Surface Water Supply of the United States 1949

Part 8. Western Gulf of Mexico Basins

Prepared under the direction of C. G. PAULSEN, *Chief Hydraulic Engineer*

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1148

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

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Surface Water Supply of the United States 1949

Part 8. Western Gulf of Mexico Basins

UNITED STATES DEPARTMENT OF THE INTERIOR

Oscar L. Chapman, *Secretary*

GEOLOGICAL SURVEY

W. E. Wrather, *Director*

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

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PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Colorado, Louisiana, New Mexico, and Texas and other agencies, by personnel of the Water Resources Division under the direction of:

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ILLUSTRATION

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Figure 1. Gaging-station structures: A, Sabine River near Gladewater, Tex.; B, Pecos River at Red Bluff, N. Mex.; C, Colorado River near San Saba, Tex. 3

SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of stage and flow made on streams, lakes, and reservoirs in the United States during the water year ending September 30, 1949. The work was begun in 1888 in connection with special studies relating to irrigation. Measurements of the flow of streams and of the stage and contents of lakes and reservoirs have been made at about 11,680 gaging stations in the 48 States and also at many in the Territories of Alaska and Hawaii. On September 30, 1949, 6,240 gaging stations, including those in Hawaii and Alaska were being maintained by the Geological Survey and cooperating organizations. Miscellaneous discharge measurements were made during the water year at many other points.

In the execution of the work many State and private organizations have cooperated, either by furnishing data or by assisting in collecting data. Cooperation of the first kind is acknowedged in connection with the description of each station affected; cooperation of the second kind is acknowledged, under the heading "Cooperation," in the introductory matter that precedes the gaging-station records in each volume. In the present volume, the section on cooperation of the second kind appears on page 13.

DEFINITION OF TERMS

The units in which stream-flow data are presented in this report and other terms used herein are defined as follows:

"Second-feet" is an abbreviation for "cubic feet per second." A second-foot 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.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the runoff is distributed uniformly both as regards time and area.

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

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

"Second-foot-day" is the volume of water represented by a flow of 1 second-foot 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 an abbreviation for the term "relation between gage height and discharge."

"Control" is a term used to designate a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural section, a reach of the channel, or an artificial structure.

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

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the records of stage and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a nonrecording gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. Typical structures in use at gaging stations are shown in figure 1.

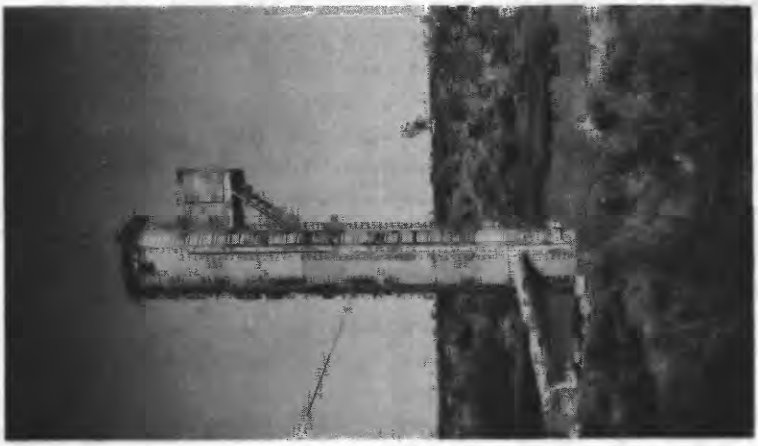
Rating tables giving the discharge for any stage are prepared from the discharge measurements. The application of the daily mean gage height to those rating tables gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject 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. At times the stage-discharge relation for a station may be temporarily changed by the presence of aquatic growth or debris on the control. For such times the daily mean discharge is computed by what is essentially the "shifting-control" method, described above.

At some gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources, which necessitates the use of the "slope method," in which the slope or fall in a reach of the stream is a factor in the determination of discharge. Information requisite for determining the slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage, and for them the rate of change of stage is used as a factor in the determination of discharge.

At most gaging stations in the northern part of the United States and at some in the mountainous regions of other parts the stage-discharge relation is affected by ice during the winter, which makes it 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 stations in the same or nearby basins. For those stations at which the stage-discharge relation is affected by ice, the days included in the periods of ice effect either are indicated in the table by symbols referring to a footnote that states this fact or are given in a general note following the table. The days on which discharge measurements were made during or between periods of ice effect, shortly before the first period, or shortly after the last period are similarly indicated by a footnote.

For most of the gaging stations on streams in the area covered by this report the data presented comprise a description of the station, a table showing the daily discharge of

A. SABINE RIVER NEAR GLADEWATER, TEX.



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

C. COLORADO RIVER NEAR SAN SABA, TEX.

FIGURE 1.—GAGING-STATION STRUCTURES.

the stream, and a table of monthly and yearly discharge and runoff. Skeleton rating tables are published for all stations except those at which the daily discharge for the greater part of the year was determined by the shifting-control method, the slope method, or other special methods.

The description of the station gives the type of gage, location, drainage area, records available, average discharge, extremes of discharge, general remarks, and notations of revisions of previously published record. The location of the gaging station and the drainage area are obtained from the most accurate maps available. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having less than 10 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation (also the minimum discharge if useful); and the minimum gage height (unless it is of no importance). Unless otherwise qualified, the maximum discharge corresponds to the crest stage, obtained by use of a water-stage recorder or a nonrecording gage read at the time of the crest. Information pertaining to the accuracy of the records and conditions which affect the natural flow at the gaging station is given under "Remarks."

For some stations previously published records have been found to be in error on the basis of data or information obtained subsequently. Revisions of such records are usually published along with the current records in one of the annual reports. In order to make it easier to find such revised records, a paragraph headed "Revisions (water years)" has been added to the station description of all stations for which revised records have been published. Listed therein are all the reports in which revisions appear, each followed by the water years for which figures are revised in that report. In listing the report number, W. means Water-Supply Paper. In listing the years, water years are indicated by only 1 year, for instance, 1933 stands for the water year October 1, 1932, to September 30, 1933. If there were no daily, monthly, or annual figures of discharge involved in the revision, that fact is brought out by notations after the year dates as follows: (M) means that only the instantaneous maximum discharge was revised; (m) that only the instantaneous minimum was revised; and (P) that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which second-feet per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of second-feet per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

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

corresponding to either once-daily readings of the gage, the mean of twice-daily readings, or the mean gage height determined from gage-height graphs based on gage readings. For periods of rapidly changing stage, the daily mean discharge is determined from gage-height graphs based on gage readings, the frequency of which is stated in the station description.

In the table of monthly discharge the column headed "Second-foot-days" gives the sum for each month of the figures given in the table of daily discharge. The column headed "Maximum" gives the maximum daily discharge, not the momentary discharge when the water surface was at crest stage. Likewise, in the column headed "Minimum" the quantity given is the minimum daily discharge. The column headed "Mean" gives the average flow in cubic feet per second during the month.

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

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily on (1) the permanency 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 flow, and interpretation of records.

The station description gives a statement in regard to the general accuracy of the records. "Excellent" indicates that, in general, the error in the daily records is believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably more than 15 percent. The records of monthly and yearly mean discharge and runoff are, in general, more accurate than the daily records.

Yield at some stations as indicated by monthly means may vary widely from natural yield, owing to diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or other factors. For such stations figures of "second-feet per square mile" and "runoff in inches" are not published unless storage or diversion records are included indicating the extent of the regulation or diversion or unless satisfactory adjustments can be made for changes in contents or 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 its inclusion is indicated. Even at those stations where adjustments are made, in some instances large errors in computed yields may occur when relatively large negative adjustments are applied or when evaporation is large in comparison with the observed discharge. Figures of second-feet per square mile and runoff in inches are also omitted if the drainage area includes large noncontributing areas or if the average annual rainfall over the drainage area is less than 20 inches.

Many gaging stations on streams in the irrigated areas of the United States are situated above most of the diversions from those streams, and therefore the discharge recorded does not show the water supply available for further development, as prior appropriations below the station must first be satisfied.

The table of monthly discharge presents in summary the distribution of the flow past the station. The table of daily discharge affords opportunity for more detailed studies of the variation in flow. As further observations in each succeeding year may be expected to throw new light on data previously published, it should be borne in mind that such data are subject to revision in succeeding water-supply papers.

PUBLICATIONS

The results of stream-flow measurements are now published annually in 14 parts, each part covering an area whose boundaries coincide with natural drainage features as indicated below:

Part 1. North Atlantic slope basins (St. John River to York River).
2. South Atlantic slope and eastern Gulf of Mexico basins (James River to Mississippi River).
3. Ohio River Basin.
4. St. Lawrence River Basin.
5. Hudson Bay and upper Mississippi River Basins.
6. Missouri River Basin.
7. Lower Mississippi River Basin.
8. Western Gulf of Mexico basins.
9. Colorado River Basin.
10. The Great Basin.
11. Pacific slope basins in California.
12. Pacific slope basins in Washington and upper Columbia River Basin.
13. Snake River Basin.
14. Pacific slope basins in Oregon and lower Columbia River Basin.

Water-supply papers and other publications of the Geological Survey containing data on the water resources of the United States may be obtained or consulted as explained below.

1. Copies may be purchased at nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D. C., who will, on application, furnish lists giving prices.

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

3. Sets are available for consultation in the offices of the water resources division of the Geological Survey as follows:

East of the Mississippi River:
Albany, N. Y., 526 Federal Building.
Asheville, N. C., 220 Post Office Building.
Atlanta, Ga., 411 Grand Theater Building.
Augusta, Maine, 420 Statehouse.
Baton Rouge, La., 538 Florida Street.
Boston, Mass., 939 Post Office Building.
Champaign, Ill., 605 South Neil Street.
Charleston, W. Va., 408 Union Building.
Charlottesville, Va., Cabell Hall, University of Virginia.
Chattanooga, Tenn., 442 Post Office Building.
College Park, Md., 106 Engineering Building, University of Maryland.
Columbia, S. C., 207 Creason Building.
Columbus, Ohio, 2590 West Hardin St., Ohio State University.
Harrisburg, Pa., 490 Education Building.
Hartford, Conn., 203 Federal Building.
Indianapolis, Ind., 311 West Washington Street.
Jackson, Miss., 208 Millsaps Building.
Knoxville, Tenn., 337 Post Office Building.
Louisville, Ky., 531 Federal Building.
Madison, Wis., 666 State Office Building.
Montgomery, Ala., 507 Post Office Building.
New Philadelphia, Ohio, Muskingum Watershed Conservancy District Building.
Ocala, Fla., Building 211, Camp Roosevelt.
Pittsburgh, Pa., 515 Plaza Building.
Raleigh, N. C., 908 Capitol Club Building.
St. Paul, Minn., 1427 New Post Office Building.
Trenton, N. J., 228 Federal Building.
Washington, D. C., General Services Administration Building.

West of the Mississippi River:
Austin, Tex., 302 West Fifteenth Street.
Bismarck, N. Dak., 7 Eltinge Building.
Boise, Idaho, 429 Federal Building.
Denver, Colo., 476 New Customhouse.
Fort Smith, Ark., 6 Post Office Building.
Helena, Mont., 408 Federal Building.
Honolulu, Hawaii, 225 Federal Building.
Idaho Falls, Idaho, 204 Federal Building.
Iowa City, Iowa, 508 Hydraulic Laboratory, University of Iowa.
Lincoln, Nebr., 510 Rudge-Guenzel Building.
Los Angeles, Calif., 429-F United States Post Office and Courthouse.
Oklahoma City, Okla., 203 Council Building.
Pierre, S. Dak., 207 Federal Building.
Portland, Oreg., 606 Post Office Building.
Rolla, Mo., 211 Ramsey Building.
St. Louis, Mo., 1004 New Federal Building.
Salt Lake City, Utah, 303 Federal Building.
San Francisco, Calif., 702 Appraisers Building.
Santa Fe, N. Mex., 204 United States Courthouse.
Tacoma, Wash., 207 Federal Building.
Topeka, Kans., 305 Federal Building.
Tucson, Ariz., 210 Post Office Building.

A list of Geological Survey publications may be obtained by applying to the Director, Geological Survey, Washington, D. C.

Prior to publication, records of discharge in provisional form for individual stations may usually be obtained from the district offices listed above.

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

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

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

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

Papers on surface water supply containing records from 1899 to date, grouped by years and drainage basins, are listed by number on page 8. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained. For example, the data for 1910 to 1920 for any station in the area covered by part 3 are published in Water-Supply Papers 283, 303, 323, 353, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

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Numbers of water-supply papers containing results of stream measurements, 1899-1949 (for basins included see p. 6).

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1899 a	35	b35, 36	36	36	36	c36, 37	37	37	d37, 38	38, e39	38, f39	38	38	38
1900 g	47, h48	48	48, 149	49	49	49, j50	50	50	50	51	51	51	51	51
1901	65, 75	65, 75	65, 75	85, 75	k65, 66, 75	66, 75	k65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902	82	b82, 83	83	m82, 83	k83, 85	84	k83, 84	84	85	85	85	85	85	85
1903	97	b97, 98	98	97	k98, 99, n100	99	k98, 99	99	100	100	100	100	100	100
1904	o124, p125, q126	q126, 127	128	129	k128, 130	130, r131	k128, 131	132	133	133, s134	134	135	135	135
1905	o165, p166, q167	q167, 168	169	170	171	172	k169, 173	174	175, t177	176, s177	177	178	178	u177, 178
1906	o201, p202, q203	q203, 204	205	206	207	208	k205, 209	210	211, t213	212, s213	213	214	214	214
1907-8	241	242	243	244	245	246	247	248	249	250, s251	251	252	252	252
1909	261	262	263	264	265	266	267	268	269	270, s271	271	272	272	272
1910	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912	321	322	323	324	325	326	327	328	329	330	331	332-A	332-B	332-C
1913	351	352	353	354	355	356	357	358	359	360	361	362-A	362-B	362-C
1914	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916	431	432	433	434	435	436	437	438	439	440	441	442	443	444
1917	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919-20	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924	581	582	583	584	585	586	587	588	589	590	591	592	593	594
1925	601	602	603	604	605	606	607	608	609	610	611	612	613	614
1926	621	622	623	624	625	626	627	628	629	630	631	632	633	634
1927	641	642	643	644	645	646	647	648	649	650	651	652	653	654
1928	661	662	663	664	665	666	667	668	669	670	671	672	673	674
1929	681	682	683	684	685	686	687	688	689	690	691	692	693	694
1930	696	697	698	699	700	701	702	703	704	705	706	707	708	709
1931	711	712	713	714	715	716	717	718	719	720	721	722	723	724
1932	726	727	728	729	730	731	732	733	734	735	736	737	738	739
1933	741	742	743	744	745	746	747	748	749	750	751	752	753	754
1934	756	757	758	759	760	761	762	763	764	765	766	767	768	769
1935	781	782	783	784	785	786	787	788	789	790	791	792	793	794
1936	801	802	803	804	805	806	807	808	809	810	811	812	813	814
1937	821	822	823	824	825	826	827	828	829	830	831	832	833	834
1938	851	852	853	854	855	856	857	858	859	860	861	862	863	864
1939	871	872	873	874	875	876	877	878	879	880	881	882	883	884
1940	891	892	893	894	895	896	897	898	899	900	901	902	903	904
1941	921	922	923	924	925	926	927	928	929	930	931	932	933	934
1942	951	952	953	954	955	956	957	958	959	960	961	962	963	964
1943	971	972	973	974	975	976	977	978	979	980	981	982	983	984
1944	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014
1945	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044
1946	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064
1947	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094
1948	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124
1949	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154

a Rating tables and index to WSP 35-39 contained in WSP 39. Monthly discharge for 1899 in 21st Annual Report, part 4.
b James River only.
c Gallatin River.
d Green and Gunnison Rivers and Colorado River above Gunnison River.
e Mojave River only.
f Kings and Kern Rivers and south Pacific slope.
g Rating tables and index to WSP 47-52 contained in WSP 52. Monthly discharge for 1900 in 22d Annual Report, part 4.
h Schuylkill River to James River.
i Scioto River.
j Loup, Platte, and Elkhorn Rivers and tributaries below Platte River.
k Tributaries of Mississippi River from east.
m Lake Ontario and tributaries to St. Lawrence River proper.
n Hudson Bay only.
o New England rivers only.
p Hudson River to Delaware River.
q Susquehanna River to Yadkin River.
r Platte and Kansas Rivers.
s The Great Basin in California, except Truckee and Carson River Basins.
t Below mouth of Gila River.
u Rogue, Umpqua, and Siletz Rivers only.

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

Each of the reports on surface water supply for the year 1939, issued as Water-Supply Papers 871 to 884 (see table on p. 8), contains, for the area covered by that report, a summary of yearly discharge at gaging stations at which 10 or more complete years of record have been collected. These summaries are available also as separate reprints.

Reports have been published that are compilations of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which have been revised), as well as some records not contained in the annual series of water-supply papers. The following table gives the numbers and titles of these reports, arranged alphabetically, some by States and some by drainage basins.

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

Report	Period	Water-Supply Paper
STATE		
Alabama, Water powers of, with an appendix on stream measurements in Mississippi.	1895-1903	107
California, Water resources of, part 1, Stream measurements in Sacramento River Basin.	1887-1912	298
California, Water resources of, part 2, Stream measurements in San Joaquin River Basin.	1878-1912	299
California, Water resources of, part 3, Stream measurements in the Great Basin and Pacific Coast river basins.	1891-1912	300
California, southern, Surface water supply of Pacific slope of	1890-1918	447
California, Surface water supply of Sacramento River Basin	1895-1927	597-E
California, Surface water supply of San Joaquin River Basin	1895-1927	636-D
California, southern, Surface water supply of Pacific slope basins in	1894-1927	636-B
California, Surface water supply of minor San Francisco Bay, northern Pacific, and Great basins in.	1895-1927	637-A
Colorado, Water resources of	1884-1900	74
Georgia, Water resources of	1895-1905	197
Massachusetts, Surface waters of	1848-1915	415
Massachusetts, Hydrology of, Part 1, Summary of stream-flow and precipitation records.	1863-1945	1105
Nebraska, Surface water supply of	1894-1906	230
Oregon, Surface water supply of	1878-1910	370
Texas, Summary of records of surface waters of	1898-1937	850
Vermont, Surface waters of	1875-1916	424
Washington, Summary of hydrometric data in	1878-1919	492
Washington, Summary of records of surface waters of	1919-35	870
Wisconsin, northern, Water power of	1895-1905	156
Wyoming, Surface waters of, and their utilization	1894-1921	469
DRAINAGE BASIN		
Colorado River (Ariz., Colo., N. Mex., Utah, Wyo.) and its utilization	1888-1914	395
Colorado River, upper (Colo., Utah), and its utilization	1897-1927	617
Colorado River Basin (Ariz., Calif., Colo., Utah, Wyo.), Surface waters at base stations in.	1891-1938	918
Colorado River Basin (Ariz., Calif., Nev., N. Mex., Utah), Surface waters at stations on tributaries in lower.	1888-1938	1049
Columbia River Basin, upper (Mont., Idaho), Surface waters of	1898-1938	916
Great Salt Lake Basin, Water powers of	1889-1920	517
Green River (Colo., Utah, Wyo.) and its utilization	1894-1926	618
Kennebec River Basin (Maine), Water resources of	1890-1906	198
Milk River. See St. Mary and Milk Rivers		
Missouri and St. Mary River Basins (Mont.), Surface waters of	1881-1938	917
New-Kanawha River Basin (N. C., Va., W. Va.), Surface water supply of	1895-1920	556
Penobscot River Basin (Maine), Water resources of	1904-8	279
Potomac River Basin (D. C., Md., W. Va.)	1895-1906	192
Rio Grande Basin (Colo., N. Mex., Tex.), Water resources of	1888-1913	358
St. Mary and Milk Rivers (Mont., Canada), Water supply of	1898-1917	491
St. Mary River. See St. Mary and Milk Rivers; Missouri and St. Mary River Basin.		
Sevier Lake Basin (Utah), Utilization of surface water resources of	1889-1937	920
Susquehanna River Basin (Pa., Md.) Hydrography of	1890-1904	109

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

State reports containing compilations of records of discharge

State	Period	Report	Issued by
Alabama	1895-1915	Bull. 17, Water powers of Alabama	Geological Survey of Alabama.
Do	1904-47	Special Report 20, Water Resources and Hydrology of southeastern Alabama.	Do
Arkansas	1857-1928	Stream-gaging Rept. 1	Arkansas Geological Survey.
Do	1903-48	Surface Water Resources of Arkansas	Arkansas Resources and Development Commission; University of Arkansas, Institute of Science and Technology.
Colorado	1881-1935	Water resources of Colorado, Appendix 2, Data on stream-gaging stations of Colorado.[1]	State Planning Commission, Water Conservation Board, State engineer.
Do	1881-1938	Water resources of Colorado, Appendix 3, vols. 1 and 2, Stream-flow data of Colorado.	Do.
Connecticut	1900-1927	Bull. 44, Water resources of Connecticut	State Geological and Natural History Survey.
Do	1912-33	5th biennial report	State Water Commission.
Florida	1898-1946	Bull. 31, Springs of Florida	Florida Geological Survey.
Georgia	1895-1906	Bull. 16, Water powers of Georgia	Geological Survey of Georgia.
Do	1907-19	Bull. 38, Water powers of Georgia	Do.
Illinois	1908-11	Water resources of Illinois	Rivers and Lakes Commission.
Do	1900-1934	Stream-flow data of Illinois	Division of Waterways.
Indiana	1923-27	Pub. 72, Surface water supply of Indiana	Department of Conservation.
Do	1927-30	Pub. 112, Surface water supply of Indiana	Do.
Iowa	1873-1932	Stream-flow records of Iowa	State Planning Board.
Do	1873-1940	Water-Supply Bull. 1, Summaries of yearly and flood flow relating to Iowa streams	Iowa Geological Survey.
Do	1941-42	Water-Supply Bull. 2, Surface water resources of Iowa.	Do.
Kansas	1895-1919	Surface waters of Kansas	Kansas Water Commission.
Do	1919-24	....do	Do.
Do	1924-28	Report of Division of Water Resources	State Board of Agriculture.
Do	1928-35	Stream-flow data of Kansas	Do.
Do	1935-39	....do	Do.
Kentucky	1910-20	Surface waters of Kentucky	Kentucky Geological Survey.
Louisiana	1903-38	Geol. Bull. 16, Surface water supply of Louisiana.	Department of Conservation.
Maine	1887-1920	1st annual report	Maine Water Power Commission.
Maryland	1929-37	Flow data and draft storage curves for major streams in Maryland.	State Planning Commission and Water Resources Commission.
Do	1892-1943	Bull. 1, Summary of records of surface waters of Maryland and the Potomac River Basin.	Department of Geology, Mines, and Water Resources.
Do	1931-48	Bull. 5, Anne Arundel County Water Resources	Do.
Minnesota	1909-12	Water-resources investigation of Minnesota.	State Drainage Commission.
Mississippi	1900-1948	Bull. 68, Surface Waters of Mississippi	Mississippi Geological Survey.
Missouri	1857-1926	Vol. 20, 2d series, Water resources of Missouri.	Missouri Bureau of Geology and Mines.
Do	1927-39	Vol. 26, 2d series, Surface waters of Missouri.	Missouri Geological Survey and Water Resources.
Montana	1889-1911	5th biennial report	Office of the State Engineer.
Do	1881-1938	Special Rept. 10, vols. 1-4, Water resources of Montana.	Montana Agricultural Experiment Station.
Nebraska	1894-1914	1st hydrographic report	Bureau of Water Power, Irrigation, and Drainage.
Do	1914-28	2d hydrographic report	Do.
New Hampshire	1889-1922	Annual and statistical report, vol. 12	Public Service Commission.
New Jersey	1892-1928	Bull. 33, Surface water supply of New Jersey.	Department of Conservation and Development.
Do	1928-34	Special Rept. 5, Surface water supply of New Jersey.	State Water Policy Commission.
Do	1934-40	Special Rept. 9, Surface water supply of New Jersey.	Do.
New Mexico	1888-1925	Surface water supply of New Mexico	Office of the State Engineer.
North Carolina	1889-1923	Bull. 34, Discharge records of North Carolina streams.	Department of Conservation and Development.
Do	1889-1936	Bull. 39, Discharge records of North Carolina streams.[2]	Do.
Do	1866-1945	Hydrologic Data on the Neuse River Basin.	Do.
Do	1820-1945	Hydrologic Data on the Cape Fear River Basin.	Do.
Do	1866-1945	Hydrologic Data on the Yadkin-Pee Dee River Basin.	Do.
Do	1872-1945	Hydrologic Data on the Catawba and Broad River Basins.	Do.
Do	1857-1945	Hydraulic Data on The French Broad River Basin.	Do.
North Dakota	1919-21	Report to Governor of North Dakota on flood control.	State chief engineer.
Do	1882-1938	Surface water in North Dakota	State Planning Board.
Do	1882-1944	Supplement B, 4th biennial report	State Water Conservation Commission.
Ohio	1898-1921	Bull. 73, Ohio stream flow, Part 1	Engineering Experiment Station, Ohio State University.
Do	1898-1944	Bull. 127, Ohio stream flow, Part 2	Do.
Do	1902-39	Bull. 200, Compilation of stream-flow records of Ohio.	Department of Agriculture, Division of Conservation and Natural Resources.
Do	1898-1939	Bull. 111, Ohio stream-drainage areas and flow-duration tables.	Engineering Experiment Station, Ohio State University.
Oregon	1878-1914	Bull. 4, Water resources of the State of Oregon.	Office of the State Engineer.
Do	1914-24	Bull. 7, Water resources of the State of Oregon.	Do.
Do	1924-30	Bull. 8, Water resources of the State of Oregon.	Do.

1 Contains records of yearly discharge only.
2 Contains records of maximum and minimum daily, weekly, and monthly discharge and yearly mean discharge.

State reports containing compilations of records of discharge--Continued

State	Period	Report	Issued by
Oregon.....	1930-36	Bull. 9, Water resources of the State of Oregon.	Office of the State Engineer.
Do.....	1936-41	Bull. 10, Water resources of the State of Oregon.	Do.
Pennsylvania..	1890-1911	Report of the Water Supply Commission of Pennsylvania.	Water Supply Commission of Pennsylvania.
Do.....	1928-32	Stream-flow records of Pennsylvania.....	Department of Forests and Waters.
Rhode Island..	1929-41	7th annual report.....	Department of Public Works.
South Carolina	1884-1946	Bull. 17, Summary of records of surface water supply of South Carolina.	South Carolina Research, Planning and Development Board.
Tennessee.....	1874-1924	Bull. 34, Water resources of Tennessee[3]....	Department of Education.
Do.....	1920-30	Bull. 40, Surface waters of Tennessee.....	Do.
Utah.....	1889-1905	5th biennial report.....	Office of the State Engineer.
Do.....	1906-10	7th biennial report.....	Do.
Do.....	1911-16	10th biennial report.....	Do.
Virginia.....	1895-1927	Bull. 31, Water resources of Virginia.....	Virginia Geological Survey.
Do.....	1927-42	Bull. 4, Surface water supply of Virginia (Potomac, Rappahannock, and York River Basins).	Virginia Conservation Commission.
Do.....	1927-42	Bull. 5, Surface water supply of Virginia (James River Basin).	Do.
Do.....	1927-42	Bull. 6, Surface water supply of Virginia (Roanoke and Chowan River Basins).	Do.
Do.....	1927-42	Bull. 7, Surface water supply of Virginia (New, Tennessee, and Big Sandy River Basins).	Do.
Washington....	1878-1933	Bull. 5, Monthly and yearly summaries of hydrometric data.	Department of Conservation and Development.
Wisconsin.....	1888-1914	1st report of Railroad Commission of Wisconsin to Legislature on water powers.	Railroad Commission of Wisconsin.
Do.....	1914-23	2d report of Railroad Commission of Wisconsin to Legislature on water powers.	Do.

3 Includes records of discharge for all stations in North Carolina in the Tennessee River Basin.

Note.- In addition to the records contained in the reports listed above, the following States have issued annual or biennial reports in which are contained records of discharge: California, Colorado, Connecticut, Idaho, Indiana, Kansas, Maine, Missouri, Montana, Nebraska, Nevada, New Mexico, New York (also New York City Board of Water Supply and city of Rochester), North Dakota, Oregon, Pennsylvania, Rhode Island, Washington, and Wyoming.

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

Water-Supply Paper	Title
88	The Passaic flood of 1902.
92	The Passaic flood of 1903.
96	Destructive floods in the United States in 1903.
147	Destructive floods in the United States in 1904.
162	Destructive floods in the United States in 1905.
334	The Ohio Valley flood of March-April 1913.
426	Southern California floods of January 1916.
487	The Arkansas River flood of June 3-5, 1921.
488	The floods in central Texas in September 1921.
520-G	Some floods in the Rocky Mountain region.
636-C	The New England flood of November 1927.
771	Floods in the United States, magnitude and frequency.
773-E	The New York State flood of July 1935.
796-B	Flood on Republican and Kansas Rivers, May and June 1935.
796-C	Flood in La Canada Valley, Calif., January 1, 1934.
796-G	Major Texas floods of 1935.
798	The floods of March 1936, part 1, New England rivers.
799	The floods of March 1936, part 2, Hudson River to Susquehanna River region.
800	The floods of March 1936, part 3, Potomac, James, and upper Ohio Rivers.
816	Major Texas floods of 1936.
836-A	Stages and flood discharges of the Connecticut River at Hartford, Conn.
838	Floods of Ohio and Mississippi Rivers, January-February, 1937.
842	Floods in Canadian and Pecos River Basins of New Mexico, May and June 1937.
843	Floods of December 1937 in northern California.
844	Floods of March 1938 in southern California.
847	Maximum discharges at stream-measurement stations through September 1938.
867	Hurricane floods of September 1938.
869	Flood of August 1935 in Muskingum River Basin, Ohio.
914	Texas floods of 1938 and 1939.
966	Minor floods of 1938 in North Atlantic States.
967-A	Floods of September 1939 in Colorado River Basin below Boulder (Hoover) Dam.
967-B	Flood of July 5, 1939, in eastern Kentucky.
967-C	Flood of August 21, 1939, in town of Baldwin, Maine.
994	Cloudburst floods in Utah, 1850 to 1938.
997	Floods in Colorado.
1046	Texas floods of 1940.
1066	Floods of August 1940 in the southeastern States.
1080	Floods of May-June 1948 in Columbia River Basin.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The following table contains a list of gaging stations for the area covered by this report at which records of discharge were collected during the water year October 1948 to September 1949 by agencies other than the Geological Survey. The records for these stations are not contained in publications of the Geological Survey

Records of discharge collected by agencies other than the Geological Survey

Stream	Location	Period	Collected by	Remarks
Alamito Creek...	Near Presidio, Tex.....	1932-49	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
Arrey Canal.....	Near Arrey, N. Mex.....	1918, 1920-49	Bureau of Reclamation.	Unpublished.
Bonita ditch.....	Below Caballo Dam, N. Mex.	1938-49	....do.....	Do.
Carlsbad project main canal.	Near Carlsbad, N. Mex..	1941-49	....do.....	Do.
Devils River.....	Near Del Rio, Tex.....	1931-49†	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
East Side Canal.	At Mesilla Dam, near Mesilla Park, N. Mex.	1916-18, 1920-49	Bureau of Reclamation.	Unpublished.
El Paso sewage outfall.	Near El Paso, Tex.....	1936-49	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
Goodenough Springs.	Near Comstock, Tex.....	1931-49†	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
Hagerman Canal...	Near Roswell, N. Mex....	1942-49	Hagerman Irrigation Co.	Unpublished.
Las Vacas Arroyo.	Near Villa Acuna, Coahuila, Mexico.	1938-49	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
Leasburg Canal...	At head, at Selden, N. Mex.	1917-18, 1920-49	Bureau of Reclamation.	Unpublished.
Pecos River.....	Near Comstock, Tex.....	1931-49††	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
Pinto Creek.....	Near Del Rio, Tex.....	1931-49†	....do.....	Do.
Rio Alamo.....	Mier, Tamaulipas, Mexico.	1924-49	....do.....	Do.
Rio Conchas.....	Cuchillo Parado, Chihuahua, Mexico.	1945-49	....do.....	Do.
Rio Escondido....	At Villa de Fuente, Coahuila, Mexico.	1922-49	....do.....	Records for 1923-24 and 1928 published in H. Doc. 359, 71st Cong., 2d sess., as Rio San Antonio above Fuente; records for 1932-49 published in bulletins of International Boundary & Water Commission.
Rio Grande.....	Below American Dam, near El Paso, Tex.	1938-49	....do.....	Published in bulletins of International Boundary & Water Commission.
Do.....	Below Brownsville, Tex.	1934-49	....do.....	Do.
Do.....	County-line station near El Paso, Tex.	1938-49	....do.....	Do.
Do.....	Del Rio, Tex.....	1931-49†	....do.....	Do.
Do.....	Eagle Pass, Tex.....	1931-49††	....do.....	Do.
Do.....	Near El Paso, Tex.....	1931-49†	....do.....	Do.
Do.....	Below old Fort Quitman, Tex.	1931-49†	....do.....	Do.
Do.....	Hildalgo, Tex.....	1931-48†	....do.....	Do.
Do.....	At island station, near El Paso, Tex.	1938-49	....do.....	Do.
Do.....	At Johnson Ranch, Tex...	1936-49	....do.....	Do.
Do.....	Cuidad Juarez, Chihuahua, Mexico.	1938-49	....do.....	Do.
Do.....	Langtry, Tex.....	1931-49†	....do.....	Do.
Do.....	Laredo, Tex.....	1924-49†	....do.....	Do.
Do.....	Las Palmas, Tamaulipas, Mexico.	1945-49	....do.....	Do.
Do.....	Leasburg Dam, at Selden, N. Mex.	1919-49	Bureau of Reclamation.	Unpublished.
Do.....	Matamoras, Tamaulipas, Mexico.	1926-49††	International Boundary & Water Commission.	Published in bulletins of International Boundary & Water Commission.
Do.....	Above Presidio, Tex.....	1926-49†	....do.....	Do.
Do.....	Below Presidio, Tex.....	1926-49†	....do.....	Do.
Do.....	Rio Grande City, Tex....	1932-49‡	....do.....	Do.
Do.....	Roma, Tex.....	1925-28†, 1931-49	....do.....	Do.
Do.....	Zapata, Tex.....	1932-49	....do.....	Do.
Rio Salado.....	Near Guerrero, Tamaulipas, Mexico.	1924-49†	....do.....	Do.

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

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

Stream	Location	Period	Collected by	Remarks
Rio San Diego...	Jimenez, Coahuila, Mexico.	1924-49	International Boundary & Water Commission.	Records for 1924-28 published in H. Doc: 359, 71st. Cong.. 2d sess.; records for 1932-49 published in bulletins of International Boundary & Water Commission.
Rio San Juan....	Above Rio Grande City, Tex.	1946-49	....do.....	Published in bulletins of International Boundary & Water Commission.
Do.....	Below Rio Grande City, Tex.	1946-49	....do.....	Do.
Rio San Rodrigo.	Near El Moral, Coahuila, Mexico.	1922-49	....do.....	Records for 1923-24 and 1927-28 published in H. Doc. 359, 71st Cong., 2d sess.; records for 1932-49 published in bulletins of International Boundary & Water Commission.
San Felipe Creek	Near Del Rio, Tex.....	1931-49	....do.....	Published in bulletins of International Boundary & Water Commission.
Terlingua Creek.	Near Terlingua, Tex....	1932-49	....do.....	Do.
West Side Canal.	At Mesilla Dam, near Mesilla Park, N. Mex.	1916-18, 1920-49	Bureau of Reclamation.	Unpublished.

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

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

COOPERATION

The work in the several States was done under cooperative agreements with the organizations listed below:

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

Louisiana: State Department of Public Works, J. L. White, director.

New Mexico: Office of the State Engineer, J. H. Bliss; Interstate Stream Commission, J. H. Bliss, secretary; New Mexico State Highway Department, B. G. Dwyre, State highway engineer; Colfax County, C. F. Adams, chairman, Board of Commissioners.

Texas: State Board of Water Engineers, consisting of E. V. Spence, chairman, J. W. Pritchett, and H. A. Beckwith; Red Bluff Water Power Control District.

Financial assistance was furnished by the Corps of Engineers in the operation of 76 gaging stations, of which 4 were in Louisiana, 7 in New Mexico, and 70 in Texas.

Financial assistance was also furnished by the Office of Indian Affairs of the United States Department of the Interior in the operation of gaging stations on the Indian Pueblo lands in New Mexico, and by the Fish and Wildlife Service of the Department of the Interior in the operation of 4 gaging stations in New Mexico.

Acknowledgments are due the Bureau of Reclamation of the United States Department of the Interior and the Weather Bureau of the United States Department of Commerce for assistance in collecting the records published herein.

Assistance in collecting records was rendered also by the following organizations:

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

Texas: Dallas County; the cities of Abilene, Amarillo, Corpus Christi, Dallas, Houston, Longview, and San Angelo; Tarrant County Water Control and Improvement District No. 1; West Texas Utilities Co.; Lower Colorado River Authority; Brazos

River Conservation and Reclamation District; Comal Power Plant; Pecos County Water Improvement District No. 1; Reeves County Water Improvement District No. 1; Dow Chemical Co.; Texas Highway Department; San Jacinto River Conservation and Reclamation District; Lower Neches Valley Authority; Texas Electric Service Co.; Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1; Brown County Water Improvement District No. 1.

DIVISION OF WORK

The stream-gaging work was conducted by the water resources division of the Geological Survey -- Carl G. Paulsen, chief hydraulic engineer and Joseph V. B. Wells, chief of the surface water branch. The data for the stations in the several States were collected and prepared for publication under the supervision of district engineers as follows: In Colorado, the work being done in collaboration with M. C. Hinderlider, State engineer, and L. T. Burgess, State chief hydrographer; in Louisiana (except for Sabine River at Logansport), in New Mexico (except for Delaware River near Red Bluff and Pecos River at Red Bluff), Berkeley Johnson; in Texas and for Sabine River at Logansport, La., Delaware River near Red Bluff, N. Mex., and Pecos River at Red Bluff, N. Mex., C. E. Ellsworth.

The records were reviewed and the manuscript prepared for publication under the direction of B. J. Peterson, chief, annual reports section.

MERMENTAU RIVER BASIN

Bayou Nezpique near Basile, La.

Location.- Water-stage recorder, lat. 30°28'50", long. 92°37'55", in NE¼NW¼ sec. 1, T. 7 S., R. 3 W., at bridge on U. S. Highway 190, a quarter of a mile downstream from New Orleans, Texas & Mexico Railway bridge and 2 miles west of Basile. Datum of gage is 3.39 feet above mean sea level, datum of 1929, supplementary adjustment of 1941. Auxiliary staff gage 7½ miles downstream. Datum of auxiliary gage is 1.03 feet below mean sea level (Louisiana Geodetic Survey bench mark; levels by Corps of Engineers).

Records available.- October 1933 to September 1949.

Average discharge.- 11 years, 884 second-feet.

Extremes.- Maximum discharge during year, 6,390 second-feet Mar. 25; maximum gage height, 22.40 feet Apr. 30; minimum discharge, 0.3 second-foot Nov. 12 (gage height, 1.23 feet). 1938-49: Maximum discharge, 22,900 second-feet Aug. 11, 1940 (gage height, 31.08 feet); minimum, 0.1 second-foot June 7-13, 1943, June 22-29, 1948; minimum gage height, 1.00 foot June 28, 1948.

Remarks.- Records good except those below 10 second-feet, which are fair. Discharge above about 60 second-feet computed by using fall as determined by twice-daily readings of auxiliary staff gage as a factor. Diversions above and below station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.2	0.7	3,020	905	454	2,100	4,370	5,480	216	27	543	119
2	7.3	.7	3,230	712	852	1,600	4,230	4,620	133	19	377	96
3	5.6	.6	3,390	480	1,260	1,040	3,910	3,950	50	26	249	83
4	4.3	.6	3,420	574	1,550	648	3,660	3,240	22	37	113	79
5	3.7	.4	3,240	1,060	1,900	357	3,330	2,550	10	48	88	73
6	3.0	.4	3,000	1,460	2,070	234	3,030	1,940	5.2	94	89	73
7	2.7	.4	2,480	1,630	2,160	168	2,680	1,410	3.4	154	228	69
8	2.5	.4	1,780	1,580	2,090	123	2,310	634	2.5	110	337	70
9	1.9	.4	963	1,460	2,320	102	1,680	181	2.3	68	251	68
10	1.7	.4	348	1,320	2,730	216	950	58	1.9	42	224	75
11	2.6	.3	126	932	3,080	310	1,250	42	6.1	37	202	179
12	2.7	.3	56	361	3,270	250	1,990	46	28	110	144	196
13	2.0	.4	45	198	3,110	191	2,690	34	36	154	100	299
14	1.7	.4	38	139	2,870	614	3,120	23	26	586	74	372
15	2.0	.3	32	105	2,620	1,370	3,140	18	21	573	58	342
16	5.6	1.0	276	121	2,360	1,810	2,950	15	27	552	322	247
17	11	2.5	425	1,300	2,000	2,000	2,710	13	78	684	615	157
18	11	33	807	2,170	1,400	1,830	2,370	10	79	832	882	108
19	8.7	205	1,100	2,880	1,270	1,420	1,880	8.2	42	1,160	885	88
20	6.7	540	1,140	3,330	1,770	808	1,140	6.5	46	1,270	744	105
21	5.2	801	1,120	3,420	2,260	664	699	5.4	105	1,190	564	125
22	4.1	848	1,030	3,350	2,570	1,940	1,250	4.4	a110	1,280	417	128
23	3.0	824	690	3,240	2,510	3,300	2,730	3.4	a50	1,480	325	118
24	2.3	742	318	3,150	2,340	5,410	4,110	2.5	a40	1,730	278	96
25	1.8	608	264	3,060	2,510	6,180	5,360	2.7	72	1,910	223	72
26	1.6	384	310	2,780	2,650	5,790	5,700	3.0	163	2,070	191	56
27	1.4	394	375	2,450	2,660	5,010	5,520	2.1	224	1,990	201	51
28	1.1	1,250	311	2,100	2,460	4,400	5,320	9.5	154	1,780	187	46
29	.9	1,920	428	1,610	-	4,240	6,030	43	76	1,490	170	40
30	.9	2,550	675	1,050	-	4,330	6,000	176	43	1,090	151	34
31	.8	-	894	614	-	4,460	-	183	-	768	130	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	118.0	11	0.8	3.81	234
November	11,109.2	2,550	.3	370	22,030
December	35,331	3,420	32	1,140	70,080
Calendar year 1948	202,867.8	4,130	.1	554	402,400
January	49,541	3,420	105	1,598	98,260
February	61,096	3,270	454	2,182	121,200
March	62,915	6,180	102	2,030	124,800
April	96,109	6,030	699	3,204	190,600
May	24,713.7	5,480	2.1	797	49,020
June	1,872.4	224	1.9	62.4	3,710
July	23,361	2,070	19	754	46,340
August	9,362	885	58	302	18,570
September	3,664	372	34	122	7,270
Water year 1948-49	379,192.3	6,180	.3	1,039	752,100

Peak discharge (base, 3,700 sec.-ft.).- Mar. 25 (5:30 a.m.) 6,390 sec.-ft.; Apr. 30 (5 a.m.) 6,170 sec.-ft.

a No gage-height record at base gage; discharge computed on basis of recorded range in stage, gage-height record at auxilliary gage, and records for Bayou des Cannes.

Cypress Creek near Pine Prairie, La.

Location.- Water-stage recorder, lat. 30°47'10", long. 92°28'30", in NW¼NE¼ sec. 21, T. 3 S., R. 1 W. Louisiana meridian, at bridge on State Highway 482, 2¾ miles upstream from Beaver Creek and 3 miles west of Pine Prairie.

Drainage area.- 56.0 square miles.

Records available.- September 1948 to September 1949.

Extremes.- Maximum discharge during period, 6,350 second-feet Nov. 28 (gage height, 15.04 feet, from floodmark), from rating curve extended above 2,800 second-feet by logarithmic plotting; no flow Oct. 7-9, Oct. 24 to Nov. 15.

Remarks.- Records good except those below 10 second-feet, which are fair.

Discharge, in second-feet, 1948-49

1948

Day	Discharge	Day	Discharge	Day	Discharge
Sept. 17	4.0	Sept. 22	0.4	Sept. 27	1.8
18	2.7	23	.3	28	1.1
19	1.6	24	.3	29	.6
20	1.1	25	.4	30	.4
21	.6	26	1.7		

1948-49

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	a0	322	32	126	42	630	220	1.2	0.8	2.1	0.9
2	.2	a0	92	17	228	23	440	200	.8	.8	2.1	3.7
3	.2	0	20	86	278	17	296	116	.6	.8	4.0	3.9
4	.1	0	11	275	318	14	100	89	.4	1.2	2.4	2.1
5	.1	0	7.7	585	338	11	58	33	.3	1.1	25	1.4
6	.1	0	5.9	560	228	8.8	62	13	.2	.8	42	1.0
7	0	0	4.7	194	108	7.2	39	7.4	.1	.7	22	.7
8	0	0	3.8	34	157	5.8	21	4.9	.1	.6	9.3	.6
9	0	0	3.1	19	578	5.3	13	3.8	.2	.5	4.7	.6
10	.2	0	2.6	13	710	6.2	241	4.3	.2	3.8	3.0	.5
11	6.2	a0	2.4	10	563	5.1	1,260	3.4	.5	6.1	2.6	.5
12	4.6	a0	2.1	7.9	269	4.2	1,060	2.6	1.4	2.3	2.0	1.0
13	1.9	a0	1.8	6.2	74	3.8	515	2.6	.9	6.1	1.4	1.2
14	.8	a0	1.6	5.3	30	105	204	2.1	.6	67	1.0	.8
15	.5	0	1.4	4.4	21	224	39	1.7	.8	214	.9	a.6
16	.3	.5	29	22	18	113	17	1.3	.7	242	161	a.5
17	.2	1.0	487	536	18	42	11	1.0	.6	251	123	a.4
18	.2	27	676	1,010	57	20	7.9	.8	.5	127	48	a.4
19	.1	212	340	775	529	12	5.7	.6	.6	76	14	a.3
20	.1	174	151	409	670	8.7	9.0	.5	.6	129	7.3	a.3
21	.1	126	34	202	414	423	153	.4	.6	132	5.0	a.3
22	.1	198	16	340	180	2,040	1,930	.3	.5	71	3.9	a.3
23	.1	124	10	340	52	1,000	2,400	.3	.5	62	2.1	a.2
24	a0	29	7.7	206	46	463	893	.2	.7	150	1.4	a.2
25	a0	11	6.6	102	170	159	410	.2	28	260	1.1	a.2
26	a0	19	6.2	64	196	34	137	.2	7.9	233	3.0	a.1
27	a0	220	8.8	69	143	271	82	.1	2.6	94	7.8	a.1
28	a0	4,900	6.8	84	84	540	60	.2	1.7	32	4.5	a.1
29	a0	1,940	89	73	-	690	112	.4	1.3	12	2.4	a.1
30	a0	704	209	36	-	1,080	196	.9	.9	6.1	1.5	a.1
31	a0	-	98	36	-	978	-	1.6	-	3.3	1.0	-

Peak discharge (base, 1,000 sec.-ft.).- Nov. 28 (8 a.m.) 6,350 sec.-ft.; Jan. 18 (2 p.m.) 1,100 sec.-ft.; Mar. 22 (10 a.m.) 2,810 sec.-ft.; Mar. 30 (11 p.m.) 1,160 sec.-ft.; Apr. 11 (5:30 p.m.) 1,800 sec.-ft.; Apr. 22 (12 p.m.) 5,920 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for Bayou Nezpique near Basile.

Monthly discharge, in second-feet, 1948-49

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
September 17-30, 1948	17.0	4.0	0.3	1.21	0.022	0.01	34
October 1948	16.4	6.2	0	.53	.0095	.01	33
November	8,685.5	4,900	0	290	5.18	5.77	17,250
December	2,657.2	676	1.4	85.7	1.53	1.76	5,270
Calendar year	-	-	-	-	-	-	-
January 1949	6,152.8	1,010	4.4	198	3.54	4.09	12,200
February	6,603	710	18	236	4.21	4.39	13,100
March	8,356.1	2,040	3.8	270	4.82	5.55	16,570
April	11,401.6	2,400	5.7	380	6.79	7.57	22,610
May	712.6	220	.1	23.0	.411	.47	1,410
June	56.0	28	.1	1.87	.033	.04	111
July	2,187.0	260	.5	70.5	1.26	1.45	4,340
August	511.5	161	.9	16.5	.295	.34	1,010
September	23.1	3.9	.1	.77	.014	.02	46
Water year 1948-49	47,363.0	4,900	0	130	2.32	31.46	93,930

Bayou des Cannes near Eunice, La.

Location.- Water-stage recorder, lat. 30°29'00", long. 92°29'25", in SW¼SE¼ sec. 32, T. 6 S., R. 1 W. Louisiana meridian, at bridge on U. S. Highway 190, 3 miles downstream from New Orleans, Texas & Mexico Railway bridge and 4 miles west of Eunice. Datum of gage is 14.84 feet above mean sea level, datum of 1929 (Louisiana Geodetic Survey bench mark; levels by Corps of Engineers). Auxiliary staff gage 1.8 miles downstream.

Records available.- October 1938 to September 1949.

Average discharge.- 11 years, 276 second-feet.

Extremes.- Maximum discharge during year, 3,200 second-feet Mar. 23; maximum gage height, 17.00 feet Mar. 23; minimum, 0.3 second-foot Oct. 10 (gage height, 1.34 feet).
1938-49: Maximum dsicharge, 10,000 second-feet July 7, 1946 (gage height, 21.15 feet); no flow May 7, 10-18, July 10, 1939, June 23-27, 30, July 1, 1948.

Remarks.- Records good except those below 10 second-feet, which are fair, and those for periods of no gage-height record, which are poor. Discharge above about 70 second-feet computed by using fall as determined by twice-daily readings of auxiliary staff gage as a factor. Diversions above station for irrigation. Some regulation May to October by small irrigation diversion dams.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.6	1.1	748	321	119	a65	756	a1,100	32	32	42	43
2	2.5	1.1	727	118	289	a35	778	a800	16	26	31	43
3	2.0	1.1	512	55	447	22	750	a400	9.7	26	31	50
4	1.5	1.6	200	36	490	17	633	a100	6.8	39	33	50
5	1.1	1.8	68	118	514	15	375	a35	3.8	72	39	43
6	.8	1.8	33	379	509	13	122	a15	3.4	78	188	40
7	.5	2.0	19	337	496	9.5	68	a12	3.2	70	294	39
8	.5	3.8	13	276	397	7.1	36	a8	1.9	57	308	40
9	.4	5.1	10	96	597	15	21	a6	44	45	291	38
10	.4	4.1	8.1	46	925	28	76	a5	121	34	203	45
11	1.1	3.3	6.4	29	1,460	11	596	a5	245	46	127	55
12	2.0	2.6	5.2	21	1,280	8.4	848	a5	414	66	89	42
13	2.0	2.5	4.6	18	901	7.0	1,210	a4	386	123	68	58
14	2.0	2.5	4.1	13	504	308	1,100	a4	186	213	54	84
15	1.9	2.5	4.0	10	98	558	902	a4	84	170	153	68
16	1.4	3.6	432	81	208	637	420	a3	165	383	446	52
17	2.6	5.8	813	670	470	610	60	a3	180	666	378	50
18	4.1	45	1,350	1,090	532	328	17	a3	94	490	497	93
19	3.2	315	1,470	2,270	658	70	9.9	a3	62	524	582	96
20	2.4	459	1,140	1,750	708	29	49	a3	45	475	537	99
21	2.0	546	725	1,270	768	317	165	a2.5	32	380	328	99
22	2.0	549	247	962	736	993	611	a2.5	34	315	152	82
23	2.0	498	57	701	a500	2,560	1,030	a2.5	37	382	92	59
24	1.6	333	39	486	a200	2,390	1,870	a2.5	46	502	76	42
25	1.3	136	46	292	a280	1,440	1,750	2.4	74	483	68	27
26	1.0	72	157	114	a450	957	1,200	2.4	107	405	76	18
27	.8	86	270	72	a380	484	893	3.2	117	346	80	14
28	.8	432	142	66	a150	290	865	7.0	98	226	76	10
29	1.8	579	216	72	-	399	977	20	72	132	66	12
30	1.5	686	398	72	-	672	1,240	33	45	76	57	13
31	1.1	-	458	70	-	694	-	57	-	54	50	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	51.9	4.1	0.4	1.67	103
November	4,781.3	686	1.1	159	9,480
December	10,322.4	1,470	4.0	333	20,470
Calendar year 1948	64,840.9	2,870	.0	177	128,600
January	11,889	2,270	10	384	23,580
February	15,076	1,460	98	538	29,900
March	13,989.0	2,560	7.0	451	27,750
April	19,427.9	1,870	9.9	648	38,550
May	2,653.8	1,100	2.4	85.6	5,260
June	2,762.8	414	1.9	92.1	5,480
July	6,918	666	26	223	13,720
August	5,512	582	31	178	10,930
September	1,504	99	10	50.1	2,980
Water year 1948-49	94,688.1	2,560	0.4	260	188,200

Peak discharge (base, 1,800 sec.-ft.).- Jan. 19 (11 a.m.) 2,390 sec.-ft.; Mar. 23 (4:30 p.m.) 3,200 sec.-ft.; Apr. 24 (6 p.m.) 2,150 sec.-ft.

a No gage-height record at base gage; discharge computed on basis of gage-height record for auxiliary gage and records for Bayou Nezpique near Basile.

Calcasieu River near Glenmora, La.

Location.- Wire-weight gage, lat. 30°59'40", long. 92°40'25", in SE¼SE¼, sec. 4, T. 1 S., R. 3 W. Louisiana meridian, at bridge on State Highway 113, 1.0 mile upstream from Prairie Branch and 4.6 miles northwest of Glenmora. Datum of gage is 110.77 feet above mean sea level (Louisiana Geodetic Survey bench mark).
Drainage area.- 499 square miles.
Records available.- August 1943 to September 1949.
Extremes.- Maximum discharge during year, 15,000 second-feet Mar. 29 (gage height, 15.80 feet (from graph based on gage readings); minimum, 19 second-feet Oct. 8-10, 12-15; minimum gage height, 4.26 feet Oct. 10.
1943-49: Maximum discharge, 27,400 second-feet Apr. 4, 1945 (gage height, 18.0 feet, from graph based on gage readings); minimum, that of Oct. 8-10, 12-15, 1948; minimum gage height, that of Oct. 10, 1948.
Remarks.- Records fair. Gage read twice daily.
Revisions (water years).- W 1118: 1944-47.

Rating tables, water year 1948-49 (gage-height, in feet, and discharge, in second-feet)

Oct. 1 to Mar. 19						Mar. 20 to Sept. 30					
4.2	17	8.0	245	11.5	1,020	4.5	28	9.0	373	12.5	1,800
4.4	24	8.5	292	12.0	1,330	4.7	37	9.5	453	13.0	2,550
4.6	32	9.0	360	12.5	1,800	5.0	51	10.0	546	13.5	3,570
5.0	51	9.5	440	13.0	2,550	5.5	78	10.5	662	14.0	5,100
5.5	77	10.0	540	13.4	3,350	6.0	110	11.0	815	14.5	7,760
6.0	107	10.5	655	13.7	4,080	7.0	181	11.5	1,020	15.0	10,600
7.0	174	11.0	815	14.0	5,100	8.0	256	12.0	1,330		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	20	4,080	a1,050	1,500	1,690	7,760	1,690	75	84	373	32
2	22	21	3,570	a1,000	1,590	2,370	7,760	2,200	78	90	211	37
3	21	22	3,350	a1,400	1,590	2,200	8,880	2,740	72	103	145	44
4	21	23	2,940	a2,100	1,500	2,050	7,760	2,940	69	84	138	48
5	21	34	2,200	a2,300	1,500	1,920	3,350	1,920	64	72	138	48
6	20	37	1,070	2,200	1,500	1,330	1,590	1,500	58	84	152	44
7	20	37	540	a2,100	1,500	930	1,330	930	56	97	174	39
8	19	46	345	a1,900	1,690	655	1,260	546	61	103	211	34
9	19	46	304	a2,000	2,050	580	1,190	373	61	110	397	34
10	19	32	262	a2,100	2,050	440	1,130	274	64	211	488	39
11	20	32	216	a1,900	2,550	405	1,260	218	64	152	470	41
12	19	32	202	a1,500	2,550	390	1,260	181	103	97	324	41
13	19	32	188	a800	2,550	405	970	167	110	84	167	39
14	19	32	167	375	2,940	815	750	145	124	174	108	39
15	19	41	195	281	2,940	1,190	720	138	131	466	56	39
16	20	51	202	292	2,940	1,190	636	145	138	470	64	39
17	22	406	253	440	2,550	1,330	526	167	145	404	78	37
18	21	1,070	360	780	2,200	1,330	318	152	145	211	84	39
19	20	1,850	440	1,130	1,920	930	240	103	203	189	75	39
20	20	1,800	440	1,260	1,590	1,020	225	97	218	181	56	41
21	20	3,570	390	1,330	1,500	1,260	225	97	152	152	46	44
22	20	4,080	375	1,800	2,050	1,410	366	97	90	181	39	46
23	20	4,380	375	1,920	2,050	1,500	2,340	84	69	274	39	44
24	20	3,810	375	2,050	1,690	1,690	1,800	84	138	488	44	44
25	20	3,140	420	2,050	1,800	2,200	1,920	72	211	318	41	44
26	20	3,350	495	2,370	1,800	3,350	2,050	66	174	358	41	41
27	20	4,080	560	2,370	1,920	6,080	2,370	64	152	388	39	39
28	20	4,380	655	2,940	1,690	11,100	2,550	61	131	507	34	37
29	20	4,720	850	2,370	-	13,900	2,740	61	117	546	30	37
30	20	5,100	890	2,200	-	10,600	2,200	61	103	420	30	34
31	20	-	1,070	1,920	-	8,880	-	75	-	470	28	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	623	22	19	20.1	0.040	0.05	1,240
November	46,274	5,100	20	1,542	3.09	3.45	91,780
December	27,779	4,080	167	896	1.80	2.07	55,100
Calendar year 1948	214,194	5,100	19	585	1.17	15.94	424,900
January	50,228	2,940	281	1,620	3.25	3.74	99,630
February	55,700	2,940	1,500	1,989	3.99	4.15	110,500
March	85,140	13,900	390	2,746	5.50	6.35	168,900
April	67,476	8,880	225	2,249	4.51	5.03	133,800
May	17,448	2,940	61	563	1.13	1.30	34,610
June	3,376	218	56	113	.226	.25	6,700
July	7,568	546	72	244	.489	.56	15,010
August	4,320	488	28	139	.279	.32	8,570
September	1,203	48	32	40.1	.080	.09	2,390
Water year 1948-49	367,135	13,900	19	1,006	2.02	27.36	728,200

Peak discharge (base, 4,000 sec.-ft.).- Nov. 23 (1 p.m.) 5,100 sec.-ft.; Nov. 30 (1 a.m.) 5,320 sec.-ft.; Mar. 29 (3 p.m.) 15,000 sec.-ft.
a Doubtful or no gage-height record; discharge computed on basis of weather records and records for nearby stations.

Calcasieu River near Oberlin, La.

Location.- Water-stage recorder, lat. 30°38'25", long. 92°48'50", in NW¼NE¼ sec. 7, T. 5 S., R. 4 W., at bridge on State Highway 52, 3 miles northwest of Oberlin and 15 miles upstream from Whiskey Chitto Creek. Datum of gage is 39.43 feet above mean sea level, datum of 1929 (Louisiana Geodetic Survey bench mark).

Drainage area.- 753 square miles.

Records available.- August 1922 to January 1925, September 1938 to September 1949.

Average discharge.- 13 years (1922-24, 1938-49), 1,336 second-feet.

Extremes.- Maximum discharge during year, 16,600 second-feet Mar. 31 (gage height, 18.82 feet); minimum, 40 second-feet Oct. 17; minimum gage height, 3.18 feet Nov. 2, 3.

1922-25, 1938-49: Maximum discharge, 34,700 second-feet Apr. 7, 1923 (gage height, 18.48 feet, datum then in use, or about 21 feet, present datum), from rating curve extended above 14,000 second-feet; minimum, 40 second-feet, Aug. 24, Oct. 17. 1948.

Flood of 1886 reached a stage about 1 foot higher than that of Apr. 7, 1923.

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

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 2 to Nov. 19, Dec. 10 to Jan. 3, Apr. 16 to July 12)

3.2	33	5.5	323	12.0	2,730	16.0	6,760
3.4	51	6.0	443	13.0	3,330	16.5	8,070
4.0	111	7.0	736	14.0	4,060	17.0	9,630
4.5	168	9.0	1,430	15.0	5,050	18.0	13,200
5.0	235	11.0	2,230	15.5	5,750	19.0	17,500

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	43	7,560	1,500	3,070	2,670	15,700	5,440	123	155	736	110
2	49	42	5,590	1,500	3,140	2,460	13,600	4,060	122	149	934	116
3	48	42	5,440	1,500	3,070	2,360	11,000	3,200	122	156	704	128
4	46	43	4,710	1,810	3,140	2,360	8,990	2,950	121	174	523	111
5	46	50	3,900	2,060	3,270	2,570	7,510	3,400	116	181	345	103
6	46	54	3,270	2,320	3,200	2,730	5,750	3,530	111	154	266	101
7	45	66	2,730	2,670	2,840	2,670	4,610	3,200	109	134	258	101
8	45	74	2,270	2,670	2,620	2,460	3,820	2,730	105	121	258	98
9	45	119	1,770	2,620	3,330	2,190	3,200	2,270	106	114	250	113
10	45	106	1,180	2,620	3,820	1,810	3,310	1,770	110	125	266	104
11	46	87	752	2,840	4,150	1,320	5,920	1,280	128	156	334	96
12	46	78	523	2,950	3,900	968	7,000	900	207	194	430	95
13	49	74	430	2,670	3,670	784	6,320	610	174	228	496	90
14	46	71	368	2,320	3,400	1,200	4,500	456	174	456	482	87
15	43	67	323	1,850	3,140	1,730	2,950	380	162	801	417	84
16	42	72	900	1,430	3,140	1,540	1,970	334	174	417	523	82
17	40	85	2,660	2,320	3,600	1,390	1,350	303	174	937	867	81
18	43	105	2,840	3,270	3,750	1,460	1,070	266	168	1,280	900	86
19	43	181	2,010	3,460	4,410	1,540	900	235	168	968	801	92
20	46	640	1,580	3,270	4,510	1,580	818	214	181	834	736	94
21	46	1,000	1,280	2,840	3,750	2,280	934	187	200	656	344	89
22	46	1,320	968	2,890	3,010	5,960	2,140	181	200	537	235	91
23	46	1,650	801	2,950	2,620	6,320	7,920	168	174	656	200	90
24	44	2,230	720	2,780	2,780	5,050	12,400	151	156	496	168	89
25	43	3,800	641	2,620	3,750	3,900	8,160	141	162	927	154	90
26	43	5,050	580	2,620	3,820	2,890	4,810	133	174	1,140	142	89
27	43	5,300	610	2,840	3,400	3,600	5,260	129	200	1,000	135	85
28	43	7,720	672	3,010	3,010	6,400	9,960	135	207	768	130	79
29	43	11,700	818	3,010	-	10,700	7,000	142	181	580	123	74
30	43	11,300	1,210	3,010	-	14,000	6,530	140	168	580	115	70
31	43	-	1,430	3,010	-	16,100	-	128	-	626	110	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,390	49	40	44.8	2,760
November	53,169	11,700	42	1,772	105,500
December	60,536	7,560	323	1,953	120,100
Calendar year 1948	351,218	11,700	40	962	696,700
January	79,230	3,460	1,430	2,556	157,200
February	95,310	4,510	2,620	3,404	189,000
March	114,992	16,100	784	3,709	228,100
April	175,402	15,700	818	5,847	347,900
May	39,163	5,440	128	1,263	77,680
June	4,677	207	105	156	9,280
July	15,700	1,280	114	506	31,140
August	12,382	934	110	399	24,560
September	2,818	128	70	93.9	5,590
Water year 1948-49	654,769	16,100	40	1,794	1,299,000

Peak discharge (base, 8,000 sec.-ft.).- Nov. 29 (10 p.m.) 13,200 sec.-ft.; Mar. 31 (11 a.m.) 16,600 sec.-ft.; Apr. 24 (7 a.m.) 14,000 sec.-ft.; Apr. 28 (5 a.m.) 11,700 sec.-ft.

Calcasieu River near Kinder, La.

Location.- Water-stage recorder, lat. 30°30'10", long. 92°54'55", in NW¼SE¼ sec. 30, T. 6 S., R. 5 W., at bridge on U. S. Highway 190, 0.5 mile downstream from Whiskey Chitto Creek and 4 miles west of Kinder. Datum of gage is 12.02 feet above mean sea level, datum of 1929 (Louisiana Geodetic Survey bench mark).

Drainage area.- 1,700 square miles.

Records available.- August 1922 to January 1925, October 1938 to September 1949.

Average discharge.- 13 years (1922-24, 1938-49), 2,990 second-feet.

Extremes.- Maximum discharge during year, 33,600 second-feet Apr. 24; maximum gage height, 19.82 feet Apr. 25; minimum discharge, 262 second-feet Oct. 8-10 (gage height, 2.30 feet).

1922-25, 1938-49: Maximum discharge, 68,000 second-feet Dec. 23, 1923 (gage height, 21.69 feet, datum then in use, or about 23.5 feet, present datum), from rating curve extended above 40,000 second-feet; maximum gage height, 24.7 feet Aug. 11, 1940 (discharge, 64,400 second-feet); minimum discharge, 183 second-feet Aug. 19, 1948 (gage height, 2.04 feet).

Flood in 1913 reached a stage about 0.3 foot higher than that of Aug. 11, 1940.

Remarks.- Records good except those for period of no gage-height record, which are fair. Discharge above about 2,000 second-feet computed by using rate of change of stage as a factor. Paper mill at Elizabeth pumps about 5 second-feet from wells which is later discharged into Mill Creek, 36 miles above station. This discharge is continuous and fairly constant. Water is diverted during period April to September at points just above station and 5 miles above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	284	278	22,600	3,130	5,150	5,940	30,900	11,500	805	534	1,350	528
2	284	278	16,700	2,850	5,170	5,230	28,600	10,000	708	519	1,590	692
3	281	274	11,200	2,940	5,410	4,320	24,000	8,140	628	488	1,630	726
4	278	281	7,240	4,600	5,500	3,630	20,200	6,310	612	556	1,280	594
5	271	324	5,860	5,980	5,860	3,400	17,100	5,640	581	676	1,090	577
6	271	577	4,910	6,340	6,170	3,430	13,300	5,300	519	660	950	528
7	268	692	4,130	6,280	5,730	3,430	9,370	4,800	504	550	915	480
8	265	577	3,470	5,370	5,210	3,330	7,280	4,190	488	550	880	480
9	262	512	2,930	4,350	6,310	3,140	5,800	3,630	504	488	880	498
10	268	464	2,380	3,650	7,490	2,990	5,610	3,020	612	458	915	692
11	293	432	1,790	3,460	8,480	2,530	10,400	2,470	660	458	950	528
12	410	397	1,470	3,430	8,160	2,070	15,200	2,120	1,160	458	985	480
13	336	378	1,280	3,990	7,500	1,710	15,000	1,710	1,260	519	950	528
14	302	371	1,160	3,180	7,310	2,180	13,200	1,420	1,010	1,060	985	643
15	298	368	1,090	2,850	6,190	4,380	9,980	1,280	1,150	2,160	915	528
16	290	394	1,960	2,500	4,940	4,810	5,980	1,230	1,120	2,210	1,060	512
17	284	610	4,530	4,230	4,580	3,860	3,860	1,040	939	2,260	1,280	528
18	271	811	4,330	6,540	5,150	2,900	2,870	1,010	974	2,420	1,510	577
19	271	1,310	3,770	7,270	7,040	a2,500	2,340	939	905	2,070	1,750	594
20	274	3,140	3,180	7,130	8,730	a2,400	2,280	871	822	2,310	1,590	626
21	281	4,360	2,700	6,510	8,900	a5,000	2,960	838	740	2,900	1,160	577
22	278	4,950	2,250	6,110	7,560	9,860	5,140	788	708	1,710	848	528
23	281	5,770	1,790	6,170	6,190	15,200	10,800	708	676	1,980	692	512
24	281	6,410	1,550	5,730	5,230	14,900	27,700	676	676	2,020	660	480
25	278	5,500	1,550	5,250	5,820	11,800	29,300	660	838	2,780	577	464
26	281	4,800	1,630	4,800	6,550	11,000	20,400	644	805	3,430	544	464
27	278	6,000	1,630	4,720	6,970	9,860	14,200	708	676	3,110	544	464
28	274	10,300	1,710	4,770	6,510	12,400	14,200	724	644	2,470	544	448
29	278	16,600	2,010	5,180	-	16,500	15,500	1,080	612	1,830	528	432
30	278	24,600	3,310	5,410	-	23,300	12,700	1,230	556	1,470	496	416
31	274	-	3,420	5,450	-	29,500	-	974	-	1,350	480	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	8,821	410	262	285	17,500
November	101,758	24,600	274	3,392	201,800
December	129,530	22,600	1,090	4,178	256,900
Calendar year 1948	709,743	24,600	201	1,939	1,408,000
January	150,170	7,270	2,500	4,844	297,900
February	179,790	8,900	4,580	6,421	356,600
March	227,300	29,500	1,710	7,332	450,800
April	398,170	30,900	2,280	13,210	785,800
May	85,630	11,500	644	2,762	169,800
June	22,892	1,260	488	763	45,410
July	46,454	3,430	458	1,499	92,140
August	30,525	1,750	480	985	60,550
September	18,122	726	416	537	31,980
Water year 1948-49	1,395,162	30,900	262	3,822	2,767,000

Peak discharge (base, 13,000 sec.-ft.).- Nov. 30 (4 p.m.) 26,300 sec.-ft.; Mar. 23 (2 p.m.) 16,000 sec.-ft.; Apr. 1 (6:30 a.m.) 31,500 sec.-ft.; Apr. 12 (8 p.m.) 15,800 sec.-ft.; Apr. 24 (11 p.m.) 33,600 sec.-ft.

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

Whiskey Chitto Creek near Oberlin, La.

Location.- Water-stage recorder, lat. 30°41'55", long. 92°53'35", in NE¼NE¼ sec. 20, T. 4 S., R. 5 W., at bridge on State Highway 52, 1 mile downstream from Tenmile Creek, 8 miles upstream from Bundick Creek, and 10 miles northwest of Oberlin. Datum of gage is 46.24 feet above mean sea level (Louisiana Geodetic Survey bench mark).
Drainage area.- 510 square miles.
Records available.- January 1939 to September 1949.
Average discharge.- 10 years, 913 second-feet.
Extremes.- Maximum discharge during year, 16,000 second-feet Apr. 23 (gage height, 21.18 feet); minimum, 114 second-feet Oct. 31, Nov. 1 (gage height, 3.84 feet).
1939-49: Maximum discharge, 35,000 second-feet Aug. 9, 1940 (gage height, 23.42 feet); minimum observed, 102 second-feet Sept. 19, 1939 (gage height, 3.72 feet).
Maximum stage known, 25.7 feet in June 1886, from floodmarks preserved by local residents.
Remarks.- Records good except those for period of no gage-height record, which are fair.

Rating tables, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 26 to June 22)

Oct. 1 to Nov. 29, June 23 to Sept. 30

3.8	108	7.0	787
4.5	226	9.0	1,410
5.5	407	11.0	2,140
6.0	513		

Note.- Same as following table above 11.0 feet.

Nov. 30 to June 22

5.0	250	13.0	2,990	19.0	8,800
6.0	461	15.0	3,950	20.0	11,600
7.0	725	16.0	4,590	21.2	16,000
9.0	1,360	17.0	5,590		
11.0	2,140	18.0	6,950		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	138	119	4,950	1,120	1,050	1,500	6,640	2,700	370	305	407	218
2	137	119	3,470	725	1,220	1,080	5,710	1,930	328	288	525	279
3	135	119	1,660	1,420	1,400	782	5,370	1,290	308	279	427	261
4	129	124	900	2,890	1,430	a700	4,440	1,050	288	305	360	270
5	126	244	725	3,210	1,770	a600	3,290	930	278	296	314	252
6	124	525	628	3,040	1,770	a550	2,110	782	278	288	305	223
7	124	378	587	2,640	1,430	a500	1,730	669	269	286	305	212
8	122	332	574	1,570	1,080	a480	1,400	587	260	279	314	212
9	119	235	522	900	1,360	a470	1,050	535	260	261	369	261
10	124	195	461	655	2,420	a460	1,490	522	269	252	360	235
11	176	174	426	574	2,610	a520	3,860	522	390	244	323	214
12	166	164	381	522	2,650	561	4,670	498	535	261	305	226
13	135	157	360	485	2,700	498	4,250	461	574	288	296	244
14	134	157	349	449	2,200	805	3,260	414	498	645	270	252
15	140	157	349	426	1,210	1,540	1,930	392	449	537	244	244
16	132	184	1,450	449	900	1,360	1,150	381	426	617	270	244
17	127	384	1,360	1,790	930	1,080	870	371	561	932	279	226
18	128	502	1,020	2,530	1,150	725	725	360	548	729	758	226
19	129	1,830	990	2,530	1,890	561	641	360	414	468	701	279
20	127	2,820	990	2,360	2,440	498	683	349	360	932	398	252
21	126	2,700	870	1,930	2,230	1,390	990	328	360	576	305	244
22	124	3,260	614	1,850	1,810	3,840	2,690	328	349	437	270	221
23	124	3,630	485	1,850	1,180	4,070	12,300	308	341	617	252	212
24	124	2,640	426	1,690	1,050	3,630	11,400	308	388	816	226	204
25	121	1,400	426	1,540	1,180	3,530	7,320	298	417	1,080	219	198
26	119	932	498	1,180	1,290	3,080	5,260	298	360	1,210	212	186
27	119	2,240	683	1,360	1,690	3,440	4,250	288	360	1,020	209	184
28	118	4,750	725	1,540	1,770	5,420	3,350	360	341	729	205	182
29	118	8,400	822	1,770	-	7,630	3,040	414	350	502	219	179
30	118	6,640	1,360	1,770	-	6,950	3,040	381	341	427	212	176
31	116	-	1,220	1,400	-	7,110	-	392	-	388	204	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	3,997	176	116	129	0.253	0.29	7,930
November	45,511	8,400	119	1,517	2.97	3.32	90,270
December	30,281	4,950	349	977	1.92	2.21	60,060
Calendar year 1948	224,794	8,400	116	814	1.20	16.39	445,900
January	48,165	3,210	426	1,554	3.05	3.51	95,530
February	45,810	2,700	900	1,636	3.21	3.34	90,860
March	65,360	7,630	469	2,108	4.13	4.77	129,600
April	108,909	12,300	641	3,630	7.12	7.94	216,000
May	18,605	2,700	288	607	1.19	1.37	37,300
June	11,270	574	260	376	.737	.82	22,350
July	16,296	1,210	244	526	1.03	1.19	32,320
August	10,063	758	204	325	.637	.73	19,960
September	6,816	279	176	227	.445	.50	13,520
Water year 1948-49	411,283	12,300	116	1,127	2.21	29.99	815,700

Peak discharge (base, 3,000 sec.-ft.).- Nov. 23 (10 a.m.) 3,740 sec.-ft.; Nov. 29 (6 a.m.) 9,300 sec.-ft.; Jan. 5 (7 a.m.) 3,260 sec.-ft.; Mar. 23 (6 a.m.) 4,190 sec.-ft.; Mar. 29 (8 a.m.) 8,000 sec.-ft.; Apr. 12 (11 a.m.) 4,850 sec.-ft.; Apr. 23 (5 p.m.) 16,000 sec.-ft.

a No gage-height record; discharge computed on basis of records for other streams in basin.

Bundick Creek near Dry Creek, La.

Location.- Water-stage recorder, lat. 30°40'55", long. 93°02'15", on line between NE¼ and NW¼ sec. 25, T. 4 S., R 7 W., at bridge on State Highway 251, 1 mile northeast of town of Dry Creek and 8 miles upstream from mouth. Datum of gage is 56.92 feet above mean sea level (Louisiana Geodetic Survey bench mark).
Drainage area.- 238 square miles.
Records available.- January 1939 to September 1949.
Average discharge.- 10 years, 431 second-feet.
Extremes.- Maximum discharge during year, 4,720 second-feet Apr. 23 (gage height, 15.26 feet); minimum, 57 second-feet Nov. 2 (gage height, 2.81 feet).
1939-49: Maximum discharge, 22,000 second-feet Aug. 10, 1940 (gage height, 19.12 feet, present datum, from floodmark), from rating curve extended above 10,000 second-feet by velocity-area method; minimum, 49 second-feet on many days in September and October 1939; minimum gage height, 2.53 feet, present datum, Sept. 24, 25, 1939.
Remarks.- Records good.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 22 to Sept. 30)

2.8	56	5.5	322	13.0	1,780
3.1	78	6.0	389	13.5	2,060
3.5	111	7.0	533	14.0	2,510
4.0	153	9.0	846	14.5	3,160
4.5	200	11.0	1,200	15.0	4,100
5.0	257	12.0	1,420		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	58	1,730	361	563	846	2,620	1,610	180	115	316	100
2	68	58	964	322	608	593	2,740	1,650	153	115	309	212
3	68	61	328	1,260	638	403	2,310	1,500	136	115	180	115
4	67	66	245	1,480	654	328	1,780	1,320	124	132	153	98
5	67	132	216	1,400	846	296	1,280	1,140	119	153	132	87
6	66	136	200	1,140	782	264	790	638	115	128	119	84
7	66	84	195	542	608	239	638	348	115	119	119	81
8	66	70	185	302	488	222	533	276	115	115	124	86
9	65	66	176	233	814	216	403	251	111	115	145	247
10	68	66	162	206	1,100	211	859	257	111	115	180	111
11	174	64	153	190	1,120	222	1,880	322	332	111	162	96
12	96	63	145	185	1,180	228	1,990	322	445	115	128	106
13	80	64	140	176	1,160	216	1,610	264	296	119	108	245
14	72	64	136	171	853	750	1,180	211	270	162	100	124
15	70	66	140	162	389	1,080	573	185	251	180	96	97
16	69	183	703	249	403	814	361	180	276	228	94	98
17	66	243	258	1,030	533	473	302	166	228	270	93	111
18	64	152	206	1,010	608	322	264	162	200	149	96	106
19	64	1,410	200	1,060	1,160	239	233	158	158	128	97	140
20	64	1,440	233	960	1,220	206	293	149	132	136	95	102
21	64	1,530	233	766	1,280	920	593	145	124	110	86	91
22	64	2,410	206	782	1,240	2,140	1,350	140	115	215	84	88
23	63	1,780	166	782	969	2,060	4,050	136	115	293	82	87
24	62	827	149	750	488	2,620	4,100	132	124	197	80	84
25	62	375	265	638	623	2,140	2,620	132	140	389	82	83
26	61	448	302	654	782	1,580	1,930	128	124	316	82	81
27	60	1,330	211	533	926	2,060	1,470	145	115	276	83	80
28	59	3,580	176	766	943	2,220	803	190	119	228	81	80
29	58	3,700	633	910	-	3,000	1,020	257	115	195	82	78
30	58	2,410	654	960	-	3,330	1,400	302	119	149	82	77
31	58	-	473	830	-	3,160	-	222	-	149	84	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	2,157	174	58	69.6	0.292	0.34	4,280
November	22,936	3,700	58	765	3.21	3.58	45,490
December	10,183	1,730	136	328	1.38	1.59	20,200
Calendar year 1948	99,632	3,700	55	272	1.14	15.56	197,600
January	20,810	1,480	162	671	2.82	3.25	41,280
February	22,978	1,280	389	821	3.45	3.59	45,580
March	33,398	3,330	206	1,077	4.53	5.22	66,240
April	41,975	4,100	233	1,399	5.88	6.56	83,260
May	13,038	1,650	128	421	1.77	2.04	25,860
June	5,077	445	111	169	.710	.79	10,070
July	5,337	389	110	172	.723	.83	10,590
August	3,754	316	80	121	.508	.59	7,450
September	3,275	247	77	109	.458	.51	6,500
Water year 1948-49	184,918	4,100	58	507	2.13	28.89	366,800

Peak discharge (base, 1,500 sec.-ft.).- Nov. 22 (8 a.m.) 2,620 sec.-ft.; Nov. 29 (1 a.m.) 4,100 sec.-ft.; Mar. 24 (9 a.m.) 2,740 sec.-ft.; Mar. 29 (6 p.m.) 3,900 sec.-ft.; Apr. 12 (8 a.m.) 2,080 sec.-ft.; Apr. 23 (12 m.) 4,720 sec.-ft.; May 2 (3 p.m.) 1,730 sec.-ft.

Beckwith Creek near De Quincy, La.

Location.- Wire-weight gage, lat. 30°28'10", long. 93°21'50", in NW¼ sec. 11, T. 7 S., R. 10 W., at bridge on State Highway 7, a quarter of a mile upstream from New Orleans, Texas & Mexico Railway bridge, 2½ miles upstream from unnamed tributary, and 4 miles northeast of De Quincy.
Drainage area.- 148 square miles.
Records available.- August 1945 to September 1949.
Extremes.- Maximum discharge during year, 3,770 second-feet Mar. 31 (gage height, 19.62 feet); minimum, 0.2 second-foot Oct. 9, 10 (gage height, 1.05 feet).
1945-49: Maximum discharge, 5,650 second-feet June 1, 1946 (gage height, 20.8 feet, from graph based on gage readings); minimum, that of Oct. 9, 10, 1948.
Remarks.- Records fair except those below 1 second-foot and those for periods of no gage-height record, which are poor. Gage read twice daily.
Revisions (water year).- W 1118: 1946, 1947(M).

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 9, 12-16, Aug. 18 to Sept. 30)

1.1	0.4	2.3	13	6.0	208	17.0	1,800
1.2	.8	2.6	20	7.5	336	18.0	2,180
1.4	1.9	3.0	32	9.0	499	18.7	2,730
1.6	3.7	3.5	54	11.0	738	19.4	3,510
1.8	6.0	4.0	80	13.0	1,040		
2.0	8.6	5.0	139	15.0	1,370		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	1.4	1,070	152	579	367	2,080	568	193	7.3	10	3.0
2	.6	1.3	818	228	487	346	1,730	1,050	133	7.6	9.0	2.6
3	.6	1.3	410	1,390	308	240	1,430	972	44	9.3	7.9	4.0
4	.4	1.3	103	884	367	139	1,080	579	27	18	7.2	3.5
5	.4	1.8	62	533	568	97	804	201	18	27	10	3.5
6	.4	2.5	46	420	453	80	465	121	14	24	42	3.1
7	.4	4.1	36	377	356	69	264	80	12	21	20	2.4
8	.3	4.8	32	248	570	62	216	59	11	16	15	2.1
9	.3	14	32	97	1,170	78	158	46	12	36	18	1.8
10	.3	11	29	a80	1,270	264	1,470	42	11	14	16	1.7
11	19	6.8	24	a62	787	133	2,230	36	10	10	11	2.2
12	23	5.2	a22	40	510	69	1,390	32	59	31	8.3	4.9
13	8.6	4.1	20	34	431	133	1,020	27	52	13	6.8	8.0
14	7.0	3.7	20	32	499	1,240	832	24	75	46	6.1	4.8
15	7.0	3.5	33	29	354	952	687	21	863	270	4.7	3.5
16	4.8	5.8	152	164	158	545	273	19	640	240	4.0	2.7
17	3.5	16	56	790	216	409	109	18	115	590	4.2	2.7
18	2.4	264	36	453	425	317	80	16	69	170	3.7	2.5
19	2.0	777	27	476	1,430	146	59	15	59	75	3.5	2.1
20	1.7	522	29	420	1,200	80	152	14	179	42	3.1	a2.0
21	1.5	431	26	420	877	991	336	13	69	386	3.0	1.8
22	1.4	453	24	807	832	2,440	1,160	12	29	169	2.7	2.1
23	1.4	510	24	591	877	1,490	2,440	12	19	54	2.5	1.9
24	1.2	298	23	465	1,010	1,330	2,840	12	14	268	2.4	1.7
25	1.2	121	20	367	1,370	1,510	2,360	11	13	158	2.7	1.3
26	1.3	91	65	356	1,040	1,270	1,620	26	12	121	8.7	1.2
27	1.4	489	97	317	712	2,120	1,100	80	9.9	66	18	1.2
28	1.4	510	80	453	442	1,960	972	46	9.3	42	5.6	1.2
29	1.4	650	346	356	-	1,560	1,020	121	8.7	26	3.6	1.0
30	1.4	972	336	346	-	2,230	638	216	7.9	19	3.2	1.0
31	1.4	-	193	453	-	3,510	-	121	-	12	2.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	98.3	23	0.3	3.17	0.021	0.02	195
November	6,176.6	972	1.3	206	1.39	1.55	12,250
December	4,291	1,070	20	138	.932	1.08	8,510
Calendar year 1948	37,601.3	1,200	0.3	103	.696	9.45	74,580
January	11,840	1,390	29	382	2.58	2.98	23,480
February	19,298	1,430	158	689	4.66	4.85	38,280
March	26,177	3,510	62	844	5.70	6.58	51,920
April	31,015	2,840	59	1,034	6.99	7.79	61,520
May	4,610	1,050	11	149	1.01	1.16	9,140
June	2,787.8	863	7.9	92.9	.628	.70	5,530
July	2,988.2	590	7.3	96.4	.651	.75	5,930
August	265.8	42	2.4	8.57	.058	.07	527
September	77.5	8.0	1.0	2.58	.017	.02	154
Water year 1948-49	109,625.2	3,510	0.3	300	2.03	27.55	217,400

Peak discharge (base, 1,600 sec.-ft.).- Jan. 3 (2:30 p.m.) 1,600 sec.-ft.; Feb. 19 (11 a.m.) 1,600 sec.-ft.; Mar. 22 (1:30 a.m.) 3,270 sec.-ft.; Mar. 25 (6 a.m.) 1,620 sec.-ft.; Mar. 27 (10:30 p.m.) 3,390 sec.-ft.; Mar. 31 (7 a.m.) 3,770 sec.-ft.; Apr. 11 (5 a.m.) 3,050 sec.-ft.; Apr. 24 (2:30 p.m.) 3,270 sec.-ft.

a No gage-height record; discharge computed on basis of records for Hickory Branch at Kernan.

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Hickory Branch at Kernan, La.

Location.- Water-stage recorder, lat. 30°30'05", long. 93°16'45", in NW¼ sec. 34, T. 6 S., R. 9 W., at bridge on State Highway 7, 120 feet upstream from New Orleans, Texas & Mexico Railway bridge, 0.7 mile southwest of Kernan, 3 miles upstream from Cowpen Creek, and 10 miles northeast of De Quincy. Prior to Mar. 3, 1949, wire-weight gage at same site and datum.

Drainage area.- 82.2 square miles.

Records available.- August 1945 to September 1949.

Extremes.- Maximum discharge during year, 3,440 second-feet Apr. 23 (gage height, 20.16 feet); no flow Oct. 7-10.

1945-49: Maximum discharge, 5,950 second-feet June 21, 1947 (gage height, 26.0 feet, from graph based on gage readings); no flow Oct. 7-10, 1948.

Remarks.- Records good except those below 5 second-feet and those for period of no gage-height record, which are fair. Wire-weight gage read twice daily.

Rating tables, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 4

2.0	0	2.6	1.1	3.0	15
2.2	.1	2.7	2.0	3.2	28
2.4	.3	2.8	4.0	3.5	48
2.5	.6	2.9	9.0		

Note.- Same as following table above 3.5 feet.

Jan. 5 to Sept. 30

2.3	0.2	3.2	28	10.0	789
2.4	.3	3.5	48	11.0	949
2.5	.6	4.0	83	12.0	1,130
2.6	1.8	4.5	122	13.0	1,340
2.7	3.9	5.0	172	15.0	1,820
2.8	7.1	6.0	281	17.0	2,370
3.0	16	8.0	511	19.3	3,120

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.1	63	84	220	109	930	326	21	2.0	5.3	0.8
2	.1	.1	29	40	281	72	510	399	14	2.2	4.2	48
3	.1	.1	20	1,510	254	71	183	248	8.9	2.8	3.6	26
4	.1	.1	15	1,520	314	54	113	a100	6.0	4.7	3.4	8.9
5	.1	.3	13	703	254	38	162	a50	4.4	3.6	3.6	4.7
6	.1	.3	7.9	225	188	30	151	a25	3.0	2.8	2.8	3.4
7	0	.3	5.3	55	126	28	89	a15	2.4	2.4	2.0	2.6
8	0	.3	7.9	40	567	27	54	a11	2.2	3.0	2.0	1.6
9	0	.3	5.8	23	1,240	114	36	a7	9.3	3.2	1.8	1.0
10	0	.2	4.8	16	1,200	344	1,380	a5	7.5	5.0	1.0	.8
11	1.5	.2	a4.5	22	494	90	2,400	a4	40	4.2	.8	.7
12	1.0	.2	a4.0	20	156	42	1,100	a3.5	29	5.6	.7	46
13	.5	.2	a3.7	18	80	59	446	a3.5	11	4.2	.7	26
14	.3	.2	3.4	16	59	g1,260	98	a3.0	8.4	11	.7	9.7
15	.2	.2	98	16	51	g1,140	59	a3.0	138	156	.7	4.7
16	.2	1.1	665	146	85	g480	41	a3.0	21	132	.6	3.2
17	.1	1.5	188	862	105	126	31	a2.5	9.3	307	.6	2.6
18	.1	5.3	70	563	439	66	28	a2.5	7.1	43	.6	11
19	.1	397	28	463	2,070	43	27	a2.5	10	28	.8	12
20	.1	548	14	254	922	30	107	a2.2	127	17	2.6	5.0
21	.1	92	12	420	497	1,230	303	a2.1	60	9.7	2.4	2.2
22	.1	105	13	589	194	2,620	1,480	a2.0	20	39	1.4	1.1
23	.1	68	11	416	94	1,120	3,110	a2.0	11	59	.8	.7
24	.1	24	9.0	248	788	409	1,390	1.8	14	510	.6	.5
25	.1	13	a8	109	633	91	422	1.8	8.4	346	.5	.4
26	.1	29	a40	178	1,070	223	a100	2.2	5.3	64	18	.4
27	.1	354	61	226	537	2,430	a200	35	3.9	28	7.5	.3
28	.1	907	38	382	270	1,930	578	38	3.2	20	3.6	.3
29	.1	573	842	254	-	1,140	1,130	35	2.8	13	2.6	.3
30	.1	201	787	a80	-	1,390	477	61	2.4	9.3	1.4	.2
31	.1	-	241	109	-	1,770	-	46	-	6.7	.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	5.8	1.5	0	0.19	0.002	0.003	12
November	3,322.0	907	.1	111	1.35	1.50	6,590
December	3,312.3	842	3.4	107	1.30	1.50	6.570
Calendar year 1948	27,086.8	1,980	0	74.0	.900	12.25	53,730
January	9,607	1,520	16	310	3.77	4.35	19,060
February	13,188	2,070	51	471	5.73	5.97	26,160
March	18,576	2,620	27	599	7.29	8.40	36,840
April	17,135	3,110	27	571	6.95	7.75	33,990
May	1,442.6	399	1.8	46.5	.566	.65	2,860
June	610.5	138	2.2	20.4	.248	.28	1,210
July	1,844.4	510	2.0	59.5	.724	.83	3,660
August	78.1	18	.5	2.52	.031	.04	155
September	255.1	48	.2	7.50	.091	.10	446
Water year 1948-49	69,346.8	3,110	0	190	2.31	31.37	137,600

Peak discharge (base, 2,000 sec.-ft.).- Jan. 3 (7 p.m.) 2,430 sec.-ft.; Feb. 19 (7 a.m.) 2,460 sec.-ft.; Mar. 22 (5 a.m.) 2,980 sec.-ft.; Mar. 27 (7:30 p.m.) 2,680 sec.-ft.; Apr. 10 (12 p.m.) 3,080 sec.-ft.; Apr. 23 (11 a.m.) 3,440 sec.-ft.

a No gage-height record; discharge computed on basis of records for Beckwith Creek near De Quincy.
g Computed from graph based on gage readings.

Sabine River near Mineola, Tex.

Location.- Water-stage recorder, lat. 32°36'45", long. 95°29'10", at bridge on U. S. Highway 69, 3.2 miles south of Mineola, Wood County, 4.5 miles upstream from International-Great Northern Railroad bridge, and 16.5 miles upstream from Lake Fork. Datum of gage is 304.2 feet above mean sea level, datum of 1929.
Drainage area.- 1,445 square miles.
Records available.- May 1939 to September 1949.
Average discharge.- 10 years (1939-49), 1,284 second-feet.
Extremes.- Maximum discharge during year, 21,800 second-feet Feb. 27 (gage height, 18.77 feet); minimum, 1.1 second-feet Oct. 6.
1939-49: Maximum discharge, 76,000 second-feet Apr. 1, 1945 (gage height, 24.00 feet); maximum gage height, 24.37 feet June 8, 1943; no flow at times.
Maximum stage from about 1919 to 1939, 20.6 feet Jan. 25, 1938, from information by local resident.
Remarks.- Records good. No large diversion above station.

Rating tables, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 13 to Dec. 15, Apr. 2-30)

Oct. 1 to Apr. 30						May 1 to Sept. 30					
1.3	1.7	3.5	70	12.0	1,160	1.5	3.6	4.0	70	13.0	1,330
1.5	4.4	4.0	95	13.0	1,480	1.7	6.4	5.0	126	14.0	1,710
1.7	7.8	5.0	151	14.0	1,900	1.9	9.6	6.0	193	15.0	2,170
1.9	12	6.0	216	15.0	2,440	2.1	13	7.0	266	15.5	2,500
2.1	16	7.0	295	16.0	3,350	2.3	17	8.0	360	16.0	2,970
2.3	22	8.0	398	16.5	4,250	2.5	21	9.0	485	16.5	4,000
2.5	28	9.0	535	17.0	6,300	2.7	25	10.0	642		
2.7	35	10.0	710	18.0	15,000	3.0	32	11.0	828		
3.0	47	11.0	920	18.5	19,500	3.5	48	12.0	1,040		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.4	3.8	13	18	f6,060	7,560	3,200	1,330	1,280	50	1,650	5.4
2	2.2	4.3	13	17	f4,770	4,670	2,100	1,470	1,780	32	592	5.0
3	1.7	3.6	12	18	3,870	3,160	952	1,470	2,380	23	125	4.9
4	1.4	3.4	11	17	2,630	1,880	293	1,780	2,690	17	62	4.4
5	1.2	3.6	11	16	1,540	862	163	2,020	1,900	14	44	4.0
6	1.2	3.4	11	15	824	304	131	1,490	814	11	26	3.5
7	2.1	3.3	10	15	422	181	108	603	170	9.1	24	3.4
8	1.7	4.0	10	15	279	157	94	147	45	7.8	31	28
9	1.3	5.5	11	15	216	229	133	78	27	7.6	158	68
10	2.2	6.5	11	15	169	706	1,150	60	21	12	168	65
11	13	6.0	11	15	139	1,180	1,220	58	18	15	73	69
12	11	8.4	12	14	117	1,340	1,060	60	16	21	34	35
13	7.8	10	13	15	106	997	1,010	43	70	16	22	22
14	6.7	14	14	18	100	467	701	35	64	14	15	19
15	5.5	21	30	20	104	222	323	28	138	10	12	24
16	5.5	36	50	61	433	163	176	25	346	9.1	21	37
17	5.0	48	180	90	1,430	136	125	22	543	40	240	59
18	5.2	200	181	147	3,340	122	100	20	687	233	456	66
19	4.3	235	175	284	4,060	111	84	19	981	155	513	141
20	4.0	120	195	420	3,030	100	77	232	1,400	51	286	128
21	4.0	58	180	568	1,680	211	77	1,260	1,410	23	97	83
22	4.0	36	114	394	663	764	75	3,130	719	15	45	44
23	3.6	26	66	207	223	1,200	75	4,750	171	34	50	26
24	3.0	21	45	136	1,040	1,580	70	3,370	48	382	34	18
25	2.9	18	34	199	3,240	1,860	97	1,720	28	350	22	14
26	2.6	16	27	753	10,400	2,240	169	708	24	485	17	10
27	2.5	14	23	1,640	20,800	2,580	202	350	24	762	16	8.8
28	2.5	14	22	2,550	14,800	2,160	287	295	51	1,100	14	7.7
29	2.6	14	27	9,400	-	1,560	678	246	120	1,580	10	6.9
30	2.9	13	23	11,400	-	1,760	1,190	532	87	2,110	8.3	6.1
31	2.4	-	20	f8,250	-	2,810	-	928	-	2,350	6.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	118.4	13	1.2	3.82	0.0026	0.003	235
November	969.8	235	3.3	32.3	.022	.02	1,920
December	1,555	195	10	50.2	.035	.04	3,080
Calendar year 1948	272,021.6	20,000	.7	743	.514	6.99	539,500
January	36,742	11,400	14	1,185	.820	.95	72,880
February	86,485	20,800	100	3,089	2.14	2.23	171,500
March	43,272	7,560	100	1,396	.966	1.11	85,830
April	16,120	3,200	70	537	.372	.41	31,970
May	28,279	4,750	19	912	.631	.73	56,090
June	18,032	2,690	16	601	.416	.46	35,770
July	9,938.6	2,350	7.6	321	.222	.26	19,710
August	4,871.7	1,650	6.4	157	.109	.13	9,660
September	1,016.1	141	3.4	33.9	.023	.03	2,020
Water year 1948-49	247,399.6	20,800	1.2	678	.469	6.37	490,700

Peak discharge (base, 11,000 sec.-ft.).- Jan. 29 (9 p.m.) 12,800 sec.-ft.; Feb. 27 (2 p.m.) 21,800 sec.-ft.
f Computed on basis of partly estimated gage-height record.

Sabine River near Gladewater, Tex.

Location.- Water-stage recorder and wire-weight gage, lat. 32°32', long. 94°57', at bridge on U. S. Highway 271, half a mile downstream from Glade Creek and 1 mile southwest of Gladewater, Gregg County. Datum of gage is 243.85 feet above mean sea level (Texas Reclamation Department bench mark based on Geological Survey datum).

Drainage area.- 2,846 square miles.

Records available.- October 1932 to September 1949.

Average discharge.- 17 years, 2,169 second-feet.

Extremes.- Maximum discharge during year, 15,100 second-feet Mar. 4 (gage height, 33.69 feet); minimum, 38 second-feet Oct. 2.

1932-49: Maximum discharge, 138,000 second-feet Apr. 2, 1945 (gage height, 44.16 feet, from floodmark), from rating curve extended above 91,000 second-feet; minimum, 5.6 second-feet Aug. 16, 1939.

Maximum stage known prior to 1945, 41.7 feet in May 1914 (discharge, 71,100 second-feet), from information by local resident.

Remarks.- Records good except those computed on basis of loop curves, which are fair. Small diversions above station for oil-field operations and municipal supply.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	39	60	137	283	5,720	6,300	3,920	3,980	1,230	412	2,040	175
2	39	61	136	254	7,490	9,840	3,560	4,520	1,230	332	2,310	148
3	41	60	137	236	8,980	13,500	3,500	5,180	1,420	254	2,330	120
4	42	58	139	225	9,680	14,800	3,530	5,560	g1,680	204	1,940	104
5	42	56	144	216	9,680	13,400	3,380	5,720	g1,970	166	1,030	97
6	42	50	140	206	9,370	11,500	2,510	5,640	g2,210	150	492	89
7	43	49	136	198	8,200	9,370	1,420	5,420	2,410	142	352	77
8	44	51	136	193	6,300	7,490	814	5,100	2,310	123	482	73
9	45	54	134	191	5,680	5,280	616	4,480	1,520	108	726	86
10	50	56	132	195	4,130	3,440	1,280	3,290	814	97	492	90
11	51	57	131	189	2,820	2,600	2,040	2,140	283	87	432	101
12	51	72	132	195	2,360	2,330	2,710	1,080	234	79	472	155
13	65	98	139	197	1,660	2,140	3,200	532	229	184	402	177
14	69	124	156	198	968	2,020	3,380	422	532	432	302	229
15	61	156	225	224	770	2,540	3,470	372	814	322	240	170
16	62	292	265	891	726	2,600	3,290	332	616	252	197	188
17	83	322	265	1,540	704	2,280	2,850	302	572	252	200	482
18	77	283	322	1,630	946	1,610	2,140	283	770	302	198	482
19	73	256	382	1,560	1,420	1,060	1,320	274	968	274	265	312
20	72	265	442	1,300	2,020	792	836	256	1,140	302	482	402
21	72	382	452	1,190	2,600	946	660	242	1,230	342	594	382
22	72	372	442	1,250	3,260	1,610	572	372	1,340	258	492	402
23	73	283	432	1,370	3,530	1,870	552	990	1,510	2,630	312	392
24	72	233	372	1,390	3,710	2,020	532	1,610	1,460	4,390	193	302
25	65	189	302	1,280	3,740	2,260	512	2,230	1,010	3,530	153	218
26	62	164	256	1,210	3,440	2,820	616	2,790	552	2,510	142	171
27	62	158	227	2,110	3,410	3,800	968	3,170	382	2,510	123	147
28	62	155	242	2,880	4,230	4,200	1,320	3,110	302	2,380	105	129
29	61	148	342	3,170	-	4,200	2,230	2,510	312	2,160	96	117
30	62	142	332	3,530	-	4,230	3,770	1,900	402	1,970	88	107
31	62	-	312	4,420	-	4,200	-	1,440	-	1,940	166	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,816	83	39	58.6	0.021	0.02	3,600
November	4,706	382	49	157	.055	.06	9,330
December	7,530	452	131	243	.085	.10	14,940
Calendar year 1948	670,931	23,000	23	1,833	.644	8.76	1,331,000
January	33,921	4,420	189	1,094	.384	.44	67,280
February	117,544	9,680	704	4,198	1.48	1.54	233,100
March	147,048	14,800	792	4,743	1.67	1.92	291,700
April	61,498	3,920	512	2,050	.720	.80	122,000
May	75,247	5,720	242	2,427	.853	.98	149,300
June	31,452	2,410	229	1,048	.368	.41	62,380
July	29,092	4,390	79	938	.330	.38	57,700
August	17,846	2,330	86	576	.202	.23	35,400
September	6,104	482	73	203	.071	.08	12,110
Water year 1948-49	533,804	14,800	39	1,462	.514	6.98	1,059,000

Peak discharge (base, 6,500 sec.-ft.).- Feb. 5 (2 p.m.) 9,680 sec.-ft.; Mar. 4 (5 a.m.) 15,100 sec.-ft.

g Computed from graph based on once-daily staff-gage readings.

Note.- Discharge computed on basis of loop curves Jan. 30 to Feb. 12, Feb. 28 to Mar. 14, Apr. 30 to May 11.

Sabine River near Tatum, Tex.

Location.- Water-stage recorder, lat. 32°22', long 94°28', at bridge on State Highway 43, 5 miles upstream from Potter Creek, 5.2 miles northeast of Tatum, Rusk County, and 7 miles downstream from Cherokee Bayou. Datum of gage is 204.2 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.- 3,586 square miles.

Records available.- January 1939 to September 1949.

Average discharge.- 10 years (1939-49), 3,330 second-feet.

Extremes.- Maximum discharge during year, 10,600 second-feet Mar. 10 (gage height, 22.13 feet); minimum, 49 second-feet Oct. 5, 6.

1939-49: Maximum discharge, 123,000 second-feet Apr. 4, 1945 (gage height, 33.80 feet, from graph based on gage readings), from rating curve based on extension of ratings for main channels above 40,000 second-feet and measured overflow at gage height 31.5 feet; minimum observed, 9.1 second-feet Oct. 9, 1939.

Maximum stage known prior to 1945, 32 feet in May 1884, from information by local residents.

Remarks.- Records good except those for period of no gage-height record, which are poor. Several small diversions above station for oil-field operations and municipal supply.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 11 to Nov. 16)

2.6	50	5.0	498	14.0	4,370
2.8	77	6.0	780	16.0	5,620
3.0	107	8.0	1,500	18.0	7,020
3.5	192	10.0	2,350	20.0	8,550
4.0	285	12.0	3,320	22.0	10,500

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	58	89	276	558	3,880	4,480	4,980	4,830	2,170	399	2,700	236
2	55	89	249	476	4,150	4,480	4,890	5,020	1,700	443	2,500	491
3	54	95	236	432	4,480	4,770	4,830	4,830	1,500	443	2,600	432
4	51	98	226	399	4,980	5,340	4,650	4,770	1,500	388	2,920	336
5	49	96	224	367	5,480	6,110	4,480	4,830	1,660	315	2,920	285
6	50	86	223	346	5,970	7,020	4,320	5,080	1,860	276	2,400	238
7	54	78	226	325	6,460	8,140	3,980	5,210	2,120	234	1,740	201
8	53	74	226	305	7,020	9,300	3,100	5,410	2,350	205	1,230	174
9	55	74	221	295	7,520	10,200	1,980	5,620	2,480	188	1,100	167
10	69	71	215	295	7,900	10,500	1,860	5,620	2,080	179	1,380	158
11	74	71	212	285	8,140	10,600	1,970	5,620	1,330	179	1,200	160
12	88	80	210	285	8,140	10,100	3,270	5,210	750	170	885	160
13	104	89	210	285	7,750	9,100	3,520	3,760	476	450	780	187
14	92	106	212	285	6,760	7,440	3,770	1,830	443	1,000	720	234
15	82	142	223	295	4,730	5,520	3,880	992	545	2,500	585	701
16	80	286	253	751	2,600	4,120	3,930	750	990	3,200	465	798
17	77	605	299	1,900	1,700	3,520	3,930	645	1,100	2,800	432	798
18	90	765	399	2,620	1,380	3,170	3,720	558	920	2,300	378	1,020
19	104	600	421	2,770	1,340	2,620	3,270	509	885	1,600	367	1,200
20	109	454	465	2,530	1,650	1,910	2,420	465	990	1,150	346	1,020
21	101	421	520	2,260	2,120	1,540	1,700	432	1,100	860	400	832
22	92	648	558	2,260	2,620	1,890	1,340	410	1,270	780	585	675
23	88	920	558	2,170	3,070	2,380	1,200	399	1,420	740	645	570
24	86	729	558	2,120	3,640	2,480	1,100	708	1,540	1,400	545	520
25	84	492	545	2,080	4,320	2,780	1,060	1,460	1,620	2,500	388	454
26	84	378	487	2,080	4,710	4,140	1,100	2,040	1,460	4,500	285	367
27	83	315	421	2,780	4,890	4,770	1,500	2,530	1,100	5,400	232	285
28	83	285	367	3,570	4,710	5,080	1,900	2,920	735	5,600	206	238
29	82	285	388	3,820	-	5,080	2,450	3,170	545	5,500	188	205
30	82	285	445	3,820	-	5,020	3,940	3,220	421	4,500	170	178
31	82	-	600	3,770	-	5,080	-	2,870	-	3,500	170	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	2,395	109	49	77.3	0.022	0.02	4,750
November	8,806	920	71	294	.082	.09	17,470
December	10,673	600	210	344	.096	.11	21,170
Calendar year 1948	854,181	15,300	49	2,334	.651	8.86	1,694,000
January	46,534	3,820	285	1,501	.419	.48	92,300
February	132,110	8,140	1,340	4,718	1.32	1.37	262,000
March	168,680	10,600	1,540	5,441	1.52	1.75	334,600
April	90,040	4,980	1,060	3,001	.837	.93	178,600
May	91,718	5,620	399	2,959	.825	.95	181,900
June	39,060	2,480	421	1,302	.363	.41	77,470
July	53,699	5,600	170	1,732	.483	.56	106,500
August	31,462	2,920	170	1,015	.283	.33	62,400
September	13,320	1,200	158	444	.124	.14	26,420
Water year 1948-49	688,497	10,600	49	1,886	.526	7.14	1,366,000

Peak discharge (base, 6,800 sec.-ft.).- Feb. 11 (12 p.m.) 8,220 sec.-ft.; Mar. 10 (12 p.m.) 10,600 sec.-ft.

Note.- No gage-height record July 12 to Aug. 3; discharge computed on basis of records for stations near Gladewater and at Logansport.

Sabine River at Logansport, La.

Location.- Wire-weight gage, lat. 31°58', long. 94°00', at bridge on U. S. Highway 84, 200 feet upstream from Texas & New Orleans Railroad bridge on Logansport, De Soto Parish, and 3 miles upstream from Bayou Castor. Datum of gage is 147.72 feet above mean sea level, datum of 1929.
Drainage area.- 4,858 square miles.
Records available.- July 1903 to September 1949. (January 1907 to September 1923, monthly records only in Water-Supply Paper 850.) U. S. Weather Bureau has collected gage-height records in this vicinity since 1903.
Average discharge.- 43 years (1903-19, 1922-49), 3,271 second-feet.
Extremes.- Maximum discharge during year, 9,380 second-feet Mar. 16 (gage height, 21.08 feet); minimum observed, 65 second-feet Oct. 5.
1903-49: Maximum discharge, 92,000 second-feet Apr. 8, 1945 (gage height, 44.07 feet, from floodmark); minimum observed during periods of daily records, 16 second-feet Sept. 26-28, Oct. 3, 4, 1939.
Maximum stage known prior to 1945, 39.4 feet in May 1884, present datum.
Remarks.- Records good except those for periods of backwater or no gage-height record, which are fair. Gage read once or twice daily. Small diversions above station.
Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.
Revisions (water years).- W 850: 1903-6 (monthly and annual means).

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 6 to Nov. 19, Apr. 28 to July 22)

-1.5	64	0.8	336	8.0	2,260
-1.3	77	2.0	548	11.0	3,460
-1.1	94	2.8	714	14.0	4,850
-.5	157	4.0	1,010	17.0	6,500
0.0	216	6.0	1,570	21.0	9,300

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	69	112	413	882	7,870	8,980	6,740	a5,050	3,290	714	5,350	272
2	69	112	395	c906	7,660	9,060	6,680	a6,260	2,880	608	4,310	272
3	68	115	377	c858	7,240	8,900	a6,560	a6,800	2,260	548	c3,250	368
4	67	121	360	c762	7,100	8,360	6,440	6,740	1,760	530	c2,680	568
5	66	123	344	692	7,040	7,520	6,320	6,620	1,540	548	2,680	692
6	68	127	320	628	6,920	a6,860	6,200	6,380	1,510	512	2,800	588
7	70	135	304	588	6,740	6,560	5,960	5,960	1,630	449	2,880	476
8	70	152	288	530	6,680	6,500	5,520	5,680	1,830	395	2,560	386
9	70	134	280	a494	6,740	6,680	4,950	5,570	2,080	360	2,010	c320
10	71	128	272	458	6,860	7,040	c4,360	5,570	2,260	328	1,540	c288
11	72	125	280	440	6,980	7,450	c4,460	5,680	2,340	304	1,420	258
12	76	123	272	422	7,100	7,870	c4,850	5,680	2,080	280	1,450	230
13	79	122	272	404	a7,240	8,290	c5,300	5,740	1,600	c280	1,280	c230
14	86	127	265	395	7,450	8,740	5,680	5,520	c1,170	c312	1,060	c258
15	92	132	280	395	7,660	9,060	5,790	4,460	c1,230	942	906	c296
16	103	c152	c664	615	7,940	9,300	5,620	2,600	c1,510	2,760	834	c404
17	a107	c186	984	2,040	7,800	9,140	5,250	1,510	c1,730	3,420	738	c588
18	109	294	c932	3,640	6,500	8,500	4,800	1,110	1,800	3,680	670	c834
19	102	533	906	4,700	4,270	7,100	4,460	932	1,630	3,290	628	c1,060
20	99	786	906	5,100	a2,760	5,460	4,080	834	1,450	2,490	628	1,230
21	99	810	858	c5,100	2,220	3,810	3,550	738	1,390	1,800	670	1,250
22	108	762	810	c5,570	2,680	3,590	2,800	670	1,390	1,370	670	1,110
23	118	692	762	c6,320	3,210	3,720	2,190	648	1,370	1,060	608	932
24	a118	648	738	c6,740	c3,720	3,720	1,900	608	1,390	c1,310	628	762
25	119	858	692	6,440	c5,560	c4,820	c1,760	588	1,510	c2,190	670	648
26	118	858	a670	5,960	7,800	c7,380	c1,830	786	1,540	c3,770	628	588
27	113	738	628	c5,740	8,500	8,010	c1,970	1,340	1,600	4,700	512	548
28	112	628	608	c6,560	8,820	7,800	2,340	1,900	1,480	5,250	413	476
29	111	512	628	c7,520	-	7,380	2,960	2,560	1,230	5,570	352	404
30	110	458	670	7,940	-	6,980	3,950	3,080	932	5,840	312	336
31	110	-	810	7,800	-	6,860	-	3,380	-	5,790	280	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	2,849	119	66	91.9	0.019	0.02	5,650
November	10,803	858	112	360	.074	.08	21,430
December	16,988	984	265	548	.113	.13	33,700
Calendar year 1948	1,244,680	13,100	66	3,401	.700	9.52	2,469,000
January	96,639	7,940	395	3,117	.641	.74	191,700
February	179,060	8,820	2,220	6,395	1.32	1.37	355,200
March	221,440	9,300	3,590	7,143	1.47	1.69	439,200
April	135,270	6,740	1,760	4,509	.928	1.04	268,300
May	110,994	6,800	588	3,580	.737	.85	220,200
June	51,412	3,290	932	1,714	.353	.39	102,000
July	61,400	5,840	280	1,981	.408	.47	121,800
August	45,417	5,350	280	1,465	.301	.35	90,080
September	16,672	1,250	230	556	.114	.13	33,070
Water year 1948-49	948,944	9,300	66	2,600	.535	7.26	1,882,000

a No gage-height record; discharge computed on basis of estimated gage heights.
c Backwater from Bayou Castor.

Sabine River near Milam, Tex.

Location.- Water-stage recorder and wire-weight gage, lat. 31°28', long. 93°45', at bridge on State Highway 21, 2.8 miles downstream from Patroon Bayou, 6.5 miles northeast of Milam, Sabine County, and 7.2 miles upstream from Palo Gaucho Bayou. Datum of gage is 97.96 feet above mean sea level, datum of 1929, Alluvial Valley supplementary adjustment of 1941.

Drainage area.- 6,543 square miles.

Records available.- January 1939 to September 1949. October 1923 to August 1925 at Sabinetown, 7.4 miles downstream, records equivalent except those for periods of extreme low flow or high runoff from Palo Gaucho Bayou.

Average discharge.- 10 years (1939-49), 6,618 second-feet.

Extremes.- Maximum discharge during year, 17,400 second-feet Mar. 29 (gage height, 30.37 feet); minimum, 81 second-feet Oct. 5, 6, 9, 10.

1939-49: Maximum discharge, 83,400 second-feet Apr. 12, 1945 (gage height, 48.87 feet); minimum observed, 32 second-feet Oct. 15, 22, 1939.

Maximum stage known prior to 1945, 48 feet about July 28, 1933, from information by observer. Flood of 1884 reached a stage about 2 feet lower than that of 1945 at ferry about 10 miles upstream, from information by local resident.

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

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

5.9	70	8.5	830	22.0	9,450
6.1	104	10.0	1,400	26.0	13,100
6.4	170	12.0	2,350	30.0	17,000
6.8	278	14.5	3,780		
7.3	431	18.0	6,200		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	133	711	1,080	12,000	14,000	16,000	6,880	3,240	1,200	5,900	380
2	90	133	610	1,340	11,800	13,600	14,100	7,350	3,240	970	5,750	362
3	86	135	544	4,490	12,000	13,300	11,800	7,920	3,010	813	5,170	331
4	83	133	495	5,520	12,800	12,800	9,720	7,670	2,570	779	4,230	319
5	83	133	463	5,030	12,600	12,100	8,520	7,590	2,050	779	3,300	387
6	81	137	447	3,180	11,600	11,200	7,920	7,430	1,720	694	2,900	594
7	83	139	415	2,350	10,600	9,900	7,430	6,950	1,580	644	3,060	694
8	83	142	390	2,050	9,810	8,600	7,030	6,420	1,620	578	3,480	627
9	83	151	371	1,540	9,360	8,000	6,580	5,980	1,720	512	3,300	528
10	88	158	356	1,040	10,400	8,260	a6,200	5,680	1,950	463	2,620	610
11	128	163	343	848	10,600	8,090	a5,980	5,520	2,350	418	2,050	561
12	126	160	337	745	9,810	8,000	5,980	5,450	2,520	390	1,760	368
13	112	158	334	677	9,110	8,260	6,120	5,520	2,350	428	1,670	356
14	104	175	331	627	8,860	8,770	6,350	5,520	3,030	428	1,540	316
15	99	180	337	594	8,600	9,110	6,500	5,450	5,450	418	1,320	340
16	99	404	359	1,360	8,520	9,280	6,580	4,960	3,720	544	1,120	463
17	102	528	393	4,230	8,680	9,280	6,500	3,600	2,900	1,920	1,000	512
18	108	512	966	6,020	8,860	9,450	a6,200	2,200	2,460	3,120	900	746
19	118	970	1,360	8,600	8,600	9,360	5,600	1,540	2,250	3,540	813	1,200
20	128	935	1,360	9,020	7,030	8,940	5,170	1,240	2,050	3,480	745	1,400
21	128	1,000	1,280	9,780	5,450	8,180	4,960	1,040	1,800	2,900	694	1,490
22	124	1,240	1,240	13,000	5,980	8,770	4,750	935	1,580	2,200	677	1,540
23	120	1,160	1,160	13,900	5,680	8,090	4,620	865	1,490	1,800	711	1,360
24	120	970	1,080	13,700	5,380	6,800	3,840	796	1,540	1,540	694	1,160
25	124	830	1,040	12,800	7,750	10,900	3,010	745	1,720	1,490	644	970
26	137	830	1,040	11,900	11,600	13,600	3,420	728	1,760	2,100	677	830
27	142	935	1,000	11,700	13,800	15,900	5,310	728	1,720	3,540	711	728
28	142	935	848	13,400	14,300	17,200	5,520	1,000	1,720	4,620	660	660
29	139	970	1,000	13,800	-	17,200	7,110	1,670	1,670	5,100	578	594
30	135	848	1,320	13,100	-	17,200	7,510	2,350	1,490	5,520	479	528
31	133	-	1,200	12,200	-	17,000	-	2,900	-	5,750	418	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	3,419	142	81	110	0.017	0.02	6,780
November	15,297	1,240	133	510	.078	.09	30,340
December	23,130	1,360	331	746	.114	.13	45,880
Calendar year 1948	1,593,682	18,800	81	4,354	.665	9.05	3,161,000
January	199,621	13,900	594	6,439	.984	1.13	395,900
February	271,580	14,300	5,380	9,699	1.48	1.54	538,700
March	341,140	17,200	6,800	11,000	1.68	1.94	676,600
April	206,330	16,000	3,010	6,878	1.05	1.17	409,200
May	124,627	7,920	728	4,020	.614	.71	247,200
June	68,270	5,450	1,490	2,276	.348	.39	135,400
July	58,678	5,750	390	1,893	.289	.33	116,400
August	59,571	5,900	418	1,922	.294	.34	118,200
September	20,954	1,540	316	698	.107	.12	41,560
Water year 1948-49	1,392,617	17,200	81	3,815	.583	7.91	2,762,000

Peak discharge (base, 15,000 sec.-ft.).- Mar. 29 (4 a.m.) 17,400 sec.-ft.

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

Sabine River near Bon Wier, Tex.

Location.- Wire-weight gage, lat. 30°44', long. 93°37', at bridge on U. S. Highway 190, 1¾ miles east of Bon Wier, Newton County, and 2.4 miles upstream from Caney Creek. Datum of gage is 46.4 feet above mean sea level, datum of 1929.

Drainage area.- 8,323 square miles.

Records available.- October 1923 to September 1934, January 1939 to September 1949. U. S. Weather Bureau has collected gage-height records in this vicinity since 1913.

Average discharge.- 21 years (1923-34, 1939-49), 8,026 second-feet.

Extremes.- Maximum discharge during year, 26,300 second-feet Mar. 31 (gage height, 19.00 feet, from graph based on gage readings); minimum observed, 289 second-feet Oct. 7.
1923-34, 1939-49: Maximum discharge, 75,500 second-feet Apr. 17, 18, 1945; maximum gage height, 23.10 feet Apr. 18, 1945; minimum discharge observed, 185 second-feet Sept. 11, 22, 24, 1925.

Remarks.- Records fair. Gage read twice daily, oftener during high stages. No large diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	331	460	2,470	3,550	16,400	19,700	25,600	17,400	3,850	2,560	5,980	900
2	331	496	2,140	3,190	15,400	18,700	24,600	15,400	4,050	2,380	6,200	850
3	338	568	1,870	6,200	15,400	17,200	22,700	14,700	4,150	2,220	6,200	925
4	325	516	1,620	12,700	16,600	16,200	19,700	14,700	4,150	2,140	5,870	850
5	325	484	1,320	14,200	17,800	15,400	16,200	13,800	3,750	2,060	5,320	760
6	307	468	1,380	13,500	17,800	14,700	14,400	11,200	3,370	2,060	4,550	738
7	319	464	1,320	11,200	16,400	13,800	12,600	10,200	3,010	2,060	4,050	738
8	310	449	1,230	8,380	13,800	12,900	10,800	9,500	2,650	1,980	3,850	828
9	307	453	1,170	5,760	13,500	11,800	9,780	8,940	2,650	1,870	4,350	978
10	319	449	1,120	4,150	17,400	10,800	9,920	8,520	2,830	1,800	4,150	1,000
11	367	449	1,090	3,370	20,500	10,600	11,500	8,240	3,370	1,620	3,750	978
12	426	a449	1,030	2,920	20,500	10,500	11,000	7,710	3,550	1,450	3,100	900
13	480	a449	1,000	2,470	18,900	10,200	10,100	7,190	3,750	1,520	2,650	850
14	416	a449	978	2,220	16,600	10,300	8,940	6,930	3,750	1,660	2,300	828
15	401	a460	950	2,060	13,400	11,800	8,520	6,800	4,550	2,140	2,140	850
		a738										
16	394	a738	978	2,140	12,400	12,100	8,240	6,800	9,500	2,140	1,980	900
17	370	2,420	978	3,580	13,000	11,500	8,100	6,560	9,920	1,800	1,800	1,060
18	354	4,650	1,030	7,790	12,900	11,200	7,840	5,980	7,060	1,760	1,620	1,320
19	325	10,200	1,260	11,400	12,700	10,900	7,580	4,770	4,990	2,450	1,480	1,320
20	344	9,920	1,720	12,700	12,700	10,800	7,710	3,850	3,950	3,750	1,350	1,520
21	344	7,840	2,140	13,400	11,500	11,600	7,970	3,280	3,550	4,050	1,260	1,720
22	350	8,520	2,140	15,300	10,300	18,200	11,600	2,920	3,280	3,950	1,170	1,870
23	360	8,380	1,980	17,800	10,900	19,200	17,600	2,650	3,100	3,460	1,090	1,910
24	360	5,260	1,840	19,200	9,500	17,800	17,200	2,380	2,830	3,190	1,060	1,870
25	357	3,370	1,840	19,200	10,300	15,100	14,400	2,220	2,830	3,010	1,060	1,720
26	367	3,420	2,140	17,600	12,100	13,500	10,600	2,140	3,100	2,830	1,030	1,550
27	367	6,560	2,830	16,000	16,200	18,500	9,360	2,060	3,280	3,100	1,030	1,420
28	360	6,090	2,740	16,800	18,700	22,400	15,500	2,220	3,100	3,950	1,000	1,260
29	357	4,770	2,560	18,000	-	23,000	18,700	2,740	2,920	4,880	1,030	1,170
30	380	3,460	3,850	18,500	-	24,000	18,200	3,460	2,740	5,430	1,000	1,060
31	405	-	4,050	18,000	-	25,600	-	3,550	-	5,760	950	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	11,096	480	307	358	0.043	0.05	22,010
November	92,661	10,200	449	3,089	.371	.41	183,800
December	54,764	4,050	950	1,767	.212	.24	108,600
Calendar year 1948	2,164,033	27,700	307	5,913	.710	9.67	4,292,000
January	323,280	19,200	2,060	10,430	1.25	1.44	641,200
February	413,600	20,500	9,500	14,770	1.77	1.85	820,400
March	470,000	25,600	10,200	15,160	1.82	2.10	932,200
April	396,960	25,600	7,580	13,230	1.59	1.77	787,400
May	218,810	17,400	2,060	7,058	.848	.98	434,000
June	119,580	9,920	2,650	3,986	.479	.53	237,200
July	85,030	5,760	1,450	2,743	.330	.38	168,700
August	84,370	6,200	950	2,722	.327	.38	167,300
September	34,643	1,910	738	1,155	.139	.15	68,710
Water year 1948-49	2,304,794	25,600	307	6,314	.759	10.28	4,572,000

Peak discharge (base, 19,000 sec.-ft.).- Jan. 25 (8 a.m.) 19,700 sec.-ft.; Feb. 11 (5 p.m.) 20,700 sec.-ft.; Mar. 1 (8 a.m.) 19,700 sec.-ft.; Mar. 22 (11 p.m.) 19,700 sec.-ft.; Mar. 31 (10 p.m.) 26,300 sec.-ft.

a No gage-height record; discharge computed on basis of engineer's notes and weather records.

Sabine River near Ruliff, Tex.

Location.- Water-stage recorder, lat. 30°18'10", long. 93°44'40", at bridge on State Highway 235, 2.4 miles north of Ruliff, Newton County, 4.2 miles upstream from Kansas City-Southern Railway bridge, and 4.5 miles downstream from Cypress Creek. Datum of gage is 4.08 feet above mean sea level, datum of 1929. Prior to Dec. 8, 1948, wire-weight gage at same site and datum.

Drainage area.- 9,440 square miles.

Records available.- October 1924 to September 1949.

Average discharge.- 25 years, 9,064 second-feet.

Extremes.- Maximum discharge during year, 34,000 second-feet Apr. 3 (gage height, 14.73 feet); minimum observed, 391 second-feet Oct. 9, 10 (gage height, 1.97 feet).

1924-49: Maximum discharge, 85,300 second-feet Apr. 22, 1945; maximum gage height, 17.9 feet May 24, 25, 1935, present site and datum; minimum discharge observed, 338 second-feet Sept. 25-27, Oct. 2, 3, 22-24, 1939.

From gage-height records obtained by Kansas City Southern Railway Co., the maximum stage recorded during periods August 1907 to October 1912, January to December 1917, and October 1918 to September 1924, was 15.5 feet Apr. 15, 1923, at former site 4.2 miles downstream, corresponding to 16.8 feet at present site and datum.

