61 | 536 | 1,110 | 210 | 57 | 56 | 51 |
| 27 | 110 | b89 | b58 | b28 | b36 | 66 | 564 | 1,180 | 198 | 54 | 54 | 57 |
| 28 | 104 | 87 | b58 | b28 | b35 | 70 | 543 | 1,190 | 187 | 57 | 50 | 70 |
| 29 | 100 | b83 | b62 | b30 | - | 65 | 440 | 1,220 | 179 | 60 | 50 | 57 |
| 30 | 98 | b91 | b61 | b30 | ------- | 63 | 411 | 1,190 | 173 | 65 | 47 | 53 |
| 31 | 102 | ------- | b61 | b28 | ------- | 70 | ------- | 1,130 | ------- | 54 | 46 | ------- |
| Total | 3,078 | 2,777 | 1,916 | 1,195 | 880 | 1,367 | 7,573 | 27,091 | 14,820 | 2,875 | 1,838 | 1,855 |
| Mean | 99.3 | 92.6 | 61.8 | 38.5 | 31.4 | 44.1 | 252 | 874 | 494 | 92.7 | 59.3 | 61.8 |
| Ac-ft | 6,110 | 5,510 | 3,800 | 2,370 | 1,750 | 2,710 | 15,020 | 53,730 | 29,400 | 5,700 | 3,650 | 3,680 |

Calendar year 1957: Max 1,030 Min 6 Mean 133 Ac-ft 96,440
Water year 1957-58: Max 1,220 Min 20 Mean 184 Ac-ft 133,400

Peak discharge (base, 310 cfs).--May 27 (10 p.m.) 1,370 cfs (4.52 ft).

b Stage-discharge relation affected by ice.

## 3795. 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 1958 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 five different sites from a sixth of a mile to 8½ 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.--45 years (1912-25, 1926-58), 143 cfs (103,500 acre-ft per year).

Extremes.--Maximum discharge during year, 8,430 cfs Oct. 20 (gage height, 10.70 ft); minimum daily, 2.3 cfs Aug. 15.
1912-58: Maximum discharge, 40,300 cfs June 1, 1937 (gage height, 20.34 ft, from floodmarks, at site and datum then in use), by slope-area measurement; no flow at times.

Remarks.--Records good except those for periods of ice effect, which are fair. Discharge measurements generally made two or more times a month. Diversions above station for irrigation of about 6,200 acres above and below station.

Revisions (water years).--WSP 1342: 1951(M), 1952-53. WSP 1512: 1912-14, 1931, 1933(M), 1935-36(M), 1938(P), 1939-40, 1941-42(P), 1945(M), 1946(P), 1949(P).

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-19)

| Oct. 1 to Apr. 30 | | | | May 1 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.7 | 21 | 5.0 | 580 | 2.6 | 2.0 | 3.6 | 132 |
| 3.1 | 56 | 6.0 | 1,180 | 2.7 | 3.6 | 4.0 | 223 |
| 3.5 | 114 | 7.0 | 2,140 | 2.8 | 7.2 | 4.5 | 385 |
| 4.0 | 221 | 9.0 | 5,320 | 2.9 | 14 | 5.0 | 615 |
| 4.5 | 375 | | | 3.0 | 25 | 6.0 | 1,240 |
| | | | | 3.3 | 73 | 7.0 | 2,130 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 46 | 211 | 118 | 62 | 40 | b54 | 218 | 981 | 1,240 | 123 | 21 | 22 |
| 2 | 39 | 218 | 154 | 52 | 35 | 60 | 243 | 1,090 | 1,170 | 100 | 38 | 15 |
| 3 | 36 | 218 | 136 | 48 | 35 | 62 | 271 | 1,120 | 1,110 | 84 | 11 | 11 |
| 4 | 32 | 226 | 119 | 56 | 39 | 81 | 245 | 1,040 | 1,060 | 75 | 3.1 | 72 |
| 5 | 31 | 243 | 130 | 67 | 41 | 84 | 248 | 1,030 | 981 | 69 | 3.6 | 849 |
| 6 | 43 | 344 | 132 | 68 | 42 | 85 | 218 | 1,130 | 930 | 204 | 47 | 222 |
| 7 | 53 | 430 | 118 | 61 | 39 | 88 | 218 | 1,250 | 930 | 346 | 75 | 1,080 |
| 8 | 58 | 324 | 97 | 57 | 39 | 104 | 257 | 1,320 | 912 | 116 | 41 | 193 |
| 9 | 203 | 283 | 106 | 58 | 38 | 107 | 283 | 1,320 | 846 | 94 | 116 | 82 |
| 10 | 130 | 262 | 102 | 60 | 38 | 91 | 257 | 1,270 | 762 | 81 | 35 | 52 |
| 11 | 117 | 240 | 91 | 56 | 41 | 78 | 280 | 1,290 | 698 | 64 | 25 | 50 |
| 12 | 1,730 | 232 | 88 | 55 | 42 | 79 | 375 | 1,330 | 630 | 50 | 17 | 71 |
| 13 | 598 | 224 | 85 | 56 | 39 | 76 | 368 | 1,350 | 565 | 38 | 12 | 348 |
| 14 | 171 | 211 | 91 | 48 | 35 | 76 | 585 | 1,370 | 510 | 33 | 3.4 | 311 |
| 15 | 132 | 191 | 92 | 47 | 30 | 81 | 850 | 1,380 | 479 | 70 | 2.3 | 239 |
| 16 | 329 | 196 | 91 | 46 | 27 | 111 | 958 | 1,440 | 452 | 64 | 3.3 | 166 |
| 17 | 256 | 196 | 88 | 46 | 26 | 265 | 1,540 | 1,510 | 413 | 57 | 17 | 132 |
| 18 | 146 | 178 | 85 | 52 | 30 | 187 | 1,250 | 1,440 | 448 | 182 | 16 | 108 |
| 19 | 138 | 144 | 81 | b52 | 31 | 224 | 1,400 | 1,330 | 361 | 110 | 31 | 92 |
| 20 | 3,970 | 138 | 78 | b48 | 35 | 206 | 1,520 | 1,230 | 331 | 98 | 112 | 79 |
| 21 | 2,260 | 134 | 72 | b38 | 46 | 201 | 1,550 | 1,210 | 307 | 66 | 327 | 66 |
| 22 | 1,040 | b110 | 81 | b35 | 49 | 277 | 1,560 | 1,200 | 307 | 50 | 362 | 52 |
| 23 | 862 | b100 | 79 | b35 | 52 | 334 | 1,580 | 1,160 | 268 | 41 | 160 | 36 |
| 24 | 650 | b120 | 78 | b37 | 55 | 308 | 1,440 | 1,220 | 228 | 33 | 215 | 32 |
| 25 | 530 | 186 | 75 | b42 | 61 | 286 | 1,250 | 1,300 | 206 | 33 | 124 | 31 |
| 26 | 442 | 206 | 75 | b52 | 66 | 245 | 1,190 | 1,340 | 186 | 29 | 69 | 31 |
| 27 | 361 | 214 | 72 | b57 | 72 | 240 | 1,220 | 1,340 | 175 | 25 | 59 | 32 |
| 28 | 302 | 206 | 72 | 56 | b56 | 245 | 1,240 | 1,380 | 160 | 13 | 53 | 36 |
| 29 | 260 | 173 | 71 | 46 | - | 254 | 1,140 | 1,350 | 155 | 15 | 47 | 44 |
| 30 | 237 | 175 | 74 | 41 | ------- | 218 | 1,010 | 1,320 | 134 | 25 | 42 | 42 |
| 31 | 218 | ------- | 72 | 43 | ------- | 208 | ------- | 1,280 | ------- | 20 | 36 | ------- |
| Total | 15,420 | 6,333 | 2,903 | 1,577 | 1,179 | 5,015 | 24,764 | 39,321 | 16,954 | 2,408 | 2,123.7 | 4,596 |
| Mean | 497 | 211 | 93.6 | 50.9 | 42.1 | 162 | 825 | 1,268 | 565 | 77.7 | 68.5 | 153 |
| Ac-ft | 30,590 | 12,560 | 5,760 | 3,130 | 2,340 | 9,950 | 49,120 | 77,990 | 33,630 | 4,780 | 4,210 | 9,120 |

Calendar year 1957: Max 3,970 Min 0 Mean 219 Ac-ft 149,400
Water year 1957-58: Max 3,970 Min 2.3 Mean 336 Ac-ft 243,200

Peak discharge (base, 3,000 cfs).--Oct. 12 (6 p.m.) 7,610 cfs (10.27 ft); Oct. 20 (1:30 p.m.) 8,430 cfs (10.70 ft); Sept. 5 (2:30 p.m.) 5,100 cfs (8.84 ft).

b Stage-discharge relation affected by ice.

### 3805. 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, and 6 miles northwest of Las Vegas.
Drainage area.--84 sq mi, approximately.
Records available.--October 1930 to September 1958 in reports of Geological Survey.
March 1915 to December 1931 (no winter records 1915-26) in reports of State engineer.
Gage.--Water-stage recorder. Altitude of gage is 6,950 ft (from topographic map).
Average discharge.--32 years (1926-58), 19.3 cfs (13,970 acre-ft per year).
Extremes.--Maximum discharge during year, 1,550 cfs Oct. 19 (gage height, 4.82 ft), from rating curve extended above 550 cfs on basis of computation of peak flow over dam; minimum daily, 5.4 cfs July 24.
1930-58: Maximum discharge, 5,400 cfs Aug. 4, 1957 (gage height, 8.25 ft), from rating curve extended above 350 cfs on basis of computation of peak flow over dam; minimum daily, 0.2 cfs Sept. 21, Oct. 9-14, 1956.
A major flood probably occurred Sept. 24-30, 1904.
Revisions.--Figures of maximum discharge for water years 1952 and 1955 have been revised to 1,020 cfs Sept. 12, 1952 (gage height, 4.20 ft) and 485 cfs Sept. 24, 1955 (gage height, 3.40 ft), superseding those published in WSP 1242 and 1392, respectively.
Remarks.--Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions for irrigation of about 10 acres above station.
Revisions.--Revised figures of discharge, in cubic feet per second, for high-water periods in water year 1957 and supplemental peak discharges for water years 1951, 1955, and 1957, superseding those published in WSP 1212, 1392, and 1512, are given herewith:

| 1957 | |
|---|---|
| July 26 | 57 |
| 31 | 42 |
| Aug. 4 | 517 |
| 5 | 727 |
| 6 | 150 |
| 7 | 95 |

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| July 1957 | 241.3 | 57 | 1.2 | 7.78 | 479 |
| August | 3,605 | 727 | 12 | 116 | 7,150 |
| Water year 1956-57 | 5,973.8 | 727 | .2 | 16.4 | 11,840 |

Revised peak discharge.--1951: Aug. 4 (5:30 p.m.) 982 cfs.
1955: July 16 (2:30 p.m.) 382 cfs; Aug. 20 (3:30 p.m.) 311 cfs; Sept. 24 (10 p.m.) 485 cfs.
1957: July 26 (4 p.m.) 835 cfs; July 31 (7 p.m.) 358 cfs; Aug. 4 (8 a.m.) 1,480 cfs; Aug. 23 (4 p.m.) 639 cfs; Aug. 24 (4 p.m.) 1,260 cfs.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.2 | 48 | 36 | b12 | b9.3 | 10 | 60 | 173 | 104 | 14 | 8.0 | 12 |
| 2 | 5.9 | 47 | 35 | b13 | b10 | 11 | 63 | 197 | 98 | 14 | 11 | 10 |
| 3 | 5.9 | 50 | 32 | b13 | 8.9 | 10 | 57 | 176 | 93 | 12 | 8.6 | 9.3 |
| 4 | 5.9 | 52 | 30 | 14 | 8.9 | 12 | 59 | 157 | 88 | 12 | 8.0 | 9.3 |
| 5 | 5.9 | 78 | 28 | 13 | 9.3 | b10 | 51 | 166 | 83 | 12 | 18 | 70 |
| 6 | 7.4 | 84 | 28 | b11 | 8.9 | b10 | 47 | *187 | 75 | 20 | 27 | 23 |
| 7 | 6.2 | *79 | 26 | b12 | 8.9 | b10 | 48 | 220 | 72 | 14 | 21 | 39 |
| 8 | 5.7 | 74 | 25 | b12 | 8.9 | b11 | 51 | 239 | 68 | 14 | 14 | 31 |
| 9 | *6.0 | 69 | 24 | *12 | 8.9 | b11 | *47 | 214 | 60 | *12 | 11 | 30 |
| 10 | 11 | 65 | 23 | b11 | 8.9 | b9 | 49 | 205 | *54 | 11 | 9.3 | 30 |
| 11 | 10 | 60 | 23 | b12 | *9.3 | b10 | 60 | 205 | 47 | 11 | 8.9 | 27 |
| 12 | 103 | 56 | 22 | 12 | b8.6 | *b12 | 49 | 211 | 42 | 10 | *8.6 | 63 |
| 13 | 52 | 50 | 21 | b11 | 8.9 | 11 | 58 | 222 | 40 | 8.6 | 7.7 | 121 |
| 14 | 27 | 45 | 21 | b11 | 8.9 | 12 | 71 | 218 | 36 | 7.7 | 6.8 | 95 |
| 15 | 20 | 42 | 21 | b11 | 8.3 | 13 | *153 | 216 | 51 | 6.2 | 7.4 | *66 |
| 16 | 16 | 38 | *21 | b12 | 8.9 | 19 | 240 | 239 | 35 | 8.6 | 11 | 50 |
| 17 | 16 | 38 | 20 | b11 | 8.9 | 30 | 362 | 227 | 52 | 9.8 | 75 | 40 |
| 18 | 14 | 30 | 20 | 11 | 8.9 | 28 | 420 | 187 | 42 | 15 | 65 | 33 |
| 19 | 327 | 25 | 18 | 11 | 9.3 | 36 | *475 | 166 | 32 | 10 | 47 | 30 |
| 20 | 744 | 25 | 17 | b10 | 9.7 | 43 | 455 | 152 | 29 | 12 | 36 | 26 |
| 21 | 350 | 25 | 18 | b9 | 10 | 65 | 404 | 149 | 43 | 11 | 46 | 22 |
| 22 | 242 | 25 | 18 | b9 | 11 | 75 | 374 | 150 | 31 | 9.3 | 81 | 20 |
| 23 | 169 | 25 | 17 | b9 | 11 | 73 | *358 | 150 | 26 | 7.7 | 60 | 18 |
| 24 | 123 | 25 | 16 | b10 | 11 | 72 | 274 | 179 | 23 | 5.4 | 44 | 16 |
| 25 | 99 | 30 | 15 | 10 | 13 | 65 | 232 | 169 | *22 | 5.7 | 32 | 16 |
| 26 | 82 | 40 | 14 | b10 | *13 | 64 | 227 | 159 | 22 | 7.7 | *30 | 15 |
| 27 | 69 | 45 | 15 | *9.7 | 11 | 63 | 225 | 146 | 19 | 7.7 | 23 | 17 |
| 28 | 60 | 42 | 14 | 9.7 | 10 | 64 | 214 | 142 | 17 | 11 | 19 | 21 |
| 29 | 53 | 38 | 16 | 9.3 | - | 56 | 180 | 129 | 16 | 11 | 17 | 17 |
| 30 | 48 | 35 | 15 | 9.3 | ------- | 56 | 162 | 123 | 15 | *9.3 | 15 | 15 |
| 31 | 46 | ------- | 11 | 8.9 | ------- | 56 | ------- | 115 | ------- | 8.6 | 13 | ------- |
| Total | 2,736.1 | 1,385 | 660 | 338.9 | 270.6 | 1,027 | 5,525 | 5,588 | 1,435 | 328.3 | 789.3 | 991.6 |
| Mean | 88.3 | 46.2 | 21.3 | 10.9 | 9.66 | 33.1 | 184 | 180 | 47.8 | 10.6 | 25.5 | 33.1 |
| Ac-ft | 5,430 | 2,750 | 1,310 | 672 | 537 | 2,040 | 10,960 | 11,080 | 2,850 | 651 | 1,570 | 1,970 |

Calendar year 1957: Max 744 Min 0.9 Mean 29.3 Ac-ft 21,230
Water year 1957-58: Max 744 Min 5.4 Mean 57.7 Ac-ft 41,820

Peak discharge (base, 250 cfs, revised).--Oct. 12 (11:45 a.m.) 390 cfs (3.20 ft); Oct. 19 (4 p.m.) 1,550 cfs (4.82 ft); Apr. 18 (4:30 p.m.) 751 cfs (3.83 ft); May 24 (9:45 p.m.) 332 cfs (3.03 ft); June 15 (4:30 p.m.) 268 cfs (2.84 ft); Aug. 17 (2:15 p.m.) 370 cfs (3.16 ft); Sept. 5 (3 p.m.) 1,420 cfs (4.68 ft); Sept. 12 (7:30 p.m.) 343 cfs (3.08 ft).

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.
Note.--No gage-height record Nov. 18 to Dec. 15; discharge estimated on basis of 1 discharge measurement and records for nearby stations.

## 3810. Gallinas River at Montezuma, N. Mex.

Location.--Lat 35°39'15", long 105°16'30", in Las Vegas Grant, at downstream end of middle pier 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 1958 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 at same site and datum.

Average discharge.--51 years (1905-11, 1913-58), 19.8 cfs (14,330 acre-ft per year).

Extremes.--Maximum discharge during year, 1,280 cfs Oct. 20 (gage height, 6.46 ft), from rating curve extended above 565 cfs on basis of slope-area measurement at gage height 11.8 ft; minimum daily, 2.4 cfs July 15.
1930-58: Maximum discharge, 9,140 cfs Aug. 4, 1957 (gage height, 11.8 ft, from floodmark), from rating curve extended above 450 cfs on basis of slope-area measurement of peak flow; no flow Oct. 4-7, 1934, several days in 1956-57.
A very destructive flood, probably the greatest known, occurred Sept. 29-30, 1904.

Remarks.--Records good except those for no gage-height record, which are fair. 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).--WSP 1178: 1942.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5 | 41 | 36 | 9.4 | 6.9 | 9.6 | 61 | 170 | 107 | 11 | 4.6 | 13 |
| 2 | 5 | 36 | 32 | 10 | 7.1 | 10 | 63 | 194 | 95 | 8.3 | 7.9 | 11 |
| 3 | 5 | 39 | 28 | 10 | 8.0 | 9.2 | 56 | 179 | 91 | 14 | 9.6 | 9.6 |
| 4 | 5 | 41 | 26 | 11 | 7.6 | 12 | 56 | 158 | 86 | 7.4 | 4.6 | 10 |
| 5 | 5 | 72 | 26 | 10 | 8.0 | 9.6 | 49 | 161 | 84 | 11 | 15 | 72 |
| 6 | 6 | 88 | 26 | 8.8 | 7.6 | 12 | 46 | *182 | 76 | 30 | 28 | 28 |
| 7 | 5.4 | *78 | 23 | 8.8 | 7.6 | 10 | 46 | 211 | 69 | 23 | 20 | 54 |
| 8 | 5.7 | 68 | 23 | 9.2 | 7.6 | 12 | *46 | 229 | 67 | 14 | 10 | 52 |
| 9 | *5.2 | 63 | 22 | *9.2 | 7.6 | 14 | 46 | 211 | 57 | *7.0 | 6.4 | 39 |
| 10 | 8.6 | 57 | 21 | 8.0 | 7.2 | 10 | 42 | 201 | *49 | 5.2 | 4.3 | 38 |
| 11 | 10 | 50 | 21 | 9.2 | *7.6 | 11 | 61 | 205 | 43 | 4.6 | 4.1 | 34 |
| 12 | 109 | 49 | 19 | 9.2 | 6.4 | *11 | 52 | 211 | 38 | 4.6 | *3.6 | 65 |
| 13 | 74 | 49 | 19 | 8.0 | 7.2 | 10 | 59 | 222 | 34 | 3.7 | 3.3 | 142 |
| 14 | 34 | 44 | 19 | 8.4 | 7.2 | 13 | 76 | 218 | 29 | 4.0 | 2.8 | 112 |
| 15 | 24 | 39 | 18 | 7.8 | 6.8 | 12 | *159 | 215 | 48 | 2.4 | 2.8 | *77 |
| 16 | 19 | 41 | 18 | 8.8 | 7.6 | 18 | *241 | 233 | 36 | 2.8 | 5.0 | 59 |
| 17 | 19 | 41 | 18 | 8.4 | 7.6 | 25 | 365 | 222 | 54 | 5.3 | 66 | 46 |
| 18 | 13 | 29 | 17 | 8.8 | 7.6 | 26 | 415 | 188 | 53 | 12 | 69 | 33 |
| 19 | 249 | 26 | 15 | 8.8 | 8.4 | 32 | *500 | 164 | 32 | 7.4 | 54 | 29 |
| 20 | 589 | 26 | *14 | 7.6 | 8.8 | 44 | 456 | 153 | 27 | 11 | 42 | 24 |
| 21 | *298 | 25 | 15 | 7.8 | 9.2 | 63 | 395 | 148 | 47 | 9.8 | 36 | 20 |
| 22 | 220 | 24 | 16 | 8.8 | 9.6 | 78 | 350 | 150 | 40 | 5.8 | 90 | 18 |
| 23 | 154 | 28 | 15 | 8.4 | 9.6 | 76 | *332 | 150 | 24 | 5.2 | 63 | 15 |
| 24 | 111 | 31 | 13 | 9.2 | 10 | 72 | 280 | 182 | 22 | 4.3 | 52 | 14 |
| 25 | 90 | 31 | 13 | 8.8 | 12 | 66 | 240 | 185 | *20 | 4.3 | 34 | 13 |
| 26 | 72 | 39 | 12 | 8.4 | *12 | 65 | 233 | 167 | 22 | 4.3 | *31 | 13 |
| 27 | 57 | 46 | 13 | 8.4 | 16 | 63 | 233 | 148 | 17 | 4.9 | 29 | 16 |
| 28 | 52 | 42 | 12 | 8.4 | 9.3 | 65 | 222 | 145 | 18 | 8.1 | 20 | 21 |
| 29 | 47 | 39 | 13 | *8.4 | - | 56 | 188 | 134 | 17 | 9.0 | 20 | 14 |
| 30 | 41 | 35 | 13 | 8.0 | ------- | 54 | 161 | 126 | 14 | *5.9 | 18 | 13 |
| 31 | 39 | ------- | 9.6 | 7.6 | ------- | 57 | ------- | 116 | ------- | 6.4 | 14 | ------- |
| Total | 2,376.9 | 1,317 | 585.6 | 271.6 | 238.1 | 1,025.4 | 5,529 | 5,578 | 1,416 | 256.7 | 770.0 | 1,104.6 |
| Mean | 76.7 | 43.9 | 18.9 | 8.76 | 8.50 | 33.1 | 184 | 180 | 47.2 | 8.28 | 24.8 | 36.8 |
| Ac-ft | 4,710 | 2,610 | 1,160 | 539 | 472 | 2,030 | 10,970 | 11,060 | 2,810 | 509 | 1,530 | 2,190 |

Calendar year 1957: Max 899 Min 0 Mean 26.9 Ac-ft 19,450
Water year 1957-58: Max 589 Min 2.4 Mean 56.1 Ac-ft 40,590

Peak discharge (base, 200 cfs, revised).--Oct. 12 (6 p.m.) 304 cfs (4.89 ft); Oct. 20 (5:30 p.m.) 1,280 cfs (6.46 ft); Apr. 18 (4:45 p.m.) 648 cfs (5.24 ft); May 24 (11:15 p.m.) 297 cfs (4.57 ft); Aug. 17 (3:30 p.m.) 264 cfs (4.87 ft); Sept. 5 (3:45 p.m.) 853 cfs (5.80 ft); Sept. 12 (9:30 p.m.) 373 cfs (5.06 ft).

* Discharge measurement made on this day.
Note.--No gage-height record Oct. 1-6; discharge estimated on basis of record for "near Montezuma."

## 3820. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 5,928 ft above mean sea level (levels from planetable bench mark).

Average discharge.--7 years, 14.4 cfs (10,430 acre-ft per year.).

Extremes.--Maximum discharge during year, 2,740 cfs Oct. 20 (gage height, 6.90 ft); minimum daily, 1.1 cfs Oct. 1, 3, 4.
1951-58: Maximum discharge, 4,180 cfs Aug. 16, 1957 (gage height, 7.80 ft); no flow June 17, July 2-10, 1957.
Major floods occurred in 1904 and on June 1, 1937.

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 8,500 acres above station.

Rating tables, water year 1957-58, except periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to Mar. 15 | | | | Mar. 16 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.3 | 0.8 | 3.0 | 147 | 1.5 | 3.5 | 3.0 | 115 |
| 1.4 | 2.0 | 3.5 | 255 | 1.7 | 8.5 | 3.5 | 215 |
| 1.5 | 3.7 | 4.0 | 405 | 1.9 | 16 | 4.0 | 360 |
| 1.7 | 9.2 | 4.5 | 615 | 2.2 | 31 | 4.5 | 555 |
| 1.9 | 18 | 5.0 | 920 | 2.6 | 64 | 5.0 | 820 |
| 2.2 | 38 | 6.0 | 1,740 | | | | |
| 2.6 | 81 | | | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.1 | 5.6 | b7 | b3.5 | b4 | 3.4 | 11 | 184 | 66 | 9.1 | 6.8 | 5.5 |
| 2 | 1.2 | 5.6 | b6 | b3.7 | 3.9 | 3.4 | 10 | 210 | 24 | 8.2 | 7.4 | 5.3 |
| 3 | 1.1 | 8.0 | b6 | b4.2 | 3.9 | 3.2 | 26 | 205 | 20 | 7.4 | 6.5 | 5.3 |
| 4 | 1.1 | 8.6 | b5.9 | b3.9 | 3.9 | 4.9 | 31 | 172 | 66 | 6.5 | 6.8 | 5.5 |
| 5 | 1.2 | 14 | b6.1 | b4.8 | 3.9 | 5.9 | 30 | 166 | 57 | 6.5 | 7.4 | 13 |
| 6 | 3.2 | 30 | b7.6 | b3.9 | 3.7 | 8.0 | 20 | 184 | 48 | 12 | 6.8 | 19 |
| 7 | 3.4 | 36 | b7.6 | 4.7 | 3.5 | b10 | 12 | 215 | 40 | 17 | 5.5 | 37 |
| 8 | 1.9 | 16 | b8.0 | 4.9 | 3.5 | b39 | 24 | 260 | 38 | 9.1 | 5.3 | 44 |
| 9 | 32 | 11 | b8.0 | 4.4 | 3.5 | b44 | 28 | 232 | 33 | 7.9 | 5.0 | 16 |
| 10 | 12 | 9.2 | b7.0 | 4.4 | 3.5 | b22 | 31 | 208 | 30 | 8.5 | 5.3 | 39 |
| 11 | 2.5 | 8.3 | b7.0 | 4.7 | 3.5 | b17 | 44 | 215 | 27 | 7.4 | 6.0 | 14 |
| 12 | 229 | 7.6 | b5.9 | 4.9 | 3.9 | b14 | 73 | 215 | 24 | 7.9 | 5.5 | 15 |
| 13 | 48 | 7.3 | b6.1 | 4.4 | 3.5 | b13 | 129 | 225 | 22 | 6.8 | 5.5 | 40 |
| 14 | 8.4 | 6.7 | 7.0 | 4.7 | 3.5 | 14 | 284 | 205 | 22 | 6.8 | 5.7 | 40 |
| 15 | 4.8 | 6.1 | 7.0 | 3.5 | 3.4 | 29 | 546 | 202 | 128 | 7.1 | 7.1 | 20 |
| 16 | 3.4 | 8.6 | 6.4 | 3.5 | 3.2 | 94 | 691 | 274 | 40 | 10 | 6.8 | 8.5 |
| 17 | 3.9 | 11 | 6.7 | 3.5 | 3.0 | 86 | 808 | 220 | 22 | 11 | 75 | 7.4 |
| 18 | 7.2 | b11 | b8.0 | b3 | 3.0 | 68 | 532 | 182 | 22 | 19 | 98 | 6.0 |
| 19 | 126 | b10 | b5.4 | b3 | 3.0 | 66 | 573 | 172 | 18 | 10 | 20 | 5.7 |
| 20 | 1,450 | b10 | b5.6 | b2.5 | 3.2 | 75 | 528 | 157 | 15 | 7.4 | 13 | 5.0 |
| 21 | 374 | 9.2 | b5.4 | b2.5 | 3.2 | 89 | 462 | 149 | 15 | 5.7 | 11 | 4.8 |
| 22 | 127 | b6 | 5.4 | b2.5 | 3.2 | 97 | 426 | 147 | 18 | 6.3 | 11 | 4.6 |
| 23 | 34 | b6 | 5.1 | b2.5 | 3.2 | 98 | 398 | 157 | 14 | 4.4 | 58 | 4.6 |
| 24 | 18 | b8 | 5.4 | b3 | 3.2 | 48 | 336 | 164 | 11 | 4.2 | 80 | 4.4 |
| 25 | 14 | b10 | b4.7 | b3.5 | 5.1 | 34 | 274 | 207 | 13 | 5.7 | 30 | 5.3 |
| 26 | 11 | b11 | b3.9 | 4.4 | 5.4 | 26 | 242 | 174 | 17 | 5.5 | 13 | 10 |
| 27 | 8.6 | b13 | b3.7 | 4.7 | 4.2 | 20 | 240 | 155 | 15 | 7.5 | 8.8 | 12 |
| 28 | 7.0 | b11 | b3.9 | b4 | 3.5 | 17 | 228 | 149 | 14 | 22 | 7.4 | 16 |
| 29 | 6.7 | b10 | b3.9 | 4.4 | - | 16 | 218 | 132 | 12 | 8.5 | 6.8 | 12 |
| 30 | 6.1 | b9 | b3.9 | 4.7 | ------- | 14 | 190 | 102 | 9.7 | 6.5 | 6.5 | 9.7 |
| 31 | 5.9 | ------- | b3.7 | 4.4 | ------- | 12 | ------- | 76 | ------- | 6.5 | 6.5 | ------- |
| Total | 2,553.7 | 323.8 | 183.3 | 120.6 | 101.5 | 1,090.8 | 7,445 | 5,715 | 900.7 | 268.4 | 544.4 | 408.6 |
| Mean | 82.4 | 10.8 | 5.91 | 3.89 | 3.62 | 35.2 | 248 | 184 | 30.0 | 8.66 | 17.6 | 13.6 |
| Ac-ft | 5,070 | 642 | 364 | 239 | 201 | 2,160 | 14,770 | 11,340 | 1,790 | 532 | 1,080 | 810 |

Calendar year 1957: Max 1,450 Min 0 Mean 18.0 Ac-ft 13,020
Water year 1957-58: Max 1,450 Min 1.1 Mean 53.9 Ac-ft 39,000

Peak discharge (base, 1,100 cfs, revised).--Oct. 12 (3 p.m.) 1,330 cfs (5.57 ft); Oct. 20 (10 a.m.) 2,740 cfs (6.90 ft); Apr. 16 (11 p.m.) 1,790 cfs (6.20 ft); June 15 (6:15 p.m.) 1,250 cfs (5.62 ft).

b Stage-discharge relation affected by ice.

## 3825. 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, and 6¼ miles northwest of Colonias.

Drainage area.--610 sq mi, approximately.

Records available.--January 1951 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 4,940 ft (from river-profile map).

Average discharge.--7 years, 20.5 cfs (14,840 acre-ft per year).

Extremes.--Maximum discharge during year, 4,170 cfs July 6 (gage height, 11.08 ft), from rating curve extended above 1,900 cfs by logarithmic plotting; no flow for many days.

1951-58: Maximum discharge, 7,480 cfs Aug. 6, 1957 (gage height, 14.44 ft), from rating curve extended above 1,900 cfs by logarithmic plotting; 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 prior to Jan. 1, good thereafter. Diversion for irrigation of about 9,600 acres above station.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | | | | 0 | 9 | 181 | 65 | *0 | 0 | 7 |
| 2 | 0 | 0 | (*) | | | 0 | 6 | 175 | 52 | 0 | 0 | 6 |
| 3 | 0 | 0 | | | (*) | 0 | 4 | 204 | *23 | 0 | 0 | 5 |
| 4 | 0 | *0 | | | | 0 | 3 | 187 | 10 | 0 | 0 | 3 |
| 5 | 0 | 0 | | | | 0 | 6 | *156 | 20 | 0 | 0 | 2 |
| 6 | 0 | 5 | | | | 0 | 14 | 154 | 38 | 277 | 0 | 70 |
| 7 | 0 | 10 | | | | 0 | *14 | 171 | 31 | 49 | 0 | 270 |
| 8 | 0 | 35 | | | | 0 | 10 | 204 | 22 | 18 | 0 | 138 |
| 9 | 0 | 18 | | | | 15 | 9 | 233 | 16 | 2 | 0 | 61 |
| 10 | 55 | 10 | | | | 42 | 15 | 198 | 12 | 0 | 0 | 22 |
| 11 | 28 | 6 | | | | 26 | 17 | 182 | 9 | 0 | *0 | *25 |
| 12 | 514 | 3 | | | | 18 | 43 | 192 | 7 | 0 | 0 | 32 |
| 13 | 481 | 2 | | (*) | | 11 | 96 | 194 | 4 | 0 | 0 | 26 |
| 14 | *62 | 0 | | | | 8 | 266 | 192 | 2 | 0 | 0 | 75 |
| 15 | 24 | 0 | | | | 7 | 785 | 190 | 137 | *0 | 0 | 58 |
| 16 | 144 | 0 | | | | 40 | *880 | 251 | 234 | 5 | 49 | 22 |
| 17 | 393 | 0 | (*) | | | 282 | 1,080 | 281 | 56 | 53 | 153 | 10 |
| 18 | 44 | 0 | | | | *120 | 578 | 212 | *34 | 12 | 75 | 7 |
| 19 | 20 | 1 | | | | 126 | 585 | 164 | 76 | 7 | 68 | 6 |
| 20 | 1,570 | 2 | | | | 99 | 564 | 147 | 15 | 7 | 276 | 4 |
| 21 | 1,190 | 1 | | | | 96 | 494 | 136 | 6 | 3 | 110 | 3 |
| 22 | 324 | 0 | | | | 133 | 443 | 131 | 4 | 1 | 28 | 1 |
| 23 | 134 | 0 | | | | 127 | 395 | 129 | 3 | 0 | 175 | 0 |
| 24 | 53 | 0 | | | | 105 | *357 | 188 | 2 | 0 | 253 | 0 |
| 25 | 34 | 2 | | | (*) | 70 | 294 | 178 | 1 | 171 | *213 | 0 |
| 26 | 22 | 1 | | | | 52 | 251 | 185 | 1 | 162 | 54 | 0 |
| 27 | 15 | 3 | | (*) | | 39 | 232 | 150 | 1 | 11 | 21 | 0 |
| 28 | *11 | 5 | | | | 28 | 221 | 132 | 0 | 1 | 12 | 0 |
| 29 | 8 | 3 | | | - | 22 | 209 | 125 | 0 | *0 | 10 | 0 |
| 30 | 5 | 1 | | | ------- | 17 | 203 | 110 | 0 | 3 | 26 | 3 |
| 31 | 3 | ------- | | | ------- | 12 | ------- | 87 | ------- | 0 | 11 | ------- |
| Total | 5,134 | 109 | 0 | 0 | 0 | 1,495 | 8,083 | 5,419 | 881 | 782 | 1,534 | 856 |
| Mean | 166 | 3.6 | 0 | 0 | 0 | 48.2 | 269 | 175 | 29.4 | 25.2 | 49.5 | 28.5 |
| Ac-ft | 10,180 | 216 | 0 | 0 | 0 | 2,970 | 16,030 | 10,750 | 1,750 | 1,550 | 3,040 | 1,700 |

Calendar year 1957: Max 1,570 Min 0 Mean 39.9 Ac-ft 28,850
Water year 1957-58: Max 1,570 Min 0 Mean 66.6 Ac-ft 48,190

Peak discharge (base, 1,700 cfs, revised).--Oct. 12 (8 p.m.) 2,960 cfs (9.53 ft); Oct. 20 (5:30 p.m.) 3,940 cfs (10.80 ft); Apr. 17 (7 a.m.) 1,780 cfs (7.70 ft); July 6 (1:30 a.m.) 4,170 cfs (11.08 ft); July 25 (10:30 p.m.) 1,730 cfs (7.62 ft); Aug. 20 (7 p.m.) 2,290 cfs (8.54 ft).

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

3830. Pecos River at Santa Rosa, N. Mex.

Location.--Lat 34°56'30", long 104°41'40", in SE¼SE¼ sec. 3, T. 8 N., R. 21 E., a quarter of a mile upstream from bridge on U. S. Highway 66 and 1¼ miles upstream from Rio Agua Negra Chiquita. Prior to July 1, 1958, at site a quarter of a mile downstream.

Drainage area.--2,650 sq mi, approximately (contributing area).

Records available.--May 1903 to December 1905 (gage heights only), January to December 1906, February 1910 to July 1911, September 1912 to December 1914, and October 1930 to September 1958 in reports of Geological Survey. February 1910 to July 1911 and September 1912 to December 1931 in reports of State engineer. Figures of daily discharge for Apr. 5-20, May 4-7, 11, Aug. 13, 16-18, 24, Sept. 7-9, 11, 13, 19, 21, 23, 25, 27, Oct. 1-31, Nov. 3, 4, 9, 11, 20, 22, 1910, and Feb. 1 to Mar. 31, June 1 to July 31, 1911, published in WSP 358 have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. May 5, 1903, to Dec. 31, 1906, staff gage at site about 1,000 ft downstream at different datum. Feb. 2, 1910, to May 4, 1922, chain gage about a quarter of a mile downstream at different datum. May 5, 1922, to June 1, 1937, at present site at different datums. June 2, 1937, to June 30, 1958, at site about a quarter of a mile downstream at different datum.

Average discharge.--39 years (1912-14, 1916-23, 1928-58), 159 cfs (115,100 acre-ft per year).

Extremes.--Maximum discharge during year, 10,100 cfs Oct. 20 (gage height, 9.81 ft); minimum daily, 10 cfs Oct. 1, 4.

1912-14, 1930-58: 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.

Flood of Sept. 30, 1904, reached a stage of 24.7 ft (site then in use, datum unknown), discharge, 45,500 cfs (not previously published), computed by Kutter's formula.

Remarks.--Records good prior to May 1, fair thereafter. Discharge measurements generally made two or more times a month. Diversions for irrigation of about 16,000 acres above station.

Revisions (water years).--WSP 1512: 1913-15. See also Records available.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 64 | 39 | 16 | 16 | 16 | 67 | 960 | 1,080 | 48 | 123 | 37 |
| 2 | 12 | 58 | 33 | 19 | 16 | 16 | 67 | 1,000 | 1,060 | 44 | 57 | 36 |
| 3 | 11 | 64 | 30 | 20 | 17 | 16 | 100 | 1,110 | 960 | 41 | 54 | 36 |
| 4 | 10 | 82 | 42 | 18 | 18 | 23 | 141 | a1,150 | 900 | 41 | 44 | 98 |
| 5 | 11 | 112 | 36 | 27 | 17 | 23 | 141 | 950 | 779 | 41 | 44 | 136 |
| 6 | 17 | 126 | 30 | 20 | 17 | 29 | 122 | 1,020 | 725 | 1,700 | 43 | 449 |
| 7 | 16 | 219 | 29 | 19 | 16 | 30 | 109 | 1,110 | 689 | 382 | 43 | 1,080 |
| 8 | 12 | 195 | 29 | 19 | 17 | 29 | 119 | 1,360 | 632 | 323 | 41 | 919 |
| 9 | 12 | 141 | 23 | 19 | 18 | 23 | 145 | a1,450 | 592 | 147 | 38 | 257 |
| 10 | 29 | a130 | 20 | 18 | 18 | 20 | 133 | a1,400 | 512 | 86 | 45 | 168 |
| 11 | 80 | a120 | 18 | 18 | 18 | 18 | 116 | 1,350 | 482 | 62 | 44 | 94 |
| 12 | 41 | a110 | 18 | 18 | 18 | 19 | 270 | 1,350 | 468 | 53 | 32 | 99 |
| 13 | 2,520 | 106 | 17 | 17 | 18 | 20 | 330 | 1,350 | 403 | 47 | 29 | 78 |
| 14 | 389 | 96 | 16 | 18 | 19 | 19 | 498 | a1,400 | 351 | 44 | 28 | 193 |
| 15 | 149 | 85 | 17 | 17 | 19 | 19 | 1,440 | a1,400 | 315 | 43 | 27 | 228 |
| 16 | 148 | 69 | 18 | 17 | 18 | 18 | 1,920 | a1,400 | 550 | 47 | 880 | 171 |
| 17 | 893 | 67 | 18 | 16 | 18 | 81 | 2,480 | 1,590 | 333 | 64 | 1,140 | 114 |
| 18 | 223 | 72 | 17 | 18 | 18 | 334 | 2,260 | 1,420 | 250 | 51 | 246 | 71 |
| 19 | 100 | 58 | 17 | 21 | 19 | 152 | 2,040 | a1,350 | 321 | 63 | 179 | 50 |
| 20 | 2,420 | 50 | 17 | 17 | 20 | 251 | 2,260 | a1,150 | 202 | 109 | 246 | 38 |
| 21 | 5,270 | 36 | 18 | 16 | 20 | 182 | 2,260 | a1,100 | 152 | 80 | 467 | 32 |
| 22 | 1,580 | a30 | 18 | 19 | 19 | 157 | 2,110 | a1,100 | 142 | 62 | 694 | 34 |
| 23 | 1,150 | a25 | 17 | 19 | 18 | 319 | 2,040 | 1,080 | 132 | 45 | 374 | 32 |
| 24 | 748 | a28 | 19 | 17 | 18 | 343 | 1,940 | a1,300 | 105 | 44 | 476 | 32 |
| 25 | 512 | 30 | 20 | 19 | 18 | 265 | 1,550 | 1,350 | 68 | 44 | 815 | 31 |
| 26 | 356 | 22 | 19 | 17 | 19 | 214 | 1,220 | 1,350 | 54 | 198 | 246 | 35 |
| 27 | 265 | 72 | 18 | 18 | 18 | 178 | a1,200 | 1,350 | 45 | 104 | 119 | 43 |
| 28 | 214 | 62 | 17 | 18 | 16 | 130 | a1,200 | a1,300 | 124 | 64 | 61 | 44 |
| 29 | 169 | 67 | 17 | 17 | - | 116 | 1,120 | a1,300 | 48 | 44 | 47 | 37 |
| 30 | 103 | 42 | 17 | 17 | ------- | 116 | 1,100 | a1,250 | 47 | 34 | 43 | 36 |
| 31 | 69 | ------- | 17 | 16 | ------- | 80 | ------- | a1,150 | ------- | 32 | 40 | ------- |
| Total | 17,539 | 2,438 | 681 | 565 | 501 | 3,256 | 30,498 | 38,900 | 12,521 | 4,187 | 6,765 | 4,708 |
| Mean | 566 | 81.3 | 22.0 | 18.2 | 17.9 | 105 | 1,017 | 1,255 | 417 | 135 | 218 | 157 |
| Ac-ft | 34,790 | 4,840 | 1,350 | 1,120 | 994 | 6,460 | 60,490 | 77,160 | 24,840 | 8,300 | 13,420 | 9,340 |

Calendar year 1957: Max 6,270 Min 4.1 Mean 219 Ac-ft 158,700
Water year 1957-58: Max 5,270 Min 10 Mean 336 Ac-ft 243,100

Peak discharge (base, 4,000 cfs).--Oct. 13 (3:30 a.m.) 7,290 cfs (7.96 ft); Oct. 20 (10:30 p.m.) 10,100 cfs (9.81 ft); July 6 (8 a.m.) 6,880 cfs (9.07 ft); Aug. 16 (10:45 p.m.) 7,120 cfs (9.29 ft).

a No gage-height record or unknown stage-discharge relation; discharge estimated on basis of adjoining good record, recorded range in stage, and records for nearby stations.

## 3835. Pecos River near Puerto de Luna, N. Mex.

Location.--Lat 34°44'00", long 104°31'30", in SE¼NW¼ sec. 20, T. 6 N., R. 23 E., on left bank 9 miles southeast of Puerto de Luna and 17½ miles upstream from Alamogordo Dam.

Drainage area.--3,970 sq mi, approximately (contributing area).

Records available.--April 1938 to September 1958.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,315 ft (from river-profile map). Prior to Apr. 15, 1954, at datum 1 ft higher.

Average discharge.--20 years, 244 cfs (176,600 acre-ft per year).

Extremes.--Maximum discharge during year, 9,380 cfs Oct. 21 (gage height, 6.94 ft); minimum daily, 76 cfs Oct. 4.
1938-58: 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. Discharge measurements generally made two or more times a month. Diversion for irrigation of about 17,500 acres above station. Discharge represents inflow to Alamogordo Reservoir (capacity, 122,100 acre-ft). Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1512: 1939.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 24 to June 8)

| Oct. 1 to June 24 | | | | June 25 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.2 | 61 | 3.0 | 1,180 | 1.2 | 67 | 3.0 | 1,180 |
| 1.5 | 134 | 4.0 | 2,760 | 1.5 | 134 | 4.0 | 2,760 |
| 1.9 | 280 | 6.0 | 6,940 | 1.9 | 280 | 6.0 | 6,940 |
| 2.4 | 585 | | | 2.4 | 585 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 83 | 191 | 137 | 100 | 90 | 93 | 181 | 1,160 | 1,180 | 101 | 285 | 108 |
| 2 | 81 | 174 | 129 | 95 | 93 | 95 | 171 | 1,120 | 1,120 | 97 | 150 | 104 |
| 3 | 79 | 171 | 120 | 95 | 93 | 93 | 164 | 1,240 | 1,020 | 93 | 223 | 99 |
| 4 | 76 | 161 | 115 | 105 | 95 | 107 | 202 | 1,270 | 930 | 90 | 116 | 104 |
| 5 | 79 | 191 | 120 | 107 | 100 | 118 | 221 | 1,170 | 890 | 90 | 93 | 1,030 |
| 6 | 102 | 191 | 118 | 112 | 97 | 140 | 206 | 1,160 | 822 | 1,970 | 86 | 430 |
| 7 | 93 | 249 | 107 | 105 | 95 | 146 | 198 | 1,280 | 774 | 488 | 93 | 1,250 |
| 8 | 88 | 336 | 107 | 102 | 95 | 146 | 206 | 1,540 | 755 | 433 | 101 | 1,470 |
| 9 | 85 | 295 | 110 | 97 | 97 | 126 | 221 | 1,640 | 719 | 258 | 93 | 427 |
| 10 | 85 | 267 | 95 | 95 | 97 | 112 | 232 | 1,580 | 657 | 143 | 88 | 415 |
| 11 | 126 | 228 | 95 | 90 | 97 | 107 | 228 | 1,480 | 562 | 108 | 97 | 209 |
| 12 | 158 | 198 | 102 | 90 | 100 | 112 | 300 | 1,500 | 490 | 99 | 95 | 455 |
| 13 | 2,300 | 184 | 97 | 90 | 97 | 115 | 409 | 1,520 | 439 | 101 | 86 | 202 |
| 14 | 668 | 158 | 97 | 88 | 97 | 115 | 409 | 1,660 | 385 | 99 | 82 | 190 |
| 15 | 310 | 152 | 97 | 90 | 97 | 112 | 1,120 | 1,540 | 382 | 108 | 80 | 285 |
| 16 | 209 | 152 | 97 | 88 | 95 | 110 | 1,590 | 1,540 | 594 | 121 | 82 | 320 |
| 17 | 892 | 143 | 97 | 90 | 90 | 107 | 2,030 | 1,800 | 489 | 106 | 1,700 | 225 |
| 18 | 463 | 143 | 95 | 93 | 95 | 315 | 2,310 | 1,640 | 320 | 121 | 381 | 167 |
| 19 | 221 | 137 | 93 | 102 | 93 | 276 | 1,690 | 1,560 | 310 | 104 | 252 | 134 |
| 20 | 577 | 131 | 93 | 100 | 93 | 288 | 1,940 | 1,390 | 300 | 124 | 213 | 124 |
| 21 | 6,610 | 123 | 93 | 100 | 95 | 254 | 2,020 | 1,270 | 232 | 137 | 514 | 108 |
| 22 | 1,980 | 120 | 100 | 97 | 95 | 249 | 1,960 | 1,220 | 206 | 121 | 1,300 | 108 |
| 23 | 1,180 | 107 | 100 | 97 | 95 | 346 | 1,960 | 1,190 | 188 | 101 | 632 | 111 |
| 24 | 840 | 102 | 100 | 95 | 95 | 397 | 1,960 | 1,420 | 184 | 93 | 617 | 111 |
| 25 | 617 | 110 | 102 | 93 | 95 | 363 | 1,700 | 1,350 | 158 | 95 | 945 | 106 |
| 26 | 490 | 107 | 97 | 95 | 97 | 315 | 1,480 | 1,420 | 134 | 165 | 415 | 116 |
| 27 | 397 | 134 | 97 | 97 | 93 | 258 | 1,420 | 1,420 | 138 | 198 | 240 | 146 |
| 28 | 341 | 158 | 95 | 97 | 95 | 236 | 1,450 | 1,380 | 474 | 241 | 161 | 143 |
| 29 | 300 | 191 | 97 | 100 | - | 225 | 1,450 | 1,390 | 143 | 126 | 131 | 134 |
| 30 | 258 | 171 | 100 | 97 | ------- | 232 | 1,310 | 1,340 | 108 | 106 | 116 | 126 |
| 31 | 206 | ------- | 100 | 93 | ------- | 217 | ------- | 1,270 | ------- | 899 | 111 | ------- |
| Total | 19,994 | 5,195 | 3,202 | 2,995 | 2,666 | 5,925 | 30,738 | 43,460 | 15,103 | 7,136 | 9,578 | 8,957 |
| Mean | 645 | 173 | 103 | 96.6 | 95.2 | 191 | 1,025 | 1,402 | 503 | 230 | 309 | 299 |
| Ac-ft | 39,660 | 10,300 | 6,350 | 5,940 | 5,290 | 11,750 | 60,970 | 86,200 | 29,960 | 14,150 | 19,000 | 17,770 |

Calendar year 1957: Max 8,790 Min 47 Mean 301 Ac-ft 217,600
Water year 1957-58: Max 6,610 Min 76 Mean 425 Ac-ft 307,300

Peak discharge (base, 5,500 cfs, revised).--Oct. 13 (8:30 a.m.) 6,210 cfs (5.69 ft); Oct. 21 (4 a.m.) 9,380 cfs (6.94 ft); July 31 (7 p.m.) 5,620 cfs (5.38 ft).

## 3845. 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 1958 in reports of Geological Survey. October 1912 to December 1931 in reports of State engineer. Prior to October 1944, published as "near Guadalupe."

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); 21 years (1937-58), 228 cfs (165,100 acre-ft per year).

