1968

Water Resources Data for New Mexico

Part 1. Surface Water Records

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the State of New Mexico
and with other agencies

United States Department of the Interior
Geological Survey - Water Resources Division

WATER RESOURCES DATA FOR NEW MEXICO, 1968

Part 1: Surface Water Records

Prepared in cooperation with

Office of the State Engineer
Interstate Stream Commission
Pecos River Commission
State Highway Department
Rio Grande Compact Commission
Costilla Creek Compact Commission
Bureau of Reclamation, U. S. Department of the Interior
Corps of Engineers, U. S. Army
White Sands Missile Range, Department of the Army
Bureau of Public Roads, U. S. Department of Commerce
Bureau of Indian Affairs, U. S. Department of the Interior
Fish and Wildlife Service, U. S. Department of the Interior
Soil Conservation Service, U. S. Department of Agriculture
National Park Service, U. S. Department of the Interior
Weather Bureau, U. S. Department of Commerce

Copies of this report may be obtained from
District Chief, Water Resources Division
U. S. Geological Survey
P. O. Box 4369
Albuquerque, New Mexico 87106

1969

Water resources records, 1968, for New Mexico are in the following reports of the U. S. Geological Survey:

1. Water Resources Data for New Mexico
   Part 1: Surface Water Records

2. Water Resources Data for New Mexico
   Part 2: Water Quality Records

OCTOBER 1967

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NOVEMBER 1967

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DECEMBER 1967

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JANUARY 1968

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FEBRUARY 1968

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JUNE 1968

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JULY 1968

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AUGUST 1968

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SEPTEMBER 1968

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WATER RESOURCES DATA FOR NEW MEXICO, 1968

Part 1: Surface Water Records

INTRODUCTION

The surface-water records for the 1968 water year for gaging stations, partial-record stations, and miscellaneous sites within the State of New Mexico are given in this report. For convenience there are also included records for a few pertinent gaging stations in bordering States. The records were collected and computed by the Water Resources Division of the U. S. Geological Survey, under the direction of W. E. Hale, District Chief, Water Resources Division.

This report is the eighth in a series presenting, annually, basic data on surface-water records by States. Through September 30, 1960, the records of discharge and stage of streams and contents and stage of lakes or reservoirs were published in an annual series of U. S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Since 1951 there have been 20 volumes in the series; each volume covered an area whose boundaries coincided with those of certain natural drainage areas. The records in New Mexico were contained in Parts 7, 8, and 9 of that series.

Beginning with the 1961 water year, streamflow records and related data have been released by the Geological Survey in annual reports on a State-boundary basis. Distribution of these basic-data reports is limited and primarily for local needs. The records will be published in Geological Survey water-supply papers at 5-year intervals. These 5-year water-supply papers will show daily discharge and will be compiled on the same geographical areas previously used for the annual series; however, some of the 14 parts of conterminous United States will be further subdivided.

The records for New Mexico will be published in water-supply papers covering Part 7 for stations in the Lower Mississippi River drainage, Part 8 for Western Gulf of Mexico drainage, and Part 9 for Colorado River drainage. For 1960 water year, the WSP Numbers for these parts were 1711, 1712, 1713 respectively. A compilation of records for these parts through 1950 water year is contained in WSP Nos. 1311, 1312, 1313 respectively; a 1951-60 compilation series has WSP Nos. 1731, 1732, 1733. New Mexico records for 1961-65 water years will be published in WSP Numbers as follows: Part 7, WSP 1921, vol. 2; Part 8, WSP 1923, vol. 2; Part 9, WSP 1925, vol. 2 and WSP 1926, vol. 3. These are in preparation.

COOPERATION

The first gaging station established by the Geological Survey in the United States was on the Rio Grande at Embudo Jan. 1, 1889. Cooperation with the Territory of New Mexico began about 1907, and Territory or State cooperation in varying amounts continued until 1915, the work being directed from the Denver office. From 1916 to 1930 the State conducted its own stream-gaging program. In 1931 a new State cooperative program was begun and a Geological Survey district office established in Santa Fe. Agreements have also existed with county, municipal, and private organizations, and with other Federal agencies. Organizations that supplied data are acknowledged in station descriptions.

Organizations that assisted in collecting data through cooperative agreements with the Survey in 1968 are:

Office of the State Engineer, S. E. Reynolds.
Interstate Stream Commission, S. E. Reynolds, Secretary.
Pecos River Commission, John W. Odell, Federal Representative and Chairman, Stephen L. Reveal, Commissioner for New Mexico, J. C. Wilson, Commissioner for Texas.
State Highway Department, L. G. Boles, State Highway Engineer.
Rio Grande Compact Commission, Berkeley Johnson, succeeded by Alexander A. Fischback, Federal Representative and Chairman, A. Ralph Owens, Commissioner for Colorado, S. E. Reynolds, Commissioner for New Mexico, L. A. Scott, Commissioner for Texas.
Costilla Creek Compact Commission, S. E. Reynolds, Commissioner for New Mexico, A. Ralph Owens, Commissioner for Colorado.
Albuquerque Metropolitan Arroyo Flood Control Authority, John B. Robert, Executive Engineer.

Assistance in the form of funds or services was furnished by the following Federal Agencies.

Corps of Engineers, U. S. Army in the operation of 24 gaging stations.
White Sands Missile Range, Department of the Army in the operation of 2 gaging stations.
Bureau of Reclamation, U. S. Department of the Interior in the operation of 17 gaging stations.
Bureau of Public Roads, U. S. Department of Commerce for research study on small drainage areas.
Bureau of Indian Affairs, U. S. Department of the Interior in the operation of 4 gaging stations.
Fish and Wildlife Service, U. S. Department of the Interior in the operation of 4 gaging stations.
Soil Conservation Service, U. S. Department of Agriculture in the operation of 2 gaging stations.
National Park Service, U. S. Department of the Interior in the operation of 1 gaging station.

Assistance in the form of funds or services was also given by the following organizations:

Forest Service, U. S. Department of Agriculture; Weather Bureau, U. S. Department of Commerce; the City of Ruidoso; Carlsbad Irrigation District; Public Service Company of New Mexico; Middle Rio Grande Conservancy District; State Department of Game and Fish.

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 only to those gaging stations where a continuous record of discharge is obtained.

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

Partial-record station is a particular site where limited streamflow 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.

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.

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

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 or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Capacity, as applied to reservoirs, expresses space available for contents below a specific elevation or gage height; hence, capacity table.

The drainage area of a stream at a specific 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, or pending reports.

DOWNSTREAM ORDER AND STATION NUMBERS

Stations are listed in the same downstream order used in the water-supply papers. Records are listed in a downstream direction along the main stem with all stations on a tributary entering above a main-stem station listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed 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 shows 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.

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 the annual series of water-supply papers. In assigning station numbers, no distinction is made between partial-record stations and continuous-record 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 8-digit number for each station, such as 09-3534.00, includes the part number "09" plus a six-digit number. In this report the nonessential zeros are not shown. For example, the complete number 09-3534.00 would appear as 9-3534, just to the left of the station name. In this report, the records are listed in downstream order by parts. All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

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. Records of stage are obtained from a graphic water-stage recorder that gives a continuous chart, or a digital water-stage recorder that produces a punched tape at predetermined intervals of the stage fluctuations or from direct readings on a nonrecording gage. 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. Low-flow measurements may also be made by volumetric methods or by use of portable flumes or weirs of rated capacity.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, or computation of flow over dams or weirs), 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 in effect the shifting-control method.

At some gaging stations 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.

For some gaging stations there are periods when no gage-height record or punched tape are obtained or the recorded gage height is so faulty that it cannot be used to compute the daily discharge. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins.

The data in this report generally comprise a description of the station 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 for the 1968 water year is shown on page III to facilitate finding the day of the week for any date.

EXPLANATION OF DATA

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, and general remarks. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage is given if a system has been established. Under "Records available" are given periods for which there are published records for the present station or for stations generally equivalent to the present one. Under "Gage" are given the type of gage currently in use and the datum of the 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. The references to "datum of 1929" and adjustments of other years are to the datum and adjustments of the U. S. Coast and Geodetic Survey. 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 daily discharge, and/or the minimum discharge if it is meaningful. 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 gage or a nonrecording gage read at the time of the crest. Digital recorders are equipped with a crest-stage gage, or they may be operated with a companion graphic recorder. 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 to conditions which affect the natural flow at the gaging station is given under "Remarks."

The daily table gives the discharge corresponding to the daily mean gage height unless there are large or rapid changes in discharge during a day. For days having large or rapid changes, discharge for the day is computed by averaging the mean discharges for several parts of a day. Digital recorders are usually equipped to subdivide the day into 24, 48, or 96 parts, one of these frequencies having been preselected.

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. The maximum and minimum daily discharge during month are next. Total discharge, or runoff for the month is in acre-feet.

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 for 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 can be presented. Peak discharges are not published for any stream for which the peaks are subject to substantial control by man, unless they are meaningful. Time of day is expressed in 24-hour local standard time, for example 12:30 a.m. is 0030, 1:30 p.m. is 1330.

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

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station, a table of daily contents, gage height or elevation on last day of month, monthly and annual change in contents, and notes calling attention to any change in capacity table. A skeleton capacity table covering minimum to maximum stage during year is included when daily contents is published.

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

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.

For some gaging stations the mean daily discharges and monthly means below 1 cfs are shown to more significant figures than in former years. This stems essentially from the use of digital recorders and the computer system and the objective is greater uniformity. The added refinement, in most cases, does not signify greater accuracy. However, for a few research stations on small drainage areas the added refinement for low flows is justified, and necessary to achieve a balanced ratio for study purposes.

OTHER DATA AVAILABLE

Data collected at partial-record stations and at miscellaneous sites are given at the end of each report. Data for 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.

Seepage investigations are presented following measurements at miscellaneous sites. These consist of text and tabulations summarizing data derived primarily from associated series of discharge measurements and observations made within a short time period along a given reach of channel, preferably during a period of relatively stable conditions. The objectives may vary, but usually include the study of seepage gains or losses, surface inflow, diversions (including pumps), areas of springs, water temperatures, low-flow characteristics of the area, and chemical quality (published in Part 2). These investigations may be repeated periodically or at random intervals for some reaches of certain channels. Indicated gains and/or losses as shown may be substantially affected by small inaccuracies of open channel measurements. Small differences between large measurements will have a lower degree of accuracy than the same differences between smaller measurements.

Information of a more detailed nature than that published for most of the gaging stations is on file in the district office. About half the gaging-station records in the state (through 1954 for Part 9, 1958 for Parts 7 and 8) have been analyzed by electronic computer to give: (1) the number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; and (3) the highest mean discharge for selected numbers of consecutive days in each year. This information is now available in printed form under title, "Flow Characteristics of New Mexico Streams," an unnumbered special Report, from New Mexico State Engineer, Capitol Building, Santa Fe, N. Mex.

At or near some gaging stations, water-quality records also are collected. Data are obtained on the chemical quality of the stream water, on water temperature, on suspended-sediment concentration, and on the particle-size distribution of suspended sediment and bed material. These data are given in Part 2 of this report. Under the "Remarks" paragraph of the gaging-station description, reference is made to water-quality records collected on a regular basis.

HYDROLOGIC CONDITIONS

Wide variation in hydrologic conditions and runoff are the rule in New Mexico. This holds true with respect to both time and geographic location. Water courses in the east, south, and central west are chiefly arroyo-type and derive a large part of their runoff from scattered storms of short duration. Rainfall patterns are unpredictable, and flood-frequency studies are difficult to make.

October runoff was below normal in the north and east, but excessive in the southwest (Gila and San Francisco Rivers). Storage in Conchas and Alamogordo Reservoirs was near average. Ute Reservoir was full, and Eagle Nest Reservoir was 20 percent of capacity. Project storage in Elephant Butte and Caballo Reservoirs was 35 percent of the 30-year average (8.8 percent of capacity).

November brought little change. Near month end, a general storm occurred, however, the net effect on current runoff was negligible. For December the runoff continued excessive in the southwest but was below normal in the east. Flow in the Pecos River at Santa Rosa was below normal for the third consecutive month. One blizzard at mid-month increased snowpack in the mountains, but it had little effect on current runoff.

January runoff was near normal except in the southwest where melting snow made it excessive. During February the west had excessive runoff while the remainder of the State remained normal. Streamflow for March was near normal except the southwest which remained excessive. Monthly mean discharge for Gila River near Gila was 442 percent of normal, the second highest since 1927 when continuous records began.

During April the southwest runoff continued excessive, while below normal flow occurred in the northwest and the east. Near normal flows occurred in May, except for the west which was excessive. Conchas Reservoir had reached 88 percent of capacity, Alamogordo Reservoir 84 percent; Elephant Butte plus Caballo storage was 45 percent of average (down 5 percent from February).

June flow at the Otowi station was above median for the first time since October. Flow in the Gila remained excessive for the seventh consecutive month. Flow for July was generally above median. Local storms caused flood flows in the north-central and southeast areas. A four-inch rain caused the Santa Fe River to go overbank and flood parts of the business area of Santa Fe, leaving substantial property damage. During July 4-6 up to 10 inches of rain fell in and around Carlsbad, causing flooding and some property damage in and south of Carlsbad.

August streamflow was near average except the north-central and northwest, which were excessive. September closed the year with statewide runoff near normal except the northwest tip (San Juan basin) which was deficient. Conchas Reservoir storage was 80 percent of capacity, same as a year before; Alamogordo storage was 53 percent of capacity, up slightly from the preceding year; Elephant Butte plus Caballo storage was 260,000 acre-ft, 46 percent of average, 10.2 percent of capacity, up 56,000 acre-ft from September a year ago. Storage in Navajo Reservoir on San Juan River reached 1,023,000 acre-ft which is 60 percent of capacity and up nearly 400,000 acre-ft from a year ago. Eagle Nest Reservoir storage was nearly the same as for September 1967.

To give a general picture by streams and basins, the 1968 annual runoff, in percent of long-term averages, is given for the following stations:

Vermejo River	102
Rayado Creek	82
Canadian River near Sanchez	46
Conchas River at Variadero	63
Ute Creek near Logan	17
Rio Grande near Cerro	133
Red River at mouth	92
Willow Creek near Park View	178
Santa Cruz River at Cundiyo	88
Rio Grande at Otowi (unadjusted)	77
Jemez River near Jemez	131
Rio Puerco near Bernardo	74
Pecos River near Pecos	105
Pecos River near Puerto de Luna	78
Rio Hondo at Diamond A Ranch	91
Delaware River near Red Bluff	102
Mimbres River near Mimbres	274
Animas River at Farmington	81
San Francisco River near Glenwood	286
Gila River near Gila	230

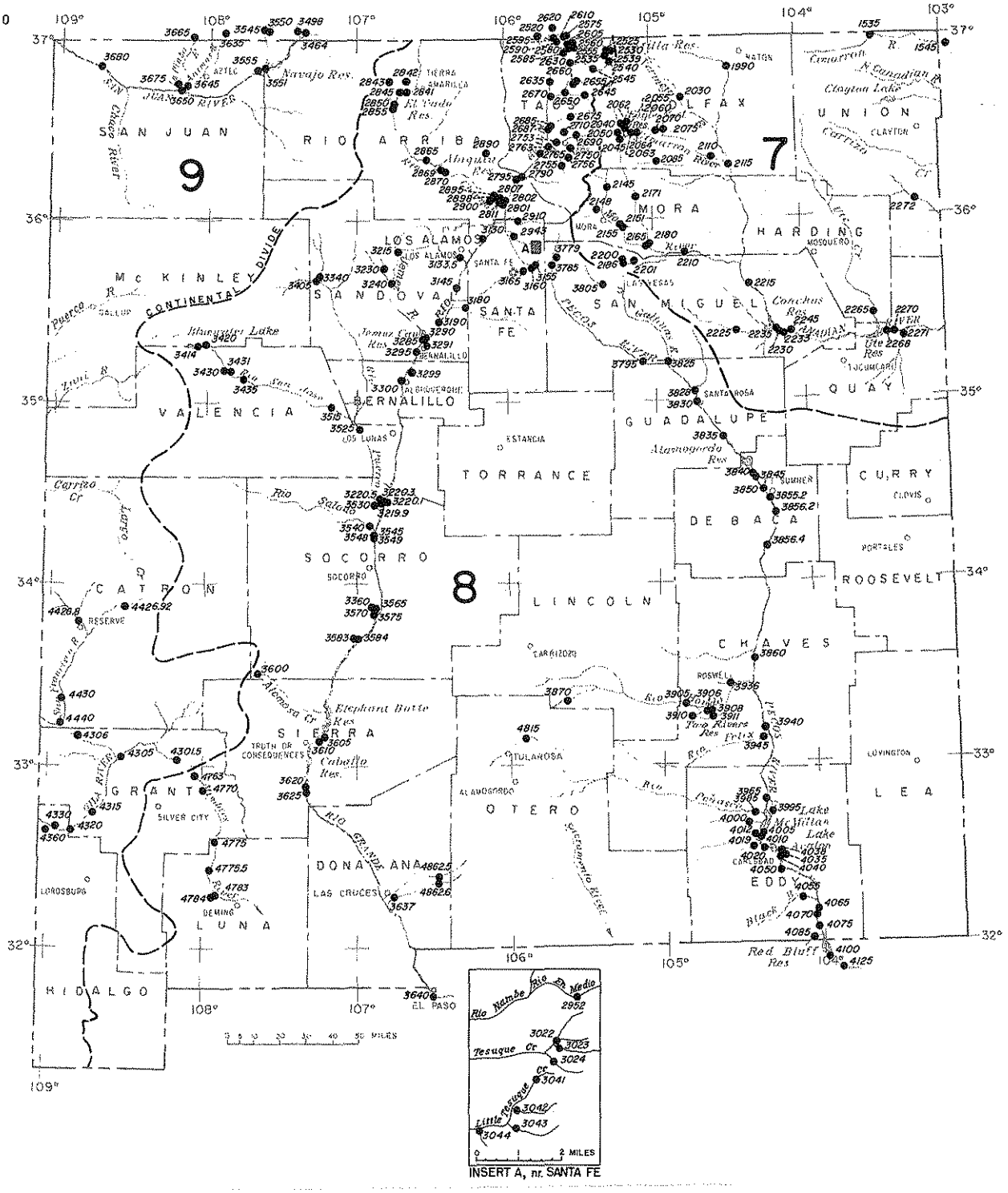


Figure 1.--Map of New Mexico showing location of active gaging stations.

7-1535. Cimarron River near Guy, N. Mex.

Location.--Lat 36°59'15", long 103°25'25", in SE¼ sec.21, T.32 N., R.33 E., on right bank 1.5 miles upstream from Baker damsite, 1.7 miles northwest of Valley, 3 miles upstream from Travesser Creek, 12 miles north of Guy, and 27 miles northwest of Kenton, Okla.

Drainage area.--545 sq mi.

Records available.--April 1942 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 4,900 ft (from topographic map). Prior to Oct. 1, 1943, at datum 0.44 ft higher.

Average discharge.--26 years, 11.7 cfs (8,470 acre-ft per year).

Extremes.--Maximum discharge during year, 3,660 cfs Aug. 24 (gage height, 11.90 ft); minimum determined, 0.47 cfs Dec. 17, result of freezeup.
1942-68: Maximum discharge, 46,100 cfs Aug. 21, 1965 (gage height, 22.00 ft), from rating curve extended above 3,000 cfs on basis of slope-area measurements at gage heights 15.7 and 22.00 ft; no flow at times.

Remarks.--Records good except those for October and those for winter periods, which are poor. Diversions for irrigation of about 6,500 acres above station. Records of water temperatures and suspended sediment loads for water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	3.9	4.7	3.0	3.2	2.8	2.8	3.4	2.3	2.7	4.4	2.7
2	3.4	3.9	4.2	3.5	3.2	2.8	2.8	3.9	2.3	2.7	5.8	2.3
3	3.2	4.2	3.7	3.4	3.2	3.0	3.2	3.5	2.1	2.8	4.0	2.2
4	3.2	4.2	5.6	2.1	3.0	3.2	1.9	3.7	2.0	2.7	4.0	2.5
5	3.1	4.2	5.1	2.5	3.0	3.2	2.1	3.9	2.4	2.7	9.9	2.5
6	3.0	4.2	4.7	3.0	2.8	3.2	1.9	3.7	2.0	2.7	3.7	2.5
7	3.0	4.2	4.4	2.1	2.8	3.2	1.9	3.0	1.7	2.7	3.4	2.3
8	2.9	4.0	3.9	3.9	2.8	3.0	1.9	2.8	1.5	2.7	4.0	2.2
9	2.8	4.0	3.0	3.4	2.8	3.0	1.9	3.0	1.4	3.0	456	2.2
10	2.7	4.0	3.2	3.4	2.8	3.5	1.9	3.4	1.4	5.4	142	2.1
11	2.6	4.0	4.2	3.5	3.0	4.7	1.5	3.4	1.5	3.4	19	2.0
12	2.5	4.0	4.9	2.5	3.0	4.7	1.4	3.2	1.5	17	11	1.9
13	2.4	4.0	4.9	2.5	3.4	3.7	1.5	3.0	1.3	5.8	5.1	1.7
14	2.3	4.0	5.1	2.9	3.9	3.5	1.7	2.5	1.3	4.7	3.9	1.6
15	2.8	4.0	6.0	3.3	3.7	3.4	1.9	2.4	1.3	4.4	3.2	1.5
16	2.8	4.0	6.3	3.7	3.5	3.0	1.9	2.3	1.3	4.0	2.8	1.4
17	2.7	3.9	2.8	4.0	3.2	3.0	1.8	2.4	1.4	3.7	2.7	1.4
18	2.7	3.9	3.9	3.0	3.4	3.0	1.7	2.4	1.5	3.7	2.5	1.6
19	2.7	3.9	6.3	2.5	3.4	3.0	1.9	2.8	1.4	4.2	2.4	1.6
20	2.6	4.0	5.4	3.0	3.4	2.8	1.9	3.4	1.4	5.6	2.3	1.5
21	2.6	4.0	2.0	3.2	2.5	3.0	2.1	2.5	2.0	4.7	2.1	1.6
22	2.5	4.2	2.5	2.8	3.2	2.8	2.3	1.8	1.8	4.0	2.0	1.4
23	2.5	4.2	4.0	2.8	3.4	3.0	2.3	1.4	1.5	3.7	2.0	1.4
24	2.5	4.9	3.7	3.4	3.4	3.0	2.1	1.4	2.7	250	2.0	1.8
25	2.5	4.7	4.4	3.0	3.2	2.8	2.0	2.1	246	215	2.0	1.9
26	2.5	4.2	4.0	3.0	3.0	2.8	1.9	4.0	22	324	2.1	1.9
27	2.5	4.0	3.0	3.0	3.0	2.7	2.5	2.7	8.6	31	75	1.7
28	2.5	4.0	3.2	3.0	3.0	2.7	3.5	2.4	5.4	13	353	1.7
29	4.2	4.0	3.5	3.0	3.0	2.7	3.7	2.3	3.7	6.8	14	1.6
30	4.0	4.0	2.7	3.2	------	2.7	3.4	2.3	2.8	4.9	5.8	1.7
31	3.9	------	2.5	3.2	------	3.0	------	2.3	------	9.2	3.5	------
TOTAL	89.0	122.7	127.8	94.8	91.2	96.9	65.3	87.3	329.5	952.9	1155.6	56.4
MEAN	2.87	4.09	4.12	3.06	3.14	3.13	2.18	2.82	11.0	30.7	37.3	1.88
MAX	4.2	4.9	6.3	4.0	3.9	4.7	3.7	4.0	246	324	456	2.7
MIN	2.3	3.9	2.0	2.1	2.5	2.7	1.4	1.4	1.3	2.7	2.0	1.4
AC-FT	177	243	253	188	181	192	130	173	654	1,890	2,290	112

CAL YR 1967: TOTAL 4,626.93 MEAN 12.7 MAX 689 MIN .79 AC-FT 9,180
WTR YR 1968: TOTAL 3,269.4 MEAN 8.93 MAX 456 MIN 1.3 AC-FT 6,480

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-24	2000	8.10	2,090
8-24	2100	11.90	3,660
8-28	0130	7.06	1,690

7-1545. Cimarron River near Kenton, Okla.

Location.--Lat 36°56', long 102°57', in SE¼ sec.4, T.5 N., R.1 E., near right bank on downstream side of pier of county road bridge, 1.5 miles upstream from Carrizo Creek, 1.7 miles northeast of Kenton, 2.2 miles downstream from Carrizozo Creek, and at mile 594.0.

Drainage area.--1,106 sq mi, of which 68 sq mi is probably noncontributing.

Records available.--April 1904 to July 1905 (gage heights only), October 1950 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 4,262.08 ft above mean sea level, datum of 1929 (levels by State Highway Department). April 1904 to July 1905 staff gage at site 0.9 mile upstream at different datum. Oct. 1, 1950, to Sept. 19, 1967, graphic water-stage recorder at same site and at datum 5.00 ft higher.

Average discharge.--18 years (1950-68), 27.5 cfs (19,910 acre-ft per year).

Extremes.--Maximum discharge during year, 4,100 cfs Aug. 28 (gage height, 12.81 ft); no flow at times.
1950-68: Maximum discharge, 43,400 cfs Oct. 17, 1965 (gage height, 22.32 ft, present datum), from rating curve extended above 7,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in most years.

Remarks.--Records fair. Extensive diversions for irrigation above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	2.9	2.4	5.0	6.4	2.5	1.2	1.9	11	0	3.5	10
2	5.2	6.8	1.8	5.4	5.3	2.3	2.1	.86	3.1	0	1.5	8.6
3	4.0	7.9	3.4	5.0	8.4	3.5	.30	.57	.94	0	1.3	7.4
4	3.7	7.3	2.8	4.1	9.2	3.0	1.0	1.5	.23	0	1.0	6.7
5	3.4	7.6	2.5	3.7	9.4	3.5	1.3	.50	.23	0	100	5.7
6	3.3	8.3	2.7	3.4	7.8	3.0	1.1	.53	.23	0	30	5.1
7	3.1	7.6	2.8	3.2	6.8	2.9	1.9	0	.10	0	19	4.7
8	3.1	7.1	2.9	3.0	5.5	2.9	1.3	0	0	0	18	4.1
9	3.1	7.8	2.8	2.8	6.2	3.0	.54	.73	0	0	60	4.1
10	3.1	7.5	3.9	3.2	4.0	4.2	.86	7.6	.10	0	848	2.6
11	3.1	6.1	3.9	3.7	4.5	5.6	1.3	8.7	.10	84	125	3.6
12	3.1	5.1	3.9	4.5	4.7	4.8	.22	5.3	0	34	50	2.8
13	2.8	6.0	3.8	5.0	4.0	5.0	.20	3.1	0	317	14	2.3
14	2.8	4.6	3.7	4.6	3.7	5.3	1.0	1.7	0	11	8.5	3.0
15	2.5	3.8	3.7	4.2	3.9	4.5	1.3	1.0	.51	2.5	4.6	3.3
16	2.5	3.7	5.0	4.0	4.1	4.2	2.0	1.1	.55	1.5	3.5	2.5
17	2.2	4.7	6.2	3.8	3.8	4.2	1.9	1.5	.17	1.3	3.2	3.1
18	1.6	6.5	7.2	3.6	4.5	3.6	.34	1.6	0	1.0	2.8	3.2
19	2.0	4.2	6.4	3.5	5.1	2.5	1.3	3.2	0	45	2.4	2.7
20	2.2	2.2	5.2	3.4	5.6	2.1	.92	2.4	0	10	2.3	2.2
21	1.7	1.9	3.4	3.8	5.5	1.8	.34	2.8	0	2.0	2.2	1.4
22	1.0	2.0	4.0	4.0	2.7	2.0	1.4	3.1	0	1.0	2.5	1.4
23	.94	2.0	4.9	3.0	3.5	1.6	2.0	2.0	0	.07	2.1	1.7
24	.47	2.8	5.2	3.6	4.1	1.2	1.1	2.0	0	.43	1.8	2.1
25	.46	2.0	4.6	5.5	3.7	.83	.93	2.5	61	823	1.5	2.1
26	.59	1.7	4.4	8.6	3.2	.33	1.4	1.7	58	509	1.4	1.9
27	1.3	1.6	4.6	8.8	5.0	1.1	4.2	1.7	8.9	150	55	1.6
28	1.2	2.0	4.8	8.4	4.2	2.1	9.7	1.4	3.3	210	1,290	1.1
29	3.1	2.5	5.0	7.2	1.9	2.9	4.6	1.2	1.0	108	120	.99
30	5.5	2.4	5.0	6.6	------	2.1	2.8	1.7	.23	25	50	1.0
31	4.9	------	4.7	7.0	------	3.6	------	3.1	------	11	15	------
TOTAL	83.76	138.6	127.6	145.6	146.7	92.16	50.55	66.99	149.69	2,346.80	2,840.1	102.99
MEAN	2.70	4.62	4.12	4.70	5.06	2.97	1.69	2.16	4.99	75.7	91.6	3.43
MAX	5.8	8.3	7.2	8.8	9.4	5.6	9.7	8.7	61	823	1,290	10
MIN	.46	1.6	1.8	2.8	1.9	.33	.20	0	0	0	1.0	.99
AC-FT	166	275	253	289	291	183	100	133	297	4,650	5,630	204

CAL YR 1967: TOTAL 7,563.46 MEAN 20.7 MAX 1,200 MIN 0 AC-FT 15,000
WTR YR 1968: TOTAL 6,291.54 MEAN 17.2 MAX 1,290 MIN 0 AC-FT 12,480

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-25	0800	11.28	2,320
8-10	0900	11.09	2,150
8-28	1015	12.81	4,100

7-1990. Canadian River near Hebron, N. Mex.

Location.--Lat 36°47'10", long 104°27'45", in Maxwell Grant, near right bank at downstream end of bridge pier on U. S. Highways 64 and 85, 3¼ miles north of Hebron, Colfax County, 5 miles upstream from Chicorica Creek, and 8 miles south of Raton.

Drainage area.--229 sq mi.

Records available.--June 1946 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 6,248 ft (from topographic map). June 1, 1946 to Sept. 30, 1952, on bridge pier 150 ft upstream and Oct. 1, 1952 to July 13, 1955, on bridge pier 200 ft upstream, both at datum 2.00 ft higher. July 14, 1955 to Aug. 11, 1964, at present site at datum 0.90 ft higher. Aug. 12, 1964 to Aug. 17, 1965, at present site at datum 2.00 ft higher.

Average discharge.--22 years, 8.23 cfs (5,960 acre-ft per year).

Extremes.--Maximum discharge during year, 7,560 cfs Aug. 2 (gage height, 7.70 ft), from rating curve extended above 1,300 cfs as explained below; no flow many days.
1946-68: Maximum discharge 62,400 cfs June 17, 1965 (gage height, 28.2 ft, from floodmarks, present datum), from rating curve extended above 1,300 cfs on basis of slope-area measurement of peak flow; no flow for many days most years.
Flood in 1942 reached a stage of about 28 ft (present datum) at site 150 ft upstream, from information by local residents.

Remarks.--Records poor. Diversions above station for irrigation of a few hundred acres. Part or all of low flow can be diverted to left bank a few hundred yards above station for stock water, off-channel storage and irrigation. Records of chemical analyses and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.56	0.16	0.20	0.1	0.29	0.13	0.09	0.66	0.09	0.11	21	14
2	.24	.09	.10	.10	.29	.11	.09	.40	.07	675	568	9.4
3	.24	.13	.10	.10	.29	.13	.11	2.6	.05	157	483	14
4	.24	.11	.10	.10	.24	.16	.13	6.0	.34	7.4	60	24
5	.29	.09	.10	.10	.24	.16	.13	8.4	.29	.40	34	16
6	.24	1.2	.10	0	.20	.11	.13	9.4	.09	.29	3.8	10
7	.16	.66	.10	0	.20	.13	.13	4.2	.07	11	12	7.6
8	.16	.77	.10	.10	.20	.11	.05	2.6	.05	20	4.2	6.0
9	.16	.66	.10	.10	.20	.11	.13	1.4	.05	2.0	288	5.4
10	.20	.24	.10	.10	.16	.10	.11	1.4	.05	123	28	4.2
11	.20	.29	.10	.10	.20	.10	.11	2.9	.07	43	59	6.0
12	.20	.20	.10	.10	.24	.10	.11	21	.07	43	301	6.0
13	.13	.20	0.10	.10	0	.10	.07	20	.05	79	208	9.4
14	.13	.24	0	.10	0	.16	.07	13	.05	13	69	7.6
15	.13	.24	0	.10	.05	.13	.07	5.4	.05	14	26	4.8
16	.16	.16	0	.10	.09	.13	.07	6.8	123	8.4	20	3.8
17	.16	.16	0	.10	.20	.11	.07	3.8	3.8	2.3	170	4.8
18	.16	.29	0	.10	.16	.09	.24	2.6	.24	20	20	4.2
19	.20	.20	0	.10	.16	.11	5.4	13	.24	1.2	14	3.3
20	.16	.20	0	.10	.13	.10	8.4	10	.20	62	13	2.9
21	.16	.24	0	.20	.16	.10	4.8	8.4	8.1	.56	9.4	2.0
22	.16	.24	0	.20	.11	.10	2.3	3.8	.34	2.6	8.4	.66
23	.16	.34	.10	.20	.11	.09	.89	2.6	.29	3.3	7.6	.56
24	.20	.40	.10	.30	.11	.05	.56	1.4	.24	309	6.0	.56
25	.20	.34	.10	.30	.11	.09	.47	.56	.16	69	4.8	.56
26	.16	.29	.10	.30	.11	.07	.56	.47	.16	118	2.0	.56
27	.20	.20	.10	.30	.11	.09	.66	.40	.16	112	.40	.66
28	.24	.25	.10	.30	.09	.09	2.9	2.1	.13	55	2.0	.66
29	.20	.25	.10	.30	.11	.09	5.4	.20	.11	13	6.8	.66
30	.10	.25	0	.30	------	.09	1.8	.11	.11	26	3.3	.77
31	.15	------	0	.30	------	.09	------	.13	------	64	53	------
TOTAL	6.05	9.09	2.00	4.70	4.56	3.33	36.05	155.73	138.72	2,054.56	2,505.70	171.05
MEAN	.195	.303	.065	.152	.157	.107	1.20	5.02	4.62	66.3	80.8	5.70
MAX	.56	1.2	.20	.30	.29	.16	8.4	21	123	675	568	24
MIN	.10	.09	0	0	0	.05	.05	.11	.05	.11	.40	.56
AC-FT	12	18	4.0	9.3	9.0	6.6	72	309	275	4.080	4.970	339

CAL YR 1967: TOTAL 5,288.26 MEAN 14.5 MAX 562 MIN 0 AC-FT 10,490
WTR YR 1968: TOTAL 5,091.54 MEAN 13.9 MAX 675 MIN 0 AC-FT 10,100

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7- 2	1950	7.40	7,180	8- 2	2015	7.70	7,560
7-10	1815	5.97	4,470	8- 3	1730	5.80	4,100
7-24	1625	5.67	3,960	8- 9	1820	5.55	3,130

7-2030. Vermejo River near Dawson, N. Mex.

Location.--Lat 36°40'50", long 104°47'05", in Maxwell Grant, on left bank, 1½ miles north of Dawson, Colfax County, and 2 miles upstream from Rail Canyon.

Drainage area.--301 sq mi.

Records available.--October 1915 to July 1918, April 1919 to May 1921, January 1927 to September 1968. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 6,383 ft above mean sea level, datum of 1929. Prior to Sept. 17, 1921, staff gage and Sept. 17, 1921 to May 31, 1923, water-stage recorder, at sites about 1 mile upstream at different datums. Feb. 25, 1927 to Sept. 23, 1953, water-stage recorder at several sites about three-quarters of a mile upstream at datums 8 to 12 ft higher.

Average discharge.--44 years (1915-17, 1919-20, 1927-68), 19.4 cfs (14,050 acre-ft per year).

Extremes.--Maximum discharge during year, 1,190 cfs July 26 (gage height, 5.88 ft), from rating curve extended above 84 cfs as explained below; minimum determined, 2.1 cfs Oct. 30, may have been less during periods of ice effect.

1927-68: Maximum discharge, 12,600 cfs June 17, 1965 (gage height, 15.25 ft), from rating curve extended above 400 cfs on basis of slope-area measurement of peak flow; no flow at times.

A major flood occurred Aug. 2, 1921, when discharge probably exceeded 10,000 cfs.

Remarks.--Records good except those for December to February, which are poor. Diversions for irrigation of small acreage and mountain meadows above station. Records of chemical analyses and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	4.1	8.6	4.0	16	10	10	15	77	11	57	16
2	13	4.9	6.0	4.5	20	10	9.6	15	75	14	50	13
3	12	4.1	5.5	4.5	13	9.6	8.2	16	71	15	48	11
4	12	4.4	7.3	4.0	13	10	6.8	25	71	18	27	13
5	12	5.2	7.8	4.0	15	8.6	7.8	37	69	17	24	11
6	11	6.4	7.3	4.0	15	9.6	8.2	43	69	18	26	9.6
7	10	6.8	6.8	3.5	15	9.6	7.8	47	67	20	25	9.6
8	11	8.2	5.5	4.5	12	9.1	7.8	41	66	20	71	10
9	10	8.6	4.5	5.2	13	8.6	7.3	41	64	16	58	10
10	10	9.1	3.8	4.4	14	9.1	4.7	48	56	17	54	9.1
11	11	8.6	4.1	4.1	13	8.2	3.3	59	51	15	56	9.1
12	9.6	9.1	4.1	4.5	11	9.1	3.8	61	43	32	99	8.2
13	9.1	8.6	4.1	5.0	8.0	10	4.4	66	37	47	90	7.8
14	9.6	8.6	4.1	5.2	8.6	13	5.2	59	33	15	62	6.8
15	8.2	8.6	4.4	4.7	11	11	6.4	50	28	17	48	5.5
16	8.2	8.6	4.7	4.9	12	9.1	6.4	44	37	11	37	5.2
17	6.4	9.1	3.8	5.2	10	9.6	7.3	53	45	11	36	6.0
18	4.9	9.1	4.1	5.5	10	8.6	7.3	64	26	45	29	5.5
19	4.7	9.1	4.4	7.3	13	8.2	8.2	66	28	41	24	5.2
20	4.1	9.1	4.5	6.8	12	9.1	8.2	67	22	16	22	4.9
21	4.1	8.6	4.0	7.3	13	8.6	7.3	67	22	15	22	4.1
22	3.8	9.1	3.5	8.6	11	8.6	11	71	22	14	20	3.5
23	4.4	9.1	3.5	9.6	10	8.6	11	77	25	11	16	6.0
24	4.4	7.3	4.0	9.1	9.6	8.6	7.8	82	25	33	15	6.4
25	4.4	8.2	4.5	11	8.6	9.1	6.8	75	20	44	15	5.2
26	4.9	7.3	4.5	13	8.2	9.6	7.8	73	20	198	14	4.1
27	4.4	6.0	4.5	13	9.1	9.6	9.6	73	16	130	14	4.7
28	4.1	6.8	4.5	12	11	10	14	71	14	80	15	5.5
29	4.1	6.4	4.9	12	9.1	9.1	16	75	12	70	12	5.2
30	3.5	7.8	4.5	12	------	9.1	13	77	11	80	15	6.8
31	4.1	------	3.5	13	------	9.6	------	78	------	65	97	------
TOTAL	236.0	226.9	151.3	216.4	344.2	290.6	243.0	1736	1222	1156	1198	228.0
MEAN	7.61	7.56	4.88	6.98	11.9	9.37	8.10	56.0	40.7	37.3	38.6	7.60
MAX	13	9.1	8.6	13	20	13	16	82	77	198	99	16
MIN	3.5	4.1	3.5	3.5	8.0	8.2	3.3	15	11	11	12	3.5
AC-FT	468	450	300	429	683	576	482	3440	2420	2290	2380	452

CAL YR 1967: TOTAL 4,421.19 MEAN 12.1 MAX 164 MIN .66 AC-FT 8,770
WTR YR 1968: TOTAL 7,248.4 MEAN 19.8 MAX 198 MIN 3.3 AC-FT 14,380

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-26	1930	5.88	1,190

7-2040. Moreno Creek at Eagle Nest, N. Mex.

Location.--Lat 36°33'12", long 105°16'03", in Maxwell Grant, on left upstream wingwall of a multi-culvert structure under U.S. Highway 64, 200 ft west of intersection of highways U.S. 64 and State 38, about 800 ft upstream from high-water line of Eagle Nest Reservoir and 1,000 ft west of Eagle Nest, Colfax County.

Drainage area.--73.8 sq mi.

Records available.--April 1928 to October 1955, June 1964 to September 1968. No winter records except 1932. Prior to October 1930 monthly discharge only, published in WSP 1311. Records for December 1930 to March 1931 published in WSP 732, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder and concrete control at present site since Oct. 3, 1952. Datum of gage is 8,195.98 ft above mean sea level, datum of 1929, supplementary adjustment of 1957. Prior to May 9, 1928, staff gage at nearby site downstream from culvert at different datum. May 9, 1928 to June 9, 1952, water-stage recorder about 75 to 100 ft downstream at different datums within 1.3 ft of present datum. June 9 to Oct. 2, 1952, temporary staff gage about 300 ft upstream at different datum. Oct. 2, 1952 to Oct. 25, 1955, water-stage recorder at present site at datum 0.27 ft lower.

Extremes.--Maximum discharge during year, 37 cfs May 9 (gage height, 2.50 ft); minimum determined, 0.40 cfs Oct. 30.

1928-55, 1964-68: Maximum discharge, 240 cfs Sept. 1, 1946; maximum gage height recorded, 3.16 ft Aug. 19, 1940, site and datum then in use; no flow at times.

Remarks.--Records fair except those for November and March, which are poor. Diversions for irrigation of about 1,200 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.91	1.9				2.2	13	8.2	12	1.2	1.8	3.1
2	.91	1.7				2.3	13	6.9	12	1.4	1.7	2.4
3	.91	1.0				2.5	11	10	12	2.5	2.4	2.2
4	1.0	1.1				2.2	10	20	9.3	2.1	2.1	2.2
5	1.3	1.4				2.3	9.3	20	7.9	1.8	1.4	2.1
6	1.2	1.4				2.4	10	26	6.6	1.7	1.1	1.9
7	1.0	1.0				2.7	8.9	21	5.8	1.8	1.1	2.1
8	1.0	1.0				2.5	7.2	20	5.2	2.7	1.1	1.8
9	1.0	-				2.7	6.9	24	4.5	2.1	1.2	1.7
10	1.0	-				2.5	6.9	32	3.8	1.7	2.7	1.7
11	1.0	-				1.6	7.9	26	3.6	1.8	4.5	1.8
12	.74	-				2.0	9.3	28	3.2	1.7	6.2	1.8
13	.66	-				2.3	10	27	3.0	1.6	5.0	1.6
14	.59	-				2.6	8.9	22	2.7	1.6	4.7	1.4
15	.66	-				3.0	8.6	21	2.5	1.1	4.5	1.2
16	.66	-				3.0	10	21	2.4	.74	3.6	1.2
17	.59	-				3.2	8.9	21	2.4	.66	3.1	1.2
18	.66	-				3.5	8.6	22	2.2	.66	2.5	1.2
19	.66	-				3.2	8.6	21	2.2	.66	1.9	1.1
20	.66	-				3.0	6.9	22	2.1	.59	1.9	1.0
21	.74	-				2.8	8.2	21	1.9	.52	2.1	.91
22	.74	-				2.8	8.2	20	2.1	.52	2.1	.91
23	.74	-				3.0	7.9	21	1.9	.52	1.8	.82
24	.74	-				3.5	7.2	22	1.8	1.4	1.7	.91
25	.66	-				4.0	7.9	21	1.6	1.0	1.4	.82
26	.74	-				4.5	7.6	18	1.6	.82	1.3	.82
27	.66	-				6.0	7.2	16	1.8	1.0	1.7	.91
28	.74	-				8.0	8.2	14	1.8	1.6	3.1	.91
29	.91	-				10	7.6	13	1.6	1.2	2.9	1.1
30	.82	-			------	11	7.9	14	1.3	1.0	5.0	1.3
31	1.4	------			------	12	------	12	------	1.1	3.6	------
TOTAL	26.00	-	-	-	-	119.3	261.8	611.1	122.8	40.79	81.2	44.11
MEAN	.839	-	-	-	-	3.85	8.73	19.7	4.09	1.32	2.62	1.47
MAX	1.4	-	-	-	-	12	13	32	12	2.7	6.2	3.1
MIN	.59	-	-	-	-	1.6	6.9	6.9	1.3	.52	1.1	.82
AC-FT	52	-	-	-	-	237	519	1,210	244	81	161	87

CAL YR 1967:	TOTAL	MEAN	MAX	MIN	AC-FT
WTR YR 1968:	TOTAL	MEAN	MAX	MIN	AC-FT

Peak discharge (base, 50 cfs).--No peak above base.

7-2045. Cieneguilla Creek near Eagle Nest, N. Mex.

Location (revised).--Lat 36°29'05", long 105°15'55", in Maxwell Grant, on right bank a quarter of a mile downstream from Schoolhouse Draw, half a mile east of U. S. Highway 64, about 2,500 ft upstream from high-water line of Eagle Nest Reservoir, and 5 miles south of Eagle Nest, Colfax County.

Drainage area.--56 sq mi.

Records available.--April 1928 to September 1955, June 1964 to September 1968. No winter records except in water years 1932, 1948, 1951. Monthly discharge only for some periods, published in WSP 1311. Published as "near Therma" 1928-34.

Gage.--Water-stage recorder and concrete control. Datum of gage is 8,196 ft above mean sea level, datum of 1929. Prior to May 8, 1928, staff gage a quarter of a mile downstream at different datum. May 8, 1928 to Sept. 15, 1934, water-stage recorder a quarter of a mile downstream at different datum.

Extremes.--Maximum discharge during year, 62 cfs May 1 (gage height, 3.81 ft); maximum gage height, 4.19 ft Mar. 25, backwater (probably from ice); minimum discharge determined, 0.05 cfs June 29.
1928-55, 1964-68: Maximum discharge, 505 cfs June 16, 1965 (gage height, 5.61 ft), from rating curve extended above 81 cfs by logarithmic plotting; no flow at times.

Remarks.--Records good except those for November and March, which are poor. Diversions for irrigation of about 1,000 acres above station. Gage bypassed by ditch on right bank which enters creek about 300 ft downstream; ditch flow not included in record.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.7	2.4			-	26	37	6.1	0.85	3.9	6.6
2	2.0	2.4	2.0			-	18	35	6.2	1.2	2.2	4.2
3	1.8	1.8	2.5			-	15	36	6.1	2.1	1.3	3.1
4	1.8	2.5	2.6			-	14	42	6.4	1.6	1.9	3.0
5	1.8	2.0	2.8			-	13	49	5.3	1.5	2.6	2.3
6	1.7	2.1	-			-	13	52	4.5	1.7	1.4	1.9
7	1.5	2.0	-			-	13	36	4.2	1.6	.95	1.6
8	1.5	1.8	-			-	14	32	3.9	1.7	.74	1.4
9	1.5	1.7	-			-	14	32	3.6	1.8	.99	1.1
10	1.5	1.9	-			-	15	46	3.6	1.8	2.8	1.1
11	1.5	1.8	-			-	17	44	3.0	1.5	5.3	1.1
12	1.4	1.8	-			-	20	37	2.1	1.4	5.3	1.5
13	1.3	2.0	-			3.8	22	35	1.7	1.5	4.7	1.3
14	1.4	2.0	-			4.2	22	29	1.4	3.7	4.7	.99
15	1.4	1.9	-			4.4	22	26	1.1	3.3	3.4	.85
16	1.5	1.9	-			4.5	25	23	.88	1.1	2.4	.77
17	1.5	2.1	-			4.7	23	22	.74	.52	1.8	1.1
18	1.5	2.1	-			4.5	25	20	.95	.43	1.3	1.1
19	1.4	2.1	-			4.8	27	18	1.2	.39	.92	.99
20	1.4	2.1	-			5.1	22	17	1.1	.33	.74	.92
21	1.4	2.2	-			5.0	22	16	.92	.22	.74	.85
22	1.4	2.3	-			5.0	22	14	.67	.16	.67	.81
23	1.4	2.7	-			6.2	18	12	.46	.14	.59	.85
24	1.4	1.8	-			7.5	17	11	.30	.30	.49	.85
25	1.4	2.1	-			8.5	18	10	.18	.85	.59	.81
26	1.4	2.1	-			10	19	9.7	.14	.74	.55	.81
27	1.4	1.8	-			11	19	8.9	.11	.74	.70	.88
28	1.4	2.2	-			14	18	8.2	.07	.92	2.8	.95
29	1.6	2.6	-			17	18	8.0	.62	1.8	4.2	.99
30	1.7	2.2	-		------	20	26	7.0	.77	1.4	9.1	1.3
31	2.3	------	-		------	26	------	6.2	------	2.1	6.4	------
TOTAL	48.4	62.7	-	-	-	-	577	779.0	68.31	39.39	76.17	46.02
MEAN	1.56	2.09	-	-	-	-	19.2	25.1	2.28	1.27	2.46	1.53
MAX	2.3	2.7	-	-	-	-	27	52	6.4	3.7	9.1	6.6
MIN	1.3	1.7	-	-	-	-	13	6.2	.07	.14	.49	.77
AC-FT	96	124	-	-	-	-	1,140	1,550	135	78	151	91

CAL YR 1967:	TOTAL	MEAN	MAX	MIN	AC-FT
WTR YR 1968:	TOTAL	MEAN	MAX	MIN	AC-FT

Peak discharge (base, 70 cfs).--No peak above base.

7-2050. Sixmile Creek near Eagle Nest, N. Mex.

Location.--Lat 36°31'09", long 105°16'30", in Maxwell Grant, on left upstream wingwall of concrete control, 250 ft downstream from concrete box culvert on U. S. Highway 64, and 2½ miles southwest of Eagle Nest, Colfax County.

Drainage area.--10.5 sq mi.

Records available.--April 1928 to September 1955, July 1958 to September 1968. No winter records 1928-31, 1933-55. Prior to October 1930 monthly discharge only, published in WSP 1311. Records for December 1930 to March 1931 have been found to be unreliable and should not be used. Published as Sixmile Creek near Therma prior to October 1934 and as Six Mile Creek near Eagle Nest October 1937 to September 1966.

Gage.--Water-stage recorder. Concrete control Sept. 11, 1931 to May 1933, and since Sept. 13, 1934. Datum of gage is 8,195.16 ft above mean sea level, datum of 1929. Prior to May 18, 1928, staff gage 88 ft upstream at datum 0.98 ft higher. May 18, 1928 to Sept. 11, 1938, water-stage recorder at site 88 ft upstream at datum 0.43 ft higher.

Average discharge.--11 years (1931-32, 1958-68), 2.33 cfs (1,690 acre-ft per year).

Extremes.--Maximum discharge during year, 20 cfs May 6 (gage height, 1.49 ft); maximum gage height, 3.09 ft Dec. 22, backwater from ice; no flow Dec. 7 and possibly on a few other days during winter period.
1930-55, 1958-68: Maximum discharge not determined, occurred Apr. 11, 1937 (discharge probably exceeded 125 cfs); maximum gage height recorded, 3.38 ft Apr. 2, 1937 (ice jam), site and datum then in use; no flow at times.

Remarks.--Records good except those for December and January, which are poor. Diversions for irrigation of about 300 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.90	0.91	0.68	0.60	1.0	1.3	3.4	5.6	6.1	2.3	1.6	3.1
2	.90	.68	.40	.50	.90	1.4	2.8	6.3	5.6	2.6	1.5	2.7
3	.84	.38	.20	.40	.96	1.4	2.7	8.0	4.9	3.4	1.4	2.7
4	.90	.75	.61	.30	.90	1.4	2.7	10	4.9	3.2	1.4	2.7
5	.96	.68	.55	.50	.84	1.4	2.5	14	4.6	2.7	1.4	2.6
6	.78	.61	.49	.50	.72	1.5	2.6	19	4.4	2.7	1.4	2.6
7	.78	.43	.42	.50	.62	1.4	2.3	18	4.6	2.8	1.7	2.6
8	.78	.43	.40	.50	.54	1.3	2.3	15	4.2	3.1	1.8	2.5
9	.72	.55	.40	.50	.58	1.3	2.3	15	3.6	2.5	2.5	2.4
10	.72	.55	.40	.50	.62	1.1	2.3	17	3.0	2.4	3.6	2.4
11	.72	.55	.50	.40	.42	1.1	3.0	16	2.7	2.3	4.0	2.3
12	.72	.55	.40	.30	.62	1.0	3.6	15	2.4	2.2	3.6	2.2
13	.72	.61	.40	.40	.67	1.2	4.0	16	2.4	1.8	3.4	2.2
14	.78	.68	.30	.50	.72	1.5	5.0	13	2.4	1.4	3.6	2.2
15	.84	.61	.30	.60	.72	1.5	5.5	12	2.3	1.2	3.2	1.9
16	.90	.61	.40	.60	.62	1.5	5.8	11	2.3	.84	2.8	2.0
17	.84	.68	.30	.60	.72	1.4	6.3	12	2.3	.78	2.6	2.0
18	.78	.61	.30	.60	.78	1.4	6.3	11	2.3	.72	2.6	1.9
19	.72	.61	.30	.30	.78	1.4	7.3	11	2.3	.84	2.4	1.9
20	.72	.68	.40	.40	.96	1.4	7.1	11	2.3	.84	2.4	1.9
21	.72	.68	.50	.80	1.1	1.4	6.7	11	2.3	.72	2.4	1.8
22	.72	.60	.40	.80	1.0	1.4	6.7	10	2.3	.72	2.4	1.8
23	.58	.50	.30	.96	.58	1.2	5.8	12	2.2	.72	2.3	1.8
24	.54	.50	.40	.96	.78	2.0	4.0	11	2.0	1.0	2.3	1.9
25	.61	.68	.40	.96	1.1	2.0	4.4	11	1.9	1.2	2.5	2.0
26	.61	.61	.40	.90	1.1	2.2	4.2	9.3	1.8	1.3	2.7	1.9
27	.61	.40	.40	.96	1.4	2.3	4.6	8.2	1.6	1.6	2.7	1.9
28	.61	.50	.60	1.1	1.1	2.6	5.1	7.8	1.9	1.1	3.4	1.9
29	.61	.61	.70	1.0	1.0	2.6	4.6	7.8	2.3	1.3	5.1	1.9
30	.61	.49	.60	.96	------	2.7	4.7	6.3	2.3	1.1	4.2	2.0
31	1.0	------	.50	1.1	------	3.1	------	6.1	------	1.6	3.4	------
TOTAL	23.24	17.73	13.35	20.00	23.85	50.4	130.6	356.4	90.2	52.98	82.3	65.7
MEAN	.750	.591	.431	.645	.822	1.63	4.35	11.5	3.01	1.71	2.65	2.19
MAX	1.0	.91	.70	1.1	1.4	3.1	7.3	19	6.1	3.4	5.1	3.1
MIN	.54	.38	.20	.30	.42	1.0	2.3	5.6	1.6	.72	1.4	1.8
AC-FT	46	35	26	40	47	100	259	707	179	105	163	130

CAL YR 1967: TOTAL 477.73 MEAN 1.31 MAX 6.9 MIN .20 AC-FT 948
WTR YR 1968: TOTAL 926.75 MEAN 2.53 MAX 19 MIN .20 AC-FT 1,840

PEAK DISCHARGE (BASE, 15 CFS)

DATE	TIME	G.HT.	DISCHARGE
5- 6	0120	1.49	20
5- 9	2100	1.47	19
8-29	1500	1.41	18

7-2055. Eagle Nest Reservoir near Eagle Nest, N. Mex.

Location.--Lat 36°32'05", long 105°14'00", in Maxwell Grant, at upstream face of Eagle Nest Dam on Cimarron Creek, 2 miles southeast of Eagle Nest, Colfax County, and 6¾ miles west of Ute Park.

Drainage area.--167 sq mi.

Records available.--December 1927 to December 1944 (month-end contents only, published in WSP 1311), May 1950 to September 1968.

Gage.--Wire-weight gage since May 1950 read 1 to 6 times a month (at random intervals). Datum of gage is 8,056.8 ft above mean sea level, datum of 1929, leveling of 1965. Prior to 1950, nonrecording gage (type unknown) at same site and datum. Prior to October 1964 gage heights were raised by addition of 8,000 ft and called elevations.

Extremes.--Maximum contents observed during year, 20,340 acre-ft May 27 (gage height, 102.60 ft); minimum observed, 14,620 acre-ft Nov. 14, 21 (gage height, 96.15 ft).
1927-44, 1950-68: Maximum contents observed, 78,800 acre-ft May 31, 1942 (gage height, 136.9 ft); minimum observed, 635 acre-ft Dec. 14, 1954 (gage height, 61.33 ft).

Remarks.--Reservoir is formed by concrete dam with spillway cut in natural rock, completed June 30, 1918; storage began in June 1917. Capacity, 79,120 acre-ft between gage heights 35.0 (sill of outlet gate) and 137.0 ft (crest of ungated spillway). Dead storage negligible. Records given herein represent usable contents and are based on 40 to 50 observations per year made at irregular intervals. Water released is used for irrigation. Lake is recreational area. Diversions for irrigation of about 2,500 acres above reservoir.

Cooperation.--Supplemental gage readings furnished by employee of Springer Land and Cattle Co. and by Cimarron Creek watermaster.

Capacity table, water year 1967-68
(gage-height, in feet, and contents, in acre-feet)

96.0	14,500	102.0	19,740
98.0	16,110	104.0	21,770
100.0	17,850	106.0	23,970

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	16,880	-	-	19,160	-	-
3	15,830	-	-	-	-	-	16,920	18,040	-	-	-	18,040
4	15,790	-	-	-	-	-	-	-	20,240	-	-	18,180
5	-	-	14,730	-	-	15,790	-	-	20,320	-	-	-
6	-	-	-	-	15,430	-	-	-	-	-	18,180	-
7	-	14,660	-	-	-	-	-	18,500	-	-	-	-
8	-	14,690	-	-	-	-	-	-	-	-	-	-
9	-	-	-	14,980	-	-	17,230	-	-	18,870	-	-
10	15,740	-	-	-	-	-	-	-	-	-	-	18,180
11	-	-	-	-	-	-	-	-	20,140	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-		-	-	-	-	-	-	18,270	-
14	-	14,620	-	-	-	-	-	19,550	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	17,450	-	-	18,500	-	-
17	15,580	-	-	-	-	-	-	-	-	-	-	17,680
18	-	-	-	-	-	-	-	-	19,940	-	-	-
19	-	-	-	-	-	16,160	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	18,270	-
21	-	14,620	-	-	-	-	-	20,240	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	17,500	-	-	18,080	-	-
24	15,090	-	-	-	-	-	-	-	-	-	-	16,240
25	-	-	-	-	-	-	-	-	19,350	-	-	-
26	-	-	-	-	-	16,410	-	-	-	-	-	-
27	-	-	-	-	-	-	-	20,340	19,660	-	18,080	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	15,700	-	-	-	-	-	-	-
30	-	14,700	-	-	------	-	17,770	-	19,300	17,990	-	15,600
31	14,900	------	14,900	15,300	------	16,800	------	20,300	------	17,990	18,060	------
(†)	96.50	-	-	-	-	-	99.90	-	-	100.15	-	-
(‡)	-900	-200	+200	+400	+400	+1,100	+970	+2,530	-1,000	-1,310	+70	-2,460

CAL YR 1967..... ‡ -6,200
WTR YR 1968..... ‡ -200

† Gage height, in feet, at end of month.
‡ Change in contents, in acre-feet.
Note.--Contents interpolated Nov. 30, Dec. 31, Jan. 31, Feb. 29, Mar. 31, May 31, June 30, Aug. 31, Sept. 30.

7-2060. Cimarron River below Eagle Nest Dam, N. Mex.

Location.--Lat 36°32'05", long 105°13'55", about sec.26, T.27 N., R.16 E. (projected), in Maxwell Grant, on left bank 300 ft downstream from Eagle Nest Dam, 2 miles southeast of Eagle Nest, and 6¼ miles west of Ute Park.

Drainage area.--167 sq mi.

Records available.--May 1950 to September 1968. Published as Cimarron Creek below Eagle Nest Dam October 1952 to September 1966.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 8,000 ft (from topographic map). Prior to May 15, 1951, at datum 0.81 ft higher. Oct. 1, 1964 to Sept. 19, 1966, digital water-stage recorder at present site and datum.

Average discharge.--18 years, 13.5 cfs (9,770 acre-ft per year).

Extremes.--Maximum discharge during year, 148 cfs Sept. 27 (gage height, 2.32 ft); no flow for several days. 1950-68: Maximum discharge, 205 cfs June 14, 1955 (gage height, 2.79 ft); no flow many days most years.

Remarks.--Records good except those for winter period and those below 2 cfs, which are poor. Flow regulated by Eagle Nest Reservoir (see station 7-2055). Diversions for irrigation of about 2,500 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	22	0.17	0.07	0.06	0.05	0.17	8.1	25	46	0.05	0.05
2	5.2	22	.26	.07	.06	.05	2.1	28	25	48	.05	.05
3	5.2	22	.50	.07	.06	.05	1.8	28	25	48	.05	.05
4	5.2	22	.26	.07	.06	.05	1.8	21	25	48	.05	.05
5	5.2	22	.26	.07	.06	.05	1.8	.10	25	48	.05	.10
6	5.2	17	.10	.07	.06	.05	9.9	.03	24	47	2.2	.10
7	5.2	9.9	.07	.07	.06	.05	13	0	24	44	3.8	.10
8	5.2	5.5	.07	.07	.06	.05	12	0	24	36	3.8	.10
9	10	5.5	.07	.07	.06	.05	13	.01	24	23	3.8	2.2
10	15	5.5	.07	.07	.06	.05	14	.02	24	26	4.1	12
11	16	5.1	.07	.07	.06	.05	14	0	19	28	4.5	17
12	16	5.1	.07	.07	.06	.05	14	0	16	28	4.1	19
13	16	5.1	.07	.07	.06	.05	19	0	16	28	4.1	20
14	19	5.1	.07	.07	.06	.10	34	4.6	16	28	4.1	20
15	23	5.1	.07	.07	.06	.10	33	7.3	16	28	4.1	19
16	23	4.8	.07	.07	.06	.10	32	7.3	16	28	4.5	67
17	23	4.8	.07	.07	.06	.10	32	7.0	16	32	4.8	123
18	26	4.8	.07	.07	.06	.10	32	7.0	12	38	4.5	121
19	28	4.8	.07	.07	.06	.10	31	7.0	10	33	4.5	121
20	28	4.8	.07	.07	.06	.10	9.1	7.7	10	26	10	123
21	28	4.8	.07	.07	.05	.10	19	13	10	28	13	123
22	28	3.3	.07	.07	.05	.10	20	12	10	28	14	123
23	26	.26	.07	.07	.05	.17	15	12	12	24	14	124
24	22	.17	.07	.07	.05	.17	15	14	16	24	13	124
25	17	.17	.07	.07	.05	.17	15	16	16	23	19	122
26	16	.17	.07	.07	.05	.10	14	20	16	14	24	122
27	15	.17	.07	.07	.05	.10	14	25	21	8.8	24	52
28	14	.17	.07	.07	.05	.10	5.7	25	27	8.4	24	32
29	17	.17	.07	.07	.05	.10	.10	25	27	3.8	18	27
30	22	.17	.07	.07	------	.10	0	25	37	.10	16	26
31	22	------	.07	.07	------	.10	------	25	------	.10	6.0	------
TOTAL	511.6	212.45	3.30	2.17	1.65	2.66	437.47	345.16	584	873.20	252.15	1539.80
MEAN	16.5	7.08	.106	.070	.057	.086	14.6	11.1	19.5	28.2	8.13	51.3
MAX	28	22	.50	.07	.06	.17	34	28	37	48	24	124
MIN	5.2	.17	.07	.07	.05	.05	0	0	10	.10	.05	.05
AC-FT	1010	421	6.5	4.3	3.3	5.3	868	685	1160	1730	500	3050

CAL YR 1967: TOTAL 5,620.31 MEAN 15.4 MAX 94 MIN .04 AC-FT 11,150
WTR YR 1968: TOTAL 4,765.61 MEAN 13.0 MAX 124 MIN 0 AC-FT 9,450

Note.--No gage-height record Nov. 21 to Mar. 3.

7-2062. McEvoy Creek near Eagle Nest, N. Mex.

Location.--Lat 36°33'00", long 105°13'30", in Maxwell Grant, on left bank 1.4 miles north of Eagle Nest Dam, and 2 miles east of Eagle Nest, Colfax County.

Drainage area.--1.95 sq mi.

Records available.--September 1961 to September 1968 (discontinued).

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 8,600 ft (from topographic map). May 7, 1963 to Sept. 7, 1966, digital water-stage recorder at present site and datum.

Average discharge.--7 years, 0.204 cfs (148 acre-ft per year).

Extremes.--Maximum discharge during year, 1.01 cfs May 24, Aug. 12 (gage height, 0.67 ft); minimum, 0.053 cfs Nov. 27, result of freezeup.
1961-68: Maximum discharge, 1.64 cfs May 21, 1965 (gage height, 0.82 ft); minimum, 0.003 cfs Nov. 3, 1962, result of freezeup.

Remarks.--Records good prior to June 30, fair thereafter.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.14	0.18	0.14	0.15	0.15	0.16	0.30	0.33	0.71	0.14	0.23	0.23
2	.14	.14	.11	.15	.15	.16	.25	.33	.68	.19	.20	.22
3	.14	.11	.074	.15	.16	.16	.25	.37	.66	.19	.20	.22
4	.14	.15	.067	.15	.16	.16	.25	.39	.63	.16	.20	.20
5	.14	.16	.067	.15	.16	.16	.23	.46	.58	.16	.19	.20
6	.14	.16	.082	.15	.16	.16	.26	.48	.55	.16	.19	.20
7	.14	.14	.074	.15	.16	.16	.23	.52	.50	.16	.18	.19
8	.14	.13	.074	.15	.15	.16	.23	.55	.48	.15	.29	.19
9	.14	.13	.082	.15	.15	.16	.26	.58	.43	.15	.26	.19
10	.14	.16	.082	.16	.15	.15	.25	.60	.41	.14	.48	.19
11	.14	.16	.074	.15	.16	.16	.28	.63	.37	.14	.66	.19
12	.14	.16	.074	.15	.16	.16	.30	.63	.35	.14	.87	.19
13	.14	.16	.082	.16	.15	.16	.31	.66	.31	.13	.90	.19
14	.14	.16	.090	.16	.15	.16	.33	.68	.30	.14	.90	.18
15	.14	.16	.090	.16	.15	.18	.35	.71	.28	.13	.84	.18
16	.14	.16	.11	.16	.15	.18	.37	.77	.26	.12	.68	.18
17	.15	.16	.12	.15	.15	.18	.35	.80	.25	.11	.60	.19
18	.15	.15	.12	.14	.15	.18	.35	.80	.23	.13	.52	.19
19	.15	.16	.12	.14	.15	.18	.35	.77	.23	.15	.46	.18
20	.15	.16	.13	.14	.15	.19	.35	.74	.22	.13	.41	.18
21	.15	.16	.13	.14	.14	.19	.35	.74	.20	.13	.37	.18
22	.15	.16	.13	.14	.14	.19	.35	.80	.20	.12	.33	.18
23	.15	.14	.13	.14	.14	.20	.29	.90	.19	.11	.30	.18
24	.15	.11	.13	.14	.15	.22	.31	.97	.18	.13	.28	.18
25	.15	.13	.13	.14	.15	.22	.35	.97	.18	.16	.26	.18
26	.15	.15	.14	.14	.15	.23	.33	.94	.18	.17	.25	.18
27	.14	.097	.15	.14	.15	.25	.31	.90	.16	.16	.25	.18
28	.15	.14	.15	.14	.15	.28	.31	.87	.15	.15	.26	.18
29	.14	.13	.15	.15	.15	.30	.30	.84	.14	.23	.26	.19
30	.11	.13	.15	.15	------	.31	.31	.80	.14	.19	.26	.19
31	.18	------	.15	.15	------	.33	------	.77	------	.25	.25	------
TOTAL	4.46	4.397	3.402	4.59	4.39	6.04	9.06	21.30	10.15	4.72	12.33	5.70
MEAN	.144	.147	.110	.148	.151	.195	.302	.687	.338	.152	.398	.190
MAX	.18	.18	.15	.16	.16	.33	.37	.97	.71	.25	.90	.23
MIN	.11	.097	.067	.14	.14	.15	.23	.33	.14	.11	.18	.18
AC-FT	8.85	8.72	6.75	9.10	8.71	12.0	18.0	42.2	20.1	9.36	24.5	11.3

CAL YR 1967: TOTAL 52.045 MEAN .143 MAX .43 MIN .047 AC-FT 103
WTR YR 1968: TOTAL 90.539 MEAN .247 MAX .97 MIN .067 AC-FT 180

PEAK DISCHARGE (BASE, 0.60 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-24	2400	0.67	1.01
7-29	1730	.56	.63
8- 8	1415	.66	.94
8-12	1415	.67	1.01

7-2063. Tolby Creek near Eagle Nest, N. Mex.

Location.--Lat 36°31'20", long 105°13'30", in Maxwell Grant, on right bank, 1 mile upstream from mouth and 2.5 miles southeast of Eagle Nest, Colfax County.

Drainage area.--8.5 sq mi.

Records available.--October 1961 to September 1968 (discontinued).

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 8,400 ft (from topographic map). June 14, 1963 to Sept. 8, 1965, digital water-stage recorder at same site and datum.

Average discharge.--7 years, 1.667 cfs (1,210 acre-ft per year).

Extremes.--Maximum discharge during year, 11.5 cfs May 5 (gage height, 1.42 ft); minimum, 0.15 cfs Nov. 7, result of freezeup.
1961-68: Maximum discharge, 32.9 cfs Apr. 20, 1962 (gage height, 2.04 ft); minimum, 0.15 cfs Dec. 5, 1962, Nov. 27, 1966, Nov. 7, 1967, result of freezeup.

Remarks.--Records fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.74	0.64	0.70	0.70	0.62	0.66	2.03	6.56	3.73	0.62	1.55	1.26
2	.74	.62	.59	.70	.62	.70	1.81	6.71	3.52	.96	1.10	1.00
3	.70	.60	.59	.66	.62	.70	1.74	8.01	3.32	1.10	.96	.96
4	.70	.60	.66	.66	.62	.70	1.55	9.08	3.03	.91	1.19	.91
5	.74	.60	.62	.66	.62	.70	1.65	10.2	2.76	.82	1.31	.86
6	.70	.60	.66	.66	.62	.70	1.68	10.8	2.58	.82	1.05	.82
7	.66	.61	.59	.66	.62	.70	1.61	9.84	2.41	.86	.96	.78
8	.66	.66	.59	.66	.66	.70	1.55	8.71	2.25	.91	1.20	.74
9	.66	.66	.66	.66	.66	.70	1.55	8.18	2.18	.74	1.20	.74
10	.70	.70	.62	.66	.59	.70	1.76	9.26	2.03	.74	1.62	.70
11	.66	.70	.62	.66	.59	.66	2.18	10.0	1.81	.70	1.81	.70
12	.66	.74	.66	.66	.59	.66	2.85	10.0	1.68	.66	1.90	.66
13	.62	.74	.74	.62	.62	.70	3.52	9.64	1.55	.66	1.81	.62
14	.62	.70	.78	.66	.66	.82	3.95	8.90	1.43	.74	1.68	.59
15	.66	.70	.78	.66	.62	.86	4.65	8.36	1.37	.66	1.43	.59
16	.70	.74	.74	.66	.62	.86	5.42	7.84	1.31	.52	1.20	.56
17	.70	.74	.78	.66	.62	.82	5.29	7.35	1.26	.49	1.15	.62
18	.70	.70	.70	.66	.62	.78	6.41	6.87	1.26	.49	1.05	.62
19	.70	.70	.70	.62	.62	.82	6.41	6.41	1.20	.62	.96	.62
20	.70	.70	.74	.66	.62	.74	5.56	5.98	1.15	.66	.96	.59
21	.70	.66	.70	.66	.66	.74	5.84	5.84	1.05	.56	1.00	.59
22	.66	.70	.70	.66	.70	.70	5.56	5.70	1.05	.59	.96	.56
23	.66	.71	.70	.66	.70	.86	4.78	5.56	1.00	.62	.86	.56
24	.66	.58	.70	.66	.70	1.15	4.65	5.29	.91	1.05	.78	.59
25	.62	.70	.70	.66	.70	1.20	5.03	5.16	.87	1.60	.78	.59
26	.62	.70	.70	.66	.70	1.26	5.03	4.90	.87	1.15	.78	.59
27	.62	.56	.66	.62	.70	1.43	4.90	4.65	.78	1.33	1.05	.56
28	.62	.74	.66	.66	.70	1.55	4.78	4.29	.70	1.26	1.55	.56
29	.62	.74	.70	.66	.66	1.74	4.78	4.06	.66	1.05	1.37	.56
30	.60	.74	.74	.66	------	1.95	5.98	3.84	.62	1.05	1.37	.62
31	.64	------	.70	.62	------	2.10	------	3.73	------	1.49	1.43	------
TOTAL	20.74	20.28	21.18	20.38	18.65	29.36	114.50	221.72	50.34	26.43	38.02	20.72
MEAN	.669	.676	.683	.657	.643	.947	3.817	7.152	1.678	.853	1.226	.691
MAX	.74	.74	.78	.70	.70	2.10	6.41	10.8	3.73	1.60	1.90	1.26
MIN	.60	.56	.59	.62	.59	.66	1.55	3.73	.62	.49	.78	.56
AC-FT	41.1	40.2	42.0	40.4	37.0	58.2	227	440	99.8	52.4	75.4	41.1

CAL YR 1967: TOTAL 331.87 MEAN .909 MAX 2.76 MIN .38 AC-FT 658
WTR YR 1968: TOTAL 602.32 MEAN 1.646 MAX 10.8 MIN .49 AC-FT 1,190

PEAK DISCHARGE (BASE, 9.00 CFS)

DATE	TIME	G.HT.	DISCHARGE
5- 5	2100	1.42	11.5

7-2064. Clear Creek near Ute Park, N. Mex.

Location.--Lat 36°31'35", long 105°10'30", in Maxwell Grant, on right bank a quarter of a mile upstream from mouth, and 4 miles southwest of Ute Park, Colfax County.

Drainage area.- 7.44 sq mi.

Records available.--September 1961 to September 1968 (discontinued).

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 7,860 ft (from topographic map). May 9, 1963 to Sept. 8, 1966, digital water-stage recorder at same site and datum.

Average discharge.--7 years, 2.117 cfs (1,530 acre-ft per year).

Extremes.--Maximum discharge during year, 18.0 cfs June 1 (gage height, 1.66 ft); minimum, 0.16 cfs Nov. 27, result of freezeup.
1961-68: Maximum discharge, 151 cfs June 18, 1965 (gage height, 3.05 ft); minimum, 0.083 cfs Dec. 25-26, 1966.

Remarks.--Records fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.72	0.57	0.37	0.34	0.34	0.37	1.58	2.63	17.7	2.32	5.15	2.25
2	.72	.53	.32	.34	.34	.37	1.45	3.22	17.2	2.48	4.92	2.10
3	.68	.46	.27	.34	.34	.40	1.29	3.98	16.6	2.25	4.69	2.02
4	.68	.49	.37	.34	.34	.37	1.14	4.49	16.1	2.02	4.69	2.02
5	.72	.49	.34	.32	.34	.40	1.03	5.26	15.5	1.83	4.49	1.96
6	.68	.49	.34	.34	.34	.40	1.14	6.49	15.3	1.83	4.38	2.02
7	.68	.43	.32	.34	.34	.40	1.08	6.49	15.3	1.89	4.18	1.89
8	.65	.46	.29	.34	.34	.37	.93	6.10	15.5	1.77	4.08	1.83
9	.65	.49	.34	.34	.34	.37	.98	6.10	15.3	1.83	4.08	1.83
10	.65	.49	.34	.34	.34	.34	1.03	6.49	14.2	1.77	4.18	1.70
11	.65	.46	.37	.34	.34	.37	1.39	6.49	12.7	1.83	4.28	1.70
12	.61	.46	.37	.34	.34	.34	1.96	6.23	11.0	1.58	4.18	1.64
13	.57	.49	.37	.34	.32	.37	2.55	6.36	9.12	1.39	4.08	1.52
14	.57	.49	.40	.34	.32	.40	2.70	6.49	8.02	1.45	4.08	1.39
15	.61	.46	.40	.34	.32	.46	2.78	6.75	7.49	1.34	3.87	1.34
16	.61	.46	.40	.34	.32	.49	2.96	7.14	7.49	1.03	3.67	1.34
17	.61	.46	.40	.34	.32	.49	2.70	7.32	7.49	.88	3.67	1.34
18	.61	.43	.40	.34	.32	.49	2.78	7.01	7.49	1.14	3.67	1.29
19	.57	.43	.40	.34	.32	.46	2.70	6.88	7.01	1.08	3.49	1.19
20	.57	.43	.40	.34	.32	.46	2.40	7.14	6.49	.93	3.40	1.14
21	.57	.43	.40	.34	.32	.43	2.25	8.02	5.84	.80	3.22	1.03
22	.53	.43	.40	.34	.32	.43	2.02	11.4	5.38	.80	3.05	1.03
23	.49	.43	.37	.34	.32	.57	1.83	14.8	4.80	1.23	2.78	1.03
24	.49	.34	.34	.34	.32	.98	1.77	14.5	4.38	1.48	2.55	.98
25	.49	.40	.34	.34	.32	1.03	1.77	13.7	3.98	1.58	2.32	.98
26	.46	.40	.34	.34	.32	1.03	1.77	13.2	3.67	2.00	2.25	.93
27	.46	.32	.34	.37	.34	1.14	1.77	13.2	3.31	3.77	2.10	.88
28	.46	.43	.34	.37	.37	1.29	1.77	13.4	3.05	3.22	2.40	.84
29	.53	.40	.34	.37	.37	1.39	1.77	14.5	2.70	3.31	2.32	.84
30	.49	.40	.34	.34	------	1.52	2.10	15.3	2.55	3.58	2.32	.84
31	.57	------	.34	.34	------	1.64	------	17.2	------	4.38	2.87	------
TOTAL	18.35	13.45	11.10	10.61	9.64	19.57	55.39	268.28	282.66	58.79	111.41	42.89
MEAN	.592	.448	.358	.342	.332	.631	1.846	8.654	9.422	1.896	3.594	1.430
MAX	.72	.57	.40	.37	.37	1.64	2.96	17.2	17.7	4.38	5.15	2.25
MIN	.46	.32	.27	.32	.32	.34	.93	2.63	2.55	.80	2.10	.84
AC-FT	36.4	26.7	22.0	21.0	19.1	38.8	110	532	561	117	221	85.1

CAL YR 1967: TOTAL 380.82 MEAN 1.043 MAX 9.93 MIN .15 AC-FT 755
WTR YR 1968: TOTAL 902.14 MEAN 2.465 MAX 17.7 MIN .27 AC-FT 1,790

PEAK DISCHARGE (BASE, 8.00 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 1	0815	1.66	18.0

7-2070. Cimarron River near Cimarron, N. Mex.

Location.--Lat 36°31'00", long 104°58'35", about sec.6, T.26 N., R.19 E. (projected), in Maxwell Grant, on right bank 3.8 miles west of Cimarron.

Drainage area.--294 sq mi.

Records available.--May 1950 to September 1968. Published as Cimarron Creek near Cimarron October 1952 to September 1966.

Gage.--Water-stage recorder. Concrete control since Nov. 6, 1963. Datum of gage is 6,599.58 ft above mean sea level, datum of 1929.

Average discharge.--18 years, 20.3 cfs (14,700 acre-ft per year).

Extremes.--Maximum discharge during year 309 cfs Aug. 29 (gage height, 2.98 ft); minimum determined, 0.09 cfs Dec. 20 (may have been less during periods of ice effect).
1950-68: Maximum discharge, 15,500 cfs June 17, 1965 (gage height, 12.42 ft, from floodmark), from rating curve extended above 800 cfs on basis of slope-area measurements at gage heights 4.88 and 12.42 ft; no flow Sept. 14 to Oct. 10, 1956, Feb. 18, 1960, Feb. 16, 1966, Feb. 8, 9, 1967.

Remarks.--Records good except those for winter period, which are poor. Flow regulated by Eagle Nest Reservoir (see station 7-2055). Diversions above station for irrigation of about 3,500 acres, part of which is below station. Philmont ditch (formerly known as Cimarroncito dtich) diverts from left bank 1½ miles above station, flumes under creek 3/4 mile above and bypasses station for off-channel storage and irrigation below; see tabulation below for monthly diversion.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	23	3.0	1.4	2.8	2.4	5.7	14	53	37	15	17
2	5.0	23	2.6	1.6	2.4	2.8	6.0	29	52	41	15	13
3	5.2	23	2.5	1.8	3.5	2.6	7.1	39	50	44	13	11
4	5.2	23	2.5	1.8	2.6	3.0	6.5	43	50	45	12	11
5	5.4	23	2.5	1.6	2.6	3.3	6.5	29	48	45	12	9.7
6	5.4	22	2.5	1.4	2.4	3.2	6.3	24	46	46	11	8.9
7	5.8	17	2.4	1.2	2.4	3.1	12	23	46	45	13	8.4
8	5.8	12	2.3	2.1	2.5	3.0	14	23	46	40	16	7.2
9	6.0	10	2.2	2.0	2.5	3.0	15	22	46	27	20	6.9
10	10	9.3	2.2	2.2	2.7	2.7	15	25	45	26	21	7.6
11	13	8.7	2.2	2.6	2.7	2.5	17	26	43	27	29	16
12	14	8.4	2.2	2.3	2.5	3.3	17	25	36	27	29	20
13	14	8.2	1.8	2.0	2.2	3.7	18	25	33	25	26	20
14	15	8.0	1.4	2.4	2.5	3.8	30	26	30	23	22	19
15	18	7.6	1.4	2.5	2.7	3.8	38	28	29	23	21	19
16	20	7.2	1.4	2.3	2.7	3.8	39	29	29	21	20	23
17	20	7.1	1.4	2.3	2.2	4.0	39	30	27	20	18	92
18	21	7.2	1.4	2.3	2.8	3.7	40	30	25	33	17	99
19	24	6.9	1.6	2.3	2.8	3.4	41	29	21	42	16	100
20	25	6.9	1.6	2.3	2.8	3.0	36	29	19	31	15	104
21	25	6.8	1.6	2.5	2.8	3.2	20	31	19	27	20	110
22	26	6.9	1.6	2.5	2.6	3.5	34	34	17	25	20	113
23	26	6.2	1.6	2.6	2.5	3.8	26	37	16	22	20	114
24	23	4.8	2.0	2.8	2.5	3.7	23	41	18	34	19	116
25	22	4.0	2.2	3.0	2.5	4.2	23	43	20	25	19	118
26	19	3.2	2.1	2.8	2.4	4.4	23	43	19	22	25	118
27	17	3.0	1.7	2.6	2.6	4.7	23	48	18	17	27	83
28	16	3.0	1.5	2.8	2.8	4.8	23	49	26	17	29	49
29	17	3.2	1.4	2.5	2.5	4.9	15	49	28	16	47	39
30	21	3.5	1.3	2.1	------	4.9	13	50	31	14	30	38
31	23	------	1.2	2.4	------	5.2	------	53	------	13	31	------
TOTAL	476.6	306.1	59.3	69.0	75.5	111.4	632.1	1,026	986	900	648	1,510.7
MEAN	15.4	10.2	1.91	2.23	2.60	3.59	21.1	33.1	32.9	29.0	20.9	50.4
MAX	26	23	3.0	3.0	3.5	5.2	41	53	53	46	47	118
MIN	3.8	3.0	1.2	1.2	2.2	2.4	5.7	14	16	13	11	6.9
AC-FT	945	607	118	137	150	221.0	1,250	2,040	1,960	1,790	1,290	3,000
(†)	0	0	0	0	0	0	0	0	0	358	0	0

CAL YR 1967: TOTAL 5,968.8 MEAN 16.4 MAX 89 MIN .20 AC-FT 11,840 † 219
WTR YR 1968: TOTAL 6,800.7 MEAN 18.6 MAX 118 MIN 1.2 AC-FT 13,490 † 358

† Diversion, in acre-feet, of Philmont ditch which bypasses station; data furnished by Cimarron Creek Watermaster.

7-2075. Ponil Creek near Cimarron, N. Mex.

Location.--Lat 36°34'35", long 104°56'55", about sec.8, T.27 N., R.19 E.(projected), on left bank 1½ miles downstream from confluence of North and South Ponil Creeks and 5 miles northwest of Cimarron.

Drainage area.--171 sq mi.

Records available.--November 1915 to June 1919, August 1919 to July 1925, September 1925, September 1927 to July 1929, May 1950 to September 1968. Prior to May 1950 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 6,630 ft above mean sea level, datum of 1929. Prior to May 8, 1922, at site about an eighth of a mile downstream at different datum. May 8, 1922 to Aug. 8, 1929, at site about three-eighths of a mile upstream at different datum.

Average discharge.--29 years (1915-25, 1927-28, 1950-68), 12.2 cfs (8,830 acre-ft per year).

Extremes.--Maximum discharge during year, 150 cfs Aug. 13 (gage height, 2.58 ft), from rating curve extended above 53 cfs as explained below; minimum, about 0.50 cfs Jan. 12, result of freezeup.
1915-29, 1950-68: Maximum discharge, 5,630 cfs June 17, 1965 (gage height, 11.13 ft), from rating curve extended above 59 cfs on basis of slope-area measurements at gage heights 4.55, 5.80, 7.15, and 11.13 ft; no flow many days most years.
Flood in September 1948 reached a stage of about 7 ft, from floodmarks (discharge, about 1,900 cfs).

Remarks.--Records good except those for winter periods, which are poor. Diversions for irrigation of 200 to 300 acres above station. Diversions 1,000 ft below station for irrigation of about 300 acres (about 1,200 acres total irrigated from Ponil Creek).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	3.5	2.1	1.0	2.5	2.3	15	27	39	2.1	18	9.8
2	3.5	4.0	1.3	1.0	2.5	2.5	14	31	36	2.3	27	7.0
3	3.5	4.0	2.0	1.0	2.5	3.5	13	37	33	3.8	14	5.8
4	3.5	4.0	2.0	1.0	2.5	3.0	12	44	31	5.8	12	6.4
5	3.8	4.0	2.0	1.0	2.5	3.2	11	49	28	4.3	10	5.8
6	3.8	3.8	2.3	1.0	2.7	3.2	11	55	24	4.3	13	4.6
7	3.2	3.5	2.2	1.0	3.0	3.2	10	53	22	6.9	18	3.8
8	3.2	3.2	2.1	1.0	3.0	2.8	9.8	47	21	7.3	23	3.2
9	3.5	3.8	2.0	1.0	3.5	3.0	10	45	19	4.9	17	3.0
10	3.8	3.2	2.0	1.0	2.8	3.0	10	48	18	4.6	29	3.0
11	4.0	3.2	2.2	.80	3.0	2.5	12	47	16	4.6	71	5.2
12	3.5	3.0	2.1	.70	3.5	3.0	16	50	14	3.8	63	4.9
13	3.0	3.2	2.0	1.0	3.5	3.4	20	53	12	3.8	65	3.8
14	3.0	3.2	2.0	1.5	3.5	3.7	22	52	11	4.6	48	2.8
15	3.0	3.2	2.1	1.5	3.0	4.0	22	50	11	4.9	34	2.3
16	3.5	3.0	2.2	1.5	3.0	4.3	24	48	10	3.2	26	2.1
17	3.5	3.0	2.0	1.5	3.0	4.6	22	48	10	2.3	21	2.3
18	3.2	3.0	1.6	1.5	2.6	4.3	24	45	9.8	3.6	17	2.3
19	3.2	3.2	1.6	1.0	2.5	4.0	22	45	9.4	4.6	14	2.0
20	3.0	3.0	1.8	1.0	2.6	4.3	19	44	8.5	5.8	11	1.6
21	3.0	3.0	1.8	2.0	2.6	4.0	20	44	7.3	4.0	11	1.5
22	3.0	3.0	1.6	1.5	2.8	3.8	19	50	7.3	3.0	9.4	1.5
23	3.0	2.8	1.5	2.0	2.6	4.0	18	58	7.0	3.8	8.1	1.5
24	3.0	2.3	1.5	2.0	2.6	4.6	17	59	5.8	8.1	7.0	1.5
25	3.0	2.6	1.5	2.0	2.3	5.5	19	55	5.2	10	6.1	1.6
26	2.8	2.3	1.5	2.5	2.3	6.4	19	50	5.5	11	5.5	1.6
27	2.8	2.3	1.5	2.5	2.8	7.3	19	45	4.6	8.1	5.8	1.5
28	2.8	2.1	1.5	2.5	3.2	8.5	20	43	3.8	19	6.4	1.5
29	3.5	2.5	2.0	2.3	2.3	10	19	41	3.0	12	7.0	1.6
30	3.8	3.0	1.5	2.5	------	12	23	39	2.6	15	12	2.0
31	3.2	------	1.0	2.5	------	14	------	40	------	11	18	------
TOTAL	102.4	93.9	56.5	46.30	81.2	147.9	511.8	1,442	434.8	192.5	647.3	97.5
MEAN	3.30	3.13	1.82	1.49	2.80	4.77	17.1	46.5	14.5	6.21	20.9	3.25
MAX	4.0	4.0	2.3	2.5	3.5	14	24	59	39	19	71	9.8
MIN	2.8	2.1	1.0	.70	2.3	2.3	9.8	27	2.6	2.1	5.5	1.5
AC-FT	203	186	112	92	161	293	1,020	2,860	862	382	1,280	193

CAL YR 1967: TOTAL 2,038.92 MEAN 5.59 MAX 84 MIN .07 AC-FT 4,040
WTR YR 1968 TOTAL 3,854.1 MEAN 10.5 MAX 71 MIN .70 AC-FT 7,640

Peak discharge (base, 200 cfs).--No peak above base.

7-2085. Rayado Creek at Sauble Ranch, near Cimarron, N. Mex.

Location.--Lat 36°22'20", long 104°58'10", in sec.30, T.25 N., R.19 E. (projected), in Maxwell Grant, on right bank at Sauble Ranch (Philmont Scout Ranch), 2½ miles upstream from State Highway 21, 10 miles southwest of Cimarron and 16 miles upstream from mouth.

Drainage area.--65 sq mi.

Records available.--June to October 1908 (discharge measurements only), January 1909 to January 1910, July and August 1910, May 1911 to May 1913, July 1913 to February 1915, October 1915 to September 1918, March 1919 to September 1920, June 1923 to September 1924, March to May 1927, August 1927 to September 1968. Monthly discharge only for some periods, published in WSP 1311. Records for April and May 1910, as published in WSP 287, are unreliable and should not be used. Published as "at," "near," or "above Abreu's Ranch near Cimarron" prior to October 1925 and as Rayado River at Sauble Ranch, near Cimarron, October 1925 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 6,720 ft (from topographic map). Prior to May 4, 1911, chain or staff gage at site about 2 miles downstream at different datum. May 4, 1911 to Sept. 8, 1925, water-stage recorder about 3 miles upstream at 2 sites within 100 ft at 3 different datums. Sept. 9, 1925 to July 16, 1934, water-stage recorder at site 430 ft upstream at different datum. July 17, 1934 to Sept. 30, 1954, at site 290 ft downstream at datums 1.83 to 2.31 ft lower. Oct. 1, 1954 to June 16, 1965, at site 270 ft downstream at datum 2.79 ft (revised) lower.

Average discharge.--49 years (1911-12, 1913-14, 1915-20, 1923-24, 1927-68), 14.3 cfs (10,350 acre-ft per year).

Extremes.--Maximum discharge during year, 88 cfs July 24 (gage height, 2.24 ft); minimum determined, 0.73 cfs Nov. 27 (may have been less during periods of ice effect).

1909-12, 1913-68: Maximum discharge, 9,000 cfs June 17, 1965 (gage height, 11.5 ft), from rating curve extended above 70 cfs on basis of logarithmic plotting and slope-area measurement of peak flow; minimum, 0.03 cfs Dec. 3, 1950 (may have been lower during periods of freezeup).

The major flood of June 10, 1913, destroyed the gage (stage and discharge not determined). Another major flood probably occurred Sept. 29 or 30, 1904.

Remarks.--Records good except those for winter periods, which are fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	4.7	2.9	3.6	3.4	4.1	22	37	36	6.8	15	9.9
2	4.1	4.7	2.0	3.4	3.5	4.4	20	39	33	7.9	12	7.9
3	3.8	3.8	2.4	3.3	3.7	4.7	18	47	30	9.1	13	7.6
4	3.8	3.4	3.4	3.0	3.8	4.0	16	50	29	8.7	10	7.9
5	3.8	3.6	2.7	3.5	3.5	4.7	15	56	25	7.9	9.5	6.8
6	3.8	3.8	2.7	3.0	3.5	4.7	17	58	23	7.9	10	6.5
7	3.8	3.1	2.4	3.1	3.5	4.7	16	52	21	7.9	14	5.9
8	3.8	3.4	2.7	3.2	3.6	4.4	14	48	21	7.9	15	5.6
9	3.6	3.4	2.5	3.4	3.6	4.4	16	48	21	6.8	11	5.2
10	3.8	3.6	2.5	3.5	3.6	4.5	17	59	19	7.9	16	5.9
11	3.8	3.4	2.9	3.1	3.8	3.5	21	56	18	8.7	20	6.5
12	3.6	3.6	2.7	2.5	4.0	4.0	25	52	16	7.9	21	5.6
13	3.4	3.6	2.7	2.5	4.0	5.0	32	54	15	7.6	24	5.2
14	3.4	3.6	2.7	3.0	4.0	5.0	36	46	13	7.2	21	4.9
15	3.6	3.6	2.9	3.1	3.7	6.0	37	44	12	7.6	17	4.9
16	3.8	3.6	3.0	2.9	4.0	6.0	40	45	12	6.2	14	4.6
17	3.8	3.6	2.8	3.1	4.1	6.3	37	45	12	5.6	14	4.9
18	3.4	3.6	2.6	3.0	3.6	6.0	40	42	11	5.9	12	4.6
19	3.4	3.4	3.2	2.5	3.6	5.6	38	42	12	7.6	9.9	4.6
20	3.1	3.4	3.5	2.5	3.8	5.6	31	40	11	10	9.1	4.4
21	3.1	3.4	3.5	3.1	4.1	5.6	32	40	9.9	11	9.1	4.2
22	3.1	3.6	3.5	3.1	4.4	5.6	29	42	9.9	8.3	8.7	4.2
23	3.1	2.9	3.6	3.1	3.8	6.3	26	47	9.5	16	7.9	3.9
24	3.1	2.4	3.4	3.4	4.1	7.4	23	50	9.1	21	7.2	4.2
25	3.1	2.7	3.4	3.4	4.4	8.2	26	47	8.7	24	7.2	3.9
26	3.1	3.6	3.4	3.4	4.1	8.6	26	42	8.3	16	7.2	3.9
27	3.1	2.1	3.4	3.4	4.7	10	26	40	7.9	17	7.2	4.2
28	3.1	3.8	3.4	3.4	5.0	11	26	39	7.2	22	8.3	3.9
29	3.6	3.4	3.4	3.4	3.8	14	25	38	6.8	24	7.6	3.9
30	3.6	2.7	3.4	3.5	------	18	30	36	6.5	18	11	4.2
31	4.4	------	3.2	3.4	------	20	------	36	------	15	16	------
TOTAL	110.4	103.5	92.8	97.8	112.7	212.3	777	1,417	473.8	345.4	384.9	159.9
MEAN	3.56	3.45	2.99	3.15	3.89	6.85	25.9	45.7	15.8	11.1	12.4	5.33
MAX	4.4	4.7	3.6	3.6	5.0	20	40	59	36	24	24	9.9
MIN	3.1	2.1	2.0	2.5	3.4	3.5	14	36	6.5	5.6	7.2	3.9
AC-FT	219	205	184	194	224	421	1,540	2,810	940	685	763	317

CAL YR 1967: TOTAL 2,044.5 MEAN 5.60 MAX 33 MIN 1.5 AC-FT 4,060
WTR YR 1968: TOTAL 4,287.5 MEAN 11.7 MAX 59 MIN 2.0 AC-FT 8,500

Peak discharge (base, 100 cfs).--No peak above base.

7-2110. Cimarron River at Springer, N. Mex.

Location.--Lat 36°21'30", long 104°35'50", in southeast corner of Maxwell Grant, on left bank at Springer, Colfax County, 270 ft downstream from bridge on State Highway 199, 6 miles downstream from Rayado Creek, and 6 miles upstream from mouth.

Drainage area.--1,032 sq mi.

Records available.--August 1907 to December 1909, January 1921 to February 1922, October 1924 to January 1926, September 1926 to September 1968. Published as Cimarron Creek at Springer October 1952 to September 1966.

Gage.--Water-stage recorder. Concrete control since Nov. 5, 1954. Altitude of gage is 5,770 ft (from nearby level line). July 13, 1907 to Dec. 31, 1909, staff gage and Dec. 20, 1919 to Feb. 8, 1930, chain gages at site 270 ft upstream at various datums to Nov. 19, 1924, and thereafter at datum 3.34 ft higher than present datum. Feb. 9, 1930 to July 12, 1934, water-stage recorder at site 270 ft upstream at datum 3.66 ft higher. July 13, 1934 to Apr. 13, 1942, water-stage recorder at site 30 ft downstream at different datum. May 8 to July 16, 1942, water-stage recorder at site 270 ft upstream at datum 3.33 ft lower. Apr. 25, 1963 to Aug. 17, 1966, digital water-stage recorder at present site and datum.

Average discharge.--44 years (1920-21), 1924-25, 1926-68), 18.3 cfs (13,250 acre-ft per year).

Extremes.--Maximum discharge during year, 208 cfs Aug. 31 (gage height, 4.46 ft); minimum, 0.36 cfs, Feb. 15, result of freezeup.

1930-68: Maximum discharge, 29,500 cfs June 18, 1965 (gage height, 19.96 ft, from floodmarks), from rating curve extended above 1,800 cfs on basis of contracted-opening measurement of peak flow; no flow at times in 1954, 1956-57.

Maximum stage known, about 22 ft Sept. 29, 1904 (backwater from debris on railroad bridge). Another major flood occurred June 11, 1913. Maximum discharges of these floods probably exceeded 10,000 cfs, but probably were less than 1965 flood.

Remarks.--Records good except those for December, January and May which are poor. Flow partly regulated by Eagle Nest Reservoir (see station 7-2055). Diversions for irrigation of about 23,000 acres above station and a few hundred acres between station and mouth.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	5.8	7.3	4.8	6.3	5.3	4.1	9.1	5.3	1.1	9.7	30
2	3.0	5.3	6.3	4.7	5.8	6.3	4.5	8.0	10	1.7	9.1	7.9
3	2.8	5.3	6.3	4.6	5.3	7.9	4.1	7.0	9.7	1.8	6.3	5.3
4	2.8	5.3	7.0	4.5	5.8	8.5	4.1	6.0	10	1.5	5.3	4.9
5	2.8	6.3	6.8	4.1	5.8	8.5	4.1	5.0	10	1.4	4.5	3.4
6	2.8	7.3	6.8	4.1	5.3	9.1	4.5	5.0	9.7	4.4	4.5	2.3
7	3.0	7.3	5.8	4.3	5.3	8.5	4.5	5.0	9.7	24	5.3	2.0
8	3.4	8.5	6.3	4.3	5.3	7.9	4.9	6.0	9.7	7.3	7.3	1.8
9	3.4	8.5	6.3	4.2	4.9	6.8	4.9	10	5.8	4.9	4.9	1.7
10	3.4	7.9	5.2	4.1	4.9	8.5	4.5	17	4.9	5.8	6.3	1.7
11	3.7	7.3	5.8	5.0	4.1	13	4.5	16	4.5	9.1	9.2	2.0
12	3.7	7.9	6.3	4.6	5.3	9.7	4.9	15	3.7	7.3	6.8	1.7
13	3.0	8.5	5.8	4.3	4.2	9.7	4.5	16	3.7	6.3	6.3	1.5
14	3.0	9.1	5.8	4.7	3.8	11	4.1	15	2.8	5.3	7.9	1.5
15	3.4	8.5	6.0	5.2	4.5	17	3.7	14	2.5	6.3	5.8	1.4
16	4.1	8.5	5.9	5.0	5.3	16	3.7	13	2.8	3.7	5.8	1.2
17	4.5	7.9	5.7	5.6	5.8	12	3.7	12	3.7	2.5	4.5	1.4
18	4.9	8.5	5.0	6.0	5.3	9.7	3.7	14	3.0	3.6	3.7	1.4
19	5.8	8.5	5.7	5.0	5.3	8.5	4.1	15	3.0	24	3.4	1.2
20	5.3	9.1	6.8	5.6	4.9	7.9	4.5	12	3.0	11	3.4	1.1
21	4.9	9.1	5.8	6.6	4.9	7.9	6.8	8.5	3.0	10	3.0	1.1
22	6.8	9.1	5.2	6.6	4.9	7.9	6.8	8.5	3.0	9.1	2.8	.99
23	5.3	7.9	5.8	6.8	4.9	7.9	8.5	5.3	3.4	4.5	2.3	1.2
24	4.9	7.9	6.3	7.4	4.9	7.9	9.1	4.9	2.8	4.5	2.0	1.5
25	5.3	7.3	5.8	8.4	4.5	7.3	8.5	6.8	3.0	5.3	2.3	1.2
26	5.8	7.3	5.8	10	4.5	4.5	6.8	8.5	3.0	34	1.7	1.7
27	5.8	7.3	5.5	10	4.9	4.1	5.8	9.7	2.0	20	1.8	1.7
28	5.8	7.9	5.4	10	5.3	4.1	10	9.1	2.0	16	2.0	1.5
29	6.3	9.1	6.3	9.7	5.3	3.7	10	7.3	1.5	13	2.5	1.2
30	5.8	8.5	5.6	7.9	------	4.1	9.5	6.8	1.2	13	3.4	1.5
31	5.8	------	4.9	7.4	------	4.1	------	7.0	------	11	51	------
TOTAL	134.7	232.7	185.3	185.5	147.3	255.3	167.4	302.5	142.4	273.4	194.8	88.99
MEAN	4.35	7.76	5.98	5.98	5.08	8.24	5.58	9.76	4.75	8.82	6.28	2.97
MAX	6.8	9.1	7.3	10	6.3	17	10	17	10	34	51	30
MIN	2.8	5.3	4.9	4.1	4.1	3.7	3.7	4.9	1.2	1.1	1.7	.99
AC-FT	267	462	368	368	292	506	332	600	282	542	386	177

CAL YR 1967: TOTAL 2,503.8 MEAN 6.86 MAX 105 MIN 2.3 AC-FT 4,970
WTR YR 1968: TOTAL 2,310.29 MEAN 6.31 MAX 51 MIN .99 AC-FT 4,580

Peak discharge (base, 500 cfs).--No peak above base.

7-2115. Canadian River near Taylor Springs, N. Mex.

Location.--Lat 36°17'50", long 104°29'40", near center of sec.21, T.24 N., R.23 E., on left bank at head of gorge, 2.0 miles south of Taylor Springs, 2.2 miles downstream from Cimarron River, and 2.4 miles upstream from Chico Creek.

Drainage area.--2,850 sq mi.

Records available.--October 1939 to September 1958, water years 1959-64 (annual maximum), June 1964 to September 1968. Records for water year 1940 incomplete, yearly estimate published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 5,636 ft above mean sea level, datum of 1929. Prior to June 10, 1964, water-stage recorder at site 1.7 miles downstream at different datum; operated as crest-stage station at that site and datum during water years 1959-64.

Average dischcarge.--23 years (1939-58, 1964-68), 106 cfs (76,740 acre-ft per year).

Extremes.--Maximum discharge during year, 3,970 cfs Aug. 2 (gage height, 5.84 ft, from floodmarks); minimum, 4.2 cfs July 2.
1940-68: Maximum discharge, 162,000 cfs June 18, 1965 (gage height, 47.4 ft, from floodmarks), from rating curve extended above 7,000 cfs on basis of slope-area measurement of peak flow; no flow at times.
Maximum flood known prior to 1965 occurred Sept. 29, 1904 (discharge published as 91,100 cfs in WSP 842, 847).

Remarks.--Records good except those for June and July and those for winter period, which are poor. Diversions for irrigation of about 30,000 acres above station. Records of chemical analyses and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	15	10	39	18	9.6	16	22	5.3	100	109
2	11	12	13	10	38	19	10	14	25	6.3	1,180	37
3	10	13	14	10	37	18	9.6	12	25	800	320	92
4	8.6	13	15	10	36	17	9.6	14	24	400	153	34
5	8.3	13	14	10	35	18	9.6	13	22	200	47	27
6	8.3	14	16	9.0	34	19	9.6	13	21	100	45	23
7	7.6	15	13	8.0	33	20	9.6	12	20	300	29	26
8	7.9	14	14	9.0	32	21	9.1	11	20	200	36	21
9	8.3	15	12	8.6	30	20	9.6	15	20	100	152	16
10	8.3	16	12	9.0	28	20	9.6	27	20	200	431	22
11	8.6	16	11	11	26	19	9.6	44	19	810	158	13
12	9.1	16	10	10	24	18	9.6	32	18	136	314	12
13	8.6	16	9.0	10	22	25	9.1	26	17	106	261	8.6
14	8.3	16	8.0	10	20	30	8.3	33	16	70	101	9.6
15	8.3	16	8.0	12	20	30	7.6	23	15	48	84	9.1
16	9.1	15	8.0	14	21	28	7.6	20	22	34	52	9.1
17	9.6	14	9.0	16	23	25	7.6	17	18	29	39	11
18	9.6	13	9.0	18	25	23	7.6	17	14	22	230	13
19	10	13	10	20	25	18	8.3	18	10	60	72	9.1
20	11	13	10	20	24	18	7.6	20	8.3	101	33	7.9
21	10	13	9.0	22	24	17	8.3	20	7.3	45	27	7.0
22	11	13	8.0	24	22	18	11	20	16	43	22	5.6
23	11	13	9.0	26	21	18	12	18	15	27	19	5.0
24	10	13	10	30	20	18	15	18	9.6	116	15	6.3
25	10	12	10	35	19	17	13	20	7.6	400	13	6.3
26	11	12	10	40	17	15	12	22	7.6	275	13	5.6
27	11	11	10	45	17	12	12	22	7.3	296	11	5.6
28	11	13	10	45	20	11	24	20	6.6	364	23	5.3
29	12	16	10	45	19	11	26	18	6.0	600	18	5.0
30	13	16	10	45	------	10	20	16	5.0	300	19	5.0
31	12	------	10	44	------	10	------	18	------	200	232	------
TOTAL	303.5	417	336.0	635.6	751	581	332.1	609	464.3	6,393.6	4,249	566.1
MEAN	9.79	13.9	10.8	20.5	25.9	18.7	11.1	19.6	15.5	206	137	18.9
MAX	13	16	16	45	39	30	26	44	25	810	1,180	109
MIN	7.6	11	8.0	8.0	17	10	7.6	11	5.0	5.3	11	5.0
AC-FT	602	827	666	1,260	1,490	1,150	659	1,210	921	12,680	8,430	1,120

CAL YR 1967: TOTAL 14,898.3 MEAN 40.8 MAX 550 MIN 2.3 AC-FT 29,550
WTR YR 1968: TOTAL 15,638.2 MEAN 42.7 MAX 1,180 MIN 5.0 AC-FT 31,020

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
8- 2	about 0300	†5.84	3,970

† from floodmarks.
Note.--No gage-height record July 29 to Aug. 2.

7-2145. Mora River near Holman, N. Mex.

Location.--Lat 36°06'40", long 105°22'30" (revised), on right bank 150 ft upstream from bridge, 2½ miles south of Chacon, 4½ miles downstream from confluence of Luna and Lujan Creeks, 5.0 miles north of Holman, and 8½ miles southwest of Guadalupita, Mora County.

Drainage area.--57 sq mi.

Records available.--January 1953 to September 1968. Published as Rio Agua Negra near Holman prior to September 1966.

Gage.--Water-stage recorder. Datum of gage is 7,855 ft above mean sea level, datum of 1929.

Average discharge.--15 years, 13.5 cfs (9,770 acre-ft per year).

Extremes.--Maximum discharge during year, 435 cfs July 28 (gage height, 3.08 ft); minimum, 1.2 cfs Dec. 18.
1953-68: Maximum discharge, 4,700 cfs July 22, 1954 (gage height, 6.10 ft), from rating curve extended above 300 cfs on basis of slope-area measurement of peak flow; minimum, about 0.06 cfs Jan. 18, 1967, result of freezeup.
A major flood probably occurred Sept. 29, 1904 when the entire Mora River basin was in heavy flood.

Remarks.--Records good except those for June and for winter period, which are poor. Diversions for irrigation of about 1,600 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	9.8	5.7	6.9	6.7	7.2	14	28	34	4.5	18	17
2	13	7.5	5.7	6.5	6.7	8.2	14	32	32	5.0	15	15
3	13	6.9	7.2	6.5	6.2	9.0	14	42	30	15	14	15
4	13	6.7	6.7	6.0	6.2	7.5	14	51	28	7.5	14	14
5	14	7.2	6.7	6.0	6.2	8.2	13	56	25	8.2	13	12
6	13	8.2	5.7	6.0	6.7	8.2	14	62	24	9.8	24	12
7	12	7.7	6.2	6.0	6.2	8.2	14	66	22	12	18	11
8	12	7.7	7.2	7.5	5.7	8.2	14	62	20	13	17	9.0
9	12	7.2	9.0	8.2	6.2	8.2	14	62	19	7.5	24	9.0
10	12	6.9	9.0	8.2	6.2	7.5	15	66	19	6.9	28	9.0
11	12	7.5	9.0	6.3	5.7	8.2	17	60	18	6.9	25	8.2
12	12	7.5	9.0	5.7	5.2	9.0	20	58	16	6.9	25	6.9
13	12	7.5	8.0	6.5	5.7	8.2	23	56	14	6.3	25	5.7
14	12	7.5	5.0	7.5	5.7	9.8	24	56	12	5.7	32	5.2
15	12	7.5	3.5	6.3	5.7	9.0	25	56	11	5.7	27	4.7
16	13	7.5	2.5	6.9	6.7	8.2	28	56	10	5.2	25	4.3
17	12	7.5	2.0	5.7	5.7	9.0	28	56	10	4.7	23	5.2
18	11	7.5	1.6	5.7	4.7	8.2	28	53	10	4.7	22	5.2
19	11	7.5	1.6	5.7	5.7	8.2	30	51	9.5	5.2	19	5.2
20	11	6.9	2.0	6.0	5.7	8.2	32	47	8.5	5.2	18	4.7
21	11	6.9	3.0	5.2	6.9	8.2	27	47	8.0	4.3	18	4.7
22	11	6.3	5.0	4.7	6.3	7.7	28	56	7.5	6.9	17	4.7
23	11	6.7	10	5.2	5.7	8.2	26	62	7.0	12	17	4.7
24	9.8	6.7	11	6.2	5.7	9.0	26	62	6.0	6.9	16	4.7
25	9.8	7.2	11	5.7	6.9	9.8	24	56	6.0	11	15	4.3
26	9.8	6.7	11	4.7	7.5	9.8	24	51	5.5	9.8	15	4.3
27	9.8	6.7	9.8	4.7	6.9	11	24	46	5.0	16	16	4.7
28	9.8	5.7	9.8	5.2	7.5	11	26	39	4.5	37	17	4.3
29	11	5.2	8.2	5.2	7.2	13	26	36	4.5	19	20	4.7
30	11	6.2	6.3	6.2	------	14	25	38	4.0	14	22	5.7
31	11	------	6.3	6.7	------	15	------	34	------	16	20	------
TOTAL	360.0	214.5	204.7	189.8	180.1	283.1	651	1,603	430.0	298.8	619	225.1
MEAN	11.6	7.15	6.60	6.12	6.21	9.13	21.7	51.7	14.3	9.64	20.0	7.50
MAX	14	9.8	11	8.2	7.5	15	32	66	34	37	32	17
MIN	9.8	5.2	1.6	4.7	4.7	7.2	13	28	4.0	4.3	13	4.3
AC-FT	714	425	406	376	357	562	1,290	3,180	853	593	1,230	446

CAL YR 1967: TOTAL 4,043.0 MEAN 11.1 MAX 86 MIN 1.5 AC-FT 8,020
WTR YR 1968: TOTAL 5,259.1 MEAN 14.4 MAX 66 MIN 1.6 AC-FT 10,430

PEAK DISCHARGE (BASE, 150 CFS)

DATE	TIME	G.HT.	DISCHARGE
7- 3	1800	2.44	207
7-28	1430	3.08	435

7-2148. Rio la Casa near Cleveland, N. Mex.

Location.--Lat 35°58'30", long 105°23'20" (revised), in Mora Grant, on left bank 1½ miles southwest of Cleveland, Mora County.

Drainage area.--23.0 sq mi.

Records available.--May 1956 to September 1968. Prior to October 1964, published as Rio de la Casa near Cleveland.

Gage.--Water-stage recorder. Altitude of gage is 7,635 ft (from topographic map).

Average discharge.--12 years, 14.1 cfs (10,210 acre-ft per year).

Extremes.--Maximum discharge during year, 163 cfs Aug. 6 (gage height, 3.10 ft); minimum, 0.82 cfs Dec. 7. 1956-68: Maximum discharge, 2,260 cfs Aug. 6, 1959 (gage height, 6.00 ft), from rating curve extended above 170 cfs on basis of slope-area measurement of peak flow; minimum, 0.08 cfs Oct. 30, 1958.

Remarks.--Records good except those for December to February, which are poor. Diversions for irrigation of about 100 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	3.8	2.4	3.0	2.8	3.9	11	10	72	20	60	14
2	8.0	3.6	2.3	2.8	2.9	3.9	10	11	69	20	48	12
3	7.6	3.4	2.3	2.8	3.0	3.9	9.0	16	60	20	42	11
4	8.0	3.4	2.2	2.7	2.5	3.8	8.4	17	61	20	48	11
5	7.6	3.4	2.2	2.8	2.6	3.9	8.0	17	66	22	60	9.4
6	6.8	3.8	2.2	3.0	2.7	3.8	8.7	20	69	24	92	9.0
7	6.5	3.8	2.5	3.0	2.8	3.8	8.4	20	74	22	81	8.7
8	6.3	3.4	2.4	3.0	2.5	3.6	7.3	19	66	18	61	8.0
9	6.0	3.4	2.4	3.0	2.7	3.6	7.3	22	60	19	57	7.3
10	6.3	3.4	2.4	3.0	2.5	4.5	8.0	20	56	18	95	7.3
11	6.3	3.4	2.3	2.7	3.0	5.0	9.8	18	54	16	100	7.0
12	6.0	3.2	2.2	2.5	2.7	6.0	12	17	55	14	87	7.3
13	5.7	3.4	2.1	2.8	2.6	5.7	15	16	58	13	85	5.7
14	5.7	3.2	2.0	2.7	2.5	5.2	15	16	61	13	83	5.2
15	5.5	3.0	2.0	2.5	3.0	6.0	14	17	66	11	66	4.7
16	5.5	3.0	2.0	2.7	3.0	6.3	16	20	67	9.8	55	4.5
17	5.2	3.2	2.2	2.7	2.5	5.7	14	22	67	9.4	48	4.5
18	5.0	3.2	2.5	2.5	2.4	5.2	13	19	67	9.0	41	4.5
19	4.7	3.2	2.8	2.4	2.5	4.7	12	22	62	11	32	4.3
20	4.5	3.0	2.7	2.4	2.7	4.5	10	26	61	9.8	30	4.1
21	4.5	2.7	2.5	2.5	3.2	4.5	10	37	60	8.0	27	3.9
22	4.5	3.0	2.4	2.4	3.2	6.3	9.8	56	58	9.4	23	3.8
23	4.1	2.7	2.8	2.4	3.0	5.5	9.4	61	52	10	20	3.6
24	3.9	2.5	3.0	2.5	3.0	7.3	9.8	52	48	9.4	18	3.8
25	4.1	2.8	2.8	3.0	3.2	8.7	10	46	42	17	17	3.9
26	3.8	2.5	3.0	3.0	3.0	8.7	9.8	47	38	22	15	3.8
27	3.8	2.4	2.8	3.0	3.4	9.4	9.4	54	34	30	14	3.8
28	3.6	2.7	3.0	3.0	3.4	10	9.8	64	29	32	17	3.6
29	3.8	2.5	3.0	2.8	3.6	11	9.0	78	24	23	14	4.3
30	3.8	2.5	2.8	2.9	------	12	9.8	80	22	22	13	5.2
31	4.1	------	2.7	3.0	------	11	------	81	------	29	17	------
TOTAL	169.9	93.5	76.9	85.5	82.9	187.4	313.7	1,021	1,678	530.8	1,466	189.2
MEAN	5.48	3.12	2.48	2.76	2.86	6.05	10.5	32.9	55.9	17.1	47.3	6.31
MAX	8.7	3.8	3.0	3.0	3.6	12	16	81	74	32	100	14
MIN	3.6	2.4	2.0	2.4	2.4	3.6	7.3	10	22	9.4	13	3.6
AC-FT	337	185	153	170	164	372	622	2,030	3,330	1,050	2,910	375

CAL YR 1967: TOTAL 3,434.8 MEAN 9.41 MAX 123 MIN 2.0 AC-FT 6,810
WTR YR 1968: TOTAL 5,894.8 MEAN 16.1 MAX 100 MIN 2.0 AC-FT 11,690

PEAK DISCHARGE (BASE, 60 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-22	2200	2.82	76	8- 1	0100	2.83	92
5-29	2000	2.92	98	8- 6	2000	3.10	163
7-27	1830	2.72	69	8-10	1740	3.08	157

7-2151. La Cueva Canal below La Cueva, N. Mex.

Location.--Lat 35°56'44", long 105°15'19", in Mora Grant, on right bank 500 ft downstream from head and half a mile west of La Cueva, Mora County. Records published are for a point ½ mile downstream, below La Cueva wasteway.

Records available.--June 1956 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 7,015 ft (from topographic map).

Extremes.--1956-68: Maximum daily discharge, 32 cfs Aug. 21, 1957; no flow at times each year.

Remarks.--Records good except those below 1 cfs and those for December and January, which are poor. Canal diverts water from left bank of Mora River for irrigation and off-channel storage below La Cueva.

Monthly diversion, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Diversion in acre-feet
October	16	4.6	11.8	726
November	13	10	11.9	706
December	15	3.6	9.01	554
CAL YR 1967	21	0	6.07	4,390
January	14	4.5	9.49	583
February	10	0	5.03	290
March	8.2	0	2.63	161
April	15	0	4.18	249
May	20	7.6	14.9	919
June	20	5.2	10.9	648
July	17	.40	8.40	517
August	3.3	0	.906	56
September	2.6	0	1.17	69
WTR YR 1968	20	0	7.54	5,480

Note.--This tabulation represents net flow at a point ½ mile downstream, below La Cueva wasteway, as determined by subtracting flow in wasteway from flow in canal above wasteway.

7-2155. Mora River at La Cueva, N. Mex.

Location (revised).--Lat 35°56'20", long 105°14'55", in Mora Grant, on right bank 600 ft downstream from bridge on State Highway 3, a quarter of a mile south of La Cueva, Mora County, and half a mile downstream from La Cueva damsite.

Drainage area.--173 sq mi.

Records available.--August 1903 to April 1905 (gage heights and discharge measurements only), May 1905 to July 1911, April 1931 to September 1968. Monthly discharge only for some periods, published in WSP 1311. Figures of daily discharge for February to April 1905 have been found to be unreliable and should not be used.

Gage.--Graphic water-stage recorder. Datum of gage is 6,998.7 ft above mean sea level, datum of 1929. Aug. 25, 1903 to Sept. 29, 1904 (destroyed by flood of Sept. 29, 1904), and Feb. 22, 1905 to July 31, 1911, staff gages at sites about 600 ft (revised) upstream at different datums. Apr. 15, 1931 to Apr. 18, 1962, water-stage recorder at site 600 ft (revised) upstream at datum about 2 ft higher. Aug. 9, 1964 to Sept. 15, 1966, digital water-stage recorder at present site and datum.

Average discharge.--41 years (1906-10, 1931-68), 28.1 cfs (20,340 acre-ft per year).

Extremes.--Maximum discharge during year, 422 cfs Aug. 10 (gage height, 5.88 ft); minimum determined, 0.78 cfs Dec. 11, result of freezeup.

1931-68: Maximum discharge, 1,530 cfs Sept. 23, 1941, from rating curve extended above 400 cfs by logarithmic plotting; maximum gage height, 9.00 ft Aug. 5, 1966; no flow at times.

Flood of Sept. 29, 1904, may have exceeded 20,000 cfs; another major flood occurred June 11, 1913, but is believed less than that of 1904.

Remarks.--Records good except those for July and August, which are fair, and those for October to January and June, which are poor. Diversions above station for irrigation of about 7,000 acres, part of which is below station. Off-channel lakes make it possible to divert and store water during non-irrigation season. This record plus La Cueva Canal below La Cueva (see station 7-2151) equals total flow in valley cross section.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	4.0	1.9	8.0	3.3	6.9	14	12	61	26	113	71
2	14	4.0	2.4	8.0	3.5	6.3	14	11	54	20	102	63
3	14	3.0	2.6	8.0	3.9	7.5	13	10	49	27	87	59
4	14	2.5	1.3	8.0	4.2	7.9	14	21	47	32	95	58
5	14	2.5	1.3	8.0	3.7	7.5	12	27	53	25	117	52
6	14	3.0	1.3	7.0	4.4	7.2	12	24	47	42	124	51
7	13	3.0	1.8	7.0	5.8	6.6	12	36	54	87	148	47
8	12	2.5	1.1	9.0	6.0	9.3	11	47	49	61	117	44
9	12	2.5	1.6	9.0	6.0	12	10	39	43	54	129	40
10	14	2.5	2.4	9.0	6.3	14	11	59	33	56	239	40
11	12	2.5	1.8	8.0	6.3	16	11	48	27	49	246	41
12	9.5	2.5	1.4	8.0	6.3	18	11	49	26	46	217	38
13	11	2.0	1.3	8.0	7.5	19	12	47	25	36	199	33
14	11	2.0	1.3	2.0	11	30	14	44	22	34	198	29
15	13	1.8	1.2	1.5	10	31	12	42	20	32	165	27
16	17	1.8	1.0	1.5	12	23	14	39	22	26	147	27
17	9.0	1.8	1.0	1.5	16	21	17	46	26	22	137	29
18	3.8	1.9	1.0	1.5	16	18	18	42	35	22	125	32
19	3.7	2.1	1.0	2.1	14	18	19	34	35	20	111	30
20	3.6	2.1	1.0	1.6	14	19	18	38	40	23	94	30
21	5.0	2.2	1.5	1.1	15	20	16	36	35	23	97	29
22	6.0	2.1	2.5	1.1	14	20	18	51	35	21	86	27
23	6.0	2.1	4.0	1.6	14	21	12	55	30	16	77	27
24	6.0	2.1	5.0	4.2	12	16	6.3	56	25	18	68	26
25	4.5	2.2	5.0	4.9	6.9	21	6.9	57	25	35	64	27
26	4.5	1.9	5.0	1.9	5.5	16	6.9	54	25	40	64	27
27	4.0	1.9	6.0	2.1	5.8	14	6.9	47	25	65	69	23
28	4.0	1.9	8.0	3.1	7.2	13	8.7	32	25	57	73	14
29	4.0	1.9	8.0	2.4	6.9	12	11	35	25	70	58	17
30	4.0	1.9	8.0	2.2	------	12	12	56	25	63	70	26
31	4.0	------	8.0	2.2	------	14	------	67	------	68	92	------
TOTAL	280.6	70.2	90.7	143.5	247.5	477.2	373.7	1,261	1,043	1,216	3,728	1,084
MEAN	9.05	2.34	2.93	4.63	8.53	15.4	12.5	40.7	34.8	39.2	120	36.1
MAX	17	4.0	8.0	9.0	16	31	19	67	61	87	246	71
MIN	3.6	1.8	1.0	1.1	3.3	6.3	6.3	10	20	16	58	14
AC-FT	557	139	180	285	491	947	741	2,500	2,070	2,410	7,390	2,150

CAL YR 1967: TOTAL 6,561.52 MEAN 18.0 MAX 246 MIN .56 AC-FT 13,010
WTR YR 1968: TOTAL 10,015.4 MEAN 27.4 MAX 246 MIN 1.0 AC-FT 19,870

PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-27	1630	4.78	314
8-10	2200	5.88	422

7-2165. Mora River near Golondrinas, N. Mex.

Location (revised).--Lat 35°53'45", long 105°09'10", in Mora Grant, at downstream end of left abutment of highway bridge on State Highway 160, 1.2 miles upstream from Coyote Creek, 1.8 miles east of Golondrinas, Mora County, and 5 3/4 miles downstream from Cebolla River.

Drainage area.--267 sq mi.

Records available.--March 1915 to May 1921, October 1921 to March 1922, May, August to September 1922, July 1923 to July 1924, December 1924 to September 1968. Monthly discharge only 1915-30, published in WSP 1311.

Gage.--Graphic water-stage recorder. Datum of gage is 6,748 ft (revised) above mean sea level, datum of 1929. Mar. 10, 1915 to June 4, 1921, water-stage recorder at site 3½ miles upstream at different datum. July 6, 1921 to Jan. 5, 1929, staff gage or water-stage recorder at present site at datum 1.0 ft higher.

Average discharge.--51 years (1915-20, 1921-22, 1923-68), 34.9 cfs (25,270 acre-ft per year).

Extremes.--Maximum discharge during year, 980 cfs July 25 (gage height, 6.58 ft), from rating curve extended above 210 cfs as explained below; minimum, 2.7 cfs April 28.
1915-68: Maximum discharge, 14,000 cfs Aug. 22, 1952 (gage height, 14.4 ft), from rating curve extended above 660 cfs on basis of slope-area measurement of peak flow; no flow at times.
Floods of Sept. 29, 1904, and June 11, 1913, probably exceeded 25,000 cfs.

Remarks.--Records good except those for November to January, which are poor. Diversions for irrigation of about 12,000 acres above station. Off-channel lakes make it possible to divert and store water during non-irrigation season.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	4.5	3.5	5.0	9.2	8.0	19	4.9	51	24	141	73
2	20	4.5	3.5	5.0	10	7.4	19	4.1	44	22	154	66
3	19	4.0	3.5	5.0	10	7.7	17	3.9	40	27	90	61
4	17	4.0	3.5	5.0	9.9	8.8	17	4.7	36	31	90	60
5	17	4.0	3.5	5.0	10	8.1	17	10	42	28	108	54
6	18	4.0	4.0	4.5	10	8.1	17	8.8	38	66	131	51
7	16	4.5	4.0	4.5	11	7.9	16	13	40	139	159	49
8	16	4.5	4.5	4.5	11	7.7	15	21	39	70	151	44
9	15	4.5	4.5	5.0	11	9.9	15	22	34	60	144	40
10	15	4.5	5.0	5.0	11	10	14	35	31	65	306	38
11	15	4.5	5.0	4.5	12	13	14	30	25	60	483	40
12	13	5.1	5.0	4.0	11	16	13	30	24	53	281	37
13	14	4.5	4.5	4.5	10	19	13	33	21	46	225	34
14	14	4.1	4.0	5.0	12	22	12	32	19	40	213	31
15	14	3.7	3.5	5.0	15	35	12	32	19	41	183	29
16	16	3.5	3.0	4.5	17	30	12	30	20	33	156	27
17	15	3.1	3.0	4.5	18	24	13	36	24	30	143	28
18	8.5	3.1	3.0	4.0	18	21	14	38	34	30	134	30
19	7.4	3.1	3.0	5.0	16	19	14	33	33	30	120	30
20	7.7	3.1	3.0	6.0	16	20	13	35	40	30	101	29
21	7.7	3.3	3.0	7.0	16	21	8.3	31	36	32	102	25
22	6.6	3.3	3.5	8.0	14	22	7.9	37	38	29	93	25
23	6.4	3.3	4.0	9.0	13	23	7.9	48	34	25	84	26
24	6.0	3.7	4.0	10	12	23	5.5	44	28	32	73	25
25	5.5	3.3	4.5	11	9.7	22	5.3	44	24	136	70	23
26	5.1	3.5	5.0	11	8.1	22	5.1	44	22	80	65	23
27	4.5	3.5	5.0	10	7.4	20	4.5	41	22	90	69	24
28	4.5	3.5	5.0	10	7.7	19	2.9	30	23	73	71	17
29	5.1	4.0	5.0	10	8.0	18	3.9	30	23	77	65	18
30	4.0	4.0	5.0	9.0	------	18	4.9	36	24	60	70	22
31	4.5	------	5.0	8.5	------	18	------	50	------	65	90	------
TOTAL	358.5	116.2	125.5	199.0	344.0	528.6	352.2	891.4	928	1,624	4,365	1,079
MEAN	11.6	3.87	4.05	6.42	11.9	17.1	11.7	28.8	30.9	52.4	141	36.0
MAX	21	5.1	5.0	11	18	35	19	50	51	139	483	73
MIN	4.0	3.1	3.0	4.0	7.4	7.4	2.9	3.9	19	22	65	17
AC-FT	711	230	249	395	682	1,050	699	1,770	1,840	3,220	8,660	2,140

CAL YR 1967: TOTAL 7,430.45 MEAN 20.4 MAX 269 MIN .65 AC-FT 14,740
WTR YR 1968: TOTAL 10,911.4 MEAN 29.8 MAX 483 MIN 2.9 AC-FT 21,640

PEAK DISCHARGE (BASE, 400 CFS)

DATE	TIME	G.HT.	DISCHARGE
7- 6	2330	6.16	748
7-25	1720	6.58	980
8-11	0030	6.56	901

7-2171. Coyote Creek above Guadalupita, N. Mex.

Location.--Lat 36°10'30", long 105°13'35", in Mora Grant, on right bank 1½ miles north of Guadalupita, Mora County.

Drainage area.--71 sq mi.

Records available.--May 1956 to September 1968.

Gage.--Graphic water-stage recorder. Altitude of gage is 7,700 ft (from topographic map).

Average discharge.--12 years, 9.74 cfs (7,050 acre-ft per year).

Extremes.--Maximum discharge during year, 70 cfs July 28 (gage height, 2.58 ft); minimum, 0.87 cfs Mar. 8.
1956-68: Maximum discharge, 1,820 cfs June 17, 1965 (gage height, 6.70 ft), from rating curve extended above 150 cfs on basis of slope-area measurement of peak flow; minimum, 0.04 cfs June 16, 1963.

Remarks.--Records good except those for winter period, which are poor. Diversions for irrigation of about 2,000 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	3.4	2.8	2.2	2.8	9.2	11	8.6	7.2	1.0	7.0	6.7
2	5.8	3.4	2.3	2.4	2.8	10	11	8.3	6.5	1.2	5.8	6.3
3	5.7	3.4	2.6	2.0	3.5	8.3	10	8.3	6.5	2.7	5.7	6.1
4	5.5	3.4	2.8	2.0	3.2	7.1	9.7	9.4	6.5	2.6	5.5	6.1
5	5.5	3.6	2.6	2.0	2.8	6.3	9.4	11	6.5	2.2	5.2	5.3
6	5.3	3.6	2.7	2.0	3.2	6.3	11	13	5.8	2.6	5.2	4.8
7	4.8	3.4	2.4	2.2	3.4	6.3	9.7	14	5.5	3.5	6.9	4.7
8	4.7	3.5	2.6	2.4	3.2	5.2	9.7	14	5.5	3.0	12	4.2
9	4.5	3.5	2.6	2.5	3.2	6.3	9.4	15	5.0	6.5	11	4.0
10	4.0	3.6	2.0	2.4	3.2	6.3	9.7	18	4.8	2.8	14	4.0
11	3.8	3.6	2.4	2.4	3.0	5.5	10	26	4.2	2.6	23	4.5
12	3.5	3.5	2.2	2.2	3.4	5.0	10	31	3.9	2.2	23	4.3
13	3.2	3.4	2.0	2.2	3.2	5.6	11	31	3.5	2.2	20	4.0
14	3.0	3.5	2.0	2.2	3.6	5.3	9.4	28	3.5	3.0	24	3.9
15	3.1	3.5	2.0	2.2	3.1	4.8	8.0	24	3.4	2.2	20	3.8
16	3.4	3.4	2.1	2.2	3.3	5.2	7.6	20	3.0	1.8	16	3.6
17	3.2	3.4	2.2	2.2	4.5	5.5	7.6	18	2.8	1.7	24	3.6
18	3.2	3.4	2.2	2.1	3.6	5.5	7.4	16	2.6	1.6	11	3.4
19	3.1	3.4	2.2	2.0	3.2	5.3	7.2	16	2.8	1.8	9.4	3.2
20	3.2	3.4	1.8	2.2	3.5	5.7	7.0	16	2.2	1.7	8.0	3.1
21	3.0	3.2	1.7	2.4	3.8	5.2	6.5	16	2.0	1.8	7.6	3.1
22	3.0	3.2	1.8	2.4	4.0	5.0	7.0	16	1.8	1.7	6.5	3.0
23	3.1	3.2	1.8	2.5	4.3	5.5	6.7	15	1.6	1.7	5.7	3.0
24	3.1	2.8	1.8	2.6	4.7	5.8	6.7	14	1.7	2.2	5.2	3.0
25	3.1	3.0	1.8	2.8	5.2	7.6	7.2	13	1.6	2.6	4.8	3.0
26	3.1	3.1	1.8	2.6	5.8	8.6	7.4	12	1.5	3.0	4.5	3.0
27	3.1	2.6	1.7	2.8	7.2	10	7.4	9.4	1.3	4.2	4.3	3.1
28	3.0	3.4	1.8	2.8	8.7	10	8.0	9.4	1.2	12	5.0	3.0
29	3.1	3.0	2.0	3.1	8.8	11	8.0	8.0	1.2	6.5	5.0	3.1
30	3.0	3.0	2.0	2.6	------	11	8.3	8.0	1.1	5.8	7.6	3.6
31	3.1	------	2.2	3.0	------	11	------	7.6	------	5.7	7.6	------
TOTAL	118.3	99.8	66.9	73.6	118.2	215.4	259.0	474.0	106.7	96.1	320.5	120.5
MEAN	3.82	3.33	2.16	2.37	4.08	6.95	8.63	15.3	3.56	3.10	10.3	4.02
MAX	6.1	3.6	2.8	3.1	8.8	11	11	31	7.2	12	24	6.7
MIN	3.0	2.6	1.7	2.0	2.8	4.8	6.5	7.6	1.1	1.0	4.3	3.0
AC-FT	234	198	133	146	234	427	514	940	212	191	636	239

CAL YR 1967: TOTAL 2,104.80 MEAN 5.77 MAX 62 MIN .77 AC-FT 4,170
WTR YR 1968: TOTAL 2,069.0 MEAN 5.65 MAX 31 MIN 1.1 AC-FT 4,100

Peak discharge (base, 100 cfs).--No peak above base.

7-2180. Coyote Creek near Golondrinas, N. Mex.

Location (revised).--Lat 35°55'00", long 105°09'50", in Mora Grant, on left bank a third of a mile downstream from Coyote Creek damsite, 3 miles upstream from mouth, and 2¼ miles northeast of Golondrinas, Mora County.

Drainage area.--215 sq mi.

Records available.--April 1928 to September 1968. Prior to October 1930 monthly discharge only, published in WSP 1311.

Gage.--Graphic water-stage recorder. Altitude of gage is 6,785 ft (revised, from topographic map). Prior to Apr. 26, 1938, at site 0.4 mile downstream at different datum (staff gage prior to Apr. 20, 1929). Apr. 26, 1938 to Sept. 25, 1946, at site 139 ft downstream at same datum.

Average discharge.--40 years, 11.8 cfs (8,540 acre-ft per year).

Extremes.--Maximum discharge during year, 206 cfs July 24 (gage height, 3.38 ft); minimum, 0.21 cfs June 30. 1928-68: Maximum discharge, 4,050 cfs Aug. 17, 1961 (gage height, 9.60 ft), from rating curve extended above 250 cfs on basis of slope-area measurements at gage heights 5.54, 7.74, and 9.60 ft; maximum gage height, 10.1 ft Aug. 30, 1936 (site and datum then in use); no flow Aug. 4, 1945, Apr. 10, May 9, 10, 1956.