Remarks.- Records good. Wire-weight gage read twice daily prior to Dec. 8, 1948. No large diversions above station. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

2.0	400	7.0	2,500	11.0	6,580	13.6	16,900
2.5	555	8.0	3,160	11.8	8,700	13.9	19,700
4.0	1,100	9.5	4,490	12.0	9,300	14.3	25,900
5.5	1,720	10.5	5,700	12.6	11,500	14.7	33,100

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	445	460	10,000	5,040	22,500	18,200	32,200	20,400	5,420	3,480	6,380	1,500
2	445	490	7,020	5,280	22,500	20,400	32,200	23,400	5,420	3,240	6,780	1,460
3	430	572	4,930	5,280	21,800	21,800	33,100	22,500	5,160	3,090	7,020	1,380
4	430	608	3,820	5,860	21,800	21,800	32,200	20,400	5,040	3,020	7,020	1,340
5	415	748	3,090	8,100	21,000	21,000	31,300	18,600	4,930	3,320	7,280	1,380
6	400	765	2,680	10,400	21,000	19,700	27,700	17,300	4,820	3,320	7,020	1,300
7	400	695	2,390	12,800	21,800	19,200	25,000	16,600	4,490	3,160	6,580	1,220
8	397	590	2,220	14,500	22,500	18,200	21,000	15,300	4,000	2,880	6,020	1,140
9	391	520	2,120	15,500	23,400	17,300	18,600	14,200	3,560	2,740	5,420	1,180
10	400	538	1,970	14,200	21,800	16,900	16,900	13,000	3,240	2,620	5,280	1,300
11	445	520	1,870	11,100	20,400	15,900	16,900	12,000	3,160	2,500	5,280	1,420
12	445	520	1,770	8,100	20,400	15,300	17,700	11,100	3,730	2,390	5,160	1,420
13	460	538	1,680	5,560	21,800	14,800	18,600	10,700	4,280	2,170	4,710	1,420
14	555	555	1,640	4,280	25,000	15,600	17,700	10,000	4,490	2,340	4,000	1,340
15	642	590	1,590	3,560	25,000	16,200	16,600	9,650	4,710	2,390	3,400	1,300
16	625	642	1,540	3,240	23,400	16,200	14,800	9,000	5,040	3,020	3,020	1,260
17	555	782	1,540	3,820	20,400	16,200	13,200	8,700	6,200	3,910	2,810	1,260
18	505	1,600	1,500	4,990	19,200	16,200	12,000	8,400	8,100	4,280	2,560	1,340
19	460	3,960	1,500	7,350	19,200	15,900	11,100	8,100	9,300	3,910	2,390	1,590
20	460	6,830	1,640	10,000	18,600	15,300	11,100	7,280	9,300	3,640	2,220	1,770
21	445	10,000	1,970	12,500	18,200	15,600	11,100	6,020	7,800	4,180	2,070	1,770
22	445	11,500	2,440	14,800	18,200	17,300	12,800	4,820	5,860	4,820	1,920	1,920
23	430	12,000	2,740	16,200	17,300	18,600	16,600	4,000	4,820	5,160	1,820	2,120
24	430	12,500	2,740	17,300	16,900	21,000	21,000	3,480	4,180	5,160	1,720	2,220
25	445	11,500	2,620	19,200	15,900	25,000	23,400	3,090	3,820	5,040	1,640	2,220
26	445	9,650	2,560	21,800	15,900	26,800	24,200	2,880	3,560	4,930	1,590	2,170
27	445	8,400	2,680	23,400	16,600	25,900	22,500	2,740	3,730	4,820	1,590	2,070
28	445	9,300	3,160	24,200	16,900	25,000	19,700	2,680	3,910	4,930	1,590	1,920
29	445	11,500	3,560	23,400	-	25,900	17,700	2,950	3,910	5,160	1,540	1,770
30	445	12,000	3,640	22,500	-	29,500	17,700	3,560	3,730	5,560	1,540	1,590
31	445	-	4,180	22,500	-	32,200	-	4,710	-	6,200	1,540	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	14,170	642	391	457	0.048	0.06	28,110
November	130,873	12,500	460	4,362	.462	.52	259,600
December	88,800	10,000	1,500	2,865	.303	.35	176,100
Calendar year 1948	2,735,047	28,600	391	7,473	.791	10.80	5,425,000
January	376,760	24,200	3,240	12,150	1.29	1.48	747,300
February	569,400	25,000	15,900	20,340	2.15	2.24	1,129,000
March	614,900	32,200	14,800	19,840	2.10	2.42	1,220,000
April	606,600	33,100	11,100	20,220	2.14	2.39	1,203,000
May	317,560	23,400	2,680	10,240	1.08	1.25	629,900
June	149,710	9,300	3,160	4,990	.528	.59	296,900
July	117,380	6,200	2,170	3,786	.401	.46	232,800
August	118,910	7,280	1,540	3,836	.406	.47	235,900
September	47,090	2,220	1,140	1,570	.166	.19	93,400
Water year 1948-49	3,152,153	33,100	391	8,636	.915	12.42	6,252,000

Peak discharge (base, 22,000 sec.-ft.).- Feb. 14 (10 p.m.) to Feb. 15 (8 a.m.) 25,900 sec.-ft.; Apr. 3 (7 a.m. to 3 p.m.) 34,000 sec.-ft.; Apr. 26 (10 a.m. to 5 p.m.) 24,200 sec.-ft.; May 2 (9 a.m. to 9 p.m.) 23,400 sec.-ft.

Lake Fork Sabine River near Quitman, Tex.

Location.- Wire-weight gage, lat. 32°46', long. 95°28', at bridge on State Highway 37, half a mile downstream from Dry Creek and 2.5 miles south of Quitman, Wood County. Datum of gage is 317.42 feet above mean sea level, datum of 1929.

Drainage area.- 586 square miles.

Records available.- June 1924 to April 1926, February 1939 to September 1949.

Average discharge.- 11 years (1924-25, 1939-49), 496 second-feet.

Extremes.- Maximum discharge during year, 10,200 second-feet Feb. 26 (gage height, 18.62 feet, from graph based on gage readings); no flow at times.

1924-26, 1939-49: Maximum discharge, 75,600 second-feet Mar. 30, 1945 (gage height, 29.85 feet, from floodmark), from rating curve extended above 49,000 second-feet; no flow at times.

Maximum stage known prior to establishment of station was about 25.9 feet in July 1895, from information by local resident.

Remarks.- Records good. Gage read twice daily, oftener during high stages. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	2.8	9.5	1,200	1,190	152	3,750	36	14	16	0.9
2		0	2.6	9.0	575	665	115	2,740	27	8.1	12	1.6
3		0	2.6	8.6	324	302	97	1,780	20	5.1	11	4.9
4		0	2.8	8.4	300	188	88	898	16	3.9	9.5	7.3
5		0	2.3	8.1	273	152	82	301	12	3.0	7.3	7.7
6		0	2.1	8.4	248	132	78	124	9.9	2.3	6.2	6.6
7		0	2.0	7.7	216	115	68	85	8.4	1.1	5.1	4.5
8		0	1.7	7.9	152	109	63	68	6.8	.6	8.6	2.8
9		0	1.8	7.9	112	302	60	53	5.5	.3	14	2.1
10		0	1.7	7.7	88	828	754	40	4.5	.3	14	1.6
11		0	1.8	7.9	75	1,190	1,190	34	4.3	.2	10	1.3
12		0	1.8	7.7	68	1,450	956	30	8.1	.2	7.5	1.2
13		0	1.6	7.7	63	910	956	27	51	.2	5.3	.9
14		0	2.8	7.9	63	395	667	24	128	1.4	5.1	.8
15		0	20	8.4	175	216	349	22	184	8.4	4.7	.7
16		7.1	39	24	521	160	177	22	196	14	4.9	2.5
17		80	36	38	956	128	106	20	291	9.7	4.5	24
18		70	57	121	850	109	80	22	144	5.3	3.3	24
19		30	51	232	381	94	60	18	51	5.9	2.8	138
20		18	42	264	273	80	54	198	25	3.5	2.6	163
21		12	36	324	282	138	51	248	14	1.7	2.0	60
22		7.5	26	264	512	744	49	121	12	1.0	1.5	25
23		5.7	18	106	530	910	49	51	9.5	30	1.5	12
24		4.9	15	75	1,370	1,360	50	45	6.4	540	1.2	5.7
25		4.1	12	327	6,010	1,420	191	37	10	620	.7	2.6
26		4.1	9.9	1,560	7,780	750	533	25	122	494	.5	1.2
27		4.1	8.4	3,600	3,390	548	844	20	264	446	.7	.8
28		3.7	8.4	7,420	1,860	584	1,100	18	169	360	.7	.6
29		3.3	9.0	7,420	-	660	3,940	84	39	199	.6	.5
30		3.0	9.9	4,390	-	584	6,470	68	21	40	.8	.5
31		-	9.7	2,120	-	294	-	59	-	23	1.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	0	0	0	0	0	0	0
November	257.5	80	0	8.58	.015	.02	511
December	437.7	57	1.6	14.1	.024	.03	868
Calendar year 1948	147,137.8	14,300	0	402	.686	9.35	291,800
January	28.407.8	7,420	7.7	916	1.56	1.80	56,350
February	28,647	7,780	63	1,023	1.75	1.82	56,820
March	16,707	1,450	80	539	.920	1.06	33,140
April	19,429	6,470	49	648	1.11	1.23	38,540
May	11,032	3,750	18	356	.607	.70	21,880
June	1,895.4	291	4.3	63.2	.108	.12	3,760
July	2,842.2	620	.2	91.7	.156	.18	5,840
August	166.0	16	.5	5.35	.0091	.01	329
September	505.3	163	.5	16.8	.029	.03	1,000
Water year 1948-49	110,326.9	7,780	0	302	.515	7.00	218,800

Peak discharge (base, 6,600 sec.-ft.).- Jan. 28 (10 p.m.) 8,900 sec.-ft.; Feb. 26 (1 a.m.) 10,200 sec.-ft.; Apr. 30 (6 a.m.) 7,140 sec.-ft.

Note.- No gage-height record Jan. 25, 26, 30, May 8, Sept. 23-30; discharge computed on basis of estimated gage heights and information from observer.

Big Sandy Creek near Big Sandy, Tex.

Location.- Water-stage recorder, lat. 32°37', long. 95°06', at county highway bridge 2.2 miles northeast of Big Sandy, Upshur County, and 7.8 miles upstream from mouth. Datum of gage is 281.6 feet above mean sea level, unadjusted.

Drainage area.- 235 square miles.

Records available.- February 1939 to September 1949.

Average discharge.- 10 years (1939-49), 242 second-feet.

Extremes.- Maximum discharge during year, 2,690 second-feet May 1 (gage height, 16.08 feet); minimum, 19 second-feet Oct. 1-4.

1939-49: Maximum discharge, 38,000 second-feet Mar. 31, 1945 (gage height, 22.4 feet, from floodmark), from rating curve extended above 5,000 second-feet; minimum observed, 7.7 second-feet Sept. 30, 1939.

Maximum stage known prior to 1945, 20.4 feet (probably backwater from Sabine River) in January 1938, from information by observer.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	28	37	60	1,430	688	261	2,290	92	65	60	52
2	19	28	37	58	1,240	506	242	2,020	86	54	60	46
3	19	28	38	60	900	398	216	1,160	81	44	80	43
4	19	28	39	58	600	313	184	750	67	36	80	43
5	20	30	40	56	360	242	153	526	53	32	54	40
6	20	30	40	52	271	200	132	385	44	38	46	35
7	21	30	40	51	242	168	118	271	40	35	46	33
8	20	31	39	50	233	150	111	200	38	28	58	34
9	20	32	39	50	224	164	108	146	36	25	95	34
10	21	33	39	50	208	156	215	118	35	24	84	34
11	26	34	39	50	188	146	224	101	37	23	76	31
12	27	38	39	49	168	172	316	84	36	22	74	28
13	27	42	40	49	150	216	802	76	46	36	74	29
14	25	46	45	50	136	291	810	69	62	117	69	33
15	25	50	60	68	132	324	592	62	67	114	56	37
16	24	76	74	210	128	291	424	50	81	92	44	59
17	26	67	84	233	125	233	302	58	101	72	43	132
18	27	62	86	261	122	200	224	58	111	58	41	160
19	27	58	84	251	118	172	172	56	114	48	37	184
20	26	54	81	208	122	153	136	52	87	46	35	176
21	26	54	74	188	122	219	118	48	60	42	34	114
22	26	51	65	192	118	302	108	47	46	36	29	76
23	27	46	58	196	114	261	98	53	55	1,140	26	54
24	27	42	54	196	249	261	95	65	111	1,900	28	41
25	27	39	52	192	348	348	95	67	164	1,380	28	34
26	27	39	50	262	336	424	101	74	168	800	24	31
27	27	39	49	450	535	398	114	81	124	440	23	29
28	27	39	52	464	900	348	124	98	89	240	23	28
29	27	38	72	583	-	281	459	139	86	120	22	29
30	27	38	74	1,200	-	251	855	114	78	80	22	28
31	27	-	69	1,430	-	261	-	108	-	70	36	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	753	27	19	24.3	0.103	0.12	1,490
November	1,250	76	28	41.7	.177	.20	2,480
December	1,689	86	37	54.5	.232	.27	3,350
Calendar year 1948	68,954	2,860	15	188	.800	10.92	136,800
January	7,327	1,430	49	236	1.00	1.16	14,530
February	9,819	1,430	114	351	1.49	1.55	19,480
March	8,537	688	146	275	1.17	1.35	16,930
April	7,909	855	95	264	1.12	1.25	15,690
May	9,436	2,290	47	304	1.29	1.49	18,720
June	2,295	168	35	76.5	.326	.36	4,550
July	7,237	1,900	22	233	.991	1.14	14,350
August	1,507	95	22	48.6	.207	.24	2,990
September	1,727	184	28	57.6	.245	.27	3,430
Water year 1948-49	59,486	2,290	19	163	.694	9.40	118,000

Peak discharge (base, 1,500 sec.-ft.).- May 1 (5:30 p.m.) 2,690 sec.-ft.; July 24 (time unknown) 1,960 sec.-ft.

Note.- No gage-height record Jan. 30 to Feb. 7, July 23 to Aug. 4, Sept. 3; discharge computed on basis of recorded range in stage, weather records, and records for nearby stations.

Bayou San Miguel near Zwolle, La.

Location.- Water-stage recorder, lat. 31°39'10", long. 93°39'10", in NE¼NW¼ sec. 25, T. 8 N., R. 13 W., at bridge on U. S. Highway 171, 3½ miles upstream from Bayou Scie and 1¾ miles northwest of Zwolle. Prior to Mar. 4, 1949, staff gage at same site and datum.

Drainage area.- 113 square miles.

Records available.- September 1948 to September 1949.

Extremes.- Maximum discharge during period, 4,100 second-feet Mar. 26 (gage height, 11.76 feet); no flow on many days.

Remarks.- Records fair except those below 5 second-feet, which are poor. Staff gage read twice daily.

Rating tables, Sept. 23, 1948, to Sept. 30, 1949 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used July 30 to Sept. 30, 1949)

Sept. 23, 1948, to Apr. 29, 1949

2.1	0	4.2	28	9.5	470
2.3	.1	5.3	60	10.0	699
2.5	.6	6.0	82	10.5	1,160
2.7	1.9	7.0	115	11.0	2,240
3.0	5.0	8.0	160	11.3	2,960
3.3	9.5	8.5	210		
3.7	17	9.0	310		

Apr. 30 to Sept. 30, 1949

1.8	0	2.9	6.7
2.0	.3	3.4	14
2.2	.9	4.0	25
2.4	1.8	4.6	40
2.6	3.4	5.3	60

Note.- Same as preceding table above 5.3 feet.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.6	37	188	667	217	121	2.9	2.7	4.2	0.1
2		0	1.2	33	183	198	134	98	1.6	2.0	2.7	0
3		0	1.2	270	272	122	80	80	1.2	1.5	2.7	.1
4		0	1.9	497	448	88	60	61	1.0	1.7	2.5	.1
5		0	1.8	694	551	64	50	32	.8	1.5	2.8	.1
6		0	1.5	705	530	54	43	20	.8	1.4	2.5	0
7		0	1.2	306	195	48	39	14	1.2	1.6	2.4	0
8		0	.9	108	126	50	31	10	2.8	1.2	4.1	0
9		0	.7	48	101	40	25	8.7	1.4	1.0	3.5	0
10		0	.6	29	310	35	34	7.6	1.0	.8	5.9	0
11		0	.6	24	490	31	71	6.3	1.2	.7	8.0	0
12		0	.8	21	522	29	111	5.0	2.0	.7	4.1	0
13		0	.5	16	193	24	69	3.8	54	1.0	2.7	0
14		0	.5	12	118	22	43	3.2	45	1.0	1.8	0
15		0.1	.5	12	79	23	32	2.8	36	.7	1.4	.1
16		1.8	.9	51	85	25	22	2.2	104	.7	1.2	.2
17		.1	1.2	371	134	26	16	2.0	43	.6	1.1	1.1
18		.1	1.9	783	104	22	11	1.8	13	.6	1.0	1.2
19		.5	9.5	1,310	66	18	9.0	1.5	6.6	.4	1.0	1.0
20		.1	22	1,040	54	16	10	1.4	3.9	.4	.9	1.0
21		.5	24	960	65	51	12	1.2	2.7	.5	.6	1.0
22		8.7	12	920	206	264	22	1.2	1.8	1.1	.4	1.4
23		4.2	6.6	1,240	217	414	54	1.1	2.8	.6	.3	1.3
24		2.6	3.8	1,140	257	434	101	1.0	102	.5	.2	1.1
25		2.8	4.1	692	538	886	56	.9	139	7.8	.1	.9
26		3.2	2.3	152	736	2,910	72	.9	54	10	.1	1.0
27		2.6	5.3	188	950	2,480	135	.8	18	10	0	1.0
28		2.5	13	441	816	1,220	130	.9	9.1	42	0	.8
29		2.6	14	625	-	830	279	1.1	5.6	41	0	.6
30		1.6	58	830	-	463	217	10	3.7	12	0	.5
31		-	82	363	-	247	-	6.7	-	7.0	0	-

Peak discharge (base, 800 sec.-ft.).- Jan. 19 (3 p.m.) 1,390 sec.-ft.; Jan. 23 (9 p.m.) 1,740 sec.-ft.; Jan. 30 (4 p.m.) 910 sec.-ft.; Feb. 27 (8 a.m.) 1,010 sec.-ft.; Mar. 26 (4:30 p.m.) 4,100 sec.-ft.

Monthly discharge, in second-feet, 1948-49

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
September 23-30, 1948	0	0	0	0	0	0	0
October 1948	0	0	0	0	0	0	0
November	34.0	8.7	0	1.13	.010	.01	67
December	275.9	82	.5	8.90	.079	.09	547
Calendar year	-	-	-	-	-	-	-
January 1949	13,918	1,310	12	449	3.97	4.58	27,610
February	8,514	950	54	304	2.69	2.80	16,890
March	11,801	2,910	16	381	3.37	3.88	23,410
April	2,185.0	279	9.0	72.8	.644	.72	4,330
May	508.1	121	.8	16.4	.145	.17	1,010
June	662.1	139	.8	22.1	.196	.22	1,310
July	154.7	42	.4	4.99	.044	.05	307
August	56.2	6.0	0	1.81	.016	.02	111
September	14.6	1.4	0	.49	.0043	.005	29
Water year 1948-49	38,123.6	2,910	0	104	.920	12.54	75,620

Bayou Anacoco near Leesville, La.

Location.- Water-stage recorder, lat. 31°09'35", long. 93°21'05", in NW¼NW¼ sec. 13, T. 2 N., R. 10 W., at bridge on State Highway 21, 2¾ miles upstream from Prairie Creek and 5½ miles west of Leesville.
Drainage area.- 114 square miles.
Records available.- September 1948 to September 1949.
Extremes.- 1948: Maximum discharge during period in September, 7.3 second-feet Sept. 23 (gage height, 2.62 feet); minimum, 5.9 second-feet Sept. 29 (gage height, 2.51 feet).
1948-49: Maximum discharge during water year, 4,950 second-feet Jan. 3 (gage height, 15.38 feet); minimum, 6.0 second-feet Oct. 5, 8, 9 (gage height, 2.52 feet).
Remarks.- Records good.

Rating tables, Sept. 23, 1948, to Sept. 30, 1949 (gage height, in feet, and discharge, in second-feet)

Sept. 23, 1948, to June 14, 1949

2.5	5.8	5.0	95	13.4	1,000
2.7	8.3	6.0	159	13.7	1,180
3.0	13	7.0	234	14.0	1,490
3.4	22	9.0	417	14.3	1,910
3.8	33	12.0	760	14.7	2,720
4.3	55	13.0	901		

June 15 to Sept. 30, 1949

2.7	14	5.0	108
3.0	20	6.0	174
3.4	30	7.0	252
3.8	44	9.0	428
4.3	68	12.0	760

Note.- Same as preceding table above 12.0 feet.

Discharge, in second-feet, 1948-49

1948

Day	Discharge	Day	Discharge
Sept. 23	7.0	Sept. 27	6.4
24	7.0	28	6.2
25	6.6	29	6.0
26	6.4	30	6.5

1948-49

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.8	11	86	138	284	242	408	276	33	27	44	17
2	6.8	15	68	313	338	202	234	239	27	25	60	22
3	6.5	22	62	2,690	473	202	226	407	24	25	42	19
4	6.4	15	58	2,850	639	170	198	226	21	38	30	17
5	6.3	12	55	868	505	148	198	142	19	173	37	16
6	6.4	11	54	464	275	142	184	113	18	88	91	16
7	6.4	10	59	320	202	135	142	95	30	66	79	15
8	6.3	9.9	52	198	184	120	120	83	221	41	61	15
9	6.3	9.7	46	170	428	116	107	83	187	31	51	15
10	6.6	9.9	40	152	2,740	170	241	129	71	26	37	20
11	7.0	10	37	138	1,600	159	565	89	62	26	29	21
12	7.3	10	35	126	524	120	290	64	54	28	25	35
13	9.4	11	35	116	266	186	159	53	48	24	22	35
14	8.4	15	36	110	226	258	129	46	224	121	20	45
15	7.9	23	37	104	259	198	110	42	559	94	19	35
16	7.8	178	40	189	639	138	92	39	292	56	18	36
17	7.6	196	46	591	660	113	80	39	107	71	18	158
18	7.5	607	100	827	300	104	74	35	68	49	18	91
19	7.3	2,010	198	755	293	95	70	32	53	41	17	76
20	7.4	1,510	120	499	275	83	80	30	54	35	17	74
21	7.6	473	78	384	266	350	241	29	42	32	16	38
22	7.6	302	59	794	448	773	599	27	36	28	16	28
23	7.6	198	50	940	402	711	884	26	32	37	15	23
24	7.6	123	51	541	246	238	769	24	57	154	15	21
25	7.6	86	384	284	218	278	268	23	68	401	15	19
26	7.6	127	388	218	560	508	292	24	58	181	15	18
27	7.6	226	142	352	799	835	557	34	71	129	21	17
28	7.8	218	104	737	577	970	1,110	40	60	160	22	17
29	7.8	156	345	790	-	658	920	77	41	82	19	16
30	8.0	113	557	316	-	447	589	98	32	48	16	15
31	8.2	-	316	226	-	524	-	54	-	37	16	-

Peak discharge (base, 900 sec.-ft.).- Nov. 19 (7:30 a.m.) 2,480 sec.-ft.; Jan. 3 (7 p.m.) 4,950 sec.-ft.; Jan. 23 (11 a.m.) 1,020 sec.-ft.; Feb. 10 (3:30 p.m.) 4,100 sec.-ft.; Mar. 28 (11 a.m.) 1,020 sec.-ft.; Apr. 23 (12 p.m.) 985 sec.-ft.; Apr. 28 (3 p.m.) 1,440 sec.-ft.

Monthly discharge, in second-feet, 1948-49

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
September 23-30, 1948	52.1	7.0	6.0	6.51	0.057	0.02	103
October 1948	227.4	9.4	6.3	7.34	.064	.07	451
November	6,717.5	2,010	9.7	224	1.96	2.19	13,320
December	3,738	557	35	121	1.06	1.22	7,410
Calendar year	-	-	-	-	-	-	-
January 1949	17,000	2,690	104	548	4.81	5.55	33,720
February	14,626	2,740	184	522	4.58	4.77	29,010
March	9,393	970	83	303	2.66	3.06	18,630
April	9,936	1,110	70	331	2.90	3.24	19,710
May	2,718	407	23	87.7	.769	.89	5,390
June	2,669	559	18	89.0	.781	.87	5,290
July	2,374	401	24	76.6	.672	.77	4,710
August	921	91	15	29.7	.261	.30	1,830
September	990	158	15	33.0	.289	.32	1,960
Water year 1948-49	71,309.9	2,740	6.3	195	1.71	23.25	141,400

Neches River near Neches, Tex.

Location.- Water-stage recorder, lat. 31°54', long. 95°26', at bridge on U. S. Highway 79, half a mile downstream from International-Great Northern Railroad bridge, 1 mile downstream from Walnut Creek, and 4.4 miles northeast of Neches, Anderson County. Datum of gage is 263.9 feet above mean sea level, datum of 1929.

Drainage area.- 1,129 square miles.

Records available.- February 1939 to September 1949.

Average discharge.- 10 years (1939-49), 953 second-feet.

Extremes.- Maximum discharge during year, 3,800 second-feet Apr. 16 (gage height, 14.67 feet); minimum, 12 second-feet Oct. 4-11 (gage height, 2.12 feet).
1939-49: Maximum discharge, 45,500 second-feet Apr. 2, 1945 (gage height, 22.07 feet); no flow Oct. 3-5, 1939.
Flood of May 1908 reached a stage of 24.3 feet, from information by local resident. Flood of May 1884 was probably higher.

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

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Aug. 15 to Sept. 30)

2.1	12	6.0	215	11.5	985
2.3	18	7.0	294	12.0	1,160
2.5	24	8.0	390	12.5	1,390
3.0	42	8.5	444	13.0	1,730
3.5	64	9.0	510	13.5	2,200
4.0	91	10.0	660	14.0	2,810
5.0	150	11.0	860	14.7	3,880

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	32	126	201	1,480	1,240	2,540	628	432	83	96	22
2	13	32	123	208	1,860	1,730	2,150	696	432	a80	77	22
3	13	33	120	215	2 200	2,150	1,820	774	420	a74	66	24
4	12	33	120	222	2,200	2,360	1,580	794	420	72	62	25
5	12	34	120	215	2,000	2,260	1,340	754	410	66	51	25
6	12	34	120	201	1,730	2,050	1,200	660	370	f68	46	26
7	12	35	120	187	1,480	1,730	1,040	580	312	f63	f59	26
8	12	36	117	180	1,340	1,450	910	496	278	51	116	26
9	12	36	117	174	1,200	1,240	754	456	246	44	129	26
10	12	36	114	174	1,080	1,080	734	482	201	41	114	48
11	13	36	114	174	960	935	995	444	168	41	96	42
12	14	f46	117	168	860	816	1,630	390	147	36	102	33
13	15	58	120	168	774	714	2,000	321	135	32	114	48
14	17	72	123	168	696	628	2,260	262	135	31	102	83
15	24	88	f135	168	628	580	3,180	230	174	33	86	108
16	a33	137	187	227	612	552	3,800	208	201	34	66	111
17	a37	215	215	402	580	538	3,480	194	201	35	66	117
18	a36	201	238	538	538	524	2,740	187	187	35	66	123
19	a34	168	246	660	510	510	2,150	174	180	34	60	102
20	32	156	230	754	510	510	1,730	168	162	f43	53	86
21	32	162	222	838	524	510	1,420	162	141	f80	50	72
22	31	204	208	910	538	580	1,200	150	120	f99	41	70
23	30	230	201	985	510	596	985	147	105	86	37	66
24	30	215	194	1,040	482	596	816	141	105	72	36	56
25	30	187	187	1,080	524	596	678	138	108	83	34	46
26	30	168	174	1,040	660	749	596	150	105	144	31	41
27	29	153	168	1,120	838	1,420	612	168	102	156	29	36
28	29	150	162	1,290	960	2,540	628	174	96	138	27	34
29	30	144	187	1,340	-	3,180	612	228	91	135	25	31
30	30	135	208	1,340	-	3,180	596	330	88	135	24	30
31	31	-	208	1,340	-	2,950	-	390	-	120	23	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	710	37	12	22.9	0.020	0.02	1,410
November	3,268	230	32	109	.097	.11	6,480
December	5,041	246	114	163	.144	.17	10,000
Calendar year 1948	234,111	6,110	12	640	.567	7.70	464,400
January	17,727	1,340	168	572	.507	.58	35,160
February	28,274	2,200	482	1,010	.895	.93	56,080
March	40,494	3,180	510	1,306	1.16	1.33	80,320
April	46,176	3,800	596	1,539	1.36	1.52	91,590
May	11,076	794	138	357	.316	.36	21,970
June	6,272	432	88	209	.185	.21	12,440
July	2,244	156	31	72.4	.064	.07	4,450
August	1,984	129	23	64.0	.057	.07	3,940
September	1,605	123	22	53.5	.047	.05	3,180
Water year 1948-49	164,869	3,800	12	452	.400	5.42	327,000

Peak discharge (base, 4,000 sec.-ft.).- No peak above base.
a No gage-height record; discharge computed on basis of weather records and records for station near Alto.
f Computed on basis of partly estimated gage-height record.

Neches River near Alto, Tex.

Location.- Water-stage recorder, lat. 31°34', long. 95°10', at bridge on State Highway 21, 600 feet downstream from Bowles Creek and 7½ miles southwest of Alto, Cherokee County. Datum of gage is 198.29 feet above mean sea level, datum of 1929, supplementary adjustment of 1937.

Drainage area.- 1,903 square miles.

Records available.- January 1944 to September 1949.

Extremes.- Maximum discharge during year, 3,840 second-feet Apr. 23 (gage height, 16.22 feet); minimum, 22 second-feet Oct. 3-5 (gage height, 1.53 feet).
1944-49: Maximum discharge, 42,800 second-feet Apr. 4, 1945 (gage height, 26.85 feet); minimum, 21 second-feet Aug. 24, 25, 1948.
Maximum stage known, about 28.2 feet in May 1884, from information by local residents.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	59	229	375	2,020	1,330	1,910	1,190	405	149	202	51
2	23	59	220	375	2,060	1,330	2,100	1,070	405	145	188	49
3	22	60	206	385	2,100	1,360	2,290	996	445	145	175	61
4	22	60	198	375	2,100	1,410	2,600	944	465	170	162	57
5	23	64	193	375	2,100	1,510	2,830	912	485	175	157	57
6	23	65	188	365	2,100	1,660	2,920	928	485	166	137	56
7	26	67	188	365	2,150	1,800	2,830	944	475	141	117	56
8	24	68	184	355	2,200	1,940	2,670	944	475	125	153	51
9	24	70	180	355	2,240	2,100	2,400	912	455	109	256	59
10	26	70	175	345	2,290	2,200	2,200	866	425	101	275	71
11	28	72	170	335	2,240	2,240	1,980	824	405	96	238	81
12	30	75	170	325	2,200	2,200	1,770	754	375	90	238	77
13	32	79	170	325	2,060	2,100	1,570	712	355	81	216	71
14	36	90	175	315	1,910	1,980	1,460	670	325	81	175	75
15	37	105	202	315	1,770	1,770	1,430	605	305	94	149	143
16	37	153	395	541	1,600	1,510	1,540	542	275	153	145	101
17	38	256	456	1,180	1,460	1,310	1,700	485	265	193	141	125
18	40	315	657	1,410	1,310	1,150	1,880	435	265	193	133	198
19	40	265	684	1,330	1,220	1,030	2,100	395	265	149	141	238
20	45	256	657	1,170	1,130	944	2,460	365	265	109	145	198
21	50	265	579	1,250	1,070	1,070	2,920	345	265	94	133	170
22	54	265	518	1,910	1,050	1,630	3,230	325	247	84	125	149
23	56	285	475	2,200	1,070	1,940	3,480	305	229	86	105	129
24	56	315	435	2,060	1,090	1,770	3,350	285	265	129	96	109
25	55	305	395	1,880	1,110	1,460	2,920	265	224	153	90	98
26	53	305	375	1,700	1,220	1,310	2,600	256	206	175	80	90
27	53	305	355	1,770	1,360	1,280	2,340	247	193	162	72	86
28	54	295	345	1,940	1,410	1,360	2,020	247	184	188	67	78
29	56	275	375	2,060	-	1,410	1,700	345	170	229	66	71
30	57	247	415	2,020	-	1,510	1,410	405	157	238	62	63
31	57	-	405	2,020	-	1,700	-	435	-	220	56	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,200	57	22	38.7	0.020	0.02	2,380
November	5,170	315	59	172	.090	.10	10,250
December	10,369	684	170	334	.176	.20	20,570
Calendar year 1948	333,549	4,480	22	911	.479	6.52	661,500
January	31,726	2,200	315	1,023	.538	.62	62,930
February	47,640	2,290	1,050	1,701	.894	.93	94,490
March	49,314	2,240	944	1,591	.836	.96	97,810
April	68,610	3,480	1,410	2,287	1.20	1.34	136,100
May	18,953	1,190	247	611	.321	.37	37,590
June	9,760	485	157	325	.171	.19	19,360
July	4,423	238	81	143	.075	.09	8,770
August	4,495	275	56	145	.076	.09	8,920
September	2,918	238	49	97.3	.051	.06	5,790
Water year 1948-49	254,578	3,480	22	697	.366	4.97	505,000

Peak discharge (base, 5,000 sec.-ft.).- No peak above base.

Neches River near Diboll, Tex.

Location.- Wire-weight gage, lat. 31°08', long. 94°48', at bridge on U. S. Highway 59, 630 feet downstream from Texas & New Orleans Railroad bridge, 2.9 miles downstream from Alabama Creek, and 3.8 miles south of Diboll, Angelina County. Datum of gage is 134.46 feet above mean sea level, datum of 1929.

Drainage area.- 2,670 square miles.

Records available.- November 1923 to August 1925, March 1939 to September 1949.

Average discharge.- 11 years (1924-25, 1939-49), 2,141 second-feet.

Extremes.- Maximum discharge during year, 6,850 second-feet Mar. 25 (gage height, 13.96 feet); minimum observed, 26 second-feet Oct. 4-6.

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

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

Remarks.- Records good. Gage read once or twice daily. No large diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a28	54	275	418	2,420	2,850	2,620	4,500	450	186	223	86
2	a28	55	268	418	2,340	2,250	2,620	3,940	418	168	236	84
3	28	58	249	418	2,340	2,020	2,420	3,310	402	168	249	81
4	26	59	236	394	2,420	1,770	2,100	2,960	386	156	275	79
5	26	60	230	378	2,520	1,650	1,900	2,420	378	148	335	74
6	26	61	216	370	2,520	1,580	1,860	2,020	378	146	301	69
7	27	60	210	363	2,420	1,520	1,860	1,650	394	147	268	69
8	27	61	204	356	2,340	1,480	1,900	1,390	418	162	288	71
9	28	64	198	356	2,340	1,450	1,960	1,250	418	168	282	72
10	28	65	192	349	2,250	1,480	2,100	1,160	418	162	301	75
11	29	67	186	349	2,160	1,620	2,250	1,110	450	144	328	82
12	29	69	186	342	2,100	1,770	2,340	1,060	486	130	335	84
13	29	71	180	335	2,100	1,770	2,520	1,040	486	117	321	81
14	29	a90	180	328	2,020	1,900	2,740	988	468	116	294	86
15	30	a110	180	321	2,100	2,020	2,740	874	576	106	275	106
16	33	a280	180	459	2,100	2,100	2,520	830	612	98	262	243
17	33	a390	186	1,010	2,100	2,100	2,420	790	522	97	216	630
18	34	a480	223	1,090	2,100	2,100	2,160	730	386	110	198	670
19	35	a380	321	1,190	2,100	2,020	1,900	650	314	129	186	576
20	36	a330	418	1,250	2,100	2,020	2,100	576	275	174	174	504
21	38	301	504	1,390	2,160	2,420	2,520	504	256	198	168	335
22	40	288	522	2,100	2,340	3,680	3,080	450	249	186	162	321
23	40	268	576	2,620	2,420	4,500	3,940	402	249	162	162	282
24	42	262	594	3,080	2,250	4,360	3,810	363	249	150	156	236
25	45	262	576	2,960	2,020	6,700	3,680	335	249	162	150	204
26	49	268	a555	2,850	2,740	5,220	3,680	314	242	204	144	180
27	53	275	a520	2,740	3,430	4,080	4,870	294	236	198	130	162
28	55	282	a500	2,850	3,200	3,430	6,260	288	230	198	118	143
29	55	282	a520	2,850	-	2,850	5,990	370	216	223	109	129
30	55	282	a540	2,850	-	2,520	5,220	418	198	216	100	119
31	54	-	a465	2,620	-	2,740	-	468	-	210	91	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,115	55	26	36.0	0.013	0.02	2,210
November	5,634	480	54	188	.070	.08	11,170
December	10,390	594	180	335	.125	.14	20,610
Calendar year 1948	478,304	7,350	26	1,307	.489	6.66	948,700
January	39,404	3,080	321	1,271	.476	.55	78,160
February	65,450	3,430	2,020	2,338	.876	.91	129,800
March	79,970	6,700	1,450	2,580	.966	1.11	158,600
April	88,080	6,260	1,860	2,936	1.10	1.23	174,700
May	37,454	4,500	288	1,208	.452	.52	74,290
June	11,009	612	198	367	.137	.15	21,840
July	4,939	223	97	159	.060	.07	9,800
August	6,837	335	91	221	.083	.10	13,560
September	5,933	670	69	198	.074	.08	11,770
Water year 1948-49	356,215	6,700	26	976	.366	4.96	706,500

Peak discharge (base, 2,700 sec.-ft.).- Jan. 24 (7:45 a.m.) 3,200 sec.-ft.; Feb. 27 (5:15 p.m.) 3,550 sec.-ft.; Mar. 25 (5:15 p.m.) 6,850 sec.-ft.; Apr. 15 (6:15 a.m.) 2,740 sec.-ft.; Apr. 28 (5:45 p.m.) 6,400 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for stations near Alto and near Rockland.

Neches River near Rockland, Tex.

Location.- Staff gage, lat. 31°01'45", long 94°23'50", 2,200 feet downstream from bridge on U. S. Highway 69, 2,100 feet upstream from Texas & New Orleans Railroad bridge, 1 mile north of Rockland, Tyler County, and 3.6 miles downstream from Billams Creek. Datum of gage is 91.4 feet above mean sea level, datum of 1929.
Drainage area.- 3,539 square miles.
Records available.- July 1903 to September 1949. (July 1903 to September 1923, monthly records only, in Water-Supply Paper 850.) U. S. Weather Bureau has collected gage-height records in this vicinity since 1903.
Average discharge.- 43 years (1903-10, 1913-49), 2,523 second-feet.
Extremes.- Maximum discharge during year, 11,500 second-feet Mar. 28 (gage height, 18.58 feet); minimum observed, 27 second-feet Oct. 9, 10.
1903-49: Maximum discharge, 49,800 second-feet May 6, 1944 (gage height, 31.84 feet); minimum observed during period of daily records, 3.0 second-feet Oct. 15, 1931.
Maximum stage known, 34.9 feet in May 1884, from information by local resident.
Remarks.- Records good. Gage read twice daily. No large diversion above station.
Revisions (water years).- W 878: 1926-27.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 21 to May 10)

-0.81	27	1.0	382	6.0	2,750
-.6	48	1.5	556	8.0	3,900
-.4	74	2.0	754	11.0	5,700
-.2	106	3.0	1,200	14.0	7,620
0.0	142	4.0	1,700	17.0	9,800
.5	246	5.0	2,200	19.1	11,500

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	60	332	500	3,960	6,190	8,020	7,160	654	330	233	124
2	36	60	324	609	3,840	5,880	6,640	7,300	575	302	224	128
3	34	59	316	1,110	3,960	5,460	5,160	7,160	614	286	258	119
4	32	55	304	796	3,900	4,980	4,200	6,710	594	265	265	98
5	32	55	293	614	2,600	4,560	3,660	6,000	518	248	280	93
6	31	60	280	500	3,300	4,080	3,420	5,220	500	235	318	88
7	30	60	263	465	3,080	3,420	3,190	4,260	472	222	367	84
8	28	60	251	445	3,020	2,920	2,860	3,480	500	213	401	82
9	27	63	239	431	3,420	2,860	2,580	2,700	537	211	404	85
10	27	68	233	417	4,320	3,140	2,480	2,100	556	215	404	115
11	58	68	228	408	3,720	2,580	2,530	1,700	838	220	392	120
12	44	71	224	398	3,420	2,420	2,530	1,400	970	215	392	93
13	36	71	244	388	3,080	2,420	2,530	1,300	817	196	424	93
14	34	79	220	382	2,860	3,140	2,580	1,180	1,470	184	408	93
15	34	93	215	382	2,700	3,240	2,640	1,130	2,750	176	361	95
16	34	979	215	551	2,800	3,020	2,640	1,110	1,900	164	330	120
17	33	664	226	1,110	2,860	2,970	2,750	1,060	1,300	160	302	206
18	30	639	299	1,700	2,750	2,970	2,800	970	1,080	170	273	338
19	29	728	291	1,750	2,640	2,920	2,750	882	970	152	246	594
20	31	438	293	1,500	2,580	2,800	3,300	838	775	142	220	614
21	34	401	361	2,580	2,860	4,530	3,960	754	614	154	206	575
22	36	392	455	4,080	3,140	6,640	5,040	674	462	196	190	500
23	40	364	518	3,900	3,300	6,900	5,940	594	392	226	182	401
24	42	346	594	3,900	3,420	7,100	6,060	537	796	268	174	330
25	42	330	654	3,540	3,480	7,360	6,060	500	904	235	174	283
26	40	441	654	3,300	5,760	7,950	6,120	462	a803	200	174	253
27	42	475	614	4,380	5,880	9,880	6,780	417	a703	217	168	226
28	47	349	556	4,980	6,190	11,400	7,160	547	a602	260	160	198
29	50	341	674	4,440	-	11,300	7,360	1,130	a502	239	148	178
30	56	349	654	4,260	-	10,400	7,160	674	401	233	137	158
31	60	-	594	4,020	-	9,420	-	714	-	237	122	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,165	60	27	37.6	0.011	0.01	2,310
November	8,218	979	55	274	.077	.09	16,300
December	11,598	674	215	374	.106	.12	23,000
Calendar year 1948	587,911	8,520	27	1,606	.454	6.17	1,166,000
January	57,925	4,980	382	1,869	.528	.61	114,900
February	99,840	6,190	2,580	3,566	1.01	1.05	198,000
March	164,850	11,400	2,420	5,318	1.50	1.73	327,000
April	130,900	8,020	2,480	4,363	1.23	1.38	259,600
May	70,663	7,300	417	2,279	.644	.74	140,200
June	24,569	2,750	392	819	.231	.28	48,730
July	6,771	330	142	218	.062	.07	13,430
August	8,337	424	122	269	.076	.09	16,540
September	6,484	614	82	216	.061	.07	12,860
Water year 1948-49	591,320	11,400	27	1,620	.458	6.22	1,173,000

Peak discharge (base, 5,200 sec.-ft.).- Feb. 28 (4:30 p.m.) 6,260 sec.-ft.; Mar. 28 (4 p.m.) 11,500 sec.-ft.; Apr. 29 (7 a.m.) 7,420 sec.-ft.
a No gage-height record; discharge interpolated.

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Neches River at Evadale, Tex.

Location.- Water-stage recorder, lat. 30°21', long. 94°05', at bridge on Us S. Highway 96, 200 feet upstream from Gulf, Colorado & Santa Fe Railway bridge at Evadale, Jasper County, 600 feet downstream from Mill Creek, and 15 miles upstream from Village Creek. Datum of gage is 8.25 feet above mean sea level, datum of 1929, Galveston-Houston supplementary adjustment of 1936. Prior to Dec. 7, 1948, staff gage at same site and datum.

Drainage area.- 7,908 square miles.

Records available.- July 1904 to December 1906, October 1923 to September 1949.

Average discharge.- 28 years (1904-6, 1923-49), 6,695 second-feet.

Extremes.- Maximum discharge during year, 24,400 second-feet Apr. 4 (gage height, 16.28 feet; minimum observed, 224 second-feet Oct. 7-13.

1904-6, 1923-49: Maximum discharge, 92,100 second-feet May 11, 1944 (gage height, 23.58 feet, from floodmark); minimum observed, about 148 second-feet Sept. 10, 1925.

Maximum stages known, 26.2 feet in May 1884 (discharge, about 175,000 second-feet, from rating curve extended above 72,000 second-feet by logarithmic plotting), and 24.5 feet in August 1915 (discharge not determined), from records of Gulf, Colorado & Santa Fe Railway Co.

Remarks.- Records good. Staff gage read twice daily. No large diversion above station. Records of chemical analyses and water temperatures for the water year 1949 are given in Water-Supply Paper 1163.

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

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

-0.4	224	2.0	776	7.0	2,740	13.0	10,400
-.2	257	3.0	1,090	9.0	4,100	14.0	13,400
0.0	292	4.0	1,450	10.0	5,000	15.0	17,500
.5	388	5.0	1,830	11.0	6,260	16.3	24,400
1.0	500	6.0	2,250	12.0	8,160		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	248	266	1,830	2,390	14,100	13,000	21,600	18,500	3,820	1,710	1,300	616
2	240	274	1,600	2,340	14,100	14,500	22,700	18,500	3,260	1,560	1,160	588
3	240	283	1,450	2,390	13,400	14,900	23,800	19,000	2,690	1,450	1,090	561
4	240	283	1,410	3,270	13,400	14,900	24,400	19,000	2,300	1,450	1,090	548
5	232	283	1,340	4,700	13,400	14,500	23,800	18,500	2,070	1,520	1,120	536
6	232	283	1,300	5,460	13,400	13,800	22,700	18,000	1,910	1,640	1,260	524
7	224	283	1,260	5,100	13,400	12,400	20,000	17,000	1,790	1,670	1,300	500
8	224	283	1,190	3,960	13,400	10,900	16,600	15,300	1,670	1,560	1,370	477
9	224	283	1,160	2,920	12,700	9,710	13,000	13,000	1,600	1,370	1,370	477
10	224	283	1,090	2,300	[illegible],400	8,380	11,200	10,600	1,560	1,190	1,480	500
11	224	292	1,030	1,990	12,400	7,940	10,900	9,040	1,640	1,090	1,600	500
12	224	292	994	1,870	13,800	8,160	9,940	7,320	1,830	1,030	1,520	500
13	232	310	962	1,750	15,300	8,160	8,820	6,120	2,160	1,030	1,450	524
14	232	329	962	1,640	15,700	8,600	7,940	5,000	2,490	994	1,370	561
15	232	388	930	1,560	14,500	8,600	7,320	4,260	2,920	994	1,300	588
16	266	378	930	1,600	12,700	9,260	6,760	3,750	4,780	1,120	1,260	588
17	292	399	898	1,950	10,900	9,940	6,420	3,330	7,520	1,370	1,190	616
18	266	852	898	2,960	9,480	9,940	6,120	2,980	9,480	1,450	1,120	658
19	257	2,250	930	4,260	9,040	9,480	5,980	2,740	8,600	1,370	1,060	644
20	246	2,590	1,090	5,580	8,600	8,600	6,120	2,540	6,120	1,230	994	658
21	240	3,470	1,370	6,760	7,940	8,660	6,420	2,390	4,100	1,190	962	776
22	240	3,820	1,480	7,720	7,320	9,260	8,500	2,250	3,120	1,230	898	1,030
23	240	3,190	1,520	8,820	7,120	10,600	10,900	2,160	2,590	1,230	836	1,120
24	240	2,540	1,600	10,400	7,520	13,400	13,800	2,030	2,250	1,230	776	1,120
25	240	2,120	1,710	12,400	8,820	16,200	15,300	1,910	1,990	1,480	746	1,090
26	240	2,030	1,790	13,400	9,710	18,000	16,200	1,790	2,440	1,710	716	994
27	240	2,120	1,870	13,800	10,400	19,000	16,200	1,710	3,400	1,600	686	930
28	240	2,200	1,910	12,700	11,400	19,000	17,500	1,640	3,400	1,480	672	898
29	248	2,300	1,910	11,800	-	18,500	19,000	1,670	2,590	1,520	658	836
30	257	2,120	1,910	12,400	-	19,000	19,000	2,160	1,990	1,520	644	806
31	257	-	2,160	13,800	-	20,000	-	3,470	-	1,450	616	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	7,483	292	224	241	0.030	0.04	14,840
November	36,744	3,820	266	1,225	.155	.17	72,880
December	42,484	2,160	898	1,370	.173	.20	84,270
Calendar year 1948	1,620,443	22,800	224	4,427	.560	7.63	3,214,000
January	183,990	13,800	1,560	5,935	.751	.87	364,900
February	326,350	15,700	7,120	11,660	1.47	1.54	647,300
March	387,290	20,000	7,940	12,490	1.58	1.82	768,200
April	418,940	24,400	5,980	13,960	1.77	1.97	831,000
May	237,660	19,000	1,640	7,666	.970	1.12	471,400
June	98,080	9,480	1,560	3,269	.414	.46	194,500
July	42,438	1,710	994	1,369	.173	.20	84,170
August	33,614	1,600	616	1,084	.137	.16	66,670
September	20,764	1,120	477	692	.088	.10	41,180
Water year 1948-49	1,835,837	24,400	224	5,030	.636	8.65	3,641,000

Peak discharge (base, 13,000 sec.-ft.).- Feb. 14 (4 a.m.) 15,700 sec.-ft.; Mar. 4 (4 a.m.) 14,900 sec.-ft.; Apr. 4 (6 p.m.) 24,400 sec.-ft.; Apr. 29 (11 p.m.) 19,500 sec.-ft.

Mud Creek near Jacksonville, Tex.

Location.- Water-stage recorder, lat. 31°58'40", long. 95°09'40", at bridge on U. S. Highway 79, 0.6 mile downstream from Caney Creek, 3.9 miles downstream from another Caney Creek, 4 miles downstream from International-Great Northern Railroad bridge, and 6.9 miles east of Jacksonville, Cherokee County. Datum of gage is 271.6 feet above mean sea level, datum of 1929.

Drainage area.- 382 square miles.

Records available.- May 1939 to September 1949.

Average discharge.- 10 years (1939-49), 358 second-feet.

Extremes.- Maximum discharge during year, 1,690 second-feet Apr. 11 (gage height, 7.68 feet); minimum, 0.4 second-foot Sept. 4, 5 (gage height, 1.23 feet).
1939-49: Maximum discharge, 23,400 second-feet May 3, 1944 (gage height, 14.09 feet); no flow at times.
Maximum stage known occurred in May 1884, from information by local residents.

Remarks.- Records good. Flow regulated by Lake Tyler (capacity, 42,000 acre-feet). Storage began Jan. 8, 1949. No large diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.7	19	76	105	555	900	555	182	365	23	20	1.0
2	2.7	19	70	88	460	720	398	152	490	20	17	.9
3	2.5	19	64	78	344	520	296	129	365	19	41	.8
4	2.5	19	62	75	304	368	247	111	114	16	26	.4
5	2.5	21	61	73	283	271	220	100	62	14	20	.9
6	2.5	24	60	69	271	220	200	88	50	15	18	1.7
7	3.2	20	60	64	247	195	174	80	43	15	19	1.5
8	4.1	19	60	61	214	178	156	73	39	14	24	1.0
9	4.8	18	58	61	186	174	142	106	37	11	29	.9
10	5.4	19	56	62	170	214	707	135	37	9.4	33	1.4
11	8.1	20	54	63	156	204	1,370	100	39	8.7	32	4.3
12	12	22	54	63	156	190	1,210	80	41	31	25	2.7
13	13	27	55	59	142	170	1,050	65	42	53	19	2.5
14	21	32	57	52	138	156	770	58	42	25	15	4.7
15	19	42	65	58	142	146	590	54	60	26	11	17
16	15	86	80	227	152	138	391	50	66	27	8.9	12
17	14	114	91	312	166	132	242	49	54	28	8.9	17
18	13	129	123	312	174	129	178	47	39	28	17	15
19	14	135	123	344	166	126	152	45	32	27	19	24
20	14	117	120	355	152	120	156	43	29	20	18	27
21	15	88	111	438	174	184	186	42	27	15	13	18
22	15	91	91	460	174	271	182	41	25	12	8.9	12
23	15	117	80	415	160	259	178	39	24	46	6.9	8.3
24	15	149	75	355	211	277	166	40	47	81	5.2	6.5
25	15	138	71	312	312	265	172	45	54	50	3.9	4.8
26	15	105	68	312	490	259	242	45	53	46	4.1	3.9
27	15	80	65	438	670	429	332	38	39	55	4.3	3.4
28	15	74	65	520	835	845	312	43	34	43	2.9	2.7
29	16	72	86	520	-	1,530	277	153	31	35	2.5	2.2
30	16	76	91	555	-	1,130	230	236	28	33	2.2	1.7
31	16	-	111	590	-	770	-	259	-	26	1.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	344.0	21	2.5	11.1	0.029	0.03	682
November	1,911	149	18	63.7	.167	.19	3,790
December	2,363	123	54	76.2	.199	.23	4,690
Calendar year 1948	86,167.1	3,080	.2	235	.615	8.39	170,900
January	7,496	590	52	242	.634	.73	14,870
February	7,604	835	138	272	.712	.74	15,080
March	11,490	1,530	120	371	.971	1.12	22,790
April	11,481	1,370	142	383	1.00	1.12	22,770
May	2,728	259	38	88.0	.230	.27	5,410
June	2,408	490	24	80.3	.210	.23	4,780
July	872.1	81	8.7	28.1	.074	.08	1,730
August	476.5	41	1.8	15.4	.040	.05	945
September	200.2	27	.4	6.67	.017	.02	397
Water year 1948-49	49,373.8	1,530	.4	135	.353	4.81	97,930

Peak discharge (base, 1,400 sec.-ft.).- Mar. 29 (8 a.m.) 1,610 sec.-ft.; Apr. 11 (3 a.m.) 1,690 sec.-ft.

Angelina River near Alto, Tex.

Location.- Chain gage, lat. 31°40', long. 94°58', at bridge on State Highway 21, 3 miles upstream from Bingham Creek and 7 miles east of Alto, Cherokee County. Datum of gage is 204.3 feet above mean sea level, datum of 1929.

Drainage area.- 1,274 square miles.

Records available.- May to August 1940 (discharge measurements only). September 1940 to March 1949 (fragmentary for 1941, 1942, 1944-49), discontinued.

Extremes.- Maximum gage height during period October 1948 to March 1949 not determined; minimum discharge observed, 18 second-feet Oct. 6.

1940-49: Maximum gage height observed, 21.52 feet May 5, 1944, but may have been higher during period of no gage-height record in November 1940; minimum discharge observed, 11 second-feet Aug. 30, 31, Sept. 25-27, 1943.

Remarks.- Records good. Discharge above 2,300 second-feet not computed. Gage read twice daily. No large diversion above station.

Revisions.- W 1088: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	52	311	452	-	1,520						
2	20	54	289	494	-	1,770						
3	20	56	262	466	-	1,990						
4	20	57	240	428	2,240	2,080						
5	19	66	228	404	1,990	2,030						
6	18	73	218	380	1,830	1,920						
7	20	71	206	356	1,680	1,710						
8	20	68	201	322	1,560	1,540						
9	20	68	191	300	1,470	1,340						
10	21	71	186	289	1,340	1,120						
11	22	72	181	278	1,200	906						
12	26	73	228	267	1,080	766						
13	28	76	171	262	960	702						
14	31	84	171	256	852	702						
15	37	97	176	256	766	686						
16	42	128	433	511	702	670						
17	41	223	494	834	670	638						
18	39	267	578	834	654	606						
19	38	333	654	960	638	564						
20	38	392	670	1,100	638	536						
21	38	404	702	1,320	622	592						
22	38	416	718	1,710	638	766						
23	39	404	686	1,960	654	816						
24	40	392	606	2,240	718	924						
25	42	404	508	-	798	1,020						
26	42	392	428	-	924	1,100						
27	42	368	380	-	1,020	1,120						
28	43	356	333	-	1,220	1,100						
29	43	344	356	-	-	1,080						
30	43	328	380	-	-	1,080						
31	44	-	404	-	-	1,080						

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	994	44	18	32.1	0.025	0.03	1,970
November	6,189	416	52	206	.163	.18	12,280
December	11,589	718	171	374	.297	.34	22,990
Calendar year 1948	-	-	15	-	-	-	-
January	-	-	256	-	-	-	-
February	-	-	622	-	-	-	-
March	34,474	2,080	536	1,112	.882	1.02	68,380
April	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-
Water year	-	-	-	-	-	-	-

Note.- No gage-height record Nov. 30, Jan. 29; discharge Nov. 30 was interpolated.

Angelina River near Lufkin, Tex.

Location.- Water-stage recorder, lat. 31°27'40", long. 94°43'35", at bridge on U. S. Highway 59, 400 feet upstream from Procella Creek, half a mile downstream from Little Loco Bayou, 1.5 miles upstream from Texas & New Orleans Railroad bridge, and 8 miles north of Lufkin, Angelina County. Datum of gage is 164.72 feet above mean sea level, datum of 1929.

Drainage area.- 1,575 square miles.

Records available.- October 1923 to September 1934, July 1939 to September 1949.

Average discharge.- 21 years, 1,403 second-feet.

Extremes.- Maximum discharge during year, 3,320 second-feet Feb. 3 (gage height, 10.63 feet); minimum, 21 second-feet Oct. 6.

1923-34, 1939-49: Maximum discharge, 38,200 second-feet Feb. 24, 1932; maximum gage height, 18.55 feet May 7, 1944; minimum discharge, 2.3 second-feet Oct. 12, 1939.

Maximum stage known, about 26.5 feet in May 1884, from information by local residents.

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

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

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

0.9	20	4.0	173	7.5	860
1.0	22	4.5	208	8.0	1,080
1.2	27	5.0	254	8.5	1,350
1.5	36	5.5	325	9.0	1,660
2.0	55	6.0	420	9.5	2,000
2.5	79	6.5	540	10.0	2,450
3.0	108	7.0	680	10.6	3,240

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	46	361	440	3,090	1,540	1,800	1,440	342	194	390	74
2	23	47	342	452	3,090	1,540	1,570	1,410	390	176	400	76
3	23	49	325	502	3,240	1,600	1,500	1,380	440	156	390	69
4	22	51	308	528	3,240	1,760	1,840	1,380	465	140	308	74
5	22	55	286	515	3,160	1,900	1,600	1,350	465	124	228	140
6	21	57	266	490	3,090	2,040	1,660	1,320	452	127	198	184
7	22	60	248	452	2,880	2,160	1,700	1,260	440	117	204	190
8	22	69	238	430	2,680	2,200	1,700	1,160	452	108	233	160
9	22	74	228	410	2,500	2,400	1,630	990	440	108	243	146
10	22	74	220	370	2,300	2,300	1,600	785	400	124	254	124
11	22	72	212	342	2,120	2,080	1,660	635	293	127	286	108
12	22	74	208	325	1,960	1,830	1,600	540	224	108	300	90
13	22	76	204	308	1,830	1,570	1,380	490	204	87	279	82
14	24	84	201	300	1,660	1,290	1,180	490	212	76	254	96
15	26	93	208	300	1,470	1,160	1,180	515	233	76	243	120
16	29	148	233	649	1,440	1,080	1,350	515	243	105	216	127
17	32	184	291	880	1,260	1,010	1,570	465	228	163	184	127
18	38	208	515	990	1,060	945	1,760	400	212	238	156	163
19	41	266	635	1,040	968	880	1,980	352	212	300	137	224
20	41	272	650	1,040	945	820	2,500	308	212	316	124	260
21	41	308	665	1,480	1,060	1,300	2,880	272	201	316	111	286
22	41	352	680	2,040	1,180	1,760	2,810	248	190	286	114	308
23	41	380	698	2,200	1,100	1,700	2,620	228	180	243	124	308
24	41	400	698	2,120	1,160	1,470	2,200	216	173	220	117	260
25	41	400	698	2,120	1,180	2,000	1,760	204	173	220	102	208
26	41	400	650	2,120	1,440	1,830	1,500	198	170	212	93	180
27	42	400	590	2,400	1,540	1,630	1,570	194	173	204	90	156
28	43	420	528	2,810	1,500	1,500	1,700	187	190	238	84	137
29	g44	410	502	2,950	-	1,470	1,700	223	212	325	76	117
30	g44	380	465	3,090	-	1,710	1,540	380	208	361	69	99
31	g45	-	440	3,090	-	2,000	-	370	-	380	69	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	984	45	21	31.7	0.020	0.02	1,950
November	5,907	420	46	197	.125	.14	11,720
December	12,793	698	201	413	.262	.30	25,370
Calendar year 1948	350,588	5,630	20	958	.608	8.28	695,300
January	37,183	3,090	300	1,199	.761	.88	73,750
February	54,143	3,240	945	1,934	1.23	1.28	107,400
March	50,475	2,400	820	1,628	1.03	1.19	100,100
April	52,720	2,880	1,180	1,757	1.12	1.24	104,600
May	19,905	1,440	187	642	.408	.47	39,480
June	8,429	465	170	281	.178	.20	16,720
July	5,975	380	76	193	.123	.14	11,850
August	6,076	400	89	196	.124	.14	12,050
September	4,693	308	69	156	.099	.11	9,310
Water year 1948-49	259,283	3,240	21	710	.451	6.11	514,300

Peak discharge (base, 2,800 sec.-ft.).- Feb. 3 (11 a.m.) 3,320 sec.-ft.; Apr. 21 (2 p.m.) 2,880 sec.-ft.

g Computed on basis of once- or twice-daily gage readings.

Angelina River at Horger, Tex.

Location.- Wire-weight gage, lat. 31°00', long. 94°10', at bridge on State Highway 63, a quarter of a mile east of Horger, Jasper County, 7 miles upstream from Indian Creek, and 20 miles upstream from mouth. Datum of gage is 68.6 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.- 3,435 square miles.

Records available.- March 1928 to September 1949.

Average discharge.- 21 years, 3,193 second-feet.

Extremes.- Maximum discharge during year, 10,500 second-feet Mar. 29, 30; maximum gage height, 19.38 feet Mar. 29; minimum discharge observed, 62 second-feet Oct. 9 (gage height, 0.58 foot).

1928-49: Maximum discharge, 49,900 second-feet May 6, 1944 (gage height, 36.90 feet); minimum observed, 13 second-feet Sept. 22, 1937.

Maximum discharge known, 82,000 second-feet in August 1915 (gage height, 39.5 feet, from information by local residents), from rating curve extended above 50,000 second-feet.

Remarks.- Records good. Gage read twice daily, oftener during high stages. Occasional backwater from Neches River. No large diversion above station.

Revision (water year).- W 928: 1932 (yearly total acre-feet).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	113	598	a1,080	6,130	6,320	10,300	8,560	1,170	505	520	196
2	71	113	630	a1,360	6,060	6,000	9,400	8,000	996	520	535	196
3	70	111	614	2,880	6,320	5,700	7,930	7,580	870	505	550	186
4	69	110	598	3,450	6,720	4,980	6,520	6,720	769	808	582	186
5	68	110	566	2,830	6,520	4,320	5,520	5,280	680	750	598	186
6	66	113	535	1,730	5,940	3,850	4,800	4,320	646	680	614	192
7	65	110	505	1,220	5,580	3,560	4,200	3,740	630	520	614	200
8	64	111	475	1,040	5,220	3,390	3,680	3,330	630	445	714	196
9	62	115	460	912	5,940	3,270	3,220	3,220	630	402	849	215
10	75	126	445	828	7,440	3,270	2,990	3,050	800	366	680	241
11	176	129	416	750	7,170	3,500	3,050	2,550	1,040	402	714	274
12	104	137	416	714	a6,200	3,790	3,160	2,080	975	366	680	286
13	95	150	402	680	5,220	3,740	3,160	1,780	954	348	582	277
14	95	166	388	630	4,560	4,080	3,050	1,540	4,710	386	520	265
15	92	192	388	598	3,970	5,160	2,880	1,310	5,400	788	490	250
16	86	761	402	755	3,790	4,740	2,770	1,130	4,560	663	475	246
17	83	870	388	2,220	3,560	4,320	2,660	996	2,660	550	445	265
18	86	1,270	566	3,680	3,390	3,680	2,500	933	1,780	582	416	282
19	83	2,140	870	4,200	3,160	2,450	2,400	891	1,310	646	388	343
20	80	2,080	828	4,080	2,880	2,290	2,660	870	1,130	582	374	460
21	83	1,170	996	3,970	2,880	3,820	4,030	808	1,040	520	348	445
22	83	1,020	1,060	6,130	3,910	7,440	6,000	732	828	535	319	430
23	86	912	1,060	6,910	4,030	8,560	7,300	680	646	566	289	416
24	89	663	1,040	6,320	3,740	8,070	7,300	614	1,010	663	265	416
25	96	566	1,020	5,340	3,680	7,370	6,320	582	1,540	598	250	430
26	98	598	933	5,040	5,310	7,930	6,130	535	1,130	566	250	416
27	101	680	933	5,460	7,100	9,190	6,650	535	697	598	246	416
28	104	697	891	7,040	7,100	10,200	7,650	654	598	663	241	388
29	108	630	1,220	7,370	-	10,500	8,980	1,730	535	566	224	348
30	108	598	1,540	6,720	-	10,400	9,120	1,590	505	505	215	301
31	106	-	1,260	6,130	-	10,400	-	1,310	-	505	202	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	2,723	176	62	87.8	0.026	0.03	5,400
November	16,561	2,140	110	552	.161	.18	32,850
December	22,443	1,540	388	724	.211	.24	44,520
Calendar year 1948	751,627	11,500	62	2,054	.598	8.14	1,491,000
January	102,067	7,370	598	3,292	.958	1.11	202,400
February	145,520	7,440	2,880	5,126	1.49	1.55	284,700
March	176,290	10,500	2,290	5,687	1.66	1.91	349,700
April	156,330	10,300	2,400	5,211	1.52	1.69	310,100
May	77,650	8,560	535	2,505	.729	.84	154,000
June	40,869	5,400	505	1,362	.396	.44	81,060
July	17,099	808	348	552	.161	.19	33,920
August	14,189	849	202	458	.133	.15	28,140
September	8,948	460	186	298	.087	.10	17,750
Water year 1948-49	778,689	10,500	62	2,133	.621	8.43	1,545,000

Peak discharge (base, 9,000 sec.-ft.).- Mar. 29 (6 a.m.) to Mar. 30 (2 a.m.) 10,500 sec.-ft.; Apr. 30 (8:30 a.m.) 9,120 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for station near Lufkin.

Striker Creek near Summerfield, Tex.

Location.- Wire-weight gage, lat. 32°00'10", long. 94°59'35", at bridge on U. S. Highway 79, 3½ miles downstream from Johnson Creek and 6½ miles northeast of Summerfield, Cherokee County. Datum of gage is 287.0 feet above mean sea level, datum of 1929.

Drainage area.- 148 square miles.

Records available.- May to August 1940 (discharge measurements only). September 1940 to September 1949 (discontinued).

Extremes.- Maximum discharge during year, 1,360 second-feet Apr. 11 (gage height, 9.42 feet, from graph based on gage readings); minimum observed, 1.9 second-feet Oct. 6. 1940-49: Maximum discharge, 10,800 second-feet Nov. 24, 1940 (gage height, 17.23 feet, from floodmark), from rating curve extended above 5,000 second-feet by velocity-area studies; minimum observed, 0.7 second-foot Aug. 31, Sept. 1, 1943.

Remarks.- Records poor. Gage read twice daily, oftener during high stages. No large diversions above station.

Revision.- W 1088: Drainage area.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

2.4	1.4	3.4	10	4.6	33	7.0	255
2.6	2.6	3.6	12	5.0	45	7.5	390
2.8	4.0	3.8	15	5.5	68	8.0	570
3.0	5.7	4.0	19	6.0	103	8.5	815
3.2	7.8	4.2	23	6.5	165	9.0	1,110

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	12	52	95	157	239	113	219	171	25	58	20
2	2.1	13	50	81	140	171	105	176	111	23	47	28
3	2.1	14	46	70	144	137	101	140	80	21	39	34
4	2.0	14	42	61	154	118	111	111	61	19	74	38
5	2.0	17	39	56	155	103	115	94	50	18	35	35
6	1.9	18	37	53	145	97	103	469	42	17	49	29
7	2.6	19	36	49	127	92	94	75	37	17	65	23
8	3.2	19	35	46	111	88	85	69	32	17	81	19
9	3.9	18	34	44	99	86	80	68	29	17	88	17
10	5.2	17	32	44	90	88	265	93	27	16	79	16
11	8.1	15	31	44	85	107	1,200	115	25	15	67	15
12	12	17	31	44	80	123	870	100	25	14	60	15
13	13	18	31	44	78	110	414	82	26	18	51	15
14	14	28	32	44	75	97	239	70	29	26	43	14
15	12	35	40	46	77	88	165	60	33	35	36	24
16	11	64	60	120	79	82	130	56	45	57	32	31
17	10	94	85	535	81	79	105	50	90	73	30	46
18	9.0	138	130	870	83	75	92	46	92	69	30	65
19	8.9	158	135	548	83	72	84	46	72	56	52	81
20	9.3	131	118	318	80	70	83	44	54	42	68	84
21	9.8	111	101	270	99	88	86	42	44	33	60	70
22	9.9	98	85	300	108	130	101	40	36	27	46	55
23	9.8	103	70	336	108	201	108	39	33	30	37	40
24	9.8	123	62	308	166	183	102	37	31	42	29	30
25	9.7	109	56	239	420	140	171	35	29	91	24	24
26	9.7	89	51	204	960	119	201	34	28	197	21	20
27	9.7	73	49	255	615	157	210	34	29	186	19	17
28	9.7	61	47	476	378	258	229	34	30	137	18	15
29	10	54	54	458	-	229	231	50	30	100	17	14
30	10	52	73	310	-	171	243	124	28	83	15	13
31	11	-	95	208	-	136	-	197	-	71	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	243.6	14	1.9	7.86	0.053	0.06	483
November	1,732	158	12	57.7	.390	.44	3,440
December	1,839	135	31	59.3	.401	.46	3,650
Calendar year 1948	42,648.3	1,560	1.2	117	.791	10.72	84,590
January	6,576	870	44	212	1.43	1.65	13,040
February	4,977	960	75	178	1.20	1.25	9,870
March	3,934	258	70	127	.858	.99	7,800
April	6,236	1,200	80	208	1.41	1.57	12,370
May	2,849	469	34	91.9	.621	.72	5,650
June	1,449	171	25	48.3	.326	.36	2,870
July	1,592	197	14	51.4	.347	.40	3,160
August	1,386	88	15	44.7	.302	.35	2,750
September	947	84	13	31.6	.214	.24	1,880
Water year 1948-49	33,760.6	1,200	1.9	92.5	.625	8.49	66,960

Peak discharge (base, 1,800 sec.-ft.).- No peak above base.

Attoyac Bayou near Chireno, Tex.

Location.- Water-stage recorder, lat. 31°30'15", long. 94°18'15", at bridge on State Highway 21, 3 miles northeast of Chireno, Nacogdoches County, and 7 miles downstream from Arenoso Creek. Datum of gage is 169.9 feet above mean sea level, datum of 1929.

Drainage area.- 502 square miles.

Records available.- January 1924 to August 1925, July 1939 to September 1949.

Average discharge.- 10 years (1939-49), 574 second-feet.

Extremes.- Maximum discharge during year, 2,910 second-feet Mar. 26 (gage height, 17.08 feet); minimum, 16 second-feet Oct. 5, 6.

1924-25, 1939-49: Maximum discharge, 31,900 second-feet Nov. 24, 1940 (gage height, 25.97 feet); minimum observed, 7.0 second-feet Aug. 27, 1925.

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

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	28	114	212	1,110	888	1,140	1,110	192	59	78	41
2	17	29	98	196	1,110	855	1,020	1,090	150	53	66	49
3	17	32	88	196	1,080	855	942	1,340	106	54	80	61
4	17	32	82	212	1,000	825	795	1,420	82	49	132	54
5	17	30	80	172	906	721	563	1,230	70	47	143	53
6	16	31	80	143	795	500	428	972	63	50	103	45
7	17	36	82	126	732	366	366	497	57	109	111	38
8	20	36	78	117	688	324	324	276	70	103	176	33
9	25	35	78	111	554	366	292	236	78	70	236	34
10	23	42	78	108	437	437	324	228	78	61	164	41
11	25	48	72	106	374	374	464	220	88	54	114	44
12	35	45	72	103	324	332	581	204	95	47	90	40
13	35	45	72	103	300	292	628	184	106	51	78	70
14	30	53	72	100	284	292	678	157	156	92	68	100
15	28	72	75	100	316	300	721	136	491	353	58	72
16	26	127	80	256	357	276	721	123	581	446	51	70
17	25	268	219	582	419	260	546	117	446	308	56	106
18	24	252	446	710	473	244	308	111	324	220	50	228
19	25	212	500	732	428	228	244	103	192	132	54	150
20	26	196	419	756	357	212	300	95	117	100	53	106
21	26	150	308	935	500	513	428	92	95	85	48	103
22	27	120	200	1,200	599	825	473	85	80	66	63	80
23	27	123	129	1,360	572	855	536	82	72	63	56	61
24	27	117	114	1,360	618	878	590	78	70	152	43	51
25	27	95	111	1,200	648	1,820	618	72	85	120	38	44
26	27	85	108	1,360	906	2,460	618	102	85	100	36	40
27	27	85	106	1,520	960	2,620	688	95	90	108	36	37
28	27	111	103	1,570	942	2,160	810	103	100	143	37	35
29	27	143	136	1,420	-	1,800	1,000	189	85	176	35	33
30	27	129	200	1,230	-	1,570	1,090	244	68	126	33	30
31	28	-	244	1,110	-	1,340	-	244	-	92	33	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	762	35	16	24.6	0.049	0.06	1,510
November	2,807	268	28	93.6	.186	.21	5,570
December	4,644	500	72	150	.299	.34	9,210
Calendar year 1948	115,691	3,310	16	316	.629	8.57	229,500
January	19,406	1,570	100	626	1.25	1.44	38,490
February	17,769	1,110	284	635	1.26	1.32	35,240
March	25,788	2,620	212	832	1.66	1.91	51,150
April	18,236	1,140	244	608	1.21	1.35	36,170
May	11,235	1,420	72	362	.721	.83	22,280
June	4,372	581	57	146	.291	.32	8,670
July	3,689	446	47	119	.237	.27	7,320
August	2,419	236	33	78.0	.155	.18	4,800
September	1,949	228	30	65.0	.129	.14	3,870
Water year 1948-49	113,076	2,620	16	310	.618	8.37	224,300

Peak discharge (base, 1,900 sec.-ft.).- Mar. 26 (9 p.m.) 2,910 sec.-ft.

Note.- No gage-height record Dec. 17-28; discharge computed on basis of weather records and recorded range in stage.

Village Creek near Kountze, Tex.

Location.- Water-stage recorder, lat. 30°24', long. 94°16', at bridge on Kountze-Silsbee county highway, 1.2 miles upstream from Gulf, Colorado & Santa Fe Railway bridge, 3.2 miles northeast of Kountze, Hardin County, and 4½ miles downstream from Beech Creek. Datum of gage is 25.1 feet above mean sea level, datum of 1929.

Drainage area.- 837 square miles.

Records available.- May 1924 to November 1929, April 1939 to September 1949. October 1927 to November 1929 (discharge measurements only).

Average discharge.- 13 years (1924-27, 1939-49), 974 second-feet.

Extremes.- Maximum discharge during year, 7,770 second-feet Mar. 25 (gage height, 16.58 feet); minimum, 44 second-feet Oct. 10.

1924-27, 1939-49: Maximum discharge, 67,200 second-feet Nov. 26, 1940 (gage height, 27.6 feet, from floodmark), from rating curve extended above 35,000 second-feet by logarithmic plotting; minimum, 32 second-feet Sept. 28, 1939.

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

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	53	200	218	1,240	3,600	3,390	2,660	450	343	212	f112
2	51	53	184	237	1,100	3,820	4,060	2,230	373	274	178	162
3	50	52	167	664	1,080	3,490	3,490	1,650	280	248	156	212
4	50	52	156	730	1,210	2,400	2,960	1,050	230	314	136	f212
5	48	53	151	653	1,490	1,600	2,600	770	194	450	131	f167
6	48	52	141	598	1,520	1,080	2,320	634	172	358	146	141
7	46	53	136	482	1,350	876	2,000	547	162	321	162	131
8	46	55	136	350	1,050	790	1,630	482	172	254	224	122
9	46	57	136	280	1,050	730	1,240	434	280	212	307	119
10	47	59	131	248	1,520	672	1,380	388	230	184	380	119
11	47	60	126	230	1,780	790	2,320	373	303	162	388	167
12	46	62	123	218	2,040	1,130	2,230	366	547	151	294	280
13	46	70	121	212	2,360	1,350	1,870	358	615	94	242	230
14	47	73	121	200	2,660	1,540	1,490	307	482	94	218	224
15	50	80	121	194	2,270	1,940	1,050	274	418	173	172	f224
16	51	94	124	235	1,630	2,190	770	248	564	280	151	f184
17	51	107	131	554	1,100	2,150	653	236	790	294	136	f260
18	51	118	141	710	900	1,840	530	218	770	268	125	f373
19	49	184	156	832	1,100	1,320	450	206	493	230	119	373
20	51	230	151	790	1,350	876	664	200	328	194	113	388
21	51	273	146	688	1,150	1,210	1,430	189	287	162	109	300
22	51	547	146	1,390	998	3,110	2,040	184	314	167	104	224
23	51	451	146	1,940	948	5,060	4,380	178	268	151	99	184
24	51	280	141	1,970	924	6,270	5,570	167	405	167	94	156
25	51	230	141	1,970	1,080	7,370	4,330	162	750	189	91	141
26	53	194	136	1,840	2,240	6,270	3,200	156	730	242	92	131
27	53	189	141	1,520	3,300	4,900	2,500	156	900	403	95	124
28	52	236	156	1,460	3,710	3,600	3,950	162	1,100	547	94	116
29	51	242	178	1,430	-	2,770	4,330	200	786	466	94	109
30	52	212	178	1,400	-	2,270	3,390	287	482	358	91	104
31	52	-	189	1,430	-	2,500	-	403	-	268	88	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	1,541	53	46	49.7	0.059	0.07	3,060
November	4,471	547	52	149	.178	.20	8,870
December	4,551	200	121	147	.176	.20	9,030
Calendar year 1948	139,099	2,460	46	380	.454	6.17	275,900
January	25,673	1,970	194	828	.989	1.14	50,920
February	44,150	3,710	900	1,577	1.88	1.96	87,570
March	79,514	7,370	672	2,565	3.07	3.53	157,700
April	72,217	5,570	450	2,407	2.88	3.21	143,200
May	15,875	2,660	156	512	.612	.70	31,490
June	13,875	1,100	162	462	.552	.62	27,520
July	8,018	547	94	259	.310	.36	15,900
August	5,041	388	88	163	.195	.22	10,000
September	5,789	388	104	193	.231	.26	11,480
Water year 1948-49	280,715	7,370	46	769	.919	12.47	556,700

Peak discharge (base, 3,900 sec.-ft.).- Mar. 2 (8 p.m.) 4,060 sec.-ft.; Mar. 25 (9:30 a.m.) 7,770 sec.-ft.; Apr. 2 (7 a.m.) 4,190 sec.-ft.; Apr. 24 (8 a.m.) 5,920 sec.-ft.; Apr. 28 (8 p.m.) 4,760 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Note.- No gage-height record Nov. 26 to Dec. 6; discharge computed on basis of weather records and records for Neches River at Evadale.

Bridgeport Reservoir above Bridgeport, Tex.

Location.- Staff gage, lat. 33°13'20", long. 97°50'10", at Bridgeport Dam on West Fork Trinity River, 2.0 miles west of Bridgeport, Wise County, and 5.8 miles upstream from Big Sandy Creek. Datum of gage is 0.06 foot above mean sea level, datum of 1929 (levels by engineers of Tarrant County Water Control and Improvement District No. 1).

Drainage area.- 1,114 square miles (revised).

Records available.- April 1932 to September 1949.

Extremes.- Maximum contents observed during year, 173,000 acre-feet June 30 to July 4 (gage height, 813.0 feet); minimum observed, 76,500 acre-feet Jan. 16-24 (gage height, 797.1 feet).

1932-49: Maximum contents observed, 407,600 acre-feet Apr. 29, 30, 1942 (gage height, 836.2 feet); minimum observed at monthly intervals since appreciable storage began, 2,200 acre-feet Dec. 31, 1933.

Remarks.- Reservoir formed by a rolled-fill earthen-type dam, containing a concrete service spillway with three 20-foot bays, two of which are equipped with vertical lift gates, and the other left open, and two emergency spillways of natural ground. Dam completed Dec. 15, 1931; storage began Apr. 1, 1932. Capacity, 291,000 acre-feet between gage heights 751.4 feet (bottom of three 48-inch outlet conduits) and 826.1 feet (top of service spillway). Dead storage is negligible. Reservoir used for flood control and municipal supply for city of Fort Worth. Figures given herein represent total contents.

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

Monthly gage height and contents, water year October 1948 to September 1949

Date	Gage height (feet)+	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	803.6	110,600	-
Oct. 31	802.4	103,800	-6,800
Nov. 30	799.4	88,000	-15,800
Dec. 31	798.3	82,500	-5,500
Calendar year 1948	-	-	-52,300
Jan. 31	797.4	78,000	-4,500
Feb. 28	797.9	80,500	+2,500
Mar. 31	798.6	84,000	+3,500
Apr. 30	799.0	86,000	+2,000
May 31	808.9	144,300	+58,300
June 30	813.0	173,000	+28,700
July 31	811.8	164,600	-8,400
Aug. 31	809.9	151,300	-13,300
Sept.30	809.4	147,800	-3,500
Water year 1948-49	-	-	+37,200

+ Gage height at 7 a.m.

West Fork Trinity River near Boyd, Tex.

Location.- Water-stage recorder, lat. 33°04'30", long. 97°32'20", at bridge on State Highway 114, 0.8 mile downstream from Deep Creek, 1.2 miles east of Boyd, Wise County, 1.5 miles upstream from Little Blue Creek, and 2.1 miles upstream from Chicago, Rock Island & Pacific Railway bridge. Datum of gage is 655.1 feet above mean sea level, datum of 1929.

Drainage area.- 1,739 square miles (revised).

Records available.- January 1947 to September 1949.

Extremes.- Maximum discharge during year, 2,040 second-feet May 17 (gage height, 14.79 feet); no flow Oct. 25, 26.

1947-49: Maximum discharge, 2,270 second-feet Feb. 26, 1948 (gage height, 15.81 feet); no flow at times.

Maximum stage known, about 21.7 feet occurred sometime during period Apr. 20-30, 1942, from information by local resident.

Remarks.- Records fair. Flow regulated by Bridgeport Reservoir, 23 miles upstream. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.2	278	1.9	64	4.0	4.0	8.6	3.4	137	16	285	272
2	3.2	278	1.8	64	3.7	3.4	7.5	3.1	43	13	285	266
3	2.7	278	1.7	64	5.3	3.1	6.2	2.8	a24	11	285	272
4	2.3	278	1.6	64	6.0	3.0	5.3	2.8	a17	10	285	292
5	2.0	278	1.5	101	14	2.8	5.3	2.6	14	9.2	278	327
6	1.6	278	1.4	264	19	2.7	5.0	72	13	8.3	278	285
7	1.3	285	1.3	264	13	2.5	5.0	82	13	67	278	266
8	1.1	285	1.3	264	10	2.5	4.8	58	12	21	333	266
9	1.0	285	1.2	264	9.2	2.5	16	464	12	11	358	299
10	1.2	285	1.2	264	6.6	2.4	164	320	11	7.9	299	341
11	1.4	285	1.2	271	4.8	2.3	66	90	45	6.8	278	278
12	2.0	285	1.2	271	4.0	2.3	26	25	364	6.4	272	266
13	2.5	285	1.2	271	3.7	2.4	17	12	379	6.4	272	266
14	2.2	285	1.1	271	3.7	2.3	10	7.7	726	6.4	166	285
15	1.7	285	1.2	271	3.6	2.3	6.7	6.0	758	6.4	21	247
16	2.0	285	1.3	271	3.4	2.2	4.0	24	1,160	6.6	12	283
17	1.3	278	1.4	88	3.2	2.3	8.8	1,300	621	11	8.1	242
18	.8	285	1.5	14	3.0	2.3	4.2	788	91	54	23	136
19	.4	285	1.6	8.6	2.8	2.0	3.6	773	42	21	26	47
20	.4	292	1.7	6.4	3.4	2.2	4.6	184	28	12	11	20
21	.4	292	428	5.5	3.3	416	4.2	64	22	8.3	45	11
22	.2	94	664	5.2	3.2	466	4.2	38	18	6.0	28	12
23	.2	11	664	5.8	5.2	100	4.1	78	f32	4.8	108	242
24	.1	5.0	681	75	22	28	4.4	256	f348	4.0	259	635
25	0	3.6	664	19	29	19	4.4	273	801	3.9	266	635
26	0	2.8	664	12	16	505	4.2	1,080	908	149	266	150
27	102	2.7	212	17	6.8	426	4.0	1,120	f412	272	266	16
28	257	2.5	65	18	4.8	166	3.7	1,040	87	285	266	9.9
29	264	2.3	64	9.4	-	51	3.6	845	f31	285	266	7.3
30	271	2.0	64	6.4	-	22	3.6	807	20	285	266	6.0
31	271	-	64	4.8	-	11	-	461	-	285	272	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,201.2	271	0	38.7	2,380
November	6,075.9	292	2.0	203	12,050
December	4,262.3	681	1.1	137	8,450
Calendar year 1948	52,567.4	2,200	0	144	104,300
January	3,598.1	271	4.8	116	7,140
February	216.7	29	2.8	7.74	430
March	2,261.5	505	2.0	73.0	4,490
April	419.0	164	3.6	14.0	831
May	10,282.4	1,300	2.6	332	20,390
June	7,189	1,160	11	240	14,260
July	1,899.4	285	3.9	61.3	3,770
August	6,361.1	358	8.1	205	12,620
September	6,680.2	635	6.0	223	13,250
Water year 1948-49	50,446.8	1,300	0	138	100,100

Peak discharge (base, 2,000 sec.-ft.).- May 17 (2:30 a.m.) 2,040 sec.-ft.

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

f Computed on basis of partly estimated gage-height record.

Eagle Mountain Reservoir above Fort Worth, Tex.

Location.- Staff gage, lat. 32°52'35", long. 97°28'15", at Eagle Mountain Dam on West Fork Trinity River, 3.0 miles downstream from Ash Creek, 4.1 miles downstream from Walnut Creek, and 14.6 miles northwest of Fort Worth, Tarrant County. Datum of gage is at mean sea level, datum of 1929.

Drainage area.- 1,974 square miles (revised).

Records available.- February 1934 to September 1949.

Extremes.- Maximum contents observed during year, 230,100 acre-feet May 29 (elevation, 650.8 feet); minimum observed, 175,200 acre-feet Oct. 23-30 (elevation, 644.8 feet). 1934-49: Maximum contents observed, 333,500 acre-feet Apr. 26, 1942 (elevation, 659.9 feet); minimum observed at monthly intervals since appreciable storage began, 9,320 acre-feet June 30, 1934.

Remarks.- Reservoir formed by a composite rolled-fill and hydraulic-fill earthen-type dam, containing a concrete service spillway with four 25-foot bays, three of which are equipped with vertical lift gates. In addition there is an emergency spillway of natural ground. Dam completed Oct. 24, 1932, and storage began Feb. 28, 1934. Capacity, 214,000 acre-feet between elevations 599.9 feet (bottom of four 48-inch outlet conduits) and 649.1 feet (top of service spillway). Dead storage is negligible. Reservoir used to maintain level of Lake Worth from which city of Fort Worth derives its municipal supply. Figures given herein represent total storage.

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

Monthly elevation and contents, water year October 1948 to September 1949

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	645.1	177,900	-
Oct. 31	644.9	176,100	-1,800
Nov. 30	645.0	177,000	+900
Dec. 31	645.3	179,700	+2,700
Calendar year 1948	-	-	-25,200
Jan. 31	645.9	185,100	+5,400
Feb. 28	646.2	187,800	+2,700
Mar. 31	647.0	195,000	+7,200
Apr. 30	647.1	195,900	+900
May 31	650.6	228,200	+32,300
June 30	649.5	217,800	-10,400
July 31	647.7	201,300	-16,500
Aug. 31	647.6	200,400	-900
Sept.30	647.5	199,500	-900
Water year 1948-49	-	-	+21,600

† Elevation at 8 a.m.

West Fork Trinity River at Fort Worth, Tex.

Location.- Water-stage recorder above Texas Electric Service Co.'s concrete dam, lat. 32°46', long. 97°20', in old pump house of Texas Electric Service Co.'s plant in Fort Worth. Tarrant County, 150 feet upstream from Paddock viaduct and a quarter of a mile downstream from Clear Fork. Datum of gage is 519.2 feet above mean sea level (Texas Reclamation Department bench mark based on Coast & Geodetic Survey datum).

Drainage area.- 2,627 square miles (revised).

Records available.- October 1920 to September 1949. U. S. Weather Bureau has collected gage-height records in this vicinity since 1910.

Average discharge.- 29 years, 469 second-feet.

Extremes.- Maximum discharge during year, 64,300 second-feet May 17 (gage height, 25.91 feet); minimum, 25 second-feet probably Oct. 9 (gage height, 1.15 feet).

1920-49: Maximum discharge, 85,000 second-feet Apr. 25, 1922 (gage height, 23.95 feet), by slope-area method, data furnished by city engineer of Fort Worth; no flow at times.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow partly regulated by Bridgeport, Eagle Mountain, and Lake Worth Reservoirs (combined capacity, 527,000 acre-feet). Considerable diversion above station for municipal supply of city of Fort Worth. Several small diversions above Fort Worth.

Rating table, water year 1948-49, except periods of aquatic vegetation on control and period with levees broken (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 2-24, May 17-18)

1.15	25	2.1	417	6.0	4,700	16.0	14,200
1.2	38	2.3	552	8.0	6,870	17.0	16,300
1.3	72	2.5	702	10.0	8,440	18.0	19,200
1.5	140	3.0	1,100	12.0	9,760	20.0	26,700
1.7	214	3.5	1,550	14.0	11,600	22.0	35,600
1.9	305	4.0	2,140	15.0	12,700	24.0	46,300

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	41	38	38	38	162	210	176	1,660	254	236	240
2	48	38	38	41	38	158	351	158	1,450	236	187	267
3	45	38	38	41	38	137	249	140	1,270	218	103	206
4	45	41	38	38	38	126	203	140	1,180	208	65	180
5	45	38	41	38	38	120	195	140	1,070	191	58	172
6	45	41	41	38	38	113	180	140	972	162	65	162
7	41	38	41	38	38	99	165	123	892	137	69	154
8	30	38	38	38	38	96	151	195	804	116	184	203
9	25	38	38	38	38	103	173	966	757	103	172	206
10	89	38	35	38	38	92	203	382	780	103	169	176
11	48	38	38	38	38	89	165	176	844	96	172	165
12	45	48	52	38	38	89	162	140	908	92	109	162
13	45	48	41	38	52	89	147	130	892	89	82	234
14	45	48	52	35	52	89	133	123	1,220	89	69	618
15	45	52	48	38	41	89	123	123	1,220	103	101	452
16	45	45	41	58	38	86	116	599	836	204	65	192
17	45	30	41	62	38	86	109	42,500	741	356	58	106
18	41	28	41	38	38	86	106	f10,000	710	443	58	79
19	45	52	41	41	38	79	109	f1,660	702	298	55	69
20	45	35	41	41	41	82	266	1,140	679	144	55	58
21	45	33	41	41	41	540	199	f980	641	86	55	75
22	45	33	38	41	75	532	178	f1,080	611	72	52	109
23	45	33	38	373	598	162	707	2,440	611	72	52	140
24	45	35	38	260	2,410	130	360	1,550	1,450	79	55	137
25	45	38	38	75	574	3,300	214	948	f5,200	69	72	144
26	45	38	58	80	570	3,200	214	g7,780	1,370	92	69	158
27	45	38	35	245	240	1,030	215	2,500	559	130	69	165
28	41	38	35	130	184	417	386	1,320	380	165	69	169
29	41	38	38	41	-	320	236	g7,320	291	195	65	147
30	41	38	48	38	-	282	195	4,260	258	214	62	103
31	41	-	41	38	-	232	-	2,140	-	240	92	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,393	89	25	44.9	2,760
November	1,175	52	28	39.2	2,330
December	1,250	52	35	40.3	2,480
Calendar year 1948	86,127	6,840	25	235	170,800
January	2,175	373	35	70.2	4,310
February	5,486	2,410	38	196	10,880
March	12,215	3,300	79	394	24,230
April	6,418	707	106	214	12,730
May	91,469	42,500	123	2,951	181,400
June	30,958	5,200	258	1,032	61,400
July	5,054	443	69	163	10,020
August	2,844	236	52	91.7	5,640
September	5,448	618	58	182	10,810
Water year 1948-49	165,885	42,500	25	454	329,000

Peak discharge (base, 4,000 sec.-ft.).- Feb. 24 (5 a.m.) 5,600 sec.-ft.; Mar. 25 (6 p.m.) 8,330 sec.-ft.; May 17 (12:30 p.m.) 64,300 sec.-ft.; May 26 (1:30 p.m.) 13,700 sec.-ft.; May 29 (1 p.m.) 11,200 sec.-ft.; June 25 (7 a.m.) 8,140 sec.-ft.

f Computed on basis of partly estimated gage-height record.

g Computed from staff-gage readings.

Note.- No gage-height record Oct. 2 to Nov. 1, Nov. 25 to Dec. 2, Jan. 11, Jan. 15 to Feb. 14; discharge computed on basis of recorded range in stage, weather records, and records for station at Grand Prairie.

West Fork Trinity River at Grand Prairie, Tex.

Location.- Water-strage recorder, lat. 32°46', long. 96°59', 440 feet downstream from bridge on Grand Prairie-Sowers-Irving highway, 1 mile northeast of Grand Prairie, Dallas County, and 6 miles upstream from Mountain Creek. Datum of gage is 412.98 feet above mean sea level, datum of 1929.

Drainage area.- 3,070 square miles (revised).

Records available.- March 1925 to September 1949.

Average discharge.- 24 years, 626 second-feet.

Extremes.- Maximum discharge during year, 62,000 second-feet May 17 (gage height, 28.00 feet), from rating curve extended above 36,000 second-feet by logarithmic plotting; minimum, 65 second-feet Dec. 27.

1925-49: Maximum discharge, that of May 17, 1949; minimum observed, 3.2 second-feet June 6, 1925.

Maximum stage known, 29 feet in April 1922.

Remarks.- Records good except those above 36,000 second-feet, which are fair. Flow partly regulated by Bridgeport, Eagle Mountain, and Lake Worth Reservoirs (combined capacity, 527,000 acre-feet). City of Fort Worth diverts considerable water for municipal supply. Several small diversions above Fort Worth.

Revisions (water years).- W 628: 1925.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	116	72	75	81	110	415	389	288	f3,350	428	226	90
2	90	69	76	77	115	350	402	245	2,130	402	233	219
3	81	70	79	75	111	f332	520	228	1,800	376	191	300
4	75	70	78	76	107	f293	389	209	1,560	328	123	242
5	73	69	76	78	102	f264	345	195	1,410	308	86	200
6	75	68	73	78	98	f235	340	186	1,260	286	80	189
7	74	68	69	79	94	204	332	176	1,150	283	77	186
8	75	67	76	81	94	186	305	170	1,060	281	78	583
9	77	67	77	79	94	180	286	416	980	281	152	399
10	77	72	76	76	91	176	320	1,010	980	266	232	262
11	107	73	76	74	90	166	320	437	1,040	221	200	223
12	95	74	77	80	90	160	269	240	1,150	204	206	200
13	74	79	78	86	87	152	254	202	1,120	195	157	206
14	73	78	96	92	175	143	238	184	1,340	191	114	327
15	77	74	113	87	154	145	216	166	2,200	186	95	610
16	74	81	97	88	105	147	197	158	1,470	184	195	522
17	71	100	82	165	95	141	182	36,600	1,010	f206	156	281
18	68	81	80	110	91	138	176	34,800	896	402	100	169
19	68	75	79	113	90	134	176	17,200	868	481	97	120
20	70	78	73	112	88	127	206	7,140	840	f376	92	108
21	71	84	73	88	84	432	402	1,820	798	f266	90	105
22	72	73	76	88	84	1,130	308	1,440	756	f221	83	101
23	73	71	78	93	1,270	597	389	2,510	756	172	83	127
24	73	75	77	844	6,780	290	1,160	3,840	898	138	86	168
25	68	75	75	578	6,620	1,250	514	2,000	4,680	a122	85	168
26	71	74	70	273	4,040	7,720	415	4,800	7,580	a110	91	168
27	75	70	68	715	1,140	5,770	402	10,500	f2,730	104	95	189
28	71	73	72	738	542	1,300	383	8,060	868	127	88	202
29	72	70	80	299	-	700	548	4,800	616	158	84	206
30	72	69	78	149	-	548	376	9,010	494	189	85	191
31	73	-	80	129	-	468	-	8,340	-	204	88	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,381	116	68	76.8	4,720
November	2,219	100	67	74.0	4,400
December	2,433	113	68	78.5	4,830
Calendar year 1948	135,157	10,400	67	369	268,100
January	5,781	844	74	186	11,470
February	22,641	6,780	84	809	44,910
March	24,293	7,720	127	784	48,180
April	10,759	1,160	176	359	21,340
May	157,370	36,600	158	5,076	312,100
June	47,790	7,580	494	1,593	94,790
July	7,696	481	104	248	15,260
August	3,848	233	77	124	7,630
September	7,061	610	90	235	14,010
Water year 1948-49	294,272	36,600	67	806	583,600

Peak discharge (base, 5,000 sec.-ft.). Feb. 25 (2 a.m.) 9,160 sec.-ft.; Feb. 26 (11:30 a.m.) 5,040 sec.-ft.; May 26 (6 p.m.) 8,400 sec.-ft.; May 17 (3:45 p.m.) 62,000 sec.-ft.; May 27 (8 p.m.) 11,700 sec.-ft.; May 31 (3 a.m.) 9,640 sec.-ft.; June 26 (11 a.m.) 8,100 sec.-ft.

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

f Computed on basis of partly estimated gage heights.

Trinity River at Dallas, Tex.

Location.- Water-stage recorder, lat. 32°47', long. 96°48', at Commerce Street viaduct in Dallas, Dallas County, 5½ miles downstream from confluence of West and Elm Forks. Datum of gage is 368.14 feet above mean sea level, datum of 1929.

Drainage area.- 6,120 square miles (revised).

Records available.- July 1903 to July 1930, October 1932 to September 1949 (January 1907 to September 1920, monthly records only, in Water-Supply Paper 850). October 1898 to December 1899 (gage heights only) at site 2 miles upstream. July 1930 to September 1932 at site 6 miles downstream. U. S. Weather Bureau has collected gage-height records in this vicinity since 1903.

Average discharge.- 46 years (1903-49), 1,578 second-feet.

Extremes.- Maximum discharge during year, 82,500 second-feet May 18 (gage height, 46.93 feet); minimum, 79 second-feet Dec. 11 (gage height, 12.16 feet).

1903-49: Maximum discharge 184,000 second-feet May 25, 1908 (gage height, 52.6 feet), from rating curve extended above 109,000 second-feet; minimum observed for periods 1903-6, 1920-49, 6.8 second-feet Sept. 11, 1924.

Remarks.- Records good except those for periods of no recorder record and those for periods of backwater from return of overbank storage, which are fair. Flow partly regulated by Bridgeport, Eagle Mountain, Lake Worth, Mountain Creek, and Lake Dallas Reservoirs (combined capacity, 757,000 acre-feet). Cities of Fort Worth and Dallas divert water for municipal supply. During the current year city of Dallas diverted 59,000 acre-feet of water from river above station and returned 38,000 acre-feet of sewage effluent below station. Several small diversions of West Fork above Fort Worth.

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

Rating table, water year 1948-49, except periods of backwater from return of over-bank storage (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Dec. 17 to Jan. 23)

12.2	86	14.0	600	25.0	6,700	35.0	18,000
12.3	106	14.5	790	28.0	8,500	37.0	24,800
12.4	128	15.0	1,010	30.0	9,800	39.0	32,400
12.6	175	17.0	2,000	32.0	11,700	42.0	46,800
13.0	280	19.0	3,100	33.0	13,200	44.0	58,000
13.5	430	22.0	4,900	34.0	15,200	46.0	74,000

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	400	135	132	132	205	921	548	373	4,900	400	295	98
2	376	126	137	141	208	512	478	307	2,550	400	295	162
3	373	121	143	148	225	460	582	292	1,800	400	283	313
4	367	117	135	119	228	415	478	253	1,500	415	220	286
5	358	117	152	124	200	379	430	230	1,350	430	165	240
6	367	110	152	126	175	352	397	212	1,250	394	132	218
7	376	119	117	128	165	325	370	200	1,180	364	170	205
8	295	130	100	132	162	496	340	224	1,060	328	192	390
9	188	119	86	139	148	393	313	556	1,060	274	212	1,730
10	223	130	86	139	141	277	1,600	3,330	f898	242	319	1,110
11	232	128	86	132	128	253	1,800	958	1,040	218	253	388
12	259	148	86	137	150	235	680	346	1,950	188	232	283
13	210	148	92	135	1,320	240	400	280	1,800	192	195	265
14	192	162	268	146	2,040	228	358	235	9,020	322	141	379
15	198	158	337	146	460	220	289	212	19,700	310	110	618
16	190	160	210	172	238	210	253	202	14,800	316	121	635
17	208	168	175	210	178	212	242	25,400	5,590	382	228	430
18	200	146	185	228	168	210	228	73,600	2,410	478	148	430
19	192	128	175	185	150	192	222	47,100	1,400	400	119	265
20	190	126	178	190	146	198	553	27,500	1,080	370	113	222
21	190	146	152	148	172	815	661	8,090	898	218	143	215
22	205	135	165	152	190	2,660	726	2,890	770	152	141	208
23	198	119	132	175	4,760	2,280	346	4,240	730	198	100	198
24	195	139	98	5,840	17,100	673	1,280	5,480	1,160	190	108	215
25	202	135	104	7,500	22,100	2,420	1,750	2,970	5,600	162	102	228
26	190	132	128	3,500	17,700	11,000	600	7,900	9,520	148	100	220
27	195	130	119	4,260	5,860	12,900	886	13,900	5,170	202	110	220
28	190	146	110	5,980	1,400	5,840	1,170	12,700	1,720	215	108	225
29	168	141	126	2,390	-	2,160	582	7,240	730	228	98	235
30	130	121	126	669	-	f1,250	460	12,400	548	250	94	235
31	132	-	124	326	-	f652	-	9,020	-	295	96	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,389	400	130	238	14,660
November	4,040	168	110	135	8,010
December	4,416	337	86	142	8,760
Calendar year 1948	450,678	41,100	86	1,231	893,900
January	33,949	7,500	119	1,095	67,340
February	76,117	22,100	128	2,718	151,000
March	49,378	12,900	192	1,593	97,940
April	19,022	1,800	222	634	37,730
May	268,640	73,600	200	8,666	532,800
June	103,184	19,700	548	3,439	204,700
July	9,081	478	148	293	18,010
August	5,143	319	94	166	10,200
September	10,866	1,730	98	362	21,550
Water year 1948-49	591,225	73,600	86	1,620	1,173,000

Peak discharge (base, 11,000 sec.-ft.).- Feb. 24 (11 p.m.) 25,900 sec.-ft.; Mar. 27 (12:30 a.m.) 13,300 sec.-ft.; May 18 (4 a.m.) 82,500 sec.-ft.; May 28 (3:30 a.m.) 14,400 sec.-ft.; June 15 (3 p.m.) 21,400 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Note.- No recorder record June 21-23, June 29 to July 26; discharge computed from graph based on once-daily wire-weight gage readings. Backwater from return flow from overbank storage Jan. 25-29, Feb. 26 to Mar. 1, Mar. 27-30, May 21-26, May 28 to June 8, June 16-20, 26-28; discharge computed on basis of loop curves.

Trinity River near Rosser, Tex.

Location.- Water-stage recorder, lat. 32°25'40", long. 96°27'50", at bridge on State Highway 34, 1.4 miles downstream from Texas & New Orleans Railroad bridge, 1.9 miles downstream from East Fork, and 2.5 miles south of Rosser, Kaufman County. Datum of gage is 302.6 feet above mean sea level, datum of 1929.

Drainage area.- 8,162 square miles (revised).

Records available.- November 1938 to September 1949. July 1924 to September 1925 (October 1924 to September 1925, gage heights only) at site 1.7 miles upstream.

Average discharge.- 10 years (1939-49), 3,635 second-feet.

Extremes.- Maximum discharge during year, 51,900 second-feet May 21 (gage height, 38.04 feet); minimum, 133 second-feet Dec. 13 (gage height, 4.45 feet).

1924, 1938-49: Maximum discharge not determined, but occurred Apr. 23 or 24, 1942, following numerous breaks in levee system on both banks; maximum gage height, 41.55 feet Apr. 22, 1942, just prior to levee breaks: minimum discharge, 34 second-feet Sept. 8-11, 1924.

Flood of May 1908 reached a stage of about 33.0 feet, present site and datum, from information by Corps of Engineers (discharge believed to have been approximately the same as that of Apr. 23 or 24, 1942).

Remarks.- Records good except those for period of no gage-height record, which are fair. Flow partly regulated by reservoirs above Dallas. Levee system constructed in 1916. Cities of Fort Worth and Dallas divert considerable water for municipal supply. Several small diversions on West Fork above Fort Worth.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 25 to Mar. 1, May 19, Sept. 20-30)

4.5	140	14.0	2,460	29.0	12,600
5.0	213	17.0	3,640	30.0	15,300
7.0	530	20.0	5,100	31.0	19,400
8.0	718	23.0	6,800	34.0	33,100
10.0	1,170	26.0	9,000	37.0	47,200
12.0	1,750	28.0	11,100		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	564	184	198	192	f5,900	23,000	5,810	2,420	14,300	1,050	393	140
2	497	196	189	195	5,300	12,500	3,100	2,460	14,000	866	401	144
3	465	192	198	195	4,700	6,620	1,990	2,200	12,800	800	401	157
4	449	192	206	206	3,740	3,840	1,500	2,500	9,020	758	401	313
5	449	181	198	194	2,880	2,590	1,270	2,950	4,860	738	361	353
6	433	178	198	177	2,310	1,920	1,120	1,890	3,300	718	297	305
7	449	168	213	188	1,850	1,470	1,050	910	2,730	678	243	273
8	449	174	206	194	1,590	1,300	976	778	2,310	638	250	266
9	401	183	170	198	1,440	1,300	910	698	1,890	564	281	453
10	281	194	151	196	1,300	1,330	932	822	1,330	497	305	1,380
11	361	189	146	206	1,170	1,050	1,930	f2,770	1,250	433	385	1,340
12	337	206	146	206	785	954	2,880	1,770	1,500	385	385	576
13	337	220	139	213	1,070	932	2,100	800	2,090	337	337	385
14	297	236	148	213	4,570	910	1,560	638	2,270	329	305	329
15	266	236	470	213	5,400	866	1,440	547	6,160	433	236	393
16	266	258	564	213	3,640	778	1,100	497	17,000	513	190	600
17	289	281	377	266	1,940	758	778	813	26,200	582	183	778
18	281	243	281	305	1,360	738	678	5,590	24,800	618	285	564
19	281	228	289	361	1,250	718	638	25,000	17,600	638	250	497
20	266	206	258	297	1,070	678	638	47,700	10,200	638	213	401
21	266	192	250	281	844	1,270	1,190	50,000	3,860	582	196	321
22	258	195	243	243	822	2,950	1,270	34,500	1,960	465	176	289
23	266	213	236	228	f1,030	3,740	1,380	23,000	1,410	353	213	281
24	266	198	236	440	f9,970	3,960	932	17,600	1,250	345	189	266
25	258	198	181	4,630	19,400	2,880	1,380	13,700	1,900	345	f157	266
26	266	206	154	6,560	27,600	3,620	2,240	11,000	4,700	313	161	281
27	258	198	160	10,300	34,000	6,960	2,480	9,090	6,560	297	153	f281
28	266	195	184	17,200	33,100	9,030	f2,260	9,360	7,010	329	155	f289
29	266	192	181	18,600	-	13,800	2,800	10,600	4,680	329	153	297
30	250	206	183	14,100	-	15,300	2,200	12,000	1,690	337	140	305
31	213	-	195	f8,340	-	10,600	-	13,400	-	353	143	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	10,251	564	213	331	20,330
November	6,138	281	168	205	12,170
December	6,948	564	139	224	13,780
Calendar year 1948	758,385	33,300	139	2,072	1,504,000
January	85,350	18,600	177	2,753	169,300
February	180,031	34,000	785	6,430	357,100
March	138,462	23,200	678	4,467	274,600
April	50,512	5,810	638	1,684	100,200
May	208,003	50,000	497	9,936	610,900
June	210,630	26,200	1,250	7,021	417,800
July	16,261	1,050	297	525	32,250
August	7,938	401	140	256	15,740
September	12,523	1,380	140	417	24,840
Water year 1948-49	1,033,047	50,000	139	2,830	2,049,000

Peak discharge (base, 13,000 sec.-ft.).- Jan. 29 (1 a.m.) 19,400 sec.-ft.; Feb. 27 (10 p.m.) 35,000 sec.-ft.; Mar. 30 (5 a.m.) 15,600 sec.-ft.; May 21 (2 a.m.) 51,900 sec.-ft.; June 1 (6 p.m.) 14,600 sec.-ft.; June 17 (8 p.m.) 27,600 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Note.- No gage-height record June 30 to July 22; discharge computed on basis of weather records and records for nearby stations.

Trinity River near Oakwood, Tex.

Location.- Water-stage recorder, lat. 31°39', long. 95°47', at bridge on U. S. Highways 79 and 84, 1½ miles upstream from International-Great Northern Railroad bridge and 6 miles northeast of Oakwood, Leon County. Datum of gage is 175.03 feet above mean sea level, datum of 1929.

Drainage area.- 12,912 square miles (revised).

Records available.- July 1932 to September 1949. January 1905 to July 1932 at site 1½ miles downstream (January 1905 to September 1923, monthly and yearly records only, in Water-Supply Papers 850 and 878). U. S. Weather Bureau has collected gage-height records in this vicinity since 1904.

Average discharge.- 26 years (1923-49), 5,306 second-feet.

Extremes.- Maximum discharge during year, 33,500 second-feet Mar. 5 (gage height, 42.35 feet); minimum, 196 second-feet Sept. 6.

1923-49: Maximum discharge, 153,000 second-feet Apr. 29, 1942 (gage height, 51.64 feet); minimum observed for period 1924-49, 22 second-feet Aug. 18, 1934.

Flood of June 4, 1908, reached a stage of about 52.2 feet, present site and datum, from information by U. S. Weather Bureau (discharge, about 164,000 second-feet).

Remarks.- Records good. Flow partly regulated by reservoirs above Dallas. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	491	305	253	312	14,700	16,600	10,100	5,750	26,900	6,200	439	214
2	585	298	272	319	15,100	18,900	10,800	4,780	25,100	4,360	407	214
3	708	286	272	333	15,400	24,900	11,600	4,200	22,400	2,320	407	202
4	625	272	286	319	15,500	31,800	11,900	3,770	20,400	1,360	439	202
5	509	260	286	292	15,100	32,900	9,480	3,200	18,700	1,080	455	202
6	491	253	272	298	12,900	31,800	4,960	3,040	16,900	980	473	196
7	491	246	272	305	8,570	29,200	2,680	3,320	15,200	932	473	234
8	473	240	279	326	4,980	25,100	2,030	3,040	13,400	980	491	333
9	645	208	279	340	3,360	18,600	1,790	2,190	9,720	1,000	399	439
10	750	202	272	340	2,610	10,100	2,810	1,850	5,360	884	354	347
11	625	227	286	305	2,250	5,280	7,890	2,000	3,040	750	361	305
12	509	240	286	305	2,030	2,890	10,400	2,120	2,220	645	455	422
13	407	253	266	326	1,880	2,410	10,600	3,080	1,820	605	625	1,160
14	361	266	234	326	1,670	2,090	8,650	3,160	2,410	565	545	1,230
15	407	260	260	333	1,390	1,790	5,650	2,190	3,010	545	473	786
16	375	272	439	851	2,690	1,610	3,480	1,390	2,970	527	391	491
17	361	305	347	1,030	4,960	1,500	2,480	1,030	4,650	473	368	407
18	326	347	530	932	5,550	1,420	2,090	908	7,360	608	354	439
19	312	361	1,030	932	4,460	1,340	1,670	838	9,080	1,380	312	625
20	319	509	838	1,030	2,820	1,280	1,390	2,550	10,400	1,100	279	750
21	319	750	605	1,310	2,280	1,870	1,280	5,750	11,800	908	286	666
22	319	585	545	1,470	1,940	2,120	1,200	8,020	13,200	816	312	545
23	319	399	491	1,310	1,670	4,560	1,780	10,300	14,200	860	266	455
24	312	333	439	980	1,470	6,440	2,930	12,300	15,100	908	253	368
25	305	312	407	772	3,700	7,300	2,680	14,100	15,500	884	260	319
26	298	305	383	1,040	9,690	8,860	2,190	15,800	11,800	908	260	305
27	305	305	368	4,700	12,700	10,300	2,120	17,900	5,480	908	266	298
28	298	298	354	9,820	14,700	9,560	3,420	20,800	4,110	1,150	246	292
29	298	279	340	12,200	-	9,400	5,350	26,500	5,250	816	227	298
30	298	253	326	13,500	-	9,640	6,020	28,600	6,260	565	220	298
31	298	-	312	14,200	-	9,800	-	28,200	-	491	214	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	13,139	750	298	424	26,060
November	9,429	750	202	314	18,700
December	11,829	1,030	234	382	23,460
Calendar year 1948	1,394,877	47,700	202	3,811	2,767,000
January	70,856	14,200	292	2,286	140,500
February	186,170	15,500	1,390	6,649	369,300
March	341,360	32,900	1,280	11,010	677,100
April	151,420	11,900	1,200	5,047	300,300
May	242,676	28,600	838	7,828	481,300
June	323,740	26,900	1,820	10,790	642,100
July	36,408	6,200	473	1,174	72,210
August	11,310	625	214	365	22,430
September	13,042	1,230	198	435	25,870
Water year 1948-49	1,411,379	32,900	198	3,867	2,799,000

Peak discharge (base, 17,000 sec.-ft.).- Mar. 5 (4 a.m. to 1 p.m.) 33,500 sec.-ft.; May 30 (10 a.m. to 9 p.m.) 28,600 sec.-ft.

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Trinity River near Midway, Tex.

Location.- Wire-weight gage, lat. 31°04;40", long. 95°42'00", at bridge on State Highway 21, 5 miles northeast of Midway, Madison County, and 8 miles downstream from Boggy Creek. Datum of gage is 117.6 feet above mean sea level, datum of 1929.

Drainage area.- 14,484 square miles (revised).

Records available.- April 1939 to September 1949.

Average discharge.- 10 years, 7,773 second-feet.

Extremes.- Maximum discharge during year, 25,600 second-feet Mar. 10 (gage height, 34.20 feet); minimum observed, 290 second-feet Sept. 7, 8.

1939-49: Maximum discharge, 146,000 second-feet May 1, 1942 (gage height, 48.58 feet); minimum observed, 100 second-feet Oct. 4, 1939.

Maximum stage known prior to construction of levees in 1916, about 45.0 feet in May 1890 (discharge not determined), from information by local residents. Flood of June 9, 1908, reached a stage of 44.3 feet, from floodmarks and from information by local residents. Flood of May 27, 1930, reached a stage of 46.7 feet, from floodmark (flow confined within levees).

Remarks.- Records good except those for periods of doubtful or no gage-height record, which are fair. Gage read twice daily, oftener during high stages. Flow partly regulated by reservoirs above Dallas.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	475	365	390	a535	12,300	11,300	10,500	6,130	19,900	8,060	582	330
2	505	378	365	550	13,200	13,400	10,600	6,200	21,200	6,270	520	305
3	520	378	340	535	13,600	14,400	9,980	5,500	22,000	5,240	490	300
4	550	365	325	505	13,900	15,700	9,340	4,660	22,400	3,480	460	305
5	565	352	340	490	14,000	17,800	7,460	4,140	22,400	2,210	460	305
6	535	335	352	475	14,100	19,800	5,550	3,660	21,900	1,690	490	305
7	505	325	365	475	13,500	22,200	4,200	3,300	20,800	1,420	600	295
8	475	320	378	445	11,300	23,700	4,140	3,360	19,200	1,240	635	295
9	505	320	378	460	7,750	24,900	2,880	3,240	17,200	1,190	705	325
10	550	338	338	475	6,830	25,600	a2,650	2,880	14,500	1,240	670	745
11	618	352	322	490	3,600	24,900	a3,840	2,260	9,560	1,140	550	805
12	670	378	325	490	3,180	20,200	a6,060	2,160	5,040	1,020	475	600
13	618	390	378	475	3,060	13,200	8,350	2,260	3,480	885	445	505
14	582	415	a402	460	2,760	9,420	9,420	2,760	2,430	805	520	688
15	535	352	d440	490	2,430	6,900	8,950	3,240	2,700	745	618	1,320
16	505	415	d560	a925	1,990	4,920	7,110	2,760	3,360	745	618	1,100
17	475	445	d760	1,600	2,760	3,660	4,780	1,890	3,360	785	520	845
18	430	460	d1,000	a1,890	4,460	2,940	3,360	1,420	4,020	705	475	652
19	402	490	d1,200	1,890	4,780	2,320	2,650	1,190	5,920	635	505	618
20	402	520	d1,300	2,210	5,040	2,100	2,880	1,060	7,460	825	460	635
21	430	550	d1,400	2,700	5,300	a4,200	2,880	1,520	8,650	1,190	402	652
22	445	582	d1,000	3,300	3,780	8,350	3,000	4,400	9,500	1,060	378	688
23	415	618	d800	3,840	2,480	9,260	2,320	6,410	10,500	965	378	705
24	390	600	d700	3,420	2,160	9,020	2,260	7,980	11,800	945	378	600
25	402	600	a630	1,940	2,380	7,750	3,060	9,420	13,000	925	340	520
26	402	550	582	1,790	4,700	8,280	3,600	10,800	13,600	925	335	445
27	378	430	550	3,000	7,600	8,950	4,660	12,000	13,000	905	340	390
28	365	352	520	5,640	8,800	9,900	3,900	13,400	9,270	985	340	390
29	365	352	505	6,760	-	10,300	4,200	14,800	5,570	1,020	352	390
30	352	378	a490	7,180	-	10,300	5,180	16,500	5,240	1,060	352	365
31	365	-	a490	a9,660	-	10,400	-	18,300	-	785	335	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	14,731	670	352	475	29,220
November	12,705	618	320	424	25,200
December	17,925	1,400	322	578	35,550
Calendar year 1948	1,469,452	29,000	320	4,015	2,914,000
January	65,095	9,660	445	2,100	129,100
February	191,740	14,100	1,990	6,848	380,300
March	376,070	25,600	2,100	12,130	745,900
April	159,710	10,600	2,260	5,324	316,800
May	179,600	18,300	1,060	5,794	356,200
June	348,960	22,400	2,430	11,630	692,200
July	49,095	6,270	635	1,584	97,380
August	14,728	705	335	475	29,210
September	16,423	1,320	295	547	32,570
Water year 1948-49	1,446,782	25,600	295	3,964	2,870,000

Peak discharge (base, 20,000 sec.-ft.).- Mar. 10 (1 to 5 p.m.) 25,600 sec.-ft.; June 4 (1 p.m.) to June 5 (10 a.m.) 22,600 sec.-ft.

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

d Doubtful gage-height record; discharge computed on basis of weather records and records for stations near Oakwood and at Riverside.

Trinity River at Riverside, Tex.

Location.- Wire-weight gage, lat. 30°52', long. 95°24', at bridge on State Highway 45, 1,200 feet upstream from International-Great Northern Railroad bridge, 0.5 mile north of Riverside, Walker County, and three-quarters of a mile downstream from Harmon Creek. Datum of gage is 89.86 feet above mean sea level, datum of 1929.

Drainage area.- 15,619 square miles (revised).

Records available.- January 1903 to December 1906, October 1923 to September 1949. U. S. Weather Bureau has collected gage-height records in this vicinity since 1903.

Average discharge.- 29 years (1903-6, 1923-49), 7,189 second-feet.

Extremes.- Maximum discharge during year, 25,800 second-feet Mar. 11 (gage height, 24.50 feet); minimum observed, 292 second-feet Sept. 7.

1903-6, 1923-49: Maximum discharge, 121,000 second-feet May 5, 1942 (gage height, 52.75 feet, from floodmark); minimum observed, 70 second-feet Aug. 20-26, Sept. 8-13, 1925, Sept. 29 to Oct. 4, 1931.

Flood of June 11, 1908, reached a stage of 50.1 feet, present site and datum (discharge, 100,000 second-feet).

Remarks.- Records good. Gage read twice daily. Flow partly regulated by reservoirs above Dallas.

Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions(water year).- W 828: 1935 (mean discharge).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	485	393	457	626	13,100	15,800	12,100	7,400	19,900	6,210	840	322
2	497	393	449	599	14,000	14,700	11,900	7,500	21,300	6,840	638	322
3	505	393	421	572	15,000	15,200	11,600	7,020	22,300	6,750	530	310
4	555	397	401	535	15,500	16,400	11,700	6,030	22,900	5,220	520	308
5	632	389	413	560	15,600	18,100	12,500	5,220	23,400	3,420	501	300
6	738	379	425	572	15,500	19,900	12,400	4,590	23,400	2,190	520	300
7	687	373	429	577	15,100	21,600	10,800	3,960	22,900	1,550	626	292
8	610	355	425	530	14,000	23,200	7,800	3,600	22,000	1,270	670	302
9	550	346	421	530	11,100	24,400	4,950	3,780	20,500	1,170	774	367
10	566	346	405	545	7,500	25,300	5,040	3,510	18,500	1,080	822	425
11	572	340	433	582	4,860	25,800	4,770	2,910	14,800	1,110	786	887
12	698	328	441	582	3,690	25,200	4,770	2,350	9,340	1,020	638	930
13	786	325	445	577	3,070	21,400	8,300	2,270	5,580	900	540	682
14	714	337	449	550	2,830	12,600	10,200	2,430	4,320	870	489	566
15	604	389	449	560	2,590	6,210	10,800	3,150	4,140	900	577	1,020
16	515	473	477	1,310	2,350	4,050	9,700	3,420	4,410	726	704	1,400
17	461	535	621	1,910	2,110	3,240	7,500	2,670	4,320	714	682	1,270
18	461	577	828	2,590	3,010	2,750	5,220	1,870	3,780	726	594	1,020
19	457	535	1,050	3,070	5,130	2,430	3,870	1,300	a5,130	648	535	900
20	445	505	1,140	2,670	6,120	2,190	12,800	1,080	6,930	594	515	990
21	425	510	1,270	4,630	5,490	8,060	15,000	1,020	8,400	750	520	828
22	409	525	1,440	7,200	4,230	15,100	17,900	1,710	9,400	1,140	441	840
23	409	660	1,240	6,300	3,240	15,000	15,100	5,340	10,500	1,140	382	870
24	413	870	1,050	5,580	2,750	14,700	8,200	7,700	11,700	1,020	376	774
25	405	768	900	4,590	4,590	12,700	5,940	9,400	13,700	990	385	648
26	409	632	798	3,330	15,700	10,100	5,850	10,800	14,500	990	376	550
27	409	545	726	3,070	12,400	10,500	6,840	12,400	14,700	990	343	481
28	409	485	676	5,000	15,200	11,300	7,020	13,700	13,100	960	334	425
29	401	461	714	8,000	-	12,000	6,570	15,100	9,000	1,080	340	379
30	421	457	665	10,700	-	12,200	6,930	16,700	6,930	1,140	352	361
31	421	-	632	12,400	-	12,600	-	18,400	-	1,110	343	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	16,069	786	401	518	31,870
November	14,021	870	325	467	27,810
December	20,690	1,440	401	667	41,040
Calendar year 1948	1,648,883	28,500	325	4,505	3,271,000
January	90,847	12,400	530	2,930	180,200
February	235,760	15,700	2,110	8,420	467,600
March	434,730	25,800	2,190	14,020	862,300
April	274,070	17,900	3,870	9,136	543,600
May	188,330	18,400	1,020	6,075	373,500
June	391,780	23,400	3,780	13,060	777,100
July	55,218	6,840	594	1,781	109,500
August	16,693	840	334	538	33,110
September	18,869	1,400	292	629	37,430
Water year 1948-49	1,757,077	25,800	292	4,814	3,485,000

Peak discharge (base, 24,000 sec.-ft.).- Mar. 11 (10 a.m. to 11 p.m.) 25,800 sec.-ft.

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

Trinity River at Romayor, Tex.

Location.- Water-stage recorder, lat. 30°25'30", long. 94°51'05", at county highway bridge 1.9 miles south of Romayor, Liberty County, 2.0 miles downstream from Gulf, Colorado & Santa Fe Railway bridge, and 4½ miles downstream from Big Creek. Datum of gage is 35.92 feet above mean sea level, datum of 1929.

Drainage area.- 17,192 square miles (revised).

Records available.- October 1943 to September 1949. May 1924 to September 1943 at site 2.0 miles upstream.

Average discharge.- 25 years (1924-49), 8,040 second-feet.