Extremes.--Maximum daily discharge during year, 2,400 cfs Sept. 9 (gage height, 3.63 ft); minimum daily, 1.3 cfs Mar. 10.
1930-58: 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. Discharge measurements generally made two or more times a month. Diversion for irrigation of about 17,500 acres above station. Flow regulated by Alamogordo Reservoir (see p. 433). Records of chemical analyses for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1512: 1932.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.1 | 0.2 | 0.8 | 30 | 2.6 | 415 |
| .2 | 2.5 | 1.4 | 76 | 2.9 | 730 |
| .3 | 5.6 | 2.0 | 144 | 3.4 | 1,550 |
| .5 | 14 | 2.2 | 210 | 3.7 | 2,160 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 47 | 16 | 4.4 | 3.4 | 1.9 | 2.5 | 60 | 1,450 | 338 | 65 | 2,020 | 210 |
| 2 | 57 | 14 | 3.7 | 3.4 | 2.5 | 2.5 | 72 | 1,430 | 115 | 84 | 841 | 202 |
| 3 | 65 | 14 | 3.7 | 3.4 | 2.8 | 2.5 | 74 | 1,430 | 737 | 106 | 105 | 193 |
| 4 | 58 | 9.1 | 4.4 | 3.4 | 2.2 | 2.8 | 78 | 1,430 | 1,060 | 105 | 106 | 129 |
| 5 | 72 | 7.8 | 4.4 | 3.1 | 1.9 | 3.1 | 76 | 1,430 | 960 | 105 | 106 | 110 |
| 6 | 63 | 5.0 | 3.4 | 3.4 | 1.6 | 3.4 | 86 | 538 | 880 | 319 | 107 | 539 |
| 7 | 23 | 4.6 | 2.5 | 4.1 | 1.8 | 2.6 | 96 | 103 | 880 | 1,100 | 106 | 1,100 |
| 8 | 2.2 | 5.0 | 2.5 | 4.6 | 1.6 | 1.9 | 81 | 563 | 680 | 1,100 | 106 | 2,050 |
| 9 | 1.9 | 5.3 | 3.4 | 4.6 | 1.9 | 1.9 | 71 | 1,310 | 554 | 415 | 105 | 2,400 |
| 10 | 1.6 | 5.6 | 3.1 | 4.6 | 1.9 | 1.3 | 70 | 791 | 554 | 79 | 105 | 860 |
| 11 | 1.9 | 5.6 | 2.5 | 4.4 | 1.9 | 1.6 | 69 | 1,550 | 554 | 79 | 105 | 98 |
| 12 | 1.9 | 5.6 | 2.8 | 2.5 | 1.9 | 291 | 58 | 1,550 | 565 | 90 | 105 | 100 |
| 13 | 1.9 | 5.3 | 3.4 | 2.2 | 1.6 | 1,040 | 28 | 1,550 | 554 | 118 | 95 | 98 |
| 14 | 26 | 5.3 | 4.1 | 2.2 | 1.6 | 1,190 | 14 | 1,580 | 543 | 116 | 90 | 87 |
| 15 | 86 | 5.0 | 4.1 | 2.8 | 1.9 | 926 | 14 | 1,550 | 543 | 118 | 95 | 104 |
| 16 | 86 | 4.6 | 3.4 | 3.4 | 1.9 | 14 | 13 | 1,550 | 543 | 116 | 93 | 494 |
| 17 | 86 | 4.4 | 2.8 | 3.7 | 1.6 | 697 | 12 | 1,020 | 543 | 117 | 91 | 445 |
| 18 | 60 | 4.4 | 2.5 | 4.4 | 2.5 | 1,230 | 12 | 1,610 | 543 | 116 | 261 | 102 |
| 19 | 21 | 3.7 | 2.2 | 3.1 | 3.1 | 1,210 | 29 | 1,610 | 543 | 116 | 330 | 104 |
| 20 | 3.1 | 3.4 | 2.5 | 2.8 | 3.1 | 1,230 | 74 | 1,610 | 543 | 116 | 318 | 95 |
| 21 | 5.6 | 3.7 | 3.4 | 3.4 | 3.1 | 1,230 | 1,030 | 1,610 | 543 | 117 | 342 | 94 |
| 22 | 9.5 | 4.1 | 4.4 | 3.4 | 3.4 | 1,120 | 1,340 | 1,580 | 543 | 104 | 1,530 | 93 |
| 23 | 11 | 5.3 | 4.1 | 2.8 | 4.4 | 13 | 1,090 | 1,580 | 244 | 103 | 2,110 | 93 |
| 24 | 14 | 5.6 | 4.1 | 2.2 | 4.4 | 11 | 1,850 | 1,580 | 100 | 105 | 822 | 93 |
| 25 | 12 | 6.0 | 4.4 | 1.6 | 3.7 | 11 | 2,160 | 1,550 | 107 | 103 | 91 | 92 |
| 26 | 13 | 5.6 | 5.0 | 1.6 | 2.5 | 12 | 2,140 | 1,550 | 107 | 102 | 166 | 91 |
| 27 | 13 | 4.6 | 5.0 | 1.9 | 1.9 | 11 | 2,110 | 1,140 | 106 | 101 | 216 | 92 |
| 28 | 25 | 4.6 | 4.4 | 1.9 | 2.5 | 10 | 1,770 | 944 | 96 | 100 | 216 | 89 |
| 29 | 27 | 3.4 | 2.5 | 2.2 | - | 9.9 | 593 | 944 | 96 | 100 | 213 | 90 |
| 30 | 18 | 3.4 | 2.8 | 1.9 | ------- | 42 | 974 | 928 | 87 | 106 | 213 | 87 |
| 31 | 18 | ------- | 3.1 | 1.9 | ------- | 28 | ------- | 928 | ------- | 300 | 210 | ------- |
| Total | 930.6 | 180.0 | 109.0 | 94.3 | 66.9 | 10,352.0 | 16,144 | 39,989 | 14,261 | 5,921 | 11,419 | 10,434 |
| Mean | 30.0 | 6.00 | 3.52 | 3.04 | 2.39 | 334 | 538 | 1,290 | 475 | 191 | 368 | 348 |
| Ac-ft | 1,850 | 357 | 216 | 187 | 133 | 20,530 | 32,020 | 79,320 | 28,290 | 11,740 | 22,650 | 20,700 |

Calendar year 1957: Max 1,380 Min 0 Mean 154 Ac-ft 111,200
Water year 1957-58: Max 2,400 Min 1.3 Mean 301 Ac-ft 218,000

3850. Fort Sumner main canal near Fort Sumner, N. Mex.

Location.--Lat 34°30', long 104°16', in S½ sec. 12, T. 3 N., R. 25 E., on right bank 160 ft downstream from bridge, 1¼ miles downstream from diversion dam on Pecos River, and 2 miles northwest of Fort Sumner.

Records available.--July 1939 to December 1940 (published as "Fort Sumner Irrigation District canal at Fort Sumner"), April 1954 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 4,033 ft (from Bureau of Reclamation profile map of canal).

Extremes.--Maximum daily discharge during year, 107 cfs June 28; no flow many days. 1939-40, 1954-58: Maximum daily discharge, 125 cfs Aug. 10, 1956; no flow many days.

Remarks.--Records good. Discharge measurements generally made two or more times a month during periods of flow. Canal diverts water from Pecos River for irrigation of Fort Sumner Irrigation District.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 84 | 0 | 27.5 | 1,690 |
| November | 0 | 0 | 0 | 0 |
| December | 0 | 0 | 0 | 0 |
| Calendar year 1957 | 104 | 0 | 43.1 | 31,190 |
| January | 0 | 0 | 0 | 0 |
| February | 0 | 0 | 0 | 0 |
| March | 49 | 0 | 9.0 | 551 |
| April | 106 | 13 | 68.0 | 4,040 |
| May | 101 | 5 | 88.3 | 5,430 |
| June | 107 | 88 | 97.8 | 5,820 |
| July | 106 | 42 | 91.6 | 5,640 |
| August | 100 | 0 | 63.6 | 3,910 |
| September | 105 | 0 | 60.7 | 3,610 |
| Water year 1957-58 | 107 | 0 | 42.4 | 30,690 |

## 3860. 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 1958 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.--21 years (1937-58), 225 cfs (162,900 acre-ft per year).

Extremes.--Maximum discharge during year, 5,400 cfs Aug. 3 (gage height, 6.90 ft); no flow July 26-31.
1937-58: Maximum discharge, 45,000 cfs Sept. 23, 1941 (gage height, 13.71 ft); from rating curve extended above 26,000 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), on basis of slope-area measurement of peak flow.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Discharge measurements made two or more times a month. Flow regulated by Alamogordo Reservoir (see p. 433). Diversions for irrigation of about 23,000 acres above station. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second) (Shifting-control method used Oct. 1-22, Mar. 19-29, June 5 to July 9, Aug. 22-24, Sept. 28-30)

| Oct. 23 to Apr. 21 | | | | Apr. 22 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.7 | 1 | 3.5 | 72 | 2.5 | 0 | 3.5 | 50 |
| 2.9 | 3 | 3.7 | 136 | 2.7 | 1 | 3.7 | 95 |
| 3.0 | 6 | 3.9 | 250 | 2.9 | 4 | 4.0 | 225 |
| 3.1 | 10 | 4.2 | 530 | 3.0 | 6 | 4.4 | 510 |
| 3.2 | 18 | 4.5 | 890 | 3.2 | 14 | 5.0 | 1,260 |
| 3.3 | 31 | 5.0 | 1,650 | 3.3 | 23 | 6.0 | 3,220 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 36 | 17 | 5 | 3 | 3 | 1 | 30 | 324 | 720 | 126 | 810 | 98 |
| 2 | 33 | 17 | 5 | 3 | 3 | 1 | 25 | 1,170 | a650 | 52 | 1,040 | 77 |
| 3 | 22 | 17 | 5 | 3 | 2 | 1 | 21 | 1,230 | a325 | 42 | 2,500 | 74 |
| 4 | 18 | 18 | 6 | 8 | 3 | 2 | 20 | 1,240 | a150 | 77 | 560 | 58 |
| 5 | 17 | 20 | 6 | 22 | 2 | 2 | 13 | 1,280 | 418 | 20 | 215 | 44 |
| 6 | 32 | 22 | 6 | 24 | 2 | 11 | 12 | 1,280 | 756 | 7 | 98 | 63 |
| 7 | 68 | 20 | 5 | 22 | 2 | 24 | 14 | 1,100 | 687 | 467 | 47 | 231 |
| 8 | 60 | 18 | 5 | 21 | 3 | 86 | 13 | 225 | a600 | 433 | 44 | 1,250 |
| 9 | 52 | 16 | 5 | 21 | 2 | 63 | 14 | 273 | a580 | 853 | 41 | 1,610 |
| 10 | 46 | 15 | 5 | 15 | 2 | 42 | 17 | 695 | 380 | 905 | 35 | 2,380 |
| 11 | 35 | 14 | 5 | 15 | 2 | 30 | 20 | 610 | 372 | 279 | 31 | 2,530 |
| 12 | 49 | 14 | 5 | 14 | 3 | 27 | 38 | 892 | 402 | 112 | 18 | 665 |
| 13 | 104 | 10 | 4 | 14 | 4 | 28 | 72 | 1,320 | 450 | 52 | a12 | 502 |
| 14 | 73 | 9 | 5 | 12 | 5 | 96 | 72 | 1,310 | 484 | 50 | a6 | 792 |
| 15 | 48 | 8 | 5 | 12 | 4 | 825 | 58 | 1,320 | 502 | 42 | a3 | 337 |
| 16 | 27 | 7 | 5 | 11 | 3 | 1,040 | 72 | 1,370 | 520 | 60 | a2 | 180 |
| 17 | 175 | 8 | 5 | 11 | 3 | 596 | 67 | 1,400 | 621 | 22 | a1 | 130 |
| 18 | 53 | 10 | 6 | 11 | 3 | 224 | 49 | 984 | 450 | 175 | a1 | 353 |
| 19 | 33 | 9 | 4 | 14 | 3 | 768 | 38 | 1,230 | 484 | 72 | 389 | 484 |
| 20 | 52 | 8 | 4 | 14 | 2 | 1,090 | 28 | 1,200 | 434 | 25 | 410 | 190 |
| 21 | 70 | 8 | 3 | 14 | 3 | 1,090 | 20 | 1,230 | 550 | 10 | 298 | 123 |
| 22 | 97 | 6 | 3 | 15 | 4 | 1,120 | 13 | 1,280 | 337 | 6 | 2,510 | 102 |
| 23 | 51 | 7 | 3 | 14 | 6 | 1,100 | a300 | 1,420 | 425 | 4 | 2,060 | 79 |
| 24 | 40 | 7 | 3 | 12 | 5 | 618 | a1,000 | 1,280 | 330 | 3 | 2,160 | 67 |
| 25 | 35 | 7 | 3 | 10 | 5 | 290 | 1,120 | 1,260 | 344 | 2 | 1,470 | 69 |
| 26 | 25 | 7 | 3 | 8 | 3 | 129 | 2,220 | 1,260 | 112 | 0 | 358 | 134 |
| 27 | 20 | 9 | 3 | 6 | 2 | 89 | 2,160 | 1,240 | 38 | 0 | 200 | 2,250 |
| 28 | 18 | 8 | 3 | 6 | 1 | 65 | 2,200 | 1,180 | 23 | 0 | 162 | 1,400 |
| 29 | 17 | 7 | 3 | 4 | - | 51 | 1,920 | 828 | 19 | 0 | 166 | 425 |
| 30 | 17 | 5 | 3 | 4 | ------- | 42 | 1,070 | 918 | 281 | 0 | 166 | 267 |
| 31 | 17 | ------- | 3 | 2 | ------- | 36 | ------- | 768 | ------- | 0 | 130 | ------- |
| Total | 1,440 | 348 | 134 | 365 | 85 | 9,587 | 12,716 | 33,117 | 12,444 | 3,896 | 15,943 | 16,964 |
| Mean | 46.5 | 11.6 | 4.3 | 11.8 | 3.0 | 309 | 424 | 1,068 | 415 | 126 | 514 | 565 |
| Ac-ft | 2,860 | 690 | 266 | 724 | 169 | 19,020 | 25,220 | 65,690 | 24,680 | 7,730 | 31,620 | 33,650 |

Calendar year 1957: Max 1,550 Min 0 Mean 112 Ac-ft 81,420
Water year 1957-58: Max 2,530 Min 0 Mean 293 Ac-ft 212,300

Peak discharge (base, 2,500 cfs, revised).--Aug. 3 (10 a.m.) 5,400 cfs, (6.90 ft); Aug. 22 (1 p.m.) 4,340 cfs (6.61 ft); Sept. 11 (6:30 a.m.) 3,990 cfs (6.32 ft); Sept. 27 (11:30 a.m.) 4,260 cfs 6.35 ft).

a No gage-height record; discharge estimated on basis of hydrographic comparison with adjacent records.

## 3870. Rio Ruidoso at Hollywood, N. Mex.

Location.--Lat 33°19', long 105°37', in NE¼ sec. 30, T. 11 S., R. 14 E., on right end of a road bridge, 0.9 mile east of Hollywood, 2 miles downstream from Carrizo Creek, and 2½ miles east of Ruidoso.

Drainage area.--120 sq mi, approximately.

Records available.--March 1953 to September 1958.

Gage.--Water-stage recorder. Concrete control prior to July 5, 1958. Datum of gage is 6,365.72 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 10.5 cfs (7,600 acre-ft per year).

Extremes.--Maximum discharge during year, 478 cfs, July 5 (gage height, 4.45 ft), from rating curve extended above 160 cfs on basis of slope-area measurement of 1,070 cfs; minimum daily, 1.5 cfs Sept. 4.
1953-58: Maximum discharge, 1,070 cfs July 26, 1957 (gage height, 7.80 ft), from rating curve extended above 130 cfs on basis of slope-area measurement of peak flow; minimum daily, 0.5 cfs June 20, 1954.

Remarks.--Records good prior to May 1, fair thereafter. Discharge measurements generally made twice a month. Diversions above station for irrigation of about 75 acres below.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.0 | 18 | b8.9 | b4.9 | 5.2 | b17 | 52 | 90 | 30 | 5.3 | 2.8 | 1.8 |
| 2 | 3.7 | 20 | 12 | b6.9 | b5.2 | b16 | 61 | 87 | 27 | 5.3 | 6.1 | 2.1 |
| 3 | 3.2 | 21 | b11 | 8.5 | 5.2 | 16 | 57 | 87 | 25 | 5.6 | 9.6 | 1.6 |
| 4 | 3.0 | 20 | 9.8 | 8.9 | 5.9 | 15 | 56 | 79 | 24 | 5.0 | 11 | 1.5 |
| 5 | 3.4 | 18 | 12 | 8.5 | 8.5 | 13 | 51 | 76 | 23 | 16 | 7.2 | 2.7 |
| 6 | 8.9 | 18 | 12 | 7.7 | 6.9 | 13 | 49 | 76 | 21 | 24 | 4.8 | 3.3 |
| 7 | 6.6 | 17 | 11 | 6.9 | 6.2 | 13 | 50 | 79 | 20 | 13 | 4.6 | 3.0 |
| 8 | 6.5 | 17 | 10 | 6.9 | 6.6 | 12 | 66 | 76 | 18 | 5.9 | 4.4 | 12 |
| 9 | 7.4 | 16 | 9.8 | 8.1 | 6.6 | 13 | 61 | 76 | 15 | 4.6 | 4.0 | 7.1 |
| 10 | 8.1 | 15 | 9.8 | 6.9 | 6.6 | 13 | 52 | 76 | 12 | 4.9 | 3.6 | 4.2 |
| 11 | 6.9 | 14 | 8.9 | 7.7 | 7.3 | 12 | 50 | 75 | 10 | 4.6 | 3.7 | 2.8 |
| 12 | 9.7 | 13 | 8.9 | 7.7 | b7.3 | 12 | 51 | 69 | 9.6 | 4.3 | 3.3 | 4.7 |
| 13 | 11 | 13 | 9.8 | 6.2 | 7.3 | 12 | 52 | 68 | 9.0 | 3.6 | 3.0 | 30 |
| 14 | 8.9 | 12 | 10 | 7.7 | 7.7 | 12 | 49 | 67 | 9.9 | 3.3 | 2.4 | 30 |
| 15 | 8.9 | 12 | 10 | b6.2 | 7.7 | 12 | 50 | 65 | 9.6 | 3.2 | 2.1 | 20 |
| 16 | 9.4 | 13 | 10 | 7.7 | 7.7 | 15 | 63 | 63 | 10 | 7.5 | 2.1 | 14 |
| 17 | 11 | 13 | 11 | 7.3 | 7.7 | 30 | 87 | 63 | 15 | 3.8 | 3.1 | 11 |
| 18 | 12 | 12 | 10 | 6.9 | 8.1 | 32 | 114 | 62 | 16 | 3.7 | 3.3 | 8.5 |
| 19 | 16 | 12 | 9.8 | 6.6 | 8.9 | 31 | 156 | 60 | 10 | 3.0 | 3.4 | 9.2 |
| 20 | 20 | 12 | 9.4 | b6.2 | 11 | 30 | 170 | 57 | 9.6 | 2.7 | 4.6 | 7.4 |
| 21 | 26 | 11 | 9.8 | b5.5 | 12 | 32 | 170 | 56 | 10 | 2.4 | 11 | 7.2 |
| 22 | 32 | 7.7 | 9.8 | b7.7 | 14 | 52 | 160 | 51 | 9.0 | 2.4 | 8.4 | 6.7 |
| 23 | 34 | b6.2 | 9.4 | b7.3 | 14 | 63 | 165 | 52 | 7.6 | 2.4 | 5.6 | 6.7 |
| 24 | 31 | 10 | 9.4 | b6.6 | 14 | 60 | 154 | 52 | 7.6 | 2.6 | 4.8 | 5.5 |
| 25 | 29 | 10 | 8.5 | 6.2 | 15 | 56 | 134 | 50 | 6.9 | 2.4 | 10 | 5.1 |
| 26 | 26 | 11 | 8.5 | 5.9 | b18 | 53 | 123 | 49 | 6.6 | 2.6 | 5.6 | 14 |
| 27 | 24 | 12 | 8.9 | 5.5 | 17 | 52 | 116 | 48 | 8.1 | 2.4 | 2.7 | 23 |
| 28 | 21 | 13 | 8.1 | 5.2 | b16 | 54 | 101 | 47 | 5.9 | 2.4 | 2.0 | 116 |
| 29 | 18 | b11 | 8.1 | 5.2 | - | 51 | 93 | 43 | 5.4 | 2.6 | 1.9 | 139 |
| 30 | 18 | b6.2 | 8.1 | 5.2 | ------- | 49 | 93 | 36 | 5.1 | 2.7 | 1.8 | 80 |
| 31 | 17 | ------- | b5.5 | 5.2 | ------- | 50 | ------- | 33 | ------- | 2.4 | 1.8 | ------- |
| Total | 444.6 | 404.1 | 298.2 | 209.9 | 263.6 | 911 | 2,706 | 1,968 | 395.9 | 156.6 | 144.7 | 580.1 |
| Mean | 14.3 | 13.5 | 9.62 | 6.77 | 9.41 | 29.4 | 90.2 | 63.5 | 13.2 | 5.05 | 4.67 | 19.3 |
| Ac-ft | 882 | 802 | 591 | 416 | 523 | 1,810 | 5,370 | 3,900 | 785 | 311 | 287 | 1,150 |

Calendar year 1957: Max 80 Min 1.0 Mean 10.3 Ac-ft 7,440
Water year 1957-58: Max 170 Min 1.5 Mean 23.2 Ac-ft 16,830

Peak discharge (base, 100 cfs).--Apr. 20 (1:30 a.m.) 183 cfs (3.05 ft); July 5 (9 p.m.) 478 cfs (4.45 ft); Sept. 27 (12 p.m.) 265 cfs (2.25 ft).

b Stage-discharge relation affected by ice.
Note.--Discharge computed from twice-daily temporary staff-gage readings May 5-22.

## 3901. Rio Hondo at Picacho, N. Mex.

Location.--Lat 33°21'25", long 105°09'25", W½W½ sec. 15, T. 11 S., R. 18 E., on right bank by road bridge just off of U. S. Highway 70, 870 ft upstream from mouth of Casey Canyon, 1.3 miles northwest of Picacho, and 35 miles west of Roswell.

Drainage area.--715 sq mi.

Records available.--December 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 4,945.04 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 3,510 cfs May 14 (gage height, 13.30 ft), from rating curve extended above 300 cfs on basis of slope-area measurement at gage height 13.22 ft; minimum daily, 1.0 cfs June 13.

1956-58: Maximum discharge, that of May 14, 1958; minimum daily, 1.0 cfs Aug. 5, 1957, June 13, 1958.

A stage of 18.1 ft, present datum (discharge, about 6,600 cfs), was recorded on a Weather Bureau wire-weight gage at 4 p.m. Oct. 6, 1954. A stage of at least 30 ft occurred in September 1941.

Remarks.--Records good except those for Oct. 12-20 and Aug. 18 to Sept. 30, which are fair. Diversions for irrigation above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-10, Aug. 22 to Sept. 13)

| | | | |
|---|---|---|---|
| 4.9 | 0 | 5.8 | 37 |
| 5.0 | 1.3 | 6.1 | 72 |
| 5.1 | 2.7 | 6.5 | 140 |
| 5.2 | 4.8 | 7.0 | 260 |
| 5.4 | 11 | 8.0 | 615 |
| 5.6 | 21 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 29 | 23 | 17 | 16 | 14 | 97 | 168 | 20 | 8.3 | 22 | 29 |
| 2 | 12 | 29 | 24 | 16 | 16 | 14 | 97 | *168 | 15 | 9.8 | 8.0 | 137 |
| 3 | 11 | 29 | 24 | 13 | 16 | 15 | 106 | 160 | 10 | 7.6 | 10 | 20 |
| 4 | 9.8 | 31 | 24 | 15 | 16 | 17 | *102 | 132 | 8.3 | 6.2 | 15 | 19 |
| 5 | 11 | 30 | 24 | 15 | 14 | 18 | 100 | 118 | 6.2 | 7.0 | 11 | 18 |
| 6 | 16 | *28 | 25 | 16 | 13 | 21 | 89 | 116 | 5.6 | 12 | 10 | 18 |
| 7 | 17 | 27 | 25 | 16 | 13 | 23 | 76 | 120 | 5.6 | 39 | 6.2 | 45 |
| 8 | *11 | 27 | 22 | 16 | 14 | 24 | 76 | 122 | 6.2 | 15 | 5.4 | 67 |
| 9 | 13 | 27 | 23 | 16 | 17 | 26 | 79 | 128 | 4.0 | *7.6 | 7.3 | *20 |
| 10 | 177 | 27 | 22 | 18 | 17 | 26 | 89 | 120 | *3.8 | 7.6 | 7.3 | 19 |
| 11 | 11 | 27 | 25 | 18 | 17 | 25 | 83 | 106 | 4.2 | 7.6 | *5.9 | 31 |
| 12 | 15 | 24 | 26 | 18 | 17 | 27 | 85 | 102 | 3.1 | 6.8 | 7.3 | 107 |
| 13 | 45 | 24 | 24 | 18 | 15 | 28 | 92 | 102 | 1.0 | 8.0 | 5.9 | 236 |
| 14 | 12 | 24 | 24 | 18 | 15 | 27 | 89 | 440 | 1.7 | 7.3 | 5.6 | 54 |
| 15 | 11 | 22 | 22 | 18 | 14 | 27 | *82 | 162 | 7.2 | 4.0 | 4.2 | 35 |
| 16 | 11 | 21 | 22 | *19 | 13 | 28 | 83 | 146 | 3.1 | 14 | 3.8 | 32 |
| 17 | 12 | 23 | 23 | 19 | 12 | 32 | 126 | 152 | 3.5 | 22 | 5.1 | 32 |
| 18 | 14 | 23 | 23 | 19 | 9.8 | 48 | 180 | 150 | 2.1 | 17 | 28 | 32 |
| 19 | 18 | 22 | *22 | 19 | 10 | *51 | 233 | 134 | 1.7 | 17 | 9.4 | 32 |
| 20 | 24 | 22 | 22 | 18 | *11 | 47 | 293 | *107 | 2.3 | 12 | 34 | 32 |
| 21 | *33 | *23 | 22 | 18 | 11 | 46 | 314 | 96 | 9.9 | 4.4 | 27 | 32 |
| 22 | 39 | 24 | 22 | 19 | 13 | 55 | *299 | 78 | 12 | 3.3 | 96 | 32 |
| 23 | 40 | 22 | 22 | 19 | 13 | 94 | 311 | 67 | 5.1 | *4.2 | 25 | 32 |
| 24 | 40 | 22 | 20 | 19 | 13 | 104 | 305 | 78 | 5.1 | 3.3 | 39 | *30 |
| 25 | 40 | 22 | 19 | 19 | 13 | *122 | 269 | 67 | *6.5 | 2.7 | *41 | 27 |
| 26 | 40 | 22 | 18 | 18 | 13 | 118 | 236 | 67 | 7.0 | 4.4 | 107 | 32 |
| 27 | 37 | 22 | 17 | 18 | 14 | 113 | 225 | 54 | 7.0 | 4.6 | 31 | 49 |
| 28 | 37 | 22 | 16 | 17 | 17 | 111 | 195 | 50 | 7.0 | 6.2 | 23 | 130 |
| 29 | 32 | 24 | 16 | 17 | - | 113 | 178 | 42 | 7.3 | 6.2 | 21 | 251 |
| 30 | 31 | 23 | 16 | 17 | ------- | 102 | 176 | 34 | 7.3 | 8.1 | 19 | 178 |
| 31 | 29 | ------- | 16 | 16 | ------- | 99 | ------- | 24 | ------- | 53 | 19 | ------- |
| Total | 860.8 | 742 | 673 | 539 | 392.8 | 1,615 | 4,765 | 3,610 | 188.8 | 336.2 | 659.4 | 1,808 |
| Mean | 27.8 | 24.7 | 21.7 | 17.4 | 14.0 | 52.1 | 159 | 116 | 6.29 | 10.8 | 21.3 | 60.3 |
| Ac-ft | 1,710 | 1,470 | 1,330 | 1,070 | 779 | 3,200 | 9,450 | 7,160 | 374 | 667 | 1,310 | 3,590 |

Calendar year 1957: Max 565 Min 1.0 Mean 23.5 Ac-ft 16,980
Water year 1957-58: Max 440 Min 1.0 Mean 44.4 Ac-ft 32,110

Peak discharge (base, 1,000 cfs).--May 14 (3:45 p.m.) 3,510 cfs (13.30 ft); Aug. 22 (4:45 p.m.) 1,190 cfs (9.16 ft); Sept. 13 (3 p.m.) 1,570 cfs (9.85 ft).

* Discharge measurement made on this day.

Note.--Fragmentary or faulty gage-height record Oct. 12-20, Aug. 18 to Sept. 30; discharge computed on basis of adjoining good record, engineers' notes and records for Diamond A Ranch station.

## 3905. Rio Hondo at Diamond A Ranch, near Roswell, N. Mex.

Location.--Lat 33°20'55", long 104°51'05", in NE¼NE¼ 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.--947 sq mi (contributing area).

Records available.--May 1939 to September 1958 in reports of Geological Survey. May 1908 to August 1909 in reports of State engineer.

Gage.--Water-stage recorder. Altitude of gage is 4,185 ft (from topographic map).

Average discharge.--19 years, 31.3 cfs (22,660 acre-ft per year).

Extremes.--Maximum discharge during year, 3,520 cfs May 14 (gage height, 19.30 ft); no flow for many days.
1939-58: Maximum discharge, 27,000 cfs Sept. 22, 1941 (gage height, 28.78 ft), by slope-area measurement; no flow at times.

Remarks.--Records fair. Diversions for irrigation of about 5,500 acres above station. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1392: Drainage area. WSP 1512: 1939-40(P), 1941, 1942-43(P), 1946(P).

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 24-26, May 2-22, May 30 to June 8, July 5-6)

| Oct. 1 to July 6 | | | | July 7 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 3.45 | 0 | 4.5 | 30 | 3.0 | 0 | 3.9 | 12 |
| 3.6 | 1 | 5.0 | 70 | 3.3 | 1 | 4.3 | 33 |
| 3.7 | 2 | 6.0 | 195 | 3.5 | 2 | 5.0 | 95 |
| 3.9 | 6 | 8.0 | 533 | 3.7 | 6 | 6.0 | 221 |
| 4.2 | 15 | | | | | | |

*Discharge, in cubic feet per second, water year October 1957 to September 1958*

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 21 | 19 | 2 | 4 | 0 | 73 | 136 | 8 | 0 | 2 | 0 |
| 2 | 0 | 20 | 21 | 3 | 4 | 0 | 69 | *139 | 4 | 0 | 3 | 74 |
| 3 | 0 | 21 | 22 | 3 | 4 | 0 | 79 | 138 | 1 | 0 | 0 | 21 |
| 4 | 0 | 23 | 24 | 1 | 4 | 0 | *80 | 118 | 1 | 0 | 0 | 11 |
| 5 | 0 | 23 | 25 | 3 | 3 | 0 | 78 | 109 | 0 | 1 | 0 | 9 |
| 6 | 0 | 21 | 25 | 3 | 3 | 6 | 71 | 102 | 0 | 25 | 0 | 8 |
| 7 | 0 | *20 | 23 | 3 | 3 | 8 | 60 | 99 | 0 | 5 | 0 | 7 |
| 8 | *0 | 19 | 24 | 3 | 3 | 8 | 49 | 107 | 0 | 0 | 0 | 54 |
| 9 | 0 | 20 | 22 | 3 | 3 | 8 | 63 | 114 | 0 | *0 | 0 | *20 |
| 10 | 200 | 21 | 22 | 4 | 2 | 9 | 71 | 113 | *0 | 0 | 0 | 9 |
| 11 | *46 | 22 | 22 | 4 | 2 | 9 | 62 | 103 | 0 | 0 | *0 | 5 |
| 12 | 15 | 20 | 25 | 4 | .2 | 11 | 57 | 95 | 0 | 0 | 0 | 80 |
| 13 | 36 | 18 | 24 | 4 | 2 | 11 | 68 | 87 | 0 | 0 | 0 | 193 |
| 14 | 21 | 18 | 22 | 5 | 1 | 11 | 75 | 398 | 0 | 0 | 0 | 123 |
| 15 | 11 | 19 | 22 | 5 | 1 | 11 | 58 | 213 | 0 | 0 | 0 | 63 |
| 16 | 2 | 17 | 19 | *4 | 1 | 7 | *59 | 148 | 0 | 0 | 0 | 48 |
| 17 | 0 | 20 | 15 | 5 | 1 | 10 | 92 | 139 | 0 | 0 | 0 | 38 |
| 18 | 6 | 21 | 9 | 5 | 0 | 17 | 140 | 130 | 0 | 0 | 0 | 34 |
| 19 | 20 | 20 | *9 | 5 | 0 | *25 | 170 | 119 | 0 | 0 | 10 | 30 |
| 20 | 26 | 19 | 7 | 5 | *0 | 26 | 260 | 91 | 0 | 0 | 0 | 29 |
| 21 | *28 | *19 | 9 | 6 | 0 | 24 | 308 | *79 | 0 | 0 | 51 | 22 |
| 22 | 30 | 20 | 8 | 5 | 0 | 24 | *301 | 64 | 0 | 0 | 61 | 18 |
| 23 | 31 | 17 | 9 | 5 | 0 | 40 | 293 | 48 | 0 | *0 | 73 | 17 |
| 24 | 32 | 18 | 10 | 5 | 0 | 66 | 305 | 40 | 0 | 0 | 7 | *16 |
| 25 | 34 | 17 | 10 | 5 | 0 | *93 | 274 | 42 | *0 | 0 | *18 | 13 |
| 26 | 32 | 17 | 10 | 5 | 0 | 94 | 248 | 46 | 0 | 0 | 46 | 16 |
| 27 | 31 | 17 | 8 | 5 | 0 | 90 | 222 | 32 | 0 | 0 | 18 | 68 |
| 28 | 29 | 17 | 7 | 5 | 0 | 82 | 173 | 28 | 0 | 0 | 7 | 52 |
| 29 | 27 | 18 | 7 | 4 | - | 90 | 147 | 26 | 0 | 0 | 1 | 166 |
| 30 | 24 | 21 | 6 | 4 | ------- | 87 | 138 | 19 | 0 | 0 | 0 | 167 |
| 31 | 23 | ------- | 5 | 4 | ------- | 78 | ------- | 14 | ------- | 0 | 0 | ------- |
| Total | 704 | 584 | 490 | 127 | 43 | 945 | 4,143 | 3,136 | 14 | 31 | 297 | 1,411 |
| Mean | 22.7 | 19.5 | 15.8 | 4.1 | 1.5 | 30.5 | 138 | 101 | 0.5 | 1.0 | 9.6 | 47.0 |
| Ac-ft | 1,400 | 1,160 | 972 | 252 | 85 | 1,870 | 8,220 | 6,220 | 28 | 61 | 589 | 2,800 |

Calendar year 1957 : Max 919 Min 0 Mean 17.5 Ac-ft 12,680
Water year 1957-58 : Max 398 Min 0 Mean 32.7 Ac-ft 23,660

Peak discharge (base, 1,000 cfs).--May 14 (8:30 p.m.) 3,520 cfs (19.3 ft); Sept. 13 (9:15 p.m.) 1,530 cfs (12.66 ft).

* Discharge measurement or observation of no flow made on this day.
Note.--No gage-height record Jan. 26 to Feb. 19; discharge estimated on basis of recorded range in stage and hydrographic comparison with Picacho.

### 3936. North Spring River at Roswell, N. Mex.

Location.--Lat 33°23'45", long 104°32'55", in NW¼SW¼SE¼ sec. 31, T. 10 S., R. 24 E., in Roswell Municipal Golf Course, on left bank 2,400 ft upstream from Montana Avenue, in Roswell.

Drainage area.--19.5 sq mi.

Records available.--May to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 3,570 ft (from topographic map).

Extremes.--Maximum discharge during period, 8.6 cfs Sept. 27 (gage height, 2.63 ft); no flow except Sept. 27-29.

Remarks.--Records good.

Rating table, May 1 to Sept. 30, 1958 (gage height, in feet, and discharge, in cubic feet per second)

| | |
|---|---|
| 1.7 | 0 |
| 1.8 | .5 |
| 2.0 | 1.9 |
| 2.3 | 4.6 |

Discharge, in cubic feet per second, 1958

| | |
|---|---|
| Sept. 27..... | 4.1 |
| 28..... | 4.5 |
| 29..... | .3 |

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| September 1958..... | 8.9 | 4.5 | 0 | 0.30 | 18 |

Note.--Daily records began May 1. Flow occurred only on days listed above. Nine observations of no flow and 1 discharge measurement made during period.

3945. 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 abandoned bridge pier, 1¼ miles northwest of Hagerman and 2½ miles upstream from mouth.
Drainage area.--932 sq mi (contributing area).
Records available.--April 1939 to September 1958. March 1932 to April 1939 at site 1 mile downstream; records for periods of low flow not equivalent.
Gage.--Water-stage recorder. Datum of gage is 3,403.40 ft above mean sea level, datum of 1929.
Average discharge (revised).--19 years (1939-58), 19.8 cfs (14,330 acre-ft per year).
Extremes.--Maximum discharge during year, 5,950 cfs July 6 (gage height, 15.38 ft); no flow most of the year.
1939-58: Maximum discharge, 74,000 cfs Oct. 7, 1954 (gage height, 27.5 ft, from floodmarks), from rating curve extended above 11,300 cfs on basis of slope-area measurement at point 5½ miles upstream from gage (corrected for channel storage); no flow for many periods.
Revisions.--Figures of maximum discharge for 1939 period and water year 1941 have been revised to 4,410 cfs July 30, 1939 (gage height, 10.85 ft), and 24,000 cfs Sept. 22, 1941 (gage height, 23.0 ft), superseding those published in WSP 878 and 928, respectively.
Remarks.--Records good. Discharge measurements or observations of no flow generally made two or more times a month. Diversions for irrigation of about 350 acres above station.
Revisions (water years).--WSP 928: 1940(M). Revised figures of discharge, in cubic feet per second, for high-water period in the water years 1939-40, superseding those published in WSP 878 and 898, are given herewith:

| | |
|---|---|
| July 30, 1939 | 310 |
| July 31, 1939 | 776 |
| May 22, 1940 | 1,750 |

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| July 1939 | 1,131.0 | 776 | 1.2 | 36.5 | 2,240 |
| May 1940 | 2,328.8 | 1,750 | 1.1 | 75.1 | 4,620 |
| Water year 1939-40 | 3,273.5 | 1,750 | .4 | 8.94 | 6,490 |
| Calendar year 1950 | 3,042.8 | 1,750 | .4 | 8.31 | 6,040 |

Revised peak discharge.--1939: July 30 (11 p.m.) 4,410 cfs; July 31 (3 a.m.) 1,780 cfs; July 31 (8 a.m.) 1,400 cfs.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 2.4 | | | | | | 0 | | 0 | 0 | 0 |
| 2 | 0 | 7.7 | | | | | | 0 | | 0 | 0 | 0 |
| 3 | 0 | 2.6 | | | | | | 0 | | 0 | 0 | 0 |
| 4 | 0 | 4.3 | | | | | | 0 | | 0 | 0 | 0 |
| 5 | 0 | 2.1 | | | | | | 0 | | 0 | 0 | 0 |
| 6 | 0 | 0 | | | | | | 0 | | 1,560 | 0 | 0 |
| 7 | 0 | 0 | | | | | | 0 | | 411 | 0 | 0 |
| 8 | 0 | 0 | | | | | | 0 | | 28 | 0 | 0 |
| 9 | 0 | 0 | | | | | | 0 | | .2 | 0 | 0 |
| 10 | 0 | 0 | | | | | | 0 | | 0 | 0 | 0 |
| 11 | 0 | 0 | | | | | | 0 | | 0 | 0 | 0 |
| 12 | 325 | 0 | | | | | | 0 | | 0 | 0 | 0 |
| 13 | 60 | 0 | | | | | | 0 | | 0 | 0 | 0 |
| 14 | 18 | 0 | | | | | | 0 | | 0 | 0 | 0 |
| 15 | 8.1 | 0 | | | | | | 306 | | 0 | 0 | 0 |
| 16 | 7.2 | 0 | | | | | | 69 | | 0 | 0 | 0 |
| 17 | 0 | 0 | | | | | | 19 | | 0 | 0 | 0 |
| 18 | 0 | 0 | | | | | | 9.1 | | 0 | 0 | 0 |
| 19 | 0 | 0 | | | | | | .3 | | 0 | 0 | 0 |
| 20 | 1.6 | 0 | | | | | | .1 | | 0 | 0 | 0 |
| 21 | 12 | 0 | | | | | | .1 | | 0 | 0 | 0 |
| 22 | 7.8 | 0 | | | | | | .1 | | 0 | 644 | 0 |
| 23 | 2.7 | 0 | | | | | | .1 | | 0 | 66 | 0 |
| 24 | 1.8 | 0 | | | | | | 0 | | 0 | 1.3 | 0 |
| 25 | 0 | 0 | | | | | | 0 | | 0 | 0 | 0 |
| 26 | 0 | 0 | | | | | | 0 | | 0 | 0 | 0 |
| 27 | 0 | 0 | | | | | | 0 | | 0 | 0 | 0 |
| 28 | 0 | 0 | | | | | | 0 | | 0 | 0 | 19 |
| 29 | 0 | 0 | | | - | | | 0 | | 0 | 0 | 19 |
| 30 | 0 | 0 | | | ------- | | | 0 | | 0 | 0 | 12 |
| 31 | .3 | ------- | | | ------- | | ------- | 0 | ------- | 0 | 0 | ------- |
| Total | 444.5 | 19.1 | 0 | 0 | 0 | 0 | 0 | 403.8 | 0 | 1,999.2 | 711.3 | 50 |
| Mean | 14.3 | 0.64 | 0 | 0 | 0 | 0 | 0 | 13.0 | 0 | 64.5 | 22.9 | 1.7 |
| Ac-ft | 882 | 38 | 0 | 0 | 0 | 0 | 0 | 801 | 0 | 3,970 | 1,410 | 99 |

Calendar year 1957: Max 2,800 Min 0 Mean 13.0 Ac-ft 9,400
Water year 1957-58: Max 1,560 Min 0 Mean 9.94 Ac-ft 7,200

Peak discharge (base, 500 cfs).--Oct. 12 (11 a.m.) 1,640 cfs (8.68 ft); May 15 (1 p.m.) 1,390 cfs (8.92 ft); July 6 (10 a.m.) 5,950 cfs (15.38 ft); Aug. 22 (1 p.m.) 2,640 cfs (11.68 ft).

## 3955. Pecos River near Lake Arthur, N. Mex.

Location.--Lat 32°59'18", long 104°19'20", in SW¼NE¼ sec. 27, T. 15 S., R. 26 E., on left bank 400 ft upstream from county bridge (relocated), 2½ 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 1958.

Gage.--Water-stage recorder and rock control. Datum of gage is 3,327.07 ft above mean sea level, datum of 1929.

Average discharge.--20 years, 314 cfs (227,300 acre-ft per year).

Extremes.--Maximum discharge during year, 3,920 cfs July 6 (gage height, 7.14 ft); minimum daily, 1.4 cfs Aug. 19.

1938-58: 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 measurement at gage height 21.77 ft and logarithmic plotting; no flow Aug. 21, 22, 1947, July 17, 1953, July 29 to Aug. 1, Aug. 6, 7, 1954.

Flood of May 30, 1937, reached a stage of 21.77 ft (discharge, 51,500 cfs, on basis of slope-area measurement of peak flow), but may have been exceeded by floods in 1904 and 1919.

Remarks.--Records good except those for periods of backwater or doubtful or no gage-height record, which are fair. Discharge measurements made two or more times a month. Flow partly regulated by Alamogordo Reservoir 150 miles above station (see p. 433). Diversions and ground-water withdrawals for irrigation of about 98,500 acres above station.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 2-25, July 7-14, Sept. 9-12; backwater from temporary construction Feb. 27 to Mar. 15, Mar. 29 to Apr. 24)

| Oct. 1 to May 31 | | | | June 1 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 2.1 | 30 | 3.5 | 460 | 1.5 | 1.4 | 2.3 | 58 |
| 2.4 | 72 | 4.0 | 760 | 1.6 | 2.6 | 2.6 | 125 |
| 2.7 | 140 | 5.0 | 1,530 | 1.7 | 4.8 | 3.0 | 280 |
| 3.0 | 240 | | | 1.8 | 8.7 | 3.5 | 515 |
| | | | | 1.9 | 14 | 4.0 | 830 |
| | | | | 2.1 | 31 | 6.0 | 2,640 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 55 | 62 | 67 | 55 | 54 | 52 | c85 | 894 | 781 | 199 | 1.8 | 154 |
| 2 | 48 | 58 | 67 | 57 | 54 | 48 | c75 | 553 | 753 | 198 | 338 | 141 |
| 3 | 42 | 60 | 69 | 58 | 52 | 45 | c65 | 1,200 | 684 | 103 | 1,040 | 141 |
| 4 | 44 | 60 | 67 | 70 | 52 | 38 | 55 | 1,230 | 294 | 58 | 1,510 | 125 |
| 5 | 40 | 62 | 65 | 84 | 54 | 48 | 67 | 1,230 | 168 | 58 | 465 | 112 |
| 6 | 42 | 60 | 67 | 92 | 51 | c75 | 62 | 1,230 | 485 | 1,200 | 198 | 94 |
| 7 | 45 | 57 | 67 | 101 | 54 | c85 | 52 | 1,220 | 809 | 602 | 114 | 101 |
| 8 | 41 | 58 | 64 | 99 | 64 | c110 | c40 | 944 | 678 | 520 | 71 | 264 |
| 9 | 76 | 57 | 64 | 96 | 65 | c115 | c38 | 370 | 636 | 453 | 39 | 1,470 |
| 10 | 88 | 62 | 65 | 90 | 64 | c120 | c35 | 401 | 612 | 718 | 19 | 1,720 |
| 11 | 70 | 70 | 65 | 80 | 62 | c115 | c38 | 883 | 425 | 697 | 10 | 2,400 |
| 12 | 168 | 70 | 64 | 74 | 62 | c105 | c50 | 614 | 325 | 273 | 16 | 1,750 |
| 13 | 230 | 72 | 64 | 74 | 64 | 86 | c70 | 1,200 | 320 | 131 | 16 | 660 |
| 14 | 127 | 72 | 64 | 74 | 62 | 80 | c85 | 1,300 | 370 | 83 | 11 | 788 |
| 15 | 119 | 69 | 64 | 69 | 60 | 163 | c90 | 1,550 | 348 | 49 | 5.6 | 760 |
| 16 | 105 | 67 | 65 | 69 | 58 | 900 | c90 | 1,600 | 379 | 28 | 2.6 | 352 |
| 17 | 82 | 67 | 64 | 67 | 58 | 907 | c90 | 1,430 | 325 | 19 | 1.6 | 227 |
| 18 | 129 | 69 | 64 | 67 | 58 | 420 | c95 | 1,520 | 465 | 31 | 1.8 | 176 |
| 19 | 135 | 72 | 65 | 69 | 51 | 226 | c95 | 1,040 | 320 | 105 | 1.4 | 297 |
| 20 | 94 | 76 | 64 | 70 | 52 | 817 | c90 | d1,260 | 325 | 91 | 376 | 406 |
| 21 | 90 | 74 | 58 | 69 | 57 | 1,020 | c80 | d1,250 | 374 | 63 | 183 | 227 |
| 22 | 105 | 74 | 60 | 69 | 67 | a1,050 | c75 | d1,230 | 535 | 24 | 1,080 | 157 |
| 23 | 122 | 74 | 62 | 67 | 67 | a1,150 | c75 | d1,220 | 402 | 26 | 2,430 | 154 |
| 24 | 124 | 74 | 60 | 65 | 69 | a1,000 | 352 | d1,200 | 455 | 11 | 1,990 | 122 |
| 25 | 99 | 72 | 60 | 65 | 67 | 564 | 844 | d1,190 | 366 | 5.2 | 2,120 | 114 |
| 26 | 88 | 72 | 60 | 67 | 67 | 276 | a1,500 | d1,170 | 361 | 2.8 | 1,240 | 117 |
| 27 | 88 | 72 | 60 | 65 | 62 | 174 | a2,000 | d1,150 | 202 | 3.9 | 430 | 261 |
| 28 | 80 | 70 | 55 | 65 | 57 | 135 | a2,100 | 1,150 | 114 | 13 | 280 | 2,200 |
| 29 | 76 | 70 | 57 | 62 | - | c105 | a2,150 | 1,050 | 89 | 4.4 | 187 | 1,030 |
| 30 | 74 | 69 | 52 | 58 | ------- | c100 | 1,500 | 893 | 69 | 3.3 | 157 | 475 |
| 31 | 70 | ------- | 52 | 57 | ------- | c90 | ------- | 865 | ------- | 2.5 | 164 | ------- |
| Total | 2,796 | 2,021 | 1,941 | 2,224 | 1,664 | 10,219 | 12,043 | 34,037 | 12,469 | 5,775.1 | 14,498.8 | 16,995 |
| Mean | 90.2 | 67.4 | 62.6 | 71.7 | 59.4 | 330 | 401 | 1,098 | 416 | 186 | 468 | 566 |
| Ac-ft | 5,550 | 4,010 | 3,850 | 4,410 | 3,300 | 20,270 | 23,890 | 67,510 | 24,730 | 11,450 | 28,760 | 33,710 |

Calendar year 1957: Max 2,260 Min 0.3 Mean 140 Ac-ft 101,100
Water year 1957-58: Max 2,430 Min 1.4 Mean 320 Ac-ft 231,400

Peak discharge (base, 2,500 cfs, revised).--July 6 (5:45 p.m.) 3,920 cfs (7.14 ft); Aug. 4 (3 a.m.) 2,730 cfs (6.10 ft); Aug. 22 (9:30 p.m.) 3,190 cfs (6.47 ft); Sept. 11 (11 p.m.) 3,150 cfs (6.31 ft).

a No gage-height record; discharge estimated on basis of records for nearby stations.
c Backwater from temporary construction.
d Doubtful gage-height record; discharge computed from gage heights with shifting-control method.

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## 3960. 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 1958. The following previously-published data are unreliable and should not be used: All figures of discharge above 150 cfs prior to June 1937; daily discharges Sept. 24-30, 1932, June 13, 14, Sept. 5, 1935, and May 29, 1937.

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 different datum prior to Mar. 29, 1935, at datum 1.36 ft lower Mar. 29, 1935, to Sept. 30, 1936, and at datum 2.10 ft lower Oct. 1, 1936, to Aug. 29, 1938. Aug. 30, 1938, to May 22, 1948, at present site at datum 1.54 ft lower.

Average discharge.--24 years (1932-34, 1935-36, 1937-58), 6.82 cfs (4,940 acre-ft per year).

Extremes.--Maximum discharge during year, 23 cfs Sept. 27 (gage height, 2.44 ft); minimum daily, 0.1 cfs many days.
1932-58: Maximum discharge uncertain, occurred June 13, 1935; maximum gage height, 12.0 ft May 30, 1937, present datum, from floodmarks (backwater from Pecos River); no flow at times.

Remarks.--Records good. Discharge measurements generally made twice a month. Diversions above station for irrigation of about 4,500 acres.