Remarks.--Records good except those for December to February, which are poor. Diversions (including off-channel storage) for irrigation of about 4,000 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	2.4	2.4	6.0	7.0	13	7.1	3.0	1.8	0.27	17	17
2	8.3	2.0	2.5	6.0	7.0	14	7.3	2.6	2.2	.34	15	14
3	7.8	2.2	2.5	6.0	7.0	14	7.9	2.3	2.3	.65	15	14
4	7.1	2.2	2.6	6.0	7.0	15	7.3	2.0	2.3	4.0	15	14
5	6.9	2.2	2.6	5.5	7.0	13	6.5	1.8	2.5	2.3	12	13
6	6.4	2.6	2.6	5.0	7.0	13	6.8	1.6	2.2	9.1	11	13
7	6.1	2.4	2.6	5.0	7.0	12	8.4	1.4	1.2	16	10	12
8	5.7	2.4	2.6	5.0	7.0	12	7.9	1.4	.74	7.6	11	11
9	5.3	3.2	2.7	5.0	7.0	11	6.5	1.4	.65	9.2	13	10
10	4.8	2.6	2.7	5.0	7.0	11	6.5	2.2	.57	21	20	9.7
11	4.8	2.4	2.7	5.0	7.0	12	6.8	2.0	.49	20	36	9.0
12	4.2	2.4	2.6	5.0	7.0	13	5.0	8.2	.57	10	28	9.3
13	3.2	2.6	2.4	5.5	6.0	14	4.7	12	.34	6.8	28	9.0
14	2.8	2.4	2.3	6.0	7.0	16	4.5	6.8	.27	4.7	26	8.4
15	3.5	2.0	2.3	6.0	8.0	16	4.5	5.2	.34	4.3	30	8.2
16	3.4	2.0	2.4	6.0	9.0	12	4.5	3.2	.34	3.2	24	6.0
17	2.6	2.0	2.5	6.0	9.0	12	4.0	2.5	.34	2.0	20	6.0
18	2.6	2.0	2.6	5.5	10	12	4.0	3.0	.34	2.2	20	6.0
19	2.6	2.0	2.8	5.0	10	12	4.0	3.6	.34	2.0	17	4.5
20	2.4	2.0	2.7	5.5	10	13	3.6	2.8	.34	4.2	15	4.3
21	2.6	3.1	2.5	6.0	10	13	3.6	2.8	.34	4.6	14	4.0
22	2.6	2.9	2.7	6.0	10	13	3.6	2.8	.34	2.6	12	4.0
23	2.4	2.6	3.0	6.0	9.7	12	3.4	2.3	.41	3.7	10	4.0
24	2.0	2.9	3.5	6.0	9.3	11	3.4	2.2	.34	29	8.7	3.6
25	2.0	2.4	4.0	6.5	9.7	11	3.4	2.2	.34	11	7.9	3.0
26	2.0	2.6	4.5	7.0	10	12	3.2	1.7	.84	21	9.0	3.0
27	2.2	2.6	5.0	7.0	10	13	3.2	1.7	.95	15	8.4	3.0
28	2.4	2.5	5.0	7.0	11	13	3.8	2.2	.49	22	9.0	2.8
29	2.4	2.5	5.0	7.0	12	12	3.6	1.8	.41	17	29	2.8
30	2.4	2.5	5.0	7.0	------	11	3.4	1.7	.27	13	18	2.8
31	2.9	------	5.5	7.0	------	7.3	------	2.0	------	14	49	------
TOTAL	124.5	72.6	96.8	182.5	244.7	388.3	152.4	92.4	24.90	282.76	558.0	231.4
MEAN	4.02	2.42	3.12	5.89	8.44	12.5	5.08	2.98	8.30	9.12	18.0	7.71
MAX	8.3	3.2	5.5	7.0	12	16	8.4	12	2.5	29	49	17
MIN	2.0	2.0	2.3	5.0	6.0	7.3	3.2	1.4	.27	.27	7.9	2.8
AC-FT	247	144	192	362	485	770	302	183	49	561	1,110	459

CAL YR 1967: TOTAL 2,739.28 MEAN 7.50 MAX 94 MIN .34 AC-FT 5,430
WTR YR 1968: TOTAL 2,451.26 MEAN 6.70 MAX 49 MIN .27 AC-FT 4,860

PEAK DISCHARGE (BASE, 180 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-24	1700	3.38	206

7-2186. Sapello Canal at Sapello, N. Mex.

Location (revised).--Lat 35°46'10", long 105°15'05", in Las Vegas Grant, on right bank of Sapello River, 20 ft downstream from culvert under State Highway 3 in Sapello, San Miguel County.

Records available.--June 1956 to September 1968.

Gage.--Graphic water-stage recorder and Parshall flume. Altitude of gage is 6,920 ft (revised, from topographic map).

Extremes.--1956-68: Maximum daily discharge, 2.8 cfs June 1, 1957; no flow for many days each year.

Remarks.--Records poor. Canal diverts water from right bank upstream from Sapello River gage (see station 7-2200) for irrigation of land downstream.

Monthly diversion, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Diversion in acre-feet
October	0.57	0	0.255	16
November	.50	0	.198	12
December	0	0	0	0
CAL YR 1967	1.5	0	.238	173
January	0	0	0	0
February	.80	0	.120	6.9
March	1.6	0	.725	45
April	.64	.10	.489	29
May	1.0	.21	.562	35
June	.76	0	.181	11
July	.57	0	.174	11
August	.33	0	.153	9.4
September	.17	.03	.100	5.9
WTR YR 1968	1.6	0	.247	179

7-2200. Sapello River at Sapello, N. Mex.

Location.--Lat 35°46'10", long 105°15'05", in Las Vegas Grant, on downstream end of bridge pier nearest left bank, on State Highway 3, in Sapello, San Miguel County, half a mile downstream from Manuelitas Creek.

Drainage area.--132 sq mi.

Records available.--May to October 1915, January 1916 to November 1918, February 1919 to May 1921, July to September 1921, July 1956 to September 1968. Monthly discharge only for some periods, published in WSP 1311. Gage heights and discharge measurements published under same name for August 1903 to March 1904 are for a site above Manuelitas Creek, and are not equivalent. Records for November to December 1915, December 1918, January 1919, and October 1921 to December 1928 have been found to be unreliable and should not be used.

Gage.--Graphic water-statge recorder. Altitude of gage is 6,910 ft (from topographic map). May 1915 to September 1921, staff gage at site 300 ft upstream at different datum.

Average discharge.--17 years (1915-20, 1956-68), 23.2 cfs (16,800 acre-ft per year).

Extremes.--Maximum discharge during year, 1,310 cfs Aug. 1 (gage height, 4.90 ft), from rating curve extended above 350 cfs as explained below; minimum, 1.2 cfs July 1, 2, 3, 24.
1915-20, 1956-68: Maximum discharge determined, 6,420 cfs Aug. 5, 1966 (gage height, 7.50 ft), from rating curve extended above 350 cfs on basis of computation of flow over dam at gage height 7.40 ft; no flow at times.

Remarks.--Records good except those for February and March, which are fair, and those for December and January, which are poor. Diversions above station for irrigation of about 4,200 acres. Station bypassed by Sapello Canal (see station 7-2186).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	7.8	3.5	5.9	7.4	6.6	29	27	21	1.4	112	39
2	13	7.8	3.8	5.2	5.5	6.3	25	25	29	1.4	56	29
3	13	7.8	4.0	5.0	7.0	5.5	21	27	30	1.2	66	25
4	12	7.0	3.5	5.2	7.4	5.5	23	35	29	1.4	101	23
5	12	7.0	3.5	6.6	4.8	4.8	19	37	29	1.8	148	23
6	12	7.0	3.5	6.3	6.6	3.8	17	39	23	4.8	125	21
7	9.8	7.4	3.5	6.3	7.4	3.8	16	45	19	2.6	136	20
8	9.8	7.8	3.8	5.2	7.8	3.2	18	41	18	2.1	147	17
9	9.8	7.4	3.0	5.2	7.0	3.0	19	34	17	2.1	136	16
10	9.8	6.6	3.5	5.9	7.0	9.0	17	38	15	5.9	194	15
11	9.8	6.3	3.2	5.2	6.6	4.0	15	37	13	3.0	284	17
12	9.3	5.9	3.2	5.2	7.0	5.9	17	38	11	4.3	199	17
13	8.5	5.9	3.5	5.5	5.5	7.4	22	38	8.2	2.5	157	15
14	8.5	5.9	4.0	5.2	7.4	8.9	24	34	6.6	2.0	137	12
15	8.9	5.2	4.5	5.9	7.4	11	21	34	6.3	2.1	112	11
16	9.8	5.2	4.0	5.9	7.8	15	24	31	5.9	2.0	92	9.3
17	9.8	5.0	4.5	6.6	8.5	14	18	28	5.9	1.8	78	9.8
18	9.3	4.5	5.0	6.3	8.5	13	16	27	5.0	11	70	9.8
19	8.9	4.5	4.2	5.9	7.8	12	16	26	4.8	8.2	61	9.8
20	8.5	4.5	4.0	5.5	8.2	13	15	29	4.8	32	54	9.3
21	8.9	4.8	3.7	5.5	8.9	12	17	29	4.2	6.7	50	9.3
22	8.2	4.8	4.7	5.5	9.3	11	16	30	4.0	3.2	45	9.3
23	7.4	4.5	5.0	5.5	8.5	14	23	34	3.8	2.3	41	8.9
24	7.4	4.2	6.3	6.6	7.4	23	22	32	2.5	2.0	34	8.9
25	7.8	3.8	4.5	7.4	7.0	25	25	31	2.1	13	29	8.5
26	7.0	3.5	4.8	7.8	6.6	25	20	34	2.1	51	36	7.8
27	6.6	3.8	4.8	7.0	5.9	26	17	30	2.1	60	33	7.8
28	6.3	4.5	4.8	7.8	6.3	26	20	31	2.3	32	35	7.8
29	7.0	4.0	5.5	8.2	5.2	29	26	29	1.8	38	26	7.4
30	7.8	4.0	5.0	7.0	------	27	29	28	1.6	45	38	7.4
31	7.8	------	5.5	7.0	------	27	------	25	------	46	53	------
TOTAL	288.7	168.4	130.3	189.3	207.7	400.7	607	1,003	328.0	392.8	2,885	431.1
MEAN	9.31	5.61	4.20	6.11	7.16	12.9	20.2	32.4	10.9	12.7	93.1	14.4
MAX	14	7.8	6.3	8.2	9.3	29	29	45	30	60	284	39
MIN	6.3	3.5	3.0	5.0	4.8	3.0	15	25	1.6	1.2	26	7.4
AC-FT	573	334	258	375	412	795	1,200	1,990	651	779	5,720	855

CAL YR 1967: TOTAL 5,292.04 MEAN 14.5 MAX 683 MIN .57 AC-FT 10,500
WTR YR 1968: TOTAL 7,032.0 MEAN 19.2 MAX 284 MIN 1.2 AC-FT 13,950

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-20	1900	4.50	994
8- 1	1900	4.90	1,310
8- 5	1930	4.75	1,130

7-2201. Lake Isabel feeder canal near Sapello, N. Mex.

Location.--Lat 35°44'40", long 105°09'25", in Mora Grant, 20 feet upstream from concrete crossing, 1 mile northwest of Los Alamos, 2 miles downstream from canal heading, and 5 miles southeast of Sapello, San Miguel County.

Records available.--September 1956 to September 1968.

Gage.--Graphic water-stage recorder. Datum of gage is 6,790 ft above mean sea level, datum of 1929. Prior to Aug. 10, 1967, at site 650 ft upstream at datum 2.93 ft higher. Oct. 1, 1964 to Sept. 14, 1966, digital water-stage recorder at upstream site and datum.

Extremes.--1956-68: Maximum daily discharge, 322 cfs Aug. 2, 1965; no flow at times.

Remarks.--Records good. Canal diverts water from left bank of Sapello River to fill Lake Isabel which stores water for irrigation.

Monthly diversion, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Diversion in acre-feet
October	0.53	0	0.092	5.7
November	0	0	0	0
December	0	0	0	0
CAL YR 1967	150	0	2.13	1,540
January	20	0	1.14	70
February	8.9	0	4.42	254
March	30	0	10.3	631
April	11	0	2.20	131
May	9.3	0	2.46	151
June	11	0	.606	36
July	.81	0	.073	4.5
August	143	.96	37.5	2,300
September	9.3	0	2.65	157
WTR YR 1968	143	0	5.16	3,750

7-2210. Mora River near Shoemaker, N. Mex.

Location.--Lat 35°48'00", long 104°47'00", in S½ sec.11, T.18 N., R.20 E. (projected), in Mora Grant, on left bank 4½ miles east of Shoemaker, and 23 miles upstream from mouth.

Drainage area.--1,104 sq mi, of which 71 sq mi is probably noncontributing.

Records available.--October 1914 to July 1915, October 1915 to August 1918, May 1919 to July 1924, September to November 1924, March to July 1925, June 1927 to September 1968. Prior to October 1930, monthly discharge only, published in WSP 1311.

Gage.--Graphic water-stage recorder. Altitude of gage is 6,145 ft (revised, from topographic map). Prior to Oct. 10, 1934, at site 2,000 ft upstream at different datum.

Average discharge.--50 years (1914-18, 1919-24, 1927-68), 59.4 cfs (43,000 acre-ft per year).

Extremes.--Maximum discharge during year, 13,900 cfs July 6 (gage height, 12.36 ft), from rating curve extended above 2,300 cfs as explained below; minimum, 1.7 cfs Dec. 9.
1914-68: Maximum discharge, 15,200 cfs June 3, 1948 (gage height, 12.79 ft), from rating curve extended above 2,800 cfs on basis of slope-area measurements at gage heights 10.09 and 12.79 ft; no flow at times. Floods of Sept. 29, 1904, and June 11, 1913, probably exceeded 30,000 cfs.

Remarks.--Records good except those for December and January, which are poor. Diversions for irrigation of about 26,000 acres above station. Off-channel lakes make it possible to divert and store water during non-irrigation season. Records of chemical analysis and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	3.8	4.5	11	27	12	7.5	9.6	27	5.5	118	162
2	28	3.8	4.1	12	27	11	6.3	11	34	6.7	238	118
3	26	3.8	4.5	12	27	11	7.5	12	34	301	136	99
4	20	3.8	4.5	12	26	11	7.9	11	31	34	110	89
5	19	4.1	4.5	12	25	9.6	12	11	27	36	116	90
6	16	3.8	4.5	13	27	8.3	14	12	22	928	122	85
7	15	4.5	4.5	14	27	7.5	12	11	23	2830	200	84
8	12	5.1	4.5	15	27	6.3	12	12	19	251	151	76
9	13	5.1	4.0	16	24	3.8	13	13	19	136	136	68
10	12	5.5	4.0	16	22	5.1	9.6	14	26	175	169	64
11	9.6	4.5	4.5	17	20	6.3	6.3	21	19	253	644	47
12	8.7	4.5	4.0	18	21	7.5	5.9	27	16	155	384	46
13	7.9	4.8	3.5	19	21	12	5.5	30	11	342	433	42
14	7.1	4.8	3.5	20	20	16	6.7	39	11	97	380	38
15	6.3	4.8	3.5	20	19	20	8.3	32	7.1	80	358	34
16	6.7	4.8	3.5	21	22	19	11	32	7.5	72	296	31
17	8.3	4.5	4.0	22	28	14	11	27	7.5	61	257	32
18	8.7	4.1	4.5	24	29	14	7.5	34	7.9	54	236	32
19	7.5	4.1	5.0	25	28	11	7.1	41	7.5	45	206	39
20	7.1	4.1	5.0	25	28	8.3	7.1	40	7.9	48	173	36
21	6.7	3.8	5.0	27	27	7.5	7.9	33	8.3	46	153	31
22	5.9	3.8	5.0	31	25	7.5	9.6	24	11	54	147	29
23	5.9	3.5	5.0	28	26	8.3	12	22	9.1	64	134	28
24	6.3	3.5	6.0	26	22	7.5	9.1	26	14	38	114	29
25	7.1	3.5	6.0	31	21	7.5	8.3	25	13	92	101	28
26	5.9	3.8	7.0	34	20	7.5	11	38	12	142	87	26
27	4.8	4.1	7.0	36	17	6.7	9.6	33	11	132	79	24
28	4.1	5.1	8.0	33	14	7.1	11	31	8.3	175	97	23
29	4.1	4.8	9.0	36	13	7.1	13	27	7.1	120	97	19
30	4.1	4.8	10	33	------	6.7	11	21	6.3	103	210	14
31	4.1	------	10	29	------	6.7	------	18	------	99	162	------
TOTAL	334.9	129.0	162.6	688	680	293.8	280.7	737.6	464.5	6,975.2	6,244	1,563
MEAN	10.8	4.30	5.25	22.2	23.4	9.48	9.36	23.8	15.5	225	201	52.1
MAX	37	5.5	10	36	29	20	14	41	34	2,830	644	162
MIN	4.1	3.5	3.5	11	13	3.8	5.5	9.6	6.3	5.5	79	14
AC-FT	664	256	323	1,360	1,350	583	557	1,460	921	13,840	12,380	3,100

CAL YR 1967: TOTAL 14,072.74 MEAN 38.6 MAX 2,050 MIN 0.60 AC-FT 27,910
WTR YR 1968: TOTAL 18,553.3 MEAN 50.7 MAX 2,830 MIN 3.5 AC-FT 36,800

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7- 3	0110	5.10	1,600	7-12	2400	4.94	1,480
7- 6	2310	12.36	13,900	8-11	0400	3.91	855
7-10	2330	3.97	870				

7-2215. Canadian River near Sanchez, N. Mex.

Location.--Lat 35°39'15", long 104°22'40", in SW¼ sec.34, T.17 N., R.24 E., on right bank 1,000 ft downstream from bridge on State Highway 65, 1 mile upstream from Lagartija Creek, 3 miles northeast of Sanchez, 10 miles downstream from Mora River and 24 miles southwest of Mosquero.

Drainage area.--6,015 sq mi, of which 303 sq mi is probably noncontributing.

Records available.--April 1912 to December 1914, October 1935 to September 1968. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Graphic water-stage recorder. Altitude of gage is 4,495 ft (from topographic map). Apr. 12, 1912 to Dec. 31, 1914, at two sites within 100 ft about 3 miles upstream at different datums. October 1935 to June 1965 at site 1,000 ft upstream at datum 7.32 ft higher prior to October 1963 and 5.32 ft higher thereafter. June 1965 to October 1966 at site 0.6 mile upstream at datum about 20 ft higher. Supplemental graphic water-stage recorder at site 0.6 mile upstream used at various times since 1966.

Average discharge.--35 years (1912-14, 1935-68), 225 cfs (162,900 acre-ft per year).

Extremes.--Maximum discharge during year, 9,020 cfs July 7 (gage height, 11.48 ft); no flow Jan. 13.
1912-14, 1935-68: Maximum discharge, 145,000 cfs June 18, 1965 (gage height, about 38.1 ft, from floodmarks, present site and datum), from rating curve extended above 91,000 cfs on basis of slope-area measurement of peak flow; no flow at times.
The flood of Sept. 29 or 30, 1904 probably exceeded 100,000 cfs, but is believed to have been less than the peak of June 18, 1965.

Remarks.--Records fair except those for December, January, July and August, which are poor. Diversions for irrigation of about 56,000 acres above station. Records of chemical analyses and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	20	25	30	64	37	19	17	43	7.0	196	238
2	66	21	24	35	81	37	17	14	41	8.2	154	327
3	58	20	23	32	71	31	16	20	39	74	976	257
4	49	19	26	32	75	31	17	20	39	995	645	226
5	44	19	26	31	67	28	16	16	59	510	576	220
6	41	20	25	30	64	24	13	13	61	263	310	178
7	34	19	22	25	64	24	12	8.7	56	3,140	366	338
8	31	18	22	30	64	24	10	8.7	49	1,240	314	158
9	29	19	21	30	61	26	15	7.6	44	462	208	143
10	24	19	20	30	58	24	18	12	43	220	409	118
11	24	21	22	35	58	22	19	12	34	242	1,210	104
12	23	23	20	35	55	20	19	10	29	1,130	1,270	91
13	24	24	17	35	49	22	21	11	27	582	1,330	77
14	23	24	15	44	50	24	19	14	28	418	956	64
15	18	26	15	43	56	24	17	45	26	187	610	63
16	18	27	15	40	44	26	11	46	21	125	506	58
17	18	25	16	43	44	38	11	40	17	87	426	50
18	17	25	18	43	38	48	8.7	45	13	88	358	46
19	16	24	20	38	43	44	9.8	39	24	116	381	43
20	14	24	20	35	58	43	7.1	36	16	61	374	40
21	13	24	19	40	61	38	12	38	8.3	52	298	40
22	14	24	19	45	53	38	9.8	41	7.8	57	226	41
23	16	24	20	45	50	34	9.8	38	6.2	59	199	40
24	15	22	22	48	50	30	8.7	34	6.2	72	178	45
25	16	22	22	53	48	27	6.8	33	4.8	154	160	36
26	17	20	21	48	44	26	7.1	31	5.8	374	138	31
27	18	21	21	56	52	24	6.4	36	7.8	342	115	34
28	17	22	29	71	53	25	11	43	7.8	334	108	32
29	18	24	38	93	46	24	11	48	7.4	495	111	29
30	21	24	38	87	------	23	14	44	6.2	557	278	29
31	21	------	35	87	------	20	------	43	------	290	330	------
TOTAL	834	664	696	1,369	1,621	906	392.2	864.0	777.3	12,741.2	13,716	3,196
MEAN	26.9	22.1	22.5	44.2	55.9	29.2	13.1	27.9	25.9	411	442	107
MAX	77	27	38	93	81	48	21	48	61	3,140	1,330	338
MIN	13	18	15	25	38	20	6.4	7.6	4.8	7.0	108	29
AC-FT	1,650	1,320	1,380	2,720	3,220	1,800	778	1,710	1,540	25,270	27,210	6,340

CAL YR 1967: TOTAL 46,704.77 MEAN 128 MAX 3,780 MIN 0 AC-FT 92,640
WTR YR 1968: TOTAL 37,776.7 MEAN 103 MAX 3,140 MIN 4.8 AC-FT 74,930

PEAK DISCHARGE (BASE, 4,500 CFS)

DATE	TIME	G.HT.	DISCHARGE
7- 7	0845	11.48	9,020

7-2225. Conchas River at Variadero, N. Mex.

Location.--Lat 35°24'10", long 104°26'35", in NE¼NE¼ sec.36, T.14 N., R.23 E., on left bank 1.5 miles northeast of Variadero and 15 miles west of Conchas Dam.

Drainage area.--523 sq mi, of which 130 sq mi is probably noncontributing.

Records available.--October 1936 to September 1968.

Gage.--Graphic water-stage recorder. Altitude of gage is 4,430 ft (from topographic map). Prior to Mar. 30, 1942, at site 1½ miles upstream at different datum. Mar. 30, 1942 to May 18, 1950, at present site at datum 0.5 ft higher.

Average discharge.--32 years, 17.6 cfs (12,740 acre-ft per year).

Extremes.--Maximum discharge during year, 6,860 cfs July 3 (gage height, 9.05 ft), from rating curve extended above 760 cfs as explained below; no flow many days.

1936-68: Maximum discharge, 44,000 cfs Sept. 1, 1942 (gage height, 19.96 ft, present datum), from rating curve extended above 760 cfs on basis of slope-area measurements at gage heights 10.5 and 19.96 ft (present datum); no flow many days.

Remarks.--Records good. Diversions for irrigation of about 300 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.30	0.09	0.09	0.11	0.06	0.12	0.09	0.03	0	0	0.93	37
2	.27	.09	.09	.12	.05	.12	.09	0	0	233	.79	8.2
3	.18	.08	.09	.11	.05	.12	.08	0	0	1,270	.73	3.9
4	.16	.08	.08	.09	.06	.12	.07	0	0	26	1.7	3.0
5	.14	.08	.09	.09	.06	.12	.07	0	0	8.8	1.1	2.2
6	.11	.08	.09	.09	.06	.12	.05	0	0	8.5	.67	36
7	.09	.08	.09	.10	.06	.12	0	0	0	33	.38	81
8	.11	.08	.08	.10	.06	.09	0	0	0	69	.30	9.5
9	.09	.08	.09	.10	.06	.09	0	0	0	14	30	3.1
10	.08	.08	.09	.10	.07	.24	.02	0	0	5.6	194	2.0
11	.08	.08	.09	.11	.07	.51	.05	0	0	486	177	46
12	.07	.08	.09	.11	.08	.18	.05	0	0	63	43	4.6
13	.06	.07	.08	.10	.08	.14	.04	0	0	105	92	2.0
14	.06	.07	.08	.11	.11	.12	.02	0	0	23	12	1.1
15	.06	.08	.08	.09	.12	.09	0	0	0	6.8	4.9	.73
16	.07	.08	.08	.09	.09	.09	0	0	0	3.3	2.8	.42
17	.07	.08	.07	.09	.09	.09	0	0	0	2.0	2.1	.34
18	.07	.08	.07	.09	.11	.08	0	0	0	1.5	8.6	.27
19	.06	.08	.07	.08	.11	.08	0	0	0	180	4.6	.18
20	.06	.08	.07	.08	.09	.09	0	.19	0	24	2.2	.14
21	.06	.07	.07	.12	.11	.11	0	.12	0	8.2	3.0	.09
22	.06	.08	.08	.18	.11	.11	.04	.03	0	6.1	3.0	.07
23	.06	.08	.08	.14	.11	.09	.09	0	0	3.5	2.1	.06
24	.06	.08	.08	.09	.09	.08	.06	0	0	121	1.3	.06
25	.07	.08	.07	.09	.09	.08	.04	0	0	119	.93	.06
26	.07	.09	.07	.08	.09	.06	.03	0	0	88	.86	.05
27	.07	.12	.16	.08	.11	.06	.02	0	0	29	.79	.05
28	.06	.12	.12	.07	.12	.07	.06	0	0	7.8	114	.03
29	.11	.12	.12	.07	.12	.06	.07	0	0	3.3	13	.03
30	.11	.11	.12	.06	------	.06	.03	0	0	1.8	32	.03
31	.09	------	.12	.06	------	.05	------	0	------	1.2	96	------
TOTAL	3.01	2.55	2.75	3.00	2.49	3.56	1.07	0.37	0	2,951.4	846.78	242.21
MEAN	.097	.085	.089	.097	.086	.115	.036	.012	0	95.2	27.3	8.07
MAX	.30	.12	.16	.18	.12	.51	.09	.19	0	1,270	194	81
MIN	.06	.07	.07	.06	.05	.05	0	0	0	0	.30	.03
AC-FT	6.0	5.1	5.5	6.0	4.9	7.1	2.1	.7	0	5,850	1,680	480

CAL YR 1967: TOTAL 5,360.16 MEAN 14.7 MAX 542 MIN 0 AC-FT 10,630
WTR YR 1968: TOTAL 4,059.19 MEAN 11.1 MAX 1,270 MIN 0 AC-FT 8,050

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.HT.	DISCHARGE
7- 3	0300	9.05	6,860
7-11	0630	4.50	1,540

7-2230. Bell Ranch Canal below Conchas Dam, N. Mex.

Location.--Lat 35°24'00", long 104°11'05", in SE¼ sec.28, T.14 N., R.26 E., in Pablo Montoya Grant, on left bank 1,270 ft downstream from Conchas Dam and 24 miles north of Newkirk.
Records available.--October 1942 to September 1968. Prior to October 1965, published as "near Conchas Dam."
Gage.--Graphic water-stage recorder and Parshall flume. Altitude of gage is 4,150 ft (from headgate elevations).
Extremes.--1942-68: Maximum daily discharge, 21 cfs July 10-13, Sept. 7-10, 1948, June 27, Aug. 7, 1951; no flow many days each year.
Remarks.--Records good. Canal diverts from Conchas Reservoir for irrigation of about 700 acres on Bell Ranch.

Monthly diversion, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Diversion in acre-feet
October	9.4	0	5.86	360
November	6.0	.03	2.31	137
December	3.1	0	.62	38
CAL YR 1967	13	0	3.08	2,230
January	0	0	0	0
February	0	0	0	0
March	5.8	0	2.96	182
April	8.7	0	4.55	271
May	10	0	5.67	349
June	9.6	0	3.69	220
July	9.8	0	3.68	226
August	10	0	5.60	345
September	7.4	0	4.18	249
WTR YR 1968	10	0	3.27	2,380

7-2233. Conchas Canal below Conchas Dam, N. Mex.

Location.--Lat 35°21'45", long 104°10'15", in S½ sec.3, T.13 N., R.26 E., on left bank at upstream end of tunnel transition section, about 1 mile downstream from headgates in Conchas Dam and 22 miles north of Newkirk.
Records available.--September 1945 to June 1949, April 1954 to June 1955, September 1961 to September 1968.
Gage.--Graphic water-stage recorder and concrete control. Datum of gage is 4,156.9 ft above mean sea level (from Bureau of Reclamation elevation of concrete structure). Prior to Nov. 19, 1948, at site three-quarters of a mile upstream at different datum.
Extremes.--1945-49, 1954-55, 1961-68: Maximum daily discharge, 751 cfs Aug. 31, 1961; no flow during most of each winter period.
Remarks.--Records good. No diversion or wasteway between canal headworks and gage. Water is diverted from Conchas Reservoir for irrigation of about 35,000 acres on Tucumcari Project (1966 conditions). Records of chemical analyses and water temperatures for the water year 1968 are published in part 2 of this report.

Monthly diversion, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Diversion in acre-feet
October	194	0	81.7	5,020
November	.19	0	.103	6.1
December	263	0	49.9	3,070
CAL YR 1967	390	0	134	97,040
January	.49	0	.058	3.6
February	.19	0	.065	3.7
March	.27	0	.043	2.6
April	417	0	258	15,360
May	329	127	230	14,150
June	360	266	308	18,340
July	411	129	266	16,380
August	477	166	327	20,090
September	379	157	258	15,320
WTR YR 1968	477	0	148	107,800

7-2235. Conchas Reservoir at Conchas Dam, N. Mex.

Location.--Lat 35°24'10", long 104°11'25", in SW¼ sec.28, T.14 N., R.26 E., in Pablo Montoya Grant, stilling well within concrete portion of Conchas Dam on Canadian River, and about 24 miles north of Newkirk.

Drainage area.--7,409 sq mi, of which 433 sq mi is probably noncontributing.

Records available.--December 1938 to September 1968. Prior to October 1965, published as "near Conchas Dam."

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

Extremes.--Maximum contents during year, 281,700 acre-ft Oct. 1 (elevation, 4,193.13 ft); minimum, 210,900 acre-ft July 2 (elevation, 4,183.51 ft).
1938-68: Maximum contents, 479,600 acre-ft Apr. 24, 1942 (elevation, 4,208.41 ft); minimum after initial filling, 82,840 acre-ft Sept. 12, 13, 1964 (elevation, 4,156.05 ft); minimum elevation, 4,155.80 ft Sept. 24, 1954.

Remarks.--Reservoir is formed by dam consisting of concrete main section and earthfill wings, completed Sept. 15, 1939; storage began Dec. 29, 1938. Capacity, 352,600 acre-ft between elevations 4,060.0 and 4,201.0 ft (crest of 300-ft ungated service spillway); inactive storage, 79,600 acre-ft at elevation 4,155 ft. Reservoir usually not drawn below elevation, 4,157.35 ft (sill of irrigation outlet), capacity 86,990 acre-ft, except for minor sluicing and operation of small powerplant; during 1954-55, 1964 there was some pumping into Conchas Canal. Capacity of 198,200 acre-ft between elevations 4,201.0 (crest of 300-foot ungated service spillway) and 4,218.0 ft (crest of 3,000-foot ungated emergency spillway) acts as detention storage in the control of floods. Figures given herein represent total contents. Reservoir is used for irrigation, flood control, and recreation. Diversion above station for irrigation of about 57,000 acres. Direct diversions through Conchas Dam to Conchas Canal and Bell Ranch Canal (see stations 7-2230, 7-2233) irrigate about 36,000 acres near Tucumcari, and on Bell Ranch.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table, water year 1967-68
(elevation, in feet, and contents, in acre-feet)

4,182	201,300	4,190	256,900
4,184	214,200	4,192	272,500
4,186	227,700	4,194	288,900
4,188	241,900		

CONTENTS, IN ACRE-FEET, AT 2400 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	281,700	272,500	270,300	267,300	269,400	271,600	271,600	252,400	234,900	211,800	228,300	237,100
2	281,500	272,400	270,200	267,200	269,600	271,500	271,600	251,700	234,300	210,900	227,700	237,100
3	281,100	272,300	270,100	267,200	269,700	271,600	271,400	250,900	233,400	214,300	227,800	237,200
4	280,700	272,100	270,100	267,200	269,700	271,600	271,100	250,200	232,500	214,700	228,300	237,100
5	280,300	272,000	270,100	267,200	269,800	271,600	271,000	249,600	231,400	215,500	228,300	236,900
6	279,700	272,000	270,000	267,200	269,900	271,600	270,900	249,000	230,500	216,300	228,100	237,500
7	279,200	272,000	269,800	267,200	270,000	271,600	270,800	248,300	229,700	221,500	227,600	237,500
8	278,800	272,000	269,400	267,400	270,100	271,700	270,300	247,500	229,000	224,600	227,400	237,500
9	278,300	271,900	268,900	267,400	270,100	271,700	269,600	247,000	228,400	225,900	226,700	237,200
10	277,800	271,800	268,400	267,400	270,200	271,800	268,900	246,600	227,700	226,600	226,900	236,900
11	277,300	271,700	267,800	267,500	270,300	272,000	268,300	246,200	226,900	227,600	229,000	236,400
12	276,800	271,700	267,200	267,500	270,300	272,000	267,800	245,900	225,600	229,200	231,900	235,700
13	276,300	271,700	266,600	267,600	270,500	272,100	267,000	245,500	224,500	230,600	234,000	234,900
14	275,700	271,700	266,300	267,700	270,500	272,100	266,400	245,000	225,400	231,300	235,600	234,200
15	275,000	271,700	266,600	267,800	270,800	272,000	265,800	244,500	224,900	231,400	236,200	233,200
16	274,700	271,700	266,700	267,800	270,800	272,000	265,200	244,100	224,300	231,300	236,700	232,500
17	274,500	271,100	266,700	267,900	270,800	272,000	264,200	243,600	223,400	231,100	236,900	231,900
18	274,500	271,100	266,700	267,900	270,900	271,900	263,400	243,100	222,500	230,800	236,900	231,300
19	274,300	271,100	266,700	268,000	270,900	271,800	262,600	242,700	221,900	231,200	236,800	230,600
20	274,100	271,000	266,700	268,100	270,900	271,800	261,700	242,400	220,900	231,000	236,700	229,900
21	274,000	270,900	266,700	268,300	271,100	271,800	260,700	241,900	220,200	230,500	236,700	229,200
22	273,800	270,900	266,700	268,500	271,200	271,800	259,900	241,600	219,500	229,900	236,200	228,600
23	273,600	270,900	266,700	268,600	271,300	271,900	259,200	241,000	218,700	229,300	235,800	228,000
24	273,400	270,800	266,700	268,700	271,300	271,900	258,100	240,300	217,900	229,100	235,300	227,400
25	273,300	270,600	266,700	268,900	271,300	271,900	257,100	239,800	216,900	229,100	234,800	227,000
26	273,200	270,500	266,700	268,900	271,400	271,800	256,100	239,300	216,100	229,100	234,200	226,600
27	273,000	270,500	266,900	268,900	271,500	271,800	255,200	238,500	215,500	229,000	233,700	226,000
28	272,900	270,500	267,000	269,000	271,500	271,700	254,500	237,800	214,600	228,900	233,300	225,400
29	272,900	270,500	267,000	269,100	271,600	271,700	253,800	237,000	213,600	229,000	234,700	224,800
30	272,700	270,400	267,000	269,200	------	271,700	253,100	236,400	212,600	228,900	234,900	224,300
31	272,600	------	267,200	269,300	------	271,600	------	235,700	------	228,700	236,500	------
(†)	4,192.01	4,193.73	4,191.33	4,191.60	4,191.88	4,191.88	4,189.51	4,187.13	4,183.77	4,186.15	4,187.25	4,185.50
(‡)	-9,500	-2,200	-3,200	+2,100	+2,300	0	-18,500	-17,400	-23,100	+16,100	+7,800	-12,200
MAX	281,700	272,500	270,300	269,300	271,600	272,100	271,600	252,400	234,900	231,400	236,900	237,500
MIN	272,600	270,400	266,300	267,200	269,400	271,500	253,100	235,700	212,600	210,900	226,700	224,300

CAL YR 1967..... ‡ -11,200
WTR YR 1968..... ‡ -57,800

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

7-2245. Canadian River below Conchas Dam, N. Mex.

Location.--Lat 35°24'30", long 104°10'10", in SW¼ sec.27, T.14 N., R.26 E., in Pablo Montoya Grant, on right bank 2.8 miles downstream from Conchas Dam, and 24 miles north of Newkirk.

Drainage area.--7,417 sq mi, of which 433 sq mi is probably noncontributing.

Records available.--May 1936 to December 1938, January 1942 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 4,021.90 ft above mean sea level, datum of 1929. Prior to Dec. 13, 1941, at site 0.7 mile downstream at datum 6.2 ft higher.

Average discharge.--27 years (1941-68), 82.7 cfs (59,870 acre-ft per year).

Extremes.--Maximum discharge during year, 303 cfs July 3 (gage height, 6.53 ft); minimum daily discharge, 2.6 cfs Oct. 7.
1936-68: Maximum discharge, 73,000 cfs June 3, 1937 (may have been affected by construction work on Conchas Dam); maximum gage height, 20.34 ft May 30, 1938, present datum (backwater from temporary construction dam); no flow at times.

Remarks.--Records poor. Flow regulated by Conchas Reservoir (see preceding page). Diversions above station for irrigation of about 90,000 acres, 36,000 of which are below station. Bell Ranch Canal (see station 7-2230) diverts directly from Conchas Dam and flumes from right to left bank just above River gage for irrigation of about 700 acres on Bell Ranch. Conchas Canal (see station 7-2233) diverts directly from Conchas Dam and bypasses gage for irrigation of about 35,000 acres around Tucumcari.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	3.6	3.5	3.6	3.3	3.5	3.9	4.6	3.5	3.0	3.8	7.0
2	3.0	3.6	3.3	3.5	3.5	3.5	4.1	3.6	3.5	3.0	3.8	4.6
3	2.8	3.6	3.3	3.3	3.5	3.3	3.8	3.3	3.5	84	3.6	4.5
4	2.8	3.5	3.3	3.3	3.3	3.5	3.5	3.6	3.3	5.2	3.5	4.8
5	2.8	3.5	3.3	3.3	3.5	3.8	3.8	3.8	3.3	4.5	3.5	4.5
6	2.8	3.5	3.3	3.3	3.3	3.5	3.8	3.8	3.2	6.4	3.5	4.3
7	2.6	3.5	3.3	3.2	3.5	3.3	3.6	3.6	3.2	5.2	3.5	3.9
8	2.8	3.5	3.3	3.2	3.5	3.2	3.5	3.5	3.3	4.1	3.5	3.6
9	2.8	3.5	3.2	3.2	3.5	3.3	3.5	4.5	3.3	3.9	3.8	3.6
10	2.8	3.5	3.2	3.3	3.5	3.5	3.6	5.8	3.2	3.9	3.9	4.5
11	3.0	3.5	3.3	3.3	3.5	3.8	3.8	4.3	3.2	3.9	4.1	4.6
12	3.3	3.5	3.3	3.2	3.3	3.3	3.9	3.9	3.2	4.3	6.4	4.5
13	3.6	3.5	3.3	3.2	3.5	3.2	3.9	3.9	3.0	4.6	4.8	5.0
14	3.6	3.5	3.5	3.2	3.5	3.6	3.8	3.5	3.0	3.9	4.6	5.0
15	3.5	3.6	3.8	3.2	3.5	4.1	3.8	3.3	3.2	3.8	4.5	4.8
16	3.6	3.6	3.8	3.3	3.5	3.3	3.8	3.3	3.2	3.6	4.5	4.6
17	3.9	3.6	6.0	3.3	3.5	3.2	3.8	3.3	3.2	3.5	4.5	4.6
18	4.5	3.6	6.2	3.2	3.5	3.2	3.6	3.6	3.2	3.6	4.6	4.6
19	3.5	3.6	4.5	3.3	3.5	2.8	3.8	3.8	4.3	4.3	4.5	4.6
20	3.5	3.6	3.6	3.3	3.8	2.8	3.6	3.8	3.8	3.5	4.6	4.3
21	3.6	3.6	3.6	3.3	4.3	3.0	3.8	3.8	3.0	3.3	5.2	4.3
22	3.6	3.5	3.5	3.8	3.3	3.0	3.8	3.8	4.6	3.3	5.4	4.6
23	3.5	3.5	3.5	3.5	3.3	3.0	3.9	3.6	3.3	3.3	5.2	4.5
24	3.3	3.5	3.5	3.6	3.3	3.0	3.8	3.6	3.3	3.2	5.4	4.1
25	3.3	3.5	3.5	4.3	3.3	3.2	3.5	3.6	3.3	3.8	7.0	4.1
26	3.5	3.5	3.6	3.5	3.5	3.2	3.5	3.6	3.5	3.8	6.4	3.8
27	3.6	3.5	3.6	3.3	3.5	3.0	3.5	3.8	3.6	3.3	5.8	3.5
28	3.6	3.9	3.6	3.3	3.5	3.2	4.1	3.8	3.5	3.3	6.0	3.2
29	3.6	4.6	3.6	3.3	3.5	3.3	3.9	3.9	3.3	3.8	6.7	3.0
30	3.6	3.5	3.6	3.5	------	3.5	4.1	3.6	3.0	5.8	7.7	3.0
31	3.6	------	3.6	3.5	------	3.5	------	3.5	------	3.8	53	------
TOTAL	103.2	107.5	113.5	104.6	101.0	102.6	112.8	117.4	101.0	202.9	197.3	130.0
MEAN	3.33	3.58	3.66	3.37	3.48	3.31	3.76	3.79	3.37	6.55	6.36	4.33
MAX	4.5	4.6	6.2	4.3	4.3	4.1	4.1	5.8	4.6	84	53	7.0
MIN	2.6	3.5	3.2	3.2	3.3	2.8	3.5	3.3	3.0	3.0	3.5	3.0
AC-FT	205	213	225	207	200	204	224	233	200	402	391	258

CAL YR 1967: TOTAL 1,242.6 MEAN 3.40 MAX 37 MIN 1.2 AC-FT 2,460
WTR YR 1968: TOTAL 1,493.8 MEAN 4.08 MAX 84 MIN 2.6 AC-FT 2,960

7-2265. Ute Creek near Logan, N. Mex.

Location.--Lat 35°26'55", long 103°31'40", in SW¼SE¼ sec.10, T.14 N., R.32 E., on right bank upstream from flow line of Ute Reservoir, 3½ miles upstream from State Road 155, 4 miles north of Harding-Quay County line, 9 miles northwest of Logan and 10 miles upstream from mouth.

Drainage area.--2,060 sq mi, of which 617 is probably noncontributing.

Records available.--August 1904 to June 1906 and April 1909 to May 1914 (gage heights and discharge measurements only), January 1942 to September 1968. Records of discharge for August 1904 to June 1906, April 1909 to December 1911, published in WSP 307, have been found to be unreliable and should not be used.

Gage.--Graphic water-stage recorder. Altitude of gage is 3,840 ft (from topographic map). Prior to Aug. 1, 1911, staff gage at site 5½ miles downstream at different datum. Aug. 1, 1911 to May 23, 1914, water-stage recorder at site 5 3/4 miles downstream at different datum. January 1942 to December 1955, water-stage recorder at site 4 miles downstream at datum of 3,758.50 ft above mean sea level; at that site at datum 1.00 ft lower December 1955 to September 1964.

Average discharge.--26 years, 27.6 cfs (19,980 acre-ft per year).

Extremes.--Maximum discharge during year, 3,950 cfs Aug. 11 (gage height, 4.63 ft); no flow most of time.
1942-68: Maximum discharge, 24,500 cfs May 28, 1946, July 12, 1951 (gage height, 8.4 ft, site and datum then in use), from rating curve extended above 7,700 cfs on basis of slope-area measurements at gage heights 5.2 and 7.2 ft; no flow most of time.
Flood of May 1, 1914, reached a stage of 22.95 ft, site and datum then in use. Another major flood reached a stage of 16.0 ft (1942 datum) sometime in 1941, from information furnished by Bureau of Reclamation (discharge, about 70,000 cfs).

Remarks.--Records poor. Diversions for irrigation of a few hundred acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										0	0	0
2										0	0	0
3										0	0	0
4										0	0	0
5										0	0	0
6										0	10	0
7										0	17	0
8										0	3.2	0
9										0	20	0
10										0	244	0
11										21	638	0
12										115	222	0
13										115	68	0
14										57	25	0
15										32	13	0
16										8.0	5.0	0
17										0	.10	0
18										0	0	0
19										0	0	0
20										0	0	0
21										0	0	0
22										0	0	1.6
23										0	0	36
24										4.7	0	.12
25										.78	0	0
26										6.5	28	0
27										6.7	.76	0
28										5.7	0	0
29										1.1	3.6	0
30										0	6.0	0
31										0	0	
TOTAL	0	0	0	0	0	0	0	0	0	373.48	1,303.66	37.72
MEAN	0	0	0	0	0	0	0	0	0	12.0	42.1	1.2
MAX	0	0	0	0	0	0	0	0	0	115	638	36
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	0	741	2,590	75

CAL YR 1967: TOTAL 10,454.13 MEAN 28.6 MAX 1,020 MIN 0 AC-FT 20,740
WTR YR 1968: TOTAL 1,714.86 MEAN 4.69 MAX 638 MIN 0 AC-FT 3,400

Peak discharge (base, 4,500 cfs).--No peak above base.

7-2268. Ute Reservoir near Logan, N. Mex.

Location.--Lat 35°20'35", long 103°26'40", in NW¼ sec.21, T.13 N., R.33 E., on face of Ute Dam on Canadian River 2½ miles southwest of Logan and 3½ miles downstream from Ute Creek.

Drainage area.--11,140 sq mi, of which 1,110 sq mi is probably noncontributing.

Records available.--May 1963 to September 1968.

Gage.--Inclined cable gage and vertical staff gage. Datum of gage is at mean sea level (levels by Interstate Stream Commission).

Extremes.--Maximum contents during year, 109,200 acre-ft Oct. 1-3 (elevation, 3,759.9 ft); minimum, 90,880 acre-ft July 4-7 (elevation, 3,755.2 ft).
1963-68: Maximum contents, 115,100 acre-ft July 13, 1967 (elevation, 3,761.3 ft); minimum, 22,230 acre-ft Aug. 7, 1964 (elevation, 3,726.2 ft).

Remarks.--Reservoir is formed by earthfill dam 121 ft high above streambed, 2,050 ft long; an earth-dike section on north (left) bank of Canadian River is 2,860 ft long and has a maximum height of 27 ft; a concrete spillway section 840 ft long is constructed between main embankment and the dike. Construction completed in May 1963; storage began Dec. 13, 1962. Capacity, 109,600 acre-ft at elevation 3,760.0 ft (crest of 840-ft ungated service spillway). Top of dam is at elevation 3,801.0 ft. Maximum design capacity of 307,000 acre-ft at elevation 3,791.0 ft (31 ft above crest of 840-ft spillway) allows 197,400 acre-ft of capacity for protection of the structure. Dead storage, 20,710 acre-ft at elevation 3,725.0 ft (crest of outlet tower); inactive pool of 49,870 acre-ft below elevation 3,741.6 ft is maintained for fish and wildlife. Figures given herein represent total contents. Reservoir is planned to furnish water for municipal and industrial uses and for recreational purposes; some incidental flood control. Diversions above station for irrigation of about 90,000 acres. Records of chemical analyses and water temperatures for water year 1968 are published in part 2 of this report.

Cooperation.--Records furnished by New Mexico Interstate Stream Commission.

Capacity table, water year 1967-68
(elevation, in feet, and contents, in acre-feet)

3,755	90,140	3,758	101,500
3,756	93,840	3,760	109,600

CONTENTS, IN ACRE-FEET, AT 2400 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109,200	100,300	96,100	95,720	95,340	94,970	94,590	94,210	92,720	91,240	93,090	99,950
2	109,200	100,300	96,100	95,720	95,340	94,970	94,590	94,210	92,720	91,240	93,090	99,950
3	109,200	100,300	96,100	95,720	95,340	94,970	94,590	94,210	92,350	91,240	93,090	99,950
4	108,800	100,300	96,100	95,720	95,340	94,970	94,590	94,210	92,350	90,880	93,090	99,950
5	108,800	99,950	96,100	95,720	95,340	94,970	94,590	94,210	92,350	90,880	93,090	99,950
6	108,800	99,950	95,720	95,720	95,340	94,970	94,590	93,840	92,350	90,880	92,720	99,560
7	107,900	99,950	95,720	95,720	95,340	94,590	94,590	93,840	91,980	90,880	92,720	99,560
8	107,100	99,950	95,720	95,720	95,340	94,590	94,590	93,840	91,980	91,980	92,720	99,560
9	106,700	99,950	95,720	95,720	95,340	94,590	94,590	93,840	91,980	92,720	92,720	99,560
10	106,300	99,950	95,720	95,720	95,340	94,590	94,590	93,840	91,980	93,090	92,350	99,560
11	105,500	99,950	95,720	95,720	95,340	94,590	94,590	93,840	91,980	93,470	93,090	99,170
12	104,700	99,950	95,720	95,720	95,340	94,970	94,590	93,470	91,610	93,470	97,630	99,170
13	103,900	99,950	95,720	95,720	95,340	94,970	94,590	93,470	91,610	93,470	98,790	99,170
14	103,100	99,950	95,720	95,720	95,340	94,970	94,590	93,470	91,610	94,210	99,170	99,170
15	102,700	99,950	95,720	95,720	95,340	94,970	94,590	93,470	91,610	94,210	99,170	98,790
16	101,900	99,950	95,720	95,720	95,340	94,970	94,590	93,470	91,980	94,210	99,170	98,790
17	101,100	99,950	95,720	95,720	95,340	94,970	94,590	93,470	91,980	94,210	99,170	98,790
18	101,100	99,950	96,100	95,720	95,340	94,970	94,590	93,470	91,980	93,840	99,170	98,790
19	101,100	99,950	96,100	95,720	95,340	94,590	94,210	93,090	91,980	93,840	99,170	98,790
20	100,700	99,560	96,100	95,720	95,340	94,590	94,210	93,090	91,980	93,840	98,790	98,400
21	100,700	99,560	96,100	95,720	94,970	94,590	94,210	93,090	91,610	93,840	98,790	98,400
22	100,700	99,560	96,100	95,720	94,970	94,590	94,210	93,090	91,610	93,840	98,790	98,400
23	100,700	99,170	96,100	95,720	94,970	94,590	94,210	93,090	91,610	93,840	98,790	98,400
24	100,700	98,400	96,100	95,720	94,970	94,590	94,210	93,090	91,610	93,840	98,790	98,400
25	100,700	97,630	96,100	95,340	94,970	94,590	94,210	93,090	91,610	93,840	98,790	98,400
26	100,300	96,860	95,720	95,340	94,970	94,590	94,210	93,090	91,610	93,470	98,400	98,020
27	100,300	96,480	95,720	95,340	94,970	94,590	94,210	92,720	91,610	93,470	98,400	98,020
28	100,300	96,100	95,720	95,340	94,970	94,590	94,210	92,720	91,240	93,470	98,400	98,020
29	100,300	96,100	95,720	95,340	94,970	94,590	94,210	92,720	91,240	93,470	98,400	98,020
30	100,300	96,100	95,720	95,340	------	94,590	94,210	92,720	91,240	93,470	99,170	98,020
31	100,300	------	95,720	95,340	------	94,590	------	92,720	------	93,470	99,560	------
(†)	3,757.7	3,756.6	3,756.5	3,756.4	3,756.3	3,756.2	3,756.1	3,755.7	3,755.3	3,755.9	3,757.5	3,757.1
(‡)	-8,900	-4,200	-380	-380	-370	-380	-380	-1,490	-1,480	+2,230	+6,090	-1,540
MAX	109,200	100,300	96,100	95,720	95,340	94,970	94,590	94,210	92,720	94,210	99,560	99,950
MIN	100,300	96,100	95,720	95,340	94,970	94,590	94,210	92,720	91,240	90,880	92,350	98,020

CAL YR 1967..... ‡ - 7,380
WTR YR 1968..... ‡ -11,180

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

7-2270. Canadian River at Logan, N. Mex.

Location.--Lat 35°21'20", long 103°25'20", in NE¼ sec.15, T.13 N., R.33 E., on left bank 1,100 ft upstream from bridge on U. S. Highway 54, half a mile south of Logan, 1½ miles upstream from Chicago, Rock Island & Pacific Railroad Co. bridge, 2 miles downstream from Ute Dam, 4¼ miles upstream from Revuelto Creek, and 5½ miles downstream from Ute Creek.

Drainage area.--11,141 sq mi, of which 1,110 sq mi is probably noncontributing.

Records available.--June 1904 to November 1905 (gage heights and discharge measurements only), December 1908 to September 1909, February 1910, April to July 1910, August 1910 to September 1911 (gage heights and discharge measurements only), October 1911 to May 1914, January to May 1924, September 1924 to July 1925, January 1927 to April 1934, August 1934 to September 1968. Monthly discharge only for some periods, published in WSP 1311. Records for December 1909, January 1910, and May to July 1934, published in WSP 267, 287, and 762 have been found to be unreliable and should not be used.

Gage.--Graphic water-stage recorder at present site since Aug. 5, 1910; at different datums prior to Oct. 21, 1928, and at datum 1.54 ft lower Oct. 21, 1928, to Sept. 30, 1934. Datum of present gage is 3,668.1 ft above mean sea level, datum of 1929. Prior to Aug. 5, 1910, staff gages 1½ miles downstream at different datums (datum of gage, 3,651 ft above mean sea level Dec. 22, 1908 to Aug. 4, 1910).

Average discharge.--15 years (1908-9, 1911-13, 1926-38), 392 cfs (283,800 acre-ft per year), prior to completion of Conchas Dam; 24 years (1938-62), 257 cfs (186,100 acre-ft per year), prior to completion of Ute Dam; 6 years (1962-68), 23.6 cfs (17,090 acre-ft per year).

Extremes.--Maximum discharge during year, 355 cfs Oct. 6 (gage height, 5.10 ft); minimum, 1.5 cfs Oct. 5.
1930-68: Maximum discharge, 219,000 cfs Sept. 22, 1941 (gage height, 29.3 ft, from floodmarks), from rating curve extended above 75,000 cfs by logarithmic plotting; no flow at times prior to completion of Ute Dam.
Maximum discharge known, 278,000 cfs Sept. 30, 1904 (gage height, about 36.5 ft, site and datum used in 1909), from rating curve extended above 14,000 cfs, from Ninth Biennial Report of State Engineer.

Remarks.--Records good. Flow regulated by Conchas Reservoir, 45 miles upstream (see station 7-2235) and Ute Reservoir, 2 miles upstream (see station 7-2268). Diversions for irrigation of about 90,000 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.9	3.5	2.5	2.7	2.5	2.6	2.5	2.8	2.1	2.1	2.4
2	1.7	2.9	3.2	2.5	2.6	2.5	2.5	2.5	2.6	2.2	2.1	2.3
3	2.0	3.0	3.2	2.5	2.7	2.5	2.5	2.5	2.6	2.3	2.1	2.3
4	1.7	3.0	3.2	2.5	2.7	2.5	2.5	2.5	2.5	2.2	2.1	2.5
5	1.6	3.0	3.1	2.5	2.7	2.5	2.5	2.5	2.5	2.5	2.1	2.4
6	180	3.0	3.0	2.5	2.7	2.5	2.4	2.4	2.5	2.8	2.1	2.4
7	326	2.9	2.9	2.5	2.7	2.5	2.4	2.5	2.7	2.4	2.1	2.4
8	312	2.9	2.9	2.5	2.7	2.5	2.5	2.5	2.6	2.2	2.1	2.3
9	312	2.9	2.8	2.6	2.7	2.5	2.5	2.9	2.5	2.9	2.2	2.3
10	312	2.9	2.9	2.7	2.7	3.2	2.5	2.9	2.5	2.6	2.4	2.3
11	317	2.9	2.9	2.7	2.7	3.0	2.5	2.7	2.5	2.2	2.3	2.3
12	308	2.8	2.9	2.7	2.7	2.8	2.5	2.6	2.5	7.3	2.5	2.3
13	308	2.6	2.9	2.7	2.7	2.7	2.4	2.5	2.5	3.1	2.3	2.3
14	308	2.6	2.9	2.7	2.8	2.6	2.5	2.5	2.5	2.2	2.3	2.3
15	308	2.6	2.9	2.7	2.7	2.6	2.4	2.5	2.5	2.1	2.2	2.3
16	308	2.6	2.9	2.7	2.7	2.6	2.4	2.4	2.5	2.0	2.2	2.2
17	223	2.6	2.9	2.7	2.6	2.7	2.4	2.5	2.5	2.0	2.2	2.3
18	5.7	2.6	2.9	2.7	2.7	2.6	2.5	2.5	4.8	2.0	2.2	2.3
19	4.2	2.7	2.9	2.7	2.7	2.6	2.5	2.6	2.9	2.0	2.2	2.3
20	3.8	2.6	3.0	2.7	2.6	2.6	2.5	2.6	2.4	2.0	2.3	2.2
21	3.5	2.6	2.7	3.1	2.7	2.6	2.4	2.6	2.2	2.8	2.4	2.2
22	3.3	91	2.6	3.3	2.6	2.6	2.5	2.5	2.2	2.5	2.2	3.0
23	3.2	282	2.6	2.9	2.6	2.6	2.5	2.5	2.2	2.2	2.2	3.3
24	3.1	278	2.7	2.8	2.6	2.5	2.5	2.6	2.1	2.7	2.2	2.6
25	3.1	274	2.6	2.8	2.6	2.5	2.5	2.6	2.1	2.7	2.3	2.5
26	3.0	274	2.6	2.8	2.5	2.5	2.5	2.6	2.1	2.2	2.4	2.4
27	3.0	211	2.6	2.8	2.5	2.5	2.5	2.6	2.1	2.0	2.4	2.3
28	3.0	6.2	2.5	2.8	2.5	2.6	2.9	2.6	2.1	2.0	2.4	2.2
29	3.0	4.4	2.5	2.6	2.5	2.5	2.6	2.6	2.1	2.1	2.4	2.2
30	2.9	3.9	2.5	2.6	------	2.5	2.5	2.6	2.1	2.1	2.5	2.2
31	2.9	------	2.5	2.6	------	2.5	------	2.7	-----	2.1	2.5	------
TOTAL	3578.9	1483.1	88.2	83.4	76.9	80.4	74.9	79.6	74.7	76.5	70.0	71.3
MEAN	115	49.4	2.85	2.69	2.65	2.59	2.50	2.57	2.49	2.47	2.26	2.38
MAX	326	282	3.5	3.3	2.8	3.2	2.9	2.9	4.8	7.3	2.5	3.3
MIN	1.6	2.6	2.5	2.5	2.5	2.5	2.4	2.4	2.1	2.0	2.1	2.2
AC-FT	7100	2940	175	165	153	159	149	158	148	152	139	141

CAL YR 1967: TOTAL 27,717.2 MEAN 75.9 MAX 3,020 MIN 1.2 AC-FT 54,980
WTR YR 1968: TOTAL 5,837.9 MEAN 16.0 MAX 326 MIN 1.6 AC-FT 11,580

7-2271. Revuelto Creek near Logan, N. Mex.

Location.--Lat 35°20'30", long 103°23'40", in SW¼NW¼ sec.24, T.13 N., R.33 E., on right bank a quarter of a mile upstream from bridge on State Highway 39, 2 miles upstream from mouth, and 2 miles southeast of Logan.

Drainage area.--786 sq mi.

Records available.--August 1959 to September 1968. Unpublished records collected by Bureau of Reclamation for the period October 1941 to July 1947 are for a site 500 ft downstream at different datum. They are not equivalent because of major irrigation development; major peaks should be comparable.

Gage.--Water-stage recorder. Datum of gage is 3,672 ft above mean sea level, datum of 1929.

Average discharge.--9 years, 54.0 cfs (39,090 acre-ft per year).

Extremes.--Maximum discharge during year, 2,160 cfs Aug. 26 (gage height, 5.01 ft); no flow Apr. 2, 3, 5.
1959-68: Maximum discharge, 26,700 cfs July 9, 1960 (gage height, 14.3 ft), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow; no flow at times.
1941-47: Maximum discharge determined, about 13,400 cfs Sept. 18, 1946 (gage height, 9.04 ft, site and datum then in use), computed by Bureau of Reclamation.
A peak of 26,100 cfs (time and date unknown; gage height, 12.9 ft) was measured by slope-area method in May 1957.

Remarks.--Records poor. Low flows supplemented by surface and ground water return from irrigation in vicinity of Tucumcari. Records of chemical analyses and water temperatures for water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	1.5	1.6	8.0	3.0	1.5	0.17	35	78	1.8	14	30
2	5.0	.98	1.2	10	2.6	1.2	.14	30	18	1.8	25	22
3	5.0	.69	.98	10	2.6	1.1	.05	30	12	6.0	13	16
4	5.0	.62	.98	9.0	2.4	.98	.08	35	10	5.4	7.0	30
5	6.0	.50	1.2	9.0	2.4	.90	.05	35	47	7.4	6.3	34
6	6.0	.69	1.6	8.0	2.6	1.2	.06	30	39	57	10	20
7	7.0	.98	1.4	6.0	2.4	1.5	.08	25	21	26	14	14
8	8.0	1.2	1.2	7.0	2.6	1.2	.10	25	15	35	98	12
9	8.2	1.4	.90	7.0	2.6	.83	.30	70	12	42	36	12
10	6.3	1.5	.98	7.0	3.0	2.0	.50	84	12	93	46	10
11	7.8	1.4	.98	10	3.2	5.0	1.0	66	8.2	76	24	10
12	7.8	1.2	.90	8.0	3.6	10	2.0	50	7.4	63	309	9.6
13	4.8	1.1	1.2	6.0	4.2	13	2.5	40	5.1	64	52	7.4
14	4.0	1.1	1.4	5.0	4.8	13	3.0	35	5.1	46	30	9.2
15	4.0	1.1	5.0	5.4	7.0	11	4.0	35	3.4	22	21	12
16	6.7	1.2	5.0	4.6	10	9.6	5.0	30	3.4	12	14	10
17	11	1.2	8.0	4.0	6.7	6.0	6.0	30	4.0	10	9.6	12
18	12	1.2	8.0	3.2	4.8	4.0	8.2	25	13	6.7	7.4	13
19	13	1.2	8.0	2.1	4.4	2.0	9.2	40	168	4.8	5.7	13
20	11	1.1	8.0	2.8	3.8	1.1	9.2	30	18	4.8	9.2	12
21	8.7	1.1	7.0	5.1	3.8	1.5	11	25	7.0	10	12	7.8
22	5.1	.83	6.0	90	4.6	2.3	11	28	6.3	28	11	7.8
23	3.6	.83	7.0	30	6.7	1.8	19	18	6.0	20	14	14
24	1.8	.76	10	16	4.0	1.2	26	15	5.7	37	11	10
25	1.1	.62	10	12	3.4	.83	27	15	5.4	26	17	8.7
26	.76	.45	10	9.0	2.6	.62	28	15	5.7	57	252	7.8
27	.56	.50	10	7.0	2.4	.31	27	15	7.4	24	17	7.8
28	.40	.56	10	5.0	1.7	.17	80	15	6.3	16	11	5.7
29	.56	1.4	9.6	4.0	1.6	.14	45	15	6.0	17	13	5.4
30	.83	2.0	8.7	3.8	------	.14	35	15	2.6	16	22	7.0
31	1.4	------	7.0	3.4	------	.08	------	25	------	14	61	------
TOTAL	168.41	30.91	153.82	317.4	109.5	96.20	360.63	981	558.0	849.7	1192.2	390.2
MEAN	5.43	1.03	4.96	10.2	3.78	3.10	12.0	31.6	18.6	27.4	38.5	13.0
MAX	13	2.0	10	90	10	13	80	84	168	93	309	34
MIN	.40	.45	.90	2.1	1.6	.08	.05	15	2.6	1.8	5.7	5.4
AC-FT	334	61	305	630	217	191	715	1,950	1,110	1,690	2,360	774

CAL YR 1967: TOTAL 14,117.43 MEAN 38.7 MAX 2,270 MIN 0 AC-FT 28,000
WTR YR 1968: TOTAL 5,207.97 MEAN 14.2 MAX 309 MIN .05 AC-FT 10,330

Peak discharge (base, 3,500 cfs).--No peak above base.

Note.--No gage-height record Apr. 29 to May 30.

7-2272. Tramperos Creek near Stead, N. Mex.

Location.--Lat 36°04'15", long 103°12'10", in NW¼NW¼ sec.10, T.21 N., R.35 E., on left bank 10 ft upstream from bridge on State Highway 18, 2 miles south of Stead, and 26 miles south of Clayton.

Drainage area.--556 sq mi, approximately.

Records available.--October 1964 to May 1966 (annual maximum only), June 1966 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 4,540 ft (from topographic map). Prior to October 1966 published as Major Longs Creek (7-2274.45).

Extremes.--Maximum discharge during year, 12 cfs July 25 (gage height, 6.95 ft); maximum gage height, 7.83 ft July 11, backwater from temporary dam; no flow for most of time.
1964-68: Maximum discharge, 12,300 cfs Oct. 17, 1965 (gage height, about 16.5 ft), by slope-area measurement of peak flow; no flow for most of time.
A flood in 1904 reached a stage of about 29 ft (discharge, about 45,500 cfs) with only a single span bridge and a flood in 1937 reached a stage of about 22 ft (discharge, about 31,600 cfs) with the present bridge (information from State Highway Department).

Remarks.--Records poor. Minor regulation by detention reservoirs and stock ponds.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0				0		
2						0				0		
3						0				0		
4						0				0		
5						0				.15		
6						0				.18		
7						0				0		
8						0				0		
9						0				0		
10						.50				.35		
11						2.0				5.5		
12						2.0				1.6		
13						1.0				.13		
14						1.0				0		
15						.80				0		
16						.60				0		
17						.40				0		
18						.25				0		
19						0				0		
20						0				0		
21						0				0		
22						0				0		
23						0				0		
24						0				0		
25						0				2.7		
26						0				5.9		
27						0				3.8		
28						0				2.9		
29						0				1.5		
30					------	0				.12		
31		------			------	0	------		------	0		------
TOTAL	0	0	0	0	0	8.55	0	0	0	24.83	0	0
MEAN	0	0	0	0	0	.276	0	0	0	.801	0	0
MAX	0	0	0	0	0	2.0	0	0	0	5.9	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	17	0	0	0	49	0	0

CAL YR 1967: TOTAL 2,092.70 MEAN 5.73 MAX 413 MIN 0 AC-FT 4,150
WAT YR 1968: TOTAL 33.38 MEAN .091 MAX 5.9 MIN 0 AC-FT 66

Peak discharge (base, 1,200 cfs).--No peak above base.

8-2515. Rio Grande near Lobatos, Colo.

Location.--Lat 37°05', long 105°45', in sec.22, T.33 N., R.11 E., on right bank at 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 1968. Monthly discharge only for some periods, published in WSP 1312. Published as "at Cenicero" 1899-1901, and as "near Cenicero" 1902-4.

Gage.--Water-stage recorder. Datum of gage is 7,427.63 ft above mean sea level, datum of 1929. Prior to Nov. 8, 1910, staff or chain gage at same site and datum.

Average discharge.--69 years, 606 cfs (438,700 acre-ft per year).

Extremes.--Maximum discharge during year, 2,470 cfs June 1 (gage height, 3.93 ft); minimum daily, 44 cfs Oct. 14.
1899-1968: Maximum discharge observed, 13,200 cfs June 8, 1905 (gage height, 9.1 ft), from rating curve extended above 8,000 cfs; no flow at times in 1950-51, 1956.
Maximum stage known, probably since at least 1828, occurred June 8, 1905.

Remarks.--Records good except those for winter period, which are fair. Natural flow of stream affected by transmountain diversions, storage reservoirs, ground-water withdrawals, diversions for irrigation, and return flow from irrigated areas. Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report as "above Culebra Creek, near Lobatos."

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	184	290	240	270	440	538	112	2,400	1,060	699	212
2	67	206	280	260	270	460	594	122	2,280	925	952	181
3	65	325	250	250	280	470	622	164	2,020	898	1,170	167
4	62	744	240	240	270	480	608	181	2,010	664	1,200	164
5	76	460	260	230	270	490	544	174	2,020	484	1,080	160
6	76	430	290	220	260	510	430	220	1,900	335	880	170
7	71	405	270	220	250	508	370	306	2,000	274	760	178
8	78	405	260	220	250	550	340	335	1,900	230	706	160
9	73	390	240	220	250	594	325	315	1,470	206	800	142
10	69	385	250	220	250	601	294	350	1,150	178	657	133
11	76	385	260	220	260	574	278	478	848	157	728	130
12	55	385	260	220	260	601	270	490	706	128	907	120
13	46	390	250	220	270	526	266	440	664	118	1,080	110
14	44	385	160	230	270	550	250	420	622	120	1,260	102
15	53	380	250	240	270	562	226	370	587	130	1,250	98
16	51	375	260	240	270	526	226	310	685	167	1,380	92
17	53	375	250	230	270	520	238	355	768	178	1,220	85
18	55	380	240	220	270	508	220	496	864	181	988	85
19	60	375	230	230	280	496	181	608	1,300	195	736	78
20	65	375	230	240	280	478	160	706	1,610	178	574	73
21	60	370	230	250	280	460	157	848	1,810	164	490	67
22	58	360	230	260	290	478	160	979	1,880	164	472	67
23	55	360	230	270	300	466	151	1,340	1,910	151	420	69
24	56	360	230	270	310	460	151	1,690	1,800	154	340	69
25	56	360	240	270	320	460	136	1,840	1,680	164	278	67
26	58	335	250	270	340	484	125	1,700	1,550	212	246	53
27	71	320	250	270	370	496	108	1,680	1,320	405	220	50
28	98	320	260	280	400	496	105	1,690	1,110	478	212	51
29	115	310	260	280	410	508	115	1,860	1,020	824	216	48
30	128	290	260	280	------	514	115	2,240	1,050	824	216	53
31	142	------	260	260	------	514	------	2,390	------	768	234	------
TOTAL	2,168	11,124	7,720	7,570	8,340	15,780	8,303	25,209	42,934	11,114	22,371	3,234
MEAN	69.9	371	249	244	288	509	277	813	1,431	359	722	108
MAX	142	744	290	280	410	601	622	2,390	2,400	1,060	1,380	212
MIN	44	184	160	220	250	440	105	112	587	118	212	48
AC-FT	4,300	22,060	15,310	15,010	16,540	31,300	16,470	50,000	85,160	22,040	44,370	6,410

CAL YR 1967: TOTAL 80,888 MEAN 222 MAX 1,060 MIN 37 AC-FT 160,400
WTR YR 1968: TOTAL 165,867 MEAN 453 MAX 2,400 MIN 44 AC-FT 329,000

8-2520. 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., 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 Jaroso.

Records available.--October 1953 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 7,390 ft (from topographic map).

Average discharge.--15 years, 286 cfs (207,100 acre-ft per year).

Extremes.--Maximum discharge during year, 2,340 cfs June 1 (gage height, 5.56 ft); minimum daily, 44 cfs Oct. 14.
1953-68: Maximum discharge, 4,150 cfs May 29, 1958 (gage height, 7.07 ft); no flow at times in 1956.
Flood of June 8, 1905 (daily discharge, 13,100 cfs at station near Lobatos 5.8 miles upstream) was probably the greatest since at least 1828.

Remarks.--Records good except those for winter period, 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.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	169	317	240	270	440	559	118	2,270	1,050	666	222
2	68	207	274	260	270	460	611	120	2,110	930	835	192
3	63	192	261	250	280	470	644	160	1,890	910	1,050	169
4	63	615	302	240	270	480	635	195	1,800	670	1,100	172
5	66	473	289	230	270	490	583	186	1,870	490	1,010	163
6	72	431	352	220	260	510	476	210	1,740	340	865	172
7	68	411	298	220	250	510	408	305	1,810	280	770	189
8	74	408	255	220	250	650	378	352	1,820	235	698	180
9	72	398	261	220	250	600	365	343	1,420	210	790	166
10	68	391	258	220	250	610	333	362	1,130	180	712	155
11	74	391	264	220	260	580	302	473	865	165	716	155
12	63	391	314	220	260	600	292	527	734	130	890	146
13	52	394	298	220	270	555	280	470	689	120	1,020	143
14	44	391	138	230	270	547	258	448	671	120	1,170	132
15	50	391	274	240	270	571	240	418	615	130	1,180	130
16	52	388	260	240	270	539	228	352	689	160	1,270	130
17	55	385	250	230	270	531	243	372	748	170	1,140	120
18	55	385	240	230	270	519	237	504	835	175	940	118
19	59	385	230	230	280	515	192	635	1,000	195	716	110
20	64	378	230	240	280	501	198	712	1,480	186	567	106
21	63	375	230	250	280	490	160	830	1,680	172	494	92
22	59	368	230	260	290	501	169	920	1,790	175	470	88
23	57	362	230	270	300	494	157	1,230	1,830	155	438	90
24	59	368	230	270	310	487	157	1,600	1,750	166	362	86
25	61	362	240	270	320	487	141	1,780	1,640	169	305	84
26	59	349	250	270	350	501	128	1,640	1,550	213	261	68
27	68	330	250	270	370	515	115	1,630	1,330	381	234	59
28	80	324	260	280	400	519	108	1,630	1,120	438	222	59
29	112	311	260	280	420	527	120	1,750	1,030	743	222	54
30	110	305	260	270	------	539	120	2,080	1,040	756	228	55
31	135	------	260	260	------	539	------	2,230	------	748	240	------
TOTAL	2,117	11,028	8,065	7,570	8,360	16,277	8,837	24,582	40,946	10,962	21,581	3,805
MEAN	68.3	368	260	244	288	525	295	793	1,365	354	696	127
MAX	135	615	352	280	420	650	644	2,230	2,270	1,050	1,270	222
MIN	44	169	138	220	250	440	108	118	615	120	222	54
AC-FT	4,200	21,870	16,000	15,010	16,580	32,280	17,530	48 760	81,220	21,740	42,810	7,550

CAL YR 1967: TOTAL 79,790 MEAN 219 MAX 905 MIN 33 AC-FT 158,300
WTR YR 1968: TOTAL 164,130 MEAN 448 MAX 2,270 MIN 44 AC-FT 325,500

NOTE.--NO GAGE-HEIGHT RECORD FEB. 2 TO MAR. 13.

8-2525. Costilla Creek above Costilla Dam, N. Mex.

Location.--Lat 36°53'50", long 105°15'20", in Sangre de Cristo Grant, on left bank 2 miles upstream from Costilla Dam and 17 miles southeast of Costilla, Taos County.

Drainage area.--25.1 sq mi.

Records available.--April 1937 to September 1968 (no winter records). Published as "above reservoir, near Costilla" 1937-51. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Water-stage recorder. Concrete control since Sept. 17, 1965. Datum of gage is 9,428 ft (corrected) above mean sea level, datum of 1929. Prior to July 9, 1940, at wooden control 660 ft downstream at datum 10.65 ft lower. July 9, 1940, to July 22, 1954, at concrete control 600 ft downstream at datum 8.87 ft lower. July 23, 1954, to June 16, 1959, 200 ft upstream at datum 1.41 ft higher. June 17, 1959, to Sept. 16, 1965, present site at datum 1.12 ft lower.

Extremes.--Maximum discharge during year, 54 cfs July 29 (gage height, 2.89 ft), from rating curve extended above 31 cfs on basis of slope-area measurement at gage height 3.30 ft; minimum determined, 0.75 cfs Nov. 2, result of freezeup.

1937-68: Maximum discharge, 3,870 cfs July 22, 1954 (gage height, 6.3 ft, from floodmarks, present site and datum), on basis of slope-area measurement of peak flow; minimum determined, 0.1 cfs Nov. 11, 1964, result of freezeup.

The flood in 1954 destroyed the gaging station and is highest known since about 1909, from information by local range rider.

Remarks.--Records good except those for October and November and those for May 14 to June 10, which are poor. A total of about 1,300 acres is irrigated above this station and Casias Creek near Costilla (see station 8-2530), proportion between streams varying with current conditons.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	4.0						-	45	5.8	12	4.7
2	4.0	2.5						-	40	6.5	10	4.3
3	4.0	3.0						-	32	6.5	7.6	5.1
4	4.0	3.5						-	34	6.3	7.9	4.9
5	4.5	4.0						-	37	6.3	8.0	4.1
6	5.0	3.5						-	37	6.3	9.2	4.1
7	4.5	3.0						-	36	8.5	8.1	4.1
8	3.5	-						-	30	8.4	7.9	2.9
9	3.5	-						-	25	6.0	12	3.1
10	4.0	-						-	23	5.8	14	3.8
11	3.5	-						-	22	4.9	12	3.8
12	3.5	-						-	22	4.9	22	3.8
13	3.5	-						-	21	4.8	17	3.5
14	3.5	-						23	21	7.0	14	3.5
15	4.0	-						23	20	6.2	13	3.2
16	3.0	-						23	20	4.7	11	3.2
17	3.5	-						23	19	4.3	9.2	3.5
18	3.5	-						24	19	6.2	8.9	3.7
19	3.5	-						24	17	5.8	8.4	3.7
20	3.7	-						24	16	4.7	6.0	3.5
21	3.4	-						26	15	4.5	6.3	3.4
22	3.3	-						36	14	6.4	5.8	3.5
23	3.1	-						37	13	8.0	6.4	4.3
24	3.0	-						36	12	11	5.2	4.1
25	3.1	-						34	11	9.3	4.9	3.8
26	3.1	-						32	9.8	11	6.0	3.8
27	3.0	-						31	8.9	18	5.6	3.5
28	3.0	-						36	7.9	14	5.8	3.5
29	2.6	-						40	6.5	15	6.7	4.0
30	3.5	-			------			40	6.0	10	7.3	4.9
31	4.0	------			------		------	40	------	13	5.2	------
TOTAL	111.5	-						-	640.1	240.1	283.4	115.3
MEAN	3.60	-						-	21.3	7.75	9.14	3.84
MAX	5.0	-						-	45	18	22	5.1
MIN	2.6	-						-	6.0	4.3	4.9	2.9
AC-FT	221	-						-	1270	476	562	229

CAL YR 1967: TOTAL	MEAN	MAX	MIN	AC-FT
WAT YR 1968: TOTAL	MEAN	MAX	MIN	AC-FT

PEAK DISCHARGE (BASE, 40 CFS)

DATE	TIME	G.HT.	DISCHARGE
about 6- 6	un-known	2.80	48
7-29	1845	2.89	54
8-12	1830	2.69	40

8-2530. 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.--16.6 sq mi.

Records available.--April 1937 to September 1968 (no winter records). Figures of daily discharge for Nov. 1-7, 1947, and Nov. 1-8, 3-16, 1948, published in WSP 1118 and 1148, respectively, have been found to be unreliable and should not be used. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Water-stage recorder and concrete control. Datum of gage is 9,404 ft above mean sea level, datum of 1929. 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, 50 cfs June 17 (gage height, 1.27 ft); minimum determined, 2.2 cfs Oct. 24, result of freezeup.
1937-68: Maximum discharge, 122 cfs June 11, 1957; maximum gage height recorded, 1.90 ft June 14, 1938 (backwater from Costilla Reservoir); minimum discharge determined, 0.69 cfs Apr. 13, 1967.

Remarks.--Records good. A total of about 1,300 acres is irrigated above this station and Costilla Creek above Costilla Dam (see station 8-2525), proportion between streams varying with current conditions.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	4.5						-	36	13	9.9	11
2	6.6	4.0						-	37	13	8.6	9.9
3	6.6	5.0						-	35	12	7.7	11
4	6.6	5.0						-	36	9.9	7.0	11
5	6.6	5.0						-	39	9.9	11	9.5
6	6.2	4.5						-	40	9.5	16	9.5
7	6.2	4.5						-	40	10	11	9.0
8	5.8	-						-	38	9.5	9.0	9.0
9	5.8	-						-	38	8.6	11	8.1
10	7.0	-						-	35	9.0	14	8.1
11	5.8	-						-	32	8.1	12	8.1
12	5.5	-						-	32	8.1	21	8.1
13	5.2	-						-	32	8.6	15	7.7
14	5.2	-						15	33	9.9	13	7.7
15	5.2	-						12	34	9.0	11	7.7
16	5.0	-						11	38	7.4	9.0	7.0
17	5.5	-						11	39	7.4	9.5	7.7
18	5.2	-						11	36	8.1	8.6	7.7
19	5.2	-						16	36	7.4	9.9	7.0
20	5.2	-						16	36	6.7	16	7.4
21	4.9	-						16	35	6.3	16	6.7
22	4.9	-						18	34	6.7	15	6.3
23	4.9	-						20	33	9.4	15	7.7
24	4.0	-						21	32	11	13	6.7
25	4.6	-						22	27	9.5	13	6.3
26	4.6	-						22	21	11	13	6.3
27	4.6	-						23	19	15	13	6.3
28	4.3	--						28	18	11	13	6.3
29	4.0	-						32	16	9.5	13	6.3
30	5.0	-			------			34	14	7.4	13	6.3
31	5.2	------			------		------	36	------	10	12	------
TOTAL	168.0	-						-	971	291.9	379.2	237.4
MEAN	5.42	-						-	32.4	9.42	12.2	7.91
MAX	7.0	-						-	40	15	21	11
MIN	4.0	-						-	14	6.3	7.0	6.3
AC-FT	333	-						-	1,930	579	752	471

CAL YR 1967: TOTAL MEAN MAX MIN AC-FT
WAT YR 1968: TOTAL MEAN MAX MIN AC-FT

PEAK DISCHARGE (BASE, 50 CFS)

DATE	TIME	G.HT.	DISCHARGE
6-17	0015	1.27	50

8-2535. 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.--2.15 sq mi.

Records available.--April 1937 to September 1968 (no winter records). Monthly discharge only for some periods, published in WSP 1312.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 9,487 ft (corrected) above mean sea level, datum of 1929. Prior to June 27, 1940, water-stage recorder and wooden control at same site at datum 0.99 ft lower.

Extremes.--Maximum discharge during year, 10 cfs July 24 (gage height, 1.03 ft); minimum determined, 0.14 cfs Oct. 29, result of freezeup.
1937-68: Maximum discharge recorded, 18 cfs Aug. 11, 1941, July 12, 1957; maximum gage height recorded, 1.73 ft Aug. 11, 1941; minimum discharge recorded, 0.10 cfs Nov. 13-17, 1948, Apr. 29, Nov. 1, 1963, Nov. 20-22, 1964.

Remarks.--Records good except those below 1.0 cfs, which are poor. No diversion above or below station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	0.80						-	5.7	5.0	2.4	1.5
2	1.2	.50						-	6.0	5.0	2.2	1.3
3	1.2	.60						-	6.2	4.9	2.1	2.0
4	1.2	.90						-	6.5	4.6	2.1	1.8
5	1.2	1.0						-	7.0	4.5	2.0	1.8
6	1.2	.90						-	7.1	4.3	2.4	1.8
7	1.2	.70						-	7.1	4.4	2.1	1.7
8	1.2	-						1.7	7.0	4.1	2.0	1.6
9	1.2	-						1.4	7.0	3.7	2.4	1.5
10	1.2	-						1.6	6.9	3.6	2.5	1.5
11	1.1	-						1.6	6.9	3.4	2.4	1.5
12	1.1	-						1.7	6.7	3.3	2.6	1.5
13	1.1	-						1.6	6.7	3.2	2.4	1.4
14	1.1	-						1.6	6.7	3.2	2.3	1.4
15	1.0	-						1.7	6.7	3.0	2.3	1.4
16	.80	-						1.9	6.7	2.7	2.3	1.4
17	.90	-						1.9	6.7	2.6	2.1	1.4
18	1.0	-						2.0	6.7	2.8	2.0	1.4
19	1.0	-						2.1	6.9	2.7	2.2	1.3
20	1.0	-						2.1	6.9	2.5	2.0	1.3
21	.93	-						2.7	6.9	2.4	2.1	1.2
22	.86	-						2.8	6.9	2.4	2.1	1.2
23	.86	-						3.3	6.9	2.5	1.9	1.3
24	.86	-						3.3	6.7	3.4	1.9	1.2
25	.93	-						3.4	6.7	2.6	1.7	1.2
26	.93	-						3.4	6.4	2.6	1.9	1.2
27	.70	-						3.6	6.2	3.1	1.7	1.1
28	.60	-						4.1	6.0	2.5	1.8	1.1
29	.50	-						4.5	5.6	2.2	2.1	1.2
30	.70	-			------			5.1	5.3	2.2	1.9	1.2
31	1.0	------			------		------	5.5	------	2.5	1.7	------
TOTAL	31.07	-						-	197.7	101.9	65.6	42.4
MEAN	1.00	-						-	6.59	3.29	2.12	1.41
MAX	1.3	-						-	7.1	5.0	2.6	2.0
MIN	.50	-						-	5.3	2.2	1.7	1.1
AC-FT	62	-						-	392	202	130	84

		MEAN	MAX	MIN	AC-FT
CAL YR 1967:	TOTAL				
WAT YR 1968:	TOTAL	MEAN	MAX	MIN	AC-FT

PEAK DISCHARGE (BASE, 6.0 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 6	1730	0.86	7.6
7-24	1345	1.03	10
7-27	1300	.74	6.0
8- 6	1700	.76	6.2

8-2539. Costilla Reservoir near Costilla, N. Mex.

Location.--Lat 36°52'35", long 105°16'45", on face of Costilla Dam on Costilla Creek in Sangre de Cristo Grant, 16 miles southeast of Costilla, Taos County.

Drainage area.--54.6 sq mi.

Records available.--May 1922 to September 1968. Records prior to 1961 published in WSP 1732.

Gage.--Inclined staff gage, painted on base of railroad rail on left side of control tower of Dam. Datum of gage is 107 ft above mean sea level, datum of 1929, leveling of 1964.

Extremes.--Maximum contents observed during year, 11,680 acre-ft June 15, 17, 24 (gage height, 9,502.3 ft); minimum, 3,400 acre-ft Oct. 20 (gage height, 9,470.8 ft).
1922-68: Maximum contents, 15,100 acre-ft June 30, 1940 (gage height, 9,511.4 ft); no contents October 1925 to February 1926, September 1956.

Remarks.--Lake is formed by earth-fill dam faced with broken stone. Storage began in 1920. Capacity, 15,700 acre-ft between gage heights 9,405.0 ft (bottom of lower intake) and 9,513.0 ft (crest of ungated spillway cut in natural rock). By order of New Mexico State Engineer (first issued in 1942) storage was limited to 14,540 acre-ft maximum, and 10,880 acre-ft for not to exceed 45 days (revised to 60 days in 1949). Diversions for irrigation of about 1,300 acres above Reservoir. Contents computed from intermittent gage readings and capacity table (based on original survey) furnished by New Mexico State Engineer.

Capacity table, water year 1967-68 (gage height, in feet, and contents, in acre-feet)

9,470	3,260	9,485	6,640	9,500	10,880
9,475	4,210	9,490	7,790	9,505	12,640
9,480	5,270	9,495	9,260		

CONTENTS, IN ACRE-FEET, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-	-	-	-	-	-	-	-	-	10,480	-	-
2	-	-	-	-	-	-	-	-	10,550	9,930	-	-
3	-	-	-	-	-	-	-	7,160	10,710	9,670	-	-
4	-	-	-	-	-	-	-	-	10,950	9,510	-	-
5	-	-	-	-	-	-	-	-	11,050	9,330	-	-
6	-	-	-	-	-	-	-	-	11,190	-	6,770	-
7	-	3,680	-	-	-	-	-	-	11,290	9,510	6,740	-
8	-	-	-	-	-	-	-	-	11,430	9,260	6,690	-
9	-	-	-	-	-	-	-	-	11,500	9,140	6,690	5,900
10	-	-	-	-	-	-	-	-	11,570	8,960	-	5,800
11	-	-	-	-	-	-	-	-	11,600	8,810	-	5,730
12	-	-	-	-	-	-	-	-	11,600	8,600	6,800	5,690
13	-	-	-	-	-	-	-	8,100	11,640	-	6,820	5,660
14	-	-	-	-	-	-	-	8,160	11,640	-	6,800	-
15	-	-	-	-	-	-	-	8,280	11,680	8,600	6,770	-
16	-	-	-	-	-	-	6,310	8,420	-	8,420	-	5,660
17	-	-	-	-	-	-	-	-	11,680	8,310	-	5,590
18	-	-	-	-	-	-	-	-	11,570	8,160	-	5,550
19	-	-	-	-	-	-	-	-	11,500	8,080	6,930	-
20	3,400	-	-	-	-	-	-	8,750	11,400	-	6,820	5,450
21	-	-	-	-	-	-	-	8,840	-	-	6,770	-
22	-	-	-	-	-	-	-	8,960	-	7,930	6,720	-
23	-	-	-	-	-	-	-	9,110	-	7,740	6,670	-
24	-	-	-	-	-	-	-	9,200	11,680	7,570	-	5,270
25	-	-	-	-	-	-	-	-	11,570	7,460	-	5,180
26	-	-	-	-	-	-	-	-	11,260	7,160	-	5,090
27	-	-	-	-	-	-	-	9,640	11,050	-	6,540	5,090
28	-	-	-	-	-	-	-	9,770	10,820	-	6,440	-
29	-	-	-	-	5,150	-	-	9,890	-	7,190	6,290	-
30	-	3,950	-	-	------	-	6,950	10,090	10,550	6,950	6,220	5,050
31	3,570	------	4,300	4,700	------	5,850	------	10,220	------	6,820	6,100	------
(†)	-	-	-	-	-	-	-	9,498.0	-	9,486.4	-	9,479.0
(‡)	+590	+380	+350	+400	+450	+700	+1,100	+3,270	+330	-3,730	-720	-1,050

CAL YR 1967 ..... ‡ -700
WAT YR 1968 ..... ‡ +2,070

† Gage height, in feet, at end of month.
‡ Change in contents, in acre-feet.
Note.--Contents interpolated Oct. 31, Nov. 30, Dec. 31, Jan. 31, Feb. 29, Mar. 31, Apr. 30, June 30, Aug. 31.

8-2540. Costilla Creek below Costilla Dam, N. Mex.

Location.--Lat 36°52'25", long 105°16'45", in Sangre de Cristo Grant, on left bank 125 ft downstream from Costilla Dam and 16 miles southeast of Costilla, Taos County.

Drainage area.--54.6 sq mi.

Records available.--April 1937 to September 1968 (no winter records 1937-44, 1948-49). Prior to October 1951, published as "below reservoir near Costilla." Monthly discharge only for some periods, published in WSP 1312.

Gage.--Water-stage recorder and concrete control. Datum of gage is 9,290 ft above mean sea level, datum of 1929.

Average discharge.--22 years (1944-47, 1949-68), 16.3 cfs (11,800 acre-ft per year).

Extremes.--Maximum discharge during year, 164 cfs June 25-27 (gage height, 2.09 ft); minimum, 0.01 cfs many days.
1937-68: Maximum discharge, 286 cfs May 9, 10, 1942 (gage height, 2.65 ft); no flow at times.

Remarks.--Records good except those for December to April, which are fair. Flow regulated by Costilla Reservoir (see station 8-2539). Diversions for irrigation of about 1,300 acres above Reservoir.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.04	0.02	0.02	0.02	0.01	0.02	0.05	0.05	0.05	131	52	26
2	.04	.02	.02	.02	.01	.02	.11	.05	.07	131	11	60
3	.04	.02	.02	.02	.02	.02	.07	.05	.07	131	11	56
4	.04	.02	.02	.02	.02	.02	.05	.05	.07	129	11	54
5	.04	.02	.02	.02	.02	.02	.05	.05	12	50	11	54
6	.03	.02	.02	.02	.02	.02	.09	.05	29	4.9	21	23
7	.03	.02	.02	.02	.02	.02	.07	.05	29	40	40	7.9
8	.03	.02	.02	.02	.02	.02	.05	.04	30	104	40	16
9	.03	.02	.02	.01	.02	.02	.05	.04	35	104	21	32
10	.03	.02	.02	.01	.02	.01	.05	.05	45	104	12	36
11	.03	.02	.02	.01	.02	.01	.05	.05	52	104	24	44
12	.03	.02	.02	.01	.02	.01	.05	.07	51	47	48	44
13	.03	.02	.02	.01	.02	.01	.05	.05	50	16	48	21
14	.03	.02	.02	.01	.02	.01	.05	.04	50	37	33	9.5
15	.03	.02	.02	.02	.02	.01	.05	.04	50	76	8.7	18
16	.02	.02	.02	.01	.02	.01	.04	.04	59	76	8.7	35
17	.02	.02	.02	.01	.02	.01	.04	.05	97	75	8.7	35
18	.02	.03	.02	.02	.02	.01	.04	.07	104	75	21	35
19	.02	.03	.02	.02	.02	.01	.04	.07	100	35	47	35
20	.02	.03	.02	.01	.02	.02	.04	.07	35	16	48	19
21	.02	.03	.02	.01	.02	.02	.05	.07	.07	48	48	11
22	.02	.03	.02	.01	.02	.02	.05	.07	.07	113	48	22
23	.02	.03	.02	.01	.02	.02	.05	.07	37	119	23	45
24	.02	.03	.02	.01	.02	.02	.05	.07	113	129	8.3	45
25	.02	.03	.02	.01	.02	.03	.05	.05	146	129	32	44
26	.02	.03	.02	.01	.02	.03	.05	.05	164	51	85	44
27	.02	.02	.02	.01	.02	.03	.05	.05	157	13	85	23
28	.02	.02	.02	.01	.02	.04	.05	.05	150	49	84	8.3
29	.02	.02	.02	.01	.02	.04	.05	.05	150	122	84	15
30	.02	.02	.02	.01	------	.04	.05	.05	146	120	34	29
31	.02	------	.02	.01	------	.04	------	.05	------	103	8.7	------
TOTAL	.82	.69	.62	.42	.56	.63	1.59	1.66	1,891.40	2,481.9	1,065.1	946.7
MEAN	.026	.023	.020	.014	.019	.020	.053	.054	63.0	80.1	34.4	31.6
MAX	.04	.03	.02	.02	.02	.04	.11	.07	164	131	85	60
MIN	.02	.02	.02	.01	.01	.01	.04	.04	.05	4.9	8.3	7.9
AC-FT	1.6	1.4	1.2	.8	1.1	1.2	3.2	3.3	3,750	4,920	2,110	1,880

CAL YR 1967: TOTAL 4,407.83 MEAN 12.1 MAX 85 MIN .02 AC-FT 8,740
WAT YR 1968: TOTAL 6,392.09 MEAN 17.5 MAX 164 MIN .01 AC-FT 12,680

8-2545. Costilla Creek near Amalia, N. Mex.

Location.--Lat 36°52'33", long 105°23'22", in Sangre de Cristo Grant, on right bank 40 ft downstream from third bridge upstream from Amalia, 2 miles downstream from Latir Creek, 5 3/4 miles southeast of Amalia, Taos County, and 10½ miles southeast of Costilla.

Drainage area.--152 sq mi.

Records available.--May 1949 to September 1959, April 1961 to September 1968 (no winter records).

Gage.--Water-stage recorder. Concrete control since Sept. 27, 1965. Datum of gage is 8,521 ft (revised) above mean sea level, datum of 1929. May 1949 to May 2, 1956, at site 40 ft upstream at datum 0.81 ft lower. May 3, 1956 to Sept. 27, 1965, at site 10 ft downstream at datum 1.81 ft lower.

Extremes.--Maximum discharge during year, 190 cfs June 25 (gage height, 2.60 ft); minimum recorded, 9.3 cfs Oct. 1.

1949-59, 1961 (corrected)-68: Maximum discharge recorded, 689 cfs Apr. 25, 1958; maximum gage height recorded, 3.85 ft May 13, 1958, site and datum then in use (backwater from debris); minimum discharge recorded, 1.4 cfs June 23, 1963.

Remarks.--Records fair. Flow regulated by Costilla Reservoir (see station 8-2539) about 10 miles upstream (capacity, 15,700 acre-ft, original survey). Diversions for irrigation of about 1,300 acres above Costilla Reservoir.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								-	89	141	80	28
2								-	84	138	29	70
3								-	78	136	26	67
4								-	74	136	23	64
5								-	77	86	23	64
6								-	92	25	26	45
7								-	91	39	54	19
8								53	86	112	52	20
9								60	86	112	44	39
10								78	94	117	39	42
11								69	100	117	46	51
12								77	96	74	75	50
13								78	91	32	73	36
14								64	89	41	64	19
15								66	86	86	31	21
16								67	88	84	28	42
17								71	111	83	28	43
18								71	125	84	29	42
19								77	123	59	59	42
20								77	79	28	60	32
21								88	32	36	60	19
22								101	31	112	59	22
23								111	40	115	44	50
24								103	129	131	22	50
25								94	158	131	29	50
26								88	172	84	86	50
27								92	161	32	89	38
28								96	153	45	96	16
29								98	153	121	91	17
30					------			96	151	121	62	35
31		------			------		------	94	------	117	25	------
TOTAL								-	3,019	2,775	1,552	1,183
MEAN								-	101	89.5	50.1	39.4
MAX								-	172	141	96	70
MIN								-	31	25	22	16
AC-FT								-	5,990	5,500	3,080	2,350

CAL YR 1967:	TOTAL	MEAN	MAX	MIN	AC-FT
WAT YR 1968:	TOTAL	MEAN	MAX	MIN	AC-FT

8-2555. Costilla Creek near Costilla, N. Mex.

Location.--Lat 36°58'00", long 105°30'25", in Sangre de Cristo Grant, on right bank 70 ft downstream from bridge on State Road 196, half a mile upstream from diversion dam and 1.6 miles southeast of Costilla, Taos County.

Drainage area.--195 sq mi.

Records available.--March 1936 to September 1968 (no winter records 1936-41). Monthly discharge only for some periods, published in WSP 1312.

Gage.--Water-stage recorder. Concrete control since Oct. 13, 1952. Altitude of gage is 7,900 ft (from topographic map). Prior to June 18, 1944, at site 200 ft downstream at different datum. June 18, 1944 to Sept. 30, 1964, at site 0.3 mile upstream at different datum.

Average discharge.--27 years (1941-68), 42.6 cfs (30,840 acre-ft per year).

Extremes.--Maximum discharge during year, 198 cfs July 25 (gage height, 3.85 ft); minimum determined, 0.78 cfs Mar. 4, result of freezeup.
1936-68: Maximum discharge, 1,150 cfs May 11, 1942 (gage height, 5.37 ft, site and datum then in use); minimum determined, 0.6 cfs Mar. 13, 1965, result of freezeup.
The greatest flood known occurred in 1886, from information by local residents.

Remarks.--Records good except those for June, which are fair, and those for winter months, which are poor. Regulation by Costilla Reservoir (see station 8-2539) about 20 miles upstream (capacity, 15,700 acre-ft, original survey). Diversions for irrigation of about 2,000 acres above station. Records of chemical analyses and water temperatures for water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	5.5	5.0	9.0	10	23	43	110.0	147	107	34
2	13	13	5.0	6.0	7.2	11	24	44	107	145	54	72
3	12	10	5.0	7.5	8.0	11	16	53	98	145	41	76
4	12	11	5.5	7.0	8.7	8.8	17	59	90	145	36	74
5	11	14	5.5	6.9	6.3	10	16	64	94	119	33	73
6	10	13	6.0	6.6	6.0	12	20	72	112	45	34	64
7	10	10	5.5	6.6	6.0	12	17	64	110	35	61	31
8	8.9	9.8	5.0	6.9	6.5	11	14	62	103	112	69	27
9	8.9	11	4.0	6.9	7.2	10	16	65	100	107	60	41
10	9.6	12	3.5	6.9	7.2	9.0	12	80	100	107	51	44
11	10	11	4.0	6.9	6.9	8.2	23	82	101	107	62	51
12	8.9	12	4.5	7.2	8.0	9.4	28	82	103	92	90	54
13	8.6	12	4.0	6.9	6.6	9.6	36	86	101	42	90	47
14	8.0	12	4.5	6.6	6.9	11	35	72	98	43	85	26
15	7.3	12	5.5	6.9	6.3	10	38	72	96	83	51	23
16	7.3	11	6.5	7.7	5.8	9.2	50	74	91	82	44	38
17	7.6	12	6.0	8.0	6.6	11	38	76	116	82	41	43
18	7.6	11	5.0	8.4	7.2	9.8	41	74	143	80	38	42
19	7.6	11	5.5	8.4	6.8	7.5	41	76	128	72	65	42
20	7.6	11	5.5	8.4	7.2	9.4	29	79	100	39	70	40
21	7.6	12	5.0	8.7	9.4	9.4	39	86	47	33	72	25
22	8.0	11	5.0	9.0	9.0	9.4	36	100	40	93	64	23
23	8.6	9.2	5.5	8.7	8.6	9.5	28	120	37	118	55	43
24	8.9	7.4	6.0	9.0	9.8	10	27	122	109	126	32	52
25	9.2	9.4	7.0	9.0	9.9	10	32	105	143	141	25	52
26	9.2	9.0	7.0	9.4	9.6	12	33	100	166	117	82	52
27	8.6	6.5	7.0	10	10	12	31	105	161	53	96	47
28	9.2	6.5	5.5	10	9.9	12	32	107	156	50	98	23
29	10	6.0	6.0	10	10	14	30	114	158	125	98	20
30	7.3	6.0	6.5	8.0	------	16	38	114	154	132	84	36
31	11	------	5.5	8.4	------	19	------	122	------	134	40	------
TOTAL	288.5	316.8	167.5	241.9	226.6	333.2	860	2,574	3,272	2,951	1,928	1,315
MEAN	9.31	10.6	5.40	7.80	7.81	10.7	28.7	83.0	109	95.2	62.2	43.8
MAX	15	15	7.0	10	10	19	50	122	166	147	107	76
MIN	7.3	6.0	3.5	5.0	5.8	7.5	12	43	37	33	25	20
AC-FT	572	628	332	480	449	661	1,710	5,110	6,490	5,850	3,820	2,610

CAL YR 1967: TOTAL 8,548.3 MEAN 23.4 MAX 83 MIN 3.0 AC-FT 16,960
WAT YR 1968: TOTAL 14,474.5 MEAN 39.5 MAX 166 MIN 3.5 AC-FT 28,710

Peak discharge (base, 250 cfs).--No peak above base.

8-2605. Costilla Creek below diversion dam, at Costilla, N. Mex.

Location.--Lat 36°58'03", long 105°31'00", in Sangre de Cristo Grant, on right bank 650 ft downstream from diversion dam and 1.1 miles southeast of Costilla, Taos County.

Drainage area.--197 sq mi.

Records available.--April 1952 to September 1968 (no winter records).

Gage.--Digital water-stage recorder with crest-stage gage and concrete control. Datum of gage is 7,861 ft above mean sea level, datum of 1929. Prior to Aug. 19, 1964, graphic water-stage recorder at same site and datum.

Extremes.--Maximum discharge recorded during year, 93 cfs June 19 (gage height, 2.30 ft); maximum gage height recorded, 2.46 ft June 21; minimum discharge determined, 0.13 cfs, Apr. 27, 29.
1952-68: Maximum discharge recorded 525 cfs July 22, 1954; maximum gage height, 5.05 ft July 24, 1957; no flow Oct. 14, 1963.
The greatest flood known occurred in 1886, from information by local residents. Flood of May 11, 1942, probably exceeded 1,000 cfs, based on records for upstream station (see station 8-2555).

Remarks.--Records good. Flow partly regulated by Costilla Reservoir (see station 8-2539) about 21 miles upstream (capacity, 15,700 acre-ft, original survey), and by canal headgates or sluice gates at diversion dam. Diversions above station for irrigation of about 5,000 acres, 3,000 of which are below station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.67						-	1.2	37	7.6	4.0	2.0
2	.52						-	3.7	45	7.0	1.4	2.0
3	.43						-	9.4	28	7.6	1.3	2.0
4	.22						-	15	17	7.6	1.2	1.9
5	-						-	18	17	26	1.2	1.9
6	-						-	21	5.8	23	1.2	1.9
7	-						-	9.8	8.1	4.5	1.4	1.9
8	-						-	8.4	6.0	4.3	3.6	1.8
9	-						-	11	5.3	2.9	4.5	1.7
10	-						-	30	7.6	2.7	1.4	1.7
11	-						-	27	9.7	2.6	1.8	1.7
12	-						-	28	8.2	22	6.9	1.7
13	-						-	32	5.9	16	7.6	6.8
14	-						-	19	5.8	4.4	5.4	8.8
15	-						-	18	6.6	6.6	1.4	3.4
16	-						-	21	6.9	4.7	1.4	2.9
17	-						-	23	12	4.5	1.4	2.6
18	-						-	21	24	4.4	1.4	2.4
19	-						-	21	19	12	1.3	2.3
20	-						-	23	22	12	3.1	2.2
21	-						-	28	45	3.9	4.1	2.2
22	-						-	44	35	5.3	3.0	2.2
23	-						-	58	15	4.3	11	2.1
24	-						-	41	8.8	12	15	2.0
25	-						-	31	21	24	4.2	2.0
26	-						.19	28	27	44	4.8	2.0
27	-						4.3	31	24	19	6.6	2.1
28	-						11	29	15	3.3	11	2.0
29	-						.20	34	12	11	9.7	1.9
30	-				------		.24	35	16	9.6	9.3	1.9
31	-	------			------		------	39	------	16	2.1	------
TOTAL	-						-	758.5	515.7	334.8	133.7	74.0
MEAN	-						-	24.5	17.2	10.8	4.31	2.47
MAX	-						-	58	45	44	15	8.8
MIN	-						-	1.2	5.3	2.6	1.2	1.7
AC-FT	-						-	1,500	1,020	664	265	147

8-2610. Costilla Creek at Garcia, Colo.

Location.--Lat 36°59'20", long 105°31'54", 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, Costilla County.

Drainage area.--200 sq mi, approximately.

Records available.--June 1944 to September 1968 (no winter records).

Gage.--Water-stage recorder. Altitude of gage is 7,758 ft (from topographic map). Prior to Apr. 20, 1950, at site 1,000 ft downstream at datum about 2.6 ft lower.

Extremes.--Maximum discharge during year, 60 cfs July 26 (gage height, 3.35 ft); no flow most of time.
1944-68: Maximum discharge, 460 cfs July 24, 1957 (gage height, 4.76 ft); no flow for many days most years.
The greatest flood known occurred in 1886, from information by local residents. Flood of May 11, 1942 probably reached a discharge of 1,000 cfs.

Remarks.--Records good except those for August and September, which are poor. 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.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0						0.42	28	5.8	5.8	0
2	0	0						.09	35	3.2	1.9	0
3	0	0						.71	25	4.1	1.5	0
4	0	0						.12	12	4.0	.71	0
5	0	0						.12	11	16	.20	0
6	0	0						.07	5.8	13	.20	0
7	0	0						2.8	6.2	1.8	.25	0
8	0	0						7.4	3.7	2.3	1.3	0
9	0	0						6.0	1.8	.88	2.5	0
10	0	-						24	2.5	1.0	.32	0
11	0	-						25	5.6	.76	.43	0
12	0	-						24	4.8	8.9	3.9	0
13	0	-						30	4.2	12	5.1	3.3
14	0	-						19	2.9	1.7	2.7	5.5
15	0	-						17	3.4	2.8	.29	0
16	0	-						18	3.9	.88	.20	0
17	0	-						20	12	.40	.20	0
18	0	-						19	30	.58	.20	0
19	0	-						18	27	8.0	.20	0
20	0	-						20	26	12	.34	0
21	0	-						22	36	1.3	.51	0
22	0	-						34	28	2.1	.22	0
23	0	-						44	10	.68	6.9	0
24	1.3	-						34	4.8	7.4	10	0
25	4.1	-						25	17	18	1.4	0
26	1.9	-						22	24	39	2.1	0
27	0	-						23	21	21	4.9	.58
28	0	-						21	14	2.4	9.5	.15
29	0	-						25	8.1	12	7.1	.15
30	0	-			------			26	12	16	8.2	.18
31	0	------			------		------	29	------	22	.01	------
TOTAL	7.3	-						556.73	425.7	241.98	79.08	9.86
MEAN	.235	-						18.0	14.2	7.81	2.55	.329
MAX	4.1	-						44	36	39	10	5.5
MIN	0	-						.07	1.8	.40	.01	0
AC-FT	14	-						1100	844	480	157	20

CAL YR 1967:	TOTAL	MEAN	MAX	MIN	AC-FT
WAT YR 1968:	TOTAL	MEAN	MAX	MIN	AC-FT

Peak discharge (base, 200 cfs).--No peak above base.

Principal diversions from Costilla Creek, New Mexico-Colorado

Records of discharge are collected at 7 gaging stations on 3 diversions from Costilla Creek. Each of these stations is equipped with a water-stage recorder (digital, as noted) 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 collected during irrigation seasons only except for No. 8-2620.

8-2560. Acequia Madre at Costilla, N. Mex.--Lat 36°58'02", long 105°30'57", 275 ft downstream from diversion dam. Records available, May 1944 to September 1968. Acequia diverts from right bank of Costilla Creek. Digital recorder. Prior to July 23, 1964, graphic recorder.

8-2575. Cordillera ditch at Garcia, Colo.--Lat 36°59'42", long 105°31'39", 570 ft south of New Mexico-Colorado State line. Records available, June 1944 to September 1968. Ditch diverts from Acequia Madre for irrigation in Colorado. Digital recorder. Prior to July 22, 1964, graphic recorder.

8-2580. Cerro Canal at Costilla, N. Mex.--Lat 36°57'55", long 105°31'07", 1,400 ft downstream from diversion dam. Records available, April 1944 to September 1968. Canal diverts from left bank of Costilla Creek. Digital recorder. Prior to July 22, 1964, graphic recorder.

8-2585. Association ditch at Costilla, N. Mex.--Lat 36°57'38", long 105°32'03", 100 ft downstream from headgate. Records available, May 1955 to September 1968. Ditch diverts from left bank of Cerro Canal.

8-2590. Cerro Canal near Jaroso, Colo.--Lat 36°59'42", long 105°34'35", 800 ft upstream from head of N. Mex. branch Cerro Canal. Records available, June 1944 to September 1968. Flow measured is delivered to Colorado and to New Mexico branch of Cerro Canal. Digital recorder. Prior to Apr. 21, 1966, graphic recorder.

8-2595. New Mexico branch Cerro Canal near Jaroso, Colo.--Lat 36°59'44", long 105°34'47", 225 ft downstream from headgate. Records available, June 1944 to September 1968. Canal diverts from left bank of Cerro Canal for irrigation in New Mexico.

8-2620. Eastdale No. 1 intake canal near Jaroso, Colo.--Lat 37°02'40", long 105°37'00", 750 ft downstream from headgate. Records available, June 1944 to September 1968. Canal diverts from right bank of Costilla Creek to Eastdale Reservoir No. 1 for irrigation in Colorado.

DIVERSIONS, IN ACRE-FEET, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

MONTH	ACEQUIA MADRE	CORDILLERA DITCH	CERRO CANAL AT COSTILLA	ASSOCIATION DITCH	CERRO CANAL NR JAROSO	NEW MEXICO BRANCH CERRO CANAL	EASTDALE NO. 1 INTAKE CANAL
OCTOBER	-	-	-	-	-	-	5.4
NOVEMBER	-	-	-	-	-	-	0
DECEMBER	-	-	-	-	-	-	0
CAL YR 1967	-	-	-	-	-	-	1,050
JANUARY	-	-	-	-	-	-	0
FEBRUARY	-	-	-	-	-	-	0
MARCH	-	-	-	-	-	-	0
APRIL	-	-	-	-	-	-	782
MAY	703	71	2,850	474	1,930	256	864
JUNE	1,070	32	4,270	1,690	1,830	271	162
JULY	985	39	4,180	1,350	2,010	227	326
AUGUST	805	22	2,750	981	1,380	158	139
SEPTEMBER	572	6.4	1,860	594	845	194	160
WTR YR 1968	-	-	-	-	-	-	2,440

8-2630. Latir Creek near Cerro, N. Mex.

Location.--Lat 36°49'45", long 105°32'50", in S½SW¼sec.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.--10.5 sq mi.

Records available.--June 1937 to September 1968. Monthly discharge only for some periods, published in WSP 1312. Records for April and May 1937, published in WSP 828, have been found to be unreliable (unknown portion of flow bypassing gage) and should not be used.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 8,280 ft (from topographic map).

Average discharge.--31 years, 6.07 cfs (4,390 acre-ft per year).

Extremes.--Maximum discharge during year, 25 cfs May 22 (gage height, 1.15 ft); maximum gage height, 1.87 ft Dec. 3, backwater from ice; minimum discharge, 0.98 cfs Apr. 7.
1937-68: Maximum discharge determined, 126 cfs June 18, 1965, from rating curve extended above 57 cfs by logarithmic plotting; maximum gage height recorded, 4.2 ft July 19, 1945 (log jam; discharge not determined, but may have exceeded 126 cfs); minimum discharge, 0.1 cfs Jan. 24, 25, 29, 1961.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	2.2	1.7	1.7	1.5	1.6	1.6	3.3	14	7.0	7.5	5.7
2	3.0	2.2	1.6	1.7	1.5	1.6	1.5	3.6	14	7.0	6.4	5.7
3	3.0	2.1	1.6	1.7	1.5	1.6	1.5	4.3	12	6.6	5.3	5.3
4	3.0	2.2	1.7	1.7	1.5	1.5	1.4	4.5	15	6.1	4.5	5.5
5	3.0	2.2	1.7	1.6	1.5	1.5	1.6	5.7	18	6.1	4.3	5.1
6	2.8	2.1	1.8	1.6	1.5	1.5	1.4	5.0	19	5.7	5.5	5.3
7	2.8	1.9	1.6	1.6	1.5	1.5	1.3	4.5	18	5.7	7.8	5.1
8	2.6	1.9	1.6	1.6	1.5	1.5	1.4	5.7	16	5.5	6.4	4.5
9	2.6	2.6	1.6	1.6	1.5	1.5	1.6	6.1	14	5.1	6.1	4.3
10	2.8	2.6	1.6	1.6	1.5	1.5	1.6	4.5	13	4.9	8.6	4.1
11	2.8	2.5	1.6	1.6	1.5	1.5	1.6	4.0	11	4.7	11	4.1
12	2.5	2.5	1.6	1.5	1.5	1.4	1.8	4.3	12	4.7	13	3.8
13	2.5	2.5	1.6	1.5	1.5	1.6	1.8	4.2	13	4.7	10	3.8
14	2.5	2.5	1.6	1.5	1.5	1.6	1.8	4.0	13	5.1	9.0	3.4
15	2.6	2.5	1.6	1.4	1.5	1.5	2.0	4.7	13	4.7	7.7	3.4
16	2.2	2.5	1.7	1.4	1.5	1.5	2.0	5.7	13	4.1	6.8	3.3
17	2.4	2.4	1.7	1.5	1.5	1.5	1.7	6.1	13	4.0	7.0	3.3
18	2.4	2.4	1.7	1.5	1.5	1.5	2.0	6.6	14	4.9	6.1	3.3
19	2.5	2.4	1.7	1.5	1.5	1.7	2.0	8.3	14	4.5	5.3	3.1
20	2.5	2.4	1.7	1.5	1.5	1.6	2.0	8.5	14	3.8	5.1	3.1
21	2.6	2.2	1.7	1.5	1.5	1.5	2.0	12	14	3.8	5.7	3.0
22	2.6	2.1	1.7	1.5	1.5	1.4	1.8	15	14	3.8	5.1	3.0
23	2.5	2.0	1.7	1.5	1.5	1.4	1.8	13	13	5.6	5.3	3.1
24	2.5	2.0	1.7	1.6	1.5	1.4	2.0	9.5	12	5.5	4.5	3.1
25	2.5	2.2	1.7	1.6	1.5	1.4	1.8	8.7	11	4.7	4.7	3.1
26	2.5	2.1	1.6	1.6	1.5	1.4	2.0	10	10	5.3	5.3	3.1
27	2.1	2.1	1.7	1.6	1.6	1.4	1.8	12	9.0	7.0	5.7	3.0
28	2.2	2.2	1.7	1.6	1.6	1.4	1.8	15	8.4	5.1	11	3.0
29	1.8	2.0	1.7	1.6	1.6	1.6	2.0	14	8.0	5.3	7.3	3.0
30	2.5	1.9	1.7	1.5	------	1.6	2.6	15	7.3	4.1	7.0	3.1
31	2.8	------	1.7	1.5	------	1.6	------	15	------	7.4	6.1	------
TOTAL	80.1	67.4	51.6	48.4	43.8	46.8	53.2	242.8	389.7	162.5	211.1	115.7
MEAN	2.58	2.25	1.66	1.56	1.51	1.51	1.77	7.83	13.0	5.24	6.81	3.86
MAX	3.0	2.6	1.8	1.7	1.6	1.6	2.6	15	19	7.4	13	5.7
MIN	1.8	1.9	1.6	1.4	1.5	1.4	1.3	3.3	7.3	3.8	4.3	3.0
AC-FT	159	134	102	96	87	93	106	482	773	322	419	229

CAL YR 1967: TOTAL 1,174.4 MEAN 3.22 MAX 12 MIN 1.2 AC-FT 2,330
WAT YR 1968: TOTAL 1,513.1 MEAN 4.13 MAX 19 MIN 1.3 AC-FT 3,000

Peak discharge (base, 40 cfs).--No peak above base.

8-2635. 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 1968.

Gage.--Water-stage recorder. Altitude of gage is 7,100 ft (from river-profile map).

Average discharge.--20 years, 352 cfs (254,800 acre-ft per year).

Extremes.--Maximum discharge during year, 2,410 cfs June 1 (gage height, 9.08 ft); minimum, 98 cfs Sept. 22-30.
1948-68: Maximum discharge, 9,740 cfs June 22, 1949 (gage height, 15.78 ft); minimum, 43 cfs Sept. 22, 1956.

Remarks.--Records good except those for period of no gage-height record, which are fair. Diversions above station for irrigation of about 620,000 acres in Colorado and 7,000 acres in New Mexico

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	180	299	230	267	458	557	151	2,330	1,090	728	264
2	118	218	289	245	280	467	595	148	2,240	1,040	823	241
3	115	238	264	260	285	475	655	152	2,000	920	1,010	212
4	110	448	238	250	277	483	660	189	1,910	824	1,120	196
5	110	567	290	240	278	497	632	204	1,930	635	1,070	196
6	114	462	295	230	269	531	545	203	1,850	493	975	186
7	118	432	318	220	262	523	446	246	1,810	358	858	197
8	117	418	264	225	262	519	390	340	1,910	309	750	200
9	121	414	243	225	261	581	369	364	1,560	261	793	189
10	120	403	229	225	262	598	349	351	1,240	238	806	170
11	116	401	249	220	267	507	318	410	982	227	702	161
12	122	401	254	230	267	549	300	549	794	203	909	155
13	113	401	292	230	277	571	292	515	730	189	992	144
14	108	401	235	230	272	541	284	464	715	180	1,120	130
15	101	397	135	250	282	555	267	446	645	175	1,200	120
16	105	395	280	250	278	557	253	395	675	180	1,210	119
17	107	395	261	240	278	533	251	349	752	204	1,240	117
18	107	393	254	230	280	527	265	439	824	214	1,060	110
19	106	393	267	240	292	521	237	589	938	216	833	108
20	107	393	282	250	294	521	208	700	1,400	238	660	104
21	112	388	275	260	294	507	189	785	1,670	220	555	101
22	112	386	250	270	304	499	190	926	1,750	215	505	98
23	107	378	225	275	316	517	200	1,120	1,870	210	493	98
24	107	378	240	275	314	499	183	1,520	1,850	206	429	98
25	107	376	240	275	335	501	182	1,810	1,710	208	358	98
26	108	371	250	275	351	503	166	1,700	1,610	226	307	98
27	108	348	250	277	382	521	159	1,680	1,420	297	280	98
28	116	324	250	285	386	531	148	1,660	1,240	448	259	98
29	141	340	270	285	405	535	144	1,730	1,060	630	254	98
30	162	294	260	285	------	545	152	2,060	1,070	797	262	98
31	164	------	245	267	------	545	------	2,270	------	794	262	------
TOTAL	3,597	11,333	7,993	7,749	8,577	16,217	9,586	24,465	42,485	12,445	22,823	4,302
MEAN	116	378	258	250	296	523	320	789	1,416	401	736	143
MAX	164	567	318	285	405	598	660	2,270	2,330	1,090	1,240	264
MIN	101	180	135	220	261	458	144	148	645	175	254	98
AC-FT	7,130	22,480	15,850	15,370	17,010	32,170	19,010	48,530	84,270	24,680	45,270	8,530

CAL YR 1967: TOTAL 88,369 MEAN 242 MAX 902 MIN 78 AC-FT 175,300
WTR YR 1968: TOTAL 171,572 MEAN 469 MAX 2,330 MIN 98 AC-FT 340,300

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 1	1400	9.08	2,410
6-23	2000	8.28	1,910
8- 2	1740	7.25	1,380
8-17	0200	7.10	1,320

Note.--No gage-height record Dec. 21 to Jan. 23.

8-2645. Red River below Zwergle damsite, near Red River, N. Mex.

Location.--Lat 36°40'25", long 105°22'50", in NE¼SW¼ sec.7, T.28 N., R.15 E. (projected), on right bank 2,000 ft upstream from Goose Creek, 1.9 miles downstream from Bear Canyon, 2 3/4 miles southeast of Red River, and at mile 24.1.

Drainage area.--25.7 sq mi.

Records available.--April 1963 to September 1968.

Gage.--Water-stage recorder and concrete control. Datum of gage is 8,871.88 ft above mean sea level, datum of 1929.

Average discharge.--5 years, 18.2 cfs (13,180 acre-ft per year).

Extremes.--Maximum discharge during year, 91 cfs June 6 (gage height, 2.69 ft); minimum recorded, 1.4 cfs Mar. 16, but may have been less during periods of ice effect.
1963-68: Maximum discharge, 216 cfs June 19, 1965 (gage height, 3.38 ft); minimum recorded, 0.7 cfs Feb. 8, 1965, but may have been less during periods of ice effect.

Remarks.--Records good except those for the winter period, which are fair. No diversion above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	8.5	5.0	3.5	4.5	4.4	7.1	12	69	35	22	18
2	13	8.5	4.5	4.0	4.5	4.8	6.8	13	67	36	23	18
3	13	8.5	4.5	4.5	4.5	5.3	6.8	15	64	37	21	17
4	13	8.0	5.0	4.0	4.5	4.2	7.0	15	70	33	20	16
5	13	8.0	4.5	3.5	4.5	4.8	6.9	17	79	30	18	16
6	13	8.0	6.5	3.5	5.0	5.0	7.1	19	84	29	20	16
7	12	8.5	5.5	4.0	5.5	4.8	6.5	17	86	30	23	15
8	12	8.4	4.0	5.0	6.0	5.0	6.2	18	79	32	21	15
9	12	8.0	3.5	5.0	6.0	5.3	6.8	19	69	28	22	15
10	12	8.4	3.0	5.0	5.5	5.0	6.9	20	64	25	24	14
11	12	8.0	3.5	5.6	5.5	4.6	7.7	20	58	24	28	14
12	12	8.4	4.0	4.0	5.5	5.5	9.2	20	61	24	29	14
13	12	8.4	3.0	3.0	5.5	6.0	10	20	65	23	29	14
14	11	8.0	3.5	3.5	5.5	5.9	10	20	69	24	28	13
15	11	8.0	4.0	4.0	5.5	5.4	11	20	72	23	27	13
16	10	8.4	5.0	3.8	6.0	5.2	12	22	73	21	24	12
17	10	8.4	4.0	4.8	6.0	5.3	11	23	73	20	23	13
18	10	8.0	3.5	4.8	6.0	5.0	11	23	75	19	22	12
19	10	8.0	4.5	4.0	5.0	4.2	11	25	72	19	20	12
20	9.2	8.0	4.5	4.0	5.0	4.2	10	28	72	18	20	12
21	9.2	8.0	3.5	4.4	5.5	4.4	11	34	70	18	20	11
22	9.2	7.7	3.5	4.6	6.0	4.6	10	51	65	20	18	11
23	9.2	7.7	4.0	3.5	5.6	4.8	9.6	51	62	20	18	11
24	8.8	6.5	5.0	3.0	5.3	5.0	9.6	46	59	22	17	11
25	8.8	6.5	5.5	3.5	4.8	5.0	10	44	56	21	16	10
26	8.8	6.5	5.5	3.5	4.6	5.6	10	45	52	21	18	10
27	8.4	6.5	5.5	4.5	5.0	5.6	10	48	48	25	19	10
28	8.8	6.5	4.0	4.5	4.8	5.9	10	55	45	21	19	10
29	8.4	6.0	4.5	4.5	4.4	6.2	10	59	43	22	19	10
30	8.0	5.5	5.0	3.5	------	6.5	11	69	38	20	19	10
31	8.5	------	4.0	4.0	------	6.8	------	73	------	23	19	------
TOTAL	329.3	231.8	135.5	127.0	152.0	160.3	272.2	961	1,959	763	666	393
MEAN	10.6	7.73	4.37	4.10	5.24	5.17	9.07	31.0	65.3	24.6	21.5	13.1
MAX	13	8.5	6.5	5.6	6.0	6.8	12	73	86	37	29	18
MIN	8.0	5.5	3.0	3.0	4.4	4.2	6.2	12	38	18	16	10
AC-FT	653	460	269	252	301	318	540	1,910	3,890	1,510	1,320	780

CAL YR 1967: TOTAL 5,471.3 MEAN 15.0 MAX 50 MIN 3.0 AC-FT 10,850
WTR YR 1968: TOTAL 6,150.1 MEAN 16.8 MAX 86 MIN 3.0 AC-FT 12,200

PEAK DISCHARGE (BASE, 65 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-30	1930	2.62	80
6- 6	2100	2.69	91
6-17	2300	2.63	80

8-2650. Red River near Questa, N. Mex.

Location.--Lat 36°42'10", long 105°34'03", in NE¼SE¼ sec.32, 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.--113 sq mi.
Records available.--April to October 1910 and January to September 1911 (gage heights and discharge measurements only), October 1912 to September 1925 (fragmentary prior to September 1915), January to March 1926, September 1926 to September 1968. Published as "above Questa" January 1926 to September 1930, and as Rio Colorado near Questa October 1930 to September 1947. Monthly discharge only for some periods, published in WSP 1312. Previously published figures of discharge for October to December 1925 have been found to be unreliable and should not be used.
Gage.--Water-stage recorder. Wood or concrete control since Mar. 20, 1936. Datum of gage is 7,451.92 ft above mean sea level, datum of 1929 (1957 adjustment). Apr. 5 to Oct. 14, 1910, and Jan. 27 to Sept. 4, 1911, staff gages at sites 1⅛ and 3⅛ 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.--55 years (1912-25, 1926-68), 54.6 cfs (39,530 acre-ft per year).
Extremes.--Maximum discharge during year, 194 cfs May 22 (gage height, 3.45 ft); minimum, about 3.5 cfs Dec. 10 and 13.
1930-68: Maximum discharge, 886 cfs May 25, 1942, from rating curve extended above 450 cfs by logarithmic plotting; maximum gage height, 4.10 ft June 19, 1965; minimum discharge, 1.5 cfs Nov. 23, 1957.
The peak of June 15, 1921, may have equaled or exceeded the peak of May 25, 1942.
Remarks.--Records good except those for November, February and March, which are fair, and those for December and January, which are poor. Diversions for irrigation of a few hundred acres above station. Figures of discharge do not include flow in South ditch which diverts from left bank 1,500 ft upstream and bypasses gage for irrigation and stock water below. See tabulation below for monthly diversion of South ditch (records of daily discharge available in district files).
Tailings pipelines from Molybdenum Corp. of America (Molycorp) refinery 5½ miles upstream also bypass gage on left bank. This water is pumped from wells located adjacent to Red River 3 miles upstream from gage. Tailings lines discharge into settling pond 3 miles downstream. Effluent from this pond enters Red River as surface water and is included in discharge at Red River at mouth, near Questa (see station 8-2670). See tabulation below for monthly discharge through tailings pipelines (records furnished by Molycorp.).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	15	11	5.0	6.5	7.0	9.6	26	143	56	50	40
2	19	14	10	6.0	6.5	7.8	9.6	27	143	54	44	36
3	19	13	8.0	7.0	6.5	8.1	9.6	34	132	57	41	35
4	19	13	9.0	6.0	6.5	7.0	8.9	40	134	52	38	34
5	19	13	8.5	5.0	7.0	8.3	8.9	49	138	50	35	31
6	20	14	9.0	5.0	8.0	8.3	9.2	54	143	47	37	31
7	20	12	8.0	6.0	7.8	7.8	8.9	49	143	49	42	30
8	19	11	6.0	7.0	8.6	7.8	8.3	52	136	53	46	26
9	19	11	5.0	7.0	8.3	7.8	8.6	58	126	47	48	25
10	24	12	4.0	7.0	8.3	7.5	8.1	70	117	44	56	25
11	19	12	5.0	10	8.3	7.0	8.6	64	109	41	63	24
12	18	11	6.0	10	8.3	5.9	9.6	65	108	40	66	22
13	18	12	4.0	7.0	8.3	7.2	11	66	111	38	70	21
14	18	12	5.0	8.0	8.3	7.8	11	61	117	40	64	21
15	18	11	7.0	10	8.3	7.5	12	60	117	39	61	20
16	17	11	8.0	10	8.6	7.5	15	63	119	34	54	20
17	17	12	7.0	8.0	8.6	7.5	16	69	119	32	53	21
18	17	12	6.0	6.0	8.3	7.2	17	73	120	32	50	20
19	17	12	7.0	6.0	8.3	6.7	18	75	119	32	46	23
20	17	12	7.0	7.0	8.3	7.2	16	85	109	29	43	23
21	18	12	6.0	8.0	8.6	6.4	18	101	106	28	44	20
22	17	12	6.0	7.0	8.3	6.7	17	149	102	31	40	20
23	17	12	8.0	6.4	7.8	7.2	16	149	99	34	39	19
24	17	12	9.0	7.5	8.6	7.5	15	134	93	41	35	17
25	17	11	9.0	7.2	8.1	7.2	17	117	91	36	34	17
26	17	11	9.0	6.7	7.5	7.8	18	115	84	34	34	17
27	17	11	7.0	6.7	7.8	7.8	17	120	78	52	40	17
28	16	11	6.0	6.9	7.8	8.1	17	126	73	38	40	17
29	17	11	7.0	6.7	6.4	8.6	16	134	65	34	40	16
30	14	11	8.3	5.5	------	8.9	19	138	61	32	45	17
31	15	------	6.0	6.0	------	9.2	------	149	------	48	40	------
TOTAL	556	359	221.8	217.6	228.5	234.3	393.9	2,572	3,355	1,274	1,438	705
MEAN	17.9	12.0	7.15	7.02	7.88	7.56	13.1	83.0	112	41.1	46.4	23.5
MAX	24	15	11	10	8.6	9.2	19	149	143	57	70	40
MIN	14	11	4.0	5.0	6.4	5.9	8.1	26	61	28	34	16
AC-FT	1,100	712	440	432	453	465	781	5,100	6,650	2,530	2,850	1,400
(†)	27	12	9	0	0	0	54	111	154	176	64	13
(‡)	305	336	344	369	335	355	349	367	370	359	370	352

CAL YR 1967: TOTAL 8,620.8 MEAN 23.6 MAX 88 MIN 4.0 AC-FT 17,100 † 880 ‡ 4,050
WTR YR 1968: TOTAL 11,555.1 MEAN 31.6 MAX 149 MIN 4.0 AC-FT 22,920 † 614 ‡ 4,210

PEAK DISCHARGE (BASE, 160 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-22	2340	3.45	194
5-31	0515	3.34	160
8- 8	1620	3.34	182

† Diversion, in acre-feet, by South ditch.
‡ Discharge, in acre-feet, through Molycorp tailings pipelines.

8-2655. Llano ditch near Questa, N. Mex.

Location.--Lat 36°43'50", long 105°33'05", in SE¼SE¼ sec.21, T.29 N., R.13 E., on left bank 150 ft downstream from heading, 3¼ miles northeast of Questa, and 3 3/4 miles upstream from mouth of Cabresto Creek.

Records available.--September 1943 to September 1968 (no winter records).

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 7,882 ft above mean sea level, datum of 1929.

Extremes.--1943-68: Maximum daily discharge recorded, 42 cfs June 6, 7, 1958; no flow for many days most years.

Remarks.--Records good. Ditch diverts water from right bank of Cabresto Creek for irrigation of about 800 acres near Questa.

MONTHLY DIVERSION, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

MONTH	MAXIMUM	MINIMUM	MEAN	DIVERSION IN ACRE-FEET
OCTOBER	0	0	0	0
NOVEMBER	-	-	-	-
DECEMBER	-	-	-	-
CAL YR 1967	-	-	-	-
JANUARY	-	-	-	-
FEBRUARY	-	-	-	-
MARCH	-	-	-	-
APRIL	0	0	0	0
MAY	20	0	5.14	316
JUNE	22	5.6	13.0	776
JULY	8.0	0	4.94	304
AUGUST	.03	0	.001	.08
SEPTEMBER	0	0	0	0
WTR YR 1968	-	-	-	-

8-2660. 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.--36.7 sq mi.

Records available.--September 1943 to September 1968.

Gage.--Digital water-stage recorder and crest-stage gage. Concrete control. Datum of gage is 7,845 ft above mean sea level (river-profile survey). Prior to July 10, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--25 years, 9.63 cfs (6,970 acre-ft per year).

Extremes.--Maximum discharge during year, 52 cfs May 24 (gage height, 3.10 ft); minimum, 1.7 cfs Dec. 3, result of freezeup.
1943-68: Maximum discharge, 176 cfs June 8, 1957 (gage height, 4.44 ft); minimum, 0.44 cfs Dec. 2, 1950, result of freezeup.
The high water of May 25, 1942, reached a stage of 4.18 ft (discharge probably exceeded 200 cfs).

Remarks.--Records good except those for periods of no gage-height record, which are fair. Llano ditch (see station 8-2655), 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, after reconstruction in 1928) on Lake Fork 1 mile above its mouth.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	4.9	3.8	3.0	4.6	4.8	7.1	12	36	11	13	11
2	8.5	4.8	3.0	3.5	4.2	5.0	6.8	13	33	11	11	10
3	8.4	4.3	2.7	3.5	4.9	5.1	6.4	16	26	12	9.6	10
4	8.3	4.2	3.5	3.5	5.0	4.8	6.3	16	25	11	7.9	11
5	8.3	4.6	3.5	3.0	4.6	5.1	6.4	18	24	12	7.4	10
6	8.1	4.5	3.9	3.0	4.8	5.2	6.7	20	23	13	7.5	10
7	8.2	3.9	3.6	3.0	5.0	5.2	6.3	20	21	12	7.9	9.7
8	8.1	3.5	4.1	3.5	5.0	5.1	6.0	21	22	12	9.2	9.5
9	8.0	3.8	3.7	3.5	4.9	5.1	6.2	25	21	12	11	9.2
10	7.9	4.1	3.0	4.0	5.0	5.1	6.0	27	19	12	13	8.9
11	8.0	4.2	3.7	4.0	4.8	4.6	6.6	24	17	12	15	9.0
12	7.7	4.2	4.0	3.5	5.0	4.4	7.2	24	13	12	14	8.8
13	7.6	4.2	3.3	3.5	5.0	5.0	7.9	25	11	12	13	8.5
14	7.5	4.3	3.3	4.0	4.9	5.1	7.9	24	12	12	12	8.3
15	7.3	4.3	3.6	4.0	4.8	5.0	8.9	25	12	12	11	8.4
16	7.4	4.3	3.4	4.0	4.8	5.0	11	28	13	12	10	8.0
17	6.9	4.2	3.1	4.0	4.9	5.0	9.8	31	14	12	9.8	8.4
18	5.6	4.2	3.0	4.0	4.9	4.9	9.9	32	14	12	9.4	8.2
19	5.2	4.3	3.8	4.0	4.9	4.4	10	35	13	12	9.1	8.0
20	5.0	4.3	3.5	4.0	5.0	4.8	9.1	39	12	12	8.9	7.8
21	5.0	4.2	3.0	4.0	5.0	4.5	10	35	11	11	9.2	7.6
22	5.0	4.2	3.0	4.2	5.0	4.3	10	30	13	11	8.9	7.5
23	4.9	4.1	3.5	4.1	4.9	4.9	9.3	42	12	12	9.0	7.6
24	4.9	3.7	3.5	4.1	5.0	5.1	9.1	46	12	12	8.7	7.7
25	4.8	3.7	3.5	4.2	5.0	5.1	9.6	42	13	11	8.6	7.6
26	4.7	4.1	3.5	4.2	4.9	5.1	9.4	40	13	10	8.8	7.5
27	4.6	3.6	3.5	4.2	5.1	5.2	9.1	39	12	12	9.8	7.4
28	4.6	4.1	3.5	4.3	5.1	5.3	9.1	37	12	8.8	13	7.2
29	4.9	4.0	3.5	4.4	4.6	5.5	8.8	38	12	8.5	11	7.0
30	4.0	3.8	3.5	4.1	------	6.3	9.9	38	11	10	13	7.3
31	4.9	------	3.5	4.7	------	6.7	------	38	------	11	11	------
TOTAL	203.0	124.6	107.0	119.0	141.6	156.7	246.8	900	502	355.3	320.7	257.1
MEAN	6.55	4.15	3.45	3.84	4.88	5.05	8.23	29.0	16.7	11.5	10.3	8.57
MAX	8.7	4.9	4.1	4.7	5.1	6.7	11	46	36	13	15	11
MIN	4.0	3.5	2.7	3.0	4.2	4.3	6.0	12	11	8.5	7.4	7.0
AC-FT	403	247	212	236	281	311	490	1,790	996	705	636	510

CAL YR 1967 TOTAL 2,778.0 MEAN 7.61 MAX 17 MIN 2.7 AC-FT 5,510
WTR YR 1968 TOTAL 3,433.8 MEAN 9.38 MAX 46 MIN 2.7 AC-FT 6,810

Note.--No gage-height record Dec. 21 to Jan. 22.