Extremes.- Maximum discharge during year, 31,900 second-feet Apr. 23 (gage height, 22.07 feet); minimum, 402 second-feet Sept. 8.
1924-49: Maximum discharge, 111,000 second-feet May 9, 1942 (gage height, 35.8 feet, from floodmarks, present site and datum); minimum observed, 132 second-feet Aug. 21, 22, 1925.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow partly regulated by reservoirs above Dallas. Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	595	490	578	745	11,800	19,100	14,600	7,230	18,300	6,610	1,190	508
2	578	490	560	725	12,800	18,100	13,000	7,360	19,900	5,710	1,140	508
3	578	490	542	765	14,100	16,500	12,500	7,230	21,300	6,040	975	472
4	560	490	542	705	15,600	16,300	11,800	6,730	22,200	a6,150	875	472
5	578	472	525	665	16,300	17,100	11,800	5,930	23,000	a5,600	785	455
6	595	490	508	630	16,100	18,700	12,300	5,070	23,200	a4,680	765	438
7	630	472	490	630	15,900	20,300	12,000	4,480	23,400	a3,630	765	420
8	705	472	490	612	15,600	21,800	10,800	4,010	23,200	a2,460	925	402
9	705	472	490	612	15,200	23,200	8,160	3,630	22,400	a1,910	1,800	420
10	665	455	490	612	13,900	24,700	5,710	3,540	21,300	a1,630	1,840	680
11	630	455	490	595	9,590	25,700	5,600	3,440	19,700	1,440	1,340	925
12	630	455	490	578	6,260	26,000	5,490	3,170	16,900	1,370	1,050	875
13	612	472	508	595	4,770	25,700	4,870	2,720	12,500	1,340	925	875
14	665	472	508	595	3,820	23,400	6,610	2,480	8,440	1,310	785	1,020
15	745	455	508	612	3,260	17,000	8,720	2,380	8,300	1,250	705	925
16	745	472	525	725	3,080	9,870	9,560	2,630	8,860	1,440	665	1,920
17	665	595	525	1,090	2,810	6,370	9,140	3,080	7,620	1,310	665	2,460
18	612	765	525	2,810	2,460	5,170	7,490	2,900	6,970	1,110	705	2,060
19	560	785	612	2,990	2,380	4,480	5,490	2,300	5,600	1,020	705	1,660
20	542	745	785	2,990	3,920	3,920	6,340	1,910	5,600	1,000	665	1,600
21	542	685	950	3,360	5,270	7,770	19,000	a1,560	6,970	975	630	1,530
22	542	630	1,050	7,960	5,710	26,800	23,200	a1,280	8,580	950	595	1,220
23	525	630	1,190	10,500	4,870	24,500	31,600	a1,220	9,700	1,000	595	1,020
24	508	630	1,280	8,580	3,820	20,700	24,000	3,140	11,100	1,340	g542	a 900
25	490	665	1,160	6,850	3,990	21,500	14,400	5,710	12,700	1,500	g508	a 785
26	490	900	1,000	5,380	20,900	20,700	9,140	8,020	14,800	1,370	472	a 725
27	490	875	875	4,300	27,400	13,400	9,420	10,000	15,600	1,250	472	a 685
28	508	765	808	3,920	20,900	11,800	10,700	11,800	15,200	1,220	472	a 648
29	508	665	785	4,820	-	11,600	9,000	13,500	13,400	1,160	455	a 630
30	490	612	765	6,970	-	12,300	7,750	15,200	9,860	1,140	438	a 612
31	490	-	765	9,860	-	14,800	-	16,700	-	1,160	420	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	18,178	745	490	586	36,060
November	17,521	900	455	584	34,750
December	21,319	1,280	490	688	42,290
Calendar year 1948	1,915,627	28,500	455	5,234	3,800,000
January	92,781	10,500	578	2,993	184,000
February	282,510	27,400	2,380	10,090	560,400
March	529,280	26,800	3,920	17,070	1,050,000
April	340,190	31,600	4,870	11,340	674,800
May	170,330	16,700	1,220	5,495	337,800
June	436,600	23,400	5,600	14,550	866,000
July	70,075	6,610	950	2,280	139,000
August	24,869	1,840	420	802	49,330
September	27,850	2,460	402	928	55,240
Water year 1948-49	2,031,503	31,600	402	5,566	4,030,000

Peak discharge (base, 24,000 sec.-ft.).- Feb. 27 (3 a.m.) 29,200 sec.-ft.; Mar. 12 (9 p.m.) 26,200 sec.-ft.; Mar. 22 (3 p.m.) 28,500 sec.-ft.; Apr. 23 (11 a.m.) 31,900 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for station at Riverside.
g Computed from graph based on gage readings.

Trinity River at Liberty, Tex.

Location.- Wire-weight gage, lat. 30°03' 25", long. 94°49'05", at bridge on U. S. Highway 90 in Liberty, Liberty County, 450 feet downstream from Texas & New Orleans Railroad bridge. Datum of gage is 2.22 feet below mean sea level, datum of 1929.

Drainage area.- 17,539 square miles (revised).

Records available.- October 1938 to September 1940 (gage heights, discharge measurements, and some records of daily discharge), October 1940 to September 1949. U. S. Weather Bureau has collected gage-height records in this vicinity since 1903.

Extremes.- Maximum discharge during year, 28,100 second-feet Apr. 24 (gage height, 25.90 feet, from graph based on gage readings); minimum not determined (affected by tides); minimum gage height observed, 4.03 feet Nov. 10.

1938-49: Maximum discharge, 114,000 second-feet May 12, 1942 (gage height, 29.38 feet); minimum discharge not determined (affected by tides); minimum gage height observed, 2.5 feet Nov. 4, 1939.

A stage of 28.6 feet was reached May 8-11, 1922, from observation by U. S. Weather Bureau at chain gage on railroad bridge upstream.

Remarks.- Records good. Gage read once daily. Discharge not computed below 10-foot gage height because tides affect stage-discharge relation.

Cooperation.- Gage readings furnished by U. S. Weather Bureau.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				-	10,600	22,000	17,300	10,400	16,200	11,100		
2				-	12,400	21,100	17,500	9,160	17,500	8,000		
3				-	13,500	20,300	17,200	8,330	18,900	6,980		
4				-	14,700	19,000	16,400	8,560	19,900	6,980		
5				-	15,600	18,400	15,600	8,110	20,800	6,980		
6				-	16,100	18,400	15,300	7,310	21,400	6,200		
7				-	16,100	19,000	15,000	6,500	21,800	4,910		
8				-	16,100	19,900	14,400	5,900	22,200	-		
9				-	16,100	21,200	12,600	5,320	22,200	-		
10				-	15,800	22,200	10,600	4,910	22,000	-		
11				-	14,100	23,900	9,530	4,780	21,600	-		
12				-	10,800	25,200	8,330	4,650	20,600	-		
13				-	7,310	26,200	7,500	4,260	18,700	-		
14				-	5,900	26,800	6,740	-	14,800	-		
15				-	4,980	24,800	7,800	-	11,400	-		
16				-	4,390	20,300	9,040	-	10,000	-		
17				-	4,060	15,000	10,600	-	9,660	-		
18				-	-	10,300	10,000	4,200	8,110	-		
19				-	-	7,310	8,560	4,000	7,060	-		
20				-	-	5,680	7,060	-	5,900	-		
21				-	4,830	5,400	10,900	-	5,900	-		
22				5,530	6,120	14,200	19,200	-	7,060	-		
23				9,620	6,740	22,800	22,500	-	8,220	-		
24				11,000	6,200	23,500	26,800	-	9,530	-		
25				9,400	5,750	22,800	25,200	4,060	11,100	-		
26				7,310	10,200	22,800	20,500	6,280	12,900	-		
27				5,820	21,600	21,200	17,200	8,000	14,600	-		
28				5,530	23,900	18,900	15,600	9,920	15,300	-		
29				5,110	-	16,700	14,600	11,700	15,200	-		
30				6,120	-	15,600	12,300	13,400	14,100	-		
31				8,110	-	16,200	-	14,800	-	-		

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October					
November					
December					
Calendar year					
January 22-31	73,550	11,000	5,110	7,355	145,900
February	-	23,900	-	-	-
March	587,090	26,800	5,400	18,940	1,164,000
April	421,860	26,800	6,740	14,060	836,700
May	-	14,800	-	-	-
June	444,640	22,200	5,900	14,820	881,900
July 1-7	51,150	11,100	4,910	7,307	101,500
August	-	-	-	-	-
September	-	-	-	-	-
Water year 1948-49	-	26,800	-	-	-

Peak discharge (base, 22,000 sec.-ft.).- Feb. 27 (11 p.m.) 24,800 sec.-ft.; Mar. 14 (12 m.) 27,400 sec.-ft.; Mar. 24 (7 a.m.) 23,900 sec.-ft.; Apr. 24 (10 p.m.) 28,100 sec.-ft.; June 8-9, 22,200 sec.-ft.

Big Sandy Creek near Bridgeport, Tex.

Location.- Water-stage recorder, lat. 33°13', long. 97°41', at bridge on State Highway 24, 1.9 miles upstream from Turkey Creek, 4.4 miles upstream from mouth, and 5 miles east of Bridgeport, Wise County. Datum of gage is 727.44 feet above mean sea level, datum of 1929.

Drainage area.- 332 square miles (revised).

Records available.- October 1936 to September 1949.

Average discharge.- 12 years (1937-49), 113 second-feet.

Extremes.- Maximum discharge during year, 2,120 second-feet June 15 (gage height, 9.13 feet); no flow at times.

1936-49: Maximum discharge, 53,000 second-feet June 10, 1941 (gage height, 15.69 feet, from floodmark), from rating curve extended above 22,000 second-feet by logarithmic plotting; no flow at times.

Records.- Records poor. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0	0.3	2.5	0.6	f21	5.8	0	0
2				0	0	.2	1.5	.6	f13	4.4	0	0
3				0	2.6	.2	1.4	.4	f10	3.7	0	13
4				0	24	.2	1.3	.3	f7.8	3.0	0	61
5				0	f8.8	.2	1.2	.2	f6.0	2.5	0	21
6				0	6.1	.2	1.0	.1	f4.8	2.0	0	3.9
7				0	6.8	.2	.8	.2	f4.0	1.7	0	1.6
8				0	3.2	.1	.8	9.1	f3.2	1.4	6.9	28
9				0	f1.6	0	25	56	2.5	.9	15	68
10				0	.6	0	24	19	2.0	.7	4.5	53
11				0	.2	.1	5.1	4.0	f36	.5	2.3	f5.0
12				0	0	0	3.1	2.1	437	.4	1.6	f1.2
13				0	0	0	3.0	1.2	446	.5	.8	.6
14				0	.2	0	2.9	.7	544	2.4	.1	93
15				0	.3	.1	2.7	.5	1,780	1.0	0	438
16				0	.2	.1	2.6	26	540	13	7.5	262
17				0	.4	0	2.5	756	45	87	30	159
18				0	.9	0	2.4	849	f22	11	27	35
19				0	.4	.1	2.3	99	f16	3.2	1.5	8.9
20				0	.2	0	2.1	22	f12	1.6	87	8.3
21				0	.2	206	2.0	12	f10	1.0	27	10
22				0	.1	39	1.9	7.0	8.7	.5	6.4	3.6
23				0	2.2	13	1.8	155	9.5	.3	3.2	2.4
24				0	16	8.2	1.7	241	90	0	1.6	1.5
25				0	5.0	12	1.5	112	531	0	1.2	1.0
26				0	1.4	288	1.4	480	198	0	.4	.5
27				0	.9	113	1.3	1,180	26	8.9	0	.2
28				.4	.7	22	.9	524	14	1.8	0	0
29				2.4	-	10	.7	203	f9.9	.8	0	0
30				.1	-	6.5	.6	285	7.1	.4	0	0
31				0	-	4.4	-	62	-	0	0	0

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	6,233.1	747	0	17.0	12,360
January	2.9	2.4	0	.09	5.8
February	83.0	24	0	2.96	165
March	724.1	288	0	23.4	1,440
April	102.0	25	.6	3.40	202
May	5,108.0	1,180	.1	165	10,130
June	4,856.5	1,780	2.0	162	9,630
July	160.2	87	0	5.17	318
August	224.0	87	0	7.23	444
September	1,279.7	438	0	42.7	2,540
Water year 1948-49	12,540.4	1,780	0	34.4	24,870

Peak discharge (base, 1,600 sec.-ft.).- June 15 (12:30 p.m.) 2,120 sec.-ft.

f Computed from partly estimated gage heights.

Note.- No gage-height record Jan. 29 to Feb. 2, Feb. 17, Apr. 13-26; discharge computed on basis of weather records and recession curves.

Clear Fork Trinity River near Aledo, Tex.

Location.- Water-stage recorder, lat. 32°38'25", long. 97°33'50", 3 miles downstream from Turkey Creek, 3½ miles upstream from bridge on U. S. Highway 377, 4 miles southeast of Aledo, Parker County, and 11.8 miles upstream from Benbrook Dam (under construction). Datum of gage is 723.3 feet above mean sea level, datum of 1929.

Drainage area.- 246 square miles.

Records available.- August 1947 to September 1949.

Extremes.- Maximum discharge during year, 12,400 second-feet May 17 (gage height, 25.00 feet), from rating curve extended above 7,300 second-feet by logarithmic plotting; no flow Oct. 1 to Nov. 16.

1947-49: Maximum discharge, that of May 17, 1949; no flow at times.

Maximum stage known since 1858, about 34 feet between Apr. 25 and May 9, 1922, from information by local resident.

Remarks.- Records good. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.4	2.0	2.4	17	40	22	145	34	6.0	1.3
2		0	1.4	2.0	2.0	17	61	19	110	30	5.4	1.4
3		0	1.4	2.2	2.7	15	42	17	89	28	4.8	1.6
4		0	1.5	2.0	3.0	15	34	17	72	26	4.2	1.2
5		0	1.5	1.8	6.7	14	31	16	61	24	4.6	1.0
6		0	1.2	1.8	3.3	12	28	16	53	22	5.6	.9
7		0	1.2	1.8	1.8	11	26	15	45	20	6.9	.7
8		0	1.2	2.0	1.6	10	25	41	42	18	164	.7
9		0	1.4	2.2	1.5	10	26	732	38	17	17	1.5
10		0	1.2	2.2	1.2	9.4	38	98	37	16	8.8	1.7
11		0	1.4	2.2	1.2	9.1	25	38	38	15	6.0	1.4
12		0	1.5	2.2	1.2	9.1	24	28	69	14	5.0	1.2
13		0	1.5	2.2	1.4	9.1	22	23	54	14	3.9	.9
14		0	1.7	2.4	1.5	8.8	20	20	156	13	3.4	278
15		0	1.8	2.4	1.6	8.5	17	19	280	12	2.7	132
16		0	1.7	3.3	1.6	8.5	17	546	53	12	2.6	15
17		.1	1.7	2.7	1.4	8.5	17	7,060	35	11	2.3	8.2
18		.6	1.7	3.0	1.4	8.2	16	447	28	9.7	2.3	5.6
19		.6	1.7	3.3	1.2	7.9	17	222	26	8.8	2.5	4.0
20		.5	1.8	2.7	1.5	8.5	34	167	23	8.5	1.9	3.4
21		.6	1.8	3.0	1.4	428	28	127	21	7.7	1.3	3.3
22		.7	1.8	2.7	1.6	111	21	99	20	7.2	1.2	3.3
23		.8	2.0	4.2	101	30	54	650	176	7.2	1.2	2.7
24		.9	2.2	9.8	379	22	24	355	606	7.2	1.2	2.0
25		1.1	2.2	51	61	537	22	161	2,220	7.2	1.1	1.5
26		1.2	2.0	16	59	2,220	22	1,550	335	6.7	1.1	1.3
27		1.2	2.2	14	26	213	32	360	105	11	.9	1.3
28		1.2	2.2	37	19	99	127	149	67	8.9	.9	1.4
29		1.2	2.4	14	-	67	40	2,500	49	6.7	.9	1.2
30		1.4	2.2	7	-	56	27	774	40	6.0	.8	1.1
31		-	2.0	3.6	-	49	-	212	-	6.0	1.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	12.1	1.4	0	.40	24
December	52.9	2.4	1.2	1.71	105
Calendar year 1948	13,285.8	2,710	0	36.3	26,360
January	208.7	51	1.8	6.73	414
February	688.2	379	1.2	24.6	1,370
March	4,049.6	2,220	7.9	131	8,030
April	957	127	16	31.9	1,900
May	16,500	7,060	15	532	32,730
June	5,093	2,220	20	170	10,100
July	434.8	34	6.0	14.0	862
August	271.6	164	.8	8.76	539
September	480.8	278	.7	16.0	954
Water year 1948-49	28,748.7	7,060	0	78.8	57,030

Peak discharge (base, 3,000 sec.-ft.).- Mar. 26 (1 p.m.) 4,000 sec.-ft.; May 17 (3:45 a.m.) 12,400 sec.-ft.; May 29 (7 p.m.) 3,480 sec.-ft.; June 25 (10:30 a.m.) 3,140 sec.-ft.

Note.- No gage-height record Mar. 31, June 29 to July 8, July 11-17; discharge computed on basis of weather records.

Clear Fork Trinity River near Benbrook, Tex.

Location.- Water-stage recorder, lat. 32°39'54", long. 97°26'30", 1½ miles downstream from Benbrook Dam (under construction), 1.7 miles southeast of Benbrook, Tarrant County, 2.1 miles downstream from Dutch Creek, and 2.9 miles upstream from Marys Creek. Datum of gage is 604.2 feet above mean sea level, datum of 1929.

Drainage area.- 435 square miles (revised).

Records available.- July 1947 to September 1949.

Extremes.- Maximum discharge during year, 82,900 second-feet May 17 (gage height, 28.72 feet), from rating curve extended above 11,000 second-feet on basis of velocity-area studies and slope-area determination at gage height 28.72 feet; no flow Oct. 1 to Dec. 6.

1947-49: Maximum discharge, that of May 17, 1949; no flow at times.

Remarks.- Records good except those above 3,000 second-feet and those for period of no gage-height record, which are fair. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	2.9	7.2	96	138	80	419	88	12	3.0
2			0	2.9	6.1	87	220	69	332	82	11	2.7
3			0	3.0	6.1	74	152	64	274	77	9.6	3.0
4			0	2.0	6.4	69	123	60	234	73	8.6	3.0
5			0	2.9	6.8	64	118	59	190	68	10	3.0
6			0	3.0	7.2	59	108	54	166	64	11	3.0
7			1.1	3.2	6.4	49	98	52	152	59	12	2.7
8			.4	2.9	5.0	48	93	67	133	54	143	2.7
9			.8	3.2	4.4	49	93	607	129	51	47	2.7
10			.7	2.9	4.4	40	125	159	127	47	22	2.7
11			1.3	2.9	3.8	39	96	67	129	43	16	3.0
12			1.1	3.8	4.4	37	91	52	155	39	14	3.2
13			1.5	3.8	6.7	36	87	43	147	35	12	3.2
14			2.1	3.6	5.8	32	78	37	238	34	9.1	199
15			3.0	3.8	5.0	31	69	34	463	31	7.5	150
16			2.7	6.1	4.7	30	62	636	138	29	3.2	35
17			2.1	6.1	5.0	32	60	34,300	105	28	8.2	16
18			2.3	5.4	4.7	27	60	1,310	90	26	7.5	4.3
19			2.1	4.7	4.4	25	59	836	79	22	7.0	8.0
20			2.1	4.0	4.4	25	172	663	72	21	6.2	4.1
21			2.0	3.8	4.4	457	115	486	65	18	5.8	8.4
22			2.1	4.4	4.7	241	91	374	60	18	5.0	1.6
23			2.5	7.2	314	77	177	968	173	18	4.6	3.0
24			2.5	9.8	1,140	62	115	836	966	18	3.9	3.9
25			2.5	53	458	2,620	91	429	2,120	17	3.2	3.9
26			2.3	40	251	2,370	91	4,620	523	17	2.7	4.3
27			2.5	30	136	459	83	1,000	155	17	1.6	3.9
28			2.5	36	102	241	174	550	111	21	1.8	3.6
29			2.5	50	-	197	113	4,480	99	16	1.8	3.0
30			2.5	16	-	181	89	1,400	93	14	1.2	2.5
31			2.3	12	-	149	-	604	-	12	2.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	49.5	3.0	0	1.60	98
Calendar year 1948	29,732.6	4,490	0	81.2	58,990
January	336.2	53	2.9	10.8	667
February	2,519.0	1,140	3.8	90.0	5,000
March	8,003	2,620	25	258	15,870
April	3,241	220	59	108	6,430
May	54,996	34,300	34	1,774	109,100
June	8,137	2,120	60	271	16,140
July	1,157	88	12	37.3	2,290
August	411.0	143	1.2	13.3	815
September	492.4	199	1.6	16.4	977
Water year 1948-49	79,342.1	34,300	0	217	157,400

Peak discharge (base, 3,900 sec.-ft.).- Feb. 24 (1:30 a.m.) 4,960 sec.-ft.; Mar. 25 (10 a.m.) 10,000 sec.-ft.; May 17 (3:30 a.m.) 82,900 sec.-ft.; May 26 (8:30 a.m.) 17,200 sec.-ft.; May 29 (7 a.m.) 9,390 sec.-ft.

Note.- No gage-height record June 27 to July 17; discharge computed on basis of weather records and records for stations near Aledo and at Fort Worth.

Clear Fork Trinity River at Fork Worth, Tex.

Location.- Water-stage recorder and concrete control, lat. 32°44', long. 97°21', at bridge on Vickery Boulevard, Fork Worth, Tarrant County, 388 feet downstream from Texas & Pacific Railway bridge and 3 miles upstream from mouth. Datum of gage is 532.91 feet above mean sea level, datum of 1929.

Drainage area.- 526 square miles (revised).

Records available.- March 1924 to September 1949.

Average discharge.- 25 years, 115 second-feet.

Extremes.- Maximum discharge during year, 107,000 second-feet May 17 (gage height, 28.20 feet) by contracted-opening method; no flow at times.
1924-49: Maximum discharge, that of May 17, 1949; no flow at times.
Flood of Apr. 25, 1922, reached a stage of 27.5 feet, present datum (discharge, 74,300 second-feet, by slope-area method data furnished by city engineer of Fort Worth).

Remarks.- Records good except those above 16,000 second-feet, which are fair. Texas & Pacific Railway Co. diverts small amount of water from pool in which gage is located. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0		0	0.7	13	97	170	104	527	121	17	2.8
2	0		0	0	13	90	298	90	391	111	16	2.0
3	0		0	0	7.1	73	185	76	320	100	17	2.0
4	0		0	0	5.9	67	158	73	267	90	14	2.8
5	0		0	0	5.9	61	151	70	232	86	16	2.8
6	0		0	0	7.1	58	132	64	210	76	19	3.8
7	0		0	0	8.4	46	114	64	193	76	19	2.8
8	0		0	0	7.1	46	107	83	170	64	129	3.8
9	0		0	0	7.1	49	125	862	158	61	58	2.8
10	0		0	0	7.1	43	154	260	170	61	28	2.8
11	0		0	0	8.4	40	114	100	173	58	21	2.8
12	0		0	0	7.1	40	118	76	193	49	19	2.0
13	0		0	0	26	38	107	64	207	43	17	2.8
14	0		0	0	8.4	35	93	58	396	40	13	147
15	0		0	0	7.1	35	76	55	511	43	13	167
16	0		0	0	5.9	35	73	594	192	35	9.7	46
17	0		0	1.2	5.9	35	70	f42,500	147	32	8.4	17
18	0		0	9.7	7.1	32	67	2,390	129	32	8.4	13
19	0		0	2.8	8.4	30	67	941	114	30	8.4	9.7
20	0		0	3.8	8.4	39	206	723	107	25	7.1	3.8
21	0		0	4.8	8.4	610	121	502	97	25	5.9	7.1
22	0		0	9.5	9.7	317	114	391	90	28	4.8	3.8
23	0		0	11	356	100	419	1,390	178	25	3.8	2.0
24	.3		0	61	2,140	80	206	978	1,220	28	3.8	1.3
25	0		0	27	589	3,910	125	511	3,860	28	2.8	3.8
26	0		0	70	396	3,310	125	7,180	790	25	2.8	3.8
27	0		0	48	156	585	162	1,350	252	25	2.8	3.8
28	0		0	24	107	332	268	670	181	25	2.0	3.8
29	0		0	36	-	252	162	6,230	154	28	2.8	2.8
30	0		.7	14	-	218	121	2,190	132	23	2.0	2.0
31	0		2.0	13	-	173	-	740	-	21	1.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0.3	0.3	0	0.01	0.6
November	0	0	0	0	0
December	2.7	2.0	0	.09	5.4
Calendar year 1948	39,012.9	6,820	0	107	77,390
January	336.5	70	0	10.9	667
February	4,136.5	2,140	5.9	148	8,200
March	10,876	3,910	30	351	21,570
April	4,408	419	67	147	8,740
May	71,379	42,500	55	2,303	141,600
June	11,761	3,860	90	392	23,330
July	1,514	121	21	48.8	3,000
August	492.8	129	1.3	15.9	977
September	473.7	167	1.3	15.8	940
Water year 1948-49	105,380.5	42,500	0	289	209,000

Peak discharge (base, 3,900 sec.-ft.).- Feb. 24 (4 a.m.) 5,880 sec.-ft.; Mar. 25 (11 a.m.) 10,900 sec.-ft.; May 17 (6 a.m.) 107,000 sec.-ft.; May 26 (12:30 p.m.) 16,400 sec.-ft.; May 29 (11 a.m.) 13,100 sec.-ft.; June 25 (7:30 a.m.) 7,970 sec.-ft.;

f Computed on basis of partly estimated gage-height record.

Lake Dallas near Lake Dallas, Tex.

Location.- Water-stage recorder, lat. 33°07', long. 96°59', in gatehouse at Garza Dam on Elm Fork Trinity River, 1.6 miles upstream from Little Elm Creek and 2.0 miles southeast of town of Lake Dallas, Denton County. Datum of gage is 0.08 foot above mean sea level, datum of 1929.

Drainage area.- 1,165 square miles (revised).

Records available.- December 1928 to September 1949.

Extremes.- Maximum contents during year, 188,500 acre-feet June 16-19 (gage height, 524.5 feet); minimum, 47,220 acre-feet Jan. 18-23 (gage height, 506.8 feet).
1928-49: Maximum contents not determined; maximum gage height, 534.0 feet Apr. 25, 1942, from floodmark; all gates were open during passing of crest through lake; minimum contents observed, 42,500 acre-feet Apr. 1, 1940 (gage height, 505.8 feet).

Remarks.- Reservoir is formed by earthen hydraulic-fill dam, consisting of 567 feet of concrete service spillway and two dikes. There are two emergency earthen spillways beyond right end of dam. Dam completed in November 1927 and storage began Feb. 16, 1928. Capacity, 194,000 acre-feet (gage height, 525.0 feet, top of service spillway). Water can be withdrawn through one 18-inch outlet gate (gage height of bottom of gate, 474.0 feet), four 48-inch outlet gates (gage height of bottom of gate, 463.0 feet), and one 6-inch gate (gage height of bottom of gate, 474.0 feet). Dead storage is negligible. Water is used by city of Dallas for municipal supply. Figures given herein represent total contents.

Cooperation.- Capacity table furnished by city of Dallas.

Monthly gage height and contents, water year October 1948 to September 1949

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	514.4	93,500	-
Oct. 31	511.5	73,000	-20,500
Nov. 30	509.5	61,200	-11,800
Dec. 31	-	a52,360	-8,840
Calendar year 1948	-	-	-93,840
Jan. 31	508.4	55,480	+3,120
Feb. 28	512.7	81,400	+25,920
Mar. 31	515.1	99,050	+17,650
Apr. 30	514.7	95,800	-3,250
May 31	522.0	162,200	+66,400
June 30	524.3	186,300	+24,100
July 31	522.7	169,200	-17,100
Aug. 31	521.3	155,200	-14,000
Sept. 30	521.4	156,200	+1,000
Water year 1948-49	-	-	+62,700

† Gage height at 12 p.m.
a No gage-height record; contents estimated.

Elm Fork Trinity River near Carrollton, Tex.

Location.- Water-stage recorder above spillway of California Dam, lat. 32°52'25", long. 96°55'50", at bridge on State Highway 114, 100 feet downstream from Hackberry Creek and 5.5 miles southwest of Carrollton, Dallas County. Datum of gage is 410.46 feet above mean sea level, datum of 1929.
Drainage area.- 2,534 square miles (revised).
Records available.- July 1938 to September 1949. January 1907 to December 1928 at site near Dallas, 7 miles downstream (January 1907 to September 1920, monthly records only in Water-Supply Paper 850). November 1923 to July 1938 at site 8.5 miles upstream, at Carrollton Dam. Records equivalent except following intense local rains and during periods of low flow affected by municipal pumping between present site and former site near Dallas.
Average discharge.- 41 years (1907-22, 1923-49), 866 second-feet.
Extremes.- Maximum discharge during year, 23,600 second-feet May 18 (gage height, 15.36 feet); minimum, 64 second-feet Dec. 25 (gage height, 1.25 feet).
1907-49: Maximum gage height, about 28 feet May 25, 1908, present site and datum, from floodmarks, furnished by State Reclamation Department (discharge not determined); maximum discharge subsequent to 1908, 90,700 second-feet Apr. 26, 1942 (gage height, 21.05 feet); no flow at times.
Remarks.- Records good except those for periods of backwater from return of overbank flow, which are fair. Flow regulated by Lake Dallas (see preceding page). No diversion above station.
Revisions (water year).- W 788: 1924.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 21 to Jan. 5, Feb. 25, 26, Mar. 26 to Apr. 9, Apr. 14 to May 9, May 20, 27, 28, 30, June 16, 17)

1.2	64	2.5	710	6.0	3,700	12.5	8,750
1.4	122	3.0	1,040	7.0	4,320	13.0	10,500
1.6	205	3.5	1,440	8.0	4,880	14.0	15,800
1.8	310	4.0	1,900	10.0	6,080	15.0	21,400
2.1	475	5.0	2,900	12.0	7,890		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	441	130	133	103	109	149	174	109	430	164	149	137
2	436	137	133	103	119	149	141	103	315	149	152	137
3	436	137	133	106	116	156	126	100	289	119	152	133
4	436	137	133	106	116	149	130	96	247	164	152	137
5	430	137	133	106	116	141	130	96	215	236	156	137
6	430	133	130	106	109	130	126	100	200	236	152	137
7	425	133	87	106	103	119	122	100	187	236	152	137
8	252	133	69	106	96	116	112	103	178	231	152	156
9	196	133	69	106	93	119	137	719	169	187	152	1,390
10	210	133	72	109	90	112	1,660	1,730	174	178	156	558
11	200	133	72	109	90	109	1,120	247	169	149	152	226
12	196	137	72	106	90	109	359	169	192	149	149	187
13	196	137	74	106	129	109	174	145	1,190	252	141	182
14	192	137	118	106	342	106	145	126	16,100	278	141	178
15	196	141	156	106	305	106	119	119	14,800	257	137	174
16	196	141	149	109	152	106	112	122	c7,120	364	141	169
17	196	137	149	106	122	106	112	11,200	c1,730	241	149	247
18	192	137	149	109	109	103	109	21,200	625	215	145	326
19	192	137	145	106	106	100	109	16,400	408	122	141	196
20	192	137	145	106	103	103	116	c5,270	321	149	141	200
21	192	141	145	106	100	545	116	683	268	187	186	205
22	196	149	145	106	100	1,310	116	359	226	192	160	205
23	196	149	89	109	278	716	133	2,040	200	192	149	178
24	196	149	67	2,570	7,190	348	156	1,110	210	182	160	160
25	196	152	85	804	7,890	1,720	205	464	753	160	156	160
26	196	156	100	584	4,640	c5,850	164	2,630	923	164	152	156
27	196	160	100	1,360	498	c4,760	145	c5,010	397	164	149	152
28	192	149	103	1,780	215	1,140	130	c2,480	268	160	141	149
29	141	133	103	804	-	475	119	3,080	210	160	137	145
30	130	130	103	386	-	299	112	c3,860	178	160	137	145
31	130	-	103	133	-	221	-	918	-	156	137	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,601	441	130	245	15,080
November	4,185	160	130	140	8,300
December	3,464	156	67	112	6,870
Calendar year 1948	293,717	26,400	67	803	582,600
January	10,868	2,570	103	351	21,560
February	23,526	7,890	90	840	46,660
March	19,781	5,850	100	638	39,240
April	6,729	1,660	109	224	13,350
May	80,888	21,200	96	2,609	160,400
June	48,592	16,100	169	1,620	96,380
July	5,953	364	119	192	11,810
August	4,626	186	137	149	9,180
September	6,799	1,390	133	227	13,490
Water year 1948-49	223,012	21,200	67	611	442,300

Peak discharge (base, 8,100 sec.-ft.).- May 18 (6 p.m.) 23,600 sec.-ft.; June 14 (6 p.m.) 20,200 sec.-ft.
c Backwater from return of overbank flow; discharge computed on basis of backwater curve.

Denton Creek near Roanoke, Tex.

Location.- Water-stage recorder, lat. 33°02', long. 97°12', 340 feet upstream from bridge on U. S. Highway 377, a quarter of a mile downstream from Texas & Pacific Railway bridge, and 2.2 miles northeast of Roanoke, Denton County. Datum of gage is 523.6 feet above mean sea level, datum of 1929.
Drainage area.- 621 square miles (revised).
Records available.- October 1923 to December 1927, March 1939 to September 1949.
Average discharge.- 13 years (1924-27, 1939-49), 200 second-feet.
Extremes.- Maximum discharge during year, 20,000 second-feet May 17 (gage height, 25.90 feet); no flow at times.
1923-27, 1939-49: Maximum discharge, 49,700 second-feet Apr. 20, 1942 (gage height, 30.20 feet), from rating curve extended above 32,000 second-feet on basis of velocity-area studies; no flow at times.
Maximum stage known, 31 feet in May 1908, from information by local residents.
Remarks.- Records good. No large diversion above station.
Revisions (water years).- W 898: 1924(M). W 850: 1926 (July mean).

Rating tables, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 3-11, June 20 to July 30, Aug. 6-10, Aug. 17-19, Aug. 21-29, Sept. 11-15, Sept. 18-30)

2.12	0	2.7	15	3.6	130	6.0	958	16.0	5,630
2.2	.4	2.8	21	3.8	174	7.0	1,350	18.0	7,000
2.3	1.6	2.9	29	4.0	222	8.0	1,750	20.1	8,800
2.4	3.6	3.0	38	4.2	278	10.0	2,610		
2.5	6.4	3.2	62	4.6	420	12.0	3,560		
2.6	10	3.4	92	5.0	570	14.0	4,560		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0	5.7	20	10	126	34	0	0
2				0	0	4.4	20	9.3	83	31	0	0
3				0	0	4.1	18	8.2	57	28	0	0
4				0	0	3.4	16	7.5	43	25	0	0
5				0	0	2.9	15	6.4	35	23	0	0
6				0	3.3	2.4	14	5.7	30	24	0	0
7				0	12	1.9	13	5.5	26	22	.1	0
8				0	8.6	2.1	12	178	23	18	.1	345
9				0	7.1	1.9	11	2,270	20	15	0	109
10				0	4.4	2.1	f146	74	18	13	0	44
11				0	2.4	1.8	37	39	24	11	0	18
12				0	1.9	1.6	27	32	461	9.3	0	14
13				0	2.4	1.6	18	23	602	7.8	0	8.2
14				0	1.8	1.8	14	17	3,130	6.8	0	6.8
15				0	1.3	1.8	10	14	1,620	6.0	0	6.0
16				0	1.0	1.6	8.9	108	938	106	0	122
17				0	.9	1.6	8.2	8,830	368	21	.8	124
18				0	.9	1.8	8.6	938	160	7.8	.1	86
19				0	1.0	1.8	7.5	645	96	4.4	0	49
20				0	1.0	2.1	8.2	220	66	2.6	0	23
21				0	1.0	396	9.6	106	52	1.8	14	9.4
22				0	1.0	261	10	68	40	1.2	17	8.5
23				0	69	113	12	545	36	.8	5.7	9.3
24				0	482	56	12	180	289	.7	2.9	4.6
25				0	55	333	14	112	583	.6	1.3	2.6
26				0	41	2,000	19	4,420	221	.5	.5	1.6
27				.1	17	228	18	918	104	.3	.2	1.3
28				.5	8.9	156	14	532	68	.3	0	.8
29				.1	-	70	13	1,600	48	.2	0	.4
30				0	-	40	12	494	39	.2	0	.2
31				0	-	26	-	207	-	.1	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	39,335.5	8,770	0	107	78,020
January	.7	.5	0	.02	1.4
February	724.9	482	0	25.9	1,440
March	3,729.4	2,000	1.6	120	7,400
April	566.0	146	7.5	18.9	1,120
May	22,622.6	8,830	5.5	730	44,870
June	9,406	3,130	18	314	18,660
July	422.4	106	.1	13.6	838
August	42.7	17	0	1.38	85
September	993.7	345	0	33.1	1,970
Water year 1948-49	38,508.4	8,830	0	106	76,380

Peak discharge (base, 7,200 sec.-ft.).- May 17 (8 a.m.) 20,000 sec.-ft.; May 26 (10 a.m.) 8,900 sec.-ft.
f Computed on basis of partly estimated gage-height record.

Denton Creek near Grapevine, Tex.

Location.- Water-stage recorder, lat. 32°59'15", long. 97°00'45", at bridge on State Highway 121, 1.3 miles downstream from Bakers Branch, 4.3 miles downstream from Grapevine Dam, now under construction, 5.0 miles northeast of Grapevine, Tarrant County, 6.1 miles upstream from mouth. Datum of gage is 439.13 feet above mean sea level, unadjusted.

Drainage area.- 694 square miles (revised).

Records available.- October 1947 to September 1949.

Extremes.- Maximum discharge during year, 11,000 second-feet May 17 (gage height, 29.68 feet), from rating curve extended above 6,000 second-feet by logarithmic plotting; no flow at times.

1948-49: Maximum discharge, 13,900 second-feet Feb. 26, 1948 (gage height, 30.28 feet), from rating curve extended above 5,000 second-feet by conveyance-slope method; no flow at times.

Maximum stage known occurred in May 1908 and was slightly higher than flood of April 1942, which reached a stage of 35.9 feet, from information by local resident.

Remarks.- Records good except those above 6,000 second-feet and those for period of doubtful gage-height record, which are fair. Small diversions above station in connection with construction of Grapevine Reservoir.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	4.8	12	27	14	189	35	2.4	0.2
2				0	2.5	11	4.0	12	121	22	1.8	.1
3				0	1.6	9.8	15	10	86	6.2	1.3	.1
4				0	1.0	8.6	19	9.8	68	17	1.7	0
5				0	.2	7.7	20	8.3	57	18	1.8	0
6				0	.4	6.7	19	7.5	49	17	1.7	0
7				0	1.1	5.4	12	6.4	43	16	1.6	0
8				0	.4	4.8	2.5	6.8	38	16	1.8	103
9				0	1.2	4.6	73	1,450	34	13	5.5	516
10				0	3.4	4.1	293	763	33	11	3.8	49
11				0	4.6	3.6	88	61	33	9.5	2.9	14
12				0	4.7	3.5	d34	48	79	7.9	2.8	18
13				0	18	3.3	d24	33	1,030	7.0	2.0	18
14				0	10	3.0	d18	25	5,990	6.3	1.6	15
15				0	7.9	2.9	11	20	3,290	5.6	2.4	11
16				0	5.1	2.6	13	68	1,400	5.9	2.1	11
17				0	3.2	2.5	12	6,880	613	51	1.6	160
18				0	2.2	2.3	10	5,530	242	77	1.0	66
19				0	1.5	2.1	10	1,010	128	2.3	1.6	38
20				0	1.1	2.0	11	437	89	6.4	3.2	44
21				0	1.0	223	12	188	68	5.4	2.5	40
22				0	1.0	451	12	114	56	4.8	2.1	30
23				0	195	217	13	787	47	3.9	14	15
24				54	1,920	94	14	362	56	3.7	13	13
25				3.9	193	855	16	220	670	3.2	8.2	10
26				28	120	1,660	19	1,450	462	3.2	4.1	6.9
27				104	41	1,270	20	3,700	149	3.7	2.8	3.4
28				40	8.8	211	20	736	74	2.1	3.5	1.5
29				24	-	132	17	1,400	58	1.6	2.3	2.1
30				16	-	72	15	1,270	42	2.4	1.3	1.0
31				9.0	-	46	-	350	-	2.3	.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	43,220.2	10,600	0	118	85,720
January	278.9	104	0	9.00	553
February	2,554.7	1,920	.2	91.2	5,070
March	5,273.5	1,600	2.0	170	10,460
April	873.5	293	2.5	29.1	1,730
May	26,976.8	6,880	6.4	870	53,510
June	15,294	5,990	33	510	30,340
July	386.4	77	1.6	12.5	766
August	98.8	14	.4	3.19	196
September	1,186.3	516	0	39.5	2,350
Water year 1948-49	52,922.9	6,880	0	145	105,000

Peak discharge (base, 7,200 sec.-ft.).- May 17 (10 p.m.) 11,000 sec.-ft.; June 14 (12:30 a.m.) 7,800 sec.-ft.

d Doubtful gage-height record; discharge computed on basis of recorded gage heights.

East Fork Trinity River near Rockwall, Tex.

Location.- Chain gage, lat. 32°55'25", long. 96°30'20", at bridge on U. S. Highway 67, 3 miles southwest of Rockwall, Rockwall County, and 8 miles upstream from Muddy Creek. Datum of gage, is 404.3 feet above mean sea level, datum of 1929.

Drainage area.- 840 square miles (revised).

Records available.- November 1923 to September 1949.

Average discharge.- 26 years, 503 second-feet.

Extremes.- Maximum discharge during year, 20,400 second-feet Feb. 25 (gage height, 17.30 feet); no flow Oct. 1 to Dec. 18, Aug. 14 to Sept. 30.

1923-49: Maximum discharge determined, 64,800 second-feet June 16, 1935 (gage height, 23.39 feet), by slope-area method; maximum gage height, 24.82 feet Apr. 20, 1942, while levees were breaking; no flow at times.

A stage of 24.6 feet was reached in April 1922. Levees also broke during this flood.

Remarks.- Records good. Gage read twice daily. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0.3	535	760	402	2,690	246	23	7.0	
2			0	.5	358	564	325	1,960	123	21	4.5	
3			0	.5	369	457	270	544	86	20	3.3	
4			0	.5	391	402	270	325	66	19	2.2	
5			0	.4	347	369	260	235	53	18	1.6	
6			0	.2	303	325	235	200	46	16	1.4	
7			0	.2	235	292	220	170	39	14	1.2	
8			0	.3	185	270	200	146	36	13	1.0	
9			0	.3	150	255	180	132	32	13	.8	
10			0	.3	123	270	510	121	29	11	.6	
11			0	.3	108	303	810	107	27	9.4	.4	
12			0	.3	94	245	908	90	25	8.4	.3	
13			0	.3	482	205	425	80	134	7.4	.2	
14			0	.3	468	195	255	72	6,030	9.0	0	
15			0	.3	523	190	200	66	4,320	9.6	0	
16			0	.3	800	175	160	59	1,600	8.2	0	
17			0	.3	554	160	136	4,430	497	6.7	0	
18			0	.3	358	146	128	2,270	149	2.5	0	
19			1.1	.2	270	141	128	3,920	60	3.2	0	
20			1.0	.1	230	141	128	3,140	33	3.6	0	
21			1.0	.1	250	710	141	842	29	2.7	0	
22			.5	.1	240	1,150	132	331	24	2.2	0	
23			.3	.2	250	1,330	150	612	20	4.3	0	
24			.5	1,770	7,270	881	185	347	15	4.2	0	
25			.4	9,160	16,500	510	307	245	317	3.0	0	
26			.4	15,000	7,560	4,260	790	354	278	3.7	0	
27			.3	7,300	2,760	7,350	1,040	529	136	14	0	
28			.3	6,400	1,320	4,080	1,090	564	80	11	0	
29			.3	5,850	-	1,900	1,270	2,300	34	14	0	
30			.3	4,200	-	712	1,790	1,100	26	15	0	
31			.2	2,770	-	492	-	544	-	11	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	6.6	1.1	0	.21	13
Calendar year 1948	147,043.8	16,900	0	402	291,700
January	52,456.6	15,000	.1	1,692	104,000
February	43,033	16,500	94	1,537	85,350
March	29,240	7,350	141	943	58,000
April	13,045	1,790	128	435	25,870
May	28,525	4,430	59	920	56,580
June	14,590	6,030	15	486	28,940
July	321.1	23	2.2	10.4	637
August	24.5	7.0	0	.79	49
September	0	0	0	0	0
Water year 1948-49	181,241.8	16,500	0	497	359,400

Peak discharge (base, 6,100 sec.-ft.).- Jan. 26 (10 a.m.) 19,000 sec.-ft.; Feb. 25 (11 a.m.) 20,400 sec.-ft.; Mar. 26 (11 p.m.) 9,250 sec.-ft.; May 17 (1 p.m.) 9,950 sec.-ft.; June 14 (9 a.m.) 7,000 sec.-ft.

Cedar Creek near Mabank, Tex.

Location.- Water-stage recorder, lat. 32°19'45", long. 96°10'05", at bridge on State Farm Highway 85, 2 miles downstream from Lacys Fork and 5½ miles southwest of Mabank, Kaufman County. Datum of gage is 285.39 feet above mean sea level (Texas Reclamation Department bench mark based on Geological Survey datum, unadjusted).

Drainage area.- 734 square miles (revised).

Records available.- December 1938 to September 1949.

Average discharge.- 10 years (1939-49), 567 second-feet.

Extremes.- Maximum discharge during year, 19,300 second-feet Feb. 25 (gage height, 19.77 feet), from rating curve extended above 13,000 second-feet on basis of slope-area determination at gage height 23.5 feet, at location 12 miles downstream; no flow at times.

1938-49: Maximum discharge, 44,800 second-feet Mar. 30, 1945 (gage height, 25.43 feet), from rating curve extended above 13,000 second-feet on basis of slope-area determination at gage height 23.5 feet, at location 12 miles downstream; no flow at times.

Maximum stage known prior to establishment of station, about 23.5 feet Sept. 29, 1936, from information by local residents; peak discharge of this flood at site about 12 miles below station (drainage area, 910 square miles), 35,400 second-feet, by slope-area method.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	1.9	2.5	140	465	40	751	399	4.4	1.7	
2		0	1.7	2.5	79	137	32	155	70	3.5	1.1	
3		0	1.4	2.4	145	91	26	64	35	3.0	.6	
4		0	1.3	2.4	202	68	23	39	19	2.4	.3	
5		0	1.1	2.4	163	54	20	25	12	2.0	.2	
6		0	.8	2.3	99	46	17	17	9.2	1.6	.1	
7		0	.7	2.2	63	38	17	14	7.0	1.3	0	
8		0	.8	2.2	40	34	15	11	5.6	.9	0	
9		0	.9	2.3	27	111	21	10	4.6	.8	0	
10		0	.8	2.4	19	711	1,320	609	4.1	.6	0	
11		0	.8	2.4	15	610	1,390	615	4.9	.4	0	
12		0	.7	2.4	13	168	433	92	3.9	.4	0	
13		0	.6	2.3	12	91	103	37	3.7	.4	0	
14		0	.8	2.4	39	67	61	20	4.2	.8	0	
15		0	159	2.7	873	51	40	13	213	1.8	0	
16		.4	374	6.4	622	40	28	10	1,210	25	0	
17		379	98	124	105	34	20	8.6	955	76	0	
18		330	84	272	56	28	16	7.4	76	74	0	
19		57	43	480	33	24	14	629	26	14	0	
20		19	20	420	22	20	14	472	15	6.9	0	
21		11	13	106	17	329	14	33	10	4.5	0	
22		6.7	9.3	59	14	1,450	16	14	7.4	3.8	0	
23		4.8	6.9	41	15	1,840	23	13	5.9	161	0	
24		4.0	5.5	29	2,700	868	22	32	5.5	70	0	
25		3.5	4.5	351	12,100	166	17	242	7.0	36	0	
26		3.3	3.9	1,330	10,500	186	761	581	19	61	0	
27		3.2	3.6	2,980	4,360	350	1,350	845	17	24	0	
28		2.8	3.3	4,720	1,970	432	1,250	946	13	9.2	0	
29		2.4	3.2	4,520	-	160	432	791	8.3	5.6	0	
30		2.1	2.9	1,960	-	82	760	1,350	5.6	3.5	0	
31		-	2.6	439	-	54	-	1,500	-	2.4	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	829.2	379	0	27.6	1,640
December	851.0	374	.6	27.5	1,690
Calendar year 1948	112,691.4	13,100	0	308	223,500
January	17,873.2	4,720	2.2	577	35,450
February	34,443	12,100	12	1,230	68,320
March	8,805	1,840	20	284	17,460
April	8,295	1,390	14	276	16,450
May	9,946.0	1,500	7.4	321	19,730
June	3,175.9	1,210	3.7	106	6,300
July	601.2	161	.4	19.4	1,190
August	4.0	1.7	0	.13	7.9
September	0	0	0	0	0
Water year 1948-49	84,823.5	12,100	0	232	168,200

Peak discharge (base, 5,300 sec.-ft.).- Feb. 25 (6:30 p.m.) 19,300 sec.-ft.

Note.- No gage-height record Jan. 30 to Feb. 1, July 16-20, Aug. 4-24; discharge computed on basis of recorded range in stage, weather records, and records for nearby stations.

Chambers Creek near Corsicana, Tex.

Location.- Water-stage recorder, lat. 32°06'30", long. 96°22'15", at bridge on State Highway 31, 500 feet upstream from St. Louis Southwestern Railway bridge, 6 miles east of Corsicana, Navarro County, and 17 miles upstream from Richland Creek. Datum of gage is 294.26 feet above mean sea level, datum of 1929.
Drainage area.- 971 square miles (revised).
Records available.- March 1939 to September 1949.
Average discharge.- 10 years (1939-49), 623 second-feet.
Extremes.- Maximum discharge during year, 9,140 second-feet Feb. 25 (gage height, 23.28 feet); no flow at times.
1939-49: Maximum discharge, 48,000 second-feet May 3, 1944 (gage height, 27.19 feet); no flow at times.
Maximum stage known, about 27½ feet in December 1913, from information by local residents.
Remarks.- Records good except those for periods of no gage-height record, which are poor. No large diversion above station.
Revisions.- Revised figures of discharge, in second-feet, for period in the water year 1941, superseding those published in Water-Supply Paper 928 are given herewith:

Jan. 1 707

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
January.....	17,216	2,380	170	555	34,150
Water year 1940-41.....	378,815.4	18,700	0	1,038	751,300
Calendar year 1941.....	286,293.5	12,700	4.6	784	567,800

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0	1.2	162	1,090	f188	312	1,790	19	0	
2		0	0	1.0	154	596	f188	240	239	10	0	
3		0	0	1.0	120	474	249	184	142	7.3	0	
4		0	0	1.2	132	404	200	162	108	6.1	0	
5		0	0	1.4	176	351	188	145	88	5.7	0	
6		0	0	1.5	162	321	180	128	73	163	0	
7		0	0	1.4	126	294	176	114	64	90	0	
8		0	0	1.3	104	258	176	114	56	31	0	
9		0	0	1.3	86	258	176	244	g48	16	51	
10		0	0	1.4	78	258	827	184	46	8.0	201	
11		0	0	1.6	71	216	380	128	104	4.0	43	
12		0	0	1.9	64	200	224	91	1,250	2.3	14	
13		0	0	1.9	64	196	155	71	899	1.4	5.5	
14		0	0	2.0	174	184	126	62	424	1.1	1.9	
15		2.3	0	3.0	451	169	110	54	388	.9	.6	
16		0	0	5.4	263	162	102	48	289	.8	.1	
17		31	8.4	6.6	128	152	80	48	114	55	0	
18		12	24	6.5	102	148	73	52	68	38	12	
19		4.0	13	8.0	86	138	71	159	48	21	6.8	
20		2.5	8.5	8.2	78	126	83	116	40	14	1.9	
21		1.5	6.5	10	73	771	486	56	34	8.0	.4	
22		.8	5.2	10	68	1,400	1,570	52	32	4.9	0	
23		.3	5.4	8.5	116	1,400	534	48	30	4.9	0	
24		0	5.4	9.7	3,280	447	208	44	28	2.3	0	
25		0	4.2	212	8,530	1,750	173	85	78	54	0	
26		0	3.6	1,600	6,800	1,080	542	982	131	19	0	
27		0	2.5	1,670	5,100	775	1,440	2,610	176	6.9	0	
28		0	1.9	1,400	3,850	382	1,620	3,070	78	2.3	0	
29		0	1.7	1,400	-	285	694	3,320	48	.8	0	
30		0	1.6	854	-	232	518	1,830	44	.2	0	
31		-	1.5	149	-	208	-	1,990	-	0	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	0	0	0	0	0
November.....	54.4	31	0	1.81	108
December.....	93.4	24	0	3.01	185
Calendar year 1948	111,582.1	15,800	0	305	221,300
January.....	7,381.0	1,670	1.0	238	14,640
February.....	30,598	8,530	64	1,090	60,690
March.....	14,725	1,750	126	475	29,210
April.....	11,737	1,620	71	391	23,280
May.....	16,743	3,320	44	540	33,210
June.....	6,957	1,790	28	232	13,800
July.....	597.9	163	0	19.3	1,190
August.....	338.2	201	0	10.9	671
September.....	0	0	0	0	0
Water year 1948-49	89,224.9	8,530	0	244	177,000

Peak discharge (base, 13,000 sec.-ft.).- No peak above base.
f Computed on basis of partly estimated gage-height record.
g Computed from staff-gage reading.
Note.- No gage-height record Jan. 30 to Feb. 1, Apr. 5-9, 13-17, June 20-25, June 29 to July 5, July 8-20, Aug. 22-24; discharge computed on basis of recorded range in stage, weather records, and records for nearby stations.

Richland Creek near Richland, Tex.

Location.- Water-stage recorder, lat. 31°57', long 96°25', at bridge on U. S. Highway 75, 750 feet downstream from Texas & New Orleans Railroad bridge, 1 mile north of Richland, Navarro County, and 3½ miles downstream from Pinoak Creek. Datum of gage is 299.0 feet above mean sea level, datum of 1929.

Drainage area.- 737 square miles (revised).

Records available.- December 1924 to February 1925 (discharge measurements only), March 1939 to September 1949.

Average discharge.- 10 years (1939-49), 505 second-feet.

Extremes.- Maximum discharge during year, 1,740 second-feet May 27 (gage height, 15.88 feet); no flow at times.

1939-49: Maximum discharge, 58,900 second-feet May 12, 1948 (gage height, 24.15 feet); no flow at times.

Maximum stage known, 25.5 feet in December 1913, from information by engineers of Texas & New Orleans Railroad.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	a14	129	48	94	84	11	2.8	
2				0	f8.9	105	40	83	51	8.8	2.8	
3				0	8.8	91	54	69	38	7.0	3.4	
4				0	43	78	91	60	31	6.6	2.8	
5				0	87	69	51	54	28	32	2.4	
6				0	48	62	45	49	24	41	2.4	
7				0	30	57	43	45	23	12	2.2	
8				0	21	51	38	40	21	8.8	2.3	
9				0	17	44	37	40	19	5.0	4.0	
10				0	14	44	857	77	18	3.9	121	
11				0	13	44	788	48	17	3.2	102	
12				0	12	37	112	32	17	2.7	27	
13				0	11	35	50	27	105	2.4	11	
14				0	10	36	38	24	121	2.2	5.4	
15				0	9.7	32	31	21	776	1.9	3.7	
16				0	9.7	29	28	20	921	472	2.9	
17				0	12	27	24	18	82	785	2.5	
18				0	14	25	23	19	36	68	2.4	
19				0	12	24	23	27	24	22	5.8	
20				0	11	23	26	19	22	10	3.2	
21				0	9.3	732	284	16	20	6.1	2.4	
22				0	8.6	1,280	168	15	15	4.4	1.9	
23				0	9.3	290	65	13	13	4.6	1.4	
24				0	105	77	50	11	12	3.4	.8	
25				0	266	135	43	9.3	52	381	0	
26				22	479	725	356	704	82	460	0	
27				490	391	359	1,130	1,620	35	36	0	
28				541	195	237	267	612	19	12	0	
29				190	-	68	147	802	19	6.0	0	
30				f66	-	64	111	1,530	13	4.6	0	
31				f26	-	54	-	728	-	3.4	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	105,467.6	42,800	0	288	209,200
January	1,335	541	0	43.1	2,650
February	1,869.3	479	8.6	66.8	3,710
March	5,063	1,280	23	163	10,400
April	5,068	1,130	23	169	10,040
May	6,926.3	1,620	9.3	223	13,740
June	2,738	921	12	91.3	5,430
July	2,427.0	785	1.9	78.3	4,810
August	318.5	121	0	10.3	632
September	0	0	0	0	0
Water year 1948-49	25,745.1	1,620	0	70.5	51,060

Peak discharge (base, 12,000 sec.-ft.).- No peak above base.
a No gage-height record; discharge estimated.
f Computed on basis of partly estimated gage-height record.

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West Fork San Jacinto River near Conroe, Tex.

Location.- Water-stage recorder, lat. 30°15', long 95°28', at bridge on U. S. Highway 75, 285 feet upstream from International-Great Northern Railroad bridge, 3½ miles downstream from Lake Creek, and 4½ miles south of Conroe, Montgomery County. Datum of gage is 100.1 feet above mean sea level, datum of 1929, Galveston-Houston supplementary adjustment of 1936, and Houston supplementary adjustment of 1943.

Drainage area.- 832 square miles.

Records available.- May 1924 to September 1927, July 1939 to September 1949.

Average discharge.- 13 years (1924-27, 1939-49), 671 second-feet.

Extremes.- Maximum discharge during year, 11,000 second-feet Feb. 28 (gage height, 15.78 feet); minimum, 14 second-feet Oct. 2, 3, 4, 5, 8, 9.

1924-27, 1939-49: Maximum discharge, 110,000 second-feet Nov. 25, 1940 (gage height, 25.85 feet), from rating curve extended above 43,000 second-feet on basis of velocity-area studies; minimum, 9.3 second-feet Oct. 1, 2, 1939.

Maximum stage prior to 1940, 25.2 feet in December 1913, present site and datum, at railroad bridge 285 feet downstream from information by International-Great Northern Railroad (discharge, 101,000 second-feet, from rating curve extended above 43,000 second-feet on basis of velocity-area studies).

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	16	31	38	139	5,580	320	660	50	30	37	38
2	15	16	30	40	126	2,480	350	372	49	29	35	31
3	15	16	30	43	128	868	340	281	45	29	99	30
4	15	16	30	40	130	368	374	227	41	27	58	29
5	15	18	31	38	124	254	609	195	38	28	41	a23
6	15	18	31	36	148	204	505	173	36	29	40	a22
7	15	16	30	35	179	166	479	152	35	27	66	a21
8	15	16	30	36	151	144	361	135	33	26	58	a22
9	15	18	29	37	324	222	263	120	33	25	50	24
10	15	18	28	37	612	260	202	202	61	25	48	a20
11	15	18	29	35	252	166	168	118	71	25	46	a18
12	15	19	30	35	169	150	146	90	138	25	46	a18
13	15	22	30	35	136	155	134	77	62	24	43	17
14	15	26	31	36	112	156	147	70	57	34	40	21
15	15	27	31	38	102	152	138	64	58	124	36	23
16	15	40	32	69	100	136	125	61	55	225	33	25
17	15	40	32	103	92	131	117	57	51	124	31	64
18	15	36	33	84	86	127	113	54	49	109	30	103
19	15	36	34	66	90	120	111	52	46	72	30	90
20	15	32	34	71	86	114	841	50	42	62	30	114
21	15	34	35	219	88	2,770	1,310	50	39	52	30	76
22	16	34	35	725	92	5,830	2,410	49	36	46	30	60
23	16	33	37	382	126	4,220	4,770	57	36	41	29	55
24	15	32	37	304	116	3,000	4,890	44	34	39	28	57
25	15	31	38	314	594	2,400	3,080	42	36	39	28	53
26	15	31	36	274	4,590	1,320	2,260	42	36	46	29	45
27	15	32	35	181	5,910	1,190	2,840	48	35	48	29	37
28	15	41	36	179	9,900	1,140	2,220	90	33	43	29	34
29	16	36	47	148	-	595	1,310	61	31	41	29	31
30	16	32	44	130	-	687	1,040	55	31	38	29	29
31	16	-	40	140	-	802	-	52	-	37	29	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	470	16	15	15.2	0.018	0.02	932
November	800	41	16	26.7	.032	.04	1,590
December	1,036	47	28	33.4	.040	.05	2,050
Calendar year 1948	68,081	2,880	13	186	.224	3.05	135,000
January	3,948	725	35	127	.153	.18	7,830
February	24,702	9,900	86	882	1.06	1.10	49,000
March	35,907	5,830	114	1,158	1.39	1.61	71,220
April	31,973	4,890	111	1,066	1.28	1.43	63,420
May	3,790	660	42	122	.147	.17	7,520
June	1,397	138	31	46.6	.056	.06	2,770
July	1,569	225	24	50.6	.061	.07	3,110
August	1,216	99	28	39.2	.047	.05	2,410
September	1,240	114	17	41.3	.050	.06	2,460
Water year 1948-49	108,048	9,900	15	296	.356	4.84	214,300

Peak discharge (base, 2,700 sec.-ft.).- Feb. 28 (11 a.m.) 11,000 sec.-ft.; Mar. 22 (2 a.m.) 6,640 sec.-ft.; Apr. 23 (7 p.m.) 5,470 sec.-ft.; Apr. 27 (2:30 a.m.) 2,940 sec.-ft.

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

West Fork San Jacinto River near Humble, Tex.

Location.- Water-stage recorder lat. 30°01'35", long. 95°15'30", at bridge on U. S. Highway 59, 1,160 feet upstream from Texas & New Orleans Railroad bridge, about half a mile downstream from Srping Creek, and 2½ miles north of Humble, Harris County. Datum of gage is 30.53 feet above mean sea level, datum of 1929.

Drainage area.- 1,811 square miles.

Records available.- October 1928 to September 1949.

Average discharge.- 21 years, 1,178 second-feet.

Extremes.- Maximum discharge during year, 14,200 second-feet Mar. 1 (gage height, 12.64 feet); minimum, 30 second-feet Oct. 18, 19.

1928-49: Maximum discharge, 187,000 second-feet May 31, 1929, Nov. 25, 26, 1940; maximum gage height, 32.7 feet, present site and datum, May 31, 1929, Nov. 26, 1940, (flood of Nov. 26, 1940, affected by backwater from East Fork and it is believed flood of May 31, 1929, occurred under similar conditions); minimum discharge observed, 14 second-feet Sept. 8-10, 1931.

Remarks.- Records good except those prior to March, which are fair. No diversion above station.

Revisions (water years).- W. 898: 1929(M).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	40	67	64	305	12,600	3,100	2,150	195	69	146	114
2	36	40	66	76	295	6,760	2,800	1,480	149	70	89	232
3	36	37	66	74	275	2,760	2,150	1,100	131	66	329	214
4	35	37	66	66	250	1,340	1,750	920	117	62	624	128
5	35	36	66	61	240	812	2,200	676	109	61	250	105
6	35	35	62	61	225	485	2,150	479	100	56	186	114
7	35	34	62	59	216	a295	1,610	381	93	55	364	98
8	34	38	59	59	240	a160	1,180	320	91	52	696	82
9	32	43	59	59	275	333	854	270	87	50	587	74
10	35	48	56	59	1,060	1,430	a618	270	91	46	290	74
11	35	45	56	56	1,040	1,480	a425	345	163	42	195	80
12	35	46	58	56	709	980	a335	216	284	48	156	66
13	35	55	58	56	467	461	a300	178	282	49	122	117
14	35	66	59	56	365	1,140	a280	178	178	185	96	117
15	35	67	61	56	280	995	a270	153	203	990	78	112
16	34	76	61	70	212	605	a270	134	153	1,900	67	117
17	31	91	59	87	174	a425	a250	120	125	1,140	59	93
18	30	102	59	125	156	a305	220	109	112	563	52	120
19	31	98	59	160	146	199	207	100	100	305	48	222
20	31	80	58	134	136	134	1,370	93	93	178	45	248
21	32	115	58	315	131	2,260	4,120	89	91	134	42	255
22	35	112	58	1,190	655	10,600	4,500	85	85	107	42	199
23	35	87	58	1,300	912	8,240	7,340	80	83	112	41	199
24	35	76	59	1,040	812	6,280	9,200	74	155	91	40	171
25	35	70	61	847	2,210	4,840	9,200	70	148	125	38	149
26	35	76	56	690	9,200	3,040	5,320	72	102	102	45	134
27	35	87	58	593	11,000	2,150	5,640	109	93	117	49	109
28	36	82	59	515	13,500	2,000	5,480	1,200	89	107	41	93
29	37	74	66	431	-	1,380	3,700	638	80	98	37	82
30	37	72	70	381	-	1,680	2,680	569	70	96	37	76
31	38	-	69	340	-	5,160	-	300	-	99	36	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	1,070	38	30	34.5	0.019	0.02	2,120
November	1,965	115	34	65.5	.036	.04	3,900
December	1,889	70	56	60.9	.034	.04	3,750
Calendar year 1948	121,049	5,160	27	331	.183	2.48	241,100
January	9,136	1,300	56	295	.163	.19	18,120
February	45,486	13,500	131	1,624	.897	.92	90,220
March	81,329	12,600	134	2,624	1.45	1.67	161,300
April	79,519	9,200	207	2,651	1.46	1.63	157,700
May	12,958	2,150	70	418	.231	.27	25,700
June	3,852	284	70	128	.071	.08	7,640
July	7,175	1,900	42	231	.128	.15	14,230
August	4,927	696	36	159	.088	.10	9,770
September	3,994	255	66	133	.073	.08	7,920
Water year 1948-49	253,300	13,500	30	694	.383	5.20	502,400

Peak discharge (base, 8,900 sec.-ft.).- Mar. 1 (1 a.m.) 14,200 sec.-ft.; Mar. 22 (4:30 p.m.) 11,300 sec.-ft.; Apr. 25 (3 a.m.) 10,400 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

San Jacinto River near Huffman, Tex.

Location.- Water-stage recorder, lat. 29°59'40", long. 95°08'00", at Beaumont, Sour Lake & Western Railway bridge, 0.4 mile downstream from confluence of East and West Forks and 3.4 miles southwest of Huffman, Harris County. Datum of gage is 1.93 feet above mean sea level, datum of 1929.

Drainage area.- 2,791 square miles.

Records available.- October 1936 to September 1949.

Average discharge.- 13 years, 2,091 second-feet.

Extremes.- Maximum discharge during year, 24,000 second-feet Mar.1 (gage height, 25.35 feet); minimum, 74 second-feet about Oct. 9.

1936-49: Maximum discharge observed, 253,000 second-feet Nov. 26, 1940 (gage height, height, 51.2 feet); minimum observed, 49 second-feet Sept. 1, 1939, Sept. 13, 14, 1940. Flood of May 31, 1929, reached a stage of 50.3 feet, from information by Beaumont, Sour Lake & Western Railway Co. (discharge, 237,000 second-feet). Flood of April 1876 reached a stage about 1½ feet lower, from information by local resident.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	86	82	153	162	472	23,000	8,350	3,280	351	218	403	172
2	86	80	149	176	454	a13,600	7,780	2,070	293	218	355	232
3	82	80	142	172	432	a6,400	6,400	1,560	290	196	334	270
4	80	80	136	160	423	2,600	4,930	a1,260	260	191	955	209
5	78	80	132	158	428	1,720	4,930	a1,020	226	189	516	174
6	78	80	125	158	411	1,260	4,500	a835	204	181	371	174
7	78	80	125	149	391	1,020	3,680	a684	194	174	370	169
8	76	82	121	142	403	865	2,900	a558	181	167	696	149
9	76	92	121	140	454	957	2,140	508	176	162	712	158
10	78	92	117	138	1,040	2,220	1,790	528	174	153	504	142
11	82	88	117	136	1,930	2,600	1,580	895	255	140	399	242
12	82	92	119	134	1,420	1,790	1,390	518	635	132	321	192
13	82	102	121	134	985	1,160	a1,140	403	701	130	283	184
14	85	110	119	134	679	2,810	1,020	367	411	154	235	199
15	83	110	123	136	513	3,520	955	332	416	879	204	191
16	83	144	123	169	446	2,300	762	304	558	3,040	184	235
17	82	169	121	194	419	1,680	588	283	411	2,000	169	202
18	82	181	125	238	441	1,200	450	263	383	1,200	158	199
19	82	179	125	307	432	925	411	254	293	835	147	329
20	82	160	121	273	371	778	1,590	241	241	588	140	332
21	82	217	127	508	411	3,100	5,840	229	215	415	134	351
22	83	220	130	1,680	1,410	15,800	7,130	218	199	321	127	304
23	83	179	127	2,440	2,070	17,700	10,000	207	191	287	123	280
24	83	153	130	2,000	1,680	14,200	12,600	194	397	263	119	254
25	83	149	125	1,560	3,180	10,800	14,000	184	481	263	115	229
26	85	176	125	1,040	13,400	7,600	9,720	189	347	276	127	207
27	80	212	127	806	21,000	4,500	7,130	191	411	459	136	184
28	80	184	134	657	23,000	3,920	7,780	1,440	363	403	123	167
29	82	160	153	563	-	3,040	5,100	806	297	304	117	153
30	82	160	160	568	-	2,880	4,000	740	241	276	115	144
31	82	-	158	523	-	10,300	-	495	-	275	117	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	2,528	86	76	81.5	0.029	0.03	5,010
November	3,973	220	80	132	.047	.05	7,880
December	4,031	160	117	130	.047	.05	8,000
Calendar year 1948	215,249	5,400	68	588	.211	2.85	427,000
January	15,755	2,440	134	508	.182	.21	31,250
February	78,695	23,000	371	2,811	1.01	1.05	156,100
March	166,245	23,000	778	5,363	1.92	2.22	329,700
April	140,586	14,000	411	4,686	1.68	1.87	278,800
May	21,056	3,280	184	679	.243	.28	41,760
June	9,795	701	174	326	.117	.13	19,430
July	14,489	3,040	130	467	.167	.19	28,740
August	8,809	955	115	284	.102	.12	17,470
September	6,427	351	142	214	.077	.09	12,750
Water year 1948-49	472,389	23,000	76	1,294	.464	6.29	936,900

Peak discharge (base, 14,000 sec.-ft.).- Mar. 1 (3 a.m.) 24,000 sec.-ft.; Mar. 23 (1 a.m.) 20,200 sec.-ft.; Apr. 25 (8 a.m.) 14,500 sec.-ft.

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

Spring Creek near Spring, Tex.

Location.- Water-stage recorder, lat. 30°06'35", long. 95°26'10", at bridge on U. S. Highway 75, 4,500 feet upstream from International-Great Northern Railroad bridge, 2.4 miles northwest of Spring, Harris County, and 4 miles downstream from Willow Creek. Datum of gage is 78.10 feet above mean sea level, datum of 1929.

Drainage area.- 400 square miles.

Records available.- April 1939 to September 1949.

Average discharge.- 10 years (1939-49), 304 second-feet.

Extremes.- Maximum discharge during year, 3,850 second-feet Apr. 24 (gage height, 16.74 feet); minimum, 13 second-feet at times in October and November.

1939-49: Maximum discharge, 42,700 second-feet Nov. 25, 1940 (gage height, 28.60 feet, from graph based on gage readings); minimum observed, 7.7 second-feet Sept. 13, 1940.

Maximum stage known, 29.3 feet May 30, 1929, from floodmarks indentified by local resident (discharge, 48,300 second-feet).

Remarks.- Records good. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	13	21	24	44	858	785	198	46	25	25	104
2	14	13	21	24	43	231	468	154	40	25	23	169
3	14	13	22	24	44	164	330	118	36	25	67	87
4	14	13	20	23	47	134	319	100	34	25	56	46
5	13	13	20	22	50	111	612	87	32	25	47	29
6	13	13	20	21	48	97	596	80	30	25	40	24
7	14	13	20	21	43	87	317	73	30	25	136	22
8	13	14	19	21	40	80	170	80	29	25	52	21
9	13	14	19	21	85	137	118	75	28	25	35	21
10	14	14	18	21	256	782	100	67	29	24	33	21
11	14	14	18	21	316	860	87	59	60	24	31	21
12	14	15	19	21	127	336	77	56	79	23	30	30
13	13	16	19	21	76	130	69	71	52	23	25	23
14	14	17	19	21	58	278	64	55	42	75	23	21
15	13	17	20	21	52	394	61	50	39	306	22	21
16	13	35	21	25	48	150	56	47	36	192	22	20
17	13	57	20	36	46	94	53	46	33	76	21	20
18	13	47	21	73	43	79	52	44	30	40	21	23
19	13	30	21	46	43	69	50	42	29	32	21	30
20	13	25	21	30	44	62	516	41	27	28	21	44
21	13	26	21	98	53	529	1,090	40	26	26	21	39
22	14	22	21	289	57	1,960	1,180	40	26	24	21	33
23	13	20	20	410	74	1,900	1,530	39	33	24	21	27
24	13	18	20	204	78	1,560	3,170	38	69	24	21	23
25	13	18	21	95	284	469	2,190	37	29	31	20	21
26	13	30	21	67	1,990	532	611	37	30	43	20	20
27	13	25	21	55	3,130	545	a438	144	34	30	21	19
28	13	23	21	54	2,690	318	a644	179	29	28	21	18
29	13	20	23	50	-	224	452	180	26	31	20	18
30	13	20	24	54	-	368	359	138	26	26	20	17
31	13	-	24	48	-	1,350	-	62	-	25	23	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff	
						Inches	Acre-feet
October	413	14	13	13.3	0.033	0.04	819
November	628	57	13	20.9	.052	.06	1,250
December	636	24	18	20.5	.051	.06	1,260
Calendar year 1948	19,578	1,280	11	53.5	.134	1.83	38,840
January	1,961	410	21	63.3	.158	.18	3,890
February	9,909	3,130	40	354	.885	.92	19,650
March	14,888	1,960	62	480	1.20	1.38	29,530
April	16,564	3,170	50	552	1.38	1.54	32,850
May	2,477	198	37	79.9	.200	.23	4,910
June	1,089	79	26	36.3	.091	.10	2,160
July	1,380	306	23	44.5	.111	.13	2,740
August	980	136	20	31.6	.079	.09	1,940
September	1,032	169	17	34.4	.086	.10	2,050
Water year 1948-49	51,957	3,170	13	142	.355	4.83	103,000

Peak discharge (base, 1,600 sec.-ft.).- Feb. 27 (11 p.m.) 3,490 sec.-ft.; Mar. 22 (1 p.m.) 2,210 sec.-ft.; Apr. 24 (5:30 p.m.) 3,850 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

Cypress Creek near Westfield, Tex.

Location.- Water-stage recorder, lat. 30°02'08", long. 95°25'43", at bridge on U. S. Highway 75, 0.9 mile upstream from Senger Gully, 1.8 miles northwest of Westfield, Harris County, 2.0 miles upstream from International-Great Northern Railroad bridge, and 11.0 miles upstream from mouth. Datum of gage is 75.9 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 262 square miles.

Records available.- July 1944 to September 1949.

Extremes.- Maximum discharge during year, 1,580 second-feet Feb. 28 (gage height, 13.13 feet); no flow Nov. 1-16.

1944-49: Maximum discharge, 10,700 second-feet Aug. 31, 1945 (gage height, 19.03 feet); no flow Aug. 3-12, Aug. 18 to Sept. 5, Nov. 1-16, 1948.

Maximum stage known, about 22 feet in May 1929, from information by local resident. Flood of November 1940 reached a stage of about 20.2 feet, information by State Highway Department.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.5	0.1	2.1	0.2	13	1,270	616	602	7.7	0.9	6.1	6.0
2	3.0	0	1.8	.3	9.2	860	924	437	4.7	.9	a51	2.5
3	2.5	0	1.8	.3	7.6	659	860	363	3.3	1.5	a300	2.5
4	2.0	0	2.2	.3	6.2	426	734	274	2.5	2.0	a106	7.5
5	1.8	0	2.0	.3	5.7	174	659	118	2.1	3.8	a71	40
6	2.1	0	1.6	.3	6.4	68	560	50	1.8	3.7	a114	36
7	2.0	0	1.3	.2	7.4	39	476	29	1.8	2.3	330	18
8	1.8	0	1.0	.2	8.6	26	363	21	1.7	1.8	352	10
9	1.6	0	.7	.2	35	39	251	15	1.6	1.6	162	8.0
10	1.4	0	.6	.2	64	64	118	15	1.3	1.6	104	5.3
11	1.1	0	.5	.2	91	117	56	12	1.1	1.3	70	4.7
12	1.1	0	.5	.2	163	175	31	9.8	1.0	1.1	51	52
13	2.0	0	.4	.2	107	125	19	18	.8	.8	19	68
14	1.9	0	.4	.2	63	144	13	18	1.0	38	9.1	49
15	1.6	0	.4	.2	36	82	9.2	12	2.6	214	5.9	28
16	1.3	.2	.4	.5	22	159	7.2	8.6	2.5	386	4.5	16
17	1.1	.5	.4	1.3	15	141	5.9	6.6	2.1	149	3.4	12
18	.9	.7	.4	.7	12	69	5.0	5.6	2.0	46	2.8	8.6
19	.7	14	.4	.6	11	32	4.4	4.9	2.1	13	2.5	7.4
20	.6	17	.3	21	10	17	247	4.5	1.9	6.8	2.5	8.0
21	.4	18	.3	70	27	249	330	4.3	1.7	4.3	2.4	26
22	.4	12	.3	80	263	282	520	3.8	1.5	3.5	1.9	60
23	.3	7.6	.3	129	437	272	764	3.4	5.8	4.5	1.6	66
24	.2	5.4	.3	264	424	411	940	3.1	26	4.3	1.3	48
25	.2	3.9	.2	200	636	260	1,100	3.0	4.1	5.4	1.3	32
26	.2	4.7	.2	110	1,350	116	1,010	4.8	2.2	6.1	1.2	19
27	.2	11	.2	65	1,060	69	924	217	2.3	3.7	1.1	12
28	.2	8.9	.2	39	1,460	68	876	205	1.8	7.2	.9	9.1
29	.2	5.8	.3	21	-	66	764	195	1.3	5.6	.9	8.4
30	.2	3.3	.3	16	-	343	704	76	1.0	3.7	1.0	7.2
31	.1	-	.2	16	-	644	-	20	-	7.6	1.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	36.6	3.5	0.1	1.18	0.0045	0.005	73
November	113.1	18	0	3.77	.014	.02	224
December	22.0	2.2	.2	.71	.0027	.003	44
Calendar year 1948	5,786.2	235	0	15.8	.060	.82	11,490
January	1,037.6	264	.2	33.5	.128	.15	2,060
February	6,350.1	1,460	5.7	227	.866	.90	12,600
March	7,466	1,270	17	241	.920	1.06	14,810
April	13,890.7	1,100	4.4	463	1.77	1.97	27,550
May	2,759.4	602	3.0	89.0	.340	.39	5,470
June	93.3	26	.8	3.11	.012	.01	185
July	932.0	386	.8	30.1	.115	.13	1,850
August	1,781.4	352	.9	57.5	.219	.25	3,530
September	677.2	68	2.5	22.6	.086	.10	1,340
Water year 1948-49	35,159.4	1,460	0	96.3	.368	4.99	69,740

Peak discharge (base, 1,000 sec.-ft.).- Feb. 26 (10 a.m.) 1,440 sec.-ft.; Feb. 28 (4:30 p.m.) 1,580 sec.-ft.; Apr. 25 (1 p.m.) 1,150 sec.-ft.

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

East Fork San Jacinto River near Cleveland, Tex.

Location.- Water-stage recorder, lat. 30°20', long. 95°07', at bridge on State Highway 105, 83 feet downstream from Gulf, Colorado & Santa Fe Railway bridge, 1½ miles west of Cleveland, Liberty County, and 4 miles downstream from Winter Creek (revised). Datum of gage is 113.0 feet above mean sea level, datum of 1929 through medium of Galveston-Houston supplementary adjustment.

Drainage area.- 330 square miles.

Records available.- April 1939 to September 1949.

Average discharge.- 10 years (1939-49), 307 second-feet.

Extremes.- Maximum discharge during year, 9,660 second-feet Feb. 27 (gage height, 13.48 feet); minimum, 4.5 second-feet (temporary regulation) Aug. 17.

1939-49: Maximum discharge, 77,500 second-feet Nov. 24, 1940 (gage height, 20.37 feet), from rating curve extended above 14,000 second-feet by logarithmic plotting; minimum, that of Aug. 17, 1949.

Historical flood information at this site begins about 1900. Maximum stage known prior to 1940, 19.9 feet May 5, 1935, from information by local resident (discharge, 69,500 second-feet, from rating curve extended above 14,000 second-feet by logarithmic plotting).

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	15	25	28	62	2,200	465	242	46	37	25	21
2	11	15	23	30	59	770	378	175	42	36	27	37
3	11	15	22	37	62	304	346	142	37	43	25	28
4	10	15	22	39	69	222	294	118	33	44	30	21
5	10	14	22	32	67	181	314	102	31	37	29	19
6	11	15	22	29	63	170	336	88	29	35	24	18
7	11	19	23	28	57	147	274	80	28	30	24	17
8	11	18	22	27	52	121	179	76	27	28	27	17
9	11	17	21	27	65	229	130	72	27	26	35	17
10	11	17	20	28	325	247	113	84	30	25	31	19
11	12	19	20	29	304	118	102	66	203	24	31	21
12	13	19	20	28	213	100	94	56	116	23	29	19
13	14	19	21	28	114	97	82	51	60	23	25	23
14	14	28	22	28	88	325	72	48	83	38	22	19
15	14	27	23	28	79	150	69	46	105	219	19	19
16	13	26	25	33	108	119	63	46	119	181	18	20
17	13	35	25	57	97	110	57	43	74	79	18	35
18	12	30	25	80	74	103	56	42	50	50	16	46
19	13	30	24	51	73	96	53	41	41	36	15	50
20	14	36	25	38	74	88	518	38	37	32	15	52
21	15	27	24	57	70	1,080	1,140	38	33	27	15	41
22	15	23	23	375	113	2,880	1,830	37	32	25	15	32
23	15	24	23	570	106	3,950	3,950	36	31	27	14	32
24	15	22	23	378	97	2,470	4,040	35	56	27	14	26
25	15	20	25	142	274	1,130	2,480	33	123	26	14	22
26	15	23	26	84	2,660	410	948	32	177	30	15	19
27	15	25	29	70	8,280	421	546	35	103	31	16	19
28	15	29	26	78	4,930	367	826	58	73	33	16	19
29	15	32	29	80	-	232	1,230	105	52	30	15	16
30	15	28	37	78	-	314	655	66	42	25	15	15
31	15	-	32	69	-	465	-	55	-	24	15	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	406	15	10	13.1	0.040	0.05	805
November	682	36	14	22.7	.069	.08	1,350
December	749	37	20	24.2	.073	.08	1,490
Calendar year 1948	23,465	1,040	10	64.1	.194	2.64	46,540
January	2,686	570	27	86.6	.262	.30	5,330
February	18,635	8,280	52	666	2.02	2.10	36,960
March	19,616	3,950	88	633	1.92	2.21	38,910
April	21,640	4,040	53	721	2.18	2.44	42,920
May	2,186	242	32	70.5	.214	.25	4,340
June	1,940	203	27	64.7	.196	.22	3,850
July	1,351	219	23	43.6	.132	.15	2,680
August	649	35	14	20.9	.063	.07	1,290
September	759	52	15	25.3	.077	.09	1,510
Water year 1948-49	71,299	8,280	10	195	.591	8.04	141,400

Peak discharge (base, 2,500 sec.-ft.).- Feb. 27 (3 a.m.) 9,660 sec.-ft.; Mar. 22 (11:30 p.m.) 5,080 sec.-ft.; Apr. 25 (4 p.m.) 5,400 sec.-ft.

Peach Creek at Splendora, Tex.

Location.- Water-stage recorder, lat. 30°14', long. 95°10', at county road bridge between Splendora and Conroe, about 1,500 feet west of depot at Splendora, Montgomery County, 2.5 miles upstream from Texas & New Orleans Railroad bridge, 2.5 miles upstream from U. S. Highway 59 bridge, and 9.7 miles upstream from Caney Creek. Datum of gage is 86.61 feet above mean sea level, datum of 1929, Galveston-Houston supplementary adjustment of 1936.

Drainage area.- 120 square miles.

Records available.- December 1943 to September 1949.

Extremes.- Maximum discharge during year, 4,280 second-feet Mar. 22 (gage height, 11.60 feet); minimum, 10 second-feet Oct. 4, 5, 6.

1943-49: Maximum discharge, 7,980 second-feet Apr. 1, 1945 (gage height, 13.85 feet); minimum, 9.6 second-feet Aug. 18-21, 1948.

Maximum stage known since about 1895, 17.3 feet (revised) in November 1940, from floodmarks (adjusted to present site and datum), from information by local resident.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	14	23	24	36	221	285	80	30	21	47	14
2	11	14	19	22	35	141	*336	65	24	20	32	14
3	11	14	18	25	34	114	240	56	21	21	36	15
4	11	14	18	26	33	97	194	50	20	23	58	15
5	10	14	18	25	32	82	225	44	19	21	45	14
6	11	14	18	23	32	80	160	40	18	21	30	14
7	11	14	18	22	31	74	111	38	18	20	28	13
8	11	16	18	21	30	65	82	35	17	19	29	13
9	11	14	18	21	31	77	70	37	17	18	37	13
10	12	14	17	21	78	287	63	349	20	17	42	13
11	12	13	17	21	63	224	58	144	181	16	44	15
12	12	15	17	21	44	98	53	58	138	16	34	15
13	12	15	17	21	42	77	49	44	70	16	27	14
14	12	16	17	20	40	468	46	37	47	55	24	16
15	12	20	18	20	40	269	44	33	83	161	22	14
16	12	24	19	22	43	117	41	31	58	569	20	16
17	12	22	19	29	50	84	38	30	37	240	20	18
18	12	25	19	47	40	72	36	28	29	96	19	22
19	12	24	19	40	38	63	35	27	25	63	18	34
20	12	23	19	29	40	56	197	26	23	40	17	21
21	13	26	19	27	40	1,270	672	25	22	32	16	21
22	13	22	18	45	44	2,520	461	24	21	27	15	19
23	13	18	18	127	53	780	761	24	27	25	15	17
24	13	20	18	87	51	295	468	23	53	28	14	16
25	13	18	19	58	189	427	224	22	29	29	14	16
26	13	24	19	48	1,510	419	127	22	40	30	14	14
27	13	21	20	44	1,240	266	141	24	38	40	14	14
28	13	22	20	41	489	290	194	38	28	36	14	14
29	13	24	22	46	-	179	160	54	24	30	14	14
30	14	24	23	39	-	485	92	44	22	26	14	13
31	14	-	27	36	-	738	-	33	-	24	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	375	14	10	12.1	0.101	0.12	744
November	558	26	13	18.6	.155	.17	1,110
December	589	27	17	19.0	.158	.18	1,170
Calendar year 1948	13,081	292	9.6	35.7	.297	4.03	25,960
January	1,098	127	20	35.4	.295	.34	2,180
February	4,428	1,510	30	158	1.32	1.37	8,780
March	10,435	2,520	56	337	2.81	3.23	20,700
April	5,663	761	35	189	1.57	1.75	11,230
May	1,585	349	22	51.1	.426	.49	3,140
June	1,199	181	17	40.0	.333	.37	2,380
July	1,800	569	16	58.1	.484	.56	3,570
August	787	58	14	25.4	.212	.24	1,560
September	481	34	13	16.0	.133	.15	954
Water year 1948-49	28.998	2,520	10	79.4	.662	8.97	57,520

Peak discharge (base, 900 sec.-ft.).- Feb. 26 (9:30 p.m.) 1,900 sec.-ft.; Mar. 22 (1 a.m.) 4,280 sec.-ft.; Mar. 30 (9 p.m.) 1,370 sec.-ft.

Note.- No gage-height record Jan. 19 to Feb. 14, June 30 to July 13; discharge computed on basis of recorded range in stage, weather records, and records for nearby stations.

Caney Creek near Splendora, Tex.

Location.- Water-stage recorder, lat. 30°16', long. 95°18', at county road bridge, 4 miles downstream from Gulf, Colorado & Santa Fe Railway bridge and 8 miles west of Splendora, Montgomery County. Datum of gage is 123.44 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 104 square miles.

Records available.- January 1944 to September 1949.

Extremes.- Maximum discharge during year, 5,880 second-feet Feb. 26 (gage height, 14.73 feet); minimum, 11 second-feet Oct. 1-10, 13-18, 21-30, Nov. 1.

1944-49: Maximum discharge, 14,900 second-feet Apr. 1, 1945 (gage height, 18.19 feet), from rating curve extended above 6,000 second-feet by logarithmic plotting; minimum, 11 second-feet at times August to November 1948.

Maximum stage known since about 1885, 22.0 feet in November 1940, present site and datum, from information by local resident. Flood of May 1935 reached a stage of 19.3 feet, present site and datum, from information by local resident.

Remarks.- Records good. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	12	15	16	31	104	98	64	21	15	24	15
2	11	12	15	17	31	88	101	55	20	15	20	15
3	11	12	15	18	34	78	117	50	19	18	45	14
4	11	12	15	18	36	68	95	45	19	18	26	14
5	11	12	15	16	33	63	137	41	18	17	19	14
6	11	13	15	16	29	60	87	39	18	16	18	13
7	11	13	15	16	27	56	63	37	18	15	19	13
8	11	12	15	16	26	50	54	36	18	15	27	13
9	11	13	14	16	45	122	48	35	18	14	27	14
10	11	13	14	17	203	80	46	34	25	14	20	18
11	12	14	14	16	77	52	43	31	27	14	20	15
12	12	14	14	16	42	46	40	30	22	14	18	16
13	11	15	15	16	35	81	39	29	20	14	17	16
14	11	18	15	16	32	103	38	28	26	17	16	15
15	11	18	15	16	32	54	36	28	25	124	15	15
16	11	20	15	22	32	45	34	27	20	74	15	15
17	11	20	15	42	29	42	33	26	18	32	15	26
18	11	18	15	38	28	41	33	26	17	24	14	24
19	12	17	15	24	29	38	33	25	17	20	14	20
20	12	19	15	21	28	37	282	25	16	19	14	17
21	12	18	14	61	29	764	630	25	16	18	14	16
22	12	16	14	491	39	2,840	340	24	16	17	13	15
23	12	16	14	132	38	216	666	24	16	17	13	15
24	11	15	14	54	35	108	128	22	17	18	13	14
25	11	14	15	42	219	189	82	22	23	18	13	13
26	11	16	15	36	3,290	104	100	22	37	18	13	13
27	11	17	14	35	1,260	101	1,030	24	22	19	14	13
28	11	17	15	58	154	80	449	31	19	19	13	13
29	11	20	19	56	-	64	103	29	20	18	14	13
30	12	17	19	35	-	143	77	25	16	17	14	12
31	12	-	17	31	-	229	-	24	-	21	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	350	12	11	11.3	0.109	0.13	694
November	463	20	12	15.4	.148	.17	918
December	466	19	14	15.0	.144	.17	924
Calendar year 1948	10,843	541	11	29.6	.285	3.89	21,510
January	1,424	491	16	45.9	.441	.51	2,820
February	5,923	3,290	26	212	2.04	2.12	11,750
March	6,146	2,840	37	198	1.90	2.20	12,190
April	5,062	1,030	33	169	1.62	1.81	10,040
May	983	64	22	31.7	.305	.35	1,950
June	604	37	16	20.1	.193	.22	1,200
July	709	124	14	22.9	.220	.25	1,410
August	550	45	13	17.7	.170	.20	1,090
September	459	26	12	15.3	.147	.16	910
Water year 1948-49	23,139	3,290	11	63.4	.610	8.29	45,900

Peak discharge (base, 800 sec.-ft.).- Feb. 26 (2 p.m.) 5,880 sec.-ft.; Mar. 22 (4:30 a.m.) 4,900 sec.-ft.; Apr. 21 (10:30 a.m.) 906 sec.-ft.; Apr. 23 (11 a.m.) 870 sec.-ft.; Apr. 27 (9 p.m.) 1,580 sec.-ft.

Barker Reservoir near Addicks, Tex.

Location.- Water-stage recorder, lat. 29°46'05", long. 95°38'45", at dam on Buffalo Bayou, 45 feet upstream from reservoir outlet works, 1,160 feet upstream from Addicks-Howell county road, 1.1 miles south of Addicks, Harris County, and 1.2 miles upstream from South Mayde Creek. Auxiliary water-stage recorder, lat. 29°43'10", long. 95°44'00", on Buffalo Bayou, 2.8 miles west of Clodine, Fort Bend County, 4.8 miles (2.7 miles by reservoir) upstream from Mason Creek, 9.0 miles (6.4 miles by reservoir) upstream from reservoir outlet works. Datum of both gages is 0.3 foot below mean sea level, datum of 1929, Galveston-Houston supplementary adjustment and Houston supplementary adjustment of 1943.

Drainage area.- 150 square miles at outlet works; 105 square miles at upper gage.

Records available.- August 1945 to September 1949.

Extremes.- Maximum gage height at dam during year, 82.8 feet Apr. 24, 25 (contents, 222 acre-feet); maximum at upper gage, 96.6 feet Apr. 23, 24.

1945-49: Maximum gage height at dam, 90.4 feet Aug. 30, 1945 (contents, 11,240 acre-feet); maximum at upper gage, 98.6 feet Aug. 28, 1945.

Maximum stage known near site of upper gage prior to construction of reservoir, 98.1 feet in December 1935, from floodmark about 1,100 feet to right of and 1,100 feet downstream from upper gage.

Remarks.- Reservoir is formed by rolled-fill earthen-type dam 72,844 feet long. Dam completed Feb. 3, 1946, but was first used for flood control in spring of 1945. Reservoir is operated for flood protection of city of Houston. It is a detention reservoir with no provision for permanent storage. Outlet works consist of five concrete conduits, two of which are uncontrolled. The middle conduit is controlled by two vertical-lift steel gates; the two outer conduits are controlled by single vertical-lift steel gates, which were installed during spring of 1949. All gates remain closed except during recession of large floods or during emergencies. Capacity, 127,900 acre-feet between gage heights 75.0 feet (bottom of conduits) and 101.9 feet (top of design flood pool). No constructed emergency spillways; runoff considerably in excess of designed capacity will be discharged around ends of dam. Gage heights and contents not published for floods that do not produce a gage height of 82.0 feet (top of outlet structure) or higher at dam. Table given below shows gage heights at both gages and total contents, computed on basis of gage at dam, at indicated times for periods when flood runoff was partially stored in reservoir. Gage height at upper gage is given to show whether an existing stage at that site is due to normal stream flow or to flood storage in reservoir.

Cooperation.- Capacity table furnished by Corps of Engineers.

Gage height and contents, at indicated time when flood runoff was partly stored in reservoir, during period April to May 1949

Date	Time	Gage height at upper gage (feet)	Gage height at dam (feet)	Contents (acre-feet)
Apr. 19	12 p.m.	91.2	75.3	2.9
20	3 a.m.	91.2	75.3	2.9
20	4 a.m.	92.4	76.1	6.8
20	6 a.m.	93.5	76.8	12
20	12 m.	94.7	77.2	16
20	12 p.m.	95.7	77.9	23
21	12 m.	96.0	78.1	26
21	12 p.m.	96.1	78.2	27
22	4 a.m.	96.1	78.3	28
22	6 a.m.	96.2	79.4	45
22	12 m.	96.2	81.1	83
22	6 p.m.	96.2	81.5	99
22	12 p.m.	96.3	81.9	122
23	6 a.m.	96.5	82.0	129
23	12 m.	96.6	82.0	129
23	6 p.m.	96.6	81.9	122
23	12 p.m.	96.6	81.9	122
24	12 m.	96.6	82.4	164
24	12 p.m.	96.5	82.8	222
25	6 a.m.	96.4	82.8	222
25	6 p.m.	96.4	82.5	176
25	12 p.m.	96.4	82.3	153
26	12 m.	96.3	81.9	122
26	12 p.m.	96.3	81.3	90
27	12 m.	96.2	80.8	73
28	12 m.	96.1	80.0	55
29	12 m.	96.0	79.3	43
30	12 m.	95.9	78.7	34
May 1	12 m.	95.3	78.2	27
2	12 m.	93.6	77.3	17
3	12 m.	92.9	76.3	8.1
4	12 m.	92.4	75.9	5.7
5	12 m.	92.0	75.6	4.2
6	12 m.	91.7	75.4	3.3
7	12 m.	91.5	75.4	3.3

Buffalo Bayou near Addicks, Tex.

Location.- Water-stage recorder, lat. 29°45'44", long. 95°36'21" at Dairy-Ashford road bridge over rectified channel, 1.8 miles downstream from South Mayde Creek, 2.6 miles southeast of Addicks, Harris County, 3.0 miles downstream from outlet works of Addicks Reservoir, and 3.2 miles downstream from outlet works of Barker Reservoir. Datum of gage is 0.30 foot below mean sea level, datum of 1929, Galveston-Houston supplementary adjustment of 1943.

Drainage area.- 310 square miles.

Records available.- August 1945 to September 1949.

Extremes.- Maximum discharge during year, 3,640 second-feet Apr. 23 (gage height, 62.58 feet); no flow at times.

1945-49: Maximum discharge, 11,200 second-feet Aug. 29 1945 (gage height, 81.23 feet); no flow at times.

Maximum stage known since about 1896, 85.6 feet in December 1935, present datum (adjusted to former site 1,200 feet to right of present gage, from floodmark half a mile downstream, on basis of slope of flood of Aug. 29, 1945), from information by local resident.

Remarks.- Records poor. Flood flow partly regulated by Barker Reservoir (see preceding page) and Addicks Reservoir (see p. 83). No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	3	6	1	24	788	401	456	3.8	0.8	29	371
2	11	2	5	1	22	626	626	243	2.2	.6	23	508
3	12	2	4	1	22	382	471	112	2.2	.7	24	184
4	13	2	3	1	27	202	437	57	1.6	1.1	21	144
5	11	2	3	1	25	130	505	32	.8	1.0	20	94
6	10	2	5	1	21	82	334	26	1.8	.6	74	58
7	8	1	4	0	16	59	239	21	2.2	.4	404	34
8	7	1	3	0	13	45	164	18	5.8	1.8	243	31
9	6	1	2	0	13	38	70	15	67	3.5	185	42
10	5	1	1	0	88	46	39	13	53	4.2	214	96
11	4	1	1	0	117	35	23	11	22	1.6	160	129
12	5	1	1	0	91	32	16	10	17	.8	107	146
13	6	1	1	0	48	174	12	8	10	.7	79	118
14	8	1	0	1	31	1,210	9.2	7	7.4	6.0	56	88
15	8	1	0	2	22	881	7.0	6	5.9	170	37	78
16	7	6	0	5	18	608	5.2	5	5.3	823	26	83
17	5	140	0	3	12	488	4.5	5	4.5	978	25	89
18	4	160	0	8	28	236	3.9	4	5.9	495	21	154
19	4	110	0	25	35	98	6.2	3	7.1	345	15	495
20	3	190	0	100	52	52	532	3	8.8	234	13	430
21	2	170	0	400	142	110	698	2	6.6	119	14	323
22	2	110	0	539	358	188	2,040	2	4.0	53	14	209
23	2	50	0	385	698	91	3,560	2	3.6	29	17	157
24	2	37	0	282	430	52	3,110	2	3.2	28	16	118
25	3	27	0	162	770	40	1,930	3.0	4.8	25	15	79
26	3	20	0	92	1,970	29	1,590	5.9	5.0	26	15	59
27	4	16	0	74	1,620	27	1,200	6.5	6.2	26	14	49
28	4	12	0	62	1,070	25	882	51	2.8	31	17	42
29	4	10	1	51	-	19	672	26	2.3	65	14	54
30	3	8	1	36	-	101	547	12	2.0	37	13	60
31	3	-	1	35	-	451	-	2.9	-	31	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	181	13	2	5.84	0.019	0.02	359
November	1,088	190	1	36.3	.117	.13	2,160
December	42	6	0	1.35	.0044	.005	83
Calendar year 1948	14,096	420	0	38.5	.124	1.70	27,970
January	2,268	539	0	73.2	.236	.27	4,500
February	7,781	1,970	12	278	.897	.93	15,430
March	7,345	1,210	19	237	.765	.88	14,570
April	20,134.0	3,560	3.9	671	2.16	2.42	39,940
May	1,173.3	456	2	37.8	.122	.14	2,330
June	274.7	67	.6	9.16	.030	.03	545
July	3,538.8	978	.4	114	.368	.42	7,020
August	1,939	404	13	62.5	.202	.23	3,850
September	4,520	508	31	151	.487	.54	8,970
Water year 1948-49	50,284.8	3,560	0	138	.445	6.02	99,760

Note.- Stage-discharge relation indefinite Oct. 1 to Jan. 21 (no gage-height record Nov. 18 to Dec. 2, Dec. 7-12, 21-28, Dec. 30 to Jan. 4. Jan. 6,); discharge computed on basis of discharge measurements, weather records, records for Buffalo Bayou at Houston and Barker Reservoir near Addicks. No gage-height record May 6-24; discharge computed as explained in note above.

Buffalo Bayou at Houston, Tex.

Location.- Water-stage recorder, lat. 29°45'42", long. 95°23'52", at Waugh Drive Bridge in Houston, Harris County, 0.41 mile upstream from Texas & New Orleans Railroad bridge, and 3.1 miles upstream from Whiteoak Bayou. Datum of gage is 4.08 feet below mean sea level, datum of 1929.
Drainage area.- 362 square miles.
Records available.- May 1936 to September 1949.
Average discharge.- 13 years, 301 second-feet.
Extremes.- Maximum discharge during year, 3,420 second-feet Apr. 24 (gage height, 22.63 feet); minimum, 2.5 second-feet Dec. 20.
1936-49: Maximum discharge, 10,900 second-feet Aug. 30, 1945 (gage height, 34.23 feet); minimum not determined.
Maximum stage known since 1935, 54.4 feet Dec. 9, 1935, present site and datum (discharge, 40,000 second-feet, furnished by engineer for Harris County). Flood of May 31, 1929, reached a stage of 48.9 feet, present site and datum (discharge, 19,000 second-feet at bridge on Capitol Avenue, 2 miles downstream, from rating curve extended above 15,300 second-feet, stage-discharge relation materially affected by interference of bridge; furnished by city of Houston).
Remarks.- Records good except those estimated, which are fair. Flood flow partly regulated by Barker Reservoir (see p. 80) and Addicks Reservoir (see following page). No diversion above station.
Revisions.- W 1038: Drainage area.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1 to Dec. 28, Aug. 4)

7.2	3.2	8.0	32	11.5	435
7.3	5.2	8.2	44	13.0	680
7.4	8.0	8.6	77	16.5	1,430
7.6	14	9.0	118	19.5	2,260
7.8	22	10.0	232	22.5	3,380

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	20	23	7.2	38	1,140	493	480	17	9.2	37	113
2	13	12	18	32	36	840	644	379	14	9.1	34	402
3	25	7.2	12	13	36	592	644	221	12	23	139	238
4	23	5.8	9.8	8.9	38	338	542	122	11	9.7	83	151
5	20	6.6	7.7	7.7	39	182	592	75	10	6.3	93	120
6	17	4.2	7.2	6.6	36	118	504	52	11	6.9	193	84
7	12	4.2	15	6.0	29	80	365	39	11	6.9	607	58
8	13	7.4	10	5.8	25	58	278	33	15	6.9	545	40
9	13	all	7.2	5.5	39	46	154	28	16	5.8	314	38
10	9.8	6.6	5.2	5.5	25	38	87	25	66	4.6	214	44
11	7.7	4.8	4.4	5.8	95	43	54	23	56	10	238	102
12	7.2	6.6	3.8	6.0	134	39	38	22	32	11	153	151
13	11	8.9	4.0	5.8	97	32	30	20	27	10	99	151
14	13	6.0	4.0	5.8	58	560	24	18	22	597	68	117
15	14	5.0	4.0	5.8	41	1,200	20	16	16	631	49	116
16	16	186	3.8	80	31	852	17	23	13	a682	36	84
17	14	105	4.2	19	29	626	15	21	12	a1,690	27	93
18	12	189	4.6	15	169	504	14	23	14	a1,680	25	104
19	9.5	173	3.1	17	228	237	29	17	13	a1,090	23	330
20	7.2	102	3.0	33	68	108	627	15	13	a588	18	575
21	7.7	204	3.2	347	105	270	1,030	13	14	a294	15	466
22	6.9	165	3.4	421	424	284	1,500	12	15	a150	17	310
23	5.0	77	3.6	421	780	186	2,770	13	13	66	15	208
24	3.8	50	4.2	351	780	109	3,380	12	11	38	20	168
25	6.4	41	4.5	297	890	71	2,890	12	10	38	17	116
26	14	48	3.0	165	2,160	50	2,100	75	11	37	17	81
27	15	28	3.6	122	2,260	44	1,580	91	12	41	17	64
28	16	19	15	89	1,680	36	1,130	20	12	34	15	58
29	11	21	40	57	-	33	820	41	12	43	17	50
30	12	22	11	58	-	32	609	34	8.9	70	22	61
31	8.3	-	11	51	-	215	-	26	-	46	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	380.5	25	3.8	12.3	0.034	0.04	755
November	1,546.3	204	4.2	51.5	.142	.16	3,070
December	256.5	40	3.0	8.27	.023	.03	509
Calendar year 1948	18,342.9	420	3.0	50.1	.138	1.88	36,400
January	2,680.4	421	5.5	86.5	.239	.28	5,320
February	10,370	2,260	25	370	1.02	1.07	20,570
March	8,963	1,200	32	289	.798	.92	17,780
April	22,980	3,380	14	766	2.12	2.36	45,580
May	2,001	480	12	64.5	.178	.21	3,970
June	519.9	66	8.9	17.3	.048	.05	1,030
July	7,934.4	1,690	4.6	256	.707	.82	15,740
August	3,183	607	15	103	.285	.33	6,310
September	4,693	575	38	156	.431	.48	9,310
Water year 1948-49	65,508.0	3,380	3.0	179	.494	6.75	129,900

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for station near Addicks.

Addicks Reservoir near Addicks, Tex.

Location.- Water-stage recorder, lat. 29°47'30", long. 95°37'25", at dam on South Mayde Creek, 65 feet upstream from reservoir outlet works, 2,700 feet upstream from U. S. Highway 90, 1.2 miles east of Addicks, Harris County, and 1.4 miles upstream from mouth. Auxiliary water-stage recorders: lat. 29°48'05", long. 95°41'30", on South Mayde Creek at Groeschke Road bridge, 3.2 miles west of Addicks, 4.6 miles (3.5 miles by reservoir) upstream from Langham Creek and 5.5 miles (4.2 miles by reservoir) upstream from reservoir outlet works; lat. 29°50'10", long. 95°37'35", on Langham Creek at Clay Road bridge, 3.6 miles north of Addicks, 4.4 miles (2.7 miles by reservoir) upstream from mouth and 5.3 miles (3.1 miles by reservoir) upstream from reservoir outlet works. Datum of all gages is mean sea level, datum of 1929, Galveston-Houston supplementary adjustment and the Houston supplementary adjustment of 1943.

Drainage area.- 129 square miles at outlet works; 30 square miles at gage on South Mayde Creek; and 49 square miles at gage on Langham Creek.

Records available.- June 1948 to September 1949.

Extremes.- Maximum elevation at dam during year, 90.0 feet Apr. 23 (contents, 2,020 acre-feet); maximum at gage on South Mayde Creek, 106.8 feet Apr. 22; maximum at gage on Langham Creek, 101.7 feet Apr. 22.

1948-49: Maximum elevation at dam, that of Apr. 23, 1949; maximum at gage on South Mayde Creek, that of Apr. 22, 1949; maximum of gage on Langham Creek, that of Apr. 22, 1949.

Maximum stage known, 89.9 feet in December 1935 at U. S. Highway 90 bridge, 2,700 feet downstream from outlet works, from information by Corps of Engineers. This flood, from floodmarks, from information by local residents, reached a stage of 109.3 feet, 0.2 mile downstream, and 0.1 mile to right of gage on South Mayde Creek; and a stage of 104.5 feet, 1,900 feet to left and 700 feet upstream from gage on Langham Creek.

Remarks.- Reservoir is formed by rolled-fill earthen-type dam 61,166 feet long. Dam completed in fall of 1948. Reservoir is operated for flood protection of city of Houston. It is a detention reservoir with no provision for permanent storage. Outlet works consist of five concrete conduits, two of which are uncontrolled. The middle conduit is controlled by two vertical-lift gates; the two outer conduits are controlled by single vertical-lift-steel gates, which were installed during spring of 1949. All gates will remain closed except during recession of large floods or during emergencies. Capacity, 188,030 acre-feet between gage heights 73.0 feet (bottom of conduits) and 113.0 feet (top of design flood pool). No constructed emergency spillways; runoff considerably in excess of designed capacity will be discharged around ends of dam. Elevations and contents not published for floods that do not produce an elevation of 79.0 feet (top of outlet structure) or higher at dam. Table given below shows elevations at all gages and total contents, computed on basis of gage at dam, at indicated times for periods when flood runoff was partially stored in reservoir. Elevations at auxiliary gages are given to show whether an existing stage at that site is due to normal flow or to flood storage in reservoir.

Cooperation.- Capacity table furnished by Corps of Engineers.

Gage height and contents, at indicated time, when flood runoff was partly stored in reservoir, during periods February, April, July 1949

Date	Time	Gage height on South Mayde Creek (feet)	Gage height on Langham Creek (feet)	Gage height at dam (feet)	Contents (acre-feet)
Feb. 25	6 a.m.	99.4	95.1	-	-
25	12 m.	101.6	95.7	75.5	5
25	6 p.m.	106.0	99.0	77.2	15
25	9 p.m.	106.2	100.0	77.7	19
25	12 p.m.	106.0	100.8	77.7	19
26	6 a.m.	105.5	100.5	78.2	24
26	10 a.m.	-	-	79.5	39
26	12 m.	-	100.2	79.6	40
26	2 p.m.	-	100.1	79.5	39
26	12 p.m.	103.4	99.6	78.5	27
27	12 m.	101.9	98.6	77.3	16
27	12 p.m.	100.6	97.2	76.3	9
28	12 m.	99.8	96.0	75.4	5
Apr. 22	4 a.m.	99.6	94.5	75.7	6
22	8 a.m.	106.8	100.9	78.1	23
22	10 a.m.	106.8	101.7	79.1	34
22	12 m.	106.6	101.5	79.8	43
22	2 p.m.	106.5	101.2	82.5	93
22	4 p.m.	-	101.1	86.1	317
22	6 p.m.	106.2	100.9	88.5	1,020
22	10 p.m.	106.0	100.8	89.7	1,780
23	3 a.m.	-	100.5	90.0	2,020
23	12 m.	105.1	100.2	89.4	1,560
23	12 p.m.	103.6	99.8	87.6	656
24	12 m.	102.0	99.3	83.6	122
24	12 p.m.	100.8	98.2	80.0	46
25	12 m.	100.1	97.1	78.5	27
25	12 p.m.	100.6	97.0	77.7	19
26	12 m.	100.4	96.5	77.5	17
26	12 p.m.	100.0	96.2	77.0	13
27	12 m.	99.6	95.5	76.5	10
27	12 p.m.	99.1	95.2	75.9	7
28	12 m.	99.4	94.9	75.4	5
July 15	6 a.m.	98.7	92.6	-	-
15	6 p.m.	100.3	96.9	75.2	4
15	12 p.m.	100.8	95.8	75.8	6
16	8 a.m.	101.4	94.9	76.2	8
16	12 m.	104.8	96.6	78.8	30
16	4 p.m.	104.5	99.8	79.5	39
16	11 p.m.	103.0	99.0	80.4	52
17	1 a.m.	-	-	80.5	54
17	5 a.m.	102.1	97.2	80.2	49
17	12 m.	101.4	95.4	78.9	32
17	12 p.m.	100.2	93.9	76.0	7

Whiteoak Bayou at Houston, Tex.

Location.- Water-stage recorder and concrete control, lat. 29°46'31", long. 95°23'54", at Yale Streeet Bridge, in Houston, Harris County, 80 feet downstream from Texas & New Orleans Railroad bridge and 2.5 miles upstream from Little Whiteoak Bayou. Datum of gage is 4.08 feet below mean sea level, datum of 1929.

Drainage area.- 92.0 square miles.

Records available.- May 1936 to September 1949.

Average discharge.- 13 years, 84.5 second-feet.

Extremes.- Maximum discharge during year, 1,920 second-feet Apr. 23 (gage height, 31.35 feet); minimum, 0.3 second-foot Oct. 4, 5, 18, 19.

1936-49: Maximum discharge, 8,600 second-feet Nov. 2, 1943 (gage height, 42.45 feet); minimum, 0.2 second-foot Aug. 7, 8, 1940, Aug. 15-17, 22, 1948.

Maximum stage known, 51.5 feet Dec. 9, 1935, present datum (discharge, 14,750 second-feet, furnished by engineer for Harris County). Discharge for flood of May 31, 1929, 9,360 second-feet (gage height, 47.0 + 0.5 feet, present site and datum), computed on basis of current-meter measurement at stage 1 foot below crest, made at bridge 1 block downstream from gage; furnished by city of Houston.

Remarks.- Records good. No diversion above station.

Revisions.- W 1038: Drainage area.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 27-30, May 31 to Sept. 18)

19.0	0.3	19.5	16	25.0	715
19.1	1.1	19.9	65	27.0	1,040
19.2	2.6	20.5	150	30.4	1,690
19.3	5.2	21.5	257		
19.4	9.4	23.0	432		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	1.4	2.2	1.4	9.0	82	194	36	34	1.7	7.7	3.1
2	.7	.9	1.8	5.9	8.1	55	204	26	17	1.2	7.3	7.2
3	.5	.9	1.7	8.1	8.1	34	171	17	10	11	85	13
4	.4	.8	1.7	2.4	11	21	128	13	6.9	14	79	6.9
5	.5	.7	3.4	1.7	11	13	150	10	5.2	2.0	58	4.4
6	.5	.5	3.1	1.4	6.9	9.0	69	8.6	4.2	1.6	100	5.1
7	.8	.4	2.6	1.4	4.4	7.3	38	7.3	3.6	1.0	116	2.9
8	.8	.4	2.3	1.4	3.4	6.5	22	8.1	3.4	.9	133	2.2
9	.6	2.1	2.3	1.2	7.3	6.0	13	9.4	3.4	.7	95	2.2
10	.7	1.8	2.0	1.2	11	6.0	10	8.6	4.6	.6	73	1.8
11	.8	1.6	1.8	1.2	4.7	15	9.4	6.9	4.7	.8	55	2.4
12	1.1	1.1	1.7	1.1	2.6	7.7	14	6.0	3.1	2.5	40	5.6
13	.9	1.4	1.7	1.1	2.6	10	8.6	4.9	3.1	15	29	3.4
14	.7	1.7	2.0	1.4	2.3	160	6.9	4.4	3.6	353	18	9.0
15	.7	1.6	1.7	1.6	2.2	314	5.2	3.9	3.1	243	13	9.4
16	.5	61	1.6	42	2.2	73	4.7	3.6	2.6	308	9.0	9.0
17	.5	16	1.7	14	2.3	30	4.2	3.6	2.2	326	6.9	14
18	.3	4.7	1.7	3.9	105	15	3.9	3.4	4.5	98	4.7	14
19	.3	4.7	1.7	2.6	184	9.4	6.0	3.4	2.4	35	3.9	47
20	.5	3.9	1.6	2.2	24	7.3	283	3.4	1.8	11	3.1	48
21	.7	115	1.7	175	26	141	303	3.4	1.7	8.6	2.3	69
22	.9	52	1.7	166	147	197	622	3.1	1.4	6.0	2.2	41
23	.8	12	1.7	42	319	72	1,680	2.9	1.6	6.0	2.0	26
24	.7	8.1	1.8	20	162	26	971	2.9	1.4	22	2.2	14
25	.5	4.2	2.3	8.6	439	15	446	2.9	1.1	8.1	2.0	8.6
26	.8	22	1.6	5.6	1,180	10	232	8.5	1.4	6.5	2.9	6.0
27	1.0	15	1.4	18	745	11	168	75	1.1	8.6	2.9	4.4
28	.9	3.4	3.4	11	318	10	110	117	1.2	11	2.4	2.9
29	.9	2.6	8.0	5.2	-	8.6	66	262	3.2	12	2.4	2.3
30	.9	2.4	3.1	4.7	-	15	50	275	2.6	14	2.3	2.2
31	1.0	-	1.8	6.0	-	251	-	80	-	10	2.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	21.9	1.1	0.3	0.71	0.0077	0.009	43
November	344.3	115	.4	11.5	.125	.14	683
December	68.8	8.0	1.4	2.22	.024	.03	136
Calendar year 1948	5,560.6	221	.2	15.2	.165	2.25	11,020
January	559.3	175	1.1	18.0	.196	.23	1,110
February	3,748.1	1,180	2.2	134	1.46	1.52	7,430
March	1,637.8	314	6.0	52.8	.574	.66	3,250
April	5,992.9	1,680	3.9	200	2.17	2.42	11,890
May	1,020.2	275	2.9	32.9	.358	.41	2,020
June	140.1	34	1.1	4.67	.051	.06	278
July	1,539.8	353	.6	49.7	.540	.62	3,050
August	964.1	133	2.0	31.1	.338	.39	1,910
September	387.0	69	1.8	12.9	.140	.16	768
Water year 1948-49	16,424.3	1,680	.3	45.0	.489	6.65	32,570

Peak discharge (base, 820 sec.-ft.).- Feb. 26 (5 a.m.) 1,270 sec.-ft.; Apr. 23 (9:30 a.m.) 1,920 sec.-ft.; July 14 (8 p.m.) 835 sec.-ft.

Brays Bayou at Houston, Tex.

Location.- Water-stage recorder, lat. 29°42'06", long. 95°24'06", at Old Main Street Bridge in southwest section of Houston, Harris County, three-quarters of a mile upstream from Harris Gully and about 15 miles upstream from Buffalo Bayou. Datum of gage is 3.90 feet below mean sea level, datum of 1929.

Drainage area.- 100 square miles.

Records available.- May 1936 to September 1949.

Average discharge.- 13 years, 100 second-feet.

Extremes.- Maximum discharge during year, 2,340 second-feet Feb. 26 (gage height, 42.60 feet); minimum, 1.8 second-feet Oct. 25.

1936-49: Maximum discharge, 8,120 second-feet Nov. 2, 1943; maximum gage height, 51.70 feet Aug. 28, 1945; minimum discharge, 0.1 second-foot Oct. 10-13, 1937.

Maximum stage known since 1911, 56.0 feet in June 1919, present site and datum, from information by engineer for city of Houston. Flood of May 31, 1929, reached a stage of 50.4 feet, present site and datum (discharge, 11,095 second-feet), from current-meter measurement at Lawndale Avenue Bridge about 12 miles below gage; furnished by city of Houston.

Remarks.- Records good. No diversion above station.

Revisions.- W 1038: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.2	4.5	9.0	5.0	19	100	61	21	5.8	5.1	7.7	12
2	8.2	3.6	9.7	28	20	133	265	15	6.3	8.3	7.3	41
3	6.8	5.2	7.8	14	20	74	165	12	6.5	7.3	58	11
4	7.6	5.2	7.3	7.3	29	43	199	10	5.8	6.3	72	6.8
5	5.0	5.1	6.0	6.0	26	26	255	9.1	5.6	6.3	99	6.3
6	4.3	4.3	5.0	5.8	20	19	84	8.2	5.4	6.0	558	8.0
7	4.6	4.5	4.5	5.4	14	14	36	7.8	5.0	6.3	974	7.8
8	5.4	4.5	3.9	5.2	11	11	19	7.0	370	6.5	406	7.0
9	4.5	7.7	4.2	5.4	27	20	14	7.2	525	7.4	213	6.8
10	4.0	5.1	4.2	5.4	23	37	11	6.8	119	7.0	117	6.8
11	9.5	4.5	4.4	4.5	14	16	9.9	6.6	30	6.2	287	7.5
12	7.8	4.4	4.4	4.8	10	11	8.2	6.5	14	6.2	109	7.3
13	5.6	6.5	4.5	4.8	8.8	9.7	7.7	6.5	9.5	6.5	48	6.6
14	5.8	7.2	4.3	6.9	8.0	210	7.7	7.0	8.4	179	23	6.2
15	4.5	7.8	4.4	7.5	8.0	102	6.8	7.5	6.8	524	14	15
16	4.3	262	4.4	81	6.6	37	6.5	7.5	6.3	735	11	7.7
17	5.0	77	4.3	49	12	20	6.6	7.0	6.3	324	8.6	7.0
18	5.2	58	4.8	17	232	14	6.8	6.8	5.6	141	7.2	6.5
19	4.8	39	3.9	10	502	11	14	6.5	5.1	83	6.8	61
20	3.9	17	4.2	7.0	164	9.1	566	5.8	5.4	36	6.5	21
21	4.3	73	4.0	594	189	291	438	6.5	5.4	21	5.6	7.8
22	3.6	85	4.2	596	300	234	1,180	6.3	5.1	16	6.2	6.5
23	3.6	25	4.2	199	578	62	1,240	6.3	4.8	10	5.1	7.0
24	3.1	13	4.3	86	252	29	584	5.8	7.2	8.2	5.0	7.0
25	3.8	9.3	3.9	40	617	24	339	6.2	8.0	11	5.6	6.5
26	4.2	18	3.1	21	1,950	18	450	51	10	27	5.8	6.5
27	3.8	15	3.1	30	738	20	237	20	10	30	5.4	6.2
28	3.4	12	13	26	257	17	112	8.9	8.6	12	5.0	5.7
29	4.0	9.3	30	15	-	13	68	7.8	5.0	60	5.4	5.2
30	4.5	7.8	6.8	13	-	12	38	7.3	4.8	11	5.2	4.7
31	4.0	-	5.0	18	-	15	-	6.5	-	7.8	5.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Runoff Inches	Runoff Acre-feet
October	157.3	9.5	3.1	5.07	0.051	0.06	312
November	800.5	262	3.6	26.7	.267	.30	1,590
December	186.8	30	3.1	6.03	.060	.07	371
Calendar year 1948	12,233.6	649	3.1	33.4	.334	4.55	24,280
January	1,918.0	596	4.5	61.9	.619	.71	3,800
February	6,055.4	1,950	6.6	216	2.16	2.25	12,010
March	1,651.8	291	9.1	53.3	.533	.61	3,280
April	6,435.2	1,240	6.5	214	2.14	2.39	12,760
May	304.4	51	5.8	9.82	.098	.11	604
June	1,220.7	525	4.8	40.7	.407	.45	2,420
July	2,321.4	735	5.1	74.9	.749	.86	4,600
August	3,092.6	974	5.0	99.8	.998	1.15	6,130
September	322.4	61	4.7	10.7	.107	.12	639
Water year 1948-49	24,466.5	1,950	3.1	67.0	.670	9.08	48,520

Peak discharge (base, 1,300 sec.-ft.).- Feb. 26 (4:30 a.m.) 2,340 sec.-ft.; Apr. 22 (5 p.m.) 1,800 sec.-ft.; July 16 (10 a.m.) 1,500 sec.-ft.; Aug. 7 (1:30 a.m.) 1,560 sec.-ft.

Clear Creek near Pearland, Tex.

Location (revised).- Water-stage recorder, lat. 29°35'50", long. 95°17'12", at bridge on State Highway 35, 0.7 mile downstream from Gulf, Colorado & Santa Fe Railway bridge, 1.2 miles upstream from Hickory Slough, and 2.3 miles north of Pearland, Brazoria County, and about 30 miles upstream from Clear Lake. Datum of gage is 35.73 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Records available.- July to October 1944, March to October 1946 (low-water records only), April 1947 to September 1949.

Extremes.- Maximum discharge during year, 759 second-feet Nov. 16 (gage height, 10.77 feet); no flow Nov. 6, 7, 8, 9.
1944, 1946: Maximum discharge not determined; no flow at times.
1947-49: Maximum discharge, 833 second-feet Aug. 25, 1947 (gage height, 10.10 feet, from graph based on gage readings); no flow at times.

Remarks.- Records fair. Large area of rice land above station is irrigated with water from Brazos River. Low flow is largely drainage from irrigated lands. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.7	0.3	2.2	0.5	21	99	6.2	29	2.2	6.3	17	4.3
2	9.8	.3	1.7	1.1	24	147	16	21	4.2	5.9	9.1	3.3
3	9.5	.2	1.3	1.7	21	102	25	22	2.1	2.2	22	1.4
4	8.9	.1	1.1	1.2	20	55	41	12	1.9	4.4	97	1.5
5	7.4	.1	1.0	.9	25	35	77	13	1.3	3.6	88	2.9
6	6.4	.1	.8	.8	22	26	33	16	.7	2.5	141	5.8
7	6.0	.1	.8	.7	16	16	14	17	6.6	.2	367	4.8
8	5.5	0	.6	.7	13	10	8.4	17	18	.6	268	1.9
9	8.7	.3	.5	.6	13	53	6.4	14	24	3.9	173	3.0
10	9.3	.9	.4	.5	11	96	5.0	13	14	6.4	114	6.3
11	91	.4	.4	.5	7.8	42	4.2	7.5	15	3.0	70	5.4
12	92	.2	.5	.5	5.9	22	3.8	4.4	14	2.6	40	4.6
13	60	.5	.5	.5	4.8	61	2.8	3.8	11	.7	25	3.4
14	43	.6	.5	.5	4.2	394	2.2	5.7	7.5	17	20	4.1
15	31	.4	.7	.5	5.5	240	2.1	6.6	4.7	191	15	18
16	22	375	.8	6.5	6.4	130	1.8	4.0	17	444	6.0	35
17	17	526	.5	14	15	72	1.7	12	11	384	6.4	47
18	10	236	.6	7.6	222	36	1.6	12	6.0	176	8.3	37
19	7.1	161	.6	4.5	348	17	1.5	8.9	6.0	129	11	38
20	5.0	78	.5	2.8	186	11	329	4.7	8.2	85	11	39
21	3.6	65	.4	9.5	120	72	284	3.0	7.3	59	3.9	34
22	2.8	48	.4	204	202	81	500	3.3	4.4	44	2.5	35
23	2.1	28	.4	152	268	32	437	2.0	1.3	34	.4	31
24	1.9	20	.4	90	180	16	276	3.3	1.6	37	.8	29
25	1.6	14	.4	53	228	13	170	10	1.3	34	2.0	26
26	1.0	10	.3	35	579	11	200	9.5	2.7	48	4.0	25
27	.8	8.4	.3	47	322	15	123	15	8.5	108	4.7	23
28	2.0	7.1	.3	51	164	17	60	19	3.9	72	4.5	24
29	1.2	4.8	1.4	29	-	12	37	14	1.6	37	2.9	31
30	.8	3.0	.7	17	-	8.7	35	6.8	3.5	23	2.8	27
31	.5	-	.5	16	-	7.8	-	3.8	-	18	6.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	476.6	92	0.5	15.4	945
November	1,588.8	526	0	53.0	3,150
December	21.5	2.2	.3	.69	43
Calendar year 1948	8,041.2	526	0	22.0	15,940
January	835.6	204	.5	27.0	1,660
February	3,054.6	579	4.2	109	6,060
March	1,949.5	394	7.8	62.9	3,870
April	2,704.7	500	1.5	90.2	5,360
May	333.3	29	2.0	10.8	661
June	211.5	24	.7	7.05	420
July	1,982.3	444	.2	63.9	3,930
August	1,544.0	367	.4	49.8	3,060
September	551.7	47	1.4	18.4	1,090
Water year 1948-49	15,254.1	579	0	41.8	30,250

Peak discharge (base, 600 sec.-ft.).- Nov. 16 (10 p.m.) 759 sec.-ft.; Feb. 26 (6 a.m.) 665 sec.-ft.; Apr. 22 (4 p.m.) 665 sec.-ft.; July 16 (6 p.m.) 625 sec.-ft.