Revisions (water years).--WSP 1512: 1932, 1934-35, 1937, 1941(M), 1944(M). See also Records available.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.5 | 0.1 | 1.0 | 3.5 |
| .6 | .2 | 1.3 | 8.7 |
| .7 | .6 | 1.6 | 14 |
| .8 | 1.3 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.6 | 0.8 | 0.3 | 0.3 | 0.1 | 0.2 |
| 2 | | .3 | .3 | .3 | .3 | .4 | .6 | .8 | .3 | .2 | .1 | .2 |
| 3 | | .3 | .3 | .3 | .3 | .5 | .6 | 1.0 | .3 | .3 | .1 | .2 |
| 4 | a0.1 | .3 | .3 | .4 | .3 | .5 | .8 | .8 | .3 | .3 | .1 | .2 |
| 5 | | .3 | .3 | .4 | .4 | .8 | 1.1 | .5 | .3 | .3 | .1 | .2 |
| 6 | | .3 | .3 | .4 | .3 | 10 | .5 | .5 | .3 | .4 | .1 | .2 |
| 7 | .2 | .3 | .3 | .4 | .3 | 5.2 | .4 | .5 | .3 | .3 | .1 | .2 |
| 8 | .1 | .2 | .3 | .4 | .3 | 3.5 | .9 | .5 | .3 | .3 | .1 | .2 |
| 9 | .1 | .2 | .3 | .4 | .3 | 1.5 | .7 | .5 | .3 | .3 | .1 | .2 |
| 10 | .2 | .3 | .3 | .5 | .3 | 2.0 | .6 | .4 | .3 | .2 | .1 | .2 |
| 11 | .2 | .3 | .3 | .4 | .4 | .8 | .7 | .4 | .2 | .2 | .1 | 2.6 |
| 12 | .2 | .3 | .3 | 2.3 | .3 | 1.6 | .6 | .4 | .2 | .2 | .1 | 1.9 |
| 13 | .2 | .3 | .3 | .4 | .3 | 1.4 | 6.1 | .4 | .2 | .2 | .1 | .4 |
| 14 | .2 | .3 | .3 | .7 | .5 | .9 | 1.8 | .4 | .2 | .2 | .1 | .3 |
| 15 | .2 | .3 | .3 | .3 | .3 | 1.0 | 1.1 | .4 | .2 | .2 | .1 | .3 |
| 16 | .2 | .3 | .3 | .3 | .3 | 1.0 | .8 | .5 | .2 | .2 | .1 | .3 |
| 17 | .2 | .2 | .3 | .4 | .3 | 1.1 | 1.7 | .5 | .2 | .2 | .1 | .2 |
| 18 | .2 | .3 | .3 | .4 | .3 | .5 | 1.0 | .5 | .2 | .1 | .1 | .3 |
| 19 | .2 | .3 | .4 | 1.0 | .4 | .6 | 1.0 | .4 | .2 | .1 | .1 | .4 |
| 20 | .2 | .3 | .3 | .5 | .4 | .6 | .9 | .4 | .2 | .1 | .1 | .4 |
| 21 | .2 | .3 | .3 | .4 | .6 | .6 | .7 | .4 | .8 | .1 | .2 | .4 |
| 22 | .2 | .3 | .3 | .4 | 5.7 | 2.3 | .5 | .4 | 1.7 | .1 | .2 | .4 |
| 23 | .2 | .3 | .3 | .5 | 4.2 | 2.0 | .5 | .4 | .3 | .1 | .2 | .5 |
| 24 | .2 | .3 | .3 | .4 | 2.3 | .8 | .7 | .5 | .3 | .1 | .2 | .3 |
| 25 | .2 | .3 | .3 | .8 | 1.1 | 2.6 | .5 | .6 | .3 | .1 | .2 | .4 |
| 26 | .2 | .3 | .3 | .4 | 3.3 | 1.0 | .6 | .5 | .3 | .2 | .2 | .4 |
| 27 | .2 | .3 | .3 | .5 | 1.5 | 1.0 | .6 | .5 | .2 | .2 | .2 | 11 |
| 28 | .2 | .3 | .3 | .9 | .4 | .6 | .8 | .4 | .3 | .2 | .2 | 13 |
| 29 | .2 | .3 | .3 | .4 | | .6 | .8 | .4 | .3 | .2 | .2 | 7.5 |
| 30 | .2 | .3 | .3 | .4 | | .5 | .6 | .4 | .3 | .2 | .2 | 4.2 |
| 31 | .2 | | .3 | 1.1 | | .4 | | .4 | | .2 | .2 | |
| Total | 5.4 | 8.6 | 9.4 | 16.7 | 25.8 | 46.7 | 28.8 | 15.5 | 9.8 | 6.3 | 4.2 | 47.2 |
| Mean | 0.17 | 0.29 | 0.30 | 0.54 | 0.92 | 1.51 | 0.96 | 0.50 | 0.33 | 0.20 | 0.14 | 1.57 |
| Ac-ft | 11 | 17 | 19 | 33 | 51 | 93 | 57 | 31 | 19 | 12 | 8.3 | 94 |

Calendar year 1957: Max 34 Min 0.1 Mean 0.80 Ac-ft 577
Water year 1957-58: Max 13 Min 0.1 Mean 0.61 Ac-ft 445

Peak discharge (base, 20 cfs).--Sept. 27 (5 p.m.) 23 cfs (2.44 ft).

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

3965. Pecos River near Artesia, N. Mex.

Location.--Lat 32°50'25", long 104°19'25", in NW¼NW¼ 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.--September 1905 to June 1909, September 1909 to September 1925 and October 1931 to February 1936 (published as "near Dayton"), February to September 1936, and May 1937 to September 1958 in reports of Geological Survey. Records for March to Sept. 6, 1905, not equivalent due to tributary inflow. Records for Aug. 22-31, 1934 (monthly figures usable) and October 1936 to April 1937, published in WSP 763 and 828 respectively, have been found unreliable and should not be used. September 1905 to December 1931 in report of State engineer.
Gage.--Water-stage recorder. Datum of gage is 3,291.05 ft (Bureau of Reclamation bench mark). Prior to Aug. 27, 1914, staff gage and Aug. 27, 1914, to Feb. 20, 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 at different datum.
Average discharge.--21 years (1937-58), 318 cfs (230,200 acre-ft per year).
Extremes.--Maximum discharge during year, 2,930 cfs July 7 (gage height, 11.51 ft); minimum daily, 1.1 cfs Aug. 1.
1905-58: Maximum gage height, 17.4 ft Sept. 30, 1932, site and datum then in use (discharge not determined). Flood of May 30, 1937, reached a gage height of 14.7 ft, site and datum then in use (discharge, 51,500 cfs, on basis of slope-area measurement of peak flow about 15 miles upstream); flood of Sept. 25, 1941, reached a gage height of 13.32 ft, present site and datum (discharge may have equaled that of May 30, 1937); no flow at times in 1934, 1946-47, 1953-54, 1957.
Remarks.--Records good except those for period of no gage-height record, which are fair. Discharge measurements made 2 or more times a month. Flow partly regulated by Alamogordo Reservoir (see p. 433). 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 of chemical analyses, suspended sediment loads, and water temperatures for the water year 1958 are given in WSP 1573.
Revisions (water years).--WSP 1512: 1913, 1915, 1917-18(M), 1920, 1923, 1932-36. See also Records available.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 12-22, Apr. 25 to May 24, May 30 to June 29, July 6-13, July 18 to Aug. 5, Aug. 20-22, Aug. 26 to Sept. 12)

| | | | | | |
|---|---|---|---|---|---|
| 2.9 | 0.6 | 4.0 | 68 | 7.0 | 634 |
| 3.0 | 2.3 | 4.5 | 129 | 9.0 | 1,300 |
| 3.1 | 4.8 | 5.0 | 204 | 11.0 | 2,400 |
| 3.3 | 12 | 6.0 | 394 | 12.0 | 3,480 |
| 3.6 | 30 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 57 | 65 | 72 | 58 | 56 | 62 | 91 | 1,160 | 738 | 60 | 1.1 | 157 |
| 2 | 47 | 58 | 72 | 64 | 54 | 62 | 86 | 470 | 719 | 236 | 108 | 126 |
| 3 | 41 | 60 | 71 | 66 | 54 | 59 | 75 | 895 | 671 | 119 | 550 | 121 |
| 4 | 37 | 65 | 70 | 76 | 53 | 52 | 67 | 1,170 | 453 | 68 | 1,810 | 115 |
| 5 | 37 | 64 | 69 | 91 | 54 | 47 | 60 | 1,210 | 243 | 24 | 587 | 98 |
| 6 | 36 | 65 | 69 | 93 | 51 | 77 | 61 | 1,210 | 236 | 434 | 284 | 89 |
| 7 | 38 | 61 | 69 | 102 | 52 | 86 | 64 | 1,230 | 663 | 1,040 | 149 | 79 |
| 8 | 36 | 60 | 69 | 103 | 60 | 107 | 54 | 1,140 | 639 | 668 | 89 | 154 |
| 9 | 35 | 62 | 70 | 101 | 66 | 106 | 41 | 525 | 582 | 456 | a55 | 750 |
| 10 | 84 | 65 | 68 | 97 | 65 | 124 | 41 | 451 | 566 | 750 | a30 | 1,220 |
| 11 | 68 | 72 | 67 | 87 | 64 | 122 | 38 | 605 | 496 | 810 | a20 | 2,010 |
| 12 | 70 | 81 | 67 | 80 | 66 | 117 | 42 | 881 | 304 | 474 | a15 | 1,980 |
| 13 | 279 | 80 | 69 | 76 | 65 | 108 | 61 | 954 | 267 | 166 | a10 | 742 |
| 14 | 142 | 80 | 69 | 76 | 65 | 93 | 83 | 1,450 | 308 | 78 | a10 | 616 |
| 15 | 149 | 77 | 69 | 74 | 64 | 92 | 87 | 1,530 | 288 | 46 | a5 | 844 |
| 16 | 106 | 76 | 70 | 68 | 64 | 496 | 89 | 1,800 | 344 | 37 | a5 | 461 |
| 17 | 101 | 75 | 70 | 66 | 65 | 890 | 87 | 1,500 | 278 | 27 | a5 | 270 |
| 18 | 76 | 78 | 68 | 68 | 64 | 730 | 96 | 1,520 | 381 | 21 | a5 | 218 |
| 19 | 175 | 79 | 68 | 70 | 60 | 286 | 99 | 1,240 | 332 | 32 | a5 | 199 |
| 20 | 119 | 85 | 69 | 69 | 55 | 516 | 95 | 1,250 | 302 | 117 | 151 | 440 |
| 21 | 92 | 85 | 66 | 69 | 65 | 1,000 | 90 | 1,350 | 366 | 79 | 245 | 269 |
| 22 | 102 | 84 | 66 | 70 | 78 | 1,060 | 79 | 1,360 | 445 | 40 | 406 | 193 |
| 23 | 104 | 84 | 68 | 70 | 81 | 1,120 | 76 | 1,360 | 491 | 18 | 2,460 | 166 |
| 24 | 130 | 83 | 68 | 69 | 79 | 1,150 | 81 | 1,410 | 431 | 18 | 2,070 | 157 |
| 25 | 110 | 81 | 64 | 70 | 81 | 823 | 684 | 1,320 | 350 | 7.0 | 2,040 | 147 |
| 26 | 89 | 79 | 67 | 69 | 77 | 361 | 1,110 | 1,340 | 332 | 2.0 | 1,340 | 139 |
| 27 | 86 | 78 | 64 | 67 | 75 | 229 | 1,890 | 1,240 | 242 | 3.3 | 518 | 178 |
| 28 | 85 | 77 | 62 | 66 | 66 | 164 | 2,020 | 1,230 | 112 | 4.8 | 306 | 1,610 |
| 29 | 76 | 75 | 61 | 62 | - | 124 | 2,050 | 1,150 | 86 | 10 | 201 | 1,150 |
| 30 | 75 | 74 | 64 | 61 | ------- | 106 | 1,770 | 819 | 75 | 5.4 | 183 | 582 |
| 31 | 72 | ------- | 54 | 58 | ------- | 98 | ------- | 895 | ------- | 2.6 | 174 | ------- |
| Total | 2,754 | 2,208 | 2,089 | 2,316 | 1,799 | 10,467 | 11,267 | 35,665 | 11,740 | 5,853.1 | 13,837.1 | 15,280 |
| Mean | 88.8 | 73.6 | 67.4 | 74.7 | 64.2 | 338 | 376 | 1,150 | 391 | 189 | 446 | 509 |
| Ac-ft | 5,460 | 4,380 | 4,140 | 4,590 | 3,570 | 20,760 | 22,350 | 70,740 | 23,290 | 11,610 | 27,450 | 30,310 |

Calendar year 1957: Max 1,630 Min 0 Mean 129 Ac-ft 93,530
Water year 1957-58: Max 2,460 Min 1.1 Mean 316 Ac-ft 228,600

Peak discharge (base, 2,000 cfs, revised).--Apr. 29 (4:30 p.m.) 2,100 cfs (10.47 ft); May 16 (1 a.m.) 2,320 cfs (10.49 ft); July 7 (12:30 a.m.) 2,930 cfs (11.51 ft); Aug. 4 (8 a.m.) 2,820 cfs (11.04 ft); Aug. 23 (12 m.) 2,890 cfs (11.50 ft); Sept. 12 (3:30 a.m.) 2,840 cfs (11.70 ft); Sept. 28 (3 p.m.) 2,230 cfs (10.72 ft).

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

## 3976. Rio Penasco near Dunken, N. Mex.

Location.--Lat 32°53'35", long 105°12'05", in SW¼NW¼ sec. 27, T. 16 S., R. 17 E., on left bank 1.5 miles upstream from junction of State Highways 24 and 83, and 5½ miles north of Dunken.

Drainage area.--580 sq mi, approximately.

Records available.--October 1952 to September 1956 (annual maximum only), October 1956 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 5,309.59 ft above mean sea level, datum of 1929. Prior to October 1956, crest-stage gage at site half a mile downstream at different datum.

Extremes.--Maximum discharge during year, 10,200 cfs July 6 (gage height, 13.36 ft), from rating curve extended above 57 cfs on basis of slope-area measurements at gage heights 9.48 and 13.36 ft; no flow for many days.

1952-58: Maximum discharge, 36,300 cfs Oct. 6 or 7, 1954 (gage height, 16.9 ft, at present site, from floodmarks), based on slope-area measurement of peak flow; no flow many days in 1958.

Maximum stage known, 20 ft Sept. 22, 1941, from floodmarks (discharge, 70,000 cfs, from rating curve extended above slope-area measurement of 36,300 cfs).

Remarks.--Records good prior to Mar. 19, fair thereafter. Numerous small diversions above station affect low flow.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Apr. 3 to May 19, July 6-19)

| Oct. 1 to July 5 | | | | July 5 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.95 | 0 | 2.5 | 6.2 | 1.9 | 0 | 2.7 | 36 |
| 2.0 | .4 | 2.7 | 12 | 2.0 | .3 | 3.0 | 69 |
| 2.2 | 1.7 | 3.0 | 26 | 2.1 | 1.5 | 3.5 | 133 |
| 2.3 | 2.7 | 3.5 | 59 | 2.2 | 3.9 | 4.0 | 216 |
| | | | | 2.3 | 7.6 | 5.0 | 451 |
| | | | | 2.5 | 19 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.0 | 6.5 | 7.6 | 6.0 | 5.2 | 5.2 | 5 | *0.1 | 0 | 7.6 | 30 | 6.1 |
| 2 | 2.8 | 6.5 | 7.6 | 6.0 | 5.4 | 5.4 | 5 | .5 | 0 | 9.0 | 27 | 5.4 |
| 3 | 2.6 | 6.5 | 7.6 | 6.0 | 5.4 | 5.4 | *5.0 | 0 | 0 | 9.6 | 28 | 5.0 |
| 4 | 2.6 | 6.8 | 7.0 | 6.2 | 5.4 | 5.6 | 4.8 | 0 | 0 | 7.0 | *35 | 5.4 |
| 5 | 2.6 | *6.5 | 7.3 | 6.2 | 5.4 | 5.6 | 4.0 | 0 | 0 | *361 | 15 | 5.8 |
| 6 | 3.9 | 6.5 | 7.0 | 6.2 | 4.8 | 6.8 | 4.2 | 0 | 0 | *128 | 3.7 | 5.4 |
| 7 | *2.4 | 6.2 | 7.0 | 6.2 | 4.6 | 6.2 | 5.0 | 0 | 0 | 0 | 1.5 | 8.1 |
| 8 | 2.3 | 6.0 | 7.0 | 6.2 | 4.8 | 6.2 | 4.0 | 0 | 0 | 0 | 1.4 | *13 |
| 9 | 2.2 | 6.2 | 7.0 | 6.2 | 4.8 | 6.0 | 4.0 | 0 | *0 | 0 | 1.4 | 7.6 |
| 10 | 2.2 | 6.5 | 7.0 | 6.2 | 4.6 | 6.0 | 3.8 | 0 | 0 | *0 | 1.4 | 24 |
| 11 | 2.8 | 6.5 | 7.0 | 6.0 | 4.6 | 6.2 | 3.3 | 0 | 0 | 0 | 1.4 | 13 |
| 12 | 34 | 6.5 | 7.0 | 6.0 | 4.8 | 6.8 | 3.4 | 0 | 0 | 0 | 1.3 | 21 |
| 13 | 8.2 | 6.5 | 7.0 | 6.0 | 4.8 | 6.8 | 3.8 | 0 | 0 | 0 | *1.3 | 14 |
| 14 | 7.3 | 6.5 | 6.8 | 6.0 | 4.6 | 6.5 | 3.8 | .6 | 0 | 0 | 1.1 | 13 |
| 15 | 6.8 | 6.5 | 7.0 | *5.8 | 4.8 | 6.5 | 3.3 | 0 | 0 | 0 | 1.1 | 11 |
| 16 | 6.5 | 7.0 | 7.0 | 5.6 | 4.8 | 6.2 | 3.6 | .2 | 0 | 0 | 1.1 | 11 |
| 17 | 6.5 | 7.9 | 6.8 | 5.8 | 4.8 | 6.2 | 4.6 | .3 | 17 | 17 | 1.1 | 9.6 |
| 18 | 6.5 | 7.9 | *6.5 | 5.6 | *4.8 | *6.5 | 4.8 | 0 | 13 | 17 | 1.4 | 8.1 |
| 19 | 7.3 | *7.6 | 6.2 | 5.8 | 4.8 | 6.5 | 4.8 | *.2 | 9.2 | 25 | 6.1 | 7.6 |
| 20 | 7.9 | 7.6 | 6.2 | 5.8 | 4.8 | 6.5 | 4.8 | 0 | 7.0 | 27 | 6.5 | 7.2 |
| 21 | 7.3 | 7.6 | 6.5 | 5.8 | 5.0 | 6 | *4.2 | 0 | 7.0 | 6.5 | 47 | 6.9 |
| 22 | 6.8 | 7.9 | 6.8 | 5.6 | 5.6 | 6 | 3.3 | 0 | 36 | *5.0 | 45 | 7.2 |
| 23 | *6.8 | 7.3 | 6.2 | 5.6 | 5.2 | 6 | 2.6 | 0 | 12 | 3.2 | *41 | *7.2 |
| 24 | 6.8 | 7.0 | 6.0 | 5.4 | 5.2 | 6 | 2.7 | 0 | *8.2 | 2.2 | 22 | 7.6 |
| 25 | 6.8 | 7.0 | 6.0 | 5.4 | 5.2 | 6 | 2.5 | 0 | 7.0 | 1.7 | 12 | 7.6 |
| 26 | 7.0 | 7.3 | 6.2 | 5.6 | 5.4 | 5.5 | 1.1 | 0 | 7.0 | 2.2 | *12 | 17 |
| 27 | 6.8 | 7.6 | 6.2 | 5.6 | 5.2 | 5.5 | .5 | 0 | 8.9 | 5.0 | 8.1 | 22 |
| 28 | 6.8 | 7.6 | 6.2 | 5.4 | 5.2 | 5.5 | *.5 | 0 | 12 | 3.2 | 7.2 | 29 |
| 29 | 6.8 | 7.6 | 6.2 | 5.4 | - | 5.5 | 1.1 | 0 | 6.8 | 2.7 | 7.2 | 25 |
| 30 | 6.8 | 7.6 | 6.2 | 5.4 | ------- | 5.5 | 0 | 0 | 7.3 | 13 | 6.1 | 18 |
| 31 | 6.5 | ------- | 6.2 | 5.2 | ------- | 5 | ------- | 0 | ------- | 17 | 6.5 | ------- |
| Total | 195.6 | 209.2 | 208.3 | 180.2 | 140.0 | 185.6 | 103.5 | 1.9 | 158.4 | 669.9 | 380.9 | 348.8 |
| Mean | 6.31 | 6.97 | 6.72 | 5.81 | 5.00 | 5.99 | 3.45 | 0.06 | 5.28 | 21.6 | 12.3 | 11.6 |
| Ac-ft | 388 | 415 | 413 | 357 | 278 | 368 | 205 | 3.8 | 314 | 1,330 | 756 | 692 |

Calendar year 1957: Max 204 Min 1.1 Mean 6.37 Ac-ft 4,610
Water year 1957-58: Max 361 Min 0 Mean 7.62 Ac-ft 5,520

Peak discharge (base, 300 cfs).--June 17 (about 8 p.m.) 331 cfs (5.35 ft); June 22 (5 p.m.) 316 cfs (5.26 ft); July 6 (10:15 p.m.) 10,200 cfs (13.36 ft); July 17 (5 p.m.) 460 cfs (5.03 ft); Aug. 21 (6 p.m.) 423 cfs (4.89 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Mar. 19 to Apr. 2; discharge computed on basis of adjoining good record and engineer's notes.

## 3985. Rio Penasco at 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 1958. Prior to October 1953, published as "near Dayton." September 1905 to June 1908 (gage heights only, July 1906 to 1908), at site 2½ miles downstream, published as Penasco River near Dayton, records not equivalent.

Gage.--Water-stage recorder and concrete control. Datum of gage is 3,340.89 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 6.5 cfs (4,710 acre-ft per year).

Extremes.--Maximum discharge during year, 9,780 cfs Aug. 22 (gage height, 6.05 ft); no flow most days.
1951-58: Maximum discharge, 23,700 cfs Oct. 7, 1954 (gage height, 6.82 ft), from rating curve extended above 6,000 cfs on basis of slope-area measurement at gage height 6.82 ft; no flow for extended periods.

Remarks.--Records good. Diversions above station for irrigation of about 2,700 acres. Records of suspended sediment loads and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1242: 1951(M). WSP 1512: 1955, 1956(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.3 | 0 | 0.7 | 33 | 1.6 | 603 |
| .4 | .4 | .8 | 58 | 2.0 | 1,180 |
| .5 | 4 | 1.0 | 133 | 2.5 | 2,050 |
| .6 | 15 | 1.3 | 317 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *0 | (*) | | | | | (*) | | | 0 | *0 | |
| 2 | 0 | | (*) | (*) | | | | | | 0 | 66 | |
| 3 | 0 | | | | (*) | (*) | | | | 0 | 0 | |
| 4 | 0 | | | | | | | | | 0 | 0 | |
| 5 | 0 | | | | | | | | | 0 | 0 | |
| 6 | 0 | | | | | | | | | *582 | 0 | |
| 7 | 0 | | | | | | | | | 191 | 0 | |
| 8 | 0 | | | | | | | | | 1 | 0 | |
| 9 | 0 | | | | | | | | | 0 | 0 | |
| 10 | 0 | | | | | | | | | 0 | 0 | |
| 11 | 0 | | | | | | | | | 0 | 0 | |
| 12 | 0 | | | | | | | | | 0 | 0 | |
| 13 | 44 | | | | | | | | | 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 | 0 | | | | | | | | | 0 | 0 | |
| 21 | 0 | | | | | | | | | 0 | 0 | |
| 22 | 19 | | | | | | | | | 0 | *1,390 | |
| 23 | 1 | | | | | | | | | 0 | *85 | |
| 24 | 0 | | | | | | | | | 0 | 160 | |
| 25 | 0 | | | | | | | | | 0 | 10 | |
| 26 | 0 | | | | | | | | | 0 | 0 | |
| 27 | 0 | | | | | | | | | 0 | 0 | |
| 28 | 0 | | | | | | | | | 0 | 0 | |
| 29 | 0 | | | | - | | | (*) | | 0 | *0 | |
| 30 | 0 | | | | ------- | | (*) | | | 0 | 0 | |
| 31 | 0 | ------- | | | ------- | | ------- | | ------- | 0 | 0 | ------- |
| Total | 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 774 | 1,711 | 0 |
| Mean | 2.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25.0 | 55.2 | 0 |
| Ac-ft | 127 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,540 | 3,390 | 0 |

Calendar year 1957: Max 669 Min 0 Mean 3.3 Ac-ft 2,420
Water year 1957-58: Max 1,390 Min 0 Mean 7.0 Ac-ft 5,060

Peak discharge (base, 750 cfs).--July 6 (12:30 p.m.) 3,600 cfs (3.40 ft); Aug. 22 (10 a.m.) 9,780 cfs (6.05 ft).

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

## 3995. Pecos River (Kaiser Channel) near Lakewood, N. Mex.

Location.--Lat 32°41'22", long 104°17'53", in NW¼SW¼ sec. 5, T. 19 S., R. 27 E., on left bank 3 miles upstream from water line of Lake McMillan, 6 miles northeast of Lakewood, 7½ miles northeast of gates in McMillan Dam, and 12 miles southeast of Artesia.

Records available.--May 1950 to September 1958. Prior to October 1954, published as Kaiser Lake-McMillan Channel near Lakewood.

Gage.--Water-stage recorder. Datum of gage is 3,270.53 ft above mean sea level (Bureau of Reclamation bench mark). Prior to Mar. 23, 1955, at site 3 miles downstream at datum 9.83 ft lower.

Average discharge.--8 years, 158 cfs (114,400 acre-ft per year).

Extremes.--Maximum daily discharge during year, 1,780 cfs Aug. 25 (maximum gage height, 6.16 ft Aug. 25); no flow Aug. 2.
1950-58: Maximum daily discharge, 2,600 cfs Oct. 10, 1954; no flow at times 1951-54, 1956-58.

Remarks.--Records good except those for Aug. 2-6, which are poor. Discharge measurements made two or more times a month. Flow partly regulated by Alamogordo Reservoir (see p. 433). Diversions and ground-water withdrawals above station irrigate about 147,000 acres. Above about 1,500 cfs flow will begin bypassing station and, depending on magnitude and duration of the flow, may reach Lake McMillan.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used June 5 to July 6)

| Oct. 1 to Dec. 31 | | Jan. 1 to July 6 | | July 7 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 1.3 | 23 | 1.4 | 32 | 0.6 | 0 | 1.5 | 69 |
| 1.6 | 53 | 1.8 | 81 | .7 | .8 | 2.0 | 175 |
| 2.0 | 115 | 2.3 | 174 | .8 | 2.6 | 3.0 | 475 |
| 2.5 | 230 | 3.0 | 370 | .9 | 5.6 | 5.0 | 1,300 |
| | | 4.0 | 785 | 1.0 | 10 | 6.0 | 1,800 |
| | | 6.0 | 1,840 | 1.2 | 27 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 60 | 68 | 66 | 51 | 57 | 61 | 97 | 1,430 | 767 | 68 | 0.8 | 210 |
| 2 | 48 | 57 | 65 | 57 | 56 | 61 | 91 | 654 | 758 | 206 | 0 | 178 |
| 3 | 40 | 56 | 65 | 60 | 54 | 61 | 78 | 962 | 690 | 154 | a450 | 150 |
| 4 | 33 | 57 | 63 | 68 | 54 | 58 | 68 | 1,240 | 550 | 99 | a1,200 | 141 |
| 5 | 35 | 60 | 65 | 83 | 54 | 52 | 60 | 1,270 | 246 | 48 | a800 | 124 |
| 6 | 34 | 60 | 63 | 91 | 53 | 61 | 62 | 1,220 | 165 | 101 | a500 | 109 |
| 7 | 32 | 57 | 62 | 95 | 50 | 83 | 62 | 1,200 | 538 | 1,060 | 172 | 91 |
| 8 | 33 | 54 | 62 | 102 | 53 | 92 | 61 | 1,180 | 650 | 644 | 95 | 112 |
| 9 | 28 | 58 | 62 | 102 | 61 | 109 | 45 | 628 | 610 | 478 | 53 | 628 |
| 10 | 56 | 57 | 61 | 97 | 62 | 109 | 41 | 448 | 578 | 684 | 22 | 1,180 |
| 11 | 74 | 58 | 61 | 89 | 62 | 128 | 39 | 582 | 532 | 776 | 15 | 1,500 |
| 12 | 78 | 74 | 60 | 84 | 61 | 137 | 40 | 834 | 328 | 612 | 13 | 1,650 |
| 13 | 204 | 74 | 61 | 74 | 60 | 119 | 54 | 726 | 283 | 310 | 12 | 948 |
| 14 | 176 | 69 | 61 | 88 | 60 | 106 | 74 | 1,170 | 316 | a120 | 11 | 668 |
| 15 | 127 | 72 | 61 | 68 | 60 | 100 | 89 | 1,230 | 307 | a80 | 10 | 918 |
| 16 | 108 | 70 | 61 | 66 | 58 | 390 | 91 | 1,510 | 343 | a50 | 9.4 | 559 |
| 17 | 94 | 69 | 63 | 66 | 58 | 812 | 89 | 1,370 | 301 | a35 | 9.0 | 340 |
| 18 | 75 | 70 | 62 | 66 | 58 | 669 | 94 | 1,310 | 352 | 24 | 8.5 | 265 |
| 19 | 132 | 72 | 61 | 68 | 58 | 320 | 100 | 1,220 | 364 | 23 | 8.0 | 222 |
| 20 | 127 | 74 | 61 | 69 | 56 | 414 | 95 | 1,080 | 295 | 108 | 26 | 419 |
| 21 | 91 | 78 | 62 | 68 | 56 | 910 | 87 | 1,240 | 346 | 97 | 262 | 343 |
| 22 | 89 | 75 | 58 | 69 | 63 | 975 | 80 | 1,240 | 433 | 59 | 513 | 238 |
| 23 | 94 | 81 | 61 | 68 | 75 | 1,040 | 68 | 1,250 | 508 | 23 | 1,560 | 198 |
| 24 | 115 | 74 | 62 | 66 | 72 | 1,110 | 65 | 1,290 | 398 | 15 | 1,740 | 182 |
| 25 | 115 | 74 | 62 | 68 | 74 | 923 | 559 | 1,270 | 377 | 16 | 1,780 | 165 |
| 26 | 91 | 74 | 61 | 69 | 70 | 402 | 933 | 1,260 | 331 | 9.9 | 1,620 | 143 |
| 27 | 81 | 66 | 62 | 68 | 66 | 246 | 1,480 | 1,230 | 286 | 3.8 | 750 | 313 |
| 28 | 81 | 66 | 60 | 65 | 63 | 174 | 1,650 | 1,210 | 163 | 5.0 | 430 | 1,120 |
| 29 | 76 | 66 | 57 | 63 | - | 136 | 1,750 | 1,180 | 104 | 7.5 | 319 | 1,450 |
| 30 | 70 | 66 | 58 | 60 | ------- | 111 | 1,770 | 855 | 84 | 11 | 248 | 704 |
| 31 | 70 | ------- | 54 | 58 | ------- | 104 | ------- | 895 | ------- | 2.4 | 215 | ------- |
| Total | 2,567 | 2,004 | 1,903 | 2,266 | 1,684 | 10,083 | 9,872 | 34,185 | 12,003 | 5,929.6 | 12,851.7 | 15,268 |
| Mean | 82.8 | 66.8 | 61.4 | 73.1 | 60.1 | 325 | 329 | 1,103 | 400 | 191 | 415 | 509 |
| Ac-ft | 5,090 | 3,970 | 3,770 | 4,490 | 3,340 | 20,000 | 19,580 | 67,800 | 23,810 | 11,760 | 25,490 | 30,280 |

Calendar year 1957: Max 1,110 Min 0 Mean 123 Ac-ft 88,740
Water year 1957-58: Max 1,780 Min 0 Mean 303 Ac-ft 219,400

a No gage-height record; discharge estimated by hydrographic comparison with Pecos River at Artesia.

## 4000. 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 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 1958.

Gage.--Water-stage recorder. Datum of gage is 3,329.75 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 1.75 cfs (1,270 acre-ft per year).

Extremes.--Maximum discharge during year, 1,210 cfs Aug. 24 (gage height, 8.75 ft); no flow most days.
1951-58: Maximum discharge, 7,650 cfs Oct. 7, 1954 (gage height, 13.30 ft), from rating curve extended above 1,350 cfs on basis of slope-area measurement of peak flow; no flow most days.

Remarks.--Records fair.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 2.4 | 0 | 2.9 | 1.7 | 3.8 | 31 |
| 2.5 | .1 | 3.0 | 2.8 | 4.3 | 74 |
| 2.6 | .3 | 3.2 | 6.3 | 4.9 | 161 |
| 2.7 | .6 | 3.4 | 12 | 5.6 | 314 |
| 2.8 | 1.0 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| 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 | 6.9 | 0 | 0 |
| 6 | 0 | | | | | | | | 0 | 19 | 0 | 0 |
| 7 | 0 | | | | | | | | 0 | 198 | 0 | 0 |
| 8 | 0 | | | | | | | | 0 | .5 | 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 | .1 | | | | | | | | 0 | 0 | 0 | 0 |
| 22 | 0 | | | | | | | | 0 | 0 | *308 | 0 |
| 23 | 0 | | | | | | | | 0 | 0 | *58 | 0 |
| 24 | 0 | | | | | | | | 0 | 0 | *277 | 0 |
| 25 | 0 | | | | | | | | 0 | 0 | 55 | 0 |
| 26 | 0 | | | | | | | | 0 | 0 | .2 | 0 |
| 27 | 0 | | | | | | | | 0 | 0 | 0 | .5 |
| 28 | 0 | | | | | | | | 0 | 0 | 0 | 0 |
| 29 | 0 | | | | - | | | (*) | 0 | 0 | 0 | 0 |
| 30 | 0 | | | | ------- | | (*) | | .2 | 0 | 0 | 0 |
| 31 | 0 | ------- | | | ------- | | ------- | | ------- | 0 | 0 | ------- |
| Total | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.2 | 224.4 | 698.2 | 0.5 |
| Mean | 0.003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.007 | 7.24 | 22.5 | 0.02 |
| Ac-ft | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.4 | 445 | 1,380 | 1.0 |

Calendar year 1957: Max 159 Min 0 Mean 0.72 Ac-ft 524
Water year 1957-58: Max 308 Min 0 Mean 2.53 Ac-ft 1,830

Peak discharge (base, 200 cfs).--July 7 (6:15 a.m.) 936 cfs (7.80 ft); Aug. 22 (6:30 p.m.) 977 cfs (7.97 ft); Aug. 24 (5 p.m.) 1,210 cfs (8.75 ft).

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

## 4010. Pecos River below McMillan Dam, N. Mex.

Location.--Lat 32°35'40", 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.--January 1906 to March 1908, January 1909 to December 1911, August 1939 to December 1940, and December 1946 to September 1958 (January 1906 and January 1910 to December 1911, gage heights and discharge measurements only). Published as "near Lakewood" 1906-11 and as "below McMillan Dam near Lakewood" 1939-40.
Gage.--Water-stage recorder and rock control. Datum of gage is 3,238.21 ft above mean sea level, datum of 1929. January 1906 to December 1911 staff gage at 3 different sites within half a mile of present gage at different datums. August 1939 to December 1940, water-stage recorder at site 30 ft downstream at datum 0.10 ft higher; December 1946 to Mar. 11, 1957, at present site at datum 1.09 ft higher.
Average discharge.--14 years (1906-7, 1939-40, 1946-58), 98.9 cfs (71,600 acre-ft per year).
Extremes.--Maximum discharge during year, 3,010 cfs Aug. 1 (gage height, 7.62 ft); no flow many days.
1939-40, 1946-58: Maximum discharge, 16,100 cfs Oct. 11, 1954 (gage height, 7.09 ft), includes flow of two spillways; no flow for many periods.
Flood of Oct. 2, 1904, was estimated as 82,000 cfs by chief engineer of Pecos River Irrigation Co.
Remarks.--Records good. Discharge measurements or observation of no flow made two or more times a month. Flow regulated by Alamogordo Reservoir and Lake McMillan (see p. 433). Diversions for irrigation of about 147,000 acres above station.
Revisions (water years).--WSP 1512: 1909.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second) (Major part of discharge shown on June 7, 13, 14, July 1-6, Aug. 27 to Sept. 6, Sept. 10, 18-20, 23-25 consists of discharge in No. 2 spillway of McMillan Dam)

| | | | |
|---|---|---|---|
| 1.3 | 0 | 2.3 | 61 |
| 1.4 | .2 | 2.6 | 112 |
| 1.5 | .7 | 3.0 | 204 |
| 1.6 | 2.3 | 3.5 | 363 |
| 1.7 | 5.9 | 4.0 | 570 |
| 1.8 | 11 | 6.0 | 1,550 |
| 2.0 | 26 | 7.0 | 2,250 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 99 | | | | | 0 | 460 | 270 | 337 | 3 | 621 | 2 |
| 2 | 97 | | | | | 0 | 460 | 270 | 441 | 2 | 188 | 2 |
| 3 | 97 | | | | | 0 | 460 | 274 | 651 | 3 | 188 | 2 |
| 4 | 97 | | | | | 0 | 456 | 274 | 400 | 3 | 188 | 2 |
| 5 | 95 | | | | | 0 | 452 | 274 | 249 | 2 | 191 | 2 |
| 6 | 97 | | | | | 0 | 378 | 275 | 191 | 3 | 191 | 2 |
| 7 | 69 | | | | | 0 | 312 | 276 | 3 | 29 | 191 | 601 |
| 8 | 53 | | | | | 0 | 293 | 280 | 236 | 354 | 191 | 629 |
| 9 | 22 | | | | | 0 | 293 | 583 | 535 | 566 | 191 | .1 |
| 10 | 0 | | | | | 0 | 290 | 908 | 548 | 425 | 191 | 2 |
| 11 | 0 | | | | | 0 | 290 | 896 | 347 | 372 | 191 | 292 |
| 12 | .1 | | | | | 0 | 290 | 666 | 123 | 512 | 188 | 1,310 |
| 13 | 0 | | | | | 0 | 250 | 513 | 5 | 319 | 239 | 1,240 |
| 14 | 0 | | | | | 0 | 191 | 517 | 5 | 148 | 277 | 820 |
| 15 | 0 | | | | | 0 | 188 | 527 | 117 | 145 | 274 | 683 |
| 16 | 0 | | | | | 0 | 188 | 864 | 226 | 146 | 267 | 665 |
| 17 | 63 | | | | | 0 | 191 | 1,830 | 220 | 146 | 277 | 220 |
| 18 | 119 | | | | | 0 | 191 | 2,090 | 215 | 147 | 270 | 4 |
| 19 | .1 | | | | | 0 | 55 | 1,260 | 218 | 312 | 270 | 5 |
| 20 | .1 | | | | | 0 | 0 | 1,110 | 218 | 190 | 267 | 5 |
| 21 | .1 | | | | | 0 | .1 | 775 | 314 | 443 | 274 | 222 |
| 22 | 0 | | | | | 0 | 0 | 620 | 365 | 290 | 68 | 333 |
| 23 | 0 | | | | | 0 | 0 | 621 | 364 | 210 | .1 | 5 |
| 24 | 0 | | | | | 0 | 0 | 630 | 364 | 210 | .1 | 5 |
| 25 | 0 | | | | | 0 | 0 | 636 | 367 | 210 | .1 | 5 |
| 26 | 0 | | | | | 183 | 0 | 874 | 264 | 207 | 0 | 44 |
| 27 | 0 | | | | | 262 | 0 | 994 | 213 | 207 | 1 | 337 |
| 28 | 0 | | | | | 286 | 195 | 994 | 145 | 210 | 1 | 947 |
| 29 | 0 | | | | - | 286 | 267 | 994 | 123 | 207 | 2 | 1,620 |
| 30 | 0 | | | | ------- | 336 | 267 | 994 | 47 | 204 | 2 | 472 |
| 31 | 0 | ------- | | | ------- | 456 | ------- | 487 | ------- | 207 | 2 | ------- |
| Total | 908.4 | 0 | 0 | 0 | 0 | 1,809 | 6,397.1 | 22,576 | 7,851 | 6,432 | 5,201.3 | 10,478.1 |
| Mean | 29.3 | 0 | 0 | 0 | 0 | 58.4 | 213 | 728 | 262 | 207 | 168 | 349 |
| Ac-ft | 1,800 | 0 | 0 | 0 | 0 | 3,590 | 12,690 | 44,780 | 15,570 | 12,760 | 10,320 | 20,780 |

Calendar year 1957: Max 468 Min 0 Mean 71.3 Ac-ft 51,640
Water year 1957-58: Max 2,090 Min 0 Mean 169 Ac-ft 122,300

Note.--Discharge figures for May 6-11, 13-16, May 23 to July 21, Aug. 27 to Sept. 7, Sept. 10-30 include leakage through (also over on Sept. 28-30) the flashboards in spillway No. 2 of McMillan Dam. This flow bypasses the regular gage.

## 4020. Pecos River at dam site 3, near Carlsbad, N. Mex.

Location.--Lat 32°30'40", long 104°20'00", 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 1958.

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.--15 years, 185 cfs (133,900 acre-ft per year).

Extremes.--Maximum discharge during year, 11,100 cfs Aug. 22 (gage height, 10.55 ft); minimum daily, 36 cfs Jan. 1, 7-10, 13.

1939-40, 1944-58: Maximum discharge, 53,000 cfs Oct. 7, 1954 (gage height, 18.53 ft), from rating curve extended above 15,000 cfs on basis of slope-area measurement of peak flow; minimum daily, 4.8 cfs Aug. 1, 4, 7, 8, 1954.

Flood of Oct. 3, 1904, was estimated as 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. 433). Diversions and ground-water withdrawals for irrigation of about 150,000 acres above station. Discharge represents inflow to Lake Avalon. Records of chemical analyses for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 1512: 1946-47(M), 1948(P), 1949, 1950(P).

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to Mar. 31 | | | | Apr. 1 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.1 | 27 | 1.0 | 198 | 0.3 | 49 | 2.0 | 590 |
| .4 | 65 | 1.5 | 382 | .6 | 100 | 3.0 | 1,160 |
| .7 | 120 | 2.0 | 610 | 1.0 | 196 | 4.0 | 1,940 |
| | | | | 1.5 | 370 | 6.0 | 4,000 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 132 | 38 | 38 | 36 | 40 | 42 | 468 | 278 | 380 | 119 | 694 | 76 |
| 2 | 132 | 38 | 38 | 37 | 40 | 30 | 459 | 278 | 518 | 110 | 286 | 78 |
| 3 | 132 | 40 | 38 | 37 | 40 | 42 | 464 | 285 | 662 | 164 | 257 | 78 |
| 4 | 129 | 40 | 38 | 42 | 40 | 42 | 464 | 285 | 584 | 110 | 251 | 78 |
| 5 | 132 | 40 | 38 | 40 | 40 | 42 | 464 | 288 | 346 | 109 | 251 | 79 |
| 6 | 132 | 39 | 38 | 37 | 40 | 43 | 430 | 292 | 336 | 173 | 251 | 81 |
| 7 | 118 | 39 | 38 | 36 | 40 | 42 | 350 | 296 | 135 | 201 | 251 | 377 |
| 8 | 90 | 39 | 38 | 36 | 40 | 39 | 319 | 300 | 235 | 347 | 247 | 966 |
| 9 | 168 | 39 | 39 | 36 | 40 | 39 | 322 | 476 | 585 | 590 | 247 | 94 |
| 10 | 47 | 39 | 39 | 36 | 40 | 40 | 322 | 922 | 645 | 561 | 247 | 89 |
| 11 | 43 | 39 | 38 | 37 | 40 | 42 | 322 | 922 | 500 | 434 | 244 | 139 |
| 12 | 47 | 39 | 39 | 37 | 40 | 42 | 319 | 772 | 278 | 545 | 244 | 1,330 |
| 13 | 47 | 39 | 39 | 36 | 40 | 42 | 278 | 600 | 128 | 476 | 278 | 1,400 |
| 14 | 39 | 37 | 39 | 37 | 40 | 42 | 235 | 550 | 113 | 235 | 330 | 904 |
| 15 | 39 | 37 | 39 | 37 | 40 | 42 | 231 | 555 | 145 | 231 | 326 | 706 |
| 16 | 39 | 38 | 40 | 37 | 40 | 40 | 235 | 796 | 311 | 228 | 322 | 680 |
| 17 | 39 | 39 | 40 | 37 | 40 | 40 | 243 | 1,630 | 307 | 225 | 326 | 448 |
| 18 | 191 | 38 | 40 | 38 | 42 | 42 | 231 | 2,100 | 300 | 222 | 322 | 104 |
| 19 | 329 | 38 | 39 | 40 | 42 | 40 | 162 | 1,380 | 300 | 312 | 322 | 100 |
| 20 | 128 | 38 | 38 | 40 | 43 | 40 | 58 | 1,150 | 300 | 369 | 319 | 100 |
| 21 | 80 | 38 | 39 | 40 | 44 | 40 | 56 | 916 | 361 | 425 | 322 | 174 |
| 22 | 174 | 40 | 39 | 40 | 44 | 40 | 54 | 665 | 442 | 390 | 3,670 | 510 |
| 23 | 50 | 38 | 39 | 40 | 42 | 42 | 49 | 665 | 438 | 292 | 586 | 104 |
| 24 | 39 | 38 | 38 | 38 | 40 | 43 | 54 | 665 | 438 | 285 | 689 | 98 |
| 25 | 39 | 38 | 39 | 39 | 39 | 44 | 52 | 665 | 446 | 285 | 123 | 108 |
| 26 | 39 | 38 | 38 | 40 | 38 | 112 | 52 | 833 | 383 | 282 | 72 | 117 |
| 27 | 39 | 37 | 38 | 42 | 38 | 283 | 49 | 1,040 | 300 | 278 | 71 | 420 |
| 28 | 39 | 37 | 38 | 42 | 39 | 302 | 127 | 1,040 | 255 | 278 | 71 | 884 |
| 29 | 39 | 38 | 38 | 42 | - | 302 | 271 | 1,040 | 208 | 274 | 72 | 1,650 |
| 30 | 39 | 37 | 38 | 38 | ------- | 311 | 274 | 1,040 | 202 | 271 | 74 | 840 |
| 31 | 39 | ------- | 37 | 40 | ------- | 461 | ------- | 712 | ------- | 271 | 74 | ------- |
| Total | 2,769 | 1,152 | 1,194 | 1,190 | 1,131 | 2,803 | 7,414 | 23,436 | 10,581 | 9,092 | 11,839 | 12,812 |
| Mean | 89.3 | 38.4 | 38.5 | 38.4 | 40.4 | 90.4 | 247 | 756 | 353 | 293 | 382 | 427 |
| Ac-ft | 5,490 | 2,280 | 2,370 | 2,360 | 2,240 | 5,560 | 14,710 | 46,480 | 20,990 | 18,030 | 23,480 | 25,410 |

Calendar year 1957: Max 1,570 Min 17 Mean 108 Ac-ft 78,370
Water year 1957-58: Max 3,670 Min 36 Mean 234 Ac-ft 169,400

Peak discharge (base, 1,700 cfs).--May 18 (5 a.m.) 2,140 cfs (4.22 ft); July 21 (6:30 p.m.) (1,750 cfs (3.77 ft); Aug. 1 (1:30 p.m.) 2,150 cfs (4.23 ft); Aug. 22 (3:45 a.m.) 11,100 cfs (10.55 ft); Aug. 24 (12:15 p.m.) 2,090 cfs (4.16 ft); Sept. 29 (7 p.m.) 2,020 cfs (4.06 ft).

4035. 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 headgates 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 1958.

Gage.--Water-stage recorder. Datum of gage is 3,156.50 ft above mean sea level, datum of 1929. July 1939 to December 1940 at site 20 ft upstream at datum 0.9 ft higher.

Extremes.--1939-40, 1951-58: Maximum daily discharge, 490 cfs July 13, 1940; no flow at times.

Remarks.--Records good. Discharge measurements generally made twice a month during irrigation season. Canal diverts water from Lake Avalon for irrigation of Carlsbad Irrigation District. Records of chemical analyses for the water year 1958 are given in WSP 1573.

Monthly discharge, in cubic feet per second, water year October 1957 to September 1958

| Month | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|
| October | 142 | 0 | 56.9 | 3,500 |
| November | 0 | 0 | 0 | 0 |
| December | 0 | 0 | 0 | 0 |
| Calendar year 1957 | 418 | 0 | 82.7 | 59,890 |
| January | 0 | 0 | 0 | 0 |
| February | 124 | 0 | 27.2 | 1,510 |
| March | 397 | 0 | 83.9 | 5,160 |
| April | 445 | 47 | 209 | 12,440 |
| May | 282 | 80 | 177 | 10,870 |
| June | 454 | 131 | 279 | 16,590 |
| July | 485 | 152 | 289 | 17,760 |
| August | 399 | 0 | 207 | 12,750 |
| September | 134 | 22 | 69.3 | 4,120 |
| Water year 1957-58 | 485 | 0 | 117 | 84,700 |

## 4040. 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.--January 1906 to March 1907, June 1951 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 3,130 ft (from topographic map). January 1906 to March 1907 staff gage at site half a mile upstream at different datum.

Average discharge.--7 years (1951-58), 48.2 cfs (34,900 acre-ft per year).

Extremes.--Maximum discharge during year, 4,400 cfs Aug. 22 (gage height, 11.6 ft, from high-water mark on outside gage); no flow most days.
1951-58: Maximum discharge, 41,000 cfs Oct. 7, 1954 (gage height, 23.3 ft, from floodmarks); no flow many days.
The flood of Oct. 2, 1904, was estimated as 82,000 cfs at McMillan Dam 15 miles upstream (Avalon Dam constructed in 1905-6); both gage and bridge at Carlsbad were destroyed. Another major flood occurred Aug. 7, 1916, when discharge at Carlsbad was computed as 85,700 cfs. This flood originated below the dam site 3 gage.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow regulated by Alamogordo Reservoir, Lake McMillan and Lake Avalon (see p. 433). Diversions and ground-water withdrawals above station for irrigation of about 175,000 acres. Station bypassed by Carlsbad main canal (see preceding page).

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | (*) | (*) | | | | | (*) | 0 | 212 | (*) | 0 | 0 |
| 2 | | | (*) | (*) | | | | *0 | *229 | | 0 | *0 |
| 3 | | | | | (*) | (*) | | 0 | 445 | | 0 | 0 |
| 4 | | | | | | | | 0 | 433 | | *0 | 0 |
| 5 | | | | | | | | 0 | 178 | | 0 | 0 |
| 6 | | | | | | | | 0 | 68 | | 0 | 0 |
| 7 | | | | | | | | 0 | 0 | | 0 | 78 |
| 8 | | | | | | | | 0 | 0 | | 0 | *504 |
| 9 | | | | | | | | 0 | 0 | | 0 | 0 |
| 10 | | | | | | | | 236 | 0 | | 0 | 0 |
| 11 | | | | | | | | 764 | 9 | | 0 | 1 |
| 12 | | | | | | | | *662 | 1 | | 0 | 916 |
| 13 | | | | | | | | 413 | 0 | | 0 | 1,160 |
| 14 | | | | | | | | 350 | 0 | | 0 | 662 |
| 15 | | | | | | | | 328 | 0 | | 0 | 666 |
| 16 | | | | | | | | 511 | 0 | | 0 | 620 |
| 17 | | | | | | | | 1,480 | *0 | | 0 | *312 |
| 18 | | | | | | | | 2,130 | 0 | | 0 | 39 |
| 19 | | | | | | | | 1,270 | 0 | | *0 | 5 |
| 20 | | | | | | | | 1,000 | 0 | | 0 | 0 |
| 21 | | | | | | | | *749 | 0 | | 0 | 14 |
| 22 | | | | | | | | 371 | 0 | | a1,300 | *470 |
| 23 | | | | | | | | 275 | 0 | | a1,400 | 210 |
| 24 | | | | | | | | 454 | 0 | | a500 | 1 |
| 25 | | | | | | | | 558 | 0 | | *6 | 8 |
| 26 | | | | | | | | 586 | 0 | | 0 | 17 |
| 27 | | | | | | | | 728 | 0 | | 0 | 478 |
| 28 | | | | | | | | 796 | 0 | | 0 | 848 |
| 29 | | | | | - | | | 768 | 0 | | 0 | *1,340 |
| 30 | | | | | ------- | | | 756 | 0 | | 0 | 929 |
| 31 | | ------- | | | ------- | | ------- | 584 | ------- | | 0 | ------- |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,769 | 1,575 | 0 | 3,206 | 9,278 |
| Mean | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 509 | 52.5 | 0 | 103 | 309 |
| Ac-ft | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,280 | 3,120 | 0 | 6,360 | 18,400 |

Calendar year 1957: Max 6.6 Min 0 Mean 0.02 Ac-ft 14
Water year 1957-58: Max 2,130 Min 0 Mean 81.7 Ac-ft 59,160

* Discharge measurement or observation of no flow made on this day.
a No gage-height record; discharge estimated on basis of hydrographic comparison with Pecos River at Carlsbad and Avalon Dam tender's notes.