8-2670. Red River at mouth, near Questa, N. Mex.

Location.--Lat 36°38'55", long 105°41'35", in SW¼NW¼ sec.20, T.28 N., R.12 E., on left bank 250 ft upstream from Rio Grande and 6.5 miles southwest of Questa.

Drainage area.--190 sq mi.

Records available.--October 1950 to September 1968. Monthly discharge only for October and November 1950, published in WSP 1732.

Gage.--Water-stage recorder. Altitude of gage is 6,600 ft (from topographic map).

Average discharge.--18 years, 79.1 cfs (57,270 acre-ft per year).

Extremes.--Maximum discharge during year, 532 cfs Aug. 29 (gage height, 5.39 ft); minimum, 37 cfs Dec. 3. 1950-68: Maximum discharge, 730 cfs Aug. 12, 1964 (gage height, 6.05 ft); minimum, 29 cfs Feb. 13, 1965.

Remarks.--Records good except those for July to September, which are fair. Diversions for irrigation of about 3,000 acres above station. Records of chemical analyses and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	54	47	46	54	50	52	64	177	101	96	81
2	61	52	43	49	49	52	53	66	181	96	95	80
3	64	51	41	49	46	54	53	73	172	98	90	79
4	65	51	45	48	49	53	52	77	170	95	87	67
5	61	50	41	47	46	54	52	93	176	95	85	61
6	60	50	43	47	47	54	52	94	182	89	85	59
7	59	52	42	48	49	54	52	93	183	84	86	60
8	58	50	41	49	50	54	51	94	176	86	88	57
9	57	49	41	49	50	53	50	96	167	90	90	57
10	62	49	41	49	49	52	50	110	161	85	95	57
11	60	51	43	50	49	51	51	121	147	83	104	56
12	59	52	44	50	50	53	52	120	148	81	104	56
13	58	53	44	50	49	50	52	120	148	80	107	56
14	57	54	44	52	50	48	53	113	149	79	103	56
15	57	52	45	54	49	46	55	108	150	84	100	56
16	58	52	46	54	50	47	59	110	151	81	99	56
17	60	55	46	55	50	48	61	112	150	80	94	56
18	59	52	46	54	50	47	62	116	155	80	90	55
19	59	49	47	53	49	46	63	119	150	77	88	55
20	59	49	47	53	51	47	60	130	144	75	87	54
21	58	51	45	54	51	47	59	150	144	73	85	49
22	58	51	44	54	51	46	58	189	138	74	84	49
23	56	50	45	54	49	47	58	221	130	77	80	49
24	58	49	45	54	49	48	57	207	127	87	71	49
25	56	49	46	55	49	47	58	183	124	86	68	48
26	55	49	45	54	49	47	58	173	119	85	69	49
27	54	47	46	54	50	48	59	169	115	96	77	49
28	54	50	46	54	51	48	58	172	113	90	79	48
29	55	48	47	54	50	48	59	170	109	86	94	46
30	52	49	47	52	------	49	60	169	105	85	83	49
31	53	------	47	53	------	50	------	180	------	94	81	------
TOTAL	1,802	1,520	1,380	1,598	1,435	1,538	1,669	4,012	4,461	2,652	2,744	1,699
MEAN	58.1	50.7	44.5	51.5	49.5	49.6	55.6	129	149	85.5	88.5	56.6
MAX	65	55	47	55	54	54	63	221	183	101	107	81
MIN	52	47	41	46	46	46	50	64	105	73	68	46
AC-FT	3,570	3,010	2,740	3,170	2,850	3,050	3,310	7,960	8,850	5,260	5,440	3,370

CAL YR 1967: TOTAL 22,377 MEAN 61.3 MAX 115 MIN 41 AC-FT 44,380
WTR YR 1968: TOTAL 26,510 MEAN 72.4 MAX 221 MIN 41 AC-FT 52,580

PEAK DISCHARGE (BASE, 220 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-23	0130	3.78	250
8-29	1815	5.39	532

8-2675. Rio Hondo near Valdez, N. Mex.

Location.--Lat 36°32'30", long 105°33'20", in Carson National Forest, on right bank 500 ft upstream from first diversion, a quarter of a mile upstream from Forest Service boundary, 1½ miles east of Valdez, Taos County, 4 miles downstream from South Fork, and 9 miles upstream from mouth.

Drainage area.--36.2 sq mi.

Records available.--August 1934 to September 1968.

Gage.--Water-stage recorder. Concrete control since Oct. 28, 1938. Datum of gage is 7,654 ft above mean sea level, datum of 1929. Prior to Oct. 28, 1938, at datum 1.92 ft lower. June 29, 1964 to Aug. 3, 1966, digital water-stage recorder at present site and datum.

Average discharge.--34 years, 35.4 cfs (25,630 acre-ft per year).

Extremes.--Maximum discharge during year, 101 cfs June 8 (gage height, 2.51 ft); maximum gage height, 3.13 ft Dec. 24 (ice jam); minimum discharge recorded, 6.6 cfs about Feb. 2, result of freezeup.
1934-68: Maximum discharge, 541 cfs May 13, 1941, from rating curve extended above 300 cfs by logarithmic plotting; maximum gage height, 4.27 ft Jan. 4, 1967 (ice jam); minimum discharge, about 1 cfs Jan. 27, 1942, result of freezeup.

Remarks.--Records good except those for December, January, and May, which are fair. No diversion above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	17	13	10	12	12	18	21	85	46	34	33
2	22	17	13	11	12	12	17	23	85	46	34	32
3	22	16	13	11	12	12	16	26	85	44	30	32
4	22	16	14	11	12	12	15	27	90	42	29	30
5	22	16	13	11	12	12	15	30	93	40	34	30
6	21	16	13	10	12	12	15	30	89	39	49	29
7	21	15	13	10	12	12	15	30	91	42	46	28
8	21	15	13	10	12	12	14	30	91	39	42	27
9	20	15	12	10	12	12	14	30	96	37	39	27
10	20	15	10	10	12	12	15	35	91	35	39	27
11	20	15	10	11	12	11	16	35	84	33	59	26
12	20	15	11	11	12	12	17	35	89	33	93	26
13	20	15	12	11	12	12	18	35	89	32	87	25
14	19	15	11	11	12	12	19	35	84	34	77	24
15	18	15	11	11	11	12	20	36	84	33	66	23
16	18	15	11	12	12	12	22	37	86	30	59	23
17	18	15	11	12	11	12	20	38	89	30	58	23
18	18	15	10	12	12	12	20	36	89	30	56	22
19	18	15	11	12	11	12	20	36	87	29	53	22
20	17	14	11	12	12	12	18	38	87	28	53	21
21	17	14	10	12	12	12	19	50	86	28	52	21
22	17	15	10	12	12	12	19	60	82	27	49	20
23	17	14	11	12	12	12	17	70	78	29	47	20
24	16	13	12	12	12	12	17	70	73	29	42	20
25	16	13	12	12	12	13	18	70	73	30	40	20
26	16	14	12	12	12	14	18	70	68	28	43	19
27	16	13	12	12	12	14	17	75	64	29	40	19
28	16	14	12	12	12	15	17	80	61	27	39	19
29	17	14	12	12	11	16	17	85	56	28	37	18
30	16	13	12	12	------	17	20	85	50	28	36	20
31	17	------	12	12	------	18	------	85	------	32	39	------
TOTAL	581	444	363	351	344	394	523	1,443	2,455	1,037	1,501	726
MEAN	18.7	14.8	11.7	11.3	11.9	12.7	17.4	46.5	81.8	33.5	48.4	24.2
MAX	23	17	14	12	12	18	22	85	96	46	93	33
MIN	16	13	10	10	11	11	14	21	50	27	29	18
AC-FT	1,150	881	720	696	682	781	1,040	2,860	4,870	2,060	2,980	1,440

CAL YR 1967: TOTAL 9,608.8 MEAN 26.3 MAX 78 MIN 8.0 AC-FT 19,060
WTR YR 1968: TOTAL 10,162 MEAN 27.8 MAX 96 MIN 10 AC-FT 20,160

PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 8	1230	2.51	101

8-2685. Arroyo Hondo at Arroyo Hondo, N. Mex.

Location.--Lat 36°31'55", long 105°41'05", in Arroyo Hondo Grant, on right bank 1 mile downstream from Arroyo Hondo and 1¼ miles upstream from mouth.

Drainage area.--65.6 sq mi.

Records available.--April 1910 to June 1912, fragmentary (gage heights and discharge measurements only), July 1912 to December 1928, and January 1932 to September 1968. Monthly discharge only for some periods, published in WSP 1312. Published as Rio Hondo near Arroyo Hondo prior to 1928, and as Rio Hondo at Arroyo Hondo 1928-66.

Gage.--Water-stage recorder. Concrete control since Aug. 12, 1938. Datum of gage is 6,679 ft above mean sea level, datum of 1929. 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. Aug. 12, 1938 to Sept. 10, 1963, water-stage recorder on left bank at present datum. June 12, 1964 to Aug. 17, 1966, digital water-stage recorder at present site and datum.

Average discharge.--52 years (1912-28, 1932-68), 28.1 cfs (20,340 acre-ft per year).

Extremes.--Maximum discharge during year, 67 cfs Aug. 31 (gage height, 3.05 ft); minimum, 6.2 cfs Mar. 22.
1938-68: Maximum discharge, 1,060 cfs July 19, 1948 (gage height, 3.75 ft), from rating curve extended above 200 cfs by logarithmic plotting; minimum, 3.8 cfs Aug. 1, 6, 1963.
Maximum gage height observed, 5.45 ft (site and datum then in use) Aug. 23, 1935 (discharge uncertain, but probably exceeded 1,100 cfs). A minimum daily discharge of 3 cfs occurred Oct. 19, 1912 (statement in WSP 328 that there was no flow in January and much of February 1912 is believed erroneous). Discharge not determined for the major floods of Oct. 6, 1911, Sept. 1, 1932, and July 22, 1934.

Remarks.--Records good except those for winter months, which are fair. Diversions above station for irrigation of about 2,500 acres.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	14	14	14	16	16	12	8.3	32	11	10	21
2	16	14	12	20	13	17	12	7.9	30	12	9.6	19
3	16	13	15	21	15	18	11	9.6	27	12	9.8	19
4	16	13	19	17	15	17	11	8.8	29	12	10	18
5	16	13	16	13	13	16	9.8	9.6	32	13	9.3	18
6	16	14	20	14	13	16	9.8	16	36	13	13	17
7	16	13	22	13	13	16	10	22	41	13	18	17
8	16	13	22	16	13	15	9.0	24	38	12	21	16
9	17	13	21	15	13	14	9.0	27	38	11	20	14
10	17	13	16	16	13	13	9.3	32	35	10	19	13
11	16	12	20	17	13	11	10	26	33	10	25	13
12	15	11	23	15	14	11	10	20	32	10	44	12
13	13	12	23	12	14	12	11	20	27	9.8	48	11
14	13	11	22	16	15	13	11	20	28	9.3	45	11
15	11	11	22	16	14	12	11	19	29	9.0	44	10
16	11	10	22	16	15	12	14	14	29	8.3	41	11
17	11	10	19	17	15	12	12	15	28	8.3	38	11
18	11	10	18	17	16	12	12	14	27	8.8	38	10
19	11	10	25	15	16	12	12	11	27	9.3	37	10
20	11	10	23	16	16	12	11	11	26	9.0	37	9.8
21	11	10	15	18	16	12	11	11	24	8.8	37	9.8
22	10	10	14	17	16	11	10	16	23	8.6	30	9.8
23	10	10	18	17	16	12	9.0	20	22	8.3	30	9.8
24	10	9.8	19	17	16	12	8.6	21	20	9.8	27	9.0
25	10	10	19	18	16	12	8.6	18	22	11	26	8.8
26	10	13	19	18	16	12	8.6	16	19	9.3	24	8.8
27	9.8	12	18	18	16	12	8.6	16	18	11	24	8.8
28	9.6	13	18	19	16	12	8.6	16	16	9.3	23	8.6
29	11	14	23	19	16	12	8.6	20	13	9.0	20	8.8
30	12	14	23	16	------	12	8.6	32	12	9.0	20	8.8
31	14	------	20	17	------	11	------	36	------	11	28	------
TOTAL	403.4	355.8	600	510	429	407	307.1	557.2	813	315.9	825.7	371.8
MEAN	13.0	11.9	19.4	16.5	14.8	13.1	10.2	18.0	27.1	10.2	26.6	12.4
MAX	17	14	25	21	16	18	14	36	41	13	48	21
MIN	9.6	9.8	12	12	13	11	8.6	7.9	12	8.3	9.3	8.6
AC-FT	800	706	1,190	1,010	851	807	609	1,110	1,610	627	1,640	737

CAL YR 1967: TOTAL 6,041.5 MEAN 16.6 MAX 49 MIN 6.7 AC-FT 11,980
WTR YR 1968: TOTAL 5,895.9 MEAN 16.1 MAX 48 MIN 7.9 AC-FT 11,690

Peak discharge (base, 100 cfs).--No peak above base.

8-2687. Rio Grande near Arroyo Hondo, N. Mex.

Location.--Lat 36°32'05", long 105°42'35", in NW¼ sec.31, T.27 N., R.12 E., on right bank 350 ft downstream from Arroyo Hondo, 400 ft downstream from State Road 111 bridge, 2¼ miles west of Arroyo Hondo and 11½ miles northwest of Taos.

Drainage area.--8,760 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--February 1963 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 6,460 ft (from topographic map).

Average discharge.--5 years, 523 cfs (378,600 acre-ft per year).

Extremes.--Maximum discharge during year, 2,580 cfs June 1 (gage height, 4.46 ft); minimum, 195 cfs Oct. 15.
1963-68: Maximum discharge, 4,400 cfs June 22, 1965 (gage height, 5.81 ft); minimum, 136 cfs Aug. 2, 1963.

Remarks.--Records excellent except those for January, which are fair. Diversions above station for irrigation of about 620,000 acres in Colorado and 15,000 acres in New Mexico

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	285	407	399	379	585	651	271	2.520	1.270	948	419
2	240	309	399	403	387	601	686	271	2.450	1.250	978	411
3	237	337	360	405	403	606	747	278	2.220	1.100	1.200	375
4	234	407	352	403	399	606	760	309	2.120	1.050	1.300	345
5	226	688	395	387	399	628	735	356	2.140	825	1.270	337
6	252	559	395	380	399	656	662	360	2.090	668	1.180	330
7	231	530	427	370	399	651	549	379	2.040	535	1.070	337
8	226	511	387	355	411	645	484	474	2.140	484	976	345
9	228	506	364	370	411	710	461	525	1.910	432	969	330
10	237	502	323	370	407	735	444	544	1.570	399	1.040	316
11	228	497	352	365	411	692	419	580	1.310	379	948	302
12	228	497	360	355	419	628	399	698	1.070	349	1.160	298
13	223	502	403	350	419	728	391	704	990	323	1.250	288
14	206	502	364	350	415	668	383	628	962	305	1.350	278
15	201	497	274	370	419	662	375	612	913	305	1.450	271
16	201	497	352	370	423	674	368	580	913	302	1.430	262
17	208	502	387	365	419	645	360	520	1.000	337	1.500	259
18	208	497	368	360	427	634	371	564	1.080	356	1.300	252
19	211	492	375	365	423	628	368	716	1.170	356	1.090	246
20	214	492	399	375	436	628	330	865	1.580	371	906	240
21	214	488	379	385	440	623	312	955	1.890	364	772	228
22	220	488	371	390	444	601	309	1.150	2.010	352	680	223
23	211	484	371	390	457	612	309	1.340	2.040	356	656	217
24	208	479	371	395	457	606	302	1.720	2.030	356	596	217
25	206	479	368	391	466	596	302	1.990	1.930	364	525	220
26	208	474	371	391	488	601	288	1.960	1.830	364	474	217
27	206	457	379	399	502	612	281	1.910	1.670	432	444	217
28	211	440	383	403	525	628	268	1.910	1.470	596	415	203
29	228	440	399	407	530	628	256	1.960	1.280	719	430	201
30	256	415	407	403	------	645	265	2.210	1.240	983	423	206
31	259	------	411	399	------	645	------	2.480	------	990	443	------
TOTAL	6.900	14.253	11.653	11.820	12.514	19.807	12.835	29.819	49.578	17.272	29.173	8.390
MEAN	223	475	376	381	432	639	428	962	1.653	557	941	280
MAX	259	688	427	407	530	735	760	2.480	2.520	1.270	1.500	419
MIN	201	285	274	350	379	585	256	271	913	302	415	201
AC-FT	13.690	28.270	23.110	23.440	24.820	39.290	25.460	59.150	98.340	34.260	57.860	16.640

CAL YR 1967: TOTAL 135,316 MEAN 371 MAX 1,080 MIN 183 AC-FT 268,400
WTR YR 1968: TOTAL 224,014 MEAN 612 MAX 2,520 MIN 201 AC-FT 444,300

PEAK DISCHARGE (BASE, 1,400 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 1	1600	4.46	2,580
6-24	0015	3.99	2,080
8- 2	2045	3.43	1,550
8-17	0630	3.45	1,570

8-2690. Rio Pueblo de Taos near Taos, N. Mex.

Location.--Lat 36°26'20", long 105°30'10", in SW¼SE¼ sec.36, T.26 N., R.13 E., on right bank 2¼ miles east of Taos Pueblo, 4½ miles northeast of Taos, and 6 miles upstream from Rio Lucero.

Drainage area.--66.6 sq mi.

Records available.--March to December 1910 (discharge measurements only). December 1910 to December 1916, January 1940 to December 1951. Water years 1952-62 (annual maximum only). October 1962 to September 1968. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Water-stage recorder. Concrete control since Nov. 20, 1962. Altitude of gage is 7,400 ft (from topographic map). Prior to Dec. 19, 1910, staff gage, and Dec. 19, 1910 to Dec. 2, 1916, water-stage recorder (pressure type) at same site at different datums. Jan. 31, 1940 to Dec. 31, 1951, water-stage recorder and May 8, 1952 to Nov. 19, 1962, crest-stage gage 0.2 mile upstream at different datums.

Average discharge.--23 years (1910-16, 1940-51, 1962-68), 29.8 cfs (21,570 acre-ft per year).

Extremes.--Maximum discharge during year, 120 cfs May 22 (gage height, 1.73 ft); maximum gage height, 1.74 ft May 6; minimum discharge, 1.3 cfs Nov. 27, Dec. 9, result of freezeup.
1910-16, 1940-68: Maximum discharge, 970 cfs May 14, 1941 (gage height, 3.90 ft, from floodmark, site and datum then in use), from rating curve extended above 290 cfs by logarithmic plotting; minimum (except 1952-62), about 0.9 cfs Jan. 9, 1964, result of freezeup.

Remarks.--Records good except those for winter periods, which are fair. No diversion above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	10	4.5	5.5	5.5	7.0	19	36	102	22	17	14
2	12	9.9	3.5	7.0	5.4	7.3	17	43	95	22	14	13
3	12	8.8	3.3	7.0	5.5	7.7	14	56	93	26	12	12
4	12	8.4	4.5	6.7	5.7	6.4	14	61	91	22	12	12
5	13	8.8	5.0	5.5	5.8	7.0	14	78	93	20	14	11
6	12	8.8	6.4	5.5	6.0	7.7	14	106	93	20	12	10
7	12	8.0	4.8	5.5	6.0	7.7	14	106	91	20	19	10
8	12	7.7	5.8	6.0	6.4	7.3	12	98	83	21	16	9.9
9	11	8.0	4.5	6.0	6.1	7.3	14	95	74	18	16	9.2
10	11	9.2	3.0	7.0	6.4	7.0	15	100	67	17	17	9.2
11	11	8.4	4.5	7.7	6.1	6.4	16	100	58	16	27	9.9
12	11	8.4	5.5	6.0	6.7	6.1	23	100	55	15	40	9.9
13	11	8.0	6.0	5.0	6.7	6.4	28	98	55	15	39	9.2
14	11	8.0	6.5	5.5	6.7	7.0	29	87	55	14	30	8.8
15	11	8.0	8.0	6.0	6.7	7.0	31	78	55	15	28	8.4
16	11	8.0	7.7	6.5	6.4	6.7	35	78	53	14	22	8.4
17	11	8.0	7.3	6.0	6.7	7.0	32	80	52	12	21	8.8
18	11	8.0	8.0	5.5	7.0	7.0	33	76	52	14	20	8.8
19	10	7.7	8.4	6.0	6.7	6.4	35	72	50	14	18	8.8
20	10	7.7	7.3	6.5	6.7	7.0	31	74	47	13	19	8.4
21	9.9	7.7	6.0	7.0	7.7	6.4	30	80	44	12	15	7.7
22	9.9	7.7	6.0	6.7	7.7	5.4	30	104	42	12	15	7.3
23	9.9	7.7	5.0	6.4	7.0	7.7	27	116	40	12	14	7.0
24	9.9	5.8	5.5	6.7	8.0	8.8	26	104	38	12	13	6.7
25	9.5	6.7	6.0	6.7	7.7	9.2	27	91	35	14	12	6.4
26	9.5	7.0	6.5	6.7	7.7	9.9	27	85	32	12	12	6.4
27	9.2	4.5	7.0	6.7	8.4	11	27	85	29	16	14	6.1
28	9.2	7.0	7.7	6.7	8.0	12	27	89	28	13	16	6.1
29	9.5	6.4	7.7	6.4	6.4	15	26	98	26	12	14	5.8
30	8.4	5.0	7.0	5.5	------	18	28	106	24	12	17	7.3
31	9.9	------	5.5	5.5	------	19	------	106	------	13	16	------
TOTAL	332.8	233.3	184.4	193.4	193.8	261.8	715	2,686	1,752	490	571	266.5
MEAN	10.7	7.78	5.95	6.24	6.68	8.45	23.8	86.6	58.4	15.8	18.4	8.88
MAX	13	10	8.4	7.7	8.4	19	35	116	102	26	40	14
MIN	8.4	4.5	3.0	5.0	5.4	5.4	12	36	24	12	12	5.8
AC-FT	660	463	366	384	384	519	1,420	5,330	3,480	972	1,130	529

CAL YR 1967: TOTAL 6,235.2 MEAN 17.1 MAX 53 MIN 3.0 AC-FT 12,370
WTR YR 1968: TOTAL 7,880.0 MEAN 21.5 MAX 116 MIN 3.0 AC-FT 15,630

PEAK DISCHARGE (BASE, 70 CFS)

DATE	TIME	G.HT.	DISCHARGE
5- 6	2130	1.74	113
5-22	2400	1.73	120

8-2710. Rio Lucero near Arroyo Seco, N. Mex.

Location.--Lat 36°30'30", long 105°31'50", in Antoine Leroux Grant, on right bank 200 ft upstream from diversion dam for Tenorio and Indian ditches, 2 miles southeast of Arroyo Seco, Taos County, and 7½ miles northeast of Taos.

Drainage area.--16.6 sq mi.

Records available.--April to December 1910 (discharge measurements and occasional gage heights), January 1911 to September 1915, March to December 1916 (fragmentary), October 1933 to December 1951, May 1952 to November 1962 (annual maximum only), October 1962 to September 1968. Monthly discharge only for some periods, published in WSP 1312. Published as "near Taos," 1910-15. Fragmentary records for October 1915 to February 1916, published in WSP 438, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Concrete control since Nov. 21, 1962. Datum of gage is 8,051.44 ft above mean sea level, datum of 1929. April to Dec. 17, 1910, staff gage and Dec. 17, 1910 to Dec. 31, 1916, pressure-type water-stage recorder at site 50 ft downstream at different datum. Nov. 14, 1933 to Jan. 1, 1952 graphic water-stage recorder (wooden control after Mar. 17, 1936) at different datum. May 7, 1952 to Nov. 21, 1962, crest-stage gage at different datum. May 9, 1963 to Aug. 16, 1966, digital water-stage recorder at present site and datum.

Average discharge.--29 years (1910-15, 1933-51, 1962-68), 22.8 cfs (16,510 acre-ft per year).

Extremes.--Maximum discharge during year, 107 cfs Aug. 11 (gage height, 1.62 ft); minimum, 4.7 cfs Mar. 12.
1911-15, 1933-68: Maximum discharge, 300 cfs May 13, 1941 (gage height, 3.12 ft, site and datum then in use); minimum determined (except 1952-62), about 1.4 cfs Nov. 2, 1951, result of freezeup.

Remarks.--Records good except those for December and February, which are fair. No diversion above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	11	7.9	6.8	6.0	6.5	11	16	72	28	23	23
2	16	11	7.4	7.1	6.0	6.5	11	18	69	28	21	23
3	16	11	7.0	7.1	6.0	6.5	9.4	23	63	28	20	22
4	17	10	7.0	6.6	6.0	6.5	9.0	23	67	26	20	21
5	17	11	7.5	6.3	6.0	6.5	8.3	25	71	24	20	20
6	16	11	8.7	5.8	6.0	6.5	8.3	27	74	24	22	19
7	16	10	8.3	6.6	6.0	6.8	8.3	26	78	25	24	18
8	15	10	8.7	6.6	6.0	6.8	9.0	24	74	25	23	18
9	15	10	8.7	6.6	6.0	6.6	8.3	25	63	23	23	17
10	15	10	6.0	6.6	6.0	6.6	8.7	26	57	23	23	16
11	14	9.8	6.5	6.3	6.0	6.3	10	26	51	22	51	16
12	14	9.8	7.0	6.0	6.0	6.3	13	27	51	21	76	15
13	14	9.8	6.5	6.3	6.0	6.3	14	26	55	21	62	15
14	14	9.4	6.5	6.3	6.0	6.6	14	24	58	21	54	15
15	14	9.4	7.0	6.3	6.0	6.6	15	23	60	20	47	14
16	13	9.4	7.4	6.3	6.0	6.3	15	24	60	18	41	14
17	13	9.8	7.1	6.3	6.0	6.6	15	24	60	18	36	14
18	13	9.4	6.0	6.3	6.0	6.3	15	24	60	18	35	14
19	13	9.4	7.4	6.3	6.0	6.3	15	24	57	18	31	13
20	12	9.0	7.4	6.3	6.0	6.3	14	24	55	16	29	13
21	12	9.0	7.4	6.3	6.1	6.3	13	29	54	16	28	13
22	12	9.0	6.0	6.3	6.3	6.0	13	45	51	16	27	12
23	12	8.7	6.5	6.3	6.5	6.3	12	54	48	17	26	12
24	11	7.6	7.1	6.3	6.5	6.6	11	50	45	18	23	12
25	11	8.0	7.1	6.3	6.5	6.6	12	43	42	19	23	12
26	11	7.6	7.1	6.3	6.5	7.1	12	43	38	20	24	11
27	11	8.0	7.1	6.3	6.5	7.9	11	50	36	22	23	11
28	11	8.7	7.1	6.3	6.5	8.7	11	57	34	19	26	11
29	11	8.7	7.1	6.3	6.5	11	11	63	32	18	23	11
30	9.8	8.3	7.1	6.0	------	12	13	72	29	18	23	12
31	11	------	6.8	6.3	------	12	------	76	------	20	26	------
TOTAL	415.8	283.8	222.4	197.8	177.9	220.2	350.3	1,061	1,664	650	953	457
MEAN	13.4	9.46	7.17	6.38	6.13	7.10	11.7	34.2	55.5	21.0	30.7	15.2
MAX	17	11	8.7	7.1	6.5	12	15	76	78	28	76	23
MIN	9.8	7.6	6.0	5.8	6.0	6.0	8.3	16	29	16	20	11
AC-FT	825	563	441	392	353	437	695	2,100	3,300	1,290	1,890	906

CAL YR 1967: TOTAL 6,142.4 MEAN 16.8 MAX 72 MIN 4.0 AC-FT 12,180
WTR YR 1968: TOTAL 6,653.2 MEAN 18.2 MAX 78 MIN 5.8 AC-FT 13,200

PEAK DISCHARGE (BASE, 70 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-30	2100	1.54	81
6- 7	2030	1.58	90
8-11	1750	1.62	107

8-2750. Rio Fernando de Taos near Taos, N. Mex.

Location.--Lat 36°22'32", long 105°32'55", in W½NW¼ sec.27, T.28 N., R.13 E., on right bank in Carson National Forest, 2½ miles southeast of Taos.

Drainage area.--71.7 sq mi.

Records available.--April to September 1910 (gage heights and discharge measurements only), October 1910 to June 1911 (discharge measurements only), October 1912 to September 1917, October 1927 to December 1928, and October 1962 to September 1968. Previously published figures of discharge for October 1917 to September 1927 have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Concrete control since Oct. 1, 1962. Altitude of gage is 7,140 ft (from topographic map). Prior to January 1929, staff gage at various sites within 500 ft of present site at various datums.

Average discharge.--12 years (1912-17, 1927-28, 1962-68), 7.01 cfs (5,080 acre-ft per year).

Extremes.--Maximum discharge during year, 60 cfs July 31 (gage height, 1.44 ft); minimum, 0.20 cfs Dec. 3, result of freezeup.

1962-68: Maximum discharge, 211 cfs Aug. 12, 1967 (gage height, 2.27 ft), from rating curve extended above 47 cfs on basis of slope-area measurements at gage heights 1.64 and 2.27 ft; minimum, 0.02 cfs Jan. 14-18, 1967.

Peak discharge not determined prior to 1962; maximum daily discharge observed, 132 cfs May 2-6, 1914. A flood of undetermined magnitude occurred July 21, 1921.

Remarks.--Records good except those below 1 cfs, which are fair. A few very small diversions above station for irrigation. Randall's ditch diverts from left bank 175 ft downstream from gage for irrigation below station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.2	0.64	0.91	1.0	2.0	5.2	9.1	8.8	0.81	1.5	2.0
2	1.4	1.4	.50	1.1	.81	2.3	5.7	11	8.4	.81	.81	1.5
3	1.2	1.1	.44	1.2	1.4	2.3	5.5	13	8.1	1.1	.57	1.4
4	1.2	.64	.64	1.1	1.6	2.0	4.5	18	7.4	1.8	.64	1.2
5	1.2	1.2	.64	1.2	1.4	2.3	5.2	20	7.1	1.5	.81	1.2
6	1.2	1.2	.72	1.2	1.6	2.3	6.0	22	6.0	1.5	.57	1.1
7	1.1	1.1	.64	1.1	1.8	2.5	6.4	21	5.5	1.4	.57	1.0
8	1.1	.91	.72	1.1	1.5	2.3	5.5	20	5.2	1.2	.50	.91
9	1.1	.91	.72	1.0	1.2	2.3	6.7	20	4.8	1.1	.44	.91
10	1.2	1.0	.50	1.0	1.4	2.3	8.4	26	4.5	1.0	.72	.81
11	1.2	1.0	.50	1.0	1.2	1.8	8.8	26	4.3	.91	1.4	.64
12	1.2	1.0	.57	1.0	1.4	2.0	9.6	25	4.3	.64	2.2	.64
13	1.2	1.1	.64	.91	1.2	2.2	11	24	4.1	.64	2.2	.64
14	1.2	1.1	.64	.91	1.5	2.7	9.6	21	3.6	.57	2.0	.57
15	1.2	.81	.64	.91	1.5	2.7	8.8	20	3.4	.57	1.8	.50
16	1.2	1.0	.57	.91	1.4	2.7	9.1	19	3.2	.57	1.2	.50
17	1.2	1.2	.57	.91	1.4	2.8	7.7	19	2.8	.50	1.1	.50
18	1.2	1.1	.57	.72	1.4	2.7	9.1	19	2.5	.79	.81	.50
19	1.2	1.1	.57	.64	1.4	2.5	10	18	2.5	.38	.81	.57
20	1.1	1.1	.57	.57	1.6	2.8	9.1	17	2.5	.38	.72	.57
21	1.1	1.2	.57	.50	1.8	2.7	11	17	2.2	.32	.81	.50
22	1.1	1.2	.64	.38	1.8	2.5	10	15	2.2	.28	.72	.44
23	1.1	1.2	.72	.32	1.6	2.7	9.1	16	2.0	.32	.64	.38
24	1.1	.81	.81	.38	2.0	3.0	9.6	15	1.8	.64	.64	.32
25	1.1	.81	.81	.38	2.0	3.0	10	15	1.2	1.5	.57	.32
26	1.1	.81	.91	.38	2.0	3.2	9.1	13	1.4	1.5	.64	.32
27	1.1	.50	.91	.44	2.3	3.0	8.8	12	1.1	.91	.57	.32
28	1.1	1.0	.91	.44	2.3	3.2	9.1	11	1.1	.81	1.5	.28
29	1.1	.81	.91	.50	2.0	3.6	9.1	10	1.0	.72	1.4	.28
30	1.0	.81	.91	.57	------	4.1	8.4	9.6	.81	.57	2.8	.38
31	.91	------	.91	.91	------	4.5	------	9.1	------	3.1	2.8	------
TOTAL	35.91	30.32	21.01	24.59	45.51	83.0	246.1	530.8	113.81	28.84	34.46	21.20
MEAN	1.16	1.01	.68	.79	1.57	2.68	8.20	17.1	3.79	.93	1.11	.71
MAX	1.5	1.4	.91	1.2	2.3	4.5	11	26	8.8	3.1	2.8	2.0
MIN	.91	.50	.44	.32	.81	1.8	4.5	9.1	.81	.28	.44	.28
AC-FT	71	60	42	49	90	165	488	1050	226	57	68	42

CAL YR 1967: TOTAL 754.08 MEAN 2.07 MAX 12 MIN .02 AC-FT 1,500
WTR YR 1968: TOTAL 1,215.55 MEAN 3.32 MAX 26 MIN .28 AC-FT 2,410

PEAK DISCHARGE (BASE, 25 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-11	0600	1.07	28
7-31	1500	1.44	60

8-2753. Rio Pueblo de Taos near Ranchito, N. Mex.

Location.--Lat 36°23'40", long 105°37'25", on left bank 1,100 ft downstream from Rio Fernando de Taos and 1.6 miles southwest of Ranchito, Taos County.

Drainage area.--199 sq mi.

Records available.--March 1957 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 6,747 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 27.8 cfs (20,130 acre-ft per year).

Extremes.--Maximum discharge during year, 110 cfs May 10 (gage height, 2.47 ft); minimum, 3.5 cfs July 3. 1957-68: Maximum discharge, 600 cfs May 13, 1958, from rating curve extended above 230 cfs by logarithmic plotting; maximum gage height, 4.35 ft Dec. 29, 1966 (ice jam); minimum discharge, 0.8 cfs July 6, 1963, Aug. 6, 1964.

Remarks.--Records good except those for December and January, which are fair. Diversions for irrigation of about 9,000 acres above station. Anderson ditch diverts from right bank about 125 ft below gage.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	19	20	19	29	23	25	17	69	4.8	12	24
2	21	20	19	21	23	24	25	20	58	5.4	9.4	24
3	21	21	16	22	24	25	24	30	59	4.5	8.9	25
4	23	21	21	19	25	23	22	49	56	5.4	8.9	25
5	22	23	21	17	23	23	21	56	55	6.7	11	23
6	22	23	21	17	22	24	22	87	55	6.0	16	23
7	22	23	20	20	23	27	21	93	58	7.0	20	21
8	22	22	21	21	24	25	20	99	55	7.0	16	19
9	21	22	20	19	24	24	20	74	48	6.7	18	16
10	20	22	14	20	24	23	20	99	44	6.4	18	16
11	22	22	14	22	23	22	22	99	38	5.7	23	14
12	22	22	17	20	24	22	24	99	33	6.0	31	14
13	21	22	14	19	23	22	29	97	29	7.0	42	14
14	20	21	16	21	24	22	29	85	27	5.7	44	13
15	20	20	17	20	24	21	30	76	24	6.4	38	13
16	21	21	21	20	24	20	34	67	24	5.4	31	12
17	21	21	21	21	25	21	37	65	22	4.8	23	12
18	22	20	20	20	27	20	35	59	20	5.4	20	13
19	20	21	23	19	25	20	36	53	18	8.5	19	13
20	19	21	23	20	25	20	30	56	16	8.0	19	13
21	20	21	17	21	27	22	23	56	15	7.3	21	12
22	20	22	12	22	27	21	25	70	12	6.4	21	12
23	19	22	14	22	26	22	26	93	12	6.4	21	12
24	18	21	16	23	26	22	23	91	12	6.0	17	13
25	18	20	17	23	26	22	19	72	9.4	9.8	16	14
26	19	20	19	23	24	22	18	58	9.4	7.6	19	14
27	17	20	19	24	26	22	22	52	8.9	6.0	20	14
28	17	23	19	32	26	22	17	49	6.4	7.0	31	14
29	20	22	20	33	23	23	16	50	6.0	7.0	24	13
30	19	22	20	29	------	24	14	58	4.5	6.7	26	16
31	18	------	20	30	------	24	------	70	------	9.8	36	------
TOTAL	628	640	572	679	716	697	729	2,099	903.6	202.8	680.2	481
MEAN	20.3	21.3	18.5	21.9	24.7	22.5	24.3	67.7	30.1	6.54	21.9	16.0
MAX	23	23	23	33	29	27	37	99	69	9.8	44	25
MIN	17	19	12	17	22	20	14	17	4.5	4.5	8.9	12
AC-FT	1,250	1,270	1,130	1,350	1,420	1,380	1,450	4,160	1,790	402	1,350	954

CAL YR 1967: TOTAL 6,798.4 MEAN 18.6 MAX 69 MIN 3.1 AC-FT 13,480
WTR YR 1968: TOTAL 9,027.6 MEAN 24.7 MAX 99 MIN 4.5 AC-FT 17,910

Peak discharge (base, 130 cfs).--No peak above base.

8-2755. Rio Grande del Rancho near Talpa, N. Mex.

Location.--Lat 36°18'02", long 105°34'53", in Rancho del Rio Grande Grant, on right bank 1½ miles downstream from Rito de la Olla (locally known as Pot Creek), 3 miles south of Talpa, Taos County, and 4 miles upstream from Rio Chiquito.

Drainage area.--83 sq mi, approximately.

Records available.--October 1952 to September 1968. Prior to October 1955, published as Rio Grande del Rancho near Ranchos de Taos, and October 1955 to September 1965 as Rio Grande de Ranchos near Talpa.

Gage.--Water-stage recorder. Datum of gage is 7,236 ft above mean sea level, datum of 1929. Prior to Nov. 11, 1952, staff gage at site 35 ft downstream at datum 0.39 ft lower.

Average discharge.--16 years, 19.7 cfs (14,260 acre-ft per year).

Extremes.--Maximum discharge during year, 146 cfs May 23 (gage height, 3.05 ft); maximum gage height, 3.15 ft May 23 (prior to control change); minimum discharge determined, 2.3 cfs Feb. 16, result of freezeup.
1952-68: Maximum discharge, 435 cfs Sept. 10, 1964 (gage height, 4.01 ft); minimum, 0.2 cfs Jan. 5, 1955.

Remarks.--Records good except those for winter periods, which are poor. Minor diversions upstream for irrigation.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	8.8	5.3	4.2	4.5	5.0	12	32	98	17	15	16
2	12	8.6	4.9	5.0	4.2	5.5	12	37	98	16	14	15
3	12	7.8	4.5	5.0	4.7	5.9	11	45	88	17	13	14
4	12	7.3	5.5	4.5	5.0	5.4	9.7	49	78	17	13	13
5	12	8.2	5.5	4.2	5.0	5.7	9.7	54	72	16	13	13
6	12	8.0	5.5	4.2	5.5	6.0	11	61	69	16	12	12
7	11	7.3	5.5	4.2	5.5	6.0	10	64	68	17	14	12
8	11	6.8	5.5	4.5	5.4	5.9	9.2	65	66	15	13	12
9	11	7.3	5.5	4.5	5.4	5.9	10	66	61	14	17	11
10	11	8.0	5.0	5.0	5.3	5.6	11	73	55	13	23	11
11	11	8.0	6.0	5.3	5.6	4.8	13	72	48	14	32	11
12	11	8.0	6.2	4.5	5.7	4.8	16	74	43	13	47	11
13	11	7.8	6.5	4.2	5.6	5.5	19	78	40	13	52	10
14	10	7.7	6.3	4.5	5.3	6.3	21	78	39	12	47	10
15	10	7.2	6.0	5.0	5.0	5.9	24	78	38	12	47	9.9
16	10	7.5	6.0	5.5	5.0	5.9	27	79	36	11	42	9.6
17	10	7.5	6.3	5.5	5.4	6.0	26	84	34	10	36	9.4
18	10	7.5	6.0	5.0	5.6	5.9	28	84	32	10	32	9.2
19	9.9	7.3	6.8	5.0	5.0	5.3	30	85	29	10	29	8.8
20	9.9	7.5	6.2	5.3	5.5	6.2	28	87	27	9.9	26	8.6
21	9.7	7.7	5.0	5.7	6.2	5.5	30	93	25	9.5	23	8.4
22	9.2	8.0	3.8	5.7	6.0	5.0	29	111	24	9.7	21	8.4
23	9.0	7.8	4.2	4.3	5.5	5.5	26	140	21	11	19	8.2
24	9.0	5.9	4.5	4.6	5.9	6.8	24	127	20	13	18	8.2
25	8.8	5.7	4.7	4.6	5.9	6.8	24	116	20	16	16	8.2
26	8.6	6.2	4.9	4.4	5.5	7.0	23	103	19	13	16	8.0
27	8.2	6.0	5.1	4.9	5.7	7.2	23	100	19	13	15	8.2
28	8.4	7.0	5.2	5.0	5.7	7.5	24	103	18	13	18	8.0
29	8.8	6.3	5.5	5.1	4.8	8.4	23	105	17	12	16	8.0
30	7.5	5.5	4.8	4.0	------	9.9	26	109	17	11	21	9.0
31	8.8	------	4.2	4.4	------	11	------	107	------	13	19	------
TOTAL	315.8	220.2	166.9	147.8	155.4	194.1	589.6	2,559	1,319	407.1	739	309.1
MEAN	10.2	7.34	5.38	4.77	5.36	6.26	19.7	82.5	44.0	13.1	23.8	10.3
MAX	13	8.8	6.8	5.7	6.2	11	30	140	98	17	52	16
MIN	7.5	5.5	3.8	4.0	4.2	4.8	9.2	32	17	9.5	12	8.0
AC-FT	626	437	331	293	308	385	1,170	5,080	2,620	807	1,470	613

CAL YR 1967: TOTAL 5,904.1 MEAN 16.2 MAX 60 MIN 3.0 AC-FT 11,710
WTR YR 1968: TOTAL 7,123.0 MEAN 19.5 MAX 140 MIN 3.8 AC-FT 14,130

PEAK DISCHARGE (BASE, 75 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-23	2315	3.05	146

8-2756. Rio Chiquito near Talpa, N. Mex.

Location.--Lat 36°19'55", long 105°34'42", in Rancho del Rio Grande Grant, on right bank 1 mile southeast of Talpa, Taos County, and 2 miles upstream from mouth.

Drainage area.--37.0 sq mi.

Records available.--March 1957 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 7,223 ft above mean sea level, datum of 1929.

Average discharge.--11 years, 8.47 cfs (6,130 acre-ft per year).

Extremes.--Maximum discharge during year, 193 cfs July 31 (gage height, 2.37 ft), from rating curve extended above 50 cfs by logarithmic plotting; minimum determined, 0.64 cfs Feb. 6, result of freezeup.
1957-68: Maximum discharge, that of July 31, 1968; minimum, about 0.3 cfs Jan. 13, 1964, result of freezeup.

Remarks.--Records good except those for December, which are fair and those for January, which are poor. No diversion above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	4.8	3.3	2.7	3.1	2.7	5.1	15	25	5.6	7.3	7.6
2	5.9	4.8	2.6	3.2	2.4	3.3	4.8	17	22	5.4	6.5	6.5
3	5.9	4.4	1.9	3.2	2.6	3.3	4.6	23	21	6.2	6.2	5.6
4	5.9	4.0	3.3	2.8	2.9	2.9	4.2	26	19	6.2	5.9	5.1
5	5.9	4.6	3.5	2.5	2.9	3.3	4.2	33	17	5.9	5.6	4.8
6	5.6	4.4	4.2	2.5	2.4	3.3	4.8	37	16	6.2	4.8	4.4
7	5.6	4.0	3.1	2.5	2.7	3.1	4.4	38	14	6.5	5.6	4.4
8	5.6	3.8	3.8	3.0	2.9	3.1	4.4	38	14	6.2	4.8	4.0
9	5.6	4.0	2.9	3.0	2.7	3.1	5.4	38	14	5.6	4.8	3.8
10	5.6	4.4	1.6	3.3	2.7	3.1	5.4	38	13	5.4	6.5	3.8
11	5.4	4.2	2.7	3.5	2.6	2.7	6.2	38	12	5.1	7.3	4.0
12	5.4	4.2	3.8	2.5	2.9	2.7	7.0	37	11	5.1	8.0	4.0
13	5.1	4.4	4.0	2.8	2.7	2.9	8.5	37	11	5.9	7.3	3.9
14	5.1	4.2	3.8	3.0	2.7	3.5	8.9	37	11	5.1	7.3	3.9
15	5.1	4.0	3.8	3.2	2.7	3.3	9.8	38	10	4.8	7.0	3.8
16	5.1	4.2	3.5	3.2	2.7	3.1	11	38	9.8	4.6	5.6	3.8
17	5.1	4.4	3.5	3.2	2.7	3.3	11	38	9.4	4.4	5.1	3.8
18	4.8	4.0	3.1	2.7	2.7	3.3	12	37	9.4	4.4	4.8	3.8
19	4.8	4.0	3.8	2.7	2.6	2.9	13	36	8.9	4.6	4.6	3.5
20	4.8	4.0	3.5	3.0	2.9	3.3	12	36	8.5	4.4	4.4	3.3
21	4.8	4.4	2.7	3.1	2.9	2.9	13	35	8.0	4.2	4.4	3.3
22	4.8	4.2	2.0	2.7	2.9	2.3	12	37	7.6	4.4	4.4	3.3
23	4.8	4.2	2.4	2.7	2.6	2.9	11	40	7.6	4.8	4.2	3.3
24	4.8	3.3	2.7	2.7	2.9	3.5	11	38	7.3	5.1	4.0	3.3
25	4.8	3.8	3.1	2.7	2.9	3.5	11	36	7.0	8.0	3.8	3.3
26	4.8	4.0	3.3	2.7	2.7	3.8	11	35	6.8	7.0	3.8	3.3
27	4.8	2.9	3.5	2.7	3.3	3.8	11	33	6.8	6.2	3.8	3.3
28	4.8	4.6	3.6	2.7	3.1	4.0	12	31	5.9	7.0	4.2	3.3
29	4.8	3.3	3.8	2.7	2.7	4.0	12	30	5.9	6.5	5.0	3.1
30	4.4	3.1	3.3	2.6	------	4.6	13	28	5.6	5.6	14	3.5
31	4.6	------	3.0	2.7	------	4.8	------	26	------	12	10	------
TOTAL	160.4	122.6	99.1	88.5	80.5	102.3	263.7	1044	344.5	178.4	181.0	120.8
MEAN	5.17	4.09	3.20	2.85	2.78	3.30	8.79	33.7	11.5	5.75	5.84	4.03
MAX	5.9	4.8	4.2	3.5	3.3	4.8	13	40	25	12	14	7.6
MIN	4.4	2.9	1.6	2.5	2.4	2.7	4.2	15	5.6	4.2	3.8	3.1
AC-FT	318	243	197	176	160	203	523	2,070	683	354	359	240

CAL YR 1967: TOTAL 2,230.5 MEAN 6.11 MAX 21 MIN 1.5 AC-FT 4,420
WTR YR 1968: TOTAL 2,785.8 MEAN 7.61 MAX 40 MIN 1.6 AC-FT 5,530

PEAK DISCHARGE (BASE, 35 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-23	1200	1.95	43
7-31	1500	2.37	193

8-2763. Rio Pueblo de Taos below Los Cordovas, N. Mex.

Location.--Lat 36°22'38", long 105°40'04", in Gijosa Grant, on left bank 2 miles southwest of Los Cordovas, Taos County, 2½ miles downstream from Rio Grande del Rancho, and 4½ miles upstream from mouth.

Drainage area.--380 sq mi.

Records available.--March 1957 to September 1968.

Gage.--Digital water-stage recorder and crest-stage gage. Concrete control since July 16, 1963. Datum of gage is 6,652 ft above mean sea level, datum of 1929. Prior to July 16, 1963, graphic water-stage recorder at same site and datum.

Average discharge.--11 years, 49.4 cfs (35,760 acre-ft per year).

Extremes.--Maximum discharge during year, 260 cfs Aug. 12 (gage height, 3.10 ft); minimum, 5.0 cfs June 29. 1957-68: Maximum discharge, 2,380 cfs Aug. 24, 1957 (gage height, 5.80 ft), from rating curve extended above 900 cfs on basis of logarithmic plotting; minimum, 3.0 cfs July 14, 17, 22, 23, 25, 1963.

Remarks.--Records good except those for January and August, which are fair. Diversions for irrigation of about 12,000 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	30	31	29	36	31	41	27	134	8.0	39	44
2	35	31	31	30	30	33	42	26	116	8.6	29	40
3	34	31	29	31	30	34	42	54	104	8.1	25	40
4	34	31	33	30	33	34	39	77	91	8.3	24	39
5	35	33	34	28	30	34	39	88	83	9.6	27	35
6	34	33	35	28	30	34	43	124	82	11	58	35
7	34	34	33	29	33	38	41	135	84	11	78	33
8	34	32	35	30	34	37	39	125	81	11	38	31
9	34	32	32	29	33	36	39	118	72	11	42	29
10	33	32	28	30	33	35	36	181	67	11	44	28
11	34	32	31	31	31	32	38	184	57	11	61	26
12	33	31	31	30	34	31	40	181	47	12	89	24
13	32	31	30	29	31	31	46	183	41	11	83	24
14	31	31	31	30	30	32	46	175	38	9.3	91	22
15	31	31	33	30	31	32	48	148	36	9.3	87	22
16	31	31	35	30	30	32	58	131	36	9.0	76	20
17	31	31	34	30	33	31	57	137	34	8.1	65	20
18	31	31	33	30	41	31	55	137	30	8.2	57	21
19	30	30	37	31	37	30	57	128	28	12	51	21
20	29	31	38	33	38	31	54	129	26	10	49	20
21	31	31	33	31	42	32	48	127	24	9.7	48	20
22	30	31	30	29	41	32	49	152	21	9.0	47	21
23	29	31	26	29	34	32	50	212	19	8.7	44	21
24	27	30	27	29	34	33	46	224	19	15	39	21
25	28	29	28	33	33	32	41	195	16	27	36	21
26	29	30	29	32	32	32	36	166	17	20	37	21
27	29	28	30	33	32	32	34	144	17	16	39	20
28	27	31	31	40	32	33	33	129	15	18	63	20
29	28	31	32	41	30	35	31	123	11	19	45	20
30	29	31	31	36	------	38	27	128	6.2	19	51	23
31	28	------	30	36	------	38	------	141	------	56	63	------
TOTAL	971	932	981	967	968	1,028	1,295	4,229	1,452.2	414.9	1,625	782
MEAN	31.3	31.1	31.6	31.2	33.4	33.2	43.2	136	48.4	13.4	52.4	26.1
MAX	36	34	38	41	42	38	58	224	134	56	91	44
MIN	27	28	26	28	30	30	27	26	6.2	8.0	24	20
AC-FT	1,930	1,850	1,950	1,920	1,920	2,040	2,570	8,390	2,880	823	3,220	1,550

CAL YR 1967 TOTAL 12,067.5 MEAN 33.1 MAX 123 MIN 7.9 AC-FT 23,940
WTR YR 1968 TOTAL 15,645.1 MEAN 42.7 MAX 224 MIN 6.2 AC-FT 31,030

PEAK DISCHARGE (BASE, 230 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-24	1030	3.05	242
8-12	0130	3.10	260

8-2765. 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 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.--July 1925 to September 1968. Monthly discharge only July 1925 to September 1930, published in WSP 1312.

Gage.--Water-stage recorder. Datum of gage is 6,050.3 ft above mean sea level (planetable survey). Prior to Apr. 14, 1934, at bridge 2 miles upstream at different datum. Oct. 1, 1963 to Aug. 9, 1966, digital water-stage recorder at present site and datum.

Average discharge.--43 years, 731 cfs (529,200 acre-ft per year).

Extremes.--Maximum discharge during year, 2,860 cfs June 1 (gage height, 6.11 ft); minimum, 240 cfs Sept. 29.
1926-68: Maximum discharge, 9,730 cfs June 7, 1948, June 22, 1949; maximum gage height, 10.7 ft July 3, 1927 (site and datum then in use), from graph based on recorder record ending at a gage-height of 10.5 ft, 6 hours prior to peak; minimum discharge, 155 cfs Sept. 21, 1956.
Maximum flood known since at least 1888, about 14,000 cfs June 19, 1903, from records for Rio Grande at Embudo and estimated inflow. Other floods exceeding 10,000 cfs occurred June 9, 1905, May 28, 1920, and June 16, 1921, from comparison of records for stations near Lobatos and at Embudo.

Remarks.--Records good. Diversions above station for irrigation of about 620,000 acres in Colorado and 30,000 acres in New Mexico

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	300	331	468	474	468	670	731	315	2,820	1,290	1,000	487
2	305	353	468	487	461	692	771	315	2,760	1,290	929	468
3	300	393	417	487	480	700	827	331	2,500	1,150	1,230	448
4	300	401	435	480	487	692	843	399	2,380	1,110	1,320	411
5	295	779	442	461	480	715	835	442	2,370	909	1,320	405
6	290	648	461	468	487	739	779	494	2,340	755	1,250	399
7	295	612	494	454	480	747	670	514	2,240	619	1,190	393
8	295	591	474	461	487	747	591	584	2,370	556	1,020	405
9	295	584	417	448	487	795	570	662	2,160	494	1,090	399
10	300	577	381	448	487	827	542	731	1,750	448	1,130	375
11	300	570	405	461	494	811	521	787	1,470	417	1,090	353
12	295	570	411	448	507	686	494	875	1,190	405	1,220	342
13	290	577	468	442	500	803	487	952	1,070	375	1,400	336
14	280	577	448	442	500	755	474	884	1,010	348	1,480	320
15	270	577	375	448	500	739	461	827	987	348	1,600	310
16	265	577	381	448	507	755	461	779	952	342	1,550	300
17	275	584	468	461	514	731	454	723	1,030	358	1,640	295
18	275	577	429	461	521	723	454	715	1,100	387	1,430	290
19	280	570	442	454	521	708	461	835	1,190	393	1,210	285
20	275	570	468	454	535	700	423	996	1,540	405	996	270
21	275	570	448	461	542	700	423	1,120	1,930	405	859	265
22	280	563	420	468	549	670	387	1,290	2,100	387	763	260
23	280	563	425	474	549	685	387	1,540	2,160	393	739	260
24	275	556	429	474	556	685	375	1,930	2,170	387	685	260
25	275	556	429	480	556	670	358	2,280	2,060	411	598	260
26	275	556	435	480	584	670	353	2,300	1,960	399	556	260
27	275	535	448	487	584	685	336	2,180	1,790	435	507	260
28	275	514	448	500	619	708	326	2,170	1,580	577	528	245
29	285	507	480	507	612	708	310	2,180	1,350	678	468	245
30	310	494	487	494	------	723	310	2,420	1,260	960	514	255
31	320	------	487	487	------	731	------	2,760	------	1,030	542	------
TOTAL	8,905	16,432	13,688	14,499	15,054	22,370	15,414	35,330	53,589	18,461	31,854	9,861
MEAN	287	548	442	468	519	722	514	1,140	1,790	596	1,030	329
MAX	320	779	494	507	619	827	843	2,760	2,820	1,290	1,640	487
MIN	265	331	375	442	461	670	310	315	952	342	468	245
AC-FT	17,660	32,590	27,150	28,760	29,860	44,370	30,570	70,080	106,300	36,620	63,180	19,560

CAL YR 1967: TOTAL 159,622 MEAN 437 MAX 1,370 MIN 211 AC-FT 316,600
WTR YR 1968: TOTAL 255,457 MEAN 698 MAX 2,820 MIN 245 AC-FT 506,700

PEAK DISCHARGE (BASE, 1,600 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 1	1800	6.11	2,860
6-24	0945	5.67	2,200
8- 9	2045	5.60	2,100
8-13	0230	5.69	2,230

8-2790. Embudo Creek at Dixon, N. Mex.

Location.--Lat 36°12'40", long 105°54'55", in NW¼SE¼ sec.19, T.23 N., R.10 E., at downstream end of bridge pier on U. S. Highway 64, 0.3 mile upstream from mouth, 0.4 mile east of Embudo Post Office, and 1.8 miles northwest of Dixon.

Drainage area.--305 sq mi.

Records available.--October 1923 to September 1955, April 1956 to September 1962 (annual maximum only), September 1962 to September 1968. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Water-stage recorder. Datum of gage is 5,849.54 ft above mean sea level, datum of 1929. Prior to Nov. 30, 1938, at site about 1 mile upstream at different datums. Nov. 30, 1938 to Aug. 1, 1941, at site about three-quarters of a mile upstream at datum about 69.0 ft higher. April 1956 to Sept. 21, 1962, crest-stage gage.

Average discharge.--37 years (1923-25, 1926-55, 1962-68), 79.1 cfs (57,270 acre-ft per year).

Extremes.--Maximum discharge during year, 470 cfs Aug. 14 (gage height, 4.70 ft); minimum, 3.9 cfs July 22, 23.
1923-68: Maximum discharge determined, 2,280 cfs Aug. 4, 1967 (gage height, 7.39 ft), from rating curve extended above 410 cfs on basis of slope-area measurement of peak flow; minimum, (except 1956-62), 0.06 cfs June 26, 27, 1950.

Remarks.--Records good except those below 10 cfs and those for December to February, which are fair. Diversions above station for irrigation of about 6,500 acres, a small part of which is below gage.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	26	34	19	33	29	64	74	308	33	92	89
2	29	24	27	30	24	33	61	94	302	26	82	76
3	32	23	24	29	31	36	57	141	284	21	80	72
4	34	20	37	26	33	26	48	176	266	27	97	66
5	34	26	35	19	27	30	47	194	263	36	93	57
6	30	26	38	21	30	33	50	236	254	41	109	53
7	29	27	30	23	31	36	44	236	254	37	143	48
8	29	24	39	28	32	32	38	225	239	35	107	39
9	29	26	24	24	32	34	46	233	212	29	111	30
10	28	28	19	26	33	30	44	284	187	49	245	24
11	24	28	26	29	29	21	54	263	162	87	330	23
12	23	26	32	24	33	27	61	230	150	50	344	25
13	22	27	34	19	29	27	78	217	139	45	376	21
14	20	25	33	24	30	33	87	202	133	40	398	18
15	20	24	39	27	30	31	94	199	133	33	327	15
16	24	25	43	26	29	29	111	212	129	21	290	14
17	23	26	39	29	29	32	107	233	129	14	251	13
18	21	24	29	29	32	28	113	220	131	8.9	209	16
19	23	23	42	21	28	23	120	214	126	8.1	176	16
20	24	24	41	23	31	26	104	222	124	6.7	154	16
21	23	22	26	33	43	28	97	254	113	7.0	152	14
22	21	23	21	30	39	26	100	317	111	5.1	133	15
23	21	22	29	29	33	33	94	352	102	4.2	118	14
24	21	21	33	29	35	44	80	330	94	25	98	15
25	20	20	33	33	35	40	81	305	81	61	87	13
26	21	24	33	31	31	43	81	275	69	52	78	12
27	24	24	32	33	34	49	76	278	62	39	78	12
28	21	38	31	36	33	46	69	266	54	45	99	12
29	23	37	33	37	27	52	62	290	45	44	82	12
30	22	33	33	30	------	59	60	296	37	33	80	15
31	21	------	29	31	------	61	------	314	------	44	124	------
TOTAL	766	766	998	848	916	1.077	2.228	7.382	4.693	1.007.0	5.143	865
MEAN	24.7	25.5	32.2	27.4	31.6	34.7	74.3	238	156	32.5	166	28.8
MAX	34	38	43	37	43	61	120	352	308	87	398	89
MIN	20	20	19	19	24	21	38	74	37	4.2	78	12
AC-FT	1.520	1.520	1.980	1.680	1.820	2.140	4.420	14.640	9.310	2.000	10.200	1.720

CAL YR 1967: TOTAL 13,179.0 MEAN 36.1 MAX 331 MIN 4.8 AC-FT 26,140
WTR YR 1968: TOTAL 26,689.0 MEAN 72.9 MAX 398 MIN 4.2 AC-FT 52,940

Peak discharge (base, 800 cfs).--No peak above base.

8-2795. 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 September 1968. Monthly discharge only for some periods, published in WSP 1312. Figures of daily discharge published in WSP 358 for period Oct. 4 to Nov. 30, 1896, have been found to be unreliable and should not be used.

Gage.--Digital water-stage recorder and crest-stage gage. 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. March 1889 to December 1903, staff gage 1,300 ft upstream at different datum. September 1912 to June 1914, graphic water-stage recorder on downstream end of bridge pier at site 200 ft upstream at present datum. July 1914 to Mar. 25, 1963, graphic water-stage recorder at present site and datum.

Average discharge.--79 years, 1,022 cfs (739,900 acre-ft per year).

Extremes.--Maximum discharge during year, 3,270 cfs June 1 (gage height, 6.27 ft); minimum, 251 cfs Sept. 29.
1889-1903, 1912-68: Maximum discharge, 16,200 cfs June 19, 1903 (gage height, about 15.9 ft); minimum daily, 130 cfs June 30, 1902.
A flood of about 14,000 cfs occurred between May 20 and June 10, 1905, from a comparison of records for Lobatos and Otowi Bridge. Another major flood occurred Sept. 29 or 30, 1904.

Remarks.--Records good. Diversions above station for irrigation of about 820,000 acres in Colorado and 40,000 acres in New Mexico.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	322	356	512	493	512	676	799	392	3,240	1,290	1,090	575
2	321	376	504	512	493	725	819	419	3,180	1,300	952	550
3	320	422	461	515	518	732	869	464	2,920	1,170	1,210	520
4	324	427	493	508	527	726	895	588	2,720	1,140	1,350	485
5	316	764	466	487	517	744	880	638	2,700	962	1,400	452
6	308	702	507	482	523	760	838	736	2,680	807	1,350	440
7	309	663	522	487	522	794	734	759	2,560	664	1,330	428
8	315	631	530	502	526	783	646	805	2,690	580	1,130	430
9	311	623	456	480	527	810	616	904	2,490	519	1,080	419
10	316	619	423	478	520	855	593	1,010	2,040	491	1,470	398
11	316	616	425	483	526	849	581	1,030	1,690	496	1,460	378
12	308	614	455	475	543	719	565	1,080	1,370	437	1,550	368
13	311	616	488	461	534	840	567	1,140	1,210	409	1,850	359
14	295	616	504	466	541	800	571	1,070	1,150	374	1,920	342
15	282	616	445	475	536	776	569	1,010	1,130	359	1,950	331
16	277	610	384	478	546	794	587	976	1,070	346	1,860	316
17	285	617	515	488	541	769	578	951	1,140	344	1,900	305
18	286	611	465	488	551	755	572	932	1,200	371	1,680	309
19	288	603	478	473	551	737	592	1,040	1,280	379	1,420	302
20	290	604	517	480	566	742	545	1,190	1,560	384	1,180	298
21	291	599	488	488	581	747	499	1,320	2,040	397	1,040	284
22	295	595	463	485	586	714	494	1,570	2,220	375	915	277
23	293	589	480	488	581	731	488	1,900	2,290	372	854	271
24	285	580	488	495	586	736	472	2,320	2,310	430	791	271
25	283	580	476	501	586	717	449	2,650	2,180	488	693	271
26	285	584	472	503	607	716	442	2,670	2,040	426	626	267
27	287	576	479	503	612	731	420	2,520	1,870	435	582	267
28	281	568	486	513	652	753	403	2,470	1,640	556	614	260
29	297	550	502	536	638	761	384	2,500	1,400	644	554	254
30	326	549	513	528	------	779	372	2,730	1,270	912	578	257
31	338	------	517	527	------	793	------	3,130	------	997	659	------
TOTAL	9,361	17,476	14,914	15,278	16,049	23,564	17,839	42,914	59,280	18,854	37,038	10,684
MEAN	302	583	481	493	553	760	595	1,384	1,976	608	1,195	356
MAX	338	764	530	536	652	855	895	3,130	3,240	1,300	1,950	575
MIN	277	356	384	461	493	676	372	392	1,070	344	554	254
AC-FT	18,570	34,660	29,580	30,300	31,830	46,740	35,380	85,120	117,600	37,400	73,460	21,190

CAL YR 1967 TOTAL 177,858 MEAN 487 MAX 1,900 MIN 261 AC-FT 352,800
WTR YR 1968 TOTAL 283,251 MEAN 774 MAX 3,240 MIN 254 AC-FT 561,800

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 1	0500	6.27	3,270
6-24	1000	5.34	2,340
8-13	0700	5.31	2,310

8-2801. San Juan lateral above San Juan Pueblo, N. Mex.

Location.--Lat 36°04'03", long 106°04'07", in SW¼NW¼ sec.11, T.21 N., R.8 E., on right bank upstream from second drop structure below division box, 500 ft downstream from Arroyo de Chinguague, 0.9 mile north of San Juan Pueblo, and 5 miles north of Espanola.

Records available.--April 1963 to September 1968.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,660 ft (from topographic map). Prior to Mar. 4, 1965, at datum 3.51 ft higher. Apr. 17, 1964 to Aug. 7, 1966, digital water-stage recorder at same site.

Extremes.--1963-68: Maximum daily discharge, 20 cfs June 9, 1963; no flow for many days each year.

Remarks.--This is one of three ditch stations operated to gage flow bypassing Rio Grande above San Juan Pueblo, N. Mex. (see station 8-2811). Takeouts between division box and gage irrigate a few acres, but percentage of total acreage is small.

Cooperation.--Records furnished by Bureau of Reclamation.

Monthly diversion, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Diversion in acre-feet
October	3:8	0	0.326	20
November	2.8	0	.997	59
December	2.2	0	.335	21
CAL YR 1967	14	0	1.86	1,350
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	2.8	0	.590	35
May	8.9	.20	3.61	222
June	3.4	0	.770	46
July	11	0	2.99	184
August	12	1.0	7.47	459
September	8.0	.02	2.32	138
WTR YR 1968	12	0	1.63	1,180

8-2802. San Juan Pueblo ditch above San Juan Pueblo, N. Mex.

Location.--Lat 36°03'55", long 106°04'10", in NW¼SW¼ sec.11, T.21 N., R.8 E., on right bank 1,000 ft downstream from Arroyo de Chinguague, 0.7 mile north of San Juan Pueblo, and 5 miles north of Espanola.

Records available.--March 1963 to September 1968.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,660 ft (from topographic map). Prior to Mar. 4, 1965, at datum 4.00 ft higher. Apr. 17, 1964 to Aug. 10, 1966, digital water-stage recorder at same site.

Extremes.--1963-68: Maximum daily discharge, 26 cfs Aug. 22, 23, 1965; no flow for many days each year.

Remarks.--This is one of three ditch stations operated to gage flow bypassing Rio Grande above San Juan Pueblo, N. Mex. (see station 8-2811). Takeouts for irrigation above and below gage.

Cooperation.--Records furnished by Bureau of Reclamation.

Monthly diversion, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Diversion in acre-feet
October	12	0	2.45	151
November	9.6	0	3.33	198
December	2.4	0	.545	33
CAL YR 1967	17	0	3.72	2,690
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	13	0	2.57	153
May	19	4.6	10.7	659
June	17	4.6	9.74	579
July	18	2.4	9.88	608
August	16	3.2	9.30	572
September	18	1.5	9.23	549
WTR YR 1968	19	0	4.82	3,500

8-2807. Guique ditch near San Juan Pueblo, N. Mex.

Location.--Lat 36°04'06", long 106°04'42", in NW¼NE¼ sec.10, T.21 N., R.8 E., on right bank above farm road culvert, 1,500 ft downstream from Pueblito, 1.1 miles south of Guique, 1.1 miles northwest of San Juan Pueblo, and 5 miles north of Espanola.

Records.--April 1963 to September 1968.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 5,660 ft (from topographic map). Prior to Mar. 4, 1965, at datum 3.50 ft higher. Apr. 16, 1964 to Aug. 8, 1966, digital water-stage recorder at same site.

Extremes.--1963-68: Maximum daily discharge, 19 cfs May 8, 1965; no flow for many days each year.

Remarks.--This is one of three ditch stations operated to gage flow bypassing Rio Grande above San Juan Pueblo, N. Mex. (see station 8-2811). Takeouts for irrigation above and below gage.

Cooperation.--Records furnished by Bureau of Reclamation.

Monthly diversion, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Diversion in acre-feet
October	9.1	0.04	3.95	243
November	12	1.9	7.83	466
December	3.0	0	.192	12
CAL YR 1967	15	0	2.41	1,740
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	11	0	5.19	309
May	15	2.0	10.5	648
June	14	.52	6.24	371
July	9.2	0	3.08	190
August	13	0	4.98	306
September	13	.40	6.00	357
WTR YR 1968	15	0	4.00	2,900

8-2811. Rio Grande above San Juan Pueblo, N. Mex.

Location.--Lat 36°04'00", long 106°04'30", in NE¼SE¼ sec.10, T.21 N., R.8 E., on left bank three-quarters of a mile upstream from bridge on State Highway 74, three-quarters of a mile north of San Juan Pueblo, 1.8 miles upstream from Rio Chama, and 5 miles north of Espanola.

Drainage area.--10,550 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--March 1963 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 5,630 ft (from topographic map). May 1, 1964 to Aug. 9, 1966, digital water-stage recorder at present site and datum.

Average discharge.--5 years, 647 cfs (468,400 acre-ft per year).

Extremes.--Maximum discharge during year, 3,200 cfs June 2 (gage height, 3.75 ft); minimum, 222 cfs Sept. 28.
1963-68: Maximum discharge, 4,900 cfs June 22, 1965 (gage height, 4.95 ft); minimun, 96 cfs Aug. 1, 1963.
For years of outstanding floods see records for Rio Grande at Embudo (see station 8-2795).

Remarks.--Diversions above station for irrigation of about 620,000 acres in Colorado and 42,000 acres in New Mexico; bypass canals irrigate a few hundred acres below station (see stations 8-2801, 8-2802, 8-2807).

Cooperation.--Records furnished by Bureau of Reclamation.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	343	337	566	536	508	697	769	349	3,090	1,220	1,080	603
2	332	368	543	558	493	747	787	362	3,150	1,220	948	573
3	337	380	515	580	479	755	832	405	2,900	1,130	1,130	522
4	337	405	479	543	500	763	877	558	2,650	1,100	1,300	472
5	337	507	479	536	508	763	877	596	2,600	982	1,330	432
6	326	681	493	550	508	772	831	697	2,610	831	1,290	439
7	309	642	500	558	522	806	772	730	2,530	705	1,280	432
8	304	618	536	558	522	814	673	772	2,570	581	1,090	432
9	304	618	493	566	522	797	626	883	2,460	508	1,010	418
10	304	618	465	573	536	848	610	1,010	2,040	479	1,370	399
11	304	618	432	543	529	848	596	1,030	1,650	515	1,370	380
12	304	610	452	522	536	763	588	1,060	1,380	445	1,450	362
13	298	610	465	508	550	788	580	1,120	1,230	405	1,700	355
14	304	610	500	529	550	814	596	1,070	1,160	386	1,790	326
15	287	603	472	550	550	780	596	1,010	1,140	362	1,840	315
16	277	603	418	543	550	772	611	973	1,090	343	1,800	298
17	282	603	452	529	558	763	596	946	1,110	337	1,800	287
18	282	603	493	522	558	747	573	910	1,180	343	1,700	287
19	272	603	479	515	573	722	596	1,000	1,250	343	1,450	298
20	272	603	493	508	580	722	573	1,140	1,430	349	1,200	293
21	267	603	500	515	588	722	529	1,280	1,800	374	1,050	277
22	272	596	493	508	603	689	515	1,430	1,960	343	950	251
23	277	596	507	508	610	704	508	1,680	2,020	315	850	246
24	282	596	529	500	610	712	472	1,990	2,040	321	760	241
25	282	588	543	508	618	704	439	2,370	1,950	486	660	241
26	277	588	543	500	626	704	452	2,470	1,850	405	580	241
27	282	596	507	508	650	712	405	2,310	1,710	386	566	236
28	277	596	486	508	673	728	393	2,270	1,550	523	566	231
29	277	580	500	515	689	728	380	2,270	1,350	621	536	231
30	304	573	522	515	------	736	343	2,470	1,230	831	573	236
31	315	------	529	515	------	752	------	2,850	------	975	665	------
TOTAL	9,227	17,152	15,384	16,427	16,299	23,372	17,995	40,011	56,680	18,164	35,684	10,354
MEAN	298	572	496	530	562	754	600	1,290	1,890	586	1,150	345
MAX	343	681	566	580	689	848	877	2,850	3,150	1,220	1,840	603
MIN	267	337	418	500	479	689	343	349	1,090	315	536	231
AC-FT	18,300	34,020	30,510	32,580	32,330	46,360	35,690	79,360	112,400	36,030	70,780	20,540

CAL YR 1967: TOTAL 178,325 MEAN 489 MAX 1,660 MIN 181 AC-FT 353,700
WTR YR 1968: TOTAL 276,749 MEAN 756 MAX 3,150 MIN 231 AC-FT 548,900

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 2	0500	3.75	3,200
6-24	1200	3.12	2,060

8-2841. Rio Chama near La Puente, N. Mex.

Location.--Lat 36°39'45", long 106°38'00", in Tierra Amarilla Grant, on right bank 0.7 mile downstream from Rito de Tierra Amarilla, 3 miles southwest of La Puente, Rio Arriba County, 6.7 miles upstream from flow line of El Vado Reservoir, and at mile 91.4.

Drainage area.--480 sq mi, approximately.

Records available.--October 1955 to September 1968.

Gage.--Water-stage recorder. Concrete control since Nov. 9, 1965. Altitude of gage is 7,083 ft (from river-profile map).

Average discharge.--13 years, 311 cfs (225,200 acre-ft per year).

Extremes.--Maximum discharge during year, 4,270 cfs May 22 (gage height, 5.48 ft), from rating curve extended above 2,000 cfs by logarithmic plotting; minimum, 15 cfs Dec. 7, result of freezeup.
1955-68: Maximum discharge, 8,040 cfs June 7, 1957 (gage height, 6.07 ft), from rating curve extended above 3,000 cfs on basis of logarithmic plotting and an inflow-outflow study of El Vado Reservoir; minimum, 4.0 cfs Sept. 19, 1956.
A discharge of about 9,000 cfs occurred Apr. 16, 1937, based on flow of Rio Chama at Park View with allowance for tributary inflow. A peak on May 21 or 22, 1926, may have exceeded 10,000 cfs.

Remarks.--Records good except those for December to February, which are poor. Diversions for irrigation of about 10,300 acres above station (1962 determination).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	55	51	30	58	47	278	828	1,680	107	578	110
2	60	56	44	40	41	53	238	987	1,580	98	317	101
3	60	47	40	37	46	66	178	1,180	1,400	93	243	88
4	62	41	45	35	47	62	174	1,140	1,260	96	193	88
5	62	47	45	35	44	66	162	1,280	1,200	85	238	83
6	62	56	45	32	44	71	178	1,370	1,150	98	258	76
7	60	53	45	40	47	80	151	1,220	1,190	112	248	78
8	60	49	55	45	50	76	138	1,300	1,150	104	233	73
9	58	51	45	48	52	78	138	1,580	987	85	220	68
10	56	49	35	45	55	71	170	1,660	770	98	869	62
11	56	47	40	45	50	58	248	1,360	670	83	808	60
12	56	53	50	35	60	62	339	1,400	618	73	652	60
13	55	51	50	40	57	71	436	1,340	569	66	717	56
14	51	53	45	40	53	83	401	1,040	553	62	577	60
15	51	51	45	45	50	73	470	1,030	577	60	545	55
16	49	51	50	45	50	78	586	1,310	553	53	389	53
17	44	51	40	50	50	80	463	1,560	492	49	322	55
18	44	49	35	50	65	80	429	1,800	500	42	273	55
19	44	49	40	40	55	73	436	1,990	463	40	238	55
20	44	55	45	41	55	78	358	2,130	442	34	211	60
21	44	55	35	42	70	78	408	2,360	415	36	229	62
22	44	56	25	44	65	76	370	2,790	358	38	207	58
23	44	56	28	46	55	96	322	2,800	311	44	189	62
24	44	41	30	48	55	107	294	2,280	278	56	162	56
25	46	35	33	50	55	118	328	1,970	233	73	148	44
26	46	45	33	50	55	125	351	2,070	211	155	141	41
27	47	45	35	55	55	138	351	2,150	189	333	148	40
28	44	56	37	70	56	141	322	2,150	162	317	138	53
29	51	56	37	60	49	162	401	2,070	141	215	125	47
30	47	51	37	50	------	198	610	1,950	125	166	112	58
31	42	------	35	53	------	233	------	1,830	------	275	107	------
TOTAL	1,597	1,510	1,255	1,386	1,544	2,878	9,728	51,925	20,227	3,246	9,835	1,917
MEAN	51.5	50.3	40.5	44.7	53.2	92.8	324	1,675	674	105	317	63.9
MAX	64	56	55	70	70	233	610	2,800	1,680	333	869	110
MIN	42	35	25	30	41	47	138	828	125	34	107	40
AC-FT	3,170	3,000	2,490	2,750	3,060	5,710	19,300	103,000	40,120	6,440	19,510	3,800

CAL YR 1967: TOTAL 78,331 MEAN 215 MAX 1,660 MIN 25 AC-FT 155,400
WTR YR 1968: TOTAL 107,048 MEAN 292 MAX 2,800 MIN 25 AC-FT 212,300

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-22	2350	5.48	4,270
5-28	0100	4.75	2,510

8-2842. Willow Creek above Heron Reservoir, near Park View, N. Mex.

Location.--Lat 36°44'30", long 106°37'35", in Tierra Amarilla Grant, on right bank 3.6 miles west of Park View, Rio Arriba County 7½ miles upstream from Horse Lake Creek, and at mile 9.6.

Drainage area.--112 sq mi.

Records available.--October 1962 to September 1968.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,210 ft (from topographic map). Prior to June 6, 1963, at datum 2.74 ft lower, and natural control.

Average discharge.--6 years, 10.1 cfs (7,310 acre-ft per year).

Extremes.--Maximum discharge during year, 1,340 cfs Aug. 10 (gage height, 3.73 ft); no flow at times in January and February.
1962-68: Maximum discharge, 1,600 cfs Aug. 11, 1967 (gage height, 3.88 ft); no flow at times.

Remarks.--Records good except those between 0.2 cfs and 1 cfs, which are fair, and those below 0.2 cfs, which are poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.58	0.28	0.14	0.10	0.05	1.2	66	11	0.41	1.4	133	0.18
2	.34	.23	.07	.10	.10	1.2	44	8.7	.41	.98	15	.14
3	.28	.23	.05	.10	.02	1.7	28	8.3	.87	.76	8.7	.10
4	.28	.23	.10	.10	0	3.3	20	9.0	1.8	.34	8.1	.10
5	.98	.28	.10	.10	0	2.9	17	8.3	1.6	1.3	13	.07
6	.98	.28	.10	.10	0	3.1	26	9.3	1.2	1.2	25	.10
7	.98	.34	.10	.10	0	3.8	14	6.4	1.7	2.0	38	.10
8	.98	.41	.18	.10	0	3.8	9.3	5.1	3.1	2.4	13	.10
9	.98	.48	.18	.10	0	4.1	9.3	4.1	4.6	2.9	62	.10
10	.98	.48	.14	.10	.01	4.1	18	4.8	5.1	2.9	375	.07
11	1.1	.41	.10	.10	.05	3.1	27	9.7	3.6	3.2	164	.07
12	.98	.41	.14	.07	.14	3.4	34	14	2.7	2.9	28	.05
13	.98	.41	.18	.05	.18	3.6	38	16	1.6	1.6	120	.05
14	.87	.34	.18	.05	.23	4.6	26	11	2.0	.98	99	.05
15	.76	.41	.18	.03	.23	5.1	25	7.1	2.2	.76	21	.03
16	.76	.48	.18	.03	.23	5.6	40	5.1	2.9	.34	6.7	.03
17	.76	.34	.10	.02	.23	5.1	32	4.1	3.2	.10	3.2	.02
18	.67	.28	.10	0	.28	5.6	21	3.6	3.2	.03	2.2	.02
19	.58	.23	.10	0	.34	4.8	19	3.1	2.5	.05	2.4	.02
20	.58	.23	.10	0	.34	3.6	15	2.9	2.4	.05	1.8	.02
21	.67	.18	.05	0	.48	4.4	19	2.7	2.5	.02	1.3	.02
22	.76	.23	.05	0	.48	4.8	18	2.2	3.2	.02	1.1	.02
23	.67	.23	.10	0	.48	8.2	19	1.8	3.2	1.1	.87	.03
24	.67	.23	.10	0	.48	21	20	1.6	2.2	6.4	.76	.03
25	.41	.23	.10	0	.76	25	18	1.3	1.6	4.8	.58	.02
26	.18	.18	.10	0	1.1	39	14	1.2	2.2	4.1	.41	.05
27	.14	.14	.05	.01	1.3	41	12	.87	2.4	8.0	.34	.58
28	.18	.14	.05	.02	1.3	44	11	.58	2.5	5.4	.28	.41
29	.18	.23	.20	.05	1.2	62	10	.41	2.4	3.4	.23	.34
30	.28	.14	.10	.10	------	76	11	.34	2.0	56	.23	.34
31	.41	------	.10	.07	------	73	------	.28	------	194	.23	------
TOTAL	19.95	8.71	3.52	1.60	10.01	472.1	680.6	164.88	71.29	309.43	1,145.43	3.26
MEAN	.644	.290	.114	.052	.345	15.2	22.7	5.32	2.38	9.98	36.9	.109
MAX	1.1	.48	.20	.10	1.3	76	66	16	5.1	194	375	.58
MIN	.14	.14	.05	0	0	1.2	9.3	.28	.41	.02	.23	.02
AC-FT	40	17	7.0	3.2	20	936	1,350	327	141	614	2,270	6.5

CAL YR 1967: TOTAL 2,556.10 MEAN 7.00 MAX 383 MIN .01 AC-FT 5,070
WTR YR 1968: TOTAL 2,890.78 MEAN 7.90 MAX 375 MIN 0 AC-FT 5,730

PEAK DISCHARGE (BASE, 300 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-31	2230	3.33	907
8-10	1400	3.73	1,340
8-13	1900	3.34	916

8-2843. Horse Lake Creek above Heron Reservoir, near Park View, N. Mex.

Location.--Lat 36°42'30", long 106°44'50", in Tierra Amarilla Grant, on left bank 5½ miles upstream from mouth, 8 miles downstream from Horse Lake, and 13 miles west of Park View, Rio Arriba County.

Drainage area.--45 sq mi, approximately.

Records available.--October 1962 to September 1968.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,220 ft (from topographic map). Prior to June 10, 1963, at datum 1.77 ft higher.

Average discharge.--6 years, 1.03 cfs (746 acre-ft per year).

Extremes.--Maximum discharge during year, 3,960 cfs July 30 (gage height, 4.9 ft), from rating curve extended above 37 cfs on basis of slope-area measurements at gage heights 3.20 and 4.9 ft; no flow most of time.
1962-68: Maximum discharge, that of July 30, 1968; no flow most of time.

Remarks.--Records good except those above 50 cfs, which are fair. Diversions above station for irrigation of meadows and for off-channel stock tanks.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					0	0.06	4.3	0		0	40	
2					0	.08	2.6	0		0	.66	
3					0	.05	1.8	0		0	.04	
4					0	.06	.84	0		0	0	
5					0	.23	.27	0		0	4.9	
6					0	2.3	.17	.02		0	144	
7					0	1.4	.10	0		0	13	
8					0	.83	.03	0		0	6.2	
9					0	.97	.02	0		0	14	
10					0	.34	.01	0		0	88	
11					0	.40	.01	0		0	44	
12					0	1.6	.01	0		0	12	
13					0	1.3	0	0		0	3.2	
14					0	1.0	0	0		0	33	
15					0	1.5	0	0		0	5.2	
16					0	.46	.04	0		0	1.2	
17					0	.34	.02	0		0	.50	
18					0	.66	0	0		0	.23	
19					0	.20	0	0		0	.10	
20					0	.17	0	0		0	.06	
21					0	.47	0	0		0	.10	
22					0	1.3	.05	0		0	.03	
23					.02	4.4	.91	0		0	.02	
24					.02	6.7	.28	0		0	0	
25					.02	4.7	.02	0		0	0	
26					.05	6.1	0	0		0	0	
27					.12	4.8	0	0		0	0	
28					.12	13	0	0		0	0	
29					.23	11	0	0		0	0	
30					------	8.6	0	0		103	0	
31		------			------	5.5	------	0	------	119	0	------
TOTAL	0	0	0	0	.58	80.52	11.48	.02	0	222	410.44	0
MEAN	0	0	0	0	.020	2.60	.383	.0006	0	7.16	13.2	0
MAX	0	0	0	0	.23	13	4.3	.02	0	119	144	0
MIN	0	0	0	0	0	.05	0	0	0	0	0	0
AC-FT	0	0	0	0	1.2	160	23	.04	0	440	814	0

CAL YR 1967: TOTAL 220.13 MEAN .603 MAX 49 MIN 0 AC-FT 437
WTR YR 1968: TOTAL 725.04 MEAN 1.98 MAX 144 MIN 0 AC-FT 1,440

PEAK DISCHARGE, (BASE, 50 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-30	2000	4.9	3,960
7-31	2020	4.17	1,650
8- 6	1800	4.41	2,230
8-10	1700	3.33	534
8-14	1320	3.09	375

8-2845. Willow Creek near Park View, N. Mex.

Location.--Lat 36°40'05", long 106°42'15", in Tierra Amarilla Grant, at Heron damsite, 0.7 mile downstream from Horse Lake Creek, 8⅓ miles southwest of Park View, Rio Arriba County, and at mile 0.4.

Drainage area.--193 sq mi.

Records available.--May 1936 to September 1968 (no winter records prior to 1943). Monthly or yearly discharges only for some periods, published in WSP 1312.

Gage.--Water-stage recorders 0.7 mile upstream on Horse Lake Creek at mouth and 3 miles upstream on Willow Creek at steel bridge (construction of Heron Dam prevented collection of a record at Heron damsite subsequent to Nov. 8, 1965). At Heron damsite, datum of gage at time of discontinuance was 6,944.99 ft above mean sea level (Bureau of Reclamation datum). Prior to Oct. 1, 1937, at datum 0.79 ft higher. Apr. 19, 1949 to Aug. 8, 1951, at different datums. Aug. 9, 1951 to Sept. 30, 1960, at datum 0.41 ft higher.

Average discharge.--31 years (1936-38, 1939-68), 21.0 cfs (15,200 acre-ft per year).

Extremes.--Maximum discharge during year, 3,900 cfs Aug. 10, from rating curves extended on basis of slope-area measurements of peak flows; minimum, 0.07 cfs Sept. 27.
1936-68: Maximum discharge, 4,500 cfs Apr. 23, 1942 (gage height, 10.45 ft, site and datum then in use), from rating curve extended above 1,400 cfs on basis of slope-area measurement of peak flow; no flow at times.

Remarks.--Records good except those for April, May, August and September, which are fair and December and January, which are poor. Small diversions above station for irrigation and stock tanks. Subsequent to Nov. 8, 1965, published record is the composite of Horse Lake Creek at mouth and Willow Creek at steel bridge pending construction of Heron Dam.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	3.5	1.4	0.40	0.30	2.5	99	11	8.6	5.9	304	1.3
2	3.2	3.9	.95	.40	.30	2.7	72	9.8	8.1	5.8	38	1.2
3	3.2	3.0	.71	.40	.30	3.4	34	8.8	9.1	6.0	18	2.4
4	3.2	2.5	.65	.40	.30	4.1	29	9.2	11	5.8	24	3.3
5	3.2	2.9	.68	.40	.30	6.6	21	8.4	8.8	6.2	34	1.6
6	3.4	3.2	.77	.30	.32	5.7	29	9.8	8.6	6.2	102	.68
7	2.9	3.2	.77	.30	.32	7.4	20	7.8	11	6.7	141	1.6
8	2.7	3.5	.68	.30	.32	7.0	13	5.4	15	7.8	43	1.9
9	2.8	3.2	.90	.40	.34	6.9	11	4.4	16	7.4	73	2.5
10	2.8	3.1	.50	.40	.34	7.2	18	4.4	15	7.0	771	2.2
11	2.9	2.8	.50	.40	.34	4.4	28	8.4	12	7.7	378	2.4
12	3.4	3.1	.60	.30	.36	4.8	34	12	9.4	6.5	100	1.9
13	4.1	3.7	.60	.30	.40	4.6	43	17	7.3	5.1	106	1.7
14	4.5	4.1	.70	.30	.40	5.9	27	12	7.6	2.6	215	1.3
15	4.5	3.8	.80	.30	.38	7.1	25	8.3	7.9	2.3	57	.96
16	4.4	3.9	.70	.30	.38	8.3	35	7.6	4.4	2.0	15	.66
17	3.8	3.6	.60	.30	.38	6.8	37	7.4	3.7	1.3	7.4	.61
18	3.9	3.6	.50	.30	.59	7.4	20	8.8	6.0	1.0	5.0	.90
19	4.2	3.7	.50	.30	.68	6.4	18	8.7	6.6	.95	4.6	.78
20	4.4	3.0	.60	.30	.95	4.6	17	9.0	6.6	.86	4.4	.17
21	4.4	2.4	.50	.30	2.4	4.1	19	7.4	6.7	.90	3.6	.35
22	4.4	2.0	.30	.30	2.4	6.4	16	7.3	7.2	.95	2.9	.35
23	4.3	1.9	.50	.30	2.0	7.4	20	5.7	7.6	1.6	2.4	.35
24	4.1	1.3	.50	.30	1.7	20	22	4.8	6.7	4.6	2.0	.39
25	4.2	1.0	.50	.30	1.9	30	18	3.5	4.7	11	1.8	.28
26	4.0	1.2	.50	.32	3.4	42	14	3.2	4.7	6.5	1.7	.14
27	3.8	1.2	.50	.32	3.4	57	12	4.4	5.4	15	1.7	.08
28	3.7	1.9	.60	.32	4.0	59	11	4.5	4.7	13	1.6	.25
29	4.2	2.0	.70	.36	2.9	82	10	4.7	5.4	11	1.4	.25
30	4.0	1.5	.50	.30	------	114	10	6.5	5.5	9.7	1.4	.31
31	3.2	------	.40	.30	------	107	------	8.6	------	326	1.3	------
TOTAL	115.0	83.7	19.61	10.22	32.10	642.7	782	238.8	241.3	495.36	2,462.2	32.81
MEAN	3.71	2.79	.633	.330	1.11	20.7	26.1	7.70	8.04	16.0	79.4	1.09
MAX	4.5	4.1	1.4	.40	4.0	114	99	17	16	326	771	3.3
MIN	2.7	1.0	.30	.30	.30	2.5	10	3.2	3.7	.86	1.3	.08
AC-FT	228	166	39	20	64	1,270	1,550	474	479	983	4,880	65

CAL YR 1967: TOTAL 4,236.46 MEAN 11.6 MAX 540 MIN .15 AC-FT 8,400
WTR YR 1968: TOTAL 5,155.80 MEAN 14.1 MAX 771 MIN .08 AC-FT 10,230

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-31	2300	-	1,660
8- 6	2030	-	1,400
8-10	1630	-	3,900
8-13	2030	-	730

8-2850. El Vado Reservoir near Tierra Amarilla, N. Mex.

Location.--Lat 36°35'45", long 106°43'55", in Tierra Amarilla Grant, at dam on Rio Chama, at village of El Vado, 13 miles southwest of Tierra Amarilla, Rio Arriba County, and at mile 77.7.

Drainage area.--873 sq mi, of which about 100 sq mi is probably noncontributing.

Records available.--January 1935 to September 1968.

Gage.--Water-stage recorder and inclined staff gage. Datum of gage is 8.21 ft above mean sea level, datum of 1929, leveling of 1953.

Extremes.--Maximum contents at 0730 hours during year, 23,900 acre-ft Oct. 1 to Nov. 15 (gage height, 6,814.7 ft); minimum, 1,100 acre-ft December 22-31.
1935-68: Maximum contents, 204,900 acre-ft June 4, 5, 1948 (gage height, 6,904.2 ft); no contents at times.

Remarks.--Reservoir is formed by rock-fill dam, steel faced. Storage began in January 1935. Capacity, 196,500 acre-ft between gage heights 6,759.0 and 6,902.0 ft (top of spillway gate). Dead storage, 1,060 acre-ft below 6,775.0 ft (sill of outlet works). Figures given herein represent total contents. Reservoir is used to impound water for irrigation by Middle Rio Grande Conservancy District. Storage at 0730 hours to Dec. 31, 1967 and at midnight thereafter. Rehabilitation of outlet works, completed in December 1966, increased valve-controlled release from about 1,750 to about 4,000 cfs.

Cooperation.--Prior to Jan. 1, 1968 daily gage readings furnished by Middle Rio Grande Conservancy District and capacity table furnished by Bureau of Reclamation. Thereafter, records furnished by Bureau of Reclamation.

Capacity table, water year 1967-68 (gage height, in feet, and contents, in acre-feet)

6,775	1,060	6,790	6,510	6,805	15,770
6,780	2,190	6,795	9,240	6,810	19,730
6,785	4,100	6,800	12,290	6,815	24,180

CONTENTS, IN ACRE-FEET, AT 2400 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23,900	23,900	1,140	1,160	1,140	1,160	1,370	8,000	21,010	21,180	21,710	21,180
2	23,900	23,900	1,140	1,160	1,140	1,160	1,330	9,470	21,450	21,180	21,180	21,180
3	23,900	23,900	1,110	1,160	1,140	1,190	1,290	11,340	21,180	21,180	21,360	21,180
4	23,900	23,900	1,110	1,160	1,130	1,190	1,280	13,080	21,100	21,180	21,270	21,180
5	23,900	23,900	1,110	1,160	1,130	1,190	1,260	15,110	21,270	21,180	21,180	21,180
6	23,900	23,900	1,110	1,140	1,130	1,190	1,290	16,910	21,100	21,180	21,800	21,180
7	23,900	23,900	1,130	1,140	1,130	1,190	1,260	18,740	21,100	21,270	21,710	21,180
8	23,900	23,900	1,130	1,140	1,130	1,190	1,240	20,750	21,180	21,270	21,100	21,270
9	23,900	23,900	1,130	1,140	1,130	1,190	1,240	21,800	21,100	21,270	21,270	21,270
10	23,900	23,900	1,110	1,140	1,130	1,170	1,280	21,980	21,010	21,270	22,070	21,270
11	23,900	23,900	1,100	1,140	1,130	1,160	1,350	21,360	21,180	21,270	21,270	21,360
12	23,900	23,900	1,110	1,140	1,130	1,160	1,410	21,270	21,360	21,180	21,270	21,360
13	23,900	23,900	1,110	1,140	1,130	1,170	1,500	21,360	21,100	21,180	21,100	21,360
14	23,900	23,900	1,110	1,140	1,130	1,170	1,470	20,920	21,100	21,100	21,360	21,360
15	23,900	23,900	1,130	1,140	1,130	1,170	1,520	20,920	21,270	21,100	21,360	21,360
16	23,900	22,970	1,130	1,140	1,130	1,170	2,100	21,270	21,270	21,180	21,100	21,360
17	23,900	21,010	1,130	1,140	1,130	1,170	2,590	21,450	21,180	21,180	21,360	21,360
18	23,900	19,150	1,130	1,140	1,140	1,170	2,950	21,800	21,270	21,180	21,530	21,360
19	23,900	17,380	1,130	1,140	1,140	1,160	3,380	21,980	21,270	21,180	21,450	21,270
20	23,900	15,480	1,130	1,140	1,140	1,160	3,670	21,890	21,270	21,100	21,270	21,270
21	23,900	13,830	1,130	1,140	1,160	1,160	4,060	22,070	21,180	21,100	21,270	21,270
22	23,900	11,780	1,100	1,140	1,160	1,160	4,370	22,430	21,180	21,100	21,450	21,270
23	23,900	9,820	1,100	1,140	1,160	1,170	4,600	21,180	21,180	21,180	21,360	21,270
24	23,900	7,890	1,100	1,140	1,160	1,190	4,790	21,010	21,180	21,270	21,180	21,270
25	23,900	5,950	1,100	1,140	1,160	1,200	5,020	21,270	21,180	21,180	21,100	21,270
26	23,900	4,150	1,100	1,140	1,160	1,200	5,310	21,360	21,180	21,270	21,180	21,270
27	23,900	2,010	1,100	1,140	1,170	1,220	5,500	21,270	21,270	21,360	21,270	21,270
28	23,900	1,170	1,100	1,130	1,170	1,240	5,700	21,100	21,270	21,270	21,360	21,180
29	23,900	1,140	1,100	1,140	1,160	1,260	6,000	21,100	21,180	21,180	21,360	21,270
30	23,900	1,140	1,100	1,140	------	1,310	6,820	21,270	21,180	21,360	21,270	21,180
31	23,900	------	1,100	1,140	------	1,330	------	21,270	------	21,450	21,180	------
(†)	6,814.7	6,775.5	6,775.2	6,775.5	6,775.6	6,776.6	6,790.6	6,811.8	6,811.7	6,812.0	6,811.7	6,811.7
(‡)	0	-22,760	-40	+40	+20	+170	+5,490	+14,450	-90	+270	-270	0
MAX	23,900	23,900	1,140	1,160	1,170	1,330	6,820	22,430	21,450	21,450	22,070	21,360
MIN	23,900	1,140	1,100	1,130	1,130	1,160	1,240	8,000	21,010	21,100	21,100	21,180

CAL YR 1967..... ‡ -40
WAT YR 1968..... ‡ -2,720

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

8-2855. 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, Rio Arriba County, 2.7 miles upstream from Rio Nutrias, 13 miles southwest of Tierra Amarilla, and at mile 76.2.

Drainage area.--877 sq mi, of which about 100 sq mi is probably noncontributing.

Records available.--October 1913 to November 1915, April to November 1916, March, April 1920, September 1920 to August 1924, October 1935 to September 1968. Monthly discharge only for some periods, published in WSP 1312. Published as "Chama River" prior to 1935, as near Tierra Amarilla 1913-14, 1935-47, as "near El Vado" 1915-16, and as "at El Vado" 1920-24.

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.--5 years (1913-15, 1920-23), 448 cfs (324,300 acre-ft per year), prior to completion of El Vado Dam; 33 years (1935-68), 374 cfs (270,800 acre-ft per year), after completion of El Vado Dam.

Extremes.--Maximum discharge during year, 4,210 cfs May 23 (gage height, 6.07 ft); minimum, 26 cfs Dec. 11, but may have been less during periods of ice effect.
1913-16, 1920-22, 1923-24: Maximum discharge observed, 9,000 cfs May 22, 1920 (gage height, 12 ft, site and datum then in use); minimum unknown.
1935-68: Maximum discharge, 6,010 cfs May 17, 1941 (gage height, 6.89 ft at present site and datum); no flow Mar. 25, 26, 31, 1955.

Remarks.--Records good except those for August and September and those for winter periods, which are fair. Flow regulated since 1935 by El Vado Reservoir (see station 8-2850). Diversions for irrigation of about 10,600 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	40	52	35	50	85	345	258	1,780	108	1,260	69
2	47	62	47	32	50	85	325	262	1,390	108	663	90
3	54	78	44	32	50	97	270	270	1,570	100	183	85
4	56	54	38	35	50	111	230	278	1,240	95	288	83
5	56	37	45	40	50	108	199	282	1,120	95	390	85
6	56	37	45	45	50	114	203	290	1,260	95	254	62
7	56	35	44	45	50	128	203	294	1,220	95	454	47
8	56	35	44	45	55	122	170	298	1,170	95	608	47
9	49	35	42	45	55	117	163	1,120	1,090	95	274	47
10	31	35	38	45	55	108	177	1,670	894	105	1,050	47
11	50	54	32	45	55	90	246	1,750	614	131	1,740	47
12	60	69	34	45	55	87	345	1,480	573	113	804	47
13	60	69	38	50	58	90	466	1,310	682	65	1,030	47
14	50	67	35	50	55	97	472	1,320	577	67	715	47
15	40	224	40	50	55	100	496	1,010	502	50	634	47
16	54	1,020	45	50	55	95	383	1,130	556	42	558	47
17	40	1,010	40	50	54	95	294	1,490	586	42	253	47
18	40	998	40	50	54	90	274	1,740	466	42	185	47
19	40	1,020	40	50	55	87	258	2,090	460	42	298	47
20	40	1,020	35	50	60	78	242	2,570	508	38	330	47
21	40	1,010	32	50	71	80	246	2,800	430	31	236	47
22	40	1,040	30	50	83	80	246	3,500	420	31	128	47
23	40	1,060	30	50	87	83	246	3,970	309	31	229	44
24	40	1,030	30	50	83	103	246	2,730	270	32	278	40
25	40	998	30	55	87	131	250	1,940	270	102	183	40
26	40	1,060	30	55	90	144	250	2,160	212	134	105	40
27	40	800	35	56	90	166	250	2,340	156	300	85	40
28	40	120	35	56	97	177	250	2,430	156	402	69	40
29	40	70	35	55	97	195	254	2,250	156	294	115	40
30	40	60	35	50	------	258	254	1,930	131	179	137	38
31	40	------	35	50	------	315	------	1,900	------	429	116	------
TOTAL	1,422	13,247	1,175	1,466	1,856	3,716	8,253	48,862	20,768	3,588	13,652	1,548
MEAN	45.9	442	37.9	47.3	64.0	120	275	1,576	692	116	440	51.6
MAX	60	1,060	52	56	97	315	496	3,970	1,780	429	1,740	90
MIN	31	35	30	32	50	78	163	258	131	31	69	38
AC-FT	2,820	26,280	2,330	2,910	3,680	7,370	16,370	96,920	41,190	7,120	27,080	3,070

CAL YR 1967: TOTAL 85,479 MEAN 234 MAX 1,700 MIN 30 AC-FT 169,500
WAT YR 1968: TOTAL 119,553 MEAN 327 MAX 3,970 MIN 30 AC-FT 237,100

8-2865. Rio Chama above Abiquiu Reservoir, N. Mex.

Location.--Lat 36°19'05", long 106°35'50", in NW¼ sec.14, T.24 N., R.3 E. (projected), on left bank 7.7 miles downstream from Rio Gallina, 10 miles northwest of Youngsville, 16 miles upstream from Abiquiu Dam, 30 miles downstream from El Vado Dam, and at mile 47.4.

Drainage area.--1,600 sq mi, of which about 100 sq mi is probably noncontributing.

Records available.--August 1961 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 6,280 ft (from river-profile map). Oct. 1, 1963 to Sept. 30, 1966, digital water-stage recorder at same site and datum.

Average discharge.--7 years, 353 cfs (255,600 acre-ft per year).

Extremes.--Maximum discharge during year, 4,890 cfs Aug. 11 (gage height, 8.30 ft), from rating curve extended above 2,400 cfs on basis of slope-area measurement of peak flow; minimum, 19 cfs Dec. 5. 1961-68: Maximum discharge, that of Aug. 11, 1968; minimum, 7.5 cfs Oct. 17, 18, 1963.

Remarks.--Records good except those for February, March and May, which are fair and those for December and January, which are poor. Flow regulated by El Vado Reservoir (see station 8-2850). Diversions for irrigation of about 15,000 acres above station. Records of suspended sediment loads and water temperatures for water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	42	65	38	53	100	316	298	1,890	108	1,180	131
2	54	43	55	38	53	95	332	307	1,550	106	1,140	94
3	54	66	48	38	53	110	289	329	1,490	108	251	105
4	59	77	50	40	53	125	245	378	1,410	102	233	94
5	60	52	50	43	53	125	214	351	1,100	97	473	91
6	59	40	57	48	53	130	198	354	1,260	97	332	91
7	62	40	54	48	54	130	216	341	1,220	98	341	62
8	62	38	63	48	56	130	200	338	1,220	97	670	55
9	62	38	45	52	57	125	191	706	1,100	94	382	52
10	52	38	35	52	58	125	193	1,610	994	94	623	52
11	40	39	45	45	56	120	234	1,850	690	106	2,750	52
12	59	71	45	45	63	110	316	1,740	541	124	1,180	52
13	63	78	45	45	60	97	438	1,340	665	90	1,270	52
14	64	78	45	50	59	98	510	1,400	640	70	1,170	50
15	52	77	50	50	59	105	479	1,080	501	55	665	50
16	48	879	50	50	60	102	462	1,010	501	45	630	50
17	52	1,020	45	55	64	98	341	1,410	585	42	357	50
18	44	1,010	45	52	66	97	298	1,710	484	41	169	50
19	43	1,000	45	45	74	94	298	1,980	407	41	233	50
20	43	1,030	40	47	81	89	269	2,460	475	41	295	50
21	42	1,010	35	48	95	86	272	2,830	434	39	294	50
22	42	987	32	50	100	88	286	3,360	382	34	151	50
23	41	1,110	33	52	100	86	292	4,290	348	36	147	50
24	41	1,060	34	54	95	91	292	3,120	253	84	253	46
25	41	1,020	35	57	100	113	286	2,100	250	67	235	41
26	40	1,040	36	57	105	145	289	2,050	245	119	139	41
27	40	1,000	38	57	110	161	292	2,320	161	339	98	41
28	41	246	40	62	110	178	286	2,390	149	548	89	41
29	41	103	41	59	110	186	292	2,280	147	258	91	41
30	41	82	41	56	------	229	289	2,020	147	293	153	42
31	40	------	41	55	------	292	------	1,900	------	220	160	------
TOTAL	1,541	13,414	1,383	1,536	2,110	3,860	8,915	49,652	21,239	3,693	16,154	1,776
MEAN	49.7	447	44.6	49.5	72.8	125	297	1,602	708	119	521	59.2
MAX	64	1,110	65	62	110	292	510	4,290	1,890	548	2,750	131
MIN	40	38	32	38	53	86	191	298	147	34	89	41
AC-FT	3,060	26,610	2,740	3,050	4,190	7,660	17,680	98,480	42,130	7,320	32,040	3,520

CAL YR 1967: TOTAL 94,885 MEAN 260 MAX 2,670 MIN 32 AC-FT 188,200
WTR YR 1968: TOTAL 125,273 MEAN 342 MAX 4,290 MIN 32 AC-FT 248,500

8-2869. Abiquiu Reservoir near Abiquiu, N. Mex.

Location.--Lat 36°14'15", long 106°25'35", in SW¼ sec.8, T.23 N., R.5 E., in Abiquiu Dam on Rio Chama, 6½ miles northwest of Abiquiu, and at mile 31.8.

Drainage area.--2,146 sq mi, of which about 100 sq mi is probably noncontributing.

Records available.--February 1963 to September 1968.

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

Extremes.--Maximum contents during year, 54,930 acre-ft June 8, 9 (elevation, 6,167.30 ft); no contents many days.
1963-68: Maximum contents, 99,580 acre-ft Sept. 13, 1965 (elevation, 6,186.61 ft); no contents at times.

Remarks.--Reservoir is formed by earth-fill dam, completed Feb. 5, 1963. Capacity, 1,219,000 acre-ft (revised) between elevations 6,060 ft (invert of outlet tunnel) and 6,350 ft (crest of spillway). No dead storage. Original plan for reservoir was to hold water for one day to desilt before release, and for flood control as needed. Reserve capacity for flood control will usually be more than adequate.

Cooperation.--Records furnished by Corps of Engineers.

Capacity table, water year 1967-68 (elevation, in feet, and contents, in acre-feet)

Oct. 1 to June 30						July 1 to Sept. 30	
6,065	0	6,090	779	6,130	14,990	6,130	13,210
6,070	3	6,095	1,430	6,140	22,270	6,140	19,560
6,075	39	6,100	2,360	6,150	31,690	6,150	28,030
6,080	139	6,110	5,170	6,160	43,760	6,160	39,600
6,085	364	6,120	9,370	6,170	59,710		

CONTENTS, IN ACRE-FEET, AT 2400 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,370	1,390	0	0	0	27	798	1,160	51,690	30,010	30,640	13,890
2	1,340	1,390	0	0	0	25	784	1,190	52,590	30,020	31,260	13,860
3	1,350	1,410	0	0	0	26	768	1,240	53,450	30,020	29,850	13,890
4	1,370	1,410	0	0	0	0	758	1,670	54,050	30,060	28,420	13,940
5	1,380	1,380	0	0	0	0	766	1,910	54,050	30,020	27,490	13,940
6	1,380	1,380	0	0	0	35	821	2,020	54,350	29,950	26,300	13,930
7	1,400	1,380	0	0	0	106	805	2,040	54,650	29,900	25,060	13,950
8	1,390	1,380	0	0	0	202	768	2,090	54,930	29,830	24,500	13,920
9	1,380	1,370	0	0	0	221	784	2,600	54,930	29,850	23,450	13,910
10	1,380	1,380	0	0	0	225	789	4,520	54,590	29,860	22,980	13,920
11	1,370	1,380	0	0	0	210	816	6,360	53,740	29,870	27,440	13,950
12	1,410	1,420	0	0	0	239	861	8,090	52,670	29,860	27,880	13,950
13	1,440	1,450	0	0	0	242	959	8,880	51,870	29,780	28,130	13,950
14	1,430	1,420	0	0	0	232	970	9,510	51,020	29,690	28,280	13,930
15	1,400	1,440	0	0	0	230	988	9,370	49,920	29,670	27,250	13,920
16	1,340	1,470	0	0	0	221	1,190	9,110	48,800	29,710	25,660	13,880
17	1,380	1,440	0	0	0	206	1,120	9,690	47,900	29,710	23,640	13,860
18	1,380	1,430	0	0	0	206	1,100	11,070	46,790	29,680	21,230	13,860
19	1,380	1,440	0	0	0	208	1,170	12,690	45,540	29,660	18,970	13,890
20	1,380	1,500	0	0	0	205	1,140	15,640	44,450	29,640	17,040	13,890
21	1,400	1,450	0	0	25	194	1,180	19,360	43,220	29,600	15,100	13,890
22	1,400	1,460	0	0	39	199	1,150	24,050	42,000	29,590	13,920	13,890
23	1,390	1,560	0	0	39	217	1,180	30,330	40,070	29,540	13,850	13,890
24	1,380	1,510	0	0	39	235	1,160	34,960	39,140	30,060	14,000	13,910
25	1,380	1,480	0	0	32	288	1,200	36,640	38,580	29,640	13,950	13,900
26	1,400	1,560	0	0	33	329	1,200	38,270	36,880	29,410	13,890	13,880
27	1,420	1,490	0	0	93	348	1,160	40,830	35,010	29,850	13,920	13,870
28	1,400	0	0	0	107	369	1,120	43,700	33,960	30,290	13,920	13,870
29	1,390	0	0	0	34	384	1,130	46,280	33,930	29,670	13,920	13,860
30	1,390	0	0	0	------	454	1,190	48,340	a33,870	29,490	13,980	13,840
31	1,390	------	0	0	------	689	------	50,030	------	29,440	13,960	------
(†)	6,094.75	-	-	-	6,074.60	6,089.10	6,093.38	6,164.30	6,152.00	6,151.40	6,131.31	6,131.10
(‡)	-30	-1,390	0	0	+34	+655	+501	+48,840	-16,160	-620	-15,480	-120
MAX	1,440	1,560	0	0	107	689	1,200	50,030	54,930	30,290	31,260	13,950
MIN	1,340	0	0	0	0	0	758	1,160	33,870	29,410	13,850	13,840

CAL YR 1967..... ‡ -2
WTR YR 1968..... ‡ +12,740

† Elevation, in feet, at end of month.
‡ Change in contents, in acre-feet.
a Contents from capacity table used prior to July 1, 1968; contents June 30, 1968 from capacity table used subsequent to July 1, 1968, is 30,060 acre-feet.
Note.--Contents on Sept. 30, 1967 from capacity table effective July 1, 1968 is 1,100 acre-feet. Change in contents for 1968 water year obtained by using this value.

8-2870. Rio Chama below Abiquiu Dam, N. Mex.

Location.--Lat 36°14'10", long 106°25'00", in SE¼SE¼ sec.8, T.23 N., R.5 E., on right bank half a mile downstream from Abiquiu Dam, 6 miles northwest of Abiquiu, and at mile 31.3.

Drainage area.--2,147 sq mi, of which about 100 sq mi is probably noncontributing.

Records available.--October 1961 to September 1968. Monthly discharge only for October 1961.

Gage.--Water-stage recorder. Concrete control since Jan. 25, 1966. Altitude of gage is 6,040 ft (from river-profile map and topographic map). Prior to Jan. 25, 1966, at datum 1.60 ft lower.

Average discharge.--7 years, 373 cfs (270,000 acre-feet per year).

Extremes.--Maximum discharge during year, 1,480 cfs Aug. 15 (gage height, 4.59 ft); minimum, about 20 cfs Dec. 11, result of freezeup.
1961-68: Maximum discharge, 2,990 cfs July 1, 1965 (gage height, 6.69 ft); maximum gage height, 7.29 ft Jan. 14, 1967 (backwater from ice); minimum discharge, about 0.5 cfs Mar. 17, 1966 (result of regulation).

Remarks.--Records good except those for July, which are fair and those for winter periods, which are poor. Flow largely controlled by El Vado Reservoir (see station 8-2850) about 46 miles upstream, and Abiquiu Reservoir (see station 8-2869) ½mile upstream. Diversions for irrigation of about 17,600 acres above station. Records of suspended sediment loads and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	50	95	40	60	127	276	450	1,020	142	551	209
2	71	48	95	40	55	100	357	436	1,040	119	997	147
3	61	47	75	40	55	100	313	465	1,040	119	983	83
4	56	78	60	40	55	116	267	475	1,040	119	990	81
5	69	79	65	45	55	137	231	495	1,040	139	990	103
6	63	47	65	45	55	139	202	541	1,040	142	997	102
7	58	47	65	50	55	106	231	495	1,040	164	997	73
8	71	48	65	50	60	130	224	450	1,040	108	1,000	83
9	73	45	50	50	65	148	191	574	1,040	111	1,040	73
10	65	40	40	55	67	148	188	906	1,140	111	1,050	55
11	49	41	30	50	65	145	209	1,070	1,140	108	1,070	55
12	38	40	45	45	77	133	304	1,120	1,050	133	1,050	58
13	53	73	45	48	83	119	426	1,160	1,030	139	1,110	69
14	71	79	45	52	58	119	557	1,240	1,030	105	1,210	69
15	77	71	45	55	71	119	555	1,270	1,020	100	1,300	67
16	58	608	50	55	65	116	536	1,240	1,020	52	1,470	67
17	50	1,020	50	55	69	116	465	1,210	1,030	32	1,450	58
18	50	1,010	45	55	81	105	402	1,170	1,020	40	1,420	53
19	50	997	45	50	81	98	389	1,190	1,020	45	1,400	53
20	43	1,010	45	53	88	100	348	1,180	1,020	47	1,380	53
21	40	1,040	40	55	88	105	348	1,120	1,010	47	1,350	53
22	47	1,020	35	55	100	100	357	1,150	1,010	48	882	53
23	48	1,060	35	55	95	95	326	1,160	997	55	216	53
24	48	1,070	35	60	86	95	321	1,230	1,020	76	216	51
25	43	1,040	35	60	91	95	321	1,280	480	337	300	51
26	40	1,000	35	60	100	126	339	1,260	1,040	261	231	51
27	40	1,110	35	60	110	148	335	1,140	1,030	120	125	50
28	53	919	40	69	115	164	335	983	706	215	125	48
29	55	157	45	65	120	174	326	990	161	619	125	48
30	50	95	45	61	------	178	369	1,000	158	466	136	48
31	50	------	45	58	------	178	------	1,010	------	256	195	------
TOTAL	1,743	13,989	1,545	1,631	2,225	3,879	10,048	29,460	28,472	4,575	26,356	2,117
MEAN	56.2	466	49.8	52.6	76.7	125	335	950	949	148	850	70.6
MAX	103	1,110	95	69	120	178	557	1,280	1,140	619	1,470	209
MIN	38	40	30	40	55	95	188	436	158	32	125	48
AC-FT	3,460	27,750	3,060	3,240	4,410	7,690	19,930	58,430	56,470	9,070	52,280	4,200

CAL YR 1967: TOTAL 99,413 MEAN 272 MAX 1,740 MIN 30 AC-FT 197,200
WAT YR 1968: TOTAL 126,040 MEAN 344 MAX 1,470 MIN 30 AC-FT 250,000

8-2890. 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 96, 2¼ miles south of La Madera, 2 3/4 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 1968.

Gage.--Digital water-stage recorder and crest-stage gage. Datum of gage is 6,358.84 ft above mean sea level, datum of 1929. Prior to Apr. 23, 1934, at site about 2 3/4 miles upstream at different datum. 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. Prior to Mar. 27, 1963, graphic water-stage recorder.

Average discharge.--36 years, 69.2 cfs (50,100 acre-ft per year).

Extremes.--Maximum discharge during year, 551 cfs May 12 (gage height, 4.98 ft); minimum, 3.7 cfs July 4.
1932-68: Maximum discharge, 3,140 cfs Apr. 21, 1958, from rating curve extended above 1,300 cfs by logarithmic plotting; maximum gage height, 7.60 ft July 15, 1933, site and datum then in use; minimum discharge, 0.2 cfs Aug. 17, 1956.
A flood which occurred in May 1920 may have exceeded 3,200 cfs, from information by local resident.

Remarks.--Records good. Diversions above station for irrigation of about 3,500 acres (1962 determination).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	12	15	18	20	75	247	104	5.1	54	15
2	10	13	11	16	17	21	69	298	95	5.1	51	13
3	10	13	12	16	18	23	63	349	89	5.3	42	11
4	10	13	14	15	18	19	58	345	90	4.5	32	11
5	9.9	14	12	15	18	21	56	372	81	4.3	25	11
6	10	16	13	14	18	21	64	434	69	4.9	23	10
7	11	16	12	15	18	22	57	354	71	5.2	30	8.2
8	11	16	13	15	18	22	51	326	81	5.5	29	7.4
9	11	16	12	15	19	22	54	391	89	5.7	38	6.8
10	10	14	11	16	18	23	59	467	80	6.3	76	6.5
11	9.5	15	12	16	17	19	79	385	72	5.8	119	5.8
12	9.5	16	13	15	19	19	101	478	56	5.2	91	5.7
13	10	16	13	16	19	21	124	442	45	4.7	93	5.7
14	10	16	14	16	19	24	130	320	38	4.7	70	5.5
15	10	16	15	16	19	22	138	290	35	5.1	71	5.5
16	10	16	15	16	18	22	168	313	33	4.8	49	5.4
17	11	17	14	17	19	21	154	334	29	5.5	34	5.6
18	11	17	14	17	20	21	144	352	21	5.0	26	5.5
19	10	15	16	16	19	20	150	338	17	4.6	22	6.1
20	8.3	15	16	16	19	20	120	334	17	5.3	20	6.9
21	8.9	16	14	17	21	21	134	338	16	4.8	21	6.5
22	8.9	16	14	18	22	22	126	370	13	4.8	24	6.4
23	9.5	16	15	18	19	27	114	353	9.5	5.3	23	5.7
24	9.5	14	16	18	20	32	102	274	9.5	5.9	17	5.5
25	9.5	13	16	18	21	32	110	211	8.4	22	13	5.7
26	9.5	14	17	18	20	34	129	201	9.3	13	13	5.9
27	9.5	13	16	18	21	36	128	194	7.6	16	13	5.9
28	10	16	16	19	25	37	125	188	7.0	53	16	5.9
29	11	16	17	20	20	39	141	177	5.6	34	15	6.2
30	11	14	17	18	------	45	194	148	5.0	33	14	7.1
31	12	------	15	18	------	59	------	129	------	34	15	------
TOTAL	312.5	450	437	513	557	807	3,217	9,752	1,302.9	328.4	1,179	218.4
MEAN	10.1	15.0	14.1	16.5	19.2	26.0	107	315	43.4	10.6	38.0	7.28
MAX	12	17	17	20	25	59	194	478	104	53	119	15
MIN	8.3	12	11	14	17	19	51	129	5.0	4.3	13	5.4
AC-FT	620	893	867	1,020	1,100	1,600	6,380	19,340	2,580	651	2,340	433

CAL YR 1967 TOTAL 10,833.3 MEAN 29.7 MAX 454 MIN 2.2 AC-FT 21,490
WTR YR 1968 TOTAL 19,074.2 MEAN 52.1 MAX 478 MIN 4.3 AC-FT 37,830

Peak discharge (base, 600 cfs).--No peak above base.

8-2895. Chamita ditch near Chamita, N. Mex.

Location.--Lat 36°04'45", long 106°06'40", in NE¼SE¼ sec.5, T.21 N., R.8 E., on left bank at head of flume over Arroyo de la Presa, 1 mile downstream from heading on Rio Chama, 1 mile northwest of Chamita, 1 1/8 miles northeast of Hernandez, and 6½ miles north of Espanola.

Records available.--March 1936 to April 1941, February 1963 to September 1968.

Gage.--Water-stage recorder at head of half-round metal flume control. Altitude of gage is 5,690 ft (from topographic map). Prior to April 1941 at site ½ mile upstream at different datums. Apr. 16, 1964 to Aug. 8, 1966, digital water-stage recorder.

Extremes.--1936-41, 1963-68: Maximum daily discharge, 40 cfs Aug. 3, 1938; no flow many days.

Remarks.--This is one of two ditches gaged to determine flow bypassing Rio Chama near Chamita, N. Mex. (see station 8-2900). Takeouts from ditch irrigate land above and below gage, or waste back to Rio Chama.

Cooperation.--Records furnished by Bureau of Reclamation.

MONTHLY DIVERSION, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

	Maximum	Minimum	Mean	Diversion in acre-feet
October	12	0.85	7.77	478
November	14	0	5.98	356
December	0	0	0	0
Calendar year 1967	21	0	5.75	4,170
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	10	0	1.34	80
May	15	5.3	10.3	635
June	20	8.0	13.0	777
July	16	.31	8.33	512
August	18	0	7.22	444
September	16	3.81	11.0	653
Water year 1968	20	0	5.42	3,930

8-2898. Hernandez ditch at Hernandez, N. Mex.

Location.--Lat 36°04'20", long 106°07'10", in NE¼NW¼ sec.8, T.21 N., R.8 E., on right bank 75 feet upstream from culvert under U. S. Highway 285, 0.6 mile north of Hernandez, 1 mile downstream from heading on Rio Chama, 3 miles northwest of San Juan Pueblo and 6 miles northwest of Espanola.

Records available.--March 1963 to September 1968.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 5,670 ft (from topographic map). Prior to Mar. 5, 1965, at datum 1.01 ft higher. Apr. 16, 1964 to Sept. 30, 1965, digital water-stage recorder.

Extremes.--1963-68: Maximum daily discharge, 46 cfs July 3, 1964; no flow many days.

Remarks.--This is one of two ditches gaged to determine flow bypassing Rio Chama near Chamita, N. Mex. (see station 8-2900). Takeouts from ditch irrigate land above and below gage, or waste back to Rio Chama.

Cooperation.--Records furnished by Bureau of Reclamation.

MONTHLY DIVERSION, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

	Maximum	Minimum	Mean	Diversion in acre-feet
October	14	0	7.37	453
November	16	0	6.17	367
December	0	0	0	0
Calendar year 1967	38	0	6.35	4,600
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	6.5	0	.35	21
May	35	0	14.3	882
June	43	0	23.7	1,410
July	18	0	4.69	288
August	20	0	4.02	247
September	23	4.1	9.87	587
Water year 1968	43	0	5.86	4,250

8-2900. 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., at downstream end of pier nearest left bank of bridge on U. S. Highway 285, half a mile west of Chamita, 2½ miles northwest of San Juan Pueblo, and at mile 2.8.

Drainage area.--3,144 sq mi, of which at least 100 sq mi is probably noncontributing.

Records available.--October 1912 to September 1968. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Water-stage recorder. Concrete control since Jan. 1, 1964. Datum of gage is 5,653.61 ft above mean sea level, datum of 1929. Prior to Oct. 4, 1933, at railroad bridge 2 miles downstream at different datums. Oct. 4, 1933 to Mar. 1, 1942, at site 50 ft downstream at datum 0.22 ft higher. March 2, 1942 to Dec. 31, 1963, at site 200 ft downstream, present datum.

Average discharge.--56 years, 543 cfs (393,100 acre-ft per year).

Extremes.--Maximum discharge during year, 2,170 cfs Aug. 13 (gage height, 5.69 ft); minimum, 2.4 cfs July 23.
1912-68: Maximum discharge, 15,000 cfs May 22, 1920; maximum gage height, 10.45 ft Aug. 22, 1961; no flow at times.
The floods of Sept. 29, 1904, and Oct. 4 or 5, 1911, probably exceeded 15,000 cfs. Another major flood occurred in 1884, from newspaper accounts.

Remarks.--Records good except those for December to February, which are poor. Diversions above station for irrigation of about 27,600 acres, a few hundred of which is below station. Flow partly regulated by El Vado Reservoir (see station 8-2850) and Abiquiu Reservoir (see station 8-2869), 75 and 29 miles upstream, respectively. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	42	124	75	85	212	348	673	1,060	120	329	145
2	91	48	110	70	85	154	530	764	1,070	91	1,130	135
3	63	60	95	80	80	138	518	848	1,080	78	1,100	61
4	60	58	85	80	80	142	398	980	1,080	74	1,100	49
5	65	72	75	70	80	158	364	1,010	1,080	85	1,100	49
6	67	72	75	65	80	154	294	1,080	1,070	99	1,130	72
7	61	51	75	65	80	154	308	1,020	1,080	113	1,160	56
8	60	48	76	65	80	138	330	764	1,100	83	1,180	40
9	51	42	77	70	83	172	252	890	1,100	70	1,100	45
10	42	38	56	75	105	190	241	1,350	1,120	85	1,140	36
11	41	42	65	80	95	172	259	1,540	1,190	96	1,270	19
12	31	44	70	70	95	167	477	1,620	1,100	74	1,200	32
13	33	41	70	70	105	138	622	1,720	1,080	76	1,340	11
14	38	49	50	70	105	142	862	1,480	1,070	78	1,270	16
15	44	46	45	70	107	145	980	1,430	1,060	48	1,250	8.9
16	37	176	60	75	102	149	935	1,450	1,020	27	1,490	7.7
17	36	834	70	80	110	145	876	1,480	1,010	30	1,490	6.8
18	36	834	60	80	113	142	699	1,430	995	6.0	1,480	6.6
19	36	806	60	80	110	131	673	1,460	995	3.4	1,410	5.8
20	33	820	70	80	110	120	564	1,490	980	2.9	1,400	9.3
21	32	834	60	85	127	135	518	1,410	980	2.9	1,380	8.2
22	25	820	55	85	167	131	542	1,480	965	4.6	1,170	7.1
23	27	820	55	85	160	127	477	1,490	965	3.7	330	7.1
24	38	876	60	90	140	127	417	1,370	965	5.1	212	8.9
25	41	806	70	100	150	127	398	1,350	524	68	259	8.6
26	33	764	70	105	145	127	437	1,330	950	390	356	8.6
27	31	806	65	113	135	186	427	1,290	1,020	93	124	8.2
28	41	876	65	124	167	195	417	1,060	998	91	96	7.9
29	35	346	65	135	181	218	427	1,060	212	427	76	13
30	45	160	70	107	------	235	447	1,060	142	553	70	9.3
31	40	------	75	95	------	252	------	1,060	------	252	127	------
TOTAL	1,412	11,331	2,178	2,594	3,262	4,923	15,037	38,439	29,061	3,229.6	28,269	898.0
MEAN	45.5	378	70.3	83.7	112	159	501	1,240	969	104	912	29.9
MAX	99	876	124	135	181	252	980	1,720	1,190	553	1,490	145
MIN	25	38	45	65	80	127	241	673	142	2.9	70	5.8
AC-FT	2,800	22,470	4,320	5,150	6,470	9,760	29,830	76,240	57,640	6,410	56,070	1,780

CAL YR 1967: TOTAL 103,838.4 MEAN 284 MAX 1,890 MIN 8.0 AC-FT 206,000
WAT YR 1968: TOTAL 140,633.6 MEAN 384 MAX 1,720 MIN 2.9 AC-FT 278,900

8-2910. 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.--October 1930 to September 1968. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Water-stage recorder. Concrete control since Jan. 3, 1954. Altitude of gage is 6,460 ft (from topographic map). 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.--38 years, 29.2 cfs (21,140 acre-ft per year).

Extremes.--Maximum discharge during year, 151 cfs Aug. 13 (gage height, 2.65 ft); minimum, 2.0 cfs Feb. 2, result of freezeup.
1930-68: Maximum discharge, 2,420 cfs Sept. 24, 1931 (gage height, 7.8 ft, site and datum then in use), from rating curve extended above 170 cfs by logarithmic plotting; minimum, 0.19 cfs Mar. 13, 1954, result of freezeup.

Remarks.--Records good except those for winter periods, which are poor. Diversions for irrigation of about 1,000 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	14	11	9.0	7.5	11	27	42	99	28	51	36
2	20	13	6.1	11	6.5	12	24	49	97	28	34	31
3	20	9.4	5.8	9.4	7.5	11	20	56	93	30	26	29
4	26	12	11	9.4	7.5	10	19	59	89	28	24	27
5	24	14	9.8	9.0	6.5	10	18	63	87	30	30	25
6	20	13	9.4	8.5	7.0	11	20	65	87	31	34	24
7	20	11	7.8	8.0	7.0	12	19	63	87	26	27	23
8	20	9.6	9.8	9.0	7.0	11	18	60	84	24	24	22
9	19	10	7.5	8.5	7.0	11	19	62	80	23	20	20
10	18	11	7.0	8.5	7.5	11	20	63	73	23	40	19
11	18	9.8	7.0	9.0	7.0	9.4	26	59	70	23	53	19
12	17	9.8	11	8.5	7.8	10	29	59	68	20	76	18
13	17	9.8	11	8.5	7.5	10	33	59	66	20	71	17
14	17	9.4	10	8.5	7.5	11	30	55	65	17	71	16
15	17	9.4	10	9.0	7.5	11	36	55	63	18	56	15
16	16	9.0	11	9.0	7.8	11	41	57	62	16	51	16
17	16	9.0	10	9.0	7.5	11	34	62	60	15	46	18
18	16	8.5	8.0	9.0	7.5	10	37	59	59	14	43	17
19	15	8.2	11	8.0	7.1	9.4	37	60	56	17	41	17
20	15	8.2	9.4	8.5	7.8	10	30	68	56	17	38	17
21	14	8.2	7.0	9.0	8.5	9.8	31	74	53	14	38	16
22	14	8.2	6.0	9.0	9.4	7.5	27	87	51	17	35	15
23	14	8.2	8.0	9.0	9.0	10	26	95	46	19	34	14
24	14	4.1	10	9.0	9.4	11	24	95	44	24	30	14
25	13	7.1	10	9.4	10	12	25	91	42	45	26	15
26	13	8.5	11	9.4	10	15	26	89	40	26	30	14
27	12	8.5	9.8	9.4	11	18	26	87	37	24	29	14
28	12	12	10	9.8	12	18	26	89	35	24	46	13
29	13	11	10	9.4	9.4	22	25	93	31	20	31	13
30	9.3	7.8	10	7.0	------	27	26	95	27	18	29	16
31	14	------	9.5	7.5	------	26	------	97	------	23	41	------
TOTAL	514.3	291.7	284.9	275.2	234.7	389.1	799	2,167	1,907	702	1,225	570
MEAN	16.6	9.72	9.19	8.88	8.09	12.6	26.6	69.9	63.6	22.6	39.5	19.0
MAX	26	14	11	11	12	27	41	97	99	45	76	36
MIN	9.3	4.1	5.8	7.0	6.5	7.5	18	42	27	14	20	13
AC-FT	1,020	579	565	546	466	772	1,580	4,300	3,780	1,390	2,430	1,130

CAL YR 1967: TOTAL 6,168.2 MEAN 16.9 MAX 81 MIN 4.1 AC-FT 12,230
WTR YR 1968: TOTAL 9,359.9 MEAN 25.6 MAX 99 MIN 4.1 AC-FT 18,570

PEAK DISCHARGE (BASE, 150 CFS)

DATE	TIME	G.HT.	DISCHARGE
8-13	0200	2.65	151

8-2943. Rio Nambe at Nambe Falls, near Nambe, N. Mex.

Location.--Lat 35°51'15", long 105°54'30", in SW¼ sec.29, T.19 N., R.10 E., on left bank at Nambe Falls, 4.4 miles southeast of Nambe Pueblo, 5.1 miles southeast of Nambe, and 8.4 miles upstream from Rio Tesuque.

Drainage area.--25.1 sq mi.

Records available.--May to December 1911, miscellaneous discharge measurements only. March 1963 to September 1968.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 6,550 ft (from topographic map).

Average discharge.--5 years, 9.70 cfs (7,020 acre-ft per year).

Extremes.--Maximum discharge during year, 60 cfs June 5 (gage height, 1.15 ft); minimum, 1.0 cfs Mar. 22.
1963-68: Maximum discharge, 1,090 cfs Aug. 8, 1967 (gage height, about 6.0 ft, from floodmarks), from rating curve extended above 44 cfs on basis of field estimate of peak flow; minimum, 1.0 cfs Dec. 9, 1966, Mar. 22, 1968.