Note.- Backwater from temporary earth dam Apr. 8-19; discharge computed on basis of estimated effective gage heights.

Hickory Slough near Pearland, Tex.

Location.- Staff gage, lat. 29°34'47", long. 95°17'40", at county road bridge, 0.2 mile upstream from Gulf, Colorado & Santa Fe Railway bridge, 1.2 miles north of Pearland, Brazoria County, and 1.9 miles upstream from mouth. Datum of gage is 42.14 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Records available.- July to October 1944, March to October 1946, April to October 1947, April 1948 to September 1949 (discontinued).

Extremes.- Maximum discharge during year not determined; no flow at times.
1944, 1946-49: Maximum discharge not determined; no flow at times.

Remarks.- Records good. Gage read twice daily. Large area of rice land above station is irrigated with water from Brazos River. Low flow is largely drainage from irrigated lands. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	0	1.4	0.7	6.3	11	1.9	2.6	1.4	4.0	14	3.0
2	6.0	0	2.0	1.2	5.8	13	3.0	4.0	3.3	2.6	2.1	3.0
3	6.0	0	1.3	.9	4.7	12	2.9	3.2	6.8	3.6	8.8	3.5
4	4.3	0	1.3	1.2	4.7	7.5	5.8	2.0	6.0	2.3	20	11
5	3.8	0	1.3	.9	5.1	6.0	8.8	3.2	1.3	4.3	21	7.0
6	3.8	0	1.2	.7	5.8	4.7	3.3	2.5	1.2	4.3	(e)	6.5
7	4.3	0	1.1	.7	3.8	2.6	1.8	1.0	5.8	4.3	(e)	8.0
8	4.7	0	.8	.7	2.9	1.5	1.1	2.3	7.2	3.0	(e)	5.0
9	5.1	0	.8	.8	5.1	3.3	.8	2.0	11	2.1	50	7.0
10	3.8	0	.8	.7	5.6	5.1	.5	1.9	12	1.0	41	6.8
11	27	0	.7	.7	3.6	2.5	.3	4.5	7.2	3.8	31	2.5
12	24	0	.7	.7	2.5	1.8	.2	3.8	5.1	8.0	20	1.3
13	20	0	.7	.7	2.1	1.8	.2	2.9	2.2	8.8	13	3.6
14	15	0	.7	.7	1.9	9.3	.2	2.3	1.9	16	11	5.8
15	5.6	0	1.0	.7	2.6	8.0	.2	3.5	4.0	59	8.8	9.6
16	3.3	(e)	.8	1.5	3.6	3.6	.1	4.9	3.6	(e)	5.8	18
17	1.3	57	.7	2.0	4.0	2.0	0	5.8	3.3	(e)	3.8	13
18	.8	28	1.3	1.4	(e)	1.6	0	4.3	2.9	54	3.2	15
19	.8	28	.9	1.3	54	.9	.3	7.5	3.2	42	9.6	19
20	.8	17	.7	1.4	24	.7	60	7.7	3.6	33	9.6	17
21	.7	9.6	.7	14	23	10	36	3.3	2.9	22	8.8	22
22	.4	11	.7	28	(e)	11	(e)	2.1	2.2	20	10	20
23	.2	8.0	.7	20	(e)	5.4	61	1.9	1.5	20	8.2	16
24	.1	4.7	.7	12	20	4.9	36	4.0	1.2	20	8.0	15
25	0	3.3	.7	7.7	22	4.3	20	6.5	.8	19	7.0	13
26	0	2.8	.7	5.1	67	1.1	22	7.7	3.6	30	8.0	9.3
27	0	2.8	.7	9.7	37	2.6	15	9.6	12	49	8.2	4.5
28	0	2.8	.7	12	16	2.9	7.7	11	8.2	41	5.6	3.5
29	0	2.2	.7	6.8	-	1.8	4.0	3.6	6.0	27	4.0	1.4
30	0	1.5	.7	4.9	-	1.4	3.3	1.8	5.8	14	5.6	1.3
31	0	-	.7	4.3	-	1.5	-	1.8	-	15	7.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	146.3	27	0	4.72	290
November	-	-	0	-	-
December	27.9	2.0	.7	.90	55
Calendar year 1948	-	-	0	-	-
January	144.1	28	.7	4.65	286
February	-	-	1.9	-	-
March	145.8	13	.7	4.70	289
April	-	-	0	-	-
May	125.2	11	1.0	4.04	248
June	137.2	12	.8	4.57	272
July	-	-	1.0		-
August	-	-	2.1	-	-
September	271.6	22	1.3	9.05	539
Water year 1948-49	-	-	0	-	-

e Stage above limits of rating; discharge not computed.

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Chocolate Bayou near Alvin, Tex.

Location.- Staff gage, lat. 29°22'19", long. 95°19'14", at Rosharon-Alvin county road bridge, 5½ miles southwest of Alvin, Brazoria County, and 6½ miles upstream from State Highway 35. Datum of gage is 13.31 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943. Prior to Nov. 26, 1948, at site 40 feet downstream at same datum.

Records available.- August to October 1944, March 1946 to September 1949. Prior to 1948 low-water records only.

Extremes.- Maximum discharge during year, 980 second-feet Feb. 27, Apr. 23; maximum gage height, 12.99 feet Apr. 23; minimum discharge observed, 1.4 second-feet Nov. 8, 9, 11, 15, 16.

1944, 1946, 1947: Maximum discharge not determined; minimum observed, 1.0 second-foot Oct. 31, 1944.

1948-49: Maximum discharge, 1,080 second-feet Feb. 25, 1948 (gage height, 14.76 feet); minimum observed, that of Nov. 8, 9, 11, 15, 16, 1948.

Flood of July 14, 1939, highest in recent years, reached a stage of 19.9 feet, present site and datum (adjusted to present site from floodmark 2,600 feet to right of gage, on basis of slope of flood of Oct. 8, 1949), from information by local residents.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Gage read twice daily. Large area of rice land above station is irrigated with water from Brazos River. Low flow is largely drainage from irrigated lands. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	127	4.1	12	a6.9	26	299	49	65	45	58	58	53
2	121	2.9	9.3	a8.5	30	251	17	53	58	63	54	70
3	103	2.9	6.5	7.1	29	206	5.3	36	51	68	46	89
4	84	2.7	6.2	5.0	27	115	37	32	33	72	58	a76
5	72	2.4	a5.3	3.9	28	72	118	46	a25	79	115	65
6	58	1.8	5.2	2.5	28	a46	67	30	24	70	171	58
7	50	1.6	4.6	2.2	25	29	31	18	32	61	418	72
8	48	1.4	3.9	2.2	21	21	15	13	54	57	677	92
9	48	1.4	3.5	2.1	34	24	8.7	10	157	52	470	142
10	46	1.5	3.3	2.2	61	28	6.7	9.3	142	a45	259	151
11	44	1.4	3.3	2.2	46	18	6.2	13	79	38	193	a121
12	38	1.5	3.1	2.1	26	13	a5.3	17	51	38	127	109
13	54	1.5	2.9	1.9	21	15	4.2	9.8	35	50	82	121
14	70	1.5	3.1	1.8	16	264	4.0	13	29	61	a65	121
15	52	1.5	3.0	1.7	13	175	3.9	27	34	176	58	133
16	46	53	4.2	2.3	20	78	3.8	40	100	333	54	168
17	38	315	3.9	5.9	37	44	3.5	70	100	342	50	186
18	31	360	3.8	6.9	204	26	3.5	50	79	283	50	193
19	23	369	3.8	5.3	639	18	4.0	37	a68	180	61	186
20	21	275	3.6	3.9	713	14	407	31	61	109	58	179
21	27	165	3.3	70	477	31	749	36	65	76	a54	158
22	21	243	2.6	267	273	68	785	45	63	98	53	121
23	13	123	2.5	267	378	41	941	48	61	92	a51	109
24	13	61	2.6	193	378	21	837	54	61	47	a50	95
25	18	39	a2.3	100	435	17	535	50	65	39	52	84
26	23	28	2.3	63	725	13	495	31	70	52	a74	86
27	25	27	2.3	63	915	38	435	34	79	111	92	98
28	25	a26	2.2	58	590	68	251	43	74	176	a79	95
29	19	21	2.6	54	-	34	150	36	65	130	72	95
30	11	14	3.6	40	-	24	86	33	58	89	65	89
31	a7.8	-	a4.2	21	-	a26	-	39	-	68	58	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,376.8	127	7.8	44.4	2,730
November	2,149.1	369	1.4	71.6	4,260
December	125.0	12	2.2	4.03	248
Calendar year 1948	27,556.5	980	1.4	75.3	54,660
January	1,272.6	267	1.7	41.1	2,520
February	6,215	915	13	222	12,330
March	2,137	299	13	68.9	4,240
April	6,064.1	941	3.5	202	12,030
May	1,069.1	70	9.3	34.5	2,120
June	1,918	157	24	63.9	3,800
July	3,213	342	38	104	6,370
August	3,824	677	46	123	7,580
September	3,415	193	53	114	6,770
Water year 1948-49	32,778.7	941	1.4	89.8	65,000

Peak discharge (base, 800 sec.-ft.).- Feb. 27 (2 p.m.) 980 sec.-ft.; Apr. 23 (5 p.m.) 980 sec.-ft.

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

Oyster Creek near Angleton, Tex.

Location.- Water-stage recorder, lat. 29°09'25", long. 95°28'35", at bridge on State Highway 35, 2¾ miles west of Angleton, Brazoria County, 4.0 miles upstream from Missouri Pacific Railroad bridge, 4½ miles downstream from another Missouri Pacific Railroad bridge, and about 45 miles upstream from mouth at Gulf of Mexico. Datum of gage is 1.31 feet below mean sea level, datum of 1929.

Records available.- October 1944 to September 1949.

Extremes.- Maximum discharge during year, 992 second-feet Apr. 21 (gage height, 20.51 feet); minimum, 3.2 second-feet Nov. 21.

1944-49: Maximum discharge, 2,230 second-feet Nov. 7, 1946 (gage height, 26.25 feet); minimum, that of Nov. 21, 1948.

Flood of December 1913 reached a stage of about 32 feet, from information by State Highway Department; flood of Dec. 5, 1940, reached a stage of 30.7 feet, from levels to floodmark on bridge to which gage is attached. At extreme high stages the Brazos River overflows into Oyster Creek above this station and there may be some relation between stage of Brazos River at East Columbia and stage at this station.

Remarks.- Records fair. Diversions above station for irrigation. A large part of low flow at this station is water released from Harris Reservoir for industrial use below station. Harris Reservoir is supplied with water diverted from Brazos River during periods of flood flow.

Cooperation.- Three discharge measurements furnished by Dow Chemical Co.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	35	26	21	108	321	172	600	28	27	20	26
2	21	34	24	22	108	251	165	492	32	27	21	28
3	31	33	24	22	63	178	159	400	32	20	24	28
4	32	28	24	19	78	144	172	349	31	33	28	28
5	33	27	24	g21	108	123	210	300	31	34	25	28
6	33	27	23	g20	117	108	210	251	47	25	36	28
7	32	27	24	g19	117	93	198	217	44	16	178	28
8	32	27	25	g20	117	81	184	198	43	13	293	28
9	32	27	22	g22	117	87	178	178	102	21	237	29
10	32	26	21	21	132	87	191	159	117	26	178	36
11	33	24	20	21	132	66	224	144	54	27	123	35
12	32	20	20	21	123	53	172	141	44	25	81	35
13	32	19	20	21	117	48	135	129	42	24	51	33
14	31	21	21	21	114	150	123	126	38	24	38	32
15	29	24	21	21	114	251	117	129	43	26	35	30
16	23	22	21	22	75	237	111	117	58	33	33	28
17	19	17	21	22	24	198	108	117	50	41	29	27
18	18	9.6	21	22	33	178	47	114	43	32	22	28
19	18	6.2	20	18	84	165	29	114	39	27	15	30
20	18	4.2	18	15	81	153	g158	52	37	20	20	31
21	18	3.9	17	26	64	150	g835	16	38	28	25	29
22	18	11	16	38	50	135	g903	11	35	19	25	30
23	18	12	19	23	67	74	g753	9.6	36	8.6	25	33
24	18	6.5	22	14	74	33	g672	53	38	18	25	31
25	18	6.2	23	9.1	230	78	700	60	36	24	26	30
26	21	14	23	6.2	370	126	786	32	36	25	27	30
27	27	19	22	5.5	392	204	681	31	36	21	27	37
28	30	26	22	42	356	272	574	35	37	20	26	35
29	31	28	22	90	-	224	508	30	33	19	26	33
30	35	29	22	102	-	198	635	27	29	19	26	33
31	38	-	22	105	-	178	-	26	-	20	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	819	38	16	26.4	1,620
November	613.6	35	3.9	20.5	1,220
December	670	26	16	21.6	1,330
Calendar year 1948	21,815.0	634	3.9	59.6	43,270
January	871.8	105	5.5	28.1	1,730
February	3,565	392	24	127	7,070
March	4,644	321	33	150	9,210
April	10,110	903	29	337	20,050
May	4,657.6	600	9.6	150	9,240
June	1,309	117	28	43.6	2,600
July	758.6	41	8.6	24.5	1,500
August	1,771	293	15	57.1	3,510
September	917	37	26	30.6	1,820
Water year 1948-49	30,706.6	903	3.9	84.1	60,900

Peak discharge (base, 920 sec.-ft.).- Apr. 21 (9:30 p.m.) 992 sec.-ft.

g Computed from graph based on gage readings.

Note.- No gage-height record Nov. 5-8, Mar. 15, 17-22; discharge computed on basis of records of water released from Harris Reservoir, weather records, and engineers' notes.

Double Mountain Fork Brazos River at Lubbock, Tex.

Location.- Water-stage recorder and masonry control, lat. 33°35'05", long. 101°49'40", in Mackenzie State Park in Lubbock, Lubbock County, 1.9 miles downstream from Yellowhouse Creek. Datum of gage is 3,132.7 feet above mean sea level, datum of 1929.

Records available.- September 1939 to September 1949 (discontinued).

Average discharge.- 10 years, 1.67 second-feet.

Extremes.- Maximum discharge during year, 3,150 second-feet May 7 (gage height, 7.43 feet), from rating curve extended above 120 second-feet on basis of slope-area determinations at gage heights 6.72 and 7.43 feet; no flow most of time.
1939-49: Maximum discharge, that of May 7, 1949; no flow most of time

Remarks.- Records good. Station is located in small pool (capacity, 29.5 acre-feet). Figures of daily discharge represent inflow into pool computed on basis of outflow and change in contents with no correction for evaporation, transpiration, or seepage. Several dams form small pools above station which affect low flow.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								0	0	0		
2								0	e.2	0		
3								0	0	0		
4								0	0	0		
5								0	0	0		
6								0	0	e.1		
7								1,400	0	0		
8								102	0	0		
9								7.4	0	0		
10								.1	32	0		
11								0	.4	0		
12								0	e.2	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								0	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		

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	0	0	0	0	0
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	1,509.5	1,400	0	48.7	2,990
June	32.8	32	0	1.09	65
July	.1	.1	0	.003	.2
August	0	0	0	0	0
September	0	0	0	0	0
Water year 1948-49	1,542.4	1,400	0	4.23	3,060

e Computed on basis of change in reservoir content.

Double Mountain Fork Brazos River near Aspermont, Tex.

Location.- Water-stage recorder and wire-weight gage, lat. 33°00', long. 100°11', at bridge on U. S. Highway 83, 8 miles downstream from Mountain Creek and 10 miles south of Aspermont, Stonewall County.

Drainage area.- 7,979 square miles, of which 6,470 square miles is probably noncontributing.

Records available.- December 1923 to September 1934, June 1939 to September 1949.

Average discharge.- 20 years (1924-34, 1939-49), 173 second-feet.

Extremes.- Maximum discharge during year, 14,800 second-feet Sept. 14 (gage height, 8.14 feet); no flow at times.
1924-34, 1939-49: Maximum discharge, 52,000 second-feet Oct. 15, 1926 (gage height, 18.14 feet, from floodmark), by slope-area method; no flow at times.

Remarks.- Records poor. Daily discharge published only to show distribution of runoff. No large diversion above station. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Revisions (water year).- W 733: 1927(M).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	2,580	1.1	0		2.1	0	48	13	2.0	a23	9.1
2	0	1,410	1.0	0	5.0	1.6	.2	27	a2.6	1.4	a4.1	2.0
3	0	292	.8	0		1.4	.2	a19	a1.4	1.0	a1.0	0
4	0	154	.7	0	4.8	.9	.2	a14	1,400	.9	a.9	0
5	0	96	.5	0	5.0	.5	.2	a10	282	.5	a.6	0
6	0	64	.4	0	4.5	.4	.2	a9.0	109	f.2	.4	0
7	0	46	*.2	0	3.2	.3	.1	967	167	.2	2.6	0
8	0	36	.3	0	2.7	.2	.1	1,960	407	.2	9.4	0
9	.2	26	.2	0	2.1	.2	.1	1,790	1,950	.2	25	119
10	914	21	.3	0	1.3	.1	.1	646	1,610	.2	26	537
11	894	17	.3	0	.6	0	.1	330	4,950	.1	11	443
12	246	16	.1	0	a.2	0	.2	190	1,060	9.7	58	320
13	124	15	.2	.2	1.2	0	.2	129	834	10	144	510
14	62	13	.2	.9	13	0	.2	103	788	82	39	5,490
15	33	12	.2	4.5	6.6	0	.1	65	679	a47	81	3,460
16	20	10	0	2.8	6.2	0	.1	555	325	87	30	534
17	13	9.0	0		4.2	0	.1	323	202	a34	14	310
18	11	7.2	0	(*)	2.4	0	.1	486	139	a8.7	5.0	295
19	9.4	5.8	0		f2.0	0	98	209	90	1.8	1.6	198
20	8.3	4.8	0		*f1.8	0	274	109	65	.7	1.5	123
21	8.3	4.0	0	2.0	1.6	0	114	95	a50	.3	4.3	74
22	8.0	3.5	0		1.5	0	100	103	37	.2	1.6	a49
23	8.0	2.8	0		2.4	0	70	298	31	.7	1.7	a37
24	8.0	2.7	0		2.6	0	49	592	29	.4	.9	a30
25	7.6	2.4	0		2.6	2.3	34	23	20	0	f.4	a26
26	7.6	2.1	0		2.7	2.8	25	3,130	13	.1	f.3	25
27	7.2	1.8	0		2.6	1.4	19	215	11	0	2.2	24
28	6.9	1.5	0	4.5	2.2	.8	486	191	a8.7	0	.1	20
29	6.9	1.4	0		-	.5	251	40	a5.8	0	0	16
30	6.9	1.3	0		-	.3	111	38	3.6	.1	0	12
31	6.9	-	0		-	.1	-	40	-	34	f0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,417.2	914	0	78.0	4,790
November	4,858.3	2,580	1.3	162	9,640
December	6.5	1.1	0	.21	13
Calendar year 1948	47,196.0	6,270	0	129	93,600
January	55.9	-	0	1.80	111
February	95.0	13	.2	3.39	188
March	15.9	2.8	0	.51	32
April	1,633.5	486	0	54.4	3,240
May	12,754.0	3,130	9.0	411	25,300
June	15,283.1	4,950	1.4	509	30,310
July	323.6	97	0	10.4	642
August	489.6	144	0	15.8	971
September	12,664.1	5,490	0	422	25,120
Water year 1948-49	50,596.7	5,490	0	139	100,400

Peak discharge (base, 8,800 sec.-ft.).- Nov. 1 (8 p.m.) 11,000 sec.-ft.; May 26 (4 a.m.) 9,720 sec.-ft.; June 11 (9 a.m.) 13,400 sec.-ft.; Sept. 14 (10 p.m.) 14,800 sec.-ft.

* Winter discharge measurement made on this day.

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

f Computed on basis of partly estimated gage-height record.

Note.- Stage-discharge relation affected by ice Jan. 17 to Feb. 3 (no gage-height record Jan. 25 to Feb. 3; discharge computed on basis of weather records).

Brazos River at Seymour, Tex.

Location.- Water-stage recorder and wire-weight gage, lat. 33°34', long. 99°16', at bridge on U. S. Highways 277 and 283, three-quarters of a mile upstream from Wichita Valley Railway bridge and 1 mile southwest of courthouse in Seymour, Baylor County. Datum of gage is 1,258.7 feet above mean sea level (Texas State Highway bench mark).

Drainage area.- 14,490 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- November 1923 to September 1949.

Average discharge.- 25 years (1924-49), 456 second-feet.

Extremes.- Maximum discharge during year, 18,600 second-feet June 12 (gage height, 8.17 feet); no flow Oct. 1-10.
1923-49: Maximum discharge, 95,400 second-feet Oct. 16, 1926 (gage height, 15.16 feet, from floodmarks), by slope-area method; no flow at times.
Maximum stage known, about 21.0 feet, sometime prior to 1916.

Remarks.- Records fair. Wire-weight gage read twice daily. No large diversion above station.

Revisions (water years).- W 808: 1924-29.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	76	7.7	2.0	70	24	13	258	198	50	97	115
2	0	2,080	6.6	1.4	74	23	15	166	175	42	172	208
3	0	1,470	6.6	1.0	159	23	15	122	153	35	141	81
4	0	590	6.2	1.0	229	23	14	94	128	30	120	45
5	0	365	4.6	1.0	175	21	13	68	544	28	112	29
6	0	264	4.6	1.2	107	18	11	53	592	23	102	20
7	0	201	3.0	4.0	74	18	9.8	127	395	21	90	14
8	0	160	1.6	4.3	57	16	8.4	3,300	652	17	104	60
9	0	122	.8	1.2	48	13	7.0	4,810	3,530	15	139	55
10	198	100	.6	1.0	42	13	5.8	2,840	6,030	109	172	136
11	1,200	85	2.0	1.0	39	13	5.4	1,320	7,550	115	139	81
12	1,100	64	2.4	.9	34	13	6.2	816	13,700	285	92	102
13	408	51	1.8	2.2	20	11	5.8	552	5,500	195	79	172
14	247	35	2.8	16	f58	11	3.8	428	3,510	128	77	4,960
15	192	27	3.8	21	100	11	3.8	383	2,330	97	112	8,570
16	144	36	3.0	14	98	12	3.8	408	1,410	83	150	5,470
17	110	26	2.4	21	117	10	3.8	1,270	1,160	66	130	2,080
18	70	26	1.8	17	74	10	3.0	7,670	752	94	122	1,010
19	53	24	1.4	f21	53	11	4.6	2,980	552	104	79	658
20	45	23	2.2	f31	45	14	7.7	1,500	f389	85	f81	f552
21	40	20	2.8	26	35	14	14	1,040	295	59	35	460
22	36	17	2.0	23	25	15	135	720	243	44	21	310
23	30	17	3.0	137	26	15	163	560	195	34	14	222
24	24	17	5.4	201	f30	13	141	434	169	31	9.1	178
25	18	15	5.0	175	28	19	107	804	147	36	7.7	153
26	18	13	3.8	94	28	33	85	2,260	122	44	6.6	122
27	17	12	3.0	64	25	50	79	3,370	102	53	4.6	102
28	16	8.4	2.6	62	25	53	92	1,010	88	36	3.4	85
29	15	8.4	2.8	57	-	36	149	865	74	140	3.4	f77
30	16	8.4	1.8	62	-	25	310	509	62	136	2.4	70
31	19	-	2.0	64	-	17	-	277	-	114	17	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	4,016	1,200	0	130	7,970
November	5,961.2	2,080	8.4	199	11,820
December	100.1	7.7	.6	3.23	199
Calendar year 1948	87,018.4	8,800	0	238	172,600
January	1,128.2	201	.9	36.4	2,240
February	1,895	229	20	67.7	3,760
March	598	53	10	19.3	1,190
April	1,434.9	310	3.0	47.8	2,850
May	41,014	7,670	53	1,323	81,350
June	50,747	13,700	62	1,692	100,700
July	2,349	285	15	75.8	4,660
August	2,434.2	172	2.4	78.5	4,830
September	26,197	8,570	14	873	51,960
Water year 1948-49	137,874.6	13,700	0	378	273,500

Peak discharge (base, 11,000 sec.-ft.).- June 12 (12 m.) 18,600 sec.-ft.
f Computed on basis of partly estimated gage-height record.

Brazos River near South Bend, Tex.

Location.- Water-stage recorder and wire-weight gage, lat. 33°01'30", long. 98°38'50", at bridge on State Highway 67, 0.3 mile upstream from Wichita Falls & Southern Railroad bridge, 1.6 miles downstream from Clear Fork Brazos River, and 2.0 miles northeast of South Bend, Young County. Datum of gage is 1,003.0 feet above mean sea level, datum of 1929.

Drainage area.- 21,600 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- September 1938 to September 1949.

Average discharge.- 11 years, 1,020 second-feet.

Extremes.- Maximum discharge during year, 14,300 second-feet May 17, June 12; maximum gage height, 11.94 feet May 17; no flow Oct. 7-10.

1938-49: Maximum discharge, 87,400 second-feet May 4, 1941 (gage height, 27.35 feet); no flow at times.

Maximum stage known, 36.2 feet in 1876, from information by Texas State Highway Department and Corps of Engineers.

Remarks.- Records fair. Wire-weight gage read once daily and readings used for major portion of year when water-stage recorder record was not available. Flow partly regulated by reservoirs in Elm Creek Basin (see p. 111), and Lakes Sweetwater and Trammel in Sweetwater Creek Basin, which have a combined capacity of about 105,000 acre-feet (revised). Many small diversions above station for municipal supply and oil-field operations.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	27	22	8.3	214	52	49	434	724	150	15	150
2	.3	21	22	7.8	161	49	44	430	386	126	60	104
3	.3	685	21	7.2	144	44	35	394	418	106	47	120
4	.3	1,300	20	6.3	270	38	32	314	342	102	41	212
5	.3	795	15	8.3	321	36	25	264	307	585	52	190
6	.2	536	15	6.3	318	32	23	181	273	714	72	137
7	0	402	13	6.8	252	29	22	238	336	202	56	94
8	0	300	13	6.8	170	28	17	5,400	715	172	53	80
9	0	240	13	6.8	122	24	15	9,760	500	67	475	59
10	6.0	195	12	6.8	94	22	13	7,900	4,670	60	1,940	102
11	16	166	11	8.3	75	20	12	4,190	9,200	65	935	195
12	3.3	142	10	12	65	19	12	2,360	13,200	47	472	126
13	1,420	117	11	11	64	17	10	1,420	11,300	53	328	355
14	2,400	102	18	14	62	16	6.8	970	7,390	221	208	3,220
15	1,210	88	17	19	450	16	6.3	660	9,480	646	142	10,300
16	696	77	16	22	575	13	5.9	4,130	3,460	232	109	7,640
17	342	65	14	37	446	13	4.6	13,200	1,860	148	79	4,560
18	220	56	13	28	267	13	4.6	10,900	1,400	90	147	3,220
19	161	47	11	30	215	12	6.3	6,890	1,030	70	198	2,040
20	124	42	11	28	195	11	13	2,620	822	49	179	2,140
21	100	37	11	26	155	67	11	1,600	635	42	168	1,060
22	86	36	11	30	112	45	9.4	1,360	522	60	131	768
23	62	33	11	50	109	26	13	1,200	442	50	115	610
24	52	33	11	83	102	18	299	2,420	390	60	90	454
25	221	30	9.4	264	82	688	690	1,600	585	94	64	356
26	162	28	10	570	74	955	472	2,210	660	56	37	282
27	94	26	11	410	60	210	295	5,440	464	52	23	249
28	64	24	11	531	53	84	1,390	5,380	258	33	21	210
29	50	22	7.8	504	-	53	796	7,900	205	19	15	172
30	35	22	8.9	580	-	44	390	3,920	168	15	10	148
31	28	-	8.9	513	-	49	-	1,350	-	13	95	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,554.3	2,400	0	244	14,980
November	5,694	1,300	21	190	11,290
December	409.0	22	7.8	13.2	811
Calendar year 1948	176,230.4	13,600	0	482	349,500
January	3,841.7	580	6.3	124	7,620
February	5,237	575	53	187	10,390
March	2,743	955	11	88.5	5,440
April	4,711.9	1,390	4.6	157	9,350
May	107,035	13,200	181	3,453	212,300
June	72,142	13,200	168	2,405	143,100
July	4,399	714	13	142	8,730
August	6,377	1,940	10	206	12,650
September	39,353	10,300	59	1,312	78,060
Water year 1948-49	259,496.9	13,200	0	711	514,700

Peak discharge (base, 11,000 sec.-ft.).- May 17 (7 a.m.) 14,300 sec.-ft.; June 12 (2 p.m.) 14,300 sec.-ft.; Sept. 15 (11 a.m.) 11,400 sec.-ft.

Possum Kingdom Reservoir near Graford, Tex.

Location.- Mercury U-tube gage, lat. 32°52', long. 98°26', in powerhouse at dam on Brazos River, 2.6 miles upstream from Loving Creek and 11.3 miles southwest of Graford, Palo Pinto County. Datum of gage is 0.10 foot above mean sea level, datum of 1929 (levels by Brazos River Conservation and Reclamation District).

Drainage area.- 22,550 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- March 1941 to September 1949.

Extremes.- Maximum contents observed during year, 700,100 acre-feet June 13 (gage height, 998.7 feet); minimum observed, 457,100 acre-feet Feb. 5, 6, 15, 16, Mar. 18-24 (gage height, 983.6 feet).

1941-49: Maximum contents observed, 743,700 acre-feet Oct. 5, 1941 (gage height, 1,001.0 feet); minimum observed, 378,900 acre-feet Feb. 18-27, 1944 (gage height, 977.3 feet).

Remarks.- Reservoir is formed by reinforced concrete dam of flat slab deck, massive buttress type, with nine roof-weir (modified bear-trap) type gates, two bulkhead sections, and earthen dike section. Dam completed and storage began Mar. 21, 1941. Total capacity, 724,700 acre-feet (gage height, 1,000.0 feet, top of closed roof-weir gates). Usable capacity for power development, 698,900 acre-feet between gage heights 911.5 feet (sill of powerhouse penstock) and 1,000.0 feet (top of closed roof-weir gates). Water below gage height 911.5 feet can be withdrawn through high pressure outlet down to gage height 874.8 feet. Figures given herein represent total contents. Water used for power development, industry, and irrigation.

Cooperation.- Records of daily gage height and capacity table furnished by Brazos River Conservation and Reclamation District.

Monthly gage height and contents, water year October 1948 to September 1949

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	986.9	502,700	-
Oct. 31	986.7	499,900	-2,800
Nov. 30	986.1	491,400	-8,500
Dec. 31	985.0	475,900	-15,500
Calendar year 1948	-	-	-32,400
Jan. 31	984.1	463,800	-12,100
Feb. 28	983.8	459,800	-4,000
Mar. 31	983.9	461,200	+1,400
Apr. 30	984.2	465,200	+4,000
May 31	997.9	685,200	+220,000
June 30	996.6	661,800	-23,400
July 31	993.9	613,200	-48,600
Aug. 31	990.2	551,200	-62,000
Sept. 30	991.4	570,400	+19,200
Water year 1948-49	-	-	+67,700

† Gage height at 12 p.m.

Brazos River near Palo Pinto, Tex.

Location.- Water-stage recorder, lat. 32°51'45", long. 98°18'10", at bridge on Palo Pinto-Graford highway, 300 feet downstream from Dark Valley Creek, 6½ miles north of Palo Pinto, Palo Pinto County, and 20 miles downstream from Possum Kingdom Dam. Datum of gage is 831.23 feet above mean sea level, datum of 1929.

Drainage area.- 22,760 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- November 1933 to September 1949. January 1924 to November 1933 at site near Mineral Wells.

Average discharge.- 15 years,(1934-49), 1,168 second-feet.

Extremes.- Maximum discharge during year, 11,800 second-feet June 14 (gage height, 8.26 feet); minimum, 3.2 second-feet Apr. 14, 15.

1933-49: Maximum discharge, 64,900 second-feet May 20, 1935, from rating curve extended above 32,000 second-feet; maximum gage height, 17.42 feet Oct. 17, 1942; no flow at times.

Maximum stage known was reached by flood of 1876, according to data of Corps of Engineers, and was several feet higher than any subsequent flood. A stage of about 24.0 feet was reached in June 1930, from information by local residents.

Remarks.- Records good except those below 17 second-feet, which are poor. Flow largely regulated by Possum Kingdom Reservoir (see preceding page) and several smaller reservoirs above Nugent in Clear Fork Basin, having a combined capacity of 830,000 acre-feet (revised). Many small diversions above station for irrigation, municipal supply, and oil-field operation.

Rating tables, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to May 2

0.1	4.0	0.8	130	1.8	486
.2	10	1.0	183	2.0	610
.3	20	1.2	239	2.5	950
.4	37	1.4	303	3.0	1,340
.6	81	1.6	384		

May 3 to Sept. 30

0.6	78	2.0	610	4.5	2,950
.8	127	2.5	950	5.0	3,750
1.0	180	3.0	1,360	6.0	5,810
1.2	242	3.5	1,820	7.0	8,200
1.5	354	4.0	2,320	8.2	11,500

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	185	73	426	85	630	206	62	152	3,090	1,650	350	1,380
2	144	225	283	72	675	214	32	96	3,090	1,530	657	1,770
3	364	420	132	37	917	62	286	391	3,090	540	586	1,600
4	440	224	213	152	1,270	27	182	440	3,090	98	722	1,440
5	172	210	92	198	640	63	67	308	3,020	264	1,380	1,860
6	232	142	61	111	132	176	50	232	2,550	1,210	786	1,730
7	380	99	164	226	60	310	41	234	2,360	1,170	530	1,340
8	185	65	110	129	384	127	17	1,140	2,300	1,050	572	1,350
9	95	164	176	76	135	196	11	254	1,640	586	658	574
10	166	168	438	57	110	61	8.8	288	1,550	354	808	714
11	89	443	216	305	154	58	13	95	1,450	522	1,090	242
12	60	322	72	135	384	77	10	232	1,120	1,380	1,350	664
13	97	168	41	378	162	32	8.2	302	4,020	1,280	1,090	1,300
14	350	98	300	106	206	14	3.6	321	11,500	1,240	641	856
15	282	76	468	81	420	7.6	3.4	93	10,000	1,330	1,060	708
16	315	498	389	72	359	25	9.4	1,340	3,090	666	1,430	588
17	138	156	209	39	160	74	20	4,850	3,020	141	1,570	660
18	118	200	276	336	54	232	14	3,160	3,020	211	1,410	668
19	218	362	84	211	35	102	8.2	3,090	3,020	1,130	1,400	1,110
20	144	116	44	157	228	39	334	2,880	2,950	1,240	1,100	1,560
21	174	74	304	230	423	386	116	1,070	2,880	1,250	448	1,710
22	204	40	432	106	78	96	104	1,280	2,880	1,230	350	1,710
23	126	287	239	84	105	56	142	1,760	3,780	656	620	1,600
24	72	515	186	81	260	23	75	1,660	3,800	310	1,200	630
25	34	270	215	433	74	628	25	1,690	2,620	336	1,680	304
26	202	83	78	798	45	674	22	1,660	2,380	812	1,750	478
27	270	116	42	642	39	140	679	1,380	2,630	533	1,670	1,360
28	214	77	226	656	35	143	862	2,310	2,380	569	1,680	1,600
29	182	35	291	636	-	58	246	5,220	2,210	731	1,830	1,570
30	207	153	308	630	-	72	291	8,200	1,740	538	1,720	830
31	112	-	81	630	-	242	-	3,090	-	156	1,710	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5,971	440	34	193	11,840
November	5,879	515	35	196	11,660
December	6,596	468	41	213	13,080
Calendar year 1948	161,864	1,990	33	442	321,000
January	7,889	798	37	254	15,650
February	8,174	1,270	35	292	16,210
March	4,620.6	674	7.6	149	9,160
April	3,742.6	862	3.4	125	7,420
May	49,218	8,200	93	1,588	97,620
June	96,270	11,500	1,120	3,209	190,900
July	24,709	1,650	94	797	49,010
August	33,848	1,830	350	1,092	67,140
September	33,906	1,860	242	1,130	67,250
Water year 1948-49	280,823.2	11,500	3.4	769	556,900

Brazos River near Glen Rose, Tex.

Location.- Water-stage recorder, lat. 32°15'40", long. 97°41'50", a quarter of a mile upstream from bridge on U. S. Highway 67, 2 miles upstream from Paluxy Creek, and 4 miles northeast of Glen Rose, Somervell County. Datum of gage is 567.82 feet above mean sea level, datum of 1929.

Drainage area.- 24,840 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- October 1923 to September 1949.

Average discharge.- 26 years, 1,631 second-feet.

Extremes.- Maximum discharge during year, 96,200 second-feet May 17 (gage height, 26.7 feet, from floodmark), from rating curve extended above 30,000 second-feet by logarithmic plotting; minimum, 81 second-feet Apr. 19.

1923-49: Maximum discharge, 97,600 second-feet May 18, 1935 (gage height, 23.68 feet), from rating curve extended above 68,000 second-feet; no flow at times prior to construction of Possum Kingdom Dam.

Maximum stage known, about 30.0 feet May 8 or 9, 1922, from information by local residents.

Remarks.- Records good except those for May 17, 18, which are poor. Flow partly regulated by Possum Kingdom Reservoir (see p. 94) and several smaller reservoirs in Clear Fork Basin (see p. 111). Many small diversions above station for irrigation, municipal supply, and oil-field operation.

Revisions (water years).- W 1058: 1932.

Rating table, water year 1948-49, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 24 to May 12, and Sept. 18-30)

0.8	118	2.0	1,400	6.0	7,540	16.0	38,000
.9	170	2.5	2,280	8.0	11,700	18.0	47,000
1.0	235	3.0	3,040	10.0	16,800	20.0	57,000
1.2	395	4.0	4,300	12.0	23,000	22.0	68,000
1.5	705	5.0	5,840	14.0	30,000		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	216	198	202	144	b595	480	370	1,400	7,830	2,600	606	1,740
2	154	222	149	118	b730	361	361	705	4,380	2,440	742	1,670
3	123	202	128	248	1,060	288	318	490	3,860	1,860	532	1,830
4	106	202	144	272	965	228	265	433	3,740	1,790	327	1,480
5	93	170	102	202	755	196	280	352	3,630	1,560	321	1,640
6	154	139	252	149	780	183	235	295	3,630	1,010	617	1,520
7	154	167	265	118	1,090	258	196	295	3,530	595	628	1,430
8	369	272	196	110	1,040	209	250	553	3,420	404	911	1,570
9	280	222	165	102	553	160	272	705	2,960	531	1,100	1,640
10	216	216	183	110	352	139	216	3,170	2,750	1,100	818	1,450
11	327	183	139	170	250	134	170	3,140	3,040	1,040	617	1,260
12	344	170	114	160	221	250	154	1,380	2,600	911	683	924
13	265	149	114	196	302	196	144	792	1,920	584	650	705
14	209	128	165	170	228	202	165	584	2,080	490	818	617
15	154	211	352	160	196	176	134	424	4,380	791	1,090	433
16	154	352	265	230	228	144	106	2,350	11,300	1,210	1,180	1,460
17	128	310	202	288	302	118	98	ac70,500	8,370	1,280	857	1,570
18	106	228	160	318	216	110	89	45,700	4,600	1,240	780	1,080
19	172	183	217	*242	297	106	98	9,740	3,630	1,100	1,480	884
20	258	165	424	190	395	98	202	5,520	3,420	564	1,430	564
21	272	272	310	149	295	241	302	4,600	3,300	370	1,280	780
22	202	202	250	139	228	1,120	222	4,000	3,300	367	1,250	661
23	165	202	272	190	*216	3,300	344	3,940	3,420	1,060	1,190	1,220
24	160	288	202	272	1,630	1,190	404	5,790	6,300	1,130	755	1,430
25	176	202	154	235	2,970	1,200	500	5,620	10,400	1,150	511	1,520
26	165	154	234	352	3,060	4,320	280	4,450	8,140	965	424	1,460
27	196	134	310	404	1,090	5,760	1,030	4,140	6,310	574	683	952
28	176	212	258	386	661	3,700	912	2,820	3,710	442	1,320	553
29	149	344	216	466	-	1,690	2,010	4,100	2,820	452	1,510	404
30	128	280	216	805	-	755	2,520	6,820	2,900	705	1,490	695
31	134	-	190	b650	-	480	-	8,540	-	574	1,590	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5,905	369	93	190	11,710
November	6,379	352	128	213	12,650
December	6,550	424	102	211	12,990
Calendar year 1948	230,381	7,520	93	629	457,000
January	7,745	805	102	250	15,360
February	20,705	3,060	196	739	41,070
March	27,792	5,760	98	897	55,120
April	12,647	2,520	89	422	25,080
May	203,348	70,500	295	6,560	403,300
June	135,670	11,300	1,920	4,522	269,100
July	30,889	2,600	367	996	61,270
August	28,190	1,590	321	909	55,910
September	35,142	1,830	404	1,171	69,700
Water year 1948-49	520,962	70,500	89	1,427	1,033,000

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of levels to floodmarks, gage heights at U. S. Weather Bureau gage 1,900 feet downstream, engineers' notes, and information by local residents.

b Stage-discharge relation affected by ice.

c Backwater from Paluxy Creek.

Brazos River near Whitney, Tex.

Location.- Water-stage recorder, lat. 31°50'30", long. 97°19'30", 1.0 mile downstream from Coon Creek, 3.4 miles downstream from Whitney Dam (now under construction), 7.5 miles south of Whitney, Hill County. Datum of gage is 417.39 feet above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1948, wire-weight gage at site 8.3 miles upstream. Datum of gage was 432.06 feet above mean sea level, datum of 1929.

Drainage area.- 26,190 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- October 1948 to September 1949; October 1938 to September 1948 at site 8.3 miles upstream; records comparable.

Average discharge.- 11 years, 1,915 second-feet.

Extremes.- Maximum discharge during year, 71,800 second-feet May 18 (gage height, 31.03 feet); minimum, 49 second-feet Oct. 21.

1938-48: Maximum discharge, that of May 18, 1949; minimum observed, 2.0 second-feet Oct. 31, Nov. 1, 1939.

Maximum stage known since 1853, about 45 feet May 9, 1922, from information by local residents.

Remarks.- Records good. Flow partly regulated by Possum Kingdom Reservoir on Brazos River (see p. 94) and several smaller reservoirs in Clear Fork Basin. Many small diversions above station for irrigation, municipal supply, and oil-field operation. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 25 to May 17)

4.7	134	8.0	2,160	15	15,800
5.0	222	9.0	3,170	17	22,100
5.5	405	10	4,350	20	32,300
6.0	655	11	5,720	25	49,800
6.5	965	12	7,660	30	68,100
7.0	1,300	13	10,000		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	459	178	346	260	633	1,130	900	2,650	9,040	2,550	685	1,380
2	342	163	310	246	600	932	793	1,710	5,500	2,250	633	1,500
3	274	175	257	206	769	763	769	1,130	3,870	2,160	709	1,500
4	222	240	216	174	1,030	638	697	868	3,390	2,050	739	1,540
5	187	226	184	242	1,060	550	616	763	3,280	1,890	540	1,380
6	163	219	175	302	868	490	545	685	3,170	1,760	441	1,380
7	152	212	163	257	811	441	545	584	3,060	1,260	509	1,380
8	152	181	226	209	1,030	418	482	520	2,950	932	661	1,300
9	193	175	299	184	1,100	468	432	655	2,750	715	793	1,300
10	345	274	246	166	757	423	550	817	2,400	584	1,100	1,380
11	331	254	203	160	520	373	567	2,360	2,400	1,080	868	1,300
12	278	254	229	160	405	350	459	2,780	2,550	1,130	769	1,160
13	342	246	206	212	346	338	405	1,460	2,250	1,060	616	965
14	344	229	249	212	700	428	377	998	2,090	835	727	733
15	292	229	320	240	432	389	342	745	3,060	715	727	745
16	250	226	299	250	335	377	346	594	6,650	725	1,030	550
17	219	244	393	240	292	361	320	37,900	8,320	1,230	1,160	935
18	200	357	335	282	320	327	296	66,100	5,460	1,230	965	1,380
19	187	316	274	335	357	302	285	26,000	3,750	1,200	829	1,180
20	144	260	229	338	299	278	1,860	7,660	3,060	1,160	1,310	900
21	138	229	256	288	378	923	1,780	5,880	2,950	817	1,840	709
22	282	209	410	246	432	1,710	1,060	5,000	2,850	578	1,230	644
23	296	285	335	226	381	1,230	799	5,150	3,190	581	1,200	709
24	250	250	296	354	3,160	2,750	679	4,780	5,140	871	1,160	975
25	212	232	306	436	1,170	1,540	868	6,620	8,800	1,130	835	1,230
26	196	310	260	393	5,150	2,630	2,680	11,900	7,440	1,160	667	1,300
27	216	260	219	472	2,750	5,140	1,200	5,750	6,220	1,060	500	1,840
28	203	216	251	961	1,630	4,110	2,320	4,120	4,760	799	530	1,060
29	222	190	331	661	-	3,170	2,040	5,540	3,230	606	1,060	715
30	222	213	292	472	-	1,980	2,060	6,160	2,550	515	1,840	525
31	196	-	268	500	-	1,230	-	6,420	-	665	1,840	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,509	459	138	242	14,890
November	7,052	357	163	235	13,990
December	8,383	410	163	270	16,630
Calendar year 1948	308,973	11,600	138	844	612,800
January	9,694	961	160	313	19,230
February	27,715	5,150	292	990	54,970
March	36,189	5,140	278	1,167	71,780
April	27,072	2,680	285	902	53,700
May	224,299	66,100	520	7,235	444,900
June	126,130	9,040	2,090	4,204	250,200
July	35,298	2,550	515	1,139	70,010
August	28,513	1,840	441	920	56,550
September	33,595	1,840	525	1,120	66,630
Water year 1948-49	571,449	66,100	138	1,566	1,133,000

Brazos River at Waco, Tex.

Location.- Water-stage recorder, lat. 31°33'40", long. 97°07'45", at Washington Avenue Bridge in Waco, McLennan County, 2½ miles downstream from Bosque River. Datum of gage is 356.80 feet above mean sea level, datum of 1929, supplementary adjustment of 1942.

Drainage area.- 28,500 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- September 1898 to September 1949. (January 1912 to September 1914, monthly records only, on Water-Supply Paper 850). U. S. Weather Bureau has collected gage-height records in this vicinity since 1900.

Average discharge.- 51 years, 2,683 second-feet.

Extremes.- Maximum discharge during year, 71,400 second-feet May 18 (gage height, 27.27 feet); minimum, 82 second-feet Oct. 22.

1898-1949: Maximum discharge, 246,000 second-feet Sept. 27, 1936 (gage height, 40.90 feet, levee on left bank was overtopped and broken by flood); minimum discharge for periods of daily record, 1898-1911, 1914-49, no flow Aug. 20, 21, 1918, and probably for several days in August 1923.

Maximum stage, 1854-97, 34.2 feet May 28, 1885. A stage of 39.7 feet was reached Dec. 3, 1913, when levee on left bank was broken by flood, from information by U. S. Weather Bureau.

Remarks.- Records good except those below 200 second-feet which are fair. Flow partly regulated by Possum Kingdom Reservoir on Brazos River (see p. 94), several small reservoirs in Clear Fork Basin, and Lake Waco (capacity, 22,000 acre-feet) on Bosque River near Waco. A siltation survey of Lake Waco by the Soil Conservation Service of the U. S. Department of Agriculture in December 1947 indicates a 44.07 percent capacity loss from siltation since storage began in April 1930. Many small diversions above station for municipal supply, irrigation, and oil-field operation do not appreciably affect flow.

Revisions (water years).- W 850 and W 878: (monthly and yearly summaries only, 1899-1905, 1907-10).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	592	186	166	262	405	1,640	1,270	3,080	9,460	2,940	688	1,540
2	450	165	309	244	708	1,220	1,790	3,840	8,950	2,940	688	1,620
3	330	145	305	236	670	1,020	983	1,880	5,120	2,640	636	1,760
4	251	134	251	202	860	852	882	1,320	4,180	2,640	740	1,720
5	199	209	212	171	1,220	722	792	1,840	3,850	2,640	760	1,760
6	168	212	177	186	1,100	624	702	967	3,740	2,390	552	1,540
7	145	202	159	289	912	555	644	1,410	3,640	2,050	510	1,620
8	134	206	147	251	912	508	611	815	3,540	1,580	516	1,540
9	123	180	164	206	1,180	481	549	764	3,440	1,190	702	1,490
10	174	159	289	177	1,100	514	537	2,570	3,240	916	879	1,580
11	305	244	247	153	778	465	650	1,220	3,040	788	1,190	1,620
12	313	258	206	145	579	415	702	3,850	3,680	1,360	924	1,440
13	255	247	206	142	476	390	682	2,550	3,040	1,440	788	1,320
14	305	244	216	171	420	366	460	1,540	2,940	f1,620	656	1,030
15	313	226	242	202	729	455	420	1,140	4,600	996	747	809
16	314	251	317	230	498	420	390	1,020	5,360	1,130	767	788
17	297	212	317	240	390	415	395	21,300	12,100	1,050	1,190	588
18	202	204	420	240	338	390	366	66,100	8,370	1,490	1,270	1,220
19	183	325	343	255	352	348	356	44,500	5,120	1,540	996	1,540
20	168	312	277	321	405	321	3,720	10,400	3,740	1,440	908	1,230
21	147	262	233	352	343	3,030	5,410	6,970	3,440	1,360	1,490	964
22	98	219	222	297	415	2,340	1,930	5,750	3,340	865	1,540	721
23	226	193	405	255	525	2,380	2,190	5,240	3,640	636	1,360	721
24	277	248	338	424	1,610	2,660	1,010	5,360	6,200	828	1,360	740
25	236	244	289	1,360	4,710	2,880	4,680	5,620	12,600	1,070	1,270	1,230
26	202	216	301	874	7,090	1,880	5,340	10,600	13,400	1,320	844	1,400
27	180	281	262	624	4,640	6,180	4,810	14,100	9,370	1,320	656	1,490
28	193	251	222	1,030	3,260	7,040	6,160	6,140	6,550	1,190	482	1,400
29	190	209	212	1,190	-	4,280	3,560	4,070	4,400	816	546	1,060
30	196	180	317	750	-	2,880	3,120	8,790	3,340	612	1,230	708
31	216	-	285	520	-	1,830	-	7,390	-	522	1,540	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,382	592	98	238	14,640
November	6,624	325	134	221	13,140
December	8,056	420	147	260	15,980
Calendar year 1948	371,862	22,200	98	1,016	737,500
January	11,999	1,360	142	387	23,800
February	36,625	7,090	338	1,308	72,640
March	49,501	7,040	321	1,597	98,180
April	55,111	6,160	356	1,837	109,300
May	252,136	66,100	764	8,133	500,100
June	167,430	13,400	2,940	5,581	332,100
July	45,319	2,940	522	1,462	89,890
August	28,425	1,540	482	917	56,380
September	38,189	1,760	588	1,273	75,750
Water year 1948-49	706,797	66,100	98	1,936	1,402,000

f Computed on basis of partly estimated gage-height record.

Brazos River near Marlin, Tex.

Location.- Wire-weight gage, lat. 31°17'20", long. 96°58'10", at bridge on State Highway 139, 1 mile upstream from Deer Creek and 4.5 miles southwest of Marlin, Falls County. Datum of gage is 312.15 feet above mean sea level, datum of 1929.

Drainage area.- 29,150 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- October 1938 to September 1949.

Average discharge.- 11 years, 3,191 second-feet.

Extremes.- Maximum discharge during year, 61,600 second-feet May 19 (gage height, 22.9 feet, from floodmark); minimum daily, 118 second-feet Oct. 23.

1938-49: Maximum discharge, 132,000 second-feet May 3, 1944 (gage height, 33.3 feet, from floodmark); minimum not determined.

Maximum stage known, 35.8 feet Dec. 3 or 4, 1913, from information by local residents. Flood of Sept. 28, 1936, reached a stage of 35.2 feet.

Remarks.- Records poor. Gage read twice daily, oftener during high stages. Flow partly regulated by reservoirs above Waco. Many small diversions above station for irrigation, municipal supply, and oil-field operation do not appreciably affect flow.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	752	189	180	a369	1,010	3,000	1,850	3,620	7,820	3,880	453	1,520
2	644	216	250	320	850	1,750	1,760	4,640	10,500	3,580	528	1,600
3	464	a216	374	285	976	1,340	1,610	3,760	7,300	3,350	580	1,700
4	369	132	325	250	892	1,070	1,020	2,370	4,920	3,120	540	1,780
5	290	120	280	216	1,050	878	871	1,420	4,120	3,650	702	1,800
6	245	a225	235	189	1,420	808	745	1,290	3,880	3,120	688	1,750
7	225	207	189	164	1,290	700	668	1,060	3,800	2,520	528	1,580
8	180	152	164	250	1,110	638	632	892	3,720	1,950	441	1,660
9	148	160	140	300	1,120	590	590	864	3,650	1,400	489	1,610
10	144	198	128	275	1,340	566	590	787	3,580	970	718	1,520
11	152	245	212	235	1,340	560	602	2,340	4,280	740	895	1,520
12	265	275	265	189	1,040	560	668	1,620	4,760	710	859	1,660
13	352	250	230	164	780	524	712	3,190	4,600	1,260	794	1,570
14	285	235	202	160	662	458	608	2,570	3,280	1,330	681	1,320
15	250	240	230	164	602	422	476	1,600	4,290	2,680	618	1,000
16	300	230	285	255	843	482	386	1,160	6,780	3,160	625	842
17	422	216	358	265	674	476	347	976	9,080	1,620	632	770
18	464	189	392	270	548	446	352	39,800	10,300	1,130	1,050	646
19	310	260	464	275	482	422	330	57,500	8,360	1,500	1,050	1,100
20	202	374	392	285	446	446	503	20,300	5,400	1,440	895	1,540
21	180	300	285	374	530	5,460	6,700	9,280	4,280	1,270	762	1,170
22	164	260	a202	410	476	3,700	3,390	7,460	3,880	1,000	586	913
23	118	225	207	410	464	3,720	2,150	6,420	4,120	755	1,170	748
24	132	240	416	364	746	3,080	1,920	6,080	5,050	566	1,260	725
25	270	404	398	638	3,210	4,120	1,880	6,080	10,400	770	970	688
26	235	295	310	1,700	6,220	3,800	5,490	8,010	12,200	1,060	826	1,100
27	194	220	295	1,150	6,220	2,490	5,800	13,100	10,900	1,150	786	1,500
28	216	250	275	938	3,620	7,420	6,440	11,000	8,540	1,200	612	1,600
29	216	225	255	1,200	-	5,000	5,400	5,660	6,760	1,020	471	1,420
30	202	207	235	1,600	-	3,940	4,020	5,760	4,920	695	502	990
31	194	-	315	1,340	-	2,700	-	8,540	-	483	1,150	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	8,584	752	118	277	17,030
November	6,955	404	120	232	13,800
December	8,488	464	128	274	16,840
Calendar year 1948	438,295	20,900	118	1,198	869,400
January	15,004	1,700	160	484	29,760
February	39,961	6,220	446	1,427	79,260
March	61,566	7,420	422	1,986	122,100
April	58,510	6,700	330	1,950	116,100
May	239,149	57,500	787	7,714	474,300
June	165,470	12,200	3,280	6,182	367,900
July	53,079	3,880	483	1,712	105,300
August	22,861	1,260	441	737	45,340
September	39,342	1,800	646	1,311	78,030
Water year 1948-49	738,969	57,500	118	2,025	1,466,000

a No gage-height record; discharge computed on basis of records for stations near Whitney, at Waco, and near Bryan.

Note.- Doubtful gage-height record Oct. 28-31, Nov. 2, 10, 12-14, 17-26, 28, Dec. 2, 7-10, Jan. 30, Feb. 1; discharge computed on basis of records for stations near Whitney, at Waco, and near Bryan.

Brazos River near Bryan, Tex.

Location.- Water-stage recorder, lat. 30°37', long. 96°29', 2.4 miles downstream from Little Brazos River and 9 miles southwest of Bryan, Brazos County. Datum of gage is 192.3 feet above mean sea level, datum of 1929.

Drainage area.- 38,430 square miles, of which 8,240 square miles is probably noncontributing.

Records available.- September 1925 to September 1949. February 1918 to September 1925 at site near College Station, 7½ miles downstream. August 1899 to December 1902 at site near College Station, 7½ miles downstream, daily records published in U. S. Department of Agriculture, Office of Experiment Stations, Bulletins Nos. 104, 119, and 133.

Average discharge.- 30 years (1918-25, 1926-49), 5,968 second-feet.

Extremes.- Maximum discharge during year, 53,200 second-feet May 20 (gage height, 24.98 feet); minimum, 221 second-feet Nov. 8.
1925-49: Maximum gage height, 46.1 May 20, 1930, present site and datum (discharge not determined); minimum discharge, 87 second-feet Aug. 24, 1934.
Maximum stage known, about 54.0 feet Dec. 5, 1913, present datum.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow partly regulated by reservoirs above Waco. Many small diversions above station for irrigation, municipal supply, and oil-field operation do not appreciably affect flow.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	713	281	308	357	1,320	4,480	3,710	21,400	7,790	6,230	1,010	784
2	774	275	294	361	1,040	3,600	3,110	10,100	7,580	5,200	880	1,250
3	708	272	314	417	1,180	2,480	2,930	7,790	9,520	4,760	790	1,530
4	630	284	405	393	1,010	2,580	3,050	8,000	6,600	4,090	880	1,570
5	548	266	369	365	1,080	2,310	2,310	5,520	4,900	3,470	880	1,650
6	458	245	294	353	1,080	1,830	1,830	4,760	4,090	3,230	850	1,740
7	389	233	297	353	1,250	1,490	1,570	4,480	3,710	3,050	910	1,740
8	341	227	308	345	1,450	1,220	1,410	3,710	3,590	2,930	910	1,700
9	308	242	300	329	1,290	1,040	1,250	3,590	3,470	2,750	790	1,650
10	290	257	297	337	1,140	942	1,380	2,930	3,470	2,530	820	1,650
11	272	260	290	393	1,180	850	2,010	2,420	3,470	2,110	880	1,570
12	260	272	284	389	1,330	784	1,740	2,160	3,470	1,880	942	1,610
13	248	272	278	357	1,220	774	1,700	2,640	3,470	2,060	1,110	1,740
14	263	290	353	333	1,010	740	1,410	3,050	3,090	1,920	1,180	1,650
15	353	333	361	325	850	675	1,250	3,230	4,350	1,780	1,040	1,490
16	353	369	377	512	752	650	1,110	3,230	4,450	1,780	880	1,370
17	322	377	429	1,410	713	620	942	2,810	8,000	2,640	850	1,290
18	373	341	421	1,650	850	620	850	10,300	9,740	2,930	942	1,080
19	385	314	450	1,130	757	615	850	43,000	10,700	2,160	975	942
20	553	318	472	779	680	595	8,510	49,800	7,580	2,110	1,220	850
21	476	311	499	665	610	3,320	15,800	21,600	6,790	1,880	1,220	1,370
22	361	325	508	585	576	13,600	19,800	10,900	6,600	1,780	1,040	1,450
23	308	401	463	562	605	12,100	10,500	9,740	6,600	1,610	1,110	1,180
24	281	373	425	600	580	16,900	3,850	9,300	6,600	1,410	1,530	1,040
25	266	393	373	590	1,170	9,490	5,300	9,520	6,790	1,140	1,530	880
26	245	389	397	877	8,510	5,270	21,800	9,740	11,900	1,040	1,410	850
27	284	389	468	3,510	11,300	8,230	39,400	12,800	13,400	1,180	1,370	910
28	329	365	441	3,710	7,620	6,320	38,400	17,400	13,600	1,450	1,220	1,220
29	314	300	409	2,750	-	10,200	24,900	9,210	12,900	1,450	1,010	1,410
30	290	304	401	2,260	-	6,630	26,100	6,230	9,320	1,370	850	1,450
31	275	-	373	1,830	-	4,760	-	6,600	-	1,220	735	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	11,970	774	245	386	23,740
November	9,278	401	227	309	18,400
December	11,658	508	278	376	23,120
Calendar year 1948	607,878	27,900	227	1,661	1,206,000
January	28,827	3,710	325	930	57,180
February	52,133	11,300	576	1,862	103,400
March	125,715	16,900	595	4,055	249,400
April	248,752	39,400	850	8,292	493,400
May	317,960	49,800	2,160	10,260	630,700
June	208,540	13,600	3,470	6,951	413,600
July	75,140	6,230	1,040	2,424	149,000
August	31,764	1,530	735	1,025	63,000
September	40,616	1,740	784	1,354	80,560
Water year 1948-49	1,162,353	49,800	227	3,185	2,306,000

Peak discharge (base, 41,000 sec.-ft.).- Apr. 27 (8 p.m.) 42,000 sec.-ft.; May 20 (7 a.m.) 53,200 sec.-ft.

Note.- No gage-height record Nov. 25 to Dec. 12, Apr. 18, 19, 24, May 11-15, June 5-16, July 3-26; discharge computed on basis of weather records, U. S. Weather Bureau gage-height record for Brazos River near Valley Junction, and records for stations at Waco and near Hempstead.

Brazos River near Hempstead, Tex.

Location.- Wire-weight gage, lat. 30°07'25", long. 96°11'00", at bridge on U. S. Highway 290, 4,500 feet upstream from Texas & New Orleans Railroad bridge, 6.5 miles northwest of Hempstead, Waller County, and 8 miles upstream from Caney Creek. Datum of gage is 117.99 feet (revised) above mean sea level, datum of 1929.

Drainage area.- 42,670 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- October 1938 to September 1949. U. S. Weather Bureau has collected gage-height records in this vicinity at intermittent periods since 1903.

Average discharge.- 11 years (1938-49), 8,169 second-feet.

Extremes.- Maximum discharge during year, 52,000 second-feet Apr. 29; maximum gage height, 27.18 feet, from graph based on gage readings; minimum discharge, 324 second-feet Nov. 11 (computed from graph based on gage readings).

1938-49: Maximum discharge, 116,000 second-feet Nov. 30, 1940 (gage height, 44.04 feet); minimum, 254 second-feet Nov. 8, 1939.

Maximum stage known, 56.1 feet Dec. 8, 1913, from data by engineers of Texas & New Orleans Railroad, obtained at bridge 4,500 feet downstream.

Remarks.- Records good. Flow partly regulated by reservoirs above Waco. Gage read twice daily, oftener during high stages. Many small diversions above station for irrigation, municipal supply, and oil-field operation do not appreciably affect flow.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	565	398	422	520	3,790	19,700	10,500	36,100	8,260	10,200	1,680	945
2	565	372	422	520	3,280	12,400	9,090	26,200	9,980	7,800	1,480	878
3	690	360	422	520	2,920	9,980	7,500	17,300	9,620	6,200	1,240	945
4	810	360	448	490	2,830	8,100	6,620	14,100	11,200	5,300	1,160	1,330
5	770	360	422	505	3,010	6,900	6,620	12,200	9,440	4,820	1,090	1,610
6	690	a360	398	505	3,190	5,930	6,060	10,300	7,200	4,580	1,090	1,680
7	632	360	385	520	3,480	4,940	4,580	8,750	6,060	4,580	1,220	1,800
8	550	348	398	490	3,580	3,480	3,480	6,760	5,420	4,460	1,270	1,870
9	490	348	448	475	3,380	2,750	a2,750	5,540	5,180	4,230	a1,190	2,360
10	460	335	435	460	3,100	2,220	2,290	4,940	5,060	3,680	1,160	2,430
11	422	335	435	460	2,670	1,940	2,010	4,340	4,940	3,010	1,090	2,220
12	410	348	435	448	2,080	1,740	2,290	3,580	a5,060	2,510	1,140	2,010
13	410	372	410	460	1,870	1,610	2,590	3,380	5,180	2,290	1,160	1,870
14	385	385	398	490	1,800	1,540	2,430	4,010	4,820	2,150	1,160	1,940
15	360	398	398	505	1,580	1,510	2,220	a4,010	5,540	1,870	1,240	2,010
16	372	410	410	535	1,450	1,420	2,010	5,300	6,480	2,150	1,300	2,080
17	372	448	448	770	1,270	1,330	2,010	4,940	6,340	2,220	1,160	1,870
18	398	448	490	810	1,160	a1,300	2,010	4,340	10,900	2,510	1,060	1,800
19	410	a435	505	1,070	1,090	1,140	1,940	15,600	13,300	2,920	1,020	a2,150
20	410	435	535	1,870	1,160	1,120	3,720	42,900	13,900	2,920	1,060	2,360
21	448	422	520	a2,360	1,160	3,050	18,800	41,200	10,900	2,510	1,060	1,640
22	520	422	535	2,360	1,090	11,000	33,400	18,400	9,090	2,290	1,270	1,450
23	550	422	598	1,870	1,140	17,900	31,000	12,000	8,750	2,080	1,300	1,740
24	460	422	650	1,740	1,060	19,900	17,700	10,700	8,580	2,010	1,140	1,740
25	410	435	632	1,870	a9,990	22,000	13,700	10,300	8,920	1,870	1,220	1,480
26	385	490	615	2,010	22,000	12,000	20,700	10,200	9,440	1,740	1,510	1,300
27	360	475	565	2,080	22,300	9,260	35,800	11,200	15,500	1,540	1,510	1,160
28	348	448	535	3,200	25,200	11,800	47,400	14,300	18,200	1,450	a1,480	1,140
29	a348	422	565	4,340	-	12,000	50,600	17,300	17,300	1,580	1,420	1,190
30	385	410	598	a4,580	-	14,700	41,300	12,000	13,100	1,740	1,270	1,450
31	410	-	550	4,460	-	12,900	-	8,580	-	1,740	1,060	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	14,795	810	348	477	29,350
November	11,983	490	335	399	23,770
December	15,027	650	385	485	29,810
Calendar year 1948	817,037	22,800	335	2,232	1,621,000
January	43,293	4,580	448	1,397	85,870
February	133,630	26,200	1,060	4,772	265,100
March	237,560	22,000	1,120	7,663	471,200
April	393,120	50,600	1,940	13,100	779,700
May	400,770	42,900	3,380	12,930	794,900
June	273,660	18,200	4,820	9,122	542,800
July	100,950	10,200	1,450	3,256	200,200
August	38,210	1,680	1,020	1,233	75,790
September	50,448	2,430	878	1,682	100,100
Water year 1948-49	1,713,446	50,600	335	4,694	3,399,000

Peak discharge (base, 50,000 sec.-ft.).- Apr. 29 (time unknown) 52,000 sec.-ft.

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

Brazos River near San Felipe, Tex.

Location.- Water-stage recorder, lat. 29°46'20", long. 96°02'10", at bridge on U. S. Highway 90, 200 feet downstream from Missouri-Kansas-Texas Railroad bridge, 1.3 miles downstream from Irons Creek, and 5.0 miles southeast of San Felipe post office, Austin County. Datum of gage is 79.32 feet above mean sea level, datum of 1929.

Drainage area.- 43,690 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- December 1938 to September 1949 (October 1945 to September 1949, gage heights only).

Extremes.- Maximum gage height during year, 24.48 feet Apr. 29; minimum, 6.92 feet Nov. 9-10, 11-12.

1938-49: Maximum gage height, 41.10 feet Nov. 25, 1940 (discharge, 152,000 second-feet); minimum, 6.57 feet Oct. 9, 1939.

Maximum stage known, 49.0 feet Dec. 9, 1913, from information by local resident.

Remarks.- Discharge not computed. Flow partly regulated by reservoirs above Waco. Many small diversions above station for irrigation, municipal supply, and oil-field operation do not appreciably affect flow.

Gage height, in feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.32	7.13	7.09	7.42	10.05	16.90	13.38	22.23	12.39	13.48	8.87	8.42
2	7.42	7.11	7.09	7.37	9.83	15.16	12.61	20.85	12.57	12.52	8.85	8.38
3	7.40	7.07	7.11	7.37	9.64	13.69	12.03	18.12	12.95	11.74	8.71	8.17
4	7.52	7.04	7.12	7.34	9.45	12.69	11.67	15.67	13.02	11.21	8.55	8.13
5	7.77	7.03	7.14	7.29	9.39	11.93	11.81	14.79	13.50	10.86	8.46	8.44
6	7.79	7.02	7.14	7.24	9.48	11.53	11.45	14.00	12.63	10.65	8.37	8.68
7	7.72	6.99	7.11	7.23	9.58	11.08	11.05	12.87	11.76	10.47	8.40	8.78
8	7.61	6.99	7.06	7.24	9.70	10.50	10.47	12.01	11.30	10.50	8.52	8.83
9	7.48	6.94	7.01	7.26	9.76	10.01	9.95	11.54	11.08	10.43	8.54	8.90
10	7.39	6.95	7.08	7.27	9.70	9.89	9.53	11.19	11.04	10.34	8.55	9.12
11	7.31	6.94	7.16	7.22	9.58	9.30	9.23	10.96	10.83	10.05	8.50	9.32
12	7.24	6.92	7.15	7.19	9.21	9.01	9.05	10.64	10.75	9.73	8.40	9.15
13	7.18	6.96	7.14	7.17	8.92	8.83	9.16	10.31	10.70	9.46	8.41	9.07
14	7.14	7.03	7.12	7.16	8.78	8.76	9.33	10.20	10.74	9.32	8.44	8.96
15	7.11	7.09	7.10	7.22	8.75	8.67	9.24	10.46	10.66	9.17	8.44	8.96
16	7.08	7.24	7.08	7.32	8.62	8.69	9.11	10.59	11.00	9.17	8.51	8.98
17	6.99	7.21	7.06	7.43	8.42	8.54	8.98	10.96	11.36	9.20	8.58	8.99
18	6.99	7.22	7.15	7.79	8.27	8.43	8.95	10.76	11.78	9.24	8.48	8.90
19	7.08	7.18	7.22	7.76	8.15	8.37	8.95	10.57	13.26	9.38	8.38	8.84
20	7.13	7.19	7.23	8.35	8.08	8.28	9.28	18.99	14.25	9.64	8.31	9.09
21	7.13	7.19	7.30	8.91	8.12	8.29	11.98	22.25	13.76	9.62	8.36	9.17
22	7.18	7.13	7.32	8.98	8.52	10.20	17.65	19.67	12.75	9.37	8.38	8.73
23	7.28	7.12	7.37	9.24	8.82	14.44	21.36	15.40	12.37	9.25	8.52	8.50
24	7.43	7.12	7.45	8.91	8.32	15.24	18.98	13.86	12.26	9.13	8.57	8.63
25	7.37	7.14	7.53	8.74	9.39	16.68	15.96	13.39	12.28	9.09	8.46	8.69
26	7.22	7.18	7.55	8.78	16.36	15.82	15.06	13.33	12.36	9.07	8.46	8.53
27	7.14	7.29	7.49	8.88	17.85	13.36	18.25	13.44	13.22	8.91	8.70	8.39
28	7.09	7.23	7.46	8.97	17.13	12.92	22.51	13.75	15.32	8.78	8.77	8.25
29	7.07	7.19	7.39	9.78	-	13.32	24.30	16.00	15.62	8.75	8.73	8.16
30	7.04	7.14	7.42	10.49	-	13.98	23.50	14.94	14.74	8.75	8.69	8.17
31	7.07	-	7.46	10.34	-	14.45	-	13.36	-	8.87	8.58	-

Brazos river at Richmond, Tex.

Location.- Water-stage recorder and wire-weight gage, lat. 29°35', long. 95°45', at bridge on U. S. Highway 59 in Richmond, Fort Bend County, about 925 feet downstream from Texas & New Orleans Railroad bridge. Datum of gage is 40.8 feet above mean sea level, datum of 1929.

Drainage area.- 44,050 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- January 1903 to June 1906, June 1931 to September 1949. October 1922 to September 1931 at site at Rosenberg, 7.6 miles upstream; records equivalent except for diversion by Richmond Irrigation Co.'s canal. June to November 1901 and June to September 1902 at Texas & New Orleans Railroad bridge about 925 feet upstream, daily records published in U. S. Department of Agriculture, Office of Experiment Stations, Bulletins Nos. 119 and 133. U. S. Weather Bureau has collected gage-height records in this vicinity since 1914.

Average discharge.- 29 years (1903-5, 1922-49), 8,036 second-feet.

Extremes.- Maximum discharge during year, 56,000 second-feet Apr. 30; maximum gage height, 21.49 feet Apr. 30; minimum discharge, 478 second-feet Oct. 1, 2.

1903-6, 1931-49: Maximum discharge, 117,000 second-feet Nov. 28, 1940 (gage height, 38.40 feet); minimum, 33 second-feet Aug. 23, 24, 1934.

Maximum stage known since 1884, 48.2 feet Dec. 10, 1913, present datum, from flood-marks on right bank 1,000 feet upstream from gage. From information by Southern Pacific Railroad other floods at railroad bridge, present datum, are as follows: May 1884, stage 43.7 feet; June 13, 1885, stage 44.7 feet; July 1899, stage 45.6 feet; May 2, 1915, stage 43.3 feet; May 9, 1922, stage 40.9 feet. Flood of June 6, 1929, reached a stage of 40.6 feet, present site and datum, from floodmarks (discharge, 120,000 second-feet).

Remarks.- Records good. Flow partly regulated by reservoirs above Waco. Considerable water diverted above station for irrigation and municipal supply. See records of American Canal Co.'s canal near Fulshear (p.123) and Richmond Irrigation Co.'s canal near Richmond (p.123). Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	491	532	600	690	4,400	23,000	12,200	44,500	9,300	12,900	1,380	960
2	518	554	576	690	3,840	18,400	9,940	38,200	7,780	10,200	1,340	840
3	572	568	563	675	3,480	14,100	8,320	28,500	8,700	8,140	1,300	790
4	590	554	568	645	3,180	11,300	7,420	18,400	8,900	6,340	1,240	715
5	690	554	576	630	2,910	9,100	6,880	13,100	9,720	5,240	1,140	590
6	815	536	572	605	2,820	7,600	6,700	13,100	9,720	4,680	1,080	740
7	870	532	576	600	2,910	6,700	6,160	10,800	7,600	4,120	1,270	1,020
8	840	532	568	605	3,090	5,840	5,240	8,320	6,160	3,840	1,380	1,110
9	790	536	550	630	3,180	4,680	4,400	6,520	5,680	3,840	1,410	1,240
10	740	532	536	630	3,280	3,980	3,600	5,520	5,240	3,840	1,380	1,380
11	715	522	536	610	3,180	3,600	3,090	4,820	4,960	3,480	1,270	1,580
12	715	527	568	595	3,000	2,820	2,730	4,260	4,680	3,090	1,170	1,860
13	665	532	581	590	2,550	2,460	2,460	3,720	4,680	2,640	870	1,660
14	640	532	576	586	2,140	2,460	2,550	3,180	4,680	2,460	790	1,550
15	615	545	563	576	1,940	2,370	2,730	3,000	4,680	2,640	815	1,410
16	600	690	554	625	1,900	2,140	2,640	3,380	4,540	2,280	815	1,340
17	576	740	545	640	1,780	2,060	2,370	3,720	5,380	2,280	815	1,410
18	563	640	545	655	1,740	1,900	2,240	4,260	6,000	2,190	900	1,410
19	554	595	554	790	1,580	1,780	2,020	3,720	7,700	2,100	815	1,340
20	563	595	586	870	1,410	1,700	2,640	11,600	11,300	2,240	740	1,380
21	590	610	595	1,380	1,380	1,700	3,460	40,200	12,900	2,550	680	1,580
22	600	620	620	2,100	1,380	1,620	14,000	37,100	10,600	2,550	680	1,860
23	605	590	640	2,190	1,740	7,040	35,600	19,500	8,700	2,140	690	1,440
24	630	576	650	2,460	2,100	15,200	36,500	12,200	8,140	1,980	765	1,200
25	690	576	665	2,060	2,060	18,700	22,400	9,940	7,960	1,780	870	1,170
26	690	581	715	1,860	9,370	18,700	16,400	9,300	8,140	1,740	790	1,270
27	650	600	740	1,900	26,600	12,400	19,200	9,300	8,320	1,660	765	1,170
28	605	610	740	1,980	23,000	9,100	38,500	10,200	12,600	1,580	990	1,020
29	576	635	715	2,100	-	9,720	52,200	13,400	16,400	1,440	1,080	900
30	558	610	680	3,470	-	10,200	52,500	16,400	16,200	1,300	1,050	790
31	550	-	670	4,680	-	12,700	-	12,200	-	1,270	1,020	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	19,866	870	491	641	39,400
November	17,356	740	522	579	34,430
December	18,723	740	536	604	37,140
Calendar year 1948	856,054	21,200	210	2,339	1,698,000
January	39,117	4,680	576	1,262	77,590
February	121,940	26,600	1,380	4,355	241,900
March	245,070	23,000	1,620	7,905	486,100
April	387,090	52,500	2,020	12,900	767,800
May	422,360	44,500	3,000	13,620	837,700
June	247,360	16,400	4,540	8,245	490,600
July	108,530	12,900	1,270	3,501	215,300
August	31,300	1,410	680	1,010	62,080
September	36,725	1,860	590	1,224	72,840
Water year 1948-49	1,695,437	52,500	491	4,645	3,363,000

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Brazos River near Juliff, Tex.

Location.- Water-stage recorders, lat. 29°26', long. 95°32', just downstream from South Texas Water Co.'s pumping plant, 3½ miles west of Juliff, Fort Bend County, and about 7 miles upstream from Big Creek. Datum of gage is at mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 44,130 square miles of which 9,240 square miles is probably noncontributing.

Records available.- May to September 1949.

Extremes.- Maximum discharge during period, 41,100 second-feet May 22 (gage height, 41.07 feet); no flow at times.

Remarks.- Records good except those below 500 second-feet, which are fair. Flow partly regulated by reservoirs above Waco. Considerable water diverted above station for irrigation and municipal supply. See records of American Canal Co.'s canal near Fulshear (p.123) and Richmond Irrigation Co.'s canal near Richmond (p.123). The Briscoe Irrigation Co. and the South Texas Water Co. have permits to divert a maximum of 600 and 400 second-feet, respectively, above station for irrigation, industrial, and municipal supply. No gaging stations are maintained on these canals.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	8,420	10,600	700	242
2								-	6,720	8,570	700	82
3								-	6,580	7,140	615	6.6
4								-	7,700	5,780	488	0
5								-	7,840	4,910	449	0
6								-	8,570	4,110	462	0
7								-	6,860	3,600	850	100
8								-	5,520	2,960	1,290	246
9								-	5,030	2,870	1,170	326
10								-	4,670	2,870	1,080	535
11								-	4,330	2,700	995	725
12								-	4,000	2,460	830	1,020
13								-	3,600	1,910	560	1,050
14								3,130	3,400	1,620	214	858
15								2,700	3,600	1,870	56	775
16								3,040	3,220	2,060	2.5	700
17								3,310	3,500	1,910	0	775
18								3,700	4,220	1,980	15	858
19								3,600	5,030	1,910	42	802
20								5,850	7,840	1,840	2.4	775
21								35,300	10,100	1,870	0	830
22								39,400	9,170	2,060	2.0	1,200
23								23,200	7,420	1,760	0	1,170
24								13,200	6,300	1,450	0	912
25								9,950	6,040	1,360	9.5	700
26								8,870	6,040	1,140	216	725
27								8,870	6,580	1,170	0	635
28								9,470	8,720	1,080	35	470
29								11,800	13,500	968	212	346
30								15,400	13,500	968	249	218
31								11,400	-	858	203	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October					
November					
December					
Calendar year					
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	-	-	-	-
May 14-31	212,190	39,400	2,700	11,790	420,900
June	198,020	13,500	3,220	6,601	392,800
July	88,354	10,600	858	2,850	175,200
August	11,447.4	1,290	0	369	22,710
September	17,081.6	1,200	0	569	33,880
The period	-	-	-	-	1,045,000

Brazos River at East Columbia, Tex.

Location.- Wire-weight gage, lat. 29°09', long. 95°37', at bridge on State Highway 35 at East Columbia, Brazoria County, 1 mile downstream from Yarners Creek. Datum of gage is 2.9 feet below mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 44,540 square miles, of which 9,240 square miles is probably noncontributing.

Records available.- October 1938 to September 1939 (gage heights only), October 1939 to September 1940, February 1942 to September 1949 (gage heights, discharge measurements, and daily discharge above 8,000 second-feet); October 1940 to September 1941 (discharge measurements only).

Extremes.- Maximum discharge during year, 47,100 second-feet Apr. 30 (gage height, 24.41 feet), from graph based on gage readings; minimum gage height observed, 1.03 feet Dec. 30 (affected by tides).

1938-49: Maximum gage height observed, 34.12 feet Dec. 5, 1940 (discharge not determined); minimum, that of Dec. 30, 1948.

Maximum stage known, 35.3 feet Dec. 11 or 12, 1913. Flood of 1899 reached a stage of 35.0 feet. Stages from information by local residents.

Remarks.- Records fair and are for main channel only. Discharge for periods below 8,000 second-feet not published because of effect from tides. Gage read twice daily, oftener during high stages. Flow partly regulated by reservoirs above Waco Considerable water diverted above station for irrigation and municipal supply.

Gage height, in feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.28	5.04	3.06	2.88	4.61	15.30	10.40	23.58	9.10	10.52	3.14	3.52
2	4.16	4.00	3.23	3.32	4.70	14.96	10.08	21.90	7.50	9.08	3.38	3.43
3	5.10	3.94	2.92	3.73	4.72	13.00	8.79	19.90	6.49	7.86	3.51	4.10
4	5.04	4.28	3.29	2.91	3.98	10.80	7.96	16.63	6.62	7.48	3.62	3.86
5	4.24	3.50	3.84	2.65	4.08	10.00	7.20	13.08	7.00	5.87	3.82	4.54
6	4.30	3.91	2.84	3.10	3.88	7.90	6.67	11.30	7.42	5.26	4.38	4.40
7	3.70	3.42	3.25	2.46	3.36	7.10	6.51	10.30	7.40	4.46	4.46	4.13
8	3.88	4.26	3.48	3.34	4.10	6.62	6.00	8.58	6.59	4.70	4.58	4.14
9	3.67	3.62	2.94	3.20	4.24	6.14	5.48	5.51	6.25	4.71	4.77	3.56
10	4.28	2.96	3.28	3.30	4.00	4.93	5.24	6.14	6.25	4.55	4.52	4.10
11	4.04	3.30	3.90	3.20	4.54	5.10	4.62	5.58	6.55	4.31	4.14	3.82
12	4.01	4.34	3.92	2.92	4.64	4.46	3.94	5.42	6.05	4.28	4.06	4.36
13	4.64	3.77	3.49	2.95	4.58	4.66	4.17	5.29	5.61	4.43	3.58	3.94
14	4.20	3.34	3.82	3.14	4.50	4.80	4.37	4.73	4.96	3.77	3.12	4.08
15	4.06	4.24	3.26	3.42	4.30	4.58	4.15	4.98	4.65	3.70	3.00	3.89
16	4.62	4.08	3.91	3.18	3.81	4.82	4.10	5.26	4.63	3.68	2.78	3.42
17	3.58	3.74	2.92	3.42	3.72	5.09	3.92	5.16	4.68	3.57	3.17	4.18
18	4.66	4.32	2.35	2.25	4.70	3.66	4.00	5.37	4.80	3.78	3.17	4.33
19	3.88	2.54	2.92	2.30	3.56	3.86	4.46	5.37	5.27	3.76	3.12	4.39
20	3.98	3.74	3.32	3.31	4.22	4.38	5.54	5.48	6.42	3.69	3.84	4.96
21	3.92	3.69	3.08	4.06	3.98	5.06	5.98	13.53	8.20	3.93	2.92	6.24
22	3.89	3.05	2.65	2.92	3.96	4.04	7.70	20.80	8.76	4.05	3.12	6.28
23	4.37	3.60	3.20	4.17	4.40	4.25	16.60	17.92	7.60	5.26	3.73	5.55
24	4.00	3.36	2.70	4.56	4.03	7.10	21.52	12.90	6.92	5.10	4.44	4.44
25	4.04	3.81	2.58	4.39	5.02	10.80	19.20	10.00	6.86	4.85	4.21	5.18
26	4.29	3.76	3.28	4.02	6.35	12.90	15.70	8.60	6.80	4.66	4.04	4.52
27	4.43	3.69	3.30	3.38	12.20	13.18	13.70	8.30	6.83	4.45	3.70	3.99
28	4.57	2.68	3.28	3.31	15.84	11.18	16.71	8.22	6.86	4.30	3.62	3.84
29	5.18	1.90	2.72	2.78	-	9.88	22.00	8.44	8.80	3.54	2.63	4.15
30	4.58	3.04	2.40	2.77	-	10.10	24.24	10.88	11.00	3.53	2.62	4.52
31	5.03	-	2.49	2.95	-	10.10	-	10.82	-	3.08	3.10	-

Discharge, in second-feet, water year October 1948 to September 1949

Feb. 27	17,300	Mar. 31	12,400	May 1	44,000	May 27	9,200	June 20	8,110
28	22,700	Apr. 1	12,900	2	39,300	28	9,090	21	10,600
Mar. 1	20,500	2	12,400	3	34,200	29	10,200	22	11,600
2	19,500	3	10,400	4	25,200	30	15,200	23	9,760
3	15,800	4	9,200	5	16,900	31	15,000	24	8,780
4	12,900	5	8,110	6	13,800	June 1	12,100	25	8,780
5	11,600	23	27,400	7	12,200	2	9,620	26	8,640
6	8,500	24	39,600	8	9,900	3	8,240	27	8,640
25	13,600	25	32,500	21	20,800	4	8,370	28	8,780
26	17,500	26	22,500	22	37,600	5	8,920	29	11,300
27	18,000	27	17,800	23	30,600	6	9,480	30	15,400
28	14,300	28	27,800	24	17,500	7	9,480	July 1	14,500
29	12,100	29	41,800	25	12,100	8	8,370	2	12,100
30	12,400	30	46,800	26	9,620	11	8,370	3	10,200
								4	9,620

Salt Fork Brazos River near Aspermont, Tex.

Location.- Water-stage recorder and wire-weight gage, lat. 33°20', long. 100°14', at bridge on U. S. Highway 83, 5½ miles downstream from Dove Creek and 13.2 miles northwest of Aspermont, Stonewall County. Datum of gage is 1,588.7 feet above mean sea level, datum of 1929.

Drainage area.- 4,834 square miles, of which 2,770 square miles is probably noncontributing.

Records available.- December 1923 to August 1925, June 1939 to September 1949.

Average discharge.- 10 years (1939-49), 162 second-feet.

Extremes.- Maximum discharge during year, 11,100 second-feet May 17, Sept. 14; maximum gage height, 8.23 feet May 17; minimum discharge, 0.1 second-foot Oct. 1-9, Sept. 6-8.
1923-25, 1939-49: Maximum discharge, 27,400 second-feet May 16, 1947 (gage height, 11.35 feet); no flow at times.
Maximum stage known, 14.4 feet in December 1913. Flood of November 1934 reached a stage of 13.7 feet. Stages from information by local residents.

Remarks.- Records poor. Wire-weight gage read once daily. Daily discharge published only to show distribution of runoff. No large diversion above station. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	1,420	1.0	0.8	12	5.5	1.8	7.8	23	3.8	84	0.3
2	.1	276	1.0	.8	12	5.5	3.0	5.5	9.4	3.0	41	.2
3	.1	85	1.0	1.4	11	5.1	4.3	3.8	f146	f2.4	21	.2
4	.1	47	.8	1.0	9.5	4.7	4.3	2.6	79	1.5	13	.2
5	.1	f28	.8	.8	9.5	4.3	3.8	37	186	.8	8.1	.2
6	.1	18	.8	.8	8.4	3.8	2.2	43	87	.3	f4.1	.1
7	.1	14	.8	.7	7.2	3.8	1.4	1,470	230	.3	31	.1
8	.1	11	.7	.8	6.4	3.0	1.0	5,430	864	2.0	42	f3.0
9	2.3	8.9	.8	1.8	5.9	2.6	.8	1,760	3,580	250	21	8.4
10	1,550	7.8	.8	3.4	5.1	2.2	.7	324	2,280	529	37	4.8
11	180	6.8	.7	7.4	4.7	2.2	.5	214	3,970	94	9.4	38
12	55	6.4	.7	10	4.3	1.8	.5	145	1,580	25	321	77
13	30	5.9	.7	11	5.5	1.8	.4	98	696	421	244	97
14	17	5.9	.8	22	5.9	1.8	.4	76	986	238	86	4,160
15	11	5.9	.7	25	6.4	1.8	.4	60	748	145	64	1,020
16	7.2	5.9	.7	15	5.9	1.8	.4	264	505	75	42	582
17	3.8	5.1	.7	8.9	4.7	2.2	.4	f6,210	f185	34	30	225
18	3.0	4.3	.8	8.4	4.3	1.8	.4	1,520	113	13	29	164
19	2.6	2.2	.8	9.5	3.8	1.8	44	1,180	78	6.8	17	f107
20	4.2	1.8	.8	10	4.3	1.8	51	636	60	4.1	11	68
21	5.9	2.6	1.0	8.9	4.3	4.3	149	f335	50	5.5	3.8	48
22	4.7	1.8	.8	10	4.7	28	73	238	41	1.3	2.4	f38
23	3.4	2.2	.8	20	5.9	22	44	264	34	1.8	.6	f29
24	1.8	2.2	1.4	23	6.4	8.9	29	f1,290	f29	.8	.3	f24
25	1.0	2.2	1.8	.14	6.4	7.2	20	f840	23	.3	.2	20
26	.8	2.2	1.8	11	6.4	15	15	1,490	18	287	.2	17
27	.7	2.2	3.0	16	6.4	7.2	11	314	14	127	.8	11
28	8.1	1.8	3.0	29	5.9	8.4	26	125	11	83	.3	10
29	12	1.0	1.8	16	-	7.8	25	70	7.4	f24	.2	6.8
30	7.2	1.0	.8	11	-	4.7	15	f48	5.2	350	.2	5.2
31	37	-	.8	12	-	3.0	-	35	-	169	.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,949.5	1,550	0.1	62.9	3,870
November	1,985.1	1,420	1.0	66.2	3,940
December	32.9	3.0	.7	1.06	65
Calendar year 1948	35,799.6	6,670	.1	97.8	71,020
January	310.4	29	.7	10.0	616
February	183.2	12	3.8	6.54	363
March	175.8	28	1.8	5.67	349
April	528.7	149	.4	17.6	1,050
May	24,535.7	6,210	2.6	791	48,670
June	16,638.0	3,970	5.2	555	33,000
July	2,898.7	529	.3	93.5	5,750
August	1,164.8	321	.2	37.6	2,310
September	6,764.5	4,160	.1	225	13,420
Water year 1948-49	57,167.3	6,210	.1	157	113,400

Peak discharge (base, 12,000 sec.-ft.).- No peak above base.
f Computed on basis of partly estimated gage-height record.

White River at Plainview, Tex.

Location.- Water-stage recorder, lat. 34°11', long. 101°41', at bridge on Broadway Street in Plainview, Hale County, 0.7 mile upstream from Atchison, Topeka & Santa Fe Railway bridge. Datum of gage is 3,341.1 feet above mean sea level, datum of 1929.

Records available.- June 1939 to September 1949 (discontinued).

Average discharge.- 10 years, 4.90 second-feet.

Extremes.- Maximum discharge during year, 36 second-feet May 7 (gage height, 2.67 feet); no flow most of time.

1939-49: Maximum discharge, 12,000 second-feet June 6, 1941 (gage height, 8.75 feet), by slope-area method; no flow most of time.

Maximum stage known prior to 1941, about 6.50 feet in May 1927 (discharge, about 1,100 second-feet), from information by local resident. Flood of May 24, 1937, reached about same stage as that of May 1927.

Remarks.- Records fair. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0			0	b1.2	0	0	0	0	0.1	0.3	0
2	0			0	b.9	.1	.1	0	0	.1	0	0
3	0			0	1.0	.1	0	0	0	.1	1.1	0
4	0			0	0	.1	0	0	0	0	0	0
5	0			0	0	0	0	1.1	0	0	0	.1
6	0			0	0	0	0	1.7	0	0	.1	1.5
7	0			0	0	0	0	13.1	.2	0	0	0
8	0			0	0	0	0	7.2	.9	0	.1	1.9
9	.1			.3	0	0	0	.2	.9	.1	0	.1
10	0			b0	0	0	0	.1	0	0	.2	.1
11	0			b0	0	0	0	.1	1.3	.1	0	0
12	0			0	0	0	0	.2	.1	0	0	0
13	0			2.1	0	0	0	.3	.3	0	.1	0
14	0			1.6	0	0	0	0	.5	.1	.6	0
15	0			.8	0	0	0	.4	.1	.2	.1	0
16	0			0	0	0	0	.1	0	1.6	.1	0
17	0			b0	0	0	0	.3	0	.1	.1	0
18	0			b.2	0	0	.8	0	0	0	0	0
19	0			b.1	0	0	4.2	0	.1	0	.1	0
20	0			b0	0	0	.3	0	0	0	.1	0
21	0			.1	0	0	0	0	.1	.1	0	0
22	0			.1	0	0	0	0	.1	.1	0	0
23	0			.4	0	0	0	0	.1	.1	0	0
24	0			0	0	0	0	0	.2	.1	0	0
25	0			0	0	.4	0	0	.2	0	0	0
26	0			0	0	0	0	0	.2	0	0	0
27	0			b1.1	0	0	.2	0	0	.1	0	0
28	.1			b.8	0	0	.8	0	0	0	0	0
29	0			b0	-	0	0	0	0	0	0	0
30	0			b0	-	0	0	0	0	.1	0	0
31	.1			b.6	-	0	-	0	-	1.2	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0.3	0.1	0	0.01	0.6
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	15.3	8.9	0	.04	30
January	8.2	2.1	0	.26	16
February	3.1	1.2	0	.11	6.1
March	.7	.4	0	.02	1.4
April	6.4	4.2	0	.21	13
May	24.8	13.1	0	.80	49
June	5.3	1.3	0	.18	11
July	4.3	1.6	0	.14	8.5
August	3.0	1.1	0	.10	6.0
September	3.7	1.9	0	.12	7.3
Water year 1948-49	59.8	13.1	0	.16	119

Peak discharge (base, 10 sec.-ft.).- Apr. 19 (12:30 a.m.) 22 sec.-ft.; May 6 (9:30 p.m.) 14 sec.-ft.; May 7 (10 p.m.) 36 sec.-ft.

b Stage-discharge relation affected by ice.

Clear Fork Brazos River at Nugent, Tex.

Location.- Water-stage recorder, lat. 32°41', long. 99°40', at county highway bridge in Nugent, Jones County, 4 miles upstream from Deadman Creek.

Drainage area.- 2,220 square miles

Records available.- February 1924 to September 1949.

Average discharge.- 25 years, 146 second-feet.

Extremes.- Maximum discharge during year, 3,120 second-feet Oct. 11 (gage height, 9.02 feet); no flow at times.

1924-49: Maximum discharge observed, 47,000 second-feet Sept. 8, 1932 (gage height, 27.05 feet, site then in use), from rating curve extended above 25,000 second-feet; no flow at times.

Maximum stage known, about 30.0 feet in 1876. from information by local residents.

Remarks.- Records good. Flow partly regulated by reservoirs in Elm Creek Basin (see p. 111) and Lakes Sweetwater and Trammel in Sweetwater Creek Basin, which have a combined capacity of about 105,000 acre-feet (revised). Diversions above station for municipal supply and oil-field operation materially affect low flow. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	5.8	3.6	1.9	7.9	5.2	1.7	162	25	1.7	1.1	32
2	0	5.2	2.8	1.7	6.5	4.6	1.9	40	15	1.7	1.0	f414
3	0	4.1	2.8	1.3	5.8	4.1	1.9	18	10	1.7	.9	54
4	0	3.2	3.2	1.1	5.2	4.1	1.9	11	7.9	1.4	.7	a16
5	0	2.5	2.5	1.1	4.6	4.1	1.9	9.4	6.5	1.3	.4	a11
6	0	2.5	2.5	1.1	4.1	3.2	1.7	5.8	5.8	1.1	.3	5.8
7	0	2.5	5.7	1.1	4.1	3.2	1.7	151	5.2	.9	.2	4.6
8	.8	2.2	2.2	1.4	3.2	3.2	1.7	1,450	165	.8	41	4.6
9	135	2.2	1.3	1.9	3.2	2.8	1.9	1,050	436	.6	10	4.6
10	849	2.2	1.3	1.9	3.2	2.8	1.7	812	277	.6	1.4	4.1
11	2,310	2.2	1.3	2.8	3.2	2.8	1.9	463	f783	.6	1.1	4.1
12	1,540	2.5	1.3	a3.2	3.6	2.5	1.9	71	f203	.6	1.7	4.1
13	613	2.5	1.3	a3.6	3.6	2.5	1.4	28	83	.6	1.4	4.1
14	63	2.8	1.9	a4.1	9.5	2.5	1.4	21	86	56	1.3	361
15	21	3.2	2.2	a4.6	10	2.8	1.3	16	60	114	6.2	f1,040
16	12	2.8	1.9	a5.2	6.5	2.8	1.3	139	36	64	12	f680
17	7.9	2.8	1.7	a5.8	4.6	2.8	1.4	62	f62	9.4	11	f554
18	5.2	2.5	1.7	5.8	25	2.5	1.7	66	23	4.4	7.2	f161
19	4.1	2.2	1.7	6.5	14	2.5	25	104	11	1.8	3.6	50
20	4.1	2.5	1.7	5.8	8.6	2.8	152	f210	7.9	.5	1.9	36
21	158	2.5	1.7	5.2	7.2	3.2	198	f288	5.2	.2	1.1	f28
22	433	2.5	2.5	5.2	6.5	2.8	294	46	5.2	.1	.8	f13
23	34	2.8	2.2	6.5	6.5	11	272	47	4.1	0	.4	f10
24	21	2.8	1.9	7.2	5.8	5.8	57	18	13	0	.3	f3.6
25	12	2.8	1.9	49	5.8	3.6	93	14	7.1	0	.1	2.2
26	7.9	2.5	2.5	72	6.5	3.2	39	830	3.2	0	.1	1.7
27	5.2	2.8	2.5	23	5.8	2.8	15	107	2.5	0	.1	1.7
28	33	2.5	2.2	15	5.2	5.2	15	110	2.2	0	0	1.3
29	40	2.8	1.9	9.4	-	4.1	90	40	2.2	0	.2	1.0
30	8.6	4.1	1.7	9.4	-	2.2	106	38	1.9	0	1.0	.8
31	5.2	-	1.7	8.6	-	1.7	-	80	-	.9	21	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	6,323.0	2,310	0	204	12,540
November	86.5	5.8	2.2	2.88	172
December	67.3	5.7	1.3	2.17	133
Calendar year 1948	17,467.5	2,310	0	47.7	34,650
January	272.4	72	1.1	8.79	540
February	185.7	25	3.2	6.63	368
March	109.4	11	1.7	3.53	217
April	1,386.3	294	1.3	46.2	2,750
May	6,507.2	1,450	5.8	210	12,910
June	2,354.9	783	1.9	78.5	4,670
July	264.9	114	0	8.55	525
August	129.5	41	0	4.18	257
September	3,508.3	1,040	.8	117	6,960
Water year 1948-49	21,195.4	2,310	0	58.1	42,040

Peak discharge (base, 2,300 sec.-ft.).- Oct. 11 (4 p.m.) 3,120 sec.-ft.

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

f Computed on basis of partly estimated gage-height record.

Clear Fork Brazos River at Fort Griffin, Tex.

Location.- Water-stage recorder, lat. 32°56', long. 99°13', at bridge on Fort Griffin-Throckmorton highway, half a mile east of Fort Griffin, Shackelford County, and 1.3 miles upstream from Mill Creek. Datum of gage is 1,174.09 feet above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Drainage area.- 3,974 square miles.

Records available.- December 1923 to September 1949.

Average discharge.- 25 years (1924-49), 270 second-feet.

Extremes.- Maximum discharge during year, 4,940 second-feet May 9 (gage height, 16.02 feet); no flow at times.
1923-49: Maximum discharge, 33,600 second-feet Sept. 10, 1932 (gage height, 35.09 feet); no flow at times.
Maximum stage known, about 38.0 feet in 1900, from information by local residents.

Remarks.- Records good except those for periods of doubtful or no gage-height record, which are poor. Flow partly regulated by reservoirs above Nugent. Diversions above station for irrigation, municipal supply, and oil-field operation materially affect low flow.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	22	0.2	0	28	9.3	2.4	167	85	0.9	0	0
2	0	28	.2	0	30	8.9	2.0	114	65	.7	0	0
3	0	20	.1	0	65	8.1	1.6	152	70	.5	0	0
4	0	15	.1	0	28	7.4	1.2	94	41	.5	0	0
5	0	11	.1	0	16	6.6	.8	55	27	.6	0	54
6	0	8.5	0	0	13	6.2	.8	33	19	.6	0	42
7	0	6.2	0	0	12	5.4	.7	55	14	.5	0	22
8	0	5.0	0	0	12	5.0	.7	716	16	.4	0	13
9	0	4.4	0	0	12	5.0	.6	3,820	344	.4	159	9.3
10	0	4.0	0	0	12	4.7	.4	1,420	1,470	.2	50	7.0
11	0	3.1	0	0	12	4.6	.2	1,040	1,890	.1	14	4.4
12	f1,450	2.6	0	0	12	4.4	.1	660	1,680	0	6.4	3.8
13	f1,980	2.1	0	0	12	4.3	.1	360	959	0	2.8	9.8
14	840	1.9	0	0	12	4.1	0	142	351	0	2.3	28
15	376	1.7	0	0	14	4.0	0	84	215	0	.9	149
16	116	1.3	0	0	14	3.8	0	453	226	0	.6	868
17	59	.9	0	0	12	3.7	0	154	148	0	.3	1,010
18	35	.8	0	0	32	3.5	0	367	120	0	.1	635
19	24	.7	0	0	33	3.4	0	180	80	0	0	578
20	18	.6	0	0	17	3.2	0	128	53	0	0	382
21	15	.6	0	0	16	3.1	0	113	38	0	0	197
22	12	.5	0	0	15	2.9	.3	290	26	0	0	98
23	184	.5	0	0	14	2.8	192	208	18	0	0	55
24	247	.4	0	0	15	5.4	322	158	14	0	0	41
25	89	.4	0	0	18	5.0	199	873	11	0	0	25
26	46	.4	0	104	15	4.6	84	1,080	8.5	0	0	16
27	28	.4	0	102	13	4.2	482	2,860	6.2	0	0	12
28	22	.3	0	35	11	3.9	134	1,060	4.0	0	0	9.3
29	19	.2	0	31	-	3.5	201	184	2.6	0	0	6.6
30	15	.2	0	30	-	3.1	344	326	1.7	0	0	4.4
31	11	-	0	28	-	2.7	-	152	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5,586	1,980	0	180	11,080
November	143.7	28	.2	4.79	285
December	.7	.2	0	.02	1.4
Calendar year 1948	34,489.1	1,980	0	94.2	68,400
January	330	104	0	10.6	655
February	515	65	11	18.4	1,020
March	146.8	9.3	2.7	4.74	291
April	1,969.9	482	0	65.7	3,910
May	17,498	3,820	33	564	34,710
June	8,003.0	1,890	1.7	267	15,870
July	5.4	.9	0	.17	11
August	236.4	159	0	7.63	469
September	4,280.6	1,010	0	143	8,490
Water year 1948-49	38,715.5	3,820	0	106	76,790

Peak discharge (base, 3,900 sec.-ft.).- May 9 (10 a.m.) 4,940 sec.-ft.
f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record Jan. 8-18, Jan. 25 to Feb. 21, Mar. 11 to Apr. 4, June 19, 20; discharge computed on basis of recorded range in stage, weather records, and records for stations at Nugent and near Crystal Falls. Doubtful gage-height record Dec. 3 to Jan. 7, Apr. 17-19, July 10-12, Aug. 17-19; discharge computed on basis of discharge measurements made during or near the periods.

Clear Fork Brazos River near Crystal Falls, Tex.

Location.- Water-stage recorder above concrete dam, lat. 32°54', long. 98°50', at Texas Co.'s pumping plant, 2½ miles downstream from Hubbard Creek and 3¼ miles northeast of Crystal Falls, Stephens County. Datum of gage is 1,055.25 feet above mean sea level, datum of 1929.

Drainage area.- 5,658 square miles.

Records available.- July 1928 to September 1949.

Average discharge.- 21 years, 452 second-feet.

Extremes.- Maximum discharge during year, 10,400 second-feet May 18 (gage height, 17.72 feet); no flow at times.

1928-49: Maximum discharge, 35,800 second-feet June 11, 1941 (gage height, 33.45 feet), from rating curve extended above 23,000 second-feet; no flow at times.

Maximum stage known, about 34.0 feet in 1900, present site and datum, from information by local residents.

Remarks.- Records good. Flow partly regulated by reservoirs above Nugent. Diversions above station for irrigation, municipal supply, and oil-field operation materially affect low flow.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 17 to Nov. 13, July 8-21, Aug. 15 to Sept. 30)

2.2	0	2.6	72	6.0	2,400
2.25	1.5	2.8	142	8.0	4,090
2.3	5.5	3.0	224	10	5,620
2.35	12	3.5	470	12	6,980
2.4	22	4.0	800	14	8,240
2.5	44	5.0	1,560	18	10,600

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	16		0	42	11	1.5	304	146	1.5	0	108
2	0	11		0	33	9.7	1.5	150	103	1.2	0	47
3	0	11		0	49	6.9	1.2	92	55	.9	0	47
4	0	33		0	92	5.5	.9	135	61	70	0	44
5	0	22		0	47	4.7	.9	96	44	824	0	44
6	0	14		0	29	4.7	.6	64	33	150	0	44
7	0	8.3		0	16	3.1	.6	80	22	35	0	44
8	0	4.7		0	11	2.3	.3	4,110	20	14	.2	47
9	0	1.5		0	8.3	2.3	.3	3,560	45	6.9	716	47
10	0	1.2		0	8.3	2.3	0	3,680	699	3.9	2,250	47
11	0	.6		0	8.3	1.5	0	1,680	4,420	1.2	370	31
12	0	.3		0	6.9	1.2	0	988	5,820	.3	158	6.9
13	1,480	0		0	5.5	1.2	0	536	2,320	0	86	3.9
14	1,550	0		0	8.3	.9	0	275	3,660	499	61	1,740
15	608	0		0	8.3	.6	0	131	5,040	117	42	2,330
16	254	0		0	24	.3	0	3,270	651	26	40	392
17	99	0		0	16	0	0	10,200	356	12	35	1,180
18	52	0		0	14	0	0	5,740	220	4.7	44	928
19	33	0		0	58	0	0	512	157	.6	44	1,350
20	24	0		0	42	0	0	242	99	0	50	606
21	18	0		0	31	0	1.2	157	79	0	55	346
22	14	0		0	22	0	31	117	61	0	50	182
23	9.7	0		0	20	1.2	14	539	40	0	47	113
24	137	0		0	24	1.2	179	1,800	29	0	35	79
25	184	0		16	22	696	371	675	20	0	9.7	55
26	79	0		6.9	16	349	202	1,060	14	0	3.1	33
27	42	0		126	18	50	184	2,570	11	0	1.5	18
28	29	0		120	14	20	1,460	3,760	8.3	0	1.2	11
29	20	0		72	-	16	305	1,100	3.9	0	36	6.9
30	16	0		69	-	5.5	224	427	2.3	0	47	5.5
31	14	-		55	-	3.9	-	284	-	0	98	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	4,662.7	1,550	0	150	9,250
November	123.6	33	0	4.12	245
December	0	0	0	0	0
Calendar year 1948	53,508.3	6,150	0	146	106,100
January	464.9	126	0	15.0	922
February	693.9	92	5.5	24.8	1,380
March	1,201.0	696	0	38.7	2,380
April	2,979.0	1,460	0	99.3	5,910
May	48,334	10,200	64	1,559	95,870
June	24,239.5	5,820	2.3	808	48,080
July	1,768.2	824	0	57.0	3,510
August	4,279.7	2,250	0	138	8,490
September	9,936.2	2,330	3.9	331	19,710
Water year 1948-49	98,682.7	10,200	0	270	195,700

Peak discharge (base, 6,000 sec.-ft.).- May 18 (2:30 a.m.) 10,400 sec.-ft.; June 12 (5 a.m.) 8,480 sec.-ft.; June 15 (8 a.m.) 6,850.

Fort Phantom Hill Reservoir near Nugent, Tex.

Location.- Staff gage, lat. 32°37', long. 99°40', on outlet tower at dam on Elm Creek, 4 miles upstream from Clear Fork Brazos River and 5 miles south of Nugent, Jones County. Datum of gage is 1,580.0 feet above mean sea level.

Drainage area.- 478 square miles.

Records available.- July 1940 to September 1949.

Extremes.- Maximum contents observed during year, 39,000 acre-feet July 16-19 (gage height, 43.5 feet); minimum observed, 29,200 acre-feet Apr. 13-18 (gage height, 39.3 feet).
1940-49: Maximum contents observed, 80,900 acre-feet Oct. 17, 1941 (gage height, 56.8 feet); minimum observed, 20,290 acre-feet Aug. 12, 13, 1940 (gage height, 34.7 feet).

Remarks.- Reservoir is formed by earth-fill dam with rock riprap face; dam completed and storage began in October 1938. Capacity, 69,550 acre-feet between gage heights 1.6 feet (sill of lowest outlet gate) and 54.0 feet (crest of spillway). Dead storage, 450 acre-feet. Records given herein represent total contents. Water is used for municipal supply. Gage read once daily at 8 a.m. Lake Abilene on Elm Creek, Lake Kirby on Cedar Creek, and Lytle Lake on Lytle Creek (combined capacity, 18,300 acre-feet, revised) are smaller reservoirs above station in Elm Creek Basin.

Cooperation.- Gage-height record and capacity table furnished by city of Abilene.

Monthly gage height and contents, water year October 1948 to September 1949

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	41.1	33,240	-
Oct. 31	41.0	33,000	-240
Nov. 30	40.4	31,560	-1,440
Dec. 31	40.0	30,600	-960
Calendar year 1948	-	-	-10,100
Jan. 31	40.1	30,840	+240
Feb. 28	40.0	30,600	-240
Mar. 31	39.6	29,800	-800
Apr. 30	40.2	31,080	+1,280
May 31	42.7	37,080	+6,000
June 30	43.2	38,280	+1,200
July 31	43.2	38,280	0
Aug. 31	42.6	36,840	-1,440
Sept. 30	42.4	36,360	-480
Water year 1948-49	-	-	+3,120

† Gage height at 8 a.m.

Paluxy Creek at Glen Rose, Tex.

Location.- Water-stage recorder, lat. 32°13'50", long. 97°46'30", at bridge on U. S. Highway 67, 1 mile upstream from Cross Branch, 1.2 miles southwest of Glen Rose, Somervell County, and 4.7 miles upstream from mouth. Datum of gage is 609.7 feet above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Drainage area.- 399 square miles.

Records available.- May 1947 to September 1949. October 1923 to September 1925 at site 1.8 miles downstream; records equivalent except for inflow from Cross Branch.

Extremes.- Maximum discharge during year, 38,300 second-feet May 17 (gage height, 25.1 feet, from floodmark) by slope-area method; minimum, 1.7 second-feet Oct. 7-9.

1924-25, 1947-49: Maximum discharge, that of May 17, 1949.

Maximum stage known, 27.2 feet Apr. 17, 1908, present site and datum. Flood of May 21, 1922, reached a stage of 26.0 feet, present site and datum. Flood of November 1918 reached about same stage as flood of May 21, 1922, from information by local resident.

Remarks.- Records good except those for May 16, 17, which are fair. No diversion above station.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Dec. 15 to Jan. 11, July 6 to Sept. 30)

2.4	1.3	2.65	22	3.4	225	6.0	1,740	41	11,200
2.45	2.8	2.7	31	3.6	320	7.0	2,470	16	14,900
2.5	5.5	2.8	51	4.0	520	8.0	3,330	20	24,000
2.55	9.1	3.0	97	4.5	795	10	5,510		
2.6	15	3.2	151	5.0	1,090	12	8,200		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.8	6.1	8.3	6.8	18	33	39	92	105	39	11	31
2	2.8	5.5	9.1	8.3	16	29	51	73	95	35	11	26
3	2.8	5.5	9.1	8.3	16	24	53	64	85	33	11	16
4	2.8	6.1	9.1	7.5	15	22	41	62	75	37	10	12
5	2.4	5.5	9.1	7.5	15	21	35	58	73	41	11	10
6	2.4	5.5	8.3	7.5	14	19	31	51	71	33	12	9.1
7	2.0	5.5	9.1	7.5	12	18	29	70	66	29	14	9.1
8	1.7	6.1	9.1	7.5	11	16	26	90	62	26	15	8.3
9	2.0	6.8	9.1	6.8	11	16	28	85	62	24	12	8.3
10	5.5	6.8	9.1	6.8	10	15	31	53	62	24	12	7.5
11	8.3	8.3	9.1	6.8	9.1	15	29	41	62	24	11	7.5
12	7.5	10	9.1	9.1	10	15	28	33	154	24	10	7.5
13	6.1	11	9.1	9.1	11	15	26	31	107	31	9.1	6.8
14	5.5	12	14	10	11	15	24	29	657	38	9.1	6.8
15	4.4	12	14	10	11	15	22	28	527	58	9.1	8.3
16	5.0	12	9.1	16	10	14	22	f3,910	154	31	41	9.1
17	11	9.1	9.1	12	9.1	14	21	f22,200	92	26	34	10
18	5.5	8.3	11	12	9.1	14	21	1,200	71	22	124	10
19	4.4	7.5	9.1	14	9.1	12	30	696	60	21	47	9.1
20	3.8	6.8	9.1	12	9.1	12	595	510	49	18	22	7.5
21	4.4	6.8	8.3	11	9.1	453	182	395	47	16	16	6.8
22	5.0	7.5	8.3	11	10	128	113	275	43	16	14	6.8
23	5.0	7.5	8.3	15	45	47	90	534	71	16	11	7.5
24	5.0	8.3	7.5	16	1,380	29	83	320	399	16	10	6.1
25	5.0	8.3	7.5	68	202	406	1,540	225	f140	15	9.1	6.1
26	5.0	9.1	7.5	41	254	1,200	209	171	85	15	9.1	6.8
27	5.5	9.1	7.5	31	75	229	531	151	66	15	8.3	6.1
28	5.5	8.3	8.3	93	45	97	500	129	55	14	8.3	5.5
29	6.8	8.3	7.5	29	-	66	185	140	47	14	7.5	5.5
30	6.1	8.3	6.8	15	-	53	115	178	43	14	7.5	5.5
31	6.8	-	6.8	20	-	43	-	123	-	12	18	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	148.8	11	1.7	4.80	295
November	237.9	12	5.5	7.93	472
December	276.4	14	6.8	8.92	548
Calendar year 1948	18,161.9	4,450	1.1	49.6	36,030
January	535.5	93	6.8	17.3	1,060
February	2,256.6	1,380	9.1	80.6	4,480
March	3,105	1,200	12	100	6,160
April	4,728	1,540	21	158	9,380
May	32,017	22,200	28	1,033	63,500
June	3,685	657	43	123	7,310
July	777	58	12	25.1	1,540
August	554.1	124	7.5	17.9	1,100
September	282.6	31	5.5	9.42	561
Water year 1948-49	48,603.9	22,200	1.7	133	96,410

Peak discharges (base, 2,500 sec.-ft.).- Feb. 24 (3:30 a.m.) 5,150 sec.-ft.; Mar. 26 (12:30 p.m.) 3,630 sec.-ft.; Apr. 25 (5 p.m.) 4,790 sec.-ft.; Apr. 27 (10:30 p.m.) 3,530 sec.-ft.; May 17 (2 a.m.) 38,300 sec.-ft.; June 14 (9 p.m.) 2,630 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Nolands River at Blum, Tex.

Location.- Water-stage recorder and wire-weight gage, lat. 32°09'00", long. 97°24'10", 30 feet upstream from bridge on county road from Blum to Rio Vista, 0.5 mile downstream from Gulf, Colorado & Santa Fe Railway bridge, 0.6 mile northwest of Blum, Hill County, 2.8 miles downstream from Mustang Creek, and 3.2 miles upstream from Rock Creek. Datum of gage is 551.5 feet above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942. Prior to May 29, 1949, staff gage at railway bridge 0.5 mile upstream at datum 5.0 feet higher.

Drainage area.- 276 square miles; 275 square miles at former site.

Records available.- July 1924 to September 1925, November 1947 to September 1949.

Extremes.- Maximum discharge during year, 25,000 second-feet May 17 (gage height, 24.0 feet, from floodmark); minimum, 0.4 second-foot Sept. 26, 29, 30.

1924-25, 1947-49: Maximum discharge, that of May 17, 1949; no flow at times in 1924-25.

Maximum stage known since 1887, 35.6 feet on May 8, 1922, from information by Gulf, Colorado & Santa Fe Railway Co.

Remarks.- Records fair. Staff gage read twice daily, oftener during high stages. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	2.3	2.3	3.8	22	124	80	82	126	19	3.6	1.7
2	1.4	1.8	2.8	3.8	14	110	75	68	85	18	3.2	1.4
3	1.4	1.5	3.3	3.8	15	94	69	57	72	15	2.8	1.4
4	1.4	1.2	3.3	3.8	14	82	71	52	60	19	2.4	1.7
5	1.4	1.2	3.3	3.3	13	73	69	48	56	82	2.4	1.4
6	1.4	1.2	2.8	3.3	12	64	66	44	51	22	3.2	1.4
7	1.4	1.2	2.8	3.3	11	55	62	42	44	16	3.6	1.1
8	1.4	1.5	2.8	3.5	10	52	60	41	39	16	3.6	1.1
9	1.4	1.5	2.8	3.8	10	66	58	48	39	14	3.2	1.1
10	2.5	1.5	2.8	3.8	8.7	60	132	41	42	13	2.8	1.1
11	3.0	1.8	3.0	3.8	7.4	44	68	33	56	11	2.4	1.4
12	3.0	3.0	3.3	3.8	13	44	64	31	52	10	2.0	1.4
13	1.6	3.0	3.3	4.0	492	44	58	28	52	9.2	2.0	1.4
14	1.2	5.0	69	4.0	48	44	51	25	1,170	8.7	1.7	1.1
15	1.2	3.8	38	4.0	23	42	43	24	148	8.7	2.0	1.1
16	1.2	5.0	7.1	9.6	20	40	41	24	48	16	2.0	1.1
17	1.2	5.4	5.4	8.7	17	40	37	11,400	34	6.7	2.0	1.4
18	2.3	3.3	4.3	6.4	15	40	37	308	29	6.2	2.8	1.4
19	1.5	2.8	4.0	4.7	14	38	50	119	25	5.7	2.4	1.4
20	1.2	2.1	3.8	4.3	14	37	1,100	87	21	4.8	2.0	1.7
21	1.2	1.8	3.3	4.0	12	1,310	166	71	19	4.4	1.7	1.1
22	1.2	1.8	3.3	4.0	12	164	133	69	17	4.4	1.7	1.4
23	3.6	2.8	3.5	6.2	112	102	113	402	23	4.4	1.7	1.1
24	3.0	2.3	3.8	96	2,830	97	124	84	971	4.4	1.4	.7
25	1.6	2.3	3.8	28	2,800	851	148	105	359	4.4	1.4	.6
26	1.2	2.3	3.8	21	1,260	333	352	10,100	289	4.8	1.4	.6
27	1.2	2.3	3.8	479	204	154	263	427	147	4.8	1.1	.7
28	1.2	2.3	3.8	559	148	110	218	300	38	7.7	1.1	.7
29	1.2	2.3	3.8	200	-	97	124	4,850	28	7.2	1.1	.6
30	1.8	2.3	3.8	25	-	87	97	478	21	5.2	.9	.4
31	2.3	-	3.8	22	-	75	-	178	-	4.4	1.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	52.0	3.6	1.2	1.68	103
November	72.6	5.4	1.2	2.42	144
December	210.7	69	2.3	6.80	418
Calendar year 1948	31,244.9	3,940	.6	85.4	61,970
January	1,533.7	559	3.3	49.5	3,040
February	8,171.1	2,830	7.4	292	16,210
March	4,573	1,310	37	148	9,070
April	4,029	1,100	37	134	7,990
May	29,666	11,400	24	957	58,840
June	4,161	1,170	17	139	8,250
July	377.1	82	4.4	12.2	748
August	67.0	3.6	.9	2.16	133
September	34.7	1.7	.4	1.16	69
Water year 1948-49	52,947.9	11,400	.4	145	105,000

Peak discharge (base, 5,000 sec.-ft.).- Feb. 24 (5 a.m.) 8,000 sec.-ft.; Feb. 25 (8 p.m.) 9,300 sec.-ft.; May 17 (8 a.m.) 25,000 sec.-ft.; May 26 (12 m.) 23,200 sec.-ft.; May 29 (1:30 p.m.) 11,400 sec.-ft.

Aquilla Creek near Aquilla, Tex.

Location.- Water-stage recorder, lat. 31°51', long. 97°12', at bridge on Abbot-Aquilla county road, three-quarters of a mile upstream from Palls Branch and 1 mile southeast of Aquilla, Hill County.

Drainage area.- 309 square miles.

Records available.- December 1924 to August 1925, December 1938 to September 1949.

Average discharge.- 10 years (1939-49), 143 second-feet.

Extremes.- Maximum discharge during year, 3,540 second-feet May 27 (gage height, 20.36 feet); no flow at times.

1924-25, 1938-49: Maximum gage height, 30.84 feet May 2, 1944 (discharge not determined); no flow at times.

Maximum stage known, 34 feet Aug. 31, 1887, from information by local resident. Flood of Sept. 27, 1936, reached a stage of about 33 feet, from floodmark. Peak discharge of this flood as determined about 9 miles below station, 84,500 second-feet, by slope-area method (drainage area, 370 square miles).

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

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Dec. 3 to Jan. 23, June 1 to 13)

2.3	0	2.7	4.8	3.1	17	4.3	98	8.0	480	14	1,700
2.4	.7	2.8	6.8	3.2	22	5.0	153	9.0	630	15	1,950
2.5	1.7	2.9	9.4	3.4	34	6.0	242	10	800		
2.6	3.1	3.0	13	3.8	60	7.0	350	12	1,220		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	1.0	9.7	46	21	54	36	13	0	
2			0	1.1	10	39	41	43	24	11	0	
3			.4	1.2	14	32	31	35	17	8.9	0	
4			1.1	1.2	28	28	22	30	13	7.1	0	
5			1.4	1.0	19	25	21	26	11	6.1	0	
6			1.4	.9	13	24	21	22	8.9	17	61	
7			1.3	.9	9.7	21	21	48	7.8	12	90	
8			1.3	.8	8.1	19	21	21	6.6	9.7	13	
9			1.3	1.0	7.3	21	20	106	5.8	7.6	3.5	
10			1.3	1.2	6.6	19	41	44	5.8	5.8	1.2	
11			1.3	1.4	5.8	19	22	15	6.4	4.5	.6	
12			1.4	1.3	5.2	17	19	12	25	3.0	.3	
13			1.5	1.3	6.0	16	16	9.7	18	1.7	0	
14			2.4	1.3	7.3	15	14	8.1	377	.8	0	
15			6.7	1.4	7.3	15	8.4	6.8	1,140	0	0	
16			2.1	1.6	6.4	13	6.0	6.0	59	87	0	
17			1.4	2.0	6.0	13	5.8	7.1	26	30	0	
18			1.2	2.4	5.2	13	5.6	7.3	16	10	0	
19			1.6	1.3	4.8	13	6.2	6.2	13	4.3	0	
20			1.1	1.1	5.0	11	440	5.2	12	.8	0	
21			.7	1.2	5.0	319	242	4.8	9.7	.4	0	
22			.6	1.1	5.0	147	62	4.0	8.6	.3	0	
23			.5	1.1	6.2	35	46	2.8	7.8	.1	0	
24			.6	329	237	61	35	1.8	232	0	0	
25			.7	651	273	70	314	1.6	168	29	0	
26			.8	66	660	110	1,990	1,210	119	1.4	0	
27			.8	239	124	76	313	2,070	43	0	0	
28			.8	366	64	41	141	73	21	0	0	
29			.8	46	-	28	98	572	18	0	0	
30			.9	13	-	26	64	465	15	0	0	
31			1.5	9.1	-	23	-	59	-	0	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	38.9	6.7	0	1.25	77
Calendar year 1948	15,912.5	3,510	0	43.5	31,570
January	1,747.9	651	.8	56.4	3,470
February	1,558.6	660	4.8	55.7	3,090
March	1,355	319	11	43.7	2,690
April	4,108.0	1,990	5.6	137	8,150
May	4,976.4	2,070	1.6	161	9,870
June	2,470.4	1,140	5.8	82.3	4,900
July	271.5	87	0	8.76	539
August	169.6	90	0	5.47	336
September	0	0	0	0	0
Water year 1948-49	16,696.3	2,070	0	45.7	33,120

Peak discharge (base, 7,000 sec.-ft.).- No peak above base.

Note.- No gage-height record June 3-6, 19-23, June 29 to July 14, July 18-26, July 28 to Aug. 10; discharge computed on basis of weather records and estimated gage heights.

North Bosque River near Clifton, Tex.

Location.- Staff gage above spillway of masonry dam, lat. 31°48', long. 97°35', 730 feet upstream from Gulf, Colorado & Santa Fe Railway bridge and 1.4 miles northwest of Clifton, Bosque County. Datum of gage is 622.7 feet above mean sea level, datum of 1929.

Drainage area.- 974 square miles.

Records available.- November 1923 to September 1949.

Average discharge.- 26 years, 223 second-feet.

Extremes.- Maximum discharge during year, 15,200 second-feet May 17 (gage height, 10.20 feet, from floodmark); minimum, 0.3 second-foot Sept. 30.
1923-49: Maximum discharge, 39,000 second-feet Apr. 22, 1945 (gage height, 23.2 feet, from floodmark); no flow at times.
Flood of May 9, 1922, reached a stage of 25 feet, from information by local resident.