## 4050. 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 Greene 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 1958 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 3,080.28 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); 21 years (1937-58), 204 cfs (147,700 acre-ft per year).

Extremes.--Maximum discharge during year, 4,320 cfs Aug. 22 (gage height, 7.17 ft); minimum daily, 4.0 cfs Dec. 27.

1903-8, 1914-58: Maximum discharge, probably exceeded 90,000 cfs Oct. 2, 1904 (gage height, 23.44 ft, from floodmarks); no flow May 9, 1904.

Note.--The maximum discharge for water year 1905, not previously published, has been determined as probably exceeded 90,000 cfs Oct. 2, 1904 (gage height, 23.44 ft, from floodmarks).

Remarks.--Records good. Flow regulated by Alamogordo Reservoir, Lake McMillan and Lake Avalon (see p. 433), and at low stages by powerplant above station. Diversions and ground-water withdrawals above station for irrigation of about 175,000 acres. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 19-27)

| Oct. 1 to May 10 | | | | May 11 to Sept. 30 | | | |
|---|---|---|---|---|---|---|---|
| 0.85 | 4.0 | 1.2 | 28 | 1.0 | 11 | 2.4 | 365 |
| .9 | 6 | 1.4 | 52 | 1.2 | 30 | 3.0 | 690 |
| 1.0 | 11 | 1.6 | 85 | 1.5 | 75 | 4.0 | 1,360 |
| | | | | 1.9 | 175 | 6.0 | 2,920 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 25 | 32 | 30 | 27 | 31 | 60 | 71 | 31 | 268 | 42 | 38 | 54 |
| 2 | 42 | 32 | 30 | 28 | 32 | 22 | 62 | 33 | 244 | 43 | 39 | 41 |
| 3 | 28 | 31 | 28 | 28 | 32 | 32 | 28 | 35 | 428 | 42 | 39 | 54 |
| 4 | 11 | 29 | 34 | 31 | 39 | 49 | 30 | 30 | 465 | 40 | 46 | 44 |
| 5 | 27 | 26 | 30 | 34 | *39 | 49 | 30 | 25 | 187 | 40 | 43 | *54 |
| 6 | 25 | 30 | 34 | 32 | 34 | 43 | 30 | *31 | 166 | 43 | 42 | 52 |
| 7 | *25 | *37 | 32 | 31 | 30 | *51 | 25 | 31 | 58 | *38 | *35 | 49 |
| 8 | 38 | 34 | 31 | 30 | 31 | 51 | *29 | 34 | 29 | 39 | 40 | *585 |
| 9 | 14 | 30 | 27 | *30 | 34 | 49 | 29 | 30 | *34 | 38 | 40 | 56 |
| 10 | 29 | 51 | *37 | 31 | 33 | *21 | 47 | 78 | 30 | 36 | 33 | 49 |
| 11 | 16 | 49 | 31 | 30 | 36 | 15 | 36 | 750 | 42 | 39 | 35 | 46 |
| 12 | 32 | 21 | 31 | 34 | 36 | 49 | 28 | *660 | 52 | 38 | 43 | 807 |
| 13 | 30 | 5.9 | 31 | 30 | 35 | 22 | 29 | 410 | 40 | 38 | 43 | 1,250 |
| 14 | 18 | 34 | 31 | 31 | 37 | 49 | 22 | 378 | 30 | 40 | 35 | 684 |
| 15 | 32 | 31 | 31 | 29 | 36 | 49 | 29 | 356 | 35 | 35 | 43 | *702 |
| 16 | 29 | 31 | 32 | 29 | 36 | 35 | 32 | 463 | 36 | 34 | 33 | 642 |
| 17 | 18 | 32 | 32 | 29 | 28 | 17 | 38 | 1,390 | 38 | 43 | 33 | 407 |
| 18 | 31 | 29 | 32 | 30 | 36 | 49 | 36 | 2,190 | 43 | 42 | 14 | 101 |
| 19 | 35 | 32 | 32 | 32 | 37 | 49 | 34 | 1,440 | 36 | 35 | 37 | 56 |
| 20 | 31 | 31 | 37 | 30 | 37 | 25 | 31 | 1,030 | 43 | 43 | *42 | 46 |
| 21 | 34 | 30 | 30 | 30 | 44 | 16 | 31 | *863 | 31 | 43 | 33 | 43 |
| 22 | *31 | 32 | 30 | 30 | 40 | 37 | 30 | 450 | 40 | 42 | 1,240 | *504 |
| 23 | 30 | 32 | 41 | 32 | 30 | 6.0 | 31 | 334 | 42 | *39 | *1,430 | 377 |
| 24 | 42 | 32 | 41 | 31 | 45 | 38 | 31 | 454 | *45 | 36 | 426 | 40 |
| 25 | 38 | 22 | 27 | 32 | 51 | 34 | 32 | 588 | 38 | 39 | 451 | 48 |
| 26 | 27 | *36 | 40 | 31 | 51 | 34 | 32 | 594 | 40 | 30 | *44 | 54 |
| 27 | 27 | 34 | 4.0 | 31 | 32 | 31 | 31 | 732 | 44 | 33 | 41 | 413 |
| 28 | 27 | 30 | 24 | 32 | 44 | 37 | 34 | 782 | 48 | 36 | 43 | 848 |
| 29 | 27 | 31 | 27 | 31 | - | 34 | 30 | 776 | 36 | 43 | 43 | 1,160 |
| 30 | 28 | 30 | 44 | 32 | ------- | 34 | 30 | 738 | 36 | 42 | 44 | 1,120 |
| 31 | 30 | ------- | 19 | 34 | ------- | 31 | ------- | 643 | ------- | 39 | 50 | ------- |
| Total | 877 | 936.9 | 960.0 | 952 | 1,026 | 1,118.0 | 1,008 | 16,379 | 2,704 | 1,210 | 4,598 | 10,386 |
| Mean | 28.3 | 31.2 | 31.0 | 30.7 | 36.6 | 36.1 | 33.6 | 528 | 90.1 | 39.0 | 148 | 346 |
| Ac-ft | 1,740 | 1,860 | 1,900 | 1,890 | 2,040 | 2,220 | 2,000 | 32,490 | 5,360 | 2,400 | 9,120 | 20,600 |

Calendar year 1957: Max 57 Min 0.9 Mean 26.3 Ac-ft 19,020
Water year 1957-58: Max 2,190 Min 4.0 Mean 115 Ac-ft 83,620

* Discharge measurement made on this day.

## 4055. 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 1958.

Gage.--Water-stage recorder. Altitude of gage is 3,070 ft (from topographic map).

Average discharge.--11 years (1947-58), 13.5 cfs (9,770 acre-ft per year).

Extremes.--Maximum discharge during year, 3,620 cfs Aug. 22 (gage height, 7.32 ft); minimum daily, 3.5 cfs Apr. 5, 6.

1946-58: Maximum discharge, 20,500 cfs Sept. 23, 1955 (gage height, 14.70 ft), from rating curve extended above 1,400 cfs on basis of slope-area measurements at gage heights 8.41 and 12.60 ft; minimum daily, 2.7 cfs Sept. 19-21, 1952, Mar. 21, 22, 1953, Oct. 16, 1956.

Maximum discharge known, 33,000 cfs September 1941 (gage height, 19.0 ft, determined in 1947 from well-defined floodmarks), from rating curve extended above 1,400 cfs on basis of slope-area measurements at gage heights 8.41 and 12.60 ft.

Remarks.--Records excellent below 20 cfs and good above except those for Feb. 10-24, which are fair. Diversions for irrigation of about 1,200 acres above station.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 0.7 | 2.7 | 1.6 | 62 |
| .8 | 5.4 | 2.0 | 125 |
| .9 | 9.1 | 2.5 | 240 |
| 1.2 | 25 | 3.0 | 390 |
| 1.4 | 40 | 4.0 | 820 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.1 | 23 | 10 | 8.4 | 11 | 5.1 | 4.0 | 10 | 7.2 | 6.9 | 7.6 | 9.1 |
| 2 | 5.1 | 14 | 10 | 6.5 | 10 | 5.4 | 4.0 | 10 | 7.2 | 13 | 7.6 | 8.7 |
| 3 | 4.9 | 12 | 10 | 5.4 | 11 | 5.8 | 4.0 | 10 | 7.2 | *85 | 7.2 | 8.7 |
| 4 | 4.9 | 11 | 10 | 5.8 | 12 | 5.8 | 3.8 | 10 | 6.9 | 22 | 7.2 | 8.7 |
| 5 | 5.1 | 10 | 10 | 7.2 | *11 | 5.8 | 3.5 | 9.6 | 7.2 | 53 | 6.9 | *8.4 |
| 6 | 6.9 | 10 | 11 | 7.6 | 7.6 | 6.5 | 3.5 | *9.6 | 7.2 | 158 | *6.9 | 8.4 |
| 7 | *6.5 | *10 | 10 | 7.2 | 6.9 | *5.8 | *4.9 | 9.1 | 7.2 | 34 | 6.9 | 12 |
| 8 | 5.8 | 10 | 10 | 6.5 | 6.1 | 5.8 | 6.1 | 8.7 | 7.2 | 22 | 6.9 | 11 |
| 9 | 5.4 | 9.6 | 10 | *6.1 | 5.8 | 5.4 | 7.2 | 8.7 | *7.2 | 13 | 6.9 | 10 |
| 10 | 5.8 | 9.6 | *10 | 5.8 | 5.5 | 5.1 | 8.0 | 8.7 | 6.9 | 10 | 6.9 | 10 |
| 11 | 5.8 | 10 | 10 | 5.8 | 5.2 | 5.1 | 7.6 | 8.7 | 6.5 | 8.7 | 6.9 | 44 |
| 12 | 21 | 10 | 10 | 5.8 | 5.2 | 5.8 | 8.0 | 125 | 6.9 | 7.6 | 6.9 | 59 |
| 13 | 21 | 10 | 10 | 5.4 | 5.0 | 5.8 | 8.0 | *43 | 6.9 | 7.2 | 6.9 | 21 |
| 14 | 9.1 | 9.6 | 9.6 | 5.1 | 5.0 | 5.8 | 7.6 | 17 | 6.1 | 6.9 | 6.9 | 13 |
| 15 | 7.6 | 9.6 | 9.6 | 4.9 | 5.0 | 5.8 | 8.0 | 11 | 6.5 | 6.5 | 6.9 | *11 |
| 16 | 6.9 | 10 | 9.6 | 4.9 | 5.2 | 5.4 | 11 | 10 | 6.5 | 6.5 | 6.5 | 10 |
| 17 | 6.5 | 10 | 9.6 | 4.9 | 5.4 | 5.4 | 17 | 9.6 | 6.5 | *6.5 | 6.5 | 10 |
| 18 | 6.1 | 11 | 8.0 | 4.9 | 5.8 | 5.4 | 13 | 9.1 | 6.5 | 6.5 | 8.0 | 9.6 |
| 19 | 51 | 11 | 6.5 | 4.9 | 6.5 | 5.4 | 12 | 9.1 | 6.5 | 6.5 | 8.0 | 9.1 |
| 20 | 71 | 11 | 4.6 | 4.9 | 6.8 | 5.4 | 12 | 8.7 | 6.5 | 10 | 20 | 9.1 |
| 21 | 49 | 11 | 4.0 | 4.9 | 7.0 | 5.4 | 12 | 8.4 | 30 | 8.7 | 150 | 8.7 |
| 22 | *35 | 13 | 5.1 | 4.9 | 6.5 | 4.9 | 11 | 8.0 | 55 | 8.0 | *647 | 9.8 |
| 23 | 19 | 12 | 8.7 | 4.9 | 6.0 | 4.9 | 10 | 8.0 | 25 | 7.6 | *50 | 145 |
| 24 | 13 | 11 | 10 | 4.6 | 6.0 | 4.9 | 11 | 8.4 | 12 | 7.2 | 125 | 25 |
| 25 | 11 | *11 | 10 | 4.6 | 5.8 | 5.1 | 11 | 8.4 | 9.1 | 6.9 | 24 | 16 |
| 26 | 11 | 11 | 11 | 4.6 | 5.4 | 5.1 | 9.6 | 8.4 | 7.2 | 6.9 | 16 | 13 |
| 27 | 10 | 11 | 11 | 4.9 | 4.9 | 4.9 | 9.6 | 8.4 | 7.2 | 7.6 | 11 | 180 |
| 28 | 10 | 11 | 11 | 4.9 | 4.9 | 4.6 | 9.1 | 8.4 | 7.2 | 12 | *10 | 44 |
| 29 | 10 | 11 | 11 | 4.9 | - | 4.3 | 10 | 8.0 | 6.9 | 14 | 9.6 | 21 |
| 30 | 10 | 10 | 11 | 6.5 | ------- | 4.3 | 10 | 7.6 | 6.5 | 9.6 | 9.1 | 14 |
| 31 | 11 | ------- | 10 | 10 | ------- | 4.3 | ------- | 7.2 | ------- | 8.0 | 9.1 | ------- |
| Total | 450.5 | 333.4 | 291.3 | 177.7 | 188.5 | 164.5 | 256.5 | 434.8 | 302.9 | 586.3 | 1,215.3 | 767.3 |
| Mean | 14.5 | 11.1 | 9.40 | 5.73 | 6.73 | 5.31 | 8.55 | 14.0 | 10.1 | 18.9 | 39.2 | 25.6 |
| Ac-ft | 894 | 661 | 578 | 352 | 374 | 326 | 509 | 862 | 601 | 1,160 | 2,410 | 1,520 |

Calendar year 1957: Max 363 Min 4.0 Mean 10.1 Ac-ft 7,330
Water year 1957-58: Max 647 Min 3.5 Mean 14.2 Ac-ft 10,250

Peak discharge (base, 450 cfs, revised).--May 12 (4 p.m.) 908 cfs (4.16 ft); June 21 (10:30 p.m.) 564 cfs (3.46 ft); Aug. 22 (12 m.) 3,620 cfs (7.32 ft); Sept. 23 (4 a.m.) 690 cfs (3.72 ft); Sept. 27 (3:15 p.m.) 974 cfs (4.27 ft).

* Discharge measurement made on this day.

Note.--No gage-height record Feb. 10-24; discharge estimated on basis of recorded range in stage.

## 4065. 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 4 miles (revised) 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 1958 in reports of Geological Survey. January 1921 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Datum of gage is 2,895.64 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). 21 years (1937-58), 256 cfs (185,300 acre-ft per year).

Extremes.--Maximum discharge during year, 4,210 cfs Aug. 23 (gage height, 10.98 ft); minimum daily, 13 cfs Apr. 8, 23.

1920-58: 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.

Flood of Aug. 7, 1916, was computed as 85,700 cfs at Carlsbad, about 27 miles upstream. Another flood of nearly equal magnitude occurred Oct. 2 or 3, 1904.

Remarks.--Records good. Flow regulated by Alamogordo Reservoir, Lakes McMillan and Avalon (see p. 433) 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 1958 are given in WSP 1573.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.8 | 10 | 3.0 | 145 |
| 2.0 | 19 | 4.0 | 370 |
| 2.3 | 42 | 6.0 | 1,070 |
| 2.6 | 79 | 9.0 | 2,670 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 34 | 38 | 61 | 71 | 51 | 48 | 21 | 22 | 453 | 33 | 30 | 68 |
| 2 | 27 | 25 | 61 | 66 | 50 | 79 | 17 | 21 | 250 | 48 | 30 | 58 |
| 3 | 23 | 25 | 60 | 61 | 60 | 72 | 16 | 21 | 259 | 89 | 30 | 49 |
| 4 | 21 | 25 | 60 | 65 | 61 | 50 | 16 | 19 | 494 | 73 | 40 | 38 |
| 5 | 22 | 25 | 60 | 80 | *63 | 55 | 16 | 19 | 490 | 73 | 38 | *31 |
| 6 | 25 | 39 | 60 | 92 | 68 | 75 | 15 | *20 | 207 | 191 | *34 | 30 |
| 7 | *24 | *54 | 60 | 84 | 58 | *78 | *16 | 18 | 186 | *142 | 33 | 33 |
| 8 | 27 | 54 | 59 | 76 | 54 | 69 | 13 | 17 | 122 | 51 | 31 | 154 |
| 9 | 37 | 60 | *59 | *72 | 50 | 68 | 15 | 18 | *65 | 31 | 36 | 375 |
| 10 | 25 | 63 | 59 | 71 | 51 | 72 | 15 | 25 | 34 | 30 | 40 | 85 |
| 11 | 26 | 64 | 55 | 69 | 51 | 63 | 16 | 83 | 27 | 27 | 33 | 50 |
| 12 | 26 | 71 | 57 | 69 | 52 | 50 | 17 | *724 | 23 | 27 | 31 | 176 |
| 13 | 27 | 75 | 55 | 68 | 55 | 41 | 17 | 608 | 23 | 25 | 31 | 1,080 |
| 14 | 30 | 65 | 59 | 68 | 55 | 60 | 18 | 355 | 34 | 23 | 30 | 906 |
| 15 | 25 | 47 | 59 | 66 | 52 | 47 | 21 | 299 | 25 | 24 | 30 | *739 |
| 16 | 24 | 42 | 61 | 65 | 54 | 63 | 22 | 287 | 21 | 22 | 29 | 683 |
| 17 | 24 | 59 | 61 | 65 | 53 | 68 | 27 | 628 | 20 | 21 | 38 | 634 |
| 18 | 25 | 61 | 60 | 64 | 52 | 48 | 23 | 1,820 | 19 | 22 | 49 | 291 |
| 19 | 42 | 63 | 59 | 65 | 49 | 39 | 20 | 1,720 | 18 | 23 | 49 | 138 |
| 20 | 86 | 61 | 60 | 64 | 53 | 61 | 19 | 990 | 18 | 22 | *47 | 102 |
| 21 | 86 | 60 | 60 | 64 | 61 | 59 | 18 | 906 | 24 | 23 | 50 | 68 |
| 22 | *53 | 64 | 60 | 64 | 76 | 44 | 17 | 480 | 152 | 23 | *930 | 73 |
| 23 | 38 | 61 | 60 | 63 | 80 | 36 | 13 | 321 | 63 | *24 | 2,450 | 1,280 |
| 24 | 30 | 64 | 65 | 63 | 64 | 46 | 17 | 250 | *29 | 23 | 609 | 325 |
| 25 | 28 | *64 | 78 | 60 | 52 | 33 | 16 | 402 | 23 | 23 | 1,070 | 197 |
| 26 | 27 | 63 | 85 | 60 | 63 | 23 | 17 | 465 | 19 | 23 | 224 | 115 |
| 27 | 27 | 60 | 79 | 60 | 65 | 21 | 18 | 557 | 18 | 27 | *102 | 306 |
| 28 | 29 | 59 | 68 | 59 | 60 | 19 | 18 | 641 | 18 | 39 | 76 | 1,260 |
| 29 | 26 | 63 | 65 | 59 | - | 19 | 18 | 728 | 17 | 32 | 69 | 930 |
| 30 | 25 | 61 | 54 | 58 | ------- | 18 | 20 | 655 | 17 | 31 | 71 | 1,680 |
| 31 | 26 | ------- | 57 | 58 | ------- | 19 | ------- | 725 | ------- | 27 | 68 | ------- |
| Total | 995 | 1,635 | 1,916 | 2,069 | 1,613 | 1,543 | 532 | 13,844 | 3,168 | 1,292 | 6,428 | 11,954 |
| Mean | 32.1 | 54.5 | 61.8 | 66.7 | 57.6 | 49.8 | 17.7 | 447 | 106 | 41.7 | 207 | 398 |
| Ac-ft | 1,970 | 3,240 | 3,800 | 4,100 | 3,200 | 3,060 | 1,060 | 27,460 | 6,280 | 2,560 | 12,750 | 23,710 |

Calendar year 1957: Max 1,580 Min 13 Mean 43.5 Ac-ft 31,480
Water year 1957-58: Max 2,450 Min 13 Mean 129 Ac-ft 93,190

Peak discharge (base, 1,800 cfs, revised).--May 19 (7:30 a.m.) 2,040 cfs (7.98 ft); Aug. 23 (1 a.m.) 4,210 cfs (10.98 ft); Aug. 25 (9 a.m.) 2,240 cfs (8.32 ft); Sept. 23 (10 a.m.) 2,550 cfs (8.79 ft); Sept. 28 (4:30 a.m.) 1,890 cfs (7.69 ft).

* Discharge measurement made on this day.

4070. Pecos River at Pierce Canyon Crossing, near Malaga, N. Mex.

Location.--Lat 32°11'20", long 103°58'45", in W½ sec. 27, 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 1958.

Gage.--Water-stage recorder. Altitude of gage is 2,890 ft (from river-profile map). July 1938 to September 1941 at datum 1.19 ft higher.

Average discharge.--10 years, 268 cfs (194,000 acre-ft per year).

Extremes.--Maximum gage height, 6.87 ft Aug. 23 (discharge not determined); minimum daily discharge, 14 cfs Apr. 24.
1938-41, 1951-58: Maximum gage height, 24.8 ft May 22, 1941 (datum then in use), from floodmarks (discharge not determined); minimum daily discharge, 4.4 cfs Aug. 20, 1954.

Remarks.--Records good below 400 cfs and poor above. Flow regulated by storage in Alamogordo Reservoir, Lake McMillan, Lake Avalon (see p. 433), and several small diversion and power dams below Carlsbad. Diversions and ground-water withdrawals above station for irrigation of about 181,500 acres. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Revisions (water years).--WSP 898: 1938(M).

Rating tables, water year 1957-58, except period of indefinite stage-discharge relation (gage height, in feet, and discharge, in cubic feet per second)

| Oct. 1 to Feb. 28 | | Mar. 1 to Sept. 30 | | | |
|---|---|---|---|---|---|
| 1.0 | 19 | 0.9 | 12 | 2.0 | 250 |
| 1.1 | 27 | 1.0 | 18 | 2.5 | 440 |
| 1.2 | 38 | 1.2 | 43 | 3.0 | 710 |
| 1.4 | 75 | 1.5 | 103 | 3.4 | 1,010 |
| 1.6 | 130 | | | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 44 | 48 | 64 | 73 | 60 | 60 | 27 | 22 | 460 | 28 | 29 | 74 |
| 2 | 35 | 32 | 64 | 73 | 51 | 66 | 23 | 24 | 268 | 57 | 33 | 66 |
| 3 | 21 | 29 | 62 | 69 | 67 | 78 | 20 | 23 | 229 | 74 | 32 | 52 |
| 4 | 29 | 30 | 62 | 71 | 69 | 64 | 21 | 23 | 436 | 92 | 40 | 42 |
| 5 | 28 | 30 | 60 | 82 | *69 | 55 | 23 | 22 | 384 | 74 | 45 | *37 |
| 6 | 31 | 34 | 62 | 98 | 69 | 76 | 20 | *22 | 206 | 165 | *40 | 37 |
| 7 | *30 | *56 | 62 | 88 | 64 | *82 | *18 | 21 | 197 | *185 | 37 | 39 |
| 8 | 29 | 54 | 60 | 82 | 60 | 70 | 20 | 20 | 146 | 80 | 36 | 60 |
| 9 | 69 | 56 | *60 | *75 | 54 | 72 | 17 | 20 | *85 | 46 | 37 | 400 |
| 10 | 29 | 62 | 60 | 71 | 52 | 70 | 18 | 23 | 52 | 43 | 45 | 116 |
| 11 | 30 | 62 | 54 | 67 | 52 | 66 | 17 | 27 | 40 | 36 | 39 | 72 |
| 12 | 28 | 69 | 54 | 64 | 54 | 60 | 18 | 559 | 30 | 35 | 35 | 95 |
| 13 | 32 | 73 | 54 | 62 | 54 | 45 | 18 | 676 | 27 | 35 | 35 | 954 |
| 14 | 32 | 71 | 52 | 60 | 52 | 60 | 18 | 340 | 39 | 30 | 36 | 930 |
| 15 | 31 | 54 | 52 | 58 | 51 | 53 | 22 | 292 | 35 | 26 | 33 | 686 |
| 16 | 29 | 43 | 52 | 58 | 52 | 57 | 22 | 264 | 29 | 26 | 33 | 656 |
| 17 | 29 | 56 | 54 | 58 | 54 | 66 | 30 | 512 | 28 | 27 | 35 | 602 |
| 18 | 29 | 62 | 52 | 58 | 54 | 58 | 28 | 1,400 | 25 | 25 | 50 | 362 |
| 19 | 36 | 64 | 52 | 62 | 51 | 45 | 21 | 1,500 | 25 | 24 | 52 | 165 |
| 20 | 92 | 64 | 52 | 62 | 54 | 58 | 20 | 986 | 24 | 24 | *50 | 126 |
| 21 | 98 | 62 | 52 | 62 | 60 | 64 | 18 | 874 | 27 | 26 | 48 | 87 |
| 22 | *76 | 69 | 54 | 64 | 73 | 58 | 18 | 515 | 155 | 28 | 550 | 76 |
| 23 | 60 | 67 | 56 | 64 | 80 | 43 | 16 | 320 | 82 | *30 | 2,000 | 1,000 |
| 24 | 48 | 69 | 60 | 62 | 75 | 52 | 14 | 236 | *45 | 24 | 650 | 400 |
| 25 | 44 | *69 | 69 | 64 | 60 | 57 | 15 | 352 | 37 | 24 | 1,000 | 232 |
| 26 | 43 | 69 | 78 | 62 | 67 | 36 | 15 | 445 | 30 | 25 | 259 | 143 |
| 27 | 43 | 67 | 78 | 67 | 75 | 26 | 15 | 510 | 28 | 27 | *124 | 216 |
| 28 | 43 | 60 | 73 | 67 | 62 | 25 | 16 | 614 | 27 | 37 | 87 | 1,100 |
| 29 | 35 | 64 | 73 | 67 | - | 23 | 17 | 686 | 26 | 40 | 80 | 882 |
| 30 | 35 | 64 | 60 | 67 | ------- | 22 | 18 | 632 | 24 | 35 | 80 | 1,500 |
| 31 | 32 | ------- | 62 | 67 | ------- | 21 | ------- | 668 | ------- | 32 | 74 | ------- |
| Total | 1,272 | 1,709 | 1,859 | 2,104 | 1,695 | 1,688 | 583 | 12,628 | 3,246 | 1,460 | 5,724 | 11,207 |
| Mean | 41.0 | 57.0 | 60.0 | 67.9 | 60.5 | 54.5 | 19.4 | 407 | 108 | 47.1 | 185 | 374 |
| Ac-ft | 2,520 | 3,390 | 3,690 | 4,170 | 3,360 | 3,350 | 1,160 | 25,050 | 6,440 | 2,900 | 11,350 | 22,230 |

Calendar year 1957: Max 1,300 Min 15 Mean 46.1 Ac-ft 33,340
Water year 1957-58: Max 2,000 Min 14 Mean 124 Ac-ft 89,610

* Discharge measurement made on this day.
Note.--Stage-discharge relation indefinite May 18, 19, Aug. 22-25, Sept. 23, 28, 30; discharge estimated on basis of records for Pecos River near Malaga.

## 4075. Pecos River at Red Bluff, N. Mex.

Location.--Lat 32°04'40", long 104°02'20", in sec. 1, T. 26 S., R. 28 E., on right bank at Red Bluff, 0.2 miles 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 1958.

Gage.--Water-stage recorder. Datum of gage is 2,850.05 ft above mean sea level, datum of 1929.

Average discharge.--21 years, 263 cfs (190,400 acre-ft per year).

Extremes.--Maximum discharge during year, 4,400 cfs Aug. 22 (gage height, 9.22 ft); minimum daily, 17 cfs Apr. 25-28.

1937-58: 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 measurement of peak flow; minimum, 1.4 cfs Aug. 21, 1954.

Maximum stage known, that of May 24, 1941. Flood in October 1904 reached a stage of 28.0 ft, from information by Panhandle and Santa Fe Railway Co.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Flow largely regulated by reservoirs above Carlsbad (see p. 432). Many diversions above station for irrigation.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 42 | 48 | 63 | 60 | 63 | 65 | | 21 | 673 | 28 | | 80 |
| 2 | *37 | 45 | 63 | 71 | 58 | 58 | | 23 | 325 | 46 | | 77 |
| 3 | 31 | 35 | 63 | 66 | 58 | 77 | a33 | 24 | 214 | 60 | a33 | 66 |
| 4 | 28 | 35 | 63 | 66 | 68 | 71 | | 22 | 334 | 99 | | 63 |
| 5 | 26 | 35 | 62 | 76 | 69 | 55 | | 21 | 512 | 79 | | 62 |
| 6 | 29 | 36 | 62 | 80 | 72 | 63 | | 20 | 237 | 396 | *37 | 59 |
| 7 | 29 | 44 | 62 | 84 | 72 | 76 | | *20 | 199 | 226 | 32 | 58 |
| 8 | 29 | 59 | 69 | *76 | 68 | 72 | a29 | 20 | 168 | *120 | 31 | 59 |
| 9 | 121 | 59 | 62 | 71 | 63 | 69 | | 20 | 110 | 66 | 31 | 337 |
| 10 | 40 | 66 | *63 | 68 | 60 | 68 | | 19 | 72 | 51 | 33 | *183 |
| 11 | 29 | 69 | 62 | 66 | 60 | 69 | | 23 | *47 | 48 | 36 | 91 |
| 12 | 35 | *69 | 60 | 65 | 62 | 66 | | 295 | 40 | 47 | 33 | 80 |
| 13 | 41 | 74 | 62 | 65 | 62 | 55 | a25 | *791 | 37 | 42 | 30 | 623 |
| 14 | 32 | 76 | 60 | 65 | 63 | 50 | | *394 | 34 | a39 | 31 | 1,150 |
| 15 | 34 | 68 | 62 | 65 | 62 | 63 | *25 | 325 | 42 | a36 | 31 | 745 |
| 16 | 31 | 53 | 62 | 65 | 60 | 55 | 27 | 275 | 36 | a33 | 28 | 745 |
| 17 | 30 | 52 | 63 | 63 | 62 | 69 | 33 | 336 | 33 | a30 | 30 | 673 |
| 18 | 29 | 63 | 62 | 65 | *60 | 69 | 32 | 1,330 | 31 | a52 | 36 | 517 |
| 19 | 36 | 66 | 59 | 66 | 60 | *58 | 28 | 1,920 | 29 | a31 | 42 | 204 |
| 20 | 61 | 66 | 59 | 66 | 58 | 52 | 25 | 1,220 | 28 | a29 | 46 | 142 |
| 21 | 98 | 66 | 59 | 65 | 63 | 69 | 25 | 925 | 28 | | 51 | 108 |
| 22 | 89 | 69 | 59 | 65 | 74 | 71 | 21 | 754 | 134 | | 1,430 | 93 |
| 23 | 63 | 68 | 59 | 65 | 80 | 56 | 18 | 361 | 120 | a28 | 2,250 | 736 |
| 24 | 50 | 68 | 59 | 65 | 80 | 48 | 19 | 275 | 68 | | 1,830 | 760 |
| 25 | 44 | 69 | 63 | 65 | 66 | 59 | 17 | 294 | 44 | | 1,030 | 395 |
| 26 | 41 | 69 | 71 | 65 | 62 | 51 | 17 | 460 | 36 | | 552 | 254 |
| 27 | 41 | 68 | 76 | 63 | 72 | 39 | 17 | 472 | 31 | | 174 | 267 |
| 28 | 41 | 63 | 72 | 63 | 80 | 35 | 17 | 637 | 32 | | 114 | 1,030 |
| 29 | 40 | 63 | 69 | 63 | - | 31 | 18 | 715 | 29 | a30 | 95 | 1,040 |
| 30 | 36 | 63 | 65 | 63 | ------- | 31 | 18 | 715 | 28 | | 87 | 1,340 |
| 31 | 39 | ------- | 59 | 63 | ------- | 28 | ------- | 673 | ------- | | 86 | ------- |
| Total | 1,352 | 1,784 | 1,945 | 2,074 | 1,837 | 1,798 | 767 | 13,400 | 3,751 | 1,878 | 8,371 | 12,037 |
| Mean | 43.6 | 59.5 | 62.7 | 66.9 | 65.6 | 58.0 | 25.6 | 432 | 125 | 60.6 | 270 | 401 |
| Ac-ft | 2,680 | 3,540 | 3,860 | 4,110 | 3,640 | 3,570 | 1,520 | 26,580 | 7,440 | 3,720 | 16,600 | 23,880 |

Calendar year 1957: Max 2,450 Min 11 Mean 47.2 Ac-ft 34,140
Water year 1957-58: Max 2,250 Min 17 Mean 140 Ac-ft 101,100

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of record for station at Pierce Canyon Crossing.

## 4085. Delaware River near Red Bluff, N. Mex.

Location.--Lat 32°01', long 104°03', in 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 1958. 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, at site 3 miles upstream at different datum. May 1914 to June 1915, at site 2½ miles downstream at different datum.

Average discharge.--21 years (1937-58), 15.9 cfs (11,510 acre-ft per year).

Extremes.--Maximum discharge during year, 7,200 cfs Aug. 22 (gage height, 9.30 ft), from rating curve extended above 1,500 cfs as explained below; no flow July 11, 12, 18-21.

1912-13, 1914-15, 1937-58: Maximum discharge, 81,400 cfs Oct. 2, 1955 (gage height, 27.0 ft, from floodmark), from rating curve extended above 1,500 cfs on basis of slope-area measurements at gage heights 8.65, 12.84, 18.00, and 27.0 ft; no flow at times.

Maximum stage known since at least 1911, that of Oct. 2, 1955. Flood of June 27, 1938, reached a stage of 18.00 ft, from floodmark.

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

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.4 | 149 | 2.8 | 2.3 | 2.1 | 2.1 | 1.9 | 1.5 | 1.0 | 2.5 | 0.5 | 2.9 |
| 2 | *1.3 | 46 | 2.9 | 2.3 | 2.2 | 2.4 | 1.9 | 1.6 | .7 | 2.4 | 170 | 2.6 |
| 3 | 1.2 | 12 | 3.0 | 2.4 | 2.4 | 2.3 | 1.7 | 1.5 | .6 | 50 | 50 | 2.4 |
| 4 | 1.2 | 7.1 | 3.0 | 2.8 | 2.4 | 2.4 | 1.7 | 1.3 | .4 | 6.2 | 12 | 2.1 |
| 5 | 1.2 | 5.8 | 3.0 | 3.8 | 2.4 | 2.3 | 1.4 | 1.2 | .3 | 2.2 | 5.8 | 2.0 |
| 6 | 4.8 | 4.8 | 3.0 | 5.0 | 2.3 | 2.6 | 1.5 | 1.1 | .3 | 702 | *3.3 | 2.0 |
| 7 | 3.1 | 4.4 | 3.0 | 4.0 | 2.3 | 2.6 | 1.5 | *1.0 | .2 | 104 | 2.3 | 2.7 |
| 8 | 2.4 | 3.9 | 2.9 | *3.3 | 2.3 | 2.4 | 1.6 | .8 | .3 | *27 | 1.7 | 3.5 |
| 9 | 1.8 | 3.6 | 2.8 | 3.3 | 2.3 | 2.2 | 1.6 | .8 | .2 | 12 | 1.4 | 3.0 |
| 10 | 1.8 | 3.8 | *2.6 | 3.2 | 2.3 | 2.0 | 1.6 | .8 | .2 | 7.8 | 1.2 | *2.8 |
| 11 | 1.8 | 3.8 | 2.6 | 3.1 | 2.0 | 2.0 | 1.6 | 4.7 | *0 | 5.6 | 1.0 | 21 |
| 12 | 9.2 | *3.8 | 2.6 | 2.9 | 2.6 | 2.8 | 1.7 | 550 | 0 | 4.5 | 1.0 | 4.5 |
| 13 | 64 | 3.5 | 2.6 | 2.8 | 2.6 | 3.0 | 2.0 | *212 | 1.0 | 3.6 | .8 | 4.3 |
| 14 | 24 | 3.3 | 2.6 | 2.7 | 2.4 | 2.8 | 2.0 | *27 | .6 | 3.0 | .7 | 2.3 |
| 15 | 7.6 | 2.9 | 2.6 | 2.7 | 2.3 | 2.4 | *1.9 | 12 | .5 | 2.4 | .6 | 2.0 |
| 16 | 4.8 | 2.8 | 2.7 | 2.7 | 2.3 | 2.4 | 1.7 | 7.4 | .2 | 2.2 | .5 | 1.8 |
| 17 | 3.5 | 2.9 | 2.7 | 2.7 | 2.2 | 2.3 | 4.7 | 5.4 | .1 | 3.2 | .4 | 1.7 |
| 18 | 3.0 | 3.1 | 2.6 | 2.7 | *2.2 | 2.3 | 3.1 | 4.4 | 0 | 2.0 | .4 | 1.7 |
| 19 | 45 | 3.1 | 2.4 | 3.4 | 2.3 | *2.3 | 2.4 | 3.8 | 0 | 1.8 | .4 | 1.7 |
| 20 | 25 | 3.0 | 2.4 | 3.5 | 2.4 | 2.3 | 1.9 | 3.3 | 0 | 1.7 | .4 | 1.6 |
| 21 | 366 | 2.9 | 2.4 | 3.1 | 2.8 | 2.2 | 1.7 | 2.9 | 0 | 1.6 | 159 | 1.5 |
| 22 | 39 | 4.0 | 2.4 | 2.8 | 4.1 | 2.3 | 1.5 | 2.5 | 377 | 1.4 | 1,210 | 1.8 |
| 23 | 22 | 4.1 | 2.4 | 2.6 | 3.8 | 2.3 | 1.3 | 2.3 | 940 | 1.3 | 279 | 35 |
| 24 | 9.3 | 3.9 | 2.4 | 2.6 | 2.9 | 2.4 | 1.1 | 2.1 | 36 | 1.1 | 556 | 35 |
| 25 | 6.2 | 3.6 | 2.6 | 2.5 | 2.5 | 2.6 | 1.1 | 1.9 | 14 | 1.0 | 41 | 233 |
| 26 | 5.3 | 3.6 | 2.6 | 2.4 | 2.3 | 2.6 | 1.3 | 1.8 | 8.5 | .8 | 14 | 13 |
| 27 | 4.5 | 3.4 | 2.6 | 2.4 | 2.1 | 2.4 | 1.3 | 1.6 | 6.0 | 1.0 | 8.7 | 450 |
| 28 | 4.0 | 3.2 | 2.5 | 2.4 | 2.0 | 2.1 | 1.3 | 1.4 | 4.6 | 1.2 | 6.0 | 88 |
| 29 | 3.8 | 3.0 | 2.5 | 2.4 | - | 2.1 | 1.3 | 1.3 | 3.4 | 1.0 | 4.8 | 17 |
| 30 | 3.6 | 2.8 | 2.5 | 2.4 | ------- | 2.0 | 1.3 | 1.2 | 2.7 | .8 | 3.9 | 9.7 |
| 31 | 4.4 | ------- | 2.4 | 2.2 | ------- | 2.0 | ------- | 1.1 | ------- | .6 | 3.3 | ------- |
| Total | 676.2 | 307.1 | 82.1 | 89.4 | 68.8 | 72.9 | 52.6 | 861.7 | 1,398.8 | 957.9 | 2,540.1 | 952.6 |
| Mean | 21.8 | 10.2 | 2.65 | 2.88 | 2.46 | 2.35 | 1.75 | 27.8 | 46.6 | 30.9 | 81.9 | 31.8 |
| Ac-ft | 1,340 | 609 | 163 | 177 | 136 | 145 | 104 | 1,710 | 2,770 | 1,900 | 5,040 | 1,890 |

Calendar year 1957: Max 3,650 Min 0 Mean 20.1 Ac-ft 14,570
Water year 1957-58: Max 1,210 Min 0 Mean 22.1 Ac-ft 15,980

Peak discharge (base, 1,700 cfs).--May 12 (10 p.m.) 3,980 cfs (6.75 ft); June 23 (1:30 a.m.) 4,200 cfs (6.95 ft); July 6 (4 p.m.) 2,280 cfs (5.23 ft); Aug. 22 (3 p.m.) 7,200 cfs (9.30 ft); Sept. 27 (10 a.m.) 1,900 cfs (4.89 ft).

* Discharge measurement made on this day.

## 4115. 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 and Santa Fe Railway Co. 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 1957, October 1957 to September 1958 (gage heights only).

Gage.--Water-stage recorder. Datum of gage is 2,801.19 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. Prior to Oct. 1, 1955, at datum 3.00 ft higher.

Average discharge.--15 years (1939-40, 1943-57), 4.59 cfs (3,320 acre-ft per year).

Extremes.--Maximum gage height during year, 13.00 ft Oct. 9; no flow for many days.
1939-40, 1943-58: Maximum discharge, 40,600 cfs Oct. 2, 1955 (gage height, 28.65 ft in gage well, 29.1 ft, from floodmarks); no flow at times.
Maximum stage known, that of Oct. 2, 1955. Maximum stage prior to 1939 was 21 or 22 ft, present datum, from information by local residents.

Remarks.--Records poor.

Revisions (water years).--WSP 1118: Drainage area. WSP 1512: 1940, 1944-46, 1949, 1950(M).

Gage height, in feet, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | 2.85 | 1.75 | - | | | | - | - | - | 2.82 | 2.18 |
| 2 | - | 2.01 | 1.74 | - | | | | - | - | - | 2.26 | 2.17 |
| 3 | - | 1.96 | 1.73 | - | | | | - | - | - | 2.12 | 2.17 |
| 4 | - | 1.91 | 1.73 | - | | | | - | - | - | 2.03 | 2.16 |
| 5 | - | 1.88 | 1.73 | 1.81 | | | | - | - | - | 1.93 | 2.15 |
| 6 | 3.02 | 1.86 | 1.73 | 2.07 | | | | - | - | - | 1.91 | 2.15 |
| 7 | 2.81 | 1.84 | 1.72 | 2.10 | | | | - | - | - | 1.89 | 2.72 |
| 8 | 2.53 | 1.83 | 1.70 | 2.06 | | | | - | - | - | - | 3.40 |
| 9 | 5.43 | 1.82 | 1.70 | 2.04 | | | | - | - | 2.49 | - | 2.98 |
| 10 | 3.40 | 1.81 | 1.70 | 2.01 | | | | - | - | 2.35 | - | 2.48 |
| 11 | 2.63 | 1.80 | - | 1.99 | | | | 1.52 | - | 2.26 | - | 2.31 |
| 12 | 3.38 | 1.80 | - | 1.96 | | | | 2.18 | 1.30 | 2.18 | - | 2.21 |
| 13 | 3.18 | 1.83 | - | 1.95 | | | | 1.77 | 1.50 | 2.13 | - | 2.14 |
| 14 | 2.23 | 1.80 | - | 1.92 | | | | 1.65 | 1.43 | 2.09 | - | 2.09 |
| 15 | 2.03 | 1.76 | - | 1.85 | | | | 1.63 | 1.39 | 2.02 | - | 2.03 |
| 16 | 1.94 | 1.75 | - | 1.85 | | | | 1.61 | 1.43 | 2.00 | - | 2.54 |
| 17 | 1.87 | 1.73 | - | 1.83 | | | | 1.60 | 1.52 | 2.03 | - | 2.52 |
| 18 | 1.83 | 1.73 | - | 1.90 | | | | 1.59 | - | 1.99 | - | 2.25 |
| 19 | 1.80 | 1.72 | - | 1.97 | | | | - | - | 1.93 | - | 2.15 |
| 20 | 2.03 | 1.72 | - | 1.98 | | | | - | - | 1.92 | - | 2.08 |
| 21 | 2.76 | 1.72 | - | 1.99 | | | | - | - | 1.91 | - | 1.98 |
| 22 | 2.18 | 1.76 | - | 1.98 | | | | - | - | 1.90 | 2.66 | 1.91 |
| 23 | 2.42 | 1.80 | - | 1.93 | | | | - | - | - | 2.82 | 1.99 |
| 24 | 2.02 | 1.80 | - | 1.91 | | | | - | - | - | 4.24 | 2.11 |
| 25 | 1.94 | 1.83 | - | 1.88 | | | | - | - | - | 2.66 | 2.29 |
| 26 | 1.90 | 1.83 | - | 1.87 | | | | - | - | - | 2.43 | 4.79 |
| 27 | 1.88 | 1.81 | - | 1.86 | | | | - | - | - | 2.36 | 5.28 |
| 28 | 1.86 | 1.80 | - | 1.84 | | | | - | - | - | 2.32 | 6.13 |
| 29 | 1.84 | 1.77 | - | - | - | | | - | - | - | 2.28 | 3.58 |
| 30 | 1.83 | 1.75 | - | - | ------- | | | - | - | - | 2.23 | 2.83 |
| 31 | 2.12 | ------- | - | - | ------- | | ------- | - | ------- | - | 2.18 | ------- |

Note.--Gage heights shown only on days for which there is flow. No gage-height record Oct. 15-20, Oct. 24 to Nov. 11, June 18 to July 8; gage heights estimated.

## 4125. 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 1958.

Gage.--Water-stage recorder. Datum of gage is 2,718.05 ft above mean sea level, datum of 1929.

Average discharge.--21 years, 261 cfs (189,000 acre-ft per year).

Extremes.--Maximum discharge during year, 3,780 cfs Oct. 9 (gage height, 7.24 ft); minimum, 1.5 cfs Aug. 30.
1937-58: Maximum discharge, 23,700 cfs Sept. 29, 1941 (gage height, 20.74 ft); no flow Sept. 9-14, Nov. 4, 1946.

Remarks.--Records good except those for period of no gage-height record, which are fair. Flow regulated by Red Bluff Reservoir (see p. 434) and reservoirs above Carlsbad, N. Mex. Occasional runoff from draws between dam and station. Many diversions above Red Bluff Reservoir for irrigation.

Revisions (water years).--WSP 928: 1937.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | | | |
|---|---|---|---|---|---|
| 0.6 | 1.1 | 1.0 | 32 | 2.0 | 330 |
| .7 | 4.2 | 1.1 | 49 | 2.5 | 570 |
| .8 | 10 | 1.3 | 95 | 3.5 | 1,210 |
| .9 | 19 | 1.5 | 150 | 4.5 | 1,900 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 117 | 84 | 11 | 10 | 9.3 | 11 | 11 | 12 | 310 | 179 | 240 | 122 |
| 2 | *117 | 19 | 10 | 10 | 9.3 | 11 | 11 | 13 | 234 | 20 | 240 | 122 |
| 3 | 85 | 14 | 11 | 10 | 9.3 | 11 | 11 | 12 | 310 | 95 | 128 | 125 |
| 4 | 80 | 12 | 10 | 11 | 9.3 | 11 | 11 | 11 | 310 | 427 | 128 | 237 |
| 5 | 80 | 12 | 10 | 15 | 10 | 11 | 11 | 11 | 330 | 234 | 128 | 198 |
| 6 | 85 | 11 | 14 | 13 | 9.3 | 11 | 11 | 11 | 460 | 1,680 | 128 | 198 |
| 7 | 80 | 11 | 9.3 | 11 | 9.3 | 11 | 11 | *11 | 460 | 681 | *128 | 201 |
| 8 | 82 | 11 | 9.3 | 11 | 9.3 | 11 | 12 | 11 | 465 | *241 | 195 | 222 |
| 9 | 1,450 | 10 | 9.3 | *10 | 9.3 | 10 | 11 | 11 | 415 | 240 | 195 | 245 |
| 10 | 98 | 11 | *10 | 10 | 9.3 | 10 | 343 | 11 | 119 | 20 | 195 | *130 |
| 11 | 33 | 11 | 11 | 10 | 9.3 | 11 | 543 | 11 | *111 | 330 | 195 | 125 |
| 12 | 24 | *11 | 11 | 11 | 10 | 12 | 538 | 13 | 40 | 150 | 195 | 122 |
| 13 | 281 | 10 | 12 | 11 | 10 | 12 | 532 | 15 | 21 | 150 | 90 | 105 |
| 14 | 47 | 10 | 12 | 11 | 10 | 12 | 501 | 15 | 16 | 150 | 85 | 17 |
| 15 | 19 | 10 | 12 | 11 | 9.3 | 12 | *245 | 15 | 16 | 20 | 66 | 7.4 |
| 16 | 15 | 10 | 12 | 11 | 9.3 | 12 | 234 | 16 | 18 | 20 | 79 | 4.6 |
| 17 | 15 | 10 | 12 | 11 | 9.3 | 11 | 245 | 16 | 25 | 20 | 147 | 14 |
| 18 | 15 | 10 | 11 | 11 | *9.3 | 11 | 263 | 16 | 22 | 350 | 150 | 12 |
| 19 | 15 | 9.3 | 11 | 15 | 10 | 13 | 263 | 19 | 20 | 350 | 150 | 7.4 |
| 20 | 18 | 8.6 | 11 | 11 | 10 | *12 | 263 | 16 | 375 | 350 | 150 | 5.1 |
| 21 | 27 | 8.6 | 11 | 11 | 11 | 11 | 208 | 18 | 404 | 350 | 153 | 3.0 |
| 22 | 23 | 10 | 11 | 11 | 13 | 11 | 19 | 19 | 589 | 350 | 175 | 2.3 |
| 23 | 16 | 10 | 11 | 11 | 12 | 11 | 14 | 19 | 153 | 240 | 208 | 24 |
| 24 | 18 | 10 | 10 | 11 | 11 | 11 | 12 | 19 | 195 | 240 | 434 | 6.2 |
| 25 | 15 | 10 | 11 | 10 | 11 | 12 | 12 | 19 | 195 | 240 | 103 | 2.6 |
| 26 | 13 | 10 | 11 | 9.3 | 11 | 12 | 12 | 19 | 191 | 240 | 15 | 267 |
| 27 | 13 | 10 | 10 | 9.3 | 10 | 12 | 12 | 19 | 34 | 240 | 8.0 | 294 |
| 28 | 12 | 10 | 10 | 9.3 | 9.3 | 11 | 12 | 19 | 19 | 240 | 4.6 | 1,200 |
| 29 | 12 | 10 | 10 | 9.3 | - | 11 | 12 | 34 | 37 | 240 | 3.0 | 270 |
| 30 | 12 | 10 | 11 | 9.3 | ------- | 11 | 13 | 413 | 119 | 240 | 2.8 | 52 |
| 31 | 11 | ------- | 10 | 9.3 | ------- | 11 | ------- | 427 | ------- | 240 | 117 | ------- |
| Total | 2,928 | 393.5 | 334.9 | 333.8 | 278.5 | 350 | 4,396 | 1,291 | 6,013 | 8,567 | 4,235.4 | 4,340.6 |
| Mean | 94.5 | 13.1 | 10.8 | 10.8 | 9.95 | 11.3 | 147 | 41.6 | 200 | 276 | 137 | 145 |
| Ac-ft | 5,810 | 780 | 664 | 662 | 552 | 694 | 8,720 | 2,560 | 11,930 | 16,990 | 8,400 | 8,610 |

Calendar year 1957: Max 1,450 Min 5.1 Mean 69.9 Ac-ft 50,620
Water year 1957-58: Max 1,680 Min 2.3 Mean 91.7 Ac-ft 66,370

* Discharge measurement made on this day.
Note.--No gage-height record July 9 to Aug. 6; discharge estimated on basis of record of released flow at Red Bluff Reservoir and records for nearby stations.