Cooperation.--Records furnished by Bureau of Reclamation.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.6	8.0	4.2	4.5	3.8	3.8	8.4	17	28	16	23	16
2	7.2	7.6	3.3	4.2	5.4	5.1	7.6	14	29	17	21	14
3	7.6	6.8	5.8	4.2	5.8	5.4	6.8	14	30	18	19	14
4	10	6.8	6.1	4.5	4.0	5.4	6.4	14	32	18	18	13
5	8.9	7.6	4.0	4.8	4.2	6.1	6.1	16	32	19	19	13
6	8.0	7.2	3.3	4.5	5.1	6.4	6.8	15	40	19	20	13
7	7.6	6.8	3.3	4.5	4.5	6.1	6.8	14	36	17	19	13
8	8.0	6.8	3.8	4.2	4.2	6.4	6.4	14	29	15	18	12
9	8.9	6.8	2.5	4.2	4.0	6.8	6.8	14	27	14	17	11
10	9.4	6.8	3.8	4.0	3.8	5.1	8.0	14	29	14	17	12
11	6.8	6.8	6.8	4.0	4.0	5.1	8.4	18	30	13	20	11
12	5.8	6.8	7.2	4.0	4.0	5.8	9.4	17	28	12	26	11
13	5.8	6.4	4.5	5.8	4.8	6.8	11	15	30	12	24	11
14	5.8	6.4	4.0	4.8	4.2	5.1	9.8	16	30	11	25	10
15	5.4	6.1	4.0	3.8	3.8	4.2	9.4	17	29	11	23	8.9
16	5.8	6.1	3.8	3.5	4.0	4.0	9.8	16	31	9.4	25	8.9
17	5.8	6.1	3.8	3.5	4.0	3.8	9.4	16	29	9.4	25	8.4
18	5.8	5.8	3.8	3.5	3.8	4.0	8.4	18	26	9.4	21	8.4
19	6.1	5.4	3.8	3.5	3.5	3.8	8.9	24	25	11	20	8.4
20	5.8	5.4	4.0	3.5	3.5	3.8	8.4	21	24	10	19	7.6
21	6.1	5.1	5.1	4.0	3.8	3.8	9.4	20	23	9.4	17	7.6
22	6.4	5.1	9.4	3.8	3.5	3.5	8.0	23	23	9.4	17	7.2
23	6.4	5.1	4.8	3.8	3.1	4.2	8.0	23	22	10	16	7.2
24	6.4	3.3	4.2	3.8	3.3	5.1	7.2	27	20	11	15	6.8
25	6.8	4.5	4.0	4.0	3.1	4.5	7.6	34	20	17	15	6.8
26	7.2	4.2	4.2	4.2	2.9	5.1	8.4	35	22	20	15	6.8
27	6.8	4.0	4.2	4.2	3.1	6.1	8.0	23	21	16	15	6.8
28	6.8	4.8	4.2	4.2	3.8	5.1	7.6	23	20	18	20	6.8
29	7.2	4.0	4.2	4.2	3.1	6.4	9.8	27	20	20	14	6.8
30	5.8	3.5	4.2	4.2	------	7.2	13	26	17	17	14	8.0
31	7.6	------	4.5	4.2	------	7.6	------	26	------	20	15	------
TOTAL	215.6	176.1	138.8	128.1	114.1	161.6	250.0	611	802	443.0	592	295.4
MEAN	6.95	5.87	4.48	4.13	3.93	5.21	8.33	19.7	26.7	14.3	19.1	9.85
MAX	10	8.0	9.4	5.8	5.8	7.6	13	35	40	20	26	16
MIN	5.4	3.3	2.5	3.5	2.9	3.5	6.1	14	17	9.4	14	6.8
AC-FT	428	349	275	254	226	321	496	1,210	1,590	879	1,170	586

CAL YR 1967: TOTAL 2,408.2 MEAN 6.60 MAX 31 MIN 2.5 AC-FT 4,780
WTR YR 1968: TOTAL 3,927.7 MEAN 10.7 MAX 40 MIN 2.5 AC-FT 7,790

PEAK DISCHARGE (BASE, 40 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-25	1300	1.08	53
6- 5	1000	1.15	60

8-2952. Rio En Medio near Santa Fe, N. Mex.

Location.--Lat 35°47'30", long 105°47'38", in Santa Fe National Forest, on right bank 300 ft east of Ski Basin parking area and 16½ miles northeast of Santa Fe, Santa Fe County.

Drainage area.--0.63 sq mi.

Records available.--October 1963 to September 1968.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 10,600 ft (from topographic map).

Average discharge.--5 years, 0.824 cfs (597 acre-ft per year).

Extremes.--Maximum discharge during year, 4.44 cfs Aug. 25 (gage height, 1.04 ft); minimum, 0.26 cfs Feb. 28, Mar. 7, 25, 26.
1963-68: Maximum discharge, 16.3 cfs July 16, 1965 (gage height, 1.70 ft), from rating curve extended above 4.50 cfs on basis of theoretical rating; minimum, 0.20 cfs Dec. 24, 1964, result of freezeup.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.89	0.54	0.40	0.36	0.33	0.30	0.39	0.62	2.88	0.97	1.47	1.26
2	.89	.54	.40	.36	.33	.29	.37	.76	2.64	1.06	1.42	1.16
3	.89	.54	.40	.36	.31	.29	.35	.76	2.40	1.16	1.36	1.16
4	.90	.52	.39	.36	.31	.29	.34	.76	2.25	1.11	1.40	1.11
5	.84	.52	.39	.36	.31	.30	.34	.76	2.33	1.26	1.42	1.06
6	.80	.52	.39	.36	.31	.30	.33	.72	2.40	1.21	1.36	1.06
7	.80	.52	.37	.36	.31	.30	.33	.70	2.40	1.26	1.36	1.02
8	.77	.52	.40	.36	.30	.30	.31	.70	2.33	1.11	1.26	.97
9	.73	.52	.37	.36	.30	.29	.30	.80	2.18	1.11	1.26	.97
10	.73	.52	.36	.36	.30	.30	.33	.80	2.04	1.06	1.36	.97
11	.69	.52	.35	.35	.30	.30	.37	.84	1.90	.97	1.53	.96
12	.69	.52	.34	.35	.30	.30	.42	.80	1.90	.93	1.71	.94
13	.69	.51	.34	.35	.30	.30	.45	.76	1.90	.93	1.78	.92
14	.69	.51	.35	.35	.30	.30	.48	.76	1.90	.89	1.98	.90
15	.67	.49	.36	.35	.30	.30	.52	.80	1.97	.89	1.78	.88
16	.66	.49	.36	.35	.30	.29	.52	.92	1.97	.80	1.71	.86
17	.64	.49	.36	.35	.29	.29	.52	.92	2.04	.77	1.65	.86
18	.64	.48	.36	.34	.30	.29	.51	1.02	1.97	.93	1.53	.84
19	.62	.48	.34	.33	.30	.29	.49	1.10	1.97	.84	1.47	.82
20	.60	.47	.34	.33	.30	.29	.49	1.20	1.84	.80	1.42	.82
21	.60	.47	.34	.31	.30	.29	.48	1.76	1.84	.80	1.31	.80
22	.60	.45	.36	.31	.30	.29	.45	2.45	1.78	.80	1.31	.78
23	.60	.42	.36	.31	.30	.28	.45	2.66	1.65	.88	1.21	.78
24	.60	.41	.36	.31	.30	.27	.44	2.56	1.59	.84	1.11	.77
25	.59	.41	.36	.31	.29	.26	.44	2.40	1.47	1.19	1.30	.77
26	.57	.41	.36	.31	.29	.27	.45	2.56	1.36	1.21	1.37	.77
27	.56	.40	.36	.30	.29	.28	.42	2.80	1.26	1.14	1.39	.73
28	.54	.41	.36	.31	.30	.31	.42	3.15	1.16	1.44	1.50	.73
29	.54	.41	.35	.33	.30	.33	.47	3.15	1.11	1.36	1.36	.73
30	.54	.41	.35	.33	------	.35	.54	3.15	1.02	1.26	1.26	.73
31	.56	------	.35	.33	------	.39	------	3.06	------	1.39	1.41	------
TOTAL	21.13	14.42	11.28	10.51	8.77	9.23	12.72	46.20	57.45	32.37	44.76	27.13
MEAN	.682	.481	.364	.339	.302	.298	.424	1.490	1.915	1.044	1.444	.904
MAX	.90	.54	.40	.36	.33	.39	.54	3.15	2.88	1.44	1.98	1.26
MIN	.54	.40	.34	.30	.29	.26	.30	.62	1.02	.77	1.11	.73
AC-FT	41.9	28.6	22.4	20.8	17.4	18.3	25.2	91.6	114	64.2	88.8	53.8

CAL YR 1967: TOTAL 193.00 MEAN .529 MAX 1.62 MIN .27 AC-FT 383
WAT YR 1968: TOTAL 295.97 MEAN .809 MAX 3.15 MIN .26 AC-FT 587

Peak discharge (base, 5.00 cfs).--No peak above base.

8-3022. North Fork Tesuque Creek near Santa Fe, N. Mex.

Location.--Lat 35°46'12", long 105°48'31", in Santa Fe National Forest, on left bank 75 ft upstream from culvert on State Highway 475, 250 ft upstream from Middle Fork Tesuque Creek, and 13 miles northeast of Santa Fe, Santa Fe County.

Drainage area.--1.60 sq mi.

Records available.--October 1962 to September 1968.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 9,670 ft (from topographic map). May 10, 1963 to Oct. 25, 1965, digital water-stage recorder at same site and datum.

Average discharge.--6 years, 1.531 cfs (1,110 acre-ft per year).

Extremes.--Maximum discharge during year, 9.00 cfs May 31 (gage height, 1.35 ft); minimum, 0.26 cfs Mar. 7, result of heavy snow.
1962-68: Maximum discharge, 32.9 cfs Aug. 1, 1966 (gage height, 2.25 ft), from rating curve extended above 9.0 cfs on basis of theoretical rating; minimum determined, 0.09 cfs Nov. 16, 1962, result of freezeup.

Remarks.--Records good except those for January and August, which are fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.47	0.93	0.57	0.49	0.44	0.49	1.31	2.11	8.83	2.11	1.71	2.11
2	1.47	.89	.57	.49	.45	.49	1.16	2.56	8.34	2.11	1.75	2.04
3	1.47	.84	.56	.48	.45	.49	1.02	2.88	8.03	2.04	1.70	1.97
4	1.47	.80	.54	.48	.45	.49	.93	3.15	7.41	1.90	1.70	1.90
5	1.42	.80	.54	.49	.44	.49	.93	3.24	7.12	1.97	1.70	1.84
6	1.42	.80	.54	.48	.41	.51	.84	3.24	6.83	1.78	1.60	1.84
7	1.42	.80	.52	.48	.41	.49	.84	3.15	6.55	1.78	1.60	1.78
8	1.42	.77	.51	.48	.41	.52	.84	3.15	6.28	1.59	1.60	1.71
9	1.36	.77	.52	.48	.40	.51	.93	3.24	6.01	1.53	1.80	1.65
10	1.31	.77	.52	.48	.41	.47	1.11	3.33	5.75	1.42	2.00	1.65
11	1.31	.77	.48	.48	.41	.51	1.26	3.33	5.37	1.36	2.20	1.59
12	1.26	.73	.48	.48	.41	.49	1.47	3.42	5.01	1.36	2.50	1.53
13	1.26	.73	.48	.47	.41	.49	1.59	3.33	4.78	1.31	2.90	1.47
14	1.21	.73	.49	.47	.41	.49	1.65	3.33	4.66	1.26	3.20	1.42
15	1.21	.71	.49	.47	.40	.51	1.84	3.33	4.44	1.21	3.00	1.36
16	1.16	.71	.51	.47	.40	.51	1.90	3.42	4.44	1.16	2.80	1.31
17	1.16	.71	.51	.48	.40	.51	1.97	3.61	4.44	1.11	2.70	1.31
18	1.11	.67	.49	.48	.40	.49	1.97	3.81	4.44	1.21	2.50	1.26
19	1.06	.66	.51	.47	.40	.48	1.84	4.01	4.33	1.11	2.40	1.21
20	1.06	.64	.49	.47	.41	.48	1.78	4.22	4.22	1.06	2.40	1.21
21	1.06	.64	.51	.47	.42	.47	1.78	4.44	4.01	1.06	2.33	1.16
22	1.06	.64	.51	.47	.45	.47	1.59	5.25	3.81	1.02	2.33	1.11
23	1.02	.60	.51	.45	.45	.49	1.65	6.14	3.61	1.23	2.18	1.11
24	.97	.61	.51	.48	.47	.56	1.59	6.41	3.42	1.21	2.11	1.11
25	.97	.57	.49	.48	.49	.64	1.53	6.69	3.24	1.59	2.33	1.02
26	.97	.57	.49	.49	.51	.77	1.47	6.97	3.06	1.47	2.25	1.02
27	.97	.57	.49	.49	.49	.84	1.42	7.27	2.88	1.42	2.08	1.02
28	.93	.59	.49	.48	.49	.97	1.42	7.56	2.64	1.60	2.28	.97
29	.97	.57	.49	.47	.49	1.16	1.53	8.03	2.48	1.59	2.04	1.02
30	.95	.57	.49	.47	------	1.31	1.71	8.67	2.25	1.47	2.04	1.02
31	.97	------	.49	.45	------	1.36	------	8.83	------	1.65	2.25	------
TOTAL	36.87	21.16	15.79	14.77	12.58	18.95	42.87	142.12	148.68	45.69	67.98	42.72
MEAN	1.189	.705	.509	.476	.434	.611	1.429	4.585	4.956	1.474	2.193	1.424
MAX	1.47	.93	.57	.49	.51	1.36	1.97	8.83	8.83	2.11	3.20	2.11
MIN	.93	.57	.48	.45	.40	.47	.84	2.11	2.25	1.02	1.60	.97
AC-FT	73.1	42.0	31.3	29.3	25.0	37.6	85.0	282	295	90.6	135	84.7

CAL YR 1967: TOTAL 308.20 MEAN .844 MAX 2.18 MIN .37 AC-FT 611
WTR YR 1968: TOTAL 610.18 MEAN 1.667 MAX 8.83 MIN .40 AC-FT 1,210

PEAK DISCHARGE (BASE, 7.00 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-31	1900	1.35	9.00
8-25	1740	1.24	7.56
8-27	2400	1.24	7.56

8-3023. Middle Fork Tesuque Creek near Santa Fe, N. Mex.

Location.--Lat 35°46'03", long 105°48'26", in Santa Fe National Forest, on right bank 1,000 ft upstream from road culvert on State Highway 475, 1,100 ft upstream from mouth, 13 miles northeast of Santa Fe, Santa Fe County.

Drainage area.--0.43 sq mi.

Records available.--November 1961 to September 1968.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 9,800 ft (from topographic map). May 9, 1963 to Sept. 30, 1965, digital water-stage recorder at same site and datum.

Average discharge.--6 years, 0.312 cfs (226 acre-ft per year).

Extremes.--Maximum discharge during year, 2.00 cfs Aug. 7 (gage height, 0.91 ft); minimum, 0.070 cfs Oct. 29, result of freezeup.
1961-68: Maximum discharge, 4.55 cfs Aug. 24, 1966 (gage height, 1.27 ft), from rating curve extended above 2.20 cfs on basis of theoretical rating; minimum, 0.05 cfs Dec. 2, 1964.

Remarks.--Records good except those for June to August, which are fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.25	0.18	0.12	0.11	0.090	0.082	0.16	0.31	1.64	0.63	0.27	0.43
2	.25	.17	.12	.10	.090	.082	.13	.40	1.64	.63	.25	.41
3	.25	.16	.12	.099	.090	.082	.12	.43	1.64	.60	.25	.40
4	.25	.16	.12	.099	.086	.082	.11	.42	1.64	.58	.28	.39
5	.25	.16	.12	.099	.086	.082	.099	.42	1.64	.55	.27	.39
6	.25	.16	.12	.099	.086	.082	.10	.42	1.64	.53	.26	.40
7	.25	.16	.12	.099	.082	.082	.099	.41	1.36	.55	.42	.40
8	.25	.15	.12	.095	.082	.082	.10	.42	1.36	.50	.35	.39
9	.25	.15	.11	.095	.082	.082	.12	.44	1.45	.48	.35	.39
10	.25	.15	.11	.095	.082	.082	.16	.45	1.54	.48	.35	.38
11	.24	.15	.11	.095	.082	.078	.20	.44	1.59	.45	.43	.38
12	.23	.15	.11	.095	.082	.078	.22	.44	1.59	.43	.55	.37
13	.23	.15	.11	.095	.082	.082	.22	.43	1.54	.42	.45	.36
14	.23	.15	.11	.095	.082	.082	.22	.43	1.41	.41	.56	.35
15	.22	.14	.11	095	.082	.082	.26	.45	1.36	.41	.50	.35
16	.21	.14	.11	.095	.082	.082	.26	.50	1.36	.41	.48	.33
17	.21	.14	.11	.095	.082	.082	.25	.55	1.45	.40	.48	.32
18	.20	.14	.11	.095	.082	.082	.23	.55	1.54	.41	.48	.31
19	.20	.13	.11	.090	.082	.082	.21	.60	1.54	.39	.48	.30
20	.20	.13	.11	.090	.082	.082	.20	.66	1.45	.38	.50	.30
21	.20	.13	.11	.090	.082	.082	.20	.74	1.28	.41	.50	.28
22	.20	.13	.11	.090	.082	.082	.18	.90	1.20	.37	.48	.28
23	.19	.13	.11	.090	.082	.086	.17	1.04	1.12	.37	.47	.27
24	.18	.12	.11	.090	.082	.095	.18	1.08	1.04	.34	.46	.26
25	.18	.12	.11	.090	.082	.095	.17	1.16	.97	.39	.46	.25
26	.18	.12	.11	.090	.082	.11	.16	1.20	.94	.31	.46	.25
27	.17	.12	.11	.090	.082	.12	.16	1.24	.90	.27	.47	.25
28	.18	.12	.12	.090	.086	.14	.16	1.32	.80	.29	.48	.24
29	.16	.12	.12	.090	.086	.17	.18	1.41	.74	.27	.43	.24
30	.20	.12	.12	.090	------	.18	.23	1.50	.66	.25	.42	.24
31	.18	------	.11	.090	------	.18	------	1.59	------	.26	.49	------
TOTAL	6.69	4.25	3.62	2.920	2.422	2.972	5.258	22.35	40.03	13.17	13.08	9.91
MEAN	.216	.142	.114	.0942	.0835	.0959	.175	.721	1.33	.425	.422	.330
MAX	.25	.18	.12	.11	.090	.18	.26	1.59	1.64	.63	.56	.43
MIN	.16	.12	.11	.090	.082	.078	.099	.31	.66	.25	.25	.24
AC-FT	13.3	8.43	6.98	5.79	4.80	5.89	10.4	44.3	79.4	26.1	25.9	19.7

CAL YR 1967: TOTAL 51.944 MEAN .142 MAX .36 MIN .078 AC-FT 103
WTR YR 1968: TOTAL 126.572 MEAN .346 MAX 1.64 MIN .078 AC-FT 251

PEAK DISCHARGE (BASE, 1.70 CFS)

DATE	TIME	G.HT.	DISCHARGE
8- 7	1600	0.91	2.00

8-3024. South Fork Tesuque Creek near Santa Fe, N. Mex.

Location.--Lat 35°45'37", long 105°48'40", in Santa Fe National Forest, on left bank 150 ft upstream from road culvert on State Highway 475, 2,700 ft upstream from mouth, and 12 miles northeast of Santa Fe, Santa Fe County.

Drainage area.--0.47 sq mi.

Records available.--October 1962 to September 1968.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 9,740 ft (from topographic map). May 11, 1963 to Sept. 30, 1965, digital water-stage recorder at same site and datum.

Average discharge.--6 years, 0.262 cfs (190 acre-ft per year).

Extremes.--Maximum discharge during year, 1.64 cfs June 8 (gage height, 0.85 ft); minimum, 0.090 cfs Nov. 23, result of freezeup.
1962-68: Maximum discharge, 2.78 cfs Aug. 24, 1966 (gage height, 1.04 ft); minimum, 0.067 cfs July 9, 10, 1967.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.22	0.15	0.12	0.11	0.11	0.099	0.16	.22	1.08	0.42	0.29	0.40
2	.22	.15	.11	.11	.11	.099	.15	.25	1.32	.41	.29	.38
3	.21	.14	.11	.11	.11	.099	.15	.28	1.32	.40	.29	.37
4	.21	.14	.11	.11	.11	.099	.13	.32	1.28	.38	.28	.37
5	.20	.13	.11	.11	.11	.099	.13	.33	1.36	.39	.25	.35
6	.20	.13	.11	.11	.11	.099	.12	.34	1.50	.37	.27	.34
7	.20	.13	.11	.11	.11	.099	.12	.33	1.59	.36	.31	.34
8	.18	.13	.11	.11	.11	.099	.12	.33	1.59	.34	.30	.34
9	.18	.13	.11	.11	.11	.099	.12	.35	1.59	.33	.27	.34
10	.18	.13	.11	.11	.11	.099	.13	.35	1.54	.32	.26	.33
11	.17	.13	.11	.11	.11	.099	.15	.34	1.45	.31	.28	.33
12	.17	.13	.11	.11	.11	.099	.16	.33	1.41	.30	.33	.33
13	.17	.13	.11	.11	.11	.099	.18	.32	1.36	.29	.29	.32
14	.17	.13	.11	.11	.10	.099	.19	.31	1.28	.29	.30	.32
15	.17	.13	.11	.11	.10	.099	.20	.31	1.20	.28	.29	.32
16	.16	.13	.12	.11	.10	.099	.22	.32	1.08	.25	.27	.32
17	.16	.13	.12	.11	.10	.099	.21	.32	1.01	.25	.27	.31
18	.16	.13	.12	.11	.099	.099	.20	.32	.94	.25	.27	.31
19	.16	.13	.12	.11	.099	.099	.20	.33	.87	.25	.27	.31
20	.16	.13	.12	.11	.099	.099	.20	.34	.80	.24	.30	.31
21	.16	.13	.12	.11	.099	.099	.19	.38	.74	.25	.30	.30
22	.16	.13	.12	.11	.099	.099	.18	.45	.71	.24	.30	.30
23	.16	.12	.12	.11	.099	.099	.17	.50	.68	.23	.31	.30
24	.16	.12	.12	.11	.099	.099	.17	.50	.63	.23	.31	.30
25	.15	.12	.12	.11	.099	.099	.17	.50	.60	.33	.34	.28
26	.15	.12	.12	.11	.099	.11	.17	.53	.55	.31	.40	.28
27	.15	.12	.12	.11	.099	.11	.16	.58	.53	.27	.39	.26
28	.15	.12	.11	.11	.099	.11	.16	.63	.50	.32	.44	.26
29	.15	.12	.11	.11	.099	.13	.17	.71	.45	.31	.40	.26
30	.14	.12	.11	.11	------	.15	.20	.80	.45	.26	.39	.26
31	.14	------	.11	.11	------	.16	------	.90	------	.26	.44	------
TOTAL	5.32	3.88	3.54	3.41	3.019	3.245	4.98	12.82	31.41	9.44	9.70	9.54
MEAN	.172	.129	.114	.110	.104	.105	.166	.414	1.05	.305	.313	.318
MAX	.22	.15	.12	.11	.11	.16	.22	.90	1.59	.42	.44	.40
MIN	.14	.12	.11	.11	.099	.099	.12	.22	.45	.23	.25	.26
AC-FT	10.6	7.70	7.02	6.76	5.99	6.44	9.88	25.4	62.3	18.7	19.2	18.9

CAL YR 1967: TOTAL 45.982 MEAN .126 MAX .25 MIN .070 AC-FT 91.2
WTR YR 1968: TOTAL 100.304 MEAN .274 MAX 1.59 MIN .099 AC-FT 199

PEAK DISCHARGE (BASE, 1.30 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 8	0800	0.85	1.64

8-3041. Little Tesuque Creek near Santa Fe, N. Mex.

Location.--Lat 35°44'42", long 105°49'39", in SW¼NE¼ sec.36, T.18 N., R.10 E., in Santa Fe National Forest, on right bank 1,200 ft upstream from east boundary line of Hyde State park, 0.25 mile (by access road) east of State Highway 475, 9 miles northeast of Santa Fe.

Drainage area.--0.37 sq mi.

Records available.--June 1962 to September 1968.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 9,220 ft (from topographic map). May 11, 1963 to Sept. 30, 1965, digital water-stage recorder at same site and datum.

Average discharge.--6 years, 0.181 cfs (131 acre-ft per year).

Extremes.--Maximum discharge during year, 1.64 cfs July 28 (gage height, 0.85 ft), from rating curve extended above 0.71 cfs as explained below; minimum 0.053 cfs Nov. 24.
1962-68: Maximum discharge, 2.28 cfs July 30, 1965 (gage height. 0.97 ft), from rating curve extended above 0.71 cfs (corrected) on basis of theoretical rating; minimum, 0.007 cfs July 5, 6, 10, 11, 1967.

Remarks.--Records excellent.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.099	0.082	0.074	0.074	0.067	0.082	0.22	0.36	0.68	0.16	0.27	0.22
2	.099	.082	.070	.074	.067	.082	.18	.48	.77	.18	.20	.18
3	.099	.078	.070	.074	.067	.082	.17	.68	.90	.19	.16	.17
4	.099	.078	.074	.074	.067	.082	.15	.84	.97	.18	.16	.15
5	.095	.082	.074	.074	.067	.082	.15	.90	.97	.22	.16	.14
6	.090	.086	.074	.070	.067	.082	.15	.84	.94	.19	.18	.14
7	.086	.082	.074	.070	.067	.086	.15	.77	.94	.18	.19	.13
8	.086	.078	.074	.070	.067	.086	.15	.66	.87	.16	.18	.12
9	.082	.078	.067	.070	.067	.086	.16	.66	.80	.18	.16	.12
10	.082	.078	.067	.070	.067	.082	.18	.66	.74	.16	.17	.12
11	.082	.078	.074	.070	.067	.082	.22	.60	.66	.15	.20	.12
12	.082	.078	.070	.070	.070	.082	.26	.58	.60	.14	.32	.12
13	.078	.082	.067	.070	.070	.086	.30	.58	.55	.13	.25	.11
14	.078	.078	.070	.070	.070	.095	.31	.53	.50	.13	.24	.11
15	.078	.078	.074	.070	.070	.095	.36	.50	.48	.12	.20	.11
16	.078	.082	.070	.070	.070	.095	.42	.50	.43	.11	.18	.11
17	.078	.082	.070	.070	.070	.099	.43	.50	.40	.10	.18	.11
18	.078	.078	.070	.070	.070	.095	.43	.48	.36	.13	.16	.10
19	.074	.082	.070	.070	.070	.090	.39	.48	.33	.12	.15	.099
20	.074	.082	.070	.070	.070	.090	.36	.48	.30	.11	.16	.099
21	.074	.078	.070	.070	.070	.086	.34	.50	.28	.12	.16	.099
22	.070	.078	.070	.070	.074	.082	.30	.58	.26	.12	.17	.095
23	.070	.074	.074	.067	.074	.086	.29	.58	.25	.11	.15	.095
24	.070	.063	.074	.067	.078	.099	.29	.53	.24	.12	.15	.095
25	.074	.078	.074	.070	.078	.11	.28	.48	.22	.22	.16	.095
26	.074	.074	.074	.070	.082	.13	.27	.48	.21	.22	.24	.099
27	.074	.074	.074	.070	.082	.15	.26	.50	.20	.19	.20	.095
28	.074	.074	.074	.070	.082	.16	.25	.53	.19	.41	.21	.090
29	.074	.074	.074	.070	.082	.20	.26	.53	.18	.31	.16	.090
30	.078	.074	.074	.070	------	.22	.34	.55	.17	.19	.16	.099
31	.082	------	.074	.070	------	.22	------	.63	------	.19	.29	------
TOTAL	2.511	2.345	2.229	2.184	2.069	3.284	8.02	17.97	15.39	5.24	5.92	3.530
MEAN	.0810	.0782	.0719	.0705	.0713	.106	.267	.580	.513	.169	.191	.118
MAX	.099	.086	.074	.074	.082	.22	.43	.90	.97	.41	.32	.22
MIN	.070	.063	.067	.067	.067	.082	.15	.36	.17	.10	.15	.090
AC-FT	4.98	4.65	4.42	4.33	4.10	6.51	15.9	35.6	30.5	10.4	11.7	7.00

CAL YR 1967: TOTAL 28.254 MEAN .0774 MAX .42 MIN .011 AC-FT 56.0
WTR YR 1968: TOTAL 70.692 MEAN .193 MAX .97 MIN .063 AC-FT 140

PEAK DISCHARGE (BASE, 1.00 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 5	0500	.70	1.01
7-28	1445	.85	1.64

8-3042. Little Tesuque Creek tributary No. 4 near Santa Fe, N. Mex.

Location.--Lat 35°44'08", long 105°50'00", on right bank in Hyde State Park, 1,000 ft upstream from mouth, and 8 miles northeast of Santa Fe, Santa Fe County.

Drainage area.--0.69 sq mi.

Records available.--October 1964 to September 1968.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 8,600 ft (from topographic map). Prior to Aug. 6, 1968, at datum 0.20 ft lower.

Extremes.--Maximum discharge during year, 2.98 cfs July 28 (gage height, 1.27 ft), from rating curve extended above 0.60 cfs on basis of theoretical rating; minimum 0.004 cfs Dec. 12-14.
1964-68: Maximum discharge, that of July 28, 1968; no flow at times most years.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.042	.011	.010	.012	.018	.036	.36	.40	.45	.010	.40	.42
2	.036	.010	.010	.012	.016	.039	.29	.53	.43	.009	.30	.30
3	.034	.010	.010	.012	.015	.042	.24	.66	.39	.007	.22	.25
4	.032	.011	.008	.012	.015	.039	.22	.96	.35	.008	.19	.21
5	.029	.012	.008	.012	.015	.039	.20	1.01	.32	.009	.22	.18
6	.029	.012	.008	.012	.015	.036	.20	1.04	.30	.015	.28	.18
7	.029	.012	.008	.011	.015	.039	.18	.97	.26	.027	.26	.16
8	.027	.012	.008	.010	.015	.042	.17	.87	.25	.025	.22	.13
9	.025	.011	.008	.010	.015	.044	.20	.80	.22	.021	.20	.12
10	.025	.011	.007	.010	.015	.050	.23	.80	.19	.016	.20	.11
11	.023	.011	.005	.010	.015	.050	.29	.74	.16	.016	.25	.10
12	.021	.011	.004	.010	.015	.050	.37	.74	.15	.013	.60	.095
13	.021	.011	.004	.010	.015	.060	.42	.71	.12	.010	.37	.082
14	.021	.011	.004	.010	.016	.070	.41	.66	.12	.009	.34	.074
15	.020	.011	.005	.010	.016	.067	.45	.66	.10	.009	.27	.070
16	.020	.011	.006	.011	.016	.070	.50	.63	.095	.009	.23	.063
17	.018	.010	.006	.011	.016	.074	.43	.63	.086	.009	.21	.063
18	.018	.010	.008	.012	.016	.070	.42	.66	.082	.008	.20	.063
19	.015	.009	.008	.012	.016	.067	.36	.66	.070	.006	.18	.057
20	.015	.009	.009	.012	.016	.067	.31	.66	.063	.005	.17	.050
21	.015	.009	.010	.011	.018	.060	.29	.68	.050	.006	.16	.044
22	.015	.009	.010	.011	.021	.057	.26	.71	.044	.007	.16	.042
23	.015	.009	.010	.011	.025	.067	.24	.77	.039	.008	.13	.039
24	.013	.008	.011	.011	.027	.082	.24	.87	.034	.010	.11	.036
25	.013	.008	.012	.012	.029	.11	.25	.84	.029	.008	.10	.034
26	.010	.008	.012	.013	.032	.15	.24	.77	.025	.072	.50	.034
27	.010	.008	.013	.016	.034	.19	.23	.68	.023	.15	.57	.036
28	.009	.008	.013	.016	.034	.22	.24	.60	.020	.69	.39	.034
29	.009	.009	.013	.016	.034	.29	.26	.55	.016	.50	.28	.032
30	.009	.010	.012	.018	------	.35	.32	.53	.012	.35	.23	.032
31	.010	------	.013	.018	------	.38	------	.48	------	.30	.59	------
TOTAL	.628	.302	.273	.374	.565	3.007	8.82	22.27	4.498	2.342	8.53	3.140
MEAN	.0203	.0101	.0088	.0121	.0195	.0970	.294	.718	.150	.0755	.275	.105
MAX	.042	.012	.013	.018	.034	.38	.50	1.04	.45	.69	.60	.42
MIN	.009	.008	.004	.010	.015	.036	.17	.40	.012	.005	.10	.032
AC-FT	1.25	.60	.54	.74	1.12	5.96	17.5	44.2	8.92	4.65	16.9	6.23

CAL YR 1967: TOTAL 11.801 MEAN .0323 MAX .63 MIN 0 AC-FT 23.4
WTR YR 1968: TOTAL 54.749 MEAN .150 MAX 1.04 MIN .004 AC-FT 109

PEAK DISCHARGE (BASE, 1.50 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-28	1345	1.27	2.98
8-26	1750	.88	1.84

8-3043. Little Tesuque Creek tributary No. 3 near Santa Fe, N. Mex.

Location.--Lat 35°43'35", long 105°50'01", in Santa Fe National Forest, on right bank 1,900 ft upstream from mouth, and 8 miles northeast of Santa Fe, Santa Fe County.

Drainage area.--0.65 sq mi.

Records available.--September 1963 to September 1968.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 8,440 ft (from topographic map).

Average discharge.--5 years, 0.0335 cfs (24.3 acre-ft per year).

Extremes.--Maximum discharge during year, 0.60 cfs May 6 (gage height, 0.56 ft); no flow most of time.
1963-68: Maximum discharge, 0.84 cfs Aug. 2, 1966 (gage height, 0.64 ft); no flow most of time.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					0	0.010	0.30	0.17			0	0.23
2					0	.013	.25	.26			0	.19
3					0	.013	.22	.33			0	.13
4					0	.016	.18	.53			0	.090
5					0	.020	.16	.58			0	.060
6					0	.020	.13	.58			0	.039
7					0	.020	.12	.55			0	.021
8					0	.018	.11	.45			0	.008
9					0	.016	.099	.39			0	0
10					0	.025	.090	.33			.001	0
11					0	.023	.095	.30			.010	0
12					0	.029	.12	.27			.13	0
13					0	.044	.18	.24			.16	0
14					0	.053	.24	.20			.12	0
15					0	.070	.26	.18			.074	0
16					0	.078	.34	.15			.047	0
17					0	.078	.34	.12			.029	0
18					0	.074	.33	.10			.020	0
19					0	.063	.30	.086			.011	0
20					0	.047	.27	.070			.005	0
21					0	.039	.22	.057			.001	0
22					0	.032	.20	.047			0	0
23					0	.025	.17	.036			0	0
24					0	.021	.15	.025			0	0
25					0	.027	.13	.016			0	0
26					0	.050	.12	.009			.10	0
27					0	.090	.11	.004			.35	0
28					0	.13	.11	0			.22	0
29					.005	.17	.11	0			.15	0
30					------	.24	.12	0			.099	0
31		------			------	.28	------	0	------		.13	------
TOTAL	0	0	0	0	.005	1.834	5.574	6.080	0	0	1.657	.768
MEAN	0	0	0	0	.0002	.0592	.186	.196	0	0	.0535	.0256
MAX	0	0	0	0	.005	.28	.34	.58	0	0	.35	.23
MIN	0	0	0	0	0	.010	.090	0	0	0	0	0
AC-FT	0	0	0	0	.010	3.64	11.1	12.1	0	0	3.29	1.52

CAL YR 1967: TOTAL 2.560 MEAN .0070 MAX .34 MIN 0 AC-FT 5.08
WTR YR 1968: TOTAL 15.918 MEAN .0435 MAX .58 MIN 0 AC-FT 31.6

PEAK DISCHARGE (BASE, 0.40 CFS)

DATE	TIME	G.HT.	DISCHARGE
5- 6	0300	0.56	0.60
8-27	0300	.52	.50

8-3044. Little Tesuque Creek tributary No. 2 near Santa Fe, N. Mex.

Location.--Lat 35°43'34", long 105°51'02", in SW¼SW¼ sec.2, T.17 N., R.10 E., on right bank in Santa Fe National Forest, 300 ft upstream from mouth and State Highway 475, 6¼ miles northeast of Santa Fe.

Drainage area.--0.45 sq mi.

Records available.--June 1962 to September 1968.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 7,960 ft (from topographic map).

Average discharge.--6 years, 0.0105 cfs (7.60 acre-ft per year).

Extremes.--Maximum discharge during year, 0.074 cfs Aug. 12 (gage height, 0.245 ft); no flow at times.
1962-68: Maximum discharge, 0.31 cfs Aug. 2, 1966 (gage height, 0.44 ft), from rating curve extended above 0.11 cfs on basis of theoretical rating; no flow at times each year.

Remarks.--Records fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.003	0.001	0.006	0.011	0.012	0.010	0.025	0.018	0.009	0	0.002	0.020
2	.003	.002	.006	.011	.011	.009	.023	.018	.009	0	.002	.015
3	.003	.002	.006	.011	.010	.009	.023	.020	.008	0	.002	.013
4	.002	.002	.006	.011	.010	.009	.023	.021	.008	0	.002	.012
5	.002	.002	.006	.011	.010	.008	.023	.021	.007	0	.002	.011
6	.002	.002	.006	.011	.010	.006	.023	.020	.006	0	.002	.009
7	.002	.002	.006	.010	.010	.006	.023	.020	.006	0	.002	.008
8	.002	.002	.007	.010	.010	.006	.021	.018	.006	0	.002	.007
9	.002	.002	.007	.010	.010	.006	.020	.018	.005	0	.002	.006
10	.002	.002	.007	.010	.010	.007	.018	.018	.004	0	.008	.005
11	.002	.003	.008	.010	.009	.007	.018	.018	.004	0	.018	.004
12	.002	.003	.008	.010	.009	.007	.023	.020	.004	0	.058	.004
13	.002	.003	.008	.010	.009	.008	.029	.020	.003	0	.029	.004
14	.002	.003	.008	.010	.009	.009	.027	.018	.003	0	.020	.004
15	.002	.003	.009	.010	.009	.009	.025	.018	.002	0	.018	.003
16	.002	.003	.010	.010	.009	.010	.029	.018	.002	0	.012	.003
17	.002	.003	.010	.010	.008	.010	.029	.016	.002	0	.010	.002
18	.002	.003	.010	.011	.008	.009	.029	.016	.002	0	.009	.002
19	.002	.003	.010	.011	.008	.009	.029	.016	.002	0	.007	.002
20	.002	.003	.010	.011	.009	.008	.029	.016	.002	0	.005	.002
21	.002	.004	.010	.010	.011	.008	.027	.016	.002	0	.004	.002
22	.002	.004	.010	.010	.012	.008	.023	.018	.001	0	.004	.002
23	.002	.004	.011	.010	.012	.008	.021	.015	.001	0	.004	.002
24	.001	.004	.011	.010	.011	.008	.020	.013	.001	0	.003	.002
25	.001	.004	.011	.010	.011	.009	.020	.012	.001	.001	.002	.001
26	.001	.004	.011	.010	.011	.011	.020	.012	.001	.001	.004	.001
27	.001	.004	.011	.011	.011	.012	.020	.012	0	.001	.007	.001
28	.001	.004	.011	.012	.011	.013	.018	.011	0	.001	.008	.001
29	.001	.005	.011	.012	.010	.015	.018	.010	0	.002	.008	.001
30	.001	.005	.011	.012	------	.016	.018	.010	0	.001	.007	.001
31	.001	------	.011	.012	------	.020	------	.010	------	.001	.017	------
TOTAL	.057	.091	.273	.328	.290	.290	.694	.507	.101	.008	.280	.150
MEAN	.0018	.0030	.0088	.0106	.0100	.0094	.0231	.0164	.0034	.0003	.0090	.0050
MAX	.003	.005	.011	.012	.012	.020	.029	.021	.009	.002	.058	.020
MIN	.001	.001	.006	.010	.008	.006	.018	.010	0	0	.002	.001
AC-FT	.11	.18	.54	.65	.58	.58	1.38	1.01	.20	.016	.56	.30

CAL YR 1967: TOTAL 1.234 MEAN .0034 MAX .025 MIN 0 AC-FT 2.45
WTR YR 1968: TOTAL 3.069 MEAN .0084 MAX .058 MIN 0 AC-FT 6.09

Peak discharge (base, 0.09 cfs).--No peak above base.

8-3130. Rio Grande at Otowi Bridge, near San Ildefonso, N. Mex.

Location.--Lat 35°52'30", long 106°08'30", near right bank on downstream end of pier of former railway bridge, 400 ft downstream from bridge on State Highway 4, 1 3/4 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 September 1968. Monthly discharge only for some periods, published in WSP 1312. 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 present site and datum.

Average discharge.--69 years (1895-1905, 1909-68), 1,535 cfs (1,111,000 acre-ft per year).

Extremes.--Maximum discharge during year, 4,490 cfs June 2 (gage height, 5.87 ft); minimum, 254 cfs Sept. 28, 29.
1895-1905, 1909-68: Maximum discharge, 24,400 cfs May 23, 1920; maximum gage height, 14.5 ft Sept. 29, 1904 (present site and datum); minimum daily discharge, 60 cfs July 4, 5, 1902.
The 1920 flood is greatest since at least 1884 and probably since 1741; information from H. W. Yeo's file on floods.

Remarks.--Records good. Flow partly regulated by El Vado and Abiquiu Reservoirs (see stations 8-2850, 8-2869) on Rio Chama which contributes about 40 percent of total flow. Diversions above station for irrigation of about 619,000 acres in Colorado and 75,000 acres in New Mexico. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	447	388	684	599	658	880	1,120	938	4,330	1,440	1,590	804
2	427	437	664	622	622	887	1,290	997	4,360	1,400	2,070	758
3	393	442	626	640	628	902	1,310	1,140	4,120	1,320	2,300	652
4	393	468	613	640	664	909	1,260	1,410	3,750	1,220	2,410	549
5	393	694	558	605	646	923	1,230	1,450	3,640	1,180	2,460	496
6	370	886	613	576	634	930	1,130	1,650	3,610	1,030	2,420	501
7	352	786	626	565	640	967	1,070	1,720	3,520	916	2,460	496
8	340	731	684	611	658	945	974	1,590	3,590	758	2,300	450
9	352	710	651	588	652	945	852	1,750	3,560	658	2,190	460
10	344	677	564	611	658	1,050	818	2,270	3,200	616	2,700	431
11	362	664	541	616	646	1,030	825	2,740	3,000	664	2,800	394
12	344	651	595	605	670	945	887	2,760	2,570	565	2,740	394
13	335	664	613	571	682	960	1,060	3,050	2,350	511	3,160	377
14	340	704	613	582	682	982	1,200	2,800	2,240	501	3,200	352
15	331	724	558	576	676	945	1,320	2,640	2,150	460	3,200	327
16	335	748	495	611	676	952	1,280	2,580	2,070	390	3,300	319
17	331	1,600	626	622	682	945	1,270	2,580	2,140	356	3,300	304
18	331	1,600	564	634	688	909	1,090	2,480	2,170	352	3,160	297
19	314	1,550	607	605	695	873	1,120	2,550	2,230	343	2,900	300
20	310	1,540	737	611	682	880	1,100	2,760	2,350	360	2,640	297
21	294	1,570	626	652	732	894	1,050	2,790	2,770	377	2,460	293
22	306	1,570	541	652	758	873	1,050	3,040	2,970	368	2,190	272
23	306	1,590	552	664	778	859	1,000	3,460	3,050	339	1,270	278
24	306	1,640	595	664	765	873	900	3,690	3,120	360	1,100	278
25	302	1,600	582	670	765	859	850	4,190	2,710	599	1,000	289
26	302	1,570	570	670	791	846	866	4,240	2,720	998	967	293
27	310	1,600	613	670	778	894	846	4,020	2,770	664	752	275
28	306	1,680	626	695	846	945	811	3,640	2,600	676	752	261
29	335	1,070	658	714	839	982	811	3,640	1,760	1,140	670	261
30	375	758	671	682	------	1,030	778	3,750	1,440	1,520	664	272
31	375	------	671	676	------	1,040	------	4,140	------	1,590	859	------
TOTAL	10,661	31,312	18,937	19,499	20,291	28,854	31,168	82,455	86,860	23,671	65,984	11,730
MEAN	344	1,044	611	629	700	931	1,039	2,660	2,895	764	2,129	391
MAX	447	1,680	684	714	846	1,050	1,320	4,240	4,360	1,590	3,300	804
MIN	294	388	495	565	622	846	778	938	1,440	339	664	261
AC-FT	21,150	62,110	37,560	38,680	40,250	57,230	61,820	163,500	172,300	46,950	130,900	23,270

CAL YR 1967: TOTAL 285,713 MEAN 783 MAX 4,250 MIN 246 AC-FT 566,700
WAT YR 1968: TOTAL 431,422 MEAN 1,179 MAX 4,360 MIN 261 AC-FT 855,700

Peak discharge (base, 5,200 cfs).--No peak above base.

8-3133.5 Rito de los Frijoles in Bandelier National Monument, N. Mex.

Location.--Lat 35°47'08", long 106°16'50", in Bandelier National Monument, Sandoval County, 2,000 ft southeast of Ceremonial Cave, 3,600 ft upstream from Monument headquarters, 6 miles south of Los Alamos and 19 miles northwest of Santa Fe.

Drainage area.--17.5 sq mi.

Records available.--July 1963 to September 1968.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 6,140 ft (from topographic map).

Average discharge.--5 years, 1.13 cfs (818 acre-ft per year).

Extremes.--Maximum discharge during year, 8.8 cfs Aug. 11 (gage height, 0.95 ft); no flow Feb. 6, result of freezeup.
1963-68: Maximum discharge, 19 cfs June 18, 1965 (gage height, 1.49 ft), from rating curve extended above 5.0 cfs on basis of theoretical rating; no flow Feb. 6, 1968.

Remarks.--Records good except those below 0.6 cfs, which are fair, and those for winter periods, which are poor. Pipe line diversion upstream not presently in use.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.96	0.83	0.90	0.77	1.0	1.2	2.8	3.4	2.1	0.37	3.0	2.0
2	.96	.83	.59	1.0	.77	1.2	3.0	3.3	2.0	.37	2.8	2.0
3	.96	.83	.38	.96	1.0	1.2	3.1	3.3	2.0	.47	2.8	1.8
4	.96	.90	.90	.83	1.0	1.2	3.1	3.6	2.0	.53	4.2	1.7
5	.96	.96	1.0	.80	.83	1.2	3.1	3.5	1.9	.58	5.0	1.6
6	.90	.96	1.1	.90	.65	1.2	3.0	3.6	1.8	.70	4.2	1.6
7	.90	.96	.96	.90	.90	1.3	3.0	3.8	1.7	.81	4.2	1.6
8	.90	.90	1.0	1.0	.90	1.3	3.0	3.8	1.7	.70	4.5	1.5
9	.83	.90	.77	.96	.90	1.2	3.0	3.9	1.5	.70	3.8	1.5
10	.83	.90	.59	.96	.90	1.3	2.9	4.3	1.4	.88	3.8	1.4
11	.90	.90	.83	1.2	.90	1.3	2.9	3.9	1.4	.88	5.9	1.4
12	.90	.90	1.2	.83	.90	1.3	3.2	4.9	1.3	.58	6.8	1.4
13	.90	.90	1.0	.71	.77	1.3	3.5	4.6	1.2	.53	6.9	1.3
14	.90	.90	1.0	.65	.77	1.5	3.9	4.9	1.1	.47	7.8	1.2
15	.90	.90	1.0	.80	.83	1.6	4.5	4.9	1.0	.42	7.8	1.2
16	.90	.90	1.0	.90	.71	1.6	5.0	4.9	.94	.32	7.1	1.1
17	.90	.90	.70	.90	.83	1.6	5.4	4.8	.88	.28	6.3	1.1
18	.90	.90	.90	.70	.83	1.5	5.4	4.5	.88	.28	5.6	1.0
19	.83	.96	1.0	.65	.77	1.4	5.5	4.2	.88	.24	5.0	1.0
20	.83	.96	1.2	.65	.90	1.3	5.1	3.9	.94	.28	4.4	.94
21	.83	1.0	.96	.70	1.0	1.4	4.9	3.7	.88	.42	4.5	.94
22	.83	.96	.70	.80	1.0	1.2	4.6	3.6	.81	.32	3.7	.88
23	.83	.96	1.0	.80	1.1	1.2	4.4	3.3	.76	.90	3.3	.88
24	.77	.96	.90	.90	1.2	1.1	4.2	3.1	.70	1.7	3.0	.88
25	.77	.96	.90	.90	1.2	1.3	3.7	2.9	.58	1.3	2.7	.88
26	.77	.96	.90	.96	1.2	1.7	3.7	2.7	.53	1.0	2.8	.81
27	.77	.96	.90	1.0	1.3	1.7	3.7	2.6	.47	1.0	2.7	.81
28	.77	.96	.95	1.0	1.6	1.9	3.7	2.4	.47	.88	2.7	.88
29	.77	.96	.96	1.1	1.3	2.0	3.6	2.3	.42	.88	2.4	.81
30	.83	.83	.90	1.0	------	2.2	3.4	2.2	.37	.88	2.3	.94
31	.83	------	.83	1.0	------	2.3	------	2.2	------	1.4	2.1	------
TOTAL	26.79	27.60	27.92	27.23	27.96	44.7	114.3	113.0	34.61	21.07	134.1	37.05
MEAN	.864	.920	.901	.878	.964	1.44	3.81	3.65	1.15	.680	4.33	1.24
MAX	.96	1.0	1.2	1.2	1.6	2.3	5.5	4.9	2.1	1.7	7.8	2.0
MIN	.77	.83	.38	.65	.65	1.1	2.8	2.2	.37	.24	2.1	.81
AC-FT	53	55	55	54	55	89	227	224	69	42	266	73

CAL YR 1967: TOTAL 343.85 MEAN .942 MAX 2.6 MIN .20 AC-FT 682
WTR YR 1968: TOTAL 636.33 MEAN 1.74 MAX 7.8 MIN .24 AC-FT 1,260

PEAK DISCHARGE (BASE, 4.0 CFS)

DATE	TIME	G.HT.	DISCHARGE
4-19	1030	0.76	5.6
5-12	0430	.80	5.5
7-31	2100	.68	5.1
8- 4	2000	.94	8.6
8- 8	1600	.71	5.5
8-11	1600	.95	8.8

8-3145. 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, 3¾ 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 1924 to September 1968. Published as "near Cochiti" prior to 1928. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Digital water-stage recorder and crest-stage gage. Datum of gage is 5,224.70 ft above mean sea level, datum of 1929. Prior to July 16, 1925, staff gage 1 mile upstream at different datum. July 16, 1925, to Jan. 28, 1947, at or near right abutment of bridge at same datum. Jan. 28 to May 15, 1947, 600 ft upstream at same datum. July 16, 1925 to May 15, 1964, graphic water-stage recorder.

Average discharge.--44 years, 1,305 cfs (944,800 acre-ft per year).

Extremes.--Maximum discharge during year, 4,740 cfs June 2 (gage height, 6.20 ft); minimum, 122 cfs Sept. 30.
1927-68: Maximum discharge, 23,400 cfs May 15, 1941 (gage height, 10.93 ft); minimum, 0.7 cfs Aug. 10, 11, 1934.
The flood of May 23, 1920, probably exceeded 23,400 cfs, and is likely the highest since 1905.

Remarks.--Records good except those for winter period, which are poor. Diversions above station for irrigation of about 700,000 acres, 6,000 of which are irrigated below by Cochiti eastside and Sili main canals which bypass station. Possible regulation by two reservoirs on Rio Chama.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	530	494	700	610	726	973	1,100	957	4,430	1,350	1,630	816
2	390	460	626	630	684	934	1,190	1,030	4,610	1,250	1,820	692
3	242	430	590	650	678	928	1,760	1,190	4,510	1,280	2,170	624
4	362	518	506	649	665	956	1,250	1,430	4,080	1,160	2,310	444
5	330	674	554	630	705	964	1,190	1,620	3,850	1,140	2,360	329
6	284	942	542	610	628	1,090	1,080	1,760	3,800	1,020	2,350	354
7	330	782	590	580	623	1,070	987	1,770	3,680	1,000	2,340	393
8	420	806	626	630	545	994	979	1,640	3,710	857	2,070	485
9	330	794	626	610	657	1,030	889	1,670	3,770	653	1,950	390
10	272	794	620	620	697	1,120	798	2,150	3,390	559	2,300	338
11	254	818	560	619	724	1,050	775	2,650	2,970	579	2,990	325
12	260	818	460	618	677	988	805	2,730	2,520	497	2,840	322
13	254	782	506	590	739	909	894	3,020	2,250	482	3,190	340
14	306	872	503	590	720	1,020	1,130	2,940	2,160	544	3,320	336
15	346	900	540	600	723	946	1,170	2,570	2,190	425	3,320	385
16	278	900	520	620	808	949	1,160	2,420	2,190	331	3,270	298
17	236	1,420	530	630	680	978	1,130	2,350	2,120	261	3,310	229
18	225	1,730	550	640	693	912	997	2,290	2,080	239	3,340	227
19	225	1,760	566	634	715	880	985	2,390	2,120	230	3,050	226
20	215	1,710	650	664	722	841	1,010	2,550	2,250	300	2,640	229
21	242	1,740	662	691	757	891	941	2,620	2,720	407	2,500	276
22	306	1,740	578	674	791	920	916	2,780	3,050	333	2,220	329
23	260	1,650	590	692	855	898	892	3,140	3,220	273	1,550	236
24	204	1,680	620	731	861	899	865	3,330	3,170	254	1,080	187
25	200	1,660	600	713	810	893	858	3,790	2,960	354	930	213
26	200	1,610	600	729	874	881	880	4,200	2,560	734	881	240
27	180	1,570	600	730	818	903	898	4,040	2,830	722	787	237
28	220	1,650	600	752	908	934	898	3,610	2,720	578	654	281
29	370	1,330	626	770	942	943	900	3,500	2,040	818	559	358
30	370	900	626	751	------	969	901	3,650	1,470	1,140	480	256
31	370	------	650	734	------	1,060	------	3,970	------	1,490	697	------
TOTAL	9,011	33,934	18,114	20,361	21,525	29,723	29,728	79,657	89,420	21,260	64,908	10,395
MEAN	291	1,131	584	657	742	959	991	2,570	2,981	686	2,094	347
MAX	530	1,760	700	770	942	1,120	1,260	4,200	4,610	1,490	3,340	816
MIN	180	430	460	580	623	841	775	957	1,470	230	480	187
AC-FT	17,870	67,310	35,930	40,390	42,690	58,950	58,960	158,000	177,400	42,170	128,700	20,620
(†)	5,430	0	0	0	0	1,840	4,660	6,400	5,510	4,560	3,380	4,560

CAL YR 1967 TOTAL 281,835 MEAN 772 MAX 7,580 MIN 60 AC-FT 559,000
WTR YR 1968 TOTAL 428,036 MEAN 1,169 MAX 4,610 MIN 180 AC-FT 849,000

PEAK DISCHARGE (BASE, 4,500 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 2	1530	6.20	4,740

† COMBINED MONTHLY DIVERSION, IN ACRE-FT, OF SILI MAIN AND COCHITI EASTSIDE CANALS; RECORDS OF THIS FLOW ARE FURNISHED BY BUREAU OF RECLAMATION.

8-3155. McClure Reservoir near Santa Fe, N. Mex.

Location.--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.

Drainage area.--17.4 sq mi.

Records available.--September 1929, July to October 1930, April 1931 to June 1946, September 1947 to September 1968. Month-end contents 1929-46, published in WSP 1312.

Gage.--Water-stage recorder. Datum of gage is 7,788 ft (revised) above mean sea level, datum of 1929. Prior to October 1, 1947, staff gages at same site and various datums all referred to the Public Service Company of New Mexico assumed datum, 165.9 ft lower.

Extremes.--Maximum contents during year, 3,030 acre-ft Sept. 4-5 (gage height, 102.2 ft); minimum, 1,600 acre-ft Mar. 26-30, Apr. 11 (gage height, 81.8 ft).
1947-68: Maximum contents, 3,140 acre-ft June 25, 1960 (gage height, 103.7 ft); no contents January 25 to May 8, 1951.

Remarks.--Reservoir is formed by earth-fill dam, completed in 1926 (capacity, 503 acre-ft), raised 5 ft in 1935 (capacity, 650 acre-ft), and raised 36.5 ft more in 1947. Capacities and changes in height of dam are for effective height of spillway which includes 1 ft of flash boards 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 ft (bottom of lowest outlet tube) and 103.1 ft. No dead storage. Water is for municipal use of city of Santa Fe.

Cooperation.--Supplementary stage readings and capacity table furnished by Public Service Co. of New Mexico.

Capacity table, water year 1967-68 (gage height, in feet, and contents, in acre-feet)

10	1.9	25	47	40	201	70	1,050	100	2,860
15	8.0	30	83	50	394	80	1,550	105	3,240
20	22	35	133	60	668	90	2,160		

CONTENTS, IN ACRE-FEET, AT 2400 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,780	1,840	1,780	1,750	1,770	1,810	1,620	1,680	2,290	2,400	2,090	2,970
2	1,780	1,830	1,770	1,750	1,770	1,810	1,620	1,690	2,330	2,400	2,110	3,000
3	1,790	1,830	1,770	1,750	1,770	1,810	1,630	1,710	2,360	2,380	2,130	3,010
4	1,800	1,830	1,770	1,750	1,770	1,820	1,630	1,730	2,390	2,370	2,160	3,030
5	1,800	1,830	1,770	1,750	1,770	1,820	1,630	1,750	2,420	2,360	2,190	3,010
6	1,810	1,830	1,770	1,760	1,770	1,830	1,620	1,780	2,440	2,340	2,230	2,990
7	1,820	1,830	1,760	1,760	1,770	1,810	1,620	1,800	2,470	2,330	2,270	2,970
8	1,820	1,830	1,760	1,760	1,770	1,800	1,620	1,820	2,490	2,310	2,310	2,940
9	1,830	1,830	1,760	1,760	1,770	1,790	1,610	1,830	2,520	2,290	2,340	2,920
10	1,830	1,820	1,750	1,760	1,770	1,780	1,610	1,840	2,520	2,270	2,390	2,910
11	1,830	1,820	1,750	1,760	1,770	1,770	1,600	1,860	2,530	2,260	2,450	2,890
12	1,830	1,820	1,750	1,760	1,770	1,750	1,610	1,870	2,530	2,240	2,520	2,870
13	1,840	1,820	1,750	1,760	1,770	1,740	1,620	1,880	2,540	2,220	2,560	2,830
14	1,840	1,810	1,750	1,760	1,770	1,720	1,630	1,890	2,540	2,200	2,610	2,800
15	1,840	1,810	1,750	1,760	1,770	1,710	1,640	1,890	2,540	2,190	2,660	2,770
16	1,840	1,810	1,750	1,760	1,770	1,710	1,650	1,900	2,550	2,160	2,690	2,740
17	1,840	1,810	1,750	1,760	1,770	1,700	1,660	1,900	2,550	2,140	2,710	2,720
18	1,840	1,810	1,750	1,760	1,770	1,680	1,670	1,910	2,550	2,130	2,740	2,710
19	1,840	1,810	1,750	1,760	1,770	1,680	1,680	1,920	2,550	2,110	2,760	2,690
20	1,840	1,800	1,750	1,760	1,770	1,670	1,690	1,920	2,540	2,090	2,780	2,690
21	1,840	1,800	1,750	1,770	1,770	1,660	1,690	1,930	2,540	2,080	2,800	2,680
22	1,840	1,800	1,750	1,770	1,780	1,640	1,700	1,940	2,540	2,060	2,820	2,680
23	1,840	1,800	1,750	1,770	1,780	1,630	1,700	1,970	2,530	2,040	2,820	2,680
24	1,840	1,800	1,750	1,770	1,780	1,620	1,700	2,000	2,520	2,030	2,840	2,660
25	1,840	1,790	1,750	1,770	1,780	1,610	1,700	2,030	2,500	2,030	2,850	2,650
26	1,840	1,790	1,750	1,770	1,790	1,600	1,700	2,060	2,490	2,030	2,860	2,640
27	1,840	1,780	1,750	1,770	1,800	1,600	1,690	2,090	2,470	2,030	2,880	2,630
28	1,840	1,780	1,750	1,770	1,800	1,600	1,680	2,120	2,460	2,040	2,910	2,680
29	1,840	1,780	1,750	1,770	1,800	1,600	1,680	2,160	2,440	2,050	2,930	2,620
30	1,840	1,780	1,750	1,770	------	1,600	1,680	2,210	2,420	2,060	2,940	2,620
31	1,840	------	1,750	1,770	------	1,610	------	2,250	------	2,070	2,960	------
(†)	84.9	83.9	83.5	83.8	84.3	81.0	82.3	91.4	93.9	88.6	101.3	96.7
(‡)	+70	-60	-30	+20	+30	-190	+70	+570	+170	-350	+890	-340
MAX	1,840	1,840	1,780	1,770	1,800	1,830	1,700	2,250	2,550	2,400	2,960	3,030
MIN	1,780	1,780	1,750	1,750	1,770	1,600	1,600	1,680	2,290	2,030	2,090	2,620

CAL YR 1967 .....‡ -270
WAT YR 1968.....‡ +850

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

8-3160. 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.--January 1913 to September 1968. Monthly discharge only for some periods, published in WSP 1312. 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.--55 years, 8.16 cfs (5,910 acre-ft per year).

Extremes.--Maximum discharge during year, 88 cfs Aug. 10 (gage height, 2.89 ft); minimum, 0.92 cfs Aug. 2-10.
1913-68: Maximum discharge, 1,500 cfs Aug. 14, 1921 (gage height, 5.17 ft, site and datum then in use), from rating curve extended above 150 cfs by logarithmic plotting; minimum, 0.08 cfs July 31, Aug. 1, 1951.
Peaks which probably exceeded 1,000 cfs occurred Aug. 19, 1872, and Sept. 29 or 30, 1904. Without regulation the flood of Sept. 23, 1929, might have exceeded 1,500 cfs.

Remarks.--Records excellent except those below 2 cfs, which are good. Flow regulated by McClure Reservoir (see station 8-3155), completed in 1926, raised in 1935 and again in 1947.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	3.1	3.0	1.4	1.4	0.98	8.4	9.4	11	13	6.4	5.6
2	3.3	3.1	3.0	1.4	1.4	.98	8.4	9.4	11	13	3.6	5.9
3	3.3	3.1	3.0	1.4	1.5	.98	8.4	9.4	11	13	.92	6.2
4	3.3	3.1	3.0	1.4	1.6	.98	8.4	9.4	12	13	.92	6.5
5	3.3	3.1	3.0	1.4	1.6	.98	8.4	9.4	12	12	.92	19
6	3.3	3.1	3.0	1.4	1.6	5.5	8.4	9.4	12	12	.92	25
7	3.3	3.1	3.0	1.4	1.6	10	8.8	9.4	12	12	.92	23
8	3.3	3.1	3.0	1.4	1.6	10	8.8	9.8	12	12	.92	20
9	3.3	3.1	3.0	1.4	1.6	10	8.8	9.8	12	12	.92	19
10	3.3	3.1	3.0	1.5	1.6	10	8.8	9.8	13	12	1.6	17
11	3.3	3.0	3.0	1.5	1.6	9.8	8.8	10	13	12	1.2	15
12	3.3	3.0	3.0	1.5	1.7	9.8	8.8	10	13	12	1.4	21
13	3.3	3.0	3.0	1.5	1.7	9.8	8.8	10	13	12	1.1	25
14	3.3	3.0	3.0	1.5	1.7	9.8	8.8	10	13	12	.98	22
15	3.3	3.0	3.0	1.5	1.7	9.4	8.8	10	13	11	1.5	20
16	3.3	3.0	3.0	1.5	1.6	9.4	9.1	10	13	11	2.1	18
17	3.3	3.0	3.0	1.5	1.6	9.4	9.1	10	13	11	2.4	16
18	3.3	3.0	3.0	1.5	1.5	9.4	9.1	10	13	11	2.5	14
19	3.3	3.0	3.0	1.5	1.5	9.4	9.1	11	13	11	2.8	13
20	3.1	3.0	3.1	1.5	1.5	9.4	9.1	11	13	11	2.8	7.1
21	3.1	3.0	3.0	1.5	1.4	9.4	9.1	11	13	11	3.0	3.1
22	3.1	3.0	3.0	1.5	1.3	9.4	9.1	11	13	11	3.1	3.1
23	3.1	3.0	3.0	1.5	1.3	9.1	9.1	11	13	11	3.4	8.5
24	3.1	3.0	3.0	1.5	1.2	9.1	9.1	11	13	11	3.6	12
25	3.1	3.0	3.0	1.5	1.2	9.1	9.4	11	13	11	3.4	9.8
26	3.1	3.0	3.0	1.5	1.1	9.1	9.4	11	13	11	3.6	7.6
27	3.1	3.0	3.0	1.5	.98	9.1	9.4	11	13	11	3.9	5.6
28	3.1	3.0	2.4	1.5	.98	9.1	9.4	11	13	8.7	4.1	4.3
29	3.1	3.0	1.4	1.4	.98	8.8	9.4	11	13	6.4	4.5	3.4
30	3.1	3.0	1.4	1.4	------	8.4	9.4	11	13	6.4	4.3	3.1
31	3.1	------	1.4	1.4	------	8.4	------	11	------	6.4	4.9	------
TOTAL	99.9	91.0	87.7	45.3	42.04	245.0	267.9	318.2	378	342.9	78.62	378.8
MEAN	3.22	3.03	2.83	1.46	1.45	7.90	8.93	10.3	12.6	11.1	2.54	12.6
MAX	3.3	3.1	3.1	1.5	1.7	10	9.4	11	13	13	6.4	25
MIN	3.1	3.0	1.4	1.4	.98	.98	8.4	9.4	11	6.4	.92	3.1
AC-FT	198	180	174	90	83	486	531	631	750	680	156	751

CAL YR 1967: TOTAL 1,684.62 MEAN 4.62 MAX 23 MIN .38 AC-FT 3,340
WAT YR 1968: TOTAL 2,375.36 MEAN 6.49 MAX 25 MIN .92 AC-FT 4,710

8-3165. Nichols Reservoir near Santa Fe, N. Mex.

Location.--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.

Drainage area.--22.8 sq mi.

Records available.--December 1942 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 7,313.2 ft above mean sea level, datum of 1929.

Extremes.--Maximum contents during year, 692 acre-ft Aug. 2, 3 (gage height, 167.2 ft); minimum, 228 acre-ft Mar. 6 (gage height, 146.7 ft).
1943-68: Maximum contents, 836 acre-ft June 8, 1952 (gage height, 171.8 ft); minimum, 16 acre-ft Feb. 11 to Mar. 10, 1944, Feb. 1-19, 1948.

Remarks.--Reservoir is formed by earth-fill dam. No storage prior to Mar. 16, 1943. Capacity, 796 acre-ft between gage heights 121.2 ft (bottom of lower operational gate) and 171.0 ft (top of flashboards in spillway). Dead storage, 14 acre-ft. Water is for municipal use of city of Santa Fe.

Cooperation.--Supplementary stage readings and survey to compute capacity table furnished by Public Service Co. of New Mexico.

Capacity table, water year 1967-68 (gage height, in feet, and contents, in acre-feet)

110	0	125	26	140	139	155	375	170	776
115	2.6	130	51	145	202	160	491	175	943
120	10	135	89	150	279	165	625		

CONTENTS, IN ACRE-FEET, at 2400 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	431	344	454	539	410	246	463	550	468	354	685	354
2	435	348	458	539	405	240	458	544	463	360	692	356
3	440	352	461	544	400	237	458	539	458	382	688	358
4	440	356	465	547	398	233	461	534	456	407	685	360
5	433	360	468	547	394	229	470	528	454	428	685	369
6	426	362	472	547	394	234	482	523	449	447	679	396
7	419	365	475	547	391	250	486	523	447	465	664	417
8	412	369	479	550	382	263	496	528	444	482	649	435
9	407	371	482	550	373	276	502	536	447	496	637	449
10	400	375	484	550	367	290	507	544	456	512	622	461
11	394	380	489	552	360	302	507	552	463	528	617	463
12	389	384	491	552	350	315	507	558	465	544	612	463
13	384	389	496	552	344	327	502	569	458	558	603	477
14	377	391	499	555	338	336	502	571	454	574	595	482
15	371	396	504	555	331	346	504	577	447	571	587	479
16	367	398	507	550	325	356	507	579	440	558	579	477
17	363	403	510	547	317	365	512	574	433	547	574	470
18	358	407	512	539	312	373	518	569	421	536	566	463
19	354	412	515	528	304	384	520	563	410	531	555	458
20	348	414	518	507	298	394	526	558	396	544	536	456
21	348	417	520	491	290	400	528	552	386	555	512	442
22	350	421	523	482	283	410	534	544	375	566	502	433
23	354	426	526	468	277	419	539	534	371	579	482	428
24	358	428	528	458	273	426	539	526	375	590	458	435
25	362	431	531	452	268	435	542	515	380	612	435	438
26	365	435	534	433	265	442	544	507	384	622	414	438
27	367	438	536	431	259	449	544	499	380	634	394	435
28	367	442	539	421	254	458	547	491	375	646	375	428
29	360	447	539	419	250	463	550	486	367	655	360	421
30	354	449	542	417	------	468	550	479	362	664	352	414
31	348	------	542	414	------	465	------	475	------	673	352	------
(†)	153.6	158.2	161.9	156.7	148.1	158.9	162.2	159.3	154.3	166.6	153.8	156.7
(‡)	-78	+101	+93	-128	-164	+215	+85	-75	-113	+311	-321	+62
MAX	440	449	542	555	410	468	550	579	468	673	692	482
MIN	348	344	454	414	250	229	458	475	362	354	352	354

CAL YR 1967..... ‡ +240
WAT YR 1968..... ‡ -12

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

8-3180. Galisteo Creek at Domingo, N. Mex.

Location.--Lat 35°30'45", long 106°19'00", 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, 2 3/4 miles east of Santo Domingo Pueblo, and 4 miles upstream from mouth.

Drainage area.--640 sq mi, approximately.

Records available.--October 1941 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 5,255.50 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.--27 years, 10.1 cfs (7,310 acre-ft per year).

Extremes.--Maximum discharge during year, 1,640 cfs July 23 (gage height, 2.52 ft.); no flow on many days. 1941-68: Maximum discharge, 22,800 cfs Aug. 2, 1966, (gage height, 8.08 ft inside, 10.4 ft from floodmarks), from rating curve extended above 1,000 cfs on basis of field estimate of peak flow; no flow for most of time. The floods of Sept. 23, 1929, and Aug. 20, 1935, probably exceeded 20,000 cfs. Discharge for the flood of Aug. 20, 1935, was estimated as 24,300 cfs by H. W. Yeo.

Remarks.--Records fair except those of December and January which are poor. Probable regulation by construction of Galisteo Dam, about 8 miles upstream. Diversions for irrigation of about 50 acres above station. Records of suspended sediment loads and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	.60		0		0		0	0	
2			0	1.0		0		0		0	0	
3			0	.80		0		0		0	2.9	
4			0	.60		0		0		18	4.0	
5			0	.50		0		0		0	0	
6			0	.50		0		0		0	81	
7			0	.50		0		0		0	190	
8			0	1.0		0		0		0	135	
9			0	.80		0		0		0	0	
10			.55	0		2.3		0		0	194	
11			.82	0		.05		0		0	226	
12			.79	.40		0		.61		0	182	
13			0	.40		0		0		0	360	
14			0	.50		0		0		0	106	
15			0	.40		0		0		0	22	
16			0	.40		0		0		0	0	
17			0	0		0		0		0	0	
18			0	0		0		0		0	0	
19			0	0		0		0		0	0	
20			14	0		0		0		0	0	
21			0	0		0		0		0	0	
22			0	0		0		0		0	0	
23			0	0		0		0		48	0	
24			1.5	0		0		0		4.4	0	
25			2.4	0		0		0		.84	0	
26			2.1	0		0		0		.20	16	
27			2.6	0		0		0		0	7.0	
28			1.8	0		0		0		82	4.4	
29			0	0	------	0		0		52	0	
30			0	0	------	0		0		3.8	86	
31		------	.70	0	------	0	------	0	------	0	3.2	------
TOTAL	0	0	27.26	8.4	0	2.35	0	0.61	0	209.24	1619.5	0
MEAN	0	0	0.879	0.271	0	0.076	0	.020	0	6.75	52.2	0
MAX	0	0	14.0	1.2	0	2.3	0	.61	0	82	360	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	54.1	17	0	4.7	0	1.2	0	415	3,210	0

CAL YR 1967: TOTAL 6,164.07 MEAN 16.9 MAX 1,450 MIN 0 AC-FT 12,230
WTR YR 1968: TOTAL 1,867.36 MEAN 5.10 MAX 360 MIN 0 AC-FT 3,700

PEAK DISCHARGE (BASE, 3,000 CFS).--NO PEAK ABOVE BASE.

8-3190. 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 downstream from Tonque Arroyo, 1,800 ft upstream from 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 1925 to September 1968. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Digital water-stage recorder. Datum of gage is 5,115.73 ft above mean sea level, datum of 1929, adjustment of 1951. Prior to Sept. 27, 1957, at site 1,800 ft downstream at datum 5.35 ft lower, except period May 16, 1945 to Sept. 30, 1946 when it was 5.94 ft lower than present datum. Prior to Oct. 29, 1966, graphic water-stage recorder.

Average discharge.--43 years, 1,387 cfs (1,004,000 acre-ft per year).

Extremes.--Maximum discharge during year, 4,940 cfs June 2 (gage height, 5.69 ft); minimum, 192 cfs Sept. 30.
1927-68: Maximum discharge, 27,300 cfs June 26, 1937 (gage height, 11.13 ft, site and datum then in use), from rating curve extended above 15,000 cfs by logarithmic plotting; minimum, 32 cfs July 7, 1934.
Other major floods occurred in 1874, 1884 and 1904.

Remarks.--Records good except those for winter periods, which are fair. Diversions for irrigation of about 705,000 acres above station, some of which is irrigated below by Cochiti eastside main canal and San Felipe eastside acequia, which bypass station. Possible regulation by two reservoirs on Rio Chama.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	449	436	793	680	745	876	1,090	874	4,440	1,530	1,880	1,020
2	384	443	700	662	682	894	1,120	1,070	4,580	1,420	1,880	881
3	258	469	673	670	625	900	1,230	1,160	4,770	1,370	2,320	797
4	342	512	632	660	689	865	1,230	1,410	4,400	1,320	2,470	567
5	340	530	575	650	713	885	1,140	1,640	4,190	1,170	2,560	447
6	328	930	541	653	722	918	1,090	1,680	4,080	1,100	2,830	418
7	331	842	609	620	668	950	979	1,750	3,960	1,050	2,810	479
8	376	776	586	650	698	1,000	966	1,670	3,870	923	2,520	556
9	337	732	570	640	730	940	875	1,690	3,980	781	2,410	446
10	310	732	506	645	716	1,080	815	2,000	3,650	710	2,580	388
11	318	732	446	650	708	1,090	776	2,490	3,250	663	3,380	372
12	326	710	460	640	702	1,040	844	2,640	2,900	633	3,250	346
13	315	710	488	636	743	960	930	2,850	2,540	538	3,700	350
14	316	721	463	611	742	1,050	1,140	2,860	2,450	582	3,530	343
15	408	752	483	650	689	1,010	1,280	2,720	2,410	478	3,530	418
16	354	864	458	653	728	985	1,270	2,720	2,410	389	3,480	332
17	297	1,300	467	695	701	1,010	1,300	2,710	2,340	320	3,510	227
18	292	1,610	545	694	683	993	1,190	2,700	2,320	261	3,440	226
19	286	1,640	511	657	752	951	1,130	2,760	2,320	247	3,170	241
20	277	1,620	674	605	711	915	1,090	2,850	2,390	251	2,790	247
21	275	1,620	697	621	714	900	1,060	2,940	2,790	392	2,560	246
22	358	1,670	626	659	744	903	1,030	3,080	3,230	357	2,390	369
23	323	1,700	604	637	798	956	1,020	3,420	3,590	287	1,850	302
24	236	1,720	653	661	844	962	968	3,670	3,510	381	1,320	210
25	229	1,720	640	732	832	940	985	4,030	3,440	350	1,100	224
26	221	1,660	640	689	806	881	889	4,240	2,900	857	1,160	243
27	210	1,640	660	696	779	890	919	4,260	3,260	934	1,100	247
28	233	1,700	680	694	828	921	943	3,980	3,130	726	820	218
29	347	1,490	680	750	868	969	898	3,850	2,570	843	711	340
30	355	897	700	726	------	985	848	3,940	1,850	1,160	664	324
31	309	------	700	691	------	1,040	------	4,170	------	1,930	934	------
TOTAL	9,710	32,878	18,460	20,577	21,360	29,659	31,045	83,824	97,520	23,953	72,649	11,824
MEAN	313	1,096	595	664	737	957	1,035	2,704	3,251	773	2,344	394
MAX	449	1,720	793	750	868	1,090	1,300	4,260	4,770	1,930	3,700	1,020
MIN	210	436	446	605	625	865	776	874	1,850	247	664	210
AC-FT	19,260	65,210	36,610	40,810	42,370	58,830	61,580	166,300	193,400	47,510	144,100	23,450
(†)	3,620	0	0	0	0	545	3,550	4,280	3,550	2,900	2,460	3,230

CAL YR 1967 TOTAL 296,893 MEAN 813 MAX 9,200 MIN 120 AC-FT 588,900
WTR YR 1968 TOTAL 453,459 MEAN 1,239 MAX 4,770 MIN 210 AC-FT 899,400

PEAK DISCHARGE (BASE, 5,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 2	2130	5.69	4,940

† MONTHLY DIVERSION, IN ACRE-FT, OF COCHITI EASTSIDE CANAL; RECORD OF THIS FLOW IS FURNISHED BY BUREAU OF RECLAMATION.

8-3215. 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 0.4 mile downstream from East Fork and boundary of Santa Fe National Forest and 5.3 miles northeast of Jemez Springs.

Drainage area.--173 sq mi.

Records available.--July 1949 to October 1950 (gaged separately above East Fork), May 1951 to September 1957 (irrigation seasons only), March 1958 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 6,702.7 ft above mean sea level (planetable survey). Prior to May 1951, at sites 3,000 ft upstream, at different datums and on separate channels. Prior to Sept. 9, 1966, graphic water-stage recorder.

Average discharge.--11 years (1949-50, 1958-68), 25.2 cfs (18,240 acre-ft per year).

Extremes.--Maximum discharge during year, 604 cfs Apr. 13, 14 (gage height, 3.63 ft); minimum recorded, 3.3 cfs Nov. 30.
1949-50, 1958-68: Maximum discharge recorded, 2,520 cfs Apr. 21, 1958 (gage height, 7.35 ft), from rating curve extended above 1,100 cfs on basis of slope-area and contracted-opening measurements of peak flow; minimum, 3.2 cfs Dec. 3, 1963.

Remarks.--Records good except those for December and January, which are fair. No diversion above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	12	9.9	8.0	11	17	72	105	39	9.8	22	17
2	16	12	10	7.0	10	18	64	101	38	10	35	16
3	17	11	8.0	9.0	14	18	46	107	39	13	25	14
4	19	11	8.0	12	13	18	42	333	40	18	17	13
5	21	12	10	10	12	18	55	192	34	17	27	12
6	18	12	12	10	12	19	68	156	31	17	28	12
7	15	13	9.4	8.0	13	21	56	114	30	16	28	12
8	14	12	11	9.0	12	18	57	104	32	14	21	11
9	14	12	10	10	12	20	86	98	32	16	21	11
10	14	12	8.0	12	13	20	117	129	28	22	37	11
11	13	11	9.9	12	13	17	179	127	26	20	94	12
12	13	12	11	9.0	13	19	245	253	24	16	78	12
13	12	11	10	9.0	14	18	349	221	21	14	44	12
14	12	11	7.7	11	13	18	388	117	20	13	33	11
15	12	11	6.5	11	13	18	355	100	18	12	33	10
16	11	11	6.5	11	13	18	379	91	17	11	23	10
17	12	12	6.0	12	14	18	268	84	16	10	19	9.9
18	12	11	5.0	11	15	16	242	79	15	9.9	17	9.9
19	11	11	9.2	9.0	14	16	193	75	15	11	15	10
20	11	11	8.5	11	15	18	117	73	14	14	15	10
21	11	11	5.0	11	17	17	147	71	14	12	15	10
22	11	12	5.0	11	17	18	114	68	13	15	16	10
23	11	12	6.0	11	15	18	108	66	12	19	15	10
24	11	9.9	8.2	12	17	20	111	64	12	23	14	10
25	10	11	9.3	12	17	22	176	60	11	26	14	10
26	11	11	11	12	17	24	126	54	11	26	17	11
27	10	10	11	12	18	28	109	49	11	20	17	11
28	11	14	12	12	20	34	100	45	10	27	26	12
29	11	12	12	11	17	42	99	43	10	23	21	12
30	11	8.6	11	10	------	51	115	42	9.9	17	16	13
31	11	------	8.0	12	------	57	------	40	------	18	15	------
TOTAL	403	342.5	275.1	327.0	414	694	4,583	3,261	642.9	509.7	818	344.8
MEAN	13.0	11.4	8.87	10.5	14.3	22.4	153	105	21.4	16.4	26.4	11.5
MAX	21	14	12	12	20	57	388	333	40	27	94	17
MIN	10	8.6	5.0	7.0	10	16	42	40	9.9	9.8	14	9.9
AC-FT	799	679	546	649	821	1,380	9,090	6,470	1,280	1,010	1,620	684

CAL YR 1967 TOTAL 5,674.2 MEAN 15.5 MAX 114 MIN 5.0 AC-FT 11,250
WTR YR 1968 TOTAL 12,615.0 MEAN 34.5 MAX 388 MIN 5.0 AC-FT 25,020

PEAK DISCHARGE (BASE, 100 CFS, REVISED)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-14	0030	3.63	604	5-13	0015	3.05	397	8-11	0430	1.95	117
5- 4	0530	3.31	478	7-28	1600	1.88	110				

8-3230. 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.--235 sq mi.

Records available.--May 1951 to September 1957 (irrigation seasons only), May 1958 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 6,015.5 ft above mean sea level, datum of 1929 (planetable survey). Prior to Sept. 9, 1966, graphic water-stage recorder at same site and datum.

Average discharge.--10 years (1958-68), 43.2 cfs (22,150 acre-ft per year).

Extremes.--Maximum discharge during year, 495 cfs May 22 (gage height, 5.64 ft); minimum, 2.8 cfs Dec. 9.
1951-68: Maximum discharge determined, 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; minimum, that of Dec. 9, 1967.
Maximum discharge known probably occurred on May 13 or 14, 1941, when a discharge of 3,190 cfs was computed for a downstream station called Rio Guadalupe near Jemez Springs, with drainage area of 239 sq mi.

Remarks.--Records good except those for December and January, which are poor. 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.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	7.0	7.7	6.0	8.0	12	78	144	133	14	47	14
2	7.7	7.3	7.0	5.0	7.0	12	68	157	126	13	53	13
3	7.6	7.3	6.0	6.0	11	14	56	178	116	13	35	12
4	7.8	7.2	6.0	9.0	9.8	13	53	310	111	14	27	11
5	7.9	7.0	7.4	7.0	10	14	58	299	101	21	27	11
6	7.9	7.2	6.1	7.0	10	15	68	279	96	20	31	9.9
7	7.6	7.5	4.0	6.0	8.6	17	60	254	114	17	32	9.6
8	7.5	7.2	6.0	7.0	8.9	16	54	230	105	15	28	9.3
9	7.6	7.0	6.0	8.2	8.5	15	56	241	92	14	24	8.7
10	7.5	7.1	4.0	8.7	8.6	15	65	268	79	14	32	8.6
11	7.8	7.1	6.0	8.7	8.5	16	82	252	67	14	97	8.3
12	7.6	7.2	9.4	6.0	8.8	15	103	286	54	13	57	8.6
13	7.8	7.0	7.0	6.0	8.9	16	132	263	48	12	41	8.5
14	7.7	6.9	5.0	8.0	9.1	18	137	208	44	11	39	8.1
15	8.0	7.0	5.0	8.7	8.4	18	145	190	39	10	64	8.0
16	7.6	7.0	5.0	8.4	8.2	18	160	200	35	9.7	37	7.9
17	7.2	7.1	4.0	8.2	8.4	17	162	231	32	8.7	29	7.7
18	7.2	6.9	3.5	8.2	8.2	16	162	242	30	8.4	24	7.5
19	7.2	6.9	7.9	8.0	8.1	18	162	262	27	8.9	22	7.5
20	7.3	7.0	5.0	8.4	8.6	19	136	292	26	10	19	7.5
21	7.2	7.0	3.5	8.2	10	17	134	335	24	11	20	7.4
22	7.3	7.4	3.5	7.9	11	16	123	386	22	10	21	7.7
23	7.0	7.4	5.0	8.0	9.8	19	112	352	19	10	17	7.5
24	6.8	7.1	8.2	8.1	11	24	103	282	18	23	16	7.4
25	6.6	6.9	8.7	8.4	11	28	110	219	16	34	15	7.5
26	6.7	7.1	8.7	8.4	11	34	110	203	16	29	15	7.4
27	6.6	6.9	8.7	8.6	12	39	112	200	16	24	19	7.7
28	6.6	7.4	9.0	9.0	13	44	103	196	15	27	18	7.7
29	6.7	7.7	8.7	9.0	12	49	101	188	15	34	16	7.6
30	6.8	7.4	7.0	7.0	------	56	124	163	14	25	14	8.0
31	6.9	------	6.0	9.3	------	66	------	158	------	21	13	------
TOTAL	227.9	214.2	195.0	240.4	276.4	706	3,129	7,468	1,650	508.7	949	262.6
MEAN	7.35	7.14	6.29	7.75	9.53	22.8	104	241	55.0	16.4	30.6	8.75
MAX	8.2	7.7	9.4	9.3	13	66	162	386	133	34	97	14
MIN	6.6	6.9	3.5	5.0	7.0	12	53	144	14	8.4	13	7.4
AC-FT	452	425	387	477	548	1,400	6,210	14,810	3,270	1,010	1,880	521

CAL YR 1967 TOTAL 5,265.5 MEAN 14.4 MAX 201 MIN 3.5 AC-FT 10,440
WTR YR 1968 TOTAL 15,827.2 MEAN 43.2 MAX 386 MIN 3.5 AC-FT 31,390

PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
4-19	0015	4.48	202	5-22	2330	5.64	495
5- 4	0230	5.19	360	8-11	0015	4.45	152

8-3240. 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.--470 sq mi.

Records available.--June 1936 to May 1941 (published as Jemez Creek near Jemez), August 1949 to October 1950, May 1951 to September 1952 (irrigation seasons only), March 1953 to September 1954, May 1955 to September 1957 (irrigation seasons only), May 1958 to September 1968.

Gage.--Digital water-stage recorder and crest-stage gage; concrete control since 12-6-66. Datum of gage is 5,622.3 ft above mean sea level, datum of 1929. June 22, 1936, to Mar. 11, 1937, at site 60 ft upstream at datum 0.50 ft higher. Mar. 12, 1937, to July 8, 1938, at present site at datum 0.70 ft higher. July 9, 1938, to May 6, 1941, at site 60 ft upstream at datum 0.70 ft higher. Prior to Mar. 22, 1963, graphic water-stage recorder.

Average discharge.--20 years (1936-40, 1949-50, 1953-68), 64.4 cfs (46,620 acre-ft per year).

Extremes.--Maximum discharge during year, 1,040 cfs May 4 (gage height, 6.10 ft); minimum, 6.8 cfs Dec. 21.
1936-41, 1949-68: Maximum discharge, 5,900 cfs Apr. 21, 1958, from rating curve extended above 2,200 cfs on basis of contracted-opening measurement; maximum gage height, 8.6 ft May 6, 1941, present datum; minimum discharge, 5.5 cfs Jan. 2, 1961.
Maximum flood known since at least 1890 occurred between May 6 and 15, 1941, after gage was destroyed (discharge probably exceeded 6,000 cfs), from information by local residents.

Remarks.--Records good. Diversions for irrigation of about 300 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	25	19	20	21	34	138	272	167	17	70	42
2	32	25	18	18	16	36	135	278	154	17	82	40
3	36	25	16	21	23	35	117	292	143	20	71	36
4	36	24	19	22	22	33	98	770	141	25	51	30
5	38	24	19	21	20	35	119	586	126	41	53	25
6	36	24	19	21	21	37	144	465	114	43	100	26
7	33	25	20	20	18	42	131	381	126	40	69	24
8	30	25	22	23	22	40	122	342	127	31	62	23
9	27	24	15	24	22	39	148	349	117	31	73	22
10	27	24	14	24	23	45	183	417	102	68	61	21
11	26	24	18	28	23	42	242	412	92	44	202	22
12	26	24	20	23	25	41	321	560	80	38	150	22
13	26	24	20	23	26	39	423	622	72	32	103	25
14	25	25	17	23	27	45	529	361	65	28	86	22
15	22	24	18	23	25	43	620	310	59	23	111	22
16	24	24	19	24	25	44	636	310	53	21	78	21
17	22	25	17	26	30	44	453	331	51	19	63	20
18	21	24	13	25	30	41	459	334	49	19	56	20
19	20	24	16	24	29	40	413	345	44	20	48	20
20	22	25	16	25	30	48	261	369	41	22	44	18
21	22	24	13	27	34	44	289	412	35	23	39	18
22	21	24	12	25	36	38	237	515	32	19	45	20
23	20	25	14	24	33	44	234	495	32	29	38	18
24	21	23	16	25	34	50	210	345	27	41	34	15
25	21	22	18	25	34	54	331	269	23	66	31	19
26	20	23	20	25	35	63	251	242	22	65	30	19
27	18	21	22	26	37	69	231	242	20	53	44	19
28	20	23	23	26	42	76	223	228	20	63	52	19
29	24	24	22	24	36	85	220	223	19	59	43	19
30	25	19	21	22	------	99	254	200	18	43	34	22
31	25	------	20	24	------	110	------	188	------	77	41	------
TOTAL	800	716	556	731	799	1,535	8,172	11,465	2,171	1,137	2,064	689
MEAN	25.8	23.9	17.9	23.6	27.6	49.5	272	370	72.4	36.7	66.6	23.0
MAX	38	25	23	28	42	110	636	770	167	77	202	42
MIN	18	19	12	18	16	32	98	188	18	17	30	15
AC-FT	1,590	1,420	1,100	1,450	1,580	3,040	16,210	22,740	4,310	2,260	4,090	1,370

CAL YR 1967 TOTAL 13,061.7 MEAN 35.8 MAX 346 MIN 9.7 AC-FT 25,910
WTR YR 1968 TOTAL 30,835 MEAN 84.2 MAX 770 MIN 12 AC-FT 61,160

PEAK DISCHARGE (BASE, 1,000 CFS).--MAY 4 (0930) 1,040 CFS (6.10 FT).

8-3285. Jemez Canyon Reservoir near Bernalillo, N. Mex.

Location.--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 2⅔ miles upstream from mouth and 6 miles north of Bernalillo, N. Mex.

Drainage area.--1,034 sq mi.

Records available.--October 1953 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--Maximum contents during year, 2,019 acre-ft May 13 (elevation, 5,154.05 ft); no contents for most of year. 1953-68: Maximum contents, 71,220 acre-ft June 8, 1958 (elevation, 5,213.36 ft); no storage for most of time.

Remarks.--Reservoir is formed by earth-fill dam, completed Oct. 19, 1953. Capacity, 183,200 acre-ft (from capacity table adopted July 1, 1963) between elevations 5,125.0 (sill of outlet gates) and 5,252.3 ft (operating deck of spillway). Maximum controlled capacity, 114,000 acre-ft at elevation 5,232.3 ft (floor of spillway which is located about three-quarters of a mile south of dam; 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.

Cooperation.--Capacity tables and records furnished by Corps of Engineers.

Capacity table, water year 1967-68 (elevation, in feet, and contents, in acre-feet

5,135.1	1	5,144	169	5,152	1,475
5,138	6	5,146	350	5,154	2,005
5,140	15	5,148	628	5,156	2,604
5,142	59	5,150	1,010	5,158	3,292

Contents, in acre-feet, at 2400 hours, water year October 1967 to September 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	356	1,017	561	0	628	
2						0	410	999	549	0	0	
3						0	379	1,032	495	0	0	
4						0	339	1,599	406	0	0	
5						0	377	1,883	304	0	0	
6						0	413	1,661	0	0	0	
7						0	426	1,601	0	0	0	
8						0	373	1,576	0	0	0	
9						0	439	1,594	0	0	19	
10						5	445	1,682	0	0	449	
11						100	479	1,812	0	0	759	
12						169	577	1,921	0	0	1,341	
13						161	701	2,019	0	0	19	
14						191	855	1,493	0	0	0	
15						203	901	1,028	0	0	0	
16						183	963	911	0	0	0	
17						176	870	787	0	0	0	
18						183	967	719	0	0	0	
19						199	925	864	0	0	0	
20						249	705	888	0	0	0	
21						312	862	905	0	0	0	
22						291	957	868	0	0	0	
23						267	997	988	0	0	0	
24						245	1,010	841	0	0	0	
25						277	1,028	628	0	0	0	
26						282	961	719	0	0	0	
27						301	1,087	755	0	0	0	
28						339	1,047	701	0	0	0	
29					------	358	988	637	0	0	0	
30					------	373	1,017	546	0	0	0	
31		------			------	439	------	473	------	49	0	------
(†)	0	0	0	0	0	5,146.7	5,150.0	5,147.0	0	5,141.7	0	0
(‡)	0	0	0	0	0	+439	+578	-544	-473	+49	-49	0
MAX	0	0	0	0	0	439	1,087	2,019	561	49	1,341	0
MIN	0	0	0	0	0	0	339	473	0	0	0	0

CAL YR 1967. 0
WTR YR 1968. 0

† Elevation, in feet, at end of month.

‡ Change in contents (daily table will show some months have storage but not at month end).

8-3290. 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.

Drainage area.--1,038 sq mi.

Records available.--March 1936 to January 1938, March 1943 to September 1968. Published as "Jemez Creek" prior to 1948, and as "near Bernalillo" prior to 1954.

Gage.--Digital 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 on 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. Prior to Sept. 9, 1966, graphic water-stage recorder.

Average discharge.--26 years (1936-37, 1943-68), 50.4 cfs (36,490 acre-ft per year).

Extremes.--Maximum discharge during year, 1,290 cfs Aug. 12 (gage height, 7.78 ft); no flow for many days. 1936-38, 1943-68: 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 for many days most years. A flood in 1900 was probably less than 16,000 cfs, but highest known outside period of record.

Remarks.--Records poor. Subsequent to October 1953, flow at this station can be completely regulated by Jemez Canyon Reservoir (see station 8-3285). However, reservoir is designed essentially for desilting and flood control rather than storage. Diversions for irrigation of about 3,000 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	8.0	14	18	19	33	145	206	124	0	524	1.7
2	15	8.6	13	21	18	33	150	223	124	0	302	4.8
3	10	7.6	17	25	15	33	142	239	121	0	115	5.0
4	25	8.7	15	27	17	35	122	277	117	0	85	1.0
5	13	9.2	19	25	15	30	89	359	114	0	62	.73
6	5.6	10	21	25	14	29	113	499	107	0	48	0
7	2.0	13	20	24	14	38	107	398	64	0	236	0
8	0	14	16	27	15	30	116	310	75	0	115	0
9	0	15	9.0	27	15	25	79	276	80	0	109	0
10	0	12	10	29	16	122	142	285	84	0	329	0
11	0	11	11	37	21	132	159	314	66	70	300	0
12	0	9.9	12	30	27	46	200	379	50	60	710	0
13	0	9.7	10	28	20	42	305	498	49	17	374	0
14	0	10	10	28	59	29	429	580	43	3.3	5.5	0
15	.87	8.8	10	33	29	36	549	462	40	.17	3.0	0
16	.84	7.6	10	43	25	46	628	288	32	0	10	0
17	1.5	7.7	10	50	25	44	557	310	27	0	11	0
18	1.9	7.2	10	35	27	26	398	293	27	0	9.9	0
19	1.7	7.9	9.0	28	25	29	419	223	12	0	11	0
20	1.4	8.1	11	29	28	28	381	285	2.3	0	4.8	0
21	0	11	10	30	28	40	210	322	.72	0	2.8	0
22	0	14	13	29	46	58	203	397	0	0	1.5	0
23	0	14	11	29	34	38	280	360	0	0	.64	0
24	0	17	15	27	31	36	262	377	0	.24	0	0
25	0	13	13	26	31	23	250	308	0	.13	0	0
26	0	11	17	28	35	32	270	162	0	1.2	.40	0
27	0	12	15	29	35	38	143	159	0	9.1	.70	0
28	0	15	15	27	68	36	200	181	0	32	2.2	0
29	2.6	19	15	28	58	58	190	176	0	32	1.3	0
30	4.5	14	17	24	------	82	176	174	0	26	1.3	0
31	6.2	------	15	20	------	79	------	155	------	165	2.6	------
TOTAL	107.11	334.0	413.0	886	810	1,386	7,414	9,475	1,359.02	416.14	3,377.64	13.23
MEAN	3.46	11.1	13.3	28.6	27.9	44.7	247	306	45.3	13.4	109	.44
MAX	25	19	21	50	68	132	628	580	124	165	710	5.0
MIN	0	7.2	9.0	18	14	23	79	155	0	0	0	0
AC-FT	212	662	819	1,760	1,610	2,750	14,710	18,790	2,700	825	6,700	26

CAL YR 1967 TOTAL 15,617.58 MEAN 42.8 MAX 1,170 MIN 0 AC-FT 30,980
WTR YR 1968 TOTAL 25,991.14 MEAN 71.0 MAX 710 MIN 0 AC-FT 51,550

8-3291. Bernalillo floodwater retarding reservoir No. 1 (Piedra Lisa Arroyo), near Bernalillo, N. Mex.

Location.--Lat 35°18'50", long 106°31'45", in NW¼ sec.33, T.13 N., R.4 E. (projected), in Bernalillo Grant, in reservoir 0.3 mile east of intersection of State Highways 44 and 422 and 1½ miles northeast of Bernalillo.

Drainage area.--4.1 sq mi, of which 2.0 sq mi has contouring, pitting and small dams to reduce runoff.

Records available.--September 1955 to September 1968.

Gage.--Water-stage recorder adjacent to outlet tower with fixed ports. Datum of gage is 5,169.98 ft above mean sea level (levels by Soil Conservation Service). Since July 21, 1958, supplementary outflow gage 390 ft below toe of dam, water-stage recorder and Parshall flume.

Average outflow.--13 years, 0.013 cfs (9.41 acre-ft per year).

Extremes.--No flow during the water year.
1955-68: Maximum outflow, 55 cfs July 19, 1956 (gage height, 11.23 ft). Maximum inflow, 2,330 cfs, July 19, 1956 (average for 5-minute interval), computed from outflow and change in reservoir contents. No inflow or outflow for most of time.

Reservoir is formed by earth-fill dam, completed in 1955. Capacity, 300 acre-ft (original survey, no dead storage). Gage height of spillway crest is 27 ft, crest of dam is 35 ft. Outlet tower has an inside opening 3 ft square and outlet pipe through dam is 2 ft in diameter. A total of 9 port openings are spaced at 5-ft vertical intervals on upstream and sides of tower. They are 2 ft wide by 1 ft high; sill of lowest upstream port is at gage-height 4.8 ft (modified in 1963) and lowest side ports at gage-heights 6.3 ft.

8-3295. Rio Grande near Bernalillo, N. Mex.

Location.--Lat 35°17'05", long 106°35'45", in SE¼NW¼ sec.11, T.12 N., R.3 E. (projected), 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 1968. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Digital water-stage recorder. Datum of gage is 5,030.57 ft above mean sea level, datum of 1929, adjustment of 1951. Supplemental water-stage recorder at a site 1,900 ft downstream used alternately 1953-58, 1961, 1964, 1966 at the same datum 1953-55, variable 1956-58 and 1.26 ft lower than primary gage is 1961.

Average discharge.--27 years, 1,066 cfs (771,800 acre-ft per year).

Extremes.--Maximum discharge during year, 6,450 cfs Aug. 10 (gage height, 5.36 ft); no flow for many days.
1941-68: Maximum discharge, 25,400 cfs May 16, 1941; maximum gage height, 6.83 ft Sept. 20, 1941; no flow at times.
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. Diversions above station for irrigation of about 710,000 acres, some of which is below station. Possible regulation by operation of two reservoirs on Rio Chama and flood-and-silt detention reservoir on Jemez River (see station 8-3285). Records of suspended sediment loads and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	141	37	769	715	634	678	1,270	738	4,160	1,160	1,950	664
2	123	266	698	644	598	816	1,310	954	4,380	974	1,470	533
3	67	335	684	640	631	825	1,380	1,210	4,380	1,030	2,250	410
4	83	386	646	620	658	838	1,350	1,310	4,050	953	2,100	279
5	68	403	646	620	712	825	1,330	1,640	3,870	1,070	2,300	130
6	49	729	574	600	698	850	1,340	1,880	3,780	950	2,730	117
7	35	690	622	586	658	874	1,090	1,950	3,690	878	2,520	120
8	32	632	636	598	670	890	1,030	2,110	3,420	683	2,400	224
9	34	679	667	586	698	879	979	1,960	3,690	394	2,200	152
10	17	718	614	610	698	988	886	2,250	3,330	327	2,520	97
11	11	682	552	622	689	1,010	836	2,400	3,010	306	3,330	87
12	12	667	627	646	733	970	791	2,520	2,660	321	3,510	76
13	8.9	650	590	610	754	796	1,160	2,730	2,350	259	3,080	63
14	3.9	669	486	610	768	745	1,420	3,010	2,150	259	3,150	62
15	7.0	733	436	646	712	778	1,550	2,890	1,880	221	3,010	70
16	3.7	726	440	622	707	841	1,500	2,520	2,000	152	3,010	64
17	.85	1,170	454	646	608	884	1,530	2,450	1,950	112	2,940	27
18	0	1,520	514	658	705	781	1,420	2,450	1,840	69	2,870	13
19	0	1,660	597	658	712	709	1,380	2,520	2,050	35	3,080	12
20	0	1,660	695	622	726	657	1,300	2,620	2,150	22	2,300	12
21	0	1,600	793	634	738	664	1,150	2,660	2,350	35	2,000	10
22	0	1,720	674	670	782	679	1,040	2,870	2,730	45	1,810	15
23	0	1,750	616	670	811	686	938	3,150	3,080	28	1,730	17
24	0	1,750	640	670	805	678	970	3,420	2,870	36	549	2.8
25	0	1,750	802	684	735	662	938	3,690	2,660	32	447	0
26	0	1,780	801	684	748	632	826	3,870	2,630	135	388	0
27	0	1,750	918	690	798	677	826	3,960	2,970	363	650	0
28	0	1,780	808	680	931	774	810	3,780	2,660	283	299	0
29	0	1,690	621	680	863	821	826	3,510	2,590	344	207	0
30	0	977	631	749	------	912	746	3,690	1,500	725	216	0
31	0	------	662	684	------	1,100	------	3,930	------	2,230	403	------
TOTAL	696.35	31,559	19,913	20,054	21,000	24,919	33,922	80,542	86,830	14,431	61,419	3,256.8
MEAN	22.5	1,052	642	647	724	804	1,131	2,598	2,894	466	1,981	109
MAX	141	1,780	918	749	931	1,100	1,550	3,960	4,380	2,230	3,510	664
MIN	0	37	436	586	598	632	746	738	1,500	22	207	0
AC-FT	1,380	62,560	39,500	39,780	41,650	49,430	67,280	159,800	172,200	28,620	121,800	6,460

CAL YR 1967: TOTAL 222,572.55 MEAN 610 MAX 7,280 MIN 0 AC-FT 441,500
WTR YR 1968: TOTAL 398,542.15 MEAN 1,089 MAX 4,380 MIN 0 AC-FT 790,500

PEAK DISCHARGE (BASE, 5,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6- 3	1530	4.34	5,040	8-10	2100	5.36	6,450
7-31	2100	5.19	5,150				

8-3299. North Floodway Channel near Alameda, N. Mex.

Location.--Lat 35 11'52", long 106 35'56", in S½NW¼ sec.11, T.11 N., R.3 E. (projected), in Elena Gallegos Grant, on left bank 0.5 mile upstream from Edith Blvd., 1.1 miles upstream from mouth, and 1.2 miles northeast of Alameda.

Records available.--July to September 1968.

Gage.--Graphic water-stage recorder and concrete lined channel. Altitude of gage is 5,015 ft (from Corps of Engineers plan and profile map).

Extremes.--Maximum discharge during period, 1,000 cfs Aug. 26 (gage height, 2.20 ft), from rating curve extended above 750 cfs by logarithmic plotting; no flow most of time.

Remarks.--Records good. Floodway channel intercepts flow of numerous arroyos in northeast Albuquerque and discharges into the Rio Grande at a point 1.6 miles north of Alameda.

DISCHARGE, IN CFS, JULY TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										0	9.8	12
2										0	0	1.3
3										0	0	4.6
4										0	0	4.1
5										0	0	0
6										0	0	0
7										0	25	0
8										0	8.9	0
9										0	0	0
10										0	2.0	0
11										0	14	0
12										0	0	0
13										0	7.3	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	4.1	0
22										0	0	0
23										61	0	0
24										0	0	0
25										0	0	0
26										0	80	0
27										28	70	0
28										.56	4.5	0
29					------					0	0	0
30					------					0	0	0
31		------			------		------		------	12	88	------
TOTAL										101.56	313.6	22.0
MEAN										3.28	10.1	0.73
MAX										61	88	12
MIN										0	0	0
AC-FT										201	622	44

8-3300. Rio Grande at Albuquerque, N. Mex.

Location (revised).--Lat 35°05'25", long 106°40'44", in SE¼ sec.13, T.10 N., R.2 E. (projected), in Atrisco Grant at downstream side of Old Town 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.--October 1941 to September 1968. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Digital water-stage recorder. Datum of gages is 4,946.16 ft above mean sea level, datum of 1929. Prior to Sept. 18, 1947, at various sites at datum about 2.00 ft higher; Sept. 18, 1947, to Apr. 12, 1959, at site 550 ft to the left of present site; Apr. 13, 1959, to June 29, 1960, at site 150 ft to the right of present site. Supplemental water-stage recorders at sites 75 and 150 ft to right of present site used at various times since 1964. Prior to Sept. 6, 1966, graphic water-stage recorder.

Average discharge.--27 years, 1,059 cfs (766,700 acre-ft per year).

Extremes.--Maximum discharge during year, 4,360 cfs June 3 (gage height, 6.11 ft); no flow at times.
1941-68: Maximum discharge, 25,000 cfs Apr. 24, 1942, from rating curve extended above 13,900 cfs by logarithmic plotting; maximum gage height, 7.82 ft Aug. 10, 1967; no flow at times.

Remarks.--Records good except those for summer months, which are fair. Possible regulation by operation of reservoirs on Rio Chama and by flood-and-silt-detention reservoir on Jemez River (see stations 8-2850, 8-2869, 8-3285). Diversions above station for irrigation of about 718,000 acres, several hundred of which are below station.

Cooperation.--Records for Albuquerque Riverside drain and Arenal, Armijo, and Atrisco canals furnished by Bureau of Reclamation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	88	883	686	630	889	1,150	497	3,870	873	2,190	488
2	57	203	713	663	662	822	1,190	641	4,150	780	1,660	544
3	33	279	699	678	643	828	1,260	895	4,160	770	1,980	488
4	18	340	685	694	625	819	1,280	1,160	3,740	657	2,180	400
5	39	405	641	718	632	853	1,130	1,540	3,630	593	2,140	257
6	35	549	644	726	643	866	1,100	1,800	3,550	655	2,390	172
7	28	677	669	750	631	895	1,110	2,020	3,390	561	2,690	175
8	59	681	699	750	635	936	1,090	2,060	3,140	496	2,360	253
9	52	712	712	758	656	925	910	2,020	3,310	335	2,090	253
10	26	729	659	726	662	1,050	830	2,210	3,100	225	2,470	199
11	7.7	750	650	702	679	1,090	750	2,510	2,700	199	3,360	155
12	5.0	742	661	718	717	988	727	2,620	2,440	180	3,240	149
13	2.1	728	732	670	761	954	894	2,800	2,010	160	3,320	143
14	2.1	729	718	656	746	926	1,180	3,110	1,920	140	3,010	143
15	1.8	760	580	635	724	884	1,430	2,840	1,850	130	2,980	158
16	18	793	744	660	702	823	1,460	2,490	1,900	116	2,940	149
17	20	802	693	663	695	813	1,440	2,420	1,850	91	3,010	125
18	6.4	1,500	524	672	692	772	1,280	2,400	1,810	76	3,040	118
19	5.0	1,600	663	693	709	716	1,160	2,450	1,750	64	2,860	105
20	1.5	1,610	873	676	734	732	1,150	2,590	1,840	54	2,440	100
21	3.3	1,660	867	668	712	686	1,040	2,590	2,150	36	2,280	98
22	3.3	1,700	721	675	795	771	860	2,650	2,570	5.7	2,030	129
23	2.2	1,750	640	671	847	726	875	3,050	2,740	8.7	1,750	86
24	1.6	1,770	611	662	875	696	886	3,370	2,590	3.9	880	8.7
25	3.9	1,820	612	693	853	734	760	3,630	2,400	3.3	600	.60
26	2.3	1,710	637	699	904	708	680	3,850	1,930	3.9	400	.20
27	.63	1,770	652	709	895	730	620	3,830	2,210	77	848	0
28	.29	1,740	675	681	968	772	580	3,430	2,080	172	491	0
29	10	1,740	702	679	955	788	530	3,200	1,820	178	406	0
30	.24	1,210	686	807	------	892	500	3,300	1,080	284	395	0
31	.13	------	686	668	------	1,010	------	3,580	------	842	472	------
TOTAL	513.49	31,647	21,331	21,506	21,382	26,094	29,852	77,553	77,680	8,769.5	62,902	4,896.50
MEAN	16.6	1,055	688	694	737	842	995	2,502	2,589	283	2,029	163
MAX	69	1,820	883	807	968	1,090	1,460	3,850	4,160	873	3,360	544
MIN	.13	88	524	635	625	686	500	497	1,080	3.3	395	0
AC-FT	1,020	62,770	42,310	42,660	42,410	51,760	59,210	153,800	154,100	17,390	124,800	9,710
(†)	16,680	1,840	1,460	1,290	1,040	10,420	13,230	14,970	15,990	15,870	13,890	10,470

CAL YR 1967 TOTAL 217,051.49 MEAN 595 MAX 8,660 MIN 0 AC-FT 430,500
WTR YR 1968 TOTAL 384,126.49 MEAN 1,050 MAX 4,160 MIN 0 AC-FT 761,900

PEAK DISCHARGE (BASE, 4,000 CFS).--JUNE 3 (0200) 4,360 CFS (6.11 ft); AUG. 11 (1400) 4,090 CFS (6.34 FT).

† COMBINED FLOW, IN ACRE-FT, OF ALBUQUERQUE RIVERSIDE DRAIN AND ARENAL, ARMIJO, AND ATRISCO CANALS. THIS FLOW, WHICH BYPASSES RIVER GAGE, CAN BE ADDED TO RIVER RECORDS TO GET ENTIRE SURFACE FLOW IN VALLEY CROSS-SECTION.

8-3319.9 Rio Grande conveyance channel near Bernardo, N. Mex.

Location.--Lat 34°24'55", long 106°48'10", in E½ sec.11, T.2 N., R.1 E. (projected), in Sevilleta or Belen Grant, 0.2 mile south of U.S. Highway 60, 1.8 miles east of Bernardo, about 3 miles upstream from floodway, and 4 miles upstream from Rio Puerco.

Records available.--June 1936 to September 1937, October 1964 to September 1968. July 1943 to September 1964, included in composite flow of "Rio Grande near Bernardo". October 1960 to September 1964, monthly acre-feet published in WSP 1923 vol.2 (daily records available in district files). Beginning October 1952 flow in conveyance channel represents controlled diversion from Rio Grande. Prior to October 1952, records called "San Francisco Riverside drain near Bernardo", not equivalent.

Gage.--Digital water-stage recorder with concrete control. Datum of gage is 4,720.00 ft above mean sea level, datum of 1929, adjustment of 1951. Prior to October 1964, 0.2 mile upstream at various datums.

Average discharge.--16 years (1952-68), 468 cfs (338,800 acre-ft per year).

Extremes.--1952-68: Maximum daily discharge, 2,220 cfs Apr. 22, 1958; no flow many days most years.

Remarks.--Records good. Conveyance channel is 1 of 4 channels (see stations 8-3320.1, 8-3320.3, and 8-3320.5) carrying flow in valley cross-section. Original design and plan was for conveyance channel to carry flows up to about 2,000 cfs. For combined monthly flow in acre-ft of this channel, floodway, Bernardo interior drain and Lower San Juan Riverside drain see tabulation below daily table for station 8-3320.1. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	70	887	708	729	916	836	229	928	379	45	152
2	101	48	792	717	688	804	789	163	738	346	192	221
3	72	34	737	636	715	808	1,140	163	490	300	312	209
4	32	33	700	636	673	719	1,100	218	440	472	397	181
5	32	68	620	687	636	730	1,120	538	544	465	581	136
6	69	116	579	687	685	708	741	1,500	699	449	606	63
7	56	211	627	623	669	752	876	1,450	682	452	637	21
8	44	439	631	626	650	754	887	1,570	679	383	634	12
9	48	457	640	576	663	785	674	1,150	642	297	618	5.0
10	46	504	688	624	681	896	492	1,010	933	197	645	3.3
11	40	545	670	615	699	1,480	321	1,600	1,160	114	792	2.6
12	14	575	599	605	711	1,180	242	1,910	917	47	735	2.1
13	29	586	485	642	745	981	300	1,480	892	24	772	1.7
14	36	582	549	632	803	774	280	1,570	859	6.8	661	1.4
15	45	587	581	569	790	700	1,070	1,330	961	3.6	529	1.2
16	7.2	635	522	574	765	791	896	947	1,060	2.3	517	.86
17	1.2	625	591	603	727	734	800	895	991	1.2	515	.79
18	1.3	1,020	564	616	701	796	803	977	878	.91	528	.76
19	.09	1,440	428	624	680	827	838	973	656	.65	495	.64
20	.60	1,430	598	651	681	775	687	952	652	.27	520	.10
21	2.6	1,450	936	619	690	844	715	914	724	.01	450	0
22	2.2	1,520	812	603	722	982	673	868	911	.01	385	0
23	.01	1,510	715	618	718	762	550	870	1,420	0	284	0
24	0	1,490	634	632	772	776	542	883	1,040	0	200	0
25	0	1,550	596	623	775	663	557	813	969	0	141	0
26	0	1,510	599	642	774	604	447	753	943	0	177	0
27	0	1,470	637	640	787	595	300	951	482	0	183	0
28	0	1,460	647	656	895	504	357	1,190	711	0	293	0
29	.01	1,530	661	658	1,020	475	555	1,000	647	0	256	0
30	.38	1,390	703	668	------	459	283	1,010	619	0	229	0
31	17	------	684	719	------	395	------	933	------	0	163	------
TOTAL	803.59	24,885	20,112	19,729	21,244	23,969	19,871	30,810	24,267	3,940.75	13,492	1,015.45
MEAN	25.9	830	649	636	733	773	662	994	809	127	435	33.8
MAX	107	1,550	936	719	1,020	1,480	1,140	1,910	1,420	472	792	221
MIN	0	33	428	569	636	395	242	163	440	0	45	0
AC-FT	1,590	49,360	39,890	39,130	42,140	47,540	39,410	61,110	48,130	7,820	26,760	2,010

CAL YR 1967: TOTAL 134,223.80 MEAN 368 MAX 1,550 MIN 0 AC-FT 266,200
WTR YR 1968: TOTAL 204,138.79 MEAN 558 MAX 1,910 MIN 0 AC-FT 404,900

8-3320.1. Rio Grande floodway near Bernardo, N. Mex.

Location.--Lat 34°25'03", long 106°48'00", in Belen or Sevilleta Grant on downstream side of bridge on U.S. Highway 60, 5 miles downstream from heading of conveyance channel and 2 miles east of Bernardo, Socorro County.

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 1968. Monthly discharge only October 1942 to June 1943 published in WSP 1312, and October 1960 to September 1964, published in WSP 1923 vol. 2 (daily records available in district files). Published as "Rio Grande near Bernardo" prior to October 1964. Prior to October 1952, flow of Bernardo interior drain was included only when it carried river overflow, the entire flow has been included from October 1952 to September 1964. Flow in the conveyance channel, formerly San Francisco Riverside drain, has been included in record prior to October 1964.

Gage.--Water-stage recorder. Datum of gage is 4,722.55 ft above mean sea level, datum of 1929, adjustment of 1951.

Average discharge.--19 years (1936-38, 1941-58), 1,142 cfs (826,800 acre-ft per year). Includes flow of floodway, conveyance channel, and Bernardo interior drain.
10 years (1958-68) 220 cfs (159,300 acre-ft per year). Floodway only.
10 years (1958-68) 779 cfs (578,500 acre-ft per year). Includes flow of floodway, conveyance channel, Bernardo interior drain, and Lower San Juan Riverside drain.

Extremes.--Maximum discharge during year, 4,940 cfs Aug. 12 (gage height, 5.80 ft); no flow most of time.
1936-39, 1941-68: Maximum discharge, 21,000 cfs April 25, 1942 (gage height, 6.90 ft); no flow for many days most years.

Remarks.--Records poor. Floodway is 1 of 4 channels (see stations 8-3319.9, 8-3320.3 and 8-3320.5) carrying flow in valley cross-section. For combined monthly flow in acre-ft of floodway, conveyance channel, Bernardo interior drain and Lower San Juan Riverside drain see tabulation below. Normal plan is for floodway to carry flow when capacity of conveyance channel (about 2,000 cfs) is exceeded. Diversions for irrigation of about 740,000 acres above station. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								0	2.240	400	339	
2								0	3,200	175	581	
3								0	3,460	1.0	416	
4								0	2.500	10	424	
5								0	2.200	170	808	
6								0	2.120	150	1.130	
7								0	2.180	160	2.820	
8								0	1.790	100	1.430	
9								0	1.750	10	1.130	
10								0	1.750	0	1.170	
11								46	884	0	2.260	
12								1.090	662	0	3.050	
13								1.060	489	0	2.860	
14								1.320	249	0	3.100	
15								1.180	39	0	2.900	
16								1.510	20	0	3.150	
17								1.240	5.0	0	2.500	
18								1.270	1.0	0	2.500	
19								1.150	0	0	2.440	
20								988	0	0	1.800	
21								1.280	0	0	1.500	
22								1.340	0	0	1.050	
23								1.360	622	0	600	
24								1.480	953	0	420	
25								1.780	813	0	310	
26								2,330	740	0	140	
27								2.130	384	0	60	
28								2.000	603	0	70	
29								1.650	570	0	0	
30					------			1.780	752	0	0	
31		------			------		------	1.880	------	0	0	------
TOTAL	0	0	0	0	0	0	0	29,864	30,976	1,176	40,958	0
MEAN	0	0	0	0	0	0	0	963	1,033	37.9	1,321	0
MAX	0	0	0	0	0	0	0	2,330	3,460	400	3,150	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	59,230	61,440	2,330	81,240	0
(†)	11,920	55,440	44,540	43,540	46,130	55,910	48,520	135,200	124,800	20,150	124,200	11,250

CAL YR 1967: TOTAL 22,292.2 MEAN 61.1 MAX 4,670 MIN 0 AC-FT 44,220 (†) MEAN 568 AC-FT 411,080
WTR YR 1968: TOTAL 102,974 MEAN 281 MAX 3,460 MIN 0 AC-FT 204,200 (†) MEAN 994 AC-FT 721,530

† COMBINED FLOW, IN ACRE-FT AND MEAN, IN CFS, OF FLOODWAY, CONVEYANCE CHANNEL, BERNARDO INTERIOR DRAIN, AND LOWER SAN JUAN RIVERSIDE DRAIN. COMPOSITE RECORDS GOOD.

8-3320.3 Lower San Juan Riverside drain near Bernardo, N. Mex.

Location.--Lat 34°24'50", long 106°47'40", in SE¼NW¼ sec.12, T.2 N., R.1 E., on right bank, 1,400 feet downstream from bridge on U.S. Highway 60 and 2.5 miles east of Bernardo, Socorro County.

Records available.--June 1936 to September 1937, August 1954 to September 1968. Monthly discharge only August 1955 to September 1960, published in WSP 1732, and October 1960 to September 1964, published in WSP 1923 vol. 2 (daily records available in district files). Records collected under name of "La Joya Eastside drain" are equivalent.

Gage.--Water-stage recorder. Datum of gage is 4,722.35 ft above mean sea level, datum of 1929, adjustment of 1951.

Extremes.--1954-68: Maximum daily discharge, 200 cfs May 22, 1961; no flow for several days during 1963.

Remarks.--This drain is one of four channels (see stations 8-3319.9, 8-3320.1 and 8-3320.5) carrying flow in valley cross-section. For combined flow in acre-ft of this drain, conveyance channel, floodway, and Bernardo interior drain see tabulation below daily table for station 8-3320.1.

Cooperation.--Since July 1958 records for this station or La Joya Eastside drain (records equivalent) furnished by Bureau of Reclamation.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	60	50	45	42	39	73	96	152	126	97	161
2	77	47	51	44	42	74	78	113	160	119	135	150
3	67	45	51	44	41	103	82	121	161	171	141	149
4	125	45	48	44	41	121	106	117	157	183	164	130
5	147	43	48	44	41	144	99	102	156	166	108	102
6	83	41	48	44	41	157	90	129	167	137	123	102
7	74	41	48	44	41	149	107	135	153	119	118	100
8	82	42	47	46	41	141	110	143	164	123	128	140
9	78	48	47	45	41	134	96	143	169	161	115	122
10	75	49	47	45	41	127	126	139	105	153	100	85
11	81	47	47	44	41	119	108	128	120	138	118	84
12	117	47	46	44	42	100	133	96	90	150	133	75
13	65	47	46	44	42	74	127	110	97	76	168	68
14	62	48	49	44	42	58	111	143	110	76	163	64
15	74	48	50	44	41	126	96	147	102	102	171	67
16	104	48	49	44	41	128	100	158	109	50	177	48
17	79	48	49	43	40	136	122	171	130	42	181	54
18	101	47	48	44	39	104	103	176	128	46	182	55
19	89	49	48	43	39	50	98	133	120	52	166	64
20	110	49	47	43	39	53	106	122	115	64	141	59
21	96	49	46	42	38	37	117	164	130	54	138	62
22	92	49	46	42	38	34	88	164	147	55	146	64
23	71	50	46	41	38	35	143	181	166	42	122	80
24	91	50	45	41	37	41	74	179	144	40	139	65
25	72	50	44	42	37	76	114	175	122	49	151	55
26	65	50	44	42	37	72	104	183	146	55	154	58
27	83	50	44	42	37	45	88	178	155	54	117	50
28	69	50	43	42	38	77	118	173	172	67	153	57
29	73	50	44	43	38	87	110	167	163	56	131	62
30	101	52	44	43	------	63	93	162	169	42	178	68
31	114	------	44	43	------	61	------	157	------	62	173	------
TOTAL	2,695	1,439	1,454	1,345	1,156	2,765	3,120	4,505	4,179	2,830	4,431	2,500
MEAN	86.9	48.0	46.9	43.4	39.9	89.2	104	145	139	91.3	143	83.3
MAX	147	60	51	46	42	157	143	183	172	183	182	161
MIN	62	41	43	41	37	34	73	96	90	40	97	48
AC-FT	5,350	2,850	2,880	2,670	2,290	5,480	6,190	8,940	8,290	5,610	8,790	4,960

CAL YR 1967: TOTAL 27,714 MEAN 75.9 MAX 196 MIN 23 AC-FT 54,970
WTR YR 1968: TOTAL 32,419 MEAN 88.6 MAX 183 MIN 34 AC-FT 64,300

8-3320.5 Bernardo interior drain near Bernardo, N. Mex.

Location.--Lat 34°24'55", long 106°49'15", in NE¼ sec.10, T.2 N., R.1 E. (projected), on downstream side of bridge on U.S. Highway 60 and 1.0 mile east of Bernardo.

Records available.--June 1936 to May 1937, October 1943 to September 1968. Monthly discharge only June 1936 to May 1937, published in WSP 828. October 1943 to September 1960 included in composite records for station 8-3320 "Rio Grande near Bernardo". October 1960 to September 1964 monthly acre-feet published in WSP 1923 vol. 2. Daily records available in district files beginning October 1943.

Gage.--Digital water-stage recorder. Datum of gage is 4,713.99 ft above mean sea level, datum of 1929, adjustment of 1951. June 4, 1936 to May 17, 1937, staff gage 150 ft downstream at datum 2.77 ft higher. October 1943 to Nov. 4, 1965, graphic water-stage recorder at same site and datum.

Extremes.--1952-68: Maximum daily discharge, 182 cfs Aug. 28, 1968; no flow at times.
Prior to October 1952, drain was subject to overflow from floodway.

Remarks.--Records good. This drain is 1 of 4 channels (see stations 8-3319.9, 8-3320.1, and 8-3320.3) carrying flow in valley cross-section. For combined monthly flow in acre-ft of this drain, conveyance channel, floodway, and Lower San Juan Riverside drain see tabulation below daily table for station 8-3320.1. Records of chemical analyses, suspended sediment loads, and water temperatures for water year 1968 are published in part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	69	35	29	29	32	39	46	179	105	72	132
2	129	52	33	28	29	31	43	41	147	89	87	117
3	114	49	32	29	29	31	47	39	134	129	103	128
4	108	48	32	28	29	32	46	43	150	122	103	122
5	113	48	31	28	29	35	51	46	150	87	116	108
6	119	49	30	27	29	38	52	49	123	105	108	105
7	111	47	29	28	29	49	43	55	117	94	111	107
8	98	51	29	29	34	58	58	48	129	90	119	112
9	116	51	29	28	30	56	48	39	141	113	120	93
10	98	53	28	28	30	59	45	43	136	94	135	71
11	95	53	28	28	29	54	47	45	136	82	139	68
12	127	54	27	28	30	42	43	46	131	68	131	63
13	76	55	28	28	30	38	61	36	116	74	118	64
14	78	55	25	29	30	38	54	42	102	85	119	61
15	71	55	28	28	30	52	45	77	98	72	107	67
16	72	56	28	28	29	57	35	127	111	51	110	62
17	71	56	28	28	29	56	45	136	92	47	123	56
18	68	56	28	27	29	56	58	147	95	46	138	55
19	63	57	28	28	29	48	56	150	85	46	115	51
20	57	57	29	28	29	49	53	140	82	43	127	51
21	62	57	28	29	28	48	57	135	90	45	115	50
22	57	56	28	28	29	47	59	105	96	41	110	57
23	56	56	28	28	29	38	56	126	109	39	95	59
24	56	56	28	28	29	50	52	155	104	38	101	54
25	48	56	28	28	29	56	51	157	114	45	98	47
26	45	57	28	28	30	55	50	165	100	55	128	41
27	47	57	28	29	30	53	53	103	108	61	156	36
28	51	56	28	29	31	47	49	139	102	72	182	39
29	51	56	28	28	31	57	35	165	110	63	158	42
30	64	52	29	29	------	48	40	166	116	55	143	39
31	62	------	28	29	------	47	------	166	------	57	134	------
TOTAL	2,513	1,630	894	875	857	1,457	1,471	2,977	3,503	2,213	3,721	2,157
MEAN	81.1	54.3	28.8	28.2	29.6	47.0	49.0	96.0	117	71.4	120	71.9
MAX	130	69	35	29	34	59	61	166	179	129	182	132
MIN	45	47	25	27	28	31	35	36	82	38	72	36
AC-FT	4,980	3,230	1,770	1,740	1,700	2,890	2,920	5,900	6,950	4,390	7,380	4,280

CAL YR 1967 TOTAL 23,043 MEAN 63.1 MAX 172 MIN 23 AC-FT 45,710
WTR YR 1968 TOTAL 24,268 MEAN 66.3 MAX 182 MIN 25 AC-FT 48,130

8-3340. Rio Puerco above Arroyo Chico, 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 Arroyo Chico and 5½ miles northeast of village of Guadalupe, Sandoval County.

Drainage area.--420 sq mi, approximately.

Records available.--July 1951 to September 1968. Published as "Rio Puerco above Chico Arroyo, near Guadalupe" 1951-64.

Gage.--Digital water-stage recorder. Datum of gage is 5,950 ft above mean sea level, datum of 1929. Prior to Sept. 24, 1966, graphic water-stage recorder at same site and datum.

Average discharge.--17 years, 12.9 cfs (9,340 acre-ft per year).

Extremes.--Maximum discharge during year, 2,970 cfs Aug. 11 (gage height, 9.34 ft); no flow for many days.
1951-68: Maximum discharge, 6,940 cfs July 29, 1967 (gage height, 13.53 ft), from rating curve extended above 1,300 cfs on basis of slope-area measurements at gage heights 7.75 and 10.60 ft; no flow for many days most years.
Flood of June 29, 1943, probably exceeded 5,000 cfs (based on records for stations above and below).

Remarks.--Records poor. Diversions for irrigation of about 3,700 acres above station in past years, but present diversion negligible.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.12	.15	0	.23	9.3	2.0	.7	35	3.0	91	1.6
2	1.0	.12	.28	0	.40	10	1.0	4.4	32	2.0	100	1.6
3	2.0	.12	.15	0	.23	8.6	1.0	9.9	29	2.0	10	1.2
4	.90	.12	.10	0	.19	7.3	1.0	52	26	1.0	30	.96
5	.40	.12	.17	0	.19	4.1	.50	57	23	1.0	8.0	.83
6	.15	.15	.13	.10	.19	2.7	.50	49	18	.8	1.0	.70
7	.12	.15	.14	.10	.17	2.7	.40	42	19	.6	84	.60
8	.10	.12	.17	.10	.16	3.0	.20	39	22	.4	10	.50
9	.12	.12	.21	.10	.17	3.0	.02	39	24	.2	15	.40
10	.10	.12	.21	.05	.18	3.0	.03	45	22	.1	30	.30
11	.08	.12	.20	0	.20	3.0	.01	51	20	.1	343	.20
12	.07	.12	.20	0	3.0	3.0	.01	49	19	0	50	.10
13	.07	.12	.20	0	3.6	3.0	0	45	18	0	90	.09
14	.07	.12	.10	0	3.3	3.0	0	37	17	0	354	.08
15	.05	.12	.10	0	2.1	3.0	.01	25	15	0	50	.07
16	.07	.12	.10	0	1.6	3.0	.01	24	14	0	20	.06
17	.07	.12	.10	0	5.8	3.0	.02	23	13	0	15	.05
18	.10	.12	.10	0	11	3.0	.69	34	12	0	10	.03
19	.10	.15	.10	0	14	3.0	1.2	51	12	0	9.0	.01
20	.07	.12	.10	0	10	3.0	3.9	63	11	0	8.0	0
21	.10	.12	.10	0	10	2.0	2.8	71	10	0	6.7	0
22	.12	.12	.10	0	21	2.0	2.8	83	10	0	5.0	0
23	.08	.12	.10	0	10	2.0	4.7	99	9.0	0	3.0	0
24	.07	.12	.10	0	8.6	2.0	9.2	90	8.0	1.4	2.0	0
25	.08	.10	.10	.20	6.8	2.0	3.8	65	7.0	77	1.0	0
26	.07	.10	.10	.30	6.4	2.0	1.6	49	6.0	22	.5	0
27	.07	.10	.20	.34	5.0	2.0	.99	53	5.0	8.6	10	0
28	.08	.10	.20	.34	6.2	2.0	.83	51	4.0	8.7	2.0	0
29	.12	.28	.10	.23	12	2.0	.76	48	4.0	78	1.9	0
30	.12	.15	0	.19	------	2.0	.82	41	3.0	6.0	1.8	0
31	.10	------	0	.19	------	2.0	------	38	------	98	1.6	------
TOTAL	7.65	3.80	4.11	2.24	142.71	105.7	40.80	1.428	467.0	310.9	1.363.5	9.38
MEAN	.247	.127	.133	.072	4.92	3.41	1.36	46.1	15.6	10.0	44.0	.313
MAX	2.0	.28	.28	.34	21	10	9.2	99	35	98	354	1.6
MIN	.05	.10	0	0	.16	2.0	0	.73	3.0	0	.50	0
AC-FT	15	7.5	8.2	4.4	283	210	81	2,830	926	617	2,700	19

CAL YR 1967: TOTAL 5,341.48 MEAN 14.6 MAX 500 MIN 0 AC-FT 10,590
WTR YR 1968: TOTAL 3,885.87 MEAN 10.6 MAX 354 MIN 0 AC-FT 7,710

PEAK DISCHARGE (BASE, 1,800 CFS)

DATE	TIME	G.HT.	DISCHARGE
8-11	2300	9.34	2,970

8-3405. Arroyo Chico near Guadalupe, N. Mex.

Location (revised).--Lat 35°35'40", long 107°11'20", in NE¼ sec.30, T.16 N., R.3 W., on left bank 0.2 mile upstream from mouth, 4.1 miles northwest of Guadalupe, and 5.5 miles southwest of Cabezon.

Drainage area.--1,390 sq mi, approximately.

Records available.--November 1943 to September 1968. Published as "Chico Arroyo near Guadalupe" 1943-64.

Gage.--Graphic water-stage recorder and concrete control. Datum of gage is 5,921 ft above mean sea level, datum of 1929. Prior to June 21, 1968 at site 500 ft upstream at datum 2.00 ft higher.

Average discharge.--25 years, 24.5 cfs (17,740 acre-ft per year).

Extremes.--Maximum discharge during year, 3,330 cfs Aug. 7 (gage height, 6.86 ft), from rating curve extended above 170 cfs by logarithmic plotting; no flow for many days.
1943-68: Maximum discharge, 12,200 cfs July 17, 1953 (gage height, 17.1 ft, present datum), from rating curve extended above 2,900 cfs on basis of slope-area measurements at gage heights 11.6 and 14.8 ft, present datum; no flow for many days each year.

Remarks.--Records poor. Diversions for irrigation of about 100 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	.52	.03	.05	.16	1.4	1.0	.03	0	0	424	.50
2	2.9	.52	.05	.05	.06	1.1	.80	.03	0	0	170	26
3	1.8	.52	.05	.05	.08	1.2	.60	.05	.01	54	50	10
4	1.2	.52	.03	.05	.06	.80	.22	1.4	.01	65	12	1.0
5	1.2	.44	.03	.05	.06	.60	.08	.29	0	.52	356	0
6	.44	.44	.03	.05	.16	.44	.05	0	.01	.04	270	0
7	.36	.44	.05	.05	.11	.36	.01	0	.08	35	1,100	0
8	.29	.36	.05	.05	.16	.08	.01	0	.08	2.1	117	0
9	.29	.36	.08	.05	.29	.22	.03	0	.11	36	26	0
10	.22	.29	.08	.05	.22	.70	.03	0	.06	12	16	0
11	.22	.29	.06	.01	.36	.52	.05	0	.05	.13	913	0
12	.16	.22	.05	.03	.36	.60	.05	0	0	0	488	0
13	.16	.22	.05	.01	.70	.56	.03	0	0	0	93	0
14	.16	.16	.05	.06	1.1	.39	.03	0	0	0	662	0
15	.11	.16	.05	.15	1.6	.01	.05	0	0	0	100	0
16	.16	.11	.05	.08	1.7	.03	.05	0	0	0	70	0
17	.16	.11	.05	.11	1.4	.60	.03	0	0	0	50	0
18	.22	.11	.05	.22	1.0	.60	.03	0	0	0	20	0
19	.22	.08	.05	.29	.52	.52	.03	0	0	0	3	0
20	.29	.08	.05	.29	.70	.60	.03	0	0	0	24	0
21	.29	.06	.05	.36	1.2	.22	.05	0	0	0	350	0
22	.29	.06	.05	.36	1.5	.22	.05	0	0	0	50	0
23	.29	.06	.05	.36	2.0	.29	.08	0	0	0	30	0
24	.29	.06	.05	.44	2.9	1.4	.06	0	0	0	20	0
25	.29	.05	.05	.36	2.6	.70	.05	0	0	0	10	0
26	.36	.03	.05	.29	2.0	.52	.03	0	0	0	5	0
27	.36	.05	.05	.29	1.6	.44	.01	0	0	0	40	0
28	.36	.01	.05	.29	2.3	.36	.01	0	0	0	6.2	0
29	.52	.03	.05	.06	1.4	.36	.03	0	0	0	2.6	0
30	.52	.05	.05	0	------	.29	.03	0	0	0	1.6	0
31	.52	------	.05	.06	------	.29	------	0	------	0	1.0	------
TOTAL	19.35	6.41	1.54	4.62	28.3	16.42	3.61	1.80	0.41	204.79	5,480.4	37.50
MEAN	.624	.214	.050	.149	.976	.530	.120	.058	.014	6.61	177	1.25
MAX	4.7	.52	.08	.44	2.9	1.4	1.0	1.4	.11	65	1,100	26
MIN	.11	.01	.03	0	.06	.01	.01	0	0	0	1.0	0
AC-FT	38	13	3.1	9.2	56	33	7.2	3.6	.8	406	10,870	74

CAL YR 1967: TOTAL 17,490.14 MEAN 47.9 MAX 2,000 MIN 0 AC-FT 34,690
WTR YR 1968: TOTAL 5,805.10 MEAN 15.9 MAX 1,100 MIN 0 AC-FT 11,510

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.HT.	DISCHARGE
8- 7	0600	6.86	3,330

8-3414. Bluewater Lake near Bluewater, N. Mex.