Remarks.- Records good except those for periods of ice-effect or no gage-height record, which are fair. Railway company pumps about 100,000 gallons a day (0.15 second-foot) from pool formed by control dam a third of a mile below gage. Gage read twice daily, oftener during high stages.

Revisions (water years).- W 788: 1924-33. W 1058: 1945(M).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	5.2	2.8	18	a44	68	32	245	68	28	a2.9	2.5
2	3.0	4.7	2.8	18	a38	60	39	197	68	24	a3.0	27
3	3.0	4.1	2.8	18	a33	39	58	166	63	21	a3.0	24
4	3.0	4.1	2.8	17	a27	23	48	151	58	84	a3.1	16
5	3.0	4.1	2.8	16	21	20	43	140	53	45	a3.2	10
6	3.0	4.1	2.8	13	21	18	34	126	36	68	a3.3	7.5
7	3.0	4.1	2.5	13	32	17	24	114	35	48	a3.4	5.8
8	3.0	4.1	2.8	11	20	16	21	117	32	32	a3.4	4.1
9	3.0	4.1	2.5	10	20	16	18	368	28	24	a3.5	3.0
10	3.0	4.1	2.5	9.2	18	13	46	1,030	28	18	3.6	2.5
11	3.0	4.1	2.5	10	16	13	187	272	26	14	a3.5	2.0
12	3.0	4.1	2.5	11	13	11	117	220	26	11	a3.3	1.8
13	3.0	4.1	2.5	10	10	10	50	114	26	9.2	a3.2	1.8
14	3.0	3.6	28	10	11	10	32	92	38	9.2	a3.1	1.6
15	3.0	3.6	13	9.2	34	10	24	117	121	9.2	a2.9	1.6
16	2.8	6.6	6.6	8.3	16	10	21	107	159	8.3	2.8	1.4
17	2.8	5.2	7.5	8.3	14	9.2	18	10,300	86	8.3	2.8	1.4
18	2.8	5.2	13	6.6	11	9.2	16	3,770	71	8.3	2.8	1.4
19	2.8	4.1	11	*6.6	10	8.3	23	438	35	8.3	2.8	1.3
20	3.0	4.1	10	6.6	9.2	8.3	2,960	333	32	7.5	2.8	1.3
21	3.6	3.6	9.2	6.6	8.3	55	608	252	28	7.5	2.5	1.1
22	4.7	3.6	9.2	6.6	8.3	791	299	202	23	7.5	2.5	1.1
23	5.2	3.6	111	6.6	*13	145	202	159	56	7.5	2.5	1.1
24	5.8	3.0	120	6.6	1,060	68	159	133	224	6.6	2.5	1.6
25	5.8	3.0	58	a6.6	467	48	2,390	120	252	5.8	2.5	1.6
26	5.8	3.0	37	a11	444	438	696	136	192	4.7	2.5	1.4
27	5.2	3.0	26	144	187	580	451	120	498	4.7	2.5	.8
28	5.2	3.0	24	58	86	231	1,280	110	146	4.1	2.3	.6
29	5.2	2.8	23	56	-	114	744	110	39	3.6	2.3	.4
30	5.2	2.8	20	a50	-	50	354	89	34	2.8	2.3	.3
31	5.2	-	18	b50	-	39	-	74	-	a2.8	2.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	116.1	5.8	2.8	3.75	230
November	118.8	6.6	2.8	3.96	236
December	579.1	120	2.5	18.7	1,150
Calendar year 1948	49,152.7	14,200	.7	134	97,500
January	631.8	144	6.6	20.4	1,250
February	2,691.8	1,060	8.3	96.1	5,340
March	2,948.0	791	8.3	95.1	5,850
April	10,994	2,960	16	366	21,810
May	19,922	10,300	74	643	39,510
June	2,580	498	23	86.0	5,120
July	542.9	84	2.8	17.5	1,080
August	89.1	3.6	2.3	2.87	177
September	128.0	27	.3	4.27	254
Water year 1948-49	41,341.6	10,300	.3	113	82,010

Peak discharge (base, 8,300 sec.-ft.).- Apr. 20 (11 a.m.) 9,550 sec.-ft.; May 17 (12 p.m.) 15,200 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Aquilla Creek near Aquilla, or interpolated.

b Stage-discharge relation affected by ice.

Leon River near Hasse, Tex.

Location.- Water-stage recorder and concrete control, lat. 31°57', long. 98°28', at bridge on U. S. Highway 67, 1,000 feet upstream from Gulf, Colorado & Santa Fe Railway bridge, 0.4 mile upstream from Walnut Creek, and 2.1 miles northeast of Hasse, Comanche County. Datum of gage is 1,115.1 feet above mean sea level, datum of 1929.

Drainage area.- 1,276 square miles.

Records available.- January 1939 to September 1949.

Average discharge.- 10 years, 200 second-feet.

Extremes.- Maximum discharge during year, 16,700 second-feet May 17 (gage height, 17.29 feet); no flow at times.

1939-49: Maximum discharge, 16,900 second-feet Mar. 30, 1945; maximum gage height, 17.72 feet Oct. 19, 1942; no flow at times.

Maximum stage known, about 25.0 feet in May 1908, from information by Texas State Highway Department.

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

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 16-22, Mar. 29 to Apr. 10)

2.98	0	3.3	5.4	3.65	27	4.2	140	9.0	945	14.5	5,400
3.0	.1	3.35	7.0	3.7	33	4.5	215	10.0	1,180	15.0	6,800
3.05	.8	3.4	9.0	3.75	40	5.0	330	11.0	1,510	16.0	10,400
3.1	1.5	3.45	12	3.8	48	5.5	432	12.0	2,020		
3.15	2.2	3.5	14	3.85	57	6.0	520	12.5	2,420		
3.2	3.1	3.55	18	3.9	67	7.0	670	13.0	2,980		
3.25	4.1	3.6	22	4.0	89	8.0	780	14.0	4,380		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	2.1	a20	99	63	294	92	51	2.7	202
2			0	2.1	a17	67	59	162	80	44	2.6	154
3			0	2.1	16	53	57	122	71	40	2.6	35
4			0	2.0	78	43	48	104	65	36	2.1	38
5			0	2.1	81	36	43	94	63	34	1.5	5.8
6			0	2.2	39	32	39	76	55	29	1.0	3.5
7			0	2.1	17	27	34	63	46	26	.7	2.2
8			0	2.1	10	24	33	229	44	24	.8	1.8
9			0	2.2	7.8	24	47	712	81	21	1.5	1.2
10			0	2.4	6.3	21	93	895	69	19	1.7	.8
11			0	2.6	5.4	19	46	1,150	60	17	11	.6
12			0	2.9	5.1	17	28	515	372	16	10	0
13			0	3.1	6.0	17	25	201	612	14	25	0
14			0	3.5	6.3	16	22	127	2,820	14	14	0
15			0	2.9	6.0	15	19	94	10,600	34	7.1	0
16			0	3.5	5.1	14	17	204	4,690	22	4.1	0
17			0	4.4	4.9	14	17	10,900	3,200	17	17	0
18			0	3.5	4.9	14	17	9,480	1,390	13	4.4	0
19			0	2.7	4.9	13	76	5,240	532	10	2.4	0
20			0	2.1	4.9	12	709	2,890	266	8.2	1.5	0
21			0	2.0	4.9	468	455	1,120	172	7.0	1.0	0
22			0	2.1	5.1	920	178	508	135	6.0	.4	.3
23			0	2.6	82	566	109	262	186	4.9	0	.1
24			0	156	1,920	169	589	318	145	3.9	0	0
25			.4	622	1,400	93	1,280	228	164	3.5	0	0
26			1.4	87	1,030	490	2,200	209	145	3.5	0	0
27			1.5	53	553	966	1,010	192	96	4.4	0	0
28			1.7	148	192	1,070	1,040	148	78	4.1	0	0
29			1.8	74	-	369	891	132	65	3.1	0	0
30			2.0	a26	-	151	697	114	53	2.6	0	0
31			2.1	a22	-	87	-	99	-	2.4	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	10.9	2.1	0	.35	22
Calendar year 1948	10,995.5	820	0	30.0	21,810
January	1,247.3	622	2.0	40.2	2,470
February	5,532.6	1,920	4.9	198	10,970
March	5,926	1,070	12	191	11,750
April	9,941	2,200	17	331	19,720
May	36,882	10,900	63	1,190	73,150
June	26,447	10,600	44	882	52,460
July	534.6	51	2.4	17.2	1,060
August	115.1	25	0	3.71	228
September	445.3	202	0	14.8	883
Water year 1948-49	87,081.8	10,900	0	239	172,700

Peak discharge (base, 2,800 sec.-ft.).- Feb. 24 (11 a.m.) 3,230 sec.-ft.; May 17 (6 p.m.) 16,700 sec.-ft.; June 15 (4:30 a.m.) 14,000 sec.-ft.

a No gage-height record: discharge computed on basis of estimated gage heights.

Leon River near Belton, Tex.

Location.- Water-stage recorder above spillway of concrete dam, lat. 31°04'15", long. 97°26'30", 1,400 feet upstream from bridge on U. S. Highway 81 and 2 miles east of Belton, Bell County. Datum of gage is 476.9 feet above mean sea level, datum of 1929.

Drainage area.- 3,547 square miles.

Records available.- October 1923 to September 1949.

Average discharge.- 26 years, 731 second-feet.

Extremes.- Maximum discharge during year, 36,400 second-feet Mar. 21 (gage height, 19.20 feet); no flow Oct. 6 to Dec. 25.

1923-49: Maximum discharge, 70,600 second-feet Apr. 22, 1945 (gage height, 24.41 feet), from rating curve extended above 45,000 second-feet; no flow at times.

Maximum stage known, 25 feet in December 1913, from information by local residents.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Several small pumping plants divert water above station. City of Temple diverted an average of about 5 second-feet from gage pool for municipal use during water year.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6		0	9.0	176	1,150	1,070	2,800	344	337	39	4.8
2	1.7		0	9.0	116	1,280	811	2,870	303	289	42	6.5
3	1.0		0	10	112	880	417	2,200	289	256	42	6.5
4	.4		0	9.0	164	432	276	f1,490	276	224	42	5.6
5	.2		0	5.6	126	212	212	986	262	f690	39	4.8
6	0		0	5.6	107	121	170	710	243	380	42	4.8
7	0		0	5.6	88	84	158	608	224	230	42	3.8
8	0		0	6.5	88	84	153	542	212	164	88	24
9	0		0	7.7	72	84	141	f526	193	153	97	84
10	0		0	9.0	64	80	451	f558	182	141	52	56
11	0		0	7.7	60	76	193	502	182	126	33	39
12	0		0	10	131	72	147	587	187	121	28	26
13	0		0	13	121	68	126	1,090	176	112	23	21
14	0		0	15	107	64	112	910	153	107	19	17
15	0		0	15	88	64	147	820	1,090	107	17	21
16	0		0	19	80	60	153	811	510	785	13	17
17	0		0	15	68	56	121	624	f510	426	12	15
18	0		0	17	56	52	97	448	1,060	153	13	12
19	0		0	17	52	45	80	395	f2,460	112	17	10
20	0		0	17	48	45	1,480	f1,460	f3,470	80	45	12
21	0		0	17	48	15,000	1,040	f1,880	f4,190	76	39	10
22	0		0	21	56	4,990	983	1,690	f3,870	68	26	7.7
23	0		0	26	52	1,740	2,010	2,200	f1,900	68	21	6.5
24	0		0	30	52	494	1,940	2,800	f920	64	17	4.8
25	0		.4	39	84	880	13,700	3,240	f641	52	13	3.8
26	0		1.3	28	84	942	3,550	2,110	1,180	48	12	3.5
27	0		1.9	23	68	1,010	1,750	f792	1,010	45	9.0	3.2
28	0		2.9	19	132	583	3,920	f600	f718	39	5.6	2.4
29	0		4.8	23	-	388	4,360	f566	f534	36	6.5	1.4
30	0		6.5	254	-	316	2,730	463	f410	33	6.5	.8
31	0		9.0	323	-	840	-	402	-	33	6.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5.9	2.6	0	0.19	12
November	0	0	0	0	0
December	26.8	9.0	0	.86	53
Calendar year 1948	55,244.5	3,630	0	151	109,600
January	1,025.7	323	5.6	33.1	2,030
February	2,500	176	48	89.3	4,960
March	32,192	15,000	45	1,038	63,850
April	42,498	13,700	80	1,417	84,290
May	37,680	3,240	395	1,215	74,740
June	27,699	4,190	153	923	54,940
July	5,555	785	33	179	11,020
August	907.1	97	5.6	29.3	1,800
September	434.9	84	.8	14.5	863
Water year 1948-49	150,524.4	15,000	0	412	298,600

Peak discharge (base, 11,000 sec.-ft.).- Mar. 21 (6:30 p.m.) 36,400 sec.-ft.; Apr. 25 (9 a.m.) 19,300 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Note.- No gage-height record Mar. 4-10, May 31, June 1, 4-9, 11, 13, 14, July 9-15; discharge computed on basis of weather records and records for San Gabriel River at Georgetown and Lampasas River at Youngsport.

Little River at Cameron, Tex.

Location.- Water-stage recorder, lat. 30°50', long. 96°57', at site of old McCowan bridge, 2,020 feet upstream from bridge on U. S. Highway 77 and 2 miles southeast of Cameron, Milam County. Datum of gage is 281.9 feet above mean sea level, datum of 1929.

Drainage area.- 7,034 square miles.

Records available.- November 1916 to September 1949.

Average discharge.- 32 years (1917-49), 1,968 second-feet.

Extremes.- Maximum discharge during year, 42,400 second-feet Apr. 26 (gage height, 35.32 feet); minimum, 17 second-feet Nov. 11 (gage height, 2.54 feet).

1916-49: Maximum discharge, 647,000 second-feet Sept. 10, 1921 (gage height, 53.2 feet, present datum, from floodmark), by slope-area method; minimum, 2.6 second-feet Sept. 3, 5, 7, 1918.

Flood of 1852 reached about same stage as that of Sept. 10, 1921. Flood of December 1913 reached a stage of 49.0 feet. Stages based on information by local residents.

Remarks.- Records good except those for periods of rapidly changing stage, which are fair. Many small diversions for irrigation and municipal supply affect very low flows. Slight regulation caused by pumping above station.

Revisions (water years).- W 718: 1918-22.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	27	29	40	129	230	678	7,200	642	678	93	39
2	30	26	30	41	266	377	1,100	4,320	606	552	90	58
3	28	24	30	41	196	1,210	1,100	4,320	534	480	91	38
4	24	22	33	41	174	1,140	768	3,650	473	588	80	35
5	24	19	32	41	186	768	534	2,420	426	473	75	33
6	22	20	32	41	180	484	430	1,920	383	285	72	32
7	21	19	33	43	162	338	362	1,810	348	624	96	29
8	20	19	33	43	140	258	307	1,660	321	408	95	26
9	20	18	32	43	123	210	307	1,140	291	318	263	38
10	21	18	32	43	112	182	570	896	481	263	249	72
11	21	18	34	43	106	164	408	786	708	235	220	202
12	21	18	34	42	98	147	570	642	345	201	162	114
13	20	20	34	43	91	138	338	606	504	190	120	82
14	20	25	36	46	86	130	275	988	394	178	102	64
15	20	28	47	57	112	125	246	1,470	900	176	88	55
16	20	33	54	656	117	120	210	1,400	4,270	174	93	53
17	22	33	59	1,400	102	116	212	1,540	2,520	212	80	47
18	216	35	59	204	96	107	233	1,140	988	1,170	76	43
19	116	37	62	93	92	105	206	840	988	534	68	43
20	58	34	84	80	86	100	9,650	750	1,940	301	61	41
21	43	36	73	78	84	443	13,700	1,180	2,840	215	59	44
22	38	35	66	76	84	3,900	8,500	2,040	3,450	170	117	58
23	35	32	58	91	82	11,800	1,870	2,880	3,800	150	120	86
24	35	31	54	87	82	7,690	2,070	3,500	2,670	136	92	63
25	34	30	48	263	1,030	1,420	9,310	4,120	1,430	128	76	44
26	32	30	46	951	5,190	1,270	37,000	4,530	1,020	133	66	35
27	27	32	43	1,540	2,650	2,190	29,500	3,270	2,550	123	61	29
28	26	30	43	832	426	1,880	13,100	1,250	2,340	117	56	26
29	26	30	43	204	-	1,320	15,900	896	1,100	113	52	24
30	26	29	41	120	-	822	16,000	840	804	103	44	24
31	26	-	40	96	-	606	-	750	-	98	42	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,123	216	20	36.2	2,230
November	808	37	18	26.9	1,600
December	1,374	84	29	44.3	2,730
Calendar year 1948	131,603	6,920	16	360	261,000
January	7,419	1,540	40	239	14,720
February	12,284	5,190	82	439	24,360
March	39,790	11,800	100	1,284	78,920
April	165,454	37,000	206	5,515	328,200
May	64,754	7,200	606	2,089	128,400
June	40,066	4,270	291	1,336	79,470
July	9,526	1,170	98	307	18,890
August	3,059	263	42	98.7	6,070
September	1,577	202	24	52.6	3,130
Water year 1948-49	347,234	37,000	18	951	688,700

Peak discharge (base, 11,000 sec.-ft.).- Mar. 23 (9 p.m.) 13,300 sec.-ft.; Apr. 21 (8 a.m.) 15,200 sec.-ft.; Apr. 26 (7:30 a.m.) 42,400 sec.-ft.; Apr. 29 (10 p.m.) 19,300 sec.-ft.

Note.- No gage-height record May 8-16, Sept. 23-30; discharge computed on basis of recorded range in stage and weather records.

Lampasas River at Youngsport, Tex.

Location.- Water-stage recorder, lat. 30°57', long. 97°43', 300 feet upstream from bridge on county highway and half a mile southeast of Youngsport, Bell County.

Drainage area.- 1,242 square miles.

Records available.- February 1924 to September 1949.

Average discharge.- 25 years, 313 second-feet.

Extremes.- Maximum discharge during year, 27,800 second-feet Mar. 21 (gage height, 23.06 feet); minimum, 4.6 second-feet Sept. 25-30 (gage height, 2.70 feet).

1924-49: Maximum discharge, 53,200 second-feet Sept. 28, 1936 (gage height, 33.5 feet, from floodmarks), from rating curve extended above 40,000 second-feet, no flow July 17 to Aug. 18, 1925, July 22, 23, Aug. 9 to Sept. 8, 1934.

Flood of September 1873 reached a stage of 44.2 feet and that of Dec. 2, 1913, reached a stage of 33.6 feet, present datum, from information by local residents.

Remarks.- Records good. Small diversions above station for municipal use.

Revisions (water years).- W 788: 1926, 1928, 1931.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	7.2	20	14	15	17	40	342	32	26	9.7	5.5
2	6.6	7.2	21	15	14	16	45	272	30	65	8.4	6.6
3	6.6	7.2	23	15	14	16	40	222	26	74	9.7	6.1
4	6.6	7.2	21	14	14	15	40	197	25	32	9.0	8.4
5	6.6	7.2	20	14	14	14	32	189	23	25	63	7.2
6	7.2	7.2	21	14	14	14	30	184	21	59	197	6.1
7	6.1	7.7	20	14	13	13	26	176	20	40	135	5.5
8	6.1	7.7	20	14	13	13	25	165	19	26	70	5.5
9	6.1	9.0	20	14	13	13	25	231	20	21	40	11
10	6.6	9.0	20	14	13	13	35	205	32	17	25	9.0
11	7.2	9.0	21	14	13	13	42	161	40	16	19	9.0
12	7.2	11	23	15	13	13	67	a134	237	15	14	7.7
13	7.7	12	25	16	14	13	53	106	98	16	12	7.7
14	7.7	13	26	16	15	13	a40	96	56	19	10	7.2
15	7.2	13	28	16	15	13	26	89	f3,750	32	9.7	6.6
16	7.7	13	50	20	15	13	23	83	279	219	9.0	7.2
17	13	12	25	20	16	13	20	83	113	93	8.4	8.4
18	14	12	21	20	15	13	19	92	70	42	33	9.0
19	9.0	12	20	16	15	13	20	92	56	25	135	9.7
20	7.7	12	19	16	15	14	35	83	42	17	45	20
21	8.4	13	16	15	15	9,660	176	73	32	14	23	9.7
22	9.0	13	15	16	15	1,140	106	67	28	13	15	6.6
23	9.0	14	14	17	17	210	70	62	114	13	13	6.1
24	9.0	15	15	17	17	127	f1,850	56	136	12	10	5.5
25	8.4	15	14	16	23	86	f5,380	50	128	12	9.7	5.0
26	8.4	17	14	15	23	142	530	56	470	13	8.4	4.6
27	8.4	17	14	15	28	343	267	50	135	12	7.7	4.6
28	8.4	17	14	14	20	124	f7,140	45	62	12	6.6	4.6
29	8.4	17	15	14	-	73	1,490	42	42	10	6.6	5.0
30	8.4	19	15	15	-	53	497	40	32	9.7	6.1	5.0
31	8.4	-	14	14	-	45	-	37	-	9.7	6.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	247.7	14	6.1	7.99	491
November	352.6	19	7.2	11.8	699
December	624	50	14	20.1	1,240
Calendar year 1948	22,596.2	2,700	3.2	61.7	44,820
January	479	20	14	15.5	950
February	439	26	13	15.7	871
March	12,278	9,660	13	396	24,350
April	18,189	7,140	19	606	36,080
May	3,780	342	37	122	7,500
June	6,168	3,750	19	206	12,230
July	1,009.4	219	9.7	32.6	2,000
August	974.1	197	6.1	31.4	1,930
September	220.1	20	4.6	7.34	437
Water year 1948-49	44,760.9	9,660	4.6	123	88,780

Peak discharge (base, 8,300 sec.-ft.).- Mar. 21 (8:30 p.m.) 27,800 sec.-ft.; Apr. 25 (6 a.m.) about 12,900 sec.-ft.; Apr. 28 (10:30 a.m.) 14,800 sec.-ft.; June 15 (6 a.m.) 12,600 sec.-ft.

a No gage-height record; discharge interpolated.

f Computed on basis of partly estimated gage-height record.

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San Gabriel River at Georgetown, Tex.

Location.- Water-stage recorder and concrete control, lat. 30°39'10", long. 97°39'20", 100 feet downstream from Missouri-Kansas-Texas Railroad bridge, 1¼ miles downstream from confluence of North and South Forks, and 1¾ miles northeast of Georgetown, Williamson County. Datum of gage is 643.71 feet above mean sea level, datum of 1929.

Drainage area.- 415 square miles.

Records available.- July 1934 to September 1949. February 1924 to August 1925 at site 1 mile upstream; records equivalent except those for extremely low flow.

Average discharge.- 15 years, 168 second-feet.

Extremes.- Maximum discharge during year, 6,600 second-feet Apr. 28 (gage height, 7.70 feet); minimum, 0.9 second-foot June 11 (gage height, 0.83 foot).

1924-25, 1934-49: Maximum discharge, 37,500 second-feet June 6, 1944 (gage height, 19.49 feet), from rating curve extended above 24,000 second-feet; minimum, 0.2 second-foot July 31, Aug. 1, 29, 30, 1942.

Maximum stage known, 39.36 feet in September 1921, present site and datum (discharge, 160,000 second-feet by slope-area method), from information by Missouri-Kansas-Texas Railroad Co.

Remarks.- Records good. Several small diversions have some effect on low flow which is also regulated at times by gates in recreation dam 3,000 feet upstream.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	6.2	4.9	5.3	11	20	17	141	22	20	6.7	4.5
2	4.5	5.7	4.5	5.3	11	17	21	113	21	206	6.7	4.5
3	4.5	5.7	4.5	5.3	12	15	17	96	19	130	6.2	4.5
4	4.5	6.2	4.9	5.3	11	14	18	85	17	46	6.2	4.5
5	4.1	6.2	4.5	5.3	10	14	19	79	17	29	6.7	4.5
6	4.5	5.7	4.5	4.9	9.4	13	16	74	16	22	16	4.5
7	4.5	5.7	4.5	4.9	8.8	13	15	53	15	14	14	4.5
8	4.1	5.7	4.5	4.9	7.7	13	15	68	29	2.9	11	4.5
9	4.1	6.2	4.5	5.3	7.2	13	15	69	17	12	11	40
10	4.5	6.2	4.5	5.3	6.7	13	14	71	13	12	11	8.8
11	4.5	6.2	4.9	5.3	6.7	13	14	70	12	11	8.2	7.2
12	4.5	6.7	4.9	5.3	6.7	13	14	58	11	10	6.7	6.7
13	4.5	6.7	4.9	5.7	19	13	13	52	20	9.4	6.2	5.7
14	4.5	7.2	5.7	5.7	7.7	13	13	51	17	9.4	5.7	5.7
15	4.5	7.2	7.2	5.7	7.7	12	11	48	784	10	5.3	5.7
16	19	6.7	6.7	7.2	7.2	12	11	47	71	37	5.3	6.2
17	101	6.2	6.2	7.2	6.7	12	11	47	36	48	16	7.7
18	17	5.7	6.7	6.7	6.7	11	11	47	16	22	8.8	13
19	13	5.3	6.7	5.7	7.2	12	636	47	17	15	6.2	7.7
20	11	5.3	6.2	5.7	7.2	12	597	45	18	12	7.7	6.7
21	10	5.7	5.7	6.2	7.2	14	126	42	16	11	5.7	6.2
22	8.8	5.7	5.3	6.2	7.2	48	63	39	15	15	4.9	5.7
23	7.7	5.7	5.7	7.7	8.2	23	48	37	154	11	4.5	5.7
24	7.2	5.7	5.7	8.2	8.2	17	55	35	59	9.4	4.5	5.3
25	6.7	5.7	5.3	7.7	31	145	984	32	31	9.4	4.5	5.3
26	6.7	6.2	5.3	13	50	533	196	32	516	9.4	4.5	5.3
27	6.7	6.7	5.7	13	27	139	107	31	222	8.2	4.1	4.9
28	6.7	5.3	5.7	11	22	44	3,000	30	57	8.2	4.5	4.9
29	6.2	5.3	5.7	7.7	-	28	436	29	34	7.7	4.1	4.9
30	7.7	4.9	5.3	7.7	-	22	192	27	25	7.2	4.1	4.9
31	6.7	-	5.3	9.4	-	17	-	24	-	7.2	4.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	308.4	101	4.1	9.95	612
November	179.6	7.2	4.9	5.99	356
December	166.6	7.2	4.5	5.37	330
Calendar year 1948	16,154.7	3,990	.9	44.1	32,040
January	209.8	13	4.9	6.77	416
February	338.4	50	6.7	12.1	671
March	1,298	533	11	41.9	2,570
April	6,705	3,000	11	224	13,300
May	1,719	141	24	55.5	3,410
June	2,317	784	11	77.2	4,600
July	781.4	206	2.9	25.2	1,550
August	221.1	16	4.1	7.13	439
September	210.2	40	4.5	7.01	417
Water year 1948-49	14,454.5	3,000	2.9	39.6	28,670

Peak discharge (base, 3,600 sec.-ft.).- Apr. 19 (8 p.m.) 4,280 sec.-ft.; Apr. 28 (10 p.m.) 6,600 sec.-ft.; June 15 (1 a.m.) 5,130 sec.-ft.

Yegua Creek near Somerville, Tex.

Location.- Water-stage recorder, lat. 30°19', long. 96°30', at bridge on State Highway 36, 760 feet downstream from Gulf, Colorado & Santa Fe Railway bridge, 2 miles south of Somerville, Burleson County, and 5 miles upstream from Davidson Creek. Datum of gage is 199.29 feet above mean sea level, datum of 1929.

Drainage area.- 990 square miles.

Records available.- May 1924 to September 1949.

Average discharge.- 25 years, 315 second-feet.

Extremes.- Maximum discharge during year, 16,100 second-feet Apr. 28 (gage height, 13.13 feet); no flow at times.

1924-49: Maximum discharge, 56,800 second-feet July 1, 1940 (gage height, 19.27 feet); no flow at times.

Maximum stage known, about 22.0 feet Dec. 5, 1913, present site and datum, from information by Gulf, Colorado & Santa Fe Railway Co.

Remarks.- Records good. No diversion above station.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 6-25, July 17 to Aug. 3)

1.15	0	1.7	1.6	2.7	19	4.9	186	9.0	3,890
1.2	.05	1.8	2.2	3.0	30	5.2	270	10.0	5,830
1.25	.1	1.9	3.0	3.2	38	5.5	380	11.0	8,300
1.3	.2	2.0	4.1	3.4	47	6.0	620	12.0	11,600
1.35	.3	2.1	5.4	3.7	64	6.5	940	13.0	15,700
1.4	.4	2.2	7.0	4.0	81	7.0	1,340		
1.5	.8	2.3	8.9	4.3	102	7.5	1,840		
1.6	1.2	2.5	14	4.6	133	8.0	2,440		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	72	1,470	62	2,780	5.3	6.0	0.1	0
2				0	57	758	41	1,690	8.1	3.7	0	0
3				0	36	520	29	1,070	6.4	3.1	0	0
4				0	22	333	29	624	4.6	26	0	0
5				0	13	149	53	306	3.6	21	0	0
6				0	10	64	46	117	2.9	11	0	0
7				0	6.5	39	28	72	2.5	3.8	0	0
8				0	4.5	26	20	55	2.1	2.6	0	0
9				0	3.9	19	14	44	3.6	1.5	0	1.4
10				0	3.0	14	11	36	54	1.1	0	5.4
11				0	2.2	11	9.4	30	88	.7	0	4.4
12				0	1.8	10	8.1	26	88	.5	0	1.8
13				0	1.5	9.6	7.4	22	54	.3	0	1.3
14				0	1.3	11	18	19	295	.3	0	.7
15				0	1.2	46	68	16	393	.9	0	.4
16				0	.9	81	32	14	305	4.5	0	.2
17				0	.7	34	19	13	452	13	0	8.9
18				0	.6	16	12	12	254	10	0	69
19				0	.6	8.9	10	9.4	116	3.9	0	70
20				0	.5	6.2	997	8.3	88	2.0	0	94
21				.1	.5	288	1,840	7.4	48	1.3	0	30
22				13	.5	961	2,310	6.8	24	.7	0	30
23				15	.5	912	2,820	6.4	13	.4	0	9.2
24				23	.5	700	3,420	5.7	7.6	.2	0	3.0
25				11	197	425	2,130	5.1	5.1	.3	0	1.6
26				5.2	4,020	360	2,040	4.7	5.2	.5	0	1.0
27				26	6,080	270	10,200	5.7	67	.4	0	.6
28				128	2,950	288	11,900	12	122	.4	0	.4
29				164	-	330	8,330	14	40	.3	0	.3
30				93	-	246	4,360	6.4	13	.1	0	.1
31				60	-	152	-	3.6	-	.1	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	7,666.6	799	0	20.9	15,210
January	538.3	164	0	17.4	1,070
February	13,488.2	6,080	.5	482	26,750
March	8,557.7	1,470	6.2	276	16,970
April	53,863.9	14,900	7.4	1,795	106,800
May	7,041.5	2,780	3.6	227	13,970
June	2,571.0	452	2.1	85.7	5,100
July	120.6	26	.1	3.89	239
August	.1	.1	0	.003	.2
September	333.7	94	0	11.1	662
Water year 1948-49	86,515.0	14,900	0	237	171,600

Peak discharge (base, 1,400 sec.-ft.).- Feb. 27 (5 a.m.) 7,250 sec.-ft.; Apr. 24 (2 a.m.) 3,980 sec.-ft.; Apr. 28 (2 a.m.) 16,100 sec.-ft.

Navasota River near Easterly, Tex.

Location.- Water-stage recorder, lat. 31°10'10", long. 96°17'55", at bridge on U. S. Highway 79, 1 mile upstream from Missouri Pacific Railroad bridge and 6 miles northeast of Easterly, Robertson County. Datum of gage is 276.42 feet above mean sea level, datum of 1929.

Drainage area.- 949 square miles.

Records available.- March 1924 to September 1949.

Average discharge.- 25 years, 449 second-feet.

Extremes.- Maximum discharge during year, 5,350 second-feet Mar. 22 (gage height, 15.45 feet); minimum, 1.1 second-feet Sept. 8.

1924-49: Maximum discharge, 60,300 second-feet May 2, 1944 (gage height, 22.13 feet); no flow at times.

Maximum stage known, about 24.0 feet in 1900, from information by local residents (discharge, about 71,000 second-feet).

Remarks.- Records good. No diversion above station.

Revisions (water years).- W 898: 1924, 1926, 1927, 1928(M), 1929, 1930, 1931(M)

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.2	1.9	a3.4	4.7	200	200	114	166	102	54	5.9	1.5
2	1.3	1.9	a3.4	4.7	152	96	95	148	52	40	4.7	1.5
3	1.3	1.9	a3.4	4.8	162	62	82	102	26	30	4.2	1.5
4	1.3	1.9	a3.4	4.7	175	47	70	75	15	23	3.9	1.4
5	1.3	1.9	a3.5	4.8	152	39	62	57	9.9	20	3.7	1.3
6	1.3	1.8	a3.5	4.5	118	36	57	45	7.5	82	3.4	1.3
7	1.3	1.9	3.5	4.5	90	32	51	36	6.2	131	3.5	1.2
8	1.3	2.0	3.8	4.6	76	29	46	30	5.1	45	9.2	1.2
9	1.4	2.1	3.6	4.8	63	29	42	26	4.6	35	9.2	76
10	1.4	2.1	3.5	5.1	52	28	103	22	4.5	27	8.2	118
11	1.4	2.2	3.5	6.2	43	34	907	23	4.3	20	6.3	55
12	1.4	2.4	3.7	6.0	38	31	1,030	112	5.5	16	5.4	32
13	1.5	2.6	3.9	5.6	35	28	420	65	199	13	5.1	18
14	1.5	2.8	4.0	5.4	34	28	209	32	872	20	4.0	10
15	1.5	2.8	6.0	6.1	31	25	134	21	415	19	6.3	6.8
16	1.5	5.6	58	175	30	23	87	16	660	9.9	7.2	4.8
17	1.5	5.7	73	1,120	28	21	67	13	483	10	7.8	4.2
18	1.4	4.1	42	1,410	29	20	54	11	142	9.0	5.5	3.8
19	1.6	3.7	62	594	29	19	46	10	50	24	4.1	3.6
20	1.6	3.1	44	215	28	18	124	9.0	31	63	3.4	2.8
21	1.6	4.1	24	118	28	1,300	310	8.4	23	42	2.7	2.6
22	1.7	5.0	14	130	33	4,430	286	7.8	18	30	2.0	2.0
23	1.7	4.4	10	139	93	4,500	202	7.4	14	23	1.7	2.8
24	1.7	5.0	9.0	78	80	2,510	152	6.9	14	18	1.6	3.8
25	1.7	4.1	7.5	60	88	535	114	6.4	93	50	1.5	2.6
26	1.8	3.7	6.4	262	426	569	173	6.5	335	25	1.5	1.8
27	1.7	3.5	5.7	1,310	560	1,850	452	11	506	21	1.5	1.7
28	1.8	3.5	5.4	2,330	457	2,880	364	10	463	18	1.7	1.5
29	1.8	3.4	5.2	3,450	-	1,350	380	25	187	12	2.0	1.4
30	1.9	3.4	4.8	2,170	-	256	222	65	81	6.7	1.8	1.3
31	1.9	-	5.0	696	-	162	-	87	-	7.0	1.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	47.3	1.9	1.2	1.53	94
November	94.5	5.7	1.8	3.15	187
December	432.1	73	3.4	13.9	857
Calendar year 1948	48,621.6	3,360	1.0	133	96,440
January	14,333.3	3,450	4.5	462	28,430
February	3,330	560	28	119	6,600
March	21,187	4,500	18	683	42,020
April	6,455	1,030	42	215	12,800
May	1,262.4	166	6.4	40.7	2,500
June	4,828.6	872	4.3	161	9,580
July	945.6	131	7.0	30.5	1,880
August	130.6	9.2	1.5	4.21	259
September	367.4	118	1.2	12.2	729
Water year 1948-49	53,413.8	4,500	1.2	146	105,900

Peak discharge (base, 3,100 sec.-ft.).- Jan. 29 (10 a.m.) 3,520 sec.-ft.; Mar. 22 (7:30 p.m.) 5,350 sec.-ft.

a No gege-height record; discharge interpolated.

American Canal Co.'s canal near Fulshear, Tex.

Location.- Water-stage recorder, lat. 29°39', long. 95°54', 1 mile downstream from point of diversion and 3 miles south of Fulshear, Fort Bend County.

Records available.- October 1931 to September 1949.

Average discharge.- 18 years, 76.2 second-feet.

Extremes.- Maximum daily discharge during year, 438 second-feet June 22; no flow at times. 1931-49: Maximum daily discharge, that of June 22, 1949; no flow for several months each year.

Remarks.- Records good except those below 200 second-feet and those for period of no gage-height record, which are fair. Station above all diversions from canal. Flow controlled by pumping plant located on left bank of Brazos River 18 miles above Richmond. Figures of discharge represent water actually pumped from river for irrigation in vicinity of Sugarland.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	221	0	29.8	1,830
November	0	0	0	0
December	0	0	0	0
Calendar year 1948	349	0	126	91,450
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	201	0	19.7	1,170
May	339	0	210	12,910
June	438	253	342	20,330
July	384	216	334	20,520
August	383	29	311	19,150
September	393	153	321	19,080
Water year 1948-49	438	0	131	94,990

Richmond Irrigation Co.'s canal near Richmond, Tex.

Location.- Water-stage recorder, lat. 29°34', long. 95°47', 600 feet downstream from crossing of U. S. Highway 59, 1½ miles downstream from point of diversion, and 1½ miles west of Richmond, Fort Bend County.

Records available.- October 1931 to September 1949.

Average discharge.- 18 years, 37.5 second-feet.

Extremes.- Maximum daily discharge during year, 203 second-feet June 7; no flow at times. 1931-49: Maximum daily discharge, 234 second-feet June 5, 6, 1938; no flow for several months each year.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Canal diverts water by pumping from right bank of Brazos River 6 miles upstream from Richmond for irrigation. Figures of discharge represent water pumped from river except for a diversion upstream from station which is used to irrigate 80 acres.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	1.0	0	0.07	4.2
November	1.1	0	.12	7.3
December	0	0	0	0
Calendar year 1948	230	0	61.0	44,310
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	67	0	6.28	374
May	116	0	61.3	3,770
June	203	41	134	7,950
July	199	0	137	8,420
August	196	7.2	164	10,090
September	199	98	146	8,660
Water year 1948-49	203	0	54.3	39,280

Dry Creek near Richmond, Tex.

Location.- Staff gage, lat. 29°30'19", long. 95°42'39", at county road bridge 3.8 miles upstream from mouth and 6 miles southeast of Richmond, Fort Bend County. Datum of gage is 65.96 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 10.3 square miles.

Records available.- May 1947 to September 1949.

Extremes.- Maximum discharge during year, 457 second-feet Apr. 22 (gage height, 9.63 feet, from floodmark); no flow at times.
1947-49: Maximum discharge, that of Apr. 22, 1949; no flow at times.
Flood of August 1945, highest of recent years, reached a stage of 13.6 feet, gage datum, at a point 0.7 mile to left of gage, from information by observer.

Remarks.- Records fair. Gage read once daily, oftener during high stages. Low flow affected by drainage from irrigated lands. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0	0.3	0	0.1	4.6	1.2	1.0	2.5	7.6	13	25
2	.3	0	.2	0	.1	11	11	.8	2.1	7.8	11	26
3	.2	0	.1	0	.1	8.3	4.4	1.3	5.6	7.6	9.2	21
4	.1	0	0	0	.2	2.7	9.7	9.7	7.1	8.2	10	19
5	0	0	0	0	.2	1.6	8.0	5.5	4.2	8.0	11	16
6	0	0	0	0	.1	1.0	2.5	2.9	a3.6	8.2	20	14
7	0	0	0	0	.1	.8	.7	1.0	5.0	7.7	39	a14
8	0	0	0	0	0	1.5	.2	.8	5.3	a9.2	36	14
9	0	2.4	0	0	.1	30	0	0	9.2	11	38	16
10	0	1.4	0	0	.8	9.7	0	0	12	12	30	18
11	0	.4	0	0	.6	.9	0	0	10	9.9	19	21
12	0	.2	0	0	.1	.4	0	0	9.1	7.9	14	23
13	0	.1	0	0	.1	.5	0	.9	7.8	8.2	12	21
14	0	0	0	0	0	15	0	3.4	7.1	24	11	18
15	0	.1	0	0	0	6.9	0	2.7	9.0	60	15	a18
16	0	8.1	0	0	0	1.4	0	2.1	13	40	15	20
17	0	9.6	0	0	.2	.6	0	a2.7	14	18	13	20
18	0	5.3	0	0	63	.2	0	3.9	12	10	14	23
19	0	3.7	0	0	77	0	0	5.2	12	10	14	35
20	0	3.8	0	0	11	.4	173	8.0	14	8.6	15	36
21	0	7.8	0	9.2	46	13	53	11	16	5.8	16	28
22	0	4.1	0	6.1	97	4.9	336	7.2	13	7.9	16	24
23	.2	2.1	0	2.2	98	1.0	126	5.7	12	12	15	17
24	.2	1.4	0	a1.3	17	.2	35	8.1	17	12	15	12
25	0	1.0	0	.8	26	.1	48	20	18	14	14	12
26	0	1.0	0	.3	131	0	36	11	21	16	14	10
27	0	.8	0	.3	36	0	12	13	22	19	14	9.0
28	0	.5	0	.8	9.2	0	4.0	25	18	21	14	7.6
29	0	.4	0	.1	-	0	2.3	a12	13	18	13	6.4
30	0	.4	0	a.1	-	0	1.4	4.2	8.9	15	13	5.7
31	0	-	0	.1	-	0	-	3.0	-	14	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1.4	0.4	0	0.05	2.8
November	54.6	2.4	0	1.82	108
December	.6	.3	0	.02	1.2
Calendar year 1948	853.8	57	0	2.33	1,690
January	21.3	9.2	0	.69	42
February	614.0	131	0	21.9	1,220
March	116.8	30	0	3.77	232
April	864.4	336	0	28.8	1,710
May	172.1	25	0	5.55	341
June	323.5	22	2.1	10.8	642
July	438.8	60	5.8	14.1	870
August	517.2	39	9.2	16.7	1,030
September	549.7	36	5.7	18.3	1,090
Water year 1948-49	3,874.2	336	0	10.1	7,290

Peak discharge (base, 200 sec.-ft.).- Feb. 19 (1 a.m.) 200 sec.-ft.; Feb. 22 (12 p.m.) 290 sec.-ft.; Apr. 20 (11 a.m.) 280 sec.-ft.; Apr. 22 (1 p.m.) 457 sec.-ft.

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

Big Creek near Needville, Tex.

Location.- Wire-weight gage, lat. 29°28'35", long. 95°48'45", at bridge on State Highway 36, 1.5 miles downstream from Coon Creek, 5½ miles north of Needville, Fort Bend County, and 10½ miles upstream from Fairchild Creek. Datum of gage is 69.4 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 37.6 square miles.

Records available.- May 1947 to September 1949.

Extremes.- Maximum discharge observed during year, 664 second-feet Apr. 22 (gage height, 10.41 feet); no flow at times.

1947-49: Maximum discharge, 2,250 second-feet (revised) May 25, 1947 (gage height, 12.70 feet, from floodmark); no flow at times.

Flood of August 1945 reached a stage of 14.4 feet, from information by local resident.

Remarks.- Records good except those above 50 second-feet, which are fair. Gage read once or twice daily. No diversion above station.

Revisions.- Revised figures of discharge in second-feet for May 1947, superseding those published in Water-Supply Paper 1088, are given herewith:

May 20	560	May 24	664	May 28	288
21	560	25	1,600	29	138
22	327	26	728	30	66
23	300	27	467	31	29

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
May 20-31	5,727	1,600	29	477	11,360
The period	-	-	-	-	12,130

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0	0.2	12	0.4	5.3	0.3	0	0	0
2		0		0	.1	18	6.5	3.1	.2	0	0	8.3
3		0		0	.1	12	4.2	2.2	0	0	0	5.5
4		0		0	.1	5.2	2.2	1.6	0	0	2.4	2.1
5		0		0	.4	3.2	3.9	1.0	0	0	19	.9
6		0		0	.3	1.6	1.6	.6	0	0	190	.4
7		0		0	.2	1.0	.9	.4	0	0	560	.2
8		0		0	.2	.7	.4	.3	0	0	402	.3
9		0		0	.3	36	.2	1.4	15	0	191	2.7
10		0		0	.5	13	.2	1.0	33	0	280	6.3
11		0		0	.3	1.9	.3	.4	8.2	0	126	5.4
12		0		0	.2	.8	.3	.3	4.1	1.4	37	6.1
13		0		0	.1	8.2	.3	.2	2.5	1.5	14	4.7
14		0		0	.1	78	.2	.1	1.4	169	7.2	4.4
15		0		0	0	14	.1	0	.8	349	4.2	8.2
16		38		0	0	4.3	.1	0	.4	181	2.7	5.1
17		13		0	0	2.1	0	0	.2	24	2.0	3.1
18		1.5		0	92	1.2	0	0	.1	8.8	1.6	2.3
19		.5		0	240	.9	5.2	0	0	3.3	1.3	2.1
20		.3		0	23	.6	453	0	0	1.4	1.0	3.9
21		.2		5.8	52	45	323	0	0	.6	.7	3.2
22		1.7		13	138	22	478	0	0	.2	.6	2.4
23		.8		4.6	242	3.2	455	0	0	.1	.4	2.0
24		.8		1.9	48	1.8	205	0	0	.1	.2	1.9
25		.5		.8	153	.9	207	14	0	.2	0	1.7
26		.2		.3	492	.6	358	6.1	0	.4	0	1.3
27		.2		.2	177	.5	100	1.6	0	.7	0	1.2
28		.1		.1	33	.4	39	.8	0	.4	0	.8
29		.1		.1	-	.3	19	.6	0	.2	0	.4
30		0		.1	-	.3	9.2	.5	0	.2	0	.4
31		-		.1	-	.3	-	.4	-	.1	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	57.9	38	0	1.93	115
December	0	0	0	0	0
Calendar year 1948	2,881.3	355	0	7.87	5,710
January	27.0	13	0	.87	54
February	1,693.1	492	0	60.5	3,360
March	290.0	78	.3	9.35	575
April	2,673.2	478	0	89.1	5,300
May	41.9	14	0	1.35	83
June	68.2	33	0	2.21	131
July	742.6	349	0	24.0	1,470
August	1,843.3	560	0	59.5	3,660
September	87.3	8.3	0	2.91	173
Water year 1948-49	7,522.5	560	0	20.6	14,920

Peak discharge (base, 500 sec.-ft.).- Feb. 26 (6 a.m.) 596 sec.-ft.; Apr. 20 (5 p.m.) 596 sec.-ft.; Apr. 22 (6 p.m.) 664 sec.-ft.; Apr. 25 (12 p.m.) 560 sec.-ft.; Aug. 7 (9 a.m.) 583 sec.-ft.

Big Creek near Guy, Tex.

Location.- Staff gage, lat. 29°24'45", long. 95°42'35", at county road bridge 0.2 mile upstream from Gulf Colorado & Santa Fe Railway bridge, 0.3 mile downstream from Deer Creek, 1.0 mile downstream from Fairchild Creek, 6 miles northeast of Guy, Fort Bend County, and 19 miles upstream from mouth. Datum of gage is 46.57 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 112 square miles.

Records available.- June 1947 to September 1949.

Extremes.- Maximum discharge during year, 1,690 second-feet Apr. 22, Aug. 9; maximum gage height, 9.22 feet Apr. 22, from graph based on gage readings; no flow Oct. 20 to Nov. 2.

1947-49: Maximum discharge, that of Apr. 22, Aug. 9, 1949; maximum gage height, that of Apr. 22, 1949; no flow Nov. 8, 1947, Oct. 20 to Nov. 2, 1948.

Flood of August 1945, highest of recent years and caused by tropical storm, reached a stage of 18.1 feet, gage datum, at railroad bridge 0.2 mile downstream, from information by observer, local resident.

Remarks.- Records good except those above 200 second-feet and those for periods of no gage-height record, which are fair. Gage read twice daily. Low flow is affected by drainage from irrigated lands. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.2	0	0.9	0.4	4.4	236	2.1	89	11	18	30	45
2	11	1.8	.7	.4	5.1	162	22	28	6.0	17	31	64
3	11	5.7	.7	.6	5.2	124	51	13	3.4	15	25	72
4	9.1	3.7	.7	.7	4.8	66	55	12	2.6	15	24	63
5	5.0	1.9	.7	.5	5.0	35	70	6.4	2.9	19	54	43
6	2.2	.8	.7	.4	a5.4	18	36	4.2	3.8	21	104	37
7	1.8	.5	.5	.4	5.3	11	16	3.4	5.2	18	498	33
8	1.2	.4	.4	.4	3.8	7.0	7.2	2.8	6.2	17	1,180	32
9	.9	2.2	.4	.4	3.4	143	4.4	2.8	76	17	1,570	36
10	.7	2.7	.4	.4	2.8	496	3.3	2.7	65	14	1,060	90
11	.7	2.2	.4	.4	4.6	145	2.6	3.1	71	11	713	75
12	.7	1.5	.5	.4	4.4	47	2.0	3.8	57	8.5	489	60
13	.5	1.4	.7	.3	a3.5	50	2.0	3.8	38	8.1	258	53
14	.8	1.0	.7	.3	a2.7	195	2.5	3.3	29	54	150	56
15	1.2	1.0	.6	.3	a2.2	111	2.1	8.6	29	342	86	58
16	.9	22	.7	6.3	1.8	59	1.8	6.8	28	613	56	70
17	.4	69	.5	14	1.9	23	1.6	7.8	32	537	41	60
18	.2	64	.5	5.7	143	12	1.7	10	64	239	34	54
19	.2	42	.5	3.0	537	7.0	2.3	11	28	99	31	95
20	0	25	.4	2.2	408	4.6	860	9.7	12	50	27	104
21	0	21	.4	106	394	19	1,390	9.6	10	27	28	72
22	0	57	.4	239	474	47	1,570	7.0	9.2	20	26	60
23	0	29	.4	106	673	53	1,570	7.5	8.3	20	27	51
24	0	14	.5	54	476	20	1,250	9.7	7.6	23	26	46
25	0	7.0	a.4	26	370	8.9	869	73	7.0	33	26	43
26	0	5.1	a.4	14	1,510	4.8	945	89	7.4	34	30	37
27	0	3.8	.3	11	1,230	3.3	693	54	11	38	31	32
28	0	2.9	.3	8.1	537	2.4	376	55	14	38	32	31
29	0	2.1	.4	6.4	-	2.6	188	76	21	42	31	30
30	0	1.5	.4	4.7	-	2.5	104	40	19	36	29	27
31	0	-	.4	4.1	-	2.3	-	21	-	32	28	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	56.7	11	0	1.83	112
November	392.2	69	0	13.1	778
December	15.9	.9	.3	.51	32
Calendar year 1948	11,310.0	538	0	30.9	22,440
January	616.8	239	.3	19.9	1,220
February	6,818.3	1,510	1.8	244	13,520
March	2,117.4	496	2.3	68.3	4,200
April	10,100.6	1,570	1.6	337	20,030
May	674.0	89	2.7	21.7	1,340
June	685.6	76	2.6	22.9	1,360
July	2,475.6	613	8.1	79.9	4,910
August	6,775	1,570	24	219	13,440
September	1,629	104	27	54.3	3,230
Water year 1948-49	32,357.1	1,570	0	88.6	64,170

Peak discharge (base, 1,000 sec.-ft.).- Feb. 26 (6 a.m.) 1,630 sec.-ft.; Apr. 22 (6 p.m.) 1,690 sec.-ft.; Aug. 9 (6:30 a.m.) 1,690 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

Fairchild Creek near Needville, Tex.

Location.- Staff gage, lat. 29°26'45", long. 95°45'40", at county road bridge 3.0 miles upstream from mouth and 5½ miles northeast of Needville, Fort Bend County. Datum of gage is 60.4 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 24.9 square miles.

Records available.- May 1947 to September 1949.

Extremes.- Maximum discharge during year, 880 second-feet Feb. 26 (gage height, 8.90 feet, from graph based on gage readings); no flow at times.
1947-49: Maximum discharge, that of Feb. 26, 1949; no flow at times.
Maximum stage since about 1910, 12.5 feet in August 1945, from floodmark 195 feet downstream and 520 feet to left of gage, from information by local resident.

Remarks.- Records good. Gage read twice daily. No diversion above station.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Feb. 10-25, Mar. 12-23, Apr. 20-22, July 26-31)

0.75	0	1.6	5.6	2.8	32	5.5	267
.8	.1	1.8	8.2	3.0	40	6.0	342
.9	.4	2.0	12	3.4	61	7.0	515
1.0	.8	2.2	15	3.7	80	8.0	700
1.2	1.8	2.4	20	4.0	102		
1.4	3.4	2.6	26	5.0	202		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0	0.3	4.6	0.9	1.3	0	0	0	0.2
2		0		0	.6	43	5.2	.8	0	0	0	2.3
3		0		0	.6	11	2.4	.5	0	0	0	3.0
4		0		0	.6	3.3	8.4	.2	0	0	8.6	1.1
5		0		0	.7	1.7	5.6	.2	0	0	20	.7
6		0		0	1.2	1.0	1.5	.1	0	0	78	.3
7		0		0	.7	.7	.8	.1	0	0	375	0
8		0		0	.4	.4	.2	0	.9	0	197	0
9		0		0	.4	188	0	0	.4	0	177	7.8
10		0		0	1.9	122	0	0	2.7	0	162	1.3
11		0		0	1.1	13	0	0	1.7	0	87	.7
12		0		0	.7	3.2	0	0	.6	0	30	.3
13		0		0	.4	1.9	0	0	.2	0	10	.1
14		0		0	.3	1.9	0	0	0	0	4.5	.2
15		0		0	.2	1.1	0	0	0	38	2.4	25
16		13		0	.1	.6	0	0	0	156	1.7	8.8
17		17		0	.1	.1	0	0	0	38	1.0	2.0
18		17		0	113	0	0	0	.2	4.2	.8	17
19		10		0	115	0	0	0	.4	3.3	.6	9.2
20		1.2		0	18	0	614	0	0	1.1	.3	1.2
21		25		46	60	2.9	253	0	0	.5	.1	.7
22		12		28	169	3.0	488	0	0	.2	0	.4
23		1.9		6.1	76	.8	197	0	0	0	0	0
24		.8		2.6	22	.3	53	6.3	0	0	0	0
25		.4		1.0	280	.2	161	1.2	0	.1	0	0
26		.3		.5	434	.1	149	.1	0	.8	0	0
27		.2		.4	58	.1	39	7.8	0	.4	0	0
28		.2		.4	27	0	9.3	2.4	0	.4	0	0
29		.1		.4	-	0	3.5	0	0	.1	0	0
30		0		.4	-	0	2.0	0	0	0	0	0
31		-		.4	-	0	-	0	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	99.1	25	0	3.30	197
December	0	0	0	0	0
Calendar year 1948	1,412.1	159	0	3.86	2,810
January	86.2	46	0	2.78	171
February	1,382.3	434	1	49.4	2,740
March	404.9	188	0	13.1	806
April	1,993.8	614	0	66.5	3,950
May	21.0	7.8	0	.68	42
June	7.1	2.7	0	.24	14
July	243.1	156	0	7.84	482
August	1,156.0	375	0	37.3	2,290
September	82.3	25	0	2.74	163
Water year 1948-49	5,475.8	614	0	15.0	10,850

Peak discharge (base, 200 sec.-ft.).- Feb. 18 (9 p.m.) 368 sec.-ft.; Feb. 22 (7:30 p.m.) 515 sec.-ft.; Feb. 26 (1 a.m.) 880 sec.-ft.; Mar. 9 (4:30 p.m.) 643 sec.-ft.; Apr. 20 (6 p.m.) 860 sec.-ft.; Apr. 22 (6 p.m.) 643 sec.-ft.; Apr. 25 (7 p.m.) 320 sec.-ft.; Aug. 7 (1:30 p.m.) 479 sec.-ft.; Aug. 9 (1 a.m.) 260 sec.-ft.

Colorado River near Ira, Tex.

Location.- Water-stage recorder, lat. 32°32', long. 101°03', 269 feet downstream from county road bridge, 3¼ miles upstream from Willow Creek, 3¼ miles downstream from Bluff Creek, 4.4 miles southwest of Ira, Scurry County, and 7 miles downstream from Bull Creek.

Drainage area.- 3,617 square miles, of which 2,590 square miles is probably noncontributing.

Records available.- October 1947 to September 1949.

Extremes.- Maximum discharge during year, 3,040 second-feet May 28 (gage height, 6.88 feet); no flow at times.

1947-49: Maximum discharge, 20,500 second-feet July 6, 1948 (gage height, 21.35 feet), from rating curve extended above 9,600 second-feet by conveyance-slope method; no flow at times.

Maximum stage known, about 32 feet June 16, 1913, from levels to a point about 255 feet upstream from gage, from information by local resident. Flood of May 1947 reached a stage of 25.1 feet, from floodmark at bridge 269 feet upstream from gage.

Remarks.- Records good. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	130	0.5	0.6	3.6	1.1	0.7	9.1	5.7	0	0.1	3.0
2	.2	362	.5	.5	3.6	1.3	.5	5.0	3.6	0	0	3.0
3	1.8	168	.5	.5	3.3	1.1	.7	3.0	2.0	0	0	2.8
4	2.5	28	.5	.5	3.3	1.1	.9	2.5	1.3	0	0	2.8
5	1.5	10	.2	.5	2.8	.9	.9	1.8	.7	0	0	2.8
6	1.1	5.7	.4	.5	2.8	1.1	.9	1.5	.5	0	0	2.8
7	1.3	3.3	.4	.5	2.5	.7	.7	131	362	0	0	2.5
8	1.8	2.8	.4	.5	2.2	.5	.7	471	1,510	141	0	2.5
9	437	1.8	.4	1.3	2.2	.5	.5	298	776	30	0	2.2
10	1,110	1.3	.4	1.3	2.0	.4	.5	41	206	5.7	0	119
11	155	1.1	.5	4.0	2.0	.4	.4	14	148	1.8	611	50
12	33	1.3	.7	4.3	2.0	.4	.4	6.0	72	1.5	402	67
13	13	1.1	.7	6.0	2.8	.5	.4	3.0	80	6.8	389	81
14	7.6	1.1	.7	5.0	2.2	.4	.5	2.5	48	87	76	770
15	4.6	1.1	.7	3.6	2.2	.5	.5	2.0	18	54	25	218
16	3.6	1.1	.9	4.3	2.0	.4	.2	6.7	5.7	37	31	187
17	2.2	.9	.7	2.8	1.8	.5	.2	4.2	2.5	17	232	88
18	1.1	.7	.7	2.5	1.8	.5	.5	2.0	1.5	4.5	47	26
19	1.1	.5	.7	3.3	1.5	.4	684	1.1	1.3	1.5	15	78
20	1.8	.4	.7	3.0	1.5	.5	445	.9	.7	.7	70	76
21	2.5	.5	.7	3.0	1.5	1.1	69	.4	.2	.2	14	f25
22	2.2	.5	.7	4.0	2.0	.9	28	.2	.2	.4	7.2	8.6
23	1.8	.5	.7	7.6	2.2	.5	16	.2	.1	.2	5.7	5.4
24	1.1	.5	.7	6.4	2.2	.4	11	.5	.1	.2	5.0	3.3
25	.9	.5	.7	5.4	3.3	.7	10	.9	0	.1	5.0	2.2
26	.5	.5	.7	5.4	2.2	.5	7.6	15	0	.1	7.5	1.8
27	.5	.5	.6	6.0	2.2	.5	27	722	0	.1	7.5	1.1
28	1.1	.5	.6	6.4	1.8	.5	266	1,420	0	0	3.6	.9
29	3.6	.4	.6	3.6	-	.4	133	247	0	0	3.3	.4
30	2.2	.5	.6	3.6	-	.2	24	55	0	1.8	3.3	.2
31	1.5	-	.6	3.6	-	.5	-	18	-	.1	3.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,798.2	1,110	0.1	58.0	3,570
November	727.1	362	.4	24.2	1,440
December	18.4	.9	.2	.59	36
Calendar year 1948	41,974.0	13,600	0	115	83,250
January	100.5	7.6	.5	3.24	199
February	65.5	3.6	1.5	2.34	130
March	19.4	1.3	.2	.63	38
April	1,730.7	684	.2	57.7	3,430
May	3,485.5	1,420	.2	112	6,910
June	3,246.1	1,510	0	108	6,440
July	391.7	141	0	12.6	777
August	1,963.2	611	0	63.3	3,890
September	1,833.3	770	.2	61.1	3,640
Water year 1948-49	15,379.6	1,510	0	42.1	30,500

Peak discharge (base, 1,000 sec.-ft.).- Oct. 10 (6 a.m.) 1,850 sec.-ft.; Apr. 19 (9 p.m.) 1,380 sec.-ft.; May 28 (5 a.m.) 3,040 sec.-ft.; June 8 (1 p.m.) 2,360 sec.-ft.; Aug. 11 (6 a.m.) 1,040 sec.-ft.; Sept. 14 (3 a.m.) 1,680 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Note.- No gage-height record Dec. 22 to Jan. 6, June 15-19, Sept. 18; discharge interpolated or computed on basis of estimated gage heights.

Colorado River at Colorado City, Tex.

Location.- Water-stage recorder and concrete control, lat. 32°24', long. 100°51', at Colorado City, Mitchell County, 3,517 feet upstream from bridge on U. S. Highway 80, 4,100 feet upstream from Texas & Pacific Railway bridge, and 1.6 miles upstream from Lone Wolf Creek. Datum of gage is 2,030.2 feet above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Drainage area.- 4,082 square miles, of which 2,590 square miles is probably noncontributing.

Records available.- November 1923 to August 1925, May 1946 to September 1949.

Extremes.- Maximum discharge during year, 3,330 second-feet Oct. 9 (gage height, 6.42 feet); no flow at times.

1924-25, 1946-49: Maximum discharge, 24,900 second-feet July 6, 1948 (gage height, 22.37 feet, from floodmark); no flow at times.

Maximum stage known, 35.9 feet June 20, 1939, present site and datum, based on floodmarks 1,000 feet upstream and 3,740 feet downstream from gage (discharge, 66,000 second-feet, by slope-area method at site 2.5 miles upstream from gage).

Remarks.- Records good. No diversion above station. Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Revisions.- W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.9	3.6	1.2	2.3	a7.6	5.0	0.4	58	35	0	0	1.2
2	2.6	108	1.4	2.3	8.3	3.6	.4	24	18	0	0	.8
3	2.0	348	1.2	2.3	9.1	3.2	.8	16	12	0	0	.6
4	1.7	131	1.2	2.0	8.3	2.9	1.2	12	8.3	0	0	.6
5	1.0	51	1.4	2.0	4.5	2.9	1.2	90	5.6	0	0	.4
6	.8	20	1.0	2.0	3.6	2.9	1.0	42	4.5	0	0	.2
7	.6	13	1.2	2.3	2.9	2.3	.8	486	4.0	0	7.8	.2
8	.4	12	1.2	2.0	2.9	2.3	.6	790	1,010	0	4.1	.1
9	818	9.1	1.0	2.3	2.6	2.0	.6	610	1,200	75	2.0	0
10	1,370	5.0	1.0	2.6	2.3	1.4	.6	231	a800	50	1.0	1.3
11	570	3.6	1.0	3.6	1.7	1.7	.4	76	a416	15	62	63
12	132	3.6	1.0	6.2	1.7	1.7	.6	34	215	7.6	615	54
13	53	2.9	1.0	8.3	2.3	1.7	.6	18	92	5.0	424	63
14	26	2.9	1.7	8.3	2.3	1.4	.2	12	98	86	245	534
15	18	3.2	2.0	9.1	2.3	1.7	.2	9.1	53	84	81	372
16	14	3.2	2.0	11	2.0	1.4	0	215	29	133	38	216
17	9.9	2.3	2.0	9.1	1.7	1.7	0	58	16	75	186	195
18	6.9	3.3	2.6	6.9	2.0	1.2	0	31	9.1	28	205	107
19	5.0	2.6	2.3	5.0	2.3	1.0	949	14	6.2	11	60	112
20	9.5	2.6	2.0	5.0	2.3	1.8	1,480	9.1	4.0	6.3	20	104
21	7.6	2.3	2.3	4.5	2.3	2.8	282	6.2	2.9	3.6	48	88
22	5.6	2.0	2.3	5.6	2.3	1.2	103	4.0	2.0	2.6	25	41
23	5.0	2.0	2.6	8.3	2.9	1.2	46	3.2	1.7	1.7	11	18
24	3.2	1.7	2.6	9.1	4.5	1.2	25	2.9	1.4	1.0	5.6	12
25	3.2	1.7	2.3	12	6.9	1.0	36	5.1	.6	.4	3.6	7.6
26	3.6	1.4	2.6	12	5.0	.8	29	25	.4	.1	2.6	5.0
27	3.2	2.0	2.6	9.9	7.6	.8	14	350	.1	0	1.7	4.0
28	3.2	1.4	2.6	8.3	6.2	.6	718	1,960	0	0	1.4	2.9
29	3.2	1.2	2.0	a6.9	-	.2	350	618	0	0	1.0	2.0
30	2.9	1.4	2.0	a5.0	-	.2	143	215	0	0	.8	1.4
31	3.2	-	2.6	a5.6	-	.2	-	75	-	0	1.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,088.2	1,370	0.4	99.6	6,130
November	748.0	348	1.2	24.9	1,480
December	55.9	2.6	1.0	1.80	111
Calendar year 1948	61,487.6	16,000	0	168	122,000
January	181.8	12	2.0	5.86	361
February	110.4	9.1	1.7	3.94	219
March	54.0	5.0	.2	1.74	107
April	4,184.6	1,480	0	139	8,300
May	6,097.6	1,960	2.9	197	12,090
June	4,042.8	1,200	0	135	8,020
July	585.3	133	0	18.9	1,160
August	2,053.0	615	0	66.2	4,070
September	2,007.3	534	0	66.9	3,980
Water year 1948-49	23,208.9	1,960	0	63.6	46,030

Peak discharge (base, 4,000 sec.-ft.).- No peak above base.

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

Colorado River at Robert Lee, Tex.

Location.- Water-stage recorder, lat. 31°53'05", long. 100°28'45", at bridge on State Highway 208 in Robert Lee, Coke County, half a mile upstream from Mountain Creek. Datum of gage is 1,771.7 feet above mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Drainage area.- 15,770 square miles, of which 11,600 square miles is probably non-contributing.

Records available.- April 1939 to September 1949. September 1915 to September 1920 (October 1918 to September 1920, gage heights only), at site near Bronte, 16 miles downstream, October 1923 to December 1927 at site near Robert Lee, 9 miles downstream. Records equivalent except during periods of local runoff between sites.

Average discharge.- 16 years (1915-18, 1924-27, 1939-49), 213 second-feet.

Extremes.- Maximum discharge during year, 12,200 second-feet May 8 (gage height, 14.13 feet); no flow Aug. 4-10.
1939-49: Maximum discharge, 31,700 second-feet June 22, 1939 (gage height, 21.70 feet, from graph based on gage readings), by slope-area method; no flow at times.

Remarks.- Records good. About 2,200 acres irrigated above station. Records of chemical analyses, water temperatures, and suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Revisions.- W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	11	3.7	2.9	18	22	1.7	512	310	14	0.9	310
2	11	8.5	3.2	2.9	14	19	2.0	334	219	12	.7	47
3	8.5	7.9	2.9	2.9	13	16	1.2	276	180	11	.6	26
4	6.7	6.1	2.9	2.6	12	14	2.3	244	162	9.9	.2	23
5	4.6	166	2.6	2.6	14	12	2.9	216	144	9.2	0	21
6	3.7	156	2.3	2.6	14	12	3.2	232	185	8.5	0	14
7	2.6	92	2.6	2.6	12	11	2.9	539	247	7.3	0	11
8	2.0	62	2.6	2.3	9.9	11	2.3	9,680	4,300	6.1	0	9.9
9	4.3	44	2.6	2.6	9.2	8.5	1.2	3,760	2,930	5.5	0	7.9
10	22	36	2.6	2.9	7.9	6.7	1.1	1,540	1,760	5.0	16	6.1
11	1,350	25	2.6	4.1	6.7	6.7	1.1	908	2,150	4.1	4.6	5.5
12	798	22	2.6	5.5	6.1	6.7	.9	518	a763	3.2	1.7	5.0
13	368	20	2.6	7.9	6.1	6.7	.6	376	a480	126	.2	19
14	203	18	2.6	9.9	62	6.1	.4	324	331	279	347	1,980
15	123	16	2.9	9.9	8.5	5.5	.5	286	199	59	426	851
16	88	15	2.9	12	5.5	5.0	.5	4,000	150	28	237	769
17	60	13	3.2	12	5.0	5.0	.3	7,360	115	154	164	450
18	43	11	3.7	13	4.1	4.6	.4	3,680	90	159	158	273
19	36	9.2	3.2	13	4.6	4.6	1,230	759	70	122	138	230
20	36	8.5	2.9	12	7.3	5.8	3,200	372	56	62	151	413
21	30	7.3	2.9	11	7.3	8.5	2,040	283	46	38	103	234
22	26	6.7	2.6	12	7.9	5.0	676	239	40	26	52	114
23	25	6.1	2.6	18	69	5.0	435	166	174	20	36	131
24	32	5.5	2.9	18	81	5.0	877	168	96	13	22	81
25	28	5.0	2.6	16	44	4.1	566	150	43	9.2	26	54
26	21	4.6	2.6	16	48	5.0	266	156	30	6.1	19	40
27	16	4.6	2.9	22	28	3.2	236	909	24	4.1	12	31
28	18	3.7	3.2	24	22	3.2	962	3,200	21	2.6	9.9	25
29	14	3.2	2.9	23	-	2.9	1,220	2,320	19	1.7	7.9	21
30	12	3.7	2.9	23	-	2.3	752	916	16	1.2	5.5	16
31	11	-	2.9	22	-	1.7	-	518	-	1.4	160	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,416.4	1,350	2.0	110	6,780
November	797.6	166	3.2	26.6	1,580
December	88.2	3.7	2.3	2.85	175
Calendar year 1948	103,962.1	23,900	0	284	206,200
January	331.2	24	2.3	10.7	657
February	547.1	81	4.1	19.5	1,090
March	234.8	22	1.7	7.57	466
April	12,485.5	3,200	.3	416	24,760
May	44,961	9,680	150	1,450	89,180
June	15,350	4,300	16	512	30,450
July	1,208.1	279	1.2	39.0	2,400
August	2,099.2	426	0	67.7	4,160
September	6,218.4	1,980	5.0	207	12,330
Water year 1948-49	87,737.5	9,680	0	240	174,000

Peak discharge (base, 7,700 sec.-ft.).- May 8 (5:30 a.m.) 12,200 sec.-ft.; May 17 (9 a.m.) 10,500 sec.-ft.; May 28 (12:30 a.m.) 10,200 sec.-ft.; June 8 (3:30 p.m.) 8,680 sec.-ft.

a No gage-height record; discharge computed on basis of normal recession pattern and weather records.

Note.- Discharge computed from graph based on once-daily readings of wire-weight gage July 9-12, July 25 to Aug. 9, Aug. 11-13, 27-31, Sept. 6-13, 30.

Colorado River at Ballinger, Tex.

Location.- Water-stage recorder, lat. 31°43'50", long. 99°56'25", at bridge on U. S. Highway 83 in Ballinger, Runnels County, 2,000 feet upstream from Elm Creek. Datum of gage is 1,593.7 feet above mean sea level, datum of 1929.

Drainage area.- 16,840 square miles, of which 11,600 square miles is probably noncontributing.

Records available.- June 1907 to September 1949. (June 1907 to November 1915, monthly records only, in Water-Supply Paper 850.) U. S. Weather Bureau collected gage-height records in this vicinity from 1903 to 1929.

Average discharge.- 42 years, 402 second-feet.

Extremes.- Maximum discharge during year, 16,400 second-feet May 8 (gage height, 15.10 feet); minimum, 1.5 second-feet Apr. 18.

1907-49: Maximum discharge, 75,400 second-feet Sept. 18, 1936 (gage height, 28.6 feet); no flow at times.

Maximum stage known, about 36.0 feet in 1884, present site and datum, from information by local residents. A stage of about 32.0 feet occurred Aug. 6, 1906, present site and datum, from floodmarks (backwater from Elm Creek).

Remarks.- Records good. Small diversions above station for irrigation affect low flow.

Revisions (water years).- W 850, W 878: 1916, 1917. W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	21	11	7.2	14	34	2.9	540	508	26	9.0	360
2	40	21	9.9	7.2	14	30	2.9	408	347	24	7.2	246
3	34	19	9.9	7.2	19	26	2.9	269	260	22	6.0	74
4	30	19	9.9	7.2	19	24	2.9	1,080	214	21	5.6	36
5	26	16	9.9	6.6	18	22	2.9	304	178	19	3.7	22
6	22	15	9.0	7.2	17	19	2.6	141	134	18	2.9	16
7	19	176	9.0	7.2	16	17	2.4	134	104	16	13	13
8	18	120	9.0	6.6	15	16	2.4	9,930	1,590	14	19	12
9	72	82	8.4	7.2	15	15	2.2	8,550	5,110	14	56	all
10	326	60	8.4	7.8	15	13	2.2	1,920	2,180	12	22	a9.6
11	360	48	8.4	8.4	14	12	2.4	1,080	3,150	11	13	8.4
12	1,500	40	8.4	9.0	13	11	2.4	638	1,340	9.9	9.0	14
13	754	36	8.4	9.9	13	11	2.2	446	684	9.9	8.0	12
14	408	30	9.0	9.9	13	9.0	2.1	356	434	188	4.4	1,400
15	252	30	9.9	11	36	8.4	1.9	302	338	276	211	769
16	167	30	9.0	12	64	8.4	1.9	1,470	225	102	415	988
17	111	26	9.0	12	32	8.4	1.9	8,060	163	60	218	598
18	76	21	11	12	18	6.6	1.9	4,420	137	62	142	406
19	60	18	9.9	13	14	6.0	2,120	1,680	104	155	156	256
20	50	17	9.0	14	13	9.1	6,290	605	90	122	110	271
21	45	16	8.4	17	11	98	2,950	383	76	79	122	374
22	43	15	8.4	21	11	38	1,240	298	73	55	116	230
23	40	14	8.4	22	14	12	616	256	193	40	68	120
24	32	13	8.4	24	16	7.8	705	202	149	58	48	114
25	30	13	8.4	24	69	6.6	1,120	182	135	36	34	96
26	32	14	8.4	26	75	6.0	402	396	71	24	24	73
27	32	13	8.4	30	55	5.2	214	291	50	69	18	58
28	28	13	8.4	26	50	4.4	2,180	9,200	40	28	19	48
29	24	12	7.2	18	-	4.0	847	2,620	34	17	16	36
30	21	12	7.2	15	-	3.7	1,050	1,520	30	14	9.9	30
31	21	-	7.2	14	-	3.4	-	811	-	12	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	4,721	1,500	18	152	9,360
November	979	176	12	32.6	1,940
December	275.2	11	7.2	8.88	546
Calendar year 1948	130,286.7	22,600	1.2	356	258,400
January	419.6	30	6.6	13.5	832
February	693	75	11	24.8	1,370
March	495	98	3.4	16.0	982
April	19,777.0	6,290	1.9	659	39,230
May	58,492	9,930	134	1,887	116,000
June	17,941	5,110	30	598	35,590
July	1,613.8	276	9.9	52.1	3,200
August	1,917.7	415	2.9	61.9	3,800
September	6,701	1,400	8.4	223	13,290
Water year 1948-49	114,025.3	9,930	1.9	312	226,100

Peak discharge (base, 8,900 sec.-ft.).- Apr. 20 (6 a.m.) 10,200 sec.-ft.; May 8 (8 p.m.) 16,400 sec.-ft.; May 17 (8:30 p.m.) 9,660 sec.-ft.; May 28 (9:30 a.m.) 15,000 sec.-ft.

a No gage-height record; discharge interpolated.

Colorado River at Winchell, Tex.

Location.- Water-stage recorder, lat. 31°28'05", long. 99°09'45", at bridge on U. S. Highway 283, 0.3 mile south of Winchell, Brown County, and 6.2 miles downstream from Home Creek. Datum of gage is 1,264.86 feet above mean sea level, datum of 1929.

Drainage area.- 24,580 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- January 1939 to September 1949. November 1923 to September 1934 at site near Milburn, 4.2 miles downstream.

Average discharge.- 20 years (1924-34, 1939-49), 751 second-feet.

Extremes.- Maximum discharge during year, 39,700 second-feet Apr. 20 (gage height, 37.07 feet); minimum, 13 second-feet Apr. 18.

1923-34, 1939-49: Maximum discharge, 76,100 second-feet Oct. 15, 1930, at site then in use (gage height, 51.8 feet, present site and datum); no flow at times.

Maximum stage known, 62.2 feet Sept. 19, 1936, present site and datum, from information by Gulf, Colorado & Santa Fe Railway at railway bridge 1,000 feet above present gage.

Remarks.- Records good. Diversions above station for irrigation and municipal supply. Flow partly regulated by Lake Nasworthy (capacity, 13,720 acre-feet with flashboards) on South Concho River (see p. 148).

Revisions.- W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	140	52	20	17	64	119	48	3,200	1,370	84	51	35
2	107	48	20	17	65	107	43	1,870	945	71	41	39
3	89	45	20	19	61	97	39	1,280	675	61	32	345
4	78	40	21	20	55	87	35	1,570	466	56	26	409
5	68	35	20	21	53	73	30	6,770	357	50	24	224
6	58	35	18	21	53	65	27	3,420	288	44	34	143
7	50	34	17	21	52	97	26	1,670	250	40	21	100
8	44	35	16	20	49	116	25	8,280	1,410	37	18	73
9	41	30	16	22	46	116	37	17,600	3,660	33	3,120	57
10	64	28	16	24	44	92	29	10,100	5,050	29	1,180	48
11	53	109	16	25	42	65	28	3,280	2,850	27	272	40
12	393	100	16	29	41	51	25	1,870	4,200	26	130	35
13	1,220	84	16	32	46	42	24	1,310	2,160	24	89	30
14	1,050	73	33	33	39	36	20	945	1,440	24	62	31
15	625	65	23	35	37	32	18	750	1,130	39	107	270
16	401	62	26	68	33	30	16	771	725	30	54	1,330
17	280	56	22	103	31	27	15	4,230	528	277	42	1,080
18	196	52	22	59	28	25	14	10,700	374	196	258	1,000
19	149	43	20	49	26	23	6,770	5,740	a300	125	286	824
20	121	40	18	45	71	22	35,600	2,510	a254	84	190	550
21	105	38	18	33	117	15,200	17,800	2,080	a220	64	162	327
22	92	36	20	44	82	4,470	4,620	1,320	188	99	155	322
23	81	33	22	48	177	1,320	2,230	750	170	128	117	401
24	71	32	20	82	648	518	2,580	542	147	100	128	289
25	64	30	18	113	445	320	18,100	434	376	76	128	201
26	58	27	17	183	341	202	21,400	2,300	220	61	97	145
27	57	26	18	126	176	138	2,840	1,160	234	52	73	125
28	53	22	18	138	106	109	3,650	6,360	186	48	58	117
29	52	22	17	107	-	87	10,600	11,100	136	64	48	92
30	52	22	17	82	-	68	10,600	3,510	105	58	42	75
31	52	-	17	68	-	53	-	2,090	-	48	36	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	5,964	1,220	41	192	11,830
November	1,354	109	22	45.1	2,680
December	598	33	16	19.3	1,190
Calendar year 1948	218,620.7	37,200	2.7	597	433,700
January	1,715	183	17	55.3	3,400
February	3,028	648	26	108	6,010
March	23,805	15,200	22	768	47,220
April	137,289	35,600	14	4,578	272,300
May	119,492	17,600	434	3,855	237,000
June	30,414	5,050	105	1,014	60,330
July	2,155	277	24	69.5	4,270
August	7,081	3,120	18	228	14,040
September	8,757	1,330	30	292	17,370
Water year 1948-49	341,652	35,600	14	936	677,600

Peak discharge (base, 9,200 sec.-ft.).- Mar. 21 (11 a.m.) 22,100 sec.-ft.; Apr. 20 (10:30 a.m.) 39,700 sec.-ft.; Apr. 22 (4 a.m.) 34,000 sec.-ft.; Apr. 29 (11 p.m.) 16,600 sec.-ft.; May 9 (1 p.m.) 18,300 sec.-ft.; May 18 (5:30 p.m.) 11,300 sec.-ft.; May 29 (1 a.m.) 16,600 sec.-ft.

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

Colorado River near San Saba, Tex.

Location.- Water-stage recorder, lat. 31°13'05", long. 98°33'50", at bridge on U. S. Highway 190, 5.2 miles downstream from San Saba River and 9.2 miles east of San Saba, San Saba County. Datum of gage is 1,096.22 feet above mean sea level, datum of 1929.

Drainage area.- 30,600 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- August 1930 to September 1949. October 1915 to October 1922 at site near Chadwick, 1.2 miles upstream. October 1923 to December 1934 at site near Tow, 44 miles downstream.

Average discharge.- 24 years (1916-19, 1920-22, 1930-49), 1,676 second-feet.

Extremes.- Maximum discharge during year, 32,800 second-feet Apr. 22 (gage height, 22.77 feet); minimum, 65 second-feet Nov. 11, 12 (gage height, 1.90 feet).

1915-22, 1930-49: Maximum discharge, 224,000 second-feet July 23, 1938 (gage height, 63.2 feet, present site, based on floodmarks at site then in use); minimum observed, 1.5 second-feet Aug. 22, 23, 1918.

Maximum stage known prior to 1938, 58.4 feet Sept. 25, 1900 (discharge, 184,000 second-feet), present site, based on floodmarks at former site.

Remarks.- Records good. Diversions above station for irrigation and municipal use. Flow partly regulated by Hords Creek Reservoir (see p. 161) and Brownwood Reservoir (see p. 159) in Pecan Bayou Basin, and Lake Nasworthy on South Concho River (see p. 147), having a combined capacity of 171,000 acre-feet. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Revisions (water years).- W 858: 1900(M), 1922(M), 1936(M). W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	306	104	91	101	258	540	210	f12,800	2,450	430	88	104
2	242	101	86	104	226	386	198	f4,170	1,700	382	88	98
3	202	98	86	104	214	314	194	f2,460	1,320	346	74	96
4	179	96	86	101	202	294	179	f1,880	1,070	328	67	91
5	152	93	86	98	198	258	167	2,300	910	319	71	218
6	136	86	88	96	190	238	152	6,640	820	310	86	391
7	123	83	91	93	182	214	136	3,900	743	290	96	270
8	106	74	88	91	171	194	126	2,570	699	270	106	206
9	98	71	81	96	167	175	149	8,740	1,340	258	101	386
10	93	67	79	93	163	194	361	16,300	3,630	254	2,030	198
11	91	65	76	93	156	202	160	14,300	5,000	250	1,690	149
12	91	67	76	96	152	202	126	3,920	3,120	242	718	123
13	88	71	81	104	149	179	142	2,310	4,410	190	425	130
14	684	120	91	109	166	156	117	1,790	2,630	130	282	115
15	1,100	175	96	112	266	139	101	1,480	1,740	106	210	101
16	792	186	93	149	182	126	96	1,280	1,440	353	186	117
17	590	167	96	182	152	123	88	2,070	1,070	580	156	787
18	478	142	123	290	139	120	86	8,920	850	246	190	1,280
19	346	126	123	258	133	112	106	12,400	721	426	198	1,250
20	294	130	117	214	126	106	13,500	7,290	616	400	195	1,520
21	234	120	117	175	126	7,670	28,800	2,600	520	346	310	792
22	206	115	120	156	123	17,200	31,600	2,790	445	298	242	600
23	186	109	112	156	146	8,160	13,200	2,020	420	262	194	a435
24	171	98	106	152	226	1,920	3,570	1,400	1,350	250	186	a450
25	152	101	101	405	856	1,040	6,450	1,100	1,560	294	175	a465
26	133	98	101	929	2,540	820	15,400	1,000	1,850	282	167	360
27	120	98	101	541	1,530	984	25,600	2,690	829	270	175	274
28	112	98	104	415	839	622	12,700	1,740	590	262	167	f214
29	109	93	104	430	-	405	9,430	5,910	550	182	149	179
30	109	93	101	410	-	314	f10,800	12,300	480	115	133	163
31	106	-	98	314	-	250	-	4,100	-	91	112	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,829	1,100	88	253	15,530
November	3,143	186	65	105	6,230
December	2,999	123	76	96.7	5,950
Calendar year 1948	275,498	33,000	43	753	546,400
January	6,667	929	91	215	13,220
February	9,978	2,540	123	356	19,790
March	43,657	17,200	106	1,408	86,590
April	173,944	31,600	86	5,798	345,000
May	155,170	16,300	1,000	5,005	307,800
June	44,873	5,000	420	1,496	89,000
July	8,762	580	91	283	17,380
August	9,067	2,030	67	292	17,980
September	11,562	1,520	91	385	22,930
Water year 1948-49	477,651	31,600	65	1,309	947,400

Peak discharge (base, 19,300 sec.-ft.).- Apr. 22 (1 p.m.) 32,800 sec.-ft.; Apr. 27 (2:30 p.m.) 27,600 sec.-ft.

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

f Computed on basis of partly estimated gage-height record.

Buchanan Reservoir near Burnet, Tex.

Location.- Selsyn indicator, lat. 30°45'05", long. 98°25'00", at Buchanan Dam on Colorado River, 1 mile upstream from bridge on State Highway 29 and 10 miles west of Burnet, Burnet County. Datum of gage is 0.48 foot above mean sea level, datum of 1929 (levels by Lower Colorado River Authority).

Drainage area.- 31,250 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- May 1937 to September 1949.

Extremes.- Maximum contents observed during year, 998,900 acre-feet Apr. 29, 30, May 1, 6 (gage height, 1,020.3 feet); minimum observed, 585,300 acre-feet Feb. 18, 23, 24 (gage height, 999.9 feet).

1937-49: Maximum contents, 1,004,000 acre-feet July 27, 1938 (gage height, 1,020.5 feet; several taintor gates were open); minimum after filling of reservoir in July 1938, 483,000 acre-feet May 6, 1948.

Remarks.- Reservoir is formed by two reinforced concrete multiple-arch sections, three banks of taintor gates, and a 1,088-foot reinforced concrete spillway section. Dam completed and storage began May 20, 1937. Total capacity, 992,000 acre-feet (gage height, 1,020.0 feet, top of spillway section). Usable capacity, 965,000 acre-feet between gage heights 937.0 feet (sill of powerhouse penstock) and 1,020.0 feet (top of spillway section). Water below gage height 937.0 feet can be withdrawn through two 5-foot Bunger gates (emergency) down to gage height of 890.0 feet. Figures given herein represent total contents. Water used for power development and irrigation of rice on several districts below Columbus.

Cooperation.- Records of daily gage height and capacity table furnished by Lower Colorado River Authority.

Revisions.- W 1118: Drainage area.

Monthly gage height and contents, water year October 1948 to September 1949

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	1,005.8	693,200	-
Oct. 31	1,005.0	678,000	-15,200
Nov. 30	1,003.8	655,400	-22,600
Dec. 31	1,001.9	621,200	-34,200
Calendar year 1948	-	-	+10,800
Jan. 31	1,000.6	597,800	-23,400
Feb. 28	1,000.6	597,800	0
Mar. 31	1,005.8	693,200	+95,400
Apr. 30	1,020.3	998,900	+305,700
May 31	1,020.1	994,300	-4,600
June 30	1,018.9	966,700	-27,600
July 31	-	895,000	-71,700
Aug. 31	1,013.4	845,400	-49,600
Sept. 30	1,010.7	789,000	-56,400
Water year 1948-49	-	-	+95,800

† Average of 11 p.m. and 1 a.m. readings.

Lake Travis near Austin, Tex.
(Formerly published as Marshall Ford Reservoir near Austin)

Location.- Bailey indicator gage, lat. 30°23'20", long. 97°54'35", in powerhouse at dam on Colorado River, 7.3 miles downstream from Sandy Creek and 12 miles northwest of Austin, Travis County. Datum of gage is 0.12 foot above mean sea level; datum of 1929 (levels by Bureau of Reclamation).

Drainage area.- 37,900 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- September 1940 to September 1949. Prior to October 1948, published as Marshall Ford Reservoir near Austin.

Extremes.- Maximum contents observed during year, 996,300 acre-feet June 16-19 (gage height, 671.2 feet); minimum observed, 577,700 acre-feet Dec. 1 (gage height, 638.6 feet).

1940-49: Maximum contents observed, 1,377,000 acre-feet Oct. 23, 1942 (gage height, 691.2 feet); minimum observed, 497,900 acre-feet June 23, 1948 (gage height, 632.8 feet).

Remarks.- Reservoir is formed by concrete gravity-type dam. Storage began Sept. 9, 1940; dam completed early in 1942. Total capacity, 1,950,000 acre-feet (gage height, 714.0 feet, top of spillway). Capacity between gage heights 681.0 and 714.0 feet is 778,000 acre-feet, and is reserved for flood control. Usable capacity, 1,144,000 acre-feet between gage heights 535.8 feet (bottom of 24 8½-foot diameter Paradox gates) and 681.0 feet (maximum power pool). Bottom of penstocks, gage height 552.0 feet. Figures given herein represent total contents. Water used for power development and for irrigation of rice in several districts below Columbus.

Cooperation.- Records of daily gage heights and capacity curve furnished by Lower Colorado River Authority.

Revisions.- W 1118: Drainage area.

Monthly gage height and contents, water year October 1948 to September 1949

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	642.9	606,900	-
Oct. 31	641.0	584,500	-22,400
Nov. 30	638.7	558,700	-25,800
Dec. 31	639.3	565,100	+6,400
Calendar year 1948	-	-	+5,400
Jan. 31	639.6	568,300	+3,200
Feb. 28	642.8	605,700	+37,400
Mar. 31	640.7	581,000	-24,700
Apr. 30	647.7	663,600	+82,600
May 31	668.3	950,600	+287,000
June 30	669.3	966,000	+15,400
July 31	667.2	933,500	-32,500
Aug. 31	663.9	883,200	-50,300
Sept. 30	663.2	872,700	-10,500
Water year 1948-49	-	-	+265,800

† Average of 11 p.m. and 1 a.m. readings.

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Colorado River at Austin, Tex.

Location.- Water-stage recorder, lat. 30°14'40", long. 97°41'20", at southeast edge of Austin, Travis County, at Montopolis Bridge on U. S. Highway 290, 2.8 miles upstream from Walnut Creek, 3.8 miles downstream from Waller Creek, and 5 miles downstream from Barton Creek. Datum of gage is 407.3 feet above mean sea level, datum of 1929.

Drainage area.- 38,160 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- February 1898 to September 1949. U. S. Weather Bureau has collected gage-height records in this vicinity since 1903.

Average discharge.- 51 years, 2,637 second-feet.

Extremes.- Maximum discharge during year, 3,940 second-feet June 11; maximum gage-height, 5.35 feet June 19; minimum daily, 447 second-feet Dec. 30.

1898-1949: Maximum discharge, 481,000 second-feet June 15, 1935 (gage height, 45.0 feet, present site and datum, from floodmark); minimum, 13 second-feet Aug. 18, 1918.

Maximum stage known, 46.0 feet July 7, 1869, present site and datum (adjusted to present site on basis of record for flood of June 15, 1935), determined from information concerning stage at former site furnished by Prof. T. U. Taylor.

Remarks.- Records good. Flow partly regulated by Buchanan Reservoir and Lake Travis (name changed, see preceding page), and smaller reservoirs having a combined capacity of 3,150,000 acre-feet. About 36,000 acres irrigated above station. City of Austin diverts an average of about 29 second-feet above station for municipal use, and returns about 12 second-feet of treated sewage below station.

Revisions (water years).- W 528: 1900(M). W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	690	1,040	849	475	806	1,520	1,040	696	1,650	1,510	1,840	1,960
2	645	1,160	1,120	468	978	1,180	871	658	1,400	1,880	1,720	1,880
3	655	f1,780	871	475	1,060	1,050	612	944	1,610	2,040	1,860	1,820
4	774	f2,530	607	658	1,030	1,100	944	822	1,760	1,610	1,680	1,800
5	920	f1,500	507	588	671	810	1,080	596	1,900	1,890	1,680	1,820
6	1,260	738	581	651	518	1,030	836	965	1,940	1,890	1,750	1,850
7	1,250	684	634	622	511	835	837	720	1,770	1,530	1,770	1,720
8	768	666	622	548	1,170	1,380	786	671	1,880	1,730	1,750	2,030
9	714	1,150	609	548	1,160	1,650	576	1,040	1,760	1,820	1,970	2,250
10	714	744	641	816	654	1,300	509	698	1,840	1,820	1,820	1,380
11	702	714	615	1,140	610	1,440	574	600	3,380	2,180	1,740	874
12	787	600	595	892	526	842	600	555	3,000	2,380	1,860	1,470
13	1,300	520	702	706	564	576	670	597	1,970	2,420	1,650	1,610
14	1,880	533	1,570	850	613	1,100	984	966	2,270	2,350	1,840	1,440
15	2,220	511	2,060	736	792	1,420	932	1,070	2,660	1,970	1,650	1,030
16	2,160	507	1,210	614	710	1,520	800	1,600	2,360	1,700	2,070	1,340
17	1,080	507	971	729	581	1,600	515	1,310	2,510	1,810	1,960	872
18	744	507	598	562	572	1,050	576	1,600	2,370	1,820	1,930	960
19	702	524	952	506	536	760	2,070	1,560	1,700	2,070	1,760	2,120
20	684	479	659	807	493	480	2,560	1,540	2,220	2,300	1,710	1,680
21	827	491	635	1,090	516	725	1,680	1,660	1,260	1,900	1,760	1,630
22	864	495	651	804	534	1,250	1,230	1,650	2,120	2,260	1,720	970
23	726	479	606	540	563	1,390	892	1,840	2,380	2,000	1,820	1,750
24	690	511	511	620	594	1,320	847	1,510	1,870	1,810	1,830	1,260
25	708	528	472	1,100	1,750	2,110	1,480	1,690	1,540	1,730	1,650	824
26	801	546	475	1,050	596	1,270	1,850	1,490	2,080	1,810	1,810	1,040
27	744	546	461	942	524	617	1,940	1,230	1,910	1,800	1,860	1,650
28	738	645	524	830	540	538	1,750	1,570	1,980	1,850	1,770	2,120
29	906	666	461	518	-	1,100	1,160	1,490	2,010	1,820	1,860	1,890
30	750	753	f447	507	-	1,130	871	1,440	2,170	1,770	1,710	1,360
31	726	-	f464	571	-	788	-	1,610	-	1,800	2,180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	29,109	2,220	645	939	57,740
November	23,054	2,530	479	768	45,730
December	22,680	2,080	447	732	44,990
Calendar year 1948	458,634	3,540	332	1,253	909,700
January	21,761	1,140	468	702	43,160
February	20,172	1,750	493	720	40,010
March	34,881	2,110	480	1,125	69,190
April	32,072	2,560	509	1,069	63,610
May	36,388	1,840	555	1,174	72,170
June	61,270	3,380	1,260	2,042	121,500
July	59,270	2,420	1,510	1,912	117,600
August	55,980	2,180	1,650	1,806	111,000
September	48,400	2,250	824	1,547	92,030
Water year 1948-49	443,037	3,380	447	1,214	878,700

f Computed on basis of partly estimated gage-height record.

Colorado River at Smithville, Tex.

Location.- Water-stage recorder, lat. 30°01, long. 97°10', 1,200 feet upstream from bridge on State Highway 71 at Smithville, Bastrop County, and 3.7 miles downstream from Alum Creek. Datum of gage is 270.14 feet above mean sea level, datum of 1929.

Drainage area.- 39,650 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- July 1930 to September 1949. U. S. Weather Bureau has collected gage-height records in this vicinity since 1920.

Average discharge.- 19 years, 3,162 second-feet.

Extremes.- Maximum discharge during year, 31,900 second-feet Apr. 25 (gage height, 15.88 feet); minimum, 582 second-feet Jan. 5.

1930-49: Maximum discharge, 305,000 second-feet June 16, 1935 (gage height, 42.5 feet, from floodmarks), by slope-area method; minimum, 76 second-feet Nov. 2, 1934.

Maximum stage known, about 47.4 feet Dec. 4, 1913, from information by local residents.

Remarks.- Records good. Many diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin.

Revisions.- W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	815	794	750	592	654	794	1,200	1,120	1,430	2,170	1,840	1,840
2	774	774	801	605	732	873	1,200	1,080	1,430	2,060	1,780	2,340
3	756	960	968	622	892	1,580	1,300	1,080	1,340	2,000	1,730	1,950
4	756	1,080	1,000	605	1,020	1,300	1,120	1,160	1,380	1,950	1,840	1,780
5	780	1,580	899	600	1,080	1,300	892	1,340	1,480	1,900	1,780	1,840
6	794	2,000	738	744	1,060	1,200	1,380	1,200	1,580	1,840	1,840	1,900
7	920	1,300	638	708	774	1,060	1,250	1,050	1,840	1,950	1,840	1,840
8	1,250	992	666	750	666	1,080	1,120	1,200	1,950	1,780	1,950	1,900
9	1,120	920	720	768	660	1,080	1,120	976	2,120	1,780	1,840	2,280
10	864	878	684	708	1,120	1,530	1,160	864	1,950	1,840	1,780	2,630
11	801	1,160	660	672	1,080	1,530	885	1,120	2,000	1,780	1,840	2,000
12	762	976	672	878	794	1,340	726	928	2,630	1,950	1,780	1,480
13	744	913	660	1,080	720	1,380	787	822	3,330	2,390	1,780	1,120
14	857	843	654	976	678	899	808	794	2,750	2,570	1,780	1,630
15	1,300	774	756	857	672	720	1,020	913	3,230	2,750	1,780	1,680
16	1,580	768	1,340	1,080	732	1,080	1,120	1,080	4,120	2,340	1,780	1,480
17	2,320	732	1,480	1,340	815	1,380	1,120	1,120	2,450	2,170	1,840	1,160
18	1,480	708	1,120	871	774	1,530	878	1,580	2,390	1,840	1,900	1,580
19	1,080	684	920	864	702	1,530	732	1,580	2,630	1,840	1,840	1,080
20	906	684	768	714	696	1,300	4,980	1,630	2,060	1,840	1,840	1,380
21	836	702	920	744	649	899	7,800	1,630	2,000	2,340	1,730	2,170
22	787	666	787	960	627	1,540	3,330	1,730	1,950	2,060	1,730	1,840
23	878	649	780	1,080	660	1,300	2,630	1,680	1,630	2,170	1,680	1,480
24	871	654	794	892	666	1,480	2,000	1,780	2,340	2,280	1,730	878
25	794	632	768	762	1,220	1,430	18,600	1,630	2,220	2,060	1,780	1,780
26	756	644	672	1,030	5,650	1,850	19,900	1,730	1,900	2,000	1,730	1,250
27	756	638	622	1,580	2,510	2,390	8,840	1,630	2,120	1,900	1,730	1,010
28	822	632	622	1,430	1,020	1,300	4,010	1,530	2,000	1,840	1,730	1,200
29	794	622	616	944	-	899	1,860	1,530	1,950	1,900	1,780	1,900
30	774	702	649	762	-	952	1,200	1,630	2,000	1,900	1,840	2,810
31	899	-	600	684	-	1,430	-	1,530	-	1,840	1,780	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	29,626	2,320	744	956	58,760
November	26,061	2,000	622	869	51,690
December	24,724	1,480	600	798	49,040
Calendar year 1948	479,101	3,480	600	1,309	950,300
January	26,902	1,580	592	868	53,380
February	29,323	5,650	627	1,047	58,160
March	39,956	2,390	720	1,289	79,250
April	94,968	19,900	726	3,166	188,400
May	40,667	1,780	794	1,312	80,660
June	64,200	4,120	1,340	2,140	127,300
July	63,030	2,750	1,780	2,033	125,000
August	55,620	1,950	1,680	1,794	110,300
September	51,208	2,810	878	1,707	101,600
Water year 1948-49	546,285	19,900	592	1,497	1,084,000

Note.- No gage-height record Apr. 28 to May 3, May 31 to June 9; discharge computed on basis of recorded range in stage, weather records, and records for stations at Austin and at La Grange.

Colorado River at La Grange, Tex.

Location.- Wire-weight gage, lat. 29°53'45", long. 96°52'15", at bridge on U. S. Highway 77 in La Grange, Fayette County, 1.2 miles downstream from Buckner Creek. Datum of gage is 211.23 feet above mean sea level, datum of 1929.

Drainage area.- 40,200 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- July and August 1938 (flood discharge measurements only), November 1938 to September 1949.

Average discharge.- 10 years (1939-49), 2,993 second-feet.

Extremes.- Maximum discharge during year, 54,400 second-feet Apr. 26 (gage height, 20.20 feet); minimum, 552 second-feet Jan. 3 (computed from graph based on gage readings).

1938-49: Maximum discharge observed, 200,000 second-feet July 27, 1938 (gage height, 42.95 feet); minimum observed, 430 second-feet Mar. 7, 1940.

Maximum stage known, about 56.7 feet probably July 9, 1869 (from marble high-water marker in La Grange). Data on other floods as follows: Dec. 5, 1913, stage 56.4 feet, from floodmarks; June 17, 1935, stage 50.84 feet, from floodmarks (discharge, 255,000 second-feet, from rating curve extended as a straight line above 200,000 second-feet).

Remarks.- Records good. Gage read twice daily. Diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin.

Revisions.- W 1118: Drainage area.

Rating tables, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 1 to June 9)

Oct. 1 to Apr. 24

0.8	570	3.0	2,260	8.0	9,400
1.2	810	4.0	3,440	8.5	10,400
1.6	1,060	5.0	4,750	9.0	11,600
2.0	1,350	6.0	6,150	10.0	14,900
2.5	1,780	7.0	7,700	11.0	18,400

Apr. 25 to Sept. 30

1.3	760	6.0	5,660	13.0	22,800
1.6	955	7.0	7,200	14.0	26,700
2.0	1,240	8.0	8,900	16.0	34,800
2.5	1,640	9.0	10,900	18.0	43,400
3.0	2,100	10.0	13,400	19.0	48,200
4.0	3,150	11.0	16,200		
5.0	4,300	12.0	19,300		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	902	1,000	696	588	720	1,350	1,390	2,500	1,430	2,050	1,860	1,860
2	840	902	738	576	660	1,100	1,170	1,910	1,390	2,050	1,910	2,000
3	810	935	840	576	780	1,370	1,240	1,550	1,430	1,960	1,820	2,150
4	792	1,060	1,000	582	935	1,600	1,240	1,320	1,470	2,050	1,860	1,860
5	798	1,200	1,000	582	1,000	1,430	1,140	1,350	1,470	2,100	1,910	1,860
6	810	1,740	870	600	1,140	1,430	1,090	1,390	1,640	1,910	1,860	1,820
7	810	1,780	732	690	1,060	1,280	1,350	1,200	1,780	1,960	1,910	1,960
8	968	1,240	624	696	780	1,200	1,170	1,160	1,910	1,910	1,860	1,910
9	1,170	1,000	600	702	690	1,170	1,060	1,200	1,960	1,820	1,960	2,100
10	1,060	902	654	786	696	1,280	1,100	1,100	2,200	1,820	1,960	2,400
11	902	902	666	a708	1,030	1,560	1,100	955	1,960	1,860	1,910	2,450
12	870	1,140	660	a714	1,060	1,430	870	1,060	2,050	1,910	1,820	1,820
13	840	968	666	840	840	1,460	786	844	3,260	2,200	1,820	1,510
14	840	935	678	968	726	2,110	840	766	3,260	2,500	1,820	1,280
15	968	840	660	968	696	1,210	810	792	3,370	2,600	1,820	1,640
16	1,350	780	882	968	666	870	1,030	922	4,180	2,660	1,820	1,840
17	1,870	738	1,310	a1,060	750	1,200	1,100	1,060	3,260	2,350	1,780	1,510
18	2,160	708	1,200	1,140	870	1,390	1,080	1,200	2,550	2,050	1,820	a1,510
19	1,430	660	1,140	968	798	1,390	935	1,510	2,710	1,960	1,860	1,860
20	1,140	666	935	870	726	1,310	3,870	1,600	2,500	1,960	2,000	1,240
21	1,000	672	786	840	738	1,240	10,800	1,470	2,000	2,150	1,820	1,680
22	935	672	902	902	720	1,240	11,400	1,640	2,200	2,350	1,780	1,960
23	870	666	792	1,030	902	1,860	5,780	1,780	1,780	2,200	1,780	1,730
24	935	654	840	1,100	1,030	1,310	3,440	1,730	2,050	2,200	1,780	1,350
25	988	648	a792	870	6,120	1,510	10,900	1,640	2,400	2,250	1,780	1,470
26	902	654	714	840	16,500	1,470	45,800	1,510	2,150	2,100	1,780	1,600
27	870	642	636	1,280	6,830	2,200	25,100	1,730	2,150	2,000	1,730	1,280
28	870	642	606	1,870	2,240	1,950	9,030	1,600	2,200	2,000	1,730	1,100
29	935	612	600	1,350	-	1,200	7,200	1,550	2,000	1,910	1,820	1,390
30	935	618	588	1,140	-	968	4,670	1,550	1,910	2,000	1,820	1,910
31	935	-	630	810	-	1,100	-	1,550	-	2,000	1,860	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	31,485	2,160	792	1,016	62,450
November	26,576	1,780	612	886	52,710
December	24,437	1,310	588	788	48,470
Calendar year 1948	507,319	4,010	588	1,386	1,006,000
January	27,614	1,870	576	891	54,770
February	51,703	16,500	660	1,847	102,600
March	42,888	2,200	870	1,383	85,070
April	156,271	45,800	786	5,209	310,000
May	43,139	2,500	766	1,392	85,560
June	66,620	4,180	1,390	2,221	132,100
July	64,840	2,660	1,820	2,092	128,600
August	57,080	2,000	1,730	1,841	113,200
September	51,850	2,450	1,100	1,728	102,800
Water year 1948-49	644,483	45,800	576	1,766	1,278,000

a No gage-height record; discharge computed on basis of weather records and records for station at Smithville.

Colorado River at Columbus, Tex.

Location.- Water-stage recorder, lat. 29°42'20", long. 96°32'05", at bridge on U. S. Highway 90 at eastern edge of Columbus, Colorado County, 340 feet downstream from Texas & New Orleans Railroad bridge and 2.6 miles downstream from Cummins Creek. Datum of gage is 155.52 feet above mean sea level, datum of 1929.

Drainage area.- 40,840 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- January to December 1903 (gage heights and discharge measurements only), January 1904 to December 1911, May 1916 to November 1930, May 1939 to September 1949. September 1930 to June 1939 at site near Eagle Lake, 23 miles downstream. U. S. Weather Bureau has collected gage-height records in this vicinity since 1903.

Average discharge.- 31 years (1904-11, 1916-30, 1939-49), 3,225 second-feet.

Extremes.- Maximum discharge during year, 45,200 second-feet Apr. 27 (gage height, 19.75 feet); minimum, 590 second-feet Jan. 6, 7.

1903-11, 1916-30, 1939-49: Maximum discharge, 152,000 second-feet July 1, 1940 (gage height, 36.2 feet); minimum observed, about 80 second-feet Sept. 9, 10, 1910.

Maximum stage known, 41.6 feet, present datum, in July 1869 and on Dec. 6, 1913, from information by local resident. River divided each time and left Columbus on an island. Data on other floods as follows: June 18, 1935, observed stage, 38.5 feet, present datum, furnished by U. S. Weather Bureau (discharge, 190,000 second-feet, computed on basis of records for station near Eagle Lake, 23 miles downstream); July 29, 1938, observed stage, 38.4 feet, present datum, furnished by U. S. Weather Bureau (discharge, 175,000 second-feet, computed on basis of records for station near Eagle Lake).

Remarks.- Records good. Diversions above station for irrigation and municipal supply. Relation same as that for Colorado River at Austin.

Revisions.- W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	985	831	614	650	922	2,500	1,160	4,140	1,610	2,120	2,030	1,940
2	915	922	668	632	810	1,880	1,380	2,690	1,530	2,210	1,980	1,900
3	852	845	710	620	761	1,610	1,160	2,140	1,610	2,500	1,980	2,160
4	824	845	782	614	838	1,800	1,420	1,720	1,680	2,300	1,980	2,080
5	796	985	950	602	1,020	1,840	1,380	1,460	1,570	2,210	1,980	1,940
6	796	1,180	985	596	1,180	1,720	1,160	1,530	1,680	2,160	2,120	1,900
7	810	1,760	887	608	1,180	1,640	1,100	1,460	1,800	2,030	2,030	1,850
8	810	1,640	740	728	1,100	1,500	1,340	1,270	1,920	2,080	2,030	1,940
9	936	1,180	644	716	866	1,720	1,160	1,270	2,000	2,120	2,080	1,980
10	1,180	943	650	747	768	1,460	1,100	1,310	2,050	1,940	2,080	2,160
11	1,060	866	698	740	831	1,530	1,100	1,200	2,180	2,030	1,980	2,400
12	880	887	698	692	1,260	1,800	1,060	1,030	2,000	2,030	1,980	2,300
13	824	1,060	680	680	1,140	1,610	870	1,060	2,230	2,030	1,940	1,760
14	782	985	692	943	894	1,800	810	930	3,400	2,300	1,900	1,420
15	768	908	686	1,100	789	3,310	810	840	3,400	3,190	1,940	1,380
16	852	852	674	1,140	734	1,680	810	810	3,300	3,190	1,850	1,640
17	1,260	761	838	1,020	716	1,160	995	900	4,290	2,990	1,940	1,640
18	1,640	710	1,510	1,380	782	1,380	1,060	1,060	2,990	2,450	1,900	1,510
19	1,940	674	1,340	1,260	922	1,530	1,060	1,310	2,580	2,210	1,980	1,600
20	1,380	656	1,140	950	838	1,640	2,780	1,500	2,790	2,120	1,940	1,810
21	1,100	650	950	1,100	789	1,530	6,980	1,610	2,500	2,120	1,980	1,300
22	985	662	824	1,020	1,900	1,760	19,100	1,640	2,080	2,350	1,900	1,810
23	894	662	922	985	1,340	1,500	12,600	1,680	2,260	2,400	1,810	1,760
24	845	644	859	1,140	1,020	1,570	5,920	1,760	1,850	2,260	1,850	1,680
25	901	644	789	1,180	13,800	1,500	5,370	1,720	2,160	2,500	1,810	1,280
26	894	650	775	985	30,700	1,570	33,300	1,840	2,450	2,400	1,850	1,550
27	838	632	747	985	12,500	1,610	35,100	1,840	2,210	2,260	1,900	1,470
28	796	620	692	1,550	5,400	2,320	16,800	1,760	2,120	2,160	1,810	1,220
29	803	614	650	1,900	-	1,760	10,700	1,610	2,210	2,120	1,850	1,100
30	852	614	632	1,470	-	1,240	7,620	1,610	2,120	2,080	1,900	1,420
31	838	-	620	1,140	-	1,030	-	1,610	-	2,080	1,900	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	30,036	1,940	768	969	59,580
November	25,882	1,760	614	863	51,340
December	25,046	1,510	614	808	49,680
Calendar year 1948	519,329	6,880	614	1,419	1,030,000
January	29,873	1,900	596	964	59,250
February	85,800	30,700	716	3,064	170,200
March	52,500	3,310	1,030	1,694	104,100
April	177,205	35,100	810	5,907	351,500
May	48,310	4,140	810	1,558	95,820
June	68,580	4,290	1,530	2,286	136,000
July	70,940	3,190	1,940	2,288	140,700
August	60,200	2,120	1,810	1,942	119,400
September	51,880	3,400	1,100	1,729	102,900
Water year 1948-49	726,252	35,100	596	1,990	1,440,000

Colorado River at Wharton, Tex.

Location.- Wire-weight gage, lat. 29°18'30", long. 96°06'15", at bridge on U. S. Highway 59 in Wharton, Wharton County, 1,000 feet downstream from Texas & New Orleans Railroad bridge and 12 miles upstream from Jones Creek. Datum of gage is 65.42 feet above mean sea level, datum of 1929.

Drainage area.- 41,150 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- July 1916 to September 1925, July and August 1938 (flood discharge measurements only), October 1938 to September 1949. June to November 1901, May to September 1902, daily records published in U. S. Department of Agriculture, Office of Experiment Stations, Bulletins Nos. 119 and 133. U. S. Weather Bureau has collected gage-height records in this vicinity since 1935.

Average discharge.- 16 years (1919-21, 1922-25, 1938-49), 3,308 second-feet.

Extremes.- Maximum discharge observed during year, 37,900 second-feet Apr. 27 (gage height, 20.90 feet); minimum observed, 551 second-feet May 19.

1919-25, 1938-49: Maximum discharge observed, 100,000 second-feet July 3, 1940 (gage height, 35.99 feet); no flow Aug. 6, 1925 (result of pumping).

Maximum stage known, 38.9 feet, present datum, Dec. 8, 1913, from information by local residents; below Wharton floodwater combined with floodwater of Brazos River. Flood of about July 12, 1869, reached about same height. Flood of June 20, 1935, reached a stage of 38.2 feet, present datum (discharge, 159,000 second-feet, from rating curve extended above 145,000 second-feet), furnished by U. S. Weather Bureau. Flood of July 30, 1938, reached a stage of 37.4 feet, present datum, observed by Geological Survey engineers (discharge, 145,000 second-feet).

Remarks.- Records fair. Gage read twice daily. Diversions above station for irrigation and municipal supply. Regulation same as that for Colorado River at Austin. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Cooperation.- Gage-height record collected in cooperation with U. S. Weather Bureau.

Revisions (water years).- W 878: 1938(M). W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	940	880	642	653	1,290	5,110	1,360	6,790	1,360	1,250	1,480	942
2	880	820	664	670	1,040	3,160	1,320	4,440	1,210	1,320	1,400	972
3	820	880	653	675	940	2,360	1,480	3,240	1,060	1,210	1,140	1,020
4	754	850	702	653	880	1,880	1,560	2,760	875	1,320	988	1,140
5	714	748	742	636	820	1,800	1,640	2,280	912	1,760	1,100	1,180
6	686	820	880	620	820	2,040	1,880	1,960	912	1,640	1,210	1,250
7	680	910	970	620	1,080	1,960	1,560	1,880	890	1,560	1,360	1,250
8	610	1,290	910	620	1,140	1,800	1,290	1,880	1,060	1,440	1,640	1,210
9	610	1,700	820	642	1,140	1,840	1,210	1,680	1,140	1,290	1,640	1,290
10	642	1,220	724	724	1,040	1,640	1,320	1,480	1,060	1,290	1,560	1,520
11	880	940	658	730	880	1,800	1,320	1,480	1,140	1,320	1,720	1,600
12	910	820	636	742	790	1,680	1,250	1,320	1,480	1,250	1,800	1,880
13	754	820	714	730	910	1,920	1,290	1,140	1,760	1,180	1,600	2,040
14	697	1,110	719	702	1,140	1,920	1,210	972	2,060	1,210	1,440	1,980
15	708	1,040	714	766	1,040	2,120	1,080	965	2,760	1,740	1,250	1,840
16	692	1,080	736	1,040	940	3,000	920	728	2,920	2,120	1,100	1,640
17	675	1,040	730	1,140	880	2,520	935	612	3,000	2,440	1,140	1,290
18	850	850	820	1,080	850	1,740	980	569	3,240	2,680	912	1,400
19	1,220	790	1,220	1,110	880	1,440	1,080	563	2,680	2,120	875	1,640
20	1,700	742	1,370	1,290	820	1,640	2,150	676	2,200	1,920	912	1,800
21	1,400	708	a1,000	1,140	880	1,840	3,000	882	2,000	1,760	958	1,960
22	1,110	675	1,000	1,140	820	1,840	8,660	854	1,920	1,360	920	1,560
23	940	692	940	1,140	1,130	2,000	20,900	1,020	1,560	1,400	912	1,440
24	850	697	880	1,000	1,960	1,760	12,200	1,250	1,400	1,640	882	1,880
25	778	702	880	1,080	1,400	1,920	6,790	1,320	1,360	1,600	861	1,720
26	772	686	820	1,180	22,100	1,840	10,300	1,360	1,520	1,400	882	1,600
27	820	697	790	1,140	25,300	1,840	35,200	1,560	1,600	1,520	847	1,640
28	778	653	784	970	9,410	1,840	29,000	1,520	1,400	1,600	833	1,640
29	754	653	760	1,220	-	2,200	14,000	1,640	1,210	1,440	882	1,420
30	748	620	714	d1,780	-	2,360	7,640	1,600	1,210	1,360	890	988
31	820	-	664	d1,760	-	1,720	-	1,440	-	1,440	875	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	26,192	1,700	610	845	51,950
November	26,133	1,700	620	871	51,830
December	25,256	1,370	636	815	50,090
Calendar year 1948	412,554	6,330	502	1,127	818,300
January	29,413	1,780	620	949	58,340
February	82,320	25,300	790	2,940	163,300
March	64,530	5,110	1,440	2,082	128,000
April	174,485	35,200	920	5,816	346,100
May	51,861	6,790	563	1,673	102,900
June	48,899	3,240	875	1,630	96,990
July	48,580	2,680	1,180	1,567	96,360
August	36,009	1,800	833	1,162	71,420
September	44,712	2,040	942	1,490	88,680
Water year 1948-49	658,390	35,200	563	1,804	1,306,000

a No gage-height record; discharge computed on basis of estimated gage height.
d Doubtful gage-height record; discharge computed on basis of records for stations at Columbus and near Bay City.

Colorado River near Bay City, Tex.

Location.- Water-stage recorder, lat. 28°58'26", long. 96°00'44", 6,310 feet downstream from bridge on State Highway 35, 7,100 feet downstream from Texas & New Orleans Railroad bridge, 2.8 miles west of Bay City, Matagorda County, and 32.6 miles upstream from mouth at Matagorda Bay. Datum of gage is at mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 41,420 square miles, of which 11,900 square miles is probably noncontributing.

Records available.- July 2-6, 1940 (in Water-Supply Paper 1046), April 1948 to September 1949. U. S. Weather Bureau has collected gage-height records in this vicinity since 1946.

Extremes.- Maximum discharge during year, 36,000 second-feet Apr. 28 (gage height, 34.00 feet); minimum daily, 81 second-feet May 19.

1940, 1948-49: Maximum discharge, 83,300 second-feet July 4, 1940 (gage height, 48.2 feet, present datum) at bridge on State Highway 35, observed by Corps of Engineers (stage, 46.6 feet, adjusted to present site); minimum daily, 16 second-feet June 5, 1948.

Maximum stage known, about 56.1 feet Dec. 10, 1913. Flood of July 1869 probably reached about same stage. Stages of other floods as follows: May 8, 1922, 55.4 feet; June 1929, 55.0 feet; June 22, 1935; 54.6 feet; Oct. 5, 1936, 53.4 feet; Aug. 2, 1938, 53.4 feet; Nov. 27, 1940, 47.6 feet. All above flood data from information by Texas & New Orleans Railroad and adjusted to present gage site.

Remarks.- Records fair. Many diversions above gage for municipal and irrigation uses. Regulation same as that for Colorado River at Austin.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,060	865	635	695	1,360	6,670	1,390	8,060	810	488	865	356
2	925	865	635	685	1,150	3,840	1,180	5,900	670	419	685	340
3	838	865	630	685	f1,020	2,610	1,280	4,140	514	496	448	365
4	810	895	635	685	f958	2,100	1,460	3,260	283	574	344	496
5	755	838	670	670	f925	1,860	1,360	2,790	157	865	365	728
6	722	750	711	665	895	1,980	1,620	2,100	140	865	576	782
7	685	838	810	665	f990	1,940	1,540	1,860	f98	810	721	755
8	670	958	895	655	1,150	1,820	1,280	1,740	f88	685	958	733
9	620	1,420	865	655	1,180	1,780	1,180	1,540	346	460	1,220	865
10	600	1,540	782	695	1,150	1,780	1,320	1,220	566	560	1,180	990
11	706	1,180	700	750	f1,020	1,900	1,220	1,060	733	586	1,180	1,180
12	895	1,020	650	755	f895	1,660	1,090	1,020	990	474	1,220	1,420
13	895	895	665	782	f865	1,620	990	722	1,120	381	1,060	1,700
14	782	895	690	755	f1,120	1,860	1,020	381	990	305	657	1,620
15	733	1,020	685	722	1,180	1,900	755	313	1,260	380	550	1,150
16	711	1,090	680	838	1,060	2,350	600	171	2,180	1,360	550	865
17	711	1,120	685	1,060	958	2,880	591	181	2,180	2,020	442	1,180
18	722	1,060	685	1,120	925	1,860	560	101	2,280	2,350	278	1,660
19	958	895	700	1,060	958	1,420	690	81	2,700	2,060	205	1,700
20	1,360	810	1,180	1,220	990	1,460	3,000	96	1,700	1,620	230	1,620
21	1,740	782	1,280	1,280	1,060	1,660	5,210	125	1,320	1,280	268	1,700
22	1,320	733	1,120	1,120	1,060	1,740	8,460	244	1,250	1,010	265	1,700
23	1,120	716	1,020	1,180	990	1,700	21,600	244	922	838	251	1,180
24	958	706	895	f1,090	f1,650	1,780	15,900	486	573	1,100	211	1,540
25	895	700	895	f1,020	f1,900	1,620	10,000	591	514	1,090	f182	1,500
26	838	700	865	1,150	12,800	1,660	8,330	755	309	865	234	1,360
27	838	680	838	1,180	27,200	1,660	28,300	675	416	1,300	251	990
28	865	675	810	1,090	12,400	1,700	31,300	1,520	706	1,280	189	1,090
29	810	670	810	1,060	-	1,780	16,500	1,580	466	925	217	1,090
30	782	655	782	1,540	-	2,350	10,800	1,250	420	782	247	782
31	810	-	728	1,700	-	1,940	-	958	-	782	261	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	27,134	1,740	600	875	53,820
November	28,836	1,540	655	895	53,230
December	24,631	1,280	630	795	48,850
Calendar year	-	-	-	-	-
January	29,227	1,700	655	943	57,970
February	78,809	27,200	865	2,850	158,300
March	64,880	6,670	1,420	2,093	128,700
April	180,526	31,300	560	6,018	358,100
May	45,164	8,060	81	1,457	89,580
June	26,681	2,700	88	889	52,920
July	29,010	2,350	305	936	57,540
August	16,290	1,220	162	525	32,310
September	33,437	1,700	340	1,115	66,320
Water year 1948-49	583,825	31,300	81	1,599	1,158,000

f Computed on basis of partly estimated gage-height record.

Bull Creek near Ira, Tex.

Location.- Water-stage recorder, lat. 32°35', long. 101°05', 267 feet upstream from county road crossing, 1.5 miles upstream from Colorado River, 5.5 miles upstream from Chimney Creek, 5.8 miles west of Ira, Scurry County, and 6.9 miles northwest of Cuthbert.

Drainage area.- 388 square miles (contributing area).

Records available.- October 1947 to September 1949.

Extremes.- Maximum discharge during year, 862 second-feet Apr. 19, June 9; maximum gage height, 4.03 feet June 9; no flow at times.

1947-49: Maximum discharge, 4,940 second-feet July 6, 1948; maximum gage height, 11.70 feet July 6 (backwater from Colorado River); no flow at times.

Flood of Sept. 7, 1932, reached a stage of 22.1 feet, present site and datum (adjusted to present site from floodmark 1,100 feet downstream, on basis of slope of flood of May 1947 at gage height 15.72 feet). Flood of June 1939 was probably about 1 foot higher, from information by local resident.

Remarks.- Records good. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0		0	0.1	0.1	0	2.5	1.5	0	0	0
2	0	287		0	.1	.1	.1	1.4	.8	0	0	0
3	0	88		0	.1	.1	.1	.9	.4	0	0	0
4	0	7.1		0	.1	.1	.1	.5	.3	0	0	0
5	0	1.9		0	.1	.1	.1	.4	.2	0	0	0
6	0	.5		0	.1	0	.1	.3	.2	0	0	0
7	0	.3		.1	.1	0	.1	21	47	0	0	0
8	0	.1		.1	.1	0	.1	312	146	7.2	0	0
9	133	.1		.1	.1	0	.1	148	401	2.7	0	20
10	168	.1		.1	.1	0	.1	17	83	.6	0	140
11	22	.1		.1	.1	0	.1	5.1	117	.2	279	28
12	2.8	.1		.1	.1	0	.1	2.2	13	.1	57	62
13	.8	.1		.1	.1	0	.1	1.4	1.7	.1	6.6	42
14	.2	.1		.1	.1	0	.1	1.2	22	14	.5	82
15	.1	.1		.1	.1	0	.1	.6	2.3	8.3	.1	126
16	0	.1		.1	.1	0	.1	2.4	.4	5.7	20	84
17	0	0		.1	.1	.1	.1	.8	.1	1.3	130	33
18	0	0		.1	.1	.1	.1	.5	.1	.3	5.9	8.7
19	0	0		.1	.1	0	492	.2	0	.1	1.0	20
20	.1	0		.1	.1	.1	198	.2	0	0	14	40
21	.1	0		.1	.1	.1	22	.1	0	0	.2	f13
22	.1	0		.1	.1	.1	5.1	.1	0	0	.1	f2.5
23	.1	0		.2	.1	0	2.2	.1	0	0	0	1.5
24	.1	0		.1	.1	0	1.4	.1	0	.4	0	.5
25	0	0		.1	.1	0	1.0	.4	0	.1	0	.2
26	0	0		.1	.1	.1	.9	11	0	.1	0	.1
27	0	0		.1	.1	.1	.7	53	0	.1	0	0
28	.4	0		.1	.1	.1	156	206	0	0	0	0
29	.1	0		.1	-	.1	63	108	0	0	0	0
30	.1	0		.1	-	.1	10	8.8	0	0	0	0
31	.1	-		.1	-	0	-	2.8	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	328.1	168	0	10.6	651
November	365.7	287	0	12.2	725
December	0	0	0	0	0
Calendar year 1948	14,508.1	3,840	0	39.6	28,780
January	2.6	.2	0	.08	5.2
February	2.8	.1	.1	.10	5.6
March	1.5	.1	0	.05	3.0
April	954.0	492	0	31.8	1,890
May	909.0	312	.1	29.3	1,800
June	837.0	401	0	27.9	1,660
July	41.3	14	0	1.33	82
August	514.4	279	0	16.6	1,020
September	703.5	140	0	23.4	1,400
Water year 1948-49	4,659.9	492	0	12.8	9,240

Peak discharge (base, 500 sec.-ft.).- Nov. 2 (6 p.m.) 522 sec.-ft.; Apr. 19 (10 p.m.) 862 sec.-ft.; May 8 (8 p.m.) 534 sec.-ft.; June 9 (1 p.m.) 862 sec.-ft.; Aug. 11 (4:30 p.m.) 566 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Morgan Creek near Colorado City, Tex.