## 4255. 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 1958.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 3,472.69 ft above mean sea level (Bureau of Reclamation bench mark). Dec. 21, 1931, to Dec. 31, 1933, water-stage recorder at site 425 ft downstream at datum 3.05 ft higher.

Average discharge.--11 years (1932-33, 1948-58), 14.0 cfs (10,140 acre-ft per year).

Extremes.--Maximum daily discharge during year, 23 cfs Sept. 29, 30; minimum daily, 10 cfs Feb. 9-12, 16-18, Apr. 10-13.
1931-33, 1948-58: Maximum daily discharge, 114 cfs Oct. 2, 3, 1932; minimum daily, 10 cfs at times in 1957-58.

Remarks.--Records good. Discharge represents total flow of spring. Water used for irrigation in vicinity of Toyahvale and Balmorhea. Record low flow measured in 1957-58 probably represents direct effect of the drought. There has been no significant development of ground water from wells in vicinity of spring and the low flow appears to be the result of reduction of recharge to the contributing ground-water reservoir during the present drought.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 |
| 2 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 |
| 3 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 |
| 4 | *11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 |
| 5 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | *12 | 11 |
| 6 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | *11 | 11 | 11 | 12 | 11 |
| 7 | 11 | 11 | 12 | *11 | 11 | 11 | *11 | 11 | 11 | 11 | 12 | 11 |
| 8 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 | 11 | 12 | 11 |
| 9 | 11 | 11 | *11 | 11 | 10 | 11 | 11 | 12 | 11 | *11 | 11 | *12 |
| 10 | 11 | 11 | 11 | 11 | 10 | 11 | 10 | 12 | *11 | 11 | 11 | 13 |
| 11 | 11 | *11 | 11 | 11 | 10 | 11 | 10 | 12 | 11 | 11 | 11 | 13 |
| 12 | 11 | 11 | 12 | 11 | 10 | 11 | 10 | 12 | 12 | 11 | 11 | 13 |
| 13 | 11 | 11 | 12 | 11 | 11 | 11 | 10 | 11 | 12 | 11 | 11 | 13 |
| 14 | 11 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 12 | 11 | 11 | 13 |
| 15 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 13 |
| 16 | 11 | 11 | 11 | 11 | 10 | 11 | 11 | 11 | 11 | 11 | 11 | 13 |
| 17 | 11 | 11 | 11 | 11 | 10 | 11 | 11 | 11 | 11 | 11 | 11 | 13 |
| 18 | 11 | 11 | 11 | 11 | 10 | *11 | 11 | 11 | 11 | 12 | 11 | 13 |
| 19 | 11 | 11 | 11 | 11 | *11 | 11 | 11 | 11 | 11 | 12 | 11 | 13 |
| 20 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 13 |
| 21 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 |
| 22 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 | 11 | 12 |
| 23 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 | 11 | 12 |
| 24 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 | 12 | 12 |
| 25 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 | 12 | 12 |
| 26 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 | 12 | 12 |
| 27 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 | 12 | 13 |
| 28 | 11 | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 12 | 11 | 11 | 22 |
| 29 | 11 | 12 | 11 | 11 | - | 11 | 11 | 11 | 12 | 12 | 11 | 23 |
| 30 | 11 | 11 | 11 | 11 | ------- | 11 | 11 | 11 | 11 | 12 | 11 | *23 |
| 31 | 11 | ------- | 11 | 11 | ------- | 11 | ------- | 11 | ------- | 12 | 11 | ------- |
| Total | 341 | 334 | 349 | 341 | 301 | 341 | 326 | 346 | 341 | 346 | 354 | 396 |
| Mean | 11.0 | 11.1 | 11.3 | 11.0 | 10.8 | 11.0 | 10.9 | 11.2 | 11.4 | 11.2 | 11.4 | 13.2 |
| Ac-ft | 676 | 662 | 692 | 676 | 597 | 676 | 647 | 686 | 676 | 686 | 702 | 785 |

Calendar year 1957: Max 12 Min 10 Mean 11.0 Ac-ft 7,990
Water year 1957-58: Max 23 Min 10 Mean 11.3 Ac-ft 8,160

* Discharge measurement made on this day.

## 4275. San Solomon Springs at Toyahvale, Tex.

Location.--Lat 30°56', long 103°47', on left bank of South Canal at Toyahvale, Reeves County, 540 ft downstream from spring pool.

Records available.--October 1931 to December 1933, March 1941 to September 1958.

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, at site about 0.6 mile downstream.

Average discharge.--19 years (1931-33, 1941-58), 34.7 cfs (25,120 acre-ft per year).

Extremes.--Maximum daily discharge during year, 43 cfs Sept. 29, 30; minimum daily, 28 cfs for many days.
1931-33, 1941-58: Maximum daily discharge, 71 cfs Oct. 7-9, 1932, Oct. 26-30, 1941; minimum daily, 27 cfs Jan. 1-31, 1957.

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 headgates. Water used for irrigation in vicinity of Balmorhea. There has been no significant development of ground water from wells in the vicinity of the spring and the low flow appears to be the result of reduction of recharge to the contributing ground-water reservoir during the present drought.

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 29 | 30 | 29 | 29 | 29 | 34 | 28 | 31 | 32 | 32 | 32 |
| 2 | 29 | 29 | 30 | 29 | 29 | 29 | 34 | 29 | 31 | 31 | 32 | 32 |
| 3 | 29 | 29 | 30 | 29 | 29 | 29 | 34 | 28 | 30 | 31 | 32 | 32 |
| 4 | *29 | 29 | 30 | 29 | 29 | 29 | 34 | 29 | 31 | 31 | 32 | 32 |
| 5 | 29 | 30 | 30 | 29 | 29 | 29 | 34 | 29 | 31 | 31 | *31 | 32 |
| 6 | 28 | 30 | 30 | 29 | 29 | 29 | 34 | *29 | 31 | 31 | 31 | 32 |
| 7 | 28 | 29 | 30 | *29 | 29 | 29 | *34 | 30 | 31 | 32 | 31 | 32 |
| 8 | 28 | 29 | 30 | 29 | 29 | 29 | *28 | 29 | 31 | 31 | 31 | 32 |
| 9 | 28 | 29 | *30 | 29 | 29 | 30 | 28 | 30 | 31 | *31 | 31 | *33 |
| 10 | 28 | 29 | 30 | 29 | 29 | 29 | 28 | 30 | *31 | 31 | 31 | 35 |
| 11 | 28 | *29 | 30 | 29 | 29 | 29 | 28 | 30 | 30 | 30 | 31 | 36 |
| 12 | 28 | 29 | 30 | 28 | 29 | 28 | 28 | 30 | 30 | 30 | 31 | 36 |
| 13 | 28 | 29 | 30 | 28 | 29 | 28 | 28 | 29 | 30 | 31 | 31 | 36 |
| 14 | 28 | 29 | 30 | 28 | 29 | 28 | 28 | 29 | 30 | 31 | 31 | 36 |
| 15 | 28 | 29 | 29 | 28 | 29 | 28 | 28 | 30 | 30 | 30 | 31 | 36 |
| 16 | 29 | 29 | 29 | 28 | 29 | 28 | 28 | 31 | 30 | 30 | 31 | 36 |
| 17 | 29 | 29 | 29 | 28 | 29 | 29 | 28 | 30 | 31 | 30 | 31 | 36 |
| 18 | 29 | 29 | 29 | 29 | 29 | *29 | 28 | 30 | 31 | 31 | 32 | 36 |
| 19 | 29 | 29 | 29 | 29 | *29 | 29 | 28 | 30 | 31 | 32 | 32 | 36 |
| 20 | 29 | 29 | 29 | 29 | 29 | 29 | 28 | 30 | 31 | 32 | 32 | 36 |
| 21 | 29 | 30 | 28 | 29 | 29 | 31 | 29 | 30 | 34 | 32 | 32 | 36 |
| 22 | 29 | 30 | 28 | 29 | 29 | 34 | 29 | 30 | 35 | 32 | 32 | 36 |
| 23 | 29 | 30 | 29 | 29 | 29 | 34 | 29 | 30 | 36 | 32 | 32 | 36 |
| 24 | 29 | 30 | 29 | 28 | 29 | 34 | 29 | 30 | 36 | 31 | 32 | 36 |
| 25 | 29 | 30 | 29 | 28 | 29 | 34 | 28 | 30 | 35 | 31 | 33 | 36 |
| 26 | 29 | 30 | 29 | 29 | 29 | 34 | 28 | 31 | 34 | 31 | 33 | 36 |
| 27 | 29 | 30 | 29 | 28 | 29 | 34 | 28 | 31 | 33 | 31 | 33 | 36 |
| 28 | 29 | 30 | 29 | 28 | 29 | 34 | 29 | 31 | 33 | 31 | 32 | 41 |
| 29 | 29 | 30 | 29 | 28 | - | 34 | 29 | 30 | 33 | 32 | 32 | 43 |
| 30 | 29 | 30 | 29 | 29 | ------- | 34 | 28 | 30 | 32 | 32 | 32 | *43 |
| 31 | 29 | ------- | 29 | 29 | ------- | 34 | ------- | 30 | ------- | 32 | 32 | ------- |
| Total | 889 | 882 | 911 | 888 | 812 | 947 | 888 | 923 | 954 | 966 | 982 | 1,063 |
| Mean | 28.7 | 29.4 | 29.4 | 28.6 | 29.0 | 30.5 | 29.6 | 29.8 | 31.8 | 31.2 | 31.7 | 35.4 |
| Ac-ft | 1,760 | 1,750 | 1,810 | 1,760 | 1,610 | 1,880 | 1,760 | 1,830 | 1,890 | 1,920 | 1,950 | 2,110 |

Calendar year 1957: Max 33 Min 27 Mean 29.2 Ac-ft 21,170
Water year 1957-58: Max 43 Min 28 Mean 30.4 Ac-ft 22,030

* Discharge measurement made on this day.

## 4445. 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 1958.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,922.82 ft above mean sea level, datum of 1929.

Average discharge.--17 years, 29.5 cfs (21,360 acre-ft per year).

Extremes.--Maximum daily discharge during year, 13 cfs Feb. 8-18; no flow most of time. 1941-58: Maximum daily discharge, 56 cfs June 4, 1955 (affected by surface water released from flood-control reservoir); no flow many days in 1955-58.

Remarks.--Records good. Since about 1950, flow of springs greatly reduced at times by withdrawal from underground reservoir by irrigation wells. Beginning 1954, flow supplemented after rains by surface water released, directly and by underground leakage, from small flood-control reservoir located several hundred feet above springs. During period May 14-29 a total of 356 acre-ft of water was released from reservoir above springs and flowed past the gage and is not included in records given herein. Water used to irrigate about 6,000 acres of land below station.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0 | 4.1 | 11 | 8.8 | | | | | | |
| 2 | | | 0 | 4.4 | 11 | 8.8 | | | | | | |
| 3 | | | 0 | 4.6 | 12 | 8.6 | | | | | | |
| 4 | (*) | | 0 | 5.6 | 12 | 8.3 | | | | | | |
| 5 | | | 0 | 6.7 | 12 | 8.0 | | | | | (*) | |
| 6 | | | 0 | *6.0 | 12 | 7.8 | | (*) | | | | |
| 7 | | | 0 | 6.0 | 12 | 7.1 | (*) | | | (*) | | |
| 8 | | | 0 | 6.2 | 13 | 6.4 | | | | | | |
| 9 | | | *0 | 6.4 | 13 | 5.7 | | | | | | (*) |
| 10 | | | 0 | 6.7 | 13 | 4.2 | | | (*) | | | |
| 11 | | (*) | 0 | 6.9 | 13 | 3.0 | | | | | | |
| 12 | | | 0 | 7.1 | 13 | 2.1 | | | | | | |
| 13 | | | 0 | 7.3 | 13 | .9 | | | | | | |
| 14 | | | 0 | 7.3 | 13 | .4 | | | | | | |
| 15 | | | 0 | 7.5 | 13 | .2 | | | | | | |
| 16 | | | 0 | 7.5 | 13 | 0 | | | | | | |
| 17 | | | 0 | 7.8 | 13 | *0 | | | | | | |
| 18 | | | 0 | 8.0 | 13 | 0 | | | | | | |
| 19 | | | 0 | 8.8 | *12 | 0 | | | | | | |
| 20 | | | 0 | 8.8 | 11 | 0 | | | | | | |
| 21 | | | 0 | 8.8 | 10 | 0 | | | | | | |
| 22 | | | 0 | 9.1 | 10 | 0 | | | | | | |
| 23 | | | 0 | 9.7 | 10 | 0 | | | | | | |
| 24 | | | 0 | 9.4 | 9.4 | 0 | | | | | | |
| 25 | | | 0 | 9.4 | 9.4 | 0 | | | | | | |
| 26 | | | 0 | 9.7 | 9.1 | 0 | | | | | | |
| 27 | | | 0 | 9.7 | 8.3 | 0 | | | | | | |
| 28 | | | 1.2 | 10 | 8.3 | 0 | | | | | | |
| 29 | | | 2.8 | 10 | - | 0 | | | | | | |
| 30 | | | 3.7 | 11 | ------- | 0 | | | | | | |
| 31 | | ------- | 3.8 | 10 | ------- | 0 | ------- | | ------- | | | ------- |
| Total | 0 | 0 | 11.5 | 240.5 | 322.5 | 80.3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mean | 0 | 0 | 0.37 | 7.76 | 11.5 | 2.59 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ac-ft | 0 | 0 | 23 | 477 | 640 | 159 | 0 | 0 | 0 | 0 | 0 | 0 |

Calendar year 1957: Max 20 Min 0 Mean 3.31 Ac-ft 2,390
Water year 1957-58: Max 13 Min 0 Mean 1.79 Ac-ft 1,300

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

## 4465. 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 of supplementary gage 7.8 miles downstream).

Records available.--August 1939 to September 1958.

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.--19 years, 156 cfs (112,900 acre-ft per year).

Extremes.--Maximum discharge during year, 5,090 cfs Sept. 27 (gage height, 16.18 ft, at supplementary gage); minimum daily, 6.8 cfs June 12-14.
1939-58: Maximum discharge, 20,000 cfs Oct. 5, 1941 (gage height, 20.49 ft, at supplementary gage); minimum daily, 4.3 cfs Sept. 27, 28, 1954.
Maximum stage known since at least 1932, that of Oct. 5, 1941.

Remarks.--Records good. Flow largely regulated by reservoirs above Orla (see p. 434). Many diversions above station for irrigation. Records of chemical analyses and water temperatures for the water year 1958 are given in WSP 1573.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1-15, Sept. 27-30)

| Oct. 1 to Sept. 26 | | | | Sept. 27-30 | | | |
|---|---|---|---|---|---|---|---|
| 1.0 | 3.6 | 1.6 | 66 | 1.5 | 87 | 4.0 | 608 |
| 1.1 | 8.7 | 1.9 | 117 | 1.9 | 156 | 6.0 | 1,060 |
| 1.2 | 17 | 2.3 | 206 | 2.3 | 236 | 9.0 | 1,800 |
| 1.4 | 39 | | | 3.0 | 388 | 12 | 2,690 |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *17 | 88 | 34 | 30 | 34 | 31 | 26 | 12 | 12 | 9.4 | 9.4 | 10 |
| 2 | 18 | 88 | 32 | 30 | 33 | 30 | 25 | 13 | 12 | 9.4 | 8.7 | 10 |
| 3 | 17 | 88 | 34 | 30 | 28 | 30 | 24 | 14 | 12 | 9.4 | 8.7 | 10 |
| 4 | 18 | 90 | 36 | 31 | 31 | 30 | 24 | 15 | 12 | 8.7 | 8.0 | 10 |
| 5 | 23 | 90 | 36 | 36 | 32 | 30 | 23 | 14 | 12 | 9.4 | 8.0 | 10 |
| 6 | 25 | 92 | 36 | 38 | 32 | 45 | 22 | *13 | 11 | 11 | 8.0 | 10 |
| 7 | 25 | 95 | 36 | 36 | 32 | 61 | 22 | 12 | 11 | 12 | *8.0 | 10 |
| 8 | 26 | 75 | 34 | 36 | 32 | 37 | *22 | 12 | 11 | 21 | 8.7 | 10 |
| 9 | 27 | 55 | *33 | *37 | 32 | 30 | 22 | 12 | 11 | 15 | 8.7 | *11 |
| 10 | 31 | 48 | 33 | 38 | 32 | 32 | 22 | 12 | *9.4 | *13 | 8.7 | 11 |
| 11 | 26 | 48 | 32 | 38 | 32 | 69 | 23 | 12 | 8.0 | 12 | 9.4 | 11 |
| 12 | 26 | 46 | 32 | 42 | 32 | 74 | 22 | 11 | 6.8 | 13 | 8.7 | 10 |
| 13 | 32 | *43 | 32 | 39 | 31 | 63 | 25 | 13 | 6.8 | 72 | 9.4 | 10 |
| 14 | 43 | 42 | 33 | 37 | 32 | 75 | 25 | 21 | 6.8 | 85 | 9.4 | 11 |
| 15 | 91 | 40 | 33 | 36 | 32 | 69 | 25 | 15 | 28 | 50 | 9.4 | 10 |
| 16 | 187 | 39 | 32 | 34 | 32 | 68 | 23 | 12 | 15 | 39 | 9.4 | 10 |
| 17 | 110 | 39 | 33 | 34 | 31 | *68 | 22 | 12 | 12 | 31 | 9.4 | 10 |
| 18 | 74 | 38 | 32 | 34 | 32 | 66 | 22 | 13 | 9.4 | 23 | 9.4 | 10 |
| 19 | 59 | 37 | 32 | 34 | *32 | 63 | 22 | 13 | 9.4 | 19 | 12 | 11 |
| 20 | 61 | 37 | 32 | 37 | 32 | 62 | 22 | 14 | 9.4 | 17 | 13 | 11 |
| 21 | 85 | 37 | 32 | 37 | 33 | 56 | 21 | 20 | 9.4 | 15 | 12 | 11 |
| 22 | 69 | 37 | 31 | 36 | 38 | 51 | 19 | 20 | 9.4 | 13 | 12 | 12 |
| 23 | 61 | 37 | 32 | 39 | 39 | 47 | 16 | 31 | 9.4 | 12 | 11 | 12 |
| 24 | 52 | 37 | 31 | 40 | 37 | 42 | 15 | 32 | 9.4 | 12 | 14 | 12 |
| 25 | 50 | 37 | 31 | 39 | 36 | 40 | 13 | 23 | 9.4 | 11 | 15 | 12 |
| 26 | 68 | 37 | 31 | 37 | 34 | 39 | 13 | 19 | 9.4 | 10 | 12 | 13 |
| 27 | 78 | 37 | 31 | 37 | 32 | 37 | 13 | 17 | 9.4 | 10 | 11 | *2,500 |
| 28 | 74 | 37 | 31 | 36 | 31 | 34 | 12 | 16 | 9.4 | 10 | 10 | *801 |
| 29 | 78 | 37 | 31 | 36 | - | 31 | 12 | 15 | 9.4 | 9.4 | 10 | 177 |
| 30 | 83 | 36 | 31 | 34 | ------- | 28 | 12 | 15 | 9.4 | 9.4 | 10 | *94 |
| 31 | 87 | ------- | 31 | 34 | ------- | 27 | ------- | 14 | ------- | 9.4 | 9.4 | ------- |
| Total | 1,721 | 1,587 | 1,010 | 1,112 | 916 | 1,465 | 609 | 487 | 319.0 | 600.5 | 310.8 | 3,850 |
| Mean | 55.5 | 52.9 | 32.6 | 35.9 | 32.7 | 47.3 | 20.3 | 15.7 | 10.6 | 19.4 | 10.0 | 128 |
| Ac-ft | 3,410 | 3,150 | 2,000 | 2,210 | 1,820 | 2,910 | 1,210 | 966 | 633 | 1,190 | 616 | 7,640 |

Calendar year 1957: Max 2,240 Min 12 Mean 43.9 Ac-ft 31,770
Water year 1957-58: Max 2,500 Min 6.8 Mean 38.3 Ac-ft 27,760

* Discharge measurement made on this day.

Reservoirs in Rio Grande basin

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 Arroyo Aguaje de la Petaca, 4⅜ miles northwest of Carson, Taos County, N. Mex. Drainage area, 190 sq mi, approximately. Records available, January 1940 to September 1958. Water-stage recorder. Prior to February 1942, weekly staff-gage readings. Altitude of gage is 6,810 ft (from topographic map). Maximum daily contents recorded during year, 2,470 acre-ft Apr. 28, 29 (gage height, 33.3 ft); no storage most of year. Maximum daily contents observed during period 1940-58, 3,620 acre-ft May 6, 1941 (gage height, 38.5 ft); no storage most of time.

Reservoir is formed by earth-fill dam, rip-rap faced, completed in 1935. Capacity, 5,684 acre-ft between gage heights 8.0 (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°34'45", long 106°43'55", in Tierra Amarilla Grant, at left end of dam on Rio Chama, at Village of El Vado and 13 miles southwest of Tierra Amarilla, N. Mex. Drainage area, 873 sq mi. Records available, January 1935 to September 1958. 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, 194,500 acre-ft May 24-27 (gage height, 6,902.0 ft); minimum observed, 355 acre-ft Nov. 30 (gage height, 6,763.4 ft). Maximum daily contents during period 1935-58, 204,900 acre-ft June 4, 5, 1948 (gage height, 6,904.2 ft); no contents at times.

Reservoir is formed by rock-fill dam, steel faced. Storage began in January 1935. Capacity, 194,500 acre-ft between gage heights 6,758.5 (stoplog seat) 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; Jan. 1, 1947, to Sept. 30, 1954, figures represent usable contents, computed from capacity table based on Survey of 1944 by Corps of Engineers; after Oct. 1, 1954, used revised table based on partial survey (below gage height 6,770 ft) by Bureau of Reclamation. Water is used for irrigation by Middle Rio Grande Conservancy District. Gage readings and contents given herein are generally those at 7:30 a.m. Continuous recorder registers gage heights above 6,879.3 ft (floor of spillway). Staff-gage readings furnished by Middle Rio Grande Conservancy District.

McClure Reservoir.--Lat 35°41'20", long 105°50'10", in NE¼SW¼ sec. 24, T. 17 N., R. 10 E., on outlet tower at McClure Dam on Santa Fe River, 2½ miles upstream from Nichols Reservoir and 6 miles east of Santa Fe, N. Mex. Drainage area, 17.4 sq mi. Records available, October 1947 to September 1958. Water-stage recorder. Datum of gage is 7,768.12 ft above mean sea level, datum of 1929, and 165.9 ft above Public Service Co. of New Mexico assumed datum. Maximum daily contents during year, 3,130 acre-ft Apr. 19 (gage height, 103.6 ft); minimum daily, 2,420 acre-ft Sept. 6-12. Maximum daily contents during period 1947-58, that of Apr. 19, 1958; no contents Jan. 25 to May 8, 1951.

Reservoir is formed by earth-fill dam, completed in 1926 (capacity, 503 acre-ft), raised 5 ft in 1935 (capacity, 650 acre-ft), raised 36.5 ft in 1947. Capacities and changes in height of dam are for effective height of spillway which includes 1 ft of flashboards above concrete crest 1926 to July 1935, 2 ft August 1935 to September 1947, and varying heights of sandbag bulkheads from October 1947 to May 1953 when spillway was equipped with radial gates which open automatically at gage height about 103.1 ft (some adjustment possible). Capacity, 3,090 acre-ft between gage heights -0.2 (bottom of lowest outlet tube), and 103.1 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.

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 River, 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, 22.8 sq mi. Records available, December 1942 to September 1958. Water-stage recorder. Datum of gage is 7,313.2 ft above mean sea level, datum of 1929. Maximum daily contents during year, 719 acre-ft May 7, 8, 16-18, 25 (gage height, 168.1 ft); minimum daily, 452 acre-ft Sept. 30 (gage height, 158.3 ft). Maximum daily contents during period 1943-58, 836 acre-ft June 8, 1952 (gage height, 171.8 ft); 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 (bottom of lower operational gate) and 171.0 ft (top of flashboards in spillway). Dead storage, 14 acre-ft. Figures given herein represent total contents 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.

Jemez Canyon Reservoir.--Lat 35°23'40", long 106°32'45", in SW¼SW¼ sec. 32, T. 14 N., R. 4 E., at corner of outlet works control tower of Jemez Canyon Dam, about 2½ miles upstream from mouth and 6 miles north of Bernalillo, N. Mex. Drainage area, 1,034 sq mi. Records available, October 1953 to September 1958. Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers level). Maximum daily contents during year, 71,220 acre-ft June 8 (elevation, 5,213.36 ft); no contents most of year. Maximum daily contents during period 1953-58, that of June 8, 1958; no storage most of time.

Reservoir is formed by earth-fill dam, completed about October 1953. Capacity, 186,400 acre-ft (revised as of Aug. 15, 1958) between elevation 5,125.0 (sill of outlet gates) and 5,252.3 ft (operating deck of spillway). Floor of spillway is at elevation 5,232.0 ft (capacity, 115,800 acre-ft, revised); spillway is located about three-quarters of a mile south of dam and flows directly to Rio Grande. Original plan for reservoir operation was to desilt all flow above 30 cfs by storage for one day before releasing to Rio Grande, and for possible detention during flood stage on Rio Grande. Records furnished by Corps of Engineers.

Reservoirs in Rio Grande basin--Continued

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, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.). Records available, January 1940 to September 1958. Water-stage recorder. Datum of gage is 43.3 ft above mean sea level, datum of 1929. Maximum daily contents during year, 1,217,000 acre-ft June 25 (gage height, 4,373.67 ft); minimum daily, 556,100 acre-ft Oct. 1-6 (gage height, 4,336.20 ft). Maximum daily contents during period 1940-58, 2,302,800 acre-ft June 16-18, 1942 (gage height, 4,409.19 ft); minimum daily, 9,900 acre-ft Aug. 6, 1954 (gage height, 4,258.03 ft).

Reservoir is formed by concrete dam. Storage began Jan. 6, 1915. Dam completed May 13, 1916. Capacity, 2,206,800 acre-ft between gage heights 4,231.5 (sill of outlet gate) and 4,407.0 ft (spillway crest). No dead storage, survey of 1957. 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 given herein are computed from mean daily gage heights. Records furnished by Bureau of Reclamation.

Revisions (water years).--WSP 1442: 1954.

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, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.). Records available, February 1938 to September 1958. Water-stage recorder. Datum of gage is 43.3 ft above mean sea level, datum of 1929. Maximum daily contents during year, 138,700 acre-ft Apr. 23, 24 (gage height, 4,159.58 ft); minimum daily, 4,020 acre-ft Oct. 1 (gage height, 4,121.74 ft). Maximum daily contents during period 1938-58, 347,000 acre-ft Mar. 4, 1942 (gage height, 4,182.06 ft); minimum daily, 118 acre-ft Oct. 14, 1938 (gage height, 4,108.1 ft).

Reservoir is formed by earth-fill dam completed Sept. 19, 1938. Storage began Feb. 8, 1938. Capacity, 344,000 acre-ft between gage heights 4,110 (6 ft above bottom of tunnel entrance to gates) and 4,182 ft (gage height above which spillway gates operate automatically). No dead storage. Storage held for flood control, 100,000 acre-ft. 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 daily mean gage heights. Records furnished by Bureau of Reclamation.

Revisions (water years).--WSP 978: 1942.

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 1958. Staff gage. Datum of gage is at mean sea level, Bureau of Reclamation datum. Maximum daily contents during year, 127,200 acre-ft June 3, Sept. 8 (elevation, 4,276.10 ft); minimum daily, 54,990 acre-ft Oct. 1, 2 (elevation, 4,256.15 ft). Maximum contents during period 1939-58, 158,200 acre-ft Apr. 19, 20, 1942 (elevation, 4,275.30 ft); minimum daily, 5 acre-ft Aug. 15, 1954 (elevation, 4,204.00 ft).

Reservoir is formed by Alamogordo Dam; completed and storage began in 1938. Total capacity, 122,100 acre-ft at elevation 4,275.0 ft (top of spillway gates). No dead storage. Figures given herein represent total contents and are computed from elevations at 8 a.m. Elevation record furnished by Carlsbad Irrigation District. Capacity table based on survey of March 1944 by Corps of Engineers, aerial photographs in October 1950, and partial survey by Carlsbad Irrigation District in 1954.

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 1958. Staff gage. Datum of gage is 3,241.6 ft above mean sea level, Bureau of Reclamation datum. Maximum daily contents during year, 38,860 acre-ft Sept. 29-30 (gage height, 26.00 ft); minimum daily, 6,790 acre-ft Oct. 9-12 (gage height, 18.10 ft). Maximum daily contents observed 1939-58, 68,500 acre-ft Sept. 26, 1941 (gage height, 29.95 ft); no storage at times in 1944, 1946-54, 1957.

Lake is formed by McMillan Dam. Storage began in 1906. Capacity, 32,920 acre-ft between gage heights 0.0 (sill of outlet gate) and 24.9 ft (crest of spillway 2). Flashboards may increase this capacity. Maximum capacity without spill is 39,430 acre-ft at gage height 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 gage readings at 8 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 1958. Staff gage. Datum of gage is 3,157.0 ft above mean sea level, Bureau of Reclamation datum. Maximum daily contents during year, 5,360 acre-ft Sept. 15 (gage height, 20.70 ft); minimum daily, 39 acre-ft Oct. 18 (gage height, 10.20 ft). Maximum daily contents during period 1939-58, 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, 5,650 acre-ft between gage height 0.0 (sill of outlet gates) and 21.0 ft (crest of spillway 1). No dead storage. Figures given herein represent usable contents and are computed from daily gage readings at 8 a.m. Water is used for irrigation by Carlsbad Irrigation District which furnishes gage-height record. Bureau of Reclamation furnishes the contents table.

Revisions (water years).--WSP 898: 1939.

Reservoirs in Rio Grande basin--Continued

Red Bluff Reservoir near Orla, Tex.--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, 4.5 miles north of Orla, Reeves County, Tex. Drainage area, 20,720 sq mi, approximately (contributing area). Records available, February 1937 to September 1958. 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, 72,300 acre-ft Sept. 30 (gage height, 2,810.2 ft); minimum observed, 16,380 acre-ft Oct. 6 (gage height, 2,786.9 ft). Maximum contents observed during period 1937-58, 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 (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.

Bluewater Lake.--Lat 35°17'40", long 108°06'40", in SE¼ sec. 4, T. 12 N., R. 12 W., on left bank 800 ft above dam and 9.5 miles west of Bluewater, N. Mex. Drainage area, 215 sq mi. Records available, June 1927 to December 1950 in Water Bulletins (Nos. 10-20) of International Boundary and Water Commission. January 1951 to June 1958 in files of Bluewater-Toltec Irrigation Co. July to September 1958. Inclined staff gage. Datum of gage is 7,345.57 ft above mean sea level, datum of 1929. Gage heights have been reduced to elevations above mean sea level. Maximum contents observed during period, 9,390 acre-ft July 1, 2 (elevation, 7,377.9 ft); minimum observed, 8,320 acre-ft Sept. 26-30 (elevation, 7,376.3 ft). Maximum contents determined during period 1927-50, 47,100 acre-ft in April 1941 (date and elevation not available).

Reservoir is formed by concrete arch dam. Storage began in 1927. Capacity, 38,500 acre-ft at elevation 7,402.6 ft (crest of uncontrolled siphon spillway which is vented to avoid drawdown below crest) and 44,200 acre-ft at elevation 7,405.6 ft (crest of ungated spillway over dam). Dead storage, 3.4 acre-ft at elevation 7,345.4 ft (sill of lower outlet tube). Lake not usually drawn below conservation pool level (elevation, 7,365.36 ft), below which ownership is by State Game and Fish Department. Above this level, water is owned and used by Bluewater-Toltec Irrigation Co. Figures given herein are total contents, based on table derived from 10-foot contour survey made in 1945 by Bureau of Reclamation. Contents figures are from daily staff-gage readings at about 8 a.m.

Month-end elevation or gage height and contents, water year October 1957 to September 1958

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|---|---|---|---|---|---|
| | Carson Reservoir | | | El Vado Reservoir | | | McClure Reservoir | | |
| Sept.30..... | - | 0 | - | 6,804.2 | 18,420 | 1,870 | 102.4 | 3,060 | - |
| Oct. 31..... | - | 0 | 0 | 6,801.7 | 16,550 | -1,870 | 102.9 | 3,100 | +40 |
| Nov. 30..... | - | 0 | 0 | 6,763.4 | 355 | -16,195 | 102.9 | 3,100 | 0 |
| Dec. 31..... | - | 0 | 0 | 6,788.4 | 8,150 | +7,795 | 102.6 | 3,070 | -30 |
| Calendar year 1957 | - | - | 0 | - | - | +7,605 | - | - | +2,835 |
| Jan. 31..... | - | 0 | - | 6,796.6 | 13,040 | +4,890 | - | a3,070 | b+10 |
| Feb. 28..... | 12.9 | 124 | +124 | 6,810.9 | 23,890 | +10,850 | - | a3,080 | +10 |
| Mar. 31..... | - | a390 | +266 | 6,825.4 | 38,250 | +14,360 | 103.2 | 3,100 | +20 |
| Apr. 30..... | 33.1 | 2,430 | +2,040 | 6,856.0 | 81,560 | +43,310 | 100.2 | 2,880 | -220 |
| May 31..... | 14.9 | 220 | -2,210 | 6,901.3 | 192,200 | +110,640 | 102.3 | 3,030 | +150 |
| June 30..... | - | 0 | -220 | 6,894.3 | 170,600 | -21,600 | 102.4 | 3,040 | +10 |
| July 31..... | - | 0 | 0 | 6,890.1 | 158,300 | -12,300 | 98.9 | 2,780 | -260 |
| Aug. 31..... | - | 0 | 0 | 6,878.7 | 128,100 | -30,200 | 94.4 | 2,460 | -320 |
| Sept.30..... | - | 0 | 0 | 6,871.9 | 112,300 | -15,800 | 95.1 | 2,510 | +50 |
| Water year 1957-58. | - | - | 0 | - | - | +93,880 | - | - | c-530 |
| | Nichols Reservoir | | | Jemez Canyon Reservoir | | | Elephant Butte Reservoir | | |
| Sept.30..... | 164.6 | 614 | - | 0 | 0 | - | 4,336.20 | 556,100 | - |
| Oct. 31..... | 167.4 | 698 | +84 | 0 | 0 | 0 | 4,341.86 | 635,900 | +79,800 |
| Nov. 30..... | 167.5 | 701 | +3 | 0 | 0 | 0 | 4,348.07 | 731,500 | +95,600 |
| Dec. 31..... | 167.2 | 692 | -9 | 0 | 0 | 0 | 4,350.79 | 776,100 | +44,600 |
| Calendar year 1957 | - | - | +390 | - | - | 0 | - | - | +743,200 |
| Jan. 31..... | 167.3 | 695 | +3 | 0 | 0 | 0 | 4,350.61 | 773,100 | -3,000 |
| Feb. 28..... | 165.0 | 625 | -70 | 0 | 0 | 0 | 4,349.41 | 753,300 | -19,800 |
| Mar. 31..... | 167.5 | 701 | +76 | 5,140.4 | 1,060 | +1,060 | 4,346.46 | 705,900 | -47,400 |
| Apr. 30..... | 168.0 | 716 | +15 | 5,195.6 | 41,120 | +40,060 | 4,350.80 | 776,300 | +70,400 |
| May 31..... | 167.9 | 713 | -3 | 5,213.1 | 70,690 | +29,570 | 4,368.20 | 1,098,000 | +321,700 |
| June 30..... | 167.4 | 698 | -15 | 5,165.0 | 10,390 | -60,300 | 4,373.34 | 1,209,000 | +111,000 |
| July 31..... | 159.2 | 472 | -226 | 0 | 0 | -10,390 | 4,367.98 | 1,093,000 | -116,000 |
| Aug. 31..... | 163.4 | 582 | +110 | 0 | 0 | 0 | 4,362.12 | 977,600 | -115,400 |
| Sept.30..... | 158.3 | 452 | -130 | 0 | 0 | 0 | 4,360.71 | 951,200 | -26,400 |
| Water year 1957-58. | - | - | -162 | - | - | 0 | - | - | +395,100 |

a No gage-height record; contents estimated or interpolated.
b Computed by using new table for Dec. 31 (contents, 3,060 acre-ft).
c Computed by using new table for Sept. 30, 1957 (contents, 3,040 acre-ft).

Reservoirs in Rio Grande basin--Continued

Month-end elevation or gage height and contents, water year October 1957 to September 1958

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|---|---|---|---|---|---|
| | Caballo Reservoir | | | Alamogordo Reservoir | | | Lake McMillan | | |
| Sept.30..... | 4,121.64 | d3,920 | - | 4,256.15 | 54,990 | - | 18.60 | 8,160 | - |
| Oct. 31..... | 4,126.28 | 9,860 | +5,940 | 4,267.05 | 89,890 | +34,900 | 19.15 | 9,770 | +1,610 |
| Nov. 30..... | 4,127.43 | 11,730 | +1,870 | 4,268.95 | 96,950 | +7,060 | 19.75 | 11,650 | +1,880 |
| Dec. 31..... | 4,128.47 | e13,550 | +1,820 | 4,270.00 | 101,000 | +4,050 | 20.10 | 12,810 | +1,160 |
| Calendar year 1957 | - | - | +6,780 | - | - | +93,430 | - | - | +3,790 |
| Jan. 31..... | 4,142.13 | 47,500 | +35,620 | 4,271.10 | 105,400 | +4,400 | 20.70 | 14,890 | +2,080 |
| Feb. 28..... | 4,154.33 | 104,200 | +56,700 | 4,271.85 | 108,400 | +3,000 | 20.85 | 15,430 | +540 |
| Mar. 31..... | 4,157.31 | 123,100 | +18,900 | 4,269.65 | 99,640 | -8,760 | 23.60 | 26,540 | +11,110 |
| Apr. 30..... | 4,159.12 | 135,500 | +12,400 | 4,275.10 | 122,500 | +22,860 | 23.35 | 25,400 | -1,140 |
| May 31..... | 4,156.62 | 118,500 | -17,000 | 4,275.35 | 123,700 | +1,200 | 25.65 | 36,920 | +11,520 |
| June 30..... | 4,153.72 | 100,600 | -17,900 | 4,274.85 | 121,400 | -2,300 | 25.45 | 35,830 | -1,090 |
| July 31..... | 4,145.61 | 60,890 | -39,710 | 4,274.60 | 120,300 | -1,100 | 23.55 | 26,310 | -9,520 |
| Aug. 31..... | 4,143.01 | 50,680 | -10,210 | 4,275.35 | 123,700 | +3,400 | 25.45 | 35,830 | +9,520 |
| Sept.30..... | 4,142.52 | 48,910 | -1,770 | 4,275.15 | 122,800 | -900 | *26.00 | 38,860 | +3,030 |
| Water year 1957-58. | - | - | +45,810 | - | - | +67,810 | - | - | +30,700 |

| | Lake Avalon | | | †Red Bluff Reservoir | | | Bluewater Lake | | |
|---|---|---|---|---|---|---|---|---|---|
| Sept.30..... | 14.50 | 955 | - | - | a17,400 | - | - | - | - |
| Oct. 31..... | 16.30 | 1,920 | +965 | - | a22,000 | +4,600 | - | - | - |
| Nov. 30..... | 17.35 | 2,590 | +670 | 2,793.2 | 25,240 | +3,240 | - | - | - |
| Dec. 31..... | 18.05 | 3,090 | +500 | 2,794.9 | 28,220 | +2,980 | - | - | - |
| Calendar year 1957. | - | - | +930 | - | - | -180 | - | - | - |
| Jan. 31..... | 18.70 | 3,590 | +500 | - | a31,500 | +3,280 | - | - | - |
| Feb. 28..... | 17.20 | 2,490 | -1,100 | 2,797.8 | 33,980 | +2,480 | - | - | - |
| Mar. 31..... | 15.60 | 1,510 | -980 | - | a35,940 | +1,960 | - | - | - |
| Apr. 30..... | 15.95 | 1,700 | +190 | - | a27,140 | -8,800 | - | - | - |
| May 31..... | 20.30 | 4,980 | +3,280 | 2,804.3 | 50,900 | +23,760 | - | - | - |
| June 30..... | 18.40 | 3,350 | -1,630 | - | a47,000 | -3,900 | 7,377.9 | 9,390 | - |
| July 31..... | 16.90 | 2,300 | -1,050 | - | a38,000 | -9,000 | 7,377.2 | 8,910 | 480 |
| Aug. 31..... | 20.05 | 4,760 | +2,460 | 2,805.6 | 55,100 | +17,100 | 7,376.8 | 8,640 | 270 |
| Sept.30..... | 20.55 | 5,220 | +460 | 2,810.2 | 72,300 | +17,200 | 7,376.3 | 8,320 | 320 |
| Water year 1957-58. | - | - | +4,265 | - | - | +54,900 | - | - | - |

* Estimated on basis of adjoining readings.
† Gage read at irregular intervals.
a No gage-height record; contents estimated or interpolated.
d 3,100 acre-ft from new capacity table.
e 11,880 acre-ft from new capacity table.

## 4770. Mimbres River near Mimbres, N. Mex.

Location.--Lat 32°52'30" (revised), 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.--152 sq mi.

Records available.--October 1930 to September 1958 in reports of Geological Survey. May 1921 to December 1931 in reports of State engineer.

Gage.--Water-stage recorder. Concrete control since Mar. 26, 1938. Datum of gage is 5,972 ft above mean sea level, datum of 1929. At site 10 ft downstream at datum 0.3 ft higher prior to Sept. 12, 1923, and at datum 0.1 ft lower Sept. 12, 1923, to Jan. 17, 1934.

Average discharge.--35 years (1921-24, 1926-58), 10.8 cfs (7,820 acre-ft per year).

Extremes.--Maximum discharge during year, 591 cfs Mar. 22 (gage height, 5.05 ft, from highwater mark); minimum daily, 1.7 cfs Sept. 21.
1930-58: Maximum discharge, 1,560 cfs Aug. 2, 1952 (gage height, 6.22 ft), from rating curve extended above 110 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.

Revisions (water years).--WSP 1282: Drainage area. WSP 1512: 1931, 1933(M), 1935(M), 1937(M), 1938, 1939-40(M), 1941, 1942-43(M), 1944, 1945(M), 1946, 1947(M).

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 2.1 | 1.1 | 3.1 | 29 |
| 2.5 | 4.6 | 3.3 | 57 |
| 2.7 | 6.9 | 3.6 | 124 |
| 2.8 | 9.0 | 4.0 | 223 |
| 2.9 | 13.5 | 4.5 | 380 |
| 3.0 | 20 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.2 | 9.4 | 6.2 | 6.4 | 5.2 | 6.9 | 110 | 47 | 9.0 | 8.6 | 9.0 | 2.3 |
| 2 | 8.2 | 9.0 | 6.3 | 6.4 | 5.3 | 6.6 | 117 | 44 | 8.2 | 12 | 8.2 | 2.1 |
| 3 | 8.8 | 9.0 | 6.3 | 6.4 | 5.3 | 6.6 | 100 | 41 | 8.6 | 13 | 11 | 2.1 |
| 4 | 8.8 | 8.8 | 6.4 | 6.5 | 5.6 | 7.5 | 93 | 40 | 8.2 | 9.9 | 15 | 2.5 |
| 5 | 9.0 | 8.4 | 6.5 | 6.5 | 5.8 | 8.6 | 77 | 36 | 7.3 | 6.9 | 14 | 2.7 |
| 6 | 8.8 | 8.0 | 6.6 | 6.5 | 5.6 | 9.9 | 69 | 33 | 6.3 | 7.5 | 13 | 2.5 |
| 7 | 8.8 | 8.0 | 6.5 | 6.4 | 5.6 | 11 | 67 | 33 | 15 | 7.3 | 8.8 | 3.5 |
| 8 | 8.8 | 8.0 | 6.5 | 6.4 | 5.6 | 11 | 82 | 31 | 13 | 7.3 | 7.3 | 2.1 |
| 9 | 27 | 8.0 | 6.5 | 6.4 | 5.6 | 13 | 73 | 29 | 9.9 | 6.9 | 6.9 | 3.7 |
| 10 | 12 | 8.0 | 6.5 | 6.4 | 4.9 | 11 | 65 | 26 | 8.4 | 6.8 | 8.3 | 4.3 |
| 11 | 10 | 8.2 | 6.5 | 6.3 | 5.3 | 10 | 65 | 25 | 7.7 | 6.5 | 6.5 | 5.6 |
| 12 | 65 | 8.2 | 6.9 | 6.2 | 5.8 | 9.0 | 69 | 24 | 7.1 | 6.3 | 5.3 | 9.0 |
| 13 | 12 | 8.2 | 7.1 | 6.2 | 5.8 | 8.6 | 73 | 24 | 8.6 | 6.6 | 4.5 | 131 |
| 14 | 10 | 8.2 | 7.1 | 6.2 | 5.6 | 14 | 67 | 22 | 9.9 | 6.6 | 4.9 | 40 |
| 15 | 9.9 | 8.2 | 6.9 | 6.4 | 5.6 | 22 | 65 | 20 | 11 | 7.3 | 3.9 | 14 |
| 16 | 9.9 | 8.2 | 6.9 | 6.4 | 5.4 | 43 | 91 | 19 | 10 | 8.4 | 2.9 | 9.4 |
| 17 | 9.4 | 8.0 | 6.9 | 6.4 | 5.4 | 134 | 122 | 18 | 10 | 8.8 | 1.8 | 8.8 |
| 18 | 9.4 | 8.0 | 6.8 | 6.5 | 5.4 | 170 | 117 | 17 | 11 | 7.1 | 2.6 | 8.6 |
| 19 | 10 | 8.0 | 6.6 | 6.5 | 5.4 | 177 | 138 | 17 | 11 | 8.0 | 3.1 | 8.2 |
| 20 | 9.9 | 8.0 | 6.6 | 6.4 | 5.9 | 187 | 153 | 15 | 13 | 7.5 | 3.9 | 6.1 |
| 21 | 10 | 7.7 | 6.6 | 6.3 | 6.2 | 220 | 143 | 14 | 13 | 6.8 | 31 | 1.7 |
| 22 | 10 | 7.7 | 6.5 | 6.4 | 5.8 | 359 | 146 | 12 | 12 | 6.6 | 11 | 2.1 |
| 23 | 9.9 | 7.7 | 6.5 | 6.3 | 5.9 | 334 | 146 | 9.9 | 8.6 | 6.4 | 14 | 6.2 |
| 24 | 9.9 | 7.7 | 6.4 | 6.3 | 5.6 | 234 | 126 | 8.6 | 6.6 | 6.4 | 18 | 3.6 |
| 25 | 9.4 | 7.5 | 6.4 | 6.2 | 5.6 | 197 | 102 | 6.3 | 6.0 | 4.0 | 13 | 6.0 |
| 26 | 9.4 | 7.5 | 6.4 | 5.6 | 8.2 | 184 | 84 | 7.1 | 6.0 | 3.0 | 10 | 8.2 |
| 27 | 9.4 | 6.8 | 6.3 | 5.2 | 8.4 | 170 | 77 | 8.4 | 6.2 | 7.1 | 6.3 | 6.9 |
| 28 | 9.9 | 5.9 | 6.3 | 5.2 | 7.1 | 170 | 57 | 9.0 | 6.6 | 7.1 | 4.0 | 6.9 |
| 29 | 9.4 | 5.9 | 6.3 | 5.2 | - | 129 | 49 | 10 | 5.8 | 8.6 | 4.0 | 7.1 |
| 30 | 9.0 | 6.0 | 6.3 | 5.1 | ------- | 102 | 49 | 8.4 | 5.2 | 9.9 | 4.0 | 7.3 |
| 31 | 9.9 | ------- | 6.3 | 5.1 | ------- | 100 | ------- | 8.2 | ------- | 14 | 2.5 | ------- |
| Total | 370.1 | 236.2 | 202.9 | 190.7 | 162.9 | 3,065.7 | 2,792 | 622.9 | 269.2 | 239.2 | 258.7 | 324.5 |
| Mean | 12.0 | 7.87 | 6.55 | 6.15 | 5.82 | 98.9 | 93.1 | 21.4 | 8.97 | 7.72 | 8.35 | 10.8 |
| Ac-ft | 734 | 468 | 402 | 378 | 323 | 6,080 | 5,540 | 1,310 | 534 | 474 | 513 | 644 |

Calendar year 1957: Max 134 Min 1.4 Mean 8.17 Ac-ft 5,910
Water year 1957-58: Max 359 Min 1.7 Mean 24.0 Ac-ft 17,400

Peak discharge (base, 290 cfs).--Oct. 9 (5:30 p.m.) 362 cfs (4.46 ft); Oct. 12 (9:30 a.m.) 394 cfs (4.55 ft); Mar. 22 (6 p.m.) 591 cfs (5.05 ft); Aug. 21 (3:30 a.m.) 359 cfs (4.40 ft).

## 4776. San Vicente Arroyo at Silver City, N. Mex.

Location.--Lat 32°46'15", long 108°16'30", in NW¼SE¼ sec. 3, T. 18 S., R. 14 W. (projected), on left bank in Silver City, 800 ft upstream from bridge at Broadway Street and 1,300 ft downstream from confluence of Silva Creek and Pinos Altos Creek. Prior to May 25, 1958, at site 500 ft downstream.

Drainage area.--26.5 sq mi.

Records available.--August 1953 to September 1958.

Gage.--Water-stage recorder. Altitude of gage is 5,863 ft (from topographic map). Prior to May 25, 1958, at site 500 ft downstream at datum 17.99 ft lower.

Average discharge.--5 years, 0.86 cfs (623 acre-ft per year).

Extremes.--Maximum discharge during year, 1,770 cfs Aug. 21 (gage height, 4.26 ft), by slope-conveyance method; no flow most of time.
1953-58: Maximum discharge, 2,920 cfs Aug. 30, 1957 (gage height, 8.53 ft, site and datum then in use), by slope-area measurement; no flow for many days each year.
A destructive flood (discharge probably exceeded 10,000 cfs) occurred July 21, 1895, and began the erosion of Main Street to create the channel currently known as San Vicente Arroyo.