Location.--Lat 35°17'40", long 108°06'40", in SE¼ sec.4, T.12 N., R.12 W., on left end of dam and 9.5 miles west of Bluewater.

Drainage area.--201 sq mi.

Records available.--June 1927 to December 1950, April 1958 to September 1968. June 1927 to December 1950 in Water Bulletins (Nos. 10-20) of International Boundary and Water Commission (see also WSP 1732). January 1951 to June 1958 in files of Bluewater-Toltec Irrigation Co.

Gage.--Water-stage recorder. Datum of gage is 7,345.57 ft above mean sea level, datum of 1929. July 1958 to January 1961, inclined staff gage and supplemental staff sections at nearby site, same datum. Gage heights have been converted to sea-level elevations.

Extremes.--Maximum contents observed during year, 5,930 acre-ft May 2 (elevation, 7,372.1 ft); minimum observed, 2,920 acre-ft Feb. 3 (elevation, 7,363.9 ft).
1927-50, 1958-68: Maximum contents determined, 47,100 acre-ft in April 1941 (date and elevation not available), from table then in use; no storage at times prior to 1947.

Remarks.--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 represent total contents, based on table derived from 10-foot contour survey made in 1945 by Bureau of Reclamation. Prior to Jan. 27, 1961, contents computed from daily staff gage readings at about 0800; recorded gage heights at 2400 to September 1963; incomplete recorder record supplemented by monthly staff readings to September 1968.

Month-end elevations and contents, water year October 1967 to September 1968

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	7,365.2	3,300	-130
Oct. 31	7,364.6	3,120	-180
Nov. 30	7,364.1	2,980	-140
Dec. 31	7,364.0	2,950	- 30
Calendar year 1967	-	-	-3,650
Jan. 31	7,363.9	2,920	- 30
Feb. 29	7,364.0	2,950	+ 30
Mar. 31	7,368.0	4,230	+1,280
Apr. 30	7,372.1	5,930	+1,700
May 31	7,371.6	5,700	-230
June 30	7,370.7	5,290	-410
July 31	7,370.8	5,340	+ 50
Aug. 31	7,371.6	5,700	+360
Sept. 30	7,371.0	5,420	-280
Water year 1967-68	-	-	+2,120

8-3420. 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.--209 sq mi.

Records available.--July 1912 to August 1915, April 1916 to June 1919, water years 1919-22, 1924, 1926 (annual maximum), January 1927 to September 1968. Figures of daily discharge for July 20-23, 1912, published in WSP 358, have been found to be unreliable and should not be used. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Digital 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. Prior to Sept. 8, 1966, graphic water-stage recorder.

Average discharge.--46 years (1912-15, 1916-18, 1927-68), 9.48 cfs (6,860 acre-ft per year).

Extremes.--Maximum discharge during year, 17 cfs Aug. 7 (gage height, 3.35 ft); minimum, 0.25 cfs June 23.
1912-22, 1924, 1926, 1927-68: Maximum discharge determined, about 4,000 cfs, during period July 12-19, 1919 (gage height, 13.5 ft, from floodmarks, site and datum in use Mar. 4, 1918 to June 28, 1919), estimated; no flow at times.
Maximum flood known occurred Sept. 6, 1909, when Bluewater Dam washed out, stage and discharge not determined. For other major floods during period 1919-26, see WSP 1732, p. 429, and WSP 1682, p. 410.

Remarks.--Records good except those for winter period and August, which are poor. Flow regulated by Bluewater Lake (capacity at crest of uncontrolled siphon spillways, 38,500 acre-ft).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	1.0	.84	.60	.60	.84	1.0	1.6	1.1	1.1	3.0	.80
2	.65	.96	.79	.50	.60	.88	1.0	1.6	1.1	.93	3.3	.80
3	.68	.96	.85	.50	.60	.86	1.1	1.6	1.0	.99	1.7	.70
4	.68	.94	.89	.50	.60	.76	1.1	1.6	1.1	.99	1.3	.68
5	.64	.93	.86	.50	.60	.86	.99	1.8	1.7	.93	1.4	.68
6	.60	.92	.85	.50	.60	.73	1.0	1.6	1.8	1.7	1.4	.68
7	.65	.91	.80	.50	.60	.92	1.0	1.4	1.8	1.8	3.1	.74
8	.69	.93	.84	.50	.70	.90	1.0	1.4	1.9	1.2	2.2	.74
9	.70	.90	.88	.42	.70	.92	1.1	1.5	1.8	.99	1.2	.74
10	.71	.92	1.1	.66	.70	1.2	1.1	1.5	1.7	1.2	2.8	.74
11	.73	.90	.91	.60	.70	1.2	1.1	1.7	1.5	.99	2.0	.74
12	.71	.84	.80	.62	.80	1.0	1.2	2.1	1.1	.87	1.8	.74
13	.74	.81	.70	.62	.80	.98	1.4	1.6	.74	.80	1.7	.74
14	.70	.82	.60	.67	.80	.92	1.3	1.5	.87	.87	1.6	.68
15	.68	.83	.60	.70	.88	.87	1.4	1.5	.74	.80	1.5	.68
16	.70	.85	.60	.70	.86	.80	1.3	1.5	.80	.74	1.5	.62
17	.74	.86	.60	.70	.87	.80	1.3	1.5	.87	.74	1.4	.55
18	.82	.88	.60	.70	.93	.77	1.3	1.5	.87	1.1	1.4	.55
19	.84	.89	.60	.70	.91	.78	1.3	1.6	.99	1.4	1.4	.55
20	.85	.91	.60	.70	.90	.98	1.4	1.6	.93	1.5	1.8	.55
21	.84	.81	.60	.70	.99	.94	1.5	1.4	.80	1.6	1.4	.50
22	.88	.87	.60	.62	1.1	.94	1.5	1.3	.93	1.5	1.4	.50
23	.87	.89	.60	.57	.97	.95	1.8	1.4	.93	1.6	1.4	.46
24	.83	.85	.60	.70	.92	.93	1.8	1.8	.62	1.4	1.4	.42
25	.87	.87	.60	.70	.92	.94	1.6	1.2	.93	1.4	1.4	.39
26	.85	.90	.60	.70	.87	.92	1.6	1.2	1.1	1.5	2.2	.54
27	.89	.82	.60	.70	.86	.83	1.5	1.4	.90	1.4	1.8	.50
28	.95	.82	.60	.70	1.2	.83	1.6	1.5	.90	1.2	1.3	.58
29	.98	.85	.60	.70	.92	.83	1.5	1.8	.93	2.3	1.1	.56
30	1.0	.81	.60	.70	------	.87	1.5	1.1	.99	1.6	1.0	.49
31	1.0	------	.60	.70	------	.85	------	1.2	------	1.5	.90	------
TOTAL	24.15	26.45	21.91	19.38	23.50	27.80	39.29	47.0	33.62	38.64	52.80	18.64
MEAN	.78	.88	.71	.63	.81	.90	1.31	1.52	1.12	1.25	1.70	.62
MAX	1.0	1.0	1.1	.70	1.2	1.2	1.8	2.1	1.9	2.3	3.3	.80
MIN	.60	.81	.60	.42	.60	.73	.99	1.1	.62	.74	.90	.39
AC-FT	48	52	43	38	47	55	78	93	67	77	105	37

CAL YR 1967 TOTAL 1,215.25 MEAN 3.33 MAX 18 MIN .50 AC-FT 2,410
WTR YR 1968 TOTAL 373.18 MEAN 1.02 MAX 3.3 MIN .39 AC-FT 740

8-3430. Rio San Jose at Grants, N. Mex.

(Formerly Bluewater Creek at Grants)

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.--1,020 sq mi, approximately.

Records available.--October 1912 to February 1914, June 1914, October 1914 to February 1915, May 1915 to June 1921, September 1921 to June 1923, October 1923 to May 1926, September to December 1926, May 1949 to September 1966, June 1968 to September 1968. Monthly discharge only for some periods published in WSP 1312.

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, all at nearby sites at different datums. Prior to October 1966, published as Bluewater Creek at Grants.

Average discharge.--27 years (1912-13, 1914-20, 1921-22, 1923-25, 1949-66), 4.42 cfs (3,200 acre-ft per year).

Extremes.--Maximum discharge during period, 9.4 cfs Aug. 1 (gage height, 1.91 ft); no flow for most of year.
1949-66: 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.
Maximum flood known occurred Sept. 6 or 7, 1909, when Bluewater Dam washed out. A flood in July 1919 probably exceeded the one in 1952.

Remarks.--Records fair. Flow partly regulated by Bluewater Lake (capacity at crest of uncontrolled siphon spillway, 38,500 acre-ft). Diversions and ground-water withdrawals for irrigation of about 4,500 acres above station.

DISCHARGE, IN CFS, JUNE TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1											0.98	
2											.85	
3											0	
4											0	
5											0	
6											0	
7											.06	
8											0	
9											.98	
10											.32	
11											0	
12											0	
13											0	
14											0	
15											0	
16											0	
17											0	
18											0	
19											0	
20											0	
21											0	
22											0	
23											0	
24											0	
25											0	
26											0	
27											0	
28											0	
29					------						0	
30					------						0	
31		------			------		------		------		0	------
TOTAL									0	0	3.19	0
MEAN									0	0	.103	0
MAX									0	0	.98	0
MIN									0	0	0	0
AC-FT									0	0	6.33	0

CAL YR 1967: TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1968: TOTAL - MEAN - MAX - MIN - AC-FT -

PEAK DISCHARGE (BASE, 200 CFS).--NO PEAK ABOVE BASE.

8-3431. Grants Canyon at Grants, N. Mex.

Location.--Lat 35 09'40", long 107 50'15", in NE¼NE¼ sec.25, T.11 N., R.10 W., at Roosevelt Avenue, in the town of Grants, 0.2 mile east of intersection of Roosevelt and First Avenue and 1.1 mile upstream from confluence with Rio San Jose (formerly Bluewater Creek).

Drainage area.--13.0 sq mi.

Records available.--December 1961 to September 1968.

Gage.--Graphic water-stage recorder and control formed by four culvert barrels. Altitude of gage is 6,450 ft (from topographic map).

Average discharge.--7 years, 0.204 cfs (148 acre-ft per year).

Extremes.--Maximum discharge during year, 195 cfs Aug. 1 (gage height, 1.80 ft); no flow for most of time.
1962-68: Maximum discharge, 1,550 cfs Aug. 26, 1963, (gage height, 5.10 ft), from rating curve extended above 220 cfs on basis of slope-area measurements at gage heights 3.17, 5.10 and 5.38 ft; maximum gage height, 5.38 ft Sept. 8, 1967; no flow for most of time.

Remarks.--Records poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							0.02	0			10	
2							0	0			0	
3							0	0			.41	
4							0	.01			0	
5							0	0			0	
6							0	0			2.4	
7							0	0			0	
8							0	0			0	
9							0	0			0	
10							0	0			0	
11							0	0			12	
12							0	0			0	
13							0	0			0	
14							0	0			0	
15							0	0			0	
16							0	0			0	
17							0	0			0	
18							0	0			0	
19							0	0			0	
20							0	0			0	
21							0	0			0	
22							0	0			0	
23							.08	0			0	
24							0	0			0	
25							0	0			0	
26							0	0			0	
27							0	0			0	
28							0	0			0	
29					------		0	0			0	
30					------		0	0			0	
31		------			------		------	0	------		0	------
TOTAL	0	0	0	0	0	0	0.10	0.01	0	0	24.81	0
MEAN	0	0	0	0	0	0	.003	.0003	0	0	.800	0
MAX	0	0	0	0	0	0	.08	.01	0	0	10	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	.20	.02	0	0	49	0

CAL YR 1967: TOTAL 203.30 MEAN 0.556 MAX 80 MIN 0 AC-FT 403
WTR YR 1968: TOTAL 24.92 MEAN .068 MAX 10 MIN 0 AC-FT 49

PEAK DISCHARGE (BASE, 175 CFS)

DATE	TIME	G.HT.	DISCHARGE
8- 1	1950	1.80	195

8-3435. 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.--2,300 sq mi, approximately, of which about 1,130 sq mi does not contribute directly to surface runoff.

Records available.--June 1936 to September 1968. Prior to October 1955, published as San Jose River near Grants.

Gage.--Digital water-stage recorder and concrete control. Datum of gage is 6,269.47 ft above mean sea level, datum of 1929. Prior to Sept. 8, 1966, graphic water-stage recorder at same site and datum.

Average discharge.--32 years, 6.53 cfs (4,730 acre-ft per year).

Extremes.--Maximum discharge during year, 450 cfs Aug. 11 (gage height, 3.43 ft); minimum, 3.4 cfs Aug. 19.
1936-68: Maximum discharge, 1,400 cfs Sept. 20, 1963 (gage height, 4.87 ft), from rating curve extended above 450 cfs on basis of slope-area measurements at gage heights 3.19 and 4.87 ft; minimum, 2.8 cfs June 25, 1967.
Maximum flood known probably occurred Sept. 6 or 7, 1909, following destruction of Bluewater Dam. The peak of Sept. 20, 1963, may have been exceeded by those of July 1919, August and September 1929, and August 1935.

Remarks.--Records good. Flow partly regulated by Bluewater Lake (capacity at crest of uncontrolled siphon spillway, 38,500 acre-ft). Diversions and ground-water withdrawal for irrigation of about 5,100 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	5.6	4.4	4.3	8.0	5.8	4.6	5.9	4.6	4.6	10	4.0
2	4.6	5.7	4.4	4.3	7.2	5.1	4.6	5.8	4.9	4.7	8.0	4.3
3	4.6	5.4	4.5	4.4	7.6	4.9	4.5	5.8	5.0	4.5	5.7	4.3
4	4.6	5.2	4.6	4.6	7.2	4.8	4.6	5.9	4.9	4.6	5.7	4.3
5	4.6	5.0	4.9	4.9	7.2	4.8	4.6	6.1	4.8	4.7	4.6	4.3
6	4.6	5.0	4.9	4.9	7.2	4.9	4.6	5.8	5.2	4.7	4.3	4.3
7	4.6	5.0	4.9	4.6	6.3	4.7	4.6	5.7	5.3	4.4	4.0	4.1
8	4.5	5.0	4.9	4.6	6.4	4.6	4.9	5.3	5.4	4.4	5.7	4.1
9	4.4	5.0	4.8	4.9	6.2	4.7	4.9	5.4	5.9	4.5	4.3	4.0
10	4.6	5.0	4.6	4.9	5.8	5.0	4.8	5.4	6.0	4.7	4.0	4.0
11	4.6	4.5	4.8	5.3	5.4	5.7	4.9	5.6	5.8	4.7	76	4.1
12	4.7	4.5	4.9	5.3	5.0	5.5	5.4	5.8	5.9	4.6	48	4.1
13	4.7	4.5	4.4	5.3	4.9	4.8	5.4	5.5	6.3	4.9	15	4.1
14	4.8	4.5	4.1	5.3	4.8	4.5	5.1	5.5	6.4	4.6	6.1	4.2
15	4.8	4.5	4.1	5.7	4.7	4.4	5.0	5.2	6.4	4.6	4.9	4.3
16	4.7	4.5	4.1	5.7	4.9	4.4	5.5	5.2	6.5	4.6	4.3	4.4
17	4.8	4.5	4.3	6.1	5.3	4.4	5.7	5.2	7.2	4.5	4.0	4.2
18	4.9	4.5	4.3	6.1	5.3	4.4	5.8	5.3	6.9	4.3	4.0	4.2
19	4.9	4.5	4.3	6.1	4.8	4.4	5.8	4.9	7.0	4.6	3.7	4.1
20	4.9	4.5	4.3	6.1	5.0	4.6	5.7	4.9	7.1	4.6	4.0	4.1
21	4.9	4.5	4.3	6.3	5.0	4.8	5.8	4.9	6.5	4.6	3.7	4.0
22	4.9	4.5	4.3	6.3	5.1	4.8	5.8	4.9	6.7	4.6	4.0	3.9
23	5.1	4.5	4.3	6.4	4.9	4.8	6.3	4.7	5.9	4.3	4.0	4.0
24	4.9	4.5	4.3	6.7	5.4	4.4	6.4	4.7	4.9	4.3	3.7	4.1
25	5.4	4.5	4.3	7.5	5.2	4.4	5.9	4.8	4.7	4.3	3.7	4.2
26	5.6	4.0	4.3	7.5	5.1	4.5	5.9	4.6	4.6	4.0	3.7	4.4
27	5.5	4.0	4.0	8.0	5.4	4.5	5.8	4.7	4.6	4.0	3.7	4.4
28	5.6	4.0	4.0	8.6	5.8	4.5	5.8	4.7	4.6	4.0	3.7	4.4
29	5.6	4.0	4.3	8.6	5.8	4.4	5.8	4.8	4.5	4.0	3.7	4.4
30	5.5	4.1	4.6	8.3	------	4.5	5.8	4.6	4.5	4.0	3.7	4.4
31	5.5	------	4.6	8.4	------	4.5	------	4.6	------	6.5	4.0	------
TOTAL	152.0	139.5	137.8	186.0	166.9	146.5	160.3	162.2	169.0	140.4	267.9	125.7
MEAN	4.90	4.65	4.45	6.00	5.76	4.73	5.34	5.23	5.63	4.53	8.64	4.19
MAX	5.6	5.7	4.9	8.6	8.0	5.8	6.4	6.1	7.2	6.5	76	4.4
MIN	4.4	4.0	4.0	4.3	4.7	4.4	4.5	4.6	4.5	4.0	3.7	3.9
AC-FT	301	277	273	369	331	291	318	322	335	278	531	249

CAL YR 1967 TOTAL 2,120.7 MEAN 5.81 MAX 95 MIN 2.9 AC-FT 4,210
WTR YR 1968 TOTAL 1,954.2 MEAN 5.34 MAX 76 MIN 3.7 AC-FT 3,880

PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.HT.	DISCHARGE
8- 1	1900	2.29	100
8-11	2200	3.43	450

8-3515. Rio San Jose at Correo, N. Mex.

Location.--Lat 34°58'05", long 107°11'15", in NE¼ sec.31, T.9 N., R.3 W., on right bank 0.7 mile upstream from State Highway 6, 0.8 mile northwest of Correo, and 14 miles upstream from mouth.

Drainage area.--3,660 sq mi, approximately, of which about 1,130 sq mi does not contribute directly to surface runoff.

Records available.--April 1943 to September 1968. Prior to October 1955, published as San Jose River at Correo.

Gage.--Digital water-stage recorder. Datum of gage is 5,492.43 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1958, water-stage recorder and concrete control at site 1 mile downstream at datum 17.55 ft lower.

Average discharge.--25 years, 11.6 cfs (8,400 acre-ft per year).

Extremes.--Maximum discharge during year, 1,610 cfs Aug. 12 (gage height, 3.84 ft), from rating curve extended above 700 cfs on basis of slope-area measurement at gage height 6.8 ft; no flow for many days.
1943-68: Maximum discharge, 7,150 cfs Aug. 11, 1955; maximum gage height, 20.7 ft Aug. 22, 1958, backwater from dam (site and datum then in use); no flow for long periods.
A flood which probably occurred Aug. 21, 1935, reached a stage of 15.4 ft, from floodmarks, former site and datum (discharge, about 11,000 cfs), but was probably exceeded by the flood of Sept. 23, 1929 (discharge not determined), based on study of records for Rio Puerco at Rio Puerco.

Remarks.--Records fair except those for December, January and August, which are poor. Flow partly regulated by Bluewater Lake (capacity at crest of uncontrolled siphon spillways, 38,500 acre-ft) and one small reservoir above station. Diversions and ground-water withdrawals for irrigation of about 7,800 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.41	4.0	2.0	3.5	6.8	2.9	.07		0	100	
2	.07	1.0	4.0	2.5	3.3	5.3	8.0	0		0	500	
3	.02	1.3	4.0	3.0	4.6	6.4	8.0	0		0	200	
4	10	1.8	4.0	4.0	4.1	6.6	6.5	0		0	100	
5	1.3	2.2	3.7	3.0	4.2	5.0	4.5	0		0	150	
6	11	2.9	3.7	3.0	4.5	4.3	4.2	0		0	250	
7	.80	3.1	3.0	2.0	4.0	4.1	3.2	0		0	400	
8	.01	3.3	3.0	3.0	3.7	3.8	2.4	0		0	100	
9	0	3.5	3.0	4.0	4.0	4.0	1.9	0		0	100	
10	0	3.6	2.0	4.0	3.7	7.4	1.9	0		0	100	
11	0	3.2	1.0	4.0	2.0	16	2.4	0		0	350	
12	0	3.2	4.0	3.0	3.3	12	2.3	0		0	1,000	
13	0	3.2	3.5	3.0	4.1	9.3	1.7	0		0	600	
14	0	3.2	3.0	3.0	3.0	9.0	1.3	0		0	350	
15	0	3.2	2.0	4.0	5.0	8.2	1.1	0		0	76	
16	0	3.6	3.0	6.0	5.7	6.0	.64	0		0	27	
17	0	3.6	3.5	7.0	4.9	5.6	.80	0		0	4	
18	0	3.6	3.0	6.0	2.3	2.8	.59	0		0	0	
19	0	4.0	2.0	6.0	2.7	2.0	1.9	0		0	0	
20	0	4.0	6.0	6.0	2.8	3.6	1.7	0		0	0	
21	0	4.0	4.0	7.0	2.9	5.1	.44	0		0	0	
22	0	4.4	2.0	7.0	5.5	6.2	.58	0		0	0	
23	0	4.4	3.0	7.0	5.3	5.3	4.3	0		0	0	
24	0	4.4	3.0	7.8	4.8	4.4	6.4	0		.47	0	
25	0	4.0	2.5	6.8	4.5	3.4	4.7	0		3.0	0	
26	0	3.6	3.0	4.8	4.1	2.9	4.1	0		17	0	
27	0	4.0	2.5	5.7	4.2	2.4	2.3	0		40	0	
28	0	4.2	3.0	5.9	6.9	2.4	1.3	0		7.8	.19	
29	0	4.5	5.0	5.9	8.9	2.1	.59	0		13	3.3	
30	0	4.0	6.0	6.4	------	1.8	.06	0		.20	1.2	
31	0	------	3.0	5.7	------	1.5	------	0	------	10	0	------
TOTAL	24.2	99.41	99.4	148.5	122.5	165.7	82.7	0.07	0	91.47	4,411.69	0
MEAN	.781	3.31	3.21	4.79	4.22	5.35	2.76	.002	0	2.95	142	0
MAX	11	4.5	6.0	7.8	8.9	16	8.0	.07	0	40	1,000	0
MIN	0	.41	1.0	2.0	2.0	1.5	.06	0	0	0	0	0
AC-FT	48	197	197	295	2.43	329	164	.1	0	181	8,750	0

CAL YR 1967: TOTAL 7,124.32 MEAN 19.5 MAX 1,010 MIN 0 AC-FT 14,130
WTR YR 1968: TOTAL 5,245.64 MEAN 14.3 MAX 1,000 MIN 0 AC-FT 10,400

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G.HT.	DISCHARGE
8-12	UNKNOWN	3.84	1,610

8-3525. 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.--6,590 sq mi, approximately, of which at least 1,130 sq mi does not contribute directly to surface runoff.

Records available.--June 1909 to December 1912 (records fragmentary, gage heights only), March 1934 to September 1968. 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.--Digital water-stage recorder and concrete control. Datum of gage is 5,008.59 ft above mean sea level, datum of 1929. Prior to Oct. 15, 1966, graphic water-stage recorder.

Average discharge.--34 years (1934-68), 60.2 cfs (43,580 acre-ft per year).

Extremes.--Maximum discharge during year, 4,480 cfs Aug. 2 (gage height, 3.27 ft); no flow for many days.
1934-68: Maximum discharge, 28,000 cfs Aug. 21, 1935 (gage height, 7.24 ft), by computation of peak flow over dam; no flow at times.
The damaging flood of Sept. 23, 1929, is the greatest since about 1880; it reached a stage of 18 ft (conditions prior to destruction of railroad bridge. Discharge, 37,700 cfs, by weir formula, from reports of State engineer). The flood of Aug. 12, 1929, reached a stage of about 16 ft (discharge, 31,300 cfs, by weir formula, from reports of State engineer). A flood on Oct. 4, 1913, reached a stage of 9.5 ft (discharge not determined) prior to construction of the concrete control.

Remarks.--Records fair except those for December, January and August, which are poor. Diversions for irrigation of about 11,500 acres above station (includes 3,700 acres irrigated partly or entirely from wells).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	0	3.0	1.5	5.1	6.0	1.5	0	14	0	1,770	1.3
2	20	0	3.0	2.0	3.0	5.3	1.5	0	7.0	0	1,580	1.0
3	10	0	2.5	3.0	3.5	4.3	3.1	0	5.0	0	700	.36
4	15	0	3.0	4.0	4.0	4.1	5.1	0	3.0	3.7	180	.25
5	10	0	3.0	3.0	4.5	5.1	4.3	0	1.0	.50	300	.16
6	13	0	3.5	3.0	4.7	4.5	2.8	0	.50	0	619	.12
7	13	0	2.0	2.5	4.8	4.0	2.2	0	.10	0	1,380	.07
8	3.5	0	2.0	3.0	4.8	3.5	1.4	0	11	0	994	.06
9	.21	1.2	1.5	3.5	4.8	3.5	1.2	2.4	1.0	0	240	.04
10	.10	2.4	.50	4.0	4.8	5.4	1.2	12	0	0	220	.03
11	0	1.7	.50	4.0	5.1	8.4	1.0	13	0	18	500	.02
12	0	2.4	3.0	3.0	5.4	14	1.4	19	0	4.0	2,250	0
13	0	2.0	2.5	3.0	4.0	11	1.2	19	0	1.0	820	0
14	0	2.4	1.4	3.0	3.0	8.4	.82	19	0	.50	924	0
15	0	2.4	1.0	4.0	4.0	6.1	.55	21	0	0	1,170	0
16	0	2.0	1.5	5.0	5.2	6.8	.35	16	0	0	436	0
17	0	2.6	2.4	6.4	5.3	15	.21	12	0	0	150	0
18	0	2.6	2.0	6.0	4.6	14	0	6.1	0	0	50	0
19	0	2.4	1.5	6.0	3.2	7.2	0	3.5	0	0	10	0
20	0	2.6	3.0	6.0	2.3	5.1	0	2.8	0	0	1.1	0
21	0	2.8	3.0	6.4	2.1	4.3	0	9.3	0	0	.7	0
22	0	3.1	1.5	6.1	3.5	3.8	0	24	0	0	99	0
23	0	3.1	3.0	6.4	3.5	4.5	0	21	0	0	35	0
24	0	3.1	3.0	6.8	4.8	4.3	0	40	0	6.7	16	0
25	0	3.1	3.4	7.2	4.2	3.3	1.2	76	0	12	10	0
26	0	3.3	3.3	6.8	3.5	2.5	5.1	57	0	156	6.5	0
27	0	3.1	3.1	6.1	3.3	1.5	4.5	35	0	283	12	0
28	0	3.5	2.6	6.7	5.1	1.0	2.7	27	0	331	69	0
29	0	4.0	4.0	6.4	5.9	.50	.64	21	0	120	72	0
30	0	3.5	3.0	5.7	------	.50	.04	18	0	205	9.3	0
31	0	------	2.5	5.7	------	.50	------	15	------	371	2.8	------
TOTAL	109.81	59.3	75.20	146.2	122.0	168.40	44.01	489.1	42.60	1,512.40	14,626.4	3.41
MEAN	3.54	1.98	2.43	4.72	4.21	5.43	1.47	15.8	1.42	48.8	472	.11
MAX	25	4.0	4.0	7.2	5.9	15	5.1	76	14	371	2,250	1.3
MIN	0	0	.50	1.5	2.1	.50	0	0	0	0	.70	0
AC-FT	218	118	149	290	242	334	87	970	85	3,000	29,010	6.8

CAL YR 1967 TOTAL 40,321.07 MEAN 110 MAX 5,210 MIN 0 AC-FT 79,980
WTR YR 1968 TOTAL 17,398.83 MEAN 47.5 MAX 2,250 MIN 0 AC-FT 34,510

PEAK DISCHARGE (BASE, 2,000 REVISED, CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8- 2	0200	3.27	4,480	8-12	1915	3.38	3,360
8- 8	0100	3.05	2,330	8-14	2345	3.08	2,540

8-3530. 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., on bridge on former U.S. Highway 85 and ¼ mile upstream from Interstate Highway 25, 1.2 miles southwest of Bernardo, 3 miles upstream from mouth, and 18 miles south of Belen.

Drainage area.--7,350 sq mi, approximately, of which at least 1,130 sq mi does not contribute directly to surface runoff.

Records available.--November 1939 to September 1968. 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.--Graphic water-stage recorder. Datum of gage is 4,725.44 ft above mean sea level, datum of 1929.

Average discharge.--28 years (1940-68), 51.4 cfs (37,210 acre-ft per year).

Extremes.--Maximum discharge during year, 3,420 cfs Aug. 8 (gage height, 10.00 ft); no flow for extended periods.
1939-68: 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.
The greatest flood known since about 1880 occurred Sept. 23, 1929, from information by local residents (discharge, about 35,000 cfs, estimated on basis of peak at Rio Puerco). Another flood occurred Aug. 12, 1929 (discharge 30,600 cfs, by slope-area method, from reports of State engineer).

Remarks.--Records poor. Diversions for irrigation of about 11,500 acres above station (includes 3,700 acres irrigated wholly or partly from wells). Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0					0		0	4.4	0	1.430	1.0
2	2.0					0		0	4.1	0	1.560	.80
3	1.0					0		0	3.3	2.2	390	.60
4	50					0		0	2.0	4.2	182	.30
5	6.0					0		0	.88	0	130	0
6	4.0					0		0	0	0	249	0
7	1.0					0		0	0	0	832	0
8	0					0		0	0	0	1.490	0
9	0					0		0	0	0	390	0
10	1.0					0		0	3.0	0	238	0
11	0					0		1.0	3.2	2.0	224	0
12	0					0		2.6	2.1	1.3	1.240	0
13	0					0		0	1.7	1.4	1.760	0
14	0					0		0	1.5	0	426	0
15	0					0		0	0	0	1.250	0
16	0					0		1.2	0	0	828	0
17	0					0		4.5	0	0	200	0
18	0					0		4.1	0	0	50	0
19	0					0		3.3	0	0	10	0
20	0					2.1		2.3	0	0	2.0	0
21	0					1.8		1.8	0	65	2.0	0
22	0					1.2		0	0	5.3	1.0	0
23	0					.79		0	0	1.6	80	0
24	0					.37		.95	0	0	10	0
25	0					0		5.8	0	1.5	5.0	0
26	0					0		12	0	1.4	3.0	0
27	0					0		10	0	61	4.0	0
28	0					0		7.2	0	209	20	0
29	0				------	0		4.6	0	97	60	0
30	0				------	0		2.6	0	58	70	0
31	0	------			------	0	------	4.4	------	98	10	------
TOTAL	70.0	0	0	0	0	6.26	0	68.35	26.18	608.9	13.146.0	2.7
MEAN	226	0	0	0	0	.202	0	2.20	.873	19.6	424	.900
MAX	50	0	0	0	0	2.1	0	12	4.4	209	1,760	1.0
MIN	0	0	0	0	0	0	0	0	0	0	1.0	0
AC-FT	139	0	0	0	0	12	0	136	52	1,210	26,070	5.4

CAL YR 1967: TOTAL 39,183.66 MEAN 107 MAX 4,770 MIN 0 AC-FT 77,720
WTR YR 1968: TOTAL 13,928.39 MEAN 38.1 MAX 1,760 MIN 0 AC-FT 27,630

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8- 2	1315	9.97	3,280	8-13	0700	9.87	2,960
8- 8	1030	10.00	3,420	8-15	0945	9.04	2,140

8-3540. Rio Salado near San Acacia, N. Mex.

Location.--Lat 34°17'50", long 106°54'00", in NW¼ sec.24, T.1 N., R.1 W., at former bridge site 0.3 mile upstream from bridge on Interstate Highway 25, 3.1 miles upstream from mouth, 2.9 miles north of San Acacia, and 15 miles north of Socorro.

Drainage area.--1,380 sq mi, approximately.

Records available.--October 1947 to September 1968.

Gage.--Graphic water-stage recorder. Altitude of gage is 4,765 ft (from topographic map). Prior to Sept. 14, 1966 at site 1.7 miles downstream at different datum.

Average discharge.--21 years, 14.0 cfs (10,140 acre-ft per year).

Extremes.--Maximum discharge during year, 10,400 cfs Aug. 2 (gage height, 4.40 ft), from rating curve extended above 900 cfs as explained below; no flow most of time.

1947-68: Maximum discharge, 36,200 cfs July 31, 1965 (gage height, 5.54 ft, from floodmarks, present site and datum), from rating curve extended above 900 cfs on basis of slope-area measurement of peak flow; no flow most of time.

Another flood occurred Aug. 12, 1929 (discharge, 27,400 cfs, by slope-area method), from reports of State engineer.

Remarks.--Records poor. Diversions for irrigation of about 100 acres above station. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1967 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										0	344	15
2										0	541	1.0
3										0	67	0
4										0	93	0
5										0	197	0
6										0	200	37
7										.83	80	5.0
8										0	168	0
9										0	10	0
10										0	172	0
11										0	213	0
12										0	190	0
13										0	50	0
14										0	390	0
15										0	55	0
16										0	5.0	0
17										0	0	0
18										0	0	0
19										0	0	0
20										0	0	0
21										0	0	0
22										0	0	0
23										0	0	0
24										1.3	0	0
25										56	0	0
26										67	51	0
27										2.0	49	0
28										1.0	0	0
29										.50	2.9	0
30					------					.50	44	0
31		------			------		------		------	0	62	------
TOTAL	0	0	0	0	0	0	0	0	0	129.13	2983.9	58.0
MEAN	0	0	0	0	0	0	0	0	0	4.17	96.3	1.93
MAX	0	0	0	0	0	0	0	0	0	67	541	37
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	0	256	5,920	115

CAL YR 1967: TOTAL 8,709.3 MEAN 23.9 MAX 926 MIN 0 AC-FT 17,270
WTR YR 1968: TOTAL 3,555.03 MEAN 9.71 MAX 541 MIN 0 AC-FT 7,050

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8- 2	0200	4.40	10,400	8-14	0700	3.57	4,150
8-11	0500	3.63	4,450				

8-3545. Socorro main canal north at San Acacia, N. Mex.

Location.--Lat 34°15'15", long 106°53'45", in SE¼NW¼ sec.1, T.1 S., R.1 W., 0.5 mile downstream from point of diversion, on right bank at San Acacia.

Records available.--April 1936 to September 1968. Monthly discharge prior to October 1964 (daily records in district files).

Gage.--Digital water-stage recorder. Datum of gage is 4,660.16 ft above mean sea level, datum of 1929. Prior to Mar. 8, 1958, at site 300 ft upstream (in old channel) at datum 0.42 ft lower. Prior to Feb. 20, 1963, graphic water-stage recorder.

Extremes.--1936-68: Maximum daily discharge, 251 cfs July 30, 1965; no flow at times.

Remarks.--Records fair. This canal is 1 of 3 channels (see stations 8-3548, 8-3549) carrying flow in valley cross-section. For combined monthly flow in acre-ft of this canal, conveyance channel, and floodway see tabulation below daily table for station 8-3549. Canal diverts water from right bank of Rio Grande for irrigation of about 8,000 acres. Alamillo Acequia and 3 other smaller ditches divert water from canal above station for irrigation of about 400 acres. Discharge records collected at the canal heading October 1964 to September 1965, indicate 7,770 acre-ft or 9% of the initial canal flow was diverted before reaching the regular gaging station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	169	112	0	0	0	116	190	200	212	217	42	70
2	163	0	0	0	0	148	190	213	209	220	30	73
3	159	0	0	0	0	153	189	208	217	222	35	70
4	139	0	0	0	0	166	194	195	224	226	43	71
5	146	0	0	0	0	165	194	190	228	219	58	71
6	166	0	0	0	0	163	197	191	233	202	61	70
7	171	0	0	0	0	165	198	183	232	197	64	66
8	166	0	0	0	0	168	189	184	236	169	70	72
9	167	0	0	0	0	161	192	189	226	174	73	76
10	171	0	0	0	0	168	193	196	234	194	66	78
11	159	0	0	0	0	174	196	208	236	208	64	78
12	151	0	0	0	0	158	194	205	234	230	60	76
13	134	0	0	0	0	171	200	203	237	226	0	78
14	124	0	0	0	0	169	187	201	237	197	17	84
15	131	0	0	0	0	165	189	202	238	204	56	90
16	130	0	0	0	0	172	190	203	238	158	76	86
17	119	0	0	0	0	175	192	200	236	113	90	88
18	117	0	0	0	0	175	191	198	237	107	95	88
19	110	0	0	0	0	178	189	199	234	124	96	89
20	110	0	0	0	0	170	190	197	236	101	107	85
21	103	0	0	0	0	164	194	197	246	88	105	80
22	107	0	0	0	0	158	192	196	246	119	103	80
23	103	0	0	0	0	140	193	200	239	79	95	87
24	107	0	0	0	0	155	196	200	236	77	92	90
25	104	0	0	0	0	163	200	199	234	92	89	69
26	95	0	0	0	0	171	202	203	235	124	81	67
27	92	0	0	0	0	175	203	198	236	111	78	62
28	104	0	0	0	0	180	206	203	238	116	86	56
29	100	0	0	0	0	180	217	204	227	87	87	58
30	118	0	0	0	------	180	208	205	228	0	78	68
31	131	------	0	0	------	185	------	212	------	0	76	------
TOTAL	4,066	112	0	0	0	5,131	5,855	6,182	6,979	4,601	2,173	2,276
MEAN	131	3.73	0	0	0	166	195	199	233	148	70.1	75.9
MAX	171	112	0	0	0	185	217	213	246	230	107	90
MIN	92	0	0	0	0	116	187	183	209	0	0	56
AC-FT	8,060	222	0	0	0	10,180	11,610	12,260	13,840	9,130	4,310	4,510

CAL YR 1967 TOTAL 31,508.70 MEAN 86.3 MAX 294 MIN 0 AC-FT 62,500
WTR YR 1968 TOTAL 37,375.00 MEAN 102 MAX 246 MIN 0 AC-FT 74,130

8-3548. Rio Grande conveyance channel at San Acacia, N. Mex.

Location.--Lat 34°15'55", long 106°54'00", in SW¼ sec.1, T.1 S., R.1 W., on right bank 75 ft upstream from railway crossing, 1.2 miles downstream from San Acacia diversion dam, and 0.5 mile south of San Acacia.

Records available.--October 1958 to September 1968. October 1958 to September 1960, included in composite records for "Rio Grande at San Acacia". October 1960 to September 1964, monthly discharge published in WSP 1923 vol. 2. Daily records since 1958 available in District files.

Gage.--Digital water-stage recorder. Datum of gage is 4,652.5 ft above mean sea level (Bureau of Reclamation datum). Prior to 1958 all flow in floodway and Socorro main canal north. Prior to May 20, 1964, graphic water-stage recorder at same site and datum.

Average discharge.--10 years, 446 cfs (322,900 acre-ft per year).

Extremes.--1958-68: Maximum daily discharge, 1,950 cfs May 12, 13, 1966; no flow at times.

Remarks.--Records good. Conveyance channel is 1 of 3 channels (see stations 8-3545, 8-3549) carrying flow in valley cross-section. Original design and plan was for conveyance channel to carry all flows up to about 2,000 cfs. For combined monthly flow in acre-ft of this channel, floodway, and Socorro main canal north see tabulation below daily table for station 8-3549. Records of suspended sediment loads and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	147	130	1,050	755	800	873	573	205	1,530	6.1	2.9	5.5
2	126	172	885	770	730	693	662	135	1,520	5.2	3.2	5.5
3	91	115	825	708	768	663	846	99	1,520	8.2	3.0	5.5
4	483	110	785	677	734	624	976	185	1,520	8.0	3.0	5.6
5	147	119	720	732	698	632	1,020	298	1,520	10	3.1	5.4
6	64	177	655	731	720	593	678	933	1,550	11	3.4	5.1
7	40	234	688	693	736	647	697	1,140	1,530	8.1	3.5	3.2
8	24	464	693	696	705	650	755	1,450	1,580	5.3	4.0	3.3
9	20	483	703	658	718	694	582	1,020	1,570	4.8	3.7	3.8
10	12	525	740	665	730	787	450	889	1,590	4.0	3.6	3.5
11	12	562	726	698	745	1,210	303	1,180	1,600	4.1	3.7	3.4
12	9.3	581	650	667	766	1,150	207	1,810	860	3.7	4.0	3.4
13	8.5	607	584	724	810	919	264	1,880	72	3.3	3.9	3.5
14	8.3	623	592	719	833	675	230	1,870	54	2.7	4.0	3.4
15	8.4	630	600	649	849	635	806	1,690	68	2.3	3.9	3.4
16	14	654	588	641	820	701	753	1,510	68	0	3.9	3.4
17	7.6	679	608	676	795	675	741	1,520	39	0	3.8	3.6
18	7.4	867	572	675	752	536	684	1,540	14	0	3.8	3.9
19	7.6	1,530	524	681	740	434	775	1,570	14	0	3.8	3.9
20	7.9	1,520	592	703	738	644	630	1,550	12	0	3.7	3.6
21	8.2	1,530	896	698	745	710	586	1,550	9.6	0	4.0	3.6
22	7.8	1,580	820	666	779	765	615	1,630	8.1	20	4.0	3.6
23	8.7	1,590	739	669	778	619	547	1,840	14	3.8	4.0	3.6
24	8.3	1,600	661	677	805	618	421	1,800	14	3.5	4.0	3.5
25	9.1	1,650	624	684	828	572	441	1,540	12	2.8	4.5	3.2
26	9.2	1,640	621	674	819	538	402	1,570	11	2.7	4.5	3.1
27	8.8	1,630	665	714	800	530	258	1,520	9.5	2.4	4.5	2.7
28	10	1,640	695	720	894	470	244	1,530	8.1	2.4	5.0	2.9
29	9.8	1,690	710	732	1,010	436	354	1,570	6.9	2.1	5.0	3.2
30	10	1,630	767	726	------	428	241	1,560	6.4	2.2	5.0	2.9
31	8.7	------	749	780	------	340	------	1,550	------	2.6	5.0	------
TOTAL	1,343.6	26,962	21,727	21,658	22,645	20,462	16,741	40,134	18,330.6	131.3	121.4	114.2
MEAN	43.3	899	701	699	781	660	558	1,295	611	4.24	3.92	3.81
MAX	483	1,690	1,050	780	1,010	1,210	1,020	1,880	1,600	20	5.0	5.6
MIN	7.4	110	524	641	698	340	207	99	6.4	0	2.9	2.7
AC-FT	2,660	53,480	43,090	42,960	44,920	40,590	33,210	79,600	36,360	260	241	227

CAL YR 1967 TOTAL 159,070.95 MEAN 436 MAX 1,840 MIN .35 AC-FT 315,500
WTR YR 1968 TOTAL 190,370.10 MEAN 520 MAX 1,880 MIN 0 AC-FT 377,600

8-3549. Rio Grande floodway at San Acacia, N. Mex.

Location.--Lat 34°15'28", long 106°53'30", in NE¼ sec.1, T.1 S., R.1 W. (projected), in Sevilleta Grant, 0.25 mile below San Acacia diversion dam, 2 miles downstream from Rio Salado, and 0.3 mile east of San Acacia.

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 1968. Flow in the conveyance channel has been included prior to October 1964, and records published as, "8-3550. Rio Grande at San Acacia".

Gage.--Digital water-stage recorder. Datum of gage is 4,654.50 ft above mean sea level, datum of 1929, adjustment of 1951. Aug. 19, 1965 to Aug. 15, 1967 at same site at datum 1.89 ft. higher. Prior to Mar. 19, 1953, at several sites 0.1 mile upstream at different datums. Mar. 19, 1953 to Aug. 19, 1965, at site 0.4 mile downstream at datum 3.60 ft higher. Floodway is bypassed by Socorro main canal north and, since October 1958, by conveyance channel. Prior to October 1966, graphic water-stage recorder.

Average discharge.--22 years (1936-58), 1,192 cfs (863,000 acre-ft per year), prior to construction of conveyance channel; does not include Socorro main canal north.
10 years (1958-68), 283 cfs (204,900 acre-ft per year), flow of floodway only.
10 years (1958-68), 812 cfs (587,900 acre-ft per year), combined flow of floodway, conveyance channel and Socorro main canal north.

Extremes.--Maximum discharge during year, 8,140 cfs Aug. 14 (gage height, 9.78 ft); no flow at times.
1936-68: Maximum discharge, 27,400 cfs Aug. 5, 1936 (gage height, 10.75 ft, site and datum then in use); no flow at times.

Remarks.--Records poor. Floodway is 1 of 3 channels (see stations 8-3545, 8-3548) carrying flow in valley cross-section. For combined monthly flow in acre-ft of floodway, conveyance channel, and Socorro main canal north see tabulation below. Normal plan is for floodway to carry flow when combined capacities of conveyance channel (about 2,000 cfs) and Socorro main canal north (about 200 cfs) is exceeded, during periods of silt sluicing, and when river silt load is excessive. Diversions above station for irrigation of about 760,000 acres; this includes Socorro main canal north which bypasses station and irrigates about 8,000 acres. Records of suspended sediment loads and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	3.3	2.4	1.6	4.1	5.8	5.8	4.3	1,700	944	2,710	1,040
2	14	2.8	2.2	1.2	4.3	7.1	6.3	4.8	2,020	390	3,200	818
3	12	2.9	2.0	.80	4.6	6.1	9.7	3.5	1,900	318	1,820	540
4	24	2.9	1.7	.80	2.6	10	12	3.2	1,630	594	1,930	453
5	8.3	3.0	1.3	.80	3.7	8.4	10	4.1	1,110	678	2,170	336
6	9.3	3.4	2.0	.90	2.6	3.5	8.1	14	1,110	692	1,990	318
7	4.4	4.6	2.1	.80	2.0	3.4	11	34	1,100	692	3,050	235
8	6.7	4.6	1.9	.80	3.5	3.2	7.8	28	804	580	3,940	210
9	7.2	2.6	1.9	.70	2.4	8.1	7.4	14	664	417	2,610	166
10	5.9	4.2	2.3	.60	2.3	9.7	4.8	17	888	270	2,740	93
11	6.5	2.3	1.7	.70	2.1	35	6.1	20	608	170	3,240	74
12	4.4	1.7	1.5	3.2	3.7	4.8	5.8	417	748	50	4,950	58
13	3.4	2.3	1.9	2.8	2.8	3.9	9.0	471	1,310	10	6,420	34
14	4.4	1.6	9.0	2.3	3.5	2.8	5.1	520	1,040	5.6	6,350	26
15	9.6	1.3	6.0	3.5	3.5	3.4	20	608	930	4.1	5,540	28
16	6.7	1.2	.83	4.3	2.4	3.9	14	399	944	2.4	4,150	30
17	4.4	1.4	1.8	7.4	1.7	3.5	13	170	1,390	1.7	3,300	22
18	6.0	7.1	26	1.6	3.4	44	11	115	902	1.8	3,340	14
19	4.6	7.6	3.6	1.4	3.7	150	15	136	748	2.0	2,860	15
20	5.0	5.1	4.6	1.0	2.8	1.6	10	158	874	2.0	2,300	16
21	5.6	6.2	2.4	.90	2.3	5.1	13	186	1,080	2.1	1,780	15
22	5.0	5.0	1.3	2.3	2.0	4.6	10	200	1,340	18	1,600	15
23	4.6	3.1	.54	2.8	2.6	4.3	6.8	133	2,020	3.4	1,870	17
24	5.6	3.0	.10	2.6	1.8	5.1	4.8	580	2,020	3.2	1,200	16
25	4.2	3.3	0	3.5	1.7	3.7	6.1	1,580	1,730	8.7	664	16
26	4.0	3.9	0	3.7	3.7	2.1	8.7	2,060	1,630	15	560	17
27	5.6	4.3	.45	2.6	3.5	3.2	8.4	1,670	1,010	13	692	16
28	5.4	5.0	2.3	2.1	6.8	1.4	4.8	1,460	1,420	178	692	18
29	4.4	7.0	2.5	2.1	12	2.8	17	944	1,400	182	570	20
30	5.9	3.3	5.3	2.1	------	2.8	7.8	1,140	1,550	146	1,100	20
31	5.2	------	1.9	3.2	------	3.5	------	1,300	------	381	1,070	------
TOTAL	212.3	110.0	93.52	65.10	98.1	356.8	279.3	14,393.9	37,620	6,775.0	80,408	4,696
MEAN	6.85	3.67	3.02	2.10	3.38	11.5	9.31	464	1,254	219	2,594	157
MAX	24	7.6	26	7.4	12	150	20	2,060	2,020	944	6,420	1,040
MIN	3.4	1.2	0	.60	1.7	1.4	4.8	3.2	608	1.7	560	14
AC-FT	421	218	185	129	195	708	554	28,550	74,620	13,440	159,500	9,310
(†)	11,150	53,920	43,280	43,090	45,120	51,480	45,370	118,400	124,800	22,830	164,100	14,050

CAL YR 1967 TOTAL 54,664.70 MEAN 150 MAX 8,220 MIN 0 AC-FT 108,400 † MEAN 668.5 AC-FT 483,600
WTR YR 1968 TOTAL 145,108.02 MEAN 396 MAX 6,420 MIN 0 AC-FT 287,800 † MEAN 1,016 AC-FT 737,500

† COMBINED FLOW, IN ACRE-FT AND MEAN, IN CFS, OF FLOODWAY, CONVEYANCE CHANNEL, AND SOCORRO MAIN CANAL NORTH.

8-3560. 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 1 3/4 miles south of San Antonio.

Records available.--April 1937 to July 1938 (published as "at end near San Antonio"), March 1948 to September 1968.

Gage.--Digital water-stage recorder. Artificial control since Mar. 27, 1954. Datum of gage is 4,526.41 ft above mean sea level, datum of 1929. April 1937 to July 1938 at two different sites about 1½ miles downstream at different datums. March 1948 to November 1951 at site 30 ft upstream at datum 7.29 ft higher. Prior to Feb. 18, 1963, graphic water-stage recorder.

Extremes.--1937-38, 1948-68: Maximum daily discharge, 51 cfs Sept. 20, 1965; no flow for many days each year.

Remarks.--Records good. Diversions made at San Acacia into Socorro main canal north are the main source of water but may be supplemented by diversions from the conveyance channel at 3 points and from San Antonio Riverside drain, 2 miles above gage. Some diversions occur 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 1967 to September 1968

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	27	0.64	11.6	715
November	25	0	0.83	50
December	0	0	0	0
Calendar year 1967	50	0	9.12	6,600
January	0	0	0	0
February	0	0	0	0
March	35	0	21.8	1,340
April	37	2.2	20.1	1,200
May	37	7.2	24.0	1,470
June	40	7.9	22.6	1,340
July	42	.05	20.2	1,240
August	36	9.3	20.8	1,280
September	39	1.4	17.1	1,020
Water year 1967-68	42	0	13.3	9,660

8-3565. 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 old U.S. Highway 85, and 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 1968. May 1936 to February 1938, at site 50 ft downstream from Elmendorf interior drain; records not equivalent.

Gage.--Digital 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, site 1.2 miles downstream at datum 1.14 ft lower. Prior to Oct. 24, 1966, graphic water-stage recorder.

Extremes.--1948-68: Maximum daily discharge, 161 cfs May 31, 1957; no flow at times since 1959.

Remarks.--Records good. Diversions from drain above station, canal wasteways and interior drains entering channel above station. Flow represents 1 of 3 channel entering north boundary of Bosque del Apache Grant. Reduction in flow occurred after conveyance channel was completed in about 1957. 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 1967 to September 1968

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	30	3.9	11.0	676
November	11	4.0	7.22	430
December	10	8.1	8.88	546
Calendar year 1967	77	.50	14.3	10,380
January	10	9.0	9.51	585
February	11	8.3	9.92	571
March	64	6.7	35.9	2,210
April	40	14	24.2	1,440
May	48	8.8	31.5	1,940
June	47	20	30.6	1,820
July	44	1.5	17.4	1,070
August	97	6.	31.8	1,960
September	105	14	60.0	3,570
Water year 1967-68	105	1.5	23.2	16,810

8-3570. 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 (Published as "at end near San Antonio"), March 1948 to September 1968.

Gage.--Digital water-stage recorder and metal control. Datum of gage is 4,518.9 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation). July 1936 to January 1938, staff gage at site 0.5 mile upstream in former channel at datum about 0.34 ft higher. Mar. 11, 1948, to Nov. 10, 1949, at site about 2,500 ft upstream in former channel at different datum. Nov. 11, 1949, to Feb. 7, 1956, at site 2,000 ft upstream in present channel at datum about 0.26 ft lower. Prior to Feb. 21, 1963, graphic water-stage recorder.

Extremes.--1948-68. Maximum daily discharge, 59 cfs Aug. 21, 1965; no flow at times.

Remarks.--Records fair. Flow past station represents 1 of 3 channels entering north boundary of Bosque del Apache Grant.

Monthly discharge, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	39	7.2	19.2	1,180
November	28	1.5	2.79	166
December	4.7	1.3	1.94	119
Calendar year 1967	51	0.07	12.2	8,840
January	1.7	1.4	1.54	95
February	1.9	1.5	1.73	100
March	41	1.7	21.8	1,340
April	43	8.6	24.2	1,440
May	46	13	33.5	2,060
June	50	15	34.9	2,080
July	51	2.7	29.8	1,840
August	49	15	32.7	2,010
September	50	9.2	24.8	1,470
Water year 1967-68	51	1.3	19.1	13,900

8-3575. San Antonio Riverside drain near San Marcial, N. Mex.

Location.--Lat 33°44'45", long 106°55'15", in Bosque del Apache Grant (wildlife refuge), on left bank 1.0 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 1968.

Gage.--Digital water-stage recorder. Datum of gage is 4,487.12 ft above mean sea level, datum of 1929. Mar. 19, 1948, to July 28, 1960, at datum 2.00 ft higher. July 28, 1960, to May 14, 1962, at site 0.4 mile downstream at datum 1.42 ft lower. May 14, 1962 to Dec. 1, 1966 at present site at datum 2.00 ft higher. Prior to Oct. 24, 1966, graphic water-stage recorder.

Extremes.--1948-68: Maximum daily discharge, 226 cfs May 22, 1957; no flow at times.

Remarks.--Records fair. Flow represents surface outflow from wildlife refuge. Diversion for irrigation of a few hundred acres above station.

Monthly discharge, in cubic feet per second, water year October 1967 to September 1968

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	50	18	30.8	1,890
November	46	7.1	9.77	581
December	13	7.1	9.77	601
Calendar year 1967	146	2.8	29.8	21,590
January	29	9.2	13.5	831
February	31	12	23.3	1,340
March	141	12	86.8	5,340
April	95	46	70.3	4,180
May	122	53	87.5	5,380
June	91	49	71.6	4,260
July	93	6.4	51.7	3,180
August	90	25	51.7	3,180
September	120	18	66.2	3,940
Water year 1967-68	141	6.3	47.8	34,710

8-3583. Rio Grande conveyance channel at San Marcial, N. Mex.

Location.--Lat 33°41'20", long 106°59'35", in Pedro Armendaris Grant No. 34, on right bank 0.4 mile northwest of Atchison, Topeka and Santa Fe Railway Co. bridge over floodway channel, 1.0 mile southwest of former site of San Marcial, Socorro County, 3.5 miles downstream from railroad bridge near Tiffany siding and 51 miles downstream from heading at San Acacia.

Records available.--April 1950 to September 1968. April 1950 to September 1960, included in composite records for "8-3585. Rio Grande at San Marcial." October 1960 to September 1964, monthly discharge published in WSP 1923 vol. 2. Daily records since 1950 available in district files.

Gage.--Digital water-stage recorder. Datum of gage is 4,454.00 ft above mean sea level (levels by Bureau of Reclamation). Prior to Apr. 29, 1958, at datum 4.19 ft higher. Apr. 14, 1950, to Feb. 28, 1954, bypass flow (included in composite) was measured in Tiffany channel at a site 4 miles upstream; prior to 1950 all flow through floodway. Prior to Oct. 13, 1966, graphic water-stage recorder.

Average discharge.--14 years, 454 cfs (328,700 acre-ft per year).

Extremes.--1954-68: Maximum daily discharge, 2,200 cfs May 14, 1966; no flow at times.

Remarks.--Records fair. Original design and plan was for conveyance channel to carry all flows up to about 2,000 cfs. Conveyance channel is 1 of 2 channels (see station 8-3584) carrying flow in valley cross-section. For combined monthly flow in acre-ft of this channel and floodway see tabulation below daily table for station 8-3584. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	276	184	1,120	765	805	897	521	277	1,680	385	91	157
2	278	320	851	796	757	844	755	276	1,640	345	97	168
3	217	216	855	762	755	870	796	164	1,650	330	101	176
4	470	191	820	704	788	812	983	173	1,710	371	89	156
5	388	175	758	760	729	757	1,110	269	1,650	406	113	126
6	181	200	683	750	758	711	812	619	1,710	394	121	89
7	234	311	698	759	780	735	710	877	1,730	380	124	0
8	221	454	671	739	766	755	898	1,340	1,750	384	125	0
9	204	443	729	687	755	769	761	960	1,850	373	143	0
10	116	474	727	707	762	848	588	796	1,860	396	150	0
11	121	531	762	738	766	1,120	474	1,060	1,910	408	162	0
12	152	540	673	717	785	1,410	354	1,730	1,680	419	187	0
13	141	581	618	738	842	995	334	1,950	486	378	191	0
14	127	605	584	756	827	825	427	2,050	361	297	204	0
15	126	608	641	713	862	778	561	1,850	368	222	175	0
16	153	626	692	682	835	819	883	1,600	372	205	159	0
17	137	657	630	705	840	815	791	1,610	416	191	162	0
18	127	681	599	713	764	838	749	1,600	325	151	169	0
19	132	1,380	617	705	753	494	809	1,710	334	132	167	0
20	127	1,390	600	740	744	840	756	1,650	345	102	141	0
21	100	1,400	795	755	761	829	652	1,630	373	91	135	0
22	85	1,400	972	699	771	886	724	1,630	385	89	138	0
23	114	1,390	843	691	775	866	729	1,910	365	82	134	0
24	112	1,460	723	718	800	744	560	1,990	373	80	136	0
25	99	1,490	665	731	822	734	563	1,730	361	85	142	0
26	89	1,550	666	685	816	655	536	1,620	390	98	159	0
27	84	1,530	698	748	790	662	437	1,650	389	172	166	0
28	75	1,570	726	724	896	619	359	1,600	430	146	180	0
29	70	1,520	732	732	987	541	395	1,620	382	141	143	0
30	77	1,760	794	737	------	526	418	1,640	344	168	148	0
31	82	------	766	754	------	465	------	1,650	------	103	153	------
TOTAL	4,915	25,627	22,708	22,610	23,091	24,459	19,445	41,231	27,619	7,524	4,505	872
MEAN	159	854	733	729	796	789	648	1,330	921	243	145	29.1
MAX	470	1,760	1,120	796	987	1,410	1,110	2,050	1,910	419	204	176
MIN	70	175	584	682	729	465	334	164	325	80	89	0
AC-FT	9,750	50,830	45,040	44,850	45,800	48,510	38,570	81,780	54,780	14,920	8,940	1,730

CAL YR 1967 TOTAL 171,344 MEAN 469 MAX 1,810 MIN 20 AC-FT 339,900
WTR YR 1968 TOTAL 224,606 MEAN 614 MAX 2,050 MIN 0 AC-FT 445,500

8-3584. Rio Grande floodway at San Marcial, N. Mex.

Location.--Lat 33°40'50", long 106°59'15", in Pedro Armendaris Grant No. 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 18.5 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 1968. Published as "Rio Grande at San Marcial" prior to October 1964 with flow in the conveyance channel included.

Gage.--Water-stage recorder. Datum of gage is 4,455.19 ft above mean sea level, datum of 1929. Prior to June 25, 1943, floodway had water-stage recorder, inverted rod, inclined staff, and wire-weight gages at several sites within 2 miles of present site at various datums. Prior to 1950 all flow through floodway.

Average discharge.--63 years (1895-58), 1,363 cfs (986,800 acre-ft per year), includes flow of conveyance channel.
10 years (1958-68), 191 cfs (138,300 acre-ft per year), flow in floodway only.
10 years (1958-68), 724 cfs (524,200 acre-ft per year), includes flow of floodway and conveyance channel.

Extremes.--Maximum discharge during year, 4,240 cfs Aug. 14 (gage height, 13.75 ft); no flow for most of time.
1895-1968: Maximum discharge, about 50,000 cfs Oct. 11, 1904; no flow at times.

Remarks.--Records fair. Floodway is 1 of 2 channels (see station 8-3583) carrying flow in valley cross-section. For combined monthly flow in acre-ft see tabulation below. Normal plan is for floodway to carry flow when capacity of conveyance channel (about 2,000 cfs) is exceeded. Diversions for irrigation of about 775,000 acres above station (includes about 13,800 acre-ft diverted from conveyance channel, as based on weekly measurements, data furnished by Bureau of Reclamation). Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0					0		0	1,010	820	655	523
2	0					0		0	1,270	305	2,280	179
3	0					0		0	1,620	138	2,140	191
4	0					0		0	1,300	70	1,280	144
5	1.4					0		0	1,070	308	1,520	102
6	0					0		0	1,000	320	2,080	62
7	0					0		0	950	344	2,220	165
8	0					0		0	900	340	2,940	170
9	0					0		0	900	218	2,620	118
10	0					0		0	840	100	1,930	136
11	0					0		0	664	50	1,910	126
12	0					0		0	428	0	3,210	126
13	0					9.1		378	907	0	3,760	110
14	0					1.8		90	880	0	4,190	92
15	0					0		555	770	0	3,770	102
16	0					0		480	750	0	3,440	118
17	0					0		360	735	0	2,580	112
18	0					0		233	640	0	2,360	94
19	0					207		170	548	0	2,370	74
20	0					56		230	488	0	1,940	88
21	0					2.0		160	456	0	1,540	82
22	0					0		260	488	0	1,270	70
23	0					0		200	676	0	1,150	78
24	0					0		277	1,360	0	895	67
25	0					0		568	1,210	0	552	61
26	0					0		1,040	1,230	0	212	55
27	0					0		1,394	1,230	0	328	49
28	0					0		1,200	1,100	0	260	46
29	0				------	0		1,020	1,000	29	340	41
30	0				------	0		1,000	900	112	520	39
31	0	------			------	0	------	1,010	------	70	512	------
TOTAL	1.4	0	0	0	0	275.9	0	10,625	27,320	3,224	56,774	3,420
MEAN	.04	0	0	0	0	8.91	0	343	911	104	1,831	114
MAX	1.4	0	0	0	0	207	0	1,394	1,620	820	4,190	523
MIN	0	0	0	0	0	0	0	0	456	0	212	39
AC-FT	2.8	0	0	0	0	548	0	21,070	54,190	6,390	112,600	6,780
(†)	9,750	50,830	45,040	44,850	45,800	49,060	38,570	102,800	109,000	21,310	121,500	8,510

CAL YR 1967: TOTAL 31,768.64 MEAN 87.0 MAX 5,510 MIN 0 AC-FT 63,010 (†) MEAN 891 AC-FT 646,700
WTR YR 1968: TOTAL 101,640.3 MEAN 278 MAX 4,190 MIN 0 AC-FT 201,600 (†) MEAN 891 AC-FT 647,100

(†) COMBINED FLOW, IN ACRE-FT AND MEAN, IN CFS, OF FLOODWAY AND CONVEYANCE CHANNEL.

8-3600. Alamosa Creek near Monticello, N. Mex.

Location.--Lat 33°34'10", long 107°36'20", in SW¼ sec.31, T.8 S., R.7 W., on left bank at Alamosa damsite and below Old Fort Ojo Caliente, just downstream from Wildhorse Creek, 15 miles northwest of Monticello.

Drainage area.--403 sq mi.

Records available.--October to December 1929, May 1931 to April 1942, July 1956 to June 1958 (annual maximum only), July 1958 to September 1968. Monthly discharge only for some periods, published in WSP 1312. Prior to 1966 published as Alamosa River.

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 2, 1931, to Dec. 14, 1939, water-stage recorder at datum 0.20 ft lower and 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.--20 years (1931-41, 1958-68), 8.44 cfs (6,110 acre-ft per year).

Extremes.--Maximum discharge during year, 1,160 cfs Aug. 27 (gage height, 5.10 ft); minimum, 5.4 cfs June 22.
1931-42, 1956-68: Maximum discharge, 10,800 cfs Aug. 13, 1964 (gage height, 14.04 ft), from rating curve extended above 390 cfs on basis of slope-area measurements at gage heights 6.66 and 12.0 ft; minimum determined, 5.2 cfs Jan. 9, 1932, Sept. 3, 1938, July 2, 3, 1965.
Maximum flood known probably occurred in 1895, from information by local residents. A flood in August 1943 was highest since 1917.

Remarks.--Records good except those for August and September, which are poor. No diversion above station. Entire normal flow diverted below station for irrigation.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	6.8	6.6	6.4	6.8	7.3	6.4	6.0	6.2	6.2	12	6.8
2	7.3	6.8	6.6	6.4	6.8	7.3	6.4	6.0	6.2	6.4	8.0	6.8
3	7.0	6.8	6.8	6.4	6.8	7.3	6.4	6.4	6.2	6.4	7.8	6.8
4	7.0	6.8	6.8	6.4	6.8	7.3	6.4	6.6	6.2	6.4	7.8	6.8
5	7.0	7.0	6.8	6.4	6.8	7.3	6.4	6.4	6.2	6.4	15	6.8
6	6.8	7.0	6.8	6.4	6.8	7.0	6.4	6.2	6.2	6.6	15	6.8
7	6.8	7.0	6.8	6.4	6.8	7.0	6.4	6.0	6.2	6.6	16	6.8
8	6.8	7.0	6.8	6.4	7.0	7.0	6.4	6.0	6.2	6.4	25	6.8
9	6.8	7.0	6.8	6.4	7.0	7.0	6.4	6.0	6.2	6.2	16	7.0
10	6.8	7.0	6.8	6.4	7.0	7.0	6.4	6.0	6.2	6.6	14	7.0
11	7.0	6.8	6.8	6.4	7.3	6.8	6.4	6.0	6.2	6.4	13	6.8
12	7.0	6.8	6.8	6.4	7.5	6.8	6.6	6.0	6.2	5.8	8.6	6.8
13	7.0	6.8	6.8	6.4	7.3	6.8	6.6	6.0	6.4	5.6	8.4	6.8
14	7.0	6.8	6.8	6.4	7.3	6.8	6.6	6.0	6.2	5.8	8.2	6.8
15	7.0	6.8	6.8	6.4	7.3	6.8	6.6	6.0	6.2	6.0	8.0	6.8
16	7.0	6.6	6.8	6.4	7.3	6.8	6.2	6.0	6.2	6.0	7.8	6.7
17	7.0	6.6	6.6	6.4	7.0	6.8	6.0	6.0	6.0	6.2	7.6	6.7
18	7.0	6.8	6.6	6.4	7.0	6.8	6.0	6.0	5.8	6.0	7.4	6.7
19	7.0	6.8	6.6	6.4	7.0	6.8	6.0	5.8	5.6	6.0	7.8	6.7
20	7.0	6.8	6.6	6.4	6.8	6.8	6.0	5.8	5.6	6.0	7.0	6.6
21	7.0	6.8	6.4	6.4	6.8	6.6	6.0	5.8	5.6	6.0	6.8	6.6
22	7.0	6.6	6.2	6.4	7.0	6.6	6.0	5.8	5.4	5.8	6.6	6.6
23	7.0	6.6	6.2	6.4	7.3	6.6	6.0	5.8	5.6	10	6.0	6.6
24	7.0	6.6	6.2	6.4	7.3	6.6	6.0	5.6	5.6	12	5.8	6.6
25	6.8	6.6	6.2	6.6	7.3	6.6	6.0	5.8	5.8	6.4	5.6	6.6
26	6.8	6.6	6.2	6.6	7.3	6.6	6.0	5.6	6.0	6.2	7.3	6.4
27	6.8	6.6	6.2	6.6	7.3	6.6	6.0	5.8	6.0	6.0	43	6.4
28	6.8	6.6	6.4	6.6	7.3	6.6	6.2	6.0	6.0	8.5	8.6	6.6
29	6.6	6.6	6.6	6.6	7.3	6.6	6.4	6.2	6.2	6.6	14	6.6
30	6.6	6.6	6.6	6.6	------	6.6	6.2	6.2	6.2	9.8	8.0	6.4
31	6.8	------	6.6	6.6	------	6.6	------	6.2	------	13	7.0	------
TOTAL	214.8	203.0	204.6	199.8	205.3	212.1	187.8	186.0	180.8	214.3	339.1	201.2
MEAN	6.93	6.77	6.60	6.45	7.08	6.84	6.26	6.00	6.03	6.91	10.9	6.71
MAX	7.3	7.0	6.8	6.6	7.5	7.3	6.6	6.6	6.2	13	43	7.0
MIN	6.6	6.6	6.2	6.4	6.8	6.6	6.0	5.6	5.4	5.6	5.6	6.4
AC-FT	426	403	406	396	407	421	372	369	359	425	673	399

CAL YR 1967: TOTAL 3,451 MEAN 9.45 MAX 129 MIN 5.8 AC-FT 6,840
WTR YR 1968: TOTAL 2,548.8 MEAN 6.96 MAX 43 MIN 5.4 AC-FT 5,060

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
8-27	1830	5.10	1,160

8-3605. Elephant Butte Reservoir at Elephant Butte, N. Mex.

Location.--Lat 33°09'15", long 107°11'30", in NW¼ sec.30, T.13 S., R.3 W. (survey by Bureau of Reclamation), at dam on Rio Grande, 1 mile west of Elephant Butte and 4 miles northeast of Truth or Consequences (Hot Springs), N. Mex.

Drainage area.--29,445 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--March 1915 to September 1968. Prior to January 1940 published in WSP 1312.

Gage.--Water-stage recorder. Datum of gage is 43.3 ft above mean sea level, datum of 1929. Oct. 16, 1939, to May 2, 1940, and prior to September 1930, staff gages.

Extremes.--Maximum daily contents during year, 343,500 acre-ft Feb. 29, Mar. 1 (gage height, 4,319.70 ft); minimum daily, 135,700 acre-ft Aug. 1 (gage height, 4,295.09 ft).
1915-68: Maximum daily contents, 2,302,800 acre-ft June 16-18, 1942 (gage height, 4,409.19 ft); minimum daily after initial filling, 9,900 acre-ft Aug. 6, 1954 (gage height, 4,258.03 ft).

Remarks.--Reservoir is formed by concrete dam. Storage began Jan. 6, 1915. Dam completed May 13, 1916. Capacity, 2,195,000 acre-ft (survey of 1961) between gage heights 4,231.5 (sill of outlet gate) and 4,407.0 ft (crest of spillway). Capacity by original survey was 2,638,900 acre-ft. No adjustment made for decrease in capacity due to sedimentation between effective dates of capacity tables. No dead storage, surveys of 1957 and 1961. 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. Lake is major recreational area. Contents given herein are computed from mean daily gage heights.

Cooperation.--Records furnished by Bureau of Reclamation.

Capacity table, water year 1967-68 (gage heights, in feet, and contents, in thousands of acre-feet)

4,293	122.7	4,310	249.1
4,295	135.1	4,315	295.5
4,300	169.1	4,320	346.6
4,305	207.2	4,325	402.9

Contents, in thousands of acre-feet, water year October 1967 to September 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	189.0	190.4	230.5	268.3	305.8	343.5	281.1	214.2	202.8	190.0	135.7	225.3
2	189.5	190.5	232.6	269.6	307.2	341.9	278.3	211.8	204.6	188.7	136.8	225.9
3	189.9	190.7	234.2	271.1	308.6	340.0	276.4	208.8	206.4	186.2	140.2	226.0
4	190.2	190.8	235.7	272.6	310.0	337.7	274.3	205.8	208.7	183.7	143.5	226.3
5	190.6	191.0	237.0	273.7	311.2	335.3	272.6	202.8	210.7	181.6	145.0	226.5
6	191.4	191.2	238.3	275.0	312.3	333.3	271.0	199.8	212.0	180.2	147.1	226.6
7	191.6	191.3	239.5	276.4	313.6	330.9	269.1	197.3	213.1	178.8	150.3	226.6
8	191.7	191.6	240.9	277.7	315.0	328.8	266.9	196.4	214.0	177.4	153.8	226.8
9	191.8	192.2	242.0	278.6	316.3	326.7	265.0	195.8	214.7	175.2	158.7	227.0
10	191.8	193.0	243.0	279.7	317.7	325.0	262.9	194.6	215.2	173.0	162.9	227.2
11	191.8	193.8	244.0	280.9	318.9	323.5	260.7	193.0	216.3	170.6	165.9	227.4
12	191.8	194.6	245.1	282.1	320.4	321.5	258.3	191.3	217.5	169.4	168.8	227.5
13	191.8	195.4	246.6	283.2	321.9	320.4	255.6	190.5	217.3	168.4	174.2	227.8
14	191.8	196.3	248.1	284.4	323.4	318.9	252.8	190.8	216.5	166.8	180.9	227.9
15	191.8	197.5	248.7	285.8	324.5	317.3	250.2	191.2	215.6	165.3	188.3	228.0
16	191.8	198.3	248.7	286.8	326.0	315.4	247.9	191.7	214.0	163.3	195.0	228.2
17	191.8	199.2	248.8	287.9	327.5	313.4	246.2	192.4	212.2	161.9	200.9	228.4
18	191.8	200.3	249.8	288.9	328.9	310.8	244.0	192.7	210.6	159.9	205.2	228.5
19	191.8	201.6	250.3	290.4	330.3	309.1	242.1	192.9	208.9	158.1	208.9	228.7
20	191.8	204.0	252.5	291.5	331.4	307.4	240.1	192.7	206.6	156.1	212.7	228.8
21	191.8	206.4	254.5	292.7	332.9	305.3	237.9	192.3	204.2	154.2	215.6	229.0
22	191.8	209.2	255.9	293.8	334.1	303.4	235.9	192.2	201.6	152.2	217.7	229.0
23	191.8	212.0	257.3	294.9	335.5	301.8	234.0	192.2	199.1	150.2	219.3	229.2
24	191.8	214.6	258.9	296.0	336.8	300.0	231.7	192.3	197.2	148.6	220.6	229.3
25	191.3	217.5	259.3	297.4	338.3	297.7	229.5	192.6	196.9	146.9	221.4	229.5
26	191.0	220.4	261.2	298.5	339.4	295.5	227.3	193.6	196.2	144.9	221.5	229.5
27	191.0	223.4	262.2	299.8	340.7	293.5	225.0	195.0	195.2	143.2	221.0	229.6
28	190.9	225.1	263.4	301.1	342.1	291.2	222.6	197.0	194.1	141.8	220.7	229.7
29	190.9	225.3	264.6	302.3	343.5	288.9	219.5	198.9	192.5	140.3	221.6	229.8
30	190.5	227.5	265.7	303.3	------	286.3	216.8	200.0	190.9	138.4	222.6	229.9
31	190.2	------	267.1	304.6	------	283.8	------	201.2	------	136.8	224.0	------
(†)	4302.8	4307.5	4312.0	4315.9	4319.7	4313.8	4306.2	4304.2	4302.9	4395.3	4207.0	4307.8
(‡)	+1.7	+37.3	+39.6	+37.5	+38.9	-59.7	-67.0	-15.6	-10.3	-54.1	+87.2	+5.9
Max	191,800	227,500	267,100	304,600	343,500	343,500	281,100	214,200	217,500	190,000	224,000	229,900
Min	189,000	190,400	230,500	268,300	305,800	283,800	216,800	190,500	190,900	136,800	135,700	225,300

(†) GAGE HEIGHT, IN FEET, AT END OF MONTH.
(‡) CHANGE IN CONTENTS, IN THOUSANDS OF ACRE-FEET.

8-3610. 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.4W. (projected), in Pedro Armendaris Grant, on left bank 1.0 mile downstream from dam and 1½ miles upstream from Cuchillo Negro River.

Drainage area.--29,450 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--January 1915 to September 1968. Monthly or annual discharge only for some periods, published in WSP 1732. Figures of daily discharge, published in WSP 458 for October to December 1916, have been found to be unreliable and should not be used.

Gage.--Digital water-stage recorder and crest-stage gage. Datum of gage is 4,242.09 ft above mean sea level, datum of 1929. Prior to Jan. 1, 1931, at one of three sites 0.1 to 1.0 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, 1939, to Dec. 31, 1940, at site 0.7 mile upstream at datums 0.06 ft lower and 1.36 ft lower Jan. 17 to Mar. 29, 1939, and Mar. 30, 1939, to Dec. 31, 1940, respectively. Jan. 1, 1941, to Apr. 23, 1942, at site 128 ft upstream from preceding gage at datum 0.91 ft lower than present gage. Prior to Feb. 2, 1963, graphic water-stage recorder.

Average discharge.--53 years, 1,012 cfs (732,700 acre-ft per year).

Extremes.--Maximum discharge during year, 2,010 cfs Mar. 11 (gage height, 5.65 ft); maximum gage-height, 6.14 ft June 12 (backwater from moss); minimum, 2.6 cfs Oct. 18.
1915-68: Maximum daily discharge, 8,220 cfs May 22, 1942; no flow at times prior to 1929.

Remarks.--Records good except those for December and April to July, which are fair. Flow regulated by Elephant Butte Reservoir (see station 8-3605). Diversion for irrigation of about 800,000 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	17	15	14	11	1,680	1,770	1,770	1,770	1,800	611	13
2	9.8	17	15	14	11	1,800	1,770	1,780	1,780	1,800	612	13
3	9.0	15	15	14	11	1,800	1,760	1,790	1,790	1,790	610	12
4	8.6	15	15	14	11	1,810	1,760	1,790	1,790	1,790	627	11
5	6.2	14	15	14	11	1,800	1,770	1,780	1,790	1,770	607	11
6	9.0	14	15	13	11	1,800	1,770	1,780	1,790	1,510	606	50
7	11	12	15	14	11	1,810	1,760	1,780	1,780	1,500	607	10
8	11	9.2	15	15	11	1,800	1,770	1,150	1,780	1,490	608	9.8
9	8.7	9.3	15	16	11	1,800	1,750	1,750	1,780	1,490	606	9.6
10	6.7	9.5	15	15	12	1,800	1,770	1,740	1,780	1,490	611	8.9
11	7.0	8.9	15	15	12	1,800	1,770	1,730	1,780	1,500	617	8.8
12	7.0	8.5	15	15	12	1,770	1,770	1,730	1,780	495	626	7.9
13	6.5	8.5	15	15	12	1,770	1,770	1,720	1,770	1,030	626	7.1
14	7.1	8.5	15	12	12	1,780	1,770	1,720	1,760	1,030	632	7.2
15	6.9	9.0	15	9.5	12	1,780	1,760	1,700	1,770	1,030	631	7.2
16	7.0	10	15	9.0	12	1,790	1,750	1,710	1,760	1,030	630	7.5
17	6.6	10	15	9.5	12	1,790	1,740	1,700	1,760	1,040	630	7.3
18	5.9	11	15	12	12	1,790	1,740	1,700	1,760	1,050	627	7.2
19	15	12	15	12	17	1,790	1,730	1,700	1,770	1,050	631	7.5
20	13	12	15	12	17	1,790	1,720	1,710	1,780	1,050	606	8.9
21	8.9	13	15	12	17	1,780	1,720	1,710	1,780	1,040	637	8.7
22	8.5	13	15	12	16	1,780	1,720	1,730	1,780	1,030	638	7.9
23	8.5	14	15	12	17	1,780	1,710	1,740	1,790	1,020	637	7.0
24	1,230	14	15	12	17	1,780	1,720	1,760	1,800	1,020	636	6.2
25	1,320	15	15	13	17	1,780	1,720	1,760	1,800	1,020	641	6.0
26	25	15	15	14	17	1,780	1,730	1,760	1,810	1,020	647	5.6
27	22	100	15	12	18	1,770	1,730	1,760	1,800	1,010	638	6.6
28	21	200	15	11	17	1,780	1,740	1,760	1,800	1,000	41	7.4
29	19	1,500	14	11	18	1,770	1,740	1,760	1,800	1,010	15	9.2
30	18	400	14	11	------	1,770	1,760	1,770	1,800	1,010	14	9.0
31	17	------	14	11	------	1,770	------	1,770	------	1,010	14	------
TOTAL	2,869.9	2,514.4	462	394.0	395	55,290	52,460	53,510	53,480	37,925	16,919	298.5
MEAN	92.6	83.8	14.9	12.7	13.6	1,784	1,749	1,726	1,783	1,223	546	9.95
MAX	1,320	1,500	15	16	18	1,810	1,770	1,790	1,810	1,800	647	50
MIN	5.9	8.5	14	8.5	11	1,680	1,710	1,150	1,760	495	14	5.6
AC-FT	5,690	4,990	916	781	783	109,700	104,100	106,100	106,100	75,220	33,560	592

CAL YR 1967 TOTAL 223,753.7 MEAN 613 MAX 1,820 MIN 1.1 AC-FT 443,800
WTR YR 1968 TOTAL 276,517.8 MEAN 756 MAX 1,810 MIN 5.6 AC-FT 548,500

8-3620. Caballo Reservoir near Arrey, N. Mex.

Location.--Lat 32°53'45", Long 107°17'30", in SE¼SW¼ sec.19, T.16 S., R.4 W., in control tower of Caballo 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 5¾ miles south of Caballo, N. Mex.

Drainage area.--30,700 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--February 1938 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 43.3 ft above mean sea level, datum of 1929.

Extremes.--Maximum daily contents during year, 160,380 acre-ft July 16 (gage height, 4,162.55 ft); minimum daily, 25,840 acre-ft Oct. 1 (gage height, 4,134.93 ft).
1938-68: Maximum daily contents, 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).

Remarks.--Reservoir is formed by earth-fill dam, completed Sept. 19, 1938. Storage began Feb. 8, 1938. Capacity (1958 survey), 344,000 acre-ft between gage heights 4,104 (bottom of tunnel entrance of 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 mean daily gage heights.

Cooperation.--Records furnished by Bureau of Reclamation.

Capacity table, water year 1967-68 (gage height, in feet, and contents, in thousands of acre-feet)

4,132	18.88	4,142	47.03	4,152	91.03
4,134	23.52	4,144	54.42	4,154	102.2
4,136	28.61	4,146	62.50	4,157	121.0
4,138	34.19	4,148	71.28	4,160	141.7
4,140	40.31	4,150	80.76	4,163	163.8

CONTENTS, IN THOUSANDS OF ACRE-FEET, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.84	33.19	40.25	42.58	44.90	41.62	50.35	102.53	148.32	142.38	127.43	77.72
2	25.93	33.28	40.38	42.61	45.00	42.74	49.70	104.57	148.89	141.37	126.22	77.00
3	26.09	33.31	40.44	42.74	45.11	43.87	50.64	106.43	149.55	140.74	124.68	76.22
4	26.24	33.33	40.57	42.90	45.24	45.00	51.77	108.11	150.36	140.88	123.67	74.26
5	26.32	33.45	40.64	42.94	45.31	46.14	53.13	108.98	150.73	142.89	121.78	71.93
6	26.42	33.56	40.61	43.03	45.45	47.21	54.30	111.74	151.32	145.57	120.52	69.63
7	26.53	33.65	40.61	43.07	45.52	48.26	56.08	112.86	151.62	147.80	119.16	67.57
8	26.55	33.73	40.67	43.07	45.62	49.09	57.38	114.17	152.06	150.66	118.26	65.64
9	26.63	33.79	40.77	43.17	45.72	49.99	58.86	114.81	152.50	153.46	117.35	63.66
10	26.79	33.90	40.77	43.20	45.93	50.83	60.35	116.50	152.58	155.52	116.50	61.26
11	26.89	33.99	40.84	43.30	46.00	51.51	62.30	117.87	152.95	157.16	115.53	57.85
12	26.94	34.05	40.87	43.40	46.28	52.41	64.44	119.03	153.53	158.36	114.56	54.46
13	27.05	34.10	40.94	43.43	46.48	53.92	66.72	120.20	154.20	158.44	113.49	51.32
14	27.10	34.16	41.46	43.50	46.58	55.32	69.05	121.65	154.71	159.18	111.92	48.65
15	27.23	34.22	41.49	43.53	46.65	56.59	71.28	123.13	155.01	159.86	110.17	46.41
16	27.23	34.34	41.43	43.56	46.69	56.87	73.70	124.47	155.16	160.38	108.29	43.59
17	27.28	34.76	41.46	43.66	46.69	56.75	75.80	126.02	155.16	159.94	106.01	41.59
18	27.36	34.85	41.59	43.83	46.72	56.67	77.77	127.64	155.45	158.58	103.67	40.48
19	27.41	34.91	41.66	43.87	46.72	56.63	80.04	129.22	154.94	157.31	100.97	39.34
20	27.52	34.91	41.62	43.90	46.79	56.79	82.07	130.74	153.97	154.94	97.82	38.31
21	27.60	35.00	41.79	44.00	46.86	56.83	84.03	132.67	152.88	152.50	94.16	38.09
22	27.67	35.09	41.92	44.04	47.10	56.75	86.05	134.26	151.99	149.78	90.40	38.28
23	27.72	35.24	41.92	44.07	47.14	56.00	88.09	136.01	150.02	147.15	87.78	38.46
24	28.04	35.33	41.95	44.21	47.28	55.17	89.82	137.56	150.15	144.12	85.89	38.62
25	30.74	35.39	42.02	44.28	47.46	54.42	91.85	139.19	149.26	141.09	84.13	38.72
26	32.70	35.48	42.08	44.31	47.64	54.23	93.82	140.88	148.17	138.70	82.57	38.90
27	32.85	35.63	42.18	44.38	47.28	53.85	95.79	142.24	147.08	136.36	82.22	39.03
28	32.96	35.92	42.25	44.49	45.67	53.51	97.93	143.69	146.22	133.98	81.16	39.18
29	33.05	38.65	42.31	44.59	43.36	53.13	99.42	144.91	145.06	131.91	80.18	39.25
30	33.11	40.16	42.41	44.66	------	52.30	100.51	146.00	143.98	129.70	79.31	39.28
31	33.14	------	42.58	44.80	------	51.36	------	147.08	------	127.91	78.40	------
(†)	4,137.6	4,140.0	4,140.7	4,141.3	4,140.9	4,143.2	4,153.7	4,160.8	4,160.3	4,158.0	4,149.5	4,139.7
(‡)	+7.40	+7.02	+2.42	+2.22	-1.44	+8.00	+49.15	+46.57	-3.10	-16.07	-49.51	-39.12
MAX	33,140	40,160	42,580	44,800	47,640	56,870	100,510	147,080	155,450	160,380	127,430	77,720
MIN	25,840	33,190	40,250	42,580	43,360	41,620	49,700	102,530	143,980	127,910	78,400	38,090

CAL YR 1967 ..... ‡ -10.52
WTR YR 1968 ..... ‡ +13.54

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

‡ Change in contents, in acre-feet.

8-3625. 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 2,000 ft upstream from Interstate Highway 25, 4,200 ft downstream from Caballo Dam, 1¾ 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.--30,700 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--January 1938 to September 1968.

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.--30 years, 883 cfs (639,300 acre-ft per year).

Extremes.--Maximum daily discharge during year, 2,470 cfs July 23; minimum daily, 1.1 cfs Oct. 4-12, Oct. 29 to Nov. 10.
1938-68: 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, 2,195,000 acre-ft, 1961 survey). Diversions for irrigation of about 800,000 acres above station. Figures of daily discharge do not include Bonita ditch which diverts from Caballo Dam and by-passes station for irrigation below. See monthly table below for record of ditch.

Cooperation.--Records furnished by Bureau of Reclamation.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.1	1.2	1.2	1.2	1.100	2.200	732	1.100	2.180	919	287
2	1.2	1.1	1.2	1.2	1.2	1.080	1.650	739	1.210	2.030	1.460	280
3	1.2	1.1	1.2	1.2	1.2	1.100	1.220	734	1.200	1.770	1.370	791
4	1.1	1.1	1.2	1.2	1.2	1.120	1.210	748	1.250	1.100	1.290	1.250
5	1.1	1.1	1.2	1.2	1.2	1.120	1.090	753	1.300	684	1.280	1.250
6	1.1	1.1	1.2	1.2	1.2	1.180	1.020	747	1.300	290	1.350	1.200
7	1.1	1.1	1.2	1.2	1.2	1.230	1.000	742	1.300	160	1.270	1.130
8	1.1	1.1	1.2	1.2	1.2	1.260	1.010	756	1.300	37	1.150	1.140
9	1.1	1.1	1.2	1.2	1.2	1.320	927	840	1.300	251	1.130	1.140
10	1.1	1.1	1.2	1.2	1.2	1.310	865	892	1.300	357	1.140	1.490
11	1.1	1.2	1.2	1.2	1.2	1.210	786	893	1.300	572	1.140	2.000
12	1.1	1.2	1.2	1.2	1.2	1.080	603	903	1.300	596	1.140	1.990
13	1.2	1.2	1.2	1.2	1.2	1.100	522	908	1.300	540	1.310	1.710
14	1.2	1.2	1.2	1.2	1.2	1.110	464	906	1.380	554	1.500	1.320
15	1.2	1.2	1.2	1.2	1.2	1.330	400	889	1.490	587	1.480	1.350
16	1.2	1.2	1.2	1.2	1.2	1.750	457	898	1.490	936	1.600	1.150
17	1.2	1.2	1.2	1.2	1.2	1.750	556	827	1.500	1.420	1.720	855
18	1.2	1.2	1.2	1.2	1.2	1.740	570	690	1.650	1.470	1.710	588
19	1.2	1.2	1.2	1.2	1.2	1.730	552	625	1.920	1.630	1.800	582
20	1.2	1.2	1.2	1.2	1.2	1.700	550	639	1.920	2.040	2.120	450
21	1.3	1.2	1.2	1.2	1.2	1.690	555	646	2.020	2.040	2.460	7.5
22	1.3	1.2	1.2	1.2	1.2	1.870	545	653	2.130	2.040	2.220	6.1
23	1.3	1.2	1.2	1.2	1.2	2.160	556	669	2.140	2.470	1.690	4.8
24	1.3	1.2	1.2	1.2	1.2	2.090	597	777	2.140	2.440	1.540	3.4
25	1.3	1.2	1.2	1.2	1.2	1.870	609	815	2.140	2.190	1.380	3.4
26	1.2	1.2	1.2	1.2	1.2	1.900	614	809	2.140	2.100	1.240	3.4
27	1.2	1.2	1.2	1.2	446	1.920	625	809	2.130	2.100	978	3.4
28	1.2	1.2	1.2	1.2	1.130	1.890	629	855	2.130	2.100	881	3.4
29	1.1	1.2	1.2	1.2	1.140	1.980	638	941	2.130	2.060	747	3.4
30	1.1	1.2	1.2	1.2	------	2.200	685	993	2.130	1.860	492	3.3
31	1.1	------	1.2	1.2	------	2.190	------	1.010	------	1.840	370	------
TOTAL	36.5	35.0	37.2	37.2	2.747.2	48.080	23.705	24.838	49.040	42.444	41.877	21.995.1
MEAN	1.18	1.17	1.20	1.20	94.7	1,551	790	801	1,635	1,369	1,351	733
MAX	1.3	1.2	1.2	1.2	1,140	2,200	2,200	1,010	2,140	2,470	2,460	2,000
MIN	1.1	1.1	1.2	1.2	1.2	1,080	400	625	1,100	37	370	3.3
AC-FT	72	69	74	74	5,450	95,370	47,020	49,270	97,270	84,190	83,060	43,630
(†)	0	0	0	0	0	81	23	43	131	202	94	60

CAL YR 1967: TOTAL 230,164.7 MEAN 631 MAX 2,430 MIN 0.9 AC-FT 456,500
WTR YR 1968: TOTAL 254,872.2 MEAN 696 MAX 2,470 MIN 1.1 AC-FT 505,500

† DIVERSION, IN ACRE-FEET, BY BONITA DITCH. BONITA DITCH DIVERTS DIRECTLY FROM CABALLO DAM AND THIS DIVERSION IS NOT INCLUDED IN THE RIVER RECORDS.

8-3637. Tortugas Arroyo near Las Cruces, N. Mex.

Location.--Lat 32°17'20", long 106°43'45", in SE¼SW¼ sec.22, T.23 S., R.2 E. (projected), in Dona Ana Bend Colony Grant, 30 ft downstream from flood detention dam, 1.2 miles northeast of New Mexico State University and 3.3 miles southeast of Las Cruces Post Office, Dona Ana County.

Drainage area.--20.7 sq mi.

Records available.--October 1962 to September 1968.

Gage.--Graphic water-stage recorder and Parshall flume at downstream end of reservoir outlet pipe. Datum of gage is 4,071.62 ft above mean sea level (Soil Conservation Service bench mark).

Average discharge.--6 years, 0.21 cfs (152 acre-ft per year).

Extremes.--Maximum discharge during year, 20 cfs July 25 (gage height, 1.00 ft); no flow most of time.
1963-68: Maximum discharge 100 cfs Aug. 6, 1967 (gage height, 2.48 ft); no flow most of time.

Remarks.--Records good. Records represent outflow from Tortugas Reservoir, completed in 1962. Records of suspended sediment loads for the water year 1968 are published in part 2 of this report.

Reservoir is designed to retard flood flows and detain silt. Dam is earth-fill, L-shaped, 3,400 ft long at crest and 44 ft high. Original capacity, 1,325 acre-ft at spillway crest. No dead storage, though deposition of silt is expected to reduce storage capacity. Outlet drop tower is 9' -2" x 4' -2" inside and 18' 6" high. The tower has 9 rectangular outlet ports, each 8"x17", but 6 are presently closed. Tower is connected to downstream channel by a 30-inch diameter pipe. Records will be published in tabular form, as flow events.

Outflow during water year October 1967 to September 1968

Flow event	Date	Outflow (hours)	Maximum (cfs)	Cfs-days	Runoff (acre-ft)
31	July 25, 26	15.5	20.	6.29	12
32	July 31 and Aug. 1	13.5	11.	1.89	3.7
Totals		29.0	-	8.18	15.7

8-3640. Rio Grande at El Paso, Tex.

Location.--Lat 31°48'10", long 106°32'25", on downstream side of first pier from left abutment of Courchesne Bridge at El Paso, 1.7 miles upstream from American Dam, 5.6 miles upstream from Santa Fe Street - Juarez Avenue Bridge between El Paso and Cd. Juarez, Chihuahua, and at mile 1,249.9.

Drainage area.--32,207 sq mi, approximately (includes 2,940 sq mi in closed basin in San Luis Valley, Colo.).

Records available.--1889 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 3,722.30 ft above mean sea level (U.S.C. & G.S. datum).

Average discharge.--1938-1968 (calendar years), 537.2 cfs (388,915 acre-ft per year).

Extremes.--Maximum discharge during year, 4,230 cfs July 25 (gage height, 6.50 ft); minimum, 20.5 cfs Mar. 1. Extreme discharges are those passing the El Paso station.
1889-1915: Maximum discharge, 24,000 cfs June 12, 1905; no flow at times.
1915-1968: Maximum discharge, 13,500 cfs Sept. 3, 1925, subsequent to closing of Elephant Butte Dam; no flow at times.

Remarks.--Mean daily discharges for 1968 were computed by adding the flows in the American Canal and the flows at the river station below the American Dam. Because the mean daily discharges are rounded, the monthly sum for this station may not equal the sum of the monthly sums of the other two stations. Measurements are made at the El Paso station only during high flows. Reservoirs, diversions, and drainage returns modify the river flow at this station.

Cooperation.--Records furnished by International Boundary and Water Commission, United States and Mexico.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	44.1	41.5	45.4	35.3	211	1,020	349	406	837	1,150	438
2	149	42.4	41.4	46.0	34.4	461	1,100	326	406	871	1,290	435
3	151	38.6	43.5	47.6	33.3	579	1,220	330	408	902	858	374
4	120	40.0	44.4	45.9	33.9	530	571	356	614	1,140	1,070	246
5	108	40.1	45.7	45.8	33.3	484	421	374	683	1,380	889	216
6	104	40.2	43.3	47.5	34.8	451	401	385	707	1,440	730	418
7	94.4	39.0	45.9	47.4	32.0	460	459	402	677	846	798	636
8	94.6	40.4	45.0	52.6	30.9	546	448	374	677	602	636	633
9	93.4	41.9	48.6	52.5	30.5	726	527	358	703	540	544	549
10	91.3	42.0	45.3	50.8	33.1	621	568	356	750	314	343	562
11	97.0	43.5	41.1	47.2	35.1	783	519	393	678	218	326	602
12	86.3	43.6	43.8	45.7	33.6	814	477	518	744	367	413	553
13	81.4	42.5	42.9	44.0	34.3	696	513	488	715	253	421	778
14	78.7	40.7	46.2	42.5	36.0	557	441	503	590	262	437	727
15	78.1	40.7	53.8	47.8	31.8	554	400	500	563	292	368	659
16	70.4	40.6	53.8	48.0	33.6	541	365	458	639	218	445	507
17	71.1	42.6	57.4	47.9	39.0	714	313	436	743	176	446	468
18	70.0	42.0	50.7	46.1	37.7	1,010	278	487	692	141	450	438
19	72.2	43.1	46.9	42.5	34.3	880	269	526	719	211	535	346
20	73.1	43.0	46.2	44.2	34.4	756	271	476	719	465	510	263
21	73.3	42.4	45.0	44.1	26.8	678	277	401	709	530	648	226
22	73.5	45.1	44.4	45.8	32.9	651	303	347	708	976	899	250
23	72.3	46.1	41.6	47.4	30.1	537	316	279	774	969	1,050	379
24	72.5	43.0	41.6	47.6	30.1	953	309	252	975	1,150	815	217
25	55.6	40.4	43.3	44.3	30.1	996	300	230	987	1,630	760	216
26	53.5	43.3	45.1	40.9	26.9	834	325	229	857	1,000	767	189
27	49.0	46.0	45.7	42.9	28.0	646	315	294	778	925	726	182
28	48.1	45.2	44.6	40.0	30.2	640	324	312	716	1,090	661	196
29	48.8	44.6	45.2	36.9	30.2	508	324	361	744	1,240	618	174
30	43.8	44.3	45.8	36.4	------	511	375	385	795	1,370	443	170
31	42.8	------	46.4	36.9	------	613	------	345	------	1,130	484	------
TOTAL	2,568.2	1,271.4	1,416.1	1,400.6	946.6	19,941	13,749	11,830	20,876	23,485	20,530	12,047
MEAN	82.8	42.4	45.7	45.2	32.6	643	458	382	696	758	662	402
MAX	151	46.1	57.4	52.6	39.0	1,010	1,220	526	987	1,630	1,290	778
MIN	42.8	38.6	41.1	36.4	26.8	211	269	229	406	141	326	170
AC-FT	5,094	2,522	2,809	2,778	1,878	39,553	27,271	23,465	41,408	46,582	40,721	23,895

CAL YR 1967: TOTAL 117,339.6 MEAN 321 MAX 1,870 MIN 31.1 AC-FT 232,744
WTR YR 1968: TOTAL 130,060.9 MEAN 355 MAX 1,630 MIN 26.8 AC-FT 257,972

8-3779. Rio Mora near Terrero, N. Mex.
(Hydrologic bench-mark station)

Location.--Lat 35°46'38", long 105°39'26", in E½NE¼ sec.22, T.18 N., R.12 E., on left bank 450 ft upstream from bridge on State Highway 63, 600 ft upstream from mouth, and 3.1 miles by road north of Terrero.

Drainage area.--53.2 sq mi.

Records available.--October 1963 to September 1968.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,890 ft (from topographic map).

Average discharge.--5 years, 27.5 cfs (19,910 acre-ft per year).

Extremes.--Maximum discharge during year, 395 cfs Aug. 5 (gage height, 3.36 ft); minimum, 1.7 cfs Feb. 1, result of freezeup.
1963-68: Maximum discharge, 451 cfs July 29, 1965 (gage height, 3.56 ft), from rating curve extended above 190 cfs by logarithmic plotting; minimum determined, 0.9 cfs Jan. 12-14, 1964, but may have been less during periods of ice effect.
Greatest flood since 1886 probably occurred Sept. 29, 1904 (based on statement for Pecos River near Pecos and history of that flood period).

Remarks.--Records excellent except those above 200 cfs or below 10 cfs, which are good, and those for winter periods, which are poor. This bench-mark station was established to define hydrologic trend of the contiguous area. About 90 percent of the drainage is in the Pecos Wilderness Area and not subject to development, watershed management, or the building of highways; there is limited cattle grazing by permit. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	12	8.0	5.5	5.1	6.5	25	33	206	22	107	44
2	22	11	7.0	6.0	5.0	7.0	21	37	186	24	140	40
3	22	8.0	7.0	6.0	5.8	7.2	18	50	164	24	125	37
4	23	9.0	7.5	5.5	5.5	6.5	16	56	153	23	130	35
5	21	10	8.0	5.0	5.0	7.5	15	61	151	23	150	32
6	20	11	8.0	4.5	5.8	7.0	16	68	145	25	251	30
7	19	9.4	7.5	4.5	5.8	7.5	16	66	138	22	223	28
8	19	8.9	7.0	5.0	5.7	7.0	14	68	126	20	180	27
9	18	11	7.0	5.0	5.3	7.2	17	73	115	26	149	25
10	18	10	6.0	5.0	5.5	6.0	19	76	102	38	185	25
11	17	9.4	6.0	5.0	5.5	5.8	26	73	93	35	235	24
12	17	9.2	7.0	5.0	5.8	8.0	34	71	85	28	228	24
13	16	9.4	8.0	5.0	5.3	8.0	43	68	79	27	204	21
14	16	8.9	8.0	5.5	4.8	8.5	44	70	77	25	186	20
15	15	8.9	7.0	6.0	4.6	8.5	50	72	71	24	151	19
16	15	8.7	6.0	6.0	5.1	7.7	56	83	68	22	125	18
17	15	9.4	6.0	6.0	5.1	7.5	49	90	64	20	108	17
18	15	8.2	7.0	5.5	5.1	8.2	49	84	61	22	93	17
19	14	8.0	7.0	5.5	5.0	7.7	47	89	57	23	80	16
20	14	8.2	6.0	5.5	5.5	7.7	41	98	52	22	70	16
21	14	7.7	5.0	6.0	6.2	8.0	40	112	49	20	66	15
22	14	8.9	5.5	6.0	6.4	7.0	35	168	46	20	58	14
23	13	8.0	6.0	5.7	6.2	8.0	31	206	43	19	52	14
24	12	6.0	6.0	5.5	6.8	12	27	193	40	20	46	14
25	12	8.0	6.0	6.0	7.0	14	30	176	37	27	43	14
26	12	6.8	5.5	6.0	7.0	16	29	172	34	29	43	13
27	11	6.2	6.0	6.2	7.0	19	29	178	30	54	41	13
28	12	9.2	6.0	6.0	6.5	20	29	199	28	68	44	12
29	12	8.2	6.0	5.8	6.0	23	28	225	26	60	43	12
30	8.0	6.5	6.0	5.5	------	29	30	228	25	84	42	13
31	10	------	5.5	5.7	------	28	------	230	------	74	49	------
TOTAL	489.0	264.1	204.5	171.4	165.4	331.0	924	3,473	2,551	970	3,647	649
MEAN	15.8	8.80	6.60	5.53	5.70	10.7	30.8	112	85.0	31.3	118	21.6
MAX	23	12	8.0	6.2	7.0	29	56	230	206	84	251	44
MIN	8.0	6.0	5.0	4.5	4.6	5.8	14	33	25	19	41	12
AC-FT	970	524	406	340	328	657	1,830	6,890	5,060	1,920	7,230	1,290

CAL YR 1967: TOTAL 7,577.0 MEAN 20.8 MAX 200 MIN 3.0 AC-FT 15,030
WTR YR 1968: TOTAL 13,839.4 MEAN 37.8 MAX 251 MIN 4.5 AC-FT 27,450

PEAK DISCHARGE (BASE, 100 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-30	2330	2.89	252	8- 2	0030	2.62	188
7-27	1900	2.36	138	8- 5	2230	3.36	395
7-29	2330	2.21	114	8-10	2300	3.03	291

8-3785. Pecos River near Pecos, N. Mex.

Location.--Lat 35°42'30", long 105°40'55", 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 9 miles north of Pecos.

Drainage area.--189 sq mi (contributing area).

Records available.--August 1919 to September 1968. Monthly discharge only for some periods, published in WSP 1312. Published as "near Cowles" 1919-25, "at Irvins Ranch" 1926-29, and as "at Irvins Ranch, near Pecos" 1930-39.

Gage.--Water-stage recorder. Datum of gage is 7,502.94 ft above mean sea level, datum of 1929.

Average discharge.--49 years, 98.7 cfs (71,460 acre-ft per year).

Extremes.--Maximum discharge during year, 550 cfs May 30 (gage height, 3.62 ft); maximum gage height, 4.14 ft Dec. 10, ice jam; minimum discharge, 9.7 cfs Nov. 24, result of freezeup.
1919-68: Maximum discharge, about 4,500 cfs Sept. 21 or 22, 1929 (gage height, 6.2 ft, from floodmark), from rating curve extended above 1,600 cfs by logarithmic plotting; minimum, 4.1 cfs Dec. 8, 1963.
Flood of Sept. 29, 1904, was greatest since 1886, from information by local residents.

Remarks.--Records good except those for winter periods, which are poor. Diversions for irrigation of about 75 acres (1959 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	44	30	25	30	23	77	121	470	100	234	116
2	75	44	25	28	27	28	68	141	444	102	255	104
3	73	37	30	30	35	26	60	175	399	108	214	98
4	80	37	35	28	30	26	51	188	390	110	229	96
5	73	38	35	26	30	27	48	199	409	106	243	86
6	70	42	35	23	30	24	54	217	404	110	341	82
7	68	35	40	27	30	26	53	217	399	100	305	79
8	64	37	45	30	30	24	53	214	381	90	262	73
9	63	37	40	30	33	24	56	223	337	90	229	70
10	61	39	34	30	27	24	61	226	309	110	304	68
11	61	37	45	27	35	30	77	214	283	104	399	68
12	59	37	45	25	23	30	98	211	272	90	390	66
13	56	37	35	30	20	32	116	202	269	82	363	61
14	55	35	30	36	20	30	121	199	269	81	345	58
15	53	34	28	36	20	30	134	211	265	77	290	54
16	50	34	28	36	20	30	158	232	255	72	245	53
17	51	34	25	35	20	30	136	245	248	77	220	51
18	50	31	28	33	20	28	136	232	239	72	197	51
19	48	31	32	33	23	27	134	239	229	75	175	48
20	48	30	29	34	26	26	114	262	214	75	160	46
21	47	30	27	37	23	32	112	305	199	66	158	45
22	45	32	30	42	23	33	106	399	194	72	143	44
23	45	30	35	45	22	32	92	460	180	75	132	42
24	42	21	35	50	23	33	86	423	168	79	119	42
25	42	29	30	50	23	40	90	390	155	131	112	42
26	41	26	30	50	26	45	90	381	143	150	116	42
27	39	26	30	50	26	51	90	399	134	157	119	42
28	39	34	30	42	23	56	90	423	123	172	138	40
29	39	30	30	34	20	65	90	465	116	141	114	39
30	34	26	29	35	------	79	102	498	106	158	112	44
31	45	------	28	29	------	81	------	503	------	148	132	------
TOTAL	1,692	1,014	1,008	1,066	738	1,092	2,753	8,814	8,003	3,180	6,795	1,850
MEAN	54.6	33.8	32.5	34.4	25.4	35.2	91.8	284	267	103	219	61.7
MAX	80	44	45	50	35	81	158	503	470	172	399	116
MIN	34	21	25	23	20	23	48	121	106	66	112	39
AC-FT	3,360	2,010	2,000	2,110	1,460	2,170	5,460	17,480	15,870	6,310	13,480	3,670

CAL YR 1967: TOTAL 22,662 MEAN 62.1 MAX 537 MIN 16 AC-FT 44,950
WTR YR 1968: TOTAL 38,005 MEAN 104 MAX 503 MIN 20 AC-FT 75,380

PEAK DISCHARGE (BASE, 310 CFS)

DATE	TIME	G.HT.	DISCHARGE
5-22	2230	3.53	498
5-30	2300	3.62	550
8- 2	0130	3.18	325
8- 6	0030	3.47	460
8-10	2350	3.57	515

8-3795. Pecos River near Anton Chico, N. Mex.

Location.--Lat 35°10'45", long 105°06'30", in Anton Chico Grant, on right bank 2 miles upstream from Canyon Blanco, 2½ miles southeast of Anton Chico, Guadalupe County, and 10 miles downstream from Tecolote Creek.
Drainage area.--1,050 sq mi, approximately (contributing area).
Records available.--April 1910 to May 1916, October 1916 to September 1924, August to December 1925, January 1927 to September 1968. Monthly discharge only for some periods, published in WSP 1312.
Gage.--Digital water-stage recorder and crest-stage gage. Altitude of gage is 5,130 ft (from river-profile map). Prior to July 2, 1937, at five different sites from one-sixth 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. Prior to Apr. 22, 1963, graphic water-stage recorder.
Average discharge.--55 years (1910-15, 1916-24, 1926-68), 135 cfs (97,740 acre-ft per year).
Extremes.--Maximum discharge during year, 6,130 cfs Aug. 29 (gage height, 9.45 ft); minimum, 0.05 cfs Dec. 11.
1910-68: 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.
The greatest flood since 1879 occurred Sept. 29, 1904 (discharge, about 73,000 cfs), from information by a local resident.
Remarks.--Records fair. Diversions above station for irrigation of about 4,900 acres (1959 determination) above and below station. Acequia del Bodo Juan Paiz (see table below) diverts water about 8 miles above gage and bypasses this station on left bank; ditch flow not included in record. Discharge measurements made at point opposite regular gage. A portion of this flow may be returned to the river about five miles downstream.

Discharge measurements, in cubic feet per second, of Acequia del Bodo Juan Paiz, water year October 1967 to September 1968

Date	Discharge	Date	Discharge	Date	Discharge
Oct. 24	0	Mar. 4	0	July 2	2.62
Nov. 16	25.0	27	0	24	*24
Dec. 21	*8.0	Apr. 24	18.1	Aug. 6	28.1
Jan. 18	0	May 15	30.9	28	30.7
Feb. 5	0	June 11	20.4	Sept. 17	16.9

* Discharge estimated.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	12	34	15	25	34	114	78	474	40	121	174
2	84	11	28	12	25	27	121	89	451	340	189	144
3	81	11	11	8.0	23	27	111	111	433	225	220	117
4	79	11	14	10	18	36	100	138	392	121	494	108
5	61	9.2	14	13	28	36	84	169	371	92	358	98
6	40	8.9	14	16	27	32	73	188	364	97	455	86
7	36	10	12	23	23	32	71	197	359	89	364	74
8	35	11	10	25	22	33	74	196	355	80	322	55
9	35	11	6.0	27	24	35	75	196	331	76	282	39
10	34	9.8	4.5	29	21	38	70	216	301	310	898	34
11	34	11	5.0	31	20	44	67	224	256	245	1,100	29
12	34	8.3	7.0	29	21	42	72	227	228	119	634	30
13	34	6.0	6.0	31	18	37	84	225	212	108	630	24
14	34	7.0	5.0	29	18	37	138	207	208	113	510	27
15	26	7.9	8.0	30	23	39	154	208	201	84	437	17
16	13	8.5	12	35	26	42	157	209	195	77	371	9.5
17	14	8.4	15	38	28	42	161	222	196	60	305	5.9
18	14	8.2	18	33	29	41	161	235	175	71	240	9.1
19	23	8.8	22	25	27	41	155	221	169	11	210	5.8
20	49	7.1	20	24	23	41	154	213	158	88	178	15
21	29	9.2	16	30	21	41	143	221	155	124	146	12
22	9.2	13	13	38	19	41	132	256	157	44	136	11
23	13	12	17	36	21	38	133	362	143	155	112	10
24	44	13	20	30	25	34	124	448	130	97	89	7.9
25	35	12	24	30	24	36	116	424	110	256	66	11
26	5.9	13	20	37	25	40	116	402	98	81	281	21
27	6.4	12	20	35	28	51	90	385	95	171	171	19
28	6.5	14	21	35	35	63	83	389	87	140	111	14
29	7.1	18	15	33	35	76	89	404	70	163	840	7.8
30	6.8	42	10	30	------	86	84	445	55	130	301	6.6
31	9.0	------	10	29	------	101	------	465	------	122	348	------
TOTAL	1,022.9	344.3	451.5	846.0	702	1,343	3,306	7,970	6,929	3,929	10,919	1,221.6
MEAN	33.0	11.5	14.6	27.3	24.2	43.3	110	257	231	127	352	40.7
MAX	91	42	34	38	35	101	161	465	474	340	1,100	174
MIN	5.9	6.0	4.5	8.0	18	27	67	78	55	11	66	5.8
AC-FT	2,030	683	896	1,680	1,390	2,660	6,560	15,810	13,740	7,790	21,660	2,420

CAL YR 1967 TOTAL 25,758.61 MEAN 70.6 MAX 1,860 MIN .09 AC-FT 51,090
WTR YR 1968 TOTAL 38,984.3 MEAN 107 MAX 1,100 MIN 4.5 AC-FT 77,320

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7- 2	2200	8.41	4,260	8-10	1900	8.84	5,030
7-10	2200	8.80	4,960	8-29	2000	9.45	6,130
8- 4	1800	8.14	3,770				

8-3805. Gallinas Creek 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.--March to September 1915, June 1916 to September 1968. Monthly discharge only for some periods, published in WSP 1312. Prior to October 1964 published as Gallinas River near Montezuma.

Gage.--Water-stage recorder. Altitude of gage is 6,950 ft (from topographic map).

Average discharge.--52 years (1916-68), 19.7 cfs (14,260 acre-ft per year).

Extremes.--Maximum discharge during year, 115 cfs Aug. 4 (gage height, 2.05 ft); minimum, 1.8 cfs Jan. 19, result of freezeup.

1915-68: Maximum discharge, 7,120 cfs Aug. 2, 1966 (gage height, 9.7 ft, from floodmarks), from rating curve extended above 500 cfs on basis of slope-area measurements at gage heights 5.25, 8.25, and 9.7 ft; minimum, 0.20 cfs Dec. 13, 1964.

The greatest flood since about 1900 occurred the night of Sept. 29, 1904 (discharge not determined), from information by local residents and G. B. Monk's report on floods.

Remarks.--Records good except those for winter months, which are poor. Diversions for irrigation of about 80 acres (1959 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	7.0	4.2	2.7	3.6	4.5	34	30	49	4.6	22	21
2	14	6.2	4.0	3.0	3.8	5.0	31	32	45	4.6	20	19
3	12	6.2	4.5	2.7	3.8	5.0	27	36	41	4.8	20	16
4	12	6.0	5.2	2.7	3.6	4.8	23	43	38	5.0	64	14
5	11	5.7	4.5	2.7	3.8	5.4	21	46	36	5.7	71	12
6	11	6.2	4.5	2.5	3.8	5.4	22	53	33	6.4	56	12
7	10	6.4	4.0	2.5	4.3	5.2	23	57	30	8.8	52	11
8	9.5	6.0	4.5	2.9	4.2	5.4	21	52	27	7.0	38	9.8
9	8.6	5.7	4.0	2.7	4.0	5.4	22	50	26	7.0	31	8.9
10	8.3	5.7	3.5	3.3	4.2	4.5	21	50	24	8.3	44	8.0
11	8.3	5.4	4.0	3.0	4.0	6.0	24	46	21	9.8	88	8.6
12	8.0	5.4	4.0	2.8	3.5	7.0	31	46	19	8.9	76	8.6
13	7.7	5.0	3.5	2.8	3.0	8.0	38	46	16	7.7	69	7.7
14	7.2	5.0	2.5	3.2	3.3	13	40	46	14	9.8	61	7.0
15	7.2	5.0	3.0	3.5	3.5	15	40	46	13	11	49	6.4
16	7.7	5.2	3.0	4.5	3.7	16	46	46	14	6.7	38	6.7
17	7.4	4.2	3.0	3.5	3.8	16	42	47	13	6.4	32	6.2
18	7.2	4.4	3.5	3.1	3.8	14	41	42	12	6.2	27	6.2
19	7.0	4.6	3.5	3.2	3.8	13	39	42	12	8.7	24	5.7
20	6.0	4.6	3.0	3.5	4.4	12	33	43	11	6.7	21	5.2
21	6.2	4.6	2.5	3.8	4.4	13	32	49	11	6.2	20	5.0
22	6.2	4.2	3.0	3.5	4.6	12	30	58	11	5.4	18	4.8
23	6.0	4.8	3.5	4.0	4.6	15	27	72	11	7.2	17	4.6
24	6.0	4.6	4.0	4.4	4.4	19	26	66	8.9	13	14	4.6
25	5.7	4.6	3.5	4.4	4.6	24	26	57	6.7	28	12	4.6
26	5.7	4.4	3.5	4.4	4.6	26	24	52	6.4	51	13	4.6
27	5.7	3.7	3.0	4.4	4.8	30	23	50	6.4	34	17	4.8
28	5.4	4.5	2.8	4.6	5.2	31	26	47	5.4	30	15	4.8
29	6.0	5.0	2.8	4.4	4.0	32	25	46	5.0	29	14	4.6
30	6.4	4.6	2.8	3.8	------	34	30	47	4.6	22	20	4.6
31	6.4	------	2.7	4.0	------	34	------	50	------	18	24	------
TOTAL	250.8	154.9	110.0	106.5	117.1	440.6	888	1,493	570.4	387.9	1,087	247.0
MEAN	8.09	5.16	3.55	3.44	4.04	14.2	29.6	48.2	19.0	12.5	35.1	8.23
MAX	15	7.0	5.2	4.6	5.2	34	46	72	49	51	88	21
MIN	5.4	3.7	2.5	2.5	3.0	4.5	21	30	4.6	4.6	12	4.6
AC-FT	497	307	218	211	232	874	1,760	2,960	1,130	769	2,160	490

CAL YR 1967: TOTAL 4,820.3 MEAN 13.2 MAX 432 MIN 1.3 AC-FT 9,560
WTR YR 1968: TOTAL 5,853.2 MEAN 16.0 MAX 88 MIN 2.5 AC-FT 11,610

Peak discharge (base, 250 cfs).--No peak above base.

8-3825. Gallinas River near Colonias, N. Mex.

Location.--Lat 35°11'10", long 104°54'40", in Anton Chico Grant, on right bank 1½ miles upstream from mouth, 2 miles south of San Miguel - Guadalupe County line, and 6½ miles northwest of Colonias, Guadalupe County.

Drainage area.--610 sq mi, approximately.

Records available.--January 1951 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 4,940 ft (from river-profile map).

Average discharge.--17 years, 16.7 cfs (12,090 acre-ft per year).

Extremes.--Maximum discharge during year, 5,610 cfs July 11 (gage height, 12.86 ft); no flow most of time.
1951-68: Maximum discharge, 9,360 cfs June 16, 1963 (gage height, 16.65 ft), from rating curve extended above 1,900 cfs on basis of slope-area measurements at gage heights 8.64, 12.74, 16.65, and 27.2 ft; no flow most of time.
Maximum flood known occurred about June 1, 1937, when a stage of about 27.2 ft was reached; discharge determined as 26,700 cfs by slope-area measurement made in 1951. A flood of about the same magnitude occurred Sept. 29-30, 1904.

Remarks.--Records poor. Diverions for irrigation of about 7,000 acres (1959 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									0	0	3.2	77
2									0	3.0	2.5	35
3									0	435	2.0	16
4									0	23	27	10
5									0	4.6	102	7.7
6									0	8.0	37	6.0
7									0	11	13	4.9
8									0	114	30	4.6
9									0	13	27	4.1
10									0	4.9	234	3.4
11									0	867	488	.50
12									0	69	133	0
13									0	55	77	0
14									0	53	37	0
15									0	42	30	0
16									0	35	15	0
17									12	31	9.5	0
18									40	27	15	0
19									1.6	27	7.0	0
20									7.8	26	4.6	0
21									1.2	25	6.6	0
22									0	25	3.9	0
23									26	23	2.5	0
24									301	66	1.3	0
25									14	117	.47	0
26									6.0	56	0	0
27									1.5	41	115	0
28									0	22	62	0
29									0	10	7.3	0
30					------				0	7.3	21	0
31		------			------		------		------	4.9	206	------
TOTAL	0	0	0	0	0	0	0	0	411.1	2,245.7	1,719.87	169.20
MEAN	0	0	0	0	0	0	0	0	13.7	72.4	55.5	5.64
MAX	0	0	0	0	0	0	0	0	301	867	488	77
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	815	4,450	3,410	336

CAL YR 1967: TOTAL 9,042.75 MEAN 24.8 MAX 1,610 MIN 0 AC-FT 17,940
WTR YR 1968: TOTAL 4,545.87 MEAN 12.4 MAX 867 MIN 0 AC-FT 9,020

PEAK DISCHARGE (BASE, 1,700 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-24	0200	8.47	2,240	7-11	0200	12.86	5,610
7- 3	0230	8.18	2,070				

8-3828. Pecos River above Los Esteros damsite, near Santa Rosa, N. Mex.

Location.--Lat 35°02'26", long 104°40'52", in Jose Perea Grant, on left bank 1.4 miles downstream from Catfish Falls, 1.6 miles southwest from mouth of Esteros Creek at Horsehoe Bend, and 11.5 miles north of Santa Rosa, De Baca County.

Drainage area.--2,430 sq mi, approximately.

Records available.--October 1965 to September 1968. Operated as a low-flow station only.

Gage.--Water-stage recorder. Altitude of gage is 4,625 ft (from topographic map).

Extremes.--Records of low flows only. No maximums or minimums will be published.

Remarks.--Records poor. Diversions for irrigation of about 12,000 acres (1959 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	14	13	7.0	12	11	14	16	298	19	61	396
2	15	14	10	10	12	11	15	15	298	19	62	157
3	14	14	12	10	11	11	27	15	279	-	105	93
4	14	14	14	7.0	11	12	33	16	256	279	127	63
5	14	14	12	10	12	11	27	17	224	111	-	44
6	12	15	12	9.0	11	10	23	49	209	121	389	40
7	13	15	10	6.0	12	11	16	77	205	-	261	27
8	13	15	12	9.0	12	12	14	93	211	-	228	24
9	13	15	10	11	12	12	12	99	209	92	205	24
10	12	14	8.0	12	12	15	13	112	188	56	-	22
11	13	14	10	13	12	16	13	127	152	-	-	22
12	12	14	10	10	12	13	13	133	120	251	-	22
13	13	14	8.0	6.0	10	12	12	141	95	102	-	21
14	13	14	5.0	7.0	8.0	12	12	130	78	-	-	21
15	12	14	3.0	10	11	12	18	115	71	-	350	20
16	14	14	6.0	11	12	12	52	108	64	99	289	20
17	14	14	14	11	12	13	65	102	-	52	209	21
18	14	13	12	11	12	13	77	114	124	39	174	22
19	13	13	16	10	12	12	80	129	71	36	132	21
20	13	13	16	12	11	13	75	121	65	34	106	20
21	14	12	12	13	12	14	73	109	28	33	77	20
22	14	13	9.0	15	12	12	58	109	22	61	59	20
23	13	12	12	13	12	12	60	141	22	35	34	20
24	13	12	15	12	12	12	59	235	-	176	27	20
25	14	12	14	12	12	11	41	281	99	216	27	20
26	14	12	14	12	12	11	34	266	59	206	27	19
27	14	12	14	12	12	11	28	249	23	85	69	19
28	14	15	14	12	12	12	22	230	20	129	227	19
29	14	14	13	12	12	12	19	232	20	94	102	19
30	16	13	12	12	------	12	16	251	19	112	-	20
31	14	------	10	12	------	12	------	284	------	73	-	------
TOTAL	425	408	352.0	329.0	337.0	375	1,021	4,116	-	-	-	1,296
MEAN	13.7	13.6	11.4	10.6	11.6	12.1	34.0	133	-	-	-	43.2
MAX	20	15	15	15	13	16	80	284	-	-	-	396
MIN	12	12	3.0	6.0	8.0	10	12	15	-	-	-	19
AC-FT	843	809	698	653	668	744	2.030	8.160	-	-	-	2.570

Note.--Storm peaks occurred June 17, 24, July 3, 7, 8, 11, 14, 15, Aug. 5, 10-14, 30, 31.

8-3830. Pecos River at Santa Rosa, N. Mex.

Location.--Lat 34°56'35", long 104°41'55", in NW¼SE¼ sec.3, T.8 N., R.21 E., on left bank 0.6 mile upstream from bridge on U. S. Highway 66 in Santa Rosa and 1.9 miles upstream from Rio Agua Negra Chiquita.

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 1924, March to May 1927, July 1927, January 1928 to September 1968. Monthly discharge only for some periods, published in WSP 1312. 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. Datum of gage is 4,537.56 ft above mean sea level, datum of 1929. May 5, 1903, to Dec. 31, 1906, staff gage at site 0.5 mile downstream at datum 6.68 ft lower. Feb. 2, 1910, to May 4, 1922, chain gage at site 0.6 mile downstream at different datum. May 5, 1922, to Sept. 30, 1936, water-stage recorder at site 800 ft downstream at datum 3.56 ft lower. Oct. 1, 1936, to June 1, 1937, water-stage recorder at site 800 ft downstream at datum 4.62 ft lower. June 2, 1937 to June 30, 1958, water-stage recorder at site 0.6 mile downstream at datum 7.79 ft lower. July 1, 1958, to Sept. 30, 1963, water-stage recorder at site 800 ft downstream at datum 4.16 ft lower. Supplemental water-stage recorder at site 800 ft downstream Oct. 1, 1963, to Sept. 13, 1967, datum 4.16 ft lower.

Average discharge.--52 years (1912-24, 1928-68), 143 cfs (103,500 acre-ft per year).

Extremes.--Maximum discharge during year, 4,020 cfs July 11 (gage height, 5.45 ft); minimum, 4.6 cfs Dec. 22, result of freezeup.
1930-68. Maximum discharge, 55,200 cfs June 2, 1937 (gage height, 25.7 ft, site and datum then in use), from rating curve extended above 32,000 cfs by logarithmic plotting; minimum, 1.8 cfs, Dec. 29, 1966
The flood of June 2, 1937, is the greatest since about 1886. Flood of Sept. 30, 1904, reached a stage of 24.7 ft (site and datum then in use), discharge, 45,500 cfs, by Kutter's formula. Flood of June 9, 1903, reached a stage of 21.1 ft (same site and datum as in 1904), discharge, 34,000 cfs, by comparison with 1904 flood.

Remarks.--Records fair. Diversions for irrigation of about 12,000 acres (1959 determination) above station. Records of water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	18	18	16	15	16	19	16	295	21	77	432
2	23	18	16	18	15	15	22	16	285	22	80	140
3	22	16	16	24	16	14	27	16	275	574	128	66
4	18	16	19	21	16	14	46	16	265	293	156	38
5	18	18	18	18	16	15	40	18	236	148	528	29
6	18	18	16	16	16	15	32	36	218	156	417	21
7	16	19	16	12	16	15	24	77	214	296	338	18
8	16	19	18	13	16	15	18	93	210	620	250	14
9	16	18	16	24	16	15	18	100	228	136	250	18
10	16	18	16	22	16	18	16	117	178	72	356	21
11	16	18	21	24	18	22	16	136	148	864	1,640	24
12	16	19	21	15	18	19	16	132	128	300	828	21
13	16	19	16	13	16	15	15	144	128	148	530	21
14	16	19	8.8	12	15	14	14	103	106	120	470	21
15	16	19	7.2	15	21	15	14	113	93	424	344	21
16	18	16	15	14	19	14	46	96	89	125	300	21
17	18	16	24	15	18	14	66	89	90	53	255	22
18	18	15	19	14	16	14	75	103	207	36	214	25
19	16	15	24	15	16	13	80	128	110	36	182	27
20	16	15	27	21	15	14	72	132	120	36	120	27
21	16	14	18	21	15	16	66	113	58	44	106	27
22	18	16	14	24	16	15	60	106	38	74	75	24
23	18	16	21	19	18	15	58	128	32	63	58	24
24	18	16	22	18	16	15	69	236	122	194	27	22
25	18	16	21	16	16	14	49	260	136	206	22	21
26	18	18	22	14	18	13	38	250	42	306	22	22
27	18	18	24	13	19	12	31	250	24	136	68	24
28	16	18	21	14	21	13	31	232	22	169	242	22
29	18	19	24	15	18	12	22	232	18	128	136	24
30	21	21	21	15	------	11	18	236	16	140	685	26
31	19	------	21	15	------	14	------	265	------	103	392	------
TOTAL	558	521	581.0	526	487	456	1,118	3,989	4,131	6,043	9,296	1,263
MEAN	18.0	17.4	18.7	17.0	16.8	14.7	37.3	129	138	195	300	42.1
MAX	31	21	27	24	21	22	80	265	295	864	1,640	432
MIN	16	14	7.2	12	15	11	14	16	16	21	22	14
AC-FT	1,110	1,030	1,150	1,040	966	904	2,220	7,910	8,190	11,990	18,440	2,510

CAL YR 1967: TOTAL 32,182.2 MEAN 88.2 MAX 4,590 MIN 5.8 AC-FT 63,830
WTR YR 1968: TOTAL 28,969.0 MEAN 79.2 MAX 1,640 MIN 7.2 AC-FT 57,460

PEAK DISCHARGE (BASE 4,000 CFS).--JULY 11 (0900) 4,020 CFS (5.45 FT).

8-3835. Pecos River near Puerto de Luna, N. Mex.

Location.--Lat 34°43'48", long 104°31'28", in NE¼SE¼NW¼ sec.20, T.6 N., R.23 E. (corrected), on left bank 9 miles southeast of Puerto de Luna and 17½ miles upstream from Alamogordo Dam, Guadalupe County.

Drainage area.--3,970 sq mi, approximately (contributing area).

Records available.--April 1938 to September 1968.

Gage.--Digital water-stage recorder and concrete control. Datum of gage 4,311.34 ft above mean sea level, datum of 1929 (corrected). Prior to Apr. 15, 1954, at datum 1 ft higher. Apr. 24, 1938, to Dec. 8, 1965, graphic water-stage recorder.

Average discharge.--30 years, 219 cfs (158,500 acre-ft per year).

Extremes.--Maximum discharge during year, 13,500 cfs, Aug. 10 (gage height, 8.20 ft); minimum, 54 cfs June 30.
1938-68: 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, 11 cfs Jan. 31, 1951.
Maximum flood known since at least 1886 occurred June 2, 1937, when peak at Santa Rosa was 55,200 cfs. Flood of July 24, 1895, was reported as "highest in 10 years." Other major floods occurred on June 9, 1903, Sept. 30, 1904, and May 1, 1914.

Remarks.--Records good. Diversions for irrigation of about 12,500 acres (1959 determination) above station. Discharge represents inflow to Alamogordo Reservoir (capacity, 110,700 acre-ft). Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	83	87	88	95	95	76	74	416	57	123	590
2	94	83	85	86	94	92	85	72	376	181	104	385
3	82	85	86	90	94	91	82	72	364	1,470	109	285
4	78	86	88	90	96	91	93	75	387	356	150	210
5	78	87	88	88	97	92	112	77	330	556	478	140
6	78	90	87	86	95	90	99	77	295	408	414	120
7	78	89	85	84	96	90	90	90	281	391	408	100
8	84	91	87	86	96	89	87	135	272	2,270	330	98
9	86	90	87	92	95	87	80	154	285	285	314	98
10	84	87	88	96	96	100	77	169	277	253	2,510	98
11	84	87	84	95	96	112	75	179	248	1,300	2,890	96
12	84	89	88	97	94	100	77	195	208	541	1,370	93
13	78	90	87	94	95	94	75	198	176	349	718	91
14	82	89	85	92	101	88	71	199	153	226	633	92
15	78	89	75	94	102	84	72	187	136	617	459	92
16	78	88	80	93	101	84	74	170	128	309	403	86
17	82	91	85	91	95	86	103	161	122	212	335	85
18	84	91	85	91	94	84	127	161	223	160	277	87
19	82	88	100	91	93	84	140	172	167	320	243	87
20	79	88	100	92	92	85	138	195	130	135	204	89
21	77	87	100	94	88	87	133	183	135	120	197	89
22	77	87	96	112	90	87	137	164	89	108	156	86
23	76	85	92	105	90	88	129	160	79	126	131	88
24	75	84	93	100	89	87	121	210	72	108	113	88
25	76	86	94	95	86	86	120	341	207	268	96	90
26	79	88	94	95	88	82	104	351	153	334	228	90
27	81	88	90	99	90	80	92	314	88	228	283	83
28	79	90	89	93	94	83	89	294	68	143	276	79
29	78	90	90	95	94	84	90	287	60	170	302	82
30	82	87	92	96	------	83	79	294	56	134	911	83
31	83	------	90	97	------	77	------	322	------	154	452	------
TOTAL	2,510	2,633	2,757	2,897	2,726	2,742	2,927	5,732	5,981	12,289	15,617	3,880
MEAN	81.0	87.8	88.9	93.5	94.0	88.5	97.6	185	199	396	504	129
MAX	94	91	100	112	102	112	140	351	416	2,270	2,890	590
MIN	75	83	75	84	86	77	71	72	56	57	96	79
AC-FT	4,980	5,220	5,470	5,750	5,410	5,440	5,810	11,370	11,860	24,370	30,980	7,700

CAL YR 1967: TOTAL 61,064 MEAN 167 MAX 4,210 MIN 61 AC-FT 121,100
WTR YR 1968: TOTAL 62,691 MEAN 171 MAX 2,890 MIN 56 AC-FT 124,300

PEAK DISCHARGE (BASE, 5,500 CFS).--AUG. 10 (2100) 13,500 CFS (8.20 FT).

8-3840. Alamogordo Reservoir near Fort Sumner, N. Mex.

Location.--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, De Baca County.

Drainage area.--4,390 sq mi (contributing area).

Records available.--January 1939 to September 1968.

Gage.--Staff gage. Datum of gage is at mean sea level, Bureau of Reclamation datum.

Extremes.--Maximum contents at 0800 hours during year, 74,580 acre-ft Mar. 1-5 (elevation, 4,265.90 ft); minimum, 19,520 acre-ft July 7 (elevation, 4,242.00 ft).
1939-68: Maximum contents, 138,300 acre-ft May 23-30, June 1-10, July 21, Sept. 22, 23, 30, Oct. 12, Nov. 4, 5, 30, 1941 (elevation, 4,275.00 ft); maximum elevation 4,276.10 ft June 3, Sept. 8, 1958; no storage July 28 to Aug. 2, 1951 (elevation, 4,200.70 ft).

Remarks.--Reservoir is formed by Alamogordo Dam, completed and storage began in August 1937. Capacity, 110,700 acre-ft at elevation 4,275.0 ft (top of spillway gates). No dead storage. No storage allocated for flood control. Figures given herein represent total contents.

Cooperation.--Elevation record furnished by Bureau of Reclamation and Carlsbad Irrigation District. Capacity table based on data furnished by Bureau of Reclamation.