Location.- Water-stage recorder, lat. 32°24', long. 100°56', at bridge on U. S. Highway 80, about 1 mile upstream from Texas & Pacific Railway bridge, 5 miles west of Colorado City, Mitchell County, 5 miles east of Westbrook, and 5½ miles downstream from Cherry Creek. Datum of gage is 2,046.61 feet above mean sea level, datum of 1929.

Drainage area.- 236 square miles (contributing area).

Records available.- April 1947 to May 1949 (discontinued).

Extremes.- Maximum discharge during period October to May 1949, 3,320 second-feet Apr. 20 (gage height, 14.66 feet); no flow at times.

1947-49: Maximum discharge, 7,910 second-feet July 6, 1948 (gage height, 20.44 feet); no flow at times.

Maximum stage known since 1932, 24.2 feet June 19 or 20, 1939, from information by local resident.

Remarks.- Records good. No diversion above station. Records of chemical analyses for period October to May 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0			0	0.1	0.2	0	7.3				
2	0			0	.1	.1	0	2.7				
3	0			0	.1	.1	0	1.1				
4	0			0	.1	.1	0	1.0				
5	0			0	.1	.1	0	31				
6	0			0	.1	.1	0	2.7				
7	0			0	0	.1	0	-				
8	0			0	0	.1	0	-				
9	28			0	0	0	0	-				
10	42			0	0	0	0	-				
11	1.8			.1	0	0	0	-				
12	.5			.1	0	0	0	-				
13	.4			.2	0	0	0	-				
14	.3			.2	0	0	0	-				
15	.2			.1	0	0	0	-				
16	.1			.1	0	0	0	-				
17	0			0	0	0	0	-				
18	0			0	0	0	0	-				
19	0			0	0	0	963	-				
20	.1			0	0	0	2,330	-				
21	.1			0	0	0	139	-				
22	.1			0	0	0	36	-				
23	.1			.4	9.0	0	6.5	-				
24	0			.4	6.9	0	3.0	-				
25	0			.2	1.0	0	1.3	-				
26	0			.2	2.0	0	.7	-				
27	0			.2	.6	0	21	-				
28	0			.2	.3	0	803	-				
29	0			.2	-	0	193	-				
30	0			.2	-	0	25	-				
31	0			.1	-	-	-	-				

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	73.7	42	0	2.38	146
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	11,483.6	6,590	0	31.4	22,780
January	2.9	.4	0	.09	5.8
February	20.4	9.0	0	.73	40
March	.9	.2	0	.03	1.8
April	4,521.5	2,330	0	151	8,970
May 1-6	45.8	31	1.0	7.63	91
June	-	-	-	-	-
July	-	-	-	-	-
August	-	-	-	-	-
September	-	-	-	-	-
The period	-	-	-	-	9,250

Champlin Creek near Colorado City, Tex.

Location.- Water-stage recorder, lat. 32°19', long. 100°49', 600 feet downstream from South Fork, 5 miles southeast of Colorado City, Mitchell County, and 5½ miles upstream from mouth. Prior to July 5, 1949, staff gage at same site and datum.

Drainage area.- 158 square miles.

Records available.- October 1947 to September 1949.

Extremes.- Maximum discharge during year, 2,760 second-feet May 27 (gage height, 5.40 feet, from crest-stage indicator); minimum, 0.1 second-foot at times.

1947-49: Maximum discharge, 10,200 second-feet Oct. 25, 1947 (gage height, 10.40 feet, from floodmark), from rating curve extended above 2,400 second-feet on basis of slope-area determinations at gage heights 10.40 and 8.88 feet; minimum, that of 1949.

Maximum stage known since 1898, about 18.5 feet July 7 or 8, 1945, from floodmarks on left bank opposite gage.

Remarks.- Records good above 1 second-foot and fair below. Staff gage read twice daily, oftener during high stages. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.5	0.5	0.9	2.0	1.4	0.5	1.4	1.7	0.1	0.1	0.2
2	.2	.5	.5	.9	2.0	1.4	.5	1.4	1.7	.1	.1	.2
3	.2	.5	.5	.9	1.7	1.4	.5	1.4	1.4	.1	.1	.1
4	.2	.5	.5	.9	1.4	.9	.5	1.4	1.2	.1	.1	.1
5	.4	.5	.5	.9	1.4	.9	.5	1.4	.6	.1	.1	.1
6	.3	.5	.5	.9	1.4	.9	.5	1.4	.5	.1	.1	.2
7	.2	.5	.5	.9	1.4	.9	.5	83	.5	.1	.1	.2
8	.2	.5	.5	.9	1.4	.9	.9	85	18	.1	.7	.2
9	191	.5	.5	.9	1.4	.9	.9	7.7	2.5	.1	.2	.2
10	157	.5	.5	3.6	1.2	.9	.9	2.0	.6	.1	.2	.2
11	11	.5	.5	4.6	.9	.9	.9	1.4	.6	.1	.2	.2
12	1.4	.5	.5	2.0	.9	.9	.9	1.4	.6	.1	.2	.2
13	.9	.5	.5	2.0	.9	.9	.9	1.4	.4	.1	.2	1.0
14	.5	.5	.5	2.0	2.0	.9	.9	1.4	.4	6.3	.2	98
15	.2	.5	.5	2.0	1.4	.9	.9	1.4	.4	1.3	.2	9.7
16	.2	.5	.5	2.0	1.4	.9	.9	529	.4	.1	.2	110
17	.3	.5	.5	2.0	1.4	.9	.9	685	.6	.1	.2	4.7
18	.4	.5	.5	2.0	1.4	.9	.9	70	.6	.1	.2	1.2
19	.4	.5	.5	2.0	1.4	.9	515	8.5	.5	.1	.2	.5
20	.4	.5	.6	2.0	1.4	1.2	124	5.4	.5	.1	.2	.4
21	9.3	.5	.5	2.0	1.4	1.4	13	3.0	.4	.1	.2	.3
22	1.4	.5	.5	2.0	5.7	1.2	4.1	2.0	.4	.1	.2	.3
23	.6	.5	.5	2.0	42	.9	2.0	1.4	.3	.1	.1	.2
24	.5	.5	.5	2.0	3.6	.9	2.0	1.4	.3	.1	.1	.2
25	.4	.5	.9	2.0	1.4	.9	3.0	1.4	.2	.1	.1	.2
26	.4	.5	1.4	2.0	1.4	.9	3.0	6.2	.2	.1	.2	.2
27	.5	.5	1.2	2.0	1.4	.9	7.2	a756	.1	.1	.2	.2
28	.5	.5	.9	2.0	1.4	.9	293	70	.1	.1	.2	.2
29	.5	.5	.9	2.0	-	.9	13	7.0	.1	.1	.2	.2
30	.5	.5	.9	2.0	-	.6	4.1	2.0	.1	.1	.2	.2
31	.5	-	.9	2.0	-	.5	-	2.0	-	.1	.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	380.7	191	0.2	12.3	755
November	15.0	.5	.5	.50	30
December	19.2	1.4	.5	.62	38
Calendar year 1948	6,185.3	1,510	.2	16.9	12,270
January	56.3	4.6	.9	1.82	112
February	86.7	42	.9	3.10	172
March	29.8	1.4	.5	.96	59
April	996.8	515	.5	33.2	1,980
May	2,343.4	756	1.4	75.6	4,650
June	35.9	18	.1	1.20	71
July	10.5	6.3	.1	.34	21
August	5.7	.7	.1	.18	11
September	229.8	110	.1	7.66	456
Water year 1948-49	4,209.8	756	.1	11.5	8,360

Peak discharge (base, 2,000 sec.-ft.).- May 17 (2:45 p.m.) 2,390 sec.-ft.; May 27 (time unknown) 2,760 sec.-ft.

a No gage-height record; discharge computed on basis of estimated gage height and peak shown by crest-stage indicator.

Note.- Doubtful gage-height record Oct. 14, 16, 17; no gage-height record June 18-27, July 1-4, 24, 25; discharge interpolated.

Elm Creek at Ballinger, Tex.

Location.- Water-stage recorder upstream from spillway of masonry dam, lat. 31°45'00", long. 99°56'50", in Ballinger, Runnels County, and 1¼ miles upstream from mouth. Datum of gage is 1,617.72 feet above mean sea level, datum of 1929.

Drainage area.- 458 square miles.

Records available.- April 1932 to September 1949.

Average discharge.- 17 years, 50.4 second-feet.

Extremes.- Maximum discharge during year, 2,410 second-feet May 8 (gage height, 5.48 feet); no flow during most of year.
1932-49: Maximum discharge, 29,200 second-feet May 14, 1946 (gage height, 10.84 feet), from rating curve extended above 15,000 second-feet; no flow at times.

Remarks.- Records fair. Stage-discharge relation during period of low flow affected by wind action and occasional accumulation of drift on dam. Low flow affected by diversion of Ballinger city pumping plant.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0						0	43	11	0		0
2	0						0	31	4.5	0		0
3	0						0	25	2.5	0		0
4	0						0	172	2.5	0		0
5	0						0	120	1.5	0		0
6	0						0	61	1.5	0		0
7	0						0	43	1.5	0		0
8	0						0	1,520	2.5	0		0
9	69						0	315	19	0		0
10	305						0	111	7.0	0		0
11	131						0	61	343	0		0
12	31						0	43	72	0		0
13	11						0	20	25	29		0
14	4.5						0	15	20	195		0
15	2.5						0	11	11	11		0
16	1.5						0	18	7.0	7.0		0
17	.1						0	218	4.5	2.5		0
18	0						0	67	2.5	1.0		0
19	0						17	37	1.5	.1		0
20	0						180	25	1.0	0		14
21	0						32	15	.1	0		2.5
22	0						4.5	11	69	0		1.0
23	0						2.5	7.0	68	0		.4
24	0						0	4.5	4.5	0		.2
25	0						39	2.5	11	0		.1
26	0						20	298	2.5	0		0
27	0						7.0	261	1.0	0		0
28	0						56	479	.4	0		0
29	0						116	81	0	0		0
30	0						55	43	0	0		0
31	0						-	25	-	0		-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	555.6	305	0	17.9	1,100
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	2,695.2	401	0	7.36	5,340
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	529.0	180	0	17.6	1,050
May	4,183.0	1,520	2.5	135	8,300
June	697.5	343	0	23.2	1,380
July	245.6	195	0	7.92	487
August	0	0	0	0	0
September	18.2	14	0	.61	36
Water year 1948-49	6,228.9	1,520	0	17.1	12,350

Peak discharge (base, 2,100 sec.-ft.).- May 8 (9:30 a.m.) 2,410 sec.-ft.

South Concho River at Christoval, Tex.

Location.- Water-stage recorder and concrete control, lat. 31°13', long. 100°30', at Panhandle & Santa Fe Railway bridge at Christoval, Tom Green County. Datum of gage is 2,010.22 feet above mean sea level, datum of 1929.

Drainage area.- 434 square miles.

Records available.- February 1930 to September 1949.

Average discharge.- 19 years, 42.8 second-feet.

Extremes.- Maximum discharge during year, 3,640 second-feet Mar. 21 (gage height, 6.68 feet); minimum, 3.7 second-feet Sept. 12, 13.

1930-49: Maximum discharge, 100,000 second-feet July 23, 1938 (gage height, 21.95 feet, from floodmarks), from rating curve extended above 9,000 second-feet on basis of slope-area determination at gage height 20.5 feet; minimum, 1.6 second-feet Mar. 18, 19, 1948.

Flood of Aug. 6, 1906, reached a stage about 1.1 feet higher than flood of July 23, 1938, at a point 0.5 mile downstream from gage, from information by local residents.

Remarks.- Records good. Low flow materially affected by diversion 600 feet above station to South Concho Irrigation Co.'s canal (see p. 152).

Revisions (water years).- W 1118: 1943(M).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.5	7.5	5.7	4.9	6.5	12	20	26	30	17	6.5	6.5
2	6.5	7.5	5.7	5.7	6.5	12	21	26	25	16	6.5	5.7
3	6.5	7.5	5.7	5.7	6.5	12	21	26	25	13	6.5	4.9
4	5.7	7.5	5.7	5.7	6.5	12	20	472	25	13	6.5	4.9
5	5.7	6.5	4.9	5.7	6.5	11	20	64	23	13	6.5	4.9
6	5.7	6.5	4.9	5.7	6.5	11	20	38	28	12	7.5	4.3
7	4.9	6.5	4.9	5.7	6.5	11	18	36	30	11	7.5	4.9
8	4.9	7.5	4.9	5.7	6.5	11	17	38	30	11	7.5	5.7
9	5.7	7.5	4.9	6.5	5.7	11	14	34	23	11	7.5	5.7
10	5.7	7.5	4.9	5.7	5.7	11	14	34	23	11	6.5	4.9
11	4.9	6.5	4.9	6.5	5.7	11	13	34	21	11	6.5	4.3
12	4.9	6.5	4.9	6.5	5.7	11	14	34	23	9.5	6.5	4.3
13	4.9	7.5	4.9	6.5	5.7	11	14	34	21	7.5	6.5	3.7
14	4.9	7.5	4.9	6.5	5.7	11	14	34	21	6.5	5.7	4.3
15	4.9	8.5	4.9	7.5	5.7	11	14	34	21	7.5	5.7	83
16	77	8.5	4.9	7.5	5.7	12	14	34	20	7.5	5.7	206
17	23	8.5	4.9	7.5	4.9	12	13	34	20	7.5	5.7	12
18	6.5	7.5	5.7	7.5	4.9	12	13	34	20	8.5	5.7	11
19	6.5	7.5	5.7	7.5	4.3	12	14	34	20	8.5	4.9	15
20	8.5	7.5	4.9	7.5	4.3	43	16	36	20	7.5	4.9	11
21	8.5	6.5	4.9	7.5	4.3	724	14	34	20	6.5	4.9	11
22	8.5	4.9	4.9	8.5	4.3	28	14	34	20	7.5	4.9	11
23	7.5	4.9	4.9	7.5	8.2	20	14	34	21	8.5	4.9	11
24	7.5	4.9	4.9	7.5	4.9	18	18	34	20	6.5	4.9	11
25	7.5	4.9	4.3	6.5	25	20	16	34	20	6.5	4.3	11
26	7.5	4.9	4.9	6.5	26	20	16	36	20	6.5	4.3	11
27	7.5	4.9	4.9	6.5	12	20	16	32	20	7.5	4.9	11
28	7.5	4.3	4.3	6.5	11	20	897	32	18	7.5	4.9	11
29	7.5	4.3	4.9	6.5	-	21	99	32	18	7.5	4.9	9.5
30	7.5	4.9	4.9	6.5	-	21	30	30	18	7.5	4.9	11
31	7.5	-	4.9	6.5	-	21	-	30	-	6.5	4.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	288.3	77	4.9	9.30	572
November	197.4	8.5	4.3	6.58	392
December	155.5	5.7	4.3	5.02	308
Calendar year 1948	3,018.3	336	1.8	8.25	5,980
January	204.5	8.5	4.9	6.60	408
February	211.7	26	4.3	7.56	420
March	1,193	724	11	38.5	2,370
April	1,458	897	13	48.6	2,890
May	1,498	472	26	48.3	2,970
June	664	30	18	22.1	1,320
July	288.0	17	6.5	9.29	571
August	179.5	7.5	4.3	5.79	356
September	515.5	206	3.7	17.2	1,020
Water year 1948-49	6,853.4	897	3.7	18.8	13,600

Peak discharge (base, 160 sec.-ft.).- Oct. 16 (6:30 p.m.) 632 sec.-ft.; Mar. 21 (5 a.m.) 3,640 sec.-ft.; Apr. 28 (10:30 a.m.) 2,580 sec.-ft.; May 4 (9 a.m.) 1,980 sec.-ft.; Sept. 16 (3 a.m.) 1,100 sec.-ft.

Lake Nasworthy near San Angelo, Tex.

Location.- Water-stage recorder, lat. 31°23'15", long. 100°28'40", 250 feet upstream from Nasworthy Dam on South Concho River, half a mile downstream from Middle Concho River, and 6 miles southwest of San Angelo, Tom Green County. Datum of gage is 1,840.0 feet above mean sea level, datum of 1929.

Drainage area.- 2,659 square miles, of which 152 square miles is probably noncontributing.

Records available.- March 1930 to September 1949.

Extremes.- Maximum contents during year, 14,200 acre-feet Mar. 21 (gage height, 32.48 feet); minimum, 6,880 acre-feet Sept. 15 (gage height, 26.82 feet).
1930-49: Maximum contents, 26,900 acre-feet Sept. 15, 1936 (gage height, 38.36 feet); minimum contents since lake filled, 594 acre-feet Oct. 14, 1936 (gage height, 12.6 feet).

Remarks.- Lake is formed by 5,480-foot dam containing a 3,780-foot earthen section, 2 emergency spillways, 300 and 600 feet in length, and a concrete service spillway having a bank of fifteen 25-foot taintor gates and a collapsible flood gate. Dam completed and storage began Mar. 28, 1930. Total and usable capacity, 14,040 acre-feet between gage heights -4.0 feet (bottom of two 36-inch gates) and 32.4 feet (top of collapsible flood gate). Figures of contents shown herein represent total contents of lake, and are unadjusted for siltation. A siltation survey made by the Soil Conservation Service, U. S. Department of Agriculture, indicates a 10 percent capacity loss from siltation in 8.2 years (1930-39). Water used for San Angelo municipal supply.

Monthly gage height and contents, water year October 1948 to September 1949

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	31.8	13,080	-
Oct. 31	31.4	12,440	-640
Nov. 30	30.7	11,380	-1,060
Dec. 31	30.2	10,740	-640
Calendar year 1948	-	-	+6,680
Jan. 31	30.4	10,980	+240
Feb. 28	30.9	11,660	+680
Mar. 31	31.7	12,920	+1,260
Apr. 30	31.6	12,760	-160
May 31	31.7	12,920	-160
June 30	31.3	12,280	-640
July 31	29.5	9,900	-2,380
Aug. 31	27.5	7,650	-2,250
Sept. 30	28.3	8,530	+880
Water year 1948-49	-	-	-4,550

† Gage height at 12 p.m.

South Concho River at San Angelo, Tex.

Location.- Water-stage recorder above spillway of San Angelo waterworks concrete dam, lat. 31°26'45", long. 100°25'30", at Lone Wolf Bridge on county road, half a mile south of San Angelo, Tom Green County, 1 mile upstream from confluence with North Concho River, and 7,470 feet downstream from bridge on U. S. Highways 87 and 277. Datum of gage is 1,802.94 feet above mean sea level, datum of 1929.

Drainage area.- 2,687 square miles, of which 152 square miles is probably noncontributing.

Records available.- October 1931 to September 1949.

Average discharge.- 18 years, 134 second-feet.

Extremes.- Maximum discharge during year, 25,200 second-feet Apr. 28 (gage height, 8.44 feet); no flow at times.

1931-49: Maximum discharge, 111,000 second-feet Sept. 17, 1936 (gage height, 23.4 feet, of which about 2.4 feet was caused by backwater from North Concho River), by slope-area method; no flow at times.

Maximum stage known since 1853, 29.7 feet Aug. 6, 1906 (not affected by backwater), from information by local residents.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Diversions above station for irrigation, municipal supply, and power. Flow partly regulated by Lake Nasworthy (see preceding page).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.8	12	8.9	11	11	29	6.0	403	17	1.4	3.7	25
2	8.9	14	5.3	10	11	80	6.8	344	11	1.1	3.0	12
3	7.8	17	7.8	8.4	12	86	4.6	62	16	3.2	2.0	10
4	8.9	16	6.8	10	12	86	6.0	2,600	12	5.7	3.0	8.9
5	7.8	16	6.8	10	14	64	5.3	1,520	8.4	4.4	6.6	6.8
6	4.6	12	8.9	8.9	16	5.7	4.6	116	24	3.7	9.3	4.6
7	3.4	8.9	4.6	10	5.8	4.9	4.6	160	2,550	1.6	14	4.3
8	3.4	7.8	4.0	8.9	1.8	2.3	4.0	69	81	1.1	13	4.8
9	12	7.8	5.3	11	.7	3.3	4.0	432	225	4.9	7.6	9.6
10	12	8.9	5.3	11	.2	3.0	3.4	65	50	7.8	4.6	6.8
11	10	8.9	6.2	14	.1	1.9	3.4	56	50	5.3	1.5	7.4
12	12	10	5.9	12	0	2.0	2.3	56	56	2.5	.2	4.6
13	11	10	6.0	12	0	3.4	.3	56	50	.7	0	2.3
14	8.9	10	6.2	12	0	4.6	0	56	31	7.7	4.7	11
15	7.8	17	9.1	11	54	6.0	0	59	27	7.9	10	12
16	6.8	14	7.6	12	180	8.8	0	244	24	7.9	4.8	15
17	8.9	14	7.3	11	11	1.1	0	189	22	5.9	3.6	11
18	10	12	10	12	8.1	.2	135	51	17	2.1	2.0	8.9
19	8.9	12	8.9	11	9.5	0	5,000	42	19	0	.1	8.9
20	11	14	9.2	12	9.4	2.8	424	497	16	0	0	5.3
21	17	11	4.6	12	6.8	1,030	92	53	12	0	.3	2.3
22	16	11	6.0	16	6.6	152	210	53	15	2.9	15	2.3
23	12	12	8.2	17	12	52	842	48	26	13	8.5	1.7
24	12	12	8.4	14	20	20	9,540	50	19	6.7	4.5	1.6
25	12	12	11	16	23	19	1,130	50	12	4.3	3.4	1.4
26	11	11	14	14	20	17	71	48	10	1.0	2.3	1.8
27	11	8.9	13	17	20	12	70	48	11	.7	3.9	.9
28	12	7.8	12	11	19	8.9	10,500	56	7.8	.1	12	.7
29	12	7.8	10	12	-	7.8	6,280	63	6.8	.8	9.4	.3
30	12	7.8	10	16	-	6.0	798	42	3.2	.3	4.2	1.2
31	12	-	10	11	-	5.3	-	34	-	.7	19	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	309.9	17	3.4	10.0	615
November	343.6	17	7.8	11.5	682
December	247.3	14	4.0	7.98	491
Calendar year 1948	20,096.5	7,770	0	54.9	39,870
January	374.2	17	8.4	12.1	742
February	484.0	180	0	17.3	960
March	1,725.0	1,030	0	55.6	3,420
April	35,147.3	10,500	0	1,172	69,710
May	7,622	2,600	34	246	15,120
June	3,429.2	2,550	3.2	114	6,800
July	105.4	13	0	3.40	209
August	176.0	19	0	5.68	349
September	193.4	25	.3	6.45	384
Water year 1948-49	50,157.3	10,500	0	137	99,480

Peak discharge (base, 6,100 sec.-ft.).- Mar. 21 (time unknown) 6,680 sec.-ft.; Apr. 19 (time unknown) 12,200 sec.-ft.; Apr. 19 (time unknown) 11,000 sec.-ft.; Apr. 22 (time unknown) 6,080 sec.-ft.; Apr. 24 (11 a.m.) 24,600 sec.-ft.; Apr. 28 (6:30 p.m.) 25,200 sec.-ft.; May 4 (7 a.m.) 6,480 sec.-ft.; May 4 (4:30 p.m.) 6,880 sec.-ft.; June 7 (10:30 a.m.) 8,360 sec.-ft.

Note.- No gage-height record Dec. 9, Jan. 26, 27, Mar. 12 to Apr. 23; discharge computed on basis of discharge measurement made Apr. 12, recorded range in stage, and records for North Concho River at San Angelo and Concho River near San Angelo.

Concho River near San Angelo, Tex.

Location.- Water-stage recorder, lat. 31°27'10", long. 100°24'40", half a mile downstream from confluence of North Concho and South Concho Rivers and 1¾ miles southeast of San Angelo, Tom Green County. Datum of gage is 1,776.8 feet above mean sea level, datum of 1929.

Drainage area.- 4,492 square miles, of which 275 square miles is probably noncontributing.

Records available.- September 1915 to September 1949.

Average discharge.- 34 years, 177 second-feet.

Extremes.- Maximum discharge during year, 25,100 second-feet Apr. 24 (gage height, 21.74 feet); minimum, 1.1 second-feet July 19.

1915-49: Maximum discharge, 230,000 second-feet Sept. 17, 1936 (gage height, 46.6 feet, from floodmarks), by slope-area method; no flow Nov. 29, 1921.

Maximum stage known since 1853, 47.5 feet Aug. 6, 1906 (discharge, about 246,000 second-feet), from information by local residents.

Revisions.- The figures of maximum discharge for some water years have been revised as shown in the following table. They supersede those published in the Water-Supply Papers indicated.

Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (second-feet)
438.....	1916	Sept. 1	13.0	†9,700
458.....	1917	Apr. 18	13.7	†10,600
478.....	1918	May 17	13.8	†10,700
508.....	1919	July 8	26.6	31,800
508.....	1920	Oct. 6	18.52	17,100
528.....	1921	Aug. 31	14.7	11,900
568.....	1922	Apr. 26	36.8	92,000
588.....	1924	25	28.10	36,300
608.....	1925	May 31	31.2	49,200
628.....	1926	Apr. 21	27.68	35,100
688.....	1929	Sept.12	9.70	†6,000
703.....	1930	June 13	29.30	40,200
718.....	1931	Oct. 13	32.65	57,600
733.....	1932	May 10	29.90	42,600
788.....	1935	15	29.00	39,000
828.....	1937	June 2	21.22	23,400

† Not previously published.

Remarks.- Records good. Many diversions above station for irrigation and municipal supply. Flow partly regulated by Lake Nasworthy on South Concho River (see p. 147)

Revisions (water years).- W 568: 1915-22. W 588: Drainage area. Revised figures of discharge, in second-feet, for high-water periods in the water years 1925, 1926, 1930-32, 1935, and for medium and high-water periods from Sept. 17, 1936, to Sept. 30 1937, are given herewith. They supersede those published in Water-Supply Papers 608, 628, 703, 718, 733, 788, 808, and 828.

Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)
1924-25		1934-35		1935-36	
May 30.....	11,100	May 9.....	2,810	Sept.26.....	77,400
31.....	23,900	10.....	6,040	27.....	60,400
		15.....	17,800	28.....	11,700
1925-26				29.....	2,290
Apr. 21.....	19,000	1935-36		30.....	1,240
		Sept.15....	13,400		
1929-30		16....	13,300	1936-37	
June 13.....	7,050	17....	128,000	May 10.....	2,390
		18....	16,600	11.....	543
1930-31		19....	3,690	June 8.....	1,640
Oct. 13.....	21,900	20....	690	Sept.24.....	124
14.....	12,300	21....	1,520		
		22....	798		
1931-32		23....	424		
May 10.....	21,900	25....	3,960		

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
May 1925.....	51,866	23,900	34	1,673	102,900
Water year 1924-25.....	94,089.7	23,900	2.0	258	186,600
Calendar year 1925.....	94,501.7	23,900	2.0	259	187,400
April 1926.....	27,417	19,000	80	914	54,380
Water year 1925-26.....	67,013.9	19,000	2.0	184	132,900
Calendar year 1926.....	68,940.9	19,000	2.0	189	136,700
June 1930.....	12,723.4	7,050	6.0	424	25,240
Water year 1929-30.....	33,114.9	7,050	1.3	90.7	65,670
October 1930.....	39,046.0	21,900	1.5	1,260	77,450
Calendar year 1930.....	67,908.9	21,900	1.4	186	134,700
Water year 1930-31.....	59,486.4	21,900	.5	163	118,000
May 1932.....	67,677.0	21,900	24	2,183	134,200
Water year 1931-32.....	120,062.0	21,900	2.2	328	238,100
Calendar year 1932.....	131,281	21,900	3.6	359	260,400
May 1935.....	50,595.6	17,800	7.8	1,632	100,400
Water year 1934-35.....	98,363.4	17,800	-	269	195,100
Calendar year 1935.....	101,179.5	17,800	1.2	277	200,700
September 1936.....	395,802.7	128,000	.9	13,190	785,100
Water year 1935-36.....	414,182.3	128,000	.3	1,132	821,600
Calendar year 1936.....	425,712.2	128,000	.3	1,163	844,400
May 1937.....	8,029.7	4,000	9.7	259	15,930
June.....	15,604	-	15	520	30,950
September.....	389.3	124	1.9	13.0	772
Water year 1936-37.....	55,517.3	-	1.9	152	110,100
Calendar year 1937.....	43,360.6	-	1.9	119	86,000

Discharge, in second-feet, of Concho River near San Angelo, Tex., water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	15	14	15	21	35	11	486	49	6.8	3.1	48
2	14	15	11	15	19	102	14	390	36	6.0	2.8	19
3	12	19	12	14	20	106	12	104	33	5.2	1.8	12
4	12	17	11	14	19	106	14	2,710	28	10	2.9	12
5	12	15	11	15	20	85	14	1,450	24	9.2	4.6	11
6	8.2	15	13	15	23	15	8.2	154	68	7.8	14	8.2
7	6.4	10	8.6	15	14	12	5.2	191	2,360	6.0	15	6.8
8	6.8	9.2	7.3	14	7.8	9.2	4.0	1,050	267	4.4	22	5.0
9	26	8.2	8.6	16	5.6	7.8	4.0	1,360	288	6.0	14	14
10	22	10	9.2	19	6.8	9.7	4.4	196	267	9.7	8.6	12
11	18	10	9.7	23	5.6	7.8	4.4	120	510	8.2	4.8	12
12	17	12	8.2	21	5.6	4.8	4.0	96	412	5.6	3.2	7.8
13	17	12	9.2	19	5.6	7.8	3.6	92	149	1.8	2.3	4.8
14	13	12	8.2	19	6.4	9.2	4.0	85	91	8.3	5.5	13
15	11	22	12	20	50	10	4.4	85	88	12	13	18
16	9.2	19	10	20	209	13	4.0	1,580	66	12	8.6	26
17	11	17	9.2	19	19	10	6.0	2,020	57	7.8	7.3	15
18	12	16	13	20	14	6.4	221	649	47	4.6	6.0	13
19	11	15	12	19	15	4.4	12,000	1,120	32	1.5	3.6	12
20	14	15	15	19	16	38	2,570	779	23	1.8	2.6	9.7
21	20	14	9.7	20	14	1,110	438	131	28	1.6	2.8	6.4
22	19	14	10	35	12	214	333	113	32	2.1	15	4.4
23	17	16	12	29	35	67	1,260	94	50	15	11	3.6
24	17	15	11	21	30	40	12,400	85	36	7.8	6.4	3.2
25	15	15	16	22	39	26	1,720	79	24	6.0	5.2	2.8
26	14	13	19	25	32	22	190	83	22	1.9	4.4	2.8
27	14	12	18	28	30	16	103	79	25	1.6	4.0	2.8
28	16	11	17	19	27	15	9,660	309	18	2.9	13	2.3
29	14	11	15	20	-	12	6,230	113	15	2.6	12	1.9
30	14	12	15	23	-	9.2	866	69	9.7	1.5	6.0	2.1
31	15	-	15	21	-	8.6	-	69	-	1.3	59	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	441.6	26	6.4	14.2	876
November	416.4	22	8.2	13.9	826
December	369.9	19	7.3	11.9	734
Calendar year 1948	62,840.6	30,000	1.0	172	124,600
January	614	35	14	19.8	1,220
February	721.4	209	5.6	25.8	1,430
March	2,138.9	1,110	4.4	69.0	4,240
April	48,112.2	12,400	3.6	1,604	95,430
May	15,941	2,710	69	514	31,620
June	5,154.7	2,360	9.7	172	10,220
July	179.0	15	1.3	5.77	355
August	284.5	59	1.8	9.18	564
September	311.6	48	1.9	10.4	618
Water year 1948-49	74,685.2	12,400	1.3	205	148,100

Peak discharge (base, 5,700 sec.-ft.).- Mar. 21 (12:30 p.m.) 6,220 sec.-ft.; Apr. 19 (1 p.m.) 20,500 sec.-ft.; Apr. 24 (12 m.) 25,100 sec.-ft.; Apr. 28 (7 p.m.) 21,700 sec.-ft.; May 4 (5 p.m.) 6,100 sec.-ft.; May 16 (6 p.m.) 5,990 sec.-ft.; June 7 (10:30 a.m.) 7,060 sec.-ft.

Concho River near Paint Rock, Tex.

Location.- Water-stage recorder above spillway of masonry dam, lat. 31°31', long. 99°55', at bridge on U. S. Highway 83, a quarter of a mile north of Paint Rock, Concho County. Datum of gage is 1,574.43 feet above mean sea level, datum of 1929.

Drainage area.- 5,538 square miles, of which 275 square miles is probably noncontributing.

Records available.- September 1915 to September 1949.

Average discharge.- 34 years, 238 second-feet.

Extremes.- Maximum discharge during year, 37,000 second-feet May 28 (gage height, 26.70 feet); minimum, 1.3 second-feet Aug. 18-20.

1915-49: Maximum discharge, 301,000 second-feet Sept. 17, 1936 (gage height, 43.4 feet, from floodmarks), by slope-area method; no flow at times.

Flood of August 1882 reached a stage of about 39.9 feet and flood of August 1906 reached a stage of 39.5 feet, from information by local resident.

Remarks.- Records good. Many diversions above station for irrigation and municipal supply. Flow partly regulated by Lake Nasworthy on South Concho River (see p. 147).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	19	17	22	35	33	21	892	90	20	2.3	143
2	22	14	17	22	30	30	21	456	79	15	2.3	118
3	17	17	17	24	30	50	17	372	59	13	2.0	43
4	15	19	21	22	28	100	19	2,780	45	11	2.0	27
5	15	12	19	21	26	104	21	3,040	40	9.9	2.3	21
6	15	15	17	21	26	108	21	933	51	8.0	2.6	16
7	14	15	19	21	24	59	21	243	1,090	6.5	2.6	14
8	14	15	17	21	26	30	21	2,660	1,260	7.0	3.2	20
9	15	15	15	21	26	21	19	1,900	267	8.0	6.5	23
10	15	14	17	21	21	15	14	746	286	7.0	5.5	15
11	12	11	15	22	17	14	12	250	292	5.5	3.2	16
12	22	12	12	26	14	12	9.0	177	492	4.5	2.3	11
13	24	11	12	33	12	11	9.0	136	284	4.5	1.8	15
14	21	14	15	33	12	12	9.0	128	172	5.0	1.8	14
15	21	17	15	30	11	11	6.5	116	120	7.0	1.5	14
16	21	21	15	33	9.0	8.2	5.6	116	96	7.5	1.8	15
17	15	19	17	30	133	9.0	4.8	2,200	90	5.5	1.8	14
18	12	22	14	30	86	11	9.2	1,400	65	4.0	1.5	24
19	12	21	15	28	39	14	14,100	453	59	4.5	1.3	23
20	11	19	15	28	26	21	9,630	1,240	51	7.0	3.5	20
21	14	19	14	30	22	4,130	1,140	480	37	5.5	6.0	16
22	17	19	15	30	21	861	361	181	30	4.5	5.0	14
23	17	19	15	35	37	274	835	136	33	3.5	4.5	13
24	22	19	15	44	36	128	11,400	120	36	3.2	4.5	11
25	24	19	14	47	37	90	5,310	108	48	3.2	4.0	11
26	22	19	15	39	44	65	1,070	124	35	3.2	3.5	11
27	21	19	19	30	42	47	292	2,580	28	3.2	2.9	9.9
28	19	19	21	28	37	39	5,610	5,420	26	2.9	2.9	9.2
29	19	17	24	33	-	33	11,800	384	24	2.9	2.3	8.0
30	19	17	22	35	-	26	2,130	191	24	2.6	2.0	7.0
31	21	-	22	35	-	22	-	108	-	2.3	2.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	554	26	11	17.9	1,100
November	508	22	11	16.9	1,010
December	517	24	12	16.7	1,030
Calendar year 1948	74,067.6	33,100	0	202	146,900
January	895	47	21	28.9	1,780
February	907.0	133	9.0	32.4	1,800
March	6,388.2	4,130	8.2	206	12,670
April	63,938.1	14,100	4.8	2,131	126,800
May	30,070	5,420	108	970	59,640
June	5,309	1,260	24	177	10,530
July	197.4	20	2.3	6.37	392
August	91.7	6.5	1.3	2.96	182
September	716.1	143	7.0	23.9	1,420
Water year 1948-49	110,091.5	14,100	1.3	302	218,400

Peak discharge (base, 4,600 sec.-ft.).- Mar. 21 (5:30 a.m.) 8,170 sec.-ft.; Apr. 19 (11 p.m.) 24,400 sec.-ft.; Apr. 24 (9:30 p.m.) 21,900 sec.-ft.; Apr. 29 (4 a.m.) 19,000 sec.-ft.; May 5 (12:30 a.m.) 6,810 sec.-ft.; May 8 (1 p.m.) 6,060 sec.-ft.; May 17 (4 a.m.) 4,960 sec.-ft.; May 28 (12:30 a.m.) 37,000 sec.-ft.; June 7 (9 p.m.) 5,610 sec.-ft.

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South Concho Irrigation Co.'s canal at Christoval, Tex.

Location.- Water-stage recorder, lat. 31°13', long. 100°30', at Christoval, Tom Green County, 85 feet downstream from point of diversion and 100 feet downstream from bridge on U. S. Highway 277. Datum of gage is 2,017.0 feet above mean sea level, datum of 1929.

Records available.- November 1939 to September 1949. (November 1921, February 1930 to September 1939, miscellaneous discharge measurements only.)

Extremes.- Maximum daily diversion for irrigation (excluding flood flow) during year, 11 second-feet at times; minimum daily, 4.8 second-feet Apr. 4.
1939-49: Maximum daily diversion for irrigation (excluding flood flow), 21 second-feet June 27, 28, 1941, Sept. 18, 21, 1942; minimum daily, 2.7 second-feet Dec. 12, 1941.

Remarks.- Records fair. No diversion above station. Canal diverts water for irrigation from right bank of South Concho River 600 feet above station at Christoval. Water Service Report to the State Board of Water Engineers indicates 1,250 acres irrigated during current year.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	11	10	10.7	659
November	11	9.6	9.96	593
December	10	9.2	9.74	599
Calendar year 1948	12	5.6	8.73	6,340
January	9.4	8.2	8.67	533
February	8.3	7.4	7.70	428
March	8.9	5.6	8.26	508
April	8.8	4.8	7.83	466
May	8.5	7.1	8.29	510
June	10	8.5	9.61	572
July	11	9.8	10.0	617
August	11	10	10.7	660
September	11	8.8	10.2	606
Water year 1948-49	11	4.8	9.32	6,750

Middle Concho River near Tankersly, Tex.

Location.- Water-stage recorder and masonry control, lat. 31°22'35", long. 100°36'50", at Twelvemile Bridge, 3 miles northeast of Tankersly, Tom Green County, and 9½ miles upstream from Spring Creek. Datum of gage is 1,919.5 feet above mean sea level, datum of 1929.

Drainage area.- 1,280 square miles, of which 152 square miles is probably noncontributing.

Records available.- February 1930 to September 1949.

Average discharge.- 19 years, 45.5 second-feet.

Extremes.- Maximum discharge during year, 31,400 second-feet Apr. 24 (gage height, 23.80 feet, from rating curve extended above 11,000 second-feet on basis of computed flow over Nasworthy Dam, 12 miles downstream, corrected for inflow and storage for flood of Sept. 26, 1936; no flow at times.

1930-49: Maximum discharge, 35,900 second-feet Sept. 26, 1946 (gage height, 24.30 feet), from floodmark), from rating curve extended above 11,000 second-feet as noted above; no flow at times.

Maximum stage known, about 27.2 feet in April 1922, from information by State Highway Department.

Remarks.- Records excellent. Small diversions for irrigation above station affect low flow.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.9						0	283	4.8	0.1		0
2	.6						0	128	4.2	0		0
3	.2						0	69	3.5	0		0
4	.1						0	656	2.8	0		0
5	0						0	367	2.4	0		0
6	0						0	102	263	0		0
7	0						0	51	1,490	0		0
8	0						0	36	185	0		0
9	0						0	29	60	0		0
10	0						0	25	33	0		0
11	0						0	21	24	0		0
12	0						0	19	22	0		0
13	0						0	17	15	0		0
14	0						0	16	13	0		0
15	0						0	14	10	0		0
16	0						0	15	7.6	0		0
17	0						0	14	6.3	0		0
18	0						0	12	5.1	0		8.1
19	0						2,640	74	4.2	0		11
20	0						253	280	3.8	0		7.8
21	0						71	56	3.2	0		1.5
22	0						45	31	3.1	0		.1
23	0						984	23	3.6	0		0
24	0						9,470	16	2.8	0		0
25	0						347	13	1.9	0		0
26	0						103	12	1.5	0		0
27	0						50	10	1.3	0		0
28	0						4,260	9.8	.9	0		0
29	0						4,560	8.0	.6	0		0
30	0						713	6.5	.4	0		0
31	0						-	5.6	-	0		-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1.8	0.9	0	0.06	3.6
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	20,816.4	6,700	0	56.9	41,300
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	23,496	9,470	0	783	46,600
May	2,418.9	656	5.6	78.0	4,800
June	2,179.0	1,490	.4	72.6	4,320
July	.1	.1	0	.003	.2
August	0	0	0	0	0
September	28.5	11	0	.95	57
Water year 1948-49	28,124.3	9,470	0	77.1	55,780

Peak discharge (base, 1,700 sec.-ft.).- Apr. 19 (4:30 a.m.) 9,080 sec.-ft.; Apr. 23 (3 a.m.) 1,720 sec.-ft.; Apr. 24 (7:30 a.m.) 31,400 sec.-ft.; Apr. 28 (3 p.m.) 9,480 sec.-ft.; May 4 (12:30 p.m.) 2,320 sec.-ft.; June 7 (7:30 a.m.) 4,560 sec.-ft.

Spring Creek near Tankersly, Tex.

Location.- Water-stage recorder and concrete control, lat. 31°21'30", long. 100°32'05", 2¾ miles upstream from mouth and 6½ miles east of Tankersly, Tom Green County. Datum of gage is 1,874.6 feet above mean sea level, datum of 1929.

Drainage area.- 734 square miles.

Records available.- February 1930 to September 1949.

Average discharge.- 19 years, 37.4 second-feet.

Extremes.- Maximum discharge during year, 9,950 second-feet Apr. 28 (gage height, 14.33 feet); minimum, 0.1 second-foot at times.
1930-49: Maximum discharge, 26,900 second-feet Aug. 23, 1942 (gage height, 21.37 feet), from rating curve extended above 18,000 second-feet; no flow at times.
Maximum stage known, about 26.0 feet in 1882, from information by local residents.

Remarks.- Records fair. Several small divserions above station for irrigation.

Revisions (water years).- W 928: 1936.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.1	1.7	1.6	1.1	7.4	21	2.6	•75	6.5	2.0	0.3	6.9
2	1.6	1.6	1.7	1.2	7.4	21	2.5	65	5.6	1.8	.3	.5
3	1.5	1.7	1.7	1.2	7.4	21	2.3	59	4.4	1.7	.3	.3
4	1.5	1.7	1.8	1.2	7.4	21	2.1	1,010	3.4	1.6	.3	.3
5	1.4	2.2	1.8	1.1	7.4	20	2.0	357	2.9	1.6	.3	.2
6	1.4	1.6	1.8	1.1	7.4	18	1.8	101	4.6	1.6	.3	.2
7	1.3	1.7	2.6	1.2	6.9	13	1.8	69	651	1.4	.3	.1
8	1.2	1.6	2.5	1.4	5.9	10	1.6	65	105	1.3	.3	5.1
9	1.2	1.6	1.8	1.6	27	9.0	1.5	58	97	1.3	.3	1.3
10	1.2	1.5	1.6	1.5	29	7.2	1.4	55	36	1.2	.3	.2
11	1.2	1.5	1.5	1.5	29	6.5	1.6	52	34	1.2	.3	.1
12	1.1	1.5	1.2	1.5	30	6.7	1.6	46	46	1.1	.2	.1
13	1.1	1.5	1.2	1.6	31	6.7	1.8	46	23	1.1	.1	.1
14	1.0	1.5	1.2	1.8	31	6.1	1.5	46	36	1.2	.1	.1
15	1.0	1.5	1.1	2.2	31	5.1	1.0	42	36	1.0	.2	22
16	.9	1.4	1.1	2.3	26	4.4	.9	42	26	5.6	.3	27
17	639	1.4	1.0	2.2	23	4.2	.9	21	14	4.8	.3	5.1
18	73	1.4	1.1	2.5	23	3.7	1.0	44	8.8	3.4	.1	4.4
19	32	1.5	1.1	2.3	21	4.1	560	39	8.3	2.3	.1	4.8
20	15	2.0	1.1	2.3	17	2.3	57	34	7.4	1.7	.1	4.8
21	8.3	1.8	1.0	2.6	16	155	14	22	6.7	1.3	.1	4.6
22	6.1	2.0	1.0	2.8	18	46	21	18	6.5	.9	.1	4.2
23	4.4	2.6	1.1	3.4	50	12	72	16	6.5	.9	.1	3.9
24	3.9	2.6	1.2	3.1	47	7.2	1,510	14	4.1	.9	.1	3.7
25	3.4	2.3	1.1	3.2	44	15	106	10	3.2	.8	.1	3.5
26	3.1	1.8	1.1	3.4	34	17	46	11	2.9	.6	.1	3.2
27	2.6	1.5	1.1	4.2	25	14	30	10	2.5	.6	.1	3.1
28	2.2	1.4	1.1	5.0	19	12	5,590	8.8	2.3	.5	.1	2.9
29	2.0	1.4	1.2	5.3	-	9.8	520	7.6	2.2	.5	.1	2.8
30	1.7	1.5	1.2	5.9	-	6.0	119	6.9	2.1	.5	.1	2.5
31	1.8	-	1.1	6.9	-	2.9	-	6.3	-	.4	24	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	822.2	639	0.9	26.5	1,630
November	51.0	2.6	1.4	1.70	101
December	42.7	2.6	1.0	1.38	85
Calendar year 1948	8,680.9	2,460	0	23.7	17,220
January	78.6	6.9	1.1	2.54	156
February	628.2	50	5.9	22.4	1,250
March	508.0	155	2.3	16.4	1,010
April	8,674.9	5,590	.9	289	17,210
May	2,476.6	1,010	6.3	79.9	4,910
June	1,194.9	651	2.1	39.8	2,370
July	46.8	5.6	.4	1.51	93
August	29.8	24	.1	.96	59
September	118.0	27	.1	3.93	234
Water year 1948-49	14,671.7	5,590	.1	40.2	29,110

Peak discharge (base, 300 sec.-ft.).- Oct. 17 (5:30 a.m.) 2,880 sec.-ft.; Mar. 21 (8 a.m.) 324 sec.-ft.; Apr. 19 (10:30 a.m.) 1,910 sec.-ft.; Apr. 24 (5:30 a.m.) 6,710 sec.-ft.; Apr. 28 (5:30p.m.) 9,950 sec.-ft.; May 4 (7 p.m.) 2,960 sec.-ft.; June 7 (12 m.) 2,960 sec.-ft.

Note.- No gage-height record Oct. 1-27, Nov. 20-26, June 7-26, July 27-29, July 31 to Aug. 1, Aug. 25 to Sept. 30; discharge computed on basis of recorded range in stage, occasional readings of outside gage, and weather records.

Dove Creek near Knickerbocker, Tex.

Location.- Water-stage recorder, lat. 31°12', long. 100°41', in Irion County, upstream from Knickerbocker-Rawls ranch road crossing, a quarter of a mile downstream from Stilson diversion dam, three-quarters of a mile upstream from Kepler Creek, 2 miles downstream from Dove Creek Spring, and 7 miles southwest of Knickerbocker, Tom Green County

Records available.- November 1944 to March 1949 (discontinued)

Extremes.- Maximum gage height during period October 1948 to March 1949 not determined; minimum discharge, 0.1 second-foot Oct. 2-4, 9-15, Mar. 5-15.
1944-49: Maximum gage height not determined; no flow at times.

Remarks.- Records fair except those for period of no gage-height record, which are poor. As the primary purpose of this station is to measure low or spring flow, discharge not computed for flows greater than about 15 second-feet. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	2.7	3.1	2.4	6.4	8.2						
2	.1	.4	.4	.4	5.5	8.2						
3	.1	.4	.3	.4	5.5	8.5						
4	.1	.4	.3	.4	5.5	8.5						
5	.2	.4	.3	.4	5.5	3.4						
6	.2	.4	.3	.3	5.5	.1						
7	.2	.4	.3	.3	5.7	.1						
8	.2	.4	.3	.4	5.9	.1						
9	.2	.4	.3	.4	5.9	.1						
10	.1	.4	.3	.3	5.9	.1						
11	.1	.4	.3	.3	6.2	.1						
12	.1	.4	a.3	.3	6.2	.1						
13	.1	.4	a.3	.3	6.2	.1						
14	.1	.4	a.3	.3	6.2	.1						
15	6.0	7.1	a5.5	5.4	6.2	3.7						
16	(e)	7.7	a6.7	6.9	6.4	9.3						
17	(e)	7.7	a6.7	6.9	6.7	9.3						
18	10	7.4	a6.7	7.2	6.7	9.3						
19	9.3	7.4	a6.7	6.9	6.7	9.3						
20	9.6	7.7	5.3	6.9	6.7	(e)						
21	9.6	7.7	5.9	7.4	6.7	(e)						
22	9.8	7.9	6.4	7.7	6.7	11						
23	9.8	7.9	5.7	7.2	7.9	11						
24	9.8	7.9	5.7	6.9	7.9	12						
25	9.8	7.9	5.9	7.2	7.7	12						
26	9.8	7.9	5.9	6.9	6.9	12						
27	9.8	7.7	6.2	7.2	7.2	12						
28	9.8	7.7	6.2	6.9	7.7	12						
29	9.6	7.7	6.4	6.9	-	-						
30	9.6	7.7	6.7	6.9	-	-						
31	9.6	-	6.9	6.9	-	-						

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	-	-	0.1	-	-
November	130.9	7.9	.4	4.36	260
December	112.6	6.9	.3	3.63	223
Calendar year	-	-	-	-	-
January	125.2	7.7	.3	4.04	248
February	180.2	7.9	5.5	6.44	357
March 1-28	-	-	.1	-	-
April	-	-	-	-	-
May	-	-	-	-	-
June	-	-	-	-	-
July	-	-	-	-	-
August	-	-	-	-	-
September	-	-	-	-	-
Water year	-	-	-	-	-

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and information by local residents.
e Stage above limits of rating; discharge not determined.

Dove Creek Spring near Knickerbocker, Tex.

Location.- Staff gage, lat. 31°11', long. 100°44', at W. G. Rawls ranch house, 200 feet downstream from spring, 300 feet upstream from confluence with Dove Creek, 1¾ miles upstream from Stilson Dam, and about 8½ miles southwest of Knickerbocker, Tom Green County.

Records available.- April 1944 to September 1949 (discharge measurements only).

Extremes.- Maximum discharge measured during year, 10.8 second-feet Sept. 20; minimum measured, 6.97 second-feet Feb. 2.
1944-49: Maximum discharge measured, 17.2 second-feet Aug. 23, 1944; minimum measured, 6.37 second-feet Apr. 20, 1948.

Remarks.- Discharge measurements represent total flow of springs. Flow emerges from limestone outcrop at left bank of draw that extends upstream for about 1 mile, and responds to rainfall on Edwards Plateau. Water used for irrigation below station.

Discharge measurements, in second-feet, of Dove Creek Spring near Knickerbocker, Tex., 1948-49

Date	Discharge (sec.-ft.)	Date	Discharge (sec.-ft.)
Oct. 27.....	9.60	Apr. 14.....	8.59
Dec. 12.....	7.20	June 2.....	10.3
Feb. 2.....	6.97	July 1.....	9.32
Mar. 9.....	8.90	Aug. 6.....	8.70
		Sept.20.....	10.8

North Concho River at Sterling City, Tex.

Location.- Water-stage recorder and concrete control, lat. 31°50', long. 100°59', at county highway bridge, 0.3 mile south of Sterling City, Sterling County, and 4 miles upstream from Sterling Creek. Datum of gage is 2,242.4 feet above mean sea level, datum of 1929.

Drainage area.- 690 square miles, of which 75 square miles is probably noncontributing.

Records available.- September 1939 to September 1949.

Average discharge.- 10 years, 14.1 second-feet.

Extremes.- Maximum discharge during year, 6,100 second-feet Apr. 19 (gage height, 18.89 feet), from rating curve extended above 2,800 second-feet on basis of slope-area determination at gage height 23.52 feet; no flow at times.

1939-49: Maximum discharge, 26,000 second-feet July 6, 1948 (gage height, 23.70 feet), from rating curve extended above 2,800 second-feet on basis of slope-area determination at gage height 23.52 feet; no flow at times.

Maximum stage known prior to 1939, 22.4 feet May 6, 1891, from information by local resident.

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

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used June 13-23)

1.86	0	2.3	2.5	2.7	16	3.5	54	7.0	309	10.0	670
2.0	.2	2.4	4.5	2.8	20	4.0	81	8.0	404	12.0	980
2.1	.6	2.5	7.6	3.0	30	5.0	148	8.5	460	12.5	1,070
2.2	1.2	2.6	11	3.2	40	6.0	226	9.0	526	13.0	1,210

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0.5	0.8	0.1	4.2	4.2	1.5	0	0
2				0	.7	.8	.1	3.2	3.4	1.4	0	0
3				0	.7	.8	.1	2.9	2.9	1.3	0	0
4				0	.4	.8	.1	3.2	2.5	1.2	0	0
5				0	.3	.8	.1	3.2	2.2	1.1	0	0
6				0	.3	.8	.1	13	3.0	1.0	0	0
7				0	.4	.7	.3	72	5.1	1.0	.3	0
8				0	.7	.6	.3	1,120	72	1.1	.2	0
9				0	.6	.6	.1	62	251	1.1	.1	0
10				0	.5	.6	.1	14	62	1.0	0	0
11				0	.4	.6	.1	9.0	441	1.1	0	0
12				.9	.3	.6	.2	6.6	60	.9	0	0
13				.8	.6	.6	.2	5.1	15	1.0	0	0
14				.6	.6	.6	.3	4.0	6.9	.7	0	0
15				.5	.6	.6	.2	3.8	4.8	.9	0	0
16				.5	.6	.6	.1	855	3.8	.8	0	0
17				.6	.5	.6	0	1,070	3.4	.6	0	0
18				.4	.4	.7	.3	80	3.0	.5	0	0
19				.3	.5	.7	1,340	17	2.7	.2	0	0
20				.3	.5	.6	420	11	2.5	.2	0	0
21				.3	.5	.7	30	8.3	2.4	.2	0	.6
22				.5	.6	.6	15	6.6	2.4	.2	0	.1
23				3.2	1.1	.6	16	6.0	16	.3	0	0
24				2.0	1.6	5.7	198	5.4	9.0	.2	0	0
25				1.0	1.4	2.5	9.7	4.2	4.8	.2	0	0
26				.7	1.3	.4	4.2	4.2	3.0	.1	0	0
27				.6	1.0	.2	3.8	4.2	2.2	.1	0	0
28				.7	.8	.1	336	4.0	2.0	.1	0	0
29				.6	-	.1	20	52	1.9	0	0	0
30				.5	-	.1	6.9	12	1.6	0	0	0
31				.4	-	.1	-	6.6	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	0	0	0	0	0
November.....	0	0	0	0	0
December.....	0	0	0	0	0
Calendar year 1948.....	18,094.5	12,700	0	49.4	35,890
January.....	15.4	3.2	0	.50	31
February.....	18.4	1.6	.3	.66	36
March.....	24.6	5.7	.1	.79	49
April.....	2,402.4	1,340	0	80.1	4,770
May.....	2,472.7	1,120	2.9	112	6,890
June.....	996.7	441	1.6	33.2	1,980
July.....	20.0	1.5	0	.65	40
August.....	.6	.3	0	.02	1.2
September.....	.7	.6	0	.02	1.4
Water year 1948-49.....	6,951.5	1,340	0	19.0	13,800

Peak discharge (base, 300 sec.-ft.).- Apr. 19 (11 a.m.) 6,100 sec.-ft.; Apr. 20 (3:30 a.m.) 1,410 sec.-ft.; Apr. 24 (4 a.m.) 670 sec.-ft.; Apr. 28 (9 a.m.) 1,120 sec.-ft.; May 8 (11:30 a.m.) 2,800 sec.-ft.; May 16 (11:30 p.m.) 3,400 sec.-ft.; June 9 (6 a.m.) 540 sec.-ft.; June 11 (2:30 a.m.) 1,070 sec.-ft.

Note.- No gage-height record July 25 to Aug. 9; discharge computed on basis of recorded range in stage and records for station near Carlsbad.

North Concho River near Carlsbad, Tex.

Location.- Water-stage recorder above spillway of State Sanatorium Dam, lat. 31°36', long. 100°40', 2 miles upstream from Carlsbad, Tom Green County. Datum of gage is 2,000.8 feet above mean sea level, datum of 1929.

Drainage area.- 1,529 square miles, of which 123 square miles is probably noncontributing.

Records available.- March 1924 to September 1949.

Average discharge.- 25 years, 52.2 second-feet.

Extremes.- Maximum discharge during year, 14,000 second-feet Apr. 19 (gage height, 11.30 feet), from rating curve extended above 5,000 second-feet on basis of slope-area determinations at gage heights 11.5, 14.45, and 16.0 feet; minimum, 0.1 second-foot Oct. 20. 1924-49: Maximum discharge, 94,600 second-feet Sept. 26, 1936 (gage height, 16.0 feet, from highest floodmarks known), by slope-area method; no flow at times.

Remarks.- Records good. Diversions by pumping above station affect low flow (combined capacity of pumps, 40 second-feet). Low flow partly regulated by small reservoir above station.

Revisions (water year).- W 748: 1930(M).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a3.0	1.3	1.5	3.0	3.1	4.4	2.9	27	19	6.4	0.8	0.2
2	a2.6	1.0	1.3	3.0	3.1	4.4	2.9	20	15	6.3	.7	.2
3	a2.2	.9	2.1	2.6	2.7	3.9	3.3	16	13	5.8	.7	.2
4	a1.9	.8	2.1	2.6	2.7	3.8	3.3	16	12	5.6	.7	.2
5	a1.6	.6	1.5	2.6	2.7	3.8	3.3	15	11	5.1	.7	.2
6	a1.2	.4	1.9	2.6	2.7	3.8	2.9	13	34	4.6	.7	.2
7	.9	.4	1.9	3.0	2.7	3.8	2.5	12	135	4.6	.9	.2
8	.9	1.0	1.9	3.0	2.7	3.7	2.9	1,160	96	4.1	1.2	.2
9	1.3	1.2	1.9	3.4	2.7	3.3	2.9	453	173	4.1	6.7	.2
10	4.6	1.3	1.9	3.4	2.7	3.3	2.9	58	94	3.7	6.1	.2
11	3.4	1.3	1.9	4.0	2.7	3.3	2.5	32	566	3.7	2.9	.2
12	1.3	1.5	1.9	4.0	2.7	3.7	2.9	21	111	3.6	1.8	.2
13	1.0	2.1	2.3	4.0	3.1	3.6	2.9	17	55	3.3	1.4	.2
14	.8	2.5	2.3	4.0	6.1	3.6	2.9	15	57	3.5	1.0	.2
15	.6	2.9	2.3	4.0	4.2	3.6	2.9	12	36	3.7	.9	.6
16	.5	2.9	2.8	4.0	3.3	3.6	2.9	1,190	22	3.7	1.2	1.1
17	.3	2.9	2.8	4.0	3.3	3.6	2.5	1,530	16	3.3	1.2	1.1
18	.2	1.8	2.8	4.0	3.3	3.5	123	293	14	2.8	.9	.9
19	.2	1.8	2.8	4.0	3.3	3.5	6,220	1,080	13	2.6	.8	.7
20	.1	2.1	2.8	4.0	3.3	3.5	1,340	95	12	2.4	.6	.6
21	.3	2.1	2.9	4.0	3.7	3.5	145	42	11	2.2	.5	.5
22	.8	2.1	2.9	4.6	4.2	3.5	53	28	11	2.0	.5	.5
23	1.1	2.1	2.9	5.2	4.2	3.4	36	19	11	1.9	.4	.4
24	1.2	2.1	2.9	5.2	4.9	3.4	1,700	16	9.2	1.8	.3	.3
25	1.1	2.1	2.9	4.6	5.6	3.4	176	14	14	1.5	.2	.3
26	.9	2.1	3.0	4.6	5.6	3.0	52	15	12	1.4	.2	.3
27	.9	2.5	3.0	4.6	7.0	2.9	28	13	9.2	1.2	.2	.3
28	.9	1.5	3.0	4.0	5.0	2.9	378	63	8.4	1.2	.2	.3
29	1.0	2.1	3.0	4.0	-	2.9	157	15	7.7	1.1	.2	.2
30	1.2	2.1	2.6	4.0	-	2.5	45	32	7.0	1.1	.2	.2
31	1.3	-	3.0	3.5	-	2.9	-	22	-	.9	.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	39.3	4.6	0.1	1.27	78
November	51.5	2.9	.4	1.72	102
December	74.8	3.0	1.3	2.41	148
Calendar year 1948	40,211.1	17,900	.1	110	79,760
January	117.5	5.2	2.6	3.79	233
February	103.3	7.0	2.7	3.69	205
March	108.0	4.4	2.5	3.48	214
April	10,502.3	6,220	2.5	350	20,830
May	6,354	1,530	12	205	12,600
June	1,604.5	566	7.0	53.5	3,180
July	99.2	6.4	.9	3.20	197
August	35.0	6.7	.2	1.13	69
September	11.1	1.1	.2	.37	22
Water year 1948-49	19,100.5	6,220	.1	52.3	37,880

Peak discharge (base, 1,500 sec.-ft.).- Apr. 18 (12 p.m.) 4,300 sec.-ft.; Apr. 19 (9 a.m.) 14,000 sec.-ft.; Apr. 24 (7:30 a.m.) 4,870 sec.-ft.; May 8 (1 p.m.) 2,460 sec.-ft.; May 8 (11 p.m.) 2,140 sec.-ft.; May 16 (3:30 p.m.) 3,320 sec.-ft.; May 17 (11:30 a.m.) 2,800 sec.-ft.; May 19 (4 a.m.) 2,070 sec.-ft.

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

Note.- Water below crest of control Aug. 26 to Sept. 13; discharge is estimated seepage under dam.

North Concho River at San Angelo, Tex.

Location.- Water-stage recorder above concrete dam, lat. 31°27'56", long. 100°26'51", at Sixth Street Bridge in San Angelo, Tom Green County, 3¼ miles upstream from confluence with South Concho River. Datum of gage is 1,813.4 feet above mean sea level, datum of 1929.

Drainage area.- 1,795 square miles, of which 123 square miles is probably noncontributing.

Records available.- October 1915 to September 1931, July 1947 to September 1949.

Average discharge.- 15 years (1916-27, 1929-31, 1947-49), 60.4 second-feet.

Extremes.- Maximum discharge during year, 16,100 second-feet Apr. 19 (gage height, 11.15 feet); no flow at times.

1915-31, 1947-49: Maximum discharge, about 47,000 second-feet June 13, 1930 (gage height, 22.52 feet, site and datum then in use); no flow at times.

Flood of Sept. 17, 1936, reached a stage of 34.6 feet, from floodmarks (discharge, 184,000 second-feet, by slope-area method).

Remarks.- Records good. Diversions above station for irrigation.

Revisions (water years).- W 568: 1916-22.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-9, Feb. 17 to Mar. 19, May 22-26)

0.36	0	2.0	4.5	2.6	230	4.0	2,130
.5	.1	2.1	13	2.8	380	4.5	3,200
.6	.4	2.2	44	3.0	570	5.0	4,300
.7	.9	2.3	82	3.2	790	6.0	6,450
.8	1.7	2.4	122	3.4	1,050		
1.9	2.8	2.5	170	3.6	1,370		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.1	0.2	0	1.9	4.3	4.5	1.7	46	29	4.2	0	2.8
2	3.0	.2	0	2.1	4.3	4.8	1.8	36	19	2.7	0	.4
3	2.6	.1	0	2.3	4.1	4.8	1.8	36	15	2.6	0	.1
4	2.1	.1	0	2.1	4.1	4.3	1.9	154	15	3.1	0	0
5	1.6	0	0	2.0	3.7	3.9	1.9	52	13	3.1	0	0
6	1.1	0	.1	1.9	3.4	3.7	1.9	36	28	3.4	0	0
7	.7	0	.1	2.0	3.2	3.4	2.0	29	42	1.9	0	0
8	.7	0	.1	2.0	3.2	3.2	2.0	919	164	1.2	0	0
9	1.8	0	.2	2.1	3.1	2.9	2.0	1,010	65	.9	0	0
10	2.1	0	.2	2.3	2.8	2.8	1.9	124	206	.7	0	0
11	1.4	0	.3	3.2	2.7	2.6	1.8	71	449	.4	0	0
12	1.1	0	.3	3.2	2.7	2.8	1.8	48	277	.2	0	0
13	.8	0	.4	3.7	2.7	2.7	2.0	40	90	.1	0	0
14	.7	0	.5	3.9	2.9	2.4	2.0	33	55	0	0	0
15	.5	.4	.6	4.1	2.9	2.2	1.5	29	67	0	0	0
16	4	.6	1.0	3.5	3.1	2.2	1.7	1,480	40	0	.7	.4
17	.2	.4	1.5	3.5	4.1	2.2	1.5	1,780	33	0	2.3	.4
18	1	.2	2.1	3.5	4.1	2.1	43	504	25	0	.4	.1
19	.1	.1	3.2	3.2	3.4	2.1	7,320	1,080	5.8	0	.1	0
20	.1	0	2.7	3.2	3.1	17	2,150	256	1.5	0	0	0
21	.3	0	1.4	3.1	3.1	9.2	312	77	17	0	0	0
22	.4	0	.9	4.0	3.1	7.0	91	67	11	0	0	0
23	.4	0	1.2	5.1	4.3	5.6	406	52	17	0	0	0
24	.3	0	1.4	5.1	4.3	3.8	3,570	40	11	0	0	0
25	.2	0	1.8	5.1	5.1	3.2	549	33	9.2	0	0	0
26	.2	0	2.3	6.0	5.5	2.9	100	33	9.2	0	0	0
27	.2	0	2.2	6.0	5.1	2.6	54	37	11	0	0	0
28	.2	.1	2.2	5.1	4.8	2.3	246	248	8.1	0	0	0
29	.2	.1	2.0	4.3	-	2.1	502	45	7.2	0	0	0
30	.2	0	1.9	4.3	-	1.9	106	25	6.0	0	0	0
31	.2	-	1.9	4.3	-	1.8	-	36	-	0	2.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	28.0	4.1	0.1	0.90	56
November	2.5	.6	0	.08	5.0
December	32.5	3.2	0	1.05	64
Calendar year 1948	41,932.8	21,900	0	115	83,170
January	108.1	6.0	1.9	3.49	214
February	103.2	5.5	2.7	3.69	205
March	119.0	17	1.8	3.84	236
April	15,480.2	7,320	1.5	516	30,700
May	8,456	1,780	25	273	16,770
June	1,746.0	449	1.5	58.2	3,460
July	24.5	4.2	0	.79	49
August	5.6	2.3	0	.18	11
September	4.2	2.8	0	.14	8.3
Water year 1948-49	26,109.8	7,320	0	71.5	51,780

Peak discharge (base, 900 sec.-ft.).- Apr. 19 (12:30 p.m.) 16,100 sec.-ft.; Apr. 23 (4:30 a.m.) 2,340 sec.-ft.; Apr. 24 (2 a.m.) 5,660 sec.-ft.; Apr. 29 (1 a.m.) 2,240 sec.-ft.; May 8 (2 p.m.) 3,750 sec.-ft.; May 16 (6 p.m.) 6,060 sec.-ft.; May 19 (6:30 p.m.) 1,910 sec.-ft.; May 28 (4:30 a.m.) 1,120 sec.-ft.

Brownwood Reservoir near Brownwood, Tex.

Location.- Water-stage recorder, lat. 31°50', long. 99°00', at outlet structure for irrigation canal, just upstream from right end of dam on Pecan Bayou, a quarter of a mile downstream from Jim Ned Creek, and 8 miles north of Brownwood, Brown County. Datum of gage is 0.5 foot below mean sea level, datum of 1929.

Drainage area.- 1,535 square miles.

Records available.- July 1933 to May 1941, November 1944 to September 1949.

Extremes.- Maximum contents observed during year, 161,200 acre-feet May 16 (gage height, 1,426.6 feet); minimum, 111,800 acre-feet Jan. 11, 12 (gage height, 1,419.4 feet).
1933-41, 1944-49: Maximum contents observed, 185,400 acre-feet Sept. 10, 1935 (gage height, 1,429.4 feet); minimum observed, 11,900 acre-feet July 15, 1934 (gage height, 1,389.5 feet).

Remarks.- Reservoir first filled during flood of July 3, 4, 1932. Dam completed in 1933 and operation began July 1933. Total capacity, 149,600 acre-feet (gage height, 1,425.1 feet, crest of emergency spillway). Reservoir is formed by earth-fill dam, 1,580 feet long. Uncontrolled emergency spillway consisting of broad-crested weir 476 feet long located 800 feet to left of dam. Reservoir can be drained by two 12-foot (horseshoe-shaped) reinforced concrete conduits with bottom of invert at gage height 1,330.0 feet. Water for irrigation, municipal, and industrial use can be withdrawn through a 5-foot circular concrete conduit with bottom at gage height 1,408.0 feet. Water used for irrigation, municipal, and industrial supply for city of Brownwood.

Cooperation.- Record of daily gage height furnished by Brown County Water Improvement District. Capacity table furnished by Corps of Engineers.

Monthly gage height and contents, water year October 1948 to September 1949

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	1,420.9	120,600	-
Oct. 31	1,420.7	119,400	-1,200
Nov. 30	1,420.0	115,200	-4,200
Dec. 31	1,419.6	113,000	-2,200
Calendar year 1948	-	-	-20,000
Jan. 31	1,419.7	113,500	+500
Feb. 28	1,420.4	117,600	+4,100
Mar. 31	1,421.2	122,500	+4,900
Apr. 30	1,423.3	136,500	-14,000
May 31	1,424.9	148,100	-11,600
June 30	1,424.6	145,900	-2,200
July 31	1,422.6	131,700	-14,200
Aug. 31	1,422.4	130,300	-1,400
Sept. 30	1,421.8	126,300	-4,000
Water year 1948-49	-	-	+5,700

† Gage height at 12 p.m.

Pecan Bayou at Brownwood, Tex.

Location.- Water-stage recorder above spillway of city dam, lat. 31°44'10", long. 98°58'30", at Gulf, Colorado & Santa Fe Railway bridge, 1 mile north of Brownwood, Brown County, 6 miles downstream from Salt Creek, and 10 miles downstream from Brownwood Reservoir. Datum of gage is 1,318.58 feet above mean sea level, datum of 1929.

Drainage area.- 1,614 square miles.

Records available.- May 1917 to June 1918, October 1923 to September 1949.

Average discharge.- 24 years (1924-28, 1929-49), 185 second-feet.

Extremes.- Maximum discharge during year, 8,780 second-feet May 17 (gage height, 10.36 feet); no flow at times.

1917-18, 1923-49: Maximum discharge, 52,700 second-feet Oct. 14, 1930 (gage height, 16.92 feet), from rating curve extended above 38,000 second-feet; no flow at times.

Maximum stage known, 21.7 feet in September, 1900, from information by Gulf, Colorado & Santa Fe Railway Co. Flood of July 3, 1932, probably the greatest known, reached a discharge of about 235,000 second-feet as it entered Brownwood Reservoir (computed from rate of change of contents in reservoir; data furnished by engineers of Brown County Water Improvement District No. 1).

Remarks.- Records poor except those above 100 second-feet, which are fair. Stage-discharge relation for low flows affected by occasional accumulation of drift on dam. Flow regulated by Brownwood Reservoir (see preceding page). Water is diverted at Brownwood Reservoir, 10 miles upstream, for irrigation and for municipal supply of city of Brownwood. Irrigation canal completed Apr. 9, 1939. According to records furnished the State Board of Water Engineers by the Brown County Water Improvement District No. 1, 2 2,621 acres were irrigated during year.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.1	0	a1.3	0.9	0	143	147	158	0.6	0
2		0	.1	0	a1.3	.9	0	143	147	168	.4	0
3		0	.1	0	a1.3	.9	0	147	152	174	.1	0
4		0	.1	0	a1.3	1.3	.2	152	152	174	0	0
5		0	.1	0	a1.3	1.3	.4	152	152	147	0	0
6		0	.1	0	a1.3	.9	.6	143	158	152	0	0
7		0	.1	0	a.9	.6	.4	143	145	152	0	0
8		0	.1	0	.6	.6	.2	253	125	152	0	0
9		0	.1	0	.6	1.3	.2	152	14	158	0	0
10		0	.1	0	.4	.6	.2	152	3.7	158	0	0
11		0	.1	0	.6	.4	.1	147	3.7	32	0	0
12		0	.1	0	.9	.6	.1	143	2.8	7.4	0	0
13		0	.1	0	1.3	.9	0	143	1.9	7.4	0	0
14		0	.1	0	.6	.9	0	152	6.1	4.7	0	0
15		0	.1	0	.4	.9	.1	158	8.9	10	0	0
16		0	.1	3.7	.6	.9	.1	1,170	3.7	154	0	.2
17		0	.1	3.7	.6	.9	0	4,160	4.7	152	0	.1
18		.1	0	1.3	.9	.9	0	1,970	1.9	158	0	0
19		.1	0	.9	1.3	.6	203	1,240	.9	158	0	0
20		.1	0	.6	1.9	.9	294	810	.9	158	0	0
21		.1	0	.6	1.3	491	5.8	556	.6	158	0	0
22		.1	0	1.3	1.9	6.7	1.3	396	.9	158	0	0
23		.1	0	2.8	39	.4	1.9	273	306	168	.2	0
24		.1	0	88	116	.4	2.8	207	26	180	.6	0
25		.1	0	22	7.4	.2	85	168	238	185	.2	0
26		.1	0	4.7	7.4	22	142	381	158	180	0	0
27		.1	0	6.6	2.8	1.3	2.8	317	152	28	0	0
28		.1	0	13	1.3	.4	196	249	152	4.7	0	0
29		.1	0	a3.7	-	.2	14	190	152	3.7	0	0
30		.1	0	a2.8	-	.2	5.5	168	158	3.7	0	0
31		-	0	a1.9	-	0	-	152	-	1.9	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	1.3	.1	0	.04	2.6
December	1.7	.1	0	.05	3.4
Calendar year 1948	2,777.4	346	0	7.59	5,510
January	157.6	88	0	5.08	313
February	196.5	116	.4	7.02	390
March	540.0	491	0	17.4	1,070
April	956.7	294	0	31.9	1,900
May	14,730	4,160	143	475	29,220
June	2,574.7	306	.6	85.8	5,110
July	3,505.5	185	1.9	113	6,950
August	2.1	.6	0	.07	4.2
September	.3	.2	0	.01	.6
Water year 1948-49	22,666.4	4,160	0	62.1	44,960

a No gage-height record; discharge computed on basis of recorded range in stage.
Note.- Stage below crest of dam Nov. 18 to Dec. 17; discharge is estimated seepage through dam.

Hords Creek Reservoir near Valera, Tex.

Location.- Water-stage recorder and wire-weight gage, lat. 31°50'00", long. 99°33'35", at Hords Creek Dam on Hords Creek, 5.3 miles northwest of Valera, Coleman County, and 8.8 miles west of Coleman. Datum of gage is at mean sea level, datum of 1929.

Drainage area.- 48 square miles.

Records available.- April 1948 to September 1949.

Extremes.- Maximum contents during year, 4,080 acre-feet Aug. 9, 10 (elevation, 1,888.1 feet); minimum observed, 1,220 acre-feet Oct. 8, 9 (elevation, 1,873.4 feet).
1948-49: Maximum contents, that of Aug. 9, 10, 1949; minimum since first appreciable storage, that of Oct. 8, 9, 1948.

Remarks.- Reservoir is formed by a rolled-fill earthen type dam 6,284 feet long; gates closed Apr. 7, 1948; dam completed June 10, 1948. Reservoir is operated for flood control and municipal supply for city of Coleman.
Outlet works consists of three concrete conduits, two of which are controlled by Pekrul slide gates at elevation 1,856.0 feet. The third conduit (service spillway) is uncontrolled. In addition, there is a 500-foot emergency earthen spillway located to the right of the dam. Capacity, 25,310 acre-feet at elevation 1,920.0 feet (top of emergency spillway) and 8,635 acre-feet at elevation 1,900.0 feet (top of service spillway). Water can be withdrawn for municipal use down to elevation 1,876.5 feet. Dead storage is negligible.

Monthly elevation and contents, water year October 1948 to September 1949

Date	Elevation (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	1,873.6	1,250	-
Oct. 31	1,874.2	1,340	+90
Nov. 30	1,873.8	1,280	-60
Dec. 31	1,873.6	1,250	-30
Calendar year 1948	-	-	-
Jan. 31	1,873.9	1,290	+40
Feb. 28	1,874.1	1,320	+30
Mar. 31	1,874.5	1,380	+60
Apr. 30	1,879.1	2,120	+740
May 31	1,887.3	3,870	+1,750
June 30	1,887.2	3,840	-30
July 31	1,886.4	3,630	-210
Aug. 31	1,887.6	3,950	+320
Sept. 30	1,887.0	3,790	-160
Water year 1948-49	-	-	+2,540

† Elevation at 8 a.m. October to March; at 12 p.m. thereafter.

San Saba River at Menard, Tex.

Location.- Water-stage recorder, lat. 30°55', long. 99°47', at bridge on U. S. Highway 83 in Menard, Menard County, 0.7 mile downstream from Las Moras Creek. Datum of gage is 1,863.05 feet above mean sea level, datum of 1929.

Drainage area.- 1,151 square miles.

Records available.- September 1915 to September 1949.

Average discharge.- 34 years, 69.8 second-feet.

Extremes.- Maximum discharge during year, 6,310 second-feet Apr. 19 (gage height, 11.44 feet); minimum, 1.0 second-foot Aug. 4, 5.

1915-49: Maximum discharge, 117,000 second-feet July 23, 1938 (gage height, 22.2 feet, present site and datum, from floodmark), from rating curve extended above 60,000 second-feet on basis of slope-area determinations at gage heights 21.0 and 22.2 feet; no flow at times caused by diversions to Noyes Canal.

Maximum stage known, 23.3 feet June 5 or 6, 1899, present site and datum, from information by local residents.

Remarks.- Records good except those for Oct. 12 to Nov. 18, which are poor. Low flow during irrigation season regulated by diversions to Noyes Canal, 4 miles above Menard. Records of the State Board of Water Engineers show permits have been granted to irrigate 3,338 acres above the station, of which 2,212 acres were irrigated in 1949 (see records for Noyes Canal at Menard).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.8	2.4	6.6	9.3	20	40	10	60	37	6.0	2.2	5.7
2	1.5	2.4	6.3	9.9	20	39	12	56	35	5.7	2.4	4.1
3	1.5	2.4	6.6	9.6	20	36	12	54	18	6.3	1.9	3.9
4	1.5	2.4	6.6	9.0	20	37	11	69	15	6.0	1.3	3.7
5	3.2	2.2	6.3	8.7	19	34	11	320	15	6.3	1.5	3.7
6	3.8	2.4	6.3	8.4	18	34	11	147	15	5.5	4.3	3.7
7	3.6	2.8	6.0	8.4	18	35	11	91	23	4.9	5.1	3.7
8	3.6	2.8	6.0	9.0	18	38	11	69	21	4.3	6.3	4.8
9	3.8	3.0	6.0	10	18	37	9.9	61	18	3.9	18	7.2
10	4.0	3.2	6.3	a11	27	33	10	56	18	3.5	13	6.6
11	4.0	3.8	6.3	a12	28	32	10	54	21	4.5	7.5	6.0
12	4.3	4.3	7.2	14	28	34	9.6	50	36	4.3	5.7	5.1
13	4.3	4.3	7.2	14	28	35	9.6	50	30	4.1	5.1	4.9
14	4.3	5.1	10	a13	28	33	8.7	52	31	6.9	5.3	5.1
15	4.6	6.3	17	a13	28	29	9.9	48	90	23	4.5	5.7
16	5.7	7.0	12	a16	27	30	11	48	58	7.2	9.0	221
17	6.0	6.0	8.1	a16	27	31	11	51	46	4.3	20	27
18	6.0	5.5	7.8	a16	28	31	14	49	35	3.7	23	11
19	5.7	5.3	9.0	16	28	31	1,990	48	19	3.1	23	15
20	5.4	5.5	9.0	16	28	32	119	48	26	2.9	23	18
21	5.4	5.5	9.6	17	28	37	54	47	35	2.4	23	11
22	5.4	5.3	11	19	29	35	44	44	35	2.2	24	10
23	4.3	6.0	10	22	36	31	60	43	30	2.1	11	9.6
24	3.6	5.5	9.6	22	40	20	47	42	21	1.8	4.9	9.3
25	2.6	5.5	9.6	24	82	11	936	40	24	2.2	3.9	9.6
26	2.2	5.3	10	30	89	10	352	47	11	2.2	3.3	9.3
27	2.2	5.7	11	28	60	9.3	124	41	9.0	1.9	3.7	8.1
28	2.0	6.3	11	24	46	9.3	242	127	8.4	2.0	5.1	6.9
29	2.2	6.3	10	20	-	9.9	120	30	7.5	2.4	4.9	6.9
30	2.4	6.3	9.0	20	-	9.9	72	22	6.9	2.2	4.9	6.3
31	2.4	-	8.7	22	-	9.3	-	37	-	1.9	5.9	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	114.3	6.0	1.5	3.69	227
November	136.8	7.0	2.2	4.56	271
December	266.1	17	6.0	8.58	528
Calendar year 1948	4,416.8	736	0	12.1	8,760
January	487.3	30	8.4	15.7	967
February	886	89	18	31.6	1,760
March	873.7	40	9.3	28.2	1,730
April	4,352.7	1,990	8.7	145	8,630
May	2,001	320	22	64.5	3,970
June	794.8	90	6.9	26.5	1,580
July	139.7	23	1.8	4.51	277
August	276.7	24	1.3	8.93	549
September	452.9	221	3.7	15.1	898
Water year 1948-49	10,782.0	1,990	1.3	29.5	21,390

Peak discharge (base, 670 sec.-ft.).- Apr. 19 (4 a.m.) 6,310 sec.-ft.; Apr. 25 (3 p.m.) 3,340 sec.-ft.; May 5 (8:30 a.m.) 708 sec.-ft.; May 28 (2:30 a.m.) 708 sec.-ft.; Sept. 16 (6:30 a.m.) 885 sec.-ft.

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

San Saba River at San Saba, Tex.

Location.- Water-stage recorder, lat. 31°12'10", long. 98°42'15", at bridge on San Saba-Chadwick Mill Highway, three-quarters of a mile northeast of San Saba, San Saba County, and 15 miles upstream from mouth. Datum of gage is 1,153.3 feet above mean sea level, datum of 1929.

Drainage area.- 3,046 square miles.

Records available.- August 1930 to September 1949. December 1904 to December 1906 and September 1915 to August 1930 at site 4½ miles upstream.

Average discharge.- 34 years (1915-49), 266 second-feet.

Extremes.- Maximum discharge during year, 6,290 second-feet Apr. 20 (gage height, 23.45 feet); minimum, 22 second-feet Aug. 3, 4 (gage height, 3.05 feet).

1904-6, 1915-49: Maximum discharge, 203,000 second-feet July 23, 1938 (gage height, 45.18 feet, from floodmarks at highest stage known), by slope-area method; no flow Aug. 9, 10, 1918, July 17-20, 31, 1930.

Maximum stage known prior to 1938, 42.6 feet June 6, 1899, from information by local resident.

Remarks.- Records good. Diversions above station for irrigation and municipal uses affect low flow.

Revisions (water years).- W 458: 1915, 1916. W 718: 1922.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	39	43	48	82	198	63	577	148	67	28	32
2	44	38	43	50	84	166	68	405	121	59	25	33
3	42	37	44	49	85	142	75	326	103	52	24	32
4	41	35	44	49	79	125	84	276	94	57	24	33
5	39	35	44	48	78	114	78	252	93	55	26	34
6	38	34	42	48	75	105	72	244	91	52	69	31
7	35	33	41	48	70	95	65	376	86	47	62	33
8	32	32	39	49	68	91	65	352	80	44	70	35
9	31	32	37	51	66	86	66	574	77	43	55	35
10	30	32	37	51	63	80	80	443	84	42	302	39
11	29	34	36	50	62	78	64	284	84	40	226	43
12	27	37	41	53	61	76	58	228	207	38	125	62
13	27	38	42	55	61	75	56	198	436	38	86	67
14	26	38	42	57	62	73	53	178	325	35	69	48
15	26	39	46	58	63	69	49	164	228	168	63	44
16	25	45	46	68	61	69	46	158	202	404	55	48
17	28	48	46	76	59	75	46	175	168	192	53	339
18	35	47	51	78	58	73	47	236	131	70	55	305
19	60	50	51	70	58	66	339	178	135	48	47	192
20	42	45	51	63	58	64	5,060	160	114	49	44	131
21	36	45	54	62	58	971	1,900	152	99	49	41	116
22	37	43	52	62	58	309	660	145	87	42	37	81
23	39	42	48	64	65	260	463	138	75	36	34	78
24	42	42	48	68	79	184	850	131	70	33	34	65
25	41	42	47	72	173	137	2,090	125	67	31	40	59
26	38	44	47	93	881	117	1,770	125	68	31	40	53
27	37	45	49	114	508	106	2,410	130	69	32	38	48
28	38	43	51	109	272	96	1,600	134	67	30	38	46
29	39	43	50	97	-	86	3,160	348	60	29	40	44
30	39	43	48	92	-	75	1,100	329	68	29	38	42
31	39	-	48	85	-	67	-	202	-	30	34	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,130	60	25	36.5	2,240
November	1,200	50	32	40.0	2,380
December	1,408	54	36	45.4	2,790
Calendar year 1948	31,439	2,760	19	85.9	62,350
January	2,037	114	48	65.7	4,040
February	3,447	881	58	123	6,840
March	4,328	971	64	140	8,580
April	22,337	5,060	46	745	44,300
May	7,743	577	125	250	15,360
June	3,737	436	60	125	7,410
July	1,972	404	29	63.6	3,910
August	1,922	302	24	62.0	3,810
September	2,248	339	31	74.9	4,560
Water year 1948-49	53,509	5,060	24	147	106,200

Peak discharge (base, 4,500 sec.-ft.).- Apr. 20 (11:30 a.m.) 6,290 sec.-ft.

Noyes Canal at Menard, Tex.

Location.- Water-stage recorder, lat. 30°55', long. 99°47', at intersection of Canal and Gay Streets in Menard, Menard County, 4½ miles downstream from head gates. Datum of gage is 1,878.1 feet above mean sea level, datum of 1929.

Records available.- March 1924 to September 1949.

Average discharge.- 25 years, 14.8 second-feet.

Extremes.- Maximum daily discharge during year, 28 second-feet July 15; maximum gage height, 4.08 feet Apr. 18 (affected by local runoff); no flow at times.
1924-49: Maximum daily discharge (exclusive of times canal submerged by waters of San Saba River), 50 second-feet Apr. 15, 1925 (probably affected by local runoff between point of diversion and station); no flow at times.

Remarks.- Records good. Discharge represents flow diverted from San Saba River not including local runoff between point of diversion and station. Canal diverts water from right bank of San Saba River 4 miles above Menard for irrigation near Menard; 10 acres irrigated from canal above station.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	20	14	17.7	1,090
November	22	18	20.0	1,190
December	21	19	20.0	1,230
Calendar year 1948	22	0	12.6	9,130
January	20	8.2	14.6	899
February	11	0	3.55	197
March	18	0	4.48	276
April	20	0	12.7	756
May	6.2	0	.58	36
June	24	0	8.09	481
July	28	15	22.3	1,370
August	23	0	15.4	947
September	26	19	21.7	1,290
Water year 1948-49	28	0	13.5	9,760

Brady Creek at Brady, Tex.

Location.- Water-stage recorder, lat. 31°08'15", long. 99°19'55", just upstream from bridge on North Bridge Street in Brady, McCulloch County, and 0.4 mile downstream from Live Oak Creek. Datum of gage is 1,646.50 feet above mean sea level, datum of 1929.

Drainage area.- 575 square miles.

Records available.- May 1939 to September 1949.

Average discharge.- 10 years, 14.1 second-feet.

Extremes.- Maximum discharge during year, 5,770 second-feet Apr. 19 (gage height, 12.64 feet); no flow at times.

1939-49: Maximum discharge, 13,900 second-feet Apr. 27, 1941 (gage height, 16.81 feet), from rating curve extended above 8,000 second-feet; no flow at times.

Maximum stage known, 29.1 feet July 23, 1938, present site and datum (discharge at site 5 miles downstream, 86,000 second-feet, by slope-area method).

Remarks.- Records good above 10 second-feet, fair below. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0	0.2	0.2	1.4	2.0	1.6	34	0.3	0.1	0	0
2	0	0	.2	.2	1.0	1.6	2.1	19	.2	.2	0	0
3	0	0	.2	.2	.4	1.0	1.3	12	.2	.1	0	0
4	0	0	.3	.3	.3	.6	1.4	15	.2	.1	0	0
5	0	0	.3	.3	.4	.5	1.1	20	.2	.1	.5	0
6	0	0	.3	.4	.4	.5	1.3	10	.2	.1	.6	0
7	0	0	.3	.2	.3	.3	1.4	9.1	.2	.1	.2	0
8	0	0	.3	.2	.3	.6	1.6	425	1.0	.1	.5	0
9	0	0	.3	.2	.4	.8	1.5	132	.3	.1	2.2	0
10	0	0	.3	.2	.4	.4	1.7	34	.2	0	.3	0
11	0	0	.3	.2	.3	.3	1.7	14	106	.1	.2	0
12	0	0	.3	.2	.3	.4	2.3	7.4	131	.1	.1	0
13	0	.1	.3	.2	.3	.3	2.7	4.8	14	.1	.1	0
14	0	.1	.6	.2	.3	.3	1.7	3.7	5.7	.1	.1	0
15	0	.5	.4	.2	.2	.3	.8	2.8	10	.2	0	0
16	17	.6	.2	1.3	.3	.3	.4	2.7	3.6	.1	0	0
17	29	.2	.2	.3	.3	.4	.3	2.7	1.4	.1	0	0
18	2.9	.2	.3	.2	.6	.4	.4	2.0	.6	.1	0	0
19	.4	.1	.2	.2	.9	.3	2,380	1.5	.3	.1	0	0
20	.2	.1	.2	.7	.6	.4	931	1.2	.3	.1	0	0
21	.1	.1	.2	.8	.5	285	101	1.0	.2	0	0	0
22	.1	.1	.2	1.3	.4	103	39	.6	.5	0	0	0
23	.1	.1	.2	1.0	2.7	26	23	.5	1.2	0	0	0
24	0	.2	.2	3.8	1.0	11	96	.4	.8	0	0	0
25	0	.2	.2	1.6	81	5.6	509	.3	12	0	0	0
26	0	.2	.2	1.7	25	5.1	1,650	1.8	26	0	0	0
27	0	.2	.2	1.9	6.7	4.2	120	.5	8.1	0	0	0
28	0	.2	.2	.7	2.9	2.7	1,780	.6	2.6	0	0	0
29	0	.2	.2	.3	-	1.4	350	.7	.8	0	0	0
30	0	.2	.2	1.1	-	1.0	83	.5	.2	0	0	0
31	0	-	.2	1.3	-	1.3	-	.4	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	49.8	29	0	1.61	99
November	3.6	.6	0	.12	7.1
December	7.9	.6	.2	.25	16
Calendar year 1948	1,484.2	1,250	0	4.06	2,950
January	21.6	3.8	.2	.70	43
February	129.6	81	.2	4.63	257
March	458.0	285	.3	14.8	908
April	8,087.3	2,380	.3	270	16,040
May	760.2	425	.3	24.5	1,510
June	328.3	131	.2	10.9	651
July	2.1	.2	0	.07	4.2
August	4.8	2.2	0	.15	9.5
September	0	0	0	0	0
Water year 1948-49	9,853.2	2,380	0	27.0	19,540

Peak discharge (base, 2,400 sec.-ft.).- Apr. 19 (6 p.m.) 5,770 sec.-ft.; Apr. 26 (3:30 a.m.) 4,480 sec.-ft.; Apr. 28 (7:30 a.m.) 4,010 sec.-ft.

North Llano River near Junction, Tex.

Location.- Water-stage recorder, lat. 30°30', long. 99°47', about 1,000 feet upstream from remains of old Wilson Dam, 3 miles northwest of Junction, Kimble County, and 4 miles upstream from confluence with South Llano River. Datum of gage is 1,699.9 feet above mean sea level, datum of 1929.

Drainage area.- 914 square miles.

Records available.- September 1915 to September 1949.

Average discharge.- 34 years, 70.5 second-feet.

Extremes.- Maximum discharge during year, 2,580 second-feet June 12; 14 (gage height, 5.18 feet); minimum, 10 second-feet Nov. 1.
1915-49: Maximum discharge, 94,800 second-feet Sept. 16, 1936 (gage height, 29.2 feet, present site, based on gage-height relation curve), by slope-area method; no flow at times.

Remarks.- Records excellent. Diversions for irrigation materially reduce low flow.

Revisions (water years).- W 568: 1915, 1918-20, 1922. W 763: 1923(M).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	18	17	20	25	87	36	58	31	33	15	13
2	24	18	16	20	25	80	41	55	30	32	14	13
3	24	19	16	20	25	74	36	54	28	33	14	13
4	24	18	17	20	25	70	34	60	26	31	14	13
5	23	18	17	20	24	66	33	58	25	31	13	12
6	22	18	17	20	24	62	33	55	37	34	15	12
7	20	18	17	20	23	57	32	52	60	34	18	12
8	20	18	16	20	23	57	31	50	39	30	25	12
9	20	18	16	20	22	54	31	49	43	28	43	14
10	21	18	16	20	21	50	30	68	39	26	29	14
11	20	18	17	20	21	49	29	71	37	25	25	13
12	20	19	16	22	21	48	28	90	452	24	21	13
13	20	19	16	22	21	46	28	74	96	22	20	12
14	20	20	19	22	21	46	27	66	144	24	18	12
15	20	20	37	22	20	45	26	62	367	26	17	13
16	20	20	47	24	20	43	26	58	94	25	16	91
17	21	20	34	23	20	43	26	58	72	24	16	60
18	20	20	31	23	20	42	26	54	62	22	16	38
19	21	20	29	23	20	41	27	54	55	22	15	31
20	20	20	27	22	20	41	31	52	50	21	14	29
21	22	19	26	24	20	42	31	49	49	20	15	27
22	24	18	25	24	20	42	31	45	43	19	16	25
23	23	18	24	26	34	41	44	43	42	19	15	24
24	22	18	24	25	43	39	43	41	39	18	15	23
25	21	18	23	27	530	38	54	38	45	19	14	23
26	20	18	23	31	231	38	55	42	45	18	13	22
27	20	17	23	31	117	37	58	41	41	18	13	22
28	18	17	22	30	96	37	94	45	37	18	13	22
29	19	17	22	27	-	36	68	41	36	17	13	21
30	19	17	21	28	-	34	60	37	34	16	12	20
31	19	-	20	27	-	32	-	34	-	15	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	652	25	18	21.0	1,290
November	554	20	17	18.5	1,100
December	691	47	16	22.3	1,370
Calendar year 1948	33,669.6	12,500	1.8	92.0	66,780
January	723	31	20	23.3	1,430
February	1,532	530	20	54.7	3,040
March	1,517	87	32	48.9	3,010
April	1,149	94	26	38.3	2,280
May	1,654	90	34	53.4	3,280
June	2,198	452	25	73.3	4,360
July	744	34	15	24.0	1,480
August	529	43	12	17.1	1,050
September	669	91	12	22.3	1,330
Water year 1948-49	12,612	530	12	34.6	25,020

Peak discharge (base, 1,200 sec.-ft.).- Feb. 25 (4 p. m.) 1,810 sec.-ft.; June 12 (1:30 a.m.) 2,580 sec.-ft.; June 14 (11:45 p.m.) 2,580 sec.-ft.

Llano River near Junction, Tex.

Location.- Water-stage, recorder, lat. 30°30', long. 99°44', 250 feet north of old Kerrville-Junction road, about half a mile downstream from point where slough diverts floodwater from main channel, 3 miles east of Junction, Kimble County, 4 miles downstream from confluence of North Llano and South Llano Rivers, and 4¾ miles upstream from Johnson Fork. Datum of gage is 1,630.32 feet above mean sea level, datum of 1929. An auxiliary water-stage recorder at site 5,335 feet upstream at datum 6.00 feet higher, is used in computing discharge of major floods.
Drainage area.- 1,762 square miles.
Records available.- September 1915 to September 1949.
Average discharge.- 34 years, 213 second-feet.
Extremes.- Maximum discharge during year, 12,100 second-feet Feb. 23 (gage height, 10.62 feet, auxiliary gage); minimum, 45 second-feet July 13.
1915-49: Maximum discharge, 319,000 second-feet June 14, 1935 (gage height, 43.3 feet, present site and datum, from floodmarks; 41.4 feet, auxiliary gage, from floodmarks), by slope-area method; minimum, 13 second-feet Aug. 23-28, 1918.
Remarks.- Records good. Small diversion above station for irrigation. Discharge for parts of days Feb. 23-25, and all day Feb. 26 computed from auxiliary water-stage recorder. Low stage for year caused by repair of small channel dam 3 miles above gage.
Revisions (water years).- W 568: 1915, 1916, 1918-20, 1922, drainage area.

Rating table, water year 1948-49, except period Feb. 23-26 when auxiliary gage was used
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Apr. 25 to June 12)

1.3	53	2.0	338	3.5	1,750
1.4	76	2.3	515	4.0	2,470
1.5	108	2.6	750	5.4	3,250
1.7	192	3.0	1,150		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	119	88	74	74	85	343	127	166	91	108	36	88
2	115	85	74	74	85	307	135	157	88	104	66	85
3	115	85	74	74	85	277	131	152	85	104	63	79
4	112	85	74	71	85	258	123	157	82	108	63	79
5	108	85	74	71	85	243	123	161	79	104	61	76
6	108	82	74	71	85	229	123	144	91	101	66	76
7	104	82	74	71	82	220	123	140	127	101	76	74
8	104	82	74	71	82	210	123	135	108	98	93	90
9	104	82	74	71	82	201	119	131	115	94	1,000	129
10	104	74	74	71	82	192	115	140	104	91	425	88
11	104	76	74	74	79	188	115	148	98	88	220	85
12	104	82	74	74	79	183	112	197	457	88	170	82
13	101	85	74	74	79	179	112	174	206	73	148	79
14	98	85	74	74	79	170	112	161	168	74	131	82
15	98	88	76	74	79	166	108	157	488	94	123	82
16	94	88	98	79	76	166	108	152	204	98	123	139
17	101	85	91	79	76	161	104	148	170	94	119	140
18	101	82	88	76	76	157	104	148	152	91	127	119
19	101	79	85	76	76	152	108	140	144	82	112	104
20	101	79	82	76	76	148	115	135	135	76	108	108
21	101	79	82	79	76	148	115	131	131	76	104	115
22	104	76	82	82	76	144	112	123	131	74	101	104
23	104	76	82	85	3,120	144	119	119	131	76	98	98
24	101	76	79	85	2,520	140	555	115	127	71	94	94
25	98	76	79	88	3,120	135	272	112	135	71	91	94
26	98	79	79	101	2,660	135	197	119	135	71	88	91
27	94	79	79	98	617	131	179	112	127	71	85	91
28	94	76	79	91	404	127	201	135	119	71	85	88
29	91	74	76	85	-	123	183	112	115	71	82	85
30	88	74	74	85	-	123	170	104	112	68	82	85
31	88	-	74	85	-	119	-	94	-	66	85	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,157	119	88	102	6,260
November	2,424	88	74	80.8	4,810
December	2,421	98	74	78.1	4,800
Calendar year 1948	147,402	45,100	28	403	292,400
January	2,439	101	71	78.7	4,840
February	14,206	3,120	76	507	28,180
March	5,619	343	119	181	11,150
April	4,443	555	104	148	8,810
May	4,319	197	94	139	8,570
June	4,455	488	79	148	8,840
July	2,657	108	66	85.7	5,270
August	4,355	1,000	61	140	8,640
September	2,829	140	74	94.3	5,610
Water year 1948-49	53,324	3,120	61	146	105,800

Peak discharge (base, 2,100 sec.-ft.).- Feb. 23 (7:30 p.m.) 12,100 sec.-ft.; Feb. 25 (9:30 p.m.) 9,960 sec.-ft.; Aug. 9 (1:30 p.m.) 2,770 sec.-ft.

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Llano River at Llano, Tex.

Location.- Water-stage recorder, lat. 30°45', long. 98°40', in Llano, Llano County, 0.4 mile downstream from bridge on State Highway 16 and 7 miles upstream from Little Llano River. Datum of gage is 970.0 feet above mean sea level, datum of 1929.

Drainage area.- 4,000 square miles.

Records available.- September 1939 to September 1949.

Average discharge.- 10 years, 305 second-feet.

Extremes.- Maximum discharge during year, 14,600 second-feet Apr. 25 (gage height, 9.78 feet); minimum daily, 60 second-feet Dec. 27.
1939-49: Maximum discharge, 108,000 second-feet June 25, 1948 (gage height, 22.90 feet, from floodmark); minimum daily, 3.0 second-feet Aug. 21-29, 1946.
Maximum stage known, 41.5 feet June 14, 1935, from information by local resident.

Remarks.- Records good. Low flow regulated by power plant half a mile upstream. No large diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	124	86	80	104	140	768	186	478	254	132	78	112
2	111	96	84	94	138	624	241	405	209	126	79	248
3	108	82	86	92	142	520	243	351	197	120	62	222
4	106	105	92	91	132	455	228	327	180	148	66	152
5	110	86	84	88	124	410	218	324	159	158	62	100
6	89	83	84	82	120	384	213	331	150	136	68	114
7	94	86	86	86	113	348	168	305	160	124	66	81
8	92	77	87	88	108	336	174	331	460	110	82	95
9	88	83	85	92	100	314	166	310	322	130	89	120
10	104	80	66	92	102	298	165	267	244	130	386	201
11	90	83	100	96	92	281	163	249	190	124	729	309
12	89	86	79	126	102	273	133	238	619	121	401	237
13	83	91	87	82	188	269	152	250	570	127	280	195
14	94	95	88	90	130	257	158	247	459	153	224	134
15	88	92	108	108	126	249	140	274	478	251	189	125
16	85	100	96	146	104	241	138	252	384	607	170	251
17	98	108	98	149	96	237	134	262	409	710	172	936
18	99	102	96	160	94	229	127	262	301	295	162	358
19	100	92	98	155	90	229	1,700	253	248	208	139	256
20	88	82	105	120	90	225	1,490	242	226	138	148	222
21	92	86	98	122	109	233	568	235	200	115	172	231
22	108	84	100	124	75	229	397	210	167	116	144	182
23	112	95	98	126	105	221	336	228	202	94	110	141
24	99	85	96	130	2,800	218	2,110	188	200	84	107	140
25	93	86	112	134	2,820	192	4,940	176	170	88	105	131
26	94	88	99	136	5,950	266	1,180	182	159	88	96	121
27	90	88	60	140	2,940	240	765	214	154	72	96	118
28	84	88	106	196	1,160	224	1,980	1,840	155	76	118	117
29	96	89	96	144	-	178	961	904	142	70	125	128
30	80	79	84	143	-	197	593	424	167	80	123	102
31	98	-	90	136	-	199	-	308	-	80	96	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,985	124	80	96.3	5,920
November	2,663	108	77	88.8	5,280
December	2,828	112	60	91.2	5,610
Calendar year 1948	168,614	54,900	10	461	334,500
January	3,672	196	82	118	7,280
February	18,290	5,950	75	653	36,280
March	9,344	768	178	301	18,530
April	20,167	4,940	127	672	40,000
May	10,867	1,840	176	351	21,550
June	7,935	619	142	264	15,740
July	5,011	710	70	162	9,940
August	4,944	729	62	159	9,810
September	5,879	936	81	196	11,660
Water year 1948-49	94,585	5,950	60	259	187,600

Peak discharge (base, 8,500 sec.-ft.).- Feb. 24 (5:30 p.m.) 9,160 sec.-ft.; Feb. 26 (3:30 p.m.) 13,700 sec.-ft.; Apr. 25 (1 a.m.) 14,600 sec.-ft.

Pedernales River near Johnson City, Tex.

Location.- Water-stage recorder, lat. 30°18', long. 98°24', at bridge on U. S. Highway 281, 1.5 miles north of Johnson City, Blanco County, and 1.9 miles downstream from Buffalo Creek. Datum of gage is 1,096.6 feet above mean sea level, unadjusted.

Drainage area.- 947 square miles.

Records available.- May 1939 to September 1949.

Average discharge.- 10 years, 166 second-feet.

Extremes.- Maximum discharge during year, 8,170 second-feet Apr. 24 (gage height, 8.74 feet); minimum, 2.6 second-feet Aug. 31 (gage height, 2.09 feet).

1939-49: Maximum discharge, 104,000 second-feet Aug. 30, 1944 (gage height, 26.10 feet, from recorder at upstream side of right bridge pier, affected by draw-down; maximum gage height, 27.6 feet, from floodmark on staff gage 50 feet upstream and 300 feet to right of recorder), from rating curve extended above 42,000 second-feet by logarithmic plotting; minimum discharge, 0.8 second-foot Aug. 24, 1948 (gage height, 1.96 feet).

Maximum stage known, about 33 feet in July 1869, from information by local residents.

Remarks.- Records excellent. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.6	9.8	9.8	11	20	79	35	130	29	9.8	4.0	312
2	4.4	9.4	9.8	11	21	64	45	106	23	52	3.6	99
3	4.2	8.9	9.8	12	21	52	45	91	18	39	4.2	29
4	4.0	8.9	10	11	21	45	50	82	16	19	5.9	15
5	4.0	7.7	10	11	19	40	43	79	15	27	57	10
6	3.8	7.1	10	11	18	36	35	68	13	15	77	7.7
7	3.4	7.1	9.8	11	16	35	32	66	1,650	13	42	6.5
8	3.2	7.4	9.8	11	15	32	29	59	289	12	48	5.3
9	3.2	7.4	9.8	12	15	29	26	52	117	11	29	11
10	3.2	7.4	9.8	12	14	28	25	47	68	9.4	16	7.7
11	3.2	7.7	10	12	13	26	25	71	47	8.0	12	6.8
12	3.2	9.8	11	13	13	24	25	76	40	7.4	9.8	5.3
13	3.2	11	12	15	13	25	23	50	38	6.5	7.7	4.8
14	3.2	12	14	16	14	26	20	42	38	8.5	6.2	4.0
15	3.2	13	22	16	14	26	18	36	350	91	5.0	3.6
16	5.3	13	52	33	17	24	18	36	192	73	4.6	70
17	299	12	29	56	14	20	18	33	82	48	4.6	83
18	74	12	21	52	13	18	18	35	50	23	4.8	54
19	24	9.8	18	30	15	18	37	33	36	16	4.2	26
20	13	9.8	16	21	15	18	170	32	29	12	20	15
21	12	9.8	15	19	15	26	94	29	23	11	16	14
22	11	9.4	14	18	15	29	59	28	19	8.9	10	11
23	9.8	10	13	18	20	32	52	24	18	7.7	7.7	9.4
24	9.4	10	13	18	24	38	1,100	20	16	6.8	6.2	8.0
25	8.9	10	12	17	491	35	2,640	18	25	6.5	5.3	7.1
26	8.4	10	12	18	905	324	496	21	20	6.8	4.8	6.5
27	8.4	11	12	19	239	281	257	61	15	6.2	4.2	6.2
28	8.4	9.4	12	17	127	100	223	380	13	5.9	4.0	6.2
29	8.4	9.8	11	15	-	62	227	158	12	5.6	3.8	5.0
30	8.4	9.8	11	15	-	45	167	59	11	5.0	3.6	4.6
31	8.9	-	11	18	-	36	-	38	-	4.4	3.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	571.3	299	3.2	18.4	1,130
November	290.4	13	7.1	9.68	576
December	439.6	52	9.8	14.2	872
Calendar year 1948	15,249.9	2,800	.9	41.7	30,240
January	569	56	11	18.4	1,130
February	2,157	905	13	77.0	4,280
March	1,673	324	18	54.0	3,320
April	6,052	2,640	18	202	12,000
May	2,060	380	18	66.5	4,090
June	3,312	1,650	11	110	6,570
July	575.4	91	4.4	18.6	1,140
August	434.2	77	3.0	14.0	861
September	853.7	312	3.6	28.5	1,690
Water year 1948-49	18,987.6	2,640	3.0	52.0	37,660

Peak discharge (base, 9,800 sec.-ft.).- No peak above base.

Barton Springs at Austin, Tex.

Location.- Lat. 30°16', long. 97°46'. Springs issue from channel and along banks of Barton Creek for a distance of 1,000 feet in Zilker Park at Austin, Travis County. The main spring is near right bank of creek 500 feet upstream from concrete dam forming swimming pool, 1,800 feet upstream from bridge on Austin-Bee Cave Highway, and 0.6 mile upstream from mouth of Barton Creek.

Records available.- October 1918 to September 1926 and October 1940 to September 1949. November 1894 to September 1918, October 1926 to September 1940, discharge published as miscellaneous measurements. Daily discharge record of Barton Creek at Austin, published for period April 1917 to September 1918, closely represents flow of Barton Springs. Summary of all discharge measurements prior to October 1937 is contained in Water-Supply Paper 850.

Extremes.- Maximum discharge measured during year, 63.7 second-feet Apr. 30; minimum measured, 18.1 second-feet Nov. 23.

1894-1949: Maximum discharge measured, 166 second-feet May 10, 1941; minimum measured, 12.1 second-feet Feb. 26, 1918.

Remarks.- Discharge measurements represent total flow of springs including Old Mill Spring which is on right bank and about 1,000 feet downstream from main spring. Springs emerge from Edwards limestone in Balcones fault zone and respond to rainfall on Edwards Plateau. Water used for recreational purposes.

Discharge measurements, in second-feet, of Barton Creek and determination of discharge of Barton Springs, water year October 1948 to September 1949

Date	Barton Creek below springs	Barton Creek above springs	Barton Springs
Oct. 23	27.1	0	27.1
Nov. 23	18.1	0	18.1
Dec. 18	19.4	0	19.4
Jan. 15	20.0	0	20.0
Feb. 5	20.2	0	20.2
Mar 5	24.4	0	24.4
Apr. 9	35.6	0	35.6
30	143.0	79.3	63.7
June 1	49.0	0	49.0
July 2	35.3	0	35.3
23	29.1	0	29.1
Aug. 27	22.7	0	27.7
Sept. 24	19.8	0	19.8

Dry Creek at Buescher Lake, near Smithville, Tex.

Location.- Water-stage recorder above concrete spillway of dam, lat. 30°03', long. 97°09', in Bastrop-Buescher State Park, 1.9 miles upstream from mouth and 2.2 miles north of Smithville, Bastrop County. Datum of gage is 327.9 feet above mean sea level, datum of 1929.

Drainage area.- 1.48 square miles (area above dam).

Records available.- October 1939 to September 1949.

Average discharge.- 10 years, 0.5 second-foot.

Extremes.- Maximum 20-minute inflow during year, 595 second-feet Apr. 22; maximum gage height, 20.62 feet Apr. 28; no inflow most of time.
1939-49: Maximum inflow, 1,870 second-feet June 30, 1940; maximum gage height, 24.96 feet June 30, 1940 (outflow, 1,670 second-feet); no flow most of time.

Remarks.- Records good. Records given herein represent flow into Buescher Lake. No runoff except during and immediately following precipitation. Discharge below gage height 22.27 feet (spillway crest), determined from change in contents of lake; that above gage height 22.27 feet determined by algebraic summation of flow over spillway (computed from spillway curve) and change in contents of lake (computed from capacity curve and reduced to equivalent second-feet). There was no flow over spillway during year. No adjustments made for evaporation or seepage losses. Capacity of lake, 255 acre-feet. No diversion above station or from lake.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	0	0	0	0		0	0	0	0
2			0	0	0	0	0		0	.3	.4	0
3			0	0	0	0	0		0	0	0	0
4			0	0	0	0	0		0	0	0	0
5			0	0	0	0	0		0	0	0	0
6			0	0	0	0	0		0	0	0	0
7			0	0	0	0	0		0	0	0	0
8			0	0	0	0	0		0	0	0	0
9			0	.1	.1	0	0		0	0	0	0
10			0	.1	0	0	0		0	0	0	0
11			0	0	0	0	0		0	0	0	0
12			.1	0	0	0	0		1.0	0	0	0
13			.1	0	0	0	0		0	0	0	0
14			0	0	0	.1	0		2.4	.9	0	0
15			0	.1	0	0	0		1.5	0	0	0
16			0	.1	0	0	0		0	0	.5	.2
17			0	0	0	0	0		0	0	0	0
18			0	0	0	0	0		0	0	0	3.7
19			0	0	0	0	0		0	0	0	0
20			0	0	0	0	.5		0	0	0	0
21			0	.3	0	0	.1		0	0	0	0
22			0	.1	0	0	23		0	0	0	0
23			0	.1	0	0	1.6		0	0	0	0
24			0	.1	.1	0	.2		0	0	0	0
25			0	0	1.2	0	34		0	.6	0	0
26			0	0	1.7	0	39		0	.1	0	0
27			0	.1	1.0	0	1.0		0	0	0	0
28			0	0	.2	0	.4		0	0	0	0
29			0	0	-	0	0		0	0	0	0
30			0	0	-	0	0		0	0	0	0
31			0	0	-	0	-		-	0	1.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	.2	.1	0	.01	.4
Calendar year 1948	11.1	2.8	0	.03	22
January	1.1	.3	0	.04	2.2
February	4.3	1.7	0	.15	8.5
March	.1	.1	0	.003	.2
April	99.8	39	0	3.33	198
May	0	0	0	0	0
June	4.9	2.4	0	.16	9.7
July	1.9	.9	0	.06	3.8
August	2.0	1.1	0	.06	4.0
September	3.9	3.7	0	.13	7.7
Water year 1948-49	118.2	39	0	.32	234

Peak discharge (base, 70 sec.-ft.).- Apr. 22 (4:30 a.m.) 595 sec.-ft.
Note.- No gage-height record Jan. 31 to Feb. 10, Sept. 28-30; discharge computed on basis of recorded range in stage and weather records.

Lavaca River at Hallettsville, Tex.

Location.- Wire-weight gage for low stages and water-stage recorder for high stages, lat. 29°26', long. 96°57', at bridge on U. S. Highway 77 in Hallettsville, Lavaca County, and 0.4 mile upstream from Texas & New Orleans Railroad bridge. Datum of gage is 186.7 feet above mean sea level, datum of 1929.

Drainage area.- 101 square miles.

Records available.- July 1939 to September 1949.

Average discharge.- 10 years, 52 second-feet.

Extremes.- Maximum discharge during year, 5,860 second-feet Apr. 25 (gage height, 21.54 feet); minimum, 0.2 second-foot Sept. 28, 29, 30.

1939-49: Maximum discharge, 93,100 second-feet June 30, 1940 (gage height, 40.60 feet, from floodmarks of highest flood known), by slope-area method; minimum, that of Sept. 28, 29, 30, 1949.

Maximum stage known prior to 1940, 32.8 feet July 16, 1936, from information by local resident.

Remarks.- Records fair. Wire-weight gage read twice daily, oftener during high stages, and used for computing discharges below about 100 second-feet. No known diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	1.1	2.6	2.2	5.3	6.2	3.8	18	2.8	1.2	1.4	0.6
2	.5	1.1	2.5	2.5	4.4	5.5	4.2	14	2.6	1.2	2.8	.8
3	.5	1.1	2.5	2.5	4.0	3.8	4.8	13	2.6	1.3	36	.8
4	.8	1.1	2.6	2.0	3.2	3.4	18	12	2.6	1.2	9.2	.6
5	.9	1.1	2.6	2.0	3.0	3.4	11	11	2.5	1.2	18	.6
6	.8	1.1	2.2	2.2	2.6	3.2	4.8	10	2.6	1.1	79	.8
7	.6	1.2	2.2	2.4	2.6	3.2	3.8	10	2.4	1.2	31	.9
8	.6	1.1	1.9	2.5	2.8	3.4	2.6	10	9.0	1.1	6.2	.8
9	.6	1.1	1.9	2.5	3.4	83	1.9	9.8	9.4	1.0	23	30
10	.6	1.1	1.9	2.5	2.6	25	1.6	10	5.0	.9	9.1	1.4
11	.9	1.3	1.9	2.5	2.5	6.9	1.9	9.5	9.0	.8	4.0	1.1
12	.8	1.4	2.0	2.4	2.0	6.6	1.8	8.3	4.6	.6	2.2	1.0
13	.6	1.6	2.2	2.6	2.0	34	1.9	7.1	4.0	.6	1.4	1.0
14	.6	2.8	2.4	2.8	2.5	51	1.9	6.9	4.0	.8	1.4	1.0
15	.5	4.2	2.5	3.0	2.8	12	2.0	6.6	7.8	2.0	1.3	1.0
16	.5	5.7	2.5	5.7	2.5	9.8	2.0	6.9	4.8	12	1.1	1.0
17	.8	4.0	3.0	4.2	2.0	7.4	2.2	7.1	3.2	2.2	1.1	2.1
18	.9	3.4	2.5	3.8	4.8	6.2	2.4	6.6	2.5	1.4	1.1	2.8
19	.9	2.6	2.2	2.6	3.4	6.0	24	6.4	2.2	1.4	1.0	137
20	1.0	2.2	1.9	2.5	3.6	5.5	880	6.0	2.2	1.3	.9	67
21	1.0	2.2	2.2	9.1	3.8	4.8	60	6.0	2.0	1.2	.9	14
22	1.1	1.9	2.4	8.9	6.1	4.4	1,500	6.2	1.9	1.2	.9	3.8
23	1.1	1.9	2.2	4.8	5.7	4.0	130	6.0	2.0	1.3	.9	2.0
24	1.1	1.9	2.0	13	7.4	3.4	125	14	1.9	1.3	.8	1.2
25	1.0	2.0	2.0	6.4	319	3.4	1,920	70	1.8	1.2	.8	.9
26	1.0	2.2	2.0	5.5	222	4.4	271	12	1.9	55	.8	.8
27	1.0	2.4	2.0	6.0	5.5	4.4	44	7.7	2.2	8.0	.9	.4
28	1.1	2.5	2.0	5.0	7.4	3.4	44	4.6	5.1	4.0	.9	.3
29	1.1	2.8	2.0	5.3	-	3.2	33	3.4	2.0	2.5	.6	.3
30	1.2	2.8	2.2	6.6	-	3.4	21	2.6	1.3	2.0	.6	.3
31	1.1	-	2.2	6.9	-	3.4	-	2.6	-	1.8	.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	25.7	1.2	0.5	0.83	51
November	62.9	5.7	1.1	2.10	125
December	69.2	3.0	1.9	2.23	137
Calendar year 1948	4,541.6	1,200	.3	12.4	9,000
January	132.9	13	2.0	4.29	264
February	638.9	319	2.0	22.8	1,270
March	327.7	83	3.2	10.6	650
April	5,124.6	1,920	1.6	171	10,160
May	324.3	70	2.6	10.5	643
June	107.9	9.4	1.3	3.60	214
July	114.0	55	.6	3.68	226
August	239.9	79	.6	7.74	476
September	276.3	137	.3	9.21	548
Water year 1948-49	7,444.3	1,920	.3	20.4	14,760

Peak discharge (base, 3,100 sec.-ft.).- Apr. 22 (8 a.m.) 4,920 sec.-ft.; Apr. 25 (8 a.m.) 5,860 sec.-ft.

Lavaca River near Edna, Tex.

Location.- Wire-weight gage, lat. 28°58', long. 96°42', at bridge on U. S. Highway 59, 550 feet upstream from Texas & New Orleans Railroad bridge and 2.8 miles southwest of Edna Jackson County. Datum of gage is 13.88 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.- 887 square miles.

Records available.- August 1938 to September 1949.

Average discharge.- 11 years (1938-49), 327 second-feet.

Extremes.- Maximum discharge during year, 6,830 second-feet Sept. 4 (gage height, 21.33 feet, from graph based on gage readings); minimum observed, 4.6 second-feet Sept. 4.
1938-49: Maximum discharge, 73,000 second-feet July 1, 1940 (gage height, 32.51 feet); minimum observed, that of Sept. 4, 1949.
Maximum stage known, 33.8 feet May 25, 1936 (discharge, 83,400 second-feet), from information by local resident.

Remarks.- Records good. Gage read twice daily, oftener during high stages. No large diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	10	14	15	26	132	31	324	52	20	22	5.5
2	17	10	15	16	28	102	33	221	49	15	18	6.8
3	15	9.5	15	16	29	81	33	179	39	25	14	5.0
4	12	10	15	16	29	66	35	154	36	166	12	5.0
5	12	10	16	15	29	57	38	126	34	57	214	7.2
6	12	9.5	15	15	28	50	41	114	31	32	214	6.4
7	11	9.5	16	15	27	45	50	105	29	21	331	10
8	11	10	15	16	27	44	36	96	32	16	264	13
9	10	12	15	16	26	38	33	89	162	14	454	9.5
10	10	5.9	14	16	25	36	31	85	114	12	391	9.0
11	10	6.4	15	16	24	107	27	77	63	10	240	12
12	11	12	16	16	24	56	25	75	231	10	126	11
13	18	13	16	16	24	42	27	69	184	10	74	11
14	18	14	16	16	24	38	27	63	97	10	48	8.1
15	13	14	17	16	24	529	26	60	132	22	37	9.0
16	10	18	18	18	23	139	23	59	96	294	29	172
17	10	22	18	60	24	76	24	52	132	294	22	90
18	9.5	22	18	46	28	58	24	50	53	92	16	31
19	9.5	18	18	32	29	49	27	49	36	40	15	49
20	10	18	18	24	28	46	646	46	30	24	14	125
21	10	18	17	28	43	46	3,320	40	26	19	12	203
22	10	16	17	294	33	42	1,850	39	24	16	14	87
23	10	15	17	94	29	39	4,080	36	23	16	16	40
24	10	15	17	54	46	39	4,990	34	22	14	16	26
25	10	15	17	40	37	38	3,770	383	21	18	13	21
26	10	15	16	39	2,560	39	4,370	1,120	20	125	11	18
27	9.5	16	15	36	1,480	40	5,730	602	19	398	10	18
28	10	16	16	40	244	36	910	161	16	123	6.8	16
29	10	15	16	44	-	36	455	113	17	68	5.9	16
30	11	15	15	33	-	36	620	86	29	45	6.8	15
31	11	-	15	29	-	34	-	62	-	31	6.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	350.5	18	9.5	11.3	695
November	409.8	22	5.9	13.7	813
December	498	18	14	16.1	988
Calendar year 1948	55,901.4	12,400	5.9	153	110,900
January	1,147	294	15	37.0	2,280
February	4,998	2,560	23	178	9,910
March	2,216	529	34	71.5	4,400
April	31,332	5,730	23	1,044	62,150
May	4,769	1,120	34	154	9,460
June	1,849	231	16	61.6	3,670
July	2,057	398	10	66.4	4,080
August	2,672.9	454	5.9	86.2	5,300
September	1,055.5	203	5.0	35.2	2,090
Water year 1948-49	53,354.7	5,730	5.0	146	105,800

Peak discharge (base, 4,100 sec.-ft.).- Apr. 24 (11 p.m.) 5,650 sec.-ft.; Apr. 27 (7:45 a.m.) 6,830 sec.-ft.

Navidad River near Ganado, Tex.

Location.- Wire-weight gage, lat. 29°02', long. 96°33', at bridge on U. S. Highway 59, 100 feet upstream from Texas & New Orleans Railroad bridge, a quarter of a mile downstream from Sandy Creek, and 2¼ miles southwest of Ganado, Jackson County. Datum of gage is 13.62 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.- 1,116 square miles.

Records available.- May 1939 to September 1949.

Average discharge.- 10 years, 564 second-feet.

Extremes.- Maximum discharge during year, 10,300 second-feet Apr. 25 (gage height, 27.77 feet, from graph based on gage readings); minimum, 3.6 second-feet June 6 (computed from graph based on gage readings).

1939-49: Maximum discharge, 64,500 second-feet July 2, Nov. 23, 1940; maximum gage height, 36.54 feet July 2, 1940, from floodmark; minimum discharge observed, 2.2 second-feet Aug. 13, 14, 24, 1948.

Maximum stage known, 39.8 feet May 27, 1936, from information by engineers of Texas & New Orleans Railroad (discharge, 94,000 second-feet, from rating curve extended above 60,000 second-feet).

Remarks.- Records good. Gage read twice daily, oftener during high stages. No large diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	37	5.7	11	14	29	3,800	45	640	114	17	139	42
2	32	5.0	10	15	24	576	50	416	119	34	93	38
3	29	5.3	10	14	22	378	53	312	38	242	54	45
4	26	6.0	11	14	26	258	59	258	25	242	44	41
5	21	6.5	10	13	24	186	59	206	22	178	92	49
6	18	6.5	10	13	23	137	182	171	29	130	195	45
7	16	6.5	11	13	25	114	170	150	17	97	454	57
8	12	8.0	11	13	26	98	91	137	23	79	482	120
9	13	11	10	14	24	110	59	122	178	66	580	132
10	17	10	11	15	22	258	46	100	218	77	742	171
11	17	9.0	11	14	20	340	40	240	147	52	660	303
12	14	10	11	13	17	110	38	396	123	35	501	501
13	12	10	13	13	18	77	37	124	87	24	312	378
14	9.0	9.0	13	13	19	160	34	82	73	24	207	294
15	9.0	10	12	15	21	1,230	32	63	64	83	149	250
16	13	19	13	17	19	378	32	56	56	556	104	226
17	12	64	14	16	19	164	31	53	46	640	76	250
18	8.5	146	13	29	44	105	29	50	29	425	50	207
19	6.5	130	12	50	103	76	89	49	23	234	38	174
20	6.0	65	13	33	159	68	1,310	47	17	147	34	312
21	6.0	25	14	37	194	63	4,800	42	12	100	29	520
22	6.5	20	14	44	178	62	5,950	38	8.5	84	29	218
23	6.5	16	13	159	132	61	6,860	35	14	82	29	113
24	5.7	12	12	165	321	61	8,420	33	19	87	29	87
25	5.7	10	11	84	418	58	9,740	35	13	93	38	56
26	6.0	8.0	12	54	2,870	56	8,200	242	5.0	321	44	35
27	5.7	9.5	11	44	5,080	55	3,310	406	17	349	35	32
28	5.3	10	12	42	5,740	52	3,430	660	45	234	24	29
29	5.7	8.5	12	47	-	49	1,350	540	40	204	18	57
30	6.0	9.0	12	44	-	46	1,310	560	22	242	22	32
31	6.5	-	12	47	-	45	-	312	-	189	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	393.6	37	5.3	12.7	781
November	670.5	146	5.0	22.4	1,330
December	365	14	10	11.8	724
Calendar year 1948	76,996.5	8,960	2.2	210	152,700
January	1,118	165	13	36.1	2,220
February	15,617	5,740	17	558	30,980
March	9,231	3,800	45	298	18,310
April	55,856	9,740	29	1,862	110,800
May	6,575	660	33	212	13,040
June	1,643.5	218	5.0	54.8	3,260
July	5,367	640	17	173	10,650
August	5,334	742	18	172	10,580
September	4,814	520	29	160	9,550
Water year 1948-49	106,984.6	9,740	5.0	293	212,200

Peak discharge (base, 6,800 sec.-ft.).- Apr. 25 (11 p.m.) 10,300 sec.-ft.