Remarks.--Records good. Discharge measurements or observations of no flow generally made 2 or 3 times a month and more often during periods of flow.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0.1 | 0.1 |
| 2 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | .1 | .1 | 8 |
| 3 | 0 | | 0 | .1 | 0 | .4 | 0 | | 0 | .1 | .1 | .1 |
| 4 | 0 | | 0 | .1 | .4 | 2.7 | 0 | | 0 | .1 | 1.5 | .1 |
| 5 | 0 | | .1 | 0 | .7 | .1 | 0 | | 0 | .3 | .1 | .1 |
| 6 | 0 | | 0 | 0 | 0 | .2 | 0 | | 0 | 0 | .1 | .1 |
| 7 | 0 | | 0 | 0 | 0 | 1.8 | 0 | | 0 | 0 | .1 | .1 |
| 8 | 0 | | 0 | 0 | 0 | .4 | 0 | | 0 | 0 | .1 | .1 |
| 9 | 0 | | 0 | 0 | 0 | .1 | 0 | | 0 | 0 | 0 | .8 |
| 10 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | .1 | .2 |
| 11 | 0 | | 0 | 0 | 0 | .3 | 0 | | 0 | 0 | .1 | .1 |
| 12 | .8 | | 0 | 0 | 0 | .6 | 0 | | 0 | 0 | 0 | .2 |
| 13 | 0 | | 0 | 0 | 0 | 2.2 | 0 | | 0 | 0 | .1 | .5 |
| 14 | .1 | | 0 | 0 | 0 | 7.8 | 0 | | 0 | 0 | .1 | .1 |
| 15 | 0 | | 0 | 0 | 0 | .9 | 0 | | 0 | 0 | .1 | .1 |
| 16 | 0 | | 0 | 0 | 0 | 5.2 | 1.0 | | 0 | .1 | .1 | .1 |
| 17 | 0 | | 0 | 0 | 0 | 6.6 | .1 | | 0 | .2 | .2 | .1 |
| 18 | 0 | | 0 | .1 | 0 | .9 | 0 | | 0 | .1 | .1 | .1 |
| 19 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | .1 | .1 | .1 |
| 20 | 0 | | 0 | 0 | 1.5 | 0 | 0 | | 0 | .1 | .1 | .1 |
| 21 | 0 | | 0 | 0 | .1 | 0 | 0 | | .1 | .1 | 96 | .1 |
| 22 | .1 | | 0 | 0 | .3 | 9.4 | 0 | | .2 | .1 | 4.2 | 5.5 |
| 23 | 0 | | 0 | 0 | .4 | 2.4 | 0 | | .1 | .1 | .1 | 5.7 |
| 24 | 0 | | 0 | 0 | .2 | 0 | 0 | | 0 | .1 | .1 | .1 |
| 25 | 0 | | 0 | 0 | .8 | 0 | 0 | | 0 | .1 | .1 | .3 |
| 26 | 0 | | 0 | 0 | 1.2 | 0 | 0 | | 0 | .1 | .1 | 1.0 |
| 27 | 0 | | 0 | 0 | .8 | 0 | 0 | | 0 | .2 | .1 | .3 |
| 28 | .1 | | 0 | 0 | 0 | .1 | 0 | | 0 | .3 | .1 | .2 |
| 29 | 0 | | 0 | 0 | - | 0 | 0 | | 0 | .5 | .1 | .1 |
| 30 | 0 | | 0 | 0 | ------- | 0 | 0 | | 0 | .1 | .1 | .1 |
| 31 | .6 | ------- | 0 | 0 | ------- | 0 | ------- | | ------- | .1 | .1 | ------- |
| Total | 1.7 | 0 | 0.1 | 0.3 | 6.4 | 42.1 | 1.1 | 0 | 0.4 | 3.0 | 104.4 | 24.6 |
| Mean | 0.05 | 0 | 0.003 | 0.01 | 0.23 | 1.36 | 0.04 | 0 | 0.01 | 0.10 | 3.37 | 0.82 |
| Ac-ft | 3.4 | 0 | 0.2 | 0.6 | 13 | 84 | 2.2 | 0 | 0.8 | 6.0 | 207 | 49 |

Calendar year 1957: Max 106 Min 0 Mean 1.03 Ac-ft 749
Water year 1957-58: Max 96 Min 0 Mean 0.50 Ac-ft 366

Peak discharge (base, 500 cfs).--Aug. 21 (1:50 p.m.) 1,770 cfs (4.26 ft).

## 4806. Three Rivers near Three Rivers, N. Mex.

Location.--Lat 33°24'10", long 105°53'40", in NW¼ sec. 34, T. 10 S., R. 10 E., 0.2 mile upstream from mouth of Lincoln Canyon and 9½ miles northeast of Three Rivers.

Drainage area.--6.9 sq mi.

Records available.--April 1956 to September 1958 (discontinued).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 6,130 ft (from topographic map).

Extremes.--Maximum discharge during year, 211 cfs May 15 (gage height, 2.94 ft); no flow July 13-17.
1956-58: Maximum discharge, that of May 15, 1958; no flow at times.

Remarks.--Records good above 1 cfs, fair below.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 2.0 | 0 | 2.4 | 12 |
| 2.1 | .46 | 2.5 | 26 |
| 2.2 | 1.5 | 2.6 | 47 |
| 2.3 | 4.6 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.15 | 1.8 | 1.0 | 0.5 | 0.35 | 1.2 | 7.8 | *16 | 3.3 | 0.46 | 0.40 | 0.35 |
| 2 | .11 | 1.8 | 1.0 | .40 | .35 | 1.2 | 8.5 | 16 | 2.6 | .46 | .40 | .25 |
| 3 | .11 | 2.3 | 1.0 | .40 | .35 | 1.0 | *8.5 | 14 | 2.0 | .46 | 1.3 | .20 |
| 4 | .07 | 2.3 | .9 | .40 | .30 | 1.0 | 8.5 | 11 | 2.0 | .40 | 1.3 | .11 |
| 5 | .20 | *2.6 | .9 | .46 | .40 | 1.2 | 8.5 | 9.3 | 1.8 | .35 | 1.2 | .11 |
| 6 | .40 | 2.6 | .9 | .40 | .46 | 1.2 | 6.5 | 10 | 1.8 | .40 | 1.0 | .15 |
| 7 | *.6 | 2.6 | .9 | .40 | .46 | 1.2 | 5.8 | 14 | 1.6 | .36 | .9 | .15 |
| 8 | .6 | 2.6 | .8 | .40 | .40 | 1.2 | 7.8 | 15 | 1.5 | .30 | .8 | *.15 |
| 9 | .6 | 2.3 | .8 | .40 | .40 | 1.3 | 8.5 | 15 | *1.3 | .20 | .6 | .15 |
| 10 | .6 | 2.0 | .8 | .40 | .40 | 1.2 | 7.2 | 12 | 1.2 | *.11 | .6 | .25 |
| 11 | .6 | 2.0 | .7 | .40 | .46 | 1.2 | 5.8 | 12 | 1.2 | .11 | .5 | .30 |
| 12 | 3.5 | 1.8 | .7 | .40 | .46 | 1.2 | 6.5 | 14 | 1.0 | .03 | *.46 | .40 |
| 13 | 1.5 | 1.5 | .7 | .40 | .46 | 1.0 | 8.5 | 14 | 1.0 | 0 | .40 | 3.6 |
| 14 | 1.5 | 1.5 | .6 | .35 | .4 | 1.0 | 8.5 | 12 | 1.2 | 0 | .35 | 5.8 |
| 15 | 1.5 | 1.3 | .6 | *.40 | .5 | 1.0 | 8.5 | 15 | 1.3 | 0 | .30 | 4.6 |
| 16 | 1.3 | 1.3 | .6 | .5 | .5 | 1.3 | 11 | 10 | 1.2 | 0 | .20 | 3.7 |
| 17 | 1.2 | 1.5 | .6 | .40 | .5 | 2.0 | 20 | 12 | 2.1 | 0 | .20 | 2.9 |
| 18 | 1.2 | 1.3 | *.6 | .40 | .5 | *3.3 | 22 | 11 | 1.2 | .28 | .25 | 2.6 |
| 19 | 1.5 | 1.3 | .6 | .46 | *.6 | 2.9 | 24 | *9.3 | .9 | .46 | .20 | 2.3 |
| 20 | 1.8 | *1.2 | .6 | .46 | .6 | 2.3 | 30 | 7.8 | .8 | .40 | .25 | 2.0 |
| 21 | 2.0 | 1.2 | .6 | .4 | .7 | 2.9 | *32 | 5.8 | .7 | .35 | .7 | 1.8 |
| 22 | *2.9 | 1.2 | .6 | .5 | .9 | 5.2 | 32 | 5.2 | .7 | *.25 | .6 | 1.8 |
| 23 | 3.3 | 1.2 | .6 | .5 | 1.0 | 10 | 28 | 4.6 | .6 | .15 | .5 | 2.3 |
| 24 | 3.3 | 1.2 | .6 | .5 | 1.2 | 9.3 | 26 | 4.6 | *.5 | .11 | .7 | 2.0 |
| 25 | 3.3 | 1.0 | .6 | .35 | 1.2 | 7.8 | 24 | 5.2 | .5 | .11 | .9 | 2.0 |
| 26 | 3.3 | .9 | .6 | .35 | 1.3 | 8.5 | 22 | 5.2 | .5 | .11 | .6 | 3.3 |
| 27 | 2.9 | 1.0 | .6 | .40 | 1.3 | 8.5 | 20 | 4.6 | .6 | .07 | .46 | 5.8 |
| 28 | 2.9 | 1.0 | .5 | .40 | 1.2 | 7.8 | 18 | 4.1 | .5 | .03 | .35 | 9.3 |
| 29 | 2.0 | 1.2 | .5 | .35 | - | 7.8 | 16 | 4.1 | .46 | .47 | .30 | 16 |
| 30 | 1.8 | 1.0 | .5 | .35 | ------- | 7.2 | 16 | 4.1 | .46 | .40 | .30 | 16 |
| 31 | 1.8 | ------- | .5 | .35 | ------- | 7.2 | ------- | 3.7 | ------- | .40 | .35 | ------- |
| Total | 48.54 | 48.5 | 21.5 | 12.78 | 17.75 | 111.1 | 456.4 | 300.6 | 36.52 | 7.22 | 17.37 | 90.37 |
| Mean | 1.57 | 1.62 | 0.69 | 0.412 | 0.634 | 3.58 | 15.2 | 9.70 | 1.22 | 0.233 | 0.560 | 3.01 |
| Ac-ft | 96 | 96 | 43 | 25 | 35 | 220 | 905 | 596 | 72 | 14 | 34 | 179 |

Calendar year 1957: Max 26 Min 0 Mean 1.13 Ac-ft 816
Water year 1957-58: Max 32 Min 0 Mean 3.20 Ac-ft 2,320

Peak discharge (base, 30 cfs).--Oct. 12 (12:30 p.m.) 113 cfs (2.78 ft); Apr. 21 (2 a.m.) 41 cfs (2.57 ft); May 15 (8:30 p.m.) 211 cfs (2.94 ft); June 17 (4 p.m.) 113 cfs (2.79 ft).

* Discharge measurement made on this day.

## 4807. Indian Creek near Three Rivers, N. Mex.

Location.--Lat 33°22'10", long 105°53'25", in SW¼NE¼ sec. 10, T. 11 S., R. 10 E., on left bank 150 ft above diversion point and 11½ miles east of Three Rivers.

Drainage area.--6.8 sq mi.

Records available.--May 1956 to September 1958 (discontinued).

Gage.--Water-stage recorder and concrete control. Datum of gage is 6,123.4 ft above mean sea level (probably datum of 1929).

Extremes.--Maximum discharge during year, 307 cfs June 17 (gage height, 4.37 ft), from rating curve extended above 30 cfs on basis of critical-depth measurement at gage height 4.24 ft; minimum daily, 0.18 cfs Aug. 16, 17.
1956-58: Maximum discharge, that of June 17, 1958; no flow many days in 1956.

Remarks.--Records good between 0.5 and 10 cfs, fair below and poor above. Diversion for irrigation about 700 ft downstream from gage.

Rating table, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)

| | | | |
|---|---|---|---|
| 1.7 | 0.06 | 2.2 | 4.0 |
| 1.8 | .25 | 2.3 | 6.2 |
| 1.9 | .6 | 2.5 | 13 |
| 2.0 | 1.3 | 2.9 | 38 |
| 2.1 | 2.4 | | |

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.44 | 3.6 | 1.9 | 0.40 | 0.33 | 1.3 | 5.1 | *21 | 5.5 | 0.9 | 0.33 | 0.6 |
| 2 | .40 | 4.4 | 2.1 | .7 | .36 | 1.3 | 6.0 | 21 | 5.3 | 1.0 | .40 | .5 |
| 3 | .36 | 5.3 | 1.8 | .6 | .36 | 1.3 | *6.2 | 17 | 4.7 | .9 | .49 | .40 |
| 4 | .36 | 5.5 | 1.6 | .6 | .44 | 1.3 | 6.2 | 13 | 4.0 | .7 | .6 | .36 |
| 5 | .6 | *5.3 | 1.7 | .6 | .6 | 1.3 | 6.0 | 11 | 3.8 | .7 | .6 | .45 |
| 6 | 1.4 | 5.1 | 1.8 | .6 | .5 | 1.5 | 5.3 | 14 | 3.6 | .8 | .40 | .36 |
| 7 | *1.2 | 4.9 | 1.4 | .5 | .44 | 1.3 | 4.9 | 18 | 3.2 | .7 | .30 | .30 |
| 8 | .9 | 4.4 | 1.3 | .48 | .44 | 1.5 | 5.8 | 20 | 3.2 | .6 | .30 | *.33 |
| 9 | 3.2 | 4.0 | 1.2 | .48 | .48 | 1.3 | 6.2 | 17 | *2.6 | .6 | .25 | 1.3 |
| 10 | 1.6 | 3.8 | 1.2 | .48 | .5 | 1.0 | 6.5 | 16 | 2.4 | *.48 | .25 | .8 |
| 11 | 1.9 | 3.4 | 1.1 | .44 | .6 | 1.1 | 6.0 | 16 | 2.4 | .44 | .27 | .7 |
| 12 | 7.1 | 3.1 | 1.1 | .44 | .5 | 1.0 | 5.8 | 16 | 2.1 | .44 | *.25 | .7 |
| 13 | 3.4 | 2.9 | 1.1 | .44 | .6 | .9 | 6.0 | 16 | 2.0 | .40 | .22 | 15 |
| 14 | 3.2 | 2.6 | 1.1 | .44 | .6 | 1.0 | 5.8 | 14 | 2.0 | .40 | .20 | 19 |
| 15 | 3.1 | 2.5 | 1.2 | *.33 | .6 | 1.0 | 5.8 | 16 | 1.9 | .40 | .20 | 14 |
| 16 | 2.9 | 2.5 | 1.2 | .44 | .7 | 1.1 | 8.5 | 18 | 1.5 | .40 | .18 | 9.6 |
| 17 | 2.6 | 2.4 | 1.2 | .44 | .7 | 1.6 | 17 | 20 | 8.0 | .40 | .18 | 6.8 |
| 18 | 2.6 | 2.0 | *1.2 | .40 | .7 | *2.0 | 17 | 18 | 2.2 | 1.8 | .25 | 5.8 |
| 19 | 3.1 | 1.9 | 1.2 | .44 | *.7 | 2.1 | 20 | *15 | 1.5 | .7 | .28 | 4.7 |
| 20 | 4.4 | *1.9 | 1.1 | .36 | .8 | 2.1 | 29 | 13 | 1.3 | .48 | .6 | 3.8 |
| 21 | 6.8 | 1.8 | 1.1 | .33 | 1.0 | 2.5 | 30 | 12 | 1.3 | .40 | .6 | 3.4 |
| 22 | *8.3 | 1.2 | 1.1 | .40 | 1.4 | 4.4 | *30 | 11 | 1.2 | *.33 | .8 | 3.1 |
| 23 | 8.9 | 1.4 | 1.1 | .36 | 1.8 | 5.5 | 34 | 11 | 1.1 | .30 | .6 | 3.2 |
| 24 | 8.6 | 1.8 | 1.0 | .44 | 1.9 | 5.8 | 27 | 11 | *1.0 | .30 | .7 | 2.8 |
| 25 | 7.7 | 1.5 | .9 | .36 | 2.0 | 5.5 | 23 | 10 | 1.0 | .36 | *3.9 | 2.8 |
| 26 | 6.8 | 1.5 | .9 | .33 | 1.8 | 5.1 | 23 | 9.6 | 1.1 | .33 | .7 | 4.9 |
| 27 | 6.0 | 1.6 | .9 | .36 | 1.6 | 4.9 | 23 | 9.2 | 1.2 | .30 | .7 | 10 |
| 28 | 5.3 | 1.7 | .8 | .36 | 1.3 | 4.9 | 20 | 8.6 | .9 | .27 | .7 | 30 |
| 29 | 4.7 | 1.7 | .8 | .33 | - | 4.9 | 18 | 8.0 | .8 | .48 | .6 | 38 |
| 30 | 4.0 | 1.4 | .7 | .33 | ------- | 4.7 | 20 | 7.1 | .7 | .40 | .6 | 24 |
| 31 | 3.8 | ------- | .6 | .33 | ------- | 4.7 | ------- | 6.0 | ------- | .33 | .6 | ------- |
| Total | 115.66 | 87.1 | 37.4 | 13.54 | 23.75 | 79.9 | 427.1 | 433.5 | 73.5 | 17.04 | 17.05 | 207.70 |
| Mean | 3.73 | 2.90 | 1.21 | 0.437 | 0.848 | 2.58 | 14.2 | 14.0 | 2.45 | 0.550 | 0.550 | 6.92 |
| Ac-ft | 229 | 173 | 74 | 27 | 47 | 158 | 847 | 860 | 146 | 34 | 34 | 412 |

Calendar year 1957: Max 29 Min 0.08 Mean 2.20 Ac-ft 1,590
Water year 1957-58: Max 38 Min 0.18 Mean 4.20 Ac-ft 3,040

Peak discharge (base, 75 cfs).--Oct. 12 (12 m.) 130 cfs (3.60 ft); June 17 (4 p.m.) 307 cfs (4.37 ft); Aug. 25 (5:30 p.m.) 271 cfs (4.24 ft); Sept. 13 (7 a.m.) 76 cfs (3.27 ft).

* Discharge measurement made on this day.

## 4808. Indian Creek flume near Three Rivers, N. Mex.

Location.--Lat 33°23'25", long 105°54'10", in NE¼NE¼ sec. 9, T. 11 S., R. 10 E., on left bank at head of flume over Indian Creek, 10½ miles east of Three Rivers.

Records available.--May 1956 to August 1958 (discontinued).

Gage.--Water-stage recorder and iron pipe flume control. Altitude of gage is 5,875 ft (from topographic map).

Extremes.--Maximum discharge during period, 13 cfs Oct. 12 (gage height, 1.90 ft); no flow several days.
1956-58: Maximum discharge, 16 cfs July 26 and Aug. 30, 1957 (gage height, 1.83 and 1.90 ft); no flow at times.

Remarks.--Records fair. Flow is diverted from Indian Creek for irrigation of about 30 acres.

Rating table, Oct. 1, 1957, to Aug. 11, 1958, except for periods of ice effect (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 17-23)

| | | | | | |
|---|---|---|---|---|---|
| 0.92 | 0 | 1.2 | 0.40 | 1.5 | 3.2 |
| 1.0 | .03 | 1.3 | .9 | 1.6 | 5.4 |
| 1.1 | .16 | 1.4 | 1.8 | 1.7 | 8.5 |

**Discharge, in cubic feet per second, water year October 1957 to September 1958**

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.34 | 1.0 | b1.5 | b0.4 | b0.4 | b1.3 | 0.9 | *2.2 | 0.36 | 0.6 | 0.43 | |
| 2 | .32 | 1.6 | .5 | b.5 | b.3 | 1.3 | 2.1 | 1.1 | .06 | .8 | .47 | |
| 3 | .29 | 1.2 | .02 | .6 | .43 | 1.3 | *2.8 | 1.1 | .6 | .6 | .6 | |
| 4 | .29 | 2.8 | .32 | .7 | .47 | 1.3 | 4.3 | .9 | 1.6 | .47 | .8 | |
| 5 | .5 | *.12 | .5 | b.6 | .7 | 1.3 | 2.5 | .9 | 1.0 | .40 | .7 | |
| 6 | 1.3 | .20 | .6 | b.6 | .5 | 1.6 | .24 | 2.1 | 1.1 | .5 | .47 | |
| 7 | *1.0 | .29 | .34 | b.6 | .5 | b1.3 | .16 | 3.7 | 2.5 | .43 | .37 | |
| 8 | .8 | .08 | .27 | b.5 | .5 | 1.6 | 1.1 | 3.9 | 3.1 | .37 | .37 | |
| 9 | 1.8 | 0 | .22 | b.5 | .47 | 1.2 | 2.5 | 4.1 | *2.6 | .34 | .27 | |
| 10 | 1.6 | .01 | .20 | b.5 | .47 | b1.1 | 2.6 | 3.2 | 2.4 | *.24 | .29 | |
| 11 | 1.8 | 0 | b.2 | b.4 | .47 | 1.0 | 1.3 | 3.7 | 1.8 | .22 | .32 | |
| 12 | 1.1 | .08 | b.7 | b.4 | b.5 | 1.1 | 1.2 | 3.7 | 1.7 | .20 | (*) | |
| 13 | 0 | 0 | b.9 | b.4 | .6 | b.9 | 2.2 | 3.2 | 1.8 | .27 | - | |
| 14 | 1.1 | .02 | 1.0 | b.4 | .6 | 1.0 | 1.2 | 3.2 | 2.8 | .25 | - | |
| 15 | 2.5 | .03 | 1.1 | *b.3 | .6 | .46 | 1.2 | 3.1 | 2.6 | .37 | - | |
| 16 | 2.5 | .06 | 1.2 | b.4 | .6 | .9 | 2.5 | 3.1 | 2.1 | .37 | - | |
| 17 | 2.5 | .04 | 1.2 | b.4 | .7 | 1.6 | 1.0 | 2.9 | 1.6 | .37 | - | |
| 18 | 2.6 | 0 | *1.2 | b.4 | .8 | *1.8 | 1.2 | 3.1 | 1.8 | .44 | - | |
| 19 | 2.9 | .07 | 1.1 | b.5 | *.7 | 2.4 | .8 | *2.9 | 2.2 | .24 | - | |
| 20 | 3.4 | *.03 | 1.1 | b.4 | .8 | 3.1 | .9 | 2.9 | 1.9 | .24 | - | |
| 21 | 2.8 | 0 | 1.1 | b.3 | .9 | 3.9 | 1.2 | 3.1 | 1.9 | .29 | - | |
| 22 | *1.6 | 0 | 1.1 | b.3 | 1.2 | 5.2 | *1.7 | 3.1 | 1.8 | *.32 | - | |
| 23 | 2.8 | 0 | 1.0 | b.4 | 1.6 | 5.7 | 1.4 | 3.1 | 1.4 | .27 | - | |
| 24 | 2.8 | .46 | .9 | b.3 | 1.7 | 6.3 | .48 | 2.8 | *1.3 | .29 | - | |
| 25 | 2.2 | .01 | .9 | b.4 | 1.7 | 5.4 | 1.7 | 2.3 | 1.0 | .34 | - | |
| 26 | 1.4 | .01 | .9 | b.3 | b1.8 | 4.1 | 2.6 | .16 | 1.3 | .32 | - | |
| 27 | 1.5 | .01 | .9 | b.4 | b1.6 | 1.9 | .34 | .14 | 1.3 | .29 | - | |
| 28 | 2.4 | .02 | .9 | b.4 | b1.1 | .7 | 2.9 | .10 | 1.1 | .32 | - | |
| 29 | 1.8 | b.07 | .8 | b.3 | - | .6 | 3.7 | .07 | .9 | .5 | - | |
| 30 | 1.3 | b.5 | .8 | b.3 | ------- | .34 | 3.9 | .05 | .5 | .43 | - | |
| 31 | 1.1 | ------- | .6 | b.3 | ------- | .32 | ------- | .23 | ------- | .37 | - | ------- |
| Total | 50.34 | 8.71 | 24.07 | 13.2 | 22.71 | 62.02 | 52.62 | 70.15 | 48.12 | 11.46 | - | |
| Mean | 1.62 | 0.290 | 0.776 | 0.43 | 0.811 | 2.00 | 1.75 | 2.26 | 1.60 | 0.370 | - | |
| Ac-ft | 100 | 17 | 48 | 26 | 45 | 123 | 104 | 139 | 95 | 23 | - | |

Calendar year 1957: Max 4.3 Min 0 Mean 1.20 Ac-ft 868
Water year 1957-58: Max - Min - Mean - Ac-ft -

* Discharge measurement made on this day.
b Stage-discharge relation affected by ice.

4809. Indian Creek at mouth, near Three Rivers, N. Mex.

Location.--Lat 33°21'45", long 105°57'25", unsurveyed, on right bank 75 ft above diversion dam, 0.35 mile above mouth, and 5½ miles east of Three Rivers.

Drainage area.--10.9 sq mi.

Records available.--April 1956 to September 1958 (discontinued).

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,280 ft (from topographic map).

Extremes.--Maximum discharge during year, 353 cfs Oct. 12 (gage height, 4.25 ft); no flow for several days.
1956-58: Maximum discharge, 1,780 cfs July 26, 1957 (gage height, 7.25 ft), from rating curve extended above 20 cfs on basis of critical-depth measurements at gage heights 4.25 and 7.25 ft; no flow at times.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Erratic diversion for irrigation immediately above station and regular diversions 5 miles upstream.

Discharge, in cubic feet per second, water year October 1957 to September 1958

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | a1 | 0.44 | 0.03 | 0 | 0.14 | 0.06 | *11 | 2.4 | a0.8 | 0.6 | 0.8 |
| 2 | 0 | a1 | .5 | .06 | 0 | .03 | .08 | 12 | 2.1 | a.8 | .5 | .8 |
| 3 | 0 | a1 | .44 | .08 | .03 | .03 | *.12 | 11 | 1.9 | a.8 | .5 | .9 |
| 4 | 0 | a1 | .44 | .06 | .03 | .06 | .36 | 9.4 | 1.3 | a.8 | .5 | .8 |
| 5 | 0 | a1 | .36 | .06 | .08 | .06 | .36 | 9.1 | 1.3 | a.8 | .6 | .8 |
| 6 | *.06 | *1.2 | .30 | .06 | .03 | .14 | .36 | 9.8 | 1.3 | a.8 | .6 | .6 |
| 7 | .06 | 1.3 | .03 | .08 | 0 | .28 | .36 | 12 | 1.2 | a.8 | .6 | .5 |
| 8 | .08 | 1.2 | .03 | .08 | 0 | .5 | .36 | 13 | .9 | a.8 | .5 | *.5 |
| 9 | 1.9 | .9 | .03 | .06 | .03 | .28 | .36 | 11 | *.8 | a.8 | .5 | a.5 |
| 10 | .14 | .5 | .03 | .06 | .06 | .25 | .44 | 11 | .8 | .8 | .5 | a.5 |
| 11 | 0 | .44 | .06 | .06 | .17 | .25 | .22 | 11 | .9 | .8 | .5 | a.5 |
| 12 | *18 | .25 | .06 | .06 | .17 | .25 | .08 | 11 | .9 | .8 | *.6 | a.5 |
| 13 | a2 | .25 | .06 | .03 | .20 | .25 | .11 | 11 | .8 | .8 | .6 | a6 |
| 14 | a1 | .25 | .06 | .06 | .20 | .25 | .08 | 10 | .7 | .8 | .6 | a8 |
| 15 | a.5 | .22 | .06 | *.06 | .08 | .25 | .08 | 11 | 1.1 | .8 | .6 | a5 |
| 16 | a.2 | .25 | .06 | .06 | .06 | .25 | .31 | 10 | .9 | .8 | .6 | a2 |
| 17 | a.1 | .25 | .06 | .06 | .06 | .25 | 8.1 | 11 | 7.5 | .8 | .7 | a1.5 |
| 18 | a.1 | .28 | *.06 | .06 | .06 | *.25 | 11 | 8.8 | 1.5 | .9 | .7 | a1.5 |
| 19 | a1 | .25 | .06 | .06 | *.06 | .25 | 15 | *6.9 | a1 | .8 | .7 | a1.5 |
| 20 | a2 | *.24 | .06 | .06 | .12 | .25 | 19 | 5.8 | a.8 | .7 | .7 | a1 |
| 21 | a3 | .22 | .03 | .08 | .28 | .28 | *19 | 5.3 | a.8 | .7 | .7 | a1 |
| 22 | *a4 | .22 | .03 | .06 | .28 | .36 | 20 | 4.6 | a.8 | *.7 | .7 | a1 |
| 23 | a4 | .22 | .03 | .06 | .28 | .28 | 23 | 4.0 | a.8 | .7 | .7 | a1 |
| 24 | a4 | .22 | .06 | .06 | .20 | .28 | 20 | 5.0 | *a.8 | .8 | .7 | a.5 |
| 25 | a3 | .22 | .03 | .06 | 0 | .28 | 14 | 5.3 | a.8 | .8 | 1.7 | a.5 |
| 26 | a2.5 | .25 | .03 | .06 | .03 | .25 | 14 | 5.6 | a2 | .7 | .8 | a.5 |
| 27 | a2 | .25 | .03 | .06 | .15 | .28 | 14 | 5.6 | a1 | .7 | .8 | a2 |
| 28 | a1.5 | .26 | .03 | .03 | .28 | .36 | 13 | 5.3 | a.8 | .7 | .8 | a10 |
| 29 | a1 | .36 | .03 | .03 | .- | .22 | 11 | 5.0 | a.8 | .8 | .8 | a15 |
| 30 | a1 | .36 | 0 | .03 | ------ | .06 | 11 | 3.8 | a.8 | .6 | .7 | a8 |
| 31 | a1 | ------- | 0 | .03 | ------- | .03 | ------- | 2.8 | ------- | .6 | .7 | ------- |
| Total | 54.14 | 15.46 | 3.50 | 1.76 | 2.94 | 6.95 | 215.84 | 258.1 | 39.5 | 23.8 | 20.8 | 73.7 |
| Mean | 1.75 | 0.515 | 0.113 | 0.057 | 0.105 | 0.224 | 7.19 | 8.33 | 1.32 | 0.77 | 0.67 | 2.46 |
| Ac-ft | 107 | 31 | 6.9 | 3.5 | 5.8 | 14 | 428 | 512 | 78 | 47 | 41 | 146 |

Calendar year 1957: Max 65 Min 0 Mean 0.630 Ac-ft 457
Water year 1957-58: Max 23 Min 0 Mean 1.96 Ac-ft 1,420

Peak discharge (base, 150 cfs).--Oct. 12 (1 p.m.) 353 cfs (4.25 ft); June 17 (5 p.m.) 190 cfs (3.76 ft).

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of 6 discharge measurements, weather records, partially recorded peaks, and comparison with upstream stations.

## 4815. Rio Tularosa near Bent, N. Mex.

Location.--Lat 33°08'40", long 105°53'50", in SE¼NW¼ sec. 32, T. 13 S., R. 11 E., on right bank 50 ft downstream from bridge on U. S. Highway 70, 2.6 miles west of Bent, and 8.5 miles northeast of Tularosa.

Drainage area.--120 sq mi, approximately.

Records available.--December 1947 to September 1958.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,450 ft (from topographic map).

Average discharge.--10 years (1948-58), 10.1 cfs (7,310 acre-ft per year).

Extremes.--Maximum discharge during year, 185 cfs Sept. 23 (gage height, 2.82 ft), on basis of critical-depth measurement of peak flow; minimum daily, 2.3 cfs June 29.
1947-58: Maximum discharge, 2,360 cfs July 12, 1950 (gage height, 5.3 ft), from rating curve extended above 33 cfs on basis of logarithmic plotting and slope-area measurement at gage height 5.3 ft; minimum daily, 1.5 cfs June 20, 1950.

Remarks.--Records fair. Diversion for irrigation of about 1,000 acres above station.

Rating tables, water year 1957-58 (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Jan. 8 to Feb. 2; temporary staff gage used June 3-9)

| Oct. 1 to June 2 | | June 10 to Sept. 30 | |
|---|---|---|---|
| 0.4 | 1.6 | 2.2 | 1.7 |
| .5 | 4.4 | 2.3 | 6.4 |
| .6 | 10 | 2.4 | 18 |
| .7 | 20 | 2.5 | 40 |

*Discharge, in cubic feet per second, water year October 1957 to September 1958*

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8.6 | 8.6 | 7.2 | 6.2 | 9.3 | 4.4 | 11 | *5.6 | 5.1 | 3.1 | 20 | 8.9 |
| 2 | 9.3 | 8.6 | 7.2 | 5.6 | 9.3 | 4.8 | 11 | 8.6 | *4.9 | 7.2 | 29 | 8.9 |
| 3 | 8.1 | 8.6 | 7.9 | 6.2 | 9.3 | 4.8 | 13 | 8.6 | *3.3 | 7.2 | 11 | 7.2 |
| 4 | 8.7 | 9.3 | 7.9 | 6.6 | 10 | 4.8 | *12 | 5.8 | 7.8 | 6.4 | 7.2 | 7.2 |
| 5 | 10 | 10 | 7.2 | 6.6 | 11 | 5.2 | 12 | 5.6 | 8.1 | 5.7 | 9.9 | 7.2 |
| 6 | 12 | *9.3 | 7.9 | 6.6 | 11 | 6.6 | 8.6 | 4.0 | 8.8 | 7.2 | 11 | 7.2 |
| 7 | 7.2 | 7.9 | 7.9 | 7.9 | 11 | 6.6 | 7.2 | 7.9 | 9.1 | 5.7 | 9.9 | 6.4 |
| 8 | *7.9 | 8.6 | 7.9 | 8.6 | 12 | 7.2 | 7.9 | 7.2 | 8.8 | 3.5 | 9.9 | *6.4 |
| 9 | 6.1 | 8.6 | 7.9 | 8.6 | 12 | 6.6 | 11 | 7.2 | *6.0 | 3.5 | 9.9 | 7.2 |
| 10 | 4.4 | 8.6 | 7.9 | 7.9 | 11 | 6.6 | 11 | 6.6 | 5.7 | *3.1 | 8.0 | 9.9 |
| 11 | 3.4 | 8.6 | 7.9 | 9.3 | 11 | 7.2 | 10 | 5.2 | 2.7 | 5.7 | 8.9 | 11 |
| 12 | 19 | 8.6 | 7.9 | 9.3 | 11 | 6.2 | 10 | 4.4 | 3.5 | 6.4 | *6.4 | 14 |
| 13 | 14 | 7.9 | 8.6 | 9.3 | 11 | 5.2 | 7.9 | 5.6 | 3.5 | 5.7 | 9.9 | 11 |
| 14 | 12 | 9.3 | 9.3 | 9.3 | 11 | 5.6 | 8.6 | 4.8 | 4.0 | 5.7 | 9.9 | 4.5 |
| 15 | 11 | 8.6 | 8.6 | 11 | 11 | 6.2 | 8.6 | 3.7 | 3.7 | 5.7 | 9.9 | 3.5 |
| 16 | 11 | 8.6 | 8.6 | *11 | 11 | 6.6 | 7.9 | 3.7 | 4.6 | 11 | 8.9 | 7.2 |
| 17 | 7.9 | 9.3 | 9.3 | 10 | 10 | 7.9 | 7.9 | 4.0 | 14 | 11 | 8.0 | 8.0 |
| 18 | 8.6 | 10 | 12 | 9.3 | 11 | 10 | 9.3 | 2.8 | 11 | 12 | 5.7 | 8.0 |
| 19 | 12 | 10 | *12 | 11 | 12 | *11 | 8.6 | 3.4 | 9.9 | 11 | 5.7 | 8.9 |
| 20 | 13 | 11 | 11 | 10 | *10 | 8.6 | 5.6 | *3.8 | 8.0 | 11 | 5.1 | 6.4 |
| 21 | 13 | *11 | 11 | 10 | 9.3 | 8.6 | 6.2 | 11 | 9.9 | 5.7 | 8.9 | 4.0 |
| 22 | 10 | 14 | 10 | 9.3 | 7.9 | 7.9 | *7.9 | 9.3 | 9.9 | 5.1 | 8.9 | 4.0 |
| 23 | *8.6 | 7.9 | 9.3 | 8.6 | 7.9 | 7.9 | 7.2 | 8.6 | 5.1 | *4.5 | 5.7 | *23 |
| 24 | 7.9 | 6.6 | 10 | 9.3 | 8.6 | 8.6 | 7.2 | 6.6 | 3.1 | 4.0 | 8.9 | 11 |
| 25 | 8.6 | 6.2 | 11 | 9.3 | 5.2 | 9.3 | 7.9 | 6.2 | *5.1 | 4.5 | 8.9 | 8.9 |
| 26 | 8.6 | 6.6 | 10 | 9.3 | 4.4 | 10 | 7.2 | 2.8 | 6.4 | 3.5 | *7.2 | 11 |
| 27 | 7.9 | 6.6 | 8.6 | 8.6 | 4.0 | 11 | 7.2 | 4.1 | 6.4 | 4.8 | 5.7 | 9.9 |
| 28 | 6.2 | 7.2 | 7.9 | 8.6 | 4.0 | 11 | 6.6 | 5.1 | 4.5 | 8.3 | 6.4 | 8.9 |
| 29 | 6.6 | 7.2 | 6.6 | 9.3 | - | 11 | 6.6 | 6.5 | 2.3 | 7.3 | 8.0 | 11 |
| 30 | 6.6 | 7.2 | 5.6 | 9.3 | ------- | 10 | 6.2 | 6.0 | 3.1 | 15 | 11 | 14 |
| 31 | 7.2 | ------- | 5.2 | 9.3 | ------- | 10 | ------- | 5.8 | ------- | 16 | 9.9 | ------- |
| Total | 285.4 | 260.5 | 267.3 | 271.2 | 266.2 | 237.4 | 259.3 | 180.5 | 188.3 | 216.5 | 293.7 | 264.7 |
| Mean | 9.21 | 8.68 | 8.62 | 8.75 | 9.51 | 7.66 | 8.64 | 5.82 | 6.28 | 6.98 | 9.47 | 8.82 |
| Ac-ft | 566 | 517 | 530 | 538 | 528 | 471 | 514 | 358 | 373 | 429 | 583 | 525 |

Calendar year 1957: Max 59 Min 3.4 Mean 9.02 Ac-ft 6,540
Water year 1957-58: Max 29 Min 2.3 Mean 8.19 Ac-ft 5,930

Peak discharge (base, 125 cfs).--Oct. 12 (2 p.m.) 131 cfs (1.24 ft); Aug. 2 (3:30 p.m.) 166 cfs (2.81 ft); Sept. 23 (about 3 p.m.) 185 cfs (2.82 ft).

* Discharge measurement made on this day.
Note.--Discharge computed from frequent readings of temporary staff gage June 3-9.

### 1775. Coleto Creek near Victoria, Tex.

Location.--Lat 28°43', long 97°08', at bridge on U. S. Highway 59, 100 ft upstream from Texas & New Orleans Railroad Co. 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 1954 (discontinued).
Gage.--Water-stage recorder. Datum of gage is 49.18 ft above mean sea level, datum of 1929.
Average discharge.--15 years (1939-54), 94.1 cfs (revised), 68,130 acre-ft per year.
Extremes.--1939-54: 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 measurement 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.

Revisions.--The figure of maximum discharge for period June to September 1939 has been revised to 8,820 cfs July 12, 1939 (gage height, 11.40 ft), superseding that published in WSP 898.
Remarks.--Records poor. No large diversion above station.
Revisions.--Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1939-40, superseding those published in WSP 898 are given herewith:

July 12, 1939..... 3,350
June 30, 1940..... 19,900
July 1, 1940..... 3,090

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| July 1939 | 5,061.9 | 3,350 | 0.8 | 163 | 10,040 |
| June 1940 | 20,540.7 | 19,900 | 2.0 | 685 | 40,740 |
| July | 7,326 | 3,090 | 16 | 235 | 14,530 |
| Water year 1939-40 | 34,205.3 | 19,900 | 1.9 | 93.5 | 67,840 |
| Calendar year 1940 | 82,558.9 | 19,900 | 1.3 | 226 | 163,800 |

### 1915. Nueces River near Uvalde, Tex.

Location.--Lat 29°11', long 99°54', at Tom Nunn crossing, 4½ miles downstream from Texas & New Orleans (Southern Pacific) Railroad Co. bridge and 7 miles southwest of Uvalde, Uvalde County.
Drainage area.--1,930 sq mi.
Records available.--October 1927 to April 1939 (discontinued).
Gage.--Staff gage. Datum of gage is 854.23 ft above mean sea level. Nov. 22, 1927, to June 14, 1935, recording gage at same site and datum.
Average discharge.--11 years (1927-38), 241 cfs (174,500 acre-ft per year).
Extremes.--1927-39: Maximum discharge, 616,000 cfs June 14, 1935 (gage height, 36.9 ft, from floodmarks), by slope-area measurement of peak flow; minimum, 0.2 cfs Feb. 12-22, 1929.

Maximum stage known since at least 1836, that of June 14, 1935.

Revisions.--The figures of maximum discharge for some water years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

| WSP | Water year | Date | Discharge (cfs) | Gage height (feet) |
|---|---|---|---|---|
| 703 | 1930 | June 15, 1930 | 68,200 | 15.73 |
| 733 | 1932 | Sept. 1, 1932 | 207,000 | 23.25 |
| 808 | 1936 | Sept.16, 1936 | 74,800 | 16.2 |
| 858 | 1938 | Dec. 29, 1937 | 18,200 | 9.29 |

Remarks.--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.
Revisions.--Revised figures of discharge, in cubic feet per second, for high-water periods in the water years 1930, 1932, and 1935, superseding those published in WSP 703, 733, and 788, are given herewith:

1930
June 15..... 21,000

1932
July 1..... 14,100
2..... 59,600
3..... 10,400

1932-Con.
Sept. 1..... 96,900
2..... 64,100
3..... 12,000

1935
May 18..... 8,600

1935-Con.
May 31..... 14,400
June 14..... 171,000
15..... 59,700
16..... 23,000

| Month | Cfs-days | Maximum | Minimum | Mean | Runoff in acre-feet |
|---|---|---|---|---|---|
| June 1930 | - | 21,000 | 0.4 | 1,060 | 63,100 |
| Water year 1929-30 | - | 21,000 | .3 | 89.6 | 64,900 |
| Calendar year 1930 | - | 21,000 | .3 | 152 | 110,000 |
| July 1932 | - | 59,600 | 63 | 3,100 | 191,000 |
| September | - | 96,900 | 463 | 7,020 | 417,000 |
| Water year 1931-32 | - | 96,900 | 5.3 | 848 | 616,000 |
| Calendar year 1932 | - | 96,900 | 5.3 | 906 | 657,000 |
| May 1935 | 40,201.2 | 14,400 | 3.0 | 1,297 | 79,740 |
| June | 304,119 | 171,000 | 395 | 10,140 | 603,200 |
| Water year 1934-35 | 372,388.4 | 171,000 | 2.6 | 1,020 | 738,600 |
| Calendar year 1935 | 379,183.8 | 171,000 | 2.6 | 1,039 | 752,100 |

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a third table.

## Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow, partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1958

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | **Mermentau River basin** | | | | |
| 102 | Bayou Plaquemine Brule at Church Point, La. | Lot 40, T.7 S., R.2 E., at bridge at Church Point. | - | 1956-58 | 11- 4-57 | 0.08 |
| *116 | Beaver Creek at Beaver, La. | Lat 30°47'23", long 92°34'05", at bridge ½ mile southeast of Beaver. | 14.4 | 1956, 1958 | 11- 5-57 | .13 |
| | | **Calcasieu River basin** | | | | |
| 126 | Calcasieu River near Slagle, La. | SE¼ sec.20, T.3 N., R.7 W., at bridge 2 miles northeast of Slagle. | - | 1956-58 | 6-10-58 | a1.60 |
| *127 | Big Creek near Leander, La. | Lat 31°08'30", long 92°49'30", at bridge 4.0 miles west of Hineston. | - | 1954, 1956-58 | 9-10-58 | 10.3 |
| 128 | Devils Creek near Flatwood, La. | SE¼NE¼ sec.18, T.4 N., R.5 W., 6 miles southwest of Flatwood. | - | 1956-58 | 6-10-58 | 0 |
| 136.5 | Birds Creek near Cravens, La. | Lat 31°01'15", long 93°03'15", at bridge 4 miles north of Cravens. | - | 1956-58 | 6-12-58<br>9-11-58 | 6.40<br>10.8 |
| 139 | Sixmile Creek at Pitkin, La. | SW¼ sec.36, T.1 S., R.6 W., at bridge 1 mile south of Pitkin. | - | 1956-58 | 6-12-58 | 20.3 |
| 139.5 | Big Brushy Creek near Pitkin, La. | NE¼ sec.5, T.2 S., R.5 W., at bridge 3 miles southeast of Pitkin. | - | 1956-58 | 6-12-58<br>9-10-58 | 10.3<br>27.8 |
| 146 | Flat Creek near DeRidder, La. | SE¼ sec.36, T.2 S., R.9 W., at bridge 2.4 miles east of DeRidder. | - | 1956-58 | 2- 4-58<br>6-11-58 | 14.4<br>4.21 |
| *152 | Dry Creek at Dry Creek, La. | Lat 30°39'25", long 93°02'47", at bridge 1 mile south of Dry Creek. | 42.7 | 1956-58 | 4- 8-58<br>6-10-58 | 2.79<br>2.47 |
| *162 | Bearhead Creek near Singer, La. | Lat 30°35'35", long 93°28'48", at bridge 6 miles southwest of Singer. | 45.6 | 1956-58 | 6- 9-58 | 6.27 |
| *163.5 | Cowards Gully near DeQuincy, La. | Lat 30°25'10", long 93°29'17", at bridge 4.1 miles southwest of DeQuincy. | 15.3 | 1956-58 | 4- 8-58<br>6-10-58 | a.05<br>0 |
| *164.4 | Cowpen Creek near DeRidder, La. | Lat 30°42'41", long 92°20'53", at bridge 8.2 miles south of DeRidder. | 28.3 | 1957-58 | 6-11-58 | a.05 |
| *164.6 | Beckwith Creek near Singer, La. | Lat 30°38'34", long 93°22'58", at bridge 2 miles southeast of Singer. | 76.0 | 1956-58 | 6- 9-58 | 4.14 |
| *167 | Hickory Branch near Longville, La. | Lat 30°36'35", long 93°15'49", at bridge 2.1 miles west of Longville. | 34.9 | 1956-58 | 2- 4-58<br>4- 8-58 | 6.02<br>4.23 |
| | | **Sabine River basin** | | | | |
| 226 | Bushneck Bayou at Longstreet, La. | NW¼ sec.24, T.13 N., R.16 W., at bridge 0.5 mile west of Longstreet. | 26.9 | 1956-58 | 2- 6-58<br>4- 8-58 | 6.76<br>2.63 |
| *227 | Bayou Castor near Longstreet, La. | Lat 32°05'35", long 93°55'12", at bridge 1.8 miles east of Longstreet. | 27.7 | 1954-58 | 2- 6-58<br>4- 8-58<br>6- 4-58 | 6.99<br>4.09<br>a1.11 |

* Also a crest-stage station.
a Discharge estimated.

Discharge measurements made at low-flow partial-record stations during water year 1958--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | **Sabine River basin--Continued** | | | | |
| 231 | Bayou Grand Cane near Logansport, La. | SW¼ sec.12, T.11 N., R.16 W., at bridge 2½ miles southeast of Logansport. | 76.5 | 1955-58 | 4- 8-58 | 13.2 |
| 231.5 | Clement Creek near Hunter, La. | NE¼NE¼ sec.27, T.11 N., R.15 W., at bridge 2½ miles northwest of Hunter. | 44.6 | 1956-58 | 2- 5-58<br>4- 8-58 | 12.8<br>8.56 |
| 232.5 | Cow Bayou near Hunter, La. | NE¼ sec.8, T.10 N., R.14 W., at bridge 2.6 miles southeast of Hunter. | 29.2 | 1956-58 | 2- 5-58<br>4- 8-58<br>6- 5-58 | 6.61<br>4.87<br>.92 |
| *234 | Bayou San Patricio near Benson, La. | Lat 31°52'30", long 93°39'30", at bridge 2.2 miles east of Benson. | 81.1 | 1954-58 | 2- 5-58<br>4- 7-58<br>6- 5-58 | 24.5<br>17.9<br>2.89 |
| 237 | Bayou San Miguel near Mitchell, La. | Lat 31°46'40", long 93°35'15", at bridge 2½ miles southeast of Mitchell. | 31.9 | 1956-58 | 4- 7-58<br>6- 5-58 | 5.52<br>a.98 |
| *240.3 | Bayou Scie at Zwolle, La. | Lat 31°37'45", long 93°37'40", at bridge 1 mile east of Zwolle. | 46.2 | 1956-58 | 4- 7-58<br>6- 5-58<br>7-24-58<br>8-21-58 | 9.17<br>3.04<br>3.40<br>.01 |
| *241.3 | Lewis Creek near Many, La. | Lat 31°35'25", long 93°31'40", at bridge 3.0 miles northwest of Many. | 12.6 | 1956-58 | 4- 7-58<br>7-24-58<br>8-21-58 | 1.78<br>.66<br>.01 |
| 252 | Bayou Negreet near Negreet, La. | NE¼ sec.18, T.5 N., R.12 W., 5 miles southwest of Negreet. | 54.0 | 1956-58 | 6- 6-58 | 5.92 |
| 256 | Bayou Toro south of Toro, La. | NE¼ sec.13, T.3 N., R.11 W., at bridge 2½ miles south of Toro. | 198 | 1956-58 | 6-12-58<br>8-21-58 | 19.2<br>8.44 |
| *272 | East Anacoco Creek near Anacoco, La. | Sec.19, T.3 N., R.9 W., at bridge 2.0 miles southeast of Anacoco. | 40.8 | 1956-58 | 6-11-58<br>8-21-58<br>9-10-58 | 5.11<br>3.33<br>12.4 |
| 282 | Anacoco Bayou near Knight, La. | SE¼ sec.20, T.2 S., R.11 W., at bridge 4.5 miles southwest of Knight. | - | 1956-58 | 7- 7-58 | 96.0 |
| 288 | Cypress Creek near Bivens, La. | SE¼ sec.33, T.4 S., R.12 W., at bridge 2¼ miles north of Bivens. | 46.0 | 1956-58 | 2- 4-58<br>4- 7-58<br>6- 9-58 | 4.65<br>2.57<br>2.32 |
| *297 | Brushy Creek at Bancroft, La. | Lat 30°33'35", long 93°40'49", at bridge 0.8 mile south of Bancroft. | 27.3 | 1956-58 | 6- 9-58 | 2.57 |
| | | **Brazos River basin** | | | | |
| 808 | White River near Crosbyton, Tex. | Lat 33°41', long 101°10', at county road crossing 4½ miles east of Crosbyton. | - | 1951-58 | 10-25-57<br>1-28-58<br>4-16-58<br>7-23-58 | b2.42<br>c1.99<br>c2.28<br>c.43 |
| 809 | White River below falls near Crosbyton, Tex. | Lat 33°39'50", long 101°09'30", at U. S. Highway 82, 4½ miles east of Crosbyton. | - | 1951-58 | 10-25-57<br>1-28-58<br>4-16-58<br>7-23-58 | b4.52<br>c2.87<br>c2.74<br>c.30 |
| 813 | Salt Flat Creek at Weir B, near Aspermont, Tex. | Lat 33°23'15", long 100°25'55", at mouth 20 miles northwest of Aspermont. | - | 1957-58 | 10-10-57<br>11-14-57<br>11-27-57<br>1- 3-58<br>1-29-58<br>2-25-58<br>4- 2-58<br>4-29-58<br>5-27-58<br>6-25-58<br>7-24-58<br>8-20-58<br>9-18-58 | .30<br>.50<br>.43<br>.42<br>.52<br>.45<br>.59<br>.32<br>.27<br>.26<br>.26<br>.54<br>.40 |
| 813.5 | Salt Croton Creek at Weir C, near Aspermont, Tex. d/ | Lat 33°22'55", long 100°25'30", 0.5 mile below confluence of Dove Creek and Salt Flat Creek and 20 miles northwest of Aspermont. | - | 1957-58 | 10-10-57<br>11-14-57<br>11-27-57<br>1- 3-58<br>1-29-58<br>2-25-58<br>4- 2-58<br>4-29-58<br>5-27-58<br>6-25-58<br>7-24-58<br>8-20-58<br>9-18-58 | .77<br>.81<br>.99<br>.52<br>.77<br>.90<br>.83<br>1.14<br>.63<br>.44<br>.57<br>1.17<br>.52 |
| 814 | Salt Croton Creek at Weir D, near Aspermont, Tex. d/ | Lat 33°23'50", long 100°24'40", in King County 500 ft above Haystack Creek, 1,000 ft above the streamflow station on Salt Croton Creek near Aspermont, and 20 miles northwest of Aspermont. | - | 1957-58 | 10-10-57<br>10-24-57<br>11-14-57<br>11-26-57<br>12-19-57<br>1- 2-58<br>1-16-58 | .97<br>.72<br>1.17<br>1.05<br>1.05<br>.77<br>.80 |

* Also a crest-stage station. a Discharge estimated. b Includes some local runoff. c Spring flow. d Prior to 1958 published as Dove Creek.