Capacity table, water year 1967-68 (elevation, in feet, and contents in acre-feet)

4,240	16,900
4,250	32,750
4,260	56,320
4,270	89,480

CONTENTS, IN ACRE-FEET, AT 0800 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55,770	54,090	58,180	63,340	68,480	72,560	43,390	43,510	48,730	24,600	34,690	58,900
2	55,770	54,230	58,320	63,500	68,480	72,730	43,390	43,510	49,650	22,790	34,690	59,770
3	55,770	54,370	58,470	63,650	68,640	72,730	43,390	43,510	50,170	22,480	34,690	60,060
4	55,770	54,510	58,610	63,800	68,800	72,900	43,390	43,390	50,560	22,790	34,690	60,360
5	55,770	54,650	58,750	63,950	68,960	73,070	43,270	43,390	51,090	21,230	34,690	60,360
6	55,770	54,790	58,900	64,110	69,120	73,070	43,270	43,270	51,500	20,790	35,500	60,360
7	55,770	54,930	59,040	64,260	69,290	73,240	43,160	43,160	51,770	19,520	36,500	60,360
8	55,630	54,930	59,180	64,410	69,450	73,400	43,160	43,160	51,900	20,650	37,120	60,510
9	55,490	55,070	59,330	64,560	69,450	73,570	43,160	43,040	52,180	23,950	37,540	60,660
10	55,490	55,210	59,480	64,720	69,610	73,740	43,160	43,270	52,450	24,760	37,960	60,660
11	55,350	55,350	59,770	64,870	69,770	73,910	43,160	43,390	52,580	25,240	44,240	60,660
12	55,350	55,490	59,920	65,020	69,940	74,070	43,160	43,510	52,850	27,790	48,470	60,660
13	55,350	55,630	60,060	65,170	70,100	74,240	43,040	43,630	52,850	29,020	50,560	60,360
14	55,210	55,770	60,210	65,330	70,260	74,410	43,040	43,760	51,090	29,750	51,360	60,360
15	55,210	55,910	60,360	65,480	70,420	74,580	43,040	43,880	49,250	30,210	52,720	60,060
16	55,070	56,040	60,510	65,800	70,420	72,900	42,930	44,240	47,200	31,040	52,720	60,060
17	55,070	56,180	60,660	65,960	70,580	71,230	42,930	44,360	45,450	31,610	53,260	59,770
18	54,930	56,320	60,800	65,960	70,750	69,290	42,930	44,480	43,510	31,610	54,090	59,770
19	54,930	56,470	60,950	66,110	70,910	67,370	42,930	44,720	41,900	32,370	54,090	59,770
20	54,930	56,610	61,100	66,270	71,070	65,170	42,930	45,330	40,120	32,560	54,090	59,480
21	54,790	56,750	61,240	66,430	71,230	63,650	42,930	45,690	38,170	32,750	54,090	59,480
22	54,790	56,900	61,540	66,580	71,400	62,130	43,040	45,820	36,200	32,750	54,370	59,480
23	54,650	57,040	61,830	66,900	71,560	60,510	43,160	45,820	34,400	32,940	54,650	59,180
24	54,510	57,180	61,980	67,060	71,730	58,750	43,160	45,940	32,750	33,040	54,650	59,180
25	54,510	57,320	62,130	67,210	71,730	57,040	43,270	46,190	32,370	33,140	54,650	59,180
26	54,370	57,470	62,430	67,370	71,890	55,210	43,270	46,570	32,560	33,520	54,650	59,180
27	54,370	57,610	62,430	67,530	72,060	53,260	43,270	47,080	32,560	34,110	54,650	59,180
28	54,230	57,750	62,740	67,680	72,230	51,360	43,270	47,450	30,940	34,300	54,930	58,900
29	54,090	57,900	62,890	67,840	72,400	49,250	43,390	47,700	28,930	34,400	55,210	58,610
30	53,950	58,040	62,890	68,000	----------	47,200	43,510	48,210	26,920	34,490	56,040	58,610
31	53,950	----------	63,040	68,160	----------	45,210	----------	48,470	----------	34,490	58,180	----------
(†)	4,259.15	4,260.60	4,262.30	4,263.95	4,265.25	4,255.80	4,255.10	4,257.10	4,246.80	4,250.90	4,260.65	4,260.80
(±)	-1,960	+4,090	+5,000	+5,120	+4,240	-27,190	-1,700	+4,960	-21,550	+7,570	+23,690	+430
MAX	55,770	58,040	63,040	68,160	72,400	74,580	43,510	48,470	52,850	34,490	58,180	60,660
MIN	53,950	54,090	58,180	63,340	68,480	45,210	42,930	43,040	26,920	19,520	34,690	58,610

CAL YR 1967: (±) -2,920
WTR YR 1968: (±) +2,700

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

8-3845. 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, De Baca County.

Drainage area.--4,390 sq mi, approximately (contributing area).

Records available.--October 1912 to April 1926, August 1926 to September 1968. Monthly discharge only for some periods, published in WSP 1312. Prior to October 1944, published as "near Guadalupe."

Gage.--Digital 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. Sept. 14, 1936, to Mar. 8, 1941, and June 11 to Sept. 21, 1941, at site a quarter of a mile downstream at different datums. Prior to Jan. 1, 1964, graphic water-stage recorder.

Average discharge.--23 years (1912-25, 1926-36), 236 cfs (170,900 acre-ft per year), prior to completion of Alamogordo Dam; 32 years (1936-68), 215 cfs (155,700 acre-ft per year).

Extremes.--Maximum daily discharge during year, 1,070 cfs Mar. 18, 19, 27-31 (gage height, 3.27 ft); minimum discharge, 0.28 cfs Aug. 31. 1912-68: 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, 15.5 ft May 1, 1914, site and datum then in use; no flow at times.

Remarks.--Records good. Diversion for irrigation of about 12,500 acres (1959 determination) above station. Flow regulated by Alamogordo Reservoir (see station 8-3840).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	2.7	2.7	1.7	4.9	6.4	438	96	101	1,060	98	40
2	77	2.6	2.7	1.7	5.2	6.6	89	96	102	1,060	98	62
3	78	2.6	3.0	1.7	5.2	6.1	88	95	104	1,060	98	63
4	78	2.6	3.0	1.9	5.2	6.3	88	96	104	1,060	97	63
5	78	2.6	3.0	1.9	5.2	6.3	89	96	104	1,050	98	63
6	78	2.5	3.0	1.9	5.2	6.6	89	96	105	1,050	98	63
7	78	2.5	3.0	1.9	5.2	6.2	89	96	105	970	97	63
8	78	2.5	3.0	2.2	5.5	5.6	89	91	104	69	97	64
9	78	3.5	3.0	2.2	5.6	5.7	89	88	103	66	97	64
10	78	2.7	3.0	2.2	5.6	7.6	89	93	104	1.4	97	72
11	78	2.6	2.7	2.2	5.7	4.1	89	94	101	1.0	99	84
12	78	2.5	2.4	2.4	5.2	4.5	89	95	104	1.1	96	93
13	78	2.5	2.4	2.7	4.7	5.1	88	87	711	.94	96	98
14	78	2.6	2.4	3.0	4.7	5.2	88	85	1,050	.78	93	99
15	82	2.7	2.2	3.0	4.8	638	84	74	1,050	44	92	100
16	88	2.6	2.2	3.2	5.2	985	84	25	1,050	77	94	97
17	89	2.4	2.4	3.2	5.1	1,010	85	1.7	1,050	68	93	97
18	89	2.6	2.2	2.7	5.3	1,070	85	1.5	1,050	69	93	97
19	89	2.7	2.4	2.4	5.6	1,070	85	1.4	1,050	69	92	98
20	89	2.7	2.4	2.7	5.1	1,000	85	1.5	1,050	26	92	98
21	89	2.7	2.2	2.4	4.5	973	86	30	1,050	1.3	92	97
22	89	2.6	2.2	2.4	4.7	971	87	85	1,050	1.3	92	97
23	89	2.4	2.2	2.7	4.8	990	85	85	1,050	43	92	96
24	89	2.7	2.2	3.5	5.8	1,020	85	85	567	68	92	96
25	89	2.7	2.4	3.8	6.5	1,060	86	86	100	68	92	96
26	89	2.8	2.4	3.8	6.8	1,060	87	86	100	69	92	96
27	88	3.0	1.9	3.8	6.6	1,070	88	96	576	69	92	95
28	88	3.0	1.9	4.1	5.5	1,070	89	101	1,050	92	76	95
29	87	2.8	1.9	4.4	6.0	1,070	91	102	1,050	95	67	95
30	83	2.6	1.7	4.4	-------	1,070	96	102	1,050	98	21	95
31	35	-------	1.7	4.9	-------	1,070	-------	102	-------	99	.45	-------
TOTAL	2,532	80.0	75.8	87.0	155.4	17,279.3	2,979	2,369.1	16,945	8,506.82	2,723.45	2,536
MEAN	81.7	2.67	2.45	2.81	5.36	557	99.3	76.4	565	274	87.9	84.5
MAX	89	3.5	3.0	4.9	6.8	1,070	438	102	1,050	1,060	99	100
MIN	35	2.4	1.7	1.7	4.5	4.1	84	1.4	100	.78	.45	40
AC-FT	5,020	159	150	173	308	34,270	5,910	4,700	33,610	16,870	5,400	5,030

CAL YR 1967:	TOTAL	57,317.04	MEAN	157	MAX	1,050	MIN	.64	AC-FT	113,700
WTR YR 1968:	TOTAL	56,268.87	MEAN	154	MAX	1,070	MIN	.45	AC-FT	111,600

8-3850. Fort Sumner main canal near Fort Sumner, N. Mex.

Location.--Lat 34°30'30", long 104°16'40", in SW¼SW¼ sec.1, T.3 N., R.25 E., on right bank 200 ft downstream from diversion dam on Pecos River, and 3¾ miles northwest of Fort Sumner, De Baca County.

Records available.--March 1939 to November 1943 (gage heights only March to November 1943), April 1954 to September 1968. Monthly discharge only for some periods, published in WSP 1732. Published as "Fort Sumner Irrigation District canal" 1939-40.

Gage.--Water-stage recorder. Datum of gage is 4,034.7 ft above mean sea level (Bureau of Reclamation Bench Mark). Prior to March 1954 at site 2.4 miles downstream at different datum. April 1954 to March 1965 at site 1.1 miles downstream at datum 1.7 ft lower.

Extremes.--1939-43, 1954-68: Maximum daily discharge, 174 cfs July 22, 1941; no flow many days.

Remarks.--Records good except those for July to September, which are fair. Canal diverts water from Pecos River for irrigation of about 6,600 acres (1961 determination) by the Fort Sumner Irrigation District.

MONTHLY DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	91	73	81.6	5,020
November	19	0	.63	38
December	0	0	0	0
Calendar year 1967	105	0	57.1	41,330
January	0	0	0	0
February	0	0	0	0
March	106	0	28.7	1,770
April	113	70	83.2	4,950
May	97	0	70.3	4,320
June	119	93	105	6,260
July	114	0	60.4	3,720
August	103	10	89.5	5,500
September	96	0	79.7	4,740
Water year 1968	119	0	50.0	36,320

8-3855.2. Pecos River below Fort Sumner, N. Mex.

Location.--Lat 34°21'00", long 104°10'20", in SW¼SW¼ sec.36, T.2 N., R.26 E., on left bank ¾ mile upstream from Taiban Creek and 9½ miles southeast of Fort Sumner, De Baca County.

Drainage area.--5,600 sq mi, approximately.

Records available.--August 1957 to May 1958, March 1962 to September 1968. Operated as a low-flow station only.

Gage.--Water-stage recorder. Altitude of gage is 3,920 ft (from river-profile map). Prior to Mar. 27, 1962, at different datum.

Extremes.--Records of low flows only; no maximums or minimums determined.

Remarks.--Records poor. Flow partly regulated by Alamogordo Reservoir (see station 8-3840). Diversions for irrigation of about 19,100 acres (1959 determination) above station. Discharge represents in general, return flow from irrigated areas in Fort Sumner Irrigation Project.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	54	22	16	15	16	-	31	20	-	20	60
2	64	37	20	16	15	16	116	31	17	-	24	42
3	57	32	20	16	15	16	67	32	23	-	19	43
4	57	33	20	15	14	16	48	33	23	-	18	38
5	36	33	20	15	15	16	40	36	21	-	20	34
6	54	31	19	14	15	16	38	30	19	-	19	34
7	49	31	19	13	16	17	37	30	18	-	18	29
8	49	29	19	14	16	18	33	32	19	-	18	32
9	48	28	18	16	16	17	32	32	18	168	18	34
10	48	27	18	15	16	20	31	31	19	141	22	28
11	38	26	18	16	17	19	29	28	17	114	-	29
12	33	25	18	14	15	20	29	33	17	67	67	26
13	31	24	18	12	13	17	28	36	15	58	42	28
14	34	24	14	14	12	16	29	36	-	48	34	27
15	31	24	13	14	13	-	33	40	-	44	30	28
16	36	24	15	14	15	-	31	47	-	38	27	29
17	38	24	18	14	16	-	32	39	-	39	27	29
18	36	22	21	14	17	-	29	29	-	35	30	24
19	32	23	22	14	15	-	30	27	-	43	24	24
20	36	23	22	15	15	-	29	26	-	50	24	26
21	41	23	20	18	16	-	28	25	-	44	25	27
22	44	23	19	18	16	-	30	22	-	29	27	26
23	40	23	18	18	15	-	32	22	-	29	27	26
24	32	22	18	16	15	-	29	23	-	25	29	27
25	33	21	17	16	14	-	29	24	-	27	30	26
26	40	21	17	14	15	-	29	26	92	25	34	27
27	39	22	16	14	17	-	30	27	76	25	29	28
28	39	24	16	14	17	-	30	27	-	24	42	28
29	42	24	16	14	17	-	30	25	-	24	44	32
30	54	22	16	14	------	-	32	25	-	24	100	29
31	57	------	16	14	------	-	------	20	------	19	58	------
TOTAL	1,321	799	563	461	443	-	-	925	-	-	-	920
MEAN	42.6	26.6	18.2	14.9	15.3	-	-	29.8	-	-	-	30.7
MAX	64	54	22	18	17	-	-	47	-	-	-	60
MIN	31	21	13	12	12	-	-	20	-	-	-	24
AC-FT	2,620	1,580	1,120	914	879	-	-	1,830	-	-	-	1,820

Note.--Releases from Alamogordo Reservoir Mar.15 to Apr.1, June 14-25, June 28 to July 8; storm peak occurred Aug. 11.

8-3856.2. Pecos River below Yeso Arroyo, near Fort Sumner, N. Mex.

Location.--Lat 34°13'40", long 104°13'45", in SW¼SE¼SE¼ sec.8, T.1 S., R.26 E., on left bank 0.9 mile downstream from Yeso Arroyo and 17 miles south of Fort Sumner, De Baca County.

Drainage area.--7,000 sq mi, approximately (contributing area).

Records available.--November 1964 to September 1968 (discontinued). Operated as a low-flow station only.

Gage.--Water-stage recorder. Altitude of gage is 3,845 ft (from river-profile map).

Extremes.--Records of low flows only; no maximums or minimums will be published.

Remarks.--Records poor. Flow partly regulated by Alamogordo Reservoir (see station 8-3840). Diversions for irrigation of about 19,100 acres (1959 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	50	22	19	16	16	-	30	16	-	12	70
2	55	41	20	19	15	16	-	30	16	-	15	45
3	56	33	20	19	15	15	105	30	13	-	16	43
4	56	32	21	18	15	16	79	33	18	-	12	38
5	41	31	21	17	16	16	65	36	16	-	11	32
6	41	33	20	17	16	16	59	31	16	-	12	28
7	45	33	20	14	16	17	52	29	13	-	16	-
8	52	32	20	16	16	18	49	30	11	-	29	39
9	50	31	19	16	16	17	47	33	10	222	13	31
10	47	30	19	18	16	23	45	37	9.5	205	-	29
11	46	29	21	20	16	25	38	31	9.5	188	-	24
12	39	28	21	18	16	21	38	41	7.8	105	114	23
13	35	28	20	18	14	20	37	39	6.8	-	56	19
14	33	26	15	17	13	18	35	33	-	76	39	22
15	31	26	15	17	14	19	36	42	-	-	32	20
16	31	26	15	16	16	-	33	47	-	49	26	22
17	33	24	19	16	17	-	36	52	-	45	24	26
18	33	24	21	16	16	-	35	37	-	41	24	20
19	32	24	25	15	16	-	32	30	-	58	27	16
20	30	24	28	16	15	-	33	26	-	60	20	17
21	37	23	23	23	15	-	30	24	-	55	24	19
22	37	23	21	24	16	-	32	20	-	65	26	19
23	42	23	25	21	16	-	36	17	-	50	25	18
24	36	21	28	19	15	-	32	16	-	35	29	18
25	31	21	26	18	15	-	26	16	-	40	31	19
26	33	21	23	16	14	-	28	17	99	35	48	18
27	39	22	21	16	15	-	29	18	67	34	38	19
28	35	25	21	16	17	-	30	19	-	33	38	20
29	39	24	20	16	17	-	31	43	-	32	56	20
30	43	24	20	16	------	-	31	28	-	31	-	22
31	53	------	20	16	------	-	------	20	------	16	88	------
TOTAL	1,260	832	650	543	450	-	-	935	-	-	-	-
MEAN	40.6	27.7	21.0	17.5	15.5	-	-	30.2	-	-	-	-
MAX	56	50	28	24	17	-	-	52	-	-	-	-
MIN	30	21	15	14	13	-	-	16	-	-	-	-
AC-FT	2,500	1,650	1,290	1,080	893	-	-	1,850	-	-	-	-

Note.--Releases from Alamogordo Reservoir Mar.16 to Apr. 2, June 14-25, June 28 to July 8; storm peaks July 13, 15, Aug. 10, 11, 30, Sep. 7.

8-3856.4. Pecos River above Huggins Creek, near Roswell, N. Mex.

Location.--Lat 33°54'55", long 104°16'40", in NW¼SW¼NW¼ sec.36, T.4 S., R.25 E., on right bank 1.7 miles downstream from Hernandez Draw, 4.3 miles upstream from Huggins Creek, and 38 miles northeast of Roswell, Chaves County.

Drainage area.--7,800 sq mi, approximately (contributing area).

Records available.--October 1964 to September 1968 (discontinued). Operated as low-flow station only.

Gage.--Water-stage recorder. Altitude of gage is 3,680 ft (from river-profile map). Supplemental water-stage recorder since June 9, 1966, at site opposite base gage at same datum.

Extremes.--Records of low flows only; no maximums or minimums will be published.

Remarks.--Records poor. Flow partly regulated by Alamogordo Reservoir (see station 8-3840). Diversions for irrigation of about 19,100 acres (1959 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	55	21	21	17	14	-	25	13	-	13	123
2	32	60	19	19	15	12	-	25	9.0	-	9.5	74
3	30	49	17	20	14	11	183	23	6.4	-	7.1	52
4	34	36	21	20	13	9.7	109	23	5.2	-	5.8	36
5	36	30	21	18	13	9.7	82	24	4.6	-	5.0	34
6	34	29	19	17	13	11	64	25	4.9	-	4.5	41
7	20	33	18	15	13	12	52	24	3.2	-	4.5	-
8	24	32	17	11	13	12	48	22	1.9	-	5.0	192
9	28	29	16	12	14	11	48	22	1.3	-	6.1	60
10	29	26	11	12	15	16	45	25	.80	-	16	30
11	30	24	13	15	15	33	45	37	.42	-	-	23
12	29	22	15	21	13	30	40	58	.20	-	260	21
13	24	21	13	18	11	26	34	52	.04	260	202	18
14	19	20	10	20	11	21	33	33	0	-	90	16
15	14	20	9.0	20	13	17	32	28	-	134	41	15
16	14	19	10	21	15	21	30	25	-	150	28	13
17	14	17	12	19	17	-	29	30	-	54	20	13
18	16	18	14	17	17	-	32	43	-	38	13	13
19	18	18	20	16	15	-	33	36	-	41	10	16
20	18	18	23	20	12	-	29	24	-	54	9.0	10
21	19	17	21	34	11	-	28	20	-	54	7.1	7.9
22	18	17	20	40	11	-	29	16	-	-	6.7	6.7
23	25	16	25	42	11	-	28	12	-	50	7.9	7.9
24	25	15	30	32	11	-	33	9.5	-	30	7.5	9.0
25	30	13	35	28	11	-	29	8.3	-	22	7.1	7.9
26	24	14	33	24	10	-	25	7.5	188	23	11	7.1
27	22	16	29	21	10	-	23	7.9	100	20	101	6.7
28	24	20	24	20	14	-	23	7.9	60	16	45	5.4
29	33	21	24	19	14	-	25	9.0	-	14	113	6.1
30	33	22	22	19	------	-	28	9.0	-	12	-	7.1
31	38	------	21	18	------	-	------	23	------	9.5	260	------
TOTAL	790	747	603	649	382	-	-	734.1	-	-	-	-
MEAN	25.5	24.9	19.5	20.9	13.2	-	-	23.7	-	-	-	-
MAX	38	60	35	42	17	-	-	58	-	-	-	-
MIN	14	13	9.0	11	10	-	-	7.5	-	-	-	-
AC-FT	1,570	1,480	1,200	1,290	758	-	-	1,460	-	-	-	-

Note.--Releases from Alamogordo Reservoir Mar. 17 to Apr. 2, June 15-25, June 29 to July 10; storm peaks occurred July 11, 22, Aug. 11, 30, Sept. 7.

8-3860. 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, 3 miles south of U. S. Highway 70, 3½ miles downstream from Salt Creek, 5 miles southwest of Acme, and 13 miles northeast of Roswell, Chaves County.

Drainage area.--11,380 sq mi, approximately (contributing area).

Records available.--September 1921 to June 1923, July 1937 to September 1968. Monthly discharge only for some periods, published in WSP 1312.

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 3 miles upstream at various datums. Supplemental water-stage recorder since Oct. 25, 1963, at site opposite base gage at same datum.

Average discharge.--31 years (1937-68), 200 cfs (144,800 acre-ft per year).

Extremes.--Maximum discharge during year, 2,190 cfs Aug. 30 (gage height, 6.50 ft); no flow many days.
1937-68: Maximum discharge, 45,000 cfs Sept. 23, 1941 (gage height, 13.71 ft), from rating curve extended above 26,000 cfs; no flow at times.
The flood of May 28, 1937, reached a discharge of 53,000 cfs (gage height, 14.82 ft, from floodmarks, site and datum then in use), by slope-area method, but may have been exceeded by the flood of Oct. 1, 1904. For other peaks prior to 1937, see station 8-3845.

Remarks.--Records fair except those below 10 cfs, which are poor. Flow regulated by Alamogordo Reservoir (see station 8-3840). Diverions for irrigation of about 20,000 acres (1959 determination) above station. Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	13	11	15	12	11	870	19	0	670	25	199
2	8.1	16	11	14	10	11	850	19	0	880	7.6	118
3	13	22	9.7	13	9.7	9.3	291	18	.47	810	3.3	86
4	12	22	12	13	8.9	8.9	174	18	.28	850	2.3	73
5	12	20	12	13	8.5	8.5	105	18	0	1,180	1.4	62
6	13	16	12	13	8.1	8.5	64	17	0	1,020	.90	60
7	13	16	10	8.9	7.6	8.5	52	16	0	870	.90	92
8	9.7	17	9.7	8.9	8.1	8.9	47	16	0	820	.72	405
9	5.0	17	9.3	8.5	8.1	9.7	41	17	0	715	.54	142
10	6.4	16	6.4	9.3	8.5	12	44	17	0	253	.18	52
11	8.5	14	6.0	11	8.9	18	41	19	0	244	1.1	29
12	10	13	7.2	13	11	24	40	30	0	244	153	17
13	9.7	13	8.1	11	12	30	36	44	0	181	145	12
14	8.9	12	5.3	17	11	28	30	36	0	293	88	7.6
15	6.0	11	4.0	17	12	22	28	23	0	202	45	4.4
16	4.2	11	4.0	14	12	19	26	15	314	101	24	1.8
17	2.3	11	4.7	14	12	283	25	11	600	110	14	.42
18	1.8	9.7	7.2	14	12	697	26	14	661	57	5.6	0
19	1.8	9.7	8.9	12	14	890	24	22	715	45	4.2	0
20	1.8	9.7	12	13	12	960	23	26	762	40	1.4	0
21	3.0	9.3	15	23	9.3	940	22	18	724	41	.42	0
22	3.6	9.3	12	27	8.5	840	20	10	762	44	.07	0
23	4.4	9.3	15	26	8.1	800	22	6.8	772	57	0	0
24	3.3	8.1	16	26	7.6	840	21	6.0	744	37	0	0
25	5.6	8.1	19	25	7.2	860	21	3.9	820	21	0	0
26	7.2	7.6	23	20	7.2	860	24	2.7	465	14	116	0
27	8.5	7.6	21	17	6.8	850	22	1.6	142	10	65	0
28	7.2	8.9	18	16	8.9	810	18	.90	86	11	41	0
29	6.4	10	17	14	12	791	18	.45	56	7.2	36	0
30	8.5	11	17	13	------	782	19	.18	533	4.4	662	0
31	12	------	16	13	------	840	------	0	------	6.2	281	------
TOTAL	225.0	378.3	359.5	472.6	282.0	12,280.3	3,044	465.53	8,156.75	9,837.8	1,725.63	1,361.22
MEAN	7.26	12.6	11.6	15.2	9.72	396	101	15.0	272	317	55.7	45.4
MAX	13	22	23	27	14	960	870	44	820	1,180	662	405
MIN	1.8	7.6	4.0	8.5	6.8	8.5	18	0	0	4.4	0	0
AC-FT	446	750	713	937	559	24,360	6,040	923	16,180	19,510	3,420	2,700

CAL YR 1967:	TOTAL	42,224.40	MEAN	116	MAX	1,640	MIN	0	AC-FT	83,750
WTR YR 1968:	TOTAL	38,588.63	MEAN	105	MAX	1,180	MIN	0	AC-FT	76,540

PEAK DISCHARGE (BASE, 2,500 CFS).--NO PEAK ABOVE BASE.

8-3870. Rio Ruidoso at Hollywood, N. Mex.

Location.--Lat 33°19'50", long 105°36'25", in NE¼ sec.30, T.11 S., R.14 E., on right upstream end of bridge on road leading to Ruidoso Downs, 0.9 mile east of Hollywood, 2¾ miles downstream from Carrizo Creek, and 2½ miles east of Ruidoso, Lincoln County.

Drainage area.--120 sq mi, approximately.

Records available.--March 1953 to September 1968.

Gage.--Digital water-stage recorder and crest-stage gage. Datum of gage is 6,365.42 ft above mean sea level, datum of 1929. Prior to October 14, 1961, at datum 0.30 ft higher. October 14, 1961, to Mar. 8, 1962, at datum 0.60 ft higher. Mar. 9, 1962, to June 18, 1965, at datum 1.0 ft higher. Mar. 15, 1953, to Feb. 11, 1965, graphic water-stage recorder.

Average discharge.--15 years, 11.8 cfs (8,540 acre-ft per year).

Extremes.--Maximum discharge during year, 118 cfs Apr. 16 (gage height, 2.16 ft); minimum, about 1.5 cfs Dec. 10.
1953-68: Maximum discharge, 1,340 cfs June 17, 1965 (gage height, 9.05 ft), from rating curve extended above 110 cfs on basis of slope-area measurement of peak flow; minimum, 0.30 cfs Jan. 1, 1962, May 8-9, 1964.
The flood of Sept. 29, 1941, is probably the highest since at least 1904 (discharge not determined).

Remarks.--Records good. Figures of discharge do not include F. Herrera ditch-S., which diverts from right bank 1½ miles upstream and bypasses station for irrigation of 75 acres (1959 determination) below. See monthly table below for record of ditch. Village of Ruidoso diverts from right bank 7 miles upstream for municipal use and returns a portion of this to river as effluent from sewage disposal plant 1¼ miles upstream from station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	5.2	4.7	5.1	7.9	26	74	80	41	7.6	23	32
2	9.4	5.0	4.3	4.7	7.6	24	70	86	40	7.8	23	27
3	9.0	4.9	4.2	4.8	8.0	23	65	90	38	8.4	23	22
4	8.5	5.0	4.8	4.8	7.9	22	57	83	35	15	24	19
5	7.8	4.8	4.7	4.7	7.9	23	52	83	33	38	25	18
6	7.8	4.9	3.3	4.8	8.4	23	57	84	32	44	23	18
7	7.8	5.1	3.1	4.8	9.0	31	64	86	31	38	21	17
8	7.8	5.0	3.5	4.8	9.5	33	67	78	29	33	20	14
9	7.6	4.9	3.5	4.5	11	32	68	75	26	28	19	14
10	7.6	4.8	2.5	5.0	11	33	67	71	23	24	18	16
11	7.6	5.4	3.0	5.0	10	30	69	66	20	36	21	13
12	7.5	4.9	4.0	4.7	13	29	67	64	18	32	18	11
13	7.3	4.8	4.0	5.0	12	28	70	62	17	28	24	10
14	7.3	4.8	3.0	5.0	11	29	80	58	17	23	18	9.4
15	7.3	4.7	2.5	5.4	11	30	91	52	18	20	16	9.0
16	7.0	4.7	3.0	5.6	11	32	110	51	17	17	15	8.6
17	7.0	4.6	4.0	5.8	10	33	105	52	20	15	14	8.1
18	6.8	4.7	4.0	5.9	11	35	95	50	18	14	13	7.7
19	6.8	4.6	4.0	5.7	11	32	84	48	17	13	12	7.4
20	6.6	4.5	6.0	6.3	12	33	76	49	16	12	11	7.1
21	6.4	4.5	5.5	6.3	14	31	70	53	15	11	11	7.1
22	6.2	4.5	4.5	5.8	16	30	64	58	15	12	9.8	7.1
23	6.0	4.7	5.8	5.6	17	30	56	57	15	16	9.8	6.8
24	5.8	4.6	5.0	5.5	18	31	52	53	13	23	9.0	6.5
25	5.6	4.4	4.9	6.1	20	34	51	49	12	26	16	6.8
26	5.4	4.5	4.8	6.8	23	38	49	45	11	20	14	6.5
27	5.3	4.7	5.0	7.2	27	45	53	43	10	19	16	6.5
28	5.2	5.2	5.0	7.6	32	48	60	44	9.1	18	22	6.2
29	5.3	5.2	5.0	8.0	28	54	69	43	8.1	16	30	6.2
30	5.5	4.7	5.4	7.5	------	66	76	43	7.8	14	36	6.2
31	5.4	------	5.4	7.5	------	73	------	43	------	14	37	------
TOTAL	216.3	144.3	132.4	176.3	395.2	1,061	2,088	1,899	622.0	642.8	591.6	354.2
MEAN	6.98	4.81	4.27	5.69	13.6	34.2	69.6	61.3	20.7	20.7	19.1	11.8
MAX	9.7	5.4	6.0	8.0	32	73	110	90	41	44	37	32
MIN	5.2	4.4	2.5	4.5	7.6	22	49	43	7.8	7.6	9.0	6.2
AC-FT	429	286	263	350	784	2,100	4,140	3,770	1,230	1,270	1,170	703
(†)	3.0	2.6	.4	.06	.08	.6	8.0	47	43	63	31	6.7

CAL YR 1967: TOTAL 3,402.92 MEAN 9.32 MAX 133 MIN .92 AC-FT 6,750
WTR YR 1968: TOTAL 8,323.1 MEAN 22.7 MAX 110 MIN 2.5 AC-FT 16,510

PEAK DISCHARGE (BASE, 100 CFS).--APR. 16 (0900) 118 CFS (2.16 FT).

† Diversion, in acre-feet, by F. Herrera ditch-S.

8-3905. 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 right bank 15 ft downstream from county road bridge at Diamond A Ranch, 13 miles upstream from Two Rivers Reservoir, 21 miles upstream from mouth of Rocky Arroyo, and 18 miles west of Roswell, Chaves County.

Drainage area.--947 sq mi (contributing area).

Records available.--May 1908 to August 1909, May 1939 to September 1968. Monthly discharge only for 1908-09, published in Technical Report No. 7, State of New Mexico, Streamflow and Reservoir Content 1888 - 1954.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,185 ft (from topographic map). Prior to Nov. 11, 1965, at site on opposite bank at same datum. Supplemental water-stage recorder on opposite bank since Nov. 11, 1965, at same datum.

Average discharge.--29 years (1939-68), 24.7 cfs (17,880 acre-ft per year).

Extremes.--Maximum discharge during year, about 36,600 cfs July 5 (gage height, 26.20 ft), from rating curve extended as explained below; no flow most of time.

1939-68: Maximum discharge, 54,800 cfs June 18, 1965 (gage height, 26.40 ft), from rating curve extended above 3,000 cfs on basis of slope-area measurement of peak flow; maximum gage height, 28.78 ft, Sept. 22, 1941; no flow most of time.

A flood on June 1, 1937, reached a discharge of 24,900 cfs at Riverside about 13 miles upstream. Other major floods occurred Oct. 31, 1901, Sept. 29, 30, 1904, and July 25, 1905.

Remarks.--Records poor. Diversions and ground-water withdrawals above station for irrigation of about 6,500 acres (1959 determination) above and below station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	67	19	0	0	0	57
2						0	76	28	0	40	46	51
3						0	74	41	0	15	28	44
4						0	74	56	0	5.5	27	34
5						0	60	64	0	3,060	21	25
6						0	50	67	0	151	14	15
7						0	51	67	0	105	9.8	9.0
8						0	55	70	0	97	20	5.0
9						0	66	62	0	202	32	3.0
10						0	67	66	0	71	14	1.0
11						0	54	66	.08	66	7.7	0
12						0	52	76	0	50	9.8	0
13						0	46	76	0	52	6.8	0
14						0	56	68	0	51	7.2	0
15						0	75	64	0	55	5.5	0
16						0	95	53	0	45	1.5	0
17						.15	108	35	0	34	.58	0
18						.01	110	40	0	44	0	0
19						.99	99	42	0	73	0	0
20						2.5	83	43	0	15	0	0
21						2.1	68	35	0	9.3	0	0
22						0	62	25	0	3.3	0	0
23						0	44	24	0	1.3	0	0
24						1.8	39	30	0	14	0	0
25						1.8	30	25	0	14	0	0
26						0	20	20	0	32	0	0
27						0	10	15	0	9.3	0	0
28						0	5.0	10	0	.30	0	0
29						.18	10	5.0	0	0	93	0
30					------	3.2	15	0	0	0	148	0
31		------			------	32	------	0	------	0	64	------
TOTAL	0	0	0	0	0	44.73	1,731.0	1,292.0	.08	4,325.00	555.88	244.0
MEAN	0	0	0	0	0	1.44	57.7	41.7	.003	140	17.9	8.13
MAX	0	0	0	0	0	32	110	76	.08	3,060	148	57
MIN	0	0	0	0	0	0	5.0	0	0	0	0	0
AC-FT	0	0	0	0	0	89	3,430	2,560	.2	8,580	1,100	484

CAL YR 1967: TOTAL 3,325.68 MEAN 9.11 MAX 255 MIN 0 AC-FT 6,600
WTR YR 1968: TOTAL 8,192.80 MEAN 22.4 MAX 3,060 MIN 0 AC-FT 16,250

PEAK DISCHARGE (BASE 1,000 CFS).--JULY 5 (2000) ABOUT 36,600 CFS (26.20 FT).

8-3906. Two Rivers Reservoir near Roswell, N. Mex.

Location.--Lat 33°17'55", long 104°43'20", in SW¼SE¼NE¼ sec.4, T.12 S., R.22 E., near center of Diamond A Dam on Rio Hondo, 13 miles southwest of Roswell, and lat 33°16'20", long 104°43'20", in NW¼SE¼NE¼ sec.16, T.12 S., R.22 E., at left end of Rocky Dam on Rocky Arroyo, 14 miles southwest of Roswell, Chaves County.

Drainage area.--1,030 sq mi (Rio Hondo, 963 sq mi; Rocky Arroyo, 64 sq mi).

Records available.--July 1963 to September 1968.

Gage.--Water-stage recorders. Datum of gages is at mean sea level, datum of 1929.

Extremes.--Maximum contents at 2400 hours of Rio Hondo Reservoir during year, 764 acre-ft July 5 (elevation, 3,982.00 ft); no contents most of time. Maximum contents at 2400 hours of Rocky Arroyo Reservoir during year, 3,590 acre-ft July 6 (elevation, 3,965.90 ft); no contents most of time.

1963-68: Maximum contents at 0800 hours of Rio Hondo Reservoir, 1,260 acre-ft July 29, 1965 (elevation, 3,985.7 ft); Rocky Arroyo Reservoir at 0800 hours, 6,090 acre-ft June 18, 1965 (elevation, 3,970.7 ft); no contents both reservoirs most of time.

Remarks.--Two Rivers Reservoir, completed July 16, 1963, is formed by earth-fill dams on Rio Hondo, which forms Rio Hondo Reservoir, and Rocky Arroyo, which forms Rocky Arroyo Reservoir. Above elevation 3,980.0 ft the pools of the two reservoirs combine to form Two Rivers Reservoir with a total capacity of 167,900 acre-ft at elevation 4,032.0 ft (crest of ungated spillway). Capacity of Rio Hondo Reservoir, 550 acre-ft between elevations 3,957.0 (sill of outlet gate) and 3,980.0 ft. Capacity of Rocky Arroyo Reservoir, 14,240 acre-ft between elevations 3,945.0 (sill of outlet gate) and 3,980.0 ft. No appreciable dead storage in Rio Hondo Reservoir. Dead storage in Rocky Arroyo Reservoir, 39 acre-ft. Primary objective of project is flood control. Outlet conduits in Rocky Dam have fixed openings. Figures given herein represent total contents (in table, reservoirs separated as indicated).

Cooperation.--Records furnished by Corps of Engineers.

Capacity table, water year 1967-68 (elevation, in feet, and contents, in acre-feet)

Rio Hondo Res.		Rocky Arroyo Res.	
3,953	0	3,937	0
3,957	2.7	3,940	1.4
3,964	20	3,943	16
3,970	47	3,946	57
3,975	186	3,950	202
3,979	461	3,954	574
3,982	764	3,958	1,220
		3,962	2,170
		3,966	3,630

CONTENTS, IN ACRE-FEET, AT 2400 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

	Rio Hondo Res.	Rocky Arroyo Res.
July 5	764	2,230
6	583	3,590
7	0	2,660
8	0	1,860
9	0	1,210
10	0	816
11	0	526
12	0	48
Aug. 16	0	247

Note.--Storage only on days listed above. Flow from Rio Hondo overflowing into Rocky Arroyo Res. on July 5, 6. Month-end, calendar year and water year contents were all zero.

8-3908. Rio Hondo below Diamond A Dam, near Roswell, N. Mex.

Location.--Lat 33°18'05", long 104°43'10", in NE¼SE¼NE¼ sec.4, T.12 S., R.22 E., on left bank, 500 ft downstream from outlet conduit of Diamond A Dam (Two Rivers Reservoir) and 13 miles southwest of Roswell, Chaves County.

Drainage area.--963 sq mi (contributing area).

Records available.--October 1963 to September 1968.

Gage.--Water-stage recorder and concrete control. Datum of gage is 3,949.68 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Average discharge.--5 years, 8.46 cfs (6,120 acre-ft per year).

Extremes.--Maximum discharge during year, 402 cfs July 6 (gage height, 3.74 ft); no flow most of time.
1963-68: Maximum discharge, 659 cfs July 29, 1965 (gage height, 4.91 ft); no flow most of time.

Remarks.--Records fair. Diversions and ground-water withdrawals for irrigation of about 6,500 acres (1959 determination) above station. This record represents the outflow from Two Rivers Reservoir through Diamond A Dam.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						0	32	0	0	0	0	35
2						0	52	0	0	5.6	9.5	31
3						0	63	17	0	6.6	9.9	26
4						0	50	33	0	.13	2.8	19
5						0	28	48	0	87	.13	4.0
6						0	19	49	0	328	.02	1.0
7						0	17	47	0	217	0	0
8						0	24	52	0	99	0	0
9						0	32	45	0	187	14	0
10						0	32	46	0	63	2.0	0
11						0	25	49	0	70	0	0
12						0	18	54	0	62	0	0
13						0	9.1	62	0	48	0	0
14						0	8.0	51	0	38	0	0
15						0	25	49	0	43	0	0
16						0	44	42	0	32	2.0	0
17						0	62	32	0	26	.46	0
18						0	78	30	0	22	0	0
19						0	73	31	2.7	75	0	0
20						0	57	32	.23	9.1	0	0
21						0	39	21	0	2.4	0	0
22						0	36	4.4	0	.05	0	0
23						0	21	3.2	0	0	0	0
24						0	15	9.9	0	0	0	0
25						0	11	6.9	0	0	0	0
26						0	3.0	.75	0	5.8	0	0
27						0	.13	0	0	.22	0	0
28						0	0	0	0	0	0	0
29						0	0	0	0	0	41	0
30					------	0	0	0	0	0	93	0
31		------			------	.21	------	0	------	0	35	------
TOTAL	0	0	0	0	0	.21	873.23	815.15	2.93	1,426.90	209.81	116.0
MEAN	0	0	0	0	0	.007	29.1	26.3	.10	46.0	6.77	3.87
MAX	0	0	0	0	0	.21	78	62	2.7	328	93	35
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	.4	1,730	1,620	5.8	2,830	416	230

CAL YR 1967: TOTAL 1,997.85 MEAN 5.47 MAX 251 MIN 0 AC-FT 3,960
WTR YR 1968: TOTAL 3,444.23 MEAN 9.41 MAX 328 MIN 0 AC-FT 6,830

8-3932. Rocky Arroyo above Two Rivers Reservoir, near Roswell, N. Mex.

Location.--Lat 33°17'07", long 104°47'47", in NE¼SW¼ sec.11, T.12 S., R.21½ E., on right bank, 2.1 miles upstream from mouth of Buchnan Draw, 5.2 miles upstream from Rocky Dam (Two Rivers Reservoir), and 17 miles southwest of Roswell, Chaves County.

Drainage area.--31 sq mi.

Records available.--May 1963 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 4,055.45 ft (Corps of Engineers datum).

Average discharge.--5 years, 1.43 cfs (1,040 acre-ft per year).

Extremes.--Maximum discharge during year, 12,000 cfs July 5 (gage height, 15.25 ft, from floodmark), from rating curve extended above 350 cfs on basis of slope-area measurements at gage heights 9.64, 10.86, and 15.25 ft; no flow most of time.
1963-68: Maximum discharge, that of July 5, 1968; no flow most of time.

Remarks.--Records fair. No diversions above station. Flow past station represents inflow to Two Rivers Reservoir.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1967 TO SEPTEMBER 1968

July 5	695
6	84
7	20
Aug.16	35
17	2.6

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
July 1968	799	695	0	25.8	1,580
August	37.6	35	0	1.21	75
Calendar year 1967	200.59	199	0	.55	398
Water year 1968	836.6	695	0	2.29	1,660

PEAK DISCHARGE (BASE, 90 CFS).--JULY 5 (2130) 12,000 CFS (15.25 FT); AUG. 16 (1845) 285 CFS (7.00 FT).

Note.--Flow occured only on days listed above.

8-3933. Rocky Arroyo below Rocky Dam, near Roswell, N. Mex.

Location.--Lat 33°15'55", long 104°42'05", in SE¼NE¼SE¼ sec.15, T.12 S., R.22 E., on left bank, 1¼ miles downstream from Rocky Dam (Two Rivers Reservoir) and 13 miles southwest of Roswell, Chaves County.

Drainage area.--65 sq mi.

Records available.--May 1963 to September 1968.

Gage.--Water-stage recorder and concrete control. Datum of gage is 3,906.90 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Average discharge.--5 years, 3.54 cfs (2,560 acre-ft per year).

Extremes.--Maximum discharge during year, 228 cfs July 6 (gage height, 4.05 ft); no flow most of time.
1963-68: Maximum discharge, 548 cfs Aug. 21, 1966 (gage height, 4.57 ft), from rating curve extended above 260 cfs; no flow most of time.

Remarks.--Records poor. No diversions above station. This record represents the outflow from Two Rivers Reservoir through Rocky Dam plus any runoff in the 1¼ miles of intervening area between the dam and the gage. Outlet conduits in Rocky Dam have fixed openings.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1967 TO SEPTEMBER 1968

July 5	24	July 13	9.2
6	220	14	1.3
7	204	15	.01
8	180	Aug. 16	17
9	142	17	97
10	93	18	9.2
11	65	19	1.3
12	64		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
July 1968	1,002.51	220	0	32.3	1,990
August	124.5	97	0	4.02	247
Calendar year 1967	189.07	126	0	.52	375
Water year 1968	1,127.01	220	0	3.08	2,240

Note.--Flow occurred only on days listed above.

8-3936. 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, Chaves County.

Drainage area.--19.5 sq mi.

Records available.--May 1958 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 3,570 ft (from topographic map).

Average discharge.--10 years, 0.049 cfs (35 acre-ft per year).

Extremes.--Maximum discharge during year, 17 cfs July 5 (gage height, 3.03 ft); no flow most of time.
1958-68: Maximum discharge, 387 cfs June 13, 1964 (gage height, 4.65 ft), from rating curve extended above 80 cfs on basis of slope-area measurement; no flow most of time.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

July 5..... 1.8
6..... .10

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
July 1968	1.90	1.8	0	.06	3.8
Calendar year 1967	41.8	40	0	.11	83
Water year 1968	1.90	1.8	0	.005	3.8

Note.--Flow occurred only on days listed above.

8-3941 Pecos River near Hagerman, N. Mex.

Location.--Lat 33°10'08", long 104°18'24", in SE¼SW¼SE¼ sec 23, T.13 S., R.26 E., on left bank 3.4 miles upstream from Rio Felix, and 4.9 miles north of Hagerman, Chaves County.

Drainage area.--14,820 sq mi, approximately (contributing area).

Records available.--February to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 3,390 ft (from topographic map).

Extremes.--Records of low flow only; no maximums or minimums will be published.

Remarks.--Records fair. Flow partly regulated by Alamogordo Reservoir (see station 8-3840). Diversions and groundwater withdrawals for irrigation of about 80,000 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					57	49	-	31	10	-	35	306
2					52	46	-	32	10	-	51	164
3					48	40	-	32	10	-	39	108
4					46	38	248	32	10	-	27	78
5					44	37	187	31	8.9	-	23	69
6					43	36	146	31	7.9	-	21	50
7					42	35	112	31	8.2	-	21	46
8					42	35	90	28	6.9	-	20	-
9					42	33	79	28	7.2	-	19	181
10					43	33	72	28	5.2	-	18	127
11					44	42	67	31	5.6	-	18	73
12					45	47	54	40	7.2	336	23	47
13					48	47	61	45	7.6	282	97	33
14					52	52	57	65	6.2	274	116	27
15					54	56	52	60	5.6	359	89	24
16					52	50	49	50	6.2	206	57	21
17					54	47	45	41	-	143	34	18
18					54	-	42	34	-	134	25	17
19					54	-	42	27	-	108	21	17
20					54	-	41	28	-	103	16	14
21					56	-	40	36	-	94	13	14
22					58	-	40	35	-	80	10	13
23					54	-	38	28	-	82	10	13
24					50	-	36	25	-	65	9.6	13
25					45	-	38	21	-	72	10	10
26					41	-	36	18	-	54	12	11
27					40	-	35	17	219	42	60	11
28					44	-	37	16	138	39	60	11
29				57	49	-	35	13	89	34	28	12
30				56	------	-	31	11	-	32	-	10
31		------		57	------	-	------	10	------	27	-	------
TOTAL				-	1,407	-	-	955	-	-	-	-
MEAN				-	48.5	-	-	30.8	-	-	-	-
MAX				-	58	-	-	65	-	-	-	-
MIN				-	40	-	-	10	-	-	-	-
AC-FT				-	2,790	-	-	1,890	-	-	-	-

Note.--Releases from Alamogordo Reservoir Mar. 18 to Apr. 3, June 17-26, June 30 to July 11; storm peaks Aug. 30, 31, Sep. 8.

8-3945. 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, 0.6 mile upstream from U. S. Highway 285, 1½ miles northwest of Hagerman, Chaves County, and 2½ miles upstream from mouth.

Drainage area.--932 sq mi (contributing area).

Records available.--April 1939 to September 1968. 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.--29 years, 16.2 cfs (11,730 acre-ft per year).

Extremes.--Maximum dischage during year, 9,030 cfs July 6 (gage height, 18.10 ft); no flow most of time.
1939-68: Maximum discharge, 74,000 cfs Oct. 7, 1954 (gage height, 27.5 ft, from floodmarks), from rating curve extended above 12,000 cfs on basis of slope-area measurement at point 5½ miles upstream from gage (adjusted for channel storage); no flow for many periods.
Flood in 1954 is the highest since 1894, from information by local residents. Flood of Oct. 1, 1904, is probably second highest. Another major flood occurred in April 1915.

Remarks.--Records poor. Diversions for irrigation of about 350 acres (1959 determination) above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

July 5.....	12	July 9.....	5.0
6.....	2,810	10.....	.50
7.....	734	Sept. 2.....	.50
8.....	43		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
July 1968	3,604.50	2,810	0	116	7,150
September	.50	.50	0	.017	1.0
Calendar year 1967	675.81	416	0	1.85	1,340
Water year 1968	3,605.00	2,810	0	9.85	7,150

PEAK DISCHARGE (BASE 500 CFS).--JULY 6 (1145) 9,030 CFS (18.10 FT).

Note.--Flow occurred only on days listed above.

8-3955. 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, 2½ miles east of Lake Arthur, Chaves County, 7 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 1968.

Gage.--Digital water-stage recorder with crest-stage gage and rock control. Datum of gage is 3,327.07 ft above mean sea level, datum of 1929. Prior to Jan. 6, 1965, graphic water-stage recorder.

Average discharge.--30 years, 264 cfs (191,100 acre-ft per year).

Extremes.--Maximum discharge during year, 6,560 cfs July 6 (gage height, 10.36 ft); minimum, 1.7 cfs Aug. 21.
1938-68: 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; no flow at times in 1947, 1953-4, 1962, 1964.
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. Flow partly regulated by Alamogordo Reservoir (see station 8-3840). Diversions and ground-water withdrawals for irrigation of about 124,000 acres (1959 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	25	32	56	61	56	775	35	2.6	446	7.2	274
2	23	27	34	54	60	55	756	36	3.6	632	6.0	222
3	13	28	34	54	59	48	654	31	4.9	937	19	142
4	8.7	30	37	53	58	41	250	26	8.7	764	17	105
5	11	33	37	51	52	38	174	30	6.6	1,200	15	76
6	12	41	34	50	50	37	127	32	4.6	3,330	9.6	45
7	11	43	34	49	48	33	106	28	3.5	2,780	5.6	46
8	13	40	33	50	49	29	89	29	5.0	1,410	5.1	63
9	18	39	29	50	48	30	67	25	4.4	1,210	7.8	287
10	16	41	35	45	49	29	53	25	3.2	1,030	6.3	130
11	16	41	38	45	49	40	55	22	2.7	481	9.0	87
12	9.1	39	34	46	54	47	61	43	2.5	393	6.1	47
13	8.2	40	32	45	55	48	61	47	2.2	344	19	26
14	13	36	31	46	56	39	64	44	2.1	281	77	24
15	15	32	32	55	68	40	62	63	2.0	297	95	19
16	14	31	46	52	62	40	52	48	2.8	262	59	21
17	15	31	53	58	56	48	49	26	87	180	33	19
18	14	29	50	56	57	166	43	15	401	145	16	11
19	13	26	44	53	55	618	37	11	467	144	13	13
20	12	33	44	57	53	851	35	13	582	123	7.3	9.8
21	9.7	28	44	71	53	925	30	13	590	122	3.3	6.8
22	12	27	43	73	55	851	25	17	554	103	3.8	6.7
23	14	27	41	97	52	760	20	24	573	79	3.0	10
24	12	30	48	102	51	754	19	24	580	87	3.3	9.6
25	11	27	52	85	49	742	30	21	612	68	4.1	9.8
26	13	24	54	82	47	766	36	17	611	56	6.6	6.0
27	12	23	53	85	47	766	34	11	346	32	5.1	5.4
28	15	24	49	81	50	738	37	6.1	151	22	46	5.5
29	18	31	55	73	50	722	43	4.0	100	22	39	5.5
30	22	34	55	66	------	728	38	4.5	50	5.9	39	5.5
31	22	------	54	64	------	755	------	3.9	------	7.1	498	------
TOTAL	434.7	960	1,291	1,904	1,553	10,840	3,882	774.5	5,765.4	16,993.0	1,085.1	1,746.6
MEAN	14.0	32.0	41.6	61.4	53.6	350	129	25.0	192	548	35.0	58.2
MAX	23	43	55	102	68	925	775	63	612	3,330	498	287
MIN	8.2	23	29	45	47	29	19	3.9	2.0	5.9	3.3	5.4
AC-FT	862	1,900	2,560	3,780	3,080	21,500	7,700	1,540	11,440	33,710	2,150	3,460

CAL YR 1967: TOTAL 43,018.86 MEAN 118 MAX 1,510 MIN .74 AC-FT 85,330
WTR YR 1968: TOTAL 47,229.3 MEAN 129 MAX 3,330 MIN 2.0 AC-FT 93,680

PEAK DISCHARGE (BASE, 2,500 CFS).--JULY 6 (2000) 6,560 CFS (10.36 FT).

8-3965. 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, Eddy County, 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, August 1909 to September 1968. Monthly discharge only for some periods, published in WSP 1312. Records for Aug. 22-31, 1934, and Oct. 1936 to Apr. 1937, published in WSP 763 and 828, respectively, have been found to be unreliable and monthly figures only should be used. Prior to February 1936, published as "near Dayton."

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.--30 years (1905-8, 1909-36), 365 cfs (264,200 acre-ft per year), prior to completion of Alamogordo Reservoir; 32 years (1936-68), 285 cfs (206,300 acre-ft per year).

Extremes.--Maximum discharge during year, 4,000 cfs July 7 (gage height, 12.30 ft); minimum, 0.94 cfs June 16.

1905-68: Maximum discharge probably occurred May 30, 1937, when a discharge of 51,500 cfs was measured by slope-area method at a point 15 miles upstream (gage height, 14.7 ft, site and datum then in use); no flow at times in 1934, 1946-47, 1953-54, 1957, 1964-65.

Greatest flood known since at least 1893 occurred Oct. 2, 1904 (discharge not determined). (The peak inflow to Lake McMillan, which includes Rio Penasco and Fourmile Draw, was estimated as 82,000 cfs). The second highest flood occurred July 25, 1905 (discharge below Rio Penasco, 50,300 cfs, based on gain in storage and spill from Lake McMillan). The floods in August 1893 and October 1904 damaged McMillan Dam and washed out Avalon Dam.

Remarks.--Records fair except those for discharges below 10 cfs, which are poor. Flow partly regulated by Alamogordo Reservoir (see station 8-3840) since August 1937. Diversions and ground-water withdrawals for irrigation of about 154,000 acres (1959 determination) above station. Discharge represents inflow to Lake McMillan which is part of the storage system for the irrigation of about 25,000 acres of the Carlsbad project. Records of chemical analyses, water temperatures, and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	22	34	53	66	52	803	32	5.9	174	7.5	296
2	19	24	31	53	62	56	815	31	6.2	548	8.5	258
3	20	25	33	53	61	56	780	34	7.8	776	6.5	148
4	13	28	36	52	60	48	424	27	6.2	776	13	100
5	8.6	29	39	51	57	43	198	25	6.8	970	12	73
6	9.5	34	37	50	53	41	137	34	6.8	1,960	10	53
7	10	41	33	50	50	40	110	30	5.5	3,150	6.8	32
8	11	40	34	52	49	36	86	30	5.2	1,660	4.2	39
9	11	39	32	54	48	33	64	28	4.4	1,170	3.5	219
10	15	38	32	51	49	34	45	31	4.0	1,070	3.5	151
11	15	39	38	49	49	35	41	28	2.8	643	6.8	102
12	14	39	38	48	54	45	61	57	2.6	431	6.5	53
13	10	39	36	48	59	45	53	50	1.7	382	4.9	29
14	9.1	38	34	49	57	42	56	41	2.0	324	25	17
15	11	36	21	49	64	33	67	51	2.2	274	54	17
16	13	33	36	58	68	42	58	60	1.2	324	57	13
17	13	32	46	57	61	45	54	44	1.2	183	38	17
18	14	31	53	59	59	53	53	31	251	137	21	16
19	14	30	50	58	60	500	46	19	411	136	10	12
20	13	29	47	60	58	750	39	16	487	112	9.0	13
21	14	31	46	75	54	887	37	15	573	112	9.4	11
22	11	28	45	72	54	908	29	15	565	108	4.9	10
23	12	28	47	78	56	758	26	22	568	72	5.5	9.0
24	13	28	44	100	52	742	25	23	579	67	5.2	7.0
25	13	29	50	86	51	728	22	23	584	64	4.9	5.0
26	12	27	53	81	49	728	34	15	590	64	5.9	5.0
27	12	25	54	80	48	750	37	14	478	44	5.9	4.0
28	12	25	51	82	49	745	34	9.4	174	29	3.8	4.0
29	14	26	52	77	50	752	40	8.5	80	21	34	4.0
30	17	31	56	70	------	745	38	6.8	35	19	25	4.0
31	21	------	54	66	------	762	------	5.9	------	11	283	------
TOTAL	412.2	944	1,292	1,921	1,607	10,534	4,312	856.6	5,447.5	15,811	695.2	1,721.0
MEAN	13.3	31.5	41.7	62.0	55.4	340	144	27.6	182	510	22.4	57.4
MAX	21	41	56	100	68	908	815	60	590	3,150	283	296
MIN	8.6	22	21	48	48	33	22	5.9	1.2	11	3.5	4.0
AC-FT	818	1,870	2,560	3,810	3,190	20,890	8,550	1,700	10,800	31,360	1,380	3,410

CAL YR 1967:	TOTAL	42,082.35	MEAN	115	MAX	1,420	MIN	.45	AC-FT	83,470
WTR YR 1968:	TOTAL	45,553.5	MEAN	124	MAX	3,150	MIN	1.2	AC-FT	90,350

PEAK DISCHARGE (BASE 2,000 CFS).--JULY 7 (0145) 4,000 CFS (12.30 FT).

8-3985. Rio Penasco at Dayton, N. Mex.

Location.--Lat 32°44'36", long 104°24'49", in NE¼SE¼SE¼ sec.18, T.18 S., R.26 E., on right bank 1¼ miles upstream from U. S. Highway 285, 1¾ miles west of old Dayton railway station, 6 miles upstream from mouth, and 7 miles south of Artesia, Eddy County.

Drainage area.--1,060 sq mi, approximately.

Records available.--April 1951 to September 1968. Prior to October 1953, published as "near Dayton."

Gage.--Water-stage recorder. Datum of gage is 3,387.17 ft above mean sea level, datum of 1929. Prior to May 9, 1968 at site 2½ miles downstream, at datum 46.28 ft lower.

Average discharge.--17 years, 6.39 cfs (4,630 acre-ft per year).

Extremes.--Maximum discharge during year, about 16,700 cfs July 6 (gage height, about 11.1 ft, from floodmarks); no flow most of time.
1951-68: Maximum discharge, 29,800 cfs Aug. 23, 1966 (gage height, 16.4 ft, from floodmarks, present site and datum), from rating curve extended above 6,000 cfs on basis of slope-area measurements at gage heights 6.82 and 7.90 ft, at previous site and datum; no flow most of time.
The greatest flood known occurred about Sept. 22, 1941, when a stage of about 9 ft, previous site and datum (from old logs) was reached, and peak discharge for station near Dunken (about 50 miles upstream) was 70,000 cfs (as determined for that station in 1956, from floodmarks and rating curve extended above 36,300 cfs).

Remarks.--Records poor. Diversions and ground-water withdrawals for irrigation of about 3,000 acres (1959 determination) above station. Records of water temperatures and suspended sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

July 6	6,760	July 10	0.15
7	72	11	.13
8	32	12	.08
9	.92		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
July 1968	6,865.28	6,760	0	221	13,620
Calendar year 1967	230.0	225	0	.63	456
Water year 1967-68	6,865.28	6,760	0	18.8	13,620

PEAK DISCHARGE (BASE, 750 CFS).--JULY 6 (ABOUT 0300) ABOUT 16,700 (ABOUT 11.1, FROM FLOODMARK).

Note.--Flow occurred only on days listed above.

8-3995. Pecos River (Kaiser Channel) near Lakewood, N. Mex.

Location.--Lat 32°41'22", long 104°17'53", in NW¼SE¼ sec.5, T.19 S., R.27 E., on left bank 3 miles upstream from high-water line of Lake McMillan, 6 miles northeast of Lakewood, 7 miles northeast of gates in McMillan Dam, and 12 miles southeast of Artesia, Eddy County.

Records available.--May 1950 to September 1968. Prior to October 1954, published as Kaiser Lake-McMillan Channel near Lakewood.

Gage.--Water-stage recorder. Datum of gage is 3,268.53 ft above mean sea level (Bureau of Reclamation bench mark). Prior to March 23, 1955, at site 3 miles downstream at datum 7.83 ft lower. Mar. 23, 1955, to Sept. 30, 1963, at present site at datum 2.00 ft higher.

Average discharge.--18 years, 154 cfs (111,500 acre-ft per year).

Extremes.--Maximum daily discharge during year, 1,980 cfs July 7, no flow at times.
1950-68: Maximum daily discharge, 2,920 cfs July 12, 1960; no flow at times in most years.

Remarks.--Records good except those below 10 cfs, and the period Aug. 14 to Sept. 25, which are fair. Flow partly regulated by Alamogordo Reservoir (see station 8-3840). Diversions and ground-water withdrawals for irrigation of about 170,000 acres (1959 determination) above station. Above about 1,500 cfs flow will begin bypassing station and, depending on the magnitude and duration of flow, may reach Lake McMillan.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	14	30	51	61	50	788	33	2.1	78	10	281
2	9.2	19	28	52	59	53	813	29	1.9	534	6.7	238
3	13	19	28	51	57	56	793	30	1.6	741	7.4	172
4	11	20	33	51	56	50	471	30	3.4	833	4.5	126
5	4.0	23	36	50	55	44	190	23	1.3	966	11	89
6	1.0	26	37	47	50	39	140	26	1.9	1,690	10	68
7	2.4	35	30	46	48	38	110	29	.90	1,980	8.1	37
8	3.8	37	28	47	46	36	92	25	.44	1,790	5.3	28
9	3.6	34	28	47	47	31	74	26	.08	1,330	1.9	132
10	5.6	32	25	47	47	31	54	23	0	1,180	.78	170
11	8.8	34	30	44	47	30	44	31	0	766	.84	130
12	7.7	33	37	42	50	36	53	40	0	506	5.9	73
13	6.7	31	33	42	59	42	50	52	0	442	4.2	33
14	2.6	30	32	42	56	41	53	39	0	385	2.4	14
15	1.3	28	16	44	57	30	62	39	0	318	45	12
16	4.5	27	33	51	67	36	58	57	0	351	64	9.6
17	6.2	26	56	52	60	41	50	44	0	212	42	8.5
18	6.7	25	52	56	56	47	47	31	125	169	24	10
19	7.0	26	47	53	56	383	46	21	382	169	13	7.7
20	6.4	23	40	55	53	676	37	14	471	141	6.2	4.8
21	6.2	27	40	70	52	872	36	13	563	132	7.0	4.5
22	6.2	25	39	76	51	902	33	13	569	120	5.6	2.8
23	4.2	24	40	72	52	775	26	11	558	86	3.0	1.6
24	4.8	23	39	97	51	757	24	20	569	66	2.2	1.0
25	6.2	26	44	90	50	747	23	20	579	74	1.9	.20
26	5.0	26	48	79	48	747	27	17	593	63	1.8	0
27	4.5	24	51	78	46	770	35	11	539	54	1.9	0
28	5.6	21	48	82	47	757	33	10	207	32	2.2	0
29	5.9	21	46	78	48	752	34	6.2	95	22	14	0
30	8.1	23	52	70	------	739	38	4.4	50	19	28	0
31	12	------	52	64	------	754	------	2.6	------	12	193	------
TOTAL	192.2	782	1,178	1,826	1,532	10,362	4,334	770.2	5,313.62	15,261	533.82	1,653.70
MEAN	6.20	26.1	38.0	58.9	52.8	334	144	24.8	177	492	17.2	55.1
MAX	13	37	56	97	67	902	813	57	513	1,980	193	281
MIN	1.0	14	16	42	46	30	23	2.6	0	12	.78	0
AC-FT	381	1,550	2,340	3,620	3,040	20,550	8,600	1,530	10,540	30,270	1,060	3,280

CAL YR 1967: TOTAL 40,503.41 MEAN 111 MAX 1,540 MIN 0 AC-FT 80,340
WTR YR 1968: TOTAL 43,738.54 MEAN 120 MAX 1,980 MIN 0 AC-FT 86,750

8-4000. Fourmile Draw near Lakewood, N. Mex.

Location.--Lat 32°40'20", long 104°22'07", in SW¼NW¼SE¼ sec.10, T.19 S., R.26 E., in left side of channel 360 ft downstream from ford on Lakewood - Dayton road, 1.9 miles downstream from U. S. Highway 285, 2.8 miles north of Lakewood, 3.7 miles upstream from mouth, and 11.5 miles south of Artesia, Eddy County.

Drainage area.--265 sq mi, approximately.

Records available.--October 1951 to September 1968. Prior to October 1964, published as Four Mile Draw near Lakewood.

Gage.--Water-stage recorder. Datum of gage is 3,299.14 ft above mean sea level, datum of 1929. Oct. 1, 1951, to June 19, 1962, at site 1.8 miles upstream at datum 30.61 ft higher. June 19, 1962, to Oct. 12, 1966, at site 410 ft upstream at datum 6.08 ft higher.

Average discharge.--17 years, 3.87 cfs (2,800 acre-ft per year).

Extremes.--Maximum discharge during year, 8,620 cfs July 6 (gage height, 14.70 ft); no flow most of time.
1951-68: Maximum discharge, 29,300 cfs Aug. 23, 1966 (gage height, 19.9 ft, from floodmarks), from rating curve extended above 600 cfs on basis of slope-area measurement of peak flow; no flow most of time.
The flood of Aug. 23, 1966 (from information by local resident) is believed to be the greatest known.
Revisions.--The maximum discharge for the water year 1967 has been revised to 1,330 cfs Aug. 10 (gage height, 5.74 ft), superseding figure published in Water Resources Data for New Mexico, Part 1, 1967.

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

Revisions.--Revised figures of discharge, in cubic feet per second, for periods of flow in water year 1967, superseding previously published figures, are given herewith:

June 16	0.16
Aug. 10	62
11	2.2

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
June 1967	0.16	0.16	0	0.005	0.3
August	64.2	62	0	2.07	127
Water year 1967	64.36	62	0	.18	128

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

July 6	2,380
7	32
8	3.2
9	2.0

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in Acre-feet
July 1968	2,417.2	2,380	0	78.0	4,790
Calendar year 1967	64.36	62	0	.18	128
Water year 1967-68	2,417.2	2,380	0	6.60	4,790

PEAK DISCHARGE (BASE, 200 CFS).--JULY 6 (1115) 8,620 CFS (14.70 FT).

Note.--Flow occurred only on day listed above.

8-4005. Lake McMillan near Lakewood, N. Mex.

Location.--Lat 32°35'45", long 104°20'55", on SE¼ sec.2, T.20 S., R.26 E., near outlet gates of dam on Pecos River, 3 miles southeast of Lakewood, Eddy County.

Drainage area.--16,990 sq mi, approximately (contributing area).

Records available.--January 1939 to September 1968. Gage heights since January 1918 published in reports of Pecos River Commission.

Gage.--Float-tape gage. Datum of gage is 3,241.6 ft above mean sea level, Bureau of Reclamation datum.

Extremes.--Maximum contents at 0800 hours during year, 30,900 acre-ft July 19-22 (gage height, 25.60 ft); minimum, 797 acre-ft June 19 (gage height, 15.90 ft).
1939-68: Maximum contents observed, 68,500 acre-ft Sept. 26, 1941 (gage height, 29.95 ft); no storage for periods in 1944-54, 1957, 1964, 1965.

Remarks.--Lake is formed by McMillan Dam, completed and storage began in 1893. The structure was damaged by floods of October 1893 and Oct. 2, 1904. Capacity, 27,300 acre-ft between gage heights 0.0 ft (sill of outlet gate) and 24.9 ft (crest of spillway 2). Flashboards may be used to increase this capacity. Maximum capacity without spill, 33,620 acre-ft at gage height 26.1 ft (crest of spillway 1). No dead storage. No storage allocated to flood control. Figures given herein represent usable contents. Gage heights may be affected by variable drawdown due to flow through gates. Water is used for irrigation by Carlsbad Irrigation District.

Cooperation.--Gage-height record and capacity table furnished by Carlsbad Irrigation District.

Capacity table, water year 1967-68 (gage height, in feet, and contents, in acre-feet)

15.5	415
16	912
17	2,400
20	8,980
23	18,680
26	33,060

CONTENTS, IN ACRE-FEET, AT 0800 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10,880	3,120	2,930	3,710	6,660	8,460	22,520	12,820	6,420	6,200	24,380	10,880
2	10,880	3,120	2,930	3,810	6,770	8,590	23,440	12,660	6,200	6,080	23,440	11,160
3	10,740	3,120	2,930	3,810	6,770	8,590	23,900	12,510	5,960	6,770	22,520	11,610
4	10,600	3,020	2,930	3,910	6,770	8,720	24,140	12,360	5,630	7,720	22,060	11,760
5	10,320	3,020	2,930	4,020	6,880	8,720	23,440	12,060	5,300	9,240	21,620	11,760
6	10,040	3,020	2,930	4,020	6,880	8,850	22,520	11,760	4,970	11,160	21,180	11,610
7	9,900	3,020	2,930	4,020	7,000	8,850	22,290	11,460	4,540	15,660	20,740	11,160
8	9,630	3,020	3,020	4,120	7,000	8,850	21,180	11,310	4,220	21,180	19,690	10,880
9	9,110	3,020	3,020	4,220	7,120	8,850	20,740	10,740	4,120	24,140	19,280	10,600
10	8,720	3,020	3,020	4,220	7,120	8,850	19,900	10,460	3,910	26,300	18,680	10,320
11	8,200	3,020	3,020	4,330	7,240	8,980	19,280	10,180	3,510	28,050	18,280	10,040
12	7,840	3,120	3,020	4,330	7,360	8,980	18,480	10,040	3,220	28,820	17,690	9,760
13	7,360	3,120	3,020	4,440	7,360	8,980	18,080	9,900	2,840	29,340	17,500	9,370
14	7,000	3,120	3,020	4,540	7,480	8,980	17,690	9,760	2,400	29,600	16,930	8,850
15	6,660	3,120	3,120	4,640	7,720	8,980	16,740	9,630	2,060	30,120	16,380	8,590
16	6,420	3,120	3,120	4,750	7,720	8,980	16,560	9,630	1,590	30,380	15,660	8,330
17	6,080	3,120	3,120	4,860	7,840	8,980	16,200	9,630	1,230	30,640	14,790	8,080
18	5,850	3,120	3,120	4,970	7,840	8,980	16,020	9,500	854	30,640	14,280	7,840
19	5,630	3,120	3,120	4,970	7,960	9,110	15,480	9,240	797	30,900	13,620	7,600
20	5,410	3,120	3,220	5,080	8,080	10,180	15,130	9,110	1,300	30,900	13,140	7,240
21	5,190	3,120	3,310	5,190	8,080	11,610	14,620	8,850	1,980	30,900	12,510	6,880
22	4,970	3,120	3,310	5,410	8,080	12,980	14,620	8,720	2,750	30,900	12,360	6,540
23	4,750	3,120	3,310	5,630	8,200	14,450	14,110	8,460	3,610	30,640	12,060	6,310
24	4,440	3,020	3,410	5,740	8,200	15,840	13,940	8,330	4,440	30,640	11,460	5,960
25	4,120	3,020	3,410	5,960	8,200	17,120	13,780	8,080	5,410	30,120	11,160	5,630
26	3,910	3,020	3,410	6,200	8,330	18,280	13,620	7,840	5,850	29,080	11,020	5,190
27	3,510	3,020	3,510	6,200	8,330	19,480	13,460	7,600	6,420	28,300	10,880	4,640
28	3,220	3,020	3,510	6,310	8,330	20,530	13,300	7,360	6,880	27,300	10,600	4,220
29	3,120	2,930	3,610	6,420	8,460	21,400	13,140	7,120	6,770	26,550	10,320	3,710
30	3,120	2,930	3,610	6,540	----------	21,840	12,980	6,880	6,660	25,820	10,320	3,410
31	3,120	----------	3,710	6,540	----------	22,060	----------	6,660	----------	24,860	10,320	----------
(†)	17.40	17.30	17.70	19.00	19.80	23.80	21.40	19.05	19.05	24.40	20.50	17.55
(±)	-7,760	-190	+780	+2,830	+1,920	+13,600	-9,080	-6,320	0	+18,200	-14,540	-6,910
MAX	10,880	3,120	3,710	6,540	8,460	22,060	24,140	12,820	6,880	30,900	24,380	11,760
MIN	3,120	2,930	2,930	3,710	6,660	8,460	12,980	6,660	797	6,080	10,320	3,410

CAL YR 1967: (±) -19,040
WTR YR 1968: (±) -7,470

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

8-4010. 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, Eddy County.

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, December 1946 to September 1968 (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 three 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. Supplemental water-stage recorders on McMillan Dam spillways, Nos. 1 and 2, since July 9, 1960, and Apr. 6, 1960, respectively.

Average discharge.--23 years (1906-7, 1939-40, 1947-68), 101 cfs (73,120 acre-ft per year).

Extremes.--Maximum daily discharge during year, 451 cfs Apr. 3 (gage height, 3.90 ft); no flow for many days.
1939-40, 1947-68: Maximum discharge, 16,500 cfs Aug. 23, 1966, includes flow of two spillways; no flow for many days.
Flood of Oct. 2, 1904, may have reached 60,000 cfs. This station may have had a higher discharge in August 1893 when part of McMillan Dam was blasted to prevent total destruction of the dam (that flood was described as "highest in 50 years" and it also destroyed Avalon Dam).

Remarks.--Records good. Flow regulated by Alamogordo Reservoir and Lake McMillan (see stations 8-3840, 8-4005). Flow over McMillan Dam spillways bypasses station but is gaged and included with discharge. Diversions and ground-water withdrawals for irrigation of about 171,000 acres (1959 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.17					0	361	54	94	181	279	0.17
2	.17					0	330	52	94	220	320	.13
3	27					0	451	51	94	220	190	.11
4	108					0	431	90	100	116	136	.05
5	108					0	431	109	136	.26	136	86
6	108					0	427	111	136	.20	136	170
7	118					0	354	137	134	.17	207	174
8	145					0	313	153	73	.22	255	116
9	174					0	313	153	49	.41	255	172
10	185					0	310	153	113	.26	174	202
11	181					0	310	153	141	.17	134	200
12	181					0	239	89	139	.32	134	200
13	181					0	212	62	137	.34	134	200
14	181					0	279	61	168	.39	215	128
15	127					0	155	61	181	.35	285	101
16	103					0	103	60	179	2.0	375	100
17	103					0	104	59	174	6.4	297	98
18	103					0	168	60	143	5.2	250	98
19	103					0	200	59	106	.72	247	151
20	103					0	174	59	97	.70	244	132
21	101					0	106	59	98	.93	239	106
22	101					0	106	59	101	.91	207	106
23	101					0	72	59	103	.91	205	130
24	100					0	54	86	139	45	139	143
25	100					0	54	97	168	292	75	141
26	163					0	54	95	168	338	56	179
27	159					70	52	95	168	333	55	193
28	19					223	54	97	170	330	55	193
29	.17					301	54	95	170	310	55	134
30	0				------	379	54	94	170	297	20	106
31	0	------			------	435	------	94	------	270	.20	------
TOTAL	3,183.51	0	0	0	0	1,408	6,325	2,716	3,943	2,972.86	5,509.20	3,759.46
MEAN	103	0	0	0	0	45.4	211	876	131	95.9	178	125
MAX	185	0	0	0	0	435	451	153	181	338	375	202
MIN	0	0	0	0	0	0	52	51	49	.17	.20	.05
AC-FT	6,310	0	0	0	0	2,790	12,550	5,390	7,820	5,900	10,930	7,460

CAL YR 1967:	TOTAL	26,747.49	MEAN	73.3	MAX	443	MEAN	0	AC-FT 53,050
WTR YR 1968:	TOTAL	29,817.03	MEAN	81.5	MAX	451	MEAN	0	AC-FT 59,140

8-4012. South Seven Rivers near Lakewood, N. Mex.

Location.--Lat 32°35'20", long 104°25'20", in SE¼SE¼NW¼ sec.7, T.20 S., R.26 E., on downstream side of bridge on U. S. Highway 285, 0.4 mile south of Seven Rivers, 3 miles upstream from mouth, and 4 miles southwest of Lakewood, Eddy County.

Drainage area.--220 sq mi, approximately.

Records available.--October 1963 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 3,276 ft (from topographic map). Prior to July 8, 1965, at site 400 ft upstream at datum 0.57 ft higher.

Average discharge.--5 years, 9.29 cfs (6,730 acre-ft per year).

Extremes.--Maximum discharge during year, 4,430 cfs July 6 (gage height, 10.58 ft); no flow most of time.
1963-68: Maximum discharge, 25,500 cfs May 30, 1965 (gage height, 20.0 ft, from floodmarks, present site and datum), from rating curve extended above 5,700 cfs on basis of slope-area measurements at gage heights 18.15 and 20.0 ft; no flow most of time.
Maximum discharge since at least 1941, about 30,000 cfs (gage height, 22.8 ft, from old debris on left bank, former site and datum), from rating curve extended above 5,700 cfs on basis of slope-area measurement at gage height 21.8 ft. Probable date of flood, Oct. 7, 1954.

Remarks.--Records poor. No known diversions above gage.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

May 12	1.0	July 8	55
July 4	174	18	.23
5	53	Aug. 22	3.8
6	306	23	.08
7	289		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
May 1968	1.0	1.0	0	0.03	2.0
July	877.23	306	0	28.3	1,740
August	3.88	3.8	0	.13	7.7
Calendar year 1967	1,734.76	1,340	0	4.75	3,440
Water year 1967-68	881.11	306	0	2.41	1,750

PEAK DISCHARGE (BASE, 450 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-4	1800	8.61	2,330	7-7	2145	8.09	1,900
7-6	2200	10.58	4,430				

Note.--Flow occurred only on days listed above.

8-4019. Rocky Arroyo at highway bridge, near Carlsbad, N. Mex.

Location.--Lat 32°30'20", long 104°22'28", in SE¼SE¼ sec.3, T.21 S., R.25 E., at downstream end of bridge pier nearest left bank on U. S. Highway 285, 2 miles upstream from mouth, and 10 miles northwest of Carlsbad, Eddy County.

Drainage area.--285 sq mi, approximately.

Records available.--October 1963 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 3,248 ft (from topographic map).

Average discharge.--5 years, 14.3 cfs (10,350 acre-ft per year).

Extremes.--Maximum discharge during year, 1,160 cfs July 4 (gage height, 6.62 ft); no flow most days.
1963-68: Maximum discharge, 31,600 cfs Aug. 23, 1966 (gage height, 15.35 ft), from rating curve extended above 5,500 cfs on basis of slope-area measurement of peak flow; no flow most days.
Since about 1941 the highest peak probably occurred Oct. 7, 1954, discharge 63,600 cfs (gage height, 19.2 ft, from highwater marks on downstream end of bridge pier), by slope-area measurement at site 5 miles upstream.

Remarks.--Records fair. Diversions for irrigation of 220 acres (from Agricultural Stabalization and Conservation Service) above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

July 3	0.02	July 8	90
4	88	9	4.0
5	30	10	.34
6	33	Aug. 30	1.6
7	254		

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
July 1968	499.36	254	0	16.1	990
August	1.6	1.6	0	.05	3.2
Calendar year 1967	4,068.24	1,960	0	11.1	8,070
Water year 1967-68	500.96	254	0	1.37	994

PEAK DISCHARGE (BASE, 1,000 CFS).--JULY 4 (1600) 1,160 CFS (6.62 FT).

Note.--Flow occurred only on days listed above.

8-4020. Pecos River at damsite 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 damsite 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, Eddy County.

Drainage area.--17,980 sq mi, approximately (contributing area).

Records available.--August 1939 to December 1940, August 1944 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 3,171.31 ft above mean sea level (Bureau of Reclamation datum). Prior to Aug. 10, 1944, at site 1,000 ft downstream, at datum 1.00 ft higher. Aug. 10, 1944, to Dec. 31, 1966, at present site at datum 1.00 ft higher.

Average discharge.--25 years, 172 cfs (124,500 acre-ft per year).

Extremes.--Maximum discharge during year, 1,970 cfs July 7 (gage height, 5.41 ft, from floodmark); minimum, 21 cfs Dec. 12, 17.
1939-40, 1944-68: Maximum discharge, 69,000 cfs Aug. 23, 1966 (gage height, 20.32 ft, from floodmark), from rating curve extended above 25,000 cfs on basis of slope-area measurement at gage height 18.53 ft; minimum, 4.3 cfs Aug. 5, 1954.
Peaks which probably exceeded 40,000 cfs occurred in August 1893, Oct. 2, 1904, July 25, 1905, Apr. 17, 1915, Aug. 7, 1916, and May 30, 1937, based primarily on records for station at Carlsbad. Peak of May 22, 1941, was estimated at 60,000 cfs. Floods of 1893 and 1904 originated above McMillan Dam and contributed to the two failures of Avalon Dam.

Remarks.--Records good. Flow regulated by Alamogordo Reservoir and Lake McMillan (see stations 8-3840, 8-4005). Diversions and ground-water withdrawals for irrigation of about 173,000 acres (1959 determination) above station. Discharge represents inflow to Lake Avalon.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	34	30	28	29	24	387	87	113	177	275	42
2	39	34	30	29	28	24	340	87	113	216	343	42
3	39	34	29	29	28	26	424	87	113	247	275	42
4	105	33	29	29	28	24	432	95	113	350	185	39
5	130	33	28	29	28	24	428	130	144	180	185	69
6	130	33	29	29	28	24	428	130	149	49	177	191
7	130	33	29	29	27	24	394	150	149	380	200	228
8	166	32	28	29	27	23	343	170	121	328	280	152
9	185	32	30	30	28	23	340	170	69	31	280	182
10	210	32	30	30	28	23	336	170	94	30	210	237
11	210	31	28	29	27	26	336	180	152	32	166	240
12	210	31	26	29	28	25	298	150	152	35	166	240
13	210	31	29	29	28	24	247	90	149	39	166	237
14	210	31	30	30	28	23	282	90	166	42	190	196
15	180	30	30	30	28	24	253	92	191	44	275	128
16	128	30	29	30	28	23	142	90	188	46	364	126
17	128	31	26	30	28	23	142	87	185	49	329	128
18	128	31	25	30	28	23	177	89	169	54	272	126
19	128	30	28	30	29	23	234	89	130	55	272	159
20	126	30	28	30	27	27	234	89	108	56	272	191
21	126	30	30	32	26	27	149	87	106	58	269	135
22	123	30	30	31	27	23	137	85	110	60	272	152
23	123	30	30	28	27	23	123	83	110	61	275	152
24	123	30	30	28	27	23	92	92	130	61	225	182
25	123	30	30	28	26	23	92	117	169	258	137	166
26	162	30	29	27	26	23	89	117	172	357	98	196
27	208	30	30	29	25	24	87	115	174	361	96	234
28	82	30	30	29	25	183	87	115	177	361	98	234
29	36	30	30	28	25	253	87	117	174	350	98	193
30	36	30	30	28	------	332	87	115	180	336	104	132
31	35	------	29	28	------	424	------	113	------	354	45	------
TOTAL	4,008	936	899	904	792	1,838	7,227	3,478	4,270	5,057	6,599	4,771
MEAN	129	31.2	29.0	29.2	27.3	59.3	241	112	142	163	213	159
MAX	210	34	30	32	29	424	432	180	191	380	364	240
MIN	35	30	25	27	25	23	87	83	69	30	45	39
AC-FT	7,950	1,860	1,780	1,790	1,570	3,650	14,330	6,900	8,470	10,030	13,090	9,460

CAL YR 1967: TOTAL 43,589 MEAN 119 MAX 3,130 MIN 31 AC-FT 86,460
WTR YR 1968: TOTAL 40,779 MEAN 111 MAX 432 MIN 23 AC-FT 80,880

PEAK DISCHARGE (BASE, 1,700 CFS).--JULY 7 (ABOUT 0200) 1,970 CFS (5.41 FT).

8-4035. 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, Eddy County.

Records available.--July 1939 to September 1968. Published as Carlsbad main canal near Carlsbad, August 1939 to December 1940. Monthly discharges only for January 1941 to March 1951, published in WSP 1732.

Gage.--Water-stage recorder and concrete control. Datum of gage is 3,156.50 ft above mean sea level (Bureau of Reclamation datum). Prior to March 1951 at site 20 ft upstream at datum 0.9 ft higher.

Extremes.--1939-68: Maximum daily discharge, 526 cfs Sept. 15, 16, 1946; no flow many days.

Remarks.--Records good. Carlsbad main canal diverts water from Lake Avalon for irrigation of about 25,000 acres of Carlsbad Irrigation District. About 1,600 acres is irrigated on left bank of the Pecos River, most of it above gaging station on Pecos River at Carlsbad. The remaining acreage is on right bank, most of it downstream from Pecos River at Carlsbad gage.

MONTHLY DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

Month	Maximum	Minimum	Mean	Diversion in acre-feet
October	228	0	131	8,070
November	0	0	0	0
December	0	0	0	0
Calendar year 1967	408	0	101	72,770
January	0	0	0	0
February	0	0	0	0
March	416	0	74.6	4,590
April	393	40	223	13,270
May	196	41	114	6,990
June	187	54	127	7,540
July	370	1.0	151	9,260
August	316	53	209	12,850
September	230	17	155	9,200
Water year 1967-68	416	0	98.9	71,770

8-4038. Lake Avalon near Carlsbad, N. Mex.

Location.--Lat 32°29'25", long 104°15'00", in SW¼ sec.12, T.21 S., R.26 E., on headwall at outlet gate of dam on Pecos River, 5 miles north of Carlsbad, Eddy County.

Drainage area.--18,070 sq mi, approximately (contributing area).

Records available.--January 1939 to September 1968. Gage heights since January 1919 published in reports of the Pecos River Commission.

Gage.--Staff gage. Datum of gage is 3,157.0 ft above mean sea level, Bureau of Reclamation datum.

Extremes.--Maximum contents at 0800 hours during year, 3,810 acre-ft July 9, 10 (gage height, 19.10 ft); minimum, 845 acre-ft Oct. 27, 28, June 5.
1939-68: Maximum contents, 11,000 acre-ft May 22, 1941 (gage height, 25.0 ft); no storage at times when natural flow was passing through reservoir.

Remarks.--Lake is formed by Avalon Dam. The original Eddy (Avalon) dam was completed and storage began in 1893. The dam was destroyed by flood of October 1893 (date of reconstruction not available), was destroyed again by flood of Oct. 2, 1904; present dam rebuilt in 1905-6. Capacity, 4,970 acre-ft between gage heights 0.0 (sill of outlet gates) and 20.4 ft (crest of spillway 2). No dead storage. No storage allocated to flood control. Figures given herein represent usable contents. Water is used by Carlsbad Irrigation District.

Cooperation.--Capacity table based on data furnished by Carlsbad Irrigation District.

Capacity table, water year 1967-68 (gage height, in feet, and contents, in acre-feet)

14	406
16	1,510
18	2,930
20	4,610

CONTENTS, IN ACRE-FEET, AT 0800 HOURS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,700	1,070	2,080	2,780	3,210	3,290	1,130	1,770	928	1,160	1,190	1,610
2	1,610	1,100	2,080	2,780	3,210	3,290	1,130	1,540	928	1,070	1,220	1,510
3	1,480	1,190	2,080	2,780	3,210	3,290	955	1,320	928	1,010	1,380	1,540
4	1,320	-	2,190	2,810	3,210	3,290	1,190	1,190	900	1,010	1,480	1,350
5	1,250	-	2,190	2,810	3,210	3,290	1,350	1,190	845	1,770	1,410	1,070
6	1,250	-	2,190	2,850	3,210	3,290	1,540	1,220	872	2,360	1,320	928
7	1,160	-	2,220	2,850	3,210	3,290	1,670	1,160	955	2,970	1,100	1,010
8	1,130	-	2,260	2,890	3,210	3,250	1,770	1,040	1,070	3,690	1,010	1,130
9	1,160	1,440	2,300	2,890	3,210	3,250	1,740	1,010	1,190	3,810	1,010	1,100
10	1,160	1,480	2,330	2,930	3,210	3,250	1,640	1,130	1,130	3,810	1,160	1,070
11	1,130	1,540	2,330	2,930	3,210	3,250	1,700	1,220	1,070	3,770	1,280	1,070
12	1,190	1,580	2,330	2,930	3,210	3,250	1,770	1,410	1,040	3,770	1,220	1,130
13	1,190	1,610	2,360	2,970	3,210	3,250	1,840	1,610	955	3,730	1,190	1,160
14	1,220	1,640	2,360	2,970	3,210	3,250	1,840	1,670	872	3,730	1,010	1,280
15	1,280	1,640	2,400	3,010	3,210	3,250	2,080	1,670	900	3,730	900	1,380
16	1,380	1,670	2,400	3,010	3,250	3,250	2,050	1,740	1,010	3,650	900	1,350
17	1,410	1,700	2,440	3,010	3,250	3,250	1,740	1,770	1,130	3,490	1,160	1,280
18	1,350	1,740	2,480	3,010	3,290	3,250	1,480	1,770	1,250	3,330	1,410	1,250
19	1,320	1,770	2,550	3,010	3,290	3,250	1,440	1,800	1,350	3,130	1,580	1,160
20	1,250	1,800	2,550	3,050	3,290	3,250	1,610	1,770	1,350	2,930	1,640	1,190
21	1,220	-	2,550	3,130	3,290	3,290	1,740	1,700	1,350	2,780	1,540	1,190
22	1,280	-	2,620	3,170	3,290	3,290	1,740	1,580	1,320	2,550	1,510	1,070
23	1,280	-	2,660	3,170	3,290	3,290	1,740	1,380	1,280	2,300	1,480	1,070
24	1,220	-	2,660	3,170	3,290	3,290	1,670	1,220	1,160	1,910	1,510	1,070
25	1,130	-	2,700	3,170	3,290	3,250	1,640	1,040	1,160	1,350	1,580	1,040
26	900	-	2,700	3,170	3,290	2,850	1,670	1,010	1,130	1,250	1,640	1,010
27	845	-	2,700	3,210	3,290	2,260	1,700	982	1,070	1,280	1,610	1,070
28	845	2,020	2,700	3,210	3,290	1,640	1,740	955	1,010	1,320	1,580	1,160
29	900	2,020	2,700	3,210	3,290	1,320	1,770	928	1,070	1,410	1,540	1,320
30	1,010	2,050	2,740	3,210	----------	1,100	1,770	928	1,130	1,380	1,610	1,480
31	1,040	----------	2,780	3,210	----------	1,010	----------	928	----------	1,280	1,610	----------
(†)	15.25	16.80	17.80	18.35	18.45	15.20	16.40	15.05	15.40	15.65	16.15	15.95
(‡)	-730	+1,010	+730	+430	+80	-2,280	+760	-842	+202	+150	+330	-130
MAX	1,700	2,050	2,780	3,210	3,290	3,290	2,080	1,800	1,350	3,810	1,640	1,610
MIN	845	1,070	2,080	2,780	3,210	1,010	955	928	845	1,010	900	928

CAL YR 1967: (‡) -910
WTR YR 1968: (‡) -290

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

Note.--No gage-height record Nov. 4-8, 21-27.

8-4040. 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., on right bank 5,200 ft below Avalon Dam and 4.5 miles northwest of Carlsbad, Eddy County.

Drainage area.--18,080 sq mi, approximately (contributing area).

Records available.--January 1906 to March 1907 (published as "at Avalon"), June 1951 to September 1968.

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.--17 years (1951-68), 38.1 cfs (27,580 acre-ft per year).

Extremes.--Maximum discharge during year, 14 cfs July 6 (gage height 4.22 ft); no flow most of time.
1951-68: Maximum discharge, 55,500 cfs Aug. 23, 1966 (gage height, 26.4 ft, from floodmarks), from rating curve extended above 33,000 cfs on basis of computation of peak flow over Tansill Dam 5.8 miles downstream; no flow most of time.
Flood of Oct. 2, 1904, caused in part, by failure of Avalon Dam, was described at that time as the greatest flood known. Flood in August 1893 is probably second highest, and was described as "greatest in 50 years"; it damaged McMillan Dam and washed out the original Avalon Dam.

Remarks.--Records poor. Flow regulated by Alamogordo Reservoir, Lake McMillan and Lake Avalon (see stations 8-3840, 8-4005, 8-4038). Diversions and ground-water withdrawals above station for irrigation of about 198,000 acres (1959 determination). Station bypassed by Carlsbad main canal (see station 8-4035).

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1967 TO SEPTEMBER 1968

July 5 ..... 0.07
6 ..... 1.9

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
July 1968	1.97	1.9	0	0.06	3.9
Calendar year 1967	711	700	0	1.95	1,410
Water year 1967-68	1.97	1.9	0	.005	3.9

Note.--Flow occurred only on days listed above.

8-4050. Pecos River at Carlsbad, N. Mex.

Location.--Lat 32°25'05", long 104°13'25", in NW¼SE¼ sec.6, T.22 S., R.27 E., in downstream end of pier near center of Greene Street Bridge in Carlsbad, Eddy County, half a mile upstream from Dark Canyon.

Drainage area.--18,100 sq mi, approximately (contributing area).

Records available.--May 1903 to March 1908 (January 1907 to March 1908, gage heights and discharge measurements only), May 1914 to September 1915, and April 1920 to September 1968 in reports of Geological Survey. Monthly discharge only for some periods, published in WSP 1312. Records (except maximum discharges) for October 1915 to March 1920, published in WSP 438, 458, 478, and 508, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 3,080.28 ft above mean sea level, datum of 1929. Prior to June 1, 1920, staff gages in immediate vicinity of present site, and at different datums prior to Jan. 6, 1938.

Average discharge.--19 years (1903-4, 1905-6, 1914-15, 1920-36), 255 cfs (184,600 acre-feet per year), prior to completion of Alamogordo Dam; 32 years (1936-68), 174 cfs (126,000 acre-ft per year).

Extremes.--Maximum discharge during year, 100 cfs May 12 (gage height, 1.32 ft); minimum, 0.86 cfs Aug. 2.
1903-6, 1914-68: Maximum discharge probably exceeded 90,000 cfs Oct. 2, 1904 (gage height, 23.44 ft, present datum, from floodmarks); minimum determined, 0.1 cfs June 19, 1954.
Flood of Oct. 2, 1904, caused in part by failure of Avalon Dam, was described at that time as "greatest flood known at Carlsbad." Flood in August 1893 is probably second highest, and was described as "greatest in 50 years"; it damaged McMillan Dam and washed out the original Avalon Dam.

Remarks.--Records good. Flow regulated by Alamogordo Reservoir, Lake McMillan, and Lake Avalon (see stations 8-3840, 8-4005, 8-4038), and at low stages by powerplant above station. Gage is bypassed on left bank by Carlsbad main canal east which irrigates several hundred acres adjacent to and below gage site, and on right bank by Carlsbad main canal south which with supplemental groundwater withdrawals irrigates about 23,000 acres below. This bypass flow is not presently gaged. Diversions and ground-water withdrawals above station for irrigation of about 198,000 acres (1959 determination). Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	15	17.0	17	20	20	18	16	14	2.5	20	17
2	15	19	16	17	19	21	23	15	13	4.5	14	18
3	17	11	16	17	20	18	16	16	13	9.2	16	19
4	21	15	17	16	21	19	16	15	13	29	13	17
5	20	15	17	17	20	19	17	15	14	27	11	17
6	20	15	16	17	20	18	17	16	15	26	9.6	17
7	20	16	16	16	20	18	17	25	11	16	8.6	19
8	17	16	18	17	24	17	15	7.2	11	17	8.6	18
9	14	17	17	19	24	19	16	15	11	17	11	17
10	14	17	16	18	25	20	16	15	9.6	17	10	17
11	13	17	17	24	24	20	17	14	8.6	17	9.6	16
12	15	17	17	10	26	17	17	39	8.1	17	11	17
13	15	17	16	16	20	18	16	18	9.1	17	14	17
14	15	17	18	17	23	19	15	17	16	17	12	17
15	15	17	16	17	22	19	17	17	15	17	12	17
16	12	17	17	17	23	18	17	18	13	17	12	17
17	13	17	19	18	23	20	16	17	11	17	12	16
18	13	17	17	18	24	19	17	17	10	18	15	17
19	15	17	16	17	21	18	17	18	9.1	14	13	17
20	15	19	17	20	21	21	17	17	8.1	15	11	17
21	15	19	17	27	20	17	24	17	7.6	15	11	17
22	15	19	15	20	20	18	24	17	8.1	14	12	17
23	15	18	15	18	19	18	23	17	8.1	14	16	15
24	13	20	16	19	20	19	23	17	9.1	15	15	15
25	13	17	17	19	22	19	24	17	8.7	19	18	15
26	13	17	17	19	20	19	24	19	4.5	20	17	15
27	13	18	17	19	22	18	23	17	13	18	15	14
28	15	17	17	19	20	17	24	26	16	12	15	14
29	18	20	17	19	20	18	23	6.8	2.0	11	15	14
30	11	17	18	19	------	18	21	15	2.2	13	20	14
31	14	------	18	20	------	17	------	14	------	17	17	------
TOTAL	469	510	520	563	623	576	570	530.0	311.9	499.2	414.4	494
MEAN	15.1	17.0	16.8	18.2	21.5	18.6	19.0	17.1	10.4	16.1	13.4	16.5
MAX	21	20	19	27	26	21	24	39	16	29	20	19
MIN	11	11	15	16	19	17	15	6.8	2.0	2.5	8.6	14
AC-FT	930	1,010	1,030	1,120	1,240	1,140	1,130	1,050	619	990	822	980

CAL YR 1967: TOTAL 6,720.6 MEAN 18.4 MAX 601 MIN 1.6 AC-FT 13,330
WTR YR 1968: TOTAL 6,080.5 MEAN 16.6 MAX 39 MIN 2.0 AC-FT 12,060

8-4055. 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, Eddy County, and 7 miles upstream from mouth.

Drainage area.--343 sq mi.

Records available.--March to December 1940, December 1946 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 3,070 ft (from topographic map). March to December 1940 water-stage recorder and Cippoletti weir at site 0.3 mile downstream at different datum.

Average discharge.--21 years (1947-68), 14.9 cfs (10,790 acre-ft per year).

Extremes.--Maximum discharge during year, 7,870 cfs July 6 (gage height, 9.35 ft); minimum, 2.8 cfs Aug. 19.
1946-68: Maximum discharge, 74,600 cfs Aug. 23, 1966 (gage height, 21.7 ft, from floodmarks), from rating curve extended above 6,000 cfs on basis of slope-area measurements at gage heights 12.60 and 21.7 ft; minimum, 1.6 cfs Mar. 13, 1964.
The flood of Aug. 23, 1966, is the greatest known; it exceeded the previous known maximum stage which occurred in 1908 by about 1 ft (from information by local resident). Flood of Sept. 20 or 21, 1941, reached a stage of 19.0 ft, determined in 1947 from well-defined floodmarks (discharge, 33,000 cfs, 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. Diversions and ground-water withdrawals for irrigation of about 1,000 acres (1959 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	9.8	7.6	8.5	13	11	9.8	9.0	8.5	6.4	18	9.7
2	9.4	9.8	7.6	9.0	13	7.6	13	9.0	8.5	6.8	12	10
3	9.4	9.0	7.6	8.5	12	6.4	12	9.0	8.5	7.2	15	9.3
4	9.4	9.0	7.6	8.5	12	6.4	12	9.0	8.5	86	9.2	6.8
5	9.4	9.0	8.1	7.6	12	6.4	11	9.0	8.5	126	8.0	5.2
6	9.4	9.0	7.6	7.6	11	6.4	9.8	8.5	8.1	1330	7.6	4.9
7	8.1	9.8	7.6	7.6	8.1	6.1	9.4	8.5	8.1	83	7.6	4.5
8	5.7	10	8.1	7.6	6.8	5.7	9.4	8.5	8.1	25	7.6	4.2
9	5.0	11	8.1	8.1	6.8	5.7	9.8	9.0	8.1	15	7.2	3.6
10	4.7	11	8.1	11	7.2	5.4	10	9.0	7.6	12	6.0	3.6
11	4.4	11	8.1	12	10	5.4	12	9.0	7.6	11	3.9	3.6
12	4.2	11	8.1	13	13	5.4	14	141	8.1	9.3	3.6	3.6
13	3.9	11	8.1	13	14	5.7	14	38	8.1	8.8	3.6	3.6
14	3.6	11	9.0	13	14	5.7	14	17	8.1	8.4	3.6	3.9
15	3.9	11	9.8	13	14	5.7	14	13	7.6	8.0	3.3	3.9
16	3.4	10	10	13	14	5.4	12	11	7.6	7.6	3.3	3.9
17	3.4	8.1	11	14	14	6.1	9.4	10	7.6	8.0	3.3	3.3
18	3.6	7.2	11	14	15	6.4	9.4	10	7.6	8.4	3.3	3.6
19	3.9	7.2	11	13	14	6.4	11	10	7.6	8.0	3.3	3.6
20	3.6	7.2	10	14	14	11	13	10	7.6	8.0	3.3	3.9
21	3.6	7.6	9.8	17	14	8.1	13	10	7.2	7.6	10	3.9
22	4.4	7.6	10	16	12	7.2	13	9.8	6.8	7.2	6.0	4.9
23	6.4	7.6	10	15	9.4	6.8	13	9.4	6.8	7.2	5.0	12
24	6.8	7.6	9.8	14	9.0	6.8	11	9.4	6.8	8.0	4.5	9.7
25	7.2	7.2	9.8	14	8.5	6.4	9.4	9.0	6.8	8.0	4.2	7.2
26	8.5	7.6	9.8	14	8.5	6.1	9.0	9.0	6.4	7.2	4.2	7.2
27	9.0	8.1	9.8	14	8.5	6.1	9.0	9.0	6.4	6.8	4.2	8.0
28	9.0	8.1	9.4	14	9.0	6.1	9.0	9.4	6.4	6.0	4.2	6.8
29	9.4	8.1	9.4	13	9.4	6.1	9.0	9.4	6.4	4.9	12	6.4
30	9.4	8.1	9.0	13	------	6.4	9.0	9.0	6.4	5.2	20	6.4
31	9.8	------	9.0	13	------	6.4	------	8.5	------	5.6	8.0	------
TOTAL	201.3	269.7	279.9	373.0	326.2	202.8	333.4	459.4	226.4	1,856.6	215.0	171.2
MEAN	6.49	8.99	9.03	12.0	11.2	6.54	11.1	14.8	7.55	59.9	6.94	5.71
MAX	9.8	11	11	17	14	11	14	141	8.5	1,330	20	12
MIN	3.4	7.2	7.6	7.6	6.8	5.4	9.0	8.5	6.4	4.9	3.3	3.3
AC-FT	399	535	555	740	647	402	661	911	449	3,680	430	340

CAL YR 1967: TOTAL 4,956.1 MEAN 13.6 MAX 1,270 MIN 3.4 AC-FT 9,830
WTR YR 1968: TOTAL 4,914.9 MEAN 13.4 MAX 1,330 MIN 3.3 AC-FT 9,750

PEAK DISCHARGE (BASE, 450 CFS).--JULY 6 (0800) 7,870 CFS (9.35 FT).

8-4065. Pecos River near Malaga, N. Mex.

Location.--Lat 32°12'30", long 104°01'20", in N½ sec.19, T.24 S., R.29 E., on right bank 3 miles southeast of Malaga, Eddy County, and 4 miles downstream from Black River.

Drainage area.--19,190 sq mi, approximately (contributing area).

Records available.--May 1920 to September 1968. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Digital water-stage recorder. Datum of gage is 2,895.64 ft above mean sea level, datum of 1929. May 1, 1920, to Mar. 24, 1949, at datum 3 ft higher. Prior to Apr. 30, 1963, graphic water-stage recorder.

Average discharge.--16 years (1920-36), 274 cfs (198,400 acre-ft per year), prior to completion of Alamogordo Reservoir; 32 years (1936-68) 220 cfs (159,300 acre-ft per year).

Extremes.--Maximum discharge during year, 4,500 cfs July 6 (gage height, 11.35 ft); minimum, 14 cfs June 29, 30, July 2.
1920-68: Maximum discharge, 120,000 cfs Aug. 23, 1966 (gage height, 42.1 ft, from floodmarks), from rating curve extended above 36,000 cfs on basis of slope-area measurement at gage height 42.1 ft; minimum, 5.0 cfs Mar. 9, 1965.

Flood of Aug. 23, 1966, is the greatest known. A major flood occurred in 1904, discharge not determined. Flood of Aug. 7, 1916, reached a discharge of 70,000 cfs at Carlsbad, 27 miles upstream. Flood in September 1919 reached a stage of 29.4 ft, present datum (discharge, 40,400 cfs).

Remarks.--Records good. Flow regulated by storage in Alamogordo Reservoir, Lake McMillan, and Lake Avalon (see stations 8-3840, 8-4005, 8-4038), and by small diversion dams that divert for power or irrigation. Diversions and ground-water withdrawals above station for irrigation of about 202,000 acres (1959 determination). Harroun canal bypasses gage on left bank and irrigates approximately 1,000 acres adjacent to and below gage. This bypass is not gaged. Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	23	46	55	44	54	21	20	23	15	35	27
2	21	23	39	55	43	54	20	19	20	15	24	23
3	20	22	36	55	43	53	20	19	20	16	25	21
4	20	23	34	54	43	50	19	19	19	32	23	21
5	20	23	34	53	47	50	20	19	19	206	21	21
6	20	24	33	53	52	51	25	19	18	1,290	21	21
7	19	24	33	50	53	49	24	18	18	236	21	21
8	19	24	32	48	53	45	20	18	18	64	20	21
9	20	24	32	49	51	36	21	18	17	38	20	20
10	20	24	42	47	54	32	21	25	16	31	20	20
11	20	25	36	35	56	31	31	32	16	28	20	20
12	20	24	32	32	59	31	28	146	17	26	20	22
13	21	25	32	32	62	31	25	111	17	24	20	29
14	21	24	37	33	65	29	21	73	17	23	21	31
15	22	29	50	30	62	28	22	36	17	23	20	30
16	21	32	54	28	59	27	20	28	17	22	20	28
17	21	33	55	29	58	27	18	24	18	22	22	27
18	21	41	55	30	58	25	18	23	18	21	21	25
19	21	43	42	31	58	25	19	25	17	21	21	23
20	21	41	39	32	58	28	29	23	17	23	21	22
21	21	39	38	38	57	30	38	21	17	23	21	22
22	21	38	34	46	56	31	35	20	16	23	23	21
23	21	35	49	50	54	31	24	21	16	22	29	22
24	25	34	53	40	52	26	24	22	16	21	24	22
25	23	35	54	41	52	25	22	21	16	21	23	22
26	22	36	54	42	52	24	21	20	15	22	24	21
27	22	46	54	43	51	25	21	20	15	21	23	20
28	23	47	53	44	52	25	20	20	15	21	22	21
29	25	48	54	45	54	25	20	20	15	20	21	22
30	24	49	54	45	------	26	20	20	15	20	23	23
31	24	------	55	45	------	23	------	24	------	26	28	------
TOTAL	659	958	1,345	1,310	1,558	1,047	687	944	515	2,416	697	689
MEAN	21.3	31.9	43.4	42.3	53.7	33.8	22.9	30.5	17.2	77.9	22.5	23.0
MAX	25	49	55	55	65	54	38	146	23	1,290	35	31
MIN	19	22	32	28	43	23	18	18	15	15	20	20

CAL YR 1967: TOTAL 10,920 MEAN 29.8 MAX 964 MIN 13 AC-FT 21,660
WTR YR 1968: TOTAL 12,825 MEAN 35.0 MAX 1,290 MIN 15 AC-FT 25,440

PEAK DISCHARGE (BASE 1,800 CFS).--JULY 6 (1330) 4,500 CFS (11.35 FT).

8-4070. Pecos River at Pierce Canyon Crossing, near Malaga, N. Mex.

Location.--Lat 32°11'20", long 103°58'45", in NW¼NW¼SW¼ sec.27, T.24 S., R.29 E., on right bank 400 ft upstream from Pierce Canyon Crossing and 6 miles southeast of Malaga, Eddy County.

Drainage area.--19,260 sq mi, approximately (contributing area).

Records available.--July 1938 to September 1941, August 1951 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 2,889.18 ft above mean sea level, datum of 1929. July 1938 to September 1941 at datum 1.19 ft higher. Prior to Nov. 30, 1965, graphic water-stage recorder.

Average discharge.--20 years, 182 cfs (131,800 acre-ft per year).

Extremes.--Maximum gage height during year, 7.01 ft, July 6 (discharge not determined); minimum discharge, 6.2 cfs July 2.
1938-41, 1951-68: Maximum gage height, 31.6 ft (from floodmarks), Aug. 23, 1966; minimum discharge, 0.54 cfs May 30, 1965.

Remarks.--Records good except those above 200 cfs, which are poor. Flow regulated by storage in Alamogordo Reservoir, Lake McMillan, and Lake Avalon (see stations 8-3840, 8-4005, 8-4038), and by several small diversion dams that divert for power or irrigation. Diversions and groundwater withdrawals above station for irrigation of about 202,000 acres (1959 determination). Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	24	44	57	47	54	18	20	25	8.6	40	23
2	18	25	39	57	46	55	16	21	23	9.4	27	21
3	16	23	34	57	45	54	14	21	21	11	25	24
4	15	23	33	56	46	50	14	20	21	16	24	19
5	15	24	32	56	47	52	13	20	20	213	22	17
6	15	24	32	56	55	51	16	20	14	1,060	19	16
7	15	24	32	54	57	50	20	18	12	420	16	17
8	15	24	31	50	56	47	18	17	12	104	17	20
9	17	23	31	50	56	39	17	18	14	53	15	20
10	16	24	34	52	58	34	16	15	12	39	14	21
11	16	24	39	42	60	33	17	29	11	33	14	22
12	17	24	33	34	64	30	25	131	12	29	19	23
13	18	24	31	34	67	28	22	138	13	24	19	30
14	18	24	33	36	68	29	18	93	16	19	15	34
15	23	25	43	33	67	28	15	45	17	18	14	33
16	22	30	51	30	63	27	16	24	18	18	14	32
17	18	31	54	30	63	28	14	21	19	19	16	29
18	17	35	53	32	63	26	13	24	19	22	21	28
19	18	42	46	33	63	25	11	24	18	23	20	26
20	17	40	39	34	63	30	15	26	14	24	16	25
21	17	38	37	40	62	29	25	22	11	19	14	24
22	22	37	36	44	61	29	36	17	9.0	23	15	24
23	23	35	41	53	58	31	30	19	9.1	22	23	26
24	24	33	53	45	56	28	20	21	9.3	22	24	25
25	25	32	54	40	56	25	17	22	10	20	19	25
26	24	33	54	44	54	23	19	20	9.5	13	30	25
27	23	39	55	45	54	24	16	15	8.9	15	19	25
28	23	45	55	46	54	23	16	15	9.0	20	18	23
29	25	45	55	47	54	22	16	15	9.5	21	16	24
30	24	46	55	47	------	23	15	18	9.5	18	18	25
31	24	------	56	47	------	23	------	21	------	19	22	------
TOTAL	596	920	1,315	1,381	1,663	1,050	538	950	425.8	2,375.0	605	726
MEAN	19.2	30.7	42.4	44.5	57.3	33.9	17.9	30.6	14.2	76.6	19.5	24.2
MAX	25	46	56	57	68	55	36	138	25	1,060	40	34
MIN	15	23	31	30	45	22	11	15	8.9	8.6	14	16

CAL YR 1967: TOTAL 10,013.2 MEAN 27.4 MAX 654 MIN 8.8 AC-FT 19,860
WTR YR 1968: TOTAL 12,544.8 MEAN 34.3 MAX 1,060 MIN 8.6 AC-FT 24,880

8-4075. Pecos River at Red Bluff, N. Mex.

Location.--Lat 32°04'30", long 104°02'20", in sec.1, T.26 S., R.28 E., on right bank at Red Bluff, Eddy County, 0.2 mile downstream from Red Bluff Draw and 5.5 miles upstream from Delaware River.

Drainage area.--19,540 sq mi, approximately (contributing area).

Records available.--October 1937 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 2,850.05 ft above mean sea level, datum of 1929.

Average discharge.--31 years (1937-68), 210 cfs (152,000 acre-ft per year).

Extremes.--Maximum discharge during year, 1,900 cfs July 7 (gage height, 7.23 ft); minimum, 6.4 cfs June 28-30.
1937-68: Maximum discharge, 111,000 cfs Aug. 23, 1966 (gage height, 33.32 ft), from rating curve extended above 30,000 cfs on basis of slope-area measurement of peak flow; minimum, 0.19 cfs Aug. 1, 1966.
The flood of Aug. 23, 1966, is probably greatest known. Flood in October 1904 reached a stage of 28.0 ft, from information by Panhandle and Santa Fe Railway Co. For dates of other historical floods see stations 8-4050, 8-4065.

Remarks.--Records good. Flow regulated by storage in Alamogordo Reservoir, Lake McMillan and Lake Avalon (see stations 8-3840, 8-4005, 8-4038), and by several small diversion dams that divert for power or irrigation. Diversions and groundwater withdrawals above station for irrigation of about 202,000 acres (1959 determination). Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	23	48	57	41	52	21	16	18	7.2	162	52
2	15	23	45	57	40	54	18	19	20	7.2	37	23
3	17	22	38	57	40	54	15	20	18	8.1	23	22
4	16	22	35	56	40	50	14	26	16	11	23	22
5	15	22	34	54	39	52	14	21	16	213	22	18
6	15	22	34	54	45	51	12	19	14	447	19	16
7	15	23	34	54	50	50	15	20	12	983	20	15
8	14	24	33	52	51	47	19	19	10	171	14	15
9	14	24	32	50	51	42	17	18	10	74	14	18
10	16	23	32	51	51	35	15	20	10	45	15	17
11	16	24	39	48	52	33	16	17	10	34	12	20
12	16	23	38	37	56	30	18	364	9.0	28	12	20
13	17	23	34	33	61	28	24	180	9.0	24	16	22
14	17	24	33	33	62	27	21	100	10	19	16	30
15	20	24	38	34	62	28	17	66	12	16	12	32
16	22	26	51	30	60	27	15	34	12	15	11	31
17	20	32	56	28	57	27	15	22	15	15	12	29
18	18	32	57	29	56	28	14	19	14	16	14	27
19	16	40	56	30	56	27	12	22	15	20	19	26
20	17	44	45	32	56	33	10	22	14	21	16	23
21	17	42	40	38	56	31	15	22	11	19	17	22
22	18	40	38	40	54	30	27	18	9	17	13	23
23	22	39	36	45	53	31	36	15	7.2	20	22	25
24	22	36	50	48	52	31	25	16	7.2	19	23	25
25	24	34	54	39	51	28	18	19	7.2	21	22	23
26	24	34	54	39	50	25	16	20	7.2	16	52	24
27	22	38	56	40	50	24	17	17	7.2	10	25	24
28	22	47	56	41	53	24	15	14	6.8	12	30	22
29	23	47	54	42	52	24	15	14	6.4	17	22	21
30	23	47	57	42	------	22	15	13	6.8	18	18	22
31	22	------	57	41	------	23	------	15	------	23	26	------
TOTAL	571	924	1,364	1,331	1,497	1,068	521	1,227	340.0	2,366.5	759	709
MEAN	18.4	30.8	44.0	42.9	51.6	34.5	17.4	39.6	11.3	76.3	24.5	23.6
MAX	24	47	57	57	62	54	36	364	20	983	162	52
MIN	14	22	32	28	39	22	10	13	6.4	7.2	11	15
AC-FT	1,130	1,830	2,710	2,640	2,970	2,120	1,030	2,430	674	4,690	1,510	1,410

CAL YR 1967: TOTAL 11,513.5 MEAN 31.5 MAX 530 MIN 8.5 AC-FT 22,840
WTR YR 1968: TOTAL 12,677.5 MEAN 34.6 MAX 983 MIN 6.4 AC-FT 25,140

PEAK DISCHARGE (BASE 1,800 CFS).--JULY 7 (0200) 1,900 CFS (7.23 FT).

8-4085. Delaware River near Red Bluff, N. Mex.

Location.--Lat 32°01'25", long 104°03'15", in SE¼ 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, Eddy County.

Drainage area.--689 sq mi.

Records available.--April 1912 to September 1913, May 1914 to June 1915, October 1937 to September 1968. Published as "near Malaga, N. Mex." 1912-13, and as "near Angeles, Tex." 1914-15.

Gage.--Digital water-stage recorder with crest-stage gage 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. Prior to Nov. 30, 1965, graphic water-stage recorder.

Average discharge.--31 years (1937-68), 14.3 cfs (10,350 acre-ft per year).

Extremes.--Maximum discharge during year, 9,430 cfs July 6 (gage height, 12.21 ft); no flow at times.
1912-13, 1914-15, 1937-68: 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 many days.
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 fair. One small upstream diversion.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	2.6	3.1	4.0	3.5	2.7	.17	1.6	.25	0	57	32
2	2.8	2.7	3.0	3.9	3.4	.24	.38	.43	.13	0	12	23
3	2.6	2.5	2.9	3.9	3.4	2.8	.20	.10	.10	0	2.0	15
4	2.5	2.7	3.2	3.7	3.4	1.4	.20	15	.07	14	.52	9.7
5	2.6	2.6	3.2	3.8	3.3	.57	.20	27	.07	338	.19	7.3
6	2.6	2.8	3.2	3.7	3.3	.36	.15	.29	.03	2,050	.13	6.2
7	2.3	2.9	3.2	3.7	3.4	.29	.10	0	0	108	.13	5.3
8	2.3	3.0	3.2	3.7	3.4	.18	.10	0	0	59	.10	4.6
9	2.3	3.0	3.2	3.9	3.4	.09	.10	0	0	50	.07	3.8
10	2.2	3.0	3.2	3.9	3.7	.15	.15	0	.10	36	1.3	3.4
11	2.2	2.9	3.2	3.8	3.7	.11	.15	0	.03	15	.87	3.1
12	2.2	2.8	3.1	3.6	3.9	.07	.15	1,220	.01	11	1.3	2.9
13	2.2	2.8	2.9	3.6	6.6	.09	.20	33	.28	8.7	.43	2.9
14	2.2	2.7	3.1	3.6	4.6	.09	.20	13	7.0	7.5	.07	3.3
15	2.2	2.7	3.2	3.6	4.3	.05	.20	7.8	2.8	5.7	7.4	3.2
16	2.1	2.7	3.2	3.7	4.1	.08	.20	5.9	1.9	4.2	3.2	2.5
17	2.1	2.7	3.3	3.8	4.0	.13	.15	4.6	1.5	3.8	6.6	2.0
18	2.2	2.7	3.4	3.7	3.8	.13	.20	4.3	1.3	4.0	11	2.0
19	2.2	2.8	3.2	3.8	3.8	.21	.20	3.8	1.1	5.2	3.5	2.0
20	2.2	2.9	3.2	3.9	3.7	2.5	.15	3.8	.80	7.5	2.8	1.9
21	2.2	3.0	3.0	5.0	3.6	3.9	.15	3.5	.57	1.0	25	1.7
22	2.3	3.0	3.2	4.9	3.2	4.6	.15	3.0	.31	.70	13	1.9
23	2.3	3.0	3.1	4.3	3.4	1.7	.15	2.6	.22	.76	19	17
24	2.2	2.8	3.2	4.1	3.4	.49	.15	2.4	.16	6.6	17	32
25	2.0	2.8	3.3	3.9	3.4	.18	.15	2.2	.10	1.1	8.2	13
26	2.1	2.8	3.5	3.8	3.4	.15	.15	2.2	0	.73	4.9	6.5
27	2.1	3.3	3.5	3.7	3.4	.10	.05	2.2	0	.36	3.5	4.0
28	2.1	3.8	3.5	3.7	3.6	.09	.05	2.0	0	.22	38	3.0
29	2.2	3.6	3.5	3.7	3.7	.15	.89	2.0	0	.16	30	2.5
30	2.2	3.2	3.6	3.7	------	.18	1.4	1.9	0	.22	145	2.4
31	2.4	------	3.8	3.6	------	.07	------	.80	------	6.3	70	------
TOTAL	71.2	86.8	100.4	119.7	107.8	23.85	6.84	1,365.42	18.83	2,745.75	484.21	220.1
MEAN	2.30	2.89	3.24	3.86	3.72	.77	.23	44.0	.63	88.6	15.6	7.34
MAX	3.1	3.8	3.8	5.0	6.6	4.6	1.4	1,220	7.0	2,050	145	32
MIN	2.0	2.5	2.9	3.6	3.2	.05	.05	0	0	0	.07	1.7
AC-FT	141	172	199	237	214	47	14	2,710	37	5,450	960	437

CAL YR 1967: TOTAL 2,479.18 MEAN 6.79 MAX 326 MIN 0 AC-FT 4,920
WTR YR 1968: TOTAL 5,350.90 MEAN 14.6 MAX 2,050 MIN 0 AC-FT 10,610

PEAK DISCHARGE (BASE, 1,700 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-12	0515	10.59	6,220	7-6	1030	12.21	9,430

8-4100. Red Bluff Reservoir near Orla, Tex.

Location.--Lat 31°54'05", long 103°54'40", at right end of Red Bluff Dam on Pecos River, 3 miles upstream from Salt (Screwbean) Draw, and 4.5 miles north of Orla, Reeves County.

Drainage area.--20,720 sq mi, approximately (contributing area).

Records available.--February 1937 to September 1968. Monthly contents only for some periods, published in WSP 1312.

Gage.--Staff gage read at irregular intervals. Datum of gage is 0.30 ft below mean sea level, datum of 1929.

Extremes.--Maximum contents observed during year, 105,600 acre-ft Mar. 5-14 (gage height, 2,817.3 ft); minimum observed, 52,700 acre-ft Sept. 27-30 (gage height, 2,804.9 ft).
1937-68: Maximum contents observed, 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 tainter gates); minimum observed, 11,080 acre-ft May 13, 1948 (gage height, 2,781.4 ft).

Remarks.--Reservoir is formed by a rock-faced earthfill dam 9,200 ft long. Dam completed and storage began in September 1936. The concrete service spillway is equipped with 12 tainter gates 25 ft wide by 15 ft high. The emergency spillway, located on the right bank, is 790 ft long. Water is used for power development and irrigation from Mentone to Grandfalls. Inflow partly regulated by major reservoirs above station include Alamogordo Reservoir, Lake McMillan, and Lake Avalon (see stations 8-3840, 8-4005, 8-4038), with a total combined capacity of 149,300 acre-ft. Also several small diversion dams divert water for power and irrigation. Contents computed from intermittent gage readings; figures given herein represent total contents. Data regarding dam and reservoir are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Crest of emergency spillway	2,845.0	340,000
Top of tainter gates (top of conservation storage)	2,842.0	310,000
Crest of service spillway	2,827.0	166,500
Bottom of two 7.0- by 9.0-foot conduits	2,764.0	3,000

Cooperation.--Gage-height records and capacity curve furnished by Red Bluff Water Power and Control District. Capacity curve based on Geological Survey topographic map, survey of 1925.

CONTENTS, IN THOUSANDS OF ACRE-FEET, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100.0	98.50	98.50	100.0	-	105.1	100.5	89.50	-	75.90	73.10	58.95
2	100.0	98.50	98.50	100.0	-	105.1	100.5	-	87.65	75.10	72.70	58.95
3	100.0	-	98.50	100.5	102.5	105.1	100.0	89.50	87.65	74.30	72.30	58.95
4	100.0	98.00	98.50	100.5	-	105.1	99.50	89.50	87.20	73.90	72.30	-
5	100.0	-	98.50	100.5	102.5	105.6	99.00	89.50	-	73.50	71.90	58.60
6	100.0	98.00	98.50	100.5	-	105.6	98.50	89.50	86.30	74.70	71.10	58.25
7	-	98.00	98.50	100.5	103.0	105.6	98.00	89.50	86.30	74.70	70.70	58.25
8	99.50	98.00	98.50	100.5	103.0	105.6	-	89.00	85.85	80.45	70.30	58.25
9	99.50	98.00	-	-	103.0	-	-	89.00	-	80.45	-	57.90
10	99.50	98.00	98.50	101.0	103.0	105.6	96.50	-	84.95	80.90	68.30	57.55
11	99.50	98.00	98.50	101.0	103.0	-	96.00	88.10	-	80.45	67.50	57.20
12	99.50	98.00	-	101.0	103.0	105.6	95.50	91.00	84.50	80.45	67.10	56.85
13	-	98.00	-	101.0	-	105.6	-	95.50	84.05	80.00	66.70	56.50
14	99.50	98.00	-	101.0	103.5	105.6	94.50	95.50	84.05	79.55	66.30	56.15
15	-	98.00	-	101.0	103.5	-	94.00	95.50	83.15	79.10	65.90	55.45
16	99.00	98.00	99.00	101.0	104.0	105.1	94.00	95.50	82.70	78.20	65.50	55.10
17	-	98.00	99.00	101.5	104.0	104.0	93.50	-	82.70	77.75	64.70	-
18	99.00	98.00	-	-	104.0	103.5	93.00	95.00	82.25	77.30	64.70	54.40
19	99.00	98.00	99.00	-	104.0	103.5	-	-	81.80	76.85	64.70	54.05
20	99.00	98.00	99.00	-	104.0	-	92.00	94.50	81.35	76.40	63.50	54.05
21	99.00	98.00	99.00	-	104.0	-	91.50	94.50	80.90	76.40	63.15	53.70
22	99.00	-	99.50	102.0	104.0	103.0	91.00	94.00	80.45	75.95	62.80	53.35
23	99.00	-	99.50	102.0	104.0	102.5	-	93.50	80.00	75.95	62.45	53.35
24	99.00	98.00	99.50	102.0	104.6	102.5	90.50	92.50	79.55	75.50	61.75	53.00
25	99.00	-	99.50	102.0	104.6	102.5	90.50	92.00	-	75.10	61.40	53.00
26	99.00	98.00	99.50	102.0	104.6	102.5	90.50	91.50	78.65	74.70	61.05	53.00
27	98.50	-	-	102.0	104.6	102.0	90.00	91.00	78.20	74.30	60.70	52.70
28	98.50	98.50	99.50	102.0	-	102.0	-	90.50	77.75	73.90	60.00	52.70
29	-	98.50	-	102.5	105.1	101.5	89.50	90.00	76.86	73.90	59.65	52.70
30	-	98.50	100.0	102.5	------	101.5	89.50	89.50	76.40	73.50	-	52.70
31	98.50	------	100.0	102.5	------	101.0	------	89.00	------	73.10	58.95	------
(†)	2815.9	2815.9	2816.2	2816.7	2817.2	2816.4	2814.1	2814.0	2811.2	2810.4	2806.7	2804.9
(±)	-2.000	0	+1.500	+2.500	+2.600	-4.100	-11.500	-.500	-12.600	-3.300	-14.150	-6.250
MAX	100.0	98.50	100.0	102.5	105.1	105.6	100.5	95.50	87.65	80.90	73.10	58.95
MIN	98.50	98.00	98.50	100.0	102.5	101.0	89.50	88.10	76.40	73.10	58.95	52.70

CAL YR 1967: (±) -142.0
WTR YR 1968: (±) - 47.8

† Gage height, in feet, at end of month.
± Change in contents, in thousands of acre-feet.
Note.--No gage height Oct. 31, contents interpolated.

8-4125. Pecos River near Orla, Tex.

Location.--Lat 31°48'14", long 103°48'25", on left bank 600 ft upstream from Pasotex pipeline crossing, 6 miles southeast of Orla, Reeves County, 12 miles downstream from Salt (Screwbean) Draw, and 15 miles downstream from Red Bluff Dam.

Drainage area.--21,300 sq mi, approximately (contributing area).

Records available.--May 1937 to September 1968.

Gage.--Water-stage recorder. Datum of gage is 2,718.05 ft above mean sea level, datum of 1929.

Average discharge.--31 years, 203 cfs (147,000 acre-ft per year).

Extremes.--Maximum discharge during year, 1,180 cfs Sept. 23 (gage height, 5.87 ft); minimum daily, 4.9 cfs Oct. 16 to Nov. 1. 1937-68: Maximum discharge, 23,700 cfs Sept. 29, 1941 (gage height, 20.74 ft); no flow at times in 1946 and 1965.

Remarks.--Records fair. Flow largely regulated by Red Bluff Reservoir (station 8-4100) and reservoirs above Carlsbad, N. Mex. Occasional runoff from draws between dam and station. Many diversions above Red Bluff Reservoir for irrigation. Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	4.9	10	9.0	6.4	7.0	161	25	235	175	161	112
2	43	5.3	11	8.3	5.8	7.0	145	26	178	364	171	98
3	43	5.8	11	8.3	5.8	8.3	168	26	171	401	158	92
4	43	31	12	8.3	5.8	8.3	168	28	168	216	158	90
5	22	31	12	8.3	5.8	8.3	171	31	164	208	161	90
6	8.3	30	11	8.3	5.8	8.3	175	26	161	193	200	90
7	7.0	30	11	8.3	5.8	8.3	175	25	161	175	260	90
8	7.0	30	12	8.3	5.8	7.6	178	25	161	164	280	87
9	6.4	19	9.0	8.3	5.8	7.6	182	51	158	103	272	87
10	6.4	13	8.3	8.3	6.4	7.6	182	79	154	95	260	87
11	5.8	12	8.3	8.3	7.0	7.6	182	79	118	92	216	138
12	5.8	12	8.3	7.6	7.0	7.6	186	92	112	92	171	145
13	5.8	11	7.6	7.6	7.0	7.6	186	90	109	98	158	145
14	5.6	11	8.3	7.6	7.0	7.0	186	76	171	223	154	148
15	5.3	11	9.0	7.6	7.0	79	182	76	189	243	189	148
16	4.9	11	9.0	7.6	7.0	425	142	74	186	243	204	148
17	4.9	11	9.0	7.6	7.0	345	142	71	182	178	186	145
18	4.9	11	9.0	8.3	7.0	126	145	74	182	171	29	135
19	4.9	10	9.0	8.3	7.0	123	148	74	182	168	38	92
20	4.9	10	8.3	8.3	7.0	129	151	76	182	161	332	95
21	4.9	10	8.3	9.8	6.4	126	154	132	182	98	204	118
22	4.9	10	8.3	9.8	6.4	123	158	227	182	90	193	115
23	4.9	10	8.3	9.0	6.4	95	76	251	182	95	200	483
24	4.9	9.8	8.3	8.3	6.4	62	62	247	178	120	208	166
25	4.9	10	8.3	8.3	6.4	76	64	247	178	120	227	69
26	4.9	9.8	8.3	8.3	6.4	123	67	247	178	123	208	19
27	4.9	11	8.3	7.0	6.4	123	71	247	178	120	196	62
28	4.9	12	8.3	7.0	7.0	123	76	247	175	120	193	58
29	4.9	11	8.3	7.0	7.6	126	79	243	175	120	189	16
30	4.9	10	8.3	7.0	------	126	51	243	175	148	193	9.8
31	4.9	------	8.3	7.0	------	132	------	239	------	154	178	------
TOTAL	335.8	413.6	284.4	251.0	188.6	2570.1	4213	3694	5107	5071	5947	3377.8
MEAN	10.8	13.9	9.17	8.10	6.50	82.9	140	119	170	164	192	113
MAX	43	31	12	9.8	7.6	425	186	251	235	401	332	483
MIN	4.9	4.9	7.6	7.0	5.8	7.0	51	25	109	90	29	9.8
AC-FT	666	820	564	498	374	5100	8360	7330	10130	10060	11800	6700

CAL YR 1967:	TOTAL	68,215.8	MEAN	187	MAX	547	MIN	4.9	AC-FT	135,300
WTR YR 1968:	TOTAL	31,453.3	MEAN	85.9	MAX	483	MIN	4.9	AC-FT	62,390

8-4763. Mimbres River at McKnight damsite, near Mimbres, N. Mex.

Location.--Lat 32°56'12", long 108°00'52", in SW¼SE¼ sec.6, T.16 S., R.11 W., on right bank 0.3 mile upstream from Mimbres Ranger station, 0.4 mile downstream from Cottonwood Canyon and 8 miles northwest of Mimbres.

Drainage area.--97.3 sq mi.

Records available.--November 1963 to September 1968.

Gage.--Graphic water-stage recorder. Datum of gage is 6,236.73 ft above mean sea level, datum of 1929.

Extremes.--Maximum discharge during year, 840 cfs Aug. 5 (gage height, 3.96 ft), from rating curve extended above 220 cfs on basis of slope-area measurement at gage height 3.34 ft; no flow for many days.
1963-68: Maximum discharge, that of Aug. 5, 1968; no flow for many days most years.

Remarks.--Records good except those for August and September, which are fair.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	1.6		0	4.2	48	95	28	3.7		0	3.8
2	5.6	1.5		0	4.2	40	111	30	3.7		50	3.6
3	5.9	1.4		0	3.7	35	103	33	3.7		73	3.4
4	5.9	1.3		0	3.7	32	64	33	3.3		55	3.2
5	5.9	1.2		0	4.2	29	53	34	3.1		217	3.0
6	5.6	1.1		0	5.6	26	51	33	2.8		267	2.9
7	5.2	1.0		0	6.5	33	54	33	3.1		151	2.8
8	5.2	.80		0	7.2	32	53	31	2.8		80	2.7
9	4.9	.60		0	8.6	39	51	29	2.4		58	2.6
10	4.9	.40		0	12	49	49	25	2.2		38	2.5
11	4.6	.15		0	15	46	53	22	2.0		30	2.4
12	4.2	.02		0	21	43	53	19	1.7		32	2.3
13	4.2	0		0	26	56	55	17	1.6		20	2.2
14	3.9	0		0	25	66	60	16	1.4		11	2.2
15	3.5	0		0	24	66	67	14	1.4		7.6	2.1
16	3.5	0		0	22	73	79	12	1.2		6.2	2.0
17	3.5	0		0	21	68	82	11	1.2		5.0	2.0
18	3.3	0		0	22	62	70	10	1.1		4.5	2.0
19	3.3	0		0	23	56	60	9.5	.90		4.0	2.0
20	3.3	0		0	30	50	51	8.6	.80		4.0	2.0
21	3.1	0		0	46	41	42	8.1	.70		3.5	1.7
22	2.9	0		0	60	41	36	8.1	.50		3.5	1.6
23	2.9	0		0	53	31	36	6.9	.30		3.5	1.6
24	2.6	0		0	49	30	28	6.5	.15		3.5	1.5
25	2.6	0		0	53	35	24	6.2	.03		3.5	1.4
26	2.4	0		0	62	38	20	5.9	.01		12	1.3
27	2.0	0		0	63	46	19	5.2	.01		8.0	1.2
28	2.0	0		0	67	53	20	4.9	0		6.0	1.0
29	2.0	0		0	56	62	23	4.9	0		5.0	.90
30	1.7	0		0	------	70	26	4.6	0		4.5	.70
31	1.7	------		1.2	------	87	------	4.2	------		4.0	------
TOTAL	118.2	11.07	0	1.2	797.9	1483	1588	513.6	45.80	0	1170.3	64.60
MEAN	3.81	.369	0	.039	27.5	47.8	52.9	16.6	1.53	0	37.8	2.15
MAX	5.9	1.6	0	1.2	67	87	111	34	3.7	0	267	3.8
MIN	1.7	0	0	0	3.7	26	19	4.2	0	0	0	0.7
AC-FT	234	22.0	0	2.4	1,580	2,940	3,150	1,020	91	0	2,320	128

CAL YR 1967: TOTAL: 824.31 MEAN: 2.26 MAX 131 MIN 0 AC-FT 1,630
WTR YR 1968: TOTAL: 5,793.67 MEAN: 15.8 MAX 267 MIN 0 AC-FT 11,490

PEAK DISCHARGE (BASE, 250 CFS)

DATE	TIME	G.HT.	DISCHARGE
8- 3	2030	3.80	682
8- 5	1745	3.96	840

8-4770. Mimbres River near Mimbres, N. Mex.

Location.--Lat 32°52'30", long 107°59'00", long 107 59'00", in SE¼NW¼ sec.33, T.16 S., R.11 W., on left bank, 0.7 mile downstream from Bear Canyon and 1½ miles northwest of Mimbres.

Drainage area.--152 sq mi.

Records available.--June 1921 to September 1930 (fragmentary), October 1930 to September 1968. Monthly discharge only for some periods, published in WSP 1312.

Gage.--Digital water-stage recorder. Concrete control since Mar. 26, 1938. Datum of gage is 5,972 ft above mean sea level, datum of 1929. Prior to Sept. 12, 1923, at site 10 ft downstream at datum 0.3 ft higher. Sept. 12, 1923, to Jan. 17, 1934, at datum of 0.1 ft lower. Prior to Nov. 2, 1966, graphic water stage recorder.

Average discharge.--38 years, 10.7 cfs (7,750 acre-ft per year).