Guadalupe River at Hunt, Tex.

Location.- Water-stage recorder and concrete control, lat. 30°03', long. 99°19', at bridge on State Highway 39, half a mile downstream from confluence of North and South Forks, 0.6 mile east of Hunt, Kerr County. Datum of gage is 1,722.7 feet above mean sea level, datum of 1929.

Drainage area.- About 370 square miles.

Records available.- October 1941 to September 1949 (discontinued).

Extremes.- Maximum gage height, 13.4 feet Feb. 25, from floodmarks (discharge not determined); minimum discharge, 17 second-feet Nov. 6, 7.

1941-49: Maximum gage height, and discharge not determined; minimum discharge, 6.9 second-feet June 17, 1948.

Maximum stage known, 36.6 feet July 2, 1932, from information by local resident.

Remarks.- Records good. Discharge not computed above 260 second-feet. About 60 acres above station are irrigated.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	25	26	23	30	147	39	71	30	32	23	38
2	23	23	27	24	30	122	48	66	30	33	22	35
3	22	23	27	25	29	108	42	62	31	36	22	32
4	21	23	27	24	29	96	39	62	31	36	22	31
5	21	21	27	23	27	88	39	58	31	39	23	30
6	21	17	26	23	26	81	36	55	40	38	28	30
7	20	19	26	23	26	73	33	53	62	33	(e)	30
8	20	22	25	23	24	71	26	51	51	31	(e)	29
9	20	23	25	25	24	68	34	50	57	29	173	30
10	22	23	25	26	24	59	38	59	53	28	103	31
11	22	24	25	27	23	58	35	58	45	28	79	32
12	22	28	26	29	22	59	35	50	49	28	66	30
13	22	31	27	29	27	61	48	45	51	28	57	28
14	22	33	28	27	28	61	39	43	45	30	49	29
15	22	32	30	27	26	66	35	42	109	39	48	29
16	22	31	29	39	25	71	33	42	77	35	44	61
17	28	29	28	40	31	57	32	46	67	32	45	59
18	29	28	30	32	24	50	33	46	57	30	44	44
19	24	26	35	29	24	48	35	39	52	27	41	39
20	22	25	25	27	25	48	42	39	48	26	41	38
21	23	26	24	27	25	51	40	40	44	25	42	41
22	26	27	24	29	26	46	38	39	42	25	39	38
23	25	27	24	30	(e)	43	36	38	40	23	38	34
24	24	27	25	30	(e)	44	(e)	36	39	23	38	33
25	23	29	24	29	(e)	41	(e)	36	41	24	35	33
26	23	28	24	31	(e)	45	133	36	43	27	35	32
27	22	28	24	31	(e)	45	95	39	41	28	35	31
28	23	26	25	28	180	41	86	70	38	27	40	30
29	24	26	25	25	-	41	85	61	35	26	36	30
30	24	26	24	26	-	40	75	42	33	24	32	29
31	23	-	23	26	-	38	-	34	-	24	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	711	29	20	22.9	1,410
November	775	33	17	25.8	1,540
December	810	35	23	26.1	1,610
Calendar year 1948	10,730	112	10	29.3	21,270
January	857	40	23	27.6	1,700
February	-	-	22	-	-
March	1,967	147	38	63.5	3,900
April	-	-	26	-	-
May	1,508	71	34	48.6	2,990
June	1,412	109	30	47.1	2,800
July	914	39	23	29.5	1,810
August	-	-	22	-	-
September	1,036	61	28	34.5	2,050
Water year	-	-	17	-	-

e Discharge above 260 second-feet for a considerable part of day; daily discharge not computed.

Guadalupe River at Comfort, Tex.

Location.- Water-stage recorder, lat. 29°58', long. 98°54', at bridge on U. S. Highway 87, a quarter of a mile downstream from Cypress Creek and half a mile east of Comfort, Kendall County. Datum of gage is 1,372.0 feet above mean sea level, datum of 1929.

Drainage area.- About 990 square miles.

Records available.- May 1939 to September 1949. December 1917 to August 1924 at site 5 miles upstream, and August 1924 to September 1932 at site 4 miles upstream. Records published as Guadalupe River near Comfort (records equivalent during flood runoff originating above upper site and during extremely low flow, at which times Cypress Creek contributes no appreciable flow).

Average discharge.- 10 years (1939-49), 173 second-feet.

Extremes.- Maximum discharge during year, 12,100 second-feet Feb. 26 (gage height, 17.23 feet); minimum, 20 second-feet Oct. 18, 19.

1917-32, 1939-49: Maximum discharge, 182,000 second-feet July 1, 1932 (gage height, 38.4 feet, present site and datum, from floodmarks, from data furnished by Texas Highway Department), by slope-area method (flood originated above Cypress Creek drainage); minimum observed, 0.4 second-foot Aug. 2, 1918, at site then in use.

Flood of July 16, 1900, reached about same stage as that of July 1, 1932.

Remarks.- Records good except those for period of no gage-height record, which are fair. Several small diversions above station for irrigation. Slight regulation at low flow by power plants above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	33	37	41	53	401	100	258	58	50	45	75
2	25	33	37	43	52	331	119	231	45	45	44	88
3	29	37	37	43	56	292	121	207	42	44	44	71
4	29	33	38	43	56	270	134	197	38	67	44	62
5	27	32	40	43	56	234	121	187	35	56	43	56
6	25	30	39	44	51	218	102	174	35	50	66	52
7	25	29	38	44	48	187	93	155	632	49	181	51
8	25	28	37	45	50	172	85	148	228	46	268	50
9	24	26	37	46	51	165	85	130	226	44	569	49
10	23	28	37	46	45	143	78	227	177	42	355	48
11	24	30	38	46	42	127	80	146	148	39	267	f61
12	26	35	39	47	44	119	85	136	167	38	202	68
13	26	40	41	48	43	139	80	119	153	37	162	53
14	26	49	50	48	47	205	79	102	119	85	139	51
15	26	48	61	50	49	143	85	99	143	119	123	49
16	205	47	48	140	48	130	76	91	153	90	104	784
17	252	47	51	104	45	136	71	97	158	76	99	267
18	30	43	57	83	44	123	71	102	123	66	93	170
19	22	38	48	68	48	104	86	102	112	59	90	125
20	28	37	46	56	48	97	153	97	95	53	88	97
21	30	38	53	51	45	132	108	82	85	51	117	80
22	30	36	46	50	51	108	102	76	78	49	102	75
23	30	37	44	54	75	97	117	67	71	48	86	70
24	31	39	44	57	660	90	322	65	65	47	75	66
25	32	39	45	54	2,360	91	1,570	49	60	47	66	64
26	32	39	41	56	4,280	509	548	64	61	50	62	59
27	31	40	41	60	747	192	398	91	60	49	59	54
28	32	40	39	59	514	146	361	319	62	48	58	52
29	30	39	40	53	-	125	319	158	59	48	60	51
30	31	37	41	56	-	114	287	139	51	47	59	48
31	32	-	41	53	-	104	-	93	-	46	58	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,263	252	22	40.7	2,510
November	1,107	49	26	36.9	2,200
December	1,331	61	37	42.9	2,640
Calendar year 1948	20,544	504	13	56.1	40,770
January	1,731	140	41	55.8	3,430
February	9,708	4,280	42	347	19,260
March	5,444	509	90	176	10,800
April	6,036	1,570	71	201	11,970
May	4,208	319	49	136	8,350
June	3,539	632	35	118	7,020
July	1,685	119	37	54.4	3,340
August	3,828	569	43	123	7,590
September	2,946	784	48	98.2	5,840
Water year 1948-49	42,826	4,280	22	117	84,950

Peak discharge (base, 3,900 sec.-ft.).- Feb. 26 (2 a.m.) 12,100 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Note.- No gage-height record Dec. 29 to Jan. 16; discharge computed on basis of engineer's notes and weather records.

Guadalupe River near Spring Branch, Tex.

Location.- Water-stage recorder, lat. 29°51'40", long. 98°23'00", at bridge on county highway 4 miles southeast of Spring Branch, Comal County, and 6 miles downstream from Curry Creek. Datum of gage is 948.13 feet above mean sea level, datum of 1929.

Drainage area.- 1,432 square miles.

Records available.- June 1922 to September 1949.

Average discharge.- 27 years, 284 second-feet.

Extremes.- Maximum discharge during year, 8,540 second-feet Feb. 26 (gage height, 13.16 feet); minimum, 25 second-feet Oct. 12-14 (gage height, 1.94 feet).

1922-49: Maximum discharge, 121,000 second-feet July 3, 1932 (gage height, 42.10 feet), from rating curve extended above 70,000 second-feet; minimum, 2.2 second-feet July 11, 1939, from rating curve extended below 15 second-feet.

Maximum stage since 1859, about 53 feet in 1869; flood of July 1900 reached a stage of about 49 feet, from information by local resident.

Remarks.- Records good. Small diversions above station for irrigation. Slight regulation at low flow by power plants above station.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Nov. 14 to Jan. 13)

2.0	32	2.8	207	5.0	1,300
2.2	62	3.0	269	6.0	2,000
2.4	101	3.5	465	8.0	3,600
2.6	150	4.0	720	9.0	4,500

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	42	49	46	71	506	147	510	195	97	52	67
2	33	40	49	48	69	396	150	442	170	97	51	69
3	31	40	48	48	73	329	145	392	147	103	48	82
4	30	42	48	48	73	286	161	352	137	90	46	93
5	28	42	49	46	73	253	164	333	129	86	46	82
6	31	42	49	46	73	234	158	310	124	99	221	75
7	31	39	49	48	71	219	147	303	151	93	144	71
8	28	39	49	49	69	201	140	283	504	88	228	67
9	27	39	49	51	66	190	134	a269	250	82	171	66
10	26	39	48	51	66	178	129	1,050	219	78	428	66
11	26	39	49	49	66	167	122	408	210	73	272	64
12	25	39	49	54	60	158	119	310	192	69	219	62
13	25	42	49	59	60	190	122	283	184	66	172	71
14	25	43	51	64	60	156	122	259	213	64	150	76
15	27	45	57	67	59	192	115	243	181	71	132	66
16	30	49	60	88	59	167	110	a231	195	106	122	75
17	372	51	69	119	60	153	112	228	175	137	115	768
18	287	51	59	142	62	150	110	231	187	99	177	266
19	93	49	56	97	62	147	119	225	167	84	117	184
20	62	49	59	86	62	137	216	222	153	76	108	145
21	52	49	57	82	62	153	228	216	142	69	110	119
22	49	48	54	76	69	164	187	204	132	66	99	103
23	48	45	56	75	69	145	195	192	124	62	106	93
24	46	45	57	73	73	134	1,380	181	119	59	97	86
25	43	46	54	73	871	132	2,590	172	117	64	88	80
26	42	48	51	76	4,680	184	1,700	167	150	67	80	78
27	42	49	51	80	2,670	565	858	204	117	62	78	76
28	42	48	52	75	756	250	794	216	117	62	78	73
29	42	45	51	73	-	192	775	382	108	60	75	71
30	42	48	49	75	-	170	610	253	103	57	71	67
31	42	-	46	75	-	156	-	216	-	54	71	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,763	372	25	56.9	3,500
November	1,332	51	39	44.4	2,640
December	1,623	69	46	52.4	3,220
Calendar year 1948	27,863	2,740	13	76.1	55,280
January	2,139	142	46	69.0	4,240
February	10,564	4,680	59	377	20,950
March	6,654	565	132	215	13,200
April	12,059	2,590	110	402	23,920
May	9,287	1,050	167	300	18,420
June	5,112	504	103	170	10,140
July	2,440	137	54	78.7	4,840
August	3,972	428	46	128	7,880
September	3,361	768	63	112	6,670
Water year 1948-49	60,306	4,680	25	165	119,600

Peak discharge (base, 4,000 sec.-ft.).- Feb. 26 (11:30 p.m.) 8,540 sec.-ft.; Apr. 24 (8 p.m.) 7,880 sec.-ft.; May 10 (7:30 a.m.) 4,410 sec.-ft.

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

Guadalupe River above Comal River, at New Braunfels, Tex.

Location.- Water-stage recorder and concrete control, lat. 29°42'55", long. 98°06'40", at New Braunfels, Comal County, 1.1 miles upstream from Comal River. Datum of gage is 586.6 feet above mean sea level, datum of 1929.

Drainage area.- 1,666 square miles.

Records available.- December 1927 to September 1949. March 1898 to December 1899 and January 1915 to December 1927 at site 1 mile downstream from Comal River.

Average discharge.- 21 years (1928-49), 405 second-feet.

Extremes.- Maximum discharge during year, 9,080 second-feet Feb. 27 (gage height, 8.60 feet); minimum, 25 second-feet Oct. 15, 16 (gage height, 0.97 foot).

1927-49: Maximum discharge, 101,000 second-feet June 15, 1935 (gage height, 32.95 feet); minimum, 9.6 second-feet July 9-11, 1939.

Maximum stage known, 38 feet in 1869 and in December 1913, from information by local residents.

Remarks.- Records good. Small diversions above station for irrigation. Some regulation at low flow by small power plants above station.

Revisions (water year).- W 898: 1935.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

1.0	28	2.0	190	3.0	995
1.2	49	2.2	280	3.5	1,690
1.4	72	2.4	415	4.0	2,420
1.6	100	2.6	580	5.0	3,860
1.8	136	2.8	773	6.0	5,320

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	48	51	60	96	826	238	938	299	150	78	81
2	40	48	51	60	92	626	244	826	280	146	77	77
3	38	47	51	60	91	504	228	743	259	141	75	76
4	35	47	53	59	97	431	233	664	233	146	75	75
5	34	46	56	59	98	379	270	608	217	138	71	84
6	31	46	54	59	96	337	270	580	209	123	132	91
7	30	47	54	58	94	305	259	554	205	125	162	84
8	28	47	53	58	91	280	244	529	224	128	177	77
9	26	48	53	58	91	264	233	487	502	123	265	76
10	27	47	54	60	86	244	224	792	324	110	203	73
11	28	46	54	61	82	233	213	969	280	107	414	71
12	28	48	56	61	81	224	201	608	286	103	293	71
13	27	52	57	62	85	220	194	495	275	100	249	70
14	27	56	59	65	81	476	194	455	259	201	205	67
15	25	57	62	66	78	293	184	431	312	242	178	67
16	25	56	64	80	75	299	178	408	254	128	163	91
17	125	53	66	117	73	286	172	401	254	112	148	98
18	374	53	76	105	72	259	175	393	238	167	146	554
19	288	53	81	157	75	249	202	386	238	146	158	259
20	140	53	72	128	76	249	286	372	220	126	170	190
21	94	53	66	112	76	259	447	357	209	110	125	158
22	73	52	66	102	84	244	447	343	194	102	136	134
23	62	54	68	100	88	254	423	330	184	96	119	115
24	58	53	66	96	92	238	487	312	175	90	114	103
25	56	53	65	90	137	224	2,560	299	175	88	115	96
26	54	52	65	88	2,060	270	2,780	286	201	90	107	91
27	52	52	64	91	5,250	398	1,690	305	213	97	102	90
28	51	51	62	107	1,390	595	1,250	305	178	92	100	88
29	49	50	64	102	-	357	1,300	324	166	84	92	80
30	49	51	62	96	-	299	1,120	463	155	84	90	78
31	49	-	61	100	-	264	-	357	-	81	85	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,061	374	25	66.5	4,090
November	1,519	57	46	50.6	3,010
December	1,886	81	51	60.8	3,740
Calendar year 1948	32,930	2,320	21	90.0	65,310
January	2,577	157	58	83.1	5,110
February	10,887	5,250	72	389	21,590
March	10,386	826	220	335	20,600
April	16,946	2,780	172	565	33,610
May	15,310	969	286	494	30,370
June	7,218	502	155	241	14,320
July	3,776	242	81	122	7,490
August	4,624	414	71	149	9,170
September	3,365	554	67	112	6,670
Water year 1948-49	80,555	5,250	25	221	159,800

Peak discharge (base, 3,100 sec.-ft.).- Feb. 27 (10 a.m.) 9,080; Apr. 25 (10 a.m.) 5,600 sec.-ft.

Guadalupe River at Victoria, Tex.

Location.- Water-stage recorder, lat. 28°47', long. 97°01', at bridge on U. S. Highway 59 in Victoria, Victoria County, 1,300 feet upstream from Texas & New Orleans Railroad bridge and 10 miles upstream from Coleto Creek. Datum of gage is 29.23 feet above mean sea level, datum of 1929.

Drainage area.- 5,311 square miles.

Records available.- November 1934 to September 1949. Gage-height records collected in this vicinity since 1904 are contained in reports of U. S. Weather Bureau.

Average discharge.- 14 years (1935-49), 1,837 second-feet.

Extremes.- Maximum discharge during year, 20,600 second-feet Apr. 30 (gage height, 28.53 feet); minimum, 222 second-feet Nov. 11; minimum daily, 320 second-feet Oct. 10.
1934-49: Maximum discharge, 179,000 second-feet July 3, 1936 (gage height, 31.22 feet); minimum daily, 275 second-feet Aug. 18, 1948.

Remarks.- Records good. Many small diversions above station do not materially affect flow. Low flow partly regulated by power plants above station. Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	360	373	414	386	533	9,410	1,040	19,200	1,250	906	626	610
2	373	386	429	429	579	7,810	855	12,300	1,250	722	610	488
3	386	347	414	444	533	2,900	788	4,400	1,220	821	626	473
4	373	458	458	360	444	1,980	872	3,160	1,110	804	689	518
5	386	386	400	414	533	1,500	872	2,740	1,010	754	841	503
6	344	373	400	400	564	1,320	821	2,490	940	872	1,080	488
7	347	373	414	444	548	1,220	754	2,130	906	771	906	488
8	327	347	429	429	548	1,040	659	1,940	906	754	689	518
9	337	337	429	429	564	1,040	804	2,090	1,040	689	657	673
10	320	344	429	414	548	974	804	1,940	974	657	641	594
11	322	347	429	429	533	906	738	2,130	1,040	626	940	548
12	334	373	429	386	488	788	722	2,290	1,180	641	771	548
13	334	400	429	400	503	838	838	2,370	1,140	657	754	473
14	340	400	414	429	533	738	738	2,250	1,860	657	804	458
15	400	458	400	400	548	1,280	722	1,980	2,910	673	754	400
16	360	444	415	458	518	1,720	626	1,760	1,760	1,820	705	473
17	400	373	444	458	548	1,460	673	1,540	1,280	2,170	610	473
18	360	400	458	444	518	974	641	1,500	1,280	1,430	626	548
19	437	503	444	533	533	906	705	1,430	1,110	1,080	641	473
20	1,640	444	473	503	503	838	722	1,390	974	754	610	533
21	1,010	400	444	564	518	738	2,360	1,360	940	657	594	1,030
22	872	400	429	564	503	872	5,190	1,320	940	657	564	1,360
23	689	429	429	564	503	754	7,310	1,320	872	689	610	722
24	518	400	414	657	788	657	7,710	1,280	940	673	503	689
25	458	373	473	594	1,500	821	9,860	1,430	838	772	488	579
26	400	429	444	579	1,760	771	11,500	1,500	771	1,040	503	564
27	414	400	429	626	3,840	771	12,500	1,720	705	1,430	518	548
28	429	386	386	564	7,990	754	14,000	1,360	855	1,320	548	473
29	373	386	386	579	-	738	17,100	1,180	872	872	564	503
30	414	429	400	610	-	872	20,100	1,180	1,040	657	488	503
31	386	-	444	641	-	1,180	-	1,140	-	657	518	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	14,443	1,640	320	466	28,650
November	11,898	503	337	397	23,600
December	13,229	473	386	427	26,240
Calendar year 1948	237,166	6,710	275	648	470,400
January	15,131	657	360	488	30,010
February	28,021	7,990	444	1,000	55,580
March	48,570	9,410	657	1,570	96,340
April	123,024	20,100	626	4,100	244,000
May	85,820	19,200	1,140	2,770	170,200
June	33,913	2,910	705	1,130	67,270
July	27,682	2,170	626	893	54,910
August	20,478	1,080	488	661	40,620
September	17,251	1,360	400	575	34,220
Water year 1948-49	439,460	20,100	320	1,200	871,600

Peak discharge (base, 7,800 sec.-ft.).- Mar. 1 (11:30 p.m.) 9,780 sec.-ft.; Apr. 30 (8:30 p.m.) 20,600 sec.-ft.

Johnson Creek near Ingram, Tex.

Location.- Water-stage recorder, lat. 30°05', long. 99°16', 1.3 miles upstream from Henderson Branch, 3 miles northwest of Ingram, Kerr County, 4.5 miles upstream from mouth, and 9.5 miles northwest of Kerrville. Datum of gage is 1,721.3 feet above mean sea level, datum of 1929.

Drainage area.- About 150 square miles.

Records available.- September 1941 to September 1949.

Extremes.- Maximum discharge during year, 2,910 second-feet Apr. 24 (gage height, 6.63 feet), from rating curve extended above 1,800 second-feet on basis of slope-area determinations at gage heights 9.67 and 11.76 feet; minimum, 3.6 second-feet Oct. 4 (gage height, 1.58 feet).

1941-49: Maximum discharge, 16,200 second-feet June 23, 1947 (gage height, 11.76 feet), from rating curve extended as noted above; minimum, 2.6 second-feet Aug. 19, 20, 1946.

Maximum stage known since 1852, about 35 feet July 2, 1932, from information by local resident; discharge, 138,000 second-feet by slope-area method at point half a mile downstream from State Fish Hatchery and about 6 or 7 miles upstream from gage. Flood of June 14, 1935, reached a stage of about 31 or 32 feet, from information by local resident.

Remarks.- Records good except those above 200 second-feet, which are poor. Small diversions above station for irrigation.

Revisions (water years).- W 1058: 1942-45.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.0	8.4	8.8	8.8	9.1	24	11	21	9.9	6.9	6.3	13
2	4.0	8.4	8.8	8.8	9.1	20	14	20	9.9	8.0	5.7	10
3	4.0	8.0	8.8	8.8	9.9	18	12	18	9.5	9.5	5.7	11
4	3.8	8.0	8.8	8.4	9.9	17	11	20	8.8	9.1	5.4	9.5
5	4.0	7.3	8.8	7.6	9.1	16	11	18	9.5	9.5	6.0	8.8
6	4.6	6.9	8.4	8.0	9.1	15	11	16	12	8.8	7.3	8.4
7	6.6	6.6	8.4	7.6	9.5	14	11	16	16	7.6	13	8.4
8	6.9	6.3	8.4	8.4	9.1	14	10	15	12	7.3	16	8.0
9	7.3	6.9	8.0	8.4	8.8	14	11	15	16	6.9	17	8.0
10	7.6	7.3	8.0	9.1	9.1	13	10	18	13	6.9	12	8.4
11	7.6	8.4	8.0	9.9	8.4	13	10	15	11	6.6	9.5	11
12	7.6	9.5	8.4	11	8.4	12	10	14	14	6.3	8.8	9.1
13	7.6	8.4	8.0	9.9	11	13	9.9	14	14	6.3	8.4	9.5
14	7.6	8.8	8.0	9.5	9.5	13	9.9	13	13	6.9	8.0	8.8
15	8.0	8.0	8.8	9.5	9.1	12	9.5	13	14	10	8.0	8.4
16	8.0	8.0	8.4	16	8.4	12	9.9	13	12	8.4	7.6	85
17	9.5	7.6	8.4	12	8.0	12	9.9	14	11	7.6	9.1	28
18	8.0	7.6	9.1	10	8.4	12	9.9	15	9.9	7.3	9.5	16
19	8.0	7.6	8.8	9.9	8.8	12	11	14	9.5	6.9	8.0	14
20	8.4	8.0	8.8	9.9	8.4	12	13	14	9.5	6.6	11	13
21	8.8	8.8	8.8	10	8.4	14	12	13	8.8	6.3	12	12
22	8.8	8.8	10	10	10	13	11	12	8.4	6.3	8.8	11
23	8.0	8.8	11	9.9	39	13	11	12	8.4	5.7	8.4	11
24	8.0	8.8	9.9	9.9	31	13	378	11	8.4	6.0	8.0	11
25	8.4	8.8	9.5	9.9	598	12	110	10	9.5	7.6	7.6	9.9
26	7.6	9.1	9.1	11	100	13	43	11	9.5	8.4	8.8	9.9
27	7.6	8.8	9.1	10	43	12	33	11	9.5	7.3	8.0	10
28	7.6	8.4	9.5	9.9	30	12	30	17	8.8	6.9	8.0	10
29	8.4	8.4	9.5	8.8	-	11	27	13	8.0	6.3	7.6	9.9
30	8.4	8.4	8.8	9.1	-	11	22	11	7.6	6.3	7.3	9.1
31	8.4	-	8.4	9.1	-	11	-	11	-	6.0	8.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	223.1	9.5	3.8	7.20	443
November	243.1	9.5	6.3	8.10	482
December	273.5	11	8.0	8.82	542
Calendar year 1948	3,980.3	141	3.8	10.9	7,900
January	299.1	16	7.6	9.65	593
February	1,040.5	598	8.0	37.2	2,060
March	423	24	11	13.6	839
April	892.0	378	9.5	29.7	1,770
May	448	21	10	14.5	889
June	321.4	16	7.6	10.7	637
July	226.5	10	5.7	7.31	449
August	274.8	17	5.4	8.86	545
September	400.1	85	8.0	13.3	794
Water year 1948-49	5,065.1	598	3.8	13.9	10,040

Peak discharge (base, 1,000 sec.-ft.).- Feb. 25 (1 p.m.) 2,000 sec.-ft.; Apr. 24 (5 p.m.) 2,910 sec.-ft.;

Comal River at New Braunfels, Tex.

Location.- Water-stage recorder, lat. 29°42'05", long. 98°07'10", 200 feet upstream from San Antonio Street viaduct in New Braunfels, Comal County, and 1.1 miles upstream from mouth. Datum of gage is 582.80 feet above mean sea level, datum of 1929.

Drainage area.- 94 square miles. Ordinary flow of river comes from springs; drainage area of stream not applicable.

Records available.- December 1927 to September 1949. 1882 to November 1927 (discharge measurements only).

Average discharge.- 17 years (1932-49), 338 second-feet.

Extremes.- Maximum discharge during year, 2,250 second-feet Apr. 28 (gage height, 7.43 feet); minimum daily, 238 second-feet Feb. 19-21.
1927-49: Maximum gage height, 30.71 feet June 15, 1935, from floodmarks, backwater from Guadalupe River (discharge not determined); minimum discharge, about 142 second-feet Dec. 11, 1928 (gage height, 2.12 feet); minimum daily, that of Feb. 19-21, 1949
Maximum stage known, 35.4 feet in December 1913, from floodmarks (probably some backwater from Guadalupe River).

Remarks.- Records good except those for period of backwater, which are fair. Flow partly regulated by steam power plant half a mile above station. Entire flow of river from Comal Springs, about 1 mile above station, except during periods of local rain. Springs emerge from the Edwards limestone in the Balcones fault zone.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	254	262	262	260	248	254	271	305	308	331	308	305
2	254	260	262	260	246	254	271	301	311	328	305	301
3	254	257	260	262	246	257	271	298	318	328	305	301
4	254	262	257	262	248	260	271	298	314	324	301	301
5	248	262	257	260	248	262	271	305	314	328	305	295
6	248	271	257	260	248	265	271	305	314	331	308	298
7	248	262	260	260	248	265	271	301	314	321	308	292
8	251	260	254	260	246	271	271	305	308	321	311	298
9	251	260	254	260	248	271	271	305	314	318	308	295
10	251	257	257	260	248	274	268	311	311	321	308	292
11	251	260	254	260	246	280	271	311	311	318	308	295
12	248	262	254	262	240	280	274	311	311	308	311	292
13	248	262	257	265	246	280	271	311	318	311	311	289
14	248	265	254	262	246	280	271	308	314	311	308	286
15	248	262	254	260	243	277	271	314	314	311	311	283
16	248	262	257	262	240	277	271	318	314	308	301	289
17	265	260	254	260	240	274	268	314	318	308	305	286
18	260	257	257	262	240	274	268	321	311	308	305	289
19	265	260	254	262	238	274	292	324	318	298	305	292
20	265	260	254	260	238	274	331	324	318	301	305	286
21	265	260	254	260	238	274	286	321	308	301	308	286
22	268	262	254	257	240	274	324	324	311	298	305	283
23	268	262	254	257	240	274	361	321	314	295	305	283
24	268	262	254	257	240	274	365	321	314	298	301	277
25	268	262	257	254	305	274	c518	321	318	301	308	274
26	265	260	257	254	280	280	c331	318	361	301	305	277
27	265	260	257	251	274	274	331	321	334	311	308	274
28	268	260	257	254	265	271	838	321	328	305	305	277
29	265	260	257	251	-	271	345	321	328	311	305	277
30	265	260	257	251	-	271	305	314	328	308	305	277
31	265	-	257	251	-	271	-	308	-	308	298	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,989	268	248	258	15,850
November	7,831	271	257	261	15,530
December	7,944	262	254	256	15,760
Calendar year 1948	101,372	313	248	277	201,100
January	8,016	265	251	259	15,900
February	6,973	305	238	249	13,830
March	8,411	280	254	271	16,680
April	9,499	838	268	317	18,840
May	9,701	324	298	313	19,240
June	9,517	361	308	317	18,880
July	9,670	331	295	312	19,180
August	9,490	311	298	306	18,820
September	8,650	305	274	288	17,160
Water year 1948-49	103,691	838	238	284	205,700

Peak discharge (base, 1,100 sec.-ft.).- Apr. 28 (2:30 p.m.) 2,250 sec.-ft.
c Stage-discharge relation affected by backwater from Guadalupe River.
Note.- No gage-height record Dec. 22 to Jan. 2, Jan. 6-10, Feb. 25-28; discharge computed on basis of weather records.

San Marcos River at Luling, Tex.

Location.- Water-stage recorder, lat. 29°39'55", long. 97°39'05", 390 feet downstream from bridge on State Highway 80, 1 mile south of Luling, Caldwell County, and 8 miles upstream from Plum Creek. Datum of gage is 322.0 feet above mean sea level, datum of 1929.

Drainage area.- 833 square miles.

Records available.- April 1939 to September 1949.

Average discharge.- 10 years, 368 second-feet.

Extremes.- Maximum discharge during year, 12,500 second-feet Apr. 25 (gage height, 29.43 feet); minimum, 19 second-feet Apr. 5, minimum daily, 78 second-feet Oct. 3.

1939-49: Maximum discharge, 29,500 second-feet July 5, 1942 (gage height, 32.93 feet); minimum, 7.7 second-feet May 21, 1943; minimum daily, 55 second-feet Oct. 15, 1939.

Maximum stage known, 40.4 feet in 1869 and 1870, from information by engineers of State Highway Department.

Remarks.- Records fair. Flow regulated by power plant 800 feet above station. Discharge is mostly from large springs near San Marcos. No large diversion above station.

Revisions (water years).- W 958: 1940.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	92	95	92	96	99	237	161	644	244	176	117	111
2	94	95	96	98	83	216	162	596	216	190	118	110
3	78	98	98	99	99	183	160	532	202	196	118	108
4	92	101	95	104	95	165	157	485	190	165	119	90
5	98	94	104	94	100	126	145	455	190	164	119	113
6	95	99	88	98	98	145	156	425	176	153	126	113
7	88	89	89	100	105	122	154	410	183	148	124	111
8	94	99	89	90	95	127	143	395	183	160	162	107
9	92	96	93	102	99	119	153	365	183	152	143	112
10	93	96	90	99	94	131	158	672	183	152	127	112
11	96	101	94	105	100	111	143	574	176	143	119	104
12	93	92	94	95	100	117	145	502	196	145	122	108
13	89	105	93	104	95	123	141	365	183	138	116	110
14	93	100	102	104	112	132	140	321	176	135	116	107
15	87	112	95	102	101	121	140	307	258	140	121	107
16	89	105	98	111	104	126	140	293	196	138	117	108
17	1,330	102	92	116	106	128	a140	293	176	145	114	111
18	315	99	98	102	106	132	a140	286	190	135	126	107
19	268	96	100	111	110	118	a234	286	183	127	112	330
20	170	96	98	105	112	130	g2,980	272	176	118	113	148
21	130	99	94	164	113	131	g744	f258	169	113	116	114
22	127	96	93	116	328	135	g3,420	f251	176	106	104	112
23	112	100	98	106	168	150	532	a237	176	98	114	110
24	94	92	98	107	163	123	580	f251	166	102	127	106
25	100	95	102	107	2,350	148	8,750	350	169	161	114	95
26	95	89	94	154	3,740	170	7,200	f251	176	135	111	104
27	98	95	92	165	642	173	1,310	f251	176	124	104	111
28	100	104	102	135	335	399	3,160	f272	258	123	107	104
29	98	86	94	104	-	244	2,990	f372	216	123	110	112
30	95	104	99	95	-	196	770	380	190	121	113	104
31	98	-	95	98	-	176	-	279	-	119	111	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	4,693	1,330	78	151	9,310
November	2,930	112	86	97.7	5,810
December	2,959	104	88	95.5	5,870
Calendar year 1948	44,858	1,330	66	123	88,980
January	3,386	165	90	109	6,720
February	9,852	3,740	83	352	19,540
March	4,854	399	111	157	9,630
April	35,348	8,750	140	1,178	70,110
May	11,630	672	237	375	23,070
June	5,732	258	166	191	11,370
July	4,345	196	98	140	8,620
August	3,680	162	104	119	7,300
September	3,499	330	90	117	6,940
Water year 1948-49	92,908	8,750	78	255	184,300

Peak discharge (base, 2,900 sec.-ft.).- Feb. 26 (4 a.m.) 7,700 sec.-ft.; Apr. 20 (6 p.m.) 3,970 sec.-ft.; Apr. 22 (9 a.m.) 5,680 sec.-ft.; Apr. 25 (10:30 a.m.) 12,500 sec.-ft.; Apr. 28 (12 p.m.) 7,590 sec.-ft.

a No gage-height record; discharge computed on basis of estimated gage heights and weather records.
f Computed on basis of partly estimated gage-height record.
g Computed from graph based on gage readings.

Blanco River at Wimberley, Tex.

Location.- Water-stage recorder, lat. 29°59', long. 98°04', 800 feet downstream from Cypress Creek, 1,200 feet upstream from bridge on State Highway 12, and a quarter of a mile south of Wimberley, Hays County. Datum of gage is 802.2 feet above mean sea level, datum of 1929.

Drainage area.- 378 square miles.

Records available.- August 1924 to September 1926, June 1928 to September 1949

Average discharge.- 23 years, 110 second-feet.

Extremes.- Maximum discharge during year, 18,300 second-feet Apr. 25 (gage height, 14.20 feet), from rating curve extended above 6,600 second-feet by slope-area determinations at gage heights 19.3 and 31.1 feet; minimum, 7.2 second-feet Oct. 13, 14.
1924-26, 1928-49: Maximum discharge, 113,000 second-feet May 28, 1929 (gage height, 31.10 feet, from floodmarks), by slope-area method; minimum, 2.9 second-feet Oct. 5, 6, 1940.

Remarks.- Records good. No diversion above station.

Rating tables, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 19 to Nov. 30, Dec. 20 to Feb. 11, May 30 to June 30, Sept. 16-30)

Oct. 1 to 16		Oct. 17 to Sept. 30					
0.35	7.2	0.40	9.5	0.80	90	2.5	994
.40	14	.45	15	1.0	158	3.0	1,480
		.50	22	1.2	238	4.0	2,610
		.55	30	1.4	329	5.0	3,890
		.60	40	1.6	430	6.0	5,200
		.70	63	2.0	653		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.6	12	12	13	15	47	47	315	74	36	22	15
2	11	10	12	13	15	38	47	278	68	38	22	15
3	11	10	12	13	15	32	45	247	66	38	22	15
4	9.6	12	12	13	16	28	58	230	61	42	20	15
5	9.6	12	12	13	16	28	58	213	58	45	28	15
6	9.6	12	13	13	15	27	61	200	58	38	25	15
7	8.4	13	12	13	15	25	54	188	58	34	25	15
8	8.4	13	12	13	14	25	52	181	58	34	25	15
9	8.4	14	12	12	14	24	49	169	54	34	24	16
10	8.4	14	12	13	14	22	49	617	52	32	24	16
11	8.4	14	12	13	13	22	45	256	49	32	24	15
12	8.4	15	12	13	13	20	45	173	52	30	22	15
13	8.4	17	12	14	13	24	42	154	61	30	20	15
14	8.4	17	14	14	12	25	40	144	54	34	20	15
15	8.4	15	16	14	12	20	38	136	54	36	20	15
16	9.8	14	16	30	12	20	38	126	90	34	20	17
17	519	14	14	19	12	20	38	126	61	34	43	16
18	104	13	14	16	12	19	38	126	49	32	36	14
19	36	13	13	15	12	19	52	116	45	32	25	14
20	20	13	13	14	12	19	274	109	42	30	22	14
21	17	14	13	15	12	24	173	106	40	28	20	13
22	16	14	13	15	15	25	116	103	38	28	19	13
23	15	13	13	17	14	36	109	96	36	27	19	13
24	14	13	13	16	14	32	128	90	34	25	19	13
25	14	13	13	16	210	30	4,640	87	40	27	17	13
26	14	13	13	16	549	356	665	123	107	28	17	13
27	14	13	13	17	122	211	479	96	82	25	17	14
28	13	13	13	17	68	93	556	415	52	25	17	14
29	13	12	13	16	-	66	430	173	45	25	17	13
30	13	12	13	17	-	56	349	100	38	24	16	13
31	12	-	13	16	-	49	-	82	-	22	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	979.8	519	8.4	31.6	1,940
November	397	17	10	13.2	787
December	400	16	12	12.9	793
Calendar year 1948	7,891.2	1,050	7.2	21.6	15,640
January	469	30	12	15.1	930
February	1,276	549	12	45.6	2,530
March	1,482	356	19	47.8	2,940
April	8,815	4,640	38	294	17,480
May	5,575	617	82	180	11,060
June	1,676	107	34	55.9	3,320
July	979	45	22	31.6	1,940
August	683	43	16	22.0	1,350
September	434	17	13	14.5	861
Water year 1948-49	23,165.8	4,640	8.4	63.5	45,930

Peak discharge (base, 1,800 sec.-ft.).- Feb. 25 (11 p.m.) 2,490 sec.-ft.; Apr. 25 (1:30 a.m.) 18,300 sec.-ft.; May 10 (1:30 p.m.) 2,790 sec.-ft.

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Plum Creek near Luling, Tex.

Location.- Water-stage recorder, lat. 29°42', long. 97°37', at county highway bridge 1 mile downstream from West Fork Plum Creek, 2 miles upstream from Texas & New Orleans Railroad bridge, 3 miles northeast of Luling, Caldwell County. Datum of gage is 326.6 feet above mean sea level, datum of 1929.

Drainage area.- 356 square miles.

Records available.- March 1930 to September 1949.

Average discharge.- 19 years, 101 second-feet.

Extremes.- Maximum discharge during year, 7,500 second-feet Apr. 26 (gage height, 17.33 feet); minimum, 0.4 second-foot Oct. 7-10, 12-14, Sept. 2-7, 16, 17.

1930-49: Maximum discharge, 78,500 second-feet July 1, 1936 (gage height, 25.7 feet, from floodmarks), from rating curve extended above 54,000 second-feet; minimum, that of Oct. 7-10, 12-14, Sept. 2-7, 16, 17, 1949.

Flood in December 1913 reached about same stage as that of July 1, 1936, from information by local residents.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Slight regulation at low flow by oil-field operations above station. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	1.7	2.0	3.5	7.2	22	7.7	75	9.6	3.5	3.3	0.5
2	.6	1.5	2.2	3.5	9.6	19	8.2	68	6.2	6.4	2.8	.4
3	.6	1.4	2.6	3.5	7.7	18	11	60	5.2	13	2.6	.4
4	.6	1.3	2.0	3.5	7.2	13	12	50	4.9	7.7	2.2	.4
5	.8	1.2	2.4	3.5	6.2	11	11	39	4.9	5.6	8.9	.4
6	.8	1.2	2.6	3.5	6.2	11	13	29	4.6	4.9	20	.4
7	.5	1.2	2.4	3.5	5.9	9.6	9.1	24	4.6	4.2	5.2	.6
8	.4	1.4	2.0	4.9	5.2	8.2	7.7	18	4.6	3.7	3.7	1.8
9	.4	1.5	2.2	5.2	5.2	8.2	7.7	14	4.6	3.7	3.5	1.7
10	.5	1.8	2.6	4.6	4.9	7.7	103	366	8.6	3.5	3.5	.9
11	.5	1.8	2.6	3.9	4.9	7.7	26	28	5.2	3.3	3.3	.8
12	.5	2.4	2.8	3.9	4.9	7.2	10	19	6.9	3.1	2.6	1.4
13	.4	3.1	3.1	3.9	4.9	6.5	7.7	16	34	2.8	2.2	1.3
14	.5	7.9	3.5	4.2	5.2	6.9	6.5	12	12	3.5	2.0	.9
15	.6	4.6	3.5	4.6	8.3	6.5	6.2	10	71	48	2.0	.9
16	.6	3.3	3.5	9.6	5.9	6.5	5.9	9.6	32	18	2.0	.5
17	6.2	2.6	3.5	14	4.6	6.5	5.9	9.6	15	6.5	1.8	1.9
18	131	2.4	3.7	9.6	4.6	6.5	6.2	9.1	7.7	4.6	1.4	1.8
19	20	2.4	3.9	5.6	4.6	6.5	9.8	9.1	6.5	3.7	1.3	4.3
20	11	2.0	3.7	4.6	4.6	6.5	1,630	8.2	5.6	3.7	1.3	4.5
21	4.9	1.7	3.7	18	4.9	7.7	936	7.7	5.2	3.5	1.2	2.2
22	2.6	1.7	3.7	42	61	10	1,950	6.9	4.9	3.3	1.0	1.5
23	1.8	2.0	3.7	14	33	11	636	6.5	4.9	3.1	1.0	1.3
24	1.7	2.2	3.7	9.6	10	14	176	6.5	4.6	3.1	.9	1.4
25	1.5	2.8	4.6	10	2,290	12	3,310	10	4.2	34	.9	1.7
26	1.4	3.1	4.6	24	2,950	15	5,180	7.2	3.9	66	.8	.8
27	1.4	3.1	4.2	64	266	16	1,560	17	4.2	9.1	1.8	.5
28	1.4	2.8	3.5	85	52	16	1,130	12	4.9	4.6	1.8	.6
29	1.5	12	3.5	24	-	12	2,080	24	4.6	4.2	1.0	.9
30	2.6	2.6	3.5	10	-	8.6	136	11	3.9	3.3	.8	.6
31	2.4	-	3.3	8.6	-	8.2	-	8.6	-	3.3	.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	200.3	131	0.4	6.46	397
November	80.7	12	1.2	2.69	160
December	98.8	4.6	2.0	3.19	196
Calendar year 1948	4,725.0	972	.4	12.9	9,370
January	412.3	85	3.5	13.3	818
February	5,764.6	2,950	4.6	207	11,470
March	325.5	22	6.5	10.5	646
April	18,998.6	5,180	5.9	633	37,680
May	991.0	366	6.5	32.0	1,970
June	299.0	71	3.9	9.97	593
July	290.9	66	2.8	9.38	577
August	87.6	20	.8	2.83	174
September	37.2	4.5	.4	1.24	74
Water year 1948-49	27,606.6	5,180	.4	75.6	54,760

Peak discharge (base, 2,600 sec.-ft.).- Feb. 25 (12 p.m.) 5,300 sec.-ft.; Apr. 20 (10 p.m.) 2,770 sec.-ft.; Apr. 22 (5:30 p.m.) 2,850 sec.-ft.; Apr. 26 (1:30 a.m.) 7,500 sec.-ft.; Apr. 29 (8:30 a.m.) 2,850 sec.-ft.

Note.- No gage-height record May 2-9, 11-31, July 9-12, Aug. 12, 13; discharge computed on basis of recorded range in stage and weather records.

Coleto Creek near Victoria, Tex.

Location.- Water-stage recorder, lat. 28°43', long. 97°08', at bridge on U. S. Highway 59, 100 feet upstream from Texas & New Orleans Railroad bridge, 1.1 miles downstream from Perdido Creek, and 9.4 miles southwest of Victoria, Victoria County. Datum of gage is 49.2 feet above mean sea level, datum of 1929.

Drainage area.- 514 square miles.

Records available.- June 1939 to September 1949.

Average discharge.- 10 years, 101 second-feet.

Extremes.- Maximum discharge during year, 2,700 second-feet Apr. 26, July 16; maximum gage height, 6.89 feet Apr. 26; minimum discharge, 0.4 second-foot Oct. 7, 8, 9.
1939-49: Maximum discharge, 89,000 second-feet Oct. 16, 1946 (gage height, 31.64 feet, from floodmarks), by slope-area method; no flow at times.
Maximum stage known prior to October 1946, 27.2 feet July 1, 1936, at railroad bridge 100 feet below gage, from information by railroad company.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.7	1.8	2.2	1.6	4.5	12	5.7	74	19	13	8.9	4.0
2	.7	1.6	2.2	2.0	4.7	14	6.2	49	16	10	7.0	3.6
3	.7	1.6	2.3	2.2	5.4	11	6.4	37	14	13	6.2	3.1
4	.7	1.8	2.7	1.4	4.7	9.2	7.7	31	12	17	5.7	2.9
5	.7	1.6	2.2	1.4	4.7	8.6	9.2	26	11	12	6.6	2.7
6	.7	1.6	2.3	1.2	4.2	8.0	7.2	24	9.8	8.9	88	2.9
7	.5	1.6	2.0	1.4	4.0	7.2	6.2	22	9.2	7.5	100	3.6
8	.5	1.8	2.2	1.6	3.6	7.2	5.7	19	42	6.7	49	3.3
9	.5	2.0	1.6	2.2	3.8	7.0	5.2	18	33	6.2	38	3.6
10	.7	2.5	1.8	2.2	3.6	6.2	4.9	16	23	5.7	36	4.0
11	.8	2.2	2.0	1.6	3.3	5.9	4.5	15	213	4.9	23	3.6
12	1.0	2.3	2.2	1.4	4.0	6.4	4.2	14	207	4.7	14	8.8
13	1.0	3.6	2.5	1.6	4.7	6.7	4.0	13	56	4.5	12	12
14	.8	3.8	2.9	1.8	4.9	7.7	3.8	12	737	4.7	9.8	8.0
15	.8	3.8	2.9	2.2	4.5	7.2	3.1	11	291	66	8.3	7.2
16	1.1	4.2	2.9	3.6	4.5	6.7	3.1	11	95	980	7.2	9.2
17	1.0	4.2	2.7	5.9	5.4	6.4	2.9	11	56	197	6.7	8.3
18	1.8	3.1	2.5	4.9	9.2	5.4	3.1	10	39	44	5.9	5.9
19	1.4	2.2	2.5	4.0	9.8	5.4	19	9.8	28	23	5.4	5.2
20	1.4	2.3	2.5	3.6	7.7	5.9	14	9.2	23	16	4.9	9.2
21	1.4	2.2	2.3	6.2	7.7	7.2	13	8.9	20	12	4.5	21
22	1.6	2.3	2.0	6.7	8.3	6.4	27	8.6	18	10	4.0	15
23	1.8	2.3	2.3	7.7	6.7	6.2	156	8.3	16	8.9	3.8	10
24	1.4	2.0	2.3	7.2	6.2	6.2	300	8.7	14	8.0	3.3	7.5
25	1.4	2.2	1.4	5.7	49	6.7	636	206	13	11	3.1	5.9
26	1.2	2.3	1.4	5.4	68	8.3	1,780	318	15	84	2.9	5.2
27	1.2	2.3	1.6	5.9	18	8.0	348	647	12	26	5.7	5.2
28	1.6	1.2	2.2	5.2	12	6.7	142	189	12	16	4.9	4.2
29	1.8	2.2	1.4	3.8	-	6.7	212	68	12	39	3.3	3.6
30	1.8	1.8	1.6	4.0	-	7.2	146	39	18	25	6.7	3.1
31	1.8	-	1.4	4.0	-	7.0	-	25	-	12	5.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	34.5	1.8	0.5	1.11	68
November	70.4	4.2	1.2	2.35	140
December	67.0	2.9	1.4	2.16	133
Calendar year 1948	4,705.1	774	.1	12.9	9,330
January	109.6	7.7	1.2	3.54	217
February	277.1	68	3.3	9.90	550
March	230.7	14	5.4	7.44	458
April	3,886.1	1,780	2.9	130	7,710
May	1,958.5	647	8.3	63.2	3,880
June	2,084.0	737	9.2	69.5	4,130
July	1,696.7	980	4.5	54.7	3,370
August	490.0	100	2.9	15.8	972
September	191.8	21	2.7	6.39	380
Water year 1948-49	11,096.4	1,780	.5	30.4	22,010

Peak discharge (base, 2,600 sec.-ft.).- Apr. 26 (6:30 a.m.) 2,700 sec.-ft.; July 16 (11 a.m.) 2,700 sec.-ft.

San Antonio River at San Antonio, Tex.

Location.- Water-stage recorder, lat. 29°24'35", long. 98°29'40", at South Alamo Street bridge in San Antonio, Bexar County, 2.1 miles upstream from San Pedro Creek. Datum of gage is 612.3 feet above mean sea level, datum of 1929.

Drainage area.- 42 square miles. Normal flow of river comes from springs; drainage area of stream not applicable.

Records available.- January 1915 to November 1929, February 1939 to September 1949. Estimated monthly ground-water discharge contained in Water-Supply Paper 773-B

Average discharge.- 24 years (1915-29, 1939-49), 69.5 second-feet.

Extremes.- Maximum discharge during year, 1,640 second-feet June 25 (gage height, 7.85 feet); minimum, 3.1 second-feet Aug. 22; minimum daily, 16 second-feet Jan. 17.

1915-29, 1939-49: Maximum discharge, 15,300 second-feet Sept. 10, 1921 (gage height, 20.14 feet, from floodmark), by slope-area method; no flow at times because of regulation.

Flood of July 5, 1819, equalled or exceeded that of Sept. 10, 1921.

Remarks.- Records good. Flood flow regulated by Olmos flood-control reservoir (capacity, 15,500 acre-feet) about 8½ miles above station. Dam completed in 1926. Normal flow of river comes from springs located about 8 miles above station. Springs emerge from Edwards limestone formation in Balcones fault zone. Diurnal fluctuation caused by industrial pumping from wells (depleting the underground reservoir) above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	21	20	18	21	25	37	43	25	33	29	22
2	18	20	21	18	19	23	41	44	24	33	24	22
3	18	21	20	24	19	24	22	48	23	44	24	23
4	20	21	21	19	19	25	39	45	23	33	24	21
5	20	20	21	17	18	27	22	40	22	35	50	21
6	21	20	21	17	18	24	22	42	24	34	21	36
7	20	18	21	17	18	27	23	44	26	36	38	26
8	20	21	19	18	19	24	20	42	155	41	30	20
9	21	18	19	18	20	20	23	43	33	43	28	22
10	21	18	18	18	20	26	23	179	28	41	28	39
11	24	21	20	18	20	20	22	45	232	38	29	21
12	23	21	21	19	23	27	23	44	70	33	29	25
13	24	41	21	18	21	32	21	43	33	33	28	23
14	24	22	22	18	21	24	22	44	41	31	26	24
15	26	21	22	18	20	26	21	41	89	35	28	24
16	28	23	22	31	19	26	23	44	34	31	25	35
17	283	22	21	16	19	28	22	43	33	31	25	27
18	19	22	21	21	19	25	24	43	32	34	26	23
19	18	20	20	18	20	27	65	40	29	33	25	29
20	18	20	21	18	20	43	44	39	29	33	23	29
21	19	20	21	35	21	32	25	37	28	34	22	28
22	19	21	21	27	137	30	102	36	28	32	26	29
23	19	21	21	24	24	28	209	36	28	30	23	28
24	17	18	21	17	22	23	179	34	30	29	23	28
25	19	19	18	18	172	24	362	32	264	56	23	28
26	20	21	18	20	32	35	134	31	198	24	23	30
27	21	21	19	22	26	24	74	33	56	25	25	30
28	21	19	21	18	24	23	119	32	37	26	21	29
29	21	20	19	18	-	27	65	28	31	25	24	29
30	24	20	18	21	-	22	44	28	34	24	23	28
31	22	-	18	23	-	25	-	26	-	25	23	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	906	283	17	29.2	1,800
November	631	41	18	21.0	1,250
December	627	22	18	20.2	1,240
Calendar year 1948	9,885	807	14	27.0	19,600
January	622	35	16	20.1	1,230
February	851	172	18	30.4	1,690
March	816	43	20	26.3	1,620
April	1,872	362	20	62.4	3,710
May	1,349	179	26	43.5	2,680
June	1,739	264	22	58.0	3,450
July	1,035	56	24	33.4	2,050
August	816	50	21	26.3	1,620
September	799	39	20	26.6	1,580
Water year 1948-49	12,063	362	16	33.0	23,930

San Antonio River near Falls City, Tex.

Location.- Water-stage recorder, lat. 28°57'05", long. 98°03'55", at county road bridge 0.9 mile upstream from Scared Dog Creek and 3.6 miles southwest of Falls City, Karnes County. Datum of gage is 285.5 feet above mean sea level, datum of 1929.

Drainage area.- 2,071 square miles.

Records available.- April 1925 to September 1949.

Average discharge.- 24 years, 330 second-feet.

Extremes.- Maximum discharge during year, 14,800 second-feet June 28 (gage height, 18.05 feet); minimum, 89 second-feet Nov. 4, Jan. 2.

1925-49: Maximum discharge, 47,400 second-feet Sept. 29, 1946 (gage height, 33.80 feet, from floodmark); minimum, 36 second-feet May 11, 12, 1928.

Maximum stage known, that of Sept. 29, 1946. Flood of October 1913 reached a stage of 28.36 feet, from information by local residents.

Remarks.- Records good. Flow partly regulated by Medina Reservoir and Olmos flood-control reservoir (combined capacity, 269,500 acre-feet). Storage began in Medina Reservoir in 1913, and Olmos Dam was completed in 1926. Water diverted above station from Medina River for irrigation in vicinity of Devine and Lytle, and some water diverted for irrigation near San Antonio. Water used industrially in San Antonio.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	129	92	119	96	129	323	183	781	147	719	225	133
2	129	99	123	92	140	209	165	472	150	571	206	129
3	119	109	119	106	154	179	187	363	157	432	237	133
4	116	96	119	109	190	165	257	315	147	415	209	133
5	116	106	119	109	190	143	187	292	140	705	209	129
6	126	116	119	112	190	147	183	270	136	472	594	133
7	126	126	119	116	168	147	175	253	136	310	789	133
8	106	116	119	112	136	143	154	241	147	283	528	140
9	116	99	129	119	129	136	147	237	143	270	279	140
10	129	106	129	116	126	136	150	221	244	253	261	140
11	129	116	119	116	126	136	175	854	225	241	229	136
12	106	123	109	119	126	140	143	1,760	168	225	225	143
13	99	112	109	133	109	136	150	564	822	213	209	143
14	102	147	129	143	126	133	172	310	1,280	217	198	136
15	102	179	123	154	129	129	165	266	869	266	183	129
16	109	221	126	157	133	157	140	249	583	213	179	129
17	196	190	140	133	136	147	143	233	570	217	187	162
18	621	179	123	133	136	147	150	229	320	237	183	292
19	1,860	165	116	161	136	143	181	229	233	202	161	175
20	689	150	116	154	136	136	270	225	198	206	161	164
21	221	150	133	157	136	129	536	217	187	206	150	157
22	154	154	123	161	136	136	590	194	179	198	154	147
23	126	157	136	209	204	190	828	175	179	187	150	147
24	116	154	140	217	1,070	157	2,700	183	175	194	154	143
25	112	165	123	221	823	147	6,000	190	172	202	143	140
26	112	161	123	209	380	143	4,220	194	871	202	136	136
27	112	123	112	190	1,820	140	4,220	190	9,120	257	133	129
28	99	126	106	190	988	157	4,080	187	13,400	358	140	133
29	96	123	106	190	-	147	1,520	183	5,770	279	136	136
30	96	123	112	165	-	161	1,460	175	1,170	233	143	126
31	96	-	109	133	-	179	-	165	-	229	154	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	6,565	1,860	96	212	13,020
November	4,083	221	92	136	8,100
December	3,747	140	106	121	7,430
Calendar year 1948	73,945	3,480	70	202	146,700
January	4,532	221	92	146	8,990
February	8,402	1,820	109	300	16,670
March	4,818	323	129	155	9,560
April	29,631	6,000	140	988	58,770
May	10,417	1,760	165	336	20,660
June	38,038	13,400	136	1,268	75,450
July	9,212	719	187	297	18,270
August	7,045	789	133	227	13,970
September	4,336	292	126	145	8,600
Water year 1948-49	130,826	13,400	92	358	259,500

Peak discharge (base, 1,800 sec.-ft.).- Oct. 19 (8:30 a.m.) 2,060 sec.-ft.; Feb. 25 (3 p.m.) 2,060 sec.-ft.; Feb. 27 (4 p.m.) 2,110 sec.-ft.; Apr. 25 (1:30 p.m.) 6,690 sec.-ft.; Apr. 28 (12 m.) 6,690 sec.-ft.; May 12 (6 a.m.) 2,060 sec.-ft.; June 28 (4 a.m.) 14,800 sec.-ft.; Aug. 7 (7 p.m.) 1,860 sec.-ft.

San Antonio River at Goliad, Tex.

Location.- Water-stage recorder, lat. 28°39', long. 97°23', at bridge on State Highway 29, 1.3 miles southeast of courthouse in Goliad, Goliad County, and 10 miles upstream from Manahuilla Creek. Datum of gage is 91.1 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 3,918 square miles.

Records available.- June 1924 to March 1929, February 1939 to September 1949.

Average discharge.- 14 years (1924-28, 1939-49), 586 second-feet.

Extremes.- Maximum discharge during year, 14,100 second-feet Apr. 28 (gage height, 33.76 feet); minimum, 123 second-feet Nov. 6, 7.

1924-29, 1939-49: Maximum discharge, 33,800 second-feet July 9, 1942 (gage height, 44.9 feet); minimum observed, 44 second-feet for several periods in 1927.

Floods of October 1913 and June 15, 1935, reached about the same stage as that of July 9, 1942.

Remarks.- Records good. Water diverted above station from Medina River for irrigation in vicinity of Devine and Lytle, and some water diverted for irrigation near San Antonio. Water used industrially in San Antonio.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	159	135	162	155	209	1,300	200	e3,760	254	e8,340	252	148
2	162	133	162	155	178	652	231	e1,540	241	e2,060	241	160
3	151	132	157	148	171	384	236	e1,010	216	860	231	150
4	151	130	157	142	178	299	211	801	213	706	223	141
5	146	139	160	144	189	263	243	668	220	596	290	142
6	139	130	162	151	218	245	290	596	207	596	272	144
7	137	126	162	148	225	222	232	644	198	744	595	141
8	144	135	160	153	222	216	223	624	198	524	820	141
9	153	151	160	157	209	211	218	506	209	425	1,400	144
10	142	151	159	155	177	205	198	445	290	380	686	235
11	148	137	160	155	164	196	187	416	209	353	371	681
12	157	135	171	157	162	195	184	1,020	344	326	308	272
13	159	155	169	153	162	198	189	1,670	317	308	272	189
14	146	169	157	160	166	198	180	1,370	378	299	247	178
15	132	168	153	171	151	204	175	614	1,180	1,260	229	182
16	132	180	166	193	155	204	189	452	1,400	1,750	220	177
17	141	209	169	196	162	189	187	416	839	506	202	249
18	1,860	245	166	207	169	204	171	380	763	344	189	326
19	1,470	225	177	186	177	198	171	362	578	317	200	211
20	1,120	205	166	171	171	198	186	353	389	299	193	335
21	1,140	200	159	204	171	196	345	353	308	254	171	272
22	520	186	157	207	171	193	976	335	263	254	168	231
23	281	184	171	209	171	191	1,070	326	249	241	162	209
24	220	186	169	211	171	184	e2,680	290	232	229	155	186
25	186	187	169	247	319	227	e4,540	398	225	249	160	182
26	168	184	178	263	922	211	e8,840	407	216	371	164	177
27	159	191	169	263	1,570	207	e12,300	890	220	317	157	173
28	155	196	164	250	1,250	198	e13,800	692	e3,130	250	153	173
29	157	164	159	229	-	193	e11,400	308	e7,310	308	144	164
30	144	155	153	225	-	205	e8,590	290	e9,500	371	148	168
31	139	-	151	229	-	198	-	281	-	299	148	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	10,218	1,860	132	330	20,270
November	5,023	245	126	167	9,960
December	5,054	178	151	163	10,020
Calendar year 1948	110,477	9,070	98	302	219,100
January	5,794	263	142	187	11,490
February	8,360	1,570	151	299	16,580
March	8,184	1,300	184	264	16,230
April	68,642	13,800	171	2,288	136,100
May	22,217	3,760	281	717	44,070
June	30,296	9,500	198	1,010	60,090
July	24,136	8,340	229	779	47,870
August	9,171	1,400	144	296	18,190
September	6,281	681	141	209	12,460
Water year 1948-49	203,376	13,800	126	557	403,300

Peak discharge (base, 2,200 sec.-ft.).- Oct. 18 (6:30 p.m.) 2,790 sec.-ft.; Apr. 28 (2 p.m.) 14,100 sec.-ft.; July 1 (4 a.m.) 9,990 sec.-ft.; July 16 (12:30 a.m.) 2,790 sec.-ft.

e Discharge obtained from loop curve.

Medina Lake near San Antonio, Tex.

Location.- Wire-weight gage, lat. 29°32', long. 98°56', at Medina Dam on Medina River, 4 miles upstream from Medina diversion dam, 13 miles north of Castroville, and about 28 miles west of San Antonio, Bexar County. Prior to Sept. 30, 1948, staff gage at same site and datum.

Drainage area.- 587 square miles.

Records available.- May 1913 to September 1949.

Extremes.- Maximum contents observed during year, 48,890 acre-feet July 6 (gage height, 1,012.5 feet); minimum observed, 2,140 acre-feet about Oct. 3 (gage height, 955.1 feet).

1913-49: Maximum contents observed, 288,800 acre-feet Sept. 16, 1919 (gage height, 1,078.0 feet); minimum observed since reservoir filled, 780 acre-feet about Apr. 11, 1948 (gage height, 944.0 feet).

Remarks.- Reservoir is formed by concrete gravity-type dam. Dam completed and storage began May 7, 1913. Spillway section is natural rock with a 3-foot wide cut-off wall located near right end of dam.

Total capacity, 254,000 acre-feet (gage height, 1,078.0 feet, top of spillway section). Water for irrigation is supplied by three 60-inch pipes equipped with vertical lift gates, at gage height 966.5 feet (capacity, 4,780 acre-feet). Reservoir can be emptied by two 30-inch sluice pipes equipped with vertical lift gates, at gage height 920.0 feet. Gage read once daily if stage is changing materially; otherwise readings are intermittent. Time of reading gage varies. Water used for irrigation of lands in the Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1, which has a permit from the State Board of Water Engineers to divert 300,000 acre-feet of water to irrigate 150,000 acres. No power is developed.

Cooperation.- Gage-height records and capacity table furnished by Bexar, Medina, Atascosa Counties Water Control and Improvement District No. 1.

Monthly gage height and contents, water year October 1948 to September 1949

Date	Gage height (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	955.1	2,140	-
Oct. 31	-	a5,000	+2,860
Nov. 30	967.7	5,110	+110
Dec. 31	967.1	4,940	-170
Calendar year 1948	-	-	-10,660
Jan. 31	-	a6,290	+1,350
Feb. 28	983.2	14,430	+8,140
Mar. 31	989.7	18,910	+4,480
Apr. 30	1,001.1	31,700	+12,790
May 31	-	a39,820	+8,120
June 30	-	a48,160	+8,340
July 31	1,008.2	41,780	-6,380
Aug. 31	1,005.1	37,380	-4,400
Sept. 30	1,000.6	30,990	-6,390
Water year 1948-49	-	-	+28,850

a No gage-height record; contents interpolated.

Medina River near San Antonio, Tex.

Location.- Water-stage recorder, lat. 29°15', long. 98°28', at bridge on U. S. Highway 281, 5.2 miles upstream from mouth and 9 miles south of San Antonio, Bexar County.

Drainage area.- 1,225 square miles (587 square miles is above dam forming Medina Lake).

Records available.- July 1939 to September 1949. October 1929 to December 1930, records below about 50 second-feet, at Losoya, 1.5 miles downstream, in connection with seepage investigation.

Average discharge.- 10 years 124 second-feet.

Extremes.- Maximum discharge during year, 17,400 second-feet June 26 (gage height, 30.79 feet); minimum, 9.5 second-feet Nov. 11.

1939-49: Maximum discharge, 31,800 second-feet Aug. 29, 1946; maximum gage height, 41.57 feet Sept. 27, 1946 (backwater from San Antonio River); minimum discharge, 5.9 second-feet Sept. 6, 7, 1948.

Maximum stage known, about 55 feet in 1912 (prior to construction of Medina Dam, 60 miles upstream), from information by State Highway Department.

Remarks.- Records good except those for Feb. 23-28, which are poor. Flow partly regulated by Medina Lake (capacity, 254,000 acre-feet) and diversion dam reservoir (capacity, 4,500 acre-feet). Storage began in Medina Lake in 1913. About 5,000 acres are irrigated by water released from Medina Lake above station. A considerable part of low flow is sewage from San Antonio which is released from Mitchell Lake a few miles above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	14	19	14	48	38	70	144	25	159	24	40
2	17	14	23	14	108	32	106	111	26	121	26	34
3	14	14	23	14	107	28	53	94	24	143	55	30
4	14	14	23	15	106	27	30	78	26	143	33	28
5	15	15	19	15	55	25	38	69	21	41	28	27
6	17	13	20	15	22	24	28	62	18	34	140	26
7	17	12	34	18	20	24	26	58	24	32	67	29
8	17	13	35	18	22	26	37	46	23	32	59	30
9	17	13	36	15	24	27	54	45	48	32	55	34
10	17	13	36	14	22	26	21	476	26	32	50	35
11	17	41	37	16	22	26	40	350	108	32	41	33
12	17	64	23	21	22	26	75	104	244	32	40	33
13	17	70	28	22	21	24	73	56	157	32	39	35
14	17	69	45	22	20	28	75	45	72	33	36	34
15	18	67	48	20	22	28	72	42	204	33	35	32
16	17	69	49	22	20	46	63	41	77	32	36	275
17	504	68	50	49	20	30	20	41	32	32	34	64
18	419	68	48	66	21	26	53	41	28	31	35	40
19	43	68	32	66	22	24	146	40	24	31	36	39
20	27	66	30	64	20	24	217	39	24	30	36	38
21	19	51	56	97	20	34	71	39	26	30	32	38
22	19	57	36	99	472	31	449	38	24	30	28	36
23	19	57	20	111	340	26	404	38	26	29	30	35
24	17	38	21	103	250	26	786	37	26	29	28	34
25	17	21	18	98	820	28	2,160	36	504	59	28	34
26	15	20	15	99	400	32	1,050	36	7,570	190	28	32
27	15	22	16	91	200	27	353	38	1,050	107	28	32
28	15	20	14	48	95	80	298	35	565	54	28	32
29	15	19	14	23	-	118	393	30	383	55	28	33
30	15	19	14	22	-	94	238	28	268	48	30	32
31	15	-	14	23	-	68	-	24	-	24	37	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,439	504	14	46.4	2,850
November	1,109	70	12	37.0	2,200
December	896	56	14	28.9	1,780
Calendar year 1948	22,568.3	1,060	7.4	61.7	44,770
January	1,334	111	14	43.0	2,650
February	3,341	820	20	119	6,630
March	1,123	118	24	36.2	2,230
April	7,499	2,160	20	250	14,870
May	2,361	476	24	76.2	4,680
June	11,673	7,570	18	389	23,150
July	1,742	190	24	56.2	3,460
August	1,230	140	24	39.7	2,440
September	1,274	275	26	42.5	2,530
Water year 1948-49	35,021	7,570	12	95.9	69,470

Peak discharge (base, 1,500 sec.-ft.).- Apr. 25 (5:30 p.m.) 2,920 sec.-ft.; June 26 (2:30 a.m.) 17,400 sec.-ft.

Note.- No gage-height record Oct. 19-21, Feb. 23 to Mar. 6, May 8, 9, 14-26, July 5-24, Sept. 18-26; discharge computed on basis of estimated gage heights, weather records, and records for San Antonio River near Falls City.

Cibolo Creek near Bulverde, Tex.

Location.- Water-stage recorder, lat. 29°43'35", long. 98°25'40", at William Classen ranch house, 1.8 miles downstream from bridge on U. S. Highway 281, 2 miles southeast of Bulverde, Comal County, and 4.7 miles upstream from Dripping Springs Creek.

Drainage area.- 198 square miles.

Records available.- April 1946 to September 1949.

Extremes.- Maximum discharge during year, 1,100 second-feet Apr. 28 (gage height, 5.35 feet); no flow most of time.
1946-49: Maximum gage height, 12.50 feet Sept. 27, 1946, from floodmark (discharge not determined); no flow most of time.

Remarks.- Records fair. The purpose of the station is to determine the stream-flow losses during periods of medium and low flow. There are no surface diversions but much of surface flow enters sink holes and caverns in Glen Rose limestone above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0	0	33				
2						0	0	14				
3						0	0	2.3				
4						0	0	.1				
5						0	0	0				
6						0	0	0				
7						0	0	0				
8						0	0	0				
9						0	0	0				
10						0	0	23				
11						0	0	8.5				
12						0	0	.1				
13						0	0	0				
14						0	0	0				
15						.8	0	0				
16						0	0	0				
17						0	0	0				
18						0	0	0				
19						0	52	0				
20						0	356	0				
21						0	30	0				
22						0	1.7	0				
23						0	0	0				
24						0	0	0				
25						0	239	0				
26						0	100	0				
27						0	41	0				
28						0	464	0				
29						0	171	0				
30						0	62	0				
31						0	-	0				

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	0	0	0	0	0
January	0	0	0	0	0
February	0	0	0	0	0
March	.8	.8	0	.03	1.6
April	1,516.7	464	0	50.6	3,010
May	81.0	33	0	2.61	161
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
Water year 1948-49	1,598.5	464	0	4.38	3,170

Peak discharge (base, 500 sec.-ft.).- Apr. 20 (2:30 a.m.) 1,070 sec.-ft.; Apr. 25 (11 a.m.) 730 sec.-ft.; Apr. 28 (5 p.m.) 1,100 sec.-ft.

GUADALUPE RIVER BASIN

Cibolo Creek above Bracken, Tex.

Location.- Water-stage recorder, lat. 29°40'30", long. 98°23'00", 0.1 mile downstream from West Fork Creek and 5.8 miles northwest of Bracken, Comal County.

Drainage area.- 251 square miles.

Records available.- March 1946 to September 1949.

Extremes.- Maximum gage height during year, 5.48 feet Apr. 28, from floodmark (discharge not determined); no flow most of time.
1948-49: Maximum gage height, 11.04 feet Sept. 27, 1946, from floodmark (discharge not determined); no flow most of time.

Remarks.- Records good. Discharge not computed above 500 second-feet. The purpose of the station is to determine the stream-flow losses during periods of medium and low flow. There are no surface diversions, but much of surface flow enters sink holes and caverns in Glen Rose limestone above station.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

1.9	0	2.4	6.3	2.9	36
2.0	.2	2.5	10	3.0	60
2.1	.6	2.6	18	3.2	94
2.2	1.8	2.7	24	3.4	136
2.3	3.6	2.8	34		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	74				
2							0	42				
3							0	22				
4							0	12				
5							0	7.4				
6							0	5.1				
7							0	3.6				
8							0	2.2				
9							0	1.2				
10							0	.2				
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							(a)	0				
26							(a)	0				
27							(a)	0				
28							(a)	0				
29							(a)	0				
30							131	0				
31							-	0				

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	83.4	75	0	.23	165
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	-	-	0	-	-
May	169.7	74	0	5.47	337
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
Water year	-	-	0	-	-

a No gage-height record; discharge not determined.

Cibolo Creek at Selma, Tex.

Location.- Water-stage recorder, lat. 29°35'35", long. 98°18'40", 0.6 mile downstream from Missouri-Kansas-Texas Railroad bridge and 0.8 mile upstream from bridge on U. S. Highway 81 at Selma, Bexar County. Datum of gage is 728.84 feet above mean sea level, datum of 1929.

Drainage area.- 280 square miles.

Records available.- March 1946 to September 1949.

Extremes.- Maximum discharge during year, 996 second-feet Apr. 29 (gage height, 5.57 feet); no flow most of time.

1946-49: Maximum discharge, 7,240 second-feet Sept. 27, 1946 (gage height, 10.48 feet); no flow most of time.

Maximum stage known, about 26 feet in 1889, from information by local resident. Flood of 1913 was probably about 2 feet lower that of 1889.

Remarks.- Records good. There are no surface diversions, but part of flow of Cibolo Creek enters the Edwards limestone in the Balcones fault zone which crosses basin between this station and station above Bracken.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

2.52	0	3.0	7.6	3.9	124
2.6	.6	3.1	14	4.1	180
2.7	1.5	3.3	30	4.4	279
2.8	2.7	3.5	52	4.7	405
2.9	4.4	3.7	82	5.0	580

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0						0	27				
2	0						0	5.6				
3	0						0	2.2				
4	0						0	1.5				
5	0						0	1.3				
6	0						0	1.1				
7	0						0	.9				
8	0						0	.8				
9	0						0	.5				
10	0						0	.5				
11	0						0	.1				
12	0						0	0				
13	0						0	0				
14	0						0	0				
15	0						0	0				
16	0						0	0				
17	1.1						0	0				
18	0						0	0				
19	0						3.8	0				
20	0						20	0				
21	0						77	0				
22	0						7.3	0				
23	0						12	0				
24	0						6.1	0				
25	0						43	0				
26	0						92	0				
27	0						32	0				
28	0						76	0				
29	0						509	0				
30	0						90	0				
31	0						-	0				

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1.1	1.1	0	0.04	2.2
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	4.5	3.2	0	.01	8.9
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	968.2	509	0	32.3	1,920
May	41.5	27	0	1.34	82
June	0	0	0	0	0
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
Water year 1948-49	1,010.8	509	0	2.77	2,000

Peak discharge (base, 1,000 sec.-ft.).- No peak above base.

Cibolo Creek near Falls City, Tex.

Location.- Water-stage recorder, lat. 29°01', long. 97°56', at bridge on State Highway 123, 5.5 miles northeast of Falls City, Karnes County, and 9 miles upstream from mouth. Datum of gage is 264.3 feet above mean sea level, datum of 1929, Houston supplementary adjustment of 1943.

Drainage area.- 831 square miles.

Records available.- November 1930 to September 1949.

Average discharge.- 18 years (1931-49), 129 second-feet.

Extremes.- Maximum discharge during year, 7,800 second-feet Apr. 26 (gage height, 19.95 feet); minimum, 9.3 second-feet Oct. 1.

1930-49: Maximum discharge, 33,600 second-feet July 6, 1942 (gage height, 34.45 feet); minimum, 4.0 second-feet Aug. 22, 1948 (gage height, 0.86 foot).

Flood in October 1913 reached a stage about half a foot higher than that of July 6, 1942.

Remarks.- Records good. There are no surface diversions, but much of surface flow of Cibolo Creek enters sink holes and caverns in Glen Rose limestone and in Edwards limestone in the Balcones fault zone which crosses the basin between station above Bracken and station at Selma.

Revisions (water years).- W 733; 1931. W 1058: 1935.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.8	12	14	14	18	39	18	293	25	62	20	15
2	10	13	15	15	18	28	18	150	23	53	20	15
3	10	13	15	16	18	21	18	102	22	51	19	14
4	11	13	16	16	18	19	20	78	22	52	25	14
5	11	12	16	14	17	17	20	63	21	50	164	14
6	12	12	16	14	13	17	20	55	20	70	64	13
7	12	12	16	14	18	16	19	51	21	47	269	14
8	11	12	15	14	17	16	18	46	21	39	162	15
9	11	13	15	14	17	16	19	41	22	34	32	16
10	11	13	15	17	16	16	19	326	28	33	22	29
11	11	13	14	17	16	16	18	817	46	32	20	16
12	10	13	14	17	16	16	17	134	42	30	19	14
13	10	17	17	17	16	19	17	64	200	28	18	14
14	9.8	19	17	18	16	20	16	52	190	28	19	13
15	9.8	21	18	18	16	19	16	43	135	52	18	13
16	9.8	18	17	50	16	18	15	38	198	29	18	14
17	200	17	16	20	16	18	16	35	84	33	18	14
18	565	15	16	17	16	18	17	35	48	35	17	13
19	96	15	16	17	16	18	101	33	35	28	17	37
20	36	15	14	16	16	19	306	32	30	27	16	62
21	20	15	15	20	17	20	676	32	26	25	15	27
22	17	15	15	24	17	20	705	31	25	23	14	18
23	15	14	14	22	17	20	3,200	30	23	22	14	17
24	13	15	14	20	18	22	1,210	29	22	22	16	17
25	12	15	14	20	145	22	6,270	27	22	31	17	17
26	12	15	13	20	640	22	6,190	25	463	27	16	16
27	12	14	14	23	229	22	1,360	25	4,860	23	15	15
28	12	16	15	22	66	22	1,610	34	1,280	22	16	15
29	12	14	15	19	-	20	903	43	151	22	16	14
30	12	13	14	17	-	20	442	29	83	20	16	13
31	12	-	14	17	-	18	-	26	-	20	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,215.2	565	9.8	39.2	2,410
November	434	21	12	14.5	861
December	469	18	13	15.1	930
Calendar year 1948	14,574.0	4,410	4.4	39.8	28,900
January	579	50	14	18.7	1,150
February	1,484	640	16	53.0	2,940
March	614	39	16	19.8	1,220
April	23,294	6,270	15	776	46,200
May	2,819	817	25	90.9	5,590
June	8,188	4,860	20	273	16,240
July	1,070	70	20	34.5	2,120
August	1,148	269	14	37.0	2,280
September	538	62	13	17.9	1,070
Water year 1948-49	41,852.2	6,270	9.8	115	83,010

Peak discharge (base, 4,400 sec.-ft.).- Apr. 23 (9:30 a.m.) 4,880 sec.-ft.; Apr. 26 (6 a.m.) 7,800 sec.-ft.; June 27 (8 p.m.) 6,580 sec.-ft.

Cibolo Creek seepage investigation

A series of discharge measurements was made during Sept. 12, 13 on Cibolo Creek and tributaries, Texas, between Schertz and gaging station near Falls City. The distance by creek was 62 miles. Investigation was made during a constant stage and determinations of gain or loss represent normal conditions. All tributaries were measured. There was no diversion in the reach.

Discharge measurements on Cibolo Creek and tributaries, Texas, 1949

Date	Stream	Location	Distance below initial point	Discharge in second-feet			
				Main stream	Tributary	Gain or loss in section	Total gain or loss
Sept. 12	Cibolo Creek..	Lat. 29°33'03", long. 98°16'18", at bridge on State Farm to Market Road 78 at Schertz, Tex.	0	0	-	-	
12	....do.....	Lat. 29°30'33", long. 98°11'24", 0.4 mile above bridge on U. S. Highway 90, and 2.0 miles above Zuehl, Tex.	10	1.56	-	+1.56	+1.56
12	Santa Clara Creek.	Lat. 29°30'43", long. 98°07'12", ¼ mile above mouth of creek and 2½ miles east of Zuehl, Tex.	18	-	0	-	-
12	Martinez Creek	Lat. 29°26'38", long. 98°10'07", 2 miles above mouth and 2½ miles south of Zuehl, Tex.	22	-	0	-	-
12	Cibolo Creek..	Lat. 29°21'50", long. 98°06'18", ¼ mile below county road bridge at Lavernia, Tex.	29	1.79	-	+.23	+1.79
12	Blue Creek....	Lat. 29°21'45", long. 98°05'06", 2 miles east of Lavernia, Tex., and ½ mile above mouth of creek.	30.6	-	.05	+.05	+1.84
13	Cibolo Creek..	Lat. 29°19'19", long. 98°05'39", 3¼ miles above Sutherland Springs, Tex.	33.6	3.95	-	+2.11	+3.95
12	....do.....	Lat. 29°17'42", long. 98°03'48", 1.0 mile above Sutherland Springs, Tex., 0.7 mile above swimming pool.	36.0	10.8	-	+6.85	+10.8
13	....do.....	Lat. 29°16'40", long. 98°07'06", 0.2 mile below Sutherland Springs, Tex., 0.5 mile below swimming pool.	38.0	11.6	-	+.80	+11.6
13	....do.....	Lat. 29°00'54", long. 97°55'48", regular gaging station Cibolo Creek near Falls City, Tex.	62.0	14.0	-	+2.40	+14.0

Mission River at Refugio, Tex.

Location.- Wire-weight gage, lat. 28°17', long. 97°17', at bridge on U. S. Highway 77, 500 feet upstream from Missouri Pacific Railroad bridge and a quarter of a mile southwest of Refugio, Refugio County. Datum of gage is 1.7 feet above mean sea level, datum of 1929.

Drainage area.- 643 square miles.

Records available.- July 1939 to September 1949.

Average discharge.- 10 years (1939-49), 94.7 second-feet.

Extremes.- Maximum discharge during year, 4,670 second-feet Apr. 26 (gage height, 21.80 feet); minimum daily, 1.2 second-feet Apr. 10, 13.

1939-49: Maximum discharge, 41,700 second-feet July 7, 1942 (gage height, 33.3 feet); minimum observed, 0.7 second-foot Oct. 7, 9, 1940, Aug. 18-20, Sept. 5, 1945.

Maximum stage known prior to 1942, 32.3 feet in August 1914 and on May 17, 1938, from information by local residents.

Remarks.- Records fair. Gage read twice daily, oftener during floods. No large diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.1	2.6	3.3	a3.6	4.6	18	6.7	691	33	a8.7	8.7	9.2
2	2.3	2.4	3.1	a3.6	4.2	8.4	5.3	226	18	a8.8	9.0	9.4
3	2.1	3.1	3.3	3.5	5.4	4.2	1.5	73	8.3	9.0	9.0	9.2
4	2.4	2.7	3.7	2.7	4.8	4.4	1.6	14	7.1	34	9.0	9.2
5	2.4	2.6	4.0	3.1	5.4	3.8	1.5	8.0	7.1	74	11	9.0
6	2.7	2.7	2.9	2.9	5.8	4.2	1.3	6.5	6.9	37	43	9.0
7	2.9	a2.8	2.1	3.3	4.2	4.4	1.3	5.6	6.9	16	11	9.0
8	2.4	2.9	2.3	3.5	2.7	4.6	3.1	5.6	9.7	14	9.2	9.0
9	2.4	3.1	2.4	3.5	2.9	5.6	7.4	5.4	17	12	9.2	9.4
10	2.4	2.9	2.6	3.1	2.1	4.8	1.2	5.6	24	a10	9.2	20
11	2.4	2.6	2.6	3.8	2.4	4.4	1.3	5.8	27	a9.1	9.4	11
12	2.7	3.1	2.6	3.3	2.7	4.6	1.3	5.4	9.6	7.6	9.4	9.7
13	3.3	7.4	3.1	3.8	2.1	4.6	1.2	5.8	18	8.3	9.7	8.7
14	2.6	3.7	3.7	4.2	2.1	4.4	3.6	5.2	23	8.7	9.7	7.6
15	2.3	3.5	3.8	a4.1	2.3	13	6.7	5.4	7.6	50	9.7	5.0
16	3.5	4.2	3.7	4.0	3.5	22	6.1	5.2	7.6	279	9.2	4.6
17	9.4	2.4	3.7	4.0	5.4	6.2	5.2	5.4	7.4	243	8.7	3.8
18	5.8	2.1	4.0	4.0	67	3.8	4.8	5.2	7.4	38	9.4	4.4
19	2.4	2.1	4.4	4.0	190	3.7	5.4	5.0	a7.5	9.2	9.2	4.8
20	2.1	2.9	4.0	4.2	86	6.5	6.7	5.4	a7.7	8.5	9.4	4.6
21	2.9	3.5	3.3	5.4	26	6.5	8.7	5.6	a7.8	9.0	9.2	4.8
22	2.3	3.3	3.7	5.0	13	3.7	18	5.8	a8.0	9.2	9.7	5.0
23	2.6	3.3	2.6	3.3	4.8	3.3	120	5.4	a8.2	8.5	10	4.8
24	2.6	3.5	2.6	5.4	4.5	3.5	218	6.1	8.3	8.3	9.0	5.0
25	2.7	3.7	2.9	6.1	22	3.5	1,050	14	8.5	7.8	9.0	4.6
26	a2.6	3.7	3.7	5.8	190	3.5	3,680	74	8.0	8.3	9.2	4.8
27	2.4	3.3	2.9	4.8	130	4.2	1,000	381	7.8	8.7	9.7	5.0
28	2.7	3.5	3.3	4.4	7.8	3.7	232	262	7.4	8.7	9.2	5.0
29	2.4	3.5	a3.5	a4.8	-	3.5	146	84	7.4	9.0	8.7	4.8
30	2.7	3.5	3.7	5.2	-	3.1	344	44	8.5	9.0	9.0	4.6
31	2.7	-	3.7	5.2	-	4.8	-	52	-	8.7	9.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	89.2	9.4	2.1	2.88	177
November	96.6	7.4	2.1	3.22	192
December	101.2	4.4	2.1	3.26	201
Calendar year 1948	2,842.1	200	1.2	7.77	5,640
January	127.6	6.1	2.7	4.12	253
February	803.7	190	2.1	28.7	1,590
March	178.9	22	3.1	5.77	355
April	6,889.9	3,680	1.2	230	13,670
May	2,028.4	691	5.0	65.4	4,020
June	340.7	33	6.9	11.4	676
July	980.1	279	7.6	31.6	1,940
August	324.5	43	8.7	10.5	644
September	215.0	20	3.8	7.17	426
Water year 1948-49	12,175.8	3,680	1.2	33.4	24,140

Peak discharge (base, 2,500 sec.-ft.).- Apr. 26 (7:15 a.m.) 4,670 sec.-ft.

a No gage-height record; discharge interpolated.

Nueces River at Laguna, Tex.

Location.- Water-stage recorder, lat. 29°25'45", long. 99°59'50", half a mile downstream from Sycamore Creek and 1 mile northeast of Laguna, Uvalde County. Datum of gage is 1,119.72 feet above mean sea level, datum of 1929.

Drainage area.- 764 square miles.

Records available.- October 1923 to September 1949.

Average discharge.- 26 years, 143 second-feet.

Extremes.- Maximum discharge during year, 45,800 second-feet Feb. 25 (gage height, 17.22 feet); minimum, 22 second-feet Oct. 1-7, 10-16.

1923-49: Maximum discharge, 222,000 second-feet July 13, 1939 (gage height, 26.40 feet), from rating curve extended above 40,000 second-feet on basis of float measurement (110,000 second-feet) and slope-area determination (213,000 second-feet); minimum, 7.8 second-feet Nov. 3-15, 18, 1934.

Flood of Sept. 21, 1923, reached a stage of 26.5 feet (discharge, 226,000 second-feet, based on rating curve mentioned above). Flood of June 1913 reached a stage 2 or 3 feet higher than that of Sept. 21, 1923, from information by local resident.

Remarks.- Records good except those above 2,000 second-feet, which are fair. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	25	27	30	41	878	178	284	110	108	53	149
2	22	25	27	30	41	725	182	250	106	116	52	140
3	22	25	27	30	41	615	180	230	100	129	52	134
4	22	25	27	30	42	535	178	213	97	124	50	129
5	22	25	27	30	42	480	175	208	95	110	68	124
6	22	26	27	30	42	434	168	200	95	102	60	124
7	22	26	27	30	42	393	160	190	154	97	60	121
8	24	26	27	30	42	367	156	180	138	93	4,610	115
9	24	26	27	30	42	345	154	172	214	90	2,430	113
10	22	26	27	30	42	320	149	417	179	85	1,030	113
11	22	27	27	30	42	306	149	388	142	83	621	113
12	22	28	27	30	42	293	147	281	129	80	474	110
13	22	29	27	30	42	284	142	236	124	77	398	110
14	22	28	27	30	42	272	138	211	122	77	347	113
15	22	28	27	30	41	264	135	193	118	77	310	113
16	25	28	27	41	41	252	133	185	118	74	280	782
17	41	27	27	34	41	247	129	188	114	72	296	558
18	29	27	27	33	41	238	131	180	108	67	283	344
19	26	27	28	33	41	227	131	172	104	71	276	273
20	25	27	28	33	41	230	157	165	100	68	256	260
21	27	27	28	33	41	241	182	158	95	66	246	237
22	26	27	28	33	48	230	158	154	93	64	243	211
23	26	27	28	36	9,140	219	151	147	88	63	224	192
24	26	27	28	36	2,680	211	156	140	85	62	208	179
25	25	27	28	37	13,400	206	186	135	108	60	192	169
26	25	27	28	41	3,560	222	200	131	302	63	182	166
27	25	27	28	41	1,640	206	182	131	185	61	182	163
28	25	27	28	41	1,140	193	188	127	144	60	182	160
29	25	27	28	39	-	185	462	122	124	57	176	152
30	25	27	28	41	-	180	348	118	116	55	160	146
31	25	-	29	41	-	175	-	114	-	54	154	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	760	41	22	24.5	1,510
November	801	29	25	26.7	1,590
December	851	29	27	27.5	1,690
Calendar year 1948	19,922	2,420	19	54.4	39,520
January	1,043	41	30	33.6	2,070
February	32,480	13,400	41	1,160	64,420
March	9,973	878	175	322	19,780
April	5,285	462	129	176	10,480
May	6,020	417	114	194	11,940
June	3,807	302	85	127	7,550
July	2,465	129	54	79.5	4,890
August	14,155	4,610	50	457	28,080
September	5,813	782	110	194	11,530
Water year 1948-49	83,453	13,400	22	229	165,500

Peak discharge (base, 1,200 sec.-ft.).- Feb. 23 (6 p.m.) 34,600 sec.-ft.; Feb. 25 (3 p.m.) 45,800 sec.-ft.; Aug. 8 (3 p.m.) 19,200 sec.-ft.; Sept. 16 (8:30 a.m.) 1,450 sec.-ft.

Nueces River below Uvalde, Tex.

Location.- Water-stage recorder, lat. 29°08', long. 99°54', on Smyth Ranch, 4 miles upstream from bridge on U. S. Highway 83, 9 miles southwest of Uvalde, Uvalde County, and 15 miles downstream from West Nueces River. Datum of gage is 796.1 feet above mean sea level, datum of 1929.

Drainage area.- 1,947 square miles.

Records available.- April 1939 to September 1949.

Average discharge.- 10 years (1939-49), 54.5 second-feet.

Extremes.- Maximum discharge during year, 63,000 second-feet Feb. 26 (gage height, 16.06 feet, from floodmark), from rating curve extended above 17,000 second-feet on basis of peak discharge at former station 5 miles upstream; minimum 5.6 second-feet Feb. 17, 18.

1939-49: Maximum discharge, 80,000 second-feet July 13, 1939 (gage height, 19.25 feet), from rating curve extended on basis of peak discharge at former station 5 miles upstream; minimum, 4.0 second-feet Apr. 14, 1946.

Maximum stage known, 40.4 feet June 14, 1935, from floodmark (discharge at former station 5 miles upstream, 616,000 second-feet, by slope-area method).

Remarks.- Records good except those above 30,000 second-feet, which are poor; Part of flow of Nueces River enters Edward limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.8	7.7	6.6	6.0	6.6	1,020	63	32	37	35	22	48
2	9.5	7.5	6.4	6.4	6.6	719	61	37	37	37	22	46
3	9.3	7.2	6.0	6.2	6.6	557	61	51	38	35	21	46
4	9.0	7.2	6.2	6.0	6.6	432	63	53	37	34	21	42
5	9.0	7.0	6.4	6.0	6.4	350	55	53	37	32	21	40
6	9.0	6.8	6.6	6.0	6.4	300	55	51	35	30	23	40
7	8.8	7.0	6.6	6.0	6.2	262	53	50	40	29	32	38
8	8.5	7.0	6.6	6.0	6.4	238	50	50	39	27	765	a38
9	8.8	6.8	6.6	6.4	6.4	210	50	48	54	26	4,760	a37
10	8.8	6.8	6.6	6.4	6.2	191	48	51	37	26	1,360	a37
11	8.8	7.0	6.8	6.8	6.2	175	44	48	37	26	625	a35
12	8.5	7.7	7.0	6.8	6.2	160	44	124	37	24	372	35
13	8.5	8.0	6.8	6.6	6.2	154	44	108	35	23	281	34
14	8.5	8.2	6.6	6.6	6.2	143	42	86	34	23	227	34
15	8.2	7.7	6.4	6.6	6.0	134	40	72	32	30	188	34
16	8.5	7.5	6.6	8.0	5.8	128	40	63	30	30	163	a44
17	13	7.2	6.8	6.8	5.8	126	40	59	30	27	140	a42
18	11	7.2	6.6	6.6	5.8	114	38	57	29	26	137	a42
19	9.3	6.8	6.6	6.6	5.8	109	42	53	29	26	134	a40
20	9.0	6.8	6.4	6.4	5.8	109	40	51	29	24	128	a117
21	9.5	7.5	6.4	6.6	5.8	114	38	51	27	24	117	a120
22	9.3	7.0	6.4	6.8	7.7	109	38	50	27	23	104	a112
23	9.3	6.8	6.8	6.8	6,450	101	37	48	27	23	101	98
24	9.0	6.8	7.0	6.8	20,000	94	35	46	27	23	91	81
25	8.5	6.8	6.8	7.0	14,600	86	35	44	46	23	81	74
26	8.5	6.8	6.6	7.2	22,900	79	35	46	30	24	72	68
27	8.2	6.6	6.4	6.8	3,880	79	34	42	43	24	66	61
28	8.5	6.4	6.4	6.6	1,670	79	35	42	46	23	59	57
29	8.2	6.4	6.4	6.4	-	74	34	40	42	23	55	55
30	8.0	6.6	6.2	6.6	-	68	32	38	38	22	53	53
31	8.0	-	6.0	6.6	-	63	-	38	-	22	50	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	278.8	13	8.0	8.99	553
November	212.8	8.2	6.4	7.09	422
December	202.6	7.0	6.0	6.54	402
Calendar year 1948	18,887.0	8,550	4.4	51.6	37,460
January	203.2	8.0	6.0	6.55	403
February	69,637.7	22,900	5.8	2,487	138,100
March	6,577	1,020	63	212	13,050
April	1,326	63	32	44.2	2,630
May	1,680	124	32	54.2	3,330
June	1,066	54	27	35.5	2,110
July	824	37	22	26.6	1,630
August	10,291	4,760	21	332	20,410
September	1,648	120	34	54.9	3,270
Water year 1948-49	93,947.1	22,900	5.8	257	186,300

Peak discharge (base, 1,000 sec.-ft.).- Feb. 24 (1 a.m.) 40,000 sec.-ft.; Feb. 26 (12:30 a.m.) 63,000 sec.-ft.; Aug. 8 (11:30 p.m.) 10,800 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for station near Laguna.

Note.- Discharge computed on basis of partly estimated gage-height record Feb. 24-26.

Nueces River near Asherton, Tex.

Location.- Water-stage recorder, lat. 28°30', long. 99°42', at bridge on county road between Asherton and Brundage, 1.2 miles downstream from El Moro Creek and 5.5 miles northeast of Asherton. Dimmit County. Datum of gage is 470.9 feet above mean sea level, datum of 1929.

Drainage area.- 4,082 square miles.

Records available.- October 1939 to September 1949.

Average discharge.- 10 years, 158 second-feet.

Extremes.- Maximum discharge during year, 19,600 second-feet Feb. 28 (gage height, 29.98 feet); no flow at times.

1939-49: Maximum discharge, 24,000 second-feet Sept. 2, 1944 (gage height, 30.40 feet); no flow at times.

Maximum stage known, about 33 feet June 17, 1935, present site and datum, based on relation determined from levels to floodmarks of June 17, 1935, and Sept. 2, 1944, floods at farmhouse on left bank, 0.8 miles upstream from gage.

Remarks.- Records good. Part of flow of Nueces River and its headwater tributaries enters Edwards limestone in Balcones Fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Flow partly regulated by several small reservoirs above station. Diversions above station for irrigation.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	21			0	16,400	46	113	0.9	8.5	0	15
2	0	12			0	10,100	61	86	.4	3.5	0	26
3	0	4.9			0	6,640	64	67	.2	5.2	0	43
4	0	2.7			0	3,260	78	53	.1	17	0	50
5	0	1.4			0	1,030	70	41	0	20	0	49
6	0	.6			0	632	66	30	0	15	0	40
7	0	.3			0	483	62	25	0	10	3.7	23
8	0	.2			0	386	48	28	2.3	5.8	77	9.2
9	0	.1			0	314	36	67	645	5.2	112	2.4
10	0	0			0	262	29	141	1,840	2.8	1,230	14
11	0	0			0	226	20	249	1,350	1.8	2,910	3.4
12	0	0			0	194	15	292	1,000	.8	2,270	.3
13	0	0			0	174	11	416	854	.3	1,180	.1
14	0	0			0	158	7.2	483	621	.2	622	0
15	0	0			0	146	2.8	299	266	.1	386	0
16	0	0			0	129	1.5	199	134	.1	260	0
17	121	0			0	119	.8	143	104	.1	182	0
18	49	0			0	104	.4	110	98	0	136	0
19	43	0			0	86	30	86	84	0	116	.4
20	23	0			0	75	189	67	61	0	101	13
21	12	0			0	84	1,100	53	f41	0	89	23
22	39	0			0	79	1,060	44	f26	0	85	6.4
23	194	0			0	67	780	37	16	0	77	3.4
24	357	0			0	58	870	32	17	0	49	32
25	373	0			2,470	52	984	27	671	0	31	33
26	224	0			7,580	45	1,640	21	1,100	0	31	17
27	136	0			13,400	165	716	14	327	0	34	6.1
28	89	0			18,500	135	245	9.6	107	0	33	1.9
29	60	0			-	72	150	5.5	50	0	30	.7
30	42	0			-	50	140	3.2	22	0	24	.2
31	30	-			-	40	-	1.9	-	0	18	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,792	373	0	57.8	3,550
November	43.2	21	0	1.44	86
December	0	0	0	0	0
Calendar year 1948	30,545.8	4,440	0	83.5	60,580
January	0	0	0	0	0
February	41,950	18,500	0	1,498	83,210
March	41,765	16,400	40	1,347	82,840
April	8,522.7	1,640	.4	284	16,900
May	3,243.2	483	1.9	105	6,430
June	9,437.9	1,840	0	315	18,720
July	96.4	20	0	3.11	191
August	10,086.7	2,910	0	325	20,010
September	412.5	50	0	13.8	818
Water year 1948-49	117,349.6	18,500	0	322	232,800

Peak discharge (base, 3,000 sec.-ft.).- Feb. 28 (1:30 p.m.) 19,600 sec.-ft.; Aug. 11 (9:30 a.m.) 3,020 sec.-ft.

f Computed on basis of partly estimated gage-height record.

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Nueces River at Cotulla, Tex.

Location.- Wire-weight gage, lat. 28°26', long. 99°16', at bridge on U. S. Highway 81, at Cotulla, La Salle County, a third of a mile upstream from International-Great Northern Railroad bridge. Datum of gage is 368.08 feet above mean sea level, datum of 1929.

Drainage area.- 5,260 square miles.

Records available.- October 1923 to September 1949. July 1915 to June 1918 at site 4 miles upstream. U. S. Weather Bureau has collected gage heights in this vicinity during 1914-17 and since 1922.

Average discharge.- 26 years, 315 second-feet.

Extremes.- Maximum discharge during year, 17,200 second-feet Mar. 3 (gage height, 20.45 feet, from floodmark); no flow at times.
1923-49: Maximum discharge, 82,600 second-feet June 18, 1935 (gage height, 32.4 feet, from floodmarks), by slope-area method; no flow at times.

Remarks.-Records good. Gage read once daily. Part of flow of Nueces River and its headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Low-water flow partly regulated by small storage reservoirs above station; most of it is diverted above station by pumping.

Cooperation.- Gage-height record furnished by U. S. Weather Bureau.

Revision.- W 568: Drainage area.

Rating table, water year 1948-49 (gage height, in feet, and discharge in second-feet)
(Shifting-control method used Oct. 1 to Nov. 30, Sept. 14-28)

7.4	0	7.8	14	8.2	88	9.6	533	11.5	1,600	15.0	5,500
7.5	.3	7.9	24	8.4	144	10.0	713	12.0	2,000	16.0	7,200
7.6	2.0	8.0	40	8.8	263	10.5	981	13.0	2,920	18.0	11,400
7.7	7.2	8.1	62	9.2	387	11.0	1,280	14.0	4,060	20.0	16,200

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	52			0	8,460	62	704	2.4	713	0	22
2	5.3	40			0	14,900	46	350	.5	375	0	16
3	2.4	16			0	16,600	44	251	.3	191	0	13
4	1.4	20			0	13,000	64	167	0	99	0	8.6
5	.4	19			0	8,200	69	116	0	60	0	8.6
6	.2	11			0	4,450	80	85	0	44	0	7.2
7	.1	6.5			0	2,100	88	57	0	26	27	12
8	0	2.0			0	1,190	77	52	6.4	21	361	32
9	0	.4			0	642	67	27	317	19	19	20
10	0	.6			0	420	60	26	306	17	14	19
11	0	.4			0	344	44	35	2,980	15	30	14
12	0	.7			0	282	32	156	4,490	12	545	8.6
13	0	1.4			0	248	26	263	2,090	3.2	1,100	3.7
14	0	1.7			0	218	21	319	2,090	3.2	1,460	1.4
15	0	1.4			0	191	15	390	2,000	2.0	1,720	1.2
16	0	.9			0	173	8.6	441	1,600	2.0	1,180	1.2
17	351	.5			0	150	6.5	316	863	.9	483	1.4
18	133	.4			0	136	5.3	221	274	.4	266	.6
19	197	.2			0	119	3.2	150	156	.1	182	.5
20	254	.1			0	105	4.2	119	119	0	150	.4
21	176	.1			0	82	44	88	105	0	119	.5
22	91	.1			0	69	906	64	74	0	96	.3
23	69	.1			0	72	942	44	44	0	85	.3
24	64	.1			0	77	3,990	35	33	0	77	.2
25	201	0			0	67	5,500	27	24	0	72	.2
26	390	0			12	193	2,540	23	154	0	57	.2
27	448	0			795	67	1,920	18	698	0	42	.2
28	337	0			3,670	50	1,920	15	1,280	0	48	.7
29	197	0			-	99	2,090	12	1,540	0	22	11
30	99	0			-	94	1,540	8.6	1,280	0	15	10
31	33	-			-	82	-	4.7	-	0	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,059.8	448	0	98.7	6,070
November	175.6	52	0	5.85	348
December	0	0	0	0	0
Calendar year 1948	39,989.3	3,930	0	109	79,320
January	0	0	0	0	0
February	4,477	3,670	0	160	8,880
March	72,880	16,600	50	2,351	144,600
April	22,214.8	5,500	3.2	740	44,060
May	4,584.3	704	4.7	148	9,090
June	22,526.6	4,490	0	751	44,680
July	1,603.8	713	0	51.7	3,180
August	8,184	1,720	0	264	16,230
September	215.0	32	.2	7.17	426
Water year 1948-49	139,920.9	16,600	0	383	277,600

Peak discharge (base, 3,200 sec.-ft.).- Mar. 3 (4 a.m.) 17,200 sec.-ft.; Apr. 25 (time unknown) about 7,600 sec.-ft.; June 11 (time unknown) about 6,840 sec.-ft.

Nueces River near Tilden, Tex.

Location.- Water-stage recorder, lat. 28°18', long. 98°34', at bridge on State Highway 173, 2 miles upstream from Cow Creek and 10.5 miles south of Tilden, McMullen County. Datum of gage is 183.3 feet above mean sea level, datum of 1929 (levels by State Highway Department).

Drainage area.- 8,192 square miles.

Records available.- November 1942 to September 1949.

Extremes.- Maximum discharge during year, 14,700 second-feet Mar. 7 (gage height, 20.78 feet); no flow at times.
1943-49: Maximum discharge, 57,500 second-feet Oct. 11, 1946 (gage height, 26.46 feet), from rating curve extended above 30,000 second-feet; no flow at times.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Part of flow of Nueces River and its headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwaters flow enters this formation. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	230	2.5	0.3	0	680	63	10,800	25	624	0.5	25
2	24	137	2.4	.2	0	788	104	8,010	19	772	.3	16
3	16	91	2.3	.2	0	740	134	5,570	14	970	.2	8.5
4	11	65	2.2	.2	0	856	299	3,900	10	990	.2	101
5	7.7	44	2.1	.1	0	1,010	217	3,240	8.2	990	.4	234
6	5.3	31	2.0	0	0	2,310	91	2,840	6.3	438	.4	86
7	3.9	22	1.9	0	0	13,000	64	2,120	55	225	.4	34
8	2.6	16	1.7	0	0	13,300	62	669	31	150	5.0	11
9	2.1	12	1.6	0	0	10,100	64	170	65	80	207	6.7
10	1.6	8.6	1.5	0	0	7,370	71	114	229	47	526	19
11	1.2	f6.4	1.3	0	0	4,510	71	80	666	35	820	7.9
12	.8	f5.2	1.2	0	0	3,240	63	59	970	29	1,100	4.0
13	.5	4.9	1.0	0	0	2,430	58	48	2,050	27	1,340	79
14	.2	5.0	.8	0	0	1,640	50	72	3,140	40	1,560	30
15	0	4.7	.6	0	0	486	39	82	2,840	29	1,440	14
16	0	5.9	.4	0	0	310	27	194	2,180	55	820	5.6
17	107	46	5.5	0	0	250	11	277	1,840	36	838	3.3
18	315	63	9.5	0	.3	210	4.9	346	1,980	26	930	3.7
19	624	50	8.0	0	.5	182	2.9	418	2,290	14	1,060	3.7
20	695	25	2.9	0	.6	164	2.7	394	2,430	63	1,150	2.8
21	856	12	1.2	.1	.8	144	198	272	2,290	34	886	2.3
22	1,010	f7.3	2.6	.1	.9	127	855	182	1,840	10	278	6.0
23	1,010	f5.8	7.8	.2	1.0	117	1,150	130	546	5.2	205	137
24	424	4.7	5.2	.2	1.1	104	1,550	101	144	3.1	140	59
25	185	3.8	3.4	.2	3.4	88	3,650	80	101	2.6	110	14
26	127	3.3	2.2	.3	76	80	9,350	66	80	2.0	88	4.5
27	141	2.6	1.5	.4	4.1	74	11,200	58	72	1.5	74	6.2
28	272	2.6	1.3	.2	357	114	10,100	69	71	1.2	66	5.5
29	370	2.7	1.2	.1	-	406	10,100	85	246	.9	59	2.8
30	430	2.6	.8	0	-	296	11,200	59	430	.7	47	1.7
31	382	-	.6	0	-	101	-	36	-	.6	34	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,059.9	1,010	0	228	14,000
November	920.1	230	2.6	30.7	1,820
December	79.2	9.5	.4	2.55	157
Calendar year 1948	40,357.7	2,360	0	110	80,040
January	2.8	.4	0	.09	5.6
February	445.7	357	0	15.9	884
March	65,227	13,300	74	2,104	129,400
April	60,851.5	11,200	2.7	2,028	120,700
May	40,541	10,800	36	1,308	80,410
June	26,668.5	3,140	6.3	889	52,900
July	5,701.8	990	.6	184	11,310
August	13,785.4	1,560	.2	445	27,340
September	934.2	234	1.7	31.1	1,850
Water year 1948-49	222,217.1	13,300	0	609	440,800

Peak discharge (base, 3,600 sec.-ft.).- Mar. 7 (7 p.m.) 14,700 sec.-ft.; Apr. 27 (4 a.m.) 12,000 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Note.- No gage-height record Dec. 1-16, Jan. 9-20, Jan. 30 to Feb. 16; discharge computed on basis of weather records and records for stations at Cotulla and near Three Rivers.

Nueces River near Three Rivers, Tex.

Location.- Water-stage recorder, lat. 28°26'10", long. 98°11'10", 100 feet downstream from San Antonio, Uvalde & Gulf (Missouri Pacific) Railroad bridge, half a mile downstream from Frio River, and 2 miles southeast of Three Rivers, Live Oak County. Datum of gage is 101.16 feet above mean sea level, datum of 1929.
Drainage area.- 15,600 square miles.
Records available.- July 1915 to September 1949. U. S. Weather Bureau has collected gage-height records in this vicinity since 1922.
Average discharge.- 32 years (1915-18, 1920-49), 832 second-feet.
Extremes.- Maximum discharge during year, 22,000 second-feet Apr. 27 (gage height, 38.97 feet); minimum, 0.4 second-foot Oct. 15-17.
1915-49: Maximum discharge observed, 85,000 second-feet Sept. 18, 1919 (gage height, 46.0 feet), from rating curve extended above 55,000 second-feet; no flow at times.
Remarks.- Records good. Part of flow of Nueces and Frio Rivers and their headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Diversions above station for irrigation.
Revisions (water years).- W 548: 1920, 1921.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)

1.2	0.5	2.0	26	8.0	1,150	33.0	11,200
1.3	2.0	2.2	43	10.0	1,650	36.0	15,000
1.4	4.5	2.6	102	15.0	3,100	38.0	19,200
1.5	7.0	3.0	172	20.0	4,720		
1.6	10	4.0	355	25.0	6,500		
1.8	16	6.0	745	30.0	8,800		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	67	355	6.5	8.5	13	1,810	138	14,400	64	685	210	64
2	45	212	6.5	8.5	13	2,230	133	12,800	49	785	161	54
3	34	138	6.5	8.5	13	2,920	140	11,100	41	1,020	136	45
4	25	102	5.8	8.2	14	3,900	212	8,690	37	1,190	124	38
5	18	76	6.0	7.9	14	f3,200	336	6,340	32	1,110	102	109
6	14	55	6.8	7.6	14	1,870	262	4,720	28	1,360	521	224
7	11	41	6.5	7.9	14	1,760	181	3,870	154	875	663	114
8	8.2	35	6.0	7.9	14	f3,680	219	3,480	2,710	374	528	80
9	5.5	29	6.5	7.6	14	8,150	88	1,300	1,640	240	659	43
10	3.8	21	6.2	8.2	13	9,960	76	422	1,940	163	393	41
11	2.8	18	6.0	8.5	12	8,860	84	280	1,870	121	685	212
12	1.7	17	6.2	8.8	12	6,860	84	208	1,650	100	925	208
13	1.1	25	6.5	10	12	4,720	76	445	3,100	86	1,420	58
14	.8	30	7.0	11	12	3,740	68	271	3,900	165	1,890	70
15	.5	22	7.6	12	12	2,320	61	203	4,090	626	1,980	62
16	.4	22	9.1	13	11	815	50	298	5,200	254	1,600	40
17	170	18	21	13	12	450	41	336	5,600	170	1,000	48
18	2,170	23	20	13	14	346	32	364	4,120	119	925	46
19	2,980	62	17	12	14	596	21	412	2,440	83	985	27
20	1,870	60	15	11	13	440	19	469	2,410	72	1,040	23
21	1,090	40	13	12	14	289	18	431	2,560	72	1,110	18
22	1,360	28	16	13	13	215	215	308	2,470	75	905	20
23	1,810	19	14	19	13	170	965	217	2,200	45	355	22
24	1,470	14	12	18	13	152	1,880	168	829	35	253	97
25	f594	13	12	19	47	136	9,930	140	253	2,300	183	81
26	f253	12	12	16	1,670	119	17,600	126	196	4,160	145	39
27	167	11	12	15	2,920	104	21,400	133	1,540	7,570	128	38
28	163	9.4	11	15	2,030	102	18,300	104	3,040	9,280	112	27
29	262	7.6	10	a15	-	131	16,800	114	2,620	6,430	102	16
30	355	7.0	9.4	a14	-	474	16,600	112	981	936	94	17
31	412	-	8.5	a14	-	322	-	89	-	289	78	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	15,364.8	2,980	0.4	496	30,480
November	1,522.0	355	7.0	50.7	3,020
December	308.6	21	5.8	9.95	612
Calendar year 1948	76,889.1	5,740	0	210	152,500
January	363.1	19	7.6	11.7	720
February	6,980	2,920	11	249	13,840
March	70,841	9,960	102	2,285	140,500
April	106,029	21,400	18	3,534	210,300
May	72,350	14,400	89	2,334	143,500
June	57,764	5,600	28	1,925	114,600
July	40,790	9,280	35	1,316	80,910
August	19,412	1,980	78	626	38,500
September	1,981	224	16	66.0	3,930
Water year 1948-49	393,705.5	21,400	.4	1,079	780,900

Peak discharge (base, 6,000 sec.-ft.).- Mar. 10 (11:30 a.m.) 10,100 sec.-ft.; Apr. 27 (10 a.m.) 22,000 sec.-ft.; July 28 (1 p.m.) 9,480 sec.-ft.
a No gage-height record; discharge interpolated.
f Computed on basis of partly estimated gage-height record.
Note.- No recorder record Mar. 6, 7, Mar. 13 to Apr. 12; discharge computed from graph based on once-daily readings of staff gage furnished by U. S. Weather Bureau.

Lake Corpus Christi near Mathis, Tex.

Location.- Wire-weight gage, lat. 28°03', long. 97°52', at Mathis Dam on Nueces River, 0.75 mile upstream from Texas & New Orleans Railroad bridge, 0.8 mile upstream from bridge on U. S. Highway 96, and 4 miles southwest of Mathis, San Patricio County. Datum of gage is 0.52 foot above mean sea level, datum of 1929.

Drainage area.- 16,660 square miles.

Records available.- September 1948 to September 1949. The Soil Conservation Service, U. S. Department of Agriculture, in cooperation with State Board of Water Engineers, has collected fragmentary gage-height records in connection with sedimentation studies since February 1942.

Extremes.- Maximum contents observed during year, 57,000 acre-feet Apr. 30 (gage height, 77.05 feet); minimum observed, 29,800 acre-feet Feb. 13-18, 25.

Remarks.- Reservoir is formed by a rolled-fill earthen-type dam containing an unregulated concrete service spillway 1,048 feet long, and five taintor gates, each 35 feet wide. Dam complete and storage began July 24, 1934. Capacity, 39,400 acre-feet at gage height 74 feet (top of taintor gates and service spillway). Dead storage is negligible. Reservoir used for municipal supply for city of Corpus Christi. Water for city is released through sluice gate at gage height 43 feet. Figures given herein represent total storage. A siltation survey made by the Soil Conservation Service, U. S. Department of Agriculture, found the original capacity of reservoir to have been 54,000 acre-feet, and capacity as of March 1942 as 43,400 acre-feet at spillway crest. A resurvey by that agency completed Mar. 31, 1948, found the capacity to be 39,400 acre-feet at spillway crest.

Cooperation.- Capacity curve furnished by Soil Conservation Service, U. S. Department of Agriculture. Records of daily gage heights furnished by city of Corpus Christi.

Capacity table, water year 1948-49 (gage height, in feet, and contents, in acre-feet)

50.0	400	55.0	1,200	62.0	6,300	72.0	29,800
51.0	490	56.0	1,600	64.0	9,150	74.0	39,400
52.0	590	57.0	2,100	66.0	12,500	76.0	50,200
53.0	720	58.0	2,700	68.0	16,850	78.0	64,000
54.0	900	60.0	4,200	70.0	22,400	80.0	80,000

Monthly gage height and contents, October 1948 to September 1949

Date	Gage height (feet)†	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	74.04	39,400	-
Oct. 31	-	a39,910	+510
Nov. 30	73.32	35,830	-4,080
Dec. 31	72.79	33,400	-2,430
Calendar year	-	-	-
Jan. 31	72.31	31,150	-2,250
Feb. 28	73.61	37,360	+6,210
Mar. 31	74.11	39,910	+2,550
Apr. 30	77.05	57,000	+17,090
May 31	74.04	39,400	-17,600
June 30	74.76	43,480	+4,080
July 31	74.11	39,910	-3,570
Aug. 31	74.01	39,400	-510
Sept. 30	-	a37,360	-2,040
Water year 1948-49	-	-	-2,040

† Gage height at 8 a.m.
a No gage-height record; contents estimated.

Nueces River near Mathis, Tex.

Location.- Water-stage recorder, lat. 28°02', long. 97°52', at bridge on U. S. Highway 59, 200 feet downstream from Texas & New Orleans Railroad bridge, 0.8 mile downstream from Lake Corpus Christi Dam, and 4 miles southwest of Mathis, San Patricio County. Datum of gage is 27.53 feet above mean sea level, datum of 1929.

Drainage area.- 16,660 square miles.

Records available.- August 1939 to September 1949.

Average discharge.- 10 years (1939-49), 1,052 second-feet.

Extremes.- Maximum discharge during year, 23,000 second-feet Apr. 30 (gage height, 29.67 feet); minimum, 13 second-feet Dec. 8-10.

1939-49: Maximum discharge, 49,400 second-feet July 12, 1942 (gage height, 37.38 feet); minimum, 3.7 second-feet Aug. 15, 1940; minimum daily, 6.8 second-feet Aug. 15, 1940.

Maximum stage known, 39.9 feet in September 1919 at railroad bridge 200 feet upstream, from floodmark identified by Texas & New Orleans Railroad engineers.

Remarks.- Records good. Flow partly regulated by Lake Corpus Christi (see preceding page). Diversions for irrigation above station. Records of chemical analyses and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used May 12 to June 8, Aug. 27 to Sept. 30

1.8	12	3.8	168	13.0	2,670	23.0	7,420
2.0	18	4.2	244	15.0	3,350	24.0	8,690
2.3	30	5.0	422	17.0	4,100	25.0	10,300
2.6	45	7.0	902	19.0	4,920	26.0	12,200
3.0	72	9.0	1,430	21.0	5,880	28.0	17,800
3.4	111	11.0	2,020	22.0	6,500	29.5	22,400

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	141	470	29	26	341	908	422	21,100	68	1,600	1,180	64
2	123	446	30	26	37	1,510	418	19,300	56	1,030	678	54
3	68	301	29	35	41	1,930	177	17,200	48	952	566	42
4	55	308	29	55	36	2,570	419	15,500	41	1,030	339	34
5	46	386	32	54	44	3,390	269	13,300	36	1,160	248	26
6	44	94	28	49	40	3,390	160	10,300	32	1,160	236	21
7	45	47	23	42	40	2,370	170	6,980	33	1,260	446	38
8	44	44	13	36	40	1,870	135	4,920	112	1,060	422	43
9	44	259	14	33	40	3,090	142	3,870	1,240	662	578	44
10	44	44	62	33	40	5,270	202	2,340	1,630	482	590	39
11	45	41	43	34	38	7,420	253	1,210	1,810	349	446	26
12	44	41	42	34	38	9,330	80	806	1,870	204	494	51
13	44	42	42	35	38	9,170	40	590	1,750	138	662	83
14	44	44	41	34	38	6,920	45	542	2,570	146	1,060	80
15	44	41	41	34	36	4,500	114	458	3,650	822	1,490	63
16	44	50	40	36	34	2,800	41	341	2,910	1,740	1,720	108
17	256	41	34	34	36	1,560	36	352	4,580	1,860	1,540	236
18	106	122	33	36	36	987	36	352	5,320	873	1,160	187
19	973	196	33	34	36	614	34	434	4,710	422	952	131
20	2,280	36	32	34	35	566	70	434	3,070	203	926	100
21	2,150	52	32	34	35	690	99	506	2,540	115	978	93
22	1,540	71	32	34	35	470	114	506	2,470	81	1,000	68
23	1,460	38	29	24	35	352	488	410	2,410	62	854	53
24	1,660	38	28	24	32	308	926	363	2,120	57	542	48
25	1,600	37	28	23	36	244	4,650	288	1,370	587	341	47
26	1,080	38	28	23	32	330	13,600	308	737	2,240	213	47
27	668	40	28	22	32	208	15,200	180	506	3,680	146	46
28	422	402	28	21	62	149	18,100	101	1,090	5,560	116	46
29	299	36	29	22	-	132	21,800	87	2,310	7,660	92	46
30	299	29	28	20	-	191	22,700	89	2,540	8,420	77	46
31	352	-	28	258	-	278	-	81	-	3,690	66	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	16,064	2,280	44	518	31,860
November	3,834	470	29	128	7,600
December	987	62	13	31.8	1,960
Calendar year 1948	69,468	3,650	13	190	137,800
January	1,235	258	20	39.8	2,450
February	1,363	341	32	48.7	2,700
March	73,517	9,330	132	2,372	145,800
April	100,940	22,700	34	3,365	200,200
May	123,248	21,100	81	3,976	244,500
June	54,629	5,320	32	1,821	108,400
July	49,305	8,420	57	1,590	97,800
August	20,158	1,720	66	650	39,980
September	2,010	236	21	67.0	3,990
Water year 1948-49	447,290	22,700	13	1,225	887,200

Nueces River at Calallen, Tex.

Location.- Staff gage, lat. 27°52'40", long. 97°37'35", at old pump house of city of Corpus Christi, half a mile northwest of Calallen, Nueces County, and half a mile upstream from tidewater and breadwater dam. Datum of gage is 1.12 feet above mean sea level, datum of 1929.

Drainage area.- 16,920 square miles.

Records available.- August 1915 to September 1949 (1918-49 gage heights only), discontinued.

Extremes.- Maximum gage height observed during year, 11.08 feet May 1; minimum observed, 1.38 feet Feb. 1.

1915-49: Maximum gage height observed, 13.58 feet July 13, 1942; no flow Aug. 23-29, 1918 (only period of no flow known).

Remarks.- Discharge not computed. Gage read twice daily.

Cooperation.- Gage readings furnished by city of Corpus Christi.

Revision.- W 568: Drainage area.

Gage height, in feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.08	4.22	3.54	2.87	1.83	3.56	4.05	11.04	3.73	6.17	8.26	3.71
2	3.91	4.36	3.56	2.95	4.16	4.88	4.24	11.01	3.67	5.63	6.51	3.77
3	3.91	4.32	3.47	2.84	3.65	5.43	4.28	10.79	3.55	5.20	5.00	3.67
4	3.78	4.20	3.43	2.58	3.61	5.73	4.04	10.57	3.56	5.05	4.61	3.68
5	3.64	4.05	3.40	2.50	3.59	6.10	4.22	10.32	3.62	5.07	4.30	3.55
6	3.62	4.25	3.43	3.28	3.62	6.60	4.11	10.09	3.41	5.18	4.16	3.56
7	3.55	3.98	3.41	3.60	3.60	6.75	3.98	9.79	3.24	5.19	4.14	3.46
8	3.57	3.73	3.14	3.56	3.53	6.38	3.94	9.39	3.14	5.28	4.33	3.36
9	3.57	3.64	2.73	3.55	3.60	6.01	3.91	8.78	3.09	5.19	4.59	3.46
10	3.59	3.93	2.03	3.42	3.56	6.50	3.90	8.11	4.85	4.69	4.56	3.56
11	3.52	3.74	1.60	3.20	3.56	7.07	3.96	6.91	5.39	4.40	4.53	3.63
12	3.58	3.63	2.15	3.31	3.58	7.66	4.04	5.29	5.71	4.21	4.41	3.52
13	3.58	3.65	2.83	3.35	3.57	8.46	3.86	4.81	5.74	4.01	4.48	3.33
14	3.57	3.63	3.33	3.40	3.46	8.92	3.70	4.53	5.74	3.86	4.75	3.64
15	3.44	3.64	3.50	3.46	3.58	8.92	3.57	4.42	6.17	3.94	5.17	3.73
16	3.51	3.63	3.44	3.54	3.47	8.41	3.66	4.30	6.61	4.95	5.46	3.64
17	3.92	3.55	3.59	3.52	3.42	7.50	3.72	4.18	6.85	5.87	5.06	3.66
18	4.07	3.62	3.53	3.56	3.57	5.86	3.63	4.14	7.11	5.78	5.60	4.07
19	3.95	3.62	3.56	3.51	3.55	5.03	3.58	4.17	7.45	5.08	5.33	4.06
20	5.08	3.96	3.51	3.48	3.50	4.61	3.79	4.28	7.65	4.50	5.12	3.96
21	5.78	3.72	3.48	3.53	3.56	4.49	4.39	4.30	7.29	4.12	5.06	3.84
22	5.88	3.56	3.47	3.56	3.45	4.58	4.21	4.38	6.54	3.96	5.06	3.85
23	5.66	3.69	3.44	3.57	3.52	4.36	4.68	4.39	6.28	3.83	5.11	3.79
24	5.55	3.63	3.35	3.51	3.52	4.20	5.15	4.31	6.18	3.78	4.94	3.69
25	5.64	3.59	3.34	3.38	3.52	4.13	5.59	4.25	5.97	3.76	4.56	3.67
26	5.60	3.50	3.37	3.32	3.60	4.08	7.43	4.17	5.42	4.83	4.34	3.60
27	5.16	3.55	3.36	3.31	3.62	4.18	8.84	4.21	4.88	5.98	4.13	3.67
28	4.68	3.58	3.26	3.09	3.57	4.04	9.73	4.10	4.47	6.62	4.03	3.57
29	4.38	4.16	3.20	2.83	-	3.90	10.03	3.89	5.26	7.13	3.94	3.57
30	4.18	3.73	3.18	2.26	-	3.88	10.55	3.80	5.97	7.81	3.82	3.59
31	4.18	-	2.98	1.72	-	3.86	-	3.74	-	8.40	3.80	-

West Nueces River near Brackettville, Tex.