Discharge measurements made at low-flow partial-record stations during water year 1958--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | **Brazos River basin--Continued** | | | | |
| 814--Continued | Salt Croton Creek at Weir D, near Aspermont, Tex. d/--Continued. | See preceding page. | | | 1-29-58 | 0.74 |
| | | | | | 2-11-58 | .96 |
| | | | | | 2-26-58 | .78 |
| | | | | | 3-19-58 | .80 |
| | | | | | 4- 2-58 | 1.20 |
| | | | | | 4-29-58 | 1.50 |
| | | | | | 5-15-58 | 1.37 |
| | | | | | 5-27-58 | .71 |
| | | | | | 6-11-58 | 1.02 |
| | | | | | 6-25-58 | 1.38 |
| | | | | | 7-10-58 | .65 |
| | | | | | 7-24-58 | .57 |
| | | | | | 8- 5-58 | .42 |
| | | | | | 8-20-58 | 1.36 |
| | | | | | 9- 3-58 | .44 |
| | | | | | 9-18-58 | .58 |
| 814.5 | Haystack Creek near Aspermont, Tex. f/ | Lat 33°24'05", long 100°24'40", in King County 400 ft above Salt Croton Creek and 20 miles northwest of Aspermont. | - | 1957-58 | 10-10-57 | .39 |
| | | | | | 10-24-57 | .29 |
| | | | | | 11-14-57 | .44 |
| | | | | | 11-26-57 | .41 |
| | | | | | 12-19-57 | .42 |
| | | | | | 1- 2-58 | .28 |
| | | | | | 1-16-58 | .41 |
| | | | | | 1-29-58 | .36 |
| | | | | | 2-11-58 | .81 |
| | | | | | 2-26-58 | .48 |
| | | | | | 3-19-58 | .29 |
| | | | | | 4- 2-58 | .12 |
| | | | | | 4-29-58 | .24 |
| | | | | | 5-15-58 | .38 |
| | | | | | 5-27-58 | .07 |
| | | | | | 6-11-58 | .13 |
| | | | | | 6-25-58 | .18 |
| | | | | | 7-10-58 | .13 |
| | | | | | 7-24-58 | .08 |
| | | | | | 8- 5-58 | .07 |
| | | | | | 8-20-58 | .10 |
| | | | | | 9- 3-58 | e.03 |
| | | | | | 9-18-58 | .12 |
| 816 | Salt Croton (Dove) Creek at mouth near Aspermont, Tex. | Lat 33°22'30", long 100°19'50", at junction with Salt Fork Brazos River, 15 miles northwest of Aspermont. | - | 1950, 1958 | 12-18-57 | 1.36 |
| | | | | | 1-15-58 | 1.04 |
| | | | | | 2-12-58 | 1.94 |
| | | | | | 3-19-58 | 1.58 |
| | | | | | 4-17-58 | 3.39 |
| | | | | | 5-16-58 | 3.57 |
| | | | | | 6-11-58 | .14 |
| | | | | | 7-10-58 | .18 |
| | | | | | 8- 6-58 | e.2 |
| | | | | | 9- 4-58 | .00 |
| 1031 | Sulphur Creek above Lampasas, Tex. | Lat 31°02'28", long 98°12'28", south of Farm to Market Road 1185, 1200 ft below pipeline crossing and 0.6 mile below confluence of Donalson and McNett Creeks. | - | 1958 | 11-15-57 | 2.70 |
| | | | | | 8-25-58 | e.05 |
| | | | | | 9-30-58 | .00 |
| 1032 | Sulphur Creek above Gold Spring at Lampasas, Tex. | Lat 31°02'40", long 98°11'13", 0.4 mile above Gold Spring and 0.8 mile south of Lampasas. | 77 | 1957-58 | 11-15-57 | 1.52 |
| | | | | | 1-16-58 | 1.41 |
| | | | | | 2-20-58 | .42 |
| | | | | | 3-27-58 | 14.4 |
| | | | | | 5-21-58 | 8.97 |
| | | | | | 6-30-58 | 2.85 |
| | | | | | 7- 3-58 | 1.60 |
| | | | | | 8-19-58 | .41 |
| | | | | | 8-25-58 | .36 |
| | | | | | 9-30-58 | .25 |
| 1033 | Sulphur Creek below Gold Spring, at Lampasas, Tex. | Lat 31°02'58", long 98°11'09", 0.2 mile south of Lampasas and 0.5 mile below Gold Spring. | - | 1924, 1931, 1957-58 | 11-15-57 | 4.84 |
| | | | | | 1-16-58 | 4.64 |
| | | | | | 2-20-58 | 3.55 |
| | | | | | 3-27-58 | 17.5 |
| | | | | | 5-21-58 | 12.5 |
| | | | | | 6-30-58 | 6.97 |
| | | | | | 7- 3-58 | 6.56 |
| | | | | | 8-19-58 | 4.21 |
| | | | | | 8-25-58 | 3.66 |
| | | | | | 9-30-58 | 3.67 |
| 1034 | Sulphur Creek below Hancock Springs, at Lampasas, Tex. | Lat 31°03'14", long 98°10'53", at bridge on U. S. Highway 281 in Hancock Park, 200 ft below discharge outlet from swimming pool, and 1,800 ft below city pumping plant. | - | 1901-2, 1906, 1911, 1924, 1931, 1957-58 | 11-15-57 | 11.9 |
| | | | | | 1-16-58 | 14.8 |
| | | | | | 2-20-58 | 13.7 |
| | | | | | 5-21-58 | 20.4 |
| | | | | | 6-30-58 | 13.1 |
| | | | | | 7- 3-58 | 6.30 |
| | | | | | 8-25-58 | 18.8 |
| | | | | | 9-30-58 | 10.5 |

d Prior to 1958 published as Dove Creek.
e Field estimate.
f Prior to 1958 published as Hayrick Creek.

Discharge measurements made at low-flow partial-record stations during water year 1958--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | **Brazos River basin--Continued** | | | | |
| 1035 | Hannah Springs at Lampasas, Tex. | Lat 31°04'08", long 98°10'25", at Hackberry Street low-water crossing in Lampasas, 200 ft below Hannah Springs. | - | 1901-2, 1906, 1910, 1957-58 | 11-15-57 | c1.24 |
| | | | | | 1-16-58 | c1.56 |
| | | | | | 2-20-58 | c1.73 |
| | | | | | 3-27-58 | c2.01 |
| | | | | | 5-21-58 | c2.11 |
| | | | | | 6-30-58 | c2.17 |
| | | | | | 7- 3-58 | c2.00 |
| | | | | | 8-19-58 | c1.62 |
| | | | | | 8-25-58 | c1.83 |
| | | | | | 9-30-58 | c1.66 |
| 1036 | Sulphur Creek at Gunderland Park near Lampasas, Tex. | Lat 31°04'31", long 98°08'31", 0.6 mile above Pecan Branch and 1.5 miles east of Lampasas. | - | 1957-58 | 11-15-57 | 12.9 |
| | | | | | 1-16-58 | 14.4 |
| | | | | | 2-20-58 | 14.1 |
| | | | | | 3-27-58 | 38.0 |
| | | | | | 5-21-58 | 27.6 |
| | | | | | 6-30-58 | 19.7 |
| | | | | | 7- 3-58 | 15.2 |
| | | | | | 8-25-58 | 14.8 |
| | | | | | 9-30-58 | 14.7 |
| 1037 | Sulphur Creek below Lampasas, Tex. | Lat 31°05'10", long 98°03'10", at county road bridge at Hallmark Crossing, 1.8 miles above Lampasas River and 7.2 miles east of Lampasas. | - | 1958 | 11-15-57 | 16.2 |
| 1042 | Salado Creek above Salado Springs, near Salado, Tex. | Lat 30°56'23", long 97°33'16", just below mouth of Elm Creek, above all Salado Springs, 1½ miles above Salado. | 133 | 1948, 1950-58 | 11-28-57 | g59.6 |
| | | | | | 2- 7-58 | g9.97 |
| | | | | | 3-25-58 | g43.2 |
| | | | | | 4-15-58 | 39.4 |
| | | | | | 5-22-58 | 19.2 |
| | | | | | 8- 2-58 | 1.92 |
| 1043 | Salado Springs at Salado, Tex. | Lat 30°56'50", long 97°31'51", at Salado. | - | 1902-3, 1934, 1948, 1950-58 | 2- 7-58 | c22.4 |
| | | | | | 3-25-58 | c19.2 |
| | | | | | 4-15-58 | c27.4 |
| | | | | | 5-22-58 | c29.4 |
| | | | | | 8- 2-58 | c19.6 |
| | | **Colorado River basin** | | | | |
| 1272 | Anson Springs near Christoval, Tex. | Lat 31°10', long 100°30', on Boulware Ranch, 4 miles above Christoval. | - | 1955, 1958 | 6- 9-58 | c11.5 |
| 1290 | Spring Creek Springs near Mertzon, Tex. | Lat 31°13', long 100°49', 2.1 miles south of Mertzon and 4.7 miles south of Sherwood. | - | 1943-44, 1948, 1950-52, 1955-58 | 6- 9-58 | c7.43 |
| 1439 | Springs at Fort McKavett, Tex. h/ | Lat 30°49'40", long 100°06'50", at Fort McKavett. | - | 1902, 1905, 1922, 1942, 1948-49, 1951-52, 1955-56, 1958 | 6-10-58 | c15.7 |
| | | **Guadalupe River basin** | | | | |
| 1680 | Hueco Springs near New Braunfels, Tex. | Lat 29°45'31", long 98°08'34", two springs located 200 ft and 400 ft west of Guadalupe River, 0.3 mile above mouth of Elm Creek, and 4.2 miles north of New Braunfels. | - | 1944-58 | 10- 4-57 | c75.9 |
| | | | | | 11- 9-57 | c82.0 |
| | | | | | 12-17-57 | c80.1 |
| | | | | | 1-14-58 | c99.3 |
| | | | | | 3- 4-58 | c102 |
| | | | | | 3-28-58 | c91.7 |
| | | | | | 5-10-58 | c88.6 |
| | | | | | 6- 5-58 | c80.9 |
| | | | | | 7-10-58 | c74.6 |
| | | | | | 8-12-58 | c61.8 |
| | | | | | 9-24-58 | c98.3 |
| | | **Rio Grande basin** | | | | |
| 3865 | Rio Ruidoso near Ruidoso, N. Mex. | In SW¼ sec.19, T.11 S., R.13 E., at reservation boundary 3 miles west of Ruidoso. | 17.2 | 1953-58 | 12-19-57 | 5.75 |
| | | | | | 3-19-58 | 12.7 |
| | | | | | 6-10-58 | 11.3 |
| | | | | | 9-23-58 | 8.91 |
| 3866 | Carrizo Creek at Ruidoso, N. Mex. | In SW¼ sec.26, T.11 S., R.13 E., at mouth at Ruidoso. | 24.2 | 1953-58 | 12-19-57 | 2.51 |
| | | | | | 3-19-58 | 5.75 |
| | | | | | 6-10-58 | 3.65 |
| | | | | | 9-23-58 | 3.15 |

c Spring flow.
g Above Mustang Creek.
h Previously published under the following names: "Main Springs," "Government Springs," and "San Saba River at Fort McKavett, Tex."

Discharge measurements made at low-flow partial-record stations during water year 1958--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Rio Grande basin--Continued | | | | |
| 4270 | Giffin Springs at Toyahvale, Tex. | Lat 30°57', long 103°47', 2,000 ft northwest of post office of Toyahvale. | - | 1919,<br>1922-23,<br>1925,<br>1932,<br>1941-58 | 11-11-57<br>1- 7-58<br>3-18-58<br>5- 6-58<br>7- 9-58<br>9- 9-58 | c4.31<br>c4.18<br>c4.28<br>c4.42<br>c4.85<br>c4.14 |
| 4455 | San Pedro Springs near Fort Stockton, Tex. | Lat 30°58'30", long 102°49'40", 7 miles northeast of Fort Stockton. | - | 1943,<br>1947-54,<br>1956-58 | 3- 7-58<br>7-10-58<br>8- 5-58 | c.55<br>c.00<br>c.00 |
| 4490 | Devils River near Juno, Tex. | Lat 29°58', long 101°09', 500 ft below Walter Baker ranch house, 2 miles above Phillips Creek, and 13½ miles southwest of Juno. | 2,730 | 1925-49, ‡<br>1952-58 | 11-13-57<br>1-28-58<br>4- 2-58<br>7-16-58<br>9-30-58 | 132<br>109<br>109<br>133<br>244 |
| 4528 | San Felipe Springs at Del Rio, Tex. | Lat 29°22'24", long 100°52'57", in Del Rio, back of Del Rio Country Club, 0.3 mile north of U. S. Highway 90 and 0.5 mile north of U. S. Highway 277. | - | 1896-97,<br>1899-1900,<br>1902,<br>1904-6,<br>1910,<br>1912,<br>1922-31,<br>1952-54,<br>1956-58 | 11-13-57<br>1-28-58<br>4- 2-58<br>7-16-58 | c96.7<br>c95.7<br>c98.9<br>c127 |
| 4563 | Las Moras Springs at Brackettville, Tex. | Lat 29°18', long 100°25', in spring pool at Brackettville, 160 ft south of U. S. Highway 90 and 1,550 ft above Brackettville-Fort Clark road bridge. | - | 1896,<br>1899-1900,<br>1902,<br>1904-6,<br>1910,<br>1912,<br>1925,<br>1928,<br>1951-58 | 10- 8-57<br>11-13-57<br>12-18-57<br>1-28-58<br>3- 6-58<br>4- 2-58<br>5-14-58<br>6-25-58<br>7-16-58<br>8-28-58 | c9.84<br>c35.5<br>c21.1<br>c26.2<br>c48.7<br>c48.6<br>c42.8<br>c61.3<br>c50.4<br>c51.2 |

‡ Operated as a continuous-record-gaging station.
c Spring flow.

## Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined. The maximum discharge for each year since the crest-stage gage was established is given. The peak discharge for some years may have been published in a previous report as a measurement of discharge. Figures given herein supersede all previous figures of peak discharge for the floods listed.

Annual maximum discharge at crest-stage partial-record stations

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | **Mermentau River basin** | | | | | |
| *101 | Bayou Mallet near Eunice, La. | Lat 30°26'30", long 92°24'45", at bridge 3.5 miles south of Eunice. | 94.1 | 1953-58 | 5-19-53 | 21.60 | 8,550 |
| | | | | | 5- 2-54 | 14.30 | 1,690 |
| | | | | | 2- 6-55 | 21.93 | 8,900 |
| | | | | | 2- 5-56 | 16.28 | 3,350 |
| | | | | | 6-28-57 | 18.64 | 5,600 |
| | | | | | 9-20-58 | 15.23 | 2,440 |
| 103 | Bayou Wikoff near Rayne, La. | Lat 30°17'05", long 92°15'45", at bridge 4.0 miles north of Rayne. | 27.9 | 1953-58 | 5-18-53 | 20.06 | 3,680 |
| | | | | | 12- 5-53 | 13.68 | 1,320 |
| | | | | | 2- 6-55 | 20.21 | 3,750 |
| | | | | | 12- 5-55 | 16.12 | 2,190 |
| | | | | | 6- 6-57 | 19.42 | 3,450 |
| | | | | | 10-16-57 | 14.88 | 1,740 |
| 112 | East Fork Bayou Nezpique near Reddell, La. | Lat 30°43'55", long 92°25'40", at bridge 4.0 miles north of Reddell. | 40.0 | 1953-58 | 5-19-53 | 18.93 | (†) |
| | | | | | 5- 2-54 | 15.71 | 1,300 |
| | | | | | 2- 6-55 | 17.31 | (†) |
| | | | | | 4- 7-56 | 14.45 | 580 |
| | | | | | 4- 6-57 | 15.02 | 870 |
| | | | | | 8-27-58 | 16.30 | 1,750 |
| 115 | Boggy Bayou near Pine Prairie, La. a/ | Lat 30°47'10", long 92°28'30", at bridge 3.0 miles west of Pine Prairie. | 56.0 | 1949-51‡, 1952-58 | 4-24-52 | 13.31 | 1,530 |
| | | | | | 5-19-53 | 18.50 | (†) |
| | | | | | 5- 3-54 | 14.26 | 3,500 |
| | | | | | 5-20-55 | 14.06 | 2,960 |
| | | | | | 4- 7-56 | 12.33 | 890 |
| | | | | | 7- 1-57 | 13.79 | 2,330 |
| | | | | | 11-15-57 | 14.22 | 3,390 |
| *116 | Beaver Creek at Beaver, La. | See previous table. | 14.4 | 1953-58 | 5-19-53 | 19.18 | (†) |
| | | | | | 5- 3-54 | 16.87 | (†) |
| | | | | | 5-20-55 | 18.95 | (†) |
| | | | | | 2-10-56 | 15.35 | (†) |
| | | | | | 3-15-57 | 15.57 | (†) |
| | | | | | 9-22-58 | 16.22 | (†) |
| | | **Calcasieu River basin** | | | | | |
| *127 | Big Creek near Leander, La. | See previous table. | 36.8 | 1951-58 | 1- 2-51 | 10.54 | 1,190 |
| | | | | | 3-30-52 | 12.65 | (†) |
| | | | | | 5-18-53 | 14.94 | (†) |
| | | | | | 5- 1-54 | 11.76 | 2,040 |
| | | | | | 4-13-55 | 11.67 | 1,980 |
| | | | | | 3-11-56 | 11.25 | 1,690 |
| | | | | | 7- 1-57 | 11.58 | 1,920 |
| | | | | | 11- 8-57 | 11.42 | 1,810 |
| 129 | Calcasieu River at Hineston, La. | Lat 31°07'35", long 92°46'00", at bridge 1.0 mile south of Hineston. | 429 | 1951-58 | 1- 2-51 | 17.17 | (†) |
| | | | | | 4-24-52 | 19.55 | (†) |
| | | | | | 5-18-53 | 21.40 | (†) |
| | | | | | 5- 4-54 | 15.48 | 10,700 |
| | | | | | 8- 3-55 | 17.39 | (†) |
| | | | | | 2- 9-56 | 14.38 | 6,480 |
| | | | | | 12-23-56 | 16.65 | (†) |
| | | | | | 9-21-58 | 16.59 | (†) |
| 126.5 | Floctaw Creek near Lecamp, La. | Lat 31°10'55", long 92°59'45", at bridge 5.0 miles northwest of Lecamp. | 16.7 | 1951-58 | 1- 2-51 | 14.12 | 895 |
| | | | | | 2- 3-52 | 13.30 | 745 |
| | | | | | 5-18-53 | b19 | (†) |
| | | | | | 5- 1-54 | 15.37 | (†) |
| | | | | | 8- 3-55 | 15.95 | (†) |
| | | | | | 3-11-56 | 13.63 | 805 |
| | | | | | 12-23-56 | 13.90 | 855 |
| | | | | | 11-10-57 | 14.07 | 885 |
| 138 | Little Sixmile Creek near Pitkin, La. | Lat 31°58'05", long 93°00'45", at bridge 5.0 miles west of Pitkin. | 10.4 | 1954-58 | 5- 1-54 | 15.89 | (†) |
| | | | | | 8- 3-55 | 14.27 | (†) |
| | | | | | 2-10-56 | (c) | (†) |
| | | | | | 12-23-56 | (c) | (†) |
| | | | | | 9-20-58 | (c) | (†) |

* Also low-flow station. † Discharge not determined. ‡ Operated as a continuous-record-gaging station.
a Published previously as Cypress Creek. b Estimated.
c Peak did not reach bottom of gage.

Annual maximum discharge at crest-stage partial-record stations--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | **Calcasieu River basin--Continued** | | | | | |
| 137 | Drakes Creek near Pitkin, La. | Lat 31°57'45", long 93°08'15", at bridge 12.5 miles west of Pitkin. | 22.1 | 1954-58 | 5- 1-54 | 16.71 | (†) |
| | | | | | 8- 4-55 | 17.41 | (†) |
| | | | | | 2-10-56 | 14.20 | (†) |
| | | | | | 12-23-56 | 14.62 | (†) |
| | | | | | 9-20-58 | 15.59 | (†) |
| *152 | Dry Creek at Dry Creek, La. | See previous table. | 42.7 | 1954-58 | 5- 3-54 | 18.95 | (†) |
| | | | | | 2- 5-55 | 28.16 | (†) |
| | | | | | 2-11-56 | 18.78 | (†) |
| | | | | | 12-24-56 | 20.48 | (†) |
| | | | | | 9-20-58 | 24.06 | (†) |
| 156 | Barnes Creek near Reeves, La. | NE¼NW¼ sec.25, T.6 S., R.8 W., at bridge 5.5 miles west of Reeves. | 111 | 1949-58 | 3-22-49 | 45.83 | (†) |
| | | | | | 6- 4-50 | 44.89 | 7,700 |
| | | | | | 4- 1-51 | (c) | (†) |
| | | | | | 4-24-52 | 43.50 | 4,400 |
| | | | | | 5-18-53 | 46.20 | (†) |
| | | | | | 5- 2-54 | 43.44 | 4,280 |
| | | | | | 2- 5-55 | 45.33 | (†) |
| | | | | | 1-22-56 | 39.65 | (†) |
| | | | | | 11-15-57 | (c) | (†) |
| | | | | | 9-20-58 | 46.10 | (†) |
| 157 | Clear Creek at Reeves, La. | N½ sec.23, T.6 S., R.7 W., at bridge 0.3 mile west of Reeves. | 23.1 | 1949-58 | 3-22-49 | 44.80 | 2,300 |
| | | | | | 6- 3-50 | 46.76 | (†) |
| | | | | | 4- 1-51 | (c) | 450 |
| | | | | | 4-23-52 | 44.43 | 2,150 |
| | | | | | 5-18-53 | 45.29 | (†) |
| | | | | | 5- 2-54 | (c) | 450 |
| | | | | | 5-21-55 | 47.10 | (†) |
| | | | | | 3-11-56 | 44.00 | 1,980 |
| | | | | | 12-23-56 | 43.41 | 1,740 |
| | | | | | 11-15-57 | 43.52 | 1,780 |
| 158 | Bayou Serpent near Fenton, La. | Lat 30°23'15", long 92°54'20", at bridge 1.7 miles north of Fenton. | 89.0 | 1954-58 | 1-12-54 | 9.49 | (†) |
| | | | | | 2- 5-55 | 14.02 | (†) |
| | | | | | 2-10-56 | 11.38 | (†) |
| | | | | | 12-25-56 | 12.76 | (†) |
| | | | | | 11-15-57 | 10.85 | (†) |
| 159 | Calcasieu River near Lake Charles, La. | NW¼NE¼ sec.9, T.9 S., R.8 W., at bridge 5.0 miles north of Lake Charles. | 2,310 | 1949-58 | 4-25-49 | (c) | (†) |
| | | | | | 6- 9-50 | 7.56 | (†) |
| | | | | | 1-11-51 | (c) | (†) |
| | | | | | 4-29-52 | (c) | (†) |
| | | | | | 5-19-53 | 14.85 | (†) |
| | | | | | 5- 6-54 | (c) | (†) |
| | | | | | 2- 5-55 | 7.64 | (†) |
| | | | | | 2-14-56 | (c) | (†) |
| | | | | | 12-26-56 | (c) | (†) |
| | | | | | 11-17-58 | (c) | (†) |
| *162 | Bearhead Creek near Singer, La. | See previous table. | 45.6 | 1954-58 | 5- 2-54 | 15.72 | (†) |
| | | | | | 5-21-55 | 19.44 | (†) |
| | | | | | 2-10-56 | 12.83 | (†) |
| | | | | | 12-23-56 | 14.84 | (†) |
| | | | | | 9-21-58 | 15.55 | (†) |
| *163.5 | Cowards Gully near DeQuincy, La. | See previous table. | 15.3 | 1954-58 | 5- 2-54 | 8.84 | (†) |
| | | | | | 8- 4-55 | 10.04 | (†) |
| | | | | | 1-23-56 | 9.30 | (†) |
| | | | | | 12-23-56 | 10.96 | (†) |
| | | | | | 9-20-58 | 12.19 | (†) |
| 164 | Buxton Creek at DeQuincy, La. | Lat 30°26'55", long 93°25'15", at bridge 0.3 mile east of DeQuincy. | 10.4 | 1954-55 | 5-12-54 | 13.60 | (†) |
| | | | | | 2- 5-55 | 17.43 | (†) |
| *164.4 | Cowpen Creek near DeRidder, La. | See previous table. | 28.3 | 1954-58 | 5-13-54 | 18.35 | (†) |
| | | | | | 5-20-55 | 20.25 | (†) |
| | | | | | 2- 9-56 | 14.02 | (†) |
| | | | | | 12-23-56 | 16.30 | (†) |
| | | | | | 9-21-58 | 17.44 | (†) |
| *164.6 | Beckwith Creek near Singer, La. | See previous table. | 76.0 | 1954-58 | 5-13-54 | 15.01 | (†) |
| | | | | | 5-21-55 | 18.41 | (†) |
| | | | | | 2- 9-56 | 11.13 | (†) |
| | | | | | 12-23-56 | 13.20 | (†) |
| | | | | | 9-21-58 | 15.08 | (†) |
| *167 | Hickory Branch near Longville, La. | See previous table. | 34.9 | 1953-58 | 5-19-53 | 20.7 | (†) |
| | | | | | 5- 2-54 | 18.85 | (†) |
| | | | | | 5-20-55 | 21.38 | (†) |
| | | | | | 2-10-56 | 15.48 | (†) |
| | | | | | 12-23-56 | 18.19 | (†) |
| | | | | | 9-20-58 | 19.12 | (†) |
| 170 | Hickory Branch near Kernan, La. | Lat 30°30'05", long 93°16'45", at bridge 0.7 mile southwest of Kernan. | 82.2 | 1946-57‡, 1958 | 9-20-58 | 27.62 | 6,760 |

* Also low-flow station.
† Discharge not determined.
‡ Operated as a continuous-record-gaging station.
c Peak did not reach bottom of gage.

Annual maximum discharge at crest-stage partial-record stations--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | **Sabine River basin** | | | | | |
| 227 | Bayou Castor near Longstreet, La. | See previous table. | 27.7 | 1954-58 | 5-12-54 | 14.37 | (†) |
| | | | | | 3-21-55 | 13.93 | (†) |
| | | | | | 5- 2-56 | 14.11 | (†) |
| | | | | | 4-30-57 | 13.72 | (†) |
| | | | | | 9-20-58 | 15.17 | (†) |
| 231.2 | Clark Branch tributary near Stanley, La. | Lat 31°58'25", long 93°52'45", at culvert 1.0 mile east of Stanley. | - | 1958 | 9-20-58 | 18.04 | (†) |
| 233.5 | Chatman Bayou tributary near Mansfield, La. | Lat 31°58'45", long 93°36'45", at culvert 7.0 miles southeast of Mansfield. | - | 1958 | 6-22-58 | 14.97 | (†) |
| 234 | Bayou San Patricio near Benson, La. | See previous table. | 81.1 | 1954-58 | 5- 5-54 | 16.08 | 2,670 |
| | | | | | 8- 8-55 | 16.19 | 2,890 |
| | | | | | 4- 6-56 | 15.98 | 2,140 |
| | | | | | 4-28-57 | 16.53 | 3,400 |
| | | | | | 9-20-58 | 20.36 | (†) |
| *240.3 | Bayou Scie at Zwolle, La. | See previous table. | 46.2 | 1950-58 | 6- 3-50 | 15.82 | (†) |
| | | | | | 5- 2-51 | 11.01 | 1,530 |
| | | | | | 4-23-52 | 10.50 | 1,040 |
| | | | | | 3-11-53 | 13.73 | (†) |
| | | | | | 4-18-54 | 9.83 | 760 |
| | | | | | 8- 3-55 | 9.96 | 800 |
| | | | | | 2- 8-56 | 7.55 | (†) |
| | | | | | 4-30-57 | 11.33 | 2,020 |
| | | | | | 9-20-58 | 12.34 | (†) |
| 240.6 | Harpoon Bayou at Many, La. | Lat 31°34'30", long 93°29'45", at bridge 0.7 mile northwest of Many. | 22.4 | 1951-58 | 3-28-51 | 12.13 | (†) |
| | | | | | 4-14-52 | 11.82 | 811 |
| | | | | | 5-17-53 | 13.61 | (†) |
| | | | | | 4-18-54 | 11.24 | (†) |
| | | | | | 8- 3-55 | 12.95 | (†) |
| | | | | | 2- 8-56 | 11.09 | (†) |
| | | | | | 4-30-57 | 12.27 | (†) |
| | | | | | 1-22-58 | 12.99 | (†) |
| 241 | Edmondson Creek tributary near Many, La. | Lat 31°32'40", long 93°31'35", at culvert 2.9 miles west of Many. | - | 1958 | 9-20-58 | 19.31 | (†) |
| *241.3 | Lewis Creek near Many, La. | See previous table. | 12.6 | 1951-58 | 3-28-51 | 14.55 | 915 |
| | | | | | 4-14-52 | 14.11 | 790 |
| | | | | | 5-17-53 | 16.47 | (†) |
| | | | | | 4-18-54 | (c) | <500 |
| | | | | | 5-20-55 | 15.18 | 1,230 |
| | | | | | 2- 8-56 | (c) | <500 |
| | | | | | 4-30-57 | (c) | <500 |
| | | | | | 1-22-58 | 15.29 | 1,290 |
| 254 | Bayou Toro near Florien, La. | NE corner SE¼ sec.25, T.5 N., R.11 W., at bridge 4.0 miles south of Florien. | 74.0 | 1950-58 | 6- 3-50 | 49.69 | (†) |
| | | | | | 1- 2-51 | 44.87 | (†) |
| | | | | | 1-28-52 | 39.33 | (†) |
| | | | | | 5-18-53 | 50.54 | (†) |
| | | | | | 5- 4-54 | 44.29 | 2,750 |
| | | | | | 8- 3-55 | 46.74 | (†) |
| | | | | | 1-22-56 | (c) | (†) |
| | | | | | 6-28-57 | (c) | (†) |
| | | | | | 9-20-58 | 44.86 | (†) |
| 267 | West Anacoco Creek near Hornbeck, La. | Lat 31°18'00", long 93°22'10", at bridge 2.5 miles southeast of Hornbeck. | 22.4 | 1950-58 | 6- 2-50 | 18.11 | (†) |
| | | | | | 1- 2-51 | 14.99 | (†) |
| | | | | | 2- 2-52 | 10.09 | (†) |
| | | | | | 5-18-53 | 18.31 | (†) |
| | | | | | 4-17-54 | 13.09 | (†) |
| | | | | | 8- 3-55 | 17.43 | (†) |
| | | | | | 1-22-56 | 11.27 | (†) |
| | | | | | 6-28-57 | 11.52 | (†) |
| | | | | | 8-27-58 | 13.89 | (†) |
| *272 | East Anacoco Creek near Anacoco, La. | See previous table. | 40.8 | 1949-58 | 4-23-49 | 42.09 | (†) |
| | | | | | 6- 3-50 | 47.54 | (†) |
| | | | | | 1- 2-51 | 44.94 | (†) |
| | | | | | 4-14-52 | 44.18 | (†) |
| | | | | | 5-20-53 | 48.70 | (†) |
| | | | | | 4-17-54 | 43.39 | (†) |
| | | | | | 8- 3-55 | 47.41 | (†) |
| | | | | | 2- 9-56 | (c) | (†) |
| | | | | | 3-25-57 | 43.37 | (†) |
| | | | | | 8-25-58 | 44.65 | (†) |
| 275.5 | Prairie Creek near Leesville, La. | SW¼ sec.3, T.2 N., R.9 W., at bridge 2.5 miles northwest of Leesville. | 39.8 | 1949-58 | 3-28-49 | 42.00 | (†) |
| | | | | | 6- 3-50 | 46.66 | (†) |
| | | | | | 1- 2-51 | 43.46 | (†) |
| | | | | | 4-14-52 | 45.64 | (†) |
| | | | | | 4-29-53 | 47.68 | (†) |
| | | | | | 12- 5-53 | 41.94 | (†) |
| | | | | | 8- 3-55 | 46.65 | (†) |
| | | | | | 2- 9-56 | 41.10 | (†) |
| | | | | | 12-15-56 | 41.68 | (†) |
| | | | | | 9-20-58 | 43.47 | (†) |

* Also low-flow station.
† Discharge not determined.
< Less than.
c Peak did not reach bottom of gage.

Annual maximum discharge at crest-stage partial-record stations--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | **Sabine River basin--Continued** | | | | | |
| *297 | Brushy Creek at Bancroft, La. | See previous table. | 27.3 | 1954-58 | 5- 2-54 | 15.10 | (†) |
| | | | | | 5-21-55 | 15.04 | (†) |
| | | | | | 2-10-56 | 13.43 | (†) |
| | | | | | 12-23-56 | 14.94 | (†) |
| | | | | | 9-21-58 | 16.97 | (†) |
| | | **Rio Grande basin** | | | | | |
| 2690 | Rio Pueblo de Taos near Taos, N. Mex. | In sec.36, T.26 N., R.13 E., 2½ miles east of Taos Pueblo and 4½ miles northeast of Taos. | 67.2 | 1911-16‡, 1940-51‡, 1952-58 | 1952 | 2.49 | 260 |
| | | | | | 5- -53 | 1.8 | 75 |
| | | | | | 1954 | 1.80 | 75 |
| | | | | | 5- -55 | 2.69 | 340 |
| | | | | | 1956 | 1.97 | 106 |
| | | | | | 1957 | 2.62 | 310 |
| | | | | | 5- -58 | 3.15 | 570 |
| 2710 | Rio Lucero near Arroyo Seco, N. Mex. | In NE¼ sec.10, T.26 N., R.13 E., (projected), in Antoine Leroux Grant 2 miles southeast of Arroyo Seco. | 17.1 | 1911-15‡, 1933-51‡, 1952-58 | 1952 | 2.50 | 196 |
| | | | | | 5- -53 | 2.04 | 132 |
| | | | | | 1954 | 2.02 | 129 |
| | | | | | 5- -55 | 2.00 | 127 |
| | | | | | 1956 | 1.41 | 55 |
| | | | | | 1957 | 2.50 | 196 |
| | | | | | 5- -58 | 2.65 | 220 |
| 2774 | Rio Grande tributary at Rinconada, N. Mex. | In SW¼NW¼ sec.21, T.23 N., R.10 E., at culvert on U. S. Highway 64, 0.6 mile west of Rinconada. | .021 | 1952-58 | 1952 | (c) | (†) |
| | | | | | 1953 | (c) | (†) |
| | | | | | 1954 | (c) | 0 |
| | | | | | 1955 | (c) | (†) |
| | | | | | 1956 | - | b5 |
| | | | | | 1957 | .74 | (†) |
| | | | | | 1958 | (c) | (†) |
| 2790 | Embudo Creek at Dixon, N. Mex. | In NW¼SE¼ sec.19, T.23 N., R.10 E., at bridge on U. S. Highway 64, 0.5 mile above mouth, ¾ mile east of Embudo Post Office, and 1.6 miles northwest of Dixon. | 305 | 1923-24‡, 1926-55‡, 1956-58 | 7-29-56 | 6.82 | 1,500 |
| | | | | | 6-24-57 | 5.60 | 1,080 |
| | | | | | 4-22-58 | 5.25 | 1,130 |
| 2840 | Rito de Tierra Amarilla at Tierra Amarilla, N. Mex. | Lat 36°41'55", long 106°33'25", 400 ft below culvert on U. S. Highway 84, at Tierra Amarilla. | 49.7 | 1957-58 | 1957 | 3.6 | (†) |
| | | | | | 1958 | 4.33 | (†) |
| 2867 | Arroyo Seco near Abiquiu, N. Mex. | Lat 36°16'55", long 106°28'15", 1,000 ft below bridge on U. S. Highway 84 and 10 miles northwest of Abiquiu. | 162 | 1953-58 | 7- -53 | d10.1 | (†) |
| | | | | | 8- 7-54 | 4.10 | 493 |
| | | | | | 8-21-55 | 8.17 | (†) |
| | | | | | 1956 | 7.25 | (†) |
| | | | | | 4- -57 | 3.19 | 210 |
| | | | | | 4- -58 | 5.46 | (†) |
| 2880 | El Rito near El Rito, N. Mex. | In sec.19, T.25 N., R.7 E., 3 miles northwest of El Rito. | 49.8 | 1932-51‡, 1952-58 | 1952 | 4.22 | 560 |
| | | | | | 1953 | 2.67 | 137 |
| | | | | | 1954 | 2.77 | 159 |
| | | | | | 1955 | 2.66 | 136 |
| | | | | | 1956 | 2.36 | 84 |
| | | | | | 1957 | 3.06 | 230 |
| | | | | | 1958 | 4.38 | 610 |
| 2920 | Santa Clara Creek near Espanola, N. Mex. | In SW¼SW¼ sec.11, T.20 N., R.7 E., 5½ miles southwest of Espanola. | 34.5 | 1936-41‡, 1949-50‡, 1952-58 | 1952 | 4.23 | 355 |
| | | | | | 1953 | 2.84 | 76 |
| | | | | | 1954 | (c) | (†) |
| | | | | | 1955 | 3.13 | 110 |
| | | | | | 1956 | (c) | 12 |
| | | | | | 1957 | 3.18 | 117 |
| | | | | | 1958 | 3.08 | 102 |
| 2950 | Rio Nambe near Nambe, N. Mex. | In SE¼ sec.24, T.19 N., R.9 E., in Nambe Pueblo Grant, 2½ miles southeast of Nambe Pueblo and 3½ miles southeast of Nambe. | 38.2 | 1931-51‡, 1952-58 | 1952 | d5.19 | 380 |
| | | | | | 1953 | (c) | 32 |
| | | | | | 8- -54 | d7.85 | 2,050 |
| | | | | | 7-31-55 | d9.39 | 5,580 |
| | | | | | 1956 | (c) | <3 |
| | | | | | 4- -57 | 5.86 | 620 |
| | | | | | 1958 | 3.97 | 115 |
| 3025 | Tesuque Creek above diversions, near Santa Fe, N. Mex. | In NW¼ sec.5, T.17 N., R.10 E., 500 ft above point of diversions of Cajon Grande ditch, 1 mile above Little Tesuque Creek, and 4 miles northeast of Santa Fe. | 11.7 | 1936-51‡, 1953-58 | 1953 | 2.31 | 9.8 |
| | | | | | 1954 | 2.51 | 21 |
| | | | | | 1955 | 2.29 | 9.0 |
| | | | | | 1956 | 2.21 | 6.4 |
| | | | | | 7-24-57 | 5.26 | 632 |
| | | | | | 1958 | 2.91 | 62 |
| 3131 | Canada Ancha tributary near Santa Fe, N. Mex. | Lat 35°44'05", long 106°07'00", in Caja del Rio Grant 9 miles northwest of Santa Fe. | 1.23 | 1940-48e, 1952-58 | 1952 | 3.80 | 17 |
| | | | | | 1953 | 3.80 | 17 |
| | | | | | 1954 | 5.12 | 156 |
| | | | | | 9-24-55 | 2.90 | .8 |
| | | | | | 1956 | - | 0 |
| | | | | | 1957 | 5.60 | 220 |
| | | | | | 1958 | 4.32 | 105 |

* Also low-flow station.
† Discharge not determined.
‡ Operated as a continuous-record-gaging station.
< Less than.
b Estimated.
c Peak did not reach bottom of gage.
d From floodmark.
e Operated as a continuous-record-gaging station by Soil Conservation Service.

Annual maximum discharge at crest-stage partial-record stations--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | Rio Grande basin--Continued | | | | | |
| 3171 | Arroyo Yupa tributary near Cerrillos, N. Mex. | S½NE¼ sec.13, T.15 N., R.7 E., 300 ft above culvert on U. S. Highway 85, 1.4 miles southwest of Turquoise Trading Post, and 6.5 miles north of Cerrillos. | 0.47 | 1957-58 | 1957<br>1958 | 1.61<br>1.03 | (†)<br>(†) |
| 3175 | Galisteo Creek at Canoncito, N. Mex. | In NW¼NW¼ sec.7, T.15 N., R.11 E., above railroad bridge 0.2 mile above Apache Canyon at Canoncito. | 11.3 | 1955-56 | (unknown)<br>(unknown)<br>1955<br>1956 | | b5,300<br>b3,400<br>1,830<br>879 |
| 3176 | San Cristobal Arroyo near Galisteo, N. Mex. | Lat 35°22'55", long 105°51'05", at bridge on U. S. Highway 285, 5½ miles east of Galisteo. | 116 | 1955-58 | 1955<br>7-19-56<br>1957<br>1958 | -<br>7.87<br>6.73<br>7.52 | 2,410<br>3,070<br>1,820<br>2,600 |
| 3177 | Jaspe Arroyo tributary near Galisteo, N. Mex. | Lat 35°21'55", long 105°50'40", at culvert on U. S. Highway 285, 6 miles southeast of Galisteo. | 1.5 | 1952-58 | 8- -52<br>1953<br>1954<br>1955<br>7-19-56<br>1957<br>6- -58 | d28.3<br>13.96<br>17.81<br>17.05<br>d22.60<br>15.99<br>14.11 | 2,860<br>186<br>820<br>680<br>1,860<br>490<br>206 |
| 3178 | Canada de las Minas tributary near Santa Fe, N. Mex. | Lat 35°36'27", long 105°54'42", at culvert on U. S. Highways 84, 85, and 285, 1.3 miles northeast of Seton Village and 5.7 miles south of Santa Fe. | .56 | 1952-58 | 1952<br>1954<br>1955<br>1956<br>7-24-57<br>1958 | 6.13<br>2.97<br>2.97<br>(c)<br>4.14<br>- | (†)<br>(†)<br>(†)<br>(†)<br>(†)<br>b5 |
| 3189 | San Pedro Creek near Golden, N. Mex. | Lat 36°13'45", long 106°18'00", 1 mile below bridge on State Highway 10 and 5½ miles southwest of Golden. | 45.2 | 1953-58 | 1953<br>1954<br>9-24-55<br>1956<br>1957<br>1958 | 2.05<br>-<br>d12.45<br>1.50<br>3.32<br>1.51 | (†)<br>b160<br>10,800<br>(†)<br>(†)<br>(†) |
| 3219 | Rio de las Vacas near Senorita, N. Mex. | Lat 35°59'35", long 106°47'45", at bridge on side road, 0.1 mile south of State Highway 126 and 6.5 miles east of Senorita. | 26.8 | 1957-58 | 1957<br>5- -58 | d4.1<br>5.05 | 440<br>(†) |
| 3305 | Tijeras Arroyo at Albuquerque, N. Mex. | Lat 35°03'40", long 106°28'40", 300 ft south of U. S. Highway 66 and 0.4 mile southeast of city limits of Albuquerque. | 75.3 | 1943-48‡, 1958 | 1958 | 2.53 | (†) |
| 3306 | Tijeras Arroyo near Albuquerque, N. Mex. | SE¼SW¼ sec.17, T.9 N., R.3 E., at culvert on State Highway 47, 5.7 miles south of Central Avenue (U. S. Highway 66) in Albuquerque. | 133 | 1952-58 | 1952<br>8-12-53<br>9-26-54<br>7-27-55<br>8-18-56<br>1957<br>1958 | d4.0<br>2.76<br>2.53<br>3.89<br>2.32<br>.63<br>1.06 | 2,200<br>1,280<br>1,190<br>2,000<br>1,120<br>(†)<br>(†) |
| 3311 | Belen Highline Canal tributary near Los Lunas, N. Mex. | Lat 34°49'20", long 106°49'10", above culvert on State Highway 6, 5.0 miles west of Los Lunas. | .16 | 1952-58 | 1952<br>1953<br>1955<br>1956<br>7- -57<br>1958 | -<br>-<br>6.09<br>4.10<br>5.63<br>5.57 | (†)<br>(†)<br>(†)<br>(†)<br>(†)<br>(†) |
| 3317 | Abo Arroyo tributary near Scholle, N. Mex. | Lat 34°24'10", long 106°30'35", at culvert on U. S. Highway 60, 2.5 miles southeast of junction of U. S. Highway 60 and State Highway 6, and 5.5 miles southwest of Scholle. | .2 | 1954-58 | 1954<br>8- -55<br>10- 3-55<br>1957<br>1958 | d4.92<br>4.28<br>4.22<br>4.39<br>4.83 | (†)<br>(†)<br>(†)<br>(†)<br>- |
| 3413 | Bluewater Creek above Bluewater Dam near Bluewater, N. Mex. | In NE¼ sec.20, T.12 N., R.12 W., 2.3 miles south of Bluewater Dam and 8 miles west of Bluewater. | 75 | 1953-58 | 7- -53<br>7- -54<br>8- -55<br>1956<br>7-26-57<br>7-28-58 | d8.99<br>2.76<br>3.67<br>.94<br>3.37<br>2.08 | 3,570<br>146<br>287<br>26<br>210<br>90 |

† Discharge not determined.
‡ Operated as a continuous-record-gaging station.
b Estimated.
c Peak did not reach bottom of gage.
d From floodmark.

Annual maximum discharge at crest-stage partial-record stations--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | **Rio Grande basin--Continued** | | | | | |
| 3433 | Rio San Jose tributary near Grants, N. Mex. | NE¼NE¼ sec.9, T.10 N., R.9 W., at culvert on U. S. Highway 66, 0.7 mile northwest of Santa Fe Railroad overpass and 4 miles southeast of Grants. | 0.029 | 1952-58 | 1952 | (c) | 5.6 |
| | | | | | 7- -53 | 0.35 | 11.4 |
| | | | | | 1954 | .53 | 15.1 |
| | | | | | 5- 5-55 | 1.70 | 57.6 |
| | | | | | 1956 | .44 | 13.1 |
| | | | | | 8-24-57 | 2.45 | 112 |
| | | | | | 1958 | (c) | 0 |
| 3514 | Arroyo Colorado near Correo, N. Mex. | SE¼ sec.35, T.9 N., R.4 W., at bridge on U. S. Highway 66, 3 miles west of Correo. | 437 | 1953-58 | 7-13-53 | - | b3,400 |
| | | | | | 7-22-54 | 3.72 | 585 |
| | | | | | 8-11-55 | 4.22 | 755 |
| | | | | | 1956 | 1.00 | (†) |
| | | | | | 7-26-57 | 5.47 | 4,890 |
| | | | | | 7- -58 | .63 | (†) |
| 3535 | La Hinca Creek near Magdalena, N. Mex. | Lat 34°09'45", long 107°12'35", S½ sec.1, T.2 S., R.4 W., 3½ miles northeast of Magdalena. | 195 | 1957-58 | 1957 | 8.05 | (†) |
| | | | | | 1958 | .02 | (†) |
| 3536 | La Hinca Creek tributary near Magdalena, N. Mex. | NE¼SE¼ sec.13, T.2 S., R.4 W., at Santa Fe Railroad bridge 2.7 miles northeast of Magdalena. | 1.5 | 1957-58 | 1957 | 1.46 | (†) |
| | | | | | 1958 | .20 | (†) |
| 3594 | Lumber Canyon tributary near Monticello, N. Mex. | N½NE¼ sec.5, T.11 S., R.4 W., at culvert on U. S. Highway 85, 0.2 mile north of road to Red Rock ranger station and 10.5 miles east of Monticello. | .9 | 1952-58 | 1952 | .74 | (†) |
| | | | | | 7-17-53 | 1.37 | (†) |
| | | | | | 9- -54 | .21 | (†) |
| | | | | | 1955 | - | (†) |
| | | | | | 10- 5-55 | 2.36 | 285 |
| | | | | | 7-26-57 | 2.37 | 287 |
| | | | | | 5-15-58 | 3.03 | 400 |
| 3616.5 | Percha Creek near Kingston, N. Mex. | In NE¼NE¼ sec.15, T.16 S., R.8 W., at bridge on State Highway 180, 3.3 miles east of Kingston. | 21.5 | 1953-58 | 1953 | g1.72 | (†) |
| | | | | | 1954 | g.3 | (†) |
| | | | | | 7-11-55 | g3.58 | 2,260 |
| | | | | | 1957 | 7.32 | (†) |
| | | | | | 9- -58 | (c) | (†) |
| 3616.6 | Percha Creek tributary near Kingston, N. Mex. | In NW¼SW¼ sec.14, T.16 S., R.8 W., 500 ft above culvert on State Highway 180 and 3.5 miles east of Kingston. | .58 | 1957-58 | 1957 | 2.63 | (†) |
| | | | | | 9- -58 | 2.48 | (†) |
| 3617 | Percha Creek near Hillsboro, N. Mex. | In SE¼NW¼ sec.18, T.16 S., R.7 W., 150 ft south of State Highway 180 and 2 miles west of Hillsboro. | 35.4 | 1957-58 | 7-25-57 | 6.25 | (†) |
| | | | | | 9-13-58 | 4.66 | 1,570 |
| 3618 | Percha Creek at Caballo Dam near Arrey, N. Mex. | SW¼ sec.24, T.16 S., R.5 W., at bridge on U. S. Highway 85, 0.5 mile above mouth and Caballo Reservoir and 3.5 miles north of Arrey. | 119 | 1953-58 | 1953 | 1.45 | (†) |
| | | | | | 8- 7-54 | 1.91 | (†) |
| | | | | | 7-11-55 | 2.97 | (†) |
| | | | | | 7- -56 | .59 | (†) |
| | | | | | 8-30-57 | 2.46 | (†) |
| | | | | | 9-13-58 | 4.31 | 7,260 |
| 3631 | Rio Grande tributary near Radium Springs, N. Mex. | In N½NW¼ sec.9, T.21 S., R.1 W., above culvert of U. S. Highway 85, 120 ft above mouth and 1.4 miles west of Radium Springs. | .40 | 1955-58 | 1955 | 7.15 | (†) |
| | | | | | 1956 | (c) | (†) |
| | | | | | 7- -57 | 4.75 | (†) |
| | | | | | 9-13-58 | 7.48 | (†) |
| 3793 | Tecolote Creek at Tecolote N. Mex. | Lat 35°27'20", long 105°16'55", on bridge of U. S. Highway 85 at Tecolote. | 122 | 1954-58 | 6-30-54 | 9.13 | 3,600 |
| | | | | | 9-24-55 | 11.22 | 7,200 |
| | | | | | 6-28-56 | 6.65 | 1,390 |
| | | | | | 8-29-57 | 10.22 | 5,320 |
| | | | | | 7- 6-58 | 8.85 | 3,240 |
| 3796 | Pecos River tributary near Dilia, N. Mex. | Lat 35°12'50", long 105°04'50", at culvert on U. S. Highway 84, and 1.7 miles northwest of Dilia. | .16 | 1952-58 | 1952 | 2.73 | (†) |
| | | | | | 1953 | .93 | (†) |
| | | | | | 6- -54 | d6.4 | (†) |
| | | | | | 8- -55 | 1.03 | (†) |
| | | | | | 8- 6-56 | .23 | (†) |
| | | | | | 8- -57 | 2.71 | (†) |
| | | | | | 9- 6-58 | .74 | (†) |
| 3832 | Pintada Creek tributary near Clines Corners, N. Mex. | Lat 34°50'40", long 105°35'05", above culvert on U. S. Highway 285, 12.2 miles south of Clines Corners. | - | 1952-58 | 8-11-52 | 2.47 | 156 |
| | | | | | 1953 | d7.1 | (†) |
| | | | | | 1954 | 1.36 | 34 |
| | | | | | 1955 | 1.67 | 57 |
| | | | | | 1956 | 2.16 | 110 |
| | | | | | 7- -57 | 3.20 | (†) |
| | | | | | 1958 | 2.61 | 182 |

† Discharge not determined.
b Estimated.
c Peak did not reach bottom of gage.
d From floodmark.
g Contributing area.