Extremes.--Maximum discharge during year, 606 cfs Aug. 5 (gage height, 5.24 ft); minimum, 3.1 cfs Sept. 28.
1930-68: Maximum discharge determined, 1,560 cfs Aug. 2, 1952 (gage height, 6.22 ft), from rating curve extended above 230 cfs by logarithmic plotting; minimum, 0.7 cfs Aug. 10, 1951.

Remarks.--Records good except for March and April which are poor. Some regulation by Bear Canyon Reservoir (capacity, 700 acre-ft). Diversions for irrigation of about 300 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	8.4	9.2	9.3	33	85	120	25	7.0	6.3	13	11
2	14	7.9	9.2	9.0	27	69	130	27	7.0	5.7	60	10
3	14	8.2	9.5	8.8	21	56	120	30	6.5	5.2	72	9.7
4	14	9.0	9.5	8.8	18	51	95	32	6.5	6.6	58	9.0
5	14	9.2	9.1	8.6	16	46	85	32	6.5	7.9	153	6.7
6	13	10	8.9	8.3	15	44	80	32	6.0	7.1	288	7.4
7	13	13	8.9	8.2	14	57	75	32	6.0	6.8	203	11
8	13	13	8.9	8.1	13	58	70	32	6.0	7.7	123	13
9	12	13	8.5	8.0	14	65	66	30	6.0	8.0	128	18
10	12	11	8.2	8.0	16	90	64	27	6.0	7.8	79	35
11	12	11	8.2	8.0	24	120	62	26	6.0	8.8	52	36
12	11	10	8.2	8.1	41	130	64	24	6.0	8.6	46	14
13	9.5	11	8.4	8.0	58	140	68	22	6.0	5.9	30	21
14	8.4	9.9	8.4	7.9	53	150	72	19	6.0	4.7	19	17
15	7.5	8.2	8.5	7.9	53	160	80	17	6.0	5.7	13	15
16	7.5	8.6	8.5	8.3	49	170	100	14	6.0	9.4	9.7	13
17	7.3	8.5	9.2	9.6	48	170	95	12	6.0	9.8	7.0	8.6
18	7.4	8.0	8.6	10	48	160	85	12	6.0	12	4.8	8.5
19	7.5	8.2	10	10	48	140	77	11	6.1	15	5.1	12
20	7.5	7.8	12	10	57	120	67	9.8	6.1	15	6.5	11
21	7.1	8.2	10	10	94	100	53	8.8	6.4	10	8.5	10
22	6.8	9.3	9.9	10	128	80	48	8.1	6.6	10	18	9.3
23	6.1	11	9.8	10	110	60	44	9.6	7.1	12	16	9.3
24	5.8	11	9.7	10	95	50	37	10	7.8	13	13	9.6
25	6.0	10	9.5	11	107	45	33	9.8	7.4	11	12	8.8
26	6.3	9.6	9.4	12	117	43	28	9.4	6.7	8.6	13	7.8
27	6.3	10	9.2	13	119	45	27	9.2	6.3	9.1	12	7.2
28	7.5	9.7	9.1	26	128	75	27	9.0	5.9	9.1	12	5.4
29	9.2	9.8	9.4	43	104	85	27	8.5	5.9	9.0	13	4.3
30	9.0	9.5	9.8	38	------	100	24	8.0	6.3	10	12	4.0
31	9.5	------	9.6	32	------	110	------	7.5	------	11	11	------
TOTAL	298.2	292.0	285.3	387.9	1,668	2,874	2,023	563.7	190.1	276.8	1,510.6	362.6
MEAN	9.62	9.73	9.20	12.5	57.5	92.7	67.4	18.2	6.34	8.93	48.7	12.1
MAX	14	13	12	43	128	170	130	32	7.8	15	288	36
MIN	5.8	7.8	8.2	7.9	13	43	24	7.5	5.9	4.7	4.8	4.0
AC-FT	591	579	566	769	3,310	5,700	4,010	1,120	377	549	3,000	719

CAL YR 1967 TOTAL 4,256.7 MEAN 11.7 MAX 355 MIN 2.3 AC-FT 8,440
WTR YR 1968 TOTAL 10,732.2 MEAN 29.3 MAX 288 MIN 4.0 AC-FT 21,290

PEAK DISCHARGE (BASE, 290 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8- 3	2145	4.59	387	8- 9	1500	4.62	399
8- 5	1900	5.24	606				

8-4775. Mimbres River near Faywood, N. Mex.

Location.--Lat 32°35'10", long 107°55'10", in NW¼ sec.7, T.20 S., R.10 W., on right bank 6 miles northeast of Faywood Hot Springs, 10 miles northeast of Faywood, and 12 miles upstream from San Vicente Arroyo.

Drainage area.--440 sq mi.

Records available.--January 1909 to May 1914, January 1916 to December 1917, October 1920 to May 1921, October 1927 to September 1930, all fragmentary. October 1930 to September 1955, October 1963 to September 1968 (discontinued). Monthly discharge only for some periods, published in WSP 1312. Records for August and September 1934, published in WSP 763, have been found to be unreliable and should not be used.

Gage.--Graphic water-stage recorder. Datum of gage is 5,033 ft above mean sea level, datum of 1929. Prior to Aug. 16, 1909, chain gage 300 ft upstream at different datums. Aug. 16, 1909, to Sept. 25, 1920, water-stage recorder at site 500 ft upstream at different datums (datum lowered 0.5 ft Jan. 21, 1915, and 1.0 ft Jan. 1, 1916). Water-stage recorder at present site since Sept. 26, 1920, at datums 2.0 ft higher Sept. 26, 1920, to Sept. 30, 1942, and 1 ft higher Oct. 1, 1942, to Sept. 30, 1949.

Average discharge.--30 years (1912-13, 1930-33, 1934-55, 1963-68), 14.4 cfs (10,430 acre-ft per year).

Extremes.--Maximum discharge during year, 856 cfs Aug. 6 (gage height, 4.52 ft), from rating curve extended above 600 cfs as explained below; minimum, 1.3 cfs Sept. 30.
1930-54, 1963-68: Maximum discharge, 20,000 cfs Aug. 4, 1939 (gage height, 12 ft, present site and datum), from rating curve extended above 600 cfs on basis of slope-area measurements at gage heights 7.80 and 11.7 ft; no flow at times.

Remarks.--Records fair except those for May to July which are poor. Diversions for irrigation of 1,750 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	3.0	7.0	23	70	110	136	18	4.0	2.8	3.0	6.2
2	6.2	3.5	10	23	62	100	148	16	4.0	3.5	24	8.6
3	4.3	3.3	13	22	52	84	157	14	4.0	3.0	45	6.2
4	13	3.3	17	22	40	76	108	12	4.0	3.0	67	3.5
5	7.4	3.3	14	20	34	72	86	14	4.0	3.3	72	2.8
6	5.1	3.5	12	15	30	68	82	16	3.5	3.0	435	2.5
7	3.5	3.3	12	17	29	68	86	18	3.5	2.8	305	2.3
8	5.5	2.8	12	20	23	74	84	20	3.5	2.5	348	2.3
9	5.8	2.3	13	22	22	80	72	28	3.5	2.5	204	2.1
10	5.8	2.3	13	24	29	154	72	28	3.5	2.5	169	3.0
11	5.8	2.3	17	26	32	178	64	23	3.5	2.5	100	7.4
12	5.5	2.3	15	26	48	145	70	23	3.5	2.1	104	3.5
13	5.1	2.3	13	26	80	175	68	23	3.5	2.1	78	2.3
14	5.1	2.3	15	27	95	200	74	21	3.5	2.3	56	2.3
15	5.1	2.0	17	27	90	210	76	19	3.5	2.5	36	2.3
16	5.1	2.0	19	28	86	218	70	17	3.5	2.5	21	2.3
17	4.7	2.0	20	32	82	210	84	15	3.3	2.8	7.0	2.1
18	4.3	2.0	21	33	80	182	90	13	3.3	3.0	4.3	2.1
19	4.3	2.0	20	33	80	160	90	12	3.3	3.3	3.5	2.3
20	3.5	2.0	30	36	82	145	78	11	3.0	3.3	3.3	2.1
21	3.3	2.3	27	33	105	121	60	9.8	3.0	3.3	2.8	2.1
22	3.3	2.5	21	30	148	102	52	8.6	3.0	3.3	3.0	2.1
23	3.3	2.3	22	30	145	86	47	8.0	3.0	3.0	3.0	1.8
24	3.3	2.3	22	30	124	76	42	7.5	3.0	5.4	3.0	1.8
25	3.3	2.3	21	27	118	66	40	7.0	3.0	6.4	3.9	1.8
26	3.3	2.3	21	24	130	62	34	6.5	3.0	9.0	3.0	1.8
27	3.0	5.1	22	27	121	60	28	6.0	3.0	5.0	3.0	1.8
28	3.0	5.5	23	33	124	58	26	5.5	2.8	4.0	3.3	1.6
29	3.0	3.3	23	78	115	70	24	5.0	2.8	3.0	13	1.6
30	3.0	5.8	24	76	------	78	20	5.0	2.8	3.0	7.4	1.6
31	3.0	------	26	70	------	105	------	5.0	------	3.0	6.6	------
TOTAL	152.9	85.5	562.0	960	2,276	3,593	2,168	434.9	100.8	103.7	2,137.1	86.2
MEAN	4.93	2.85	18.1	31.0	78.5	116	72.3	14.0	3.36	3.35	68.9	2.87
MAX	13	5.8	30	78	148	218	157	28	4.0	9.0	435	8.6
MIN	3.0	2.0	7.0	15	22	58	20	5.0	2.8	2.1	2.8	1.6
AC-FT	303	170	1,110	1,900	4,510	7,130	4,300	863	200	206	4,240	171

CAL YR 1967: TOTAL 7,819.55 MEAN 21.4 MAX 1,340 MIN .77 AC-FT 15,510
WTR YR 1968: TOTAL 12,660.1 MEAN 34.6 MAX 435 MIN 1.6 AC-FT 25,110

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G.HT.	DISCHARGE
8- 6	2145	4.52	856

8-4775.3 Mimbres River near Spalding, N. Mex.

Location.--Lat 32°27'55", long 107°56'50", in N½ sec.23, T.21 S., R.11 W., on right bank 360 ft downstream from U.S. Highway 180, 1½ miles northeast of Spalding, 3 miles upstream from San Vicente Arroyo and 17 miles northwest of Deming.

Drainage area.--472 sq mi.

Records available.--October 1963 to September 1968 (discontinued).

Gage.--Graphic water-stage recorder. Datum of gage is 4,749.8 ft above mean sea level (levels by New Mexico State engineer).

Average discharge.--5 years, 12.9 cfs (9,340 acre-ft per year).

Extremes.--Maximum discharge, 1,160 cfs Aug. 6 (gage height, 4.48 ft), from rating curve extended as explained below; no flow for most of time.

1963-68: Maximum discharge, 12,500 cfs Aug. 11, 1967 (gage height, 5.76 ft, from floodmarks), from rating curve extended above 1,000 cfs on basis of slope-area measurement at gage height 4.78 ft; no flow for most of time.

Major floods occurred July 21, 1895, Sept. 9, 1938 and Aug. 4, 1939, by comparison with upstream station, nearby station, and newspaper accounts.

Remarks.--Records fair. Diversions for irrigation of about 2,900 acres (1967 determination) above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				0	29	96	106	7.9			0	0
2				.8	32	80	118	3.7			14	0
3				2.0	23	76	128	.62			30	0
4				0	18	44	112	0			30	0
5				2.6	15	48	112	0			35	0
6				1.0	11	34	90	0			280	0
7				0	11	31	83	.13			264	0
8				3.8	7.9	34	83	2.3			275	0
9				5.1	7.6	41	66	.68			145	0
10				3.5	10	72	72	1.1			123	5.5
11				4.4	14	101	62	0			58	2.3
12				4.7	19	101	58	0			58	0
13				5.8	41	128	55	0			80	0
14				4.4	66	145	66	0			44	0
15				4.2	76	145	62	0			29	0
16				4.4	73	160	58	0			11	0
17				5.1	66	160	76	0			0	0
18				6.9	66	145	76	0			0	0
19				6.9	66	128	80	0			0	0
20				7.2	69	123	72	0			0	0
21				7.2	73	118	58	0			0	0
22				6.9	101	112	48	0			0	0
23				6.5	140	101	39	0			0	0
24				6.5	140	83	41	0			0	0
25				6.1	128	72	37	0			0	0
26				5.8	128	72	37	0			0	0
27				6.1	123	66	28	0			0	0
28				6.9	101	50	18	0			0	0
29				17	118	53	17	0			2.9	0
30				14	------	66	14	0			17	0
31		------		18	------	80	------	0	------		0	------
TOTAL	0	0	0	173.8	1,772.5	2,765	1,972	16.43	0	0	1,495.9	7.8
MEAN	0	0	0	5.61	61.1	89.2	65.7	.530	0	0	48.3	.26
MAX	0	0	0	18	140	160	128	7.9	0	0	280	5.5
MIN	0	0	0	0	7.6	31	14	0	0	0	0	0
AC-FT	0	0	0	345	3,520	5,480	3,910	33	0	0	2,970	15

CAL YR 1967: TOTAL 4,779.2 MEAN 13.1 MAX 1,200 MIN 0 AC-FT 9,480
WTR YR 1968: TOTAL 8,203.43 MEAN 22.4 MAX 280 MIN 0 AC-FT 16,270

PEAK DISCHARGE (BASE, 250 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8- 2	1930	4.23	600	8-12	2300	4.32	660
8- 6	2310	4.48	1,160				

8-4783. Wamel Canal at head, near Deming, N. Mex.

Location.--Lat 32°18'05", long 107°53'45", in NW¼SE¼ sec.17, T.23 S., R.10 W., on left bank 110 ft downstream from heading gates and the Mimbres River and 8½ miles west of Deming.

Records available.--October 1963 to September 1968 (discontinued).

Gage.--Graphic water-stage recorder. Datum of gage is 4,468.5 ft above mean sea level (levels by New Mexico State engineer).

Extremes.--1963-68: Maximum daily discharge, 500 cfs Dec. 23, 1965; no flow for most of time.

Remarks.--Records poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					0	21	42				10	1.1
2					0	16	42				0	0
3					0	10	40				0	0
4					0	5.3	36				0	0
5					0	4.2	27				0	0
6					0	.51	11				15	0
7					0	0	11				20	0
8					0	.78	9.9				20	0
9					0	3.0	2.1				20	0
10					0	18	0				15	0
11					0	33	0				10	0
12					0	27	0				8.8	0
13					2.0	27	0				14.0	0
14					23	37	0				.48	0
15					29	47	0				0	0
16					24	49	0				0	0
17					.07	55	0				0	0
18					0	50	0				0	0
19					0	45	0				0	0
20					0	40	0				0	0
21					0	30	0				0	0
22					4.4	20	0				0	0
23					23	10	0				0	0
24					22	0	0				0	0
25					22	0	0				0	0
26					22	.88	0				0	0
27					24	1.2	0				0	0
28					25	.49	0				0	0
29					27	0	0				0	0
30					------	11	0				0	0
31		------			------	26	------		------		.62	------
TOTAL	0	0	0	0	247.47	588.36	221.0	0	0	0	133.90	1.1
MEAN	0	0	0	0	8.53	19.0	7.37	0	0	0	4.32	.04
MAX	0	0	0	0	29	55	42	0	0	0	20	1.1
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	491	1,170	438	0	0	0	266	2.2

CAL YR 1967: TOTAL 763.61 MEAN 2.09 MAX 168 MIN 0 AC-FT 2,430
WTR YR 1968: TOTAL 1,191.83 MEAN 3.26 MAX 55 MIN 0 AC-FT 1,510

8-4784. Mimbres River below Wamel heading, near Deming, N. Mex.

Location.--Lat 32°18'05", long 107°53'45", in NW¼SE¼ sec.17, T.23 S., R.10 W., on right bank 200 ft downstream from Wamel Canal heading and 8½ miles west of Deming, N. Mex.

Drainage area.--1,101 sq mi.

Records available.--October 1963 to September 1968 (discontinued).

Gage.--Water-stage recorder and concrete control. Datum of gage is 4,468.9 ft above mean sea level (levels by New Mexico State engineer).

Average discharge.--5 years (1963-68), 2.26 cfs (1,640 acre-ft per year).

Extremes.--Maximum discharge during year, 215 cfs July 31 (gage height, 2.40 ft); no flow most of time.
1963-68: Maximum discharge, 820 cfs Aug. 11, 1967 (gage height 4.00 ft, from floodmarks), from rating curve extended above 350 cfs on basis of logarithmic plotting; no flow for most of time.

Remarks.--Records poor. Diversions for irrigation of at least 3,000 acres above station (1967 determination).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1					0	0.30	6.3			0	11	
2					0	0	17			0	0	
3					0	0	10			0	0	
4					0	0	0			0	0	
5					0	0	0			0	0	
6					0	0	0			0	18	
7					0	0	0			0	50	
8					0	0	0			0	58	
9					0	0	0			0	44	
10					0	5.3	0			0	42	
11					0	7.4	0			0	23	
12					0	3.6	0			0	0	
13					.02	4.0	0			0	1.2	
14					1.5	8.9	0			0	0	
15					3.2	15	0			0	0	
16					3.2	36	0			0	0	
17					0	52	0			0	0	
18					0	27	0			0	0	
19					0	32	0			0	0	
20					0	31	0			0	0	
21					0	19	0			0	0	
22					.22	16	0			0	0	
23					13	0	0			0	0	
24					8.2	0	0			0	0	
25					1.3	0	0			0	0	
26					1.0	0	0			0	0	
27					2.0	0	0			0	0	
28					2.0	0	0			0	0	
29					2.0	0	0			0	0	
30					------	0	0			0	0	
31		------			------	.12	------		------	2.7	0	------
TOTAL	0	0	0	0	37.64	257.62	33.3	0	0	2.7	247.2	0
MEAN	0	0	0	0	1.30	8.31	1.11	0	0	.09	7.97	0
MAX	0	0	0	0	13	52	17	0	0	2.7	58	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	75	511	66	0	0	5.4	490	0

CAL YR 1967: TOTAL 1,189.32 MEAN 3.26 MAX 372 MIN 0 AC-FT 2,360
WTR YR 1968: TOTAL 578.46 MEAN 1.58 MAX 58 MIN 0 AC-FT 1,150

8-4815. 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, Lincoln County.

Drainage area.--120 sq mi, approximately.

Records available.--December 1947 to September 1968.

Gage.--Digital water-stage recorder with crest-stage gage and concrete control. Altitude of gage is 5,450 ft (from topographic map). Prior to May 6, 1963, graphic water-stage recorder.

Average discharge.--20 years (1948-68), 9.50 cfs (6,880 acre-ft per year).

Extremes.--Maximum discharge during year, about 435 cfs Aug. 2, from rating curve extended above 160 cfs as explained below; minimum, 0.65 cfs July 15.

1947-68: Maximum discharge, 4,280 cfs June 18, 1965 (gage height, 5.02 ft), from rating curve extended above 160 cfs on basis of slope-area measurement of peak flow; no flow May 14, 1955, result of unusual regulation.

A major flood probably occurred Sept. 3, 1938, when a peak of 9,640 cfs was computed for station near Tularosa. Another high peak may have occurred July 2, 1914.

Remarks.--Records poor. Diversion for irrigation of about 1,000 acres (1959 determination) above station. Records of chemical analyses and water temperatures for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.9	9.2	11	9.9	11	12	12	8.2	5.6	2.7	22	9.1
2	9.1	10	11	10	11	12	11	8.8	4.6	4.6	41	10
3	9.5	10	11	10	11	10	11	7.6	5.2	7.7	14	10
4	9.1	10	11	10	12	10	11	7.3	6.1	10	8.5	10
5	9.1	10	11	10	12	10	9.5	5.5	7.8	11	8.7	9.6
6	9.3	9.4	10	10	12	10	9.9	5.4	7.0	9.9	7.7	9.6
7	9.1	9.2	10	10	12	12	6.9	5.6	7.2	9.6	7.1	9.5
8	8.4	9.1	11	10	12	11	8.0	9.0	7.8	8.0	7.2	8.2
9	7.5	9.1	11	10	12	11	6.7	9.1	7.8	7.9	7.5	8.0
10	6.4	9.2	9.3	10	12	13	9.3	9.0	6.6	7.9	7.1	8.7
11	6.3	9.2	9.1	10	12	11	10	8.9	6.5	7.9	8.6	9.1
12	6.2	9.1	9.5	10	13	11	11	9.1	5.9	6.6	8.8	9.4
13	5.5	8.6	10	9.8	12	11	11	8.1	5.9	6.0	8.7	8.2
14	6.0	8.8	9.1	10	12	10	11	7.5	5.6	4.0	8.6	8.9
15	7.5	8.9	9.1	9.4	12	10	8.9	7.1	5.6	2.9	8.4	9.3
16	5.9	9.1	10	8.2	12	10	9.3	8.1	3.9	3.5	8.3	9.5
17	7.4	9.1	10	8.2	12	10	9.7	7.7	3.1	7.1	8.5	12
18	9.1	8.8	10	9.1	12	10	9.5	7.7	4.1	6.7	8.2	12
19	9.1	8.4	9.1	9.6	11	10	8.4	5.8	11	6.4	6.7	11
20	7.4	9.1	9.6	10	12	10	8.2	4.6	11	6.6	6.5	11
21	7.1	9.2	8.4	10	12	9.6	5.9	4.6	11	6.5	6.6	11
22	9.0	9.1	9.1	10	12	9.3	5.3	7.5	10	6.9	6.4	8.1
23	6.8	9.1	9.0	10	11	9.2	7.4	8.2	9.1	6.3	6.2	8.2
24	7.6	9.1	9.1	10	11	10	8.9	9.9	7.4	6.2	5.4	9.1
25	7.1	9.1	9.1	10	11	11	9.1	9.6	4.7	6.9	5.3	12
26	7.3	8.7	9.1	10	11	11	11	9.2	5.9	20	8.3	13
27	8.0	11	9.1	10	11	11	10	7.7	7.1	7.0	9.6	13
28	8.0	10	9.1	10	12	11	10	8.1	7.1	8.9	8.4	13
29	9.1	11	9.1	11	12	12	8.0	7.8	6.3	9.0	9.1	12
30	9.0	11	9.1	10	------	12	8.9	7.1	2.9	6.0	10	9.1
31	9.1	------	9.1	10	------	12	------	5.9	------	15	9.4	------
TOTAL	244.9	281.6	301.1	305.2	340	332.1	276.8	235.7	199.8	235.7	296.8	301.6
MEAN	7.90	9.39	9.71	9.85	11.7	10.7	9.23	7.60	6.66	7.60	9.57	10.1
MAX	9.5	11	11	11	13	13	12	9.9	11	20	41	13
MIN	5.5	8.4	8.4	8.2	11	9.2	5.3	4.6	2.9	2.7	5.3	8.0
AC-FT	486	559	597	605	674	659	549	468	396	468	589	598

CAL YR 1967: TOTAL 3,196.8 MEAN 8.76 MAX 140 MIN 3.5 AC-FT 6,340
WTR YR 1968: TOTAL 3,351.3 MEAN 9.16 MAX 41 MIN 2.7 AC-FT 6,650

PEAK DISCHARGE (BASE, 125 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
7-26	1630	2.84	188	8-2	2145	-	about 435
8- 1	0230	-	about 230				

8-4862.5. Tularosa Valley Tributary near White Sands, N. Mex.

Location.--Lat 32°24'11", long 106°28'46", in SW¼SW¼ sec.7, T.22 S., R.5 E., on right upstream wingwall of culvert 1.2 miles north of entrance gate to White Sands Missile Range on paved road 2.6 miles south of U.S. Highway 70.

Drainage area.--17.2 sq mi.

Records available.--August 1965 to September 1968.

Gage.--Graphic water-stage recorder and concrete control. Altitude of gage is 4,230 ft (from topographic map).

Extremes.--Maximum discharges for the period August 1965 to September 1968 are given with the listing of supplemental peaks below daily tables (from rating curve extended on basis of slope-area measurements at gage heights 4.34 and 5.64 ft); no flow for most of time during entire period.

Remarks.--Records poor.

DISCHARGE, IN CUBIC FEET PER SECOND, AUGUST TO SEPTEMBER 1965

Aug. 14	0.14	Aug. 22	6.2
18	.33	Sept. 6	.28
19	.01	7	.05

Month	Cfs-days	Maximum	Minimum	Mean	Runoff in acre-feet
August	6.68	6.2	0	0.215	13
September	.33	.28	0	.011	.6

Peak discharge (base, 50 cfs), Aug. 22 (1945) 330 cfs (3.90 ft).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1965 TO SEPTEMBER 1966

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0		0				0		0	0
2			0		0				0		4.2	0
3			0		0				0		0	0
4			0		0				0		0	15
5			0		0				0		1.3	0
6			0		0				0		0	0
7			0		0				0		0	0
8			0		.06				0		0	0
9			0		0				0		0	0
10			.55		0				39		0	0
11			1.0		0				0		0	0
12			0		0				0		1.4	0
13			0		0				0		2.2	0
14			0		0				0		0	0
15			2.4		0				0		0	0
16			.15		0				0		0	0
17			.21		0				0		0	0
18			1.25		0				0		0	0
19			.11		0				0		0	0
20			0		0				0		0	0
21			0		0				0		0	0
22			.27		0				0		0	0
23			.50		0				0		0	0
24			.03		0				0		0	0
25			0		0				0		0	0
26			0		0				0		0	0
27			0		0				.49		0	0
28			0		0				0		0	0
29			0		------				7.0		0	0
30			0		------				0		0	0
31		------	0		------		------		------		0	------
TOTAL	0	0	6.47	0	0.06	0	0	0	46.49	0	9.1	15
MEAN	0	0	.209	0	.002	0	0	0	1.55	0	.293	.500
MAX	0	0	2.4	0	.06	0	0	0	39	0	4.2	15
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	13	0	.11	0	0	0	92	0	18	30

CAL YR 1965: TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1966: TOTAL 77.12 MEAN 0.211 MAX 39 MIN 0 AC-FT 153

PEAK DISCHARGE (BASE, 50 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6-10	1445	5.64	1,390	8- 5	1700	2.70	59	9- 4	1915	3.78	289
6-29	0715	3.44	195	8-12	1830	2.68	57				
8- 2	1800	3.07	115	8-13	1830	2.93	91				

8-4862.5 Tularosa Valley Tributary near White Sands, N. Mex.--continued

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1966 TO SEPTEMBER 1967

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										0	0	0
2										0	0	0
3										0	0	0
4										0	0	0
5										0	0	0
6										0	0	0
7										0	0	0
8										0	0	0
9										0	0	0
10										0	0	0
11										0	0	0
12										0	.08	0
13										0	0	0
14										0	0	0
15										0	.04	.62
16										0	0	0
17										0	0	0
18										0	0	0
19										0	0	0
20										0	0	.54
21										0	0	0
22										0	0	0
23										0	0	0
24										0	0	.27
25										1.5	0	1.5
26										.02	0	0
27										0	0	0
28										0	0	0
29					------					0	0	0
30					------					0	0	0
31		------			------		------		------	0	0	------
TOTAL	0	0	0	0	0	0	0	0	0	1.52	0.12	2.93
MEAN	0	0	0	0	0	0	0	0	0	.049	.004	.098
MAX	0	0	0	0	0	0	0	0	0	1.5	.08	1.5
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	0	3.0	.2	5.8

CAL YR 1966: TOTAL 70.65 MEAN 0.194 MAX 39 MIN 0 AC-FT 140
WTR YR 1967: TOTAL 4.57 MEAN 0.013 MAX 1.5 MIN 0 AC-FT 9.1

PEAK DISCHARGE (BASE, 50 CFS).--JULY 25 (2315) 79 CFS (2.85).

8-4862.5 Tularosa Valley Tributary near White Sands, N. Mex.-- concluded

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1									0	0	.06	
2									0	0	0	
3									0	0	0	
4									0	1.0	0	
5									0	1.7	0	
6									0	.34	0	
7									0	0	0	
8									0	0	3.2	
9									0	0	0	
10									0	0	0	
11									0	.16	0	
12									0	0	0	
13									0	0	0	
14									0	0	0	
15									0	0	0	
16									0	0	0	
17									.10	0	0	
18									0	0	0	
19									.13	0	0	
20									0	0	0	
21									0	0	0	
22									0	0	0	
23									0	.08	0	
24									0	0	0	
25									0	6.6	0	
26									0	0	0	
27									0	0	0	
28									0	0	0	
29					------				0	0	0	
30					------				0	0	0	
31		------			------		------		------	.01	0	------
TOTAL	0	0	0	0	0	0	0	0	0.23	9.89	3.26	0
MEAN	0	0	0	0	0	0	0	0	.010	.319	.105	0
MAX	0	0	0	0	0	0	0	0	.13	6.6	3.2	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	.5	20	6.5	0

CAL YR 1967: TOTAL 4.57 MEAN 0.013 MAX 1.5 MIN 0 AC-FT 9.1
WTR YR 1968: TOTAL 13.38 MEAN 0.037 MAX 6.6 MIN 0 AC-FT 27

PEAK DISCHARGE (BASE, 50 CFS).--JULY 25 (1915) 160 CFS (3.30 FT); AUGUST 8 (1900) 490 CFS (4.34 FT).

8-4862.6 Tularosa Valley tributary at White Sands, N. Mex.

Location.--Lat 32°22'05", long 106°28'44", in SE¼NE¼ sec.25, T.22 S., R.4 E., on left upstream wingwall of culvert 2,000 ft south of Raritan Avenue in White Sands.

Drainage area.--21.0 sq mi.

Records available.--August 1965 to September 1968.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,230 ft (from topographic map).

Extremes.--Maximum discharge during year, 127 cfs July 4 (gage height, 3.59 ft); no flow for most of time.
1965-68: Maximum discharge, 657 cfs June 29, 1966 (gage height, 5.25 ft in gage well, 5.7 ft from outside gage), from rating curve extended above 50 cfs on basis of slope-area measurements at gage heights 5.25 (5.7, outside) and 4.04 ft (4.7, outside); no flow for most of time.

Remarks.--Records poor.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1										0	0.02	
2										0	0	
3										0	0	
4										5.0	0	
5										.07	0	
6										2.7	0	
7										0	0	
8										0	4.4	
9										0	0	
10										0	0	
11										0	0	
12										0	0	
13										0	0	
14										0	0	
15										0	0	
16										0	0	
17										0	0	
18										0	0	
19										0	0	
20										0	0	
21										0	0	
22										0	0	
23										0	0	
24										0	0	
25										.06	0	
26										0	0	
27										0	0	
28										0	0	
29					------					0	0	
30					------					0	0	
31		------			------		------		------	.62	0	------
TOTAL	0	0	0	0	0	0	0	0	0	8.45	4.42	0
MEAN	0	0	0	0	0	0	0	0	0	.273	.143	0
MAX	0	0	0	0	0	0	0	0	0	5.0	4.4	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	0	0	0	0	0	0	17	8.8	0

CAL YR 1967: TOTAL 11.0 MEAN 0.030 MAX 5.2 MIN 0 AC-FT 22
WTR YR 1968: TOTAL 12.87 MEAN 0.035 MAX 5.0 MIN 0 AC-FT 26

PEAK DISCHARGE (BASE, 350 CFS).--NO PEAK ABOVE BASE.

9-3464. San Juan River near Carracas, Colo.

Location.--Lat 37°00'47", long 107°18'39", in SE¼SW¼ sec.17, T.32 N., R.4 W., on right bank just above flow line of Navajo Reservoir and 3 miles northwest of Carracas, Colo., 7.2 miles upstream from Piedra River, and at mile 178.8.

Drainage area.--1,230 sq mi, approximately.

Records available.--October 1961 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 6,090 ft (from river-profile map). Prior to May 16, 1963, graphic water-stage recorder at same site and datum.

Average discharge.--7 years, 623 cfs (451,000 acre-ft per year).

Extremes.--Maximum discharge during year, 5,370 cfs Aug. 10 (gage height, 6.37 ft); minimum, about 40 cfs Dec. 22, result of freezeup.
1961-68: Maximum discharge, 6,120 cfs May 22, 1965 (gage height, 6.85 ft); minimum, about 5 cfs Dec. 10, 1961, result of freezeup.
Maximum flood known occurred Oct. 5, 1911. Major floods occurred Sept. 5 or 6, 1909 and June 29, 1927.

Remarks.--Records good except those for winter periods, which are poor. Diversions for irrigation of about 11,000 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	209	120	111	84	93	114	780	885	3,070	1,020	2,590	362
2	200	125	93	80	87	123	648	1,070	3,390	925	1,510	334
3	189	116	49	84	81	150	525	1,220	3,400	872	1,290	286
4	195	97	77	88	88	180	456	1,160	3,150	821	964	290
5	189	109	90	81	91	195	416	1,210	3,290	809	915	240
6	179	110	94	76	97	201	441	1,250	3,380	885	1,060	207
7	191	115	100	76	102	246	408	1,080	3,220	773	1,220	194
8	181	108	90	76	102	225	353	1,040	2,930	797	1,470	188
9	174	103	91	78	102	216	336	1,210	2,300	719	1,150	179
10	167	106	72	80	102	208	366	1,280	1,770	763	2,030	162
11	169	102	57	83	105	163	493	1,270	1,530	640	1,780	148
12	166	101	70	79	110	163	660	1,250	1,710	545	1,660	146
13	157	111	88	80	118	154	770	1,360	2,250	522	1,410	154
14	143	109	80	80	115	169	713	1,130	2,760	473	1,520	151
15	140	108	88	94	112	157	773	1,020	2,840	420	1,790	140
16	137	107	92	85	110	155	832	1,110	2,880	366	1,260	140
17	133	105	97	88	96	161	797	1,170	2,850	330	1,030	138
18	137	102	84	90	103	155	659	1,320	2,970	298	876	145
19	135	102	83	88	108	155	619	1,410	2,740	266	764	139
20	127	103	84	86	102	145	534	1,660	2,620	263	670	130
21	124	105	60	89	110	144	563	1,850	2,600	270	719	126
22	120	112	46	91	119	140	528	2,730	2,330	252	649	128
23	120	110	61	93	115	171	510	2,870	2,070	260	570	136
24	119	99	88	94	113	240	464	2,510	2,030	354	500	151
25	114	74	108	96	115	313	461	2,050	1,810	515	450	126
26	115	87	102	98	120	322	454	2,210	1,630	719	410	116
27	118	92	96	102	130	376	420	2,580	1,500	868	405	109
28	109	79	92	113	148	404	394	2,940	1,470	1,110	415	107
29	114	115	91	110	115	495	407	3,270	1,370	884	386	103
30	126	109	94	108	------	639	537	3,130	1,160	876	334	120
31	106	------	88	102	------	695	------	3,330	------	1,440	318	------
TOTAL	4,603	3,141	2,616	2,752	3,109	7,374	16,317	53,575	73,020	20,055	32,115	5,095
MEAN	148	105	84.4	88.8	107	238	544	1,728	2,434	647	1,036	170
MAX	209	125	111	113	148	695	832	3,330	3,400	1,440	2,590	362
MIN	106	74	46	76	81	114	336	885	1,160	252	318	103
AC-FT	9,130	6,230	5,190	5,460	6,170	14,630	32,360	106,300	144,800	39,780	63,700	10,110

CAL YR 1967 TOTAL 182,539 MEAN 500 MAX 2,660 MIN 46 AC-FT 362,100
WTR YR 1968 TOTAL 223,772 MEAN 611 MAX 3,400 MIN 46 AC-FT 443,800

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6- 6	0900	5.43	3,810	8- 1	0600	6.05	5,210
7-31	2300	5.78	4,230	8-10	1900	6.37	5,370

9-3498. Piedra River near Arboles, Colo.

Location.--Lat 37°05'17", long 107°23'52", in NE¼SW¼ sec.21, T.33 N., R.5 W., on left bank 3 miles downstream from Ignacio Creek, 5.2 miles northeast of Arboles Post Office, 8 miles upstream from mouth.

Drainage area.--629 sq mi.

Records available.--August 1962 to September 1968. Gage operated 1895-1899, 1910-1927 at a site 7½ miles downstream at altitude 6,000 ft. Low flow records probably not equivalent.

Gage.--Digital water-stage recorder. Datum of gage is 6,147.52 ft above mean sea level (from Colorado State Highway Department bench mark). Prior to May 16, 1963, graphic water-stage recorder at same site and datum.

Average discharge.--6 years (1962-68), 314 cfs (227,300 acre-ft per year).

Extremes.--Maximum discharge during year, 2,110 cfs June 3, 6 (gage height, 3.85 and 3.87 ft); minimum, about 12 cfs Dec. 4, 21, result of freezup.
1962-68: Maximum discharge, 4,000 cfs Apr. 23, 1965 (gage height, 5.20 ft); minimum, 11 cfs Dec. 9, 1963, Oct. 1, 1966.
Maximum flood known occurred Oct. 5, 1911. A major flood occurred Sept. 5 or 6, 1909.

Remarks.--Records good except those for winter periods, which are poor. Diversions for irrigation of about 2,800 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	59	52	41	54	62	539	592	1,750	487	864	157
2	95	55	43	44	48	71	464	692	1,940	423	749	152
3	95	57	23	46	48	74	359	749	2,010	380	689	145
4	92	51	32	44	50	78	311	735	1,840	360	557	151
5	92	51	43	46	50	78	281	765	1,890	330	541	133
6	87	40	47	41	51	77	337	854	1,960	310	748	124
7	83	50	44	42	52	98	289	730	1,810	315	716	103
8	79	52	41	42	52	102	254	692	1,600	330	992	97
9	78	52	43	44	53	101	225	755	1,260	288	905	91
10	76	53	28	43	54	99	254	831	1,000	296	917	87
11	79	54	35	43	55	83	415	844	856	305	934	85
12	78	54	44	42	56	74	569	936	879	264	862	89
13	76	53	40	42	56	74	653	1,160	1,190	257	756	92
14	72	52	43	44	56	80	674	946	1,420	230	798	86
15	69	52	46	46	55	78	691	853	1,530	209	908	83
16	67	52	47	46	52	73	763	870	1,530	184	688	80
17	64	51	44	48	52	77	678	845	1,580	171	577	77
18	65	53	44	48	53	82	559	887	1,620	158	487	74
19	64	52	42	47	55	71	476	931	1,520	149	415	72
20	63	51	33	46	55	74	404	1,080	1,420	144	363	69
21	61	50	25	47	59	73	413	1,220	1,470	145	333	65
22	60	49	31	49	59	70	391	1,610	1,350	132	323	64
23	59	49	45	50	58	85	387	1,660	1,230	123	301	71
24	58	40	55	52	59	113	370	1,440	1,150	135	257	67
25	58	31	54	53	60	146	344	1,200	1,000	148	227	62
26	58	33	54	55	60	170	327	1,230	861	312	210	60
27	60	36	52	57	63	194	324	1,390	782	471	201	58
28	57	31	48	58	66	215	300	1,630	760	742	213	57
29	58	39	48	60	61	270	320	1,880	691	618	200	54
30	62	50	46	53	------	355	424	1,780	586	501	178	58
31	54	------	45	54	------	409	------	1,780	------	498	165	------
TOTAL	2,217	1,452	1,317	1,473	1,602	3,706	12,795	33,567	40,485	9,415	17,074	2,663
MEAN	71.5	48.4	42.5	47.5	55.2	120	427	1,083	1,350	304	551	88.8
MAX	98	59	55	60	66	409	763	1,880	2,010	742	992	157
MIN	54	31	23	41	48	62	225	592	586	123	165	54
AC-FT	4,400	2,880	2,610	2,920	3,180	7,350	25,380	66,580	80,300	18,670	33,870	5,280

CAL YR 1967 TOTAL 77,078 MEAN 211 MAX 1,330 MIN 23 AC-FT 152,900
WTR YR 1968 TOTAL 127,766 MEAN 349 MAX 2,010 MIN 23 AC-FT 253,400

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-23	0600	3.63	1,720	6- 3	0430	3.85	2,110	6-18	0430	3.69	1,800
5-29	0700	3.79	2,020	6- 6	0900	3.87	2,110				

9-3545. Los Pinos River at La Boca, Colo.

Location.--Lat 37°00'40", long 107°35'55", in SW¼ sec.15, T.32 N., R.7 W., on downstream end of right abutment of the Denver & Rio Grande Western Railroad Co. bridge at southeast edge of La Boca, 0.1 mile upstream from Spring Creek and 13 miles upstream from mouth.

Drainage area.--510 sq mi, approximately.

Records available.--October 1950 to September 1968. Monthly discharge only for some periods, published in WSP 1733.

Gage.--Digital water-stage recorder. Datum of gage is 6,143.58 ft above mean sea level, datum of 1929. Prior to Sept. 14, 1966, graphic water-stage recorder at same site and datum.

Average discharge.--18 years, 187 cfs (135,400 acre-ft per year).

Extremes.--Maximum discharge during year, 1,420 cfs July 31 (gage height, 5.85 ft); minimum, 25 cfs Nov. 24, result of freezeup.
1950-68: Maximum discharge, 6,400 cfs July 27, 1957 (gage height, 8.95 ft); minimum determined, 13 cfs Apr. 23, 1951 (may have been lower during periods of freezeup).
Maximum flood known occurred Oct. 5, 1911.

Remarks.--Records good except those for June and July, which are fair and those for winter periods, which are poor. Flow regulated by Vallecito Reservoir (capacity, 126,300 acre-ft). Diversions for irrigation of about 33,000 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	131	45	37	35	99	122	75	167	306	395	152
2	133	96	43	41	30	100	128	77	170	221	287	152
3	137	69	40	35	30	95	116	100	185	209	236	148
4	143	61	40	31	31	92	124	120	215	221	243	145
5	135	56	42	28	33	87	94	117	206	225	216	136
6	128	54	44	29	36	86	94	140	192	220	237	139
7	124	52	39	30	40	112	88	114	200	229	192	144
8	129	53	39	31	50	119	81	103	249	225	210	142
9	129	52	39	33	56	114	76	106	253	205	187	135
10	130	50	35	34	62	106	84	123	260	192	228	142
11	125	48	31	40	68	79	78	125	250	186	270	148
12	119	47	36	30	75	61	90	252	236	173	241	165
13	119	46	37	33	78	55	102	333	286	176	217	168
14	99	45	39	26	76	55	103	263	598	162	229	160
15	84	43	40	29	70	55	104	228	791	161	226	170
16	86	42	36	34	60	54	111	215	997	148	211	178
17	86	41	35	37	57	54	107	229	1,100	138	202	180
18	84	40	37	31	55	56	93	178	1,210	141	190	199
19	82	39	38	31	55	54	91	174	1,320	136	168	182
20	113	38	33	33	57	54	87	173	1,220	132	130	170
21	139	37	30	33	58	54	85	133	835	140	158	170
22	140	35	35	35	57	54	99	128	1,060	142	155	168
23	153	33	40	36	59	54	103	133	1,030	137	150	172
24	164	30	40	36	62	62	88	136	821	202	145	168
25	156	35	40	38	74	74	83	215	702	201	145	172
26	141	58	40	41	77	76	75	155	772	217	150	172
27	136	46	42	43	82	79	69	146	580	250	172	155
28	136	44	39	44	87	81	50	143	469	250	155	142
29	139	46	44	45	93	84	42	138	444	250	155	148
30	141	45	40	43	------	96	70	154	461	250	152	160
31	126	------	33	42	------	101	------	164	------	500	150	------
TOTAL	3,885	1,512	1,191	1,089	1,703	2,402	2,737	4,890	17,279	6,345	6,202	4,782
MEAN	125	50.4	38.4	35.1	58.7	77.5	91.2	158	576	205	200	159
MAX	164	131	45	45	93	119	128	333	1,320	500	395	199
MIN	82	30	30	26	30	54	42	75	167	132	130	135
AC-FT	7,710	3,000	2,360	2,160	3,380	4,760	5,430	9,700	34,270	12,590	12,300	9,480

CAL YR 1967 TOTAL 37,109 MEAN 102 MAX 690 MIN 30 AC-FT 73,600
WTR YR 1968 TOTAL 54,017 MEAN 148 MAX 1,320 MIN 26 AC-FT 107,100

9-3550. Spring Creek at La Boca, Colo.

Location.--Lat 37°00'50", long 107°35'40", in S½ sec.15, T.32 N., R.7 W., on right bank in an excavated channel, a quarter of a mile upstream from mouth and a quarter of a mile east of La Boca.

Drainage area.--58 sq mi, approximately.

Records available.--October 1950 to September 1968. Monthly discharge only for some periods, published in WSP 1733.

Gage.--Digital water-stage recorder. Altitude of gage is 6,160 ft (from topographic map). Prior to September 14, 1966, graphic water-stage recorder at same site and datum.

Average discharge.--18 years, 27.7 cfs (20,050 acre-ft per year).

Extremes.--Maximum discharge during year, 540 cfs Aug. 8 (gage height, 2.88 ft); minimum, about 1.5 cfs Jan. 14, result of freezeup.
1951-68: Maximum discharge, 580 cfs Aug. 12, 1964 (gage height, 4.35 ft), from rating curve extended above 260 cfs by logarithmic plotting; maximum gage height, 5.98 ft Mar. 9, 1960 (ice jam); minimum discharge, 0.6 cfs Nov. 27, 1960.

Remarks.--Records good except those for winter periods, which are poor. Part of flow is return waste from irrigation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	6.3	6.6	2.2	3.7	7.5	4.8	49	46	49	138	45
2	45	6.7	5.6	2.5	3.8	6.8	5.9	19	48	50	96	46
3	57	5.7	5.9	2.3	3.9	6.2	5.4	13	49	50	60	43
4	59	5.3	5.4	2.1	4.0	5.8	6.0	8.8	49	54	58	44
5	52	5.3	5.5	1.9	4.3	5.3	4.0	11	44	59	55	41
6	52	5.2	5.6	2.0	5.1	5.3	3.6	20	40	58	62	42
7	47	5.1	5.8	2.2	6.1	8.0	3.5	17	39	58	75	44
8	47	5.0	6.0	2.3	7.5	12	3.1	16	56	58	211	42
9	45	5.0	6.3	2.4	9.2	11	2.9	21	62	56	70	40
10	45	5.0	5.0	2.6	11	12	2.8	23	60	65	139	37
11	45	4.9	3.8	2.2	13	9.4	2.8	32	56	59	92	43
12	46	4.7	4.3	1.9	16	6.0	2.6	53	54	58	67	42
13	44	4.7	4.6	2.1	19	5.3	2.7	80	52	63	59	46
14	47	4.8	4.7	1.7	20	4.7	2.9	59	52	59	57	54
15	41	4.7	4.8	2.3	20	4.5	2.9	40	53	63	55	57
16	43	4.9	5.0	3.3	18	4.3	2.7	42	51	59	49	58
17	45	4.9	4.3	5.0	18	4.3	2.7	50	49	55	45	55
18	46	5.4	4.4	4.6	17	3.9	2.6	31	49	52	47	62
19	46	8.1	4.7	4.2	17	3.8	2.4	35	53	51	45	54
20	41	8.1	3.9	4.4	17	3.7	2.4	29	48	46	47	55
21	15	11	3.0	4.5	17	3.4	2.5	33	48	49	53	58
22	8.7	12	3.2	4.6	17	3.3	3.3	36	48	50	59	57
23	7.0	12	3.4	4.8	18	3.3	4.1	28	54	49	53	63
24	6.0	11	3.6	5.0	18	3.3	3.4	33	57	50	49	63
25	6.4	12	3.1	5.3	20	3.2	3.1	35	54	58	51	55
26	6.4	8.7	2.6	5.5	14	3.3	3.1	48	52	90	55	56
27	5.8	7.1	2.2	5.8	12	3.3	3.1	45	49	83	66	55
28	5.8	6.9	2.4	6.0	9.6	3.4	8.3	35	47	87	54	58
29	6.0	7.1	2.5	4.5	8.0	3.4	14	42	50	83	48	56
30	6.3	7.2	2.2	4.9	------	3.5	9.2	39	47	74	46	59
31	7.8	------	1.9	4.2	------	3.6	------	44	------	92	44	------
TOTAL	1,019.2	204.8	132.3	109.3	367.2	166.8	122.8	1,066.8	1,516	1,887	2,105	1,530
MEAN	32.9	6.83	4.27	3.53	12.7	5.38	4.09	34.4	50.5	60.9	67.9	51.0
MAX	59	12	6.6	6.0	20	12	14	80	62	92	211	63
MIN	5.8	4.7	1.9	1.7	3.7	3.2	2.4	8.8	39	46	44	37
AC-FT	2,020	406	262	217	728	331	244	2,120	3,010	3,740	4,180	3,030

CAL YR 1967 TOTAL 9,974.2 MEAN 27.3 MAX 128 MIN 1.9 AC-FT 19,780
WTR YR 1968 TOTAL 10,227.2 MEAN 27.9 MAX 211 MIN 1.7 AC-FT 20,290

PEAK DISCHARGE (BASE, 180 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
8- 1	1315	2.52	341	8-10	1930	2.73	465
8- 8	1345	2.88	540				

9-3551. Navajo Reservoir near Archuleta, N. Mex.

Location.--Lat 36°48'35", long 107°36'35", in SW¼SE¼ sec.18, T.30 N., R.7 W., in gage shaft of outlet works structure near right abutment of Navajo Dam on San Juan River at river mile 145.0, 5½ miles east of Archuleta and 33 miles east of Farmington.

Drainage area.--3,230 sq mi, approximately.

Records available.--June 1962 to September 1968.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, adjustment of 1944 (1944 adjustment applied Mar. 20, 1967, and datum lowered 0.27 ft).

Extremes.--Maximum contents during year, 1,044,800 acre-ft Aug. 26, 27 (elevation, 6,032.60 ft); minimum, 587,600 acre-ft Feb. 24-27 (elevation, 5,977.90 ft).
1962-68: Maximum contents, that of Aug. 26, 27; minimum after June 1964 (initial filling period), 246,900 acre-ft Mar. 10, 11, 1965 (elevation, 5,906.4 ft).

Remarks.--Reservoir is formed by earth-rock-fill dam, completed in June 1963; storage began June 27, 1962. Capacity, 1,709,000 acre-ft between elevations 5,720 ft (upstream toe of dam) and 6,085 ft (crest of spillway). Usable capacity, 1,036,000 acre-ft above elevation 5,990.0 ft (minimum operating level). Reservoir will not usually be drawn below elevation 5,882.5 ft (sill of intake structure), leaving a minimum pool or dead storage of 175,200 acre-ft. Figures given herein are total contents and are based on daily elevations at midnight. Reservoir is used for irrigation storage, river regulation, desilting, flood control, and recreation.

Cooperation.--Records furnished by Bureau of Reclamation.

Capacity table, water year 1967-68 (elevation, in feet, and contents, in thousands of acre-feet)

5,970	537.1	5,995	710.3	6,020	922.7
5,975	568.6	6,000	749.7	6,025	969.8
5,980	601.7	6,005	790.6	6,030	1,018.6
5,985	636.3	6,010	833.1	6,035	1,069.3
5,990	672.5	6,015	877.1	6,040	1,122.0

Contents, in thousands of acre-feet, at 2400 hours, water year October 1967 to September 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	626.4	624.2	612.9	600.3	592.1	587.9	600.4	600.7	732.2	937.2	976.5	1043.9
2	626.5	623.8	612.5	599.9	591.7	587.9	602.1	600.8	741.3	939.0	980.7	1043.6
3	626.9	623.5	612.1	599.5	591.3	588.0	603.5	601.7	751.3	940.4	983.9	1042.8
4	627.0	623.1	611.5	599.2	591.0	588.2	604.7	602.4	760.1	941.9	986.3	1042.5
5	627.2	622.7	611.1	598.9	590.7	588.2	605.8	603.2	769.2	943.2	988.6	1041.9
6	627.2	622.4	610.7	598.4	590.4	588.3	606.4	604.0	779.0	944.7	991.6	1041.0
7	627.4	622.0	610.2	598.0	590.0	588.8	607.4	604.3	787.9	945.9	995.4	1040.3
8	627.5	621.7	609.9	597.4	589.8	589.2	607.8	604.5	796.3	947.3	999.9	1039.6
9	627.7	621.4	609.4	597.0	589.5	589.6	608.3	605.1	802.5	948.2	1003.5	1038.8
10	627.7	621.0	608.8	596.5	589.2	590.2	607.4	606.6	807.6	949.4	1010.2	1037.9
11	627.7	620.6	608.2	596.2	589.0	590.5	607.2	610.3	811.5	950.2	1015.1	1037.3
12	627.7	620.3	607.8	595.9	589.0	590.8	608.7	614.5	815.5	951.1	1020.3	1036.5
13	627.9	619.9	607.5	595.5	589.0	591.1	610.7	619.4	821.1	951.8	1023.9	1035.8
14	627.7	619.7	607.2	595.1	588.9	591.3	612.9	623.1	830.1	952.3	1027.8	1034.9
15	627.6	619.2	606.8	594.8	588.6	591.6	614.9	626.2	838.4	952.7	1032.2	1034.1
16	627.4	618.8	606.5	594.4	588.4	591.9	617.5	629.4	846.8	952.7	1035.4	1033.0
17	627.3	618.5	606.1	593.9	588.0	592.0	618.5	632.8	855.2	952.5	1037.4	1032.3
18	627.2	619.1	605.7	593.5	588.0	592.1	617.4	636.5	863.5	952.5	1039.3	1031.7
19	627.1	617.6	605.5	593.1	587.9	592.3	617.0	640.7	872.3	952.5	1040.6	1031.1
20	627.0	617.2	604.9	592.8	587.7	592.3	615.4	645.2	881.3	952.3	1041.7	1030.1
21	626.9	616.9	604.5	592.5	587.7	591.9	614.3	650.2	889.6	952.2	1042.8	1029.5
22	626.7	616.4	604.0	592.2	587.7	591.8	613.3	657.7	897.6	952.1	1043.4	1028.8
23	626.4	616.0	603.4	592.1	587.7	591.6	612.2	665.9	904.9	952.0	1043.6	1028.0
24	626.3	615.7	602.8	592.1	587.6	591.8	610.8	672.5	911.0	952.3	1043.7	1027.4
25	626.1	615.2	602.6	592.1	587.6	592.2	609.1	677.5	916.4	953.2	1043.8	1027.0
26	625.7	614.8	602.3	592.1	587.6	592.8	607.8	683.0	921.3	954.4	1044.8	1026.2
27	625.3	614.3	602.0	592.2	587.6	593.3	606.2	689.5	925.3	956.6	1044.8	1025.4
28	625.1	613.8	601.6	592.3	587.8	594.1	604.4	697.3	928.9	959.5	1044.7	1024.5
29	624.9	613.6	601.3	592.6	587.9	595.1	602.8	706.0	932.2	962.3	1044.5	1023.9
30	624.9	613.4	600.9	592.6	------	596.5	601.3	714.5	935.0	964.2	1044.3	1023.1
31	624.7	------	600.7	592.3	------	598.4	------	723.7	------	969.3	1044.2	------
(†)	5983.3	5981.7	5979.8	5978.6	5978.0	5979.5	5979.9	5996.7	6021.3	6025.0	6032.5	6030.4
(‡)	-1.1	-11.3	-12.7	-8.4	-4.4	+10.5	+2.9	+122.4	+211.3	+34.3	+74.9	-21.1

CAL YR 1967: (‡) +188.8
WTR YR 1968: (‡) +397.3

(†) Elevations, in feet, at end of month.
(‡) Change in contents, in thousands of acre-feet.

9-3555. San Juan River near Archuleta, N. Mex.

Location.--Lat 36°48'10", long 107°41'55", in N½ sec.20, T.30 N., R.8 W., on left bank at river mile 136.8, half a mile upstream from Gobernador Canyon, 0.8 mile northeast of Archuleta, and 7.2 miles downstream from Navajo Dam. Dec. 29, 1959, to Oct. 15, 1964, at site 0.4 mile upstream. Prior to Dec. 29, 1959, at site 5.0 miles upstream.

Drainage area.--3,260 sq mi, approximately.

Records available.--December 1954 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 5,655 ft (from river-profile survey). Dec. 29, 1959 to Oct. 15, 1964, at site 0.4 mile upstream at altitude 5 ft higher. Prior to Dec. 29, 1959, at site 5.0 miles upstream at altitude 55 ft higher. Oct. 15, 1964 to Sept. 12, 1966, graphic water-stage recorder at same site and datum.

Average discharge.--13 years, 1,116 cfs (808,000 acre-ft per year).

Extremes.--Maximum discharge during year, 1,710 cfs May 9 (gage height, 4.49 ft); minimum, 140 cfs Apr. 15.
1954-68: Maximum discharge, 18,900 cfs July 27, 1957 (gage height, 11.00 ft, site and datum then in use); minimum determined, 8 cfs Feb. 28, 1963.

Remarks.--Records good. Flow completely regulated at Navajo Dam (see station 9-3551) except for minor inflow from 30 sq mi intervening drainage area. Diversions above station for irrigation of about 47,000 acres. Records of chemical analyses and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	345	345	355	335	345	350	534	1,670	496	491	536	843
2	355	348	355	335	345	350	317	1,670	496	488	536	834
3	355	355	355	335	345	347	291	1,670	490	491	536	839
4	355	355	355	335	345	350	309	1,690	494	504	536	834
5	355	355	355	335	345	350	310	1,680	503	497	536	833
6	355	355	355	335	345	350	302	1,670	506	493	576	829
7	355	356	355	335	345	349	302	1,690	486	493	520	815
8	355	360	355	335	345	345	304	1,690	473	488	520	825
9	345	360	350	335	345	322	301	1,660	472	488	528	826
10	350	360	345	335	345	228	1,080	1,550	472	488	528	834
11	351	360	340	335	345	204	1,670	318	464	488	528	830
12	350	360	335	335	350	196	1,090	311	464	488	528	817
13	350	360	345	335	350	196	297	304	458	488	528	802
14	350	360	340	335	350	199	297	310	456	488	520	804
15	350	360	345	335	350	199	288	313	460	488	528	791
16	350	360	345	335	350	202	297	311	464	488	512	779
17	350	360	345	335	350	203	990	305	464	488	504	773
18	350	355	342	335	350	205	1,660	329	464	488	512	765
19	350	355	345	335	350	203	1,660	333	464	488	512	762
20	350	355	349	335	350	260	1,660	332	464	488	504	760
21	350	350	345	335	351	340	1,650	345	465	488	504	758
22	350	350	342	296	360	325	1,640	350	468	493	654	752
23	350	350	340	228	360	316	1,650	335	464	493	843	750
24	350	350	337	260	360	338	1,660	423	462	488	816	748
25	350	350	335	219	360	340	1,640	529	456	496	870	750
26	337	350	335	214	357	336	1,640	512	454	488	864	751
27	345	350	335	214	355	335	1,630	480	464	496	879	747
28	345	350	335	217	350	330	1,640	440	478	504	875	752
29	345	360	335	218	350	325	1,660	440	498	488	870	754
30	345	355	335	217	------	323	1,670	434	500	488	789	749
31	345	------	335	262	------	323	------	463	------	536	907	------
TOTAL	10,838	10,649	10,675	9,380	10,148	9,039	30,439	24,557	14,219	15,259	19,399	23,706
MEAN	350	355	344	303	350	292	1,015	792	474	492	626	790
MAX	355	360	355	335	360	350	1,670	1,690	506	536	907	843
MIN	337	345	335	214	345	196	288	304	454	488	504	747
AC-FT	21,500	21,120	21,170	18,600	20,130	17,930	60,370	48,710	28,200	30,270	38,480	47,020

CAL YR 1967 TOTAL 202,506 MEAN 555 MAX 1,810 MIN 105 AC-FT 401,700
WTR YR 1968 TOTAL 188,308 MEAN 515 MAX 1,690 MIN 196 AC-FT 373,500

9-3635. Animas River near Cedar Hill, N. Mex.

Location.--Lat 37°02'15", long 107°52'25", in sec.7, T.32 N., R.9 W., on right bank three-quarters of a mile downstream from Florida River, 2.5 miles upstream from Colorado-New Mexico State line, and 8.5 miles north of Cedar Hill.

Drainage area.--1,090 sq mi, approximately.

Records available.--October 1933 to September 1967. Monthly discharge only for October and November 1933, published in WSP 1313.

Gage.--Digital water-stage recorder. Altitude of gage is 5,960 ft (from topographic map). Prior to Sept 14, 1937, at datum between 1.52 and 1.36 ft higher. Sept. 15, 1937, to Sept. 30, 1946, at datum 1.36 ft higher. Oct. 1, 1946 to Sept. 12, 1966, graphic water-stage recorder at same site.

Average discharge.--35 years, 889 cfs (643,600 acre-ft per year).

Extremes.--Maximum discharge during year, 6,960 cfs June 6 (gage height, 8.84 ft); minimum, 128 cfs Dec. 19, 22, result of freezeup.
1933-68: Maximum discharge, 13,100 cfs June 19, 1949 (gage height, 11.45 ft); minimum, 63 cfs Jan. 21, 1935.
Maximum flood known occurred Oct. 5 or 6, 1911.

Remarks.--Records good except those for May and June, which are fair and those for winter period, which are poor. Diversions for irrigation of about 20,000 acres above station. During water years 1944-49, Twin Rocks Canal diverted above station for irrigation below. Possible regulation by Lemon Dam on Florida River (capacity, 40,100 acre-ft), storage started in November 1963.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	306	250	231	170	219	304	798	721	5,180	1,620	1,300	417
2	298	245	222	200	202	309	751	899	5,490	1,470	1,380	414
3	310	231	208	192	200	327	701	1,030	5,850	1,390	1,400	397
4	310	215	204	182	206	329	612	1,080	5,750	1,300	1,270	416
5	294	224	204	172	192	324	561	1,120	6,150	1,200	1,140	398
6	303	221	200	173	196	340	559	1,160	6,380	1,170	1,180	381
7	306	220	206	180	205	404	547	1,070	5,820	1,160	1,220	371
8	305	219	210	190	210	392	516	1,010	4,570	1,240	1,120	363
9	298	215	203	198	209	389	498	1,160	3,370	1,200	1,160	350
10	294	217	177	205	207	354	500	1,330	2,470	1,200	1,350	344
11	296	212	194	194	205	327	564	1,350	2,040	1,350	1,220	333
12	303	198	204	188	216	300	699	1,580	2,300	1,180	1,170	333
13	296	195	237	182	221	287	812	1,560	3,420	1,040	1,000	320
14	274	198	189	200	233	293	801	1,360	4,090	955	1,030	308
15	267	198	237	204	226	289	791	1,230	4,350	870	1,610	314
16	255	198	231	222	229	279	837	1,310	4,550	798	1,330	319
17	264	198	217	205	225	284	811	1,370	4,610	736	1,110	291
18	262	202	191	208	250	278	723	1,390	4,680	693	979	287
19	262	195	157	198	253	264	658	1,580	4,540	660	875	297
20	258	195	197	202	243	256	615	2,010	3,850	636	769	286
21	251	198	170	208	264	257	600	2,440	4,160	618	714	289
22	240	216	152	208	280	271	601	3,370	4,080	568	716	297
23	240	223	182	200	266	303	559	3,690	3,550	575	652	304
24	241	210	218	210	269	325	516	3,150	3,380	624	609	299
25	247	209	210	218	289	363	503	2,430	2,860	674	563	297
26	251	209	210	208	292	398	512	2,440	2,490	799	530	290
27	244	198	195	209	299	421	504	3,020	2,290	1,110	490	291
28	239	200	205	218	320	456	476	3,720	2,320	1,220	501	284
29	242	222	210	190	314	546	444	4,460	2,200	1,180	483	282
30	250	227	212	202	------	650	499	4,800	1,920	1,120	448	292
31	246	------	200	216	------	718	------	4,940	------	1,170	435	------
TOTAL	8,452	6,358	6,283	6,152	6,940	11,037	18,568	63,780	118,710	31,526	29,754	9,864
MEAN	273	212	203	198	239	356	619	2,057	3,957	1,017	960	329
MAX	310	250	237	222	320	718	837	4,940	6,380	1,620	1,610	417
MIN	239	195	152	170	192	256	444	721	1,920	568	435	282
AC-FT	16,760	12,610	12,460	12,200	13,770	21,890	36,830	126,500	235,500	62,530	59,020	19,560

CAL YR 1967 TOTAL 193,173 MEAN 529 MAX 3,190 MIN 140 AC-FT 383,200
WTR YR 1968 TOTAL 317,424 MEAN 867 MAX 6,380 MIN 152 AC-FT 629,600

PEAK DISCHARGE (BASE, 4,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5-23	1100	7.15	4,020	6- 6	1600	8.84	6,960	6-21	1230	7.63	4,840
6- 3	1600	8.55	6,350	6-18	1030	7.83	5,280				

9-3645. Animas River at Farmington, N. Mex.

Location (revised).--Lat 36°43'13", long 108°12'07", in SE¼ sec.16, T.29 N., R.13 W., on left bank at bridge on former State Highway 17, 0.6 mile downstream from bridge on State Highway 17, and 1.3 miles upstream from mouth.

Drainage area.--1,360 sq mi, approximately.

Records available.--June 1904 to October 1905 (published as "near Farmington"). September 1912 to September 1968. Monthly discharge only for some periods, published in WSP 1313.

Gage.--Water-stage recorder. Altitude of gage is 5,278 ft (from bridge-profile plans). Prior to Nov. 1, 1905, chain gage at old bridge a quarter of a mile upstream at different datum. Sept. 17, 1912, to Oct. 4, 1938, water-stage recorder at site 0.6 mile downstream at lower datums (datum lowered 2.0 ft Aug. 15, 1927, and raised 0.2 ft Dec. 16, 1929).

Average discharge.--57 years, 929 cfs (672,600 acre-ft per year).

Extremes.--Maximum discharge during year, 6,250 cfs June 7 (gage height, 6.80 ft); minimum, 74 cfs Sept. 19.
1904-5, 1912-68: Maximum discharge, about 25,000 cfs June 29, 1927 (gage height, 8.5 ft, site and datum then in use), from rating curve extended above 10,000 cfs by logarithmic plotting; minimum, 1.4 cfs Sept. 4, 1956.
Maximum flood known occurred Oct. 6, 1911, when a stage of about 16.5 ft was reached (present site and datum). Flood of Sept. 6, 1909, reached a stage of 11.1 ft, 1904-5 site and datum (discharge, about 19,000 cfs).

Remarks.--Records good except those for May and June, which are fair and those for January, which are poor. Diversions for irrigation of about 30,000 acres above station. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	152	208	222	202	275	310	740	382	4,750	1,480	1,060	190
2	142	210	220	222	248	300	640	635	5,030	1,230	1,220	170
3	138	212	212	220	235	314	570	926	5,520	1,120	1,180	166
4	142	215	222	210	238	334	500	1,060	5,310	1,040	1,130	143
5	146	195	225	195	238	326	406	1,080	5,220	972	1,000	148
6	150	218	228	182	235	322	386	968	5,780	900	1,100	121
7	160	218	222	180	235	382	418	884	5,660	891	1,180	117
8	164	222	242	200	248	440	398	824	4,530	927	981	130
9	170	212	232	200	254	414	390	884	3,420	909	972	143
10	156	220	238	220	251	414	350	1,120	2,410	891	1,060	130
11	154	225	215	269	251	362	410	1,250	1,900	945	1,200	117
12	156	212	235	205	260	330	485	1,400	1,790	900	1,100	109
13	168	208	242	200	275	314	660	1,390	2,530	828	1,000	105
14	180	195	257	200	278	300	758	1,320	3,300	738	972	113
15	164	200	263	220	266	314	686	1,040	3,630	680	1,400	105
16	164	205	306	230	254	306	728	1,030	3,850	648	1,320	97
17	168	208	275	240	251	303	752	1,230	4,050	632	1,040	109
18	162	212	232	240	251	300	675	1,210	4,230	552	1,000	89
19	160	208	220	240	266	296	640	1,380	4,320	432	720	85
20	172	202	218	230	272	289	550	1,550	3,730	400	608	97
21	170	200	215	240	272	275	460	1,740	3,590	365	544	109
22	162	208	188	240	286	251	440	2,530	3,710	358	488	117
23	162	212	160	240	278	251	440	3,230	3,280	312	448	200
24	166	222	200	230	266	263	394	2,840	2,890	312	393	185
25	190	205	220	240	266	292	354	2,280	2,480	365	330	156
26	198	195	230	250	296	318	350	2,150	2,080	568	306	125
27	190	192	220	250	289	374	354	2,660	2,030	953	341	105
28	195	185	220	266	306	394	342	3,360	1,970	1,190	282	113
29	182	200	230	282	318	485	303	4,130	1,920	1,100	265	93
30	200	212	254	251	------	625	286	4,660	1,740	1,070	235	152
31	210	------	235	263	------	734	------	4,700	------	954	205	------
TOTAL	5,193	6,236	7,098	7,057	7,658	10,932	14,865	55,843	106,650	24,662	25,080	3,839
MEAN	168	208	229	228	264	353	496	1,800	3,560	796	809	128
MAX	210	225	306	282	318	734	758	4,700	5,780	1,480	1,320	190
MIN	138	185	160	180	235	251	286	382	1,740	312	205	85.0
AC-FT	10,300	12,370	14,080	14,000	15,190	21,680	29,480	110,800	211,500	48,920	49,750	7,610

CAL YR 1967: TOTAL 155,655 MEAN 426 MAX 2,720 MIN 100 AC-FT 308,700
WTR YR 1968: TOTAL 275,113 MEAN 752 MAX 5,780 MIN 85 AC-FT 545,700

PEAK DISCHARGE (BASE, 4,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
6- 7	0300	6.80	6,250
6-18	2200	6.10	4,700

9-3650. San Juan River at Farmington, N. Mex.

Location.--Lat 36°43'25", long 108°13'30", in SE¼ sec.17, T.29 N., R.13 W., on left bank at river mile 97.4, 360 ft downstream from highway bridge, 4,000 ft downstream from Animas River and 1 mile west of Farmington.

Drainage area.--7,240 sq mi, approximately.

Records available.--June to December 1904, January 1905 to September 1906 (gage heights and discharge measurements only; discharge records for January to December 1905, published in WSP 175, have been found to be unreliable and should not be used), September 1912 to September 1968. Monthly discharge only for some periods, published in WSP 1313.

Gage.--Digital water-stage recorder. Datum of gage is 5,230.37 ft above mean sea level, datum of 1929. June 19, 1904, to May 10, 1906, wire-weight gage at site 1½ miles downstream at different datum. May 11 to Sept. 22, 1906, chain gage and Sept. 19, 1912, to July 2, 1918, staff gage, at site half a mile upstream at different datums. Nov. 1, 1921, to Nov. 18, 1933, water-stage recorder at site 360 ft upstream at datum 1.04 ft higher prior to October 1932, and 0.53 ft higher thereafter. Nov. 19, 1933 to Sept. 15, 1966, graphic water-stage recorder at same site and datum.

Average discharge.--56 years (1912-68), 2,452 cfs (1,775,000 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 7,110 cfs June 7 (gage height, 5.02 ft); minimum, 310 cfs Oct. 5.
1912-68: Maximum discharge, about 68,000 cfs June 29, 1927 (gage height, 10.2 ft, site and datum then in use), from rating curve extended above 37,000 cfs; minimum, 14 cfs Aug. 22, 1939.
Maximum flood known occurred Oct. 6, 1911. Flood of Sept. 6, 1909, reached a stage of about 12.3 ft, site and datum in use May to September 1906.

Remarks.--Records good. Since June 1962 flow is partly controlled by operation of Navajo Reservoir. Diversions above station for irrigation of about 86,000 acres, 4,000 of which is irrigated by Farmers Mutual ditch which diverts from Animas River and bypasses this station; ditch flow not included in record. At times this ditch may be supplied partly or entirely by diversion from San Juan River below this station. Records of chemical analyses and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	346	486	450	480	550	688	1,090	1,880	5,410	2,010	2,890	1,120
2	342	471	491	500	607	665	1,330	2,120	5,780	1,670	2,310	770
3	358	456	526	560	613	703	1,070	2,200	6,220	1,560	1,750	662
4	411	448	518	580	594	742	1,010	2,300	5,990	1,480	1,780	697
5	363	442	533	540	634	699	983	2,370	5,970	1,410	1,870	701
6	326	442	516	500	626	736	945	2,400	6,600	1,310	2,530	728
7	379	428	580	480	616	798	917	2,300	6,520	1,340	3,080	757
8	377	418	596	470	414	828	845	2,220	5,270	1,460	2,840	785
9	383	432	596	520	601	753	771	2,250	4,170	1,460	1,860	790
10	409	403	582	600	599	644	827	2,300	3,120	1,340	1,580	792
11	445	434	583	580	597	599	1,800	1,820	2,370	1,440	3,840	797
12	439	390	591	550	625	592	750	1,520	2,260	1,400	2,610	770
13	421	463	622	530	652	550	812	1,910	3,180	1,280	1,640	758
14	405	471	637	500	646	561	827	1,680	4,080	1,160	1,950	727
15	389	453	597	530	625	560	919	1,500	4,460	1,120	1,890	760
16	403	432	595	560	605	559	991	1,400	4,700	1,020	1,920	782
17	422	414	530	580	604	577	1,010	1,500	4,850	940	1,780	807
18	410	409	520	550	600	591	1,880	1,400	5,010	903	1,440	780
19	413	375	540	520	628	580	2,010	1,570	5,120	781	1,220	793
20	419	383	540	520	650	585	1,880	1,800	4,540	701	1,050	822
21	419	381	510	500	669	625	1,880	2,400	4,450	645	925	779
22	418	397	480	500	704	616	1,880	3,000	4,460	639	882	837
23	420	387	450	491	672	604	1,930	3,860	4,000	595	1,100	833
24	412	413	480	497	652	617	1,920	3,430	3,660	735	1,080	806
25	434	392	520	504	651	597	1,880	2,980	3,260	800	974	780
26	446	391	540	494	658	639	1,860	2,900	2,820	1,100	882	797
27	440	412	570	512	657	659	1,850	3,240	2,500	1,500	918	754
28	424	422	580	551	662	689	1,830	3,920	2,400	1,700	825	742
29	436	458	580	587	688	763	1,800	4,630	2,300	1,840	775	740
30	493	436	560	571	------	907	1,780	5,160	2,100	1,810	799	758
31	470	------	500	520	------	940	------	5,190	------	1,730	725	------
TOTAL	12,672	12,739	16,913	16,377	18,299	20,666	41,277	79,150	127,570	38,879	51,715	23,424
MEAN	409	425	546	528	631	667	1,376	2,553	4,252	1,254	1,668	781
MAX	493	486	637	600	704	940	2,010	5,190	6,600	2,010	3,840	1,120
MIN	326	375	450	470	550	550	750	1,400	2,100	595	725	662
AC-FT	25,130	25,270	33,550	32,480	36,300	40,990	81,870	157,000	253,000	77,120	102,600	46,460

CAL YR 1967 TOTAL 341,203 MEAN 935 MAX 4,630 MIN 279 AC-FT 676,800
WTR YR 1968 TOTAL 459,681 MEAN 1,256 MAX 6,600 MIN 326 AC-FT 911,800

PEAK DISCHARGE (BASE, 5,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
6- 7	0030	5.02	7,110	8- 1	0345	4.44	6,000	8-11	0700	4.72	6,810
6-18	2200	4.42	5,520	8- 6	2345	4.50	6,210				

9-3665. La Plata River at Colorado-New Mexico State line

Location.--Lat 36°59'59", long 108°11'17", in NW¼SE¼ sec.10, T.32 N., R.13 W., on right bank at Colorado-New Mexico State line, 0.2 mile downstream from Ponds Arroyo and 4.8 miles north of La Plata, N. Mex.

Drainage area.--331 sq mi.

Records available.--January 1920 to September 1968. Monthly discharge only for some periods, published in WSP 1313.

Gage.--Water-stage recorder. Datum of gage is 5,975.15 ft above mean sea level, datum of 1929. Prior to Apr. 30, 1920, staff gage at site 2 miles upstream at different datum. May 1 to June 18, 1920, staff gage and June 19, 1920, to Sept. 30, 1924, water-stage recorder, at present site at datum 1.26 ft higher. Oct. 1, 1924, to Mar. 16, 1934, water-stage recorder at present site at datum 0.26 ft higher.

Average discharge.--48 years, 33.2 cfs (24,040 acre-ft per year).

Extremes.--Maximum discharge during year, 652 cfs Aug. 10 (gage height, 3.97 ft); minimum daily, 1.6 cfs Oct. 9.
1920-68: Maximum discharge, 4,750 cfs Aug. 24, 1927 (gage height, 11.36 ft, present datum), from rating curve extended above 750 cfs on basis of slope-area measurement of peak flow; no flow at times in many years.

Remarks.--Records fair except those for winter period, which are poor. Diversions above station for irrigation of about 15,000 acres, mostly above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	3.6	2.8			7.6	57	19	159	23	50	5.2
2	2.8	3.6	2.8			7.6	70	38	165	21	59	4.8
3	5.1	3.6	2.4			7.6	56	48	124	21	39	3.0
4	5.4	3.9				7.6	49	53	52	21	32	3.0
5	3.3	3.9				8.0	39	56	75	22	23	3.5
6	2.6	3.9				8.0	36	55	74	29	32	2.8
7	2.0	3.9				12	32	40	47	32	21	2.5
8	1.8	3.9			4.0	18	25	34	69	23	12	2.2
9	1.6	3.9				20	21	37	97	20	11	2.0
10	1.8	3.6				19	17	48	48	23	153	2.0
11	2.0	3.6				18	18	50	65	24	84	2.0
12	2.0	3.6				16	19	53	59	21	27	2.2
13	2.0	3.6				17	29	64	85	19	17	2.5
14	1.8	3.6				20	51	41	98	15	19	2.5
15	2.0	3.6		5.0	8.4	20	43	29	61	12	29	2.2
16	2.2	3.6			8.0	18	39	36	69	10	22	2.5
17	2.6	3.6	4.5		8.0	12	36	36	70	9.2	20	2.2
18	2.8	3.6			9.2	12	34	40	82	6.4	21	2.2
19	3.0	3.6			9.6	11	41	49	66	4.8	18	2.2
20	3.0	3.6			11	11	36	61	69	5.2	14	2.5
21	3.0	3.6			12	9.2	34	105	84	6.0	13	2.2
22	3.0	3.6			14	8.4	36	135	65	8.0	12	2.2
23	3.0	3.3			12	8.4	29	103	64	12	8.0	2.2
24	3.0	3.3			14	9.2	20	63	81	10	7.2	2.2
25	3.0	3.0			12	15	15	58	75	5.2	6.4	2.2
26	3.3	2.2			12	23	14	75	57	5.6	6.0	2.2
27	3.3	2.0			9.2	28	14	85	57	16	6.8	2.2
28	3.3	2.2			8.0	31	12	96	56	49	11	2.0
29	3.3	2.6			7.8	35	11	117	46	71	8.6	2.0
30	3.3	2.6			------	38	13	149	33	10	6.8	1.8
31	3.6	------			------	48	------	161	------	16	5.6	------
TOTAL	87.7	102.2	134.0	155.0	211.2	523.6	946	2034	2252	570.4	794.4	75.2
MEAN	2.83	3.41	4.32	5.0	7.28	16.9	31.5	65.6	75.1	18.4	25.6	2.51
MAX	5.4	3.9	-	-	14	48	70	161	165	71	153	5.2
MIN	1.6	2.0	2.4	-	-	7.6	11	19	33	4.8	5.6	1.8
AC-FT	174	203	266	307	419	1,040	1,880	4,030	4,470	1,130	1,580	149

CAL YR 1967: TOTAL 5,121.7 MEAN 14.0 MAX 94 MIN 0 AC-FT 10,160
WTR YR 1968: TOTAL 7,885.7 MEAN 21.5 MAX 165 MIN 1.6 AC-FT 15,640

9-3675. La Plata River near Farmington, N. Mex.

Location (revised).--Lat 36°44'25", long 108°14'52", in SW¼ sec.7, T.29 N., R.13 W., on right bank 1,300 ft upstream from bridge on U.S. Highway 550, 1,800 ft upstream from mouth, and 2½ miles northwest of Farmington.

Drainage area.--583 sq mi.

Records available.--March 1938 to September 1968.

Gage.--Water-stage recorder. Altitude of gage is 5,215 ft (from river-profile map).

Average discharge.--30 years, 23.6 cfs (17,090 acre-ft per year).

Extremes.--Maximum discharge during year, 1,640 cfs July 27 (gage height, 5.25 ft), from rating curve extended above 130 cfs on basis of slope-area measurement at gage height 5.93 ft; minimum, 0.02 cfs Oct. 12, 13.
1938-68: Maximum gage height, 6.03 ft Sept. 10, 1939 (discharge not determined); no flow for long periods in some years.
Major floods occurred Sept. 5 or 6, 1909, and Oct. 5 or 6, 1911.

Remarks.--Records fair except those for December to February, which are poor. Diversions for irrigation of about 24,000 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.28	1.8	2.1	3.0	10	6.2	56	1.4	46	0.95	25	1.1
2	2.8	1.6	1.2	3.5	10	5.6	70	1.8	43	.73	18	.95
3	2.6	2.3	.83	4.0	10	5.6	75	1.6	34	.83	9.4	.83
4	8.5	1.8	.95	3.5	11	5.1	56	1.6	12	1.1	7.1	1.1
5	3.2	1.6	.73	3.5	12	5.1	42	2.4	5.1	.48	5.4	.73
6	2.1	1.8	.64	3.5	12	3.8	33	2.0	2.8	.56	3.6	.64
7	1.4	1.8	.64	3.0	12	4.0	31	1.8	2.1	.56	4.8	.73
8	.83	1.8	1.1	3.0	12	5.4	21	2.0	2.1	.23	3.4	.56
9	.73	1.8	.83	3.5	11	7.9	14	2.0	3.9	.28	2.1	.48
10	.56	1.8	.83	4.5	10	9.0	11	2.1	4.0	.23	78	.41
11	.06	1.8	1.1	6.0	9.0	5.9	9.0	2.4	3.2	.19	227	.48
12	.02	2.0	1.5	5.0	9.0	4.3	7.1	3.8	2.6	.23	32	.48
13	.19	2.1	.95	4.5	9.0	3.2	4.3	11	2.8	.23	11	.83
14	.23	2.0	1.5	4.5	10	5.4	3.8	7.5	4.5	.23	11	.41
15	.19	2.3	1.1	4.5	14	8.6	3.8	4.8	7.1	.23	14	.28
16	.19	2.1	1.2	5.0	13	12	3.0	3.2	3.8	.12	10	.34
17	.19	2.8	1.5	5.0	13	15	2.8	2.4	3.8	.15	8.6	.56
18	.23	2.1	1.5	5.0	13	13	2.8	2.1	3.4	.15	9.0	.23
19	.19	1.4	4.0	5.0	12	14	3.0	2.0	3.8	.15	9.8	.34
20	.19	.83	4.0	5.0	11	15	2.8	1.5	2.4	.19	9.0	.41
21	.41	.73	3.0	5.0	10	14	2.8	1.4	2.1	.19	9.0	.28
22	.56	.83	2.5	5.0	11	14	2.6	13	4.3	.28	7.1	.23
23	.28	.83	2.5	5.0	11	15	2.4	34	2.1	.28	7.1	.23
24	.28	1.1	2.5	6.0	11	20	2.0	9.8	2.0	.23	6.4	.41
25	.34	1.4	2.5	7.0	10	27	1.8	1.8	2.4	.34	6.4	.56
26	.34	.95	3.0	10	9.4	27	1.8	.48	3.2	73	5.1	.83
27	2.1	.95	3.5	15	9.4	24	1.8	.83	2.1	133	4.8	.34
28	2.3	1.5	3.5	20	8.3	32	1.8	2.7	1.2	26	4.5	.08
29	2.0	2.1	3.5	15	12	34	1.5	15	1.1	48	2.3	.06
30	.41	2.1	3.5	10	------	32	1.5	37	1.2	17	2.1	1.1
31	.83	------	3.0	13	------	32	------	48	------	7.1	1.8	------
TOTAL	34.53	50.02	61.2	195.5	315.1	425.1	471.4	223.41	214.1	313.24	554.8	16.01
MEAN	1.11	1.67	1.97	6.31	10.9	13.7	15.7	7.21	7.14	10.1	17.9	.534
MAX	8.5	2.8	4.0	20	14	34	75	48	46	133	227	1.1
MIN	.02	.73	.64	3.0	8.3	3.2	1.5	.48	1.1	.12	1.8	.06
AC-FT	68.5	99.2	121	388	625	843	935	443	425	621	1,100	31.8

CAL YR 1967: TOTAL 1,674 MEAN 4.74 MAX 160 MIN 0 AC-FT 3,320
WTR YR 1968: TOTAL 2,874.41 MEAN 7.85 MAX 227 MIN .02 AC-FT 5,700

9-3680. San Juan River at Shiprock, N. Mex.

Location.--Lat 36°47'35", long 108°43'55", in SW¼ sec.22, T.30 N., R.18 W., on left bank at river mile 61.0, 3 miles west of Shiprock and 6 miles downstream from Chaco River.

Drainage area.--12,900 sq mi, approximately.

Records available.--January to October 1911, February 1927 to September 1968. Monthly or yearly discharge only for some periods, published in WSP 1313.

Gage.--Digital water-stage recorder. Datum of gage is 4,848.68 ft above mean sea level (river-profile survey). Prior to Apr. 6, 1922, chain gage and Apr. 7, 1922, to Oct. 25, 1933, water-stage recorder, at site 3 miles upstream at different datum. Oct. 26, 1933, to Sept. 30, 1936, water-stage recorder at present site at datum 3.31 ft higher and Oct. 1, 1936, to Sept. 30, 1952, at datum 1.77 ft higher. Supplementary water-stage recorders at nearby sites, same datum, used at times. Prior to October 1966, graphic water-stage recorder.

Average discharge.--42 years (1926-68), 2,248 cfs (1,627,000 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 10,000 cfs Aug. 11 (gage height, 5.88 ft); minimum, 214 cfs Oct. 23.
1927-68: Maximum discharge, about 80,000 cfs Aug. 11, 1929 (gage height, 5.7 ft, site and datum then in use); minimum daily, 8 cfs Aug. 25-26, 1939.
Maximum flood known occurred Oct. 6, 1911, and reached a stage of 22 ft, site and datum then in use.

Remarks.--Records good except those for December and January, which are poor. Since 1962 flow partly regulated by Navajo Reservoir (see station 9-3551). Diversions for irrigation of about 118,000 acres above station. Ungaged canals bypass station on both right and left bank, though some of bypass flow is returned to river below gage. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	330	396	623	600	680	891	916	1,640	4,800	1,850	3,390	883
2	430	408	616	630	700	865	1,170	1,760	5,230	1,520	3,330	816
3	262	420	637	650	700	826	1,130	2,000	5,900	1,350	2,570	685
4	382	397	630	650	710	864	1,050	2,160	5,900	1,240	2,030	610
5	345	375	595	650	720	803	937	2,350	5,660	1,150	1,760	560
6	316	392	623	620	681	819	877	2,430	6,320	1,110	1,780	557
7	316	440	658	580	695	822	852	2,400	6,540	1,050	3,750	607
8	330	436	644	600	728	888	776	2,200	5,520	1,080	2,810	516
9	338	447	693	650	726	917	758	2,190	4,270	1,110	2,370	490
10	356	423	716	700	689	917	739	2,350	3,370	1,010	2,180	468
11	374	466	690	700	705	817	1,410	2,120	2,560	1,010	4,920	481
12	384	466	705	680	748	742	1,230	1,490	2,150	1,080	3,250	486
13	348	430	716	650	732	674	872	1,610	2,730	994	2,360	483
14	308	406	650	620	770	661	975	1,430	4,010	919	2,020	499
15	312	408	654	640	730	658	885	1,410	4,480	853	1,750	542
16	296	418	665	700	738	666	931	1,130	4,620	788	1,740	541
17	295	472	620	690	744	688	898	1,220	4,720	753	1,470	529
18	269	478	580	670	788	639	1,280	1,120	4,670	708	1,230	534
19	268	497	600	650	814	535	1,910	1,220	4,700	610	998	540
20	284	532	600	630	763	627	1,980	1,450	4,350	544	836	549
21	253	518	570	600	780	560	1,840	2,070	3,830	549	729	577
22	263	504	540	600	874	674	1,870	2,570	3,980	513	650	580
23	236	539	530	600	828	619	1,920	3,490	3,780	523	703	610
24	274	602	560	560	804	634	1,930	3,230	3,480	617	765	604
25	297	623	600	560	767	610	1,890	2,900	3,090	772	744	589
26	256	644	640	580	774	601	1,890	2,300	2,550	834	717	579
27	304	630	660	600	777	645	1,850	2,700	2,260	1,750	735	566
28	306	630	670	620	814	742	1,770	3,400	2,280	2,280	710	581
29	356	616	680	640	860	732	1,740	4,040	1,990	2,160	675	579
30	407	637	660	650	------	793	1,720	4,750	1,970	1,950	670	578
31	365	------	630	560	------	883	------	4,700	------	1,870	633	------
TOTAL	9,860	14,650	19,655	19,530	21,839	22,812	39,996	71,830	121,710	34,547	54,275	17,219
MEAN	318	488	634	630	753	736	1,333	2,317	4,057	1,114	1,751	574
MAX	430	644	716	700	874	917	1,980	4,750	6,540	2,280	4,920	883
MIN	236	375	530	560	680	535	739	1,120	1,970	513	633	468
AC-FT	19,560	29,060	38,990	38,740	43,320	45,250	79,330	142,500	241,400	68,520	107,700	34,150

CAL YR 1967 TOTAL 348,186 MEAN 954 MAX 6,200 MIN 80 AC-FT 690,600
WTR YR 1968 TOTAL 447,923 MEAN 1,224 MAX 6,540 MIN 236 AC-FT 888,400

PEAK DISCHARGE (BASE, 6,000 CFS, REVISED)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
5- 4	0830	5.08	6,360	8- 1	2100	5.46	6,660	8-11	1200	5.88	10,000
6- 7	1000	5.28	7,200	8- 7	0700	5.59	7,650				

9-3795. San Juan River near Bluff, Utah

Location.--Lat 37°08'50", long 109°51'50", in SW¼ sec.7, T.42 S., R.19 E., on left bank 1,600 ft downstream from Gypsum Creek, 1,800 ft upstream from highway bridge, 20 miles southwest of Bluff, and 114 miles upstream from mouth.

Drainage area.--23,000 sq mi, approximately.

Records available.--October 1914 to September 1968. Monthly discharge only for some periods, published in WSP 1313.

Gage.--Water-stage recorder. Altitude of gage is 4,048 ft (from levels of Topographic Division, U.S.G.S.). Prior to Mar. 16, 1927, chain gages at sites about 1,700 ft downstream at different datums.

Average discharge.--54 years, 2,627 cfs (1,902,000 acre-ft per year), unadjusted.

Extremes.--Maximum discharge during year, 17,500 cfs Aug. 2 (gage height, 14.06 ft); minimum, 382 cfs Oct. 8. 1914-17, 1927-68: Maximum discharge, 70,000 cfs Sept. 10, 1927 (gage height, 32.0 ft), from rating curve extended above 31,000 cfs; no flow July 3-13, 1934, Aug. 24-27, 29, 1939.
Flood of Oct. 6, 1911, which is greatest known at Shiprock, N. Mex., probably exceeded that of Sept. 10, 1927, at this station, but stage was not accurately determined.

Remarks.--Records good. Diversions for irrigation of approximately 200,000 acres above station. No diversion between station and mouth of river. Flow regulated by Navajo Reservoir since June 28, 1962 (see station 9-3551). Records of chemical analyses and suspended-sediment loads for the water year 1968 are published in Part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	437	645	767	540	800	897	1,020	1,690	5,080	1,960	6,070	827
2	452	601	745	540	800	897	1,120	1,750	5,140	1,790	11,000	1,080
3	648	613	718	537	800	850	1,550	1,890	5,440	1,490	6,200	955
4	1,170	632	690	540	800	866	1,280	2,100	5,820	1,290	4,040	753
5	515	613	684	540	800	873	1,180	2,330	5,600	1,220	3,130	651
6	504	613	704	540	800	873	1,020	2,420	5,690	1,200	2,420	589
7	447	601	731	540	950	873	947	2,440	6,300	1,250	3,530	589
8	386	607	724	540	1,000	922	922	2,430	6,330	1,190	4,420	651
9	409	626	745	540	990	1,090	889	2,220	5,280	1,240	4,000	607
10	414	607	724	570	947	1,020	819	2,220	4,170	1,300	3,010	607
11	452	601	677	590	881	1,040	789	2,460	3,090	1,100	2,970	583
12	468	589	650	590	939	906	1,540	2,250	2,460	1,060	7,410	566
13	433	601	620	580	955	827	1,280	1,690	2,090	1,150	4,760	566
14	452	583	590	570	1,130	745	866	2,000	2,750	1,120	3,040	677
15	428	607	589	580	1,140	684	1,100	1,660	3,760	1,030	3,170	589
16	418	578	590	600	990	684	990	1,390	4,230	955	2,630	632
17	442	578	590	610	914	684	964	1,280	4,460	881	2,370	657
18	462	589	590	610	881	657	981	1,390	4,510	804	1,790	645
19	452	607	590	600	881	664	1,610	1,360	4,620	796	1,530	664
20	457	613	590	600	922	664	2,100	1,470	4,680	724	1,310	684
21	473	613	590	600	939	724	2,090	1,650	4,170	632	1,170	690
22	483	664	590	600	1,130	664	2,090	2,320	3,880	578	981	711
23	488	651	580	600	1,030	711	2,000	3,020	3,920	548	858	697
24	483	657	580	600	972	745	1,980	3,820	3,430	542	782	724
25	468	677	580	600	947	718	1,860	3,430	3,100	548	964	738
26	488	711	580	600	955	745	1,820	2,930	2,790	966	881	718
27	526	704	580	600	930	718	1,780	2,450	2,300	2,640	850	731
28	542	738	580	600	906	782	1,760	2,960	2,130	3,720	1,070	711
29	548	711	580	600	906	842	1,770	3,710	2,070	2,650	906	711
30	548	767	580	600	------	850	1,750	4,510	2,020	2,360	811	753
31	607	------	580	600	------	939	------	5,200	------	2,500	760	------
TOTAL	15,500	18,997	19,708	17,957	27,035	25,154	41,867	74,440	121,310	41,234	88,833	20,756
MEAN	500	633	636	579	932	811	1,396	2,401	4,044	1,330	2,866	692
MAX	1,170	767	767	610	1,140	1,090	2,100	5,200	6,330	3,720	11,000	1,080
MIN	386	578	580	537	800	657	789	1,280	2,020	542	760	566
AC-FT	30,740	37,680	39,090	35,620	53,620	49,890	83,040	147,600	240,600	81,790	176,200	41,170

CAL YR 1967: TOTAL 398,569 MEAN 1,092 MAX 9,710 MIN 223 AC-FT 790,600
WTR YR 1968: TOTAL 512,791 MEAN 1,401 MAX 11,000 MIN 386 AC-FT 1,017,000

PEAK DISCHARGE (BASE, 8,000 CFS)

DATE	TIME	G.HT.	DISCHARGE
7-27	2000	9.95	8,670
8- 2	0100	14.06	17,500
8-12	0500	11.02	11,300

9-4301.5. Sapillo Creek below Lake Roberts, near Silver City, N. Mex.

Location.--Lat 33°01'55", long 108°10'05" (revised), in SE¼SE¼ sec.34, T.14 S., R.13 W., on left bank 1,100 ft below Lake Roberts Dam about 1 mile upstream from former mining town of Meerschaum and 18 miles north of Silver City.

Drainage area.--78 sq mi.

Records available.--May 1964 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 5,990 ft (from topographic map). Prior to May 21, 1966 at site 300 ft downstream at different datums.

Extremes.--Maximum discharge during year, 886 cfs Aug. 5 (gage height, 4.16 ft); minimum, 0.6 cfs Apr. 27.
1964-68: Maximum discharge, 1,210 cfs Sept. 23, 1964 (gage height, 5.58 ft), from rating curve extended above 166 cfs on basis of slope-area measurement of peak flow; no flow for many days.

Remarks.--Records good. Flow regulated by Lake Roberts (capacity 1,870 acre-ft).

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	4.4	3.9	4.0	37	22	12	5.0	3.4	1.9	21	9.6
2	5.4	4.4	3.7	3.8	27	18	13	4.8	3.5	2.2	19	6.9
3	12	4.4	4.0	3.7	22	17	13	4.9	3.5	2.3	27	5.2
4	15	4.4	4.8	3.7	18	16	10	4.1	3.4	2.4	54	4.2
5	9.1	4.5	4.3	3.7	17	16	9.0	4.1	3.2	3.2	200	3.6
6	7.4	4.5	4.0	3.6	15	14	8.2	4.4	3.0	3.4	113	3.3
7	6.4	4.7	3.7	3.7	14	19	7.2	4.5	3.1	3.0	26	3.6
8	6.0	4.5	3.6	4.1	13	22	6.6	4.4	3.2	2.7	14	3.7
9	5.9	4.5	3.6	3.9	13	28	6.7	4.3	3.1	2.5	19	3.7
10	5.7	4.4	3.5	3.7	18	52	5.9	4.4	2.8	2.5	29	4.0
11	5.7	4.3	3.4	3.7	27	49	5.7	4.4	2.9	2.6	12	4.2
12	5.5	4.2	3.3	3.6	42	33	5.3	4.5	2.8	2.5	6.0	3.8
13	5.3	4.1	3.3	3.5	53	36	5.2	4.3	3.0	2.1	4.5	3.5
14	5.3	4.0	3.8	3.4	43	35	5.4	4.2	3.1	2.0	3.4	3.5
15	5.3	4.0	4.2	3.3	35	29	7.4	4.2	3.2	1.9	2.7	3.9
16	5.0	4.0	4.4	3.2	30	25	6.7	4.3	3.2	1.7	2.4	4.0
17	5.1	4.0	4.7	3.2	28	22	5.5	4.1	3.6	1.4	2.5	3.6
18	5.1	3.9	4.2	3.2	26	19	5.1	4.2	4.0	1.4	2.5	3.2
19	5.0	3.9	6.3	3.1	25	17	4.8	4.4	3.8	1.4	2.4	3.2
20	4.9	3.9	14	3.2	25	16	4.8	4.4	3.3	1.4	2.4	3.3
21	4.8	3.8	8.3	3.3	34	14	4.7	4.3	3.1	2.7	2.3	3.4
22	4.8	4.1	6.3	3.4	39	12	4.8	4.1	2.8	3.0	2.3	3.5
23	4.8	4.3	5.0	3.5	31	11	5.2	3.9	2.4	3.9	2.3	3.6
24	4.7	4.1	4.7	3.6	26	10	5.4	3.7	2.2	2.8	2.4	3.5
25	4.7	3.8	4.4	4.1	26	9.6	5.2	3.5	2.1	3.0	2.6	3.7
26	4.6	3.8	4.3	5.2	27	9.4	4.9	3.7	2.0	2.7	3.4	3.8
27	4.6	4.5	4.2	7.4	26	9.6	2.8	3.7	1.9	2.3	3.5	4.0
28	4.5	4.7	4.1	16	31	10	4.8	3.5	1.8	1.9	3.3	3.9
29	4.5	4.4	4.0	54	26	11	6.8	3.4	1.8	7.8	3.2	3.9
30	4.4	4.1	4.2	54	------	12	5.5	3.3	1.8	11	5.5	3.8
31	4.3	------	4.3	39	------	12	------	3.4	------	11	9.2	------
TOTAL	181.5	126.6	144.5	264.8	794	625.6	197.6	128.4	87.0	96.6	602.8	121.1
MEAN	5.85	4.22	4.66	8.54	27.4	20.2	6.59	4.14	2.90	3.12	19.4	4.04
MAX	15	4.7	14	54	53	52	13	5.0	4.0	11	200	9.6
MIN	4.3	3.8	3.3	3.1	13	9.4	4.7	3.3	1.8	1.4	2.3	3.2
AC-FT	360	251	287	525	1,570	1,240	392	255	173	192	1,200	240

CAL YR 1967: TOTAL 1,487.43 MEAN 4.08 MAX 291 MIN 0.18 AC-FT 2,950
WTR YR 1968: TOTAL 3,370.5 MEAN 9.21 MAX 200 MIN 1.4 AC-FT 6,690

9-4305. Gila River near Gila, N. Mex.

Location (revised).--Lat 33°03'40", long 108°32'12", in NE¼NW¼ sec.30, T.14 S., R.16 W., on left bank at Hooker damsite, 1.6 miles upstream from Mogollon Creek, and 7 miles northeast of Gila.

Drainage area.--1,864 sq mi.

Records available.--April to December 1914, December 1927 to September 1968. Monthly discharge only December 1927 to September 1930, published in WSP 1313.

Gage.--Graphic water-stage recorder. Datum of gage is 4,655.8 ft above mean sea level (river-profile survey). Prior to Dec. 31, 1928, at site 5 miles upstream at different datum. Dec. 31, 1928, to Jan. 7, 1942, at site 200 ft upstream at same datum.

Average discharge.--41 years (1927-68), 130 cfs (94,120 acre-ft per year).

Extremes.--Maximum discharge during year, 1,620 cfs Aug. 5 (gage height, 5.21 ft); minimum, 32 cfs July 20.
1929-68: Maximum discharge, 25,400 cfs Sept. 29, 1941 (gage height, 17.2 ft, from floodmark), from rating curve extended above 3,900 cfs on basis of velocity-area studies and logarithmic plotting; minimum, 15 cfs July 7, 1956.
Other major floods occurred in November 1905, December 1906, and January 1916.

Remarks.--Records good. Diversions for irrigation of about 500 acres above station. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	138	74	68	160	770	1,070	1,040	363	197	41	233	145
2	128	74	64	146	602	902	1,130	382	190	98	292	132
3	123	74	64	143	505	854	1,020	410	180	95	319	145
4	138	74	72	143	438	866	830	427	172	69	323	118
5	130	74	72	146	417	860	707	414	163	68	529	102
6	116	74	70	146	391	848	663	419	154	74	788	91
7	110	74	70	146	372	948	658	414	145	62	506	89
8	105	74	68	150	378	1,120	646	398	141	56	359	88
9	103	74	66	150	398	1,120	614	367	138	54	351	81
10	99	72	66	153	446	1,440	592	355	128	68	390	80
11	99	70	66	156	550	1,340	580	337	118	173	319	75
12	94	68	66	163	778	1,070	602	319	109	91	256	72
13	92	66	66	163	1,050	969	619	302	98	68	238	69
14	90	66	68	163	1,030	969	630	295	89	59	269	67
15	88	64	76	169	954	962	636	282	83	50	205	64
16	88	64	84	188	802	941	658	269	80	47	165	62
17	86	64	88	207	715	927	680	263	78	44	138	59
18	84	64	84	224	692	860	630	259	74	43	120	56
19	84	64	123	220	715	788	555	250	71	40	109	55
20	84	64	515	199	778	724	502	241	69	42	102	54
21	82	64	332	188	1,000	641	448	241	67	44	95	53
22	80	64	228	184	1,240	560	414	263	62	48	89	51
23	80	66	176	180	1,110	520	390	279	59	64	85	50
24	80	66	160	180	962	516	359	279	56	55	78	49
25	80	64	153	192	1,030	592	326	253	54	64	75	49
26	76	64	156	220	1,150	707	299	233	50	100	86	48
27	76	66	160	275	1,190	812	288	210	47	80	179	48
28	76	70	169	557	1,320	884	302	202	45	78	184	49
29	74	72	166	1,030	1,240	948	330	205	43	102	156	49
30	74	70	166	970	------	1,020	348	213	42	138	151	49
31	74	------	169	738	------	1,080	------	208	------	182	149	------
TOTAL	2,931	2,058	3,951	8,049	23,023	27,858	17,496	9,352	3,002	2,297	7,338	2,199
MEAN	94.5	68.6	127	260	794	899	583	302	100	74.1	237	73.3
MAX	138	74	515	1,030	1,320	1,440	1,130	427	197	182	788	145
MIN	74	64	64	143	372	516	288	202	42	40	75	48
AC-FT	5,810	4,080	7,840	15,960	45,670	55,260	34,700	18,550	5,950	4,560	14,550	4,360

CAL YR 1967: TOTAL 33,940 MEAN 93.0 MAX 2,490 MIN 24 AC-FT 67,320
WTR YR 1968: TOTAL 109,554 MEAN 299 MAX 1,440 MIN 40 AC-FT 217,300

PEAK DISCHARGE (BASE, 600 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
12-20	1330	4.06	700	2-22	1140	4.86	1,350	4-2	1700	4.68	1,190
1-29	2300	4.55	1,090	2-28	1300	4.50	1,070	8-5	1930	5.21	1,620
2-13	1550	4.54	1,100	3-10	0700	5.01	1,500				

9-4306. Mogollon Creek near Cliff, N. Mex.

(Hydrologic bench-mark station)

Location.--Lat 33°10'01", long 108°38'58", in SE¼ sec.13, T.13 S., R.18 W., 12 miles upstream from mouth, 14.2 miles north of Cliff.

Drainage area.--69 sq mi.

Records available.--March 1967 to September 1968.

Gage.--Digital water-stage recorder. Altitude of gage is 5,440 ft (from topographic map).

Extremes.--Maximum discharge during the year, 380 cfs Feb. 26 (gage height, 4.03 ft); minimum, 1.0 cfs June 30 to July 2.
1967-68: Maximum discharge, 10,800 cfs Aug. 12 (gage height, 13.7 ft, revised, from floodmarks), from rating curve extended above 220 cfs on basis of slope-area measurement of peak flow; minimum, no flow for many days during June and July 1967.

Remarks.--Records good.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	3.4	4.1	52	193	188	305	117	20	1.1	24	17
2	12	3.2	3.6	54	159	160	308	128	18	1.1	46	13
3	11	2.9	3.9	61	134	157	191	129	17	7.1	29	9.9
4	11	2.9	5.8	55	139	153	133	123	15	3.2	18	8.3
5	9.0	2.9	6.1	57	132	153	118	120	13	5.2	26	7.3
6	8.0	2.9	5.2	63	132	159	145	111	12	9.9	18	5.8
7	7.4	2.9	4.4	68	130	241	166	104	11	5.3	19	5.1
8	6.8	3.1	4.0	63	129	214	165	90	11	3.6	15	4.8
9	6.1	2.9	3.8	68	141	214	169	87	9.0	5.8	12	4.4
10	6.1	2.9	3.4	72	167	235	177	73	7.7	7.3	12	3.8
11	8.7	2.9	3.3	72	181	183	194	66	6.6	5.0	8.5	4.5
12	6.1	2.9	3.3	80	224	152	206	60	5.6	3.8	23	3.9
13	5.6	2.7	3.5	80	224	164	205	61	5.1	2.9	9.6	3.2
14	5.1	2.7	7.2	93	201	167	206	55	4.7	2.5	6.5	3.0
15	4.8	2.7	6.5	111	194	170	233	53	4.4	2.0	5.8	2.8
16	4.4	2.6	8.8	109	176	177	267	56	4.0	1.8	5.3	2.5
17	4.1	2.6	7.5	118	183	157	197	54	3.5	1.6	4.9	2.4
18	3.9	2.6	12	111	183	130	163	49	3.4	1.5	4.6	2.2
19	3.9	2.6	30	95	184	117	137	49	3.4	1.4	4.6	2.2
20	3.6	2.6	69	87	212	105	112	56	3.4	2.7	4.6	2.1
21	3.6	2.6	32	86	295	93	103	61	3.1	4.0	4.5	2.0
22	3.4	2.7	25	83	321	85	92	60	2.6	2.8	3.6	1.9
23	3.4	3.1	31	91	264	84	75	51	2.1	7.3	3.2	1.8
24	3.2	3.1	41	100	256	99	59	37	1.9	4.0	2.9	1.7
25	3.2	3.1	52	116	315	132	51	32	1.8	5.9	2.5	1.6
26	3.2	3.1	61	118	337	160	67	28	1.7	7.0	67	1.5
27	3.4	5.3	68	120	325	194	91	30	1.5	6.1	32	1.5
28	3.6	6.4	72	238	332	228	106	32	1.4	14	15	1.4
29	3.4	5.6	71	321	254	299	114	31	1.3	17	11	1.4
30	3.4	4.8	68	259	------	335	121	26	1.1	12	13	1.5
31	3.6	------	58	213	------	319	------	23	------	14	18	------
TOTAL	179.0	96.7	774.4	3314	6117	5424	4676	2052	196.3	168.9	468.9	124.5
MEAN	5.77	3.22	25.0	107	211	175	156	66.2	6.54	5.45	15.1	4.15
MAX	14	6.4	72	321	337	335	308	129	20	17	67	17
MIN	3.2	2.6	3.3	52	129	84	51	23	1.1	1.1	2.5	1.4
AC-FT	355	192	1,540	6,570	12,130	10,760	9,270	4,070	389	335	930	247

CAL YR 1967: TOTAL - MEAN - MAX - MIN - AC-FT -
WTR YR 1968: TOTAL 23,591.7 MEAN 64.5 MAX 337 MIN 1.1 AC-FT 46,790

PEAK DISCHARGE (BASE, 100 CFS)

EATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
1-29	0515	3.87	338	4-16	0500	3.81	302	8-26	0745	3.13	138
2-26	0215	4.03	380	5- 2	0345	3.22	138				
3-31	0130	4.04	377	8-12	1730	3.93	359				

9-4315. Gila River near Redrock, N. Mex.

Location.--Lat 32°43'30", long 108°40'30", in W½ sec.23 T.18 S., R.18 W., on left bank 0.2 mile downstream from Copper Canyon, a quarter of a mile upstream from lower end of box canyon, 4.7 miles northeast of Redrock, and 14 miles downstream from Mangas Creek.

Drainage area.--2,829 sq mi.

Records available.--September 1904 to May 1927, fragmentary (see WSP 1313), July 1927 to September 1955, October 1962 to September 1968. Published as "near Cliff" 1904-7, and as "near Red Rock" 1908 to 1955.

Gage.--Digital water-stage recorder. Altitude of gage is 4,090 ft (planetable survey). Prior to Dec. 31, 1907, staff gage at site 13½ miles upstream at different datum. May 14, 1908, to July 16, 1909, staff gage at site a quarter of a mile downstream at different datum. July 1927 to September 1955 and October 1962 to October 1966, graphic water-stage recorder.

Average discharge.--52 years (1905-6, 1908-10, 1912-55, 1962-68), 198 cfs (143,300 acre-ft per year).

Extremes.--Maximum discharge during year, 2,970 cfs Feb. 15 (gage height, 12.39 ft); minimum, 42 cfs Sept. 28. 1905-55, 1962-68: Maximum discharge, 40,000 cfs Sept. 29, 1941 (gage height, 31 ft, from floodmark), computed on basis of known peak flow for station below Blue Creek; minimum, 2.2 cfs Aug. 5, 1947.

Remarks.--Records good except those for April, July and September, which are fair. Diversions for irrigation of about 5,000 acres above station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	183	61	91	360	1,100	1,580	1,310	461	222	63	260	184
2	169	61	88	350	915	1,420	1,460	461	214	66	300	157
3	163	64	88	344	762	1,340	1,430	478	207	94	280	143
4	156	64	99	358	675	1,390	1,140	492	198	101	290	138
5	147	63	94	360	635	1,410	950	493	179	101	350	110
6	137	69	91	360	600	1,390	900	492	162	120	796	115
7	128	84	89	345	575	1,460	850	482	152	110	630	110
8	122	86	89	347	565	1,730	850	467	150	107	512	100
9	115	86	87	336	585	1,660	800	445	138	102	469	92
10	103	84	82	334	665	2,360	800	427	130	121	531	88
11	108	88	83	336	798	2,120	750	416	124	241	464	85
12	106	81	89	386	1,090	1,620	800	408	121	170	484	83
13	105	77	82	356	1,700	1,490	800	391	109	134	342	81
14	102	84	83	337	2,100	1,480	850	374	107	116	303	78
15	101	81	93	360	1,880	1,420	850	363	104	100	278	78
16	91	80	107	379	1,290	1,360	900	341	104	90	225	76
17	88	78	117	405	1,190	1,290	900	324	99	85	182	73
18	88	76	115	443	1,160	1,180	862	305	83	82	164	70
19	83	78	137	407	1,160	1,070	782	303	77	78	150	67
20	80	78	828	378	1,200	984	719	291	76	75	141	64
21	77	77	611	362	1,410	882	666	284	77	90	136	62
22	76	80	412	360	1,700	784	627	289	78	80	132	58
23	75	86	349	372	1,630	713	579	306	77	80	128	55
24	71	92	319	383	1,430	681	540	301	79	110	122	51
25	70	86	307	412	1,490	697	499	288	76	100	118	49
26	68	84	316	472	1,670	803	456	269	76	115	175	49
27	66	89	327	725	1,740	878	434	257	69	100	161	45
28	68	92	340	1,390	1,830	991	437	243	65	95	176	43
29	64	92	370	1,690	1,780	1,100	449	234	66	115	158	44
30	68	92	380	1,410	------	1,230	468	234	63	150	188	48
31	62	------	380	1,050	------	1,380	------	230	------	230	239	------
TOTAL	3,140	2,393	6,743	15,907	35,325	39,893	23,858	11,149	3,482	3,421	8,884	2,496
MEAN	101	79.8	218	513	1,218	1,287	795	360	116	110	287	83.2
MAX	183	92	828	1,690	2,100	2,360	1,460	493	222	241	796	184
MIN	62	61	82	334	565	681	434	230	63	63	118	43
AC-FT	6,230	4,750	13,370	31,550	70,070	79,130	47,320	22,110	6,910	6,790	17,620	4,950

CAL YR 1967 TOTAL 49,049 MEAN 134 MAX 3,350 MIN 15 AC-FT 97,290
WTR YR 1968 TOTAL 156,691 MEAN 428 MAX 2,360 MIN 43 AC-FT 310,800

PEAK DISCHARGE (BASE, 3,000 CFS).--NO PEAK ABOVE BASE.

9-4320. Gila River below Blue Creek, near Virden, N. Mex.

Location.--Lat 32°38'55", long 108°50'45", in SE¼SW¼ sec.18, T.19 S., R.19 W., on left bank at head of canyon, 1¼ miles downstream from Blue Creek, 10 miles east of Virden, and 16 miles upstream from New Mexico-Arizona State line.

Drainage area.--3,203 sq mi, excluding Animas River basin.

Records available.--May to November 1914, March to September 1915, July 1927 to September 1968. July 1927 to May 1931 monthly discharge only, published in WSP 1313, computed as sum of flow at Virden Bridge, 8⅝ miles downstream, and in Sunset Canal. Published as "near Duncan, Ariz.," 1914-15 and as "at Fuller's Ranch, near Duncan, Ariz.," 1931-38.

Gage.--Water-stage recorder at present site and datum since July 8, 1931. Altitude of gage is 3,875 ft (from river-profile map). May 11, 1914, to Sept. 30, 1915, at site 6 miles downstream, 1,000 ft upstream from intake of Sunset Canal. June 1 to July 7, 1931, staff gage at present site and datum.

Average discharge.--41 years (1927-68), 173 cfs (125,200 acre-ft per year); median of yearly mean discharges, 140 cfs (101,400 acre-ft per year).

Extremes.--Maximum discharge during year, 2,920 cfs Feb. 15 (gage height, 10.50 ft); minimum, 37 cfs July 1, 2 (gage height, 3.20 ft). 1927-68: Maximum discharge, 41,700 cfs Sept. 29, 1941 (gage height, 25.78 ft); minimum, 1 cfs July 14, 1934.

Remarks.--Records good. Station is above all Duncan Valley diversions. Diversions for irrigation of about 6,200 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176	70	95	472	1,240	1,630	1,480	492	230	37	274	185
2	160	70	94	396	1,070	1,440	1,500	498	220	68	360	170
3	155	63	93	370	878	1,290	1,550	524	210	52	356	146
4	150	65	100	386	752	1,250	1,260	560	194	78	325	142
5	150	63	101	398	680	1,210	1,050	569	180	85	374	121
6	143	64	97	402	587	1,170	922	578	167	202	677	90
7	139	69	93	390	495	1,190	870	580	157	99	632	104
8	133	79	92	390	470	1,420	850	540	155	87	460	90
9	129	81	90	390	462	1,450	821	520	143	81	415	79
10	116	80	78	390	495	1,990	800	500	137	77	460	78
11	115	82	79	400	608	2,100	785	480	129	202	415	78
12	113	81	82	470	853	1,730	785	460	125	170	390	75
13	111	77	80	462	1,760	1,530	785	440	115	125	412	72
14	109	80	80	442	2,350	1,460	800	420	109	103	304	71
15	102	82	93	450	2,280	1,390	809	400	106	90	292	71
16	100	79	123	488	1,730	1,330	834	390	107	90	242	67
17	98	78	157	533	1,480	1,260	878	380	101	80	184	63
18	98	75	155	590	1,380	1,160	882	370	92	80	153	62
19	98	73	182	563	1,340	1,050	785	360	79	70	129	60
20	94	74	1,180	536	1,340	994	731	350	75	70	124	60
21	90	74	1,070	524	1,420	910	689	340	74	60	120	60
22	90	75	635	515	1,660	794	653	330	71	60	110	60
23	90	78	396	530	1,740	725	605	330	69	60	110	55
24	90	83	338	542	1,540	695	566	330	66	70	100	50
25	85	83	332	569	1,550	710	518	330	62	80	90	50
26	80	86	352	629	1,660	806	485	330	60	93	100	50
27	80	90	370	791	1,640	926	462	320	54	90	168	50
28	80	93	394	1,680	1,790	1,030	452	300	47	80	160	50
29	75	95	425	2,080	1,790	1,150	465	290	43	80	153	50
30	70	95	500	1,940	------	1,280	482	270	42	103	162	45
31	70	------	611	1,360	------	1,400	------	250	------	160	334	------
TOTAL	3,389	2,337	8,567	20,078	37,040	38,470	24,554	12,831	3,419	2,882	8,585	2,404
MEAN	109	77.9	276	648	1,277	1,241	818	414	114	93.0	277	80.1
MAX	176	95	1,180	2,080	2,350	2,100	1,550	580	230	202	677	185
MIN	70	63	78	370	462	695	452	250	42	37	90	45
AC-FT	6,720	4,640	16,990	39,820	73,470	76,300	48,700	25,450	6,780	5,720	17,030	4,770

CAL YR 1967 TOTAL 57,533 MEAN 158 MAX 4,800 MIN 12 AC-FT 114,100
WTR YR 1968 TOTAL 164,556 MEAN 450 MAX 2,350 MIN 37 AC-FT 326,400

PEAK DISCHARGE (BASE, 1,900 CFS)

DATE	TIME	G.H.	DISCHARGE	DATE	TIME	G.H.	DISCHARGE
1-29	0500	9.45	2,190	3-10	1700	9.35	2,310
2-15	0300	10.50	2,920				

9-4330. Sunset Canal near Virden, N. Mex.

Location.--Lat 32°39'20", long 108°56'00", in NW¼ sec.17, T.19 S., R.20 W., on left bank 1.7 miles downstream from intake and 4.5 miles southeast of Virden.

Records available.--October 1914 to September 1915, July 1922 to September 1931, January 1936 to December 1967 (discontinued). Monthly discharge only January 1936 to December 1938, published in WSP 1313. Prior to 1939, published as "near Duncan, Ariz."

Gage.--Digital water-stage recorder and Parshall flume. Altitude of gage is 3,790 ft (from topographic map). Oct. 1, 1914, to Sept. 30, 1915, staff gage at site 0.4 mile upstream and July 15, 1922, to Sept. 30, 1931, staff gage at site 0.5 mile downstream at different datums. Mar. 9, 1936, to Feb. 20, 1942, water-stage recorder and submerged rectangular weir at site 300 ft downstream at different datum. Feb. 21, 1942 to Oct. 14, 1964, graphic water-stage recorder at same site and datum.

Extremes.--1914-15, 1922-31, 1936-67: Maximum daily discharge, 62 cfs Sept. 21, 22, 1929; no flow at times.

Remarks.--Records excellent. Canal diverts from right bank of Gila River in SW¼NW¼ sec.21, T.19 S., R.20 W., for irrigation of about 2,750 acres in Virden-Duncan Valley. No diversion between intake and station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	17	20									
2	9.9	17	19									
3	11	17	16									
4	10	17	16									
5	10	17	16									
6	9.8	17	16									
7	8.8	19	10									
8	8.3	18	6.3									
9	18	18	6.4									
10	26	18	6.3									
11	22	16	6.2									
12	20	9.9	6.2									
13	20	16	6.2									
14	20	18	6.2									
15	19	19	6.2									
16	18	19	5.9									
17	18	19	6.0									
18	19	19	6.3									
19	19	20	6.2									
20	19	20	1.8									
21	18	20	0									
22	20	20	0									
23	19	20	0									
24	19	20	0									
25	18	21	0									
26	17	20	0									
27	17	20	0									
28	17	20	0									
29	17	20	0									
30	17	20	.39		------							
31	18	------	0		------		------		------			------
TOTAL	509.6	551.9	189.59									
MEAN	16.4	18.4	6.12									
MAX	26	21	20									
MIN	6.8	9.9	0									
AC-FT	1,010	1,090	376									

CAL YR 1967 TOTAL 5,762.79 MEAN 15.8 MAX 36 MIN 0 AC-FT 11,430

9-4360. New Model Canal near Virden, N. Mex.

Location.--Lat 32°40'30", long 108°59'30", in NE¼ sec.10, T.19 S., R.21 W., 1 mile downstream from intake, 1 mile southeast of Virden, and 3¾ miles east of State line.

Records available.--October 1914 to September 1915, July 1922 to September 1931, January 1936 to December 1967 (discontinued). Monthly discharge only January 1936 to December 1938, published in WSP 1313. Published as Model Canal near Duncan, Ariz., 1914-15, as Moddle Canal near Duncan, Ariz., 1922-31, and as Moddle Canal near Virden, N. Mex., 1936-51.

Gage.--Digital water-stage recorder and Parshall flume. Altitude of gage is 3,745 ft (from topographic map). Prior to Nov. 25, 1926, staff gage and Nov. 25, 1926, to Feb. 21, 1942, graphic water-stage recorder at several sites within half a mile upstream at different datums. Feb. 22, 1942 to Oct. 14, 1964, graphic water-stage recorder at same site and datum.

Extremes.--1914-15, 1922-31, 1936-67: Maximum daily discharge, 74 cfs Sept. 9, 1930; no flow at times.

Remarks.--Records excellent. Canal diverts from left bank of Gila River in NE¼SE¼ sec.11, T.19 S., R.21 W., for irrigation of about 2,450 acres in Virden-Duncan Valley. For additional history and gage data, see page 599 of WSP 1313.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	2.4	6.8									
2	7.5	2.3	7.1									
3	4.1	1.7	7.2									
4	3.1	2.8	6.4									
5	5.6	2.4	5.8									
6	6.9	2.3	5.7									
7	6.6	2.3	5.6									
8	6.8	1.7	8.3									
9	5.0	2.3	8.7									
10	2.5	2.4	7.9									
11	2.3	2.7	7.7									
12	3.3	2.8	7.2									
13	3.8	2.7	4.5									
14	3.2	2.7	4.9									
15	2.7	3.1	6.7									
16	7.4	5.1	7.4									
17	14	5.6	4.3									
18	8.5	5.3	1.0									
19	4.5	5.2	6.9									
20	2.6	5.0	15									
21	3.1	5.3	5.6									
22	2.8	5.3	0									
23	3.7	4.9	0									
24	2.9	5.3	0									
25	2.8	5.1	0									
26	2.4	5.1	0									
27	2.5	4.6	0									
28	2.6	4.8	0									
29	1.6	5.1	0									
30	2.3	6.0	0		------							
31	2.6	------	0		------		------		------			------
TOTAL	138.1	114.3	140.7									
MEAN	4.45	3.81	4.54									
MAX	14	6.0	15									
MIN	1.6	1.7	0									
AC-FT	274	227	279									

CAL YR 1967 TOTAL 730.37 MEAN 2.00 MAX 25 MIN 0 AC-FT 1,450

9-4426.8 San Francisco River near Reserve, N. Mex.

Location (revised).--Lat 33°44'25", long 108°46'20", in SW¼NE¼ sec.35, T.6 S., R.19 W., on left bank 500 ft upstream from Rainbow Bridge Canyon and 2 miles northwest of Reserve.

Drainage area.--350 sq mi, approximately.

Records available.--March 1959 to September 1968.

Gage.--Digital water-stage recorder, crest-stage gage, and concrete control. Altitude of gage is 5,830 ft (from topographic map). Prior to Feb. 27, 1963, graphic water-stage recorder at same site and datum.

Average discharge.--9 years, 25.6 cfs (18,530 acre-ft per year).

Extremes.--Maximum discharge during year, 1,280 cfs July 31 (gage height, 3.70 ft); minimum, 2.0 cfs Dec. 10.
1959-68: Maximum discharge, 1,320 cfs July 31, 1967 (gage-height, 3.73 ft in gage well, 4.4 ft from outside floodmarks), from rating curve extended above 460 cfs on basis of slope-area measurement of peak flow; minimum, 1.0 cfs Mar. 16, 1959.
Maximum stage known, about 15 ft, as determined in 1962 from old floodmarks. Major floods of Nov. 26, 1905 and Dec. 3, 1906, exceeded 20,000 cfs at Alma (downstream). See WSP 1313.

Remarks.--Records good except those for January and February, which are poor. Possible minor regulation by one small reservoir. Diversions for irrigation of about 500 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	6.5	5.7	11	120	316	342	53	8.4	5.0	18	34
2	7.0	6.4	5.0	13	80	297	353	52	10	7.4	54	19
3	6.6	6.4	5.0	13	66	293	285	52	11	9.7	33	14
4	9.5	6.2	6.6	15	64	287	248	54	11	8.4	28	11
5	11	6.8	6.6	16	60	288	231	57	11	15	71	10
6	11	7.9	6.0	12	56	289	250	52	10	12	28	10
7	9.6	8.4	5.6	12	58	302	214	45	11	9.6	31	11
8	9.4	7.0	6.6	17	58	291	192	41	14	8.3	25	10
9	9.8	6.6	6.0	12	66	278	186	39	13	8.4	31	9.2
10	9.7	6.6	3.8	15	110	278	190	38	12	10	28	9.2
11	8.9	6.5	6.6	18	130	245	202	38	11	8.9	59	7.7
12	8.5	5.8	7.8	14	142	192	202	37	10	8.4	95	7.8
13	8.1	5.7	11	13	131	167	205	35	9.6	7.5	48	7.3
14	8.0	5.7	12	15	117	158	199	30	9.4	7.2	32	6.7
15	7.3	6.2	3.8	18	90	153	197	28	8.8	5.8	24	7.8
16	6.9	6.0	3.8	20	87	167	201	25	8.3	5.1	22	8.0
17	7.2	6.1	4.6	21	105	182	182	22	8.1	5.8	20	7.1
18	7.5	5.6	5.6	17	135	182	160	20	9.1	6.0	19	6.4
19	7.4	5.7	9.9	18	164	165	131	20	8.6	6.5	18	6.0
20	6.9	5.4	20	20	205	144	109	20	8.8	7.3	18	6.0
21	7.1	6.0	9.9	31	281	138	91	18	7.7	7.3	17	6.0
22	7.3	6.2	7.2	37	313	137	83	18	7.1	12	14	5.9
23	7.3	6.0	8.5	40	252	152	84	17	6.8	11	11	5.6
24	7.3	6.0	9.2	44	298	192	77	16	6.0	26	11	5.0
25	6.7	5.6	11	60	375	244	67	15	6.3	18	10	4.7
26	7.0	6.0	11	160	438	254	61	14	6.5	21	11	5.0
27	6.7	7.2	11	230	424	282	58	13	6.3	17	19	5.8
28	6.6	7.2	12	400	404	280	55	13	6.2	16	21	6.0
29	6.2	7.8	11	300	344	306	55	14	6.0	16	14	6.0
30	5.4	6.0	13	170	------	330	56	10	5.8	16	12	6.0
31	6.4	------	13	130	------	328	------	6.9	------	86	13	------
TOTAL	242.2	191.5	258.8	1912	5173	7317	4966	912.9	267.8	408.6	855	264.2
MEAN	7.81	6.38	8.35	61.7	178	236	166	29.4	8.93	13.2	27.6	8.81
MAX	11	8.4	20	400	438	330	353	57	14	86	95	34
MIN	5.4	5.4	3.8	11	56	137	55	6.9	5.8	5.0	10	4.7
AC-FT	480	380	513	3,790	10,260	14,510	9,850	1,810	531	810	1,700	524

CAL YR 1967: TOTAL 5,727.6 MEAN 15.7 MAX 272 MIN 1.6 AC-FT 11,360
WTR YR 1968: TOTAL 22,769.0 MEAN 62.2 MAX 438 MIN 3.8 AC-FT 45,160

PEAK DISCHARGE (BASE, 450 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-27	2315	2.47	544	8- 5	1800	2.68	630
7-31	1430	3.70	1,280				

9-4426.92. Tularosa River above Aragon, N. Mex.

Location.--Lat 33°53'30", long 108°30'56", in NW¼ sec.9, T.5 S., R.16 W., on right bank 0.4 mile upstream from first diversion, 1.4 miles northeast of Aragon, and 8 miles upstream from Apache Creek.

Drainage area.--94 sq mi.

Records available.--July 1966 to September 1968. 1955 to 1965 at site 0.6 mile upstream (drainage area, 89 sq mi), annual maximum only.

Gage.--Digital water-stage recorder and concrete control. Altitude of gage is 6,750 ft (from topographic map).

Extremes.--Maximum discharge during year, 164 cfs Feb. 21 (gage height, 2.34 ft), from rating curve extended above 10 cfs by logarithmic plotting; minimum, 1.6 cfs May 18.
1955-68: Maximum discharge, 224 cfs July 30, 1967 (gage height, 2.47 ft), from rating curve extended above 10 cfs by logarithmic plotting; minimum determined, 0.80 cfs Sept. 18, 1966.

Remarks.--Records excellent below 10 cfs; poor above.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	2.8	3.1	3.3	3.2	6.9	41	2.8	2.7	2.9	2.8	2.6
2	2.8	2.8	3.1	3.3	3.1	5.6	46	2.8	2.8	2.9	3.1	2.5
3	2.8	2.8	3.1	3.3	3.1	5.1	9.3	2.8	2.8	2.9	2.9	2.6
4	2.8	2.9	3.1	3.3	3.1	5.1	4.3	2.9	2.8	2.9	2.9	2.5
5	2.9	2.9	3.1	3.3	3.1	4.7	7.5	2.9	2.7	3.1	2.9	2.5
6	2.8	2.9	3.1	3.2	3.1	4.4	21	2.8	2.8	3.1	3.0	2.6
7	2.8	2.9	3.1	3.3	3.0	7.0	13	2.8	2.8	3.1	2.9	2.5
8	2.8	2.9	3.2	3.3	3.0	6.6	5.7	2.8	2.9	3.1	2.9	2.5
9	2.8	2.9	3.1	3.3	3.0	5.3	4.1	2.9	2.9	3.2	2.9	2.5
10	2.8	2.9	3.1	3.3	3.1	6.2	2.9	2.9	2.8	3.1	2.9	2.5
11	2.8	2.9	3.2	3.3	3.0	6.5	2.9	2.9	2.8	3.0	2.8	2.5
12	2.8	2.9	3.2	3.2	3.3	6.4	3.0	2.9	2.8	3.0	3.0	2.5
13	2.8	3.0	3.2	3.2	3.2	5.2	2.9	2.8	2.8	3.0	2.8	2.4
14	2.8	3.0	3.3	3.2	4.2	4.6	3.0	2.8	2.8	3.0	2.8	2.4
15	2.8	3.0	3.3	3.2	3.5	4.1	3.0	2.8	2.8	3.0	2.8	2.4
16	2.7	3.0	3.3	3.2	3.2	4.0	3.0	2.8	2.9	2.9	2.8	2.4
17	2.7	3.0	3.3	3.2	3.2	3.7	3.1	2.8	2.9	2.8	2.8	2.4
18	2.7	3.0	3.2	3.2	3.5	3.5	3.1	2.8	2.9	2.7	2.8	2.4
19	2.7	3.0	3.3	3.2	5.3	3.3	3.1	2.7	2.9	2.7	2.8	2.4
20	2.7	3.0	3.5	3.2	15	3.3	3.1	2.8	2.9	2.7	2.8	2.4
21	2.7	3.0	3.2	3.2	50	3.2	3.0	2.8	2.9	2.7	2.7	2.4
22	2.7	3.1	3.2	3.2	39	3.0	3.1	2.7	2.9	2.8	2.7	2.5
23	2.7	3.0	3.2	3.2	24	3.0	3.0	2.7	2.9	2.8	2.7	2.5
24	2.7	3.0	3.3	3.2	29	2.9	2.8	2.7	2.9	2.8	2.7	2.5
25	2.7	3.0	3.3	3.2	26	3.1	2.8	2.7	2.9	4.4	2.7	2.5
26	2.8	3.0	3.3	3.1	18	3.2	2.8	2.7	2.9	4.5	2.7	2.5
27	2.8	3.2	3.3	3.3	16	2.8	2.8	2.7	2.9	2.8	2.7	2.5
28	2.8	3.1	3.3	3.5	23	2.8	2.8	2.7	2.9	2.8	2.7	2.5
29	2.8	3.2	3.3	3.5	9.5	2.8	2.8	2.7	2.9	5.9	2.7	2.6
30	2.8	3.1	3.3	3.3	------	38	2.8	2.7	2.9	2.8	2.7	2.6
31	2.8	------	3.3	3.3	------	29	------	2.7	------	2.8	2.7	------
TOTAL	85.9	89.2	99.9	101.0	312.7	195.3	213.7	86.3	85.5	96.2	87.1	74.6
MEAN	2.77	2.97	3.22	3.26	10.8	6.30	7.12	2.78	2.85	3.10	2.81	2.49
MAX	2.9	3.2	3.5	3.5	50	38	46	2.9	2.9	5.9	3.1	2.6
MIN	2.7	2.8	3.1	3.1	3.0	2.8	2.8	2.7	2.7	2.7	2.7	2.4
AC-FT	170	177	198	200	620	387	424	171	170	191	173	148

CAL YR 1967: TOTAL 1,096.5 MEAN 3.00 MAX 19 MIN 2.5 AC-FT 2,170
WTR YR 1968: TOTAL 1,527.4 MEAN 4.17 MAX 50 MIN 2.4 AC-FT 3,030

PEAK DISCHARGE (BASE, 20 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-21	2030	2.34	164	7-26	1900	1.66	29
4- 2	0015	2.25	132	7-29	1700	1.89	55
7-25	1730	1.75	38				

9-4430. San Francisco River near Alma, N. Mex.

Location (revised).--Lat 33°22'06", long 108°54'35", in SW¼SE¼ sec.4, T.11 S., R.20 W., on right bank 1¼ miles downstream from Alma, 4 miles northwest of Glenwood and 6 miles upstream from Whitewater Creek.

Drainage area.--1,546 sq mi.

Records available.--September 1904 to January 1914, fragmentary (see WSP 1313), January 1964 to September 1968.

Gage.--Digital water-stage recorder. Datum of gage is 4,844 ft above mean sea level, datum of 1929. Prior to Aug. 11, 1912, staff gages at various sites, within 500 ft of each other, three-quarters of a mile upstream, at different datums. Aug. 11, 1912, to Feb. 2, 1914, staff gage at approximately present site and datum. Graphic water-stage recorder prior to Aug. 21, 1968.

Extremes.--Maximum discharge during year, 2,360 cfs Aug. 8 (gage height, 4.28 ft); no flow Nov. 11-22.
1904-14, 1964-68: Maximum stage or discharge not determined; no flow at times.
Discharges of 25,000 cfs, Nov. 26, 1905 and 21,000 cfs Dec. 3, 1906 (gage heights, 14 ft and 13.4 ft, respectively, datum then in use), were measured by float-area method. Major floods probably occurred Jan. 19 and Oct. 14, 1916, when discharges of 90,000 cfs (or greater) were computed at Clifton, Ariz.