Annual maximum discharge at crest-stage partial-record stations--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | **Rio Grande basin--Continued** | | | | | |
| 3856 | Yeso Arroyo near Fort Sumner, N. Mex. | In SE¼ sec.25, T.1 N., R.25 E., at abandoned bridge 1 mile below State Highway 20 and 14.5 miles south of Fort Sumner. | 242 | 1937, 1952-58 | 6- 3-37 | - | 8,720 |
| | | | | | 7-15-52 | d8.5 | 8,100 |
| | | | | | 1953 | 4.56 | (†) |
| | | | | | 1954 | 1.21 | (†) |
| | | | | | 10- 7-54 | d11.6 | 14,800 |
| | | | | | 1956 | (c) | b25 |
| | | | | | 8-16-57 | 7.52 | 7,310 |
| | | | | | 7-16-58 | 3.54 | (†) |
| 3857 | Cloud Canyon near Gallinas, N. Mex. | In SW¼ sec.15, T.2 S., R.12 E., above culvert on U. S. Highway 54, 2.0 miles southwest of Gallinas. | 10 | 1957-58 | 8-24-57 | d8.28 | 639 |
| | | | | | 1958 | (c) | b1 |
| 3859 | Salt Creek tributary near Roswell, N. Mex. | NE¼NE¼ sec.17, T.9 S., R.24 E., at culvert on U. S. Highway 285, 4.7 miles north of junction of U. S. Highways 70 and 285 and 10 miles north of Roswell. | .045 | 1952-58 | 1952 | 1.85 | (†) |
| | | | | | 1953 | 3.32 | (†) |
| | | | | | 1954 | 1.96 | (†) |
| | | | | | 1955 | 1.65 | (†) |
| | | | | | 1956 | .35 | (†) |
| | | | | | 1957 | .38 | (†) |
| | | | | | 1958 | 1.30 | (†) |
| 3880 | Rio Ruidoso at Hondo, N. Mex. | In NE¼SW¼ sec.4, T.11 S., R.17 E., ½ mile above confluence with Rio Bonito and ½ mile southwest of Hondo. | 290 | 1931-55‡, 1956-58 | 7-31-56 | 5.28 | 934 |
| | | | | | 8- 6-57 | 6.40 | 1,170 |
| | | | | | 5-14-58 | 6.38 | 1,160 |
| 3890 | Rio Bonito near Fort Stanton, N. Mex. | In SW¼ sec.16, T.9 S., R.15 E., at bridge on U. S. Highway 380, 2.5 miles northeast of Fort Stanton. | 85 | 1955-58 | 9-24-55 | 6.23 | 2,280 |
| | | | | | 7-23-56 | 5.39 | (†) |
| | | | | | 1957 | 6.69 | (†) |
| | | | | | 1958 | 5.46 | (†) |
| 3890.6 | Rio Bonito tributary near Fort Stanton, N. Mex. | In SW¼SW¼ sec.15, T.9 S., R.15 E., at culvert on U. S. Highway 380, 150 ft above mouth and 3.5 miles northeast of Fort Stanton. | .72 | 1955-58 | 9-24-55 | 4.80 | 240 |
| | | | | | 10- 2-55 | 3.60 | 163 |
| | | | | | 1957 | 2.95 | (†) |
| | | | | | 1958 | - | 0 |
| 3895 | Rio Bonito at Hondo, N. Mex. | In NE¼NW¼ sec.4, T.11 S., R.17 E., at bridge on U. S. Highway 70, at Hondo. | g295 | 1931-55‡, 1956-58 | 8-20-56 | 5.28 | 1,300 |
| | | | | | 7-26-57 | 15.59 | 5,610 |
| | | | | | 10- 9-57 | 5.06 | 1,240 |
| 3934 | Eight Mile Draw near Roswell, N. Mex. | In SE¼NE¼ sec.32, T.10 S., R.23 E., 6.5 miles west of Roswell. | 397 | 1941, 1952-58 | 1941 | d20.1 | 22,200 |
| | | | | | 8-11-52 | d17.38 | 4,730 |
| | | | | | 1953 | 14.41 | 550 |
| | | | | | 5-17-54 | 16.19 | 3,100 |
| | | | | | 10- 6-54 | 18.09 | 10,200 |
| | | | | | 1956 | - | 0 |
| | | | | | 1957 | (c) | b1 |
| | | | | | 8-23-58 | 13.99 | 292 |
| 3974 | Hyatt Canyon near Cloudcroft, N. Mex. | In NW¼NW¼ sec.9, T.16 S., R.13 E., ½ mile south of State Highway 83 and 7 miles east of Cloudcroft. | 3.08 | 1953-58 | 1953 | .42 | (†) |
| | | | | | 9- -54 | .96 | (†) |
| | | | | | 7- -55 | 1.53 | (†) |
| | | | | | 1956 | .08 | (†) |
| | | | | | 1957 | .40 | (†) |
| | | | | | 1958 | (c) | (†) |
| 4018 | Rocky Arroyo near Carlsbad, N. Mex. | In SW¼ sec.23, T.21 S., R.24 E., 0.1 mile north of State Highway 137, 0.7 mile above dip on State Highway 137, 14 miles west of Carlsbad. | 254 | 1953-58 | 7-13-53 | d48 | 18,200 |
| | | | | | 8-24-54 | (f) | b2,800 |
| | | | | | 10- 7-54 | d56.8 | 63,300 |
| | | | | | 1956 | (c) | b400 |
| | | | | | 5-30-57 | 41.78 | (†) |
| | | | | | 8-22-58 | 46.8 | 14,200 |
| 4772 | Iron Creek near Kingston, N. Mex. | Lat 32°54'50", long 107°46'35", 50 ft east of State Highway 180, 1.6 road miles west of Emery Pass, and 4.5 miles west of Kingston. | .74 | 1955-58 | 1955 | 3.45 | (†) |
| | | | | | 1956 | 3.58 | (†) |
| | | | | | 1957 | 3.68 | (†) |
| | | | | | 1958 | 3.89 | (†) |
| 4775.7 | Silva Creek tributary at Silver City, N. Mex. | In SE¼SW¼ sec.27, T.17 S., R.14 W., 350 ft above dip on Little Walnut Road and 0.7 mile north of boundary of Silver City. | 2.12 | 1958 | 8-21-58 | 2.45 | 200 |
| 4775.8 | Silva Creek at Silver City, N. Mex. | Lat 32°46'41", long 108°16'41", 190 ft above Twelfth Street Bridge at Silver City. | 10.0 | 1958 | 8-21-58 | 2.43 | 315 |
| 4775.9 | Pinos Altos Creek at Silver City, N. Mex. | Lat 32°46'52", long 108°16'04", 2 blocks below U. S. Highway 260 at Silver City. | 4.63 | 1958 | 8-21-58 | 3.20 | 852 |

† Discharge not determined.
‡ Operated as a continuous-record-gaging station.
b Estimated.
c Peak did not reach bottom of gage.
d From floodmark.
f Previous gage site.
g Contributing area.

Annual maximum discharge at crest-stage partial-record stations--Continued

| Station No. | Station name | Location | Drainage area (sq mi) | Period of record | Annual maximum | | |
|---|---|---|---|---|---|---|---|
| | | | | | Date | Gage height (feet) | Discharge (cfs) |
| | | Rio Grande basin--Continued | | | | | |
| 4780 | Cameron Creek at Central, N. Mex. | In SE¼ sec.35, T.17 S., R.13 W., 400 ft above culvert on U. S. Highway 260, at north edge of Central. | 19.6 | 1954-58 | 9-25-54 | f2.04 | (†) |
| | | | | | 8- -55 | f1.95 | (†) |
| | | | | | 1956 | (c) | (†) |
| | | | | | 8- -57 | 5.97 | (†) |
| | | | | | 8-21-58 | 4.75 | (†) |
| 4782 | Mimbres River tributary near Spalding, N. Mex. | In S½ sec.5, T.22 S., R.10 W., at culvert on U. S. Highway 260, 0.7 mile northwest of junction with State Highway 61, 4.5 miles southeast of Spalding, and 13 miles northwest of Deming. | - | 1952-58 | 1952 | .36 | (†) |
| | | | | | 1953 | .34 | (†) |
| | | | | | 1954 | .82 | (†) |
| | | | | | 7- -55 | 1.08 | (†) |
| | | | | | 1956 | .71 | (†) |
| | | | | | 7-25-57 | 1.41 | 101 |
| | | | | | 8- -58 | .93 | (†) |
| 4785 | Mimbres River at Deming, N. Mex. | On section line 22 and 27, T.23 S., R.9 W., at bridge on U. S. Highway 260, at north end of Deming. | 1,370 | 1954-58 | 8- 7-54 | 4.40 | (†) |
| | | | | | 7- -55 | 1.64 | 445 |
| | | | | | 1956 | - | 0 |
| | | | | | 8-30-57 | 1.87 | 540 |
| | | | | | 9-13-58 | 2.21 | 746 |
| 4805.9 | Tularosa basin tributary near Oscura, N. Mex. | In SW¼NW¼ sec.25, T.10 S., R.8 E., 50 ft below culvert on U. S. Highway 54 and 5.2 miles south of Oscura. | 3.22 | 1958 | 1958 | 1.73 | (†) |
| 4806.5 | Minnie Hall Draw near Three Rivers, N. Mex. | In SW¼SW¼ sec.36, T.10 S., R.9 E., 8 miles northeast of Three Rivers. | 9.89 | 1956-58 | 7-31-56 | .96 | 685 |
| | | | | | 7-26-57 | d4.00 | 2,180 |
| | | | | | 6-17-58 | 2.32 | (†) |
| 4810 | Three Rivers at Three Rivers, N. Mex. | In NE¼SW¼ sec.3, T.12 S., R.9 E., 150 ft below Southern Pacific RR. bridge, 400 ft above bridge on U. S. Highway 54, and 1.3 miles south of Three Rivers. | 96.0 | 1956-58 | 7-31-56 | d2.4 | 860 |
| | | | | | 7-26-57 | 5.53 | 6,600 |
| | | | | | 1958 | 1.20 | 240 |
| 4811 | Tularosa basin tributary near Three Rivers, N. Mex. | In SW¼SW¼ sec.3, T.12 S., R.9 E., at culvert on U. S. Highway 54, 1.6 miles south of Three Rivers. | 13.8 | 1952-58 | 1952 | - | b517 |
| | | | | | 1953 | - | b383 |
| | | | | | 1954 | .50 | (†) |
| | | | | | 8-10-55 | .87 | 2,340 |
| | | | | | 1956 | (c) | (†) |
| | | | | | 7-26-57 | .78 | (†) |
| | | | | | 10- -57 | .84 | (†) |
| 4885 | Canon de Torreon at Torreon, N. Mex. | Lat 34°43'20", long 106°17'50", at culvert on State Highway 10, in Torreon. | 18.2 | 1954-58 | 8-21-54 | 1.99 | 625 |
| | | | | | 10- 6-54 | 1.24 | (†) |
| | | | | | 1956 | 1.65 | 301 |
| | | | | | 1957 | 1.75 | 370 |
| | | | | | 9- 7-58 | 2.28 | 1,330 |
| 4890 | Canada del Leon near Mountainair, N. Mex. | In SE¼ sec.10, T.2 N., R.7 E., ¼ mile above culvert on State Highway 10 and 8.4 miles southeast of Mountainair. | - | 1953-58 | 1953 | 4.30 | (†) |
| | | | | | 9-25-54 | d8.68 | 1,710 |
| | | | | | 10- 6-54 | 4.88 | 267 |
| | | | | | 1956 | (c) | 0 |
| | | | | | 7-24-57 | 5.00 | (†) |
| | | | | | 1958 | 3.81 | (†) |

† Discharge not determined.
b Estimated.
c Peak did not reach bottom of gage.
d From floodmark.
f Previous gage site.

## Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table. Those that are measurements of base flow are designated by an asterisk (*); measurements of peak flow by a dagger (†).

Discharge measurements made at miscellaneous sites during water year 1958

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| **Brazos River basin** | | | | | | |
| Miller Creek Site No. 2. | Brazos River. | Lat 33°26', long 99°20', at county road crossing 7 miles southeast of Bomarton, Tex., and 9 miles above mouth. | - | 1957 | 11-19-57<br>1-30-58<br>2-26-58 | *0.49<br>0<br>0 |
| Mustang Creek. | Salado Creek. | Lat 30°56', long 97°35', at mouth 3 miles southwest of Salado, Tex. | - | | 2- 7-58<br>3-25-58 | *1.49<br>*10.4 |
| Elm Creek.... | ....do..... | Lat 30°57', long 97°33', at mouth 1 mile west of Salado, Tex. | - | | 2- 7-58<br>3-25-58 | *.99<br>*2.36 |
| Piney Creek.. | Brazos River. | Lat 29°57', long 96°10', 5 miles east of Bellville, Tex. | - | 1948, 1955 | 10- 8-57 | *.83 |
| Do..... | ....do..... | Lat 29°57', long 96°08', 0.5 mile above mouth and 7.6 miles east of Bellville, Tex. | - | | 10- 8-57 | *.81 |
| Mill Creek... | ....do..... | Lat 29°53', long 96°12', 5.5 miles southeast of Bellville, Tex. | - | 1948, 1955 | 10- 7-57 | 0 |
| Do..... | ....do..... | Lat 29°52', long 96°09', at county road bridge 2.2 miles east of Peters, Tex. | - | | 10- 7-57 | *5.94 |
| **Colorado River basin** a/ | | | | | | |
| Clear Creek.. | San Saba River. | Lat 30°54', long 99°55', 800 ft above mouth and 8 miles west of Menard, Tex. | - | 1902, 1920-21, 1942, 1948, 1951-52, 1954, 1956 | 6-10-58 | *14.0 |
| Cogden Branch | ....do..... | Lat 30°55', long 99°52', 4.9 miles west of Menard, Tex. | - | 1951-52, 1954, 1956 | 6-10-58 | *1.03 |
| **Guadalupe River basin** b/ | | | | | | |
| Dry Comal Creek. | Comal River.. | Lat 29°42'31", long 98°07'32", just above bridge on State Highway 46 at New Braunfels, Tex. | - | 1952 | 11-23-56<br>2-28-58 | * .57<br>*9.87 |
| **Nueces River basin** c/ | | | | | | |
| Hondo Creek.. | Frio River... | Lat 29°21'00", long 99°03'10", at crossing on U. S. Highway 90, 5 miles east of Hondo, Tex. | - | 1932, 1937 | 7-10-58 | *10.7 |
| Seco Creek... | Hondo Creek.. | 11.0 miles above D'Hanis, Tex. | - | 1935 | 7-17-58 | †103,000 |
| **Rio Grande basin** | | | | | | |
| Comanche Creek. | Costilla Creek. | Lat 36°50', long 105°19', 0.1 mile above mouth and 10.8 miles southeast of Amalia, N. Mex. | - | 1947, 1956-57 | 10-30-57<br>11- 5-57<br>8-13-58 | *3.48<br>*4.60<br>*2.37 |
| Latir Creek.. | ....do..... | Lat 36°51', long 105°23', 0.1 mile above mouth and 7.7 miles southeast of Amalia, N. Mex. | - | 1947, 1956-57 | 10-30-57<br>11- 5-57<br>8-13-58 | *6.13<br>8.02<br>*5.7 |
| Rito de la Olla (formerly Pot Creek). | Rio Grande de Ranchos. | Lat 36°16'45", long 105°34'50", above mouth 1¼ miles above station on Rio Grande de Ranchos and 4½ miles south of Talpa, N. Mex. | - | | 10- 2-57<br>11- 4-57 | *7.19<br>*7.89 |
| Rio Chama (Chama River). | Rio Grande... | Lat 36°52'40", long 106°35'00", at bridge on U. S. Highway 84, 1⅞ miles south of Chama, N. Mex. | - | 1912-17, 1957 | 10-18-57 | *33.5 |
| Rio Chamita.. | Rio Chama.... | Lat 36°55'20", long 106°35'20", at bridge on State Highway 29, 1½ miles northwest of Chama, N. Mex. | - | 1957 | 10-18-57 | *3.38 |
| Rio Brazos (Brazos River). | ....do..... | Lat 36°44'10", long 106°29'20", 1½ miles above Chavez Creek and 2½ miles northeast of Ensenada, N. Mex. | - | 1913-17, 1957 | 10-18-57 | *37.0 |

* Base flow.
† Peak flow.
a Several measurements on Onion Creek and Pedernales River and tributaries thereof were made in connection with investigations of channel gains and losses and will be published in a special report in preparation.
b Several measurements on Cibolo Creek, Blanco, Guadalupe, and Medina Rivers and tributaries thereof were made in connection with investigations of channel gains and losses and will be published in a special report in preparation.
c Several measurements on Hondo, Seco, and Verde Creeks, Dry Frio, Frio, Nueces, Sebinal, and West Nueces Rivers and tributaries thereof were made in connection with investigations of channel gains and losses and will be published in a special report in preparation.

Discharge measurements made at miscellaneous sites during water year 1958--Continued

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| **Rio Grande basin--Continued** | | | | | | |
| Willow Creek. | Rio Chama.... | Lat 36°52'30", long 106°38'50", at bridge on U. S. Highway 84, 4 miles southwest of Chama, N. Mex. | - | 1957 | 10-18-57 | 0 |
| Santa Fe River. | Rio Grande... | In NE¼SE¼ sec.24, T.17 N., R.10 E., above McClure Reservoir 6½ miles east of Santa Fe, N. Mex. | 17 | 1931-57 | 10- 4-57<br>11- 7-57<br>12- 5-57<br>1- 3-58<br>(d)<br>6-11-58<br>7- 3-58<br>8-12-58<br>9-12-58 | *3.05<br>9.81<br>*5.46<br>*2.26<br>66<br>32.3<br>*7.28<br>*2.68<br>*2.80 |
| Arroyo Ranchito. | Arroyo de la Piedra. | Lat 35°41'55", long 105°55'45", 0.1 mile east of Governor's mansion and 1.2 miles north of capitol buildings in Santa Fe, N. Mex. | 0.61 | | 8-24-57 | †520 |
| North Frijoles Arroyo. | Arroyo de los Frijoles. | Lat 35°43'10", long 105°57'30", within Santa Fe City limits 2.6 miles northwest of State capitol buildings in Santa Fe, N. Mex. | .33 | | 9-13-58 | 194 |
| Arroyo de los Frijoles (Locust Tree reach). | Arroyo Calabasas. | Lat 35°42'15", long 105°58'10", 2.2 miles northwest of State capitol buildings in Santa Fe, N. Mex. | 1.30 | | 8-24-57<br>9-13-58 | †1,900<br>†1,320 |
| Arroyo de los Frijoles (main project reach). | ....do..... | Lat 35°42'05", long 106°00'30", in W½SE¼ sec.17, T.17 N., R.9 E., 4 miles west of State capitol buildings in Santa Fe, N. Mex. | 2.80 | | 8-24-57<br>9-13-58 | †5,340<br>†3,060 |
| San Cristobal Arroyo. | Galisteo Creek. | Lat 35°22'55", long 105°51'05", at U. S. Highway 285, 5½ miles east of Galisteo and 7 miles south of Lamy, N. Mex. | 116 | 1956 | 10-14-57 | *.74 |
| San Marcos Arroyo tributary. | San Marcos Arroyo. | Lat 36°28'00", long 106°04'10", in San Marcos Pueblo Grant, at culvert on State Highway 10, 3.8 miles northeast of Cerrillos, N. Mex. | .1 | | 6-17-58 | †209 |
| San Marcos Arroyo. | Galisteo Creek. | Lat 35°27'30", long 106°04'20", in San Marcos Pueblo Grant, 200 ft below bridge on State Highway 10 and 3.4 miles northeast of Cerrillos, N. Mex. | 33 | | 6-17-58 | †2,990 |
| Do..... | ....do..... | In NE¼ sec.17, T.14 N., R.8 E., 0.4 mile east of cemetery and 0.9 mile northeast of center of Cerrillos, N. Mex. | 92 | | 6-17-58 | †8,090 |
| Rio Moquino tributary. | Rio Moquino.. | Lat 35°10'40", long 107°21'33", in Cebolleta Grant, 0.7 mile northeast of Moquino and 10 miles northeast of Laguna, N. Mex. | 76.4 | | (Unknown)<br>(Unknown)<br>8-21-58 | e2,970<br>e2,170<br>†475 |
| Meyer Draw... | Arro Pedro Padiallo. | Lat 36°11'50", long 107°19'05", 500 ft above bridge on State Highway 334 in Cebolleta Grant, 3.3 miles northeast of Moquino, and 12 miles north of Laguna, N. Mex. | 21.7 | | 8-21-58 | †2,310 |
| Bohart Creek. | Arroyo Zia (to Arroyo Concho, to Rio San Jose). | Lat 35°12'25", long 107°16'20", in Cebolleta Grant, 5.8 miles northeast of Moquino and 13½ miles northeast of Laguna, N. Mex. | 32 | | 8-21-58 | †4,840 |
| San Mateo Canyon. | Alamosa River | In NW¼NW¼ sec.35, T.9 S., R.7 W., 8 miles northwest of Monticello, N. Mex. | - | | 6-11-58 | *1.03 |
| Alamosa River. | Rio Grande... | In N½ sec.1, T.10 S., R.7 W., at county line, 7 miles northwest of Monticello, N. Mex. | - | | 6-11-58 | *4.73 |
| Do..... | ....do..... | In NW¼NW¼ sec.7, T.10 S., R.6 W., 50 ft above Monticello diversion, 5.5 miles northwest of Monticello, N. Mex. | - | | 6-11-58 | *4.28 |
| Cuchillo Negro Creek. | ....do..... | In NW¼NW¼ sec.8, T.12 S., R.7 E., 100 ft above Chise diversion and 0.5 mile west of Chise, N. Mex. | - | | 6-10-58 | *2.45 |
| Do..... | ....do..... | In NE¼NE¼ sec.16, T.12 S., R.7 W., 2 miles east of Chise, N. Mex. | - | | 6-10-58 | *4.62 |
| Do..... | ....do..... | In SE¼NE¼ sec.19, T.12 S., R.6 W., 12 miles above Cuchillo diversion and 6.5 miles east of Chise, N. Mex. | - | | 6-11-58 | *3.20 |
| Do..... | ....do..... | In SE¼NE¼ sec.20, T.12 S., R.6 W., 20 ft above diversion, 6.5 miles west of Cuchillo, and 7.5 miles east of Chise, N. Mex. | - | | 6-11-58 | *3.12 |

* Base flow.
† Peak flow.
d Sometime during May - June, 1958.
e Estimated peak flow.

Discharge measurements made at miscellaneous sites during water year 1958--Continued

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| **Rio Grande basin--Continued** | | | | | | |
| Palomas River. | ....do..... | In NE¼NE¼ sec.6, T.14 S., R. 5 W., below Doolittle farm, 8 miles west of Truth or Consequences, N. Mex. | - | | 6-12-58 | *1.51 |
| Do..... | ....do..... | In NW¼SE¼ sec.6, T.14 S., R.5 W., 150 ft above Palomas diversion and 7.5 miles west of Truth or Consequences, N. Mex. | - | | 6-12-58 | *1.61 |
| Placitas Arroyo. | ....do..... | Near center sec.8, T.19 S., R.3 W., below bridge on U. S. Highway 85, at northwest edge of Hatch, N. Mex. | 27 | | 9-13-58 | †3,360 |
| Broad Canyon. | ....do..... | SE¼SE¼ sec.30, T.20 S., R.1 W., at bridge on U. S. Highway 85, 5 miles northwest of Radium Springs, N. Mex. | 36 | | 9-13-58 | †11,400 |
| Faulkner Canyon. | Rio Grande... | SE¼NE¼ sec.9, T.21 S., R.1 W., above culvert on U. S. Highway 85, 0.1 mile above mouth and 0.8 mile west of Radium Springs, N. Mex. | 30.3 | | 9-13-58 | †4,640 |
| Tortugas Arroyo. | ....do..... | Lat 32°16'20", long 106°44'40", at culvert on U. S. Highways 80 and 85, ½ mile south of State University and ½ mile east of Tortugas, N. Mex. | 21.7 | | 8-22-58 | †5,880 |
| Fillmore Arroyo. | ....do..... | Lat 32°14'40", long 106°43'40", at several batteries of culverts under U. S. Highways 80 and 85, 2½ miles southeast of Tortugas, N. Mex. | 19.5 | | 8-22-58 | †4,100 |
| Unnamed tributary. | Mesquite drainage ditch. | Lat 35°13'15", long 106°42'15", at 2 sets of culverts under U. S. Highways 80 and 85, 4.0 miles north of Mesquite and 8 miles south of Las Cruces, N. Mex. | 2.9 | | 8-22-58 | †809 |
| Beaver Creek. | Gallinas River. | Lat 35°42'20", long 105°23'20", 1.7 miles southeast of El Porvenir, 12½ miles northwest of Las Vegas, N. Mex. | 25 | | 8- 4-57 | †619 |
| Gallinas River. | Pecos River.. | Lat 35°41'20", long 105°21'25", along west side of State Highway 65, at Gallinas, N. Mex. | 67 | | 8- 4-57 | †4,110 |
| Upper Diamond A Ranch diversion. | Rio Hondo.... | In W½NE¼ sec.27, T.11 S., R.19 E., 0.8 mile east of Riverside, N. Mex. | - | 1957 | 10- 8-57 | 0 |
| | | | | | 10-21-57 | 0 |
| | | | | | 11-21-57 | 0 |
| | | | | | 12-19-57 | 0 |
| | | | | | 1-16-58 | 0 |
| | | | | | 2-20-58 | 8.06 |
| | | | | | 3-19-58 | 0 |
| | | | | | 4- 4-58 | 0 |
| | | | | | 5- 2-58 | 0 |
| | | | | | 5-20-58 | 0 |
| | | | | | 6-10-58 | 0 |
| | | | | | 6-25-58 | 0 |
| | | | | | 7- 9-58 | 12.0 |
| | | | | | 7-23-58 | 6.05 |
| | | | | | 8-11-58 | 5.03 |
| | | | | | 8-25-58 | 0 |
| | | | | | 9- 9-58 | 0 |
| | | | | | 9-24-58 | 0 |
| Pecos River.. | Rio Grande... | In SE¼SE¼ sec.24, T.17 S., R.26 E., 4½ miles southeast of Artesia, N. Mex., and at River mile 10.3. | - | 1957 | 12-17-57 | 69.6 |
| | | | | | 2-20-58 | 54.4 |
| Do..... | ....do..... | In SE¼NE¼SE¼ sec.36, T.17 S., R.26 E., 5½ miles southeast of Artesia, N. Mex. and at River mile 7.2. | - | 1957 | 12-17-57 | 70.6 |
| | | | | | 2-20-58 | 50.4 |
| Do..... | ....do..... | Center sec.7, T.18 S., R.27 E., 7½ miles southeast of Artesia, N. Mex. and at River mile 3.5. | - | 1955-57 | 12-17-57 | 68.3 |
| | | | | | 2-20-58 | 52.4 |
| Silver Spring Canyon. | Elk Canyon... | In SE¼SE¼ sec.15, T.15 S., R.13 E., 6.2 miles northeast of Cloudcroft, N. Mex. | - | | 7- 9-58 | *.91 |
| | | | | | 9-23-58 | *.68 |
| Do..... | ....do..... | In SE¼SW¼ sec.34, T.14 S., R.14 E., 12.2 miles northeast of Cloudcroft, N. Mex. | - | | 7- 9-58 | *1.56 |
| | | | | | 9-23-58 | *1.26 |
| Panther (Little Felix) Canyon. | Little Felix Canyon. | Lat 32°59'10", long 105°20'20", 3½ miles north of Elk, N. Mex. | 7.5 | | 7- 5-58 | f4,630 |
| Little Felix Canyon. | Rio Penasco.. | Lat 32°57'50", long 105°19'30", 2 miles north of Elk, N. Mex. | 19.5 | | 10- 6-54 | †8,080 |
| | | | | | 7- 5-58 | †6,500 |
| Pecos River.. | Rio Grande... | In SW¼NW¼ sec.27, T.20 S., R.26 E., 4.3 miles above dam site 3 and 12 miles northwest of Carlsbad, N. Mex. | - | 1951, 1954, 1957 | 12-17-57 | 39.4 |
| 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. | - | 1951, 1957 | 12-17-57 | 37.4 |

* Base flow.
† Peak flow.
f Highest peak in 50 years, information from local residents.

Discharge measurements made at miscellaneous sites during water year 1958--Continued

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Rio Grande basin--Continued | | | | |
| Black River.. | Pecos River.. | In NE¼SE¼ sec.3, T.26 S., R.24 E., below Mayes Ranch 10 miles southwest of White City, N. Mex. | - | 1953-57 | 10-29-57 | *.86 |
| | | | | | 11-26-57 | *.69 |
| | | | | | 12-23-57 | *1.03 |
| | | | | | 1-22-58 | *1.38 |
| | | | | | 2-25-58 | *.64 |
| | | | | | 3-27-58 | *.44 |
| | | | | | 4-28-58 | *.91 |
| | | | | | 5-26-58 | *.71 |
| | | | | | 6-23-58 | *.75 |
| | | | | | 7-17-58 | *.52 |
| | | | | | 8-28-58 | *.59 |
| | | | | | 9-19-58 | *.43 |
| Black River.. | Pecos River.. | In SE¼NW¼ sec.5, T.35 S., R.24 E., below upper Washington Ranch diversion dam 8½ miles southwest of White City, N. Mex. | - | 1952-57 | 10-29-57 | *1.85 |
| | | | | | 11-26-57 | *2.36 |
| | | | | | 12-23-57 | *1.77 |
| | | | | | 1-22-58 | *2.18 |
| | | | | | 2-25-58 | *1.65 |
| | | | | | 3-27-58 | *1.47 |
| | | | | | 4-28-58 | *1.56 |
| | | | | | 5-26-58 | *1.47 |
| | | | | | 6-23-58 | *1.72 |
| 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. | - | 1952-57 | 10-29-57 | *1.00 |
| | | | | | 11-26-57 | *.63 |
| | | | | | 12-23-57 | *.84 |
| | | | | | 1-22-58 | *1.12 |
| | | | | | 2-25-58 | *1.80 |
| | | | | | 3-27-58 | *1.56 |
| | | | | | 4-28-58 | *.58 |
| | | | | | 5-26-58 | *.29 |
| | | | | | 6-23-58 | *1.38 |
| Rattlesnake Springs. | Black River.. | In SE¼SW¼ sec.23, T.25 S., R.24 E., 7¼ miles southwest of White City, N. Mex. | - | 1952-57 | 10-10-57 | 2.48 |
| | | | | | 10-29-57 | 2.14 |
| | | | | | 11-26-57 | 2.38 |
| | | | | | 12-23-57 | 2.31 |
| | | | | | 1-24-58 | 2.38 |
| | | | | | 2-25-58 | 2.75 |
| | | | | | 3-27-58 | 2.29 |
| | | | | | 4-28-58 | 2.48 |
| | | | | | 5-26-58 | 2.02 |
| | | | | | 6-20-58 | .89 |
| | | | | | 6-23-58 | 1.38 |
| Do..... | ....do..... | In SE¼SW¼ sec.23, T.25 S., R.24 E., 7¼ miles southwest of White City, N. Mex. | - | | 7-17-58 | 1.50 |
| | | | | | 8- 6-58 | .03 |
| | | | | | 8-19-58 | .13 |
| | | | | | 8-28-58 | .09 |
| | | | | | 9-19-58 | .64 |
| Black River.. | Pecos River.. | In SE¼NW¼ sec.24, T.25 S., R.24 E., below lower Washington Ranch diversion dam 6 miles southwest of White City, N. Mex. | - | 1952-57 | 10-29-57 | 0 |
| | | | | | 11-26-57 | 0 |
| | | | | | 12-23-57 | 0 |
| | | | | | 1-22-58 | 0 |
| | | | | | 2-25-58 | 0 |
| | | | | | 3-27-58 | 0 |
| | | | | | 4-28-58 | 0 |
| | | | | | 5-26-58 | 0 |
| | | | | | 6-23-58 | 0 |
| 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. | - | 1907, 1952-57 | 10-29-57 | *9.30 |
| | | | | | 11-26-57 | *9.72 |
| | | | | | 12-23-57 | *9.24 |
| | | | | | 1-22-58 | *10.7 |
| | | | | | 2-25-58 | *10.7 |
| | | | | | 3-27-58 | *11.5 |
| | | | | | 4-28-58 | *11.7 |
| | | | | | 5-26-58 | *9.91 |
| | | | | | 6-23-58 | *10.0 |
| | | | | | 7-17-58 | *10.3 |
| | | | | | 8-28-58 | *12.3 |
| | | | | | 9-19-58 | *11.4 |
| Castle Springs. | ....do..... | In NE¼SE¼SE¼ sec.23, T.24 S., R.26 E., at diversion dam (including all flow) 7 miles east of White City, N. Mex. | - | 1953-57 | 10-29-57 | .44 |
| | | | | | 11-26-57 | .32 |
| | | | | | 12-23-57 | .31 |
| | | | | | 1-22-58 | .79 |
| | | | | | 2-25-58 | .91 |
| | | | | | 3-27-58 | 1.18 |
| | | | | | 4-28-58 | .90 |
| | | | | | 5-26-58 | .54 |
| | | | | | 6-23-58 | .17 |
| Pecos River.. | Rio Grande... | Center sec.32, T.24 S., R.29 E., 3.5 miles below Pierce Canyon crossing and 5.8 miles southeast of Malaga, N. Mex. | - | 1956 | 12- 9-57 | 60.8 |
| Do..... | ....do..... | In SW¼NE¼ sec.6, T.25 S., R.29 E., above Guy Reed pump 5.1 miles below Pierce Canyon crossing and 5.5 miles southeast of Malaga, N. Mex. | - | 1956 | 12- 9-57 | 63.6 |

* Base flow.

Discharge measurements made at miscellaneous sites during water year 1958--Continued

| Stream | Tributary to | Location | Drainage area (sq mi) | Measured previously (water years) | Measurements | |
|---|---|---|---|---|---|---|
| | | | | | Date | Discharge (cfs) |
| | | Tularosa Valley basin | | | | |
| Three Rivers. | Tularosa Valley. | In NE¼NE¼ sec.35, T.10 S., R.10 E., 400 ft above Dry Canyon and 13⅝ miles northeast of Three Rivers, N. Mex. | - | 1957 | 11-20-57 | 0.88 |
| | | | | | 12-18-57 | .41 |
| | | | | | 1-15-58 | .12 |
| | | | | | 2-19-58 | .58 |
| | | | | | 3-18-58 | 3.01 |
| | | | | | 4- 3-58 | 7.76 |
| | | | | | 4-21-58 | 29.8 |
| | | | | | 5-19-58 | 10.2 |
| | | | | | 6-24-58 | .84 |
| Do..... | ....do..... | In NW¼NE¼ sec.35, T.10 S., R.10 E., 400 ft below Dry Canyon and 13½ miles northeast of Three Rivers, N. Mex. | - | 1957 | 11-20-57 | 1.01 |
| | | | | | 12-18-57 | .69 |
| | | | | | 1-15-58 | .39 |
| | | | | | 2-19-58 | .64 |
| | | | | | 3-18-58 | 3.32 |
| | | | | | 4- 3-58 | 8.68 |
| | | | | | 4-21-58 | 30.7 |
| | | | | | 5-19-58 | 11.5 |
| | | | | | 6-24-58 | .81 |
| Do..... | ....do..... | Lat 33°21'26", long 105°58', 0.9 mile below mouth of Indian Creek and 4¼ miles east of Three Rivers, N. Mex. | - | | 10-22-57 | 2.94 |
| | | | | | 11- 6-57 | .15 |
| | | | | | 12-18-57 | 0 |
| | | | | | 1-15-58 | 0 |
| | | | | | 2-19-58 | 0 |
| | | | | | 3-18-58 | 0 |
| | | | | | 4- 3-58 | 0 |
| | | | | | 4-21-58 | 50.5 |
| | | | | | 5-20-58 | 12.8 |
| Do..... | ....do..... | Lat 33°21', long 105°59', 1.8 miles below mouth of Indian Creek and 3½ miles east of Three Rivers, N. Mex. | - | | 10-22-57 | 0 |
| | | | | | 11- 6-57 | 0 |
| | | | | | 12-18-57 | 0 |
| | | | | | 1-15-58 | 0 |
| | | | | | 2-19-58 | 0 |
| | | | | | 3-18-58 | 0 |
| | | | | | 4- 3-58 | 0 |
| | | | | | 4-21-58 | 47.9 |
| | | | | | 5-20-58 | 8.64 |

On Aug. 13, 1958, the following downstream-order series of discharge measurements was made on Costilla Creek in the reach from below Costilla Dam to the gaging station near Amalia, N. Mex. Since measuring conditions can be considered no better than good (5%), apparent gains and/or losses in main stream should be viewed with this in mind.

| Stream | Location | Discharge, in cubic feet per second | | | |
|---|---|---|---|---|---|
| | | Main stream | Tributary or diversion | Gain or loss in main stream | Total gain or loss |
| Costilla Creek | At gaging station below Costilla Dam. | 83.6 | - | - | - |
| Do | At point 1.1 miles below Costilla Dam. | 87.2 | - | +3.6 | +3.6 |
| Do | At point 2.05 miles below Costilla Dam. | 86.9 | - | -.3 | +3.3 |
| Do | 1 mile above Comanche Creek and 3.0 miles below Costilla Dam. | 87.6 | - | +.7 | +4.0 |
| Do | 100 ft above Comanche Creek and 4.0 miles below Costilla Dam. | 83.4 | - | -4.2 | -.2 |
| Comanche Creek | At mouth near Amalia, N. Mex. | - | 2.37 | - | - |
| Costilla Creek | 0.5 mile above W. S. Ranch boundary cross fence, 1 mile below Comanche Creek, and 5 miles below Costilla Dam. | 89.2 | - | +3.4 | +3.2 |
| Do | 0.6 mile below W. S. Ranch boundary fence and 6.1 miles below Costilla Dam. | 85.1 | - | -4.1 | -.9 |
| Do | 0.9 mile above Latir Creek and 6.9 miles below Costilla Dam. | 89.2 | - | +4.1 | +3.2 |
| Do | 100 ft above Latir Creek, 2.2 miles above station "near Amalia", and 7.8 miles below Costilla Dam. | 93.4 | - | +4.2 | +7.4 |
| Latir Creek | At mouth near Amalia, N. Mex. | - | 5.7 | - | - |
| Costilla Creek | 1 mile above station "near Amalia" and 9 miles below Costilla Dam. | 93.8 | - | -5.3 | +2.1 |
| Buck Creek | 0.4 mile above station, "Costilla Creek near Amalia." | - | 1.5 | - | - |
| Costilla Creek | Gaging station near Amalia, N. Mex., 10 miles below Costilla Dam. | 95.3 | - | 0 | +2.1 |

## RIO GRANDE DE RANCHOS SEEPAGE INVESTIGATION

On Oct. 16, 1957, the following downstream-order series of measurements was made along the Rio Grande de Ranchos and its major tributary, Rio Chiquito (see following page), in the vicinity of Taos and Talpa, N. Mex. It is probable that apparent gains in main stream may be due in part to return waste, the surface portion of which was neither measured nor estimated.

| Stream | Location | Discharge, in cubic feet per second | | | |
|---|---|---|---|---|---|
| | | Main stream | Tributary or diversion | Gain or loss in main stream | Total gain or loss |
| Rio Grande de Ranchos. | At regular gaging station, 3 miles south of Talpa. | 12.1 | - | - | - |
| Acequia Madre del Rio Grande a/. | At head, 0.6 mile south of Talpa. | - | 8.75 | - | - |
| Acequia del Finado Francisco Martinez b/. | 50 ft below wasteway and 0.7 mile south of Talpa. | - | .68 | - | - |
| Rio Grande de Ranchos. | 0.2 mile below first diversion dam and 0.4 mile south of Talpa. | 4.41 | - | +1.74 | +1.74 |
| Acequia abajo de la Loma b/. | 300 ft below head, at weir, and 0.4 mile south of Talpa. | - | 0 | - | - |
| Acequia en medio Los Rios a/. | 300 ft below head, at weir, and 0.3 mile south of Talpa. | - | .07 | - | - |
| Arroyo Miranda | On left bank tributary, 200 ft above mouth and 0.4 mile south of Talpa. | - | .31 | - | - |
| Rio Grande de Ranchos. | At ford below Arroyo Miranda, 0.5 mile south of Talpa. | 4.41 | - | -.24 | +1.50 |
| Sausito ditch b/ | 300 ft below head, at weir, and 0.9 mile south of Ranchos de Taos. | - | .64 | - | - |
| Rio Grande de Ranchos. | Above Rio Chiquito, 0.8 mile south of Ranchos de Taos. | 5.36 | - | +1.59 | +3.09 |
| Rio Chiquito | At mouth, 0.7 mile northwest of Talpa and 0.8 mile south of Ranchos de Taos. | - | 5.19 | - | - |
| Jaroso ditch b/ | At culvert on old highway, 0.3 mile southwest of Ranchos de Taos. | - | .86 | - | - |
| Acequia en medio b/ | 50 ft below U. S. Highway 64 and 0.2 mile west of Ranchos de Taos. | - | 0 | - | - |
| Rio Grande de Ranchos. | At U. S. Highway 64, 0.2 mile west of Ranchos de Taos. | 12.1 | - | +2.41 | +5.50 |
| Acequia de Tio Gervacio a/. | 100 ft below head, at weir, and 0.5 mile northwest of Ranchos de Taos. | - | 0 | - | - |
| Los Cordovas ditch No. 1 b/. | ¼ mile below head, at gage, and 0.8 mile northwest of Ranchos de Taos. | - | 2.99 | - | - |
| Rio Grande de Ranchos. | At road crossing 1.1 miles northwest of Ranchos de Taos. | 11.0 | - | +1.89 | +7.39 |
| Los Cordovas ditch No. 2 b/. | 200 ft below head, at weir, and 0.6 mile southwest of Los Cordovas. | - | 3.51 | - | - |
| Rio Grande de Ranchos. | At mouth, 0.2 mile east of Los Cordovas. | 9.68 | - | +2.19 | +9.58 |

a Right bank diversion.
b Left bank diversion.

On Oct. 16, 1957, the following downstream-order series of discharge measurements was made on Rio Chiquito and diversions. Since return surface waste was neither measured nor estimated, apparent gains must be viewed with that in mind.

| Stream | Location | Discharge, in cubic feet per second | | | |
|---|---|---|---|---|---|
| | | Main stream | Tributary or diversion | Gain or loss in main stream | Total gain or loss |
| Rio Chiquito..... | At regular gaging station 1.0 mile southeast of Talpa. | 6.78 | - | - | - |
| Acequia del Monte (upper) a/. | 0.1 mile below head and 0.5 mile southeast of Talpa. | - | 4.28 | - | - |
| Acequia del Monte (lower) a/. | 0.1 mile below head and 0.5 mile southeast of Talpa. | - | 2.33 | - | - |
| Acequia Antonio Maria Graham (ditch No. 10) b/. | 0.1 mile below head and 0.5 mile southeast of Talpa. | - | .45 | - | - |
| Ditch No. 11 (Lucero) a/. | 200 ft below head, 0.1 mile west of State Highway 3 at Talpa. | - | .08 | - | - |
| Rio Chiquito..... | Above wasteway of Acequia Madre del Rio Grande (entire flow enters Rio Chiquito) at Talpa. | 0 | - | +0.36 | +0.36 |
| Wasteway of Acequia Madre del Rio Grande. | See previous station. | - | - | - | - |
| Acequia Madre del Rio Grande a/. | Below wasteway of same acequia which enters Rio Chiquito from left bank, at Talpa. | - | 2.61 | - | - |
| Rio Chiquito..... | At mouth, 0.7 mile northwest of Talpa and 0.8 mile south of Ranchos de Taos. | 5.19 | - | - | - |

a Right bank diversion.
b Left bank diversion.

## RIO HONDO SEEPAGE INVESTIGATION

On Apr. 15-16, 1958, a series of discharge measurements was made on the Rio Hondo from the regular gaging station at Picacho downstream to Roswell. All diversion and return flow channels were measured. The investigation was made at a time of relatively high spring runoff so that flow would reach further downstream. The last column shows loss figures computed by adjusting for variable inflow into the reach.

Loss studies on Rio Hondo between Picacho and Roswell, N. Mex., water year 1957-58

| Date | Stream or diversion and location | Discharge, in cubic feet per second | |
|---|---|---|---|
| | | Measured | Loss in reach (adjusted for change in inflow) |
| Apr. 15 | Rio Hondo at Picacho (regular station). | 84.3 | - |
| 15 | Rio Hondo above upper Diamond A Ranch diversion dam, 11.1 miles west of Diamond A Ranch. | 79.8 | -3.8 |
| 15 | Upper Diamond A Ranch diversion, 11.1 miles west of Diamond A Ranch. | 0 | - |
| 15 | Rio Hondo above middle Diamond A Ranch diversion, 5.3 miles southwest of Diamond A Ranch. | 69.0 | -8.8 |
| 15 | Middle Diamond A Ranch diversion, 5.3 miles southwest of Diamond A Ranch. | 9.50 | - |
| 16 | Rio Hondo at Diamond A Ranch (regular station). | 63.5 | -2.6 |
| 16 | Lower Diamond A Ranch diversion, 1 mile east of Diamond A Ranch. | 6.98 | - |
| 16 | Rio Hondo below Lower Diamond A Ranch diversion, 2.4 miles southeast of Diamond A Ranch. | 51.3 | -5.6 |
| 16 | Return flow to Rio Hondo from Lower Diamond A Ranch diversion. | 0 | - |
| 16 | Rio Hondo at ford, 7.1 miles southeast of Diamond A Ranch. | 44.8 | -5.3 |
| 16 | Rio Hondo above Hondo Reservoir diversion, 9 miles east of Diamond A Ranch. | 35.3 | -8.9 |
| 16 | Rio Hondo Reservoir diversion, 9 miles east of Diamond A Ranch. | 0 | - |
| 16 | Rio Hondo above diversion No. 1, 11.2 miles east of Diamond A Ranch. | 30.2 | -5.2 |
| 16 | Diversion No. 1, 11.2 miles east of Diamond A Ranch. | 19.1 | - |
| 16 | Rio Hondo above diversion No. 2 (Brown Ranch diversion), 12.8 miles east of Diamond A Ranch. | 6.50 | -5.0 |
| 16 | Diversion No. 2, 12.8 miles east of Diamond A Ranch. | 3.52 | - |
| 16 | Rocky Arroyo at mouth, NW¼NW¼ sec. 2, T. 12 S., R. 23 E. | 0 | - |
| 16 | Rio Hondo above diversion No. 3, 16.1 miles east of Diamond A Ranch. | 0 | - |
| 16 | Rio Hondo at Sunset Avenue in Roswell. | 0 | - |

On Jan. 23-24, 1958, two sets of discharge measurements were made on the Pecos River and tributaries from Acme to Artesia, N. Mex., as shown in the following tabulation. Observations of no flow were also made at all other points of inflow or diversion in the reach but are not listed. There were no pump diversions which would affect the study. Chemical quality samples were taken the first day at each point of measured flow.

Temperatures were low enough to cause some freezing at night, with resulting fluctuation of flow in the upper end of the reach. However, it is believed this effect was eliminated by use of effective gage heights.

Gain or loss was computed for each set of measurements through the reach. Adjusted gain or loss was computed by correcting for the variations in flow entering the reach at Pecos River near Acme gaging station, and leaving the sub-reaches at Pecos River near Lake Arthur and near Artesia gaging stations.

| Pecos River mile | Stream and Location | Discharge, in cubic feet per second | | | |
|---|---|---|---|---|---|
| | | Measured | Adjusted gain or loss | Measured | Adjusted gain or loss |
| | | Run No. 1 | | Run No. 2 | |
| 94.0 | Pecos River near Acme (gaging station). | 13.8 | - | 9.54 | - |
| 79.0 | Bitter Creek near mouth, 6½ miles east of Roswell. | 7.73 | - | 6.51 | - |
| 74.6 | Pecos River just upstream from Rio Hondo, 7 miles east of Roswell. | 29.0 | +1.5 | 25.9 | +4.6 |
| | Hagerman Canal at head, 5 miles east of Roswell (diverts from Rio Hondo). | 15.2 | - | 17.4 | - |
| | South Spring Creek at entrance to Hagerman Canal, 2½ miles northeast of East Grand Plains. | 4.22 | - | 4.23 | - |
| | Pamona drain at entrance to Hagerman Canal, 2¾ miles east of East Grand Plains. | 1.44 | - | 1.44 | - |
| | South Spring drain (tributary to Rio Hondo) 3 miles northeast of East Grand Plains. | 1.51 | - | 1.48 | - |
| 74.6 | Rio Hondo at mouth, 7 miles east of Roswell. | 8.20 | - | 8.02 | - |
| 74.1 | East Grand Plains Drainage District "D" line at mouth, 3.1 miles northeast of East Grand Plains. | 1.33 | - | 1.13 | - |
| 73.6 | East Grand Plains Drainage District "A-B-C" lines at mouth, 3.4 miles northeast of East Grand Plains. | 1.72 | - | 1.72 | - |
| 72.7 | Gravel Pit drain at mouth, 3¾ miles east of East Grand Plains. | .95 | - | .95 | - |
| 68.0 | Pecos River below Bottomless Lakes, 4½ miles east of East Grand Plains. | 48.7 | +6.4 | 45.0 | +6.2 |
| 67.5 | Oasis-Miller drain at mouth, 4¼ miles east of East Grand Plains. | .15 | - | .14 | - |
| 61.4 | Nine Mile draw at mouth, 3 miles north of Dexter. | .54 | - | .54 | - |
| 58.3 | Zuber Hollow wasteway at mouth, 2 miles northeast of Dexter. | 1.40 | - | 1.40 | - |
| 58.1 | Pecos River at Dexter Bridge, 2¼ miles northeast of Dexter. | 48.1 | +.7 | 50.1 | +2.6 |
| 55.5 | Berry ditch at mouth, 3 miles east of Dexter. | .87 | - | .81 | - |
| 54.0 | Zuber Hollow ditch 1 mile above mouth and 3 miles east of Dexter (tributary to Berry ditch). | .14 | - | 0 | - |
| 52.8 | Dexter-Greenfield drain at "A" line at mouth, 4 miles southeast of Dexter. | .22 | - | .22 | - |
| 52.6 | Dexter-Greenfield drain at "E" line at mouth, 4 miles southeast of Dexter. | .09 | - | .09 | - |
| 51.8 | Dexter-Greenfield drain at "D" line at mouth, 4 miles southeast of Dexter. | .14 | - | .18 | - |
| 50.8 | Pecos River, 0.8 mile above mouth of Rio Felix and 2½ miles north of Hagerman. | 56.9 | +4.7 | 58.1 | +7.7 |
| | Rio Felix near Hagerman (gaging station). | 0 | - | 0 | - |
| 50.0 | Rio Felix, ¾ mile above mouth and 2 miles north of Hagerman. | 2.11 | - | 2.42 | - |
| 47.4 | Hagerman Drainage District "D" line at mouth, 1½ miles northeast of Hagerman. | .09 | - | .09 | - |
| 30.6 | Pecos River near Lake Arthur (gaging station). | 64.5 | +6.7 | 69.9 | +4.6 |
| 21.1 | Lawrence Ranch drain at mouth, 6¼ miles south of Lake Arthur. | .08 | - | .29 | - |
| 20.6 | Cottonwood Creek near Lake Arthur (gaging station). | .33 | - | .42 | - |
| 12.4 | Pecos River near Artesia (gaging station). | 68.4 | +4.2 | 70.5 | -.4 |

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