Remarks.--Records good. Diversions for irrigation of about 1,500 acres above station.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	3.8	11	53	382	736	688	138	8.6	2.0	216	45
2	25	1.4	11	42	245	676	694	153	7.5	2.0	36	67
3	34	.5	10	39	204	646	598	153	6.6	2.0	150	45
4	34	.5	9.2	40	199	670	460	157	7.0	7.5	85	42
5	31	1.7	11	53	186	652	388	153	5.4	9.8	80	38
6	28	1.7	10	67	174	628	394	145	3.8	9.8	168	36
7	25	3.0	8.6	55	178	682	388	182	3.4	11	91	34
8	22	4.2	7.0	48	178	742	376	122	5.4	6.2	428	32
9	19	3.4	8.1	58	204	700	324	108	7.0	3.0	274	30
10	16	2.6	9.2	53	318	774	312	91	6.2	2.3	285	20
11	14	.5	7.0	64	388	712	318	85	9.8	1.7	170	2.6
12	12	0	8.6	91	653	604	370	82	9.2	1.4	266	2.8
13	10	0	12	64	788	562	388	75	9.2	1.1	130	2.7
14	8.1	0	21	62	862	526	400	64	6.2	1.1	126	2.4
15	6.6	0	11	78	700	502	406	53	5.8	1.1	69	1.4
16	6.6	0	9.2	82	508	508	424	50	5.4	1.1	45	1.6
17	6.4	0	5.0	115	496	520	400	42	4.6	1.4	36	2.3
18	6.2	0	8.6	115	520	466	358	40	3.0	1.7	31	1.8
19	6.2	0	27	69	586	430	302	38	3.0	1.7	29	2.2
20	5.8	0	216	55	640	412	260	35	3.0	1.7	25	2.1
21	5.4	0	80	82	816	324	212	31	3.0	4.8	31	2.3
22	5.4	0	45	99	1,030	250	204	27	3.0	17	24	3.4
23	6.2	2.6	30	102	865	222	186	27	3.0	10	21	4.3
24	5.4	3.8	28	105	823	250	174	29	2.6	14	14	4.5
25	4.6	5.0	38	115	977	329	153	23	2.6	12	13	4.8
26	4.2	5.4	53	141	1,080	406	130	21	2.6	23	39	5.3
27	3.0	8.1	62	570	1,010	490	115	18	2.6	22	37	5.0
28	3.8	10	78	1,130	1,060	526	111	17	2.6	75	80	7.5
29	4.2	14	71	914	935	598	122	16	2.0	14	74	7.4
30	4.2	14	99	511	-------	658	130	13	2.0	19	48	6.8
31	4.2	------	91	406	------	718	------	11	------	27	37	------
TOTAL	392.5	86.2	1,095.5	5,478	17,005	16,919	9,785	2,199	146.1	307.4	3,158	462.2
MEAN	12.7	2.87	35.3	177	586	546	326	70.9	4.87	99.2	102	15.4
MAX	34	14	99	1,130	1,080	774	694	182	9.8	75	428	67
MIN	3.0	0	5.0	39	174	222	111	11	2.0	1.1	13	1.4
AC-FT	779	171	2,170	10,870	33,730	33,560	19,410	4,360	290	610	6,260	917

CAL YR 1967: TOTAL 12,519.15 MEAN 34.3 MAX 2,720 MIN 0 AC-FT 24,830
WTR YR 1968: TOTAL 57,033.9 MEAN 156 MAX 1,130 MIN 0 AC-FT 113,100

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
1-28	1900	3.85	1,880	2-28	1000	3.15	1,310
2-14	1915	3.05	1,220	8- 8	1700	4.28	2,360

9-4440. San Francisco River near Glenwood, N. Mex.

Location.--Lat 33°14'50", long 108°52'45" (revised), in NE¼NW¼ sec.23, T.12 S., R.20 W., on left bank a quarter of a mile upstream from hot springs, 5 miles south of Glenwood, 6 miles downstream from Whitewater Creek, and at mile 64.6.

Drainage area.--1,653 sq mi.

Records available.--October 1927 to September 1968. Monthly discharge only for some periods, published in WSP 1313.

Gage.--Digital water-stage recorder. Datum of gage is 4,552.06 ft above mean sea level, datum of 1929. Prior to Feb. 15, 1934, at site 4½ miles upstream at datum 98.82 ft higher. Graphic recorder prior to Oct. 20, 1966.

Average discharge.--41 years, 67.5 cfs (48,870 acre-ft per year).

Extremes.--Maximum discharge during year, 2,520 cfs Jan. 28 (gage height, 6.68 ft); minimum, 7.5 cfs July 11. 1927-68: Maximum discharge, 8,200 cfs Dec. 30, 1965 (gage height, 11.00 ft), from rating curve extended above 2,800 cfs on basis of slope-area measurement at gage height 10.74 ft); minimum, 1.5 cfs Aug. 6, 1961. Major floods probably occurred Jan. 19 and Oct. 14, 1916 when discharges of 90,000 cfs (or greater) were computed for station at Clifton, Ariz. On Nov. 26, 1905, a peak of 25,000 cfs was measured (by float-area method) at station at Alma (about 12 miles upstream, drainage area, 1,560 sq mi); a similar measurement of 21,000 cfs was made at the Alma station for peak of Dec. 3, 1906.

Remarks.--Records good except those for December and January, which are poor. Diversions for irrigation of about 2,000 acres above station. One small reservoir (capacity unknown) in headwaters. Records of chemical analyses, suspended sediment loads, and water temperatures for the water year 1968 are published in part 2 of this report.

DISCHARGE, IN CFS, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	24	28	100	424	800	855	254	99	27	131	69
2	34	26	26	60	284	628	1,010	265	84	27	68	124
3	83	25	23	56	196	564	836	275	77	32	114	81
4	47	25	26	60	168	577	592	278	75	38	71	63
5	34	25	26	80	140	551	491	286	70	44	118	47
6	33	25	25	100	126	536	472	278	62	50	152	50
7	31	25	24	90	119	631	482	265	59	44	90	36
8	30	25	22	80	118	746	470	248	56	22	370	29
9	31	25	21	86	130	676	447	231	59	23	268	28
10	31	25	20	80	263	818	420	217	54	15	250	28
11	33	25	20	100	360	763	408	211	53	22	162	25
12	33	24	20	120	578	571	459	200	47	29	227	21
13	32	24	25	100	815	497	472	189	45	27	129	27
14	29	24	40	90	870	485	467	163	45	25	121	32
15	28	24	30	100	744	465	467	142	45	20	93	29
16	27	21	20	120	427	475	477	146	45	15	63	28
17	26	21	18	150	373	503	459	139	37	14	54	28
18	26	21	18	170	386	478	410	132	23	11	51	28
19	25	21	50	130	437	445	358	127	32	9.6	49	28
20	25	21	500	100	508	427	327	138	30	8.1	48	28
21	25	21	200	120	772	384	278	153	29	9.6	55	28
22	25	22	70	130	1,080	338	246	162	30	13	49	28
23	25	22	40	140	954	319	240	159	33	15	43	27
24	25	22	35	160	796	353	228	135	31	12	23	27
25	25	22	60	200	966	414	216	113	31	16	20	27
26	25	22	90	300	1,130	472	202	106	32	18	53	27
27	25	21	120	600	1,130	546	204	102	29	21	90	27
28	24	24	150	1,460	1,200	606	217	111	29	80	59	28
29	24	28	130	1,420	1,300	702	229	123	29	25	136	29
30	24	29	200	755	------	815	244	115	27	20	92	30
31	24	------	180	496	------	912	------	106	------	50	56	------
TOTAL	945	709	2,257	7,753	16,794	17,497	12,683	5,569	1,397	782.3	3,305	1,107
MEAN	30.5	23.6	72.8	250	579	564	423	180	46.6	25.2	107	36.9
MAX	83	29	500	1,460	1,300	912	1,010	286	99	80	370	124
MIN	24	21	18	56	118	319	202	102	23	8.1	20	21
AC-FT	1,870	1,410	4,480	15,380	33,310	34,700	25,160	11,050	2,770	1,550	6,560	2,200

CAL YR 1967: TOTAL 21,059.3 MEAN 57.7 MAX 3,500 MIN 5.5 AC-FT 41,770
WTR YR 1968: TOTAL 70,798.3 MEAN 193 MAX 1,460 MIN 8.1 AC-FT 140,400

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
12-20	UNKNOWN	4.00±	1,050	2-28	1330	5.63	1,490	8- 8	1845	5.87	1,740
1-28	2115	6.68	2,520	3-10	1330	4.61	875				
2-14	2230	5.15	1,170	4- 2	1145	4.86	1,130				

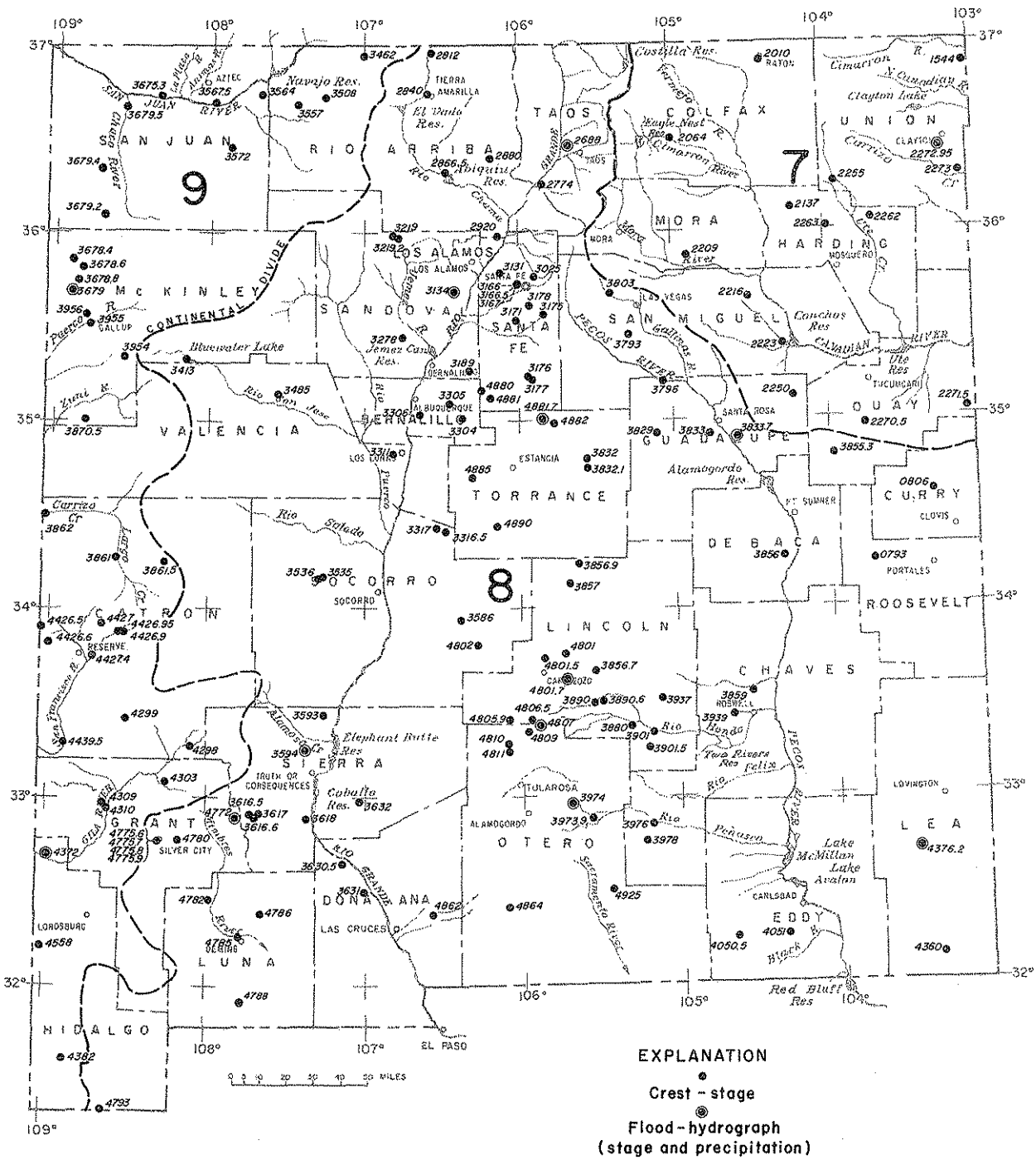


Figure 2--Map of New Mexico showing location of partial-record stations.

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 analysis, 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 and flood-hydrograph 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 New Mexico 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 general picture of the low-flow potentiality of the 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 1968

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Rio Grande basin				
8-3865	Rio Ruidoso near Ruidoso, N. Mex.	SW¼ sec.19, T.11 S., R.13 E., at Mescalero Apache Indian Reservation boundary, 3 miles west of Ruidoso.	17.2	1953-68	12- 6-67 3-18-68 6-26-68 9-16-68	1.67 16.7 6.72 5.91
8-3866	Carrizo Creek at Ruidoso, N. Mex.	SW¼ sec.26, T.11 S., R.13 E., at mouth at Ruidoso.	24.2	1953-68	12- 6-67 3-18-68 2-26-68 9-16-68	2.22 12.2 2.73 2.63
		Gila River basin				
9-4299*	Snow Creek near Mogollon, N. Mex. (discontinued)	Lat 33°24'50", long 108°29'40", about 1,000 ft below Gila Wilderness boundary, 17.5 miles east of Mogollon.	89.6	1958-68	10- 7-67	4.28

* Discontinued. An upstream reservoir now controls the rate of flow.

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. An S under the station number indicates that a complete hydrograph of flow events and precipitation data are recorded. 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, and discharge measurements made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum stage has been determined; for some stations, publication of discharge is delayed pending definition of stage-discharge relationship.

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)
		Arkansas River basin					
7-1544	Carrizozo Creek near Kenton, Okla.	NE¼ sec.31, T.31 N., R.37 E., under bridge on New Mexico State Highway 18, 4 miles southwest of Kenton.	111	1953-68	10-17-65 7-24-68	11.85 3.24	d14,000 840
7-2010	Raton Creek at Raton, N. Mex.	Lat 36°54', long 104°26', 60 ft above bridge on State Highway 72 at Raton.	14.4	1953-68	8-10-68	2.08	170
7-2064	Clear Creek near Ute Park, N. Mex.	Lat 36°31'35", long 105°10'30", in Maxwell Grant, 0.25 mile upstream from mouth, and 4 miles southwest of Ute Park.	7.44	1962-67, 1968	6- 1-68	1.66	18
7-2137	Canadian River tributary near Mills, N. Mex.	NE¼ sec.3, T.22 N., R.25 E., on downstream end of left bridge abutment on State Highway 39, 6 miles north of Mills.	a4.2	1965-68	1968	-	0
7-2209	Dog Creek near Shoemaker, N. Mex.	Lat 35°49'32", long 104°53'28", 0.5 mile above Valmora-Shoemaker road, and 1.8 miles northwest of Shoemaker.	11.2	1954-68	7- 7-68	e14.4	6,190
7-2216	Lagartija Creek tributary near Sanchez, N. Mex.	SW¼SE¼ sec.5, T.16 N., R.24 E., at bridge on State Highway 65, 0.9 mile northeast of Sanchez.	a1	1961-68	7- 7-68	3.07	(+)
7-2233	Trementina Creek at Trementina, N. Mex.	NW¼ sec.8, T.14 N., R.24 E., at bridge on State Highway 65 at Trementina.	a65	1959-68	8- 8-68	6.45	2,300
7-2250	Pajarito Creek at Newkirk, N. Mex.	SW¼SW¼ sec.24, T.10 N., R.25 E., on downstream side of bridge on U. S. Highway 66, 1 mile east of Newkirk.	a35	1954-68	6-17-66 7- 5-68	6.35 6.66	b2,250 2,500
7-2255	Ute Creek near Gladstone, N. Mex.	On line of secs. 14 and 23, T.24 N., R.28 E., on bridge on State Highway 58, 3 miles east of Gladstone.	256	1953-68	7-25-68	(c)	(+)
7-2262	Bueyeros Creek at Bueyeros, N. Mex.	E½ sec.7, T.20 N., R.31 E., on upstream end of right abutment of bridge on State Highway 102 at Bueyeros.	a34	1957-68	1968	(f)	-
7-2263	Carrizo Creek near Roy, N. Mex.	NW¼SE¼ sec.16, T.21 N., R.28 E., 800 ft below State Highway 120, and 15 miles northeast of Roy.	ag68	1954-68	4-28-68	3.16	187
7-2270.5	Plaza Langa Creek tributary near Ragland, N. Mex.	NE¼ sec.15, T.7 N., R.30 E., at culvert on State Highway 18, 1.2 miles northwest of Ragland.	a.5	1952-68	6- 5-68	6.69	182
7-2271.5	Arroyo del Puerto near Endee, N. Mex.	SW¼SW¼ sec.26, T.10 N., R.36 E., at bridge on State Highway 93, 5.4 miles south of Endee.	a25	1961-68	6- 5-68	1.72	(+)
7-2272.8 S	Sand Draw tributary near Clayton, N. Mex.	SW¼SW¼ sec.23, T.25 N., R.33 E., 0.85 mile north of U. S. Highway 56 and 11.5 miles southwest of Clayton.	1.81	1968	1968	-	0
7-2272.9S	Sandy Arroyo tributary near Clayton, N. Mex.	NW¼ sec.21, T.25 N., R.34 E., above culvert on State Highway 58, 8 miles southwest of Clayton.	b1.25	1952-68	6- 4-68	.14	10
7-2273	Sandy Arroyo near Clayton, N. N. Mex.	At center of boundary of secs. 2 and 3, T.24 N., R.35 E., on downstream side of bridge on State Highway 18, 7.5 miles south of Clayton.	a42	1953-68	1968	(c)	(+)

Explanation of symbols used with partial-record crest-stage station listings are given at end of tables.

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)
		Brazos River basin					
8-0793	Blackwater Draw tributary near Floyd, N. Mex.	NW¼SW¼ sec.13, T.1 S., R.30 E., 0.5 mile below section road and 10 miles west of Floyd.	a10	1963-68	1968	(c)	(+)
8-0806 S	Running Water Draw near Clovis, N. Mex.	In NE¼ sec.31, T.4 N., R.36 E., ¼ mile upstream from State Highway 18 and 8 miles north of Clovis.	109	1953-56 1957-64‡ 1965-68	1968	(c)	0
		Rio Grande basin					
8-2688	Rio Grande tributary near Arroyo Hondo, N. Mex.	Lat 36°28'29", long 105°43'05", upstream from culvert on State Road 111, 0.8 mile east of Rio Grande Gorge Bridge and 4.6 miles southwest of Arroyo Hondo.	1.16	1968	1968	-	0
8-2774	Rio Grande tributary at Rinconada, N. Mex.	SW¼NW¼ sec.21, T.23 N., R.10 E., at culvert on U. S. Highway 64, 0.6 mile west of Rinconada.	.02	1952-68	1968	(c)	0
8-2812	Wolf Creek near Chama, N. Mex.	Lat 36°57'20", long 106°32'10", at bridge on State Highway 17, and 4½ miles northeast of Chama.	27.7	1959-68	5- -68	3.48	1,175
8-2840	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	1957-68	1957	e3.6	410
					1958	4.33	640
					1959	(c)	<10
					4- -60	3.25	320
					4- -61	3.00	254
					4- -62	3.58	400
					3- -63	2.62	167
					3-17-64	3.15	292
					5-19-65	4.02	540
					4-30-66	3.08	280
					8- 1-67	4.96	870
					8-10-68	e4.60	715
8-2866.5	Canjilon Creek (formerly Arroyo Seco) above Abiquiu Reservoir, N. Mex.	Lat 36°18'55", long 106°29'05", in Piedra Lumbre Grant, 300 ft upstream from bridge on U. S. Highway 84, 0.2 mile northwest of entrance to Ghost Ranch and about 12 miles northwest of Abiquiu.	144	1966-68	8-10-68	5.07	640
8-2880	El Rito near El Rito, N. Mex.	Sec.19, T.25 N., R.7 E., 3 miles northwest of El Rito.	50.5	1932-51‡ 1952-68	1968	3.17	250
8-2920	Santa Clara Creek near Espanola, N. Mex.	SW¼SW¼ sec.11, T.20 N., R.7 E., 5½ miles southwest of Espanola.	34.5	1936-41‡ 1949-50‡ 1952-68	8-12-68	4.06	320
8-3025	Tesuque Creek above diversions, near Santa Fe, N. Mex.	NW¼ sec.5, T.17 N., R.10 E., 500 ft above point of diversion of Cajon Grande ditch, 1 mile above Little Tesuque Creek, and 4 miles northeast of Santa Fe.	11.7	1936-51‡ 1953-68	8- 9-68	3.81	265
8-3131	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	1940-48i	1968	3.04	2
8-3134 S	Bland Canyon near Cochiti, N. Mex.	Lat 35°42'11", long 106°24'56", 200 ft south of Forest Service Road, 0.3 mile inside Santa Fe National Forest, 7.5 miles north of Cochiti.	b7.57	1962-68	1962	(c)	h<15
					9- -63		h31
					-64	.44	h 3
					6-19-65	.98	h24
					12-10-65	1.05	h26
					8-10-67	2.42	174
					8-11-68	2.16	44
8-3166	North Frijoles Arroyo near Santa Fe,	Lat 35°43'10", long 105°57'30", within city limits of Santa Fe and 2.6 miles northwest of State Capitol in Santa Fe.	0.33	1958-68	8-25-68	5.30	h150

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					
8-3166.5	Arroyo de los Frijoles, Locust Tree Reach, near Santa Fe, N. Mex.	Lat 35°42'13", long 105°58'19", within city limits of Santa Fe and 2.2 miles northwest of State Capitol in Santa Fe.	1.30	1957-68	7-25-68	5.36	h450
8-3167	Arroyo de los Frijoles near Santa Fe, N. Mex.	Lat 35°42'05", long 106°00'30", in SE¼ sec.17, T.17 N., R.9 E., 4 miles west of State Capitol in Santa Fe.	2.92	1957-68	7-25-68	11.25	h350
8-3171	Arroyo Yupa tributary near Cerrillos, N. Mex.	SE¼NE¼ 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	1957-68	1957 1958 1959 1960 1961 7-10-62 7- -63 7-10-64 8- 1-65 8- 2-66 8-10-67 7-25-68	1.61 1.03 - (c) e.40 .68 .93 .58 e1.52 1.51 e3.66 2.66	60 h26 0 h <5 h 10 h 16 h 22 h 14 52 51 568 204
8-3175	Galisteo Creek at Canoncito, N. Mex.	NW¼NW¼ sec.7, T.15 N., R.11 E., above railroad bridge, 0.2 mile above Apache Canyon at Canoncito.	11.3	1955-56 1959-68	7-23-68	2.72	630
8-3176	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	1955-68	8- 9-68	7.71	2,650
8-3177	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.	a1.5	1952-68	7-25-68	19.81	1,200
8-3178	Canada de las Minas tributary near Santa Fe, N. Mex.	Lat 35°36'27", long 105°54'42", at culvert on U. S. Highway 84, 85, and 285, 1.3 miles northeast of Seton Village, and 5.7 miles south of Santa Fe.	.56	1952-68	1967 1968	(c) (c)	b <10 <10
8-3189	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	1953-68	7-23-68	1.60	1,100
8-3219	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	1957-68	5- 5-68	3.24	150
8-3219.2	Rock Creek near Senorita (Cuba) N. Mex.	NW¼SW¼ sec.6, T.20 N., R.2 E., 1 mile east of State Highway 126, 8 miles east of village of Senorita, and 11 miles east of Cuba.	a3.7	1960-68	5- -68	2.70	(†)
8-3278	Arroyo Ojito at Zia Pueblo, N. Mex.	SE¼SE¼ sec.21, T.15 N., R.2 E., 100 ft upstream from culvert on State Highway 44, in Zia Pueblo Grant, 0.7 mile south of Zia Pueblo.	17.7	1961-68	1968	(c)	(†)
8-3304	Juan Toro Canyon near Miera, N. Mex.	NW¼SE¼ sec.7, T.9 N., R.6 E., 150 ft east of State Highway 10, 1 mile southeast of Cedro, and 4½ miles northwest of Miera.	1.57	1959-68	7- 5-68	.79	(†)
8-3305	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# 1958-68	7- 2-68	4.64	3,500

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					
8-3306	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 in Albuquerque.	133	1952-68	1957 1958 9- -63 9- 4-64 7-25-65 10-17-65 6-24-67 7- 2-68	0.61 1.04 1.16 1.46 1.53 1.05 (f) 3.72	500 650 695 795 825 655 2,530 1,930
8-3311	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	1952-53 1955-68	7- 3-68	6.25	(†)
8-3316.5	Canada Montoso near Scholle, N. Mex.	SW¼SW¼ sec.12, T.2 N., R.4 E., 130 ft upstream from dip on abandoned highway, 500 ft upstream from bridge on U. S. Highway 60, 3.6 miles southwest of Scholle.	a35	1961-68	8- 1-68	4.03	1,550
8-3317	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.	a.2	1954-68	8- 1-68	16.57	190
8-3413	Bluewater Creek above Bluewater Dam, near Bluewater, N. Mex.	NE¼ sec.20, T.12 N., R.12 W., 2.3 miles south of Bluewater Dam, and 8 miles west of Bluewater.	a75	1953-68	7-24-68	2.81	152
8-3485	Encinal Creek near Casa Blanca, N. Mex.	NW¼NW¼ sec.34, T.11 N., R.6 W., 1.8 miles north of village of Encinal and 6.8 miles north of Casa Blanca.	6.19	1937-39‡ 1959-68	7-25-68	k3.42	190
8-3535	La Jencia Creek near Magdalena, N. Mex.	NE¼SW¼ sec.1, T.2 S., R.4 W., 3½ miles northwest of Magdalena.	195	1957-68	8- 2-68	e7.4	3,700
8-3536	La Jencia 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.	5.67	1957-68	8- 2-68	.35	(†)
8-3586	Chupadera Wash tributary at Bingham, N. Mex.	NE¼SW¼ sec.12, T.5 S., R.5 E., 75 ft upstream from culvert on U. S. Highway 380, 0.1 mile west of Bingham.	1.29	1961-68	1968	-	0
8-3593	San Jose Arroyo near Monticello, N. Mex.	NW¼SW¼ sec.3, T.10 S., R.4 W., at head of box canyon just below major tributary, 800 ft below culvert on U. S. Highway 85, 13 miles northeast of Monticello.	26.9	1959-68	9- 2-68	2.10	(†)
8-3594 S	Lumber Canyon tributary near Monticello, N. Mex.	NE¼NE¼ 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.	.90	1952-68	8-27-68	.24	(†)
8-3616.5	Percha Creek near Kingston, N. Mex.	NE¼NE¼ sec.15, T.16 S., R.8 W., at bridge on State Highway 180, 3.3 miles east of Kingston.	21.5	1953-68	8-26-67	4.96	790
8-3616.6	Percha Creek tributary near Kingston, N. Mex.	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	1957-67‡			
8-3617	Percha Creek near Hillsboro, N. Mex.	SE¼NW¼ sec.18, T.16 S., R.7 W., 150 ft south of State Highway 180, and 2 miles west of Hillsboro.	35.4	1957-68	7- 5-68	3.83	820

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					
8-3618	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 3.5 miles north of Arrey.	119	1953-68	1953	1.45	550
					8- 7-54	1.91	970
					7-11-55	2.97	2,670
					7- -56	.59	130
					8-30-57	2.46	1,730
					9-13-58	4.31	7,260
					8- -59	2.44	1,700
					7- 9-60	3.83	5,350
					9- -61	2.37	1,575
					7-10-62	2.26	1,410
					9-21-63	1.71	770
					9-13-64	1.00	275
					9- 7-65	1.62	640
					8-24-66	3.20	3,300
					8- 7-67	3.12	3,130
					7- 5-68	.66	150
8-3630.5	Arroyo Angostura near Rincon, N. Mex.	SE¼ sec.13, T.19 S., R.3 W., 140 ft below dip on U. S. Highway 85, and 2.2 miles southwest of Rincon.	a8.5	1959-68	7-27-68	1.17	(†)
8-3631	Rio Grande tributary near Radium Springs, N. Mex.	NW¼NW¼ sec.9, T.21 S., R.1 W., above culvert on U. S. Highway 85, 120 ft above mouth, and 1.4 miles west of Radium Springs.	.40	1955-68	8- 1-68	4.04	44
8-3632	Aleman Draw at Aleman, N. Mex.	SW¼ sec.13, T.15 S., R.2 W., on Santa Fe Railroad bridge, 140 ft above dip on Engle-Rincon road, and ¼ mile west of Aleman.	a27	1959-68	9- 1-68	3.75	410
8-3793	Tecolote Creek at Tecolote, N. Mex.	Lat 35°27'20", long 105°16'55", on bridge on U. S. Highway 85 at Tecolote.	122	1954-68	8- 9-68	6.18	840
8-3796	Pecos River tributary near Dilia, N. Mex.	Lat 35°12'50", long 105°04'50", above culvert on U. S. Highway 84, and 1.7 miles northwest of Dilia.	.16	1952-68	1968	(c)	<5
8-3803	Sandoval Canyon at Gallinas, N. Mex.	Lat 35°41'19", long 105°21'17", about 500 ft upstream from culvert on State Highway 65, at north edge of Gallinas.	7.6	1957 1961-68	1968	(c)	<10
8-3829	Pecos River tributary near Pintada, N. Mex.	Lat 34°58'06", long 105°05'38", in Anton Chico Grant, 1,500 ft south of U. S. Highway 66, 6.8 miles north of Pintada.	a16	1961-68	1968	-	0
8-3832	Pintada Arroyo 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.	29.2	1952-68	8- 6-68	1.89	78
8-3832.1	Pintada Arroyo tributary near Encino, N. Mex.	Lat 34°48'40", long 105°34'00", above culvert on U. S. Highway 285, 0.1 mile south of ranch road, and 12½ miles northwest of Encino.	a1	1959-68	1968	-	0
8-3833 S	Pintada Arroyo near Santa Rosa, N. Mex.	NE¼ sec.29, T.8 N., R.21 E., 300 ft above culvert on U. S. Highway 54, and 4½ miles southwest of Santa Rosa.	896	1959-68	8-11-68	e5.00	(†)
8-3833.7	Pecos River tributary near Puerto de Luna, N. Mex.	SW¼NW¼ sec.32, T.8 N., R.22 E., 25 ft upstream from culvert on State Highway 91, 3.1 miles north of Puerto de Luna.	.37	1961-68	8-10-68	9.79	242
8-3855.3	Alamosa Creek tributary near Jordan, N. Mex.	SW¼SW¼ sec.27, T.7 N., R.28 E., 500 ft upstream from dip on State Highway 156, 6.9 miles west of Jordan.	a10	1962-68	6- 5-68	2.45	52

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					
8-3856	Yeso Arroyo near Fort Sumner, N. Mex.	SE¼ sec.35, 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 1952-68	8-10-68	1.86	(†)
8-3856.7	Aragon Creek tributary near Encinoso, N. Mex.	NE¼NE¼ sec.22, T.7 S., R.14 E., 0.3 mile upstream from wooden bridge on dirt road, 1.2 miles north of State Highway 48, 4.3 miles west of Encinoso.	6.07	1961-68	7- 5-68	2.72	h60
8-3856.9	Bonita Canyon tributary near Corona, N. Mex.	SE¼SW¼ sec.7, T.1 S., R.13 E., above culvert on U. S. Highway 54, and 1.8 miles southwest of Corona.	a.6	1959-68	1968	-	0
8-3857	Cloud Canyon near Gallinas, N. Mex.	SW¼ sec.15, T.2 S., R.12 E., above culvert on U. S. Highway 54, and 2.0 miles southwest of Gallinas.	a10	1957-68	1968	-	0
8-3859	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.	.04	1952-68	8-22-68	.74	(†)
8-3880 S	Rio Ruidoso at Hondo, N. Mex.	NE¼SW¼ sec.4, T.11 S., R.17 E., ¼ mile above confluence with Rio Bonito, and ½ mile southwest of Hondo.	290	1931-55‡ 1956-68	7- 5-68	4.70	399
8-3890	Rio Bonito near Fort Stanton, N. Mex.	SW¼ sec.16, T.9 S., R.15 E., at bridge on U. S. Highway 380, 2.5 miles northeast of Fort Stanton.	a85	1955-68	9-24-55	6.23	2,280
					7-23-56	5.39	1,300
					7-23-57	6.69	2,800
					8-24-58	5.46	1,380
					8-15-59	4.44	520
					6-10-60	4.06	295
					8-12-61	5.61	1,550
					6-19-62	4.11	320
					8-18-63	4.10	315
					7-12-64	e4.89	860
					6-17-65	6.35	2,400
					9-15-66	5.13	1,070
					1967	(c)	<600
					1968	(c)	<600
8-3890.6	Rio Bonito tributary near Fort Stanton, N. Mex.	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	1955-68	9-24-55	4.80	240
					10- 2-55	3.60	163
					7-23-57	2.95	h120
					1958	(c)	0
					1959	(c)	b0
					6-10-60	2.88	h115
					8-12-61	(c)	h <1
					7- -62	2.69	h90
					1963	(c)	0
					8-15-64	2.85	h97
					6-17-65	4.63	h228
					1966	(c)	0
					1967	(c)	0
					1968	(c)	h <10
8-3901	Rio Hondo at Picacho, N. Mex.	NW¼NW¼ sec.15, T.11 S., R.18 E., by road bridge just off U. S. Highway 70, 1.3 miles northwest of Picacho.	715	1956-62‡ 1963-68	7- 5-68	12.86	3,050
8-3901.5	Gallo Canyon near Picacho, N. Mex.	NE¼NE¼ sec.8, T.12 S., R.18 E., 500 ft east of road, 5 miles south of Picacho.	b1.32	1962-68	8- 2-68	3.34	(†)
8-3937	Pancho Canyon near Arabela, N. Mex.	SE¼SE¼ sec.19, T.9 S., R.18 E., 200 ft downstream from dip on State Highway 368, 5.6 miles south of Arabela.	a16	1962-68	8- 2-68	4.30	(†)

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					
8-3939	Eight Mile Draw near Roswell, N. Mex.	SE¼NE¼ sec.32, T.10 S., R.23 E., and 6.5 miles west of Roswell.	397	1941 1952-68	9-22-41	e20.1	22,200
					8-11-52	be17.4	4,730
					8-16-53	14.41	b610
					5-17-54	16.19	b3,650
					10- 6-54	18.09	10,200
					1956	-	0
					1957	(c)	b <10
					8-23-58	13.99	292
					1959	(c)	b <10
					7- 7-60	14.42	b610
					1961	-	0
					1962	(c)	<10
					1963	-	0
					9-21-64	b15.01	1,320
					7-29-65	b14.33	530
					8-23-66	15.91	3,000
					8-10-67	14.94	1,200
					7- 6-68	16.25	3,800
8-3973.9	Curtis Canyon near Mayhill, N. Mex.	SE¼NE¼ sec.4, T.17 S., R.14 E., ¼ mile above SCS dam, 0.4 mile west of State Highway 130, and 2.5 miles southwest of Mayhill.	10.3	1959-68	1968	(c)	(+)
8-3974 S	Hyatt Canyon near Cloudcroft, N. Mex.	NW¼NW¼ sec.9, T.16 S., R.13 E., ½ mile south of State Highway 83, and 7 miles east of Cloudcroft.	3.08	1953-68	1953	0.42	45
					9- -54	.96	64
					7- -55	1.53	84
					1956	.08	h32
					1957	.40	44
					1958	-	0
					7-1959	(c)	h5
					7- -60	.12	h33
					8-26-61	.49	47
					7- -62	(c)	h2
					9- 8-63	.03	h30
					9-23-64	(c)	h2
					8- 4-65	.90	62
					8-19-66	.15	h35
					8-10-67	1.56	86
					1968	(c)	h1
8-3976	Rio Penasco near Dunken, N. Mex.	NW¼NE¼ sec.35, T.16 S., R.17 E., on bridge on State Highway 24, 5 miles north of Dunken.	583	1952-56 1956-62‡ 1963-68	7- 6-68	e9.54	1,940
8-3978	Bluewater Creek near Dunken, N. Mex.	SE¼NE¼ sec.33, T.17 S., R.17 E., 300 ft above dip on State Highway 24, and 1.3 miles south of Dunken.	143	1958-67j			
8-4050.5	Last Chance Canyon tributary near Carlsbad Caverns, N. Mex.	SE¼NW¼ sec.21, T.23 S., R.23 E., above culvert on State Highway 137, 0.1 mile north of road to Sitting Bull Falls, and 12½ miles northwest of Carlsbad Caverns.	a.2	1959-68	7- 3-67	4.14	247
					7- 5-68	3.79	210
8-4051	Mosley Canyon near White City, N. Mex.	SE¼ sec.34, T.23 S., R.25 E., 600 ft below dip on Dark Canyon road, and 5½ miles north of White City.	14.6	1959-68	6-25-67	8.01	3,620
					8-30-68	4.19	(+)
8-4360	San Simon Swale tributary near Jal, N. Mex.	NE¼NE¼ sec.4, T.25 S., R.35 E., 0.4 mile south of State Highway 128, and 10.7 miles west of Jal.	a20	1963-68	1967	(c)	(+)
					1968	(c)	(+)
8-4376.2 S	Monument Draw tributary near Monument, N. Mex.	In SE¼NE¼ sec.16, T.19 S., R.35 E., upstream from culvert on U. S. Highway 62-180, about 12 miles northwest of Monument and 19.5 miles west of Hobbs.	6.23	1968	1968	-	0

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)
		Mimbres River basin					
8-4772 S	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 Emory Pass, and 4.5 miles miles west of Kingston.	0.74	1955-68	1966 8- 5-67 1968	(c) e3.45 (c)	h <10 h <10 h <10
8-4775.6	Little Walnut Creek near Silver City, N. Mex.	NW¼NE¼ sec.28, T.17 S., R.14 W., 85 ft above dip on Bear Mountain Road, and 2 miles north of Silver City.	5.10	1959-68	7-29-66 8- 4-67 8- 2-68	3.51 b2.47 e3.45	b920 b630 890
8-4775.7	Silva Creek tributary at Silver City, N. Mex.	SE¼SW¼ sec.27, T.17 S., R.14 W., 350 ft above dip on Little Walnut Road,a and 0.7 mile north of boundary of Silver City.	2.12	1958-68	7- 5-68	3.43	505
8-4775.8	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	1958-68	7- 5-68	4.03	1,500
8-4775.9	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	1958-68	8-26-68	1.45	(†)
8-4780	Cameron Creek at Central, N. Mex.	SW¼NE¼ sec.36, T.17 S., R.13 W., 2,500 ft above culvert on U. S. Highway 260, at north edge of Central.	18.8	1954-68	8-26-68	3.54	(†)
8-4782	Mimbres River tributary near Spalding, N. Mex N. Mex.	NW¼SE¼ sec.5, T.22 S., R.10 W., at culvert on U. S. Highway 260, 0.7 mile northeast of junction with State Highway 61, 4.5 miles southeast of Spalding.	1.17	1952-67j			
8-4785	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	1954-68	8- 1-68	1.13	270
8-4786	Mimbres basin tributary near Florida, N. Mex.	Near boundary of sec.25 and 36, T.22 S., R.8 W., above culvert on State Highway 26, and 5 miles southwest of Florida.	.55	1959-68	1959 8- -60 1961 1962 8- -63 9-25-64 9- 7-65 8-17-66 8-11-67 8- 6-68	3.27 1.17 1.40 2.46 1.58 2.38 1.08 2.14 3.75 4.48	267 28 51 167 72 158 20 130 330 400
8-4788	Seventysix Draw tributary near Waterloo, N. Mex.	Lat 31°56'34", long 107°44'38", upstream from culvert on State Road 11, 3.9 miles southeast of Waterloo, and 7.9 miles north of Columbus.	.2	1967-68	11-27-67	2.95	(†)
8-4793	Deer Creek tributary near Antelope Wells, N. Mex.	Sec.6, T.34 S., R.18 W., 0.1 mile below dip on State Highway 79, 2½ miles east of San Luis Pass, and 12 miles west of Antelope Wells.	4.3	1959-68	7-23-68	1.22	150
		Tularosa Valley					
8-4801	White Oaks Canyon at White Oaks, N. Mex.	NW¼SW¼ sec.20, T.6 S., R.13 E., 40 ft upstream from culvert on State Highway 349, 1 mile northeast of White Oaks.	1.14	1961-68	8-26-68	3.46	(†)
8-4801.5	White Oaks Canyon near Carrizozo, N. Mex.	NW¼SE¼ sec.6, T.7 S., R.11 E., 100 ft upstream from culvert on U. S. Highway 54, 6 miles north of Carrizozo.	31	1959 1961-68	7-26-59 9- 8-61 7-26-62 9- 3-63 9-13-64 8- 7-65 6-29-66 8-16-67 8-26-68	e14.3 3.25 4.49 8.17 5.98 e10.63 e4.25 4.94 1.84	7,690 1,230 1,730 3,650 2,440 5,330 1,620 1,940 h700

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)
		Tularosa Valley--Continued					
8-4801.7 S	Nogal Creek tributary near Nogal, N. Mex.	In NE¼SW¼ sec.28, T.8 S., R.13 E., upstream from culvert on U. S. Highway 380, about 2.0 road miles west of Indian Divide, 7 miles northwest of Capitan and 2 miles north of Nogal.	1.94	1968	9- 1-68	1.78	(†)
8-4802	Taylor Canyon tributary near Bingham, N. Mex.	SE¼NE¼ sec.15, T.6 S., R.7 E., 200 ft north of U. S. Highway 380, 12 miles southeast of Bingham.	2.66	1961-68	9-11-68	e.72	(†)
8-4805.9	Tularosa Valley tributary near Oscura, N. Mex.	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	1958-68	8-26-68	1.06	(†)
8-4806.5	Minnie Hall Draw near Three River Rivers, N. Mex.	NE¼SE¼ sec.35, T.10 S., R.9 E., 8 miles northeast of Three Rivers.	9.70	1956-68	8- 5-68	11.15	(†)
8-4807 S	Indian Creek near Three Rivers, N. Mex.	SW¼NE¼ sec.10, T.11 S., R.10 E., 150 ft above diversion dam, and 11½ miles east of Three Rivers.	6.8	1956-58‡ 1959-68	8- 5-68	2.77	28
8-4809	Indian Creek at mouth near Three Rivers, N. Mex.	Lat 33°22'45", long 105°57'25", 75 ft above diversion dam, 0.35 mile above mouth, and 5½ miles east of Three Rivers.	10.9	1956-58‡ 1959-68	8- 5-68	4.19	340
8-4810	Three Rivers at Three Rivers, N. Mex.	NE¼SW¼ sec.3, T.12 S., R.9 E., 150 ft below Southern Pacific Railroad bridge, 400 ft above bridge on U. S. Highway 54, and 1.3 miles south of Three Rivers.	96.0	1956-68	8- 1-68	5.11	5,400
8-4811	Tularosa valley tributary near Three Rivers, N. Mex.	SW¼SE¼ sec.3, T.12 S., R.9 E., at culvert on U. S. Highway 54, 1.6 miles south of Three Rivers.	13.8	1952-68	8-26-68	(c)	<10
8-4862	Black Prince Canyon tributary near Organ, N. Mex.	NE¼SE¼ sec.33, T.21 S., R.4 E., above culvert on U. S. Highway 70, 2.3 miles east of San Augustin Pass, and 4.0 miles east of Organ.	.73	1959-68	1968	-	0
8-4864	Tularosa valley tributary near Orogrande, N. Mex.	SE¼SE¼ sec.1, T.22 S., R.8 E., at bridge on U. S. Highway 54, and 2.7 miles northeast of Orogrande.	2.53	1959-68	8- 1-68	1.08	(†)
		Estancia Valley					
8-4880	Estancia Valley tributary at Cedar Grove, N. Mex.	NE¼NE¼ sec.21, T.11 N., R.7 E., 50 ft upstream from culvert on State Highway 344, 0.1 mile south of Cedar Grove.	1.21	1955 1961-68	1968	(c)	(†)
8-4881	Juan Tomas Canyon near Edgewood, N. Mex.	SE¼NE¼ sec.19, T.10 N., R.7 E., 140 ft upstream from culvert on U. S. Highway 66, 2.5 miles northwest of Edgewood.	a20	1962-68	1968	(c)	(†)
8-4881.7 S	Chavez Draw tributary near Clines Corners, N. Mex.	NW¼SW¼ sec.7, T.9 N., R.11 E., one mile north of Interstate 40, 13 miles east of Moriarty and 9 miles west of Clines Corners.	2.73	1968	7-10-68	e6.05	30
8-4882	Osita Draw near Clines Corners, N. Mex.	SW¼NW¼ sec.17, T.9 N., R.11 E., 100 ft upstream from culvert on U. S. Highway 66, 7.5 miles west of Clines Corners.	a10	1961-68	8- 6-68	1.78	147
8-4885	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	1954-68	8- 1-68	1.61	250
8-4890	Canada del Leon near Mountainair, N. Mex.	SE¼ sec.10, T.2 N., R.7 E., ¼ mile above culvert on State Highway 10, and 8.4 miles southeast of Mountainair.	3.9	1953-68	1968	-	0

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)
		Salt basin					
8-4925	Cornucopia Canyon near Pinon, N. Mex.	NE¼ sec.6, T.21 S., R.16 E., 0.2 mile above dip in ranch road, and 7.5 miles south of Pinon.	17.2	1959-68	1968	(c)	<200
		San Juan River basin					
9-3462	Rio Amargo at Dulce, N. Mex.	NW¼ sec.1, T.31 N., R.2 W., under bridge on State Highway 17, at Dulce.	168	1956-68	8- -56	5.29	1,150
					8- 3-57	6.41	1,560
					4- -58	5.95	1,390
					8- -59	4.02	760
					3-24-60	3.79	700
					9- -61	4.02	760
					1962	(f)	-
					3- -63	k5.28	780
					8- 1-64	e8.1	1,720
					6-11-65	5.33	800
					3-13-66	5.23	770
					7-17-67	7.64	1,560
					7-31-68	e10.57	2,860
9-3508	Vaqueros Canyon near Gobernador, N. Mex.	SW¼ sec.17, T.29 N., R.4 W., 100 ft east of State Highway 17 and 4.2 miles east of Gobernador.	b60.5	1956-68	8- 1-68	4.11	295
9-3557	Gobernador Canyon near Gobernador, N. Mex.	NW¼ sec.36, T.29 N., R.6 W., 0.2 mile south of State Highway 17, and 4 miles southwest of Gobernador.	b19.8	1956-68	8- 8-68	5.27	565
9-3564	Manzanares Canyon near Turley, N. Mex.	NW¼SW¼ sec.8, T.29 N., R.8 W., 600 ft above culvert on State Highway 17, and 4.2 miles east of Turley.	a3.1	1956-68	8- 2-68	e2.6	(+)
9-3567.5	Valdez Draw near Bloomfield, N. Mex.	NE¼SW¼ sec.20, T.29 N., R.10 W., above culvert on State Highway 17, 4 miles east of Bloomfield.	a1.3	1956-67j			
9-3572	Gallegos Canyon tributary near Nageezi, N. Mex.	SW¼NE¼ sec.11, T.25 N., R.10 W., at culvert on State Highway 44, 1.1 mil miles northwest of Huerfano Trading Post, and 12.5 miles northwest of Nageezi.	.20	1952-68	8- 6-68	2.41	144
9-3675.3	Locke Arroyo (formerly San Juan River tributary) near Kirtland, N. Mex.	NW¼NE¼ sec.15, T.29 N., R.14 W., on upstream side of abandoned culvert, 200 ft above U. S. Highway 550, 0.4 mile above mouth, and 3.3 miles east of Kirtland.	2.96	1951-68	7-28-68	2.60	159
9-3678.4	Yazzie Wash near Mexican Springs, N. Mex.	Lat 35°50'40", long 108°53'00", 5.0 miles northwest of Mexican Springs, and 23 miles north of Gallup.	a2.1	1953-54 1956-68	4- -68	3.47	200
9-3678.6	Chusca Wash near Mexican Springs, N. Mex.	Lat 35°48'40", long 108°50'50", 1.8 miles northwest of Mexican Springs, and 20 miles north of Gallup.	a8.7	1953-68	5- 5-68	3.09	860
9-3678.8	Catron Wash near Mexican Springs, N. Mex.	Lat 35°46'15", long 108°49'40", 1.5 miles south of Mexican Springs and 18 miles north of Gallup.	26.9	1954 1956-67j			
9-3679 S	Black Springs Wash near Mexican Springs, N. Mex.	Lat 35°45'40", long 108°49'00", 2.5 miles south of Mexican Springs and 17 miles north of Gallup.	7.05	1954-68	8- 7-68	.11	180
9-3679.2	Chaco River tributary near Nashitti, N. Mex.	Lat 36°05'55", long 108°41'48", on bridge on U. S. Highway 666, 2.4 miles north of Naschitti, and 39 miles north of Gallup.	12.0	1967-68	8- 8-68	6.02	(+)
9-3679.4	Theodore Wash near Newcomb, N. Mex.	Lat 36°21'39", long 108°43'09", on bridge on U. S. Highway 666, 5.2 miles north of Newcomb.	37.4	1967-68	8-11-68	e8.3	(+)
9-3679.5	Chaco River near Waterflow, N. Mex.	NE¼ sec.19, T.29 N., R.16 W., at Stanolind, 7 miles southwest of Waterflow, and 8 miles southeast of Shiprock.	4,350	1959-68	8- 8-68	7.53	6,100

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)
		Little Colorado River basin					
9-3861	Largo Creek near Quemado, N. Mex.	NE¼SE¼ sec.8, T.1 N., R.16 W., on downstream side of bridge on ranch road 2½ miles southwest of Quemado	151	1954-68	8- 2-68	1.70	187
9-3861.5	Mangas Creek tributary near Pietown, N. Mex.	About at corner common secs. 13, 14, 23 and 24, T.1 N., R.13 W., above culvert on U. S. Highway 60, 1.3 miles west of Pietown Post Office.	a.08	1952-68	8- 2-68	1.44	(†)
9-3862	Carrizo Creek near Salt Lake, N. Mex.	SE¼ sec.3, T.3 N., R.21 W., on left downstream wingwall of bridge, 1.3 miles east of New Mexico-Arizona State line and 15 miles west of Salt Lake.	g560	1957-68	4-22-68	2.76	(†)
9-3870.5	Galestena Canyon tributary near Black Rock, N. Mex.	SE¼ sec.30, T.9 N., R.17 W., 100 ft below bridge on State Highway 32 and 10.5 miles southeast of Black Rock.	a19	1957-68	8-11-68	2.03	75
9-3954	Milk Ranch Canyon (formerly Puerco River tributary) near Fort Wingate, N. Mex.	Lat 35°25'55", long 108°33'30", 0.5 mile below culvert on secondary road between Fort Wingate and McGaffey and 3 miles south of Fort Wingate.	14.0	1949 1953-68	7- 6-68	.88	(†)
9-3955	Puerco River at Gallup, N. Mex.	SW¼NW¼ sec.15, T.15 N., R.18 W., on right bank north of the Santa Fe RR freight depot, 1,500 ft above Second Street Bridge at Gallup.	558	1940-46‡ 1956-68	8-26-68	8.84	5,700
9-3956	Wagon Trail Wash (formerly Puerco River tributary) near Gamerco, N. Mex.	SE¼NE¼ sec.7, T.16 N., R.18 W., above abandoned culvert on former U. S. Highway 666, 0.5 mile north of junction of U. S. Highway 666 and State Highway 68, 4.5 miles north of Gamerco.	b.38	1951-68	8- 1-68	.99	66
		Gila River basin					
9-4298	Diamond Creek near Beaverhead, N. Mex.	NE¼NW¼ sec.7, T.12 S., R.12 W., 3.5 miles west of State Highway 61, 4 miles above Gila River and 13 miles south of Beaverhead.	106	1957-68	1968	(c)	(†)
*9-4299	Snow Creek near Mogollon, N. Mex.	Lat 33°24'50", long 108°29'40", 1,000 ft below Gila Wilderness boundary and 17.5 miles east of Mogollon.	89.6	1958-67‡			
9-4303	Copperas Canyon near Pinos Altos, N. Mex.	NE¼SW¼ sec.17, T.14 S., R.13 W., on east side of Copperas Canyon road and 15 miles north of Pinos Altos.	a4	1963-68	1968	-	0
9-4309	Duck Creek at Cliff, N. Mex.	SW¼SW¼ sec.28, T.15 S., R.17 W., at Cliff below bridge on State Highway 211, and 0.6 mile above mouth.	228	1957-68	8-26-68	5.32	2,620
9-4310	Gila River near Cliff, N. Mex.	SE¼SW¼ sec.4, T.16 S., R.17 W., on downstream end of pier of bridge on U. S. Highway 260, 1½ miles downstream from Bear Creek, 1½ miles south of Cliff, and 2½ miles southwest of Gila.	2,438	1942-51‡ 1952-68	3-10-68	7.08	2,820
9-4372 S	Mexican Canyon at Virden, N. Mex.	SE¼NW¼ sec.2, T.19 S., R.21 W., upstream from dip in State Road 82, and about 0.8 mile east of Virden.	3.40	1968	7- 4-68	10.87	405
9-4382	Animas Creek near Cloverdale, N. Mex.	NE¼ sec.33, T.31 S., R.20 W., near head of small box canyon, 0.1 mile west of State Highway 338, and 11 miles north of Cloverdale.	157	1959-68	8- 2-68	4.98	790

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)
		Gila River basin--Continued					
9-4426.5	Romero Creek (formerly Trout Creek) near New Mexico-Arizona State line near Luna, N. Mex.	NE¼SW¼ sec.34, T.4 S., R.21 W., at culvert on Luna-Underwood Lake road, about 1 mile east of New Mexico-Arizona State line, and 8 miles northwest of Luna.	b10.9	1958-68	7- 8-64 5- -68	9.18 8.82	h180 h96
9-4426.6	Trout Creek at Luna, N. Mex.	NW¼ sec.29, T.5 S., R.20 W., 500 ft downstream from bridge on Luna-Red Hill road and 2.6 miles north of Luna.	31.9	1954-68	4- 1-68	1.95	175
9-4426.9	Tularosa River near Aragon, N. Mex.	NW¼ sec.3, T.5 S., R.16 W., about 100 ft to the left of State Highway 12 and 2 miles northeast of Aragon.	a89	1955-67j			
9-4426.95	Rito Negrito at Aragon, N. Mex.	NW¼NW¼ sec.18, T.5 S., R.16 W., above culvert on State Highway 12, at west edge of Aragon.	9.46	1958-68	9-19-63 9-10-64 8-13-65 1968	3.68 e1.51 3.36 (c)	b(†) b(†) b(†) (†)
9-4427	Apache Creek near Apache Creek, N. Mex.	NE¼SE¼ sec.25, T.4 S., R.18 W., 7 miles north of Apache Creek.	94.6	1957-68	2-27-68	2.04	305
9-4427.4	Tularosa River near Reserve, N. Mex.	SE¼ sec.33, T.6 S., R.18 W., 150 ft west of Eagle Peak Lookout road and 3.3 miles northeast of Reserve.	426	1965-68	8-9-68	2.92	215
9-4439.5	Colt Canyon at Pleasanton, N. Mex.	SE¼NE¼ sec.14, T.12 S., R.20 W., 175 ft above abandoned dip, 350 ft above culvert on U. S. Highway 260, and 1 mile south of Pleasanton.	3.1	1959-68	8-2-68	8.93	(†)
9-4558	Steins Creek at Steins, N. Mex.	SW¼SE¼ sec.9, T.24 S., R.21 W., at culvert on State Highway 14, 0.9 mile west of Steins.	1.3	1959-68	1968	-	0

S Flood-hydrograph site.
† Discharge not yet determined.
‡ Operated as continuous-record gaging station.
* Also low-flow station.
a Approximately.
b Revised.
c Peak did not reach bottom of gage.
d 1966 water-year peak, revised.
e From floodmark.
f Gage height not determined.
g Contributing area.
h Estimated.
i Operated as a continuous-record gaging station by SCS.
j Discontinued at end of water year.
k New site and datum.
< Less than.

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 (†). Listings are in downstream order, by basins, streams, and individual measuring points. The order of major basins in this report will be: LOWER MISSISSIPPI BASIN, WESTERN GULF OF MEXICO BASINS, COLORADO RIVER BASIN (San Juan River; Gila River).

Discharge measurements made at miscellaneous sites during water year 1968

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Arkansas River basin						
Chicorica Creek	Canadian River	Lat 36°46'10", long 104°23'45", in S½ sec.4, T.29 N., R.24 E., at highway bridge near east boundary of Maxwell Grant, 300 ft downstream from Una de Gato Creek, 4⅞ miles northeast of Hebron, and 9 miles south of Raton, N. Mex.	381	1945-52‡ 1966-67	10- 4-67	0.55
					11- 1-67	.99
					11-21-67	1.03
					1- 9-68	Dry
					2- 1-68	.80
					2-20-68	3.96
					3-19-68	2.43
					4-10-68	6.43
					4-30-68	1.49
					5-22-68	28.8
					6-19-68	1.69
					7-10-68	1.74
					8- 1-68	6.53
					8-22-68	2.10
					9-11-68	18.1
Ute Creek	Canadian River	Lat 36°13'10", long 103°49'26", in SW¼SE¼ sec.16, T.23 N., R.9 E., at culvert on State Highway 120, 6.5 miles north of Yates and 8.6 miles southeast of Gladstone, N. Mex.	a435	None	6-19-68	*1.31
					6-24-68	* .72
					6-27-68	* .93
					9-18-68	* .91
					9-25-68	*1.93
Do.....	....do.....	Lat 36°01'29", long 103°44'57", in NW¼NE¼ sec.28, T.21 N., R.30 E., 2.1 miles upstream from former gaging station (7-2260), 4.7 miles northwest of Bueyeros and 11.0 miles southeast of Yates, N. Mex.	a520	None	2- 8-68	*4.33
					3-14-68	*4.73
					3-19-68	*3.12
					3-21-68	*3.20
					3-22-68	*2.62
					4- 3-68	*2.18
					4-10-68	*1.91
					4-17-68	*1.38
					4-18-68	*1.66
					5- 8-68	*1.40
					5-22-68	*1.38
					6-25-68	* .01
					6-27 to 8-25-68	Dry
					9-25-68	* .02
Alamocito Creek	Ute Creek	Lat 36°03'45", long 103°49'45", in NE¼SE¼ sec.10, T.21 N., R.29 E., above culvert on country road, 6.1 miles southeast of Yates, 7.7 miles above mouth and 9.7 miles northwest of Bueyeros, N. Mex.	a 77	None	6-26-68	*0.30
					8- 6-68	* .28
					9-18-68	* .35
					9-25-68	* .36
Do.....	....do.....	Lat 36°00'21", long 103°46'04", in SE¼SW¼ sec.22, T.21 N., R.30 E., above diversion dam, 1.7 miles above mouth, 5.0 miles northwest of Bueyeros and 11.0 miles southeast of Yates, N. Mex.	a 95	None	2- 8-68	*0.42
					3-28-68	* .37
					4-18-68	* .32
					9-25-68	* .54
Ute Creek	Canadian River	Lat 35°57'06", long 103°41'42", in SE¼NE¼ sec.24, T.20 N., R.30 E., at bridge on State Highway 102, 2.1 miles south of Bueyeros and 19 miles northeast of Mosquero, N. Mex.	a645	None	2- 8-68	3.91
					2-15-68	4.19
					2-28-68	3.52
					3- 8-68	3.72
					3-14-68	5.69
					3-19-68	3.30
					3-21-68	4.09
					3-28-68	3.28
					4- 4-68	2.48
					4-10-68	1.84
					4-18-68	1.00
					5-22-68	.64
					5-23 to 9-30-68	Dry

Note.--See end of list for symbols and footnotes.

Measurements at miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 1968

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Arkansas River basin--Continued				
Ute Creek	Canadian River	Lat 35°56'34", long 103°38'33", in SE¼NE¼ sec.33, T.19 N., R.31 E., at bridge on State Highway 65, 10.2 miles south of Bueyeros and 17.8 miles east of Mosquero, N. Mex.	a841	None	2- 1-68 2-14-68 3-15-68 3-19-68 3-27-68 8- 8 to 9-30-68	2.57 .96 3.25 1.61 .10 Dry
Carrizo Creek	Tequesquite Creek	Lat 35°57'50", long 103°52'02", in SE¼NW¼ sec.16, T.20 N., R.29 E., 2.1 miles north of Albert, 3.5 miles above mouth, 10.1 miles west of Bueyeros and 18 miles east of Roy, N. Mex.	a183	None	1-31-68 4- 3-68 4- 9-68 4-18-68 5- 1-68 5- 8-68 5-22-68 6- 6-68 6-18-68 8- 7-68 8- 8 to 9-30-68	*1.43 *1.30 *1.19 *1.02 *1.29 * .85 * .85 * .37 * .10 * .02 Dry
Canadian River	Arkansas River	NE¼NE¼ sec.21, T.13 N., R.33 E., 1,000 ft below spillway of Ute Dam and 2¾ miles southwest of Logan, N. Mex.	11,140	-	10- 2-67	2.10
		Rio Grande basin				
Rio Chama	Rio Grande	Lat 36°39'44", long 106°41'58" at river mile 86.1, 0.3 mile above Willow Creek, and 8.5 miles southwest of Tierra Amarilla, N. Mex.	-	1965-67	10-17-67 9-11-68	42.4 61.5
Willow Creek	Rio Chama	Lat 36°39'45", long 106°42'15", at Rio Chama river mile 85.8, above mouth and 8.8 miles southwest of Tierra Amarilla, N. Mex.	194	1965-67	10-17-67 9-11-68	*2.49 b*2.40
Rio Chama	Rio Grande	Lat 36°39'49", long 106°43'08", at river mile 84.8, 1.0 mile downstream from Willow Creek and 9.6 miles southwest of Tierra Amarilla, N. Mex.	-	1965-67	10-17-67 9-11-68	45.2 65.8
Santa Fe River	Rio Grande	Lat 35°41'05", 105°56'05", between Delgado Street and Castillo Street bridges, within City limits of Santa Fe, N. Mex.	c6.1	1952, 1957	7-25-68	† 3,420
Arroyo Mascaras	Santa Fe River	Lat 35°41'20", long 105°57'15", about 100 feet above mouth and Alameda S Street, within City limits of Santa Fe, N. Mex.	6.27	1957	7-25-68	† 2,490
Santa Fe River	Rio Grande	Lat 34°41'15", long 105°57'45", about ½ mile below mouth of Arroyo Mascaras within City limits of Santa Fe, N. Mex.	d13.9	-	7-25-68	† 6,110
Unnamed tributary	Rio Grande	NW¼ sec.36, T.18 S., R.4 W., at culvert on Interstate 25, 1.6 miles north of Hatch interchange and about 1 mile east of Salem, N. Mex.	e0.62	-	6-28-66	† 1,600
Eagle Creek	Pecos River	Lat 32°54'47", long 104°53'42", in SE¼ sec.16, T.16 S., R.20 E., at bridge on State Highway 13, 12 miles northwest of Hope, N. Mex.	a95	-	8-23-66	†10,300

Measurements at miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 1968

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Rio Grande basin--Continued				
Silver Springs	Elk Canyon	SE¼SE¼ sec.14, T.15 S., R.13 E., at Parshall flume 1 mile below Mescalero Apache Indian Reservation boundary, 7.2 miles northeast of Cloudcroft, N. Mex.	-	1961-67	12-22-67	*0.43
					3-18-68	1.91
					6-26-68	0
					9-16-68	*1.76
North Seven Rivers	South Seven Rivers	Lat 32°38'37", long 104°25'43", in NW¼SW¼ sec.19, T.19 S., R.26 E., about 1 mile above U.S. Highway 285, 2 miles northwest of Lakewood and 23 miles north of Carlsbad, N. Mex.	312	1955 1958	8-23-66	†37,400
Dark Canyon	Pecos River	Lat 32°23'35", long 104°14'18", in NE¼ sec.13, T.22 S., R.26 E., at siphon on Carlsbad main canal and 2 miles southwest of Carlsbad, N. Mex.	f449	1957	8-23-66	†66,000
McKittrick Canyon Draw	Black River	Lat 32°00'24", long 104°32'00, in NE¼SE¼ sec.30, T.26 S., R.24 E., about half a mile north of New Mexico-Texas State line and 16 miles southeast of White City, N. Mex.	a71	-	8-22-66	†10,900
Black River	Pecos River	NE¼SE¼ sec.3, T.26 S., R.24 E., below Mayes Ranch, 10 miles southwest of White City, N. Mex.	-	1953-67	12-19-67	g0.86
					3-22-68	g .75
					6-12-68	g .80
					9-18-68	g .64
Slaughter Canyon	Black River	Lat 32°04'54", long 104°29'33", in SW¼SW¼ sec.34, T.25 S., R.24 E., 500 feet above ford and 9.5 miles southwest of White City, N. Mex.	31.9	-	8-22-66	† 8,610
Rattlesnake Canyon	....do.....	Lat 32°07'02", long 104°27'24", in SW¼SW¼ sec.24, T.25 S., R.24 E., at Circle K Ranch house and 6.3 miles southwest of White City, N. Mex.	18.8	-	8-22-66	†11,900
Rattlesnake Springs	....do.....	SE¼SW¼ sec.23, T.25 S., R.24 E., 5 miles south of Carlsbad Caverns, 7.2 miles southwest of White City and 25 miles southwest of Carlsbad, N. Mex.	-	1952-67	12-19-67	g2.80
					3-22-68	hl.96
					6-12-68	g .06
					9-18-68	g2.13
Black River	Pecos River	Lat 32°07'56", long 104°24'23", in SW¼NW¼ sec.16, T.25 S., R.25 E., at bridge on U.S. Highway 180, and 3½ miles southwest of White City, N. Mex.	217	-	8-23-66	†41,500
Blue Springs	Black River	SW¼ sec.27, T.24 S., R.26 E., above all diversions, 5½ miles east of White City, N. Mex.	-	1907 1919-20 1923 1935 1952-67	12-19-67	g11.8
					3-22-68	g13.1
					6-12-68	g10.7
					9-18-68	g11.0
Jurnigan Draw	....do.....	Lat 32°13'04", long 104°18'48", in SW¼NE¼ sec.17, T.24 S., R.26 E., at culvert on U.S. Highway 62, 5 miles northeast of White City, N. Mex.	6.13	-	8-23-66	† 6,710
Pecos River	Rio Grande	SE¼SW¼NE¼ sec.17, T.24 S., R.29 E., at Fishing Rock Crossing and 4 miles East of Malaga, N. Mex.	-	1953-54 1962-67	10- 6-67	20.9
					11- 3-67	23.6
					12- 1-67	45.6
					1-12-68	31.2
					2- 6-68	50.9
					2- 6-68	53.4
					2- 6-68	52.4
					2- 7-68	52.7
					2- 7-68	51.8
					3- 1-68	53.7
					4- 5-68	17.7
					5- 2-68	18.9
					5-30-68	19.1
					6-28-68	14.2
					8- 2-68	23.4
					9- 5-68	20.7

Measurements at miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 1968

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Rio Grande basin--Continued				
Pecos River	Rio Grande	NW¼NE¼SE¼ sec.20, T.24 S., R.29 E., 0.5 mile below well USGS 11 and 4½ miles southeast of Malaga, N. Mex.	-	1967	10- 6-67	j12.9
					11- 3-67	17.4
					12- 1-67	41.0
					1-12-68	32.8
					2- 6-68	55.5
					2- 6-68	53.5
					2- 7-68	54.0
					2- 7-68	51.6
					2- 7-68	51.6
					3- 1-68	55.3
					4- 5-68	j11.4
					5- 2	17.3
					5-30	17.9
					6-28	j 9.97
					8- 2	23.3
					9- 5	13.8
Do.....	....do.....	SE¼NW¼ sec.33, T.24 S., R.29 E., at first ford 2.6 miles below Pierce Canyon Crossing.	-	1959	10- 6-67	15.4
				1961-64	11- 3-67	23.4
				1966-67	12- 1-67	48.5
					1-12-68	33.8
					2- 6-68	50.2
					2- 6-68	51.0
					2- 7-68	49.8
					2- 7-68	48.6
					2- 7-68	48.2
					3- 1-68	50.4
					4- 5-68	11.4
					5- 2-68	20.0
					5-30-68	18.7
					6-28-68	8.39
					8- 2-68	26.3
					9- 5-68	17.6
Pinon Creek	Salt Basin	Lat 32°31'50", long 105°10'00", in NE¼NE¼ sec.35, T.20 S., R.17 E., and 14 miles southeast of Pinon, N. Mex.	203	-	8-22-66	† 7,970
Box Canyon	....do.....	Lat 32°13'11", long 104°55'42", in SE¼NW¼ sec.7, T.24 S., R.19 E., about 8½ miles northwest of El Paso Gap, N. Mex., and about 22 miles north of Dell City, Tex.	87	-	8-23-66	† 5,450
		San Juan River basin				
San Juan	Colorado	SE¼ sec.18 T.29 N., R.9 W., at river mile 125, at State Highway 17, and 1 mile east of Blanco, N. Mex.	3,560	1927-55‡	11-14-67	273
				1962-63	11-20-67	294
				1967		
Do.....	....do.....	SE¼ sec.21, T.29 N., R.13 W., at river mile 99, above Animas River and 1 mile south of Farmington, N. Mex.	a5,880	1962-65	11-14-67	353
				1967	11-20-67	361

Measurements at miscellaneous sites

Discharge measurements made at miscellaneous sites during water year 1968

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Gila River basin						
Sapillo Creek	Gila River	SW¼ sec.33, T.14 S., R.13 W., in Gila National Forest, above Heart Bar Ranch, 0.7 mile below Meadow Creek, 2 miles below Lake Roberts dam and 18 miles north of Silver City, N. Mex.	-	1962 1964-67	10-25-67 11-13-67 6-19-68 7-16-68	3.12 3.08 3.45 1.05
New Model Canal	....do.....	NE¼SW¼ sec.6, T.19 S., R.21 W., 500 ft above New Mexico-Arizona State line and 2 3/4 miles west of Virden, N. Mex.	-	1939-53‡ 1953-67	10- 1-67 10-24-67 12- 7-67 12- 7-67 12-21-67	3.00 2.81 2.97 2.97 0

* Base flow.
† Peak flow.
‡ Operated as a continuous-record gaging station.
a Approximately.
b Measured 0.35 mile above mouth, but considered contribution to Rio Chama.
c Contributing area; total is 33.0 sq mi.
d Contributing area; total is 40.9 sq mi.
e Furnished by New Mexico State Highway Department.
f Does not include area of Hackberry Draw.
g Spring flow.
h Discharge affected by pumping for Carlsbad Caverns water supply.
j Discharge affected by diversion between Fishing Rock Crossing and this site.

Rio Chama - near La Puente to mouth.
Rio Grande - San Juan Pueblo to Otowi Bridge

Date.--Oct. 17-18, 1967; Mar. 19, 1968; and Sept. 11-12, 1968.

Reach.--From the regular gaging station "Rio Chama near La Puente" (Rio Chama river mile 91.4) to the mouth of Rio Chama (mile 0.0) and from the regular gaging station "Rio Grande above San Juan Pueblo" (Rio Grande river mile 17.2) to the regular gaging station "Rio Grande at Otowi Bridge near San Ildefonso" (mile 0.0). Due to the high flows which occurred in Rio Chama above the reservoirs during the early snowmelt period, only that reach of Rio Chama below Abiquiu Dam was included in the March investigation. Rio Chama enters the Rio Grande at mile 15.2. During the time all three investigations were being conducted there was some storage in both El Vado (mile 77.7) and Abiquiu (mile 31.8) Reservoirs (for contents see stations 8-2850 and 8-2869, respectively).

Most of the Rio Chama channel from La Puente downstream to river mile 26 is located on the floor of a relatively deep canyon having little or no flood plain. Downstream from mile 26 the valley widens considerably facilitating extensive irrigation by diversions from both banks of Rio Chama. The reach of the Rio Grande included in the investigations contains several thousand acres of irrigated land adjacent to the river, but irrigated primarily from tributary streams. Small farms and orchards comprise most of the irrigated land included in the investigations.

U. S. Geological Survey Plan and Profile of Rio Chama (1934-35) and of Rio Grande (1933-35) were used to determine river mile; U.S.G.S. topographic maps were used to determine location; and N. Mex. State Engineer Hydrographic Survey maps were used to determine the names and locations of irrigation ditches. Water temperatures were obtained at most measuring sites; however, no water samples were taken.

Previous investigations.--Oct. 11 and 13, 1966.

Summary.--Weather conditions were generally favorable for the investigations conducted in October and March. However, a change in the quantity of water released from El Vado Reservoir which occurred approximately 18 hours prior to the start of the October study may affect the utility of the investigation in that reach of the Rio Chama between El Vado and Abiquiu Reservoirs. The quality of the results from the September study below Abiquiu Dam was definitely affected by storm runoff which originated on tributaries of Rio Chama in the vicinity of the village of Abiquiu during the early evening of Sept. 10. Many discharge measurements were made on the recession of the peak caused by that storm.

Streamflow conditions at all regular gaging stations on Rio Chama and Rio Grande located within the investigated reaches are shown graphically in Fig. 3. The representations consist of 48-hour hydrographs beginning at 0000 hours on the day preceding the investigation. In addition, supplemental records of flow at temporary gaging sties on Rio Chama and diversion ditches at several valley cross-sections are available at the office of the U. S. Geological Survey in Santa Fe. Records of flow at regular gaging stations maintained by the U. S. Bureau of Reclamation and located on ditches bypassing the river gages "near Chamita" and "above San Juan Pueblo" are also available for further study.

All ditches which bypassed sites of river measurements on Rio Chama were measured and included in the tabulation so that total flow across the valley may be determined at each site. The same procedure was followed on the Rio Grande above San Juan Pueblo. Total surface flow, including that in the main channel and in ditches, was measured at sites across the Santa Cruz River valley near Sombrillo and the Pojoaque River valley at San Ildefonso.

All tributaries and diversions of the Rio Chama were measured except those tributaries on the right (west) bank between Abiquiu Dam and the village of Abiquiu. Those which were dry during all three investigations were not listed in the tabulation. Attempts were made to measure all return flows from any diversion.

With few exception, all measurements of flow were rated between good (± 5%) and fair (± 8%). Overall results of the three investigations are as follow: Oct. 18-19, good to excellent except for the reach between El Vado and Abiquiu Reservoirs which are poor to fair; March 19, good to excellent; and Sept. 11-12, good to excellent except for the reach downstream from Abiquiu Dam, which are poor to fair.

River mile	Stream	Location	Time	Water temp. °C	Discharge, in cfs: Main stream	Trib. or diver.	Indic. gain or loss	Time	Water temp. °C	Discharge, in cfs: Main stream	Trib. or diver.	Indic. gain or loss	Time	Water temp. °C	Discharge, in cfs: Main stream	Trib. or diver.	Indic. gain or loss
Rio Chama - near La Puente to mouth--Continued			Oct. 17, 1967										Sept. 11, 1968				
35.5	Rio Chama	Lat 36°16'00", long 106°27'20", 1,000 ft abv site of old hwy br (abv Res pool)	1300	14	65.5	-	+2.9	Deleted from March Investigation					-	-	-	-	-
32.8 (mouth)	Canones Creek*	Lat 36°13'55", long 106°26'35", 1.1 mi abv mouth when Abiquiu Res is dry	1425	16	-	+4.89	-						1330	23	-	+4.08	-
			Oct. 18, 1967					Mar. 19, 1968					Sept. 12, 1968				
31.3	Rio Chama	Lat 36°14'10", long 106°25'00", blw Abiquiu Dam (sta 8-2870)	0930	14	50.6	-	-	0940	6	101	-	-	0950	16	53.5	-	-
30.1 (head)	Abeyta Trujillo ditch†	Lat 36°13'45", long 106°23'50", at head	0930	10	-	-2.41	-	0800	-	-	0	-	0815	-	-	0	-
26.1 (head)	Jose Pablo Gonzales ditch†	Lat 36°12'45", long 106°20'50", at head	1025	10	-	-22.3	-	0910	6	-	-15.2	-	0900	16	-	-15.1	-
25.5 (mouth)	Waste†	Lat 36°12'25", long 106°20'35", from Jose Pablo Gonzales ditch	1040	-	-	0	-	0920	6	-	+4.11	-	0900	15	-	+3.06	-
24.0 (mouth)	do	Lat 36°12'40", long 106°19'30", from Jose Pablo Gonzales ditch	1110	12	-	+10.4	-	0955	6	-	+.02	-	0940	16	-	+.07	-
	Jose Pablo Gonzales ditch†	Lat 36°12'55", long 106°19'20", adjacent to mi 23.9	1125	11	-	(b6.47)	(-5.4)	1225	-	-	(b11.3)	(+.2)	1110	16	-	(b11.7)	(-.3)
23.9	Rio Chama	Lat 36°12'45", long 106°19'25", 200 ft blw mouth of Abiquiu Creek	1225	12	42.8	-	+6.5	1130	-	91.7	-	+2	1205	-	34.6	-	-6.9
23.8 (mouth)	Waste†	Lat 36°12'55", long 106°19'20", from Jose Pablo Gonzales ditch	1130	-	-	0	-	1225	-	-	+11.3	-	1005	16	-	+3.36	-
22.3 (mouth)	do	Lat 36°13'20", long 106°18'10", from Jose Pablo Gonzales ditch	1145	-	-	0	-	1230	-	-	0	-	1155	17	-	+.05	-
20.3 (head)	Acequia de la Puente*	Lat 36°13'00", long 106°16'35", 0.3 mi blw head	1130	12	-	-2.35	-	0935	-	-	0	-	0930	-	-	0	-
20.2 (mouth)	Waste†	Lat 36°13'05", long 106°16'45", at end of Jose Pablo Gonzales ditch	1200	14	-	+.02	-	1240	-	-	0	-	1215	18	-	+2.31	-

River mile	Stream	Location	Oct. 18, 1967 Time	Water temp. °C	Discharge, in cfs: Main stream	Trib. or diver.	Indic gain or loss	Mar. 19, 1968 Time	Water temp. °C	Discharge, in cfs: Main stream	Trib. or diver.	Indic. gain or loss	Sept. 12, 1968 Time	Water temp. °C	Discharge, in cfs: Main stream	Trib. or diver.	Indic. gain or loss
Rio Chama - near La Puente to mouth--Continued																	
20.1 (head)	Valentine Martinez*	Lat 36°12'55", long 106°16'15", 0.3 mi blw head and blw returns	1105	-	-	0	-	0940	-	-	0	-	1100	18	-	-.22	-
20.1 (head)	Acequia Marino†	Lat 36°13'00", long 106°16'20", 0.2 mi blw head and blw returns	1210	13	-	-3.28	-	0945	-	-	0	-	1110	19	-	-.72	-
18.7 (head)	Ferran ditch†	Lat 36°13'00", long 106°15'10", at head	0820	8	-	-8.12	-	0850	4	-	-5.76	-	0840	15	-	-3.59	-
-	Waste†	Lat 36°13'05", long 106°14'55", from Acequia Marino at end into Ferran ditch	1200	-	-	0	-	1030	-	-	0	-	1315	20	-	(.04)	-
18.2	do	Lat 36°13'00", long 106°14'50", from Ferran ditch just upst fr St Hwy 96	1220	-	-	+.02	-	1120	9	-	+1.62	-	1350	20	-	+.04	-
-	Ferran ditch†	Lat 36°13'00", long 106°14'50", at St Hwy 96 adjacent to mi 18.2	1340	-	-	(b6.82)	(-1.28)	1310	-	-	(b4.42)	(+.28)	1310	17	-	(b1.69)	(-1.90)
-	Acequia de la Puente*	Lat 36°12'45", long 106°15'15", at St Hwy 96 adjacent to mi 18.2	1600	-	-	(b1.55)	(-.80)	1415	-	-	0	-	1330	-	-	0	-
18.2	Rio Chama	Lat 36°13'00", long 106°14'50", at St Hwy 96 nr Abiquiu (discontinued station 8-2875)	1500	-	38.5	-	+9.4	1345	5	87.2	-	-11.7	1350	21	42.6	-	+6.8
17.9 (head)	Tierra Azul ditch*	Lat 36°12'50", long 106°14'40", at head	1630	-	-	-0.14	-	1430	-	-	0	-	1400	-	-	0	-
17.9 (mouth)	Waste†	Lat 36°12'55", long 106°14'35", from Ferran ditch into arroyo	1245	-	-	0	-	1200	9	-	+.80	-	1410	21	-	+.25	-
17.7 (mouth)	do	Lat 36°12'45", long 106°14'25", from Ferran ditch	1250	-	-	0	-	1245	9	-	+.10	-	1430	21	-	+.03	-
16.4 (mouth)	do	Lat 36°12'05", long 106°13'35", from end of Ferran ditch into El Rito	1315	-	-	0	-	1310	9	-	+3.48	(-.04)	1450	21	-	+.04	(-1.37)
16.3 (head)	Martinez ditch†	Lat 36°11'50", long 106°13'40", at head	0910	8	-	-1.38	-	0940	5	-	-.92		0930	15	-	-8.43	-
16.1 (mouth)	Waste†	Lat 36°11'45", long 106°13'40" from Martinez ditch	1050	8	-	+.01	-	1320	-	-	0	-	1520	22	-	+2.17	-

River mile	Stream	Location	Time	Water temp. °C	Discharge, in cfs			Time	Water temp. °C	Discharge, in cfs			Time	Water temp. °C	Discharge, in cfs		
					Main stream	Trib. or diver.	Indic. gain or loss			Main stream	Trib. or diver.	Indic. gain or loss			Main stream	Trib. or diver.	Indic. gain or loss
Rio Chama - near La Puente to mouth--Continued			Oct. 18, 1967					Mar. 19, 1968					Sept. 12, 1968				
15.7 (mouth)	Waste†	Lat 36°11'35", long 106°13'20", from Martinez ditch	1110	10	-	+1.10	-	1330	-	-	0	-	1540	-	-	0	-
15.0 (head)	Manza-nares and Montoya ditch*	Lat 36°11'10", long 106°12'50", at head	1005	8	-	-.23	-	0950	-	-	0	-	1000	16	-	-.46	-
14.8 (head)	Acequia del Rio de Chama†	Lat 36°11'15", long 106°12'40", at head	1120	9	-	-.49	-	1000	-	-	0	-	1105	16	-	-15.0	-
14.8 (mouth)	Waste*	Lat 36°11'15", long 106°12'35", from Manzanares and Montoya ditch	0935	8	-	+.03	-	-	-	-	-	-	1000	-	-	0	-
14.7 (head)	Martinez and Duranes ditch*	Lat 36°11'15", long 106°12'30", at head	1045	9	-	-4.66	-	1010	-	-	0	-	1030	16	-	-11.0	-
14.3 (mouth)	Waste†	Lat 36°11'20", long 106°12'15", from Acequia del Rio de Chama	0945	-	-	0	-	-	-	-	-	-	1330	20	-	+.73	-
14.1 (mouth)	Waste*	Lat 36°11'15", long 106°12'10", from Martinez and Duranes ditch	0955	-	-	0	-	-	-	-	-	-	1000	15	-	+1.38	-
14.0 (mouth)	Waste†	Lat 36°11'10", long 106°12'00", from Acequia del Rio de Chama	1000	-	-	0	-	-	-	-	-	-	1400	20	-	+.06	-
13.7 (mouth)	do	Lat 36°10'50", long 106°11'45", from Acequia del Rio de Chama	1010	-	-	0	-	-	-	-	-	-	1435	20	-	+.87	-
13.5 (mouth)	Waste*	Lat 36°10'45", long 106°11'55", from Martinez and Duranes ditch	0855	-	-	+.18	-	-	-	-	-	-	1030	-	-	0	-
11.6 (mouth)	Waste†	Lat 36°10'00", long 106°10'30", from Acequia del Rio de Chama	1020	-	-	0	-	-	-	-	-	-	1510	20	-	+.56	-

River mile	Stream	Location	Time	Water temp. °C	Discharge, in cfs			Time	Water temp. °C	Discharge, in cfs			Time	Water temp. °C	Discharge, in cfs		
					Main stream	Trib. or diver.	Indic. gain or loss			Main stream	Trib. or diver.	Indic. gain or loss			Main stream	Trib. or diver.	Indic. gain or loss
Rio Chama - near La Puente to mouth--Continued			Oct. 18, 1967					Mar. 19, 1968					Sept. 12, 1968				
8.0	Rio Chama	Lat 36°07'40", long 106°08'55", about 2,000 ft above head of Chili ditch	1350	20	50.8	-	+17.9	1100	10	109	-	+18	1320	24	59.4	-	+45.6
7.6 (head)	Chili ditch*	Lat 36°07'15", long 106°09'05", at head	1445	20	-	-6.78	-	1200	-	-	0	-	1410	23	-	-8.66	-
6.8 (mouth)	Waste*	Lat 36°06'30", long 106°09'10", from Chili ditch into Arroyo del Oso	1330	15	-	+.10	-	-	-	-	-	-	1545	-	-	0	-
6.3 (mouth)	Rio Ojo Caliente†	Lat 36°07'25", long 106°07'25", about 1.5 mi above mouth	1235	17	-	+5.44	-	0910	-	-	+14.7	-	1240	29	-	+.26	-
5.5 (mouth)	Waste*	Lat 36°06'00", long 106°08'20", from Chili ditch	1400	15	-	+1.65	-	-	-	-	-	-	1550	-	-	0	-
4.1 (head)	Chamita ditch†	Lat 36°05'05", long 106°07'30", at head	1330	15	-	-13.2	-	0850	-	-	0	-	1320	24	-	-18.8	-
4.1 (head)	Hernandez ditch*	Lat 36°05'05", long 106°07'35", at head	1410	17	-	-9.54	-	0850	-	-	0	-	1350	25	-	-21.2	-
-	Chamita ditch†	Lat 36°04'45", long 106°06'40", 0.4 mile upstr fr U.S. Hwy 285 (sta 8-2895)	1010	11	-	(b9.26)	(-3.9)	-	-	-	-	-	1310	22	-	(b14.3)	(-4.5)
-	Hernandez ditch*	Lat 36°04'20", long 106°07'10", 75 ft upstr fr U.S. Hwy 285 (sta 8-2898)	1200	-	-	(b8.59)	(-.95)	-	-	-	-	-	1500	22	-	(b17.9)	(-3.3)
2.8	Rio Chama	Lat 36°04'25", long 106°06'40", at U.S. Hwy 285, nr Chamita (sta 8-2900)	1105	10	39.0	-	+10.5	1120	-	135	-	+11	1410	24	29.0	-	+18.0
2.0 (head)	Salazar ditch*	Lat 36°03'50", long 106°06'35", at head	1505	17	-	-8.42	-	1030	-	-	0	-	1430	27	-	-4.87	-

RIO GRANDE BASIN
SEEPAGE INVESTIGATIONS

River mile	Stream	Location	Oct. 18, 1967 Time	Water temp. °C	Discharge, in cfs: Main stream	Trib. or diver.	Indic. gain or loss	Mar. 19, 1968 Time	Water temp. °C	Discharge, in cfs: Main stream	Trib. or diver.	Indic. gain or loss	Sept. 12, 1968 Time	Water temp. °C	Discharge, in cfs: Main stream	Trib. or diver.	Indic. gain or loss
Rio Grande - San Juan Pueblo to Otowi Bridge																	
-	San Juan lateral†	Lat 36°04'05", long 106°04'10", 0.9 mi N of San Juan Pueblo (sta 8-2801)	0800	-	-	0	-	1040	-	-	0	-	0900	16	-	(c1.19)	-
-	San Juan Pueblo ditch†	Lat 36°03'55", long 106°04'10", 0.7 mi N of San Juan Pueblo (sta 8-2802)	0805	-	-	0	-	1045	-	-	0	-	0945	16	-	(c9.63)	-
-	Guique ditch*	Lat 36°04'15", long 106°04'40", 1.1 mi NW of San Juan Pueblo (sta 8-2807)	0940	9	-	(c5.45)	-	0940	-	-	0	-	1230	17	-	(c7.03)	-
17.2	Rio Grande	Lat 36°04'00", long 106°04'30", $\frac{3}{4}$ mi upstr fr St Hwy 74 and San Juan Pueblo (sta 8-2811)	0850	11	284	-	-	1010	4	748	-	-	1040	18	336	-	-
16.4	Waste*	Lat 36°03'25", long 106°04'55", fr Chamita ditch (diver fr Rio Chama) into Rio Grande	1600	12	-	+1.50	-	-	-	-	-	-	-	-	-	-	-
-	Sombrillo ditch†	Lat 35°58'50", long 106°02'25", at rd crossing at Sombrillo (adjacent to Santa Cruz River)	1030	8	-	(d.09)	-	0925	4	-	(d2.09)	-	1040	16	-	(d1.06)	-
-	La Mesilla-Ortega-Garcia ditch†	Lat 35°59'10", long 106°02'20", at rd cross nr Sombrillo (adjacent to Santa Cruz River)	1000	9	-	(d.64)	-	0800	-	-	0	-	1005	16	-	(d35.1)	-
10.8 (mouth)	Santa Cruz River†	Lat 35°59'10", long 106°02'20", at rd cross nr Sombrillo, 2 mi upstr fr mouth	0935	8	-	(d.08)	-	0815	2	-	(d2.95)	-	0930	16	-	(d11.9)	-
-	Lomita-Herrera ditch*	Lat 35°59'10", long 106°02'20", at rd cross nr Sombrillo (adjacent to Santa Cruz River)	0915	7	-	(d.41)	-	0845	4	-	(d.33)	-	0900	15	-	(d8.22)	-
-	Santa Cruz-Llano ditch*	Lat 35°59'20", long 106°02'00", at St Hwy 76 cross nr Sombrillo (adjacent to Santa Cruz River)	0820	6	-	(d3.42)	-	0830	-	-	0	-	0800	14	-	(d14.3)	-
9.0 (mouth)	Santa Clara Creek*	Lat 35°58'35", long 106°10'15", 6 mi upstr fr mouth (crest-stage sta 8-2920)	1450	15	-	(e3.14)	-	0730	2	-	(e3.54)	-	1545	21	-	(e3.35)	-

River mile	Stream	Location	Time	Water temp. °C	Discharge, in cfs			Time	Water temp. °C	Discharge, in cfs			Time	Water temp. °C	Discharge, in cfs		
					Main stream	Trib. or diver.	Indic. gain or loss			Main stream	Trib. or diver.	Indic. gain or loss			Main stream	Trib. or diver.	Indic. gain or loss
Rio Grande - San Juan Pueblo to Otowi Bridge--Continued			Oct. 18, 1967					Mar. 19, 1968					Sept. 12, 1968				
4.1	Rio Grande	Lat 35°55'15", long 106°06'55", opposite Black Mesa	1320	14	336	-	-	1215	8	856	-	-	1330	20	440	-	-
-	Ortiz ditch†	Lat 35°53'30", long 106°07'00", at rd cross at San Ildefonso (adjacent to Pojoaque River)	1225	-	-	(f.06)	-	1100	-	-	0	-	1210	21	-	(f.65)	-
-	S.Br. Acequia del Medio†	Lat 35°53'35", long 106°07'10", at rd cross at San Ildefonso (adjacent to Pojoaque River)	1220	-	-	(f.004)	-	1055	-	-	0	-	1155	-	-	0	-
-	Acequia del Montoya†	Lat 35°53'50", long 106°06'55", at rd cross at San Ildefonso (adjacent to Pojoaque River)	1150	11	-	(f.19)	-	1050	-	-	0	-	1150	18	-	(f.13)	-
2.8	Pojoaque River	Lat 35°53'55", long 106°06'50", at rd cross at San Ildefonso, 0.6 mi above mouth	1130	18	-	(.21)	-	1025	6	-	+4.34	-	1130	-	-	(.02)	-
0.0	Rio Grande	Lat 35°52'30", long 106°08'30", at Otowi Bridge (sta 8-3130)	1510	14	328	-	-8	1600	8	893	-	+33	1510	21	433	-	-7

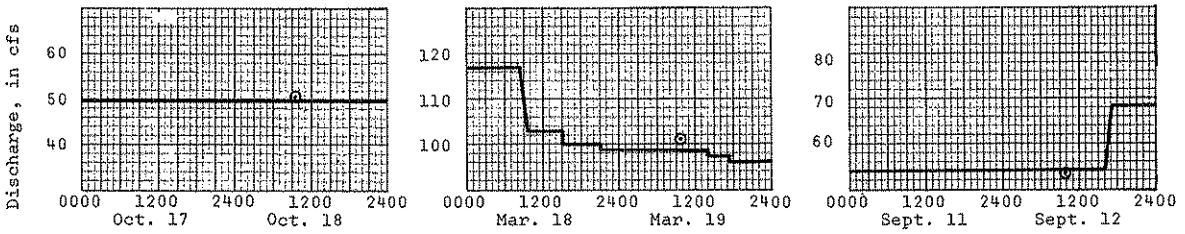
Note.--Measurements not involved in the computation of gains or losses of the Rio Chama or Rio Grande are enclosed in parentheses.
* Right bank tributary of diversion.
† Left bank tributary or diversion.
a Measurement 0.35 mi above mouth; impossible to determine flow at mouth because of construction activity.
b Add to Rio Chama discharge at this site to determine total flow of valley cross section.
c Add to Rio Grande discharge at this site to determine total flow of valley cross section.
d Add to Santa Cruz River discharge at this site to determine total flow of valley cross section.
e No surface flow at mouth.
f Add to Pojoaque River discharge at this site to determine total flow of valley cross section.

Rio Chama - La Puente to mouth

Rio Chama near La Puente, N. Mex. (mile 91.4)

Rio Chama below El Vado Dam, N. Mex. (mile 76.2)

Rio Chama above Abiquiu Reservoir, N. Mex. (mile 47.4)

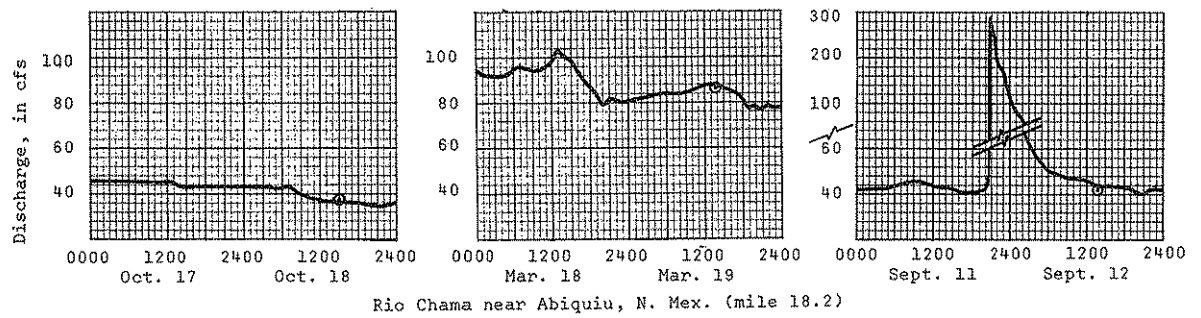


Rio Chama below Abiquiu Dam, N. Mex. (mile 31.3)

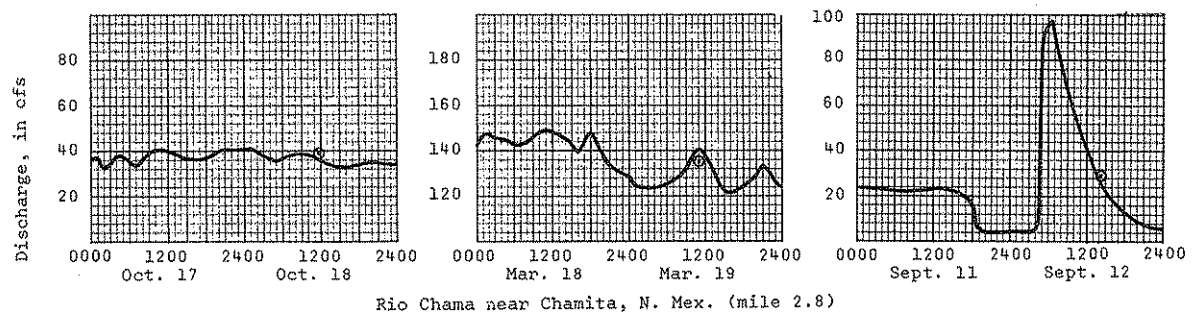
⊙-Discharge measurement.

Figure 3.--Hydrographs at regular stations during Oct. 1967, Mar. and Sept. 1968 seepage investigations. Rio Chama-La Puente to mouth and Rio Grande-San Juan Pueblo to Otowi Bridge.

Rio Chama - La Puente to mouth - continued

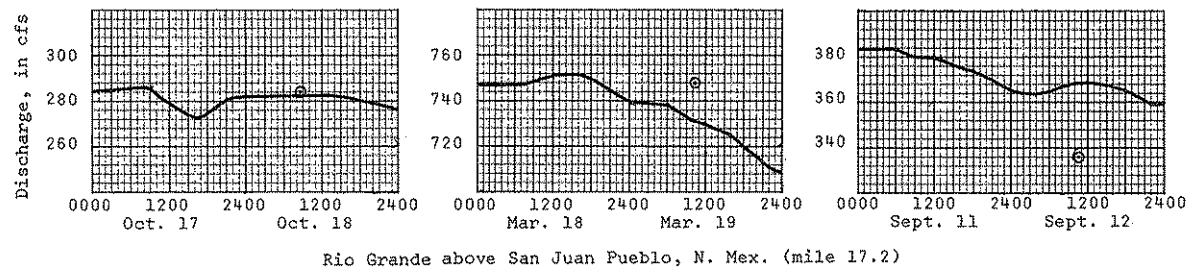


Rio Chama near Abiquiu, N. Mex. (mile 18.2)

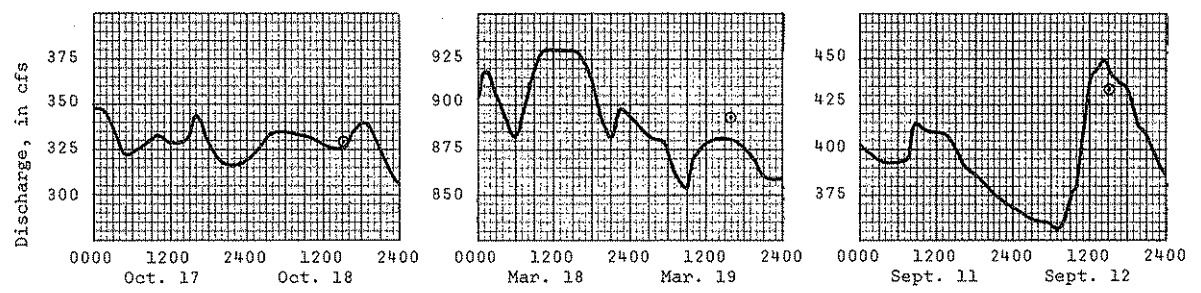


Rio Chama near Chamita, N. Mex. (mile 2.8)

Rio Grande - San Juan Pueblo to Otowi Bridge



Rio Grande above San Juan Pueblo, N. Mex. (mile 17.2)



Rio Grande at Otowi Bridge near San Ildefonso, N. Mex. (mile 0.0)

Figure 3.--Hydrographs at regular stations during Oct. 1967, Mar. and Sept. 1968 seepage investigations. Rio Chama-La Puente to mouth and Rio Grande-San Juan Pueblo to Otowi Bridge - Continued.

River mile	Stream	Location	Time	Water temp. °C	Discharge, in cfs			Time	Water temp. °C	Discharge, in cfs			Time	Water temp. °C	Discharge, in cfs		
					Main stream	Trib. or diver.	Indic. gain or loss			Main stream	Trib. or diver.	Indic. gain or loss			Main stream	Trib. or diver.	Indic. gain or loss
Río Chama - near La Puente to mouth			Oct. 17, 1967										Sept. 11, 1968				
91.4	Río Chama	Lat 36°39'45", long 106°38'00", nr La Puente (sta 8-2841)	0850	9	42.8	-	-						0850	8	62.1	-	-
86.1	do	Lat 36°39'45", long 106°42'00", abv mouth of Willow Creek (misc meas site)	1040	6	42.4	-	-0.4						1050	11	61.5	-	-0.6
85.8 (mouth)	Willow Creek*	Lat 36°39'45", long 106°42'15", 250 ft abv mouth	1140	7	-	+2.49	-						1515	14	-	a+2.40	-
85.8	Río Chama	Lat 36°39'45", long 106°42'45", just blw mouth of Willow Creek	1240	7	44.1	-	-.8						1145	12	64.3	-	+.4
84.8	do	Lat 36°39'40", long 106°43'10", blw mouth of Willow Creek (misc meas site)	1440	12	45.2	-	+1.1						1310	12	65.8	-	+1.5
76.2	Río Chama	Lat 36°34'50", long 106°43'30", 1.5 mi blw El Vado Dam (sta 8-2855)	0920	13	39.6	-	-						0840	16	45.9	-	-
73.4 (mouth)	Río Nutrias†	Lat 36°33'10", long 106°42'55", 250 ft upstream from mouth	1130	5	-	+.14	-						1100	16	-	+.38	-
73.3	Río Chama	Lat 36°33'05", long 106°42'55", blw mouth of Río Nutrias	1200	12	38.9	-	-.8						1040	16	49.4	-	+3.1
62.7 (mouth)	Río Cebolla†	Lat 36°27'40", long 106°42'10", 300 ft upstream from mouth	1725	14	-	+.14	-						1600	-	-	0	-
62.4	Río Chama	Lat 36°27'30", long 106°42'10", blw mouth of Río Cebolla	1620	14	37.5	-	-1.5						1615	19	49.8	-	+.4
55.0	do	Lat 36°22'10", long 106°40'45", blw mouth of Río Gallina	0925	7	53.8	-	+16.3						1215	20	48.8	-	-1.0
47.4	do	Lat 36°19'05", long 106°35'50", abv Abiquiu Res (sta 8-2865)	1045	8	62.2	-	+8.4						1335	27	52.3	-	+3.5
40.1 (mouth)	Río Puerco*	Lat 36°15'45", long 106°31'30", 25 ft abv mouth when Abiquiu Res is dry	1315	-	-	0	-						1150	23	-	+.95	-
40.0	Río Chama	Lat 36°15'50", long 106°31'25", 350 ft blw mouth of Río Puerco (½ mi abv Res pool)	-	-	-	-	-						1110	19	52.9	-	-.3
36.6 (mouth)	Canjilon Creek† (formerly Arroyo Seco)	Lat 36°17'10", long 106°28'05", 600 ft abv old hwy bridge	1205	14	-	+.36	-						1500	-	-	+.25	-

Deleted from March Investigation

RIO GRANDE BASIN
SEEPAGE INVESTIGATIONS

Pecos River - from "near Acme" to Lake McMillan

Reach.--From the gage "near Acme" (8-3860), river mile 94.0, to the head of Lake McMillan, a distance of about 100 river miles. The streambed is mostly sand with an occasional rock outcrop. Banks are relatively low and salt-cedar covered. The Bureau of Reclamation in accordance with the Pecos River Salt Cedar Eradication Program started clearing salt cedars beginning at the Bob Crosby bridge (river mile 97.0) in April 1966. At the time of this investigation the salt cedars had been cleared down to the Hagerman bridge (river mile 46.7). The river channel from the "near Artesia" (8-3965) gage to the head of Kaiser Channel has been realigned during recent years and many of the former elbows have been eliminated. U. S. G. S. Plan and Profile of the Pecos River, Lake McMillan to Pecos, N. Mex. maps used for river mile and U. S. G. S. topographic maps for land locations.

Previous investigations.--At least once a year 1953-60, 1962-66.

Date.--Jan. 31, Feb. 1, 1968. Used Mountain Standard Time, 0000 - 2400 hours time increments.

Weather.--During the period Jan. 19-21 a slow general rain occurred over the entire area with amounts ranging from 1.5 - 2.5 inches being recorded. From Jan. 22-30 the weather was good with above normal temperatures, clear skies, and light winds. During the morning hours (until 0900 hours) of Jan. 31, heavy fog blanketed the Pecos River valley throughout the reach of this investigation; no measurable precipitation. As the fog dissipated a south wind began to blow. By 1200 hours winds with gusts of 25 - 30 mph were blowing in the Dexter-Hagerman area. In the Roswell - Acme area the winds were more moderate.

The wind receded but continued to blow throughout the night. During the morning hours of Feb. 1 the wind increased with gusts of 15 - 40 mph being recorded. The wind caused large waves, fluctuation in stage, and at times affected the accuracy of the measurements.

Summary.--This investigation started on Jan. 31 with the reach from "near Acme" to river mile 41.9 being completed that day. The remainder from river mile 41.9 to Lake McMillan was completed on Feb. 1. During the morning of Jan. 31 the Bitter Lakes Wildlife Refuge personnel began draining one of the refuge ponds into Bitter Creek. This increase in flow affected the accuracy of the results from the mouth of Bitter Creek, river mile 78.4, to above the mouth of the Rio Hondo, river mile 75.0. There were no diversions from the river during the period of this investigation.

The streamflow was above normal for recent years, possibly as a result of much lighter groundwater usage during the preceding fall and winter months.

Temporary recorders were installed at three sites, below the Rio Hondo (river mile 74.5), near Hagerman (river mile 53.2), and at river mile 41.9, to supplement the four regular gages in the reach. Due to equipment failures the quality of the record obtained at the temporary sites was poor.

Discharge graphs at the gages for the period Jan. 30 to Feb. 3 are shown in Figure 5.

Results of this investigation should be good to fair.

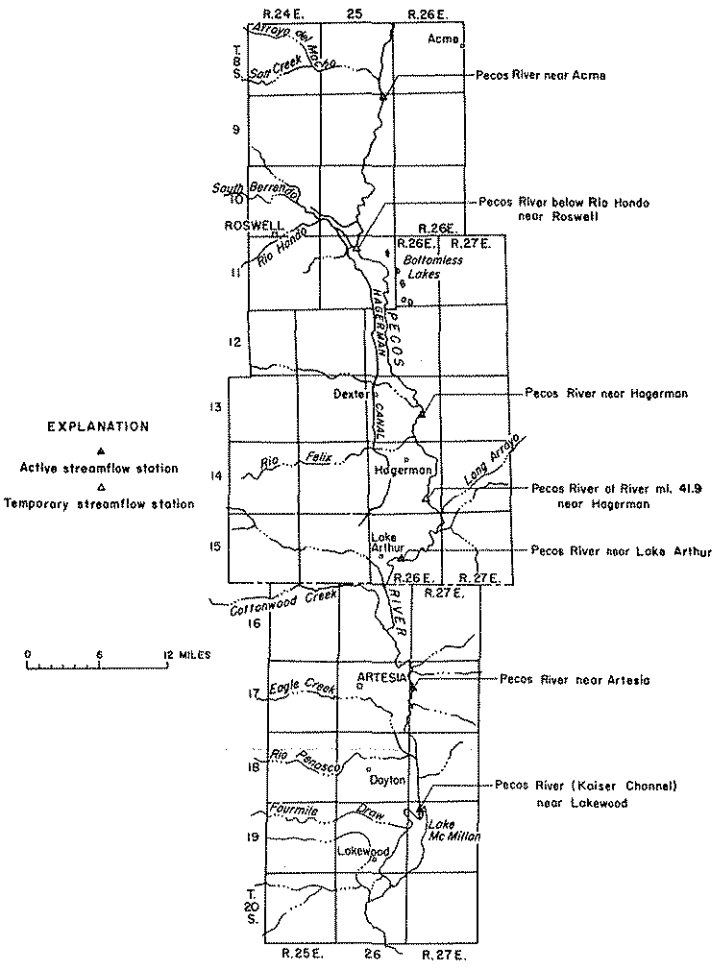


Figure 4.--Seepage Investigation - Pecos River, Acme to Lake McMillan, January 31, February 1, 1968.

Pecos River - Acme to Lake McMillan, N. Mex.

Pecos River mile	Stream	Location	Time	Water temp. °C	Discharge, in cfs		
					Main stream	Tributary or Diversion	Indicated gain or loss
		January 31, 1968					
94.0	Pecos River	NE¼SW¼NW¼ sec.14. T.9 S., R.25 E., near Acme (station 8-3860)	0730	6	12.9	-	-
91.7	do.	W½SW¼NE¼ sec.22, T.9 S., R.25 E., at pipeline crossing	0840	6	11.5	-	-1.4
89.1	do.	SE¼SW¼SE¼ sec.27, T.9 S., R.25 E., above Bitter Lakes	1050	11	12.8	-	+1.3
84.9	do.	NE¼SW¼SW¼ sec.11, T.10 S., R.25 E., at Bitter Lakes above inflow	1145	13	13.8	-	+1.0
78.4	do.	NE¼NE¼NE¼ sec.33, T.10 S., R.25 E., above mouth of Bitter Creek	1330	15	14.8	-	+1.0
--	Bitter Creek*	NW¼NE¼SW¼ sec.28, T.10 S., R.25 E., 0.9 mi. above mouth	1235	12	-	(15.2)	-
78.4	do.	NE¼NE¼NE¼ sec.33, T.10 S., R.25 E., at mouth	1400	13	-	15.7	(+.5)
77.3	Pecos River	SE¼SW¼SW¼ sec.34, T.10 S., R.25 E., below Tatum bridge	1445	13	30.8	-	+.3
74.7	do.	SE¼SE¼NE¼ sec.9, T.11 S., R.25 E., above Rio Hondo	1530 0800	14 8	29.8 30.1	- -	-1.0 -
-	Hagerman Canal	NW¼SW¼NE¼ sec.31, T.10 S., R.25 E., at head	0800	8	-	(4.68)	-
-	Roswell Drainage District X-Line	NW¼SE¼NW¼ sec.5, T.11 S., R.25 E., at entrance to Hagerman Canal	1010	-	-	(.30)	-
-	South Spring Creek*	SE¼SE¼SE¼ sec.8, T.11 S., R.25 E., at entrance to Hagerman Canal	1100	13	-	(1.53)	-
-	Pamona Drain*	NW¼NW¼SE¼ sec.22, T.11 S., R.25 E., at entrance to Hagerman Canal	1450	17	-	(.88)	-
-	Rio Hondo	NE¼SW¼SE¼ sec.32, T.10 S., R.25 E., at U. S. Hwy 380 bridge	0930	10	-	(3.73)	-
-	South Spring Drain*	SE¼NW¼SE¼ sec.9, T.11 S., R.25 E., at road crossing (tributary to Rio Hondo - Hagerman Canal flow diverted to South Spring Drain above this site)	1415	17		(7.21)	-
74.6	Rio Hondo*	NE¼NE¼SE¼ sec.9, T.11 S., R.25 E., at mouth	0940	9	-	14.0	(+3.1)
74.5	Pecos River	SE¼NE¼SE¼ sec.9, T.11 S., R.25 E., below Rio Hondo (temporary recorder)	0910	8.5	44.0	-	-.1
74.1	East Grand Plains Drainage District "D" line*	SE¼SW¼SW¼ sec.10, T.11 S., R.25 E., at mouth	0800	14	-	.70	-
73.6	East Grand Plains Drainage District "A-B-C" line*	NW¼SW¼NE¼ sec.15, T.11 S., R.25 E., at mouth	0825	10	-	.91	-
72.7	Gravel Pit Drain*	SE¼SE¼NW¼ sec.14, T.11 S., R.25 E., at mouth	0930	9	-	.84	-
71.4	Pecos River	NW¼SE¼SW¼ sec.13, T.11 S., R.25 E	1100	15	46.1	-	-.35
67.6	do.	SE¼SW¼NW¼ sec.36, T.11 S., R.25 E., below Oasis-Miller drain	1210	13.5	50.5	-	+4.4
64.5	do.	S½NE¼NE¼ sec.17, T.12 S., R.26 E., at Transwestern pipeline crossing	1310	14.5	54.2	-	+3.7
61.7	do.	SE¼NE¼SE¼ sec.29, T.12 S., R.26 E	1430	14.5	55.8	-	+1.6
61.4	Nine Mile Draw*	SW¼SE¼SE¼ sec.29, T.12 S., R.26 E., at mouth	1030	8	-	.10	-
60.9	Pecos River	NW¼SW¼NW¼ sec.33, T.12 S., R.26 E	1530	14	57.0	-	+1.1
58.4	Zuber Hollow Wasteway	SE¼SE¼SE¼ sec.4, T.13 S., R.26 E., at mouth	1140	9	-	.48	-
58.1	Pecos River	SW¼NW¼NW¼ sec.10, T.13 S., R.26 E., at Dexter bridge.	1620 0715	13 9.5	56.3 52.5	- -	-1.2 -

Pecos River - Acme to Lake McMillan, N. Mex.--Continued

Pecos River mile	Stream	Location	Time	Water temp. °C	Discharge, in cfs		
					Main stream	Tributary or Diversion	Indicated gain or loss
		January 31, 1968 (continued)					
55.4	do.	NE¼NW¼SW¼ sec.14, T.13 S., R.26 E.	0815	10	54.5	-	+2.0
53.2	do.	SW¼SW¼SE¼ sec.23, T.13 S., R.26 E. (temporary recorder)	0910	11.5	57.2	-	+2.7
50.7	do.	NW¼SW¼NW¼ sec.35, T.13 S., R.26 E.	1015	11.5	57.7	-	+.5
-	Rio Felix*	SW¼SE¼SE¼ sec.34, T.13 S., R.26 E., ¾ mi. above mouth	1100	13	-	.96	-
49.2	Pecos River	SE¼SE¼NW¼ sec.2, T.14 S., R.26 E.	1140	13.5	58.9	-	+.2
46.7	do.	SE¼NE¼NE¼ sec.12, T.14 S., R.26 E., at Hagerman bridge	1300	15.5	58.9	-	0
44.2	do.	SW¼SW¼SE¼ sec.13, T.14 S., R.26 E.	1355	15	60.6	-	+1.7
43.0	do.	NW¼NW¼NE¼ sec.25, T.14 S., R.26 E.	1450	15	61.3	-	+.7
41.9	do.	NE¼SW¼SW¼ sec.25, T.14 S., R.26 E. (temporary recorder)	1600	15	65.3	-	+4.0
		February 1, 1968					
41.9	Pecos River	NE¼SW¼SW¼ sec.25, T.14 S., R.26 E. (temporary recorder)	0800	7.5	62.7	-	-
39.8	do.	SE¼SE¼SW¼ sec.31, T.14 S., R.27 E., above Buffalo Valley pump	0805	8.5	59.0	-	-3.7
35.1	Steve Mason drain†	NE¼NW¼SW¼ sec.18, T.15 S., R.27 E., at mouth	0900	6	-	.05	-
34.7	Pecos River	NW¼SW¼SE¼ sec.13, T.15 S., R.26 E.	1010	9	60.8	-	+1.8
30.6	do.	NE¼SW¼NE¼ sec.27, T.15 S., R.26 E., near Lake Arthur (station 8-3955)	1120	10	63.2	-	+2.4
26.5	do.	SE¼SE¼SE¼ sec.32, T.15 S., R.26 E.	1220 0800	16 8	61.4 65.5	- -	-1.8 -
20.65	do.	NE¼SE¼NW¼ sec.26, T.16 S., R.26 E.	0910	8	65.0	-	-.5
20.6	Cottonwood Creek*	NE¼SE¼NW¼ sec.26, T.16 S., R.26 E., at mouth	0945	7	-	.26	-
16.0	Pecos River	NW¼NW¼NW¼ sec.12, T.17 S., R.26 E.	1100	10	67.0	-	+1.7
12.4	do.	SE¼NW¼NW¼ sec.18, T.17 S., R.27 E., near Artesia (station 8-3965)	1215 0915	11 8.5	66.9 64.2	- -	-.1 -
3.4	do.	NW¼NW¼SE¼ sec.7, T.18 S., R.27 E.	1030	9.5	65.9	-	+1.7
-	do.	NE¼NW¼SE¼ sec.5, T.19 S., R.27 E., (Kaiser Channel) near Lakewood (station 8-3995)	1140	11	61.8	-	-4.1
-	do.	SE¼NE¼SE¼ sec.18, T.19 S., R.27 E.	1235	12.5	61.2	-	-.6

Note.--Measurements not involved in the computation of gains or losses of the Pecos River are enclosed in parentheses.
* Right bank.
† Left bank.

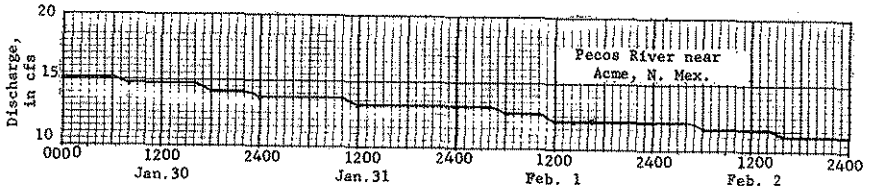


Figure 5.--Hydrographs showing hourly discharge at gaging stations in the reach of the Pecos River from "near Acme" to Lake McMillan.

Pecos River - Acme to Lake McMillan, N. Mex.--Continued

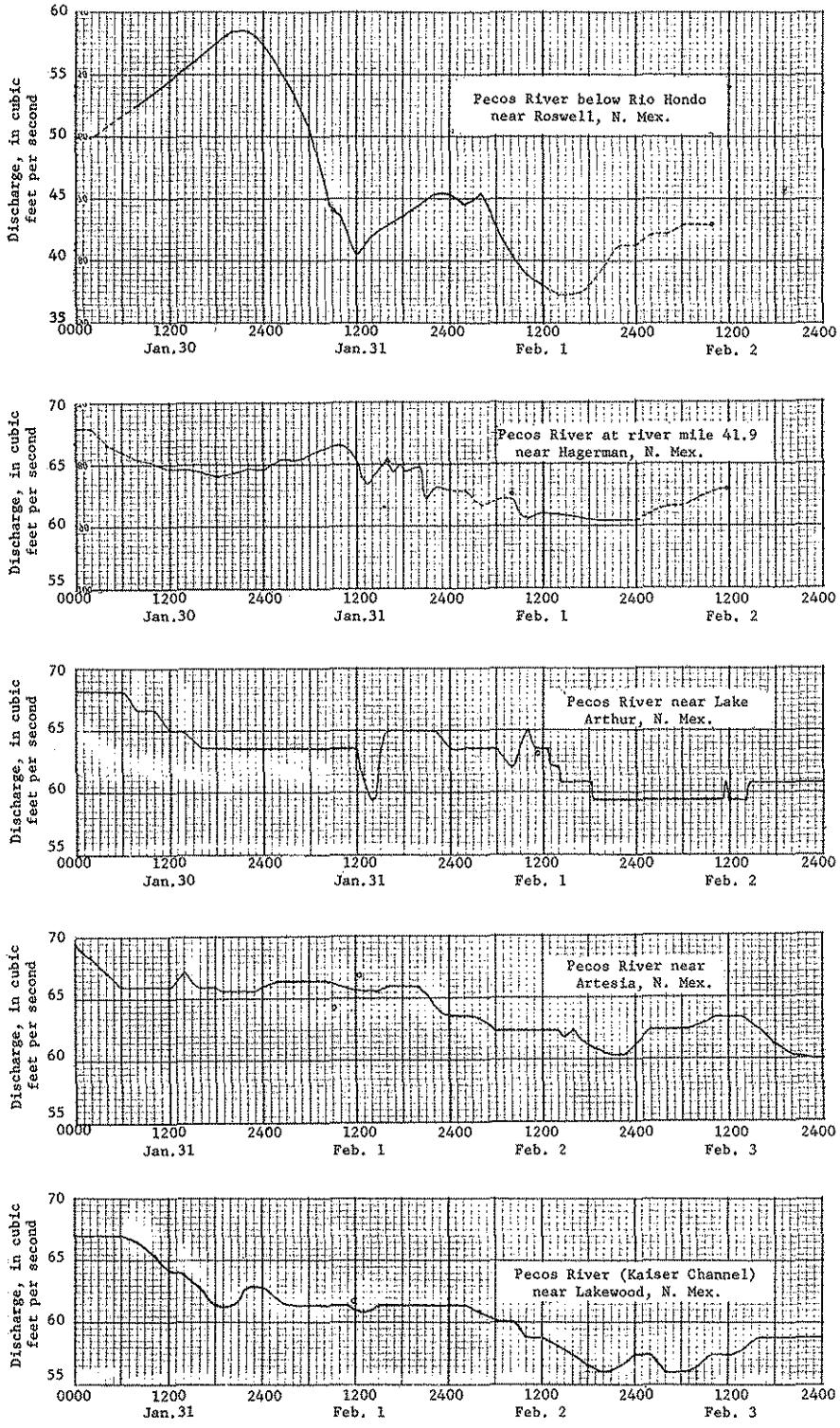


Figure 5 (continued).--Hydrographs showing hourly discharge at gaging stations in the reach of the Pecos River from "near Acme" to Lake McMillan.

o Discharge measurement.
--- Estimated from recorded range-in-stage.

RIO GRANDE BASIN
SEEPAGE INVESTIGATIONS

Pecos River - from "near Malaga" to Reed's Pump

Reach.--The reach investigated extends from the gage "near Malaga" (8-4065) to Reed's pump, a distance of 11.1 miles (fig.1).
The streambed at the "near Malaga" and Fishing Rock Crossing sites is loose rock and gravel. At the Dogtown Drain site sand overlies a hard clay. At the First Bar site the streambed is a coarse sand. The Pierce Canyon Crossing site has an exposed siltstone outcrop across the channel. The First Ford site has a gravel and sand streambed. The streambed at the Reed's pump site is fairly stable imbricated rock and gravel. There should be some subsurface flow at all except the Pierce Canyon Crossing site.
There are several long pools in the reach; the largest extends from above the First Bar to Pierce Canyon Crossing. A dense growth of salt cedars covers the banks at most of the sites.

Previous investigations.--July, September 1954 (unpublished), February 1955, March 1959, January, October 1961, March 1962, July 1963, February, August 1964, and May, August 1966.

Date.--Feb. 6, 7, 1968. Used Mountain Standard Time, 0000 - 2400 hours time increments.

Weather.--The temperatures were moderate and the skies clear during the investigation. A south wind from the late afternoon hours of Feb. 6 through Feb. 7 caused waves and minor fluctuations in discharge somewhat affecting the measuring conditions at the Dogtown Drain, First Bar, and Pierce Canyon Crossing sites.

Summary.--This investigation was made to determine the areas and amount of brine inflow in the reach.
Five to six discharge measurements were made at each of the seven sites during the 2 days of the investigation. These measurements were used to develop rating curves at each site. Discharges computed from these rating curves are shown in figure 2. Poor measuring and control conditions made it impossible to develop a rating curve for the First Bar site. The discharges shown in figure 2 for First Bar are those of the measurements.
Beginning at "near Malaga" Feb. 6, a series of 10 samples were taken at each site. These samples were taken at 3 to 4 hour intervals. Samples were integrated across the stream and from top to bottom. Most of the sampling sites were located on or below riffles. The site "at Dogtown Drain" had no riffle for mixing, but the samples appear to have been uniform.
Chlorides in the pool immediately above the site "at First Bar" are stratified with high chloride concentration (maximum 128,000 mg/l as measured on Dec. 13, 1967) occurring at depths below approximately 1 foot. There was neither enough turbulence nor velocity to mix the chlorides at this site and the samples taken gave erratic concentrations.
A field laboratory was used to determine the specific conductance and chloride content of the samples taken. Results of the chloride analyses are shown in figure 7.
Results of this investigation can be considered as good to fair.
Site numbers included in the tabulation are used for filing purposes and have no relation to river mile.

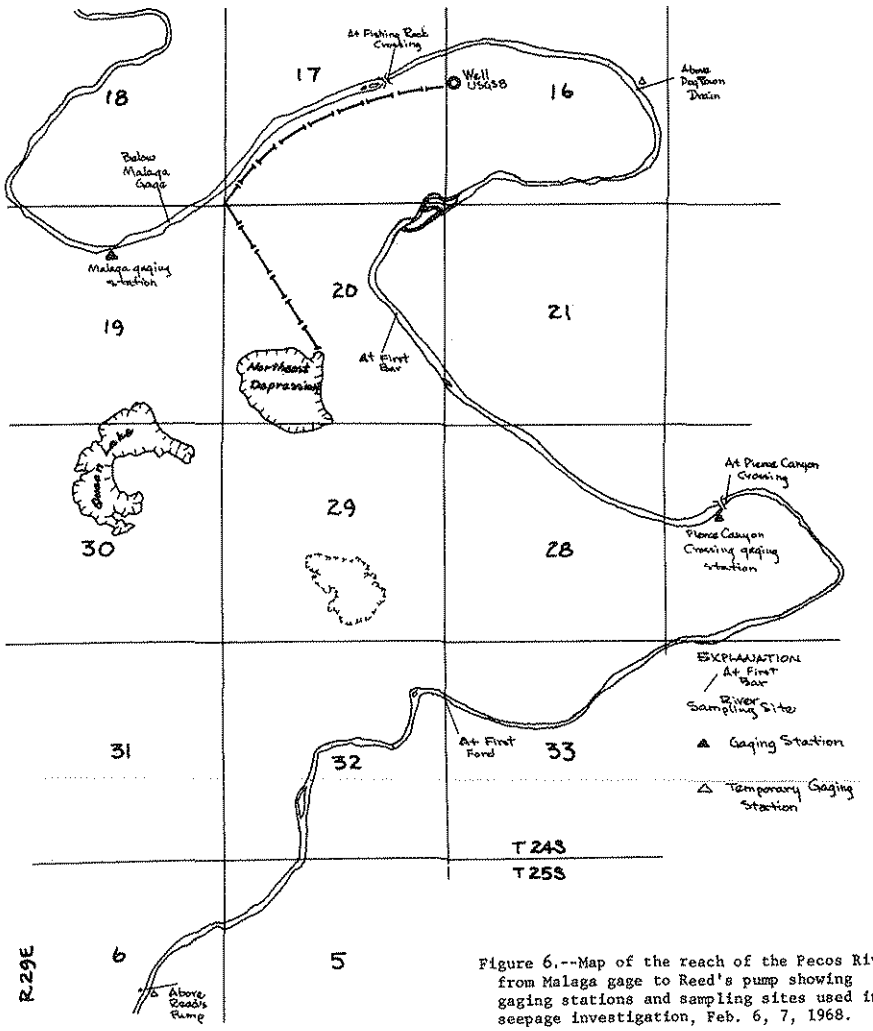


Figure 6.--Map of the reach of the Pecos River from Malaga gage to Reed's pump showing gaging stations and sampling sites used in seepage investigation, Feb. 6, 7, 1968.

Site No.	Stream	Location	Feb. 6, 1968					Feb. 7, 1968				
			Time	Water temp. °C	Discharge in cfs	Chlorides in mg/l	Specific conductance µmhos (25°C)	Time	Water temp. °C	Discharge in cfs	Chlorides in mg/l	Specific conductance µmhos (25°C)
333.5	Pecos River	NE¼NW¼ sec.19, T.14 S., R.29 E., near Malaga (station 8-4065)	0835	12	51.6	-	-	0100	12	-	1,650	7,400
			0900	11	-	1,650	7,800	0425	12	-	1,600	7,200
			1145	13	-	1,650	7,700	0820	11	54.4	-	-
			1210	13	54.3	-	-	0905	11.5	-	1,575	7,300
			1440	13.5	53.6	1,625	7,400	1110	12	53.5	-	-
			1740	12.5	-	1,625	7,400	1150	12.5	-	1,600	7,200
			2040	13	-	1,650	7,200	1500	13	-	1,600	7,200
								1515	11	53.5	-	-
334	do.	SE¼SW¼NE¼ sec.17, T.24 S., R.29 E., at Fishing Rock Crossing, 4 mi. east of Malaga.	0920	10.5	50.9	1,700	7,800	0120	11.5	-	1,700	7,600
			1200	13	-	1,700	7,900	0505	12	-	1,700	7,400
			1315	14	53.4	-	-	0920	11	52.7	1,675	7,500
			1515	13	-	1,700	7,600	1150	12.5	51.8	-	-
			1540	13	52.4	-	-	1210	12.5	-	1,700	7,500
			1755	13	-	1,750	7,700	1515	13	-	1,675	7,400
			2120	13	-	1,700	7,600					
335	do.	SE¼NE¼ sec.16, T.24 S., R.29 E., above Dogtown Drain	0935	10.5	-	1,800	8,100	0135	10.5	-	1,800	8,000
			1010	12	50.3	-	-	0515	12	-	1,800	7,800
			1220	13.5	-	1,800	8,100	0930	10.5	-	1,800	7,900
			1400	14.5	51.0	-	-	1015	11	52.9	-	-
			1525	15	-	1,800	7,900	1225	13	-	1,800	7,900
			1620	14	50.2	-	-	1245	13	51.7	-	-
			1805	13.5	-	1,850	8,000	1525	13.5	-	1,800	7,900
			2130	13	-	1,850	8,200	1615	10.5	51.8	-	-
338.1	do.	NW¼NE¼SE¼ sec.20, T.24 S., R.29 E., 0.5 mi. downstream from well USGS 11 and 4½ mi. southeast of Malaga. (First Bar)	1000	10	-	3,450	13,200	0210	11	-	3,350	12,300
			1055	12	55.5	-	-	0625	12	-	3,150	11,400
			1240	13	-	3,200	12,600	0800	9	54.0	-	-
			1445	13	53.5	-	-	0950	10	-	5,750	19,300
			1545	14	-	3,350	12,200	1140	11.5	51.6	-	-
			1830	13	-	4,950	16,800	1250	12	-	3,000	11,400
			2205	12.5	-	3,250	12,100	1345	12	51.6	-	-
								1540	12	-	3,050	11,600
338.2	do.	NW¼SW¼ sec.27, T.24 S., R.29 E., at Pierce Canyon Crossing (station 8-4070)	0850	10.5	58.6	-	-					
			1025	11	-	3,700	13,700	0230	11.5	-	4,000	14,300
			1200	12.5	52.3	-	-	0650	12	-	3,950	13,900
			1250	12.5	-	3,750	13,900	0845	10	54.5	-	-
			1540	13	55.6	-	-	1010	11	-	3,850	14,100
			1605	13	-	3,825	13,700	1220	11	52.7	-	-
			1845	12.5	-	3,900	14,000	1305	12	-	3,900	14,000
			2230	12.5	-	3,950	14,300	1430	12	58.3	-	-
								1550	12	-	3,900	13,900
338.5	do.	SE¼NW¼ sec.33, T.24 S., R.29 E., at First Ford, 2.6 mi. below Pierce Canyon Crossing	0950	11.5	50.2	-	-	0250	10	-	3,925	14,000
			1040	11.5	-	3,900	14,100	0710	12	-	4,050	14,500
			1305	14	51.0	-	-	0925	9.5	49.8	-	-
			1315	12.5	-	3,900	14,500	1025	10	-	4,050	14,500
			1615	15	-	3,800	13,700	1315	13	48.6	4,050	14,500
			1855	12.5	-	3,800	13,800	1515	13.5	48.2	-	-
			2255	12	-	3,850	14,000	1600	13	-	4,000	14,300
340	do.	NW¼SE¼ sec.6, T.25 S., R.29 E., above Reed's pump	1050	11.5	52.9	-	-	0320	12	-	3,850	13,300
			1100	11.5	-	3,925	14,300	0735	12	-	3,875	13,900
			1340	12	-	3,950	14,600	1015	10	51.8	-	-
			1350	12.5	51.2	-	-	1045	10.5	-	3,875	14,100
			1635	12	52.7	3,900	14,100	1340	12	-	3,900	14,100
			1920	11	-	3,900	14,000	1420	13	51.0	-	-
			2330	12	-	3,900	14,200	1600	12	49.4	-	-
								1620	11.5	-	4,000	14,200

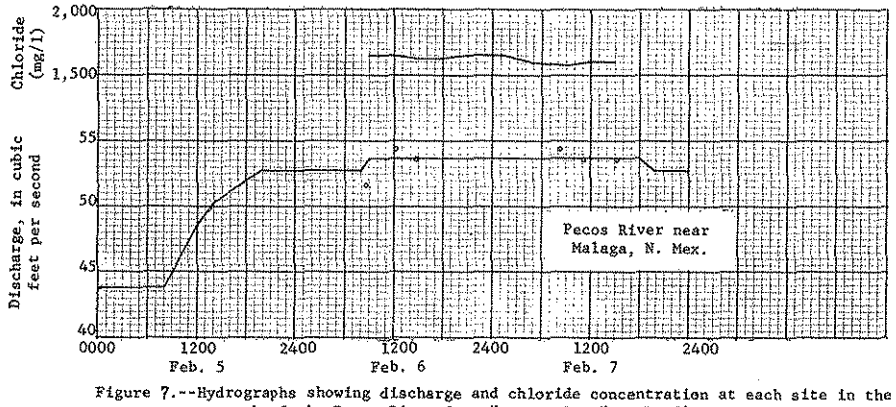
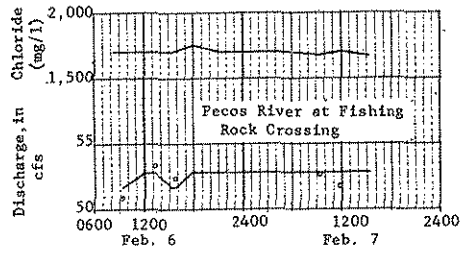
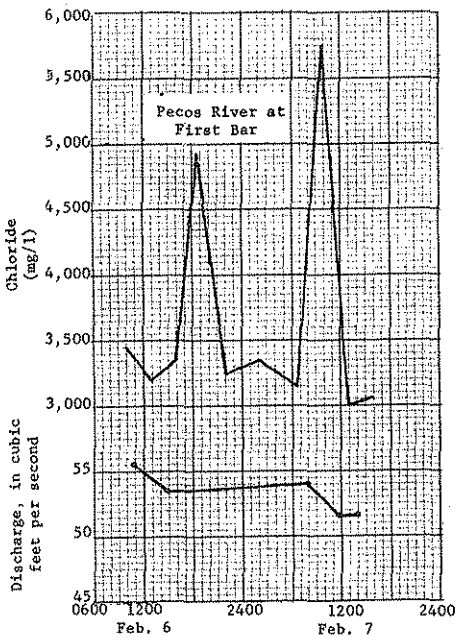
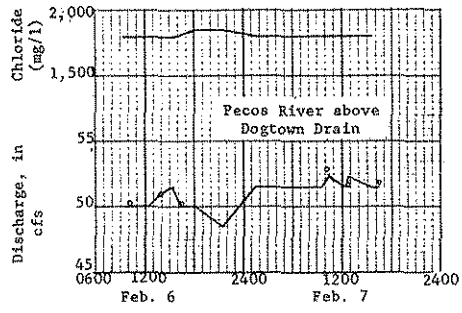
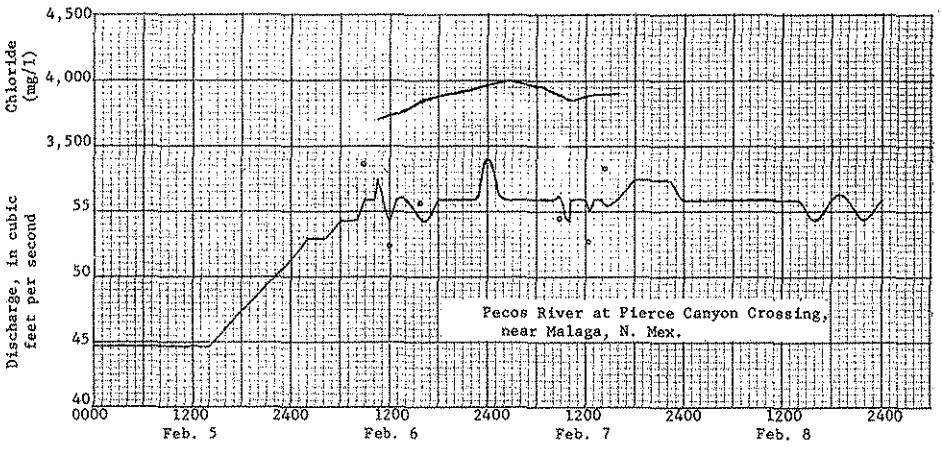


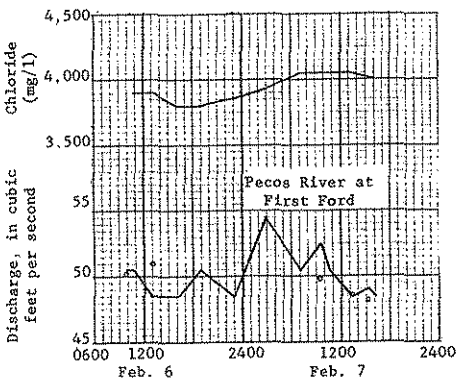
Figure 7.--Hydrographs showing discharge and chloride concentration at each site in the reach of the Pecos River from "near Malaga" to Reed's pump.











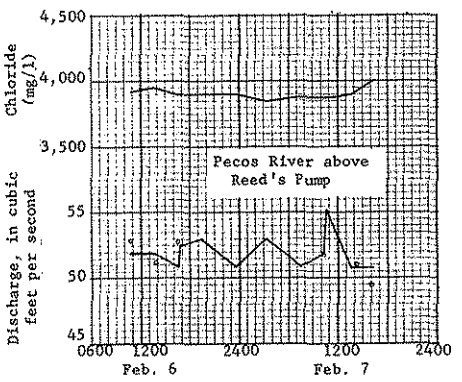


Figure 7 (continued).--Hydrographs showing discharge and chloride concentration at each site in the reach of the Pecos River from "near Malaga" to Reed's pump.

o Discharge measurement.