Location.- Water-stage recorder, lat. 29°28'55", long. 100°14'20", at Bruce Ranch, 11 miles upstream from Liveoak Creek and 15.8 miles northeast of Brackettville, Kinney County. Datum of gage is 1,326.8 feet above mean sea level, datum of 1929.

Drainage area.- 700 square miles.

Records available.- September 1939 to September 1949.

Average discharge.- 10 years (1939-49), 15.0 second-feet.

Extremes.- Maximum discharge during year, 33,000 second-feet Feb. 25 (gage height, 17.80 feet), from rating curve extended above 1,300 second-feet on basis of slope-area determinations at gage heights 11.56 and 20.95 feet; no flow most of the time.

1939-49: Maximum discharge, 51,000 second-feet June 25, 1948 (gage height, 20.95 feet, from floodmark), by slope-area method; no flow most of time.

Maximum stage known, 48.0 feet June 14, 1935, from floodmark, at site 0.6 mile above gage (discharge at a point 33 miles upstream from gage and 2½ miles below Kickapoo Creek, 580,000 second-feet, by slope-area method; a second determination 24 miles below gage and 8 miles north of Cline, 536,000 second-feet, by slope-area method).

Remarks.- Records fair. In ordinary years most of runoff from basin is lost by seepage into Edwards limestone above station. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					0	193	1.2				0	1.2
2					0	164	1.2				0	1.0
3					0	a140	1.1				0	.8
4					0	a116	1.0				0	.7
5					0	a92	.9				0	.6
6					0	68	.8				0	.5
7					0	56	.8				0	.4
8					0	46	.7				0	.4
9					0	34	.7				237	.3
10					0	28	.6				135	.3
11					0	23	.5				87	.2
12					0	19	.5				70	.2
13					0	16	.4				56	.1
14					0	12	.4				35	.1
15					0	11	.4				22	.1
16					0	8.8	.4				16	3.1
17					0	6.8	.3				12	3.4
18					0	6.1	.3				11	11
19					0	5.2	.2				8.8	39
20					0	5.8	.2				7.6	35
21					0	4.6	.2				6.4	24
22					0	3.7	.1				5.5	13
23					9,030	3.7	.1				5.2	9.2
24					2,970	3.0	.1				4.6	6.4
25					12,400	2.6	0				4.0	4.9
26					2,150	2.0	0				3.4	3.4
27					556	1.7	0				2.8	2.3
28					281	1.7	0				2.4	1.6
29					-	1.6	0				2.2	1.3
30					-	1.4	0				1.8	1.0
31					-	1.3	-				1.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	12,888.3	11,500	0	35.2	25,570
January	0	0	0	0	0
February	27,387	12,400	0	978	54,320
March	1,078.0	193	1.3	34.8	2,140
April	13.1	1.2	0	.44	26
May	0	0	0	0	0
June	0	0	0	0	0
July	0	0	0	0	0
August	737.2	237	0	23.8	1,460
September	165.5	39	.1	5.52	328
Water year 1948-49	29,380.8	12,400	0	80.5	58,270

Peak discharge (base, 1,000 sec.-ft.).- Feb. 23 (5:30 p.m.) 21,900 sec.-ft.; Feb. 25 (12 m.) 33,000 sec.-ft.

a No gage-height record; discharge interpolated.

Frio River at Concan, Tex.

Location.- Water-stage recorder, lat. 29°29', long. 99°42', half a mile southeast of Concan post office, Uvalde County, and 15 miles upstream from Dry Frio River. Datum of gage is 1,203.71 feet above mean sea level, datum of 1929.

Drainage area.- 485 square miles.

Records available.- October 1923 to September 1949.

Average discharge.- 24 years (1924-29, 1930-49), 104 second-feet.

Extremes.- Maximum discharge during year, 29,300 second-feet Feb. 25 (gage height, 16.40 feet, from floodmark), from rating curve extended above 8,000 second-feet on basis of slope-area determinations at gage heights 16.40 and 34.44 feet; minimum, 15 second-feet Oct. 1-7, 12, 13.

1923-49: Maximum discharge, 162,000 second-feet July 1, 1932 (gage height, 34.44 feet, from floodmarks), by slope-area method; minimum, 7.5 second-feet Sept. 8, 1948.

Remarks.- Records excellent except those above 250 second-feet, which are fair. Part of flow of Frio River enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde and below station. Most of low flow enters this formation. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	19	20	23	32	405	106	192	86	71	34	48
2	15	18	22	23	32	346	113	168	84	68	34	46
3	15	18	22	23	35	294	110	154	81	71	34	46
4	15	18	22	23	34	266	106	136	78	76	34	46
5	15	18	23	23	34	246	103	132	78	68	34	44
6	15	17	23	22	34	227	97	126	76	66	38	42
7	16	17	23	23	34	213	95	122	116	64	40	42
8	16	18	23	23	34	208	92	119	94	62	59	42
9	16	18	22	24	34	196	92	116	146	59	68	48
10	17	18	22	24	34	184	89	110	103	57	55	48
11	17	18	23	24	34	176	86	106	97	55	50	46
12	16	20	23	26	34	168	86	106	92	52	48	44
13	16	22	23	26	35	164	84	103	89	50	50	44
14	16	24	24	26	35	161	84	103	96	52	50	42
15	16	24	26	27	35	157	81	103	92	52	52	42
16	18	24	25	73	35	150	78	106	81	55	55	167
17	41	22	24	35	35	146	78	129	78	48	57	72
18	26	22	24	30	35	139	78	119	76	46	62	59
19	22	20	24	29	35	132	110	116	73	46	62	57
20	20	19	24	29	35	139	256	110	71	44	59	57
21	20	22	23	27	35	150	110	106	68	42	59	57
22	22	20	23	29	46	136	97	106	66	42	62	55
23	22	20	23	31	1,960	126	92	106	66	40	59	55
24	22	22	24	31	650	126	283	100	69	40	57	57
25	20	22	23	31	f7,720	122	369	100	144	40	57	57
26	20	22	23	34	1,600	161	213	100	86	40	55	59
27	20	22	23	34	762	136	184	100	81	40	55	59
28	20	20	24	31	520	119	242	97	78	40	52	59
29	20	20	23	31	-	116	282	97	73	40	52	59
30	20	20	23	32	-	110	232	95	73	38	52	57
31	19	-	23	32	-	106	-	89	-	36	50	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	588	41	15	19.0	1,170
November	604	24	17	20.1	1,200
December	717	26	20	23.1	1,420
Calendar year 1948	10,203.7	116	8.2	27.9	20,260
January	899	73	22	29.0	1,780
February	13,978	7,720	32	499	27,720
March	5,525	405	106	178	10,960
April	4,128	369	78	138	8,190
May	3,572	192	89	115	7,080
June	2,581	146	66	86.0	5,120
July	1,600	76	36	51.6	3,170
August	1,585	68	34	51.1	3,140
September	1,656	167	42	55.2	3,280
Water year 1948-49	37,433	7,720	15	103	74,230

Peak discharge (base, 750 sec.-ft.).- Feb. 23 (4:30 p.m.) 10,200 sec.-ft.; Feb. 25 (2 p.m.) 29,300 sec.-ft.; Apr. 20 (3 a.m.) 810 sec.-ft.; Apr. 24 (9:30 p.m.) 1,310 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Frio River near Derby, Tex.

Location.- Water-stage recorder and concrete control, lat. 28°44'10", long. 99°08'45", at bridge on U. S. Highway 81, 150 feet upstream from International-Great Northern Railroad bridge, 750 feet downstream from Leona River, and 2.4 miles south of Derby, Frio County. Datum of gage is 449.3 feet above mean sea level, datum of 1929.

Drainage area.- 3,493 square miles.

Records available.- August 1915 to September 1949.

Average discharge.- 34 years, 149 second-feet.

Extremes.- Maximum discharge during year, 6,900 second-feet Feb. 27 (gage height, 10.02 feet); no flow at times.
1915-49: Maximum discharge, 230,000 second-feet July 4, 1932 (gage height, 29.60 feet, present site, from floodmarks at former site), by slope-area method; no flow at times.

Remarks.- Records good. Part of flow of Frio River and its headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Diversions above station for irrigation.

Revisions (water years).- W 568: 1915, 1916, 1918-22, drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0				0	1,250	0.3	270	0	0	0	
2	0				0	419	.2	175	0	0	0	
3	0				0	203	.1	97	0	0	0	
4	0				0	111	.2	58	0	0	0	
5	0				0	62	.2	40	0	0	0	
6	0				0	36	.1	28	0	0	0	
7	0				0	18	0	21	.1	0	5.9	
8	0				0	8.6	0	16	549	0	34	
9	0				0	3.2	0	12	522	0	628	
10	0				0	1.8	0	11	100	0	845	
11	0				0	.3	0	136	68	0	319	
12	0				0	.2	0	173	31	0	85	
13	0				0	.1	0	50	482	0	36	
14	0				0	.1	0	18	226	0	18	
15	0				0	547	0	8.2	51	0	8.6	
16	0				0	205	0	3.2	269	0	3.2	
17	52				0	34	0	1.4	248	0	1.4	
18	852				0	a6.2	0	.5	60	0	.5	
19	1,250				0	a1.0	0	.3	23	0	.3	
20	289				0	a.3	.1	.2	11	0	.1	
21	122				0	a.3	2.1	.2	5.0	0	0	
22	32				0	a.2	71	.2	2.6	0	0	
23	11				203	.2	28	.2	1.0	0	0	
24	4.2				253	.1	24	.2	.5	0	0	
25	1.4				1,240	.1	267	.1	.5	11	0	
26	.5				1,420	.2	2,220	.1	.5	.3	0	
27	.3				5,360	.1	2,430	.1	.3	.1	0	
28	.2				3,700	0	1,470	.1	.2	0	0	
29	.1				-	0	624	.1	.2	0	0	
30	.1				-	0	572	0	0	0	0	
31	.1				-	0	-	0	-	0	0	

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,614.9	1,250	0	84.4	5,190
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	16,136.8	5,690	0	44.1	32,010
January	0	0	0	0	0
February	12,176	5,360	0	435	24,150
March	2,908.0	1,250	0	93.8	5,770
April	7,709.3	2,430	0	257	15,290
May	1,120.1	270	0	36.1	2,220
June	2,650.9	549	0	88.4	5,260
July	11.4	11	0	.37	23
August	1,985.0	845	0	64.0	3,940
September	0	0	0	0	0
Water year 1948-49	31,175.6	5,360	0	85.4	61,840

Peak discharge (base, 1,100 sec.-ft.).- Oct. 19 (3:30 a.m.) 2,050 sec.-ft.; Feb. 25 (8 p.m.) 1,720 sec.-ft.; Feb. 27 (8 p.m.) 6,900 sec.-ft.; Apr. 27 (12:30 a.m.) 2,980 sec.-ft.

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

Frio River at Calliham, Tex.

Location.- Water-stage recorder and concrete control, lat. 28°29'30", long. 98°20'45", at bridge on Calliham-Whitsett highway, 1 mile north of Calliham, McMullen County, and 9.7 miles downstream from San Miguel Creek. Datum of gage is 153.47 feet above mean sea level, datum of 1929.
Drainage area.- 5,491 square miles.
Records available.- October 1924 to April 1926, April 1932 to September 1949.
Average discharge.- 18 years (1924-25, 1932-49), 275 second-feet.
Extremes.- Maximum discharge during year, 13,200 second-feet Apr. 26 (gage height, 28.10 feet); no flow Oct. 1-16, Sept. 17-30.
1924-26, 1932-49: Maximum discharge, 190,000 second-feet July 6, 1932 (gage height, 39.20 feet, from floodmarks), by slope-area method; no flow at times.
Remarks.- Records good except those for Feb. 19 to Mar. 1, which are poor. Part of flow of Frio River and its headwater tributaries enters Edwards limestone in Balcones fault zone which crosses basin just north of Uvalde. At low stages most of headwater flow enters this formation. Diversions above station for irrigation.
Revision.- W 788: Drainage area.

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Jan. 15-22)

2.37	0	2.9	15	4.0	232	11.0	1,780	25.0	8,400
2.4	.3	3.0	22	4.5	400	13.0	2,330	26.0	9,400
2.5	1.2	3.2	42	5.0	540	15.0	2,970	27.0	10,900
2.6	2.5	3.4	73	6.0	790	17.0	3,740		
2.7	5.0	3.6	116	7.0	1,000	19.0	4,660		
2.8	9.2	3.8	167	9.0	1,360	22.0	6,300		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	7.5	1.0	1.3	2.4	1,020	27	2,640	8.8	87	32	1.2
2	0	5.0	.9	1.3	2.4	1,530	40	1,760	7.1	58	27	1.1
3	0	4.0	.9	1.3	2.4	2,940	31	1,050	6.7	58	23	1.0
4	0	3.5	.8	1.3	2.4	3,040	28	538	5.8	71	19	.9
5	0	2.5	.8	1.3	2.4	1,440	36	268	4.8	101	128	.8
6	0	2.2	.8	1.3	2.4	490	26	179	4.2	218	307	.8
7	0	1.8	.9	1.3	2.2	189	21	126	1,200	93	83	.7
8	0	1.8	1.0	1.3	2.1	121	18	93	2,530	58	175	.6
9	0	1.7	.9	1.3	1.8	83	14	73	1,110	43	100	.5
10	0	1.5	.8	1.3	1.5	59	11	63	1,880	33	43	.7
11	0	1.3	.8	1.5	1.3	43	7.9	52	900	26	31	1.3
12	0	1.3	.8	1.8	1.2	33	6.3	109	1,230	22	143	.7
13	0	2.1	1.0	2.2	1.1	26	4.5	229	1,510	20	553	.4
14	0	2.8	1.1	2.2	1.1	24	3.8	75	1,310	16	694	.2
15	0	2.4	1.2	2.2	1.8	21	3.0	154	f1,650	15	311	.1
16	0	2.4	3.9	2.2	4.0	15	2.2	133	2,640	61	104	.1
17	402	2.1	9.7	2.2	3.2	11	2.0	73	2,100	29	61	0
18	2,650	2.1	11	2.2	2.8	136	2.0	52	911	19	40	0
19	1,350	2.2	5.8	2.4	2.5	364	1.7	39	f282	18	28	0
20	574	2.1	3.5	2.5	2.4	126	1.7	32	357	11	21	0
21	367	2.1	2.5	2.5	2.2	167	1.7	26	195	9.2	15	0
22	718	2.0	2.4	2.5	2.1	35	39	24	104	7.5	11	0
23	726	1.8	2.2	2.5	2.0	26	102	21	70	6.7	8.4	0
24	253	1.7	2.1	2.4	4.3	20	986	18	50	5.4	6.3	0
25	98	1.6	1.7	2.4	.241	18	7,500	16	40	285	4.5	0
26	50	1.6	1.7	2.4	1,620	19	11,800	46	429	3,830	3.8	0
27	32	1.6	1.6	2.4	963	42	5,190	30	1,960	1,050	3.0	0
28	25	1.6	1.5	2.5	670	30	4,960	37	1,160	766	2.4	0
29	18	1.5	1.5	2.5	-	17	4,920	21	605	305	2.1	0
30	13	1.2	1.5	2.4	-	11	3,110	14	156	68	1.7	0
31	9.2	-	1.5	2.4	-	10	-	10	-	43	1.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7,285.2	2,650	0	235	14,450
November	69.0	7.5	1.2	2.30	137
December	67.8	11	.8	2.19	134
Calendar year 1948	22,186.3	3,780	0	60.6	44,010
January	61.3	2.5	1.3	1.98	122
February	3,548.0	1,620	1.1	127	7,040
March	12,106	3,040	10	391	24,010
April	38,895.8	11,800	1.7	1,297	77,150
May	8,001	2,640	10	258	15,870
June	24,416.4	2,640	4.2	814	48,430
July	7,432.8	3,830	5.4	240	14,740
August	2,982.7	694	1.5	96.2	5,920
September	11.1	1.3	0	.37	22
Water year 1948-49	104,874.1	11,800	0	287	208,000

Peak discharge (base, 4,000 sec.-ft.).- Apr. 26 (9 a.m.) 13,200 sec.-ft.; Apr. 29 (9 a.m.) 5,390 sec.-ft.; July 26 (5 p.m.) 4,660 sec.-ft.
f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record Oct. 1-8, Feb. 19 to Mar. 1 and Apr. 3-12; discharge computed on basis of recorded range in stage and records for nearby stations.

Sabinal River near Sabinal, Tex.

Location.- Water-stage recorder, lat. 29°30', long. 99°29', 470 feet upstream from low-water road crossing on Sabinal-Utopia road, 3.5 miles downstream from Onion Creek, and 12 miles north of Sabinal, Uvalde County. Datum of gage is 1,131.2 feet above mean sea level, datum of 1929.

Drainage area.- 206 square miles.

Records available.- October 1942 to September 1949.

Extremes.- Maximum discharge during year, 5,320 second-feet Feb. 25 (gage height, 7.20 feet), from rating curve extended above 1,000 second-feet on basis of slope-area determination at gage height 9.60 feet; no flow Oct. 1-16, Nov. 3-12.

1942-49: Maximum discharge, 9,800 second-feet June 24, 1947 (gage height, 9.60 feet), by slope-area method; no flow at times.

Flood of July 2, 1932, reached a stage of about 29.9 feet, from information by local residents; discharge, 72,000 second-feet, by slope-area method, at Sabinal, 12 miles downstream from gage.

Remarks.- Records good. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1.0	1.0	1.7	7.0	109	48	136	41	27	16	13
2	0	.8	1.0	1.7	7.0	95	50	124	41	25	16	12
3	0	.2	1.0	1.7	6.3	83	48	118	39	33	14	24
4	0	0	1.2	1.7	6.3	78	48	112	37	48	13	14
5	0	0	1.2	1.7	6.3	75	48	106	37	43	28	13
6	0	0	1.2	1.7	6.3	70	46	106	37	37	24	13
7	0	0	1.2	1.7	6.3	65	43	101	161	33	42	13
8	0	0	1.2	1.7	6.3	62	41	98	73	29	55	12
9	0	0	1.2	1.7	6.3	62	41	95	142	27	50	16
10	0	0	1.2	1.7	6.3	58	39	89	62	25	43	25
11	0	0	1.2	2.0	6.3	58	39	86	53	25	31	16
12	0	.9	1.2	2.4	6.3	58	39	83	50	24	29	14
13	0	1.4	1.4	2.4	6.3	58	39	81	55	22	25	13
14	0	1.7	1.4	2.4	6.3	60	37	81	50	22	24	13
15	0	1.7	1.7	2.4	5.6	58	35	78	50	25	22	12
16	.4	1.4	1.4	23	5.6	55	35	75	46	25	20	a60
17	122	1.2	1.4	11	5.6	55	35	78	43	25	18	a55
18	8.6	1.2	1.4	7.0	5.6	53	35	75	41	24	22	39
19	4.9	.6	1.4	5.6	6.3	53	74	73	39	22	20	31
20	2.9	.6	1.4	4.9	6.3	55	196	70	37	22	18	33
21	2.4	.7	1.4	4.9	6.3	62	62	68	35	20	17	29
22	2.0	1.0	1.4	4.9	8.6	55	55	65	33	18	17	27
23	1.7	.7	1.4	5.6	114	53	53	62	33	18	17	24
24	1.7	.7	1.7	5.6	126	50	404	58	33	17	16	22
25	1.2	1.0	1.4	6.3	1,550	50	300	55	50	18	16	22
26	1.2	1.0	1.4	6.3	461	60	139	53	37	20	14	20
27	1.2	1.0	1.4	6.3	187	60	118	53	35	18	16	20
28	1.0	.8	1.7	6.3	133	55	309	50	39	18	18	18
29	1.0	.8	1.7	5.6	-	53	170	48	29	17	16	18
30	1.0	.8	1.7	6.3	-	50	145	46	29	16	14	17
31	1.0	-	1.7	7.0	-	48	-	43	-	16	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	154.2	122	0	4.97	306
November	21.2	1.7	0	.71	42
December	42.2	1.7	1.0	1.36	84
Calendar year 1948	1,303.6	122	0	3.56	2,590
January	145.2	23	1.7	4.68	288
February	2,710.5	1,550	5.6	96.8	5,380
March	1,916	109	48	61.8	3,800
April	2,771	404	35	92.4	5,500
May	2,466	136	43	79.5	4,890
June	1,487	161	29	49.6	2,950
July	759	48	16	24.5	1,510
August	714	60	13	23.0	1,420
September	658	60	12	21.9	1,300
Water year 1948-49	13,844.3	1,550	0	37.9	27,470

Peak discharge (base, 4,000 sec.-ft.).- Feb. 25 (4:30 p.m.) 5,320 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

Leona River spring flow near Uvalde, Tex.

Location.- Water-stage recorder, lat. 29°09', long. 99°44', at old road crossing on White's ranch, 3½ miles downstream from Cooks Slough and 4.6 miles southeast of Uvalde, Uvalde County. Datum of gage is 838.4 feet above mean sea level, datum of 1929.

Records available.- January 1939 to September 1949. Occasional discharge measurements since 1925 in connection with seepage investigations.

Average discharge.- 10 years (1939-49), 13.5 second-feet.

Extremes.- Maximum daily spring discharge during year, 12 second-feet Sept. 29, 30; maximum gage height, 6.77 feet Feb. 25; no flow at times.
1939-49: Maximum daily spring discharge, 33 second-feet Feb. 15-18, 1942; maximum gage height 13.63 feet Aug. 30, 1944, from floodmark; no flow at times from September 1948 to January 1949.

Remarks.- Records good. Discharge represents flow from several springs that enter river above station and below Uvalde. Surface runoff from precipitation is excluded. A few small diversions by pumping from river channel above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2	0.3	0.5	0	0.4	e0.4	0.3	3.0	4.4	6.2	6.2	7.1
2	.2	.3	.5	0	.4	.4	.3	3.1	4.2	6.5	6.2	7.1
3	.3	.3	.3	0	.4	.3	.3	3.1	4.6	6.5	5.9	7.1
4	.3	.3	.2	0	.4	.3	.4	3.3	4.0	6.5	5.9	7.1
5	.2	.3	.1	0	.4	.3	.5	3.3	4.0	6.5	5.9	7.1
6	.1	.2	0	0	.3	.3	.5	3.3	4.6	6.2	6.2	7.1
7	0	.3	.1	.1	.3	.4	.6	3.4	5.4	6.2	e6.8	7.1
8	.1	.4	.1	.1	.3	.4	.6	3.4	e5.6	6.2	e7.3	6.8
9	.2	.4	.1	.1	.3	.3	.8	3.4	e5.7	6.2	7.9	7.1
10	.1	.4	.1	.1	.3	.2	.9	e3.6	5.9	6.2	7.9	e7.4
11	.1	.4	.1	.1	.3	.2	.9	3.8	7.9	6.2	7.9	e7.6
12	.2	.4	.1	.1	.3	.2	1.0	3.8	6.8	6.2	7.9	7.9
13	0	.4	.1	.2	.3	.2	1.1	3.8	7.1	5.9	7.9	7.9
14	0	.4	.2	.4	.3	.2	1.3	4.0	11	5.9	7.9	7.9
15	e.1	.4	.2	.4	.3	.3	1.3	4.2	8.3	5.9	8.3	8.3
16	e.1	.4	.2	.4	.3	.5	1.4	4.4	6.8	6.2	8.3	e8.7
17	e.2	.3	.2	.4	.3	.5	1.6	4.6	6.8	5.9	8.3	e9.0
18	e.3	.1	.1	.4	.3	.5	1.7	4.6	6.8	5.9	8.3	e9.3
19	e.4	.5	.1	.4	.3	.4	1.8	4.8	6.2	5.9	8.3	e9.6
20	e.4	.5	.1	.4	.3	.4	1.9	5.0	6.2	5.9	8.3	e9.9
21	.5	.4	.1	.4	.3	.4	1.9	5.2	6.2	5.6	7.9	e10
22	.4	.4	.1	.4	.3	.4	2.2	5.2	6.2	5.6	7.9	e11
23	.4	.6	.1	.4	e.3	.3	2.0	5.2	6.2	5.6	8.3	11
24	.4	.6	0	.4	e.3	.3	e2.2	5.2	6.2	5.4	8.3	11
25	.3	.6	0	.3	e.3	.3	e2.4	5.4	7.5	5.6	7.9	11
26	.2	.6	0	.3	e.3	.4	2.6	5.4	6.2	6.8	7.5	11
27	.3	.6	0	.3	e.4	.3	2.6	5.2	7.5	5.9	7.5	11
28	.4	.6	0	.4	e.4	.2	2.6	5.2	7.5	6.2	7.5	11
29	.4	.6	0	.4	-	.2	2.6	5.0	6.5	6.2	7.1	12
30	.4	.6	0	.4	-	.2	2.6	5.2	6.2	6.2	7.1	12
31	.4	-	0	.4	-	.3	-	5.0	-	6.5	7.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	7.6	0.5	0	0.25	15
November	12.6	.6	.1	.42	25
December	3.7	.5	0	.12	7.3
Calendar year 1948	1,304.9	14	0	3.57	2,590
January	7.7	.4	0	.25	15
February	9.1	.4	.3	.32	18
March	10.0	.5	.2	.32	20
April	42.9	2.6	.3	1.43	85
May	133.1	5.4	3.0	4.29	264
June	188.5	11	4.0	6.28	374
July	188.7	6.8	5.4	6.09	374
August	231.7	8.3	5.9	7.47	460
September	268.1	12	6.8	8.94	532
Water year 1948-49	1,103.7	12	0	3.02	2,190

e Gage height not representative of average spring flow for day; discharge interpolated.

Atascosa River at Whitsett, Tex.

Location.- Water-stage recorder and artificial control, lat. 28°37'20", long. 98°17'05", 0.9 mile west of Whitsett, Live Oak County, and 4 miles downstream from La Parita Creek. Datum of gage is 159.0 feet above mean sea level, datum of 1929.

Drainage area.- 1,171 square miles.

Records available.- September 1924 to May 1926, May 1932 to September 1949.

Average discharge.- 18 years (1924-25, 1932-49), 153 second-feet.

Extremes.- Maximum discharge during year, 18,200 second-feet July 27 (gage height, 30.92 feet, from floodmark), from rating curve extended above 12,000 second-feet on basis of slope-area determination at gage height 38.0 feet; minimum, 0.6 second-foot Oct. 8, 9, 11-17.

1924-26, 1932-49: Maximum discharge, 39,300 second-feet July 7, 1942 (gage height, 38.3 feet, from floodmark), from rating curve extended above 12,000 second-feet on basis of slope-area determination at gage height 38.0 feet; no flow at times.

Remarks.- Records good except those above 12,000 second-feet, which are fair. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	7.2	6.0	7.8	9.9	56	11	299	11	104	94	19
2	1.3	6.6	6.0	7.8	10	34	20	121	11	83	82	18
3	1.2	6.3	6.0	7.8	11	26	28	87	9.5	78	73	18
4	1.2	6.0	7.2	8.1	12	23	19	69	9.1	75	66	17
5	1.1	5.7	7.5	8.1	12	21	16	59	8.4	97	79	16
6	1.0	5.2	6.9	8.4	12	19	16	51	8.1	448	342	16
7	.7	4.9	6.9	8.4	12	18	13	51	8.4	124	324	30
8	.6	4.9	7.5	8.4	12	17	11	133	8.4	71	507	15
9	.7	4.7	7.2	8.4	11	16	10	68	104	56	183	17
10	.7	4.5	6.9	8.8	11	15	10	44	138	48	82	87
11	.7	5.2	6.9	8.8	11	15	9.9	37	48	43	57	258
12	.6	5.7	7.2	9.1	10	14	9.5	82	201	38	49	69
13	.6	8.4	7.5	9.9	10	14	9.1	106	1,420	35	45	25
14	.6	10	8.1	11	10	14	8.4	47	791	32	41	18
15	.6	13	8.4	11	11	14	7.2	36	470	45	39	16
16	.6	12	13	12	10	14	6.3	30	970	93	35	13
17	96	9.9	9.5	12	10	13	6.6	27	440	44	34	14
18	613	8.4	8.8	12	10	13	6.3	25	114	33	32	13
19	359	6.9	8.4	11	9.1	11	6.9	25	67	52	30	12
20	68	6.3	8.4	10	12	11	8.4	23	51	30	28	12
21	32	6.6	8.4	11	11	12	10	22	40	23	27	14
22	20	6.3	8.4	18	11	11	50	21	30	20	25	18
23	15	6.3	8.4	16	12	12	81	19	26	19	24	13
24	12	6.3	8.8	16	12	12	1,050	18	25	18	23	11
25	9.9	6.3	8.4	13	52	12	6,440	19	26	1,110	22	10
26	9.1	6.6	8.1	13	972	19	11,600	16	25	f10,800	21	18
27	8.4	6.6	8.1	12	1,080	16	4,590	15	795	f13,300	20	24
28	7.8	6.3	8.4	13	144	17	888	14	2,080	4,000	20	11
29	7.5	6.3	8.4	12	-	14	2,580	13	1,210	322	22	9.5
30	7.5	6.0	8.1	11	-	12	1,990	13	159	143	20	8.8
31	7.5	-	8.1	9.5	-	11	-	12	-	111	19	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,286.3	613	0.6	41.5	2,550
November	205.4	13	4.5	6.85	407
December	245.9	13	6.0	7.93	488
Calendar year 1948	13,744.1	1,540	0	37.6	27,250
January	333.3	18	7.8	10.8	661
February	2,510.0	1,080	9.1	89.6	4,980
March	526	56	11	17.0	1,040
April	29,511.6	11,600	6.3	984	58,540
May	1,602	299	12	51.7	3,180
June	9,303.9	2,080	8.1	310	18,450
July	31,495	13,300	18	1,016	62,470
August	2,465	507	19	79.5	4,890
September	840.3	258	8.8	28.0	1,670
Water year 1948-49	80,324.7	13,300	.6	220	159,300

Peak discharge (base, 1,500 sec.-ft.).- Feb. 27 (3 a.m.) 1,810 sec.-ft.; Apr. 26 (10 a.m.) 12,800 sec.-ft.; Apr. 29 (10:30 p.m.) 3,880 sec.-ft.; June 13 (10:30 a.m.) 1,700 sec.-ft.; June 28 (10:30 p.m.) 2,320 sec.-ft.; July 27 (1 a.m.) 18,200 sec.-ft.

f Computed on basis of partly estimated gage-height record.

Rio Grande at Thirtymile Bridge, near Creede, Colo.

Location.- Water-stage recorder, lat. 37°44', long. 107°16', in sec. 13, T. 40 N., R. 4 W., 500 feet upstream from Squaw Creek, three-quarters of a mile downstream from Rio Grande Reservoir, and 20 miles southwest of Creede.

Drainage area.- 163 square miles.

Records available.- June 1909 to September 1913 and October 1933 to September 1949 in reports of Geological Survey. June 1909 to September 1949 in reports of State engineer.

Average discharge.- 36 years (1910-23, 1926-49), 232 second-feet.

Extremes.- Maximum discharge during year, 3,750 second-feet June 19 (gage height, 5.80 feet), from rating curve extended above 2,500 second-feet; minimum daily, 3.6 second-feet Oct. 30.

1909-49: Maximum discharge, 7,500 second-feet June 28, 1927 (gage height, 7.03 feet); minimum daily, 0.6 second-foot at times when reservoir was about empty and gates were closed.

Remarks.- Records excellent except those for period of no gage-height record, which are fair. Flow regulated by Rio Grande Reservoir (capacity, 51,110 acre-feet).

Rating tables, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 18-30)

Oct. 1 to Mar. 31

0.4	3.0	1.0	26
.6	7.0	1.1	34
.7	10	1.2	44
.8	14	1.6	102
.9	19	1.9	162

Apr. 1 to Sept. 30

0.6	11	1.3	65	2.8	549
.7	15	1.5	100	3.2	778
.9	25	1.7	143	3.7	1,180
1.1	40	2.1	257	4.7	2,270
1.2	51	2.4	365	5.2	2,900

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	115	5.3	5.3	5.3	5.3	5.3	5.3	508	260	1,150	565	209
2	115	5.3	5.3	5.3	5.3	5.3	5.3	570	554	1,220	560	102
3	99	5.3	5.3	5.3	5.3	5.3	5.3	570	734	1,220	591	87
4	73	5.3	5.3	5.3	5.3	5.3	5.3	575	765	1,140	640	87
5	62	5.3	5.3	5.3	5.3	5.3	5.3	554	785	1,060	591	62
6	62	5.3	5.3	5.3	5.3	5.3	5.3	484	910	772	581	55
7	62	5.3	5.3	5.3	5.3	5.3	5.3	373	989	806	549	54
8	64	5.3	5.3	5.3	5.3	5.3	5.3	297	834	917	539	58
9	64	5.3	5.3	5.3	5.3	5.3	5.3	365	674	753	508	74
10	64	5.3	5.3	5.3	5.3	5.3	5.3	446	886	1,060	549	74
11	64	5.3	5.3	5.3	5.3	5.3	5.3	484	1,770	785	508	74
12	66	5.3	5.3	5.3	5.3	5.3	56	361	1,740	613	484	74
13	73	5.3	5.3	5.3	5.3	5.3	54	334	1,740	586	441	108
14	73	5.3	5.3	5.3	5.3	5.3	44	334	1,770	657	415	110
15	73	5.3	5.3	5.3	5.3	5.3	44	51	1,820	613	460	72
16	73	5.3	5.3	5.3	5.3	5.3	44	12	1,790	513	469	62
17	65	5.3	5.3	5.3	5.3	5.3	44	13	1,830	586	377	62
18	57	5.3	5.3	5.3	5.3	5.3	44	14	2,460	657	353	41
19	57	5.3	5.3	5.3	5.3	5.3	86	15	2,930	669	460	36
20	57	5.3	5.3	5.3	5.3	5.3	175	16	2,040	778	410	37
21	57	5.3	5.3	5.3	5.3	5.3	294	161	1,830	686	349	55
22	57	5.3	5.3	5.3	5.3	5.3	301	415	1,920	646	369	68
23	57	5.3	5.3	5.3	5.3	5.3	283	437	2,070	640	450	68
24	57	5.3	5.3	5.3	5.3	5.3	315	189	1,570	640	415	64
25	55	5.3	5.3	5.3	5.3	5.3	229	112	1,180	728	386	62
26	51	5.3	5.3	5.3	5.3	5.3	161	38	1,510	734	424	40
27	45	5.3	5.3	5.3	5.3	5.3	214	23	1,400	703	484	32
28	45	5.3	5.3	5.3	5.3	5.3	346	65	1,360	591	474	34
29	13	5.3	5.3	5.3	-	5.3	394	108	1,380	715	424	55
30	3.6	5.3	5.3	5.3	-	5.3	394	112	1,290	591	386	95
31	4.0	-	5.3	5.3	-	5.3	-	114	-	565	369	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,882.6	115	3.6	60.7	3,730
November	159.0	5.3	5.3	5.30	315
December	164.3	5.3	5.3	5.30	326
Calendar year 1948	115,583.9	2,500	3.6	316	229,300
January	164.3	5.3	5.3	5.30	326
February	148.4	5.3	5.3	5.30	294
March	164.3	5.3	5.3	5.30	326
April	3,580.3	394	5.3	119	7,100
May	8,150	575	12	263	16,170
June	42,791	2,930	260	1,426	84,870
July	23,794	1,220	513	768	47,190
August	14,580	640	349	470	28,920
September	2,111	209	32	70.4	4,190
Water year 1948-49	97,689.2	2,930	3.6	268	193,800

Note.- No gage-height record Oct. 31 to Apr. 11; discharge computed on basis of discharge measurement made on Nov. 15 and leakage through closed gates at Rio Grande Reservoir.

Rio Grande at Wason, below Creede, Colo.

Location.- Water-stage recorder, lat. 37°49', long. 106°53', in NE¼ sec. 8, T. 41 N., R. 1 E., at Wason, 300 feet downstream from bridge on State Highway 149, 1½ miles downstream from Willow Creek, and 3 miles southeast of Creede.
Drainage area.- 705 square miles.
Records available.- April 1907 to September 1913 and October 1933 to September 1949 in reports of Geological Survey. April 1907 to September 1949 in reports of State engineer.
Average discharge.- 42 years, 638 second-feet.
Extremes.- Maximum discharge during year, 7,680 second-feet June 19 (gage height, 6.16 feet), from rating curve extended above 4,400 second-feet; minimum daily, 72 second-feet Jan. 29-31.
1907-49: Maximum discharge, 9,750 second-feet June 28, 1927 (gage height, 7.65 feet); minimum not determined.
Remarks.- Records excellent except those for period of ice effect, which are fair. Diversions above station for irrigation. Flow regulated by three reservoirs (total capacity, 122,900 acre-feet).

Rating tables, water year 1948-49, except period of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 4 to Nov. 11, Mar. 8-17, June 4-10)

Oct. 1 to June 6				June 7 to Sept. 30			
0.3	70	1.6	560	0.7	175	2.8	1,630
.5	112	2.0	835	.9	246	3.3	2,240
.7	157	2.8	1,560	1.4	480	4.3	3,870
1.0	268	3.3	2,120	1.8	730	6.2	7,770
1.3	399	3.5	2,400	2.2	1,050		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	304	130	103	105	73	98	125	1,160	1,460	2,930	1,190	848
2	288	138	*98	106	76	100	120	1,350	1,580	2,950	1,290	654
3	272	135	102	98	80	102	117	1,510	1,800	3,090	1,330	520
4	243	133	111	90	82	104	120	1,450	2,000	2,670	1,440	497
5	222	101	100	86	80	108	117	1,320	2,080	2,500	1,420	440
6	222	103	103	96	79	110	133	1,260	2,360	2,140	1,390	372
7	205	125	92	102	82	113	152	1,100	2,440	2,240	1,200	325
8	205	103	110	102	84	112	164	915	2,230	2,020	1,210	302
9	201	101	108	96	84	117	158	949	2,060	1,860	1,220	302
10	201	161	116	105	86	117	152	1,150	2,310	2,090	1,270	275
11	201	135	120	112	92	105	155	1,280	3,340	2,020	1,210	275
12	201	112	118	115	98	110	186	1,190	3,740	1,610	1,130	280
13	201	117	120	108	92	108	268	1,090	4,000	1,440	1,030	263
14	205	115	130	102	88	110	272	1,120	4,280	1,560	1,050	311
15	208	115	122	92	89	*115	284	1,290	4,360	1,390	1,070	288
16	205	117	108	86	*94	115	317	1,210	4,580	1,290	1,120	259
17	201	125	110	82	96	125	360	1,070	4,900	1,190	1,110	259
18	189	*88	118	84	98	125	403	1,010	5,820	1,330	1,020	250
19	195	92	113	*86	99	128	393	940	6,930	1,290	1,110	227
20	198	105	130	88	105	130	507	958	5,340	1,470	1,200	216
21	198	100	136	89	109	130	669	915	4,640	1,350	1,120	216
22	179	110	138	90	110	130	883	1,200	4,660	1,280	960	231
23	173	125	120	91	113	130	915	1,320	4,760	1,250	1,030	223
24	170	133	110	92	114	122	983	1,390	4,380	1,280	1,030	223
25	167	120	94	90	108	122	1,020	1,350	3,310	1,170	1,020	216
26	164	118	98	86	100	117	915	1,540	3,620	1,390	1,070	216
27	164	108	103	82	96	112	891	1,470	3,650	1,140	1,120	195
28	179	98	*98	74	97	128	899	1,430	3,370	1,170	1,100	185
29	170	108	92	72	-	125	1,130	1,620	3,290	1,150	1,010	246
30	170	111	94	72	-	115	1,150	1,680	3,120	1,220	936	280
31	152	-	98	72	-	117	-	1,580	-	1,170	928	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	6,253	304	152	202	12,400
November	3,482	161	88	116	6,910
December	3,413	138	92	110	6,770
Calendar year 1948	303,339	5,800	80	829	601,600
January	2,852	115	72	92.0	5,660
February	2,604	114	73	93.0	5,160
March	3,600	130	98	116	7,140
April	13,958	1,150	117	465	27,690
May	38,817	1,680	915	1,252	76,990
June	106,410	6,930	1,460	3,547	211,100
July	52,650	3,090	1,140	1,698	104,400
August	35,334	1,440	928	1,140	70,080
September	9,394	848	185	313	18,630
Water year 1948-49	278,767	6,930	72	764	552,900

Peak discharge (base, 2,300 sec.-ft.).- June 19 (5 a.m.) 7,680 sec.-ft.
* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Nov. 19 to Mar. 7.

Rio Grande near Del Norte, Colo.

Location.- Water-stage recorder, lat. 37°41', long. 106°28', in NW¼ sec. 29, T. 40 N., R. 5 E., 5 miles upstream from Pinos Creek and 6 miles west of Del Norte. Datum of gage is 7,982.21 feet above mean sea level, datum of 1929.

Drainage area.- 1,320 square miles.

Records available.- July 1889 to November 1906 (at site 4 miles downstream), April 1908 to September 1913, and October 1933 at September 1949 in reports of Geological Survey. July 1889 to September 1906 and April 1908 at September 1949 in reports of State engineer. May to September 1907 (at site 4 miles downstream), unpublished, in files of State engineer.

Average discharge.- 60 years (1889-1949), 964 second-feet.

Extremes.- Maximum discharge during year, 10,000 second-feet June 19 (gage height, 6.16 feet), from rating curve extended above 8,000 second-feet; minimum daily, 130 second-feet Nov. 19.

1889-1949: Maximum discharge, 18,000 second-feet Oct. 5, 1911 (gage height, 6.80 feet), from rating curve extended above 6,000 second-feet; minimum daily, 88 second-feet Dec. 20, 1945.

Remarks.- Records excellent above 350 second-feet and good below except those for periods of ice effect or no gage-height record, which are fair. Small diversions above station for irrigation. Flow regulated by three main reservoirs (total capacity, 122,900 acre-feet) and several smaller ones.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	380	296	170	182	160	200	260	2,180	3,440	4,600	1,500	1,030
2	392	*302	*160	182	*160	*202	250	2,480	3,310	4,520	1,670	842
3	368	314	168	175	165	205	235	2,900	3,600	4,670	1,690	714
4	356	308	174	170	180	205	250	2,900	3,920	4,090	1,740	634
5	332	250	160	160	175	210	260	2,630	4,090	3,820	1,700	596
6	338	260	170	*175	170	205	285	2,540	4,390	3,400	1,640	547
7	338	220	140	190	178	215	356	2,180	4,490	3,580	1,420	477
8	314	225	180	190	185	210	422	1,860	4,090	3,210	1,410	446
9	314	205	172	182	180	200	416	1,800	3,880	2,990	1,410	434
10	314	250	200	190	182	195	374	2,140	4,180	3,040	1,430	434
11	314	280	210	195	190	220	338	2,450	5,050	3,360	1,390	410
12	302	260	205	210	212	235	416	2,550	5,900	2,750	1,320	428
13	302	230	210	200	203	232	533	2,360	6,160	2,430	1,210	416
14	302	158	220	205	185	230	610	2,370	6,700	2,430	1,200	464
15	308	166	200	195	178	*264	610	2,970	6,800	2,190	1,190	452
16	308	150	*180	185	*185	285	674	3,100	7,050	2,050	1,220	416
17	296	162	185	180	188	310	770	2,720	7,590	1,830	1,260	404
18	290	*150	200	182	190	330	850	2,520	8,450	1,900	1,170	392
19	285	130	190	*185	195	350	818	2,340	9,750	1,810	1,190	374
20	308	170	210	190	205	380	861	2,390	8,610	1,970	1,300	350
21	308	150	215	192	215	355	1,040	2,080	7,700	1,870	1,250	350
22	296	170	215	195	220	350	1,370	2,340	7,460	1,760	1,090	350
23	280	180	200	198	220	360	1,550	2,610	7,310	1,710	1,110	356
24	275	170	175	195	230	350	1,670	2,930	7,460	1,780	1,140	362
25	275	190	150	200	218	344	1,870	3,020	5,920	1,600	1,100	356
26	270	160	170	202	210	320	1,940	3,500	5,920	1,810	1,170	344
27	265	150	175	195	195	308	1,870	3,440	5,920	1,600	1,220	334
28	290	140	160	190	198	*314	1,730	3,290	5,440	1,590	1,210	332
29	314	160	162	170	-	290	2,130	3,620	5,100	1,420	1,140	410
30	320	175	165	155	-	270	2,300	3,920	4,890	1,600	1,070	452
31	326	-	170	160	-	255	-	3,900	-	1,530	1,030	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	9,680	392	265	312	19,200
November	6,131	314	130	204	12,160
December	5,666	220	140	183	11,240
Calendar year 1948	457,722	8,290	130	1,251	907,900
January	5,775	210	155	186	11,450
February	5,372	230	160	192	10,660
March	8,399	380	195	271	16,660
April	27,058	2,300	235	902	53,670
May	84,030	3,920	1,800	2,711	166,700
June	174,570	9,750	3,310	5,819	346,300
July	78,910	4,670	1,420	2,545	156,500
August	40,590	1,740	1,030	1,309	80,510
September	13,916	1,030	332	464	27,600
Water year 1948-49	460,097	9,750	130	1,261	912,600

Peak discharge (base, 3,200 sec.-ft.).- May 31 (7 a.m.) 4,110 sec.-ft.; June 7 (6:30 a.m.) 4,690 sec.-ft.; June 19 (8 a.m.) 10,000 sec.-ft.; June 24 (8 a.m.) 8,030 sec.-ft.

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 11, 12, Nov. 19 to Jan. 22, Feb. 17-24, Mar. 3-8, 12, 15-20, 22-24. No gage-height record Jan. 23 to Feb. 16, Feb. 25 to Mar. 2, Mar. 9-11, 13, 14, 21, 28, 29 (stage-discharge relation affected by ice during most of periods); discharge computed on basis of 4 discharge measurements, weather records, and records for nearby stations.

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Rio Grande near Monte Vista, Colo.

Location.- Water-stage recorder, lat. 37°37', long. 106°09', at west line of sec. 19, T. 39 N., R. 8 E., 100 feet downstream from bridge on U. S. Highway 285 and 2 miles north of Monte Vista. Datum of gage is 7,654.54 feet above mean sea level, datum of 1929.
Drainage area.- 1,590 square miles.
Records available.- October 1933 to September 1949 in reports of Geological Survey. May 1926 to September 1949 in reports of State engineer (no winter records in earlier years).
Average discharge.- 16 years (1933-49), 377 second-feet.
Extremes.- Maximum discharge during year, 6,650 second-feet June 19 (gage height, 8.00 feet); minimum daily, 33 second-feet Aug. 31, Sept. 23.
1926-49: Maximum discharge, 18,500 second-feet June 30, 1927 (gage height, 8.35 feet, present datum, corrected); minimum daily, 4 second-feet Apr. 18, 1926.
Remarks.- Records good except those for periods of ice effect, which are fair. Diversions above station for irrigation. Flow regulated by three main reservoirs (total capacity, 122,900 acre-feet) and several smaller ones.
Revisions.- W 928: Drainage area.

Rating tables, water year 1948-49, except periods of ice effect
(gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-3, June 21 to July 16)

Oct. 1 to July 2						July 3 to Sept. 30					
0.4	21	1.7	313	4.0	1,810	0.9	29	1.9	192	4.0	1,230
.6	55	2.0	430	5.0	2,840	1.1	51	2.3	309	5.0	2,050
.9	114	2.5	692	6.0	4,030	1.4	93	2.6	425	5.7	2,780
1.5	259	3.0	1,030	8.0	6,650	1.6	128	3.0	627		

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	59	224	142	186	182	214	43	526	1,270	2,810	334	71
2	53	189	148	199	179	*216	43	580	920	2,630	349	122
3	50	209	148	196	186	196	98	954	968	2,680	356	82
4	48	192	158	189	186	219	106	1,000	1,260	2,350	457	67
5	46	170	170	179	184	216	74	646	1,740	1,990	349	64
6	46	153	148	180	182	216	38	607	2,000	1,530	303	63
7	48	199	172	185	186	232	36	839	2,230	1,480	235	68
8	48	222	165	190	182	236	63	778	2,280	1,340	142	77
9	48	204	202	185	182	239	108	596	2,230	1,220	107	75
10	48	*165	182	190	182	234	100	712	2,480	1,200	120	70
11	46	206	179	195	182	242	78	873	3,320	1,840	148	77
12	48	226	186	*202	184	244	50	1,060	4,510	1,600	96	81
13	48	212	192	184	192	236	90	920	4,880	1,260	65	90
14	45	209	204	186	189	239	172	798	5,080	1,190	48	96
15	45	214	202	174	179	244	179	1,230	5,120	1,090	63	84
16	45	214	*170	165	*179	244	155	1,580	5,120	830	49	58
17	43	216	182	170	182	239	184	1,350	5,290	578	84	56
18	45	209	196	174	184	189	272	1,040	5,470	536	72	51
19	52	222	179	186	184	135	277	758	6,180	457	58	47
20	74	126	174	209	184	106	232	699	6,290	443	84	42
21	167	158	189	206	184	139	324	553	5,640	434	86	38
22	194	135	192	206	179	119	435	591	5,210	434	71	34
23	196	146	192	214	192	116	518	675	5,020	536	50	33
24	189	162	184	206	209	100	705	832	5,030	551	93	42
25	186	158	153	202	224	92	859	818	4,580	556	54	58
26	177	*170	142	194	216	61	812	1,110	4,250	655	41	60
27	174	132	160	*194	214	64	602	1,080	4,190	699	55	65
28	182	132	177	189	214	43	365	907	3,900	520	90	68
29	226	123	*196	184	-	45	488	1,120	3,480	331	78	68
30	222	139	207	177	-	121	646	1,490	3,130	391	40	93
31	242	-	184	174	-	76	-	1,580	-	386	33	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,140	242	43	101	6,230
November	5,436	226	123	181	10,780
December	5,475	207	142	177	10,860
Calendar year 1948	254,419	6,790	43	695	504,700
January	5,870	214	165	189	11,640
February	5,302	224	179	189	10,520
March	5,312	244	43	171	10,540
April	8,252	859	36	275	16,370
May	28,302	1,580	526	913	56,140
June	113,068	6,290	920	3,769	224,300
July	34,547	2,810	331	1,114	68,520
August	4,210	457	33	136	8,350
September	2,000	122	33	66.7	3,970
Water year 1948-49	220,914	6,290	33	605	438,200

Peak discharge (base, 3,000 sec.-ft.).- June 19 (11:30 p.m.) 6,650 sec.-ft.
* Winter discharge measurement made on this day.
Note.- Stage-discharge relation affected by ice Nov. 19 to Dec. 12, Dec. 17 to Feb. 27 (no gage-height record Jan. 6-11).

Rio Grande at Alamosa, Colo.

Location.- Water-stage recorder, lat. 37°29', long. 105°53', in SE¼ sec. 4, T. 37 N., R. 10 E., a quarter of a mile northwest of Alamosa and 7 miles upstream from Alamosa Creek. Datum of gage is 7,532.66 feet above mean sea level, datum of 1929.

Drainage area.- 1,710 square miles.

Records available.- May 1912 to September 1913 and October 1933 to September 1949 in reports of Geological Survey. May 1912 to September 1949 in reports of State engineer.

Average discharge.- 37 years, 322 second-feet.

Extremes.- Maximum discharge during year, 6,350 second-feet June 20 (gage height, 10.62 feet), from rating curve extended above 4,600 second-feet; minimum daily, 7.5 second-feet Aug. 28, 29.

1912-49: Maximum discharge, 14,000 second-feet July 1, 1927; maximum gage height, that of June 20, 1949; minimum daily discharge, 2 second-feet Oct. 24-29, 1933.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Many diversions above station for irrigation. During irrigation season, low flow is water returned from irrigated lands above station.

Revisions.- W 928: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	18	206	231	165	250	53	118	524	2,340	51	17
2	18	10	193	239	170	*b255	48	99	307	1,980	49	15
3	19	10	188	b215	175	b250	46	91	129	1,800	47	14
4	20	10	184	200	180	b245	46	176	105	1,840	46	17
5	20	9.2	188	190	185	b260	44	208	256	1,650	65	19
6	19	8.8	182	*172	190	b260	42	123	572	1,310	68	19
7	19	23	180	180	190	b260	41	96	797	930	55	23
8	19	81	*195	190	195	b260	40	163	1,020	956	48	25
9	18	122	200	200	200	b270	41	163	1,150	863	46	28
10	18	227	205	210	200	b270	46	105	1,110	784	47	28
11	18	202	190	220	220	b270	59	120	1,190	859	46	29
12	17	239	195	230	240	b280	58	163	1,540	1,320	44	32
13	17	231	199	230	230	b285	49	266	2,070	1,140	44	29
14	17	224	202	220	210	289	42	224	1,400	870	33	25
15	17	229	213	210	190	296	64	232	3,360	813	25	25
16	17	220	197	190	190	303	84	524	3,760	661	15	26
17	18	243	202	190	190	*300	70	746	4,030	440	13	25
18	18	255	231	195	*195	284	78	591	4,370	277	13	21
19	18	*197	218	210	205	249	92	428	4,770	199	13	20
20	19	246	227	220	220	208	81	260	5,780	155	10	19
21	18	206	*227	230	230	183	71	185	6,120	131	9.6	17
22	18	215	241	230	240	196	61	151	5,380	112	8.2	16
23	19	236	246	240	235	179	104	154	4,850	93	8.9	20
24	19	231	224	230	235	170	224	149	4,560	99	8.2	21
25	20	258	218	225	240	130	298	149	4,600	104	8.2	21
26	17	204	208	220	245	104	354	123	4,230	117	8.2	21
27	16	204	206	*205	250	87	303	212	3,700	133	8.2	22
28	18	b190	234	190	250	75	181	204	3,570	157	7.5	21
29	18	b180	224	180	-	68	116	149	3,240	90	7.5	18
30	18	b190	234	170	-	66	98	245	2,710	68	8.9	17
31	20	-	231	165	-	53	-	462	-	58	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	566	20	16	18.3	1,120
November	4,919.0	258	8.8	164	9,760
December	6,488	246	180	209	12,870
Calendar year 1948	186,353.0	4,960	8.8	509	369,700
January	6,427	240	165	207	12,750
February	5,865	250	165	209	11,630
March	6,655	303	53	215	13,200
April	2,934	354	40	97.8	5,820
May	7,079	746	91	228	14,040
June	81,200	6,120	105	2,707	161,100
July	22,349	2,340	58	721	44,330
August	874.4	68	7.5	28.2	1,730
September	650	32	14	21.7	1,290
Water year 1948-49	146,006.4	6,120	7.5	400	289,600

Peak discharge (base, 2,500 sec.-ft.).- June 20 (10 p.m.) 6,350 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.- No gage-height record Dec. 9-12, Jan. 4 to Mar. 1 (stage-discharge relation affected by ice during most of periods); discharge computed on basis of 3 discharge measurements, weather records, and records for nearby stations.

Rio Grande above mouth of Trinchera Creek, near La Sauses, Colo.

Location.- Water-stage recorder, lat. 39°19', long. 105°45', in sec. 35, T. 36 N., R. 11 E., a quarter of a mile upstream from Trinchera Creek and 5 miles north of La Sauses.

Drainage area.- 5,740 square miles (includes 2,940 square miles in closed basin).

Records available.- May 1936 to September 1949.

Average discharge.- 13 years, 346 second-feet.

Extremes.- Maximum discharge during year, 5,470 second-feet June 21 (gage height, 9.50 feet), from rating curve extended above 3,500 second-feet; minimum daily, 38 second-feet Oct. 6, 7.

1936-49: Maximum discharge, that of June 21, 1949; minimum daily, 0.4 second-foot July 4, 1940.

Remarks.- Records good except those for period of ice effect or no gage-height record, which are fair. Storage and many diversions above station for irrigation. During irrigation season, low flow is water returned from irrigated lands above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	76	*267	220	*218	*318	162	312	665	3,040	180	78
2	40	76	250	222	222	335	167	339	621	2,630	186	82
3	39	70	258	218	228	362	172	304	378	2,240	186	81
4	39	71	270	212	210	385	186	320	286	2,040	176	80
5	40	84	260	*208	210	420	200	419	274	2,000	200	86
6	38	89	248	210	211	423	200	389	553	1,850	230	92
7	38	79	240	216	209	420	186	334	788	1,640	242	88
8	39	112	250	222	210	418	176	335	975	1,420	232	87
9	39	201	245	212	212	415	176	422	1,160	1,380	244	86
10	40	229	252	211	220	434	196	360	1,180	1,250	213	86
11	41	275	258	221	230	453	220	338	1,190	1,240	186	84
12	46	271	269	230	235	465	237	372	1,400	1,390	170	85
13	43	312	275	229	228	447	232	452	1,670	1,550	160	86
14	45	314	270	232	225	*422	190	508	2,030	1,360	148	90
15	46	292	220	223	*221	413	188	483	2,350	1,160	135	84
16	49	273	233	215	220	419	211	561	2,730	1,080	122	82
17	49	*273	250	200	221	428	223	851	3,500	878	116	82
18	50	273	250	*210	227	416	223	925	4,070	683	116	81
19	66	250	232	209	230	392	259	743	4,330	538	108	77
20	66	270	240	217	235	359	278	609	4,640	447	103	76
21	61	265	*247	221	241	317	273	448	5,210	353	99	74
22	61	273	258	225	252	307	261	387	5,380	312	95	71
23	58	280	235	224	260	304	259	338	5,160	290	90	70
24	66	275	210	219	278	304	336	329	4,950	280	85	71
25	79	300	188	223	303	259	440	319	4,720	290	79	73
26	75	275	203	230	310	207	522	304	4,650	304	77	74
27	70	258	220	238	300	196	551	281	4,400	307	74	76
28	69	230	220	230	305	188	456	375	3,910	331	73	78
29	76	240	213	218	-	167	373	354	3,700	296	73	80
30	71	250	206	205	-	235	312	335	3,450	225	73	80
31	70	-	210	211	-	167	-	500	-	192	74	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,649	79	38	53.2	3,270
November	6,536	314	70	218	12,960
December	7,447	275	188	240	14,770
Calendar year 1948	220,620	5,060	30	603	437,600
January	6,781	238	200	219	13,450
February	6,671	310	209	238	13,230
March	10,795	465	167	348	21,410
April	7,865	551	162	262	15,600
May	13,346	925	281	431	26,470
June	80,320	5,380	274	2,677	159,300
July	32,996	3,040	192	1,064	65,450
August	4,345	244	73	140	8,620
September	2,420	92	70	80.7	4,800
Water year 1948-49	181,171	5,380	38	496	359,300

Peak discharge (base, 3,000 sec.-ft.).- June 21 (11 p.m.) 5,470 sec.-ft.

* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 18 to Mar. 9 (no gage- height record Dec. 1 to Feb. 28; discharge computed on basis of 6 discharge measurements, weather records, and records for station near Lobatos).

Rio Grande near Lobatos, Colo.

Location.- Water-stage recorder, lat. 37°05', long. 105°45', in sec. 22, T. 33 N., R. 11 E., 6 miles north of Colorado-New Mexico State line, 7 miles downstream from Culebra Creek, and 10 miles east of Lobatos. Datum of gage is 7,426.79 feet above mean sea level, datum of 1929.

Drainage area.- 7,700 square miles (includes 2,940 square miles in closed basin).

Records available.- June 1899 to September 1913 and October 1933 to September 1949 in reports of Geological Survey. June 1899 to September 1949 in reports of State engineer.

Average discharge.- 50 years (1899-1949), 728 second-feet.

Extremes.- Maximum discharge during year, 9,330 second-feet June 22 (gage height, 7.68 feet); minimum daily, 55 second-feet Oct. 4.
1899-1949: Maximum daily discharge, 13,100 second-feet June 8, 1905, from rating curve extended above 8,000 second-feet; minimum daily, 5.0 second-feet Aug. 4, 1940.

Remarks.- Records excellent above 100 second-feet and good below except those for periods of ice effect or no gage-height record, which are fair. Diversions above station for irrigation. Flow regulated by many reservoirs on headwaters. Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	60	117	*235	265	*279	*477	219	995	1,750	4,000	231	86
2	60	127	220	265	295	470	223	962	1,300	3,520	223	94
3	60	127	235	255	300	460	219	951	1,110	3,040	227	100
4	55	124	245	250	280	465	231	1,240	1,010	2,750	207	94
5	60	162	240	*248	280	480	243	1,430	973	2,610	207	94
6	61	144	245	255	280	490	247	1,230	1,240	2,380	231	106
7	57	152	220	265	278	500	243	1,220	1,610	2,160	264	106
8	57	117	260	275	275	510	235	1,030	1,830	1,810	268	100
9	62	162	250	260	270	500	227	962	2,020	1,650	276	100
10	64	281	270	270	270	479	239	984	2,160	1,490	272	100
11	67	349	295	285	280	479	255	1,150	2,410	1,460	235	94
12	69	349	300	300	280	490	268	1,580	2,790	1,650	219	92
13	69	303	295	290	275	479	272	1,930	3,200	2,070	203	94
14	69	340	310	305	265	*462	255	1,820	3,630	1,890	192	103
15	72	312	*305	295	*255	451	223	1,800	4,110	1,640	177	100
16	72	*303	250	285	255	451	227	2,070	4,420	1,500	166	89
17	69	307	280	270	255	457	251	2,410	5,110	1,220	159	92
18	74	316	300	*282	260	457	268	2,340	5,950	930	156	97
19	82	260	290	285	270	440	280	1,910	6,640	702	149	94
20	108	290	305	290	270	406	348	1,650	7,350	586	135	92
21	102	270	320	295	285	368	337	1,410	8,150	485	129	89
22	99	290	330	300	295	342	332	1,180	9,110	423	122	86
23	96	300	325	300	320	358	327	1,140	8,250	412	116	78
24	96	285	280	285	350	332	423	1,120	7,510	379	106	78
25	108	300	220	295	370	313	667	1,150	7,220	395	103	86
26	117	270	260	305	370	280	874	1,260	6,800	390	103	89
27	111	230	270	310	360	251	1,090	1,380	6,490	401	100	92
28	111	200	265	300	400	239	1,010	1,620	5,580	401	89	94
29	117	220	245	285	-	231	845	1,560	5,050	406	86	97
30	117	240	245	265	-	211	864	1,520	4,560	322	86	103
31	111	-	255	270	-	231	-	1,650	-	268	86	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,533	117	55	81.7	5,020
November	7,247	349	117	242	14,370
December	8,365	330	220	270	16,590
Calendar year 1948	334,905	8,510	33	915	664,200
January	8,705	310	248	281	17,270
February	8,222	400	255	294	16,310
March	12,559	510	211	405	24,910
April	11,742	1,090	219	391	23,290
May	44,654	2,410	951	1,440	88,570
June	129,333	9,110	973	4,311	256,500
July	43,340	4,000	268	1,398	85,960
August	5,323	276	86	172	10,560
September	2,819	106	78	94.0	5,590
Water year 1948-49	284,842	9,110	55	780	564,900

Peak discharge (base, 5,000 sec.-ft.).- June 22 (9 a.m.) 9,330 sec.-ft.
* Winter discharge measurement made on this day.

Note.- Stage-discharge relation affected by ice Nov. 19 to Jan. 2, Mar. 1-9. No gage height record Jan. 3 to Feb. 28 (stage-discharge relation affected by ice during entire period), May 28 to June 3; discharge computed on basis of 5 discharge measurements, weather records, and records for station below Taos Junction Bridge, near Taos, N. Mex.

Rio Grande near Cerro, N. Mex.

Location.- Water-stage recorder, lat. 36°44'05", long. 105°41'05", in N½ sec. 20, T. 29 N., R. 12 E., 4 miles southwest of Cerro, 5½ miles northwest of Questa, and 7 miles upstream from Red River.

Records available.- May 1948 to September 1949.

Extremes.- Maximum discharge during year, 9,740 second-feet June 22 (gage height 15.78 feet); minimum daily, 102 second-feet Oct. 1.
1948-49: Maximum discharge, that of June 22, 1949; minimum daily discharge, 88 second-feet Sept. 14, 16, 1948.

Remarks.- Records excellent above 500 second-feet and good below. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	150	308	300	292	393	234	900	2,030	4,250	323	149
2	104	150	308	332	285	402	227	970	2,030	3,800	305	147
3	107	155	332	316	278	412	234	935	1,490	3,290	296	155
4	105	155	324	a270	278	430	234	990	1,130	2,970	296	162
5	103	155	285	a280	278	440	241	1,250	1,050	2,750	278	155
6	103	150	285	a290	270	460	248	1,250	1,130	2,610	278	154
7	109	140	300	a300	285	480	248	1,170	1,490	2,330	314	163
8	107	150	292	a310	262	532	241	1,070	1,790	2,030	323	167
9	105	145	300	a310	285	545	227	952	1,970	1,820	332	164
10	111	116	308	a310	278	532	227	970	2,150	1,670	350	163
11	112	189	300	a320	278	510	234	990	2,330	1,570	332	163
12	113	241	316	a320	278	520	255	1,290	2,750	1,620	287	160
13	115	285	340	a330	a270	520	262	1,690	3,050	2,030	270	158
14	117	308	358	a330	a270	500	262	1,790	3,530	2,090	253	159
15	116	340	384	a330	a270	480	241	1,740	3,980	1,770	237	167
16	115	332	349	a320	270	460	220	1,970	4,250	1,620	221	167
17	116	332	349	a310	292	470	220	2,330	4,840	1,440	214	158
18	115	332	332	308	292	480	248	2,540	5,690	1,200	214	156
19	122	270	332	285	292	470	255	2,210	6,500	1,000	203	163
20	126	208	340	278	300	450	285	1,850	7,370	820	192	162
21	140	278	340	278	308	421	332	1,640	8,160	720	184	158
22	140	285	349	270	316	375	316	1,340	9,440	595	177	153
23	135	300	384	285	332	340	316	1,250	8,720	a520	170	153
24	135	332	384	292	349	358	316	1,210	7,890	a480	164	141
25	130	375	316	300	366	332	470	1,170	7,500	a460	159	141
26	135	349	340	308	375	316	780	1,210	7,110	490	156	147
27	145	324	332	308	375	285	952	1,340	6,740	460	151	151
28	145	227	316	308	375	255	1,030	1,540	5,910	480	151	154
29	145	278	300	300	-	248	900	1,740	5,250	480	147	158
30	145	292	308	292	-	241	830	1,590	4,740	470	147	160
31	150	-	308	292	-	220	-	1,690	-	380	146	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,768	150	102	122	7,470
November	7,343	375	116	245	14,560
December	10,119	384	285	326	20,070
Calendar year	-	-	-	-	-
January	9,382	332	270	303	18,610
February	8,399	375	262	300	16,660
March	12,877	545	220	415	25,540
April	11,085	1,030	220	370	21,990
May	44,577	2,540	900	1,438	88,420
June	132,010	9,440	1,050	4,400	261,800
July	48,215	4,250	380	1,555	95,630
August	7,270	350	146	235	14,420
September	4,708	167	141	157	9,340
Water year 1948-49	299,753	9,440	102	821	594,500

Peak discharge (base, 1,000 sec.-ft.).- Apr. 27 (7 p.m.) 1,130 sec.-ft.; May 5 (5 p.m.) 1,390 sec. ft.; May 18 (11 a.m.) 2,610 sec.-ft.; June 1 (4 p.m.) 2,270 sec.-ft.; June 22 (4:30 p.m.) 9,740 sec. ft.

a No gage-height record; discharge computed on basis of weather records and records for stations near Taos, N. Mex., and near Lobatos, Colo.

Rio Grande below Taos Junction Bridge, near Taos, N. Mex.

Location.- Water-stage recorder, lat. 36°19'00", long. 105°45'30", in N½ sec. 15, T. 24 N., R. 11 E., 2 miles downstream from Taos Creek and bridge on Taos-Taos Junction highway and 12 miles southwest of Taos.

Drainage area.- 9,730 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).

Records available.- October 1930 to September 1949 in reports of Geological Survey. July 1925 to December 1931 in reports of State engineer.

Average discharge.- 24 years (1925-49), 877 second-feet.

Extremes.- Maximum discharge during year, 9,730 second-feet June 22 (gage height, 9.23 feet); minimum daily, 251 second-feet Oct. 5, 7.
1930-49: Maximum discharge, 9,730 second-feet June 7, 1948, June 22, 1949; maximum gage height, 9.41 feet May 17, 1941; minimum daily discharge, 140 second-feet (estimated) Aug. 21, 1931.

Remarks.- Records excellent except those for periods of ice effect or no gage-height record, which are good. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	256	332	464	490	504	638	444	1,480	2,460	4,840	539	561
2	256	326	477	511	504	623	451	1,580	2,600	4,250	497	348
3	256	332	484	504	504	660	451	1,600	2,100	3,780	484	321
4	256	332	497	a450	504	675	464	1,640	1,710	3,340	532	321
5	251	326	470	a350	497	690	451	1,840	1,600	3,080	477	321
6	256	316	432	a450	490	698	464	1,930	1,610	2,920	458	316
7	251	321	451	a460	490	729	484	1,810	1,880	2,680	484	316
8	260	316	470	a470	490	753	490	1,660	2,170	2,380	511	326
9	260	321	444	a470	464	769	484	1,480	2,380	2,100	532	326
10	256	*285	458	*477	518	777	484	1,450	2,600	2,110	532	326
11	265	295	484	477	518	753	490	1,580	2,680	1,850	525	326
12	270	377	470	484	497	745	497	1,810	3,080	1,850	484	326
13	270	458	497	504	504	753	525	2,240	3,420	2,100	451	a320
14	280	470	511	511	504	737	546	2,460	3,870	2,380	425	a320
15	280	497	539	518	490	705	546	2,460	4,440	2,100	407	a320
16	275	553	546	490	518	690	525	2,600	4,840	1,840	389	a320
17	275	511	504	477	518	690	525	2,920	5,260	1,700	383	a320
18	275	504	518	451	525	698	567	3,170	6,160	1,430	389	a320
19	280	490	497	464	518	698	588	2,840	7,110	1,200	377	a320
20	295	413	497	484	525	690	595	2,460	7,860	1,040	365	a320
21	295	383	525	484	539	668	668	2,170	8,380	924	348	316
22	310	438	518	477	546	630	690	1,930	9,450	870	343	316
23	305	458	532	490	574	581	745	1,740	9,180	844	332	321
24	305	484	581	511	595	581	785	1,670	8,380	721	326	332
25	300	525	504	511	623	567	879	1,640	7,860	705	321	300
26	305	560	477	518	616	560	1,230	1,720	7,610	713	326	300
27	316	490	b520	525	616	525	1,450	1,870	7,360	690	321	305
28	332	438	b500	525	609	484	1,550	2,040	6,630	682	316	321
29	338	413	484	504	-	464	1,520	2,240	5,930	660	316	316
30	326	451	b470	511	-	470	1,480	2,170	5,260	668	305	354
31	332	-	484	511	-	438	-	2,170	-	609	444	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	8,787	338	251	283	17,430
November	12,415	560	285	414	24,620
December	15,305	581	432	494	30,360
Calendar year 1948	452,165	9,730	238	1,236	896,800
January	15,059	525	350	486	29,870
February	14,800	623	464	529	29,360
March	20,139	777	438	650	39,950
April	21,068	1,550	444	702	41,790
May	62,370	3,170	1,450	2,012	123,700
June	145,870	9,450	1,600	4,862	289,300
July	57,056	4,840	609	1,841	113,200
August	12,939	539	305	417	25,660
September	9,875	561	300	329	19,590
Water year 1948-49	395,683	9,450	251	1,084	784,800

Peak discharge (base, 1,300 sec.-ft.).- May 17 (10 p.m.) 3,170 sec.-ft.; June 22 (7 p.m.) 9,730 sec.-ft.; July 10 (7 p.m.) 3,960 sec.-ft.; Aug. 31 (7 p.m.) 1,870 sec.-ft.; Sept. 1 (7 p.m.) 3,960 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for station near Cerro and at Embudo.

b Stage-discharge relation affected by ice.

Rio Grande at Embudo, N. Mex.

Location.- Water-stage recorder, lat. 36°12'20", long. 105°57'40", in SW¼SW¼ sec. 23, T. 23 N., R. 9 E., a quarter of a mile downstream from bridge at Embudo and 2½ miles downstream from Embudo Creek.

Drainage area.- 10,400 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).

Records available.- January 1889 to December 1903, September 1912 to September 1916, and October 1930 to September 1949 in reports of Geological Survey. January 1889 to December 1903 and September 1912 to December 1931 in reports of State engineer.

Average discharge.- 49 years (1889-93, 1894-1903, 1912-16, 1917-49), 1,070 second-feet.

Extremes.- Maximum discharge during year, 9,990 second-feet June 22 (gage height, 12.17 feet); minimum daily discharge, 267 second-feet Oct. 7-10.
1889-1903, 1912-49: Maximum discharge, 15,900 second-feet June 19, 1903 (gage height, 15.8 feet); minimum daily, 35 second-feet Dec. 31, 1903.

Remarks.- Records good. Diversions above station for irrigation. Records of suspended sediment loads and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	271	376	497	518	a540	662	490	1,900	2,760	5,010	630	601
2	271	365	511	532	a540	654	497	1,960	3,060	4,460	595	444
3	271	365	518	546	a540	686	504	2,080	2,520	4,020	560	386
4	275	365	539	477	532	719	518	2,140	2,020	3,540	595	386
5	275	360	511	325	525	746	504	2,380	1,900	3,240	560	386
6	271	355	470	470	525	755	518	2,450	1,840	3,060	781	376
7	267	350	490	497	504	782	539	2,260	2,140	2,820	646	370
8	271	345	511	504	532	809	574	2,020	2,520	2,580	630	370
9	271	345	484	504	504	827	574	1,780	2,700	2,200	654	376
10	267	325	504	504	539	827	574	1,720	2,940	2,200	630	370
11	275	325	511	511	539	800	567	1,900	3,060	1,960	616	365
12	275	414	511	511	553	791	581	2,260	3,360	1,960	574	360
13	280	477	525	532	553	800	609	2,760	3,780	2,200	532	365
14	280	511	560	546	546	782	630	2,940	4,130	2,580	490	376
15	284	532	581	553	511	764	646	2,940	4,570	2,260	470	370
16	280	553	574	525	525	746	638	3,060	5,010	1,960	432	370
17	280	553	539	518	525	746	646	3,300	5,450	1,780	432	360
18	284	553	553	477	553	755	702	3,540	6,220	1,500	458	350
19	293	518	511	511	553	755	737	3,180	7,290	1,240	425	345
20	311	470	525	518	560	755	755	2,760	8,050	1,080	414	350
21	316	425	553	518	567	737	827	2,450	8,500	935	403	350
22	330	484	553	504	581	686	899	2,200	9,520	971	398	345
23	325	497	581	518	609	630	1,010	1,960	9,400	1,190	386	345
24	325	511	609	546	646	616	1,080	1,900	8,610	845	376	360
25	320	560	539	560	678	609	1,190	1,900	8,050	881	376	335
26	316	581	511	560	662	602	1,660	1,960	7,720	845	386	330
27	335	539	581	a560	646	567	1,840	2,140	7,390	800	381	330
28	365	490	525	a560	654	525	1,960	2,320	6,860	764	381	335
29	386	432	497	a530	-	511	1,960	2,640	6,110	719	381	360
30	365	484	477	a540	-	518	2,020	2,520	5,560	737	376	403
31	370	-	518	a540	-	490	-	2,520	-	710	480	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	9,305	386	267	300	18,460
November	13,460	581	325	449	26,700
December	16,369	609	470	528	32,470
Calendar year 1948	493,663	10,000	237	1,349	979,100
January	16,015	560	325	517	31,770
February	15,742	678	504	562	31,220
March	21,652	827	490	698	42,950
April	26,249	2,020	490	875	52,060
May	73,840	3,540	1,720	2,382	146,500
June	153,040	9,520	1,840	5,101	303,600
July	61,047	5,010	710	1,969	121,100
August	15,448	781	376	498	30,640
September	11,169	601	330	372	22,150
Water year 1948-49	433,336	9,520	267	1,187	859,600

Peak discharge (base, 2,000 sec.-ft.).- June 22 (10 p.m.) 9,990 sec.-ft.; July 10 (10 p.m.) 3,660 sec.-ft.; July 23 (5 a.m.) 2,140 sec.-ft.; Aug. 6 (4 a.m.) 2,080 sec.-ft.; Sept. 1 (8 p.m.) 2,450 sec.-ft.

a No gage-height record; discharge computed on basis of records for stations below Taos Junction Bridge, near Taos and at Otowi Bridge.

Rio Grande at Otowi Bridge, near San Ildefonso, N. Mex.

Location.- Water-stage recorder lat. 35°52'25", long. 106°08'35", in San Ildefonso Pueblo Grant, 250 feet downstream from highway bridge, 1¾ miles southwest of San Ildefonso Pueblo, 2½ miles downstream from Rio Pojoaque, and 7 miles west of Pojoaque. Datum of gage is 5,488.48 feet above mean sea level, datum of 1929.

Drainage area.- 14,300 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo).

Records available.- February 1895 to December 1905, June 1909 to December 1914, and October 1930 to September 1949 in reports of Geological Survey. February 1895 to December 1905 and June 1909 to December 1931 in reports of State engineer.

Average discharge.- 22 years (1927-49), 1,575 second-feet.

Extremes.- Maximum discharge during year, 10,700 second-feet June 23 (gage height, 8.56 feet); minimum daily, 290 second-feet Oct. 1.

1930-49: Maximum discharge, 22,500 second-feet May 16, 1941; maximum gage height, 13.70 feet May 14, 1941; minimum daily discharge, 128 second-feet June 21, 1934.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow partly regulated by El Vado Reservoir (see p. 234). Diversions above station for irrigation. Records of chemical analyses, water temperatures, and suspended sediment loads for the water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	290	510	568	615	599	2,300	1,810	3,360	4,550	5,440	974	1,860
2	303	461	573	615	615	2,300	1,860	3,210	4,720	4,900	890	2,150
3	303	448	583	604	630	2,300	1,860	3,360	4,380	4,380	904	1,650
4	306	431	604	506	625	2,420	1,420	3,360	3,680	3,810	825	844
5	306	439	563	391	615	2,540	818	3,280	3,360	3,500	709	787
6	297	423	539	391	599	2,540	825	3,280	3,360	3,430	991	787
7	297	419	548	568	594	2,540	917	3,140	3,580	3,140	1,210	787
8	300	427	573	589	599	2,600	938	2,930	3,890	2,860	1,200	781
9	306	411	558	599	553	2,480	1,030	2,600	4,050	2,540	967	825
10	306	411	544	620	583	2,420	1,040	2,600	4,300	2,480	917	904
11	303	388	578	625	620	2,420	917	3,210	4,130	2,800	762	863
12	310	419	594	625	647	2,420	911	3,580	4,300	2,480	732	877
13	310	506	604	647	652	2,420	967	3,970	5,080	2,860	630	877
14	310	548	647	692	669	2,360	1,120	4,050	5,440	3,360	583	890
15	313	568	669	647	713	2,360	1,200	4,210	5,630	2,930	583	604
16	300	609	669	599	2,080	2,300	1,240	4,210	6,010	2,600	548	515
17	300	615	642	543	2,180	2,360	1,280	4,300	6,200	2,420	548	487
18	290	625	658	548	2,180	2,300	1,420	4,380	6,800	2,180	912	452
19	306	599	630	548	2,180	2,240	1,510	4,300	8,070	1,810	a700	452
20	293	573	589	609	2,180	2,240	1,610	4,380	9,460	1,710	a600	444
21	362	519	625	615	2,180	2,240	1,710	4,050	9,700	1,700	a550	427
22	369	515	652	594	2,240	2,130	1,910	3,810	10,200	1,810	a500	399
23	380	558	669	620	2,240	2,080	2,180	3,730	10,200	3,260	452	391
24	819	583	697	652	2,300	2,020	2,480	3,890	9,700	1,960	423	407
25	812	630	642	658	2,360	2,020	2,660	4,300	9,220	1,910	431	498
26	805	647	594	636	2,420	1,960	3,070	4,130	8,980	1,660	439	419
27	812	636	647	642	2,420	1,960	3,070	4,050	8,070	1,460	1,480	403
28	563	568	647	620	2,360	1,860	3,070	4,460	7,420	1,280	1,200	399
29	474	478	583	578	-	1,860	3,360	5,080	6,400	1,160	1,200	419
30	483	529	539	558	-	1,540	3,580	4,900	6,010	1,050	1,200	528
31	506	-	568	558	-	1,200	-	4,380	-	1,120	1,460	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	12,434	819	290	401	24,660
November	15,493	647	388	516	30,730
December	18,796	697	539	606	37,280
Calendar year 1948	619,261	11,800	240	1,692	1,228,000
January	18,303	692	391	590	36,300
February	38,633	2,420	553	1,380	76,630
March	68,730	2,600	1,200	2,217	136,300
April	51,783	3,580	818	1,726	102,700
May	118,490	5,080	2,600	3,822	235,000
June	186,870	10,200	3,360	6,229	370,700
July	80,000	5,440	1,050	2,581	158,700
August	25,520	1,480	423	823	50,620
September	22,126	2,150	391	738	43,890
Water year 1948-49	657,178	10,200	290	1,800	1,304,000

Peak discharge (base, 5,200 sec.-ft.).- June 23 (4 a.m.) 10,700 sec.-ft.; July 23 (2 a.m.) 5,440 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for main stem and tributary stations above and below.

Rio Grande at Cochiti, N. Mex.

Location.- Water-stage recorder, lat. 35°37'10", long. 106°19'10", in NE¼ sec. 17, T. 16 N., R. 6 E., at highway bridge, 1½ miles northeast of Cochiti, 4 miles north of Pena Blanca, and 8 miles upstream from Galisteo Creek. Datum of gage is 5,224.70 feet above mean sea level, datum of 1929.

Drainage area.- 14,600 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo).

Records available.- October 1930 to September 1949 in reports of Geological Survey. January 1925 to December 1931 in reports of State engineer.

Average discharge.- 24 years (1925-49), 1,568 second-feet.

Extremes.- Maximum discharge during year, 10,400 second-feet June 23 (gage height, 7.98 feet); minimum daily, 165 second-feet Oct. 11.
1930-49: Maximum discharge, 23,400 second-feet May 15, 1941 (gage height, 10.93 feet); minimum daily, 1 second-foot Aug. 10-12, 1934.

Remarks.- Records good. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	311	530	560	632	b580	2,340	1,670	3,320	4,480	5,240	950	1,740
2	322	486	553	624	b610	2,290	1,860	3,110	4,600	4,980	870	1,940
3	218	452	592	632	b630	2,270	1,820	3,210	4,480	4,480	890	1,880
4	169	432	608	600	b640	2,340	1,580	3,420	3,870	3,760	784	1,040
5	173	425	592	418	b640	2,490	880	3,420	3,420	3,530	649	766
6	184	412	584	356	b620	2,600	784	3,420	3,320	3,420	871	676
7	229	387	568	516	608	2,530	880	3,210	3,530	3,110	927	658
8	295	399	576	584	584	2,720	890	3,110	3,870	2,810	1,180	712
9	295	399	584	600	*592	2,570	990	2,620	3,990	2,580	960	730
10	204	399	584	624	576	2,390	1,050	2,550	4,600	2,510	840	811
11	165	387	608	632	624	2,340	940	3,110	4,480	2,780	721	793
12	149	375	600	608	640	2,370	850	3,530	4,480	2,630	616	703
13	109	459	584	632	658	2,300	920	3,870	4,980	2,680	640	739
14	217	530	624	649	667	2,250	1,030	3,990	5,630	3,320	587	757
15	300	553	676	658	600	2,240	1,140	4,230	5,630	2,910	493	523
16	300	576	703	576	1,710	2,240	1,230	4,230	5,760	2,580	479	411
17	236	616	667	501	2,300	2,290	1,250	4,230	6,030	2,460	459	459
18	196	616	649	560	2,290	2,220	1,300	4,350	6,590	2,080	803	393
19	192	608	649	523	2,250	2,220	1,440	4,110	7,900	1,610	622	295
20	204	600	608	608	2,200	2,270	1,530	4,350	9,130	1,560	511	274
21	284	553	624	624	2,240	2,240	1,600	4,110	9,450	1,550	472	259
22	375	538	640	616	2,300	2,050	1,730	3,870	9,770	1,900	387	240
23	399	584	649	616	2,300	1,970	2,000	3,530	10,100	3,960	350	261
24	534	592	685	*658	2,360	1,910	2,410	3,760	9,450	2,250	339	350
25	658	600	632	667	2,370	1,850	2,530	4,110	9,130	1,810	317	368
26	685	632	584	649	2,490	1,940	2,720	4,230	8,510	1,560	381	280
27	730	649	616	*685	2,440	1,910	2,910	3,990	8,200	1,350	1,170	249
28	576	568	703	b650	2,410	1,800	2,910	4,350	7,600	1,170	1,300	259
29	387	553	640	b610	-	1,800	3,110	5,110	6,590	1,050	1,170	322
30	362	530	568	a580	-	1,650	3,420	4,980	6,030	1,000	1,120	486
31	466	-	576	*a570	-	949	-	4,350	-	1,090	1,290	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	10,004	730	165	323	19,910
November	15,440	649	375	515	30,620
December	19,086	703	553	616	37,860
Calendar year 1948	604,167	11,600	128	1,651	1,198,000
January	18,458	685	356	595	36,610
February	38,929	2,490	576	1,390	77,210
March	67,349	2,720	949	2,173	133,600
April	49,374	3,420	784	1,646	97,930
May	117,780	5,110	2,550	3,799	233,600
June	185,600	10,100	3,320	6,187	368,100
July	79,720	5,240	1,000	2,572	158,100
August	23,148	1,300	317	747	45,910
September	19,374	1,940	240	646	38,430
Water year 1948-49	644,262	10,100	165	1,765	1,278,000

Peak discharge (base, 4,500 sec.-ft.).- May 29 (9 a.m.) 5,110 sec.-ft., June 10 (6:30 p.m.) 8,820 sec.-ft.; June 23 (10 a.m.) 10,400 sec.-ft.; July 22 (11:30 p.m.) 7,160 sec.-ft.

* Winter discharge measurement made on this day.

a Incomplete gage-height record; discharge computed on basis of available recorder trace, weather records, and records for station at Otowi Bridge.

b Stage-discharge relation affected by ice.

Rio Grande at San Felipe, N. Mex.

Location.- Water-stage recorder, lat. 35°26'30", long. 106°26'30", in NW¼SW¼ sec. 17, T. 14 N., R. 5 E., at highway bridge in San Felipe Grant, 2,000 feet downstream from Tonque Arroyo, half a mile upstream from San Felipe Pueblo, and 12 miles northeast of Bernalillo. Datum of gage is 5,110.38 feet above mean sea level, datum of 1929.

Drainage area.- 16,100 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).

Records available.- October 1930 to September 1949 in reports of Geological Survey. January 1926 to December 1931 in reports of State engineer.

Average discharge.- 23 years (1926-49), 1,671 second-feet.

Extremes.- Maximum discharge during year, 10,500 second-feet June 23 (gage height, 6.66 feet); minimum daily, 254 second-feet Oct. 4.

1930-49: Maximum discharge, 42,100 second-feet Aug. 21, 1935, from rating curve extended above 15,000 second-feet by logarithmic plotting; maximum gage height, 11.13 feet June 26, 1937; minimum daily discharge, 34 second-feet July 7, 1934.

Remarks.- Records fair. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	316	600	570	658	528	2,320	1,480	3,300	4,350	5,560	1,040	1,590
2	312	546	570	679	576	2,250	1,710	3,040	4,460	5,320	946	1,660
3	312	510	588	*658	626	2,180	1,790	3,120	4,550	4,660	1,210	1,610
4	254	480	626	576	613	2,250	1,710	3,300	3,760	4,150	1,250	1,100
5	257	460	626	492	606	2,480	1,130	3,210	3,300	a3,500	a809	802
6	272	450	613	435	613	2,480	780	3,300	3,210	a3,300	a900	721
7	264	430	613	470	620	2,400	882	3,210	3,390	3,120	1,100	679
8	308	420	613	606	606	2,480	922	2,960	3,760	2,870	1,200	721
9	300	400	606	632	632	2,480	988	2,550	3,860	2,550	1,140	758
10	288	376	600	620	576	2,250	1,050	2,400	4,410	2,550	922	866
11	257	376	588	686	626	2,250	970	2,870	5,060	2,960	850	802
12	264	368	582	707	652	2,320	874	3,480	4,150	3,040	721	750
13	272	415	588	714	693	2,320	922	3,760	4,770	2,960	686	772
14	272	470	606	758	707	2,320	1,020	3,860	5,560	4,200	652	772
15	348	510	632	765	658	2,320	1,100	3,950	5,680	a3,000	540	665
16	328	d560	652	714	1,360	2,320	1,160	3,950	5,680	a2,600	516	a550
17	304	d600	658	652	2,050	2,250	1,190	3,950	5,800	a2,400	486	a500
18	276	d620	646	594	2,180	2,250	1,250	4,050	6,170	a2,200	672	a450
19	288	d620	646	594	2,320	2,250	1,380	3,860	7,660	1,750	665	a350
20	300	d620	*620	672	2,320	2,180	1,480	4,050	8,920	1,840	a600	332
21	320	d550	588	700	2,320	2,180	1,540	3,860	9,530	1,810	552	332
22	435	d550	652	700	2,250	1,980	1,740	3,570	9,840	2,480	a500	324
23	420	d540	686	658	2,250	1,920	1,900	3,300	10,500	4,440	435	316
24	465	564	b700	707	2,250	1,880	2,180	3,570	9,530	2,970	420	372
25	788	620	b650	d650	2,250	1,800	2,400	3,860	9,220	2,110	385	415
26	788	639	b600	d650	2,320	1,800	2,710	4,050	8,620	1,800	440	450
27	826	d640	665	d650	2,400	1,750	2,870	3,860	8,040	1,660	872	410
28	780	d620	b700	d650	2,320	1,710	2,870	4,050	7,480	1,430	1,120	465
29	576	d580	*b650	d600	-	1,710	3,120	4,770	6,550	1,220	1,120	669
30	510	552	b600	588	-	1,710	3,390	4,770	6,040	1,120	1,100	984
31	558	-	b550	558	-	1,060	-	4,350	-	1,150	1,180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	12,258	826	254	395	24,310
November	15,686	640	368	523	31,110
December	19,284	700	550	622	38,250
Calendar year 1948	698,926	11,700	154	1,664	1,208,000
January	19,793	765	435	638	39,260
February	37,922	2,400	528	1,354	75,220
March	65,850	2,480	1,060	2,124	130,600
April	48,508	3,390	780	1,617	96,210
May	112,180	4,770	2,400	3,619	222,500
June	183,650	10,500	3,210	6,122	364,300
July	86,720	5,560	1,120	2,797	172,000
August	25,020	1,250	385	807	49,630
September	21,187	1,660	316	706	42,020
Water year 1948-49	648,058	10,500	254	1,776	1,285,000

Peak discharge (base, 5,000 sec.-ft.).- June 11 (1:30 a.m.) 8,620 sec.-ft.; June 23 (3 p.m.) 10,500 sec.-ft.; July 14 (5 a.m.) 6,300 sec.-ft.; July 22 (3:15 a.m.) 5,210 sec.-ft.; July 23 (10:30 p.m.) 8,330 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records, discharge measurements, and records for stations upstream and downstream.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed as explained in footnote a.

Rio Grande near Bernalillo, N. Mex.

Location.- Water-stage recorder, lat. 35°17'05", long. 106°35'45", in Alameda Grant, 2 miles northwest of Sandia Pueblo, 3 miles southwest of Bernalillo, Sandoval County, 3.5 miles downstream from State Highway 44, and 8.5 miles downstream from Jemez Creek.

Records available.- May 1941 to September 1949.

Extremes.- Maximum discharge during year, 10,400 second-feet June 23 (gage height, 4.72 feet); minimum daily, 56 second-feet Sept. 23.

1941-49: Maximum discharge, 25,400 second-feet May 16, 1941; maximum gage height, 6.83 feet Sept. 20, 1941; minimum daily discharge, 20 second-feet July 25-27, Sept. 14, 26, 27, 1946.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation. Records of suspended sediment loads and water temperatures for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	117	650	620	b600	590	2,200	1,620	3,640	4,020	5,440	854	1,120
2	114	551	671	b650	600	2,030	1,970	3,150	4,310	4,780	704	1,260
3	320	506	600	*b650	610	1,840	2,220	3,000	4,540	4,580	741	1,320
4	190	479	640	560	630	2,030	1,920	3,180	3,440	4,020	1,320	1,290
5	72	430	640	470	660	2,170	1,300	3,210	3,340	3,540	640	a500
6	72	446	630	b350	580	2,390	782	3,210	3,090	3,150	422	383
7	80	446	580	b400	610	2,220	748	3,030	3,120	2,820	916	320
8	92	430	630	b500	620	2,320	806	2,970	3,370	2,770	1,510	a300
9	170	430	590	b650	660	2,420	1,030	2,520	3,880	2,470	a1,000	a350
10	296	438	620	*b600	640	2,220	1,350	2,390	3,840	2,520	818	446
11	181	430	600	b650	640	2,060	1,180	2,910	5,290	2,970	630	770
12	78	406	630	*b750	610	2,150	929	3,770	4,580	2,320	488	726
13	80	406	650	b750	704	2,470	942	3,910	4,310	2,670	446	414
14	82	479	630	b700	682	2,010	1,320	3,770	5,400	4,030	693	430
15	123	515	650	*726	630	1,920	1,700	3,950	5,840	2,820	308	383
16	198	497	*620	759	825	1,800	1,720	4,060	5,800	2,100	224	229
17	290	542	671	726	2,200	1,840	1,800	4,090	5,800	2,080	156	172
18	208	551	630	560	2,290	2,080	1,720	4,020	6,560	1,860	126	376
19	95	580	b620	542	2,270	2,100	1,780	4,200	7,340	a1,800	383	334
20	90	590	b580	560	2,120	2,320	1,530	3,910	8,200	1,720	168	123
21	104	580	b580	610	2,290	1,900	1,740	3,880	9,110	1,220	390	85
22	126	551	b640	560	2,220	1,740	1,970	3,980	9,440	2,190	438	66
23	209	533	*b700	640	2,030	1,820	1,900	3,000	9,760	3,960	117	56
24	320	580	b700	640	1,970	1,820	2,600	3,370	8,800	3,500	104	62
25	488	620	b650	660	2,060	1,880	2,660	3,210	8,800	1,740	85	260
26	422	*640	b600	650	2,270	2,100	3,340	3,700	8,490	1,580	98	284
27	497	b650	*693	650	2,420	2,030	3,400	3,530	7,620	1,210	184	98
28	560	b640	737	671	2,340	1,820	3,180	3,670	7,900	1,060	1,120	68
29	376	*b600	*704	650	-	1,880	3,280	4,820	6,310	890	994	1,140
30	278	590	600	620	-	1,880	3,370	4,860	6,080	1,010	704	1,370
31	588	-	570	600	-	1,190	-	4,160	-	1,220	794	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	6,916	588	72	223	13,720
November	15,786	650	406	526	31,310
December	19,676	737	570	635	39,030
Calendar year 1948	579,346	12,400	48	1,583	1,149,000
January	19,104	759	350	616	37,890
February	36,771	2,420	580	1,313	72,930
March	62,650	2,470	1,190	2,021	124,300
April	55,807	3,400	748	1,860	110,700
May	111,070	4,860	2,390	3,583	220,300
June	178,380	9,760	3,090	5,946	353,800
July	79,840	5,440	890	2,575	158,400
August	17,575	1,510	85	567	34,860
September	14,735	1,370	56	491	29,230
Water year 1948-49	618,310	9,760	56	1,694	1,226,000

Peak discharge (base, 5,000 sec.-ft.).- May 29 (4:30 p.m.) 5,270 sec.-ft.; June 11 (4:30 a.m.) 8,490 sec.-ft.; June 23 (9 p.m.) 10,400 sec.-ft.; July 14 (8 a.m.) 6,310 sec.-ft.; July 24 (1 a.m.) 9,110 sec.-ft.; Sept. 29 (10:40 p.m.) 6,810 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for stations upstream and downstream.

b Stage-discharge relation affected by ice.

Rio Grande at Albuquerque, N. Mex.

Location.- Water-stage recorder, lat. 35°05'20", long. 106°40'45", in SE¼ sec. 13, T. 10 N., R. 2 E. (projected), at bridge on U. S. Highway 66, at Albuquerque, in Albuquerque Grant. Datum of gage is 4,946.04 feet above mean sea level, datum of 1929.

Records available.- January 1942 to September 1949.

Extremes.- Maximum discharge during year, 10,800 second-feet June 23 (gage height, 6.47 feet); minimum daily, 62 second-feet Oct. 14, Aug. 26.
1942-49: Maximum discharge, 25,000 second-feet Apr. 24, 1942, from rating curve extended above 13,900 second-feet by logarithmic plotting; maximum gage height, 6.61 feet May 28, 1948; minimum daily discharge, 25 second-feet Aug. 2, 3, 1946.

Remarks.- Records fair. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	89	663	586	640	559	2,340	1,270	3,700	3,500	5,350	613	853
2	89	470	604	650	586	2,000	2,020	2,900	4,600	5,350	534	1,350
3	94	456	613	*613	660	2,310	1,880	3,340	4,250	5,150	586	1,760
4	85	435	631	534	730	2,370	1,850	3,260	3,820	3,500	2,230	1,400
5	108	428	622	b400	700	2,400	1,380	2,740	3,500	3,220	710	700
6	87	435	650	b300	640	2,520	720	3,060	2,860	2,980	486	526
7	81	428	577	*b250	640	2,550	595	3,260	3,180	2,780	811	364
8	75	414	577	550	631	2,610	650	3,380	3,460	2,430	1,410	220
9	73	414	595	910	650	2,700	740	2,610	3,500	2,250	1,020	250
10	69	400	622	*604	650	2,430	1,100	2,520	3,740	2,520	a700	335
11	65	407	604	762	586	2,400	1,050	2,900	5,020	2,550	a500	595
12	101	414	640	958	650	2,400	910	4,050	4,200	2,460	a350	680
13	83	394	680	850	690	2,400	910	3,900	4,100	1,810	a400	700
14	62	470	670	740	700	1,980	1,370	3,860	4,850	2,900	a200	690
15	67	542	670	762	680	1,740	1,780	4,650	5,200	2,250	144	414
16	63	604	650	773	801	1,690	1,830	3,900	5,300	2,020	132	290
17	71	577	640	720	1,980	1,830	2,000	3,700	5,460	2,220	122	204
18	73	595	650	622	2,130	2,050	1,480	4,250	5,820	2,000	120	212
19	115	622	640	586	2,280	1,780	1,580	4,100	6,610	1,900	240	220
20	96	595	622	559	2,280	2,190	1,480	3,700	7,370	1,540	172	236
21	77	604	604	650	2,280	2,080	1,690	4,200	9,040	1,500	156	153
22	75	595	586	640	2,280	1,690	1,830	3,780	8,720	2,390	224	85
23	79	550	631	631	2,100	1,800	1,950	2,520	10,300	3,430	242	75
24	101	604	680	690	2,310	2,100	3,100	2,640	10,000	4,180	108	67
25	185	622	680	622	2,190	1,740	2,780	2,940	9,520	1,900	73	75
26	236	640	700	700	2,130	2,080	2,860	3,620	9,600	1,740	62	92
27	245	650	670	670	2,430	2,080	2,980	3,260	8,400	d1,200	81	a80
28	310	631	631	720	2,490	1,620	2,780	3,860	8,240	d1,000	712	a70
29	295	622	670	650	-	2,000	3,100	5,150	6,810	d800	660	a100
30	a280	595	660	568	-	2,080	3,220	4,400	9,300	d700	510	845
31	a290	-	640	518	-	1,230	-	4,150	-	d1,100	435	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,819	310	62	123	7,570
November	15,876	663	394	529	31,490
December	19,695	700	577	635	39,060
Calendar year 1948	556,473	12,100	58	1,520	1,104,000
January	19,842	958	250	640	39,360
February	37,433	2,490	559	1,337	74,250
March	65,190	2,700	1,230	2,103	129,300
April	52,885	3,220	595	1,763	104,900
May	110,300	5,150	2,520	3,558	218,800
June	177,270	10,300	2,860	5,909	351,600
July	77,120	5,350	700	2,488	153,000
August	14,743	2,230	62	476	29,240
September	13,641	1,760	67	455	27,060
Water year 1948-49	607,814	10,300	62	1,665	1,206,000

Peak discharge (base, 4,000 sec.-ft.).- May 29 (8 a.m.) 5,700 sec.-ft.; June 11 (7:45 a.m.) 9,040 sec.-ft.; June 19 (4:30 p.m.) 8,880 sec.-ft.; June 23 (12 p.m.) 10,800 sec.-ft.; July 14 (12 m.) 7,300 sec.-ft.; July 24 (5 a.m.) 9,200 sec.-ft.; Aug. 4 (5:30 a.m.) 7,440 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for main stem and tributary stations upstream and downstream.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed as explained in footnote a.

Rio Grande near Belen, N. Mex.

Location.- Water-stage recorder, lat. 34°39'10", long. 106°44'10", in Tome Claim, at bridge on State Highway 52, 2 miles east of Belen, Valencia County.

Records available.- January 1942 to September 1949.

Extremes.- Maximum discharge during year, 11,400 second-feet June 24; maximum gage height, 4.71 feet June 22; minimum daily discharge, 59 second-feet Oct. 18, 19.
1942-49: Maximum discharge, 23,100 second-feet Apr. 24, 1942 (gage height, 5.05 feet), from rating curve extended above 12,500 second-feet by logarithmic plotting; minimum daily, 40 second-feet Oct. 5, 1946.

Remarks.- Records good below 1,000 second-feet, fair above, except those for June and July which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	83	286	619	682	*546	2,270	1,180	3,620	2,990	5,000	799	120
2	79	372	610	711	546	2,180	1,980	2,530	3,210	4,600	481	192
3	74	310	619	600	602	2,150	2,100	2,560	3,450	4,320	266	404
4	79	372	664	a500	673	2,120	1,980	2,660	3,290	3,290	1,410	628
5	83	411	744	a300	691	2,240	1,670	2,400	3,780	2,910	523	711
6	87	384	777	295	628	2,430	755	2,400	2,660	2,700	320	295
7	78	390	711	315	594	2,340	530	2,430	2,660	2,370	300	215
8	81	384	655	366	570	2,240	366	2,800	2,910	1,950	509	240
9	83	384	673	546	509	2,070	439	1,740	3,020	2,070	1,300	262
10	87	397	744	1,020	578	1,950	1,220	1,670	3,210	2,770	970	305
11	79	404	755	755	578	1,790	1,400	2,740	5,050	2,430	546	399
12	78	404	700	914	530	1,720	655	3,660	3,860	2,600	432	538
13	72	418	722	1,060	628	2,150	418	3,820	3,900	2,380	315	342
14	67	411	744	875	700	1,670	418	3,860	4,640	3,620	336	474
15	64	460	733	711	755	1,690	970	3,980	5,050	2,700	372	481
16	60	538	744	700	682	1,550	1,240	3,820	5,250	2,240	223	240
17	60	586	788	691	1,140	1,530	2,010	3,740	5,050	2,430	178	219
18	59	586	799	655	1,720	1,530	1,000	3,660	4,820	1,440	164	a150
19	59	610	777	554	1,530	1,670	1,140	3,660	6,550	1,230	142	110
20	72	664	777	610	1,640	2,120	1,160	2,880	7,160	1,180	148	92
21	79	628	766	602	1,690	1,770	1,280	2,950	8,920	1,120	160	81
22	76	610	722	722	1,770	1,770	1,300	3,060	9,200	2,590	151	128
23	74	578	722	700	1,950	1,460	1,300	2,180	9,980	2,450	136	110
24	76	570	755	655	2,070	2,070	2,460	2,270	10,800	5,090	120	105
25	83	610	777	722	2,180	1,460	2,070	2,660	9,620	1,420	122	92
26	76	628	810	*788	2,240	1,180	2,400	3,180	9,680	1,600	85	92
27	78	655	777	722	2,180	1,090	2,600	3,020	8,160	1,120	79	92
28	94	673	799	b673	2,150	1,210	2,150	3,250	7,550	777	78	103
29	96	664	823	b655	-	1,180	2,430	4,240	6,500	516	83	78
30	101	646	862	691	-	1,870	2,630	3,900	5,850	360	94	287
31	108	-	755	655	-	1,260	-	3,820	-	868	96	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,425	108	59	78.2	4,810
November	15,033	673	286	501	29,820
December	22,923	862	610	739	45,470
Calendar year 1948	522,684	12,400	59	1,428	1,037,000
January	20,445	1,060	295	660	40,550
February	32,070	2,240	509	1,145	63,610
March	55,730	2,430	1,090	1,798	110,500
April	43,251	2,630	366	1,442	85,790
May	95,160	4,240	1,670	3,070	188,700
June	168,770	10,800	2,660	5,626	334,800
July	72,141	5,090	360	2,327	143,100
August	10,938	1,410	78	353	21,700
September	7,585	711	78	253	15,040
Water year 1948-49	546,471	10,800	59	1,497	1,084,000

Peak discharge (base, 4,000 sec.-ft.).- May 1 (2:30 p.m.) 4,420 sec.-ft.; May 12 (2 p.m.) 4,600 sec.-ft.; May 29 (9 p.m.) 4,680 sec.-ft.; June 11 (4 p.m.) 8,430 sec.-ft.; June 24 (8 to 10 a.m.) 11,400 sec.-ft.; July 14 (9 p.m.) 7,380 sec.-ft.; July 22 (6 p.m.) 6,950 sec.-ft.; July 24 (1:30 p.m.) 8,760 sec.-ft.; Aug. 4 (2:50 p.m.) 7,160 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records, hydrographic comparison with other main stem stations, and engineer's notes.

b Stage-discharge relation affected by ice.

Rio Grande near Bernardo, N. Mex.

Location.- Water-stage recorder, lat. 34°25'00", long. 106°47'50", in W½NW¼ sec. 12, T. 2 N., R. 1 E. (projected), at bridge on U. S. Highway 60, 2¼ miles east of Bernardo and 3½ miles upstream from Rio Puerco. Auxiliary water-stage recorders on San Francisco riverside drain and Bernardo interior drain, each at different datum used during periods of overflow or levee breaks.

Drainage area.- 19,230 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).

Records available.- June 1936 to January 1939, October 1941 to September 1949.

Extremes.- Maximum daily discharge during year, 9,810 second-feet June 24 (composite flow of 3 channels); minimum daily, 28 second-feet Oct. 25.

1936-39, 1941-49: Maximum discharge not determined, probably occurred Apr. 25, 1942; maximum daily discharge, 19,600 second-feet Apr. 25, 1942; minimum gage height, 6.90 feet Apr. 25, 1942; minimum daily discharge, 8 second-feet Aug. 21, Sept. 29, 1946.

Remarks.- Records fair except those for periods of no gage-height record, which are poor. Records represent total discharge of river and are a summation of the discharge in the channels that carry river water. Many diversions above station for irrigation. Records of suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	304	666	681	597	2,130	1,250	3,500	3,780	4,770	860	106
2	95	785	638	638	584	2,080	1,800	3,020	3,410	4,240	681	132
3	86	388	652	652	610	2,190	2,090	2,260	3,600	3,950	520	349
4	75	429	652	652	681	2,040	1,920	2,560	3,350	3,760	905	440
5	65	484	666	632	696	2,170	1,760	2,540	3,200	3,060	1,000	520
6	102	475	681	a430	696	2,300	a1,010	2,530	2,690	2,520	558	388
7	92	462	666	398	666	2,470	650	2,730	2,170	2,550	532	322
8	53	484	652	398	652	2,480	500	3,090	2,540	2,150	584	262
9	62	484	638	429	597	2,310	484	2,630	2,700	1,940	a1,200	262
10	62	496	638	758	624	2,340	696	1,980	2,810	2,280	a1,300	304
11	63	484	652	711	638	2,120	1,360	2,630	3,980	2,240	a1,000	349
12	58	508	638	681	638	2,060	683	3,800	4,620	2,470	a500	408
13	61	508	666	860	638	2,320	558	3,960	3,750	2,840	a350	398
14	71	508	681	900	666	2,130	520	3,890	3,960	2,790	a300	418
15	104	508	666	726	726	a1,740	795	4,020	4,620	3,490	a350	462
16	85	558	666	726	741	a1,620	1,350	4,380	4,550	2,200	a300	418
17	83	597	711	741	1,030	1,550	1,620	4,070	4,620	2,120	278	368
18	100	624	741	711	1,990	1,540	1,410	3,920	4,890	1,930	254	331
19	111	638	741	638	1,970	1,450	1,100	3,890	6,470	1,480	222	340
20	61	666	726	624	1,960	1,720	1,210	3,400	7,870	1,460	196	286
21	45	696	741	652	1,980	1,990	1,120	3,340	7,900	1,320	246	262
22	39	666	696	681	2,010	1,770	1,200	3,780	8,500	1,780	222	222
23	36	638	666	741	2,050	1,530	1,140	3,390	8,560	2,680	196	176
24	30	610	726	726	2,100	1,950	1,820	2,550	9,810	4,090	164	110
25	28	610	756	711	2,150	1,840	2,220	2,580	9,110	2,090	134	97
26	68	652	790	808	2,110	1,390	1,830	2,940	9,110	1,870	109	81
27	92	681	773	825	2,120	1,310	2,160	3,450	8,450	1,230	92	78
28	124	666	741	773	2,130	1,530	2,410	3,160	7,160	980	83	75
29	160	696	726	756	-	1,250	2,150	3,890	6,710	805	89	79
30	203	681	756	726	-	2,190	2,600	4,090	5,780	679	93	140
31	200	-	711	696	-	1,620	-	3,860	-	724	109	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,617	203	28	84.4	5,190
November	16,984	785	304	566	33,690
December	21,519	790	638	694	42,680
Calendar year 1948	519,140	11,700	28	1,418	1,030,000
January	21,081	900	398	680	41,810
February	34,050	2,150	584	1,216	67,540
March	59,130	2,480	1,250	1,907	117,300
April	41,416	2,600	484	1,381	82,150
May	101,830	4,380	1,980	3,285	202,000
June	160,670	9,810	2,170	5,356	318,700
July	72,488	4,770	679	2,338	143,800
August	13,427	1,300	83	433	26,630
September	8,183	520	75	273	16,230
Water year 1948-49	553,395	9,810	28	1,516	1,098,000

a No gage-height record; discharge computed on basis of main stem and tributary stations above and below.

Rio Grande at San Acacia, N. Mex.

Location.- Water-stage recorder, lat. 34°15'20", long. 106°53'30", in NE¼ sec. 1, T. 1 S., R. 1 W., 0.2 mile downstream from San Acacia diversion dam, half a mile east of San Acacia, and 2 miles downstream from Rio Salado. Datum of gage is 4,660.16 feet above mean sea level, datum of 1929.

Drainage area.- 26,770 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).

Records available.- April 1936 to September 1949 in reports of Geological Survey. February to December 1925 and January 1926 to September 1927 (gage heights and discharge measurements only) in reports of State engineer. January 1941 to December 1949 in reports of Rio Grande Compact Commission.

Average discharge.- 13 years (1936-49), 1,471 second-feet.

Extremes.- Maximum discharge during year, 10,300 second-feet June 24; maximum gage height, 5.90 feet May 12; minimum daily discharge, 2 second-feet Aug. 30.
1936-49: Maximum discharge, 27,400 second-feet Aug. 5, 1936 (gage height, 10.75 feet, present datum), from rating curve extended above 18,000 second-feet by logarithmic plotting; no flow June 22 to July 7, 1946.

Remarks.- Records good except those for July to September, which are fair. Diversions above station for irrigation. Records of chemical analyses, water temperatures, and suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	51	346	632	684	705	2,350	1,290	3,360	3,650	5,400	872	d300
2	42	1,140	613	632	674	2,200	1,690	3,430	3,340	4,550	574	12
3	23	642	642	694	603	2,180	2,200	2,220	3,650	4,280	815	40
4	11	564	663	*b700	684	1,980	2,030	2,470	3,530	3,650	424	276
5	9	603	716	674	716	2,160	1,790	2,530	3,240	2,970	1,180	424
6	8	584	705	360	694	2,240	1,080	2,550	2,950	2,550	407	536
7	22	500	684	331	694	2,330	527	2,510	2,110	2,470	448	296
8	17	518	663	391	652	2,470	440	2,970	2,410	2,330	872	156
9	12	509	674	346	674	2,310	448	2,740	2,590	2,160	1,500	200
10	12	483	663	574	663	2,310	716	1,820	2,590	2,310	1,760	220
11	12	509	694	758	632	2,090	1,280	2,140	3,040	2,820	1,440	632
12	12	527	652	705	694	2,030	747	4,250	4,020	3,080	815	500
13	10	518	632	884	684	2,240	509	4,420	3,900	3,900	360	270
14	55	527	674	945	663	2,220	456	3,770	3,530	4,020	263	226
15	h191	545	652	*b850	726	1,770	574	4,020	4,280	3,720	237	912
16	23	613	674	736	826	1,630	1,350	3,900	4,420	2,310	289	652
17	16	623	726	726	652	1,630	1,380	3,650	4,150	2,240	180	456
18	13	555	781	694	1,670	1,670	1,440	3,270	4,550	2,160	151	338
19	18	632	849	716	1,880	1,420	920	3,430	5,400	1,300	231	289
20	70	674	781	632	1,910	1,580	1,220	3,060	6,650	1,150	74	208
21	16	726	726	642	2,000	1,890	1,080	3,040	6,980	1,010	28	175
22	12	652	716	674	1,950	1,610	1,230	3,200	8,030	1,770	60	136
23	10	652	642	747	2,110	1,450	1,150	3,530	8,210	3,840	30	74
24	10	663	652	663	2,180	1,740	1,530	2,450	9,140	4,550	18	50
25	11	527	726	694	2,260	1,890	2,200	2,510	8,210	2,960	40	37
26	11	623	770	736	2,350	1,480	1,690	2,590	8,030	1,560	16	32
27	23	663	770	792	2,310	1,380	1,910	3,390	8,580	d1,350	12	25
28	40	652	716	792	2,330	1,390	2,510	3,130	7,150	d900	8	25
29	90	632	705	*b760	-	1,210	2,130	3,650	6,490	d800	4	28
30	102	603	705	b740	-	1,630	2,370	4,280	6,330	d650	2	1,130
31	146	-	758	*684	-	1,610	-	4,150	-	d600	3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,098	191	8	35.4	2,180
November	18,005	1,140	346	600	35,710
December	21,656	849	613	699	42,950
Calendar year 1948	497,278	10,700	1	1,359	986,300
January	20,956	945	331	676	41,570
February	34,586	2,350	603	1,235	68,600
March	58,090	2,470	1,210	1,874	115,200
April	39,887	2,510	440	1,330	79,110
May	96,430	4,420	1,820	3,175	195,200
June	151,150	9,140	2,110	5,038	299,800
July	79,360	5,400	600	2,560	157,400
August	13,113	1,760	2	423	26,010
September	8,655	1,130	12	288	17,170
Water year 1948-49	544,986	9,140	2	1,493	1,081,000

Peak discharge (base, 5,800 sec.-ft.).- May 12 (2 a.m.) 5,860 sec.-ft.; June 24 (6 p.m.) 10,300 sec.-ft.; July 24 (2 a.m.) 6,330 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed on basis of available recorder trace and discharge measurements.

h Computed from staff-gage reading.

Rio Grande at San Marcial, N. Mex.

Location.- Water-stage recorder lat. 33°40'50", long. 106°59'15", in Pedro Armendaris Grant 33, at Atchison, Topeka & Santa Fe Railway bridge, 1.1 miles downstream from San Marcial, Socorro County. Datum of gage is 4,455.38 feet above mean sea level (levels by International Boundary Commission).

Drainage area.- 27,700 square miles (includes 2,940 square miles in closed basin in northern part of San Luis Valley, Colo.).

Records available.- January 1895 to September 1949 in reports of Geological Survey. January 1931 to December 1946 in Water Bulletins of International Boundary Commission. Prior to January 1922 at site 0.3 mile upstream; January 1922 to February 1932 at highway bridge half a mile northeast of San Marcial and 1.8 miles above present site.

Average discharge.- 53 years (1896-1949), 1,508 second-feet.

Extremes.- Maximum discharge during year, 9,560 second-feet June 26 (gage height, 17.08 feet), minimum daily, 7 second-feet Oct. 14.
1895-1949: Maximum discharge, about 50,000 second-feet Oct. 11, 1904; no flow at times.

Remarks.- Records good except those for periods of ice effect, which are poor. Diversions above station for irrigation. Records of chemical analyses, water temperatures, and suspended sediment loads in water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	64	117	*b450	710	*494	2,250	1,530	2,220	3,890	5,900	542	24
2	56	148	*730	710	*b700	2,130	1,280	2,760	3,720	4,910	660	35
3	77	570	604	*613	*b900	2,250	1,320	3,170	3,330	4,440	898	68
4	53	388	510	*b200	*874	2,220	1,770	2,290	3,290	4,360	640	26
5	43	335	486	*b150	795	1,970	1,830	2,420	3,290	3,690	568	39
6	37	352	556	*b250	720	2,110	1,790	2,340	3,200	2,990	1,060	250
7	30	346	622	*320	730	2,020	1,390	2,490	2,850	2,570	526	478
8	29	335	613	414	740	2,170	874	2,520	2,150	2,390	510	236
9	24	340	586	534	670	2,170	568	2,790	2,200	2,080	784	160
10	29	340	534	690	730	2,290	518	2,730	2,340	2,020	1,210	224
11	16	330	542	h1,050	604	2,250	559	2,250	2,490	2,550	1,550	946
12	9	330	542	h898	577	1,930	828	2,200	3,050	2,680	1,320	958
13	9	305	542	h850	577	1,870	806	3,820	3,890	3,140	640	510
14	7	335	542	958	559	1,930	660	4,480	3,820	3,550	463	470
15	8	335	518	h910	586	2,020	510	4,110	3,390	3,390	250	478
16	78	305	577	h839	680	1,770	442	4,000	3,960	3,260	216	660
17	40	320	568	910	784	1,590	839	4,110	4,070	2,200	245	586
18	26	330	586	510	710	1,550	1,130	3,890	4,110	2,110	236	414
19	25	325	595	534	1,420	1,500	1,360	3,790	4,360	1,850	154	305
20	42	428	613	850	1,850	1,500	1,070	3,580	4,910	1,300	151	196
21	43	470	631	795	1,970	1,470	1,180	3,390	5,810	1,140	180	192
22	58	502	604	806	1,870	1,770	1,100	3,230	6,740	1,110	112	127
23	33	518	586	h604	2,000	1,710	1,020	3,550	7,720	1,890	130	117
24	19	478	613	h613	1,970	1,680	1,090	3,330	8,000	3,140	117	120
25	16	550	631	h680	1,870	1,570	1,210	2,550	8,600	4,360	92	70
26	15	478	730	h720	2,110	1,790	1,770	2,440	9,230	2,520	73	72
27	19	*534	710	670	2,250	1,550	1,870	2,550	8,600	1,750	79	53
28	28	*b540	586	*680	2,290	1,380	1,930	3,230	8,300	1,410	54	68
29	31	*b450	502	*b500	-	1,270	2,170	3,230	7,720	874	53	52
30	47	*b490	631	*b200	-	1,130	2,080	3,360	6,840	631	42	53
31	72	-	568	*428	-	1,410	-	3,820	-	534	27	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,083	78	7	34.9	2,150
November	11,624	570	117	387	23,060
December	18,108	730	450	584	35,920
Calendar year 1948	470,656	11,000	1	1,286	933,500
January	19,596	1,050	150	632	38,870
February	32,030	2,290	494	1,144	63,530
March	56,250	2,290	1,130	1,814	111,500
April	36,494	2,170	442	1,216	72,380
May	96,640	4,480	2,200	3,117	191,700
June	145,870	9,230	2,150	4,862	289,300
July	80,739	5,900	534	2,604	160,100
August	13,582	1,550	27	438	26,940
September	7,987	958	24	266	15,840
Water year 1948-49	519,973	9,230	7	1,425	1,031,000

Peak discharge (base, 4,000 sec.-ft.).- May 14 (10 a.m.) 4,590 sec.-ft.; May 31 (3 p.m.) 4,000 sec.-ft.; June 13 (8 a.m.) 4,000 sec.-ft.; June 26 (9:30 a.m.) 9,560 sec.-ft.; July 25 (11 a.m.) 4,870 sec.-ft.

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
h Computed from staff-gage reading.

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Rio Grande below Elephant Butte Dam, N. Mex.

Location.- Water-stage recorder, lat. 33°09'05", long. 107°12'10", in N½ sec. 25, T. 13 S., R 4 W. (projected), 3,800 feet downstream from Elephant Butte Dam in Pedro Armendaris Grant.

Records available.- October 1916 to September 1949.

Average discharge.- 33 years, 1,188 second-feet.

Extremes.- Maximum daily discharge during year, 2,020 second-feet Mar. 27; minimum daily, 87 second-feet Jan. 1.
1916-49: Maximum daily discharge, 8,220 second-feet May 22, 1942; no flow at times.

Remarks.- Records good. Many diversions above station for irrigation. Flow regulated by Elephant Butte Reservoir (capacity, 2,197,600 acre-feet, see p.).

Cooperation.- Records furnished by Bureau of Reclamation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	473	538	652	87	550	1,450	1,350	1,830	1,820	1,470	1,350	988
2	415	549	729	91	530	1,460	1,340	1,810	1,870	1,390	1,250	871
3	454	479	788	483	484	1,470	1,350	1,840	1,870	1,170	1,180	899
4	785	532	677	541	490	1,420	1,350	1,810	1,530	1,180	1,030	802
5	938	570	205	601	500	1,310	1,350	1,680	1,350	1,440	1,040	877
6	870	416	696	763	557	548	1,350	1,600	1,740	1,580	923	1,060
7	890	89	620	739	511	1,390	1,350	1,360	1,920	1,600	733	1,030
8	922	464	632	557	552	1,380	1,350	1,040	1,880	1,620	888	1,000
9	817	504	841	230	385	1,380	1,330	1,390	1,840	1,300	990	912
10	618	395	695	780	418	1,360	1,340	1,610	1,860	993	1,050	885
11	824	457	629	612	588	1,560	1,360	1,680	1,880	1,210	1,040	774
12	1,060	540	266	575	572	1,630	1,360	1,720	1,360	1,330	978	983
13	989	366	522	683	276	1,210	1,340	1,620	1,710	1,290	863	949
14	623	104	664	525	611	1,570	1,340	1,730	1,860	1,330	718	932
15	590	517	673	462	850	1,680	1,360	1,320	1,870	1,290	793	1,040
16	277	475	604	277	867	1,840	1,340	1,640	1,830	1,330	1,120	845
17	122	503	606	598	716	1,840	1,340	1,790	1,730	1,050	1,200	733
18	539	666	635	603	761	1,840	1,330	1,840	1,700	1,430	1,210	572
19	528	611	119	671	610	1,830	1,340	1,930	1,400	1,460	1,140	872
20	671	480	470	621	204	1,490	1,320	1,880	1,720	1,640	940	924
21	747	123	615	506	464	1,600	1,490	1,890	1,730	1,520	787	1,000
22	640	501	643	535	533	1,840	1,820	1,720	1,560	1,290	997	946
23	373	578	664	177	654	1,870	1,820	1,790	1,440	1,260	1,180	972
24	291	628	471	562	735	1,910	1,620	1,940	1,520	1,000	1,080	805
25	423	186	166	713	667	1,880	1,870	1,740	1,570	1,270	1,080	648
26	557	602	161	647	592	1,850	1,960	1,650	1,350	1,420	1,220	866
27	611	674	760	563	260	2,020	1,960	1,760	1,680	1,530	848	912
28	651	444	802	558	824	1,430	1,970	1,910	1,780	1,500	889	676
29	508	647	741	601	-	1,330	1,930	1,720	1,860	1,500	1,270	927
30	327	730	712	316	-	1,320	1,860	1,550	1,630	1,260	1,130	803
31	194	-	645	634	-	1,340	-	1,740	-	1,240	1,230	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	18,727	1,060	122	604	37,140
November	14,368	730	89	479	28,500
December	18,103	841	119	584	35,910
Calendar year 1948	410,583	1,900	89	1,122	814,400
January	16,311	780	87	526	32,350
February	15,761	867	204	563	31,260
March	48,048	2,020	548	1,550	95,500
April	45,190	1,970	1,320	1,506	89,630
May	52,530	1,940	1,040	1,695	104,200
June	50,860	1,920	1,350	1,695	100,900
July	41,893	1,640	993	1,351	83,090
August	32,147	1,350	718	1,037	63,760
September	26,503	1,060	572	883	52,570
Water year 1948-49	380,441	2,020	87	1,042	754,600

Rio Grande below Caballo Dam, N. Mex.

Location.- Water-stage recorder, lat. 32°53'05", long. 107°17'30", in NE¼SW¼ sec. 30, T. 16 S., R. 4 W., 600 feet upstream from Bojarquez Bridge, 4,200 feet downstream from Caballo Dam, 1 1/3 miles upstream from Percha diversion dam, 3 miles northeast of Arrey, and 5 miles south of Caballo. Datum of gage is 4,140.9 feet above mean sea level.

Records available.- January 1938 to September 1949.

Average discharge.- 11 years, 1,211 second-feet.

Extremes.- Maximum daily discharge, 2,830 second-feet Apr. 1; minimum daily, 1.1 second-feet Nov. 9, 10.
1938-49: Maximum daily discharge, 7,650 second-feet May 20, 1942; minimum daily, 1.3 second-feet Nov. 18-21, Dec. 12-27, 1940.

Remarks.- Records good. Flow regulated by Caballo Reservoir (capacity when constructed, 345,900 acre-feet) and Elephant Butte Reservoir (capacity, 2,197,600 acre-feet, survey of 1946). Considerable diversion above station for irrigation.

Cooperation.- Records furnished by Bureau of Reclamation.

Discharge, in second-feet, water year October 1948 September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.6	1.6	2.2	2.4	2.3	2.5	2,830	1,560	1,470	2,260	2,480	1,980
2	545	1.6	2.2	2.6	2.2	2.5	2,720	1,520	1,340	2,260	2,380	1,890
3	803	1.6	2.2	2.7	2.2	2.5	2,700	1,440	1,180	2,370	2,440	1,810
4	619	1.6	2.2	2.7	2.1	2.5	2,570	1,510	1,410	2,490	2,340	1,740
5	574	1.5	2.2	2.9	2.1	570	2,400	1,610	1,540	2,460	2,210	1,670
6	475	1.5	2.2	2.7	2.1	939	2,450	1,610	1,510	2,460	2,160	1,510
7	376	1.5	2.2	2.6	2.1	885	2,480	1,600	1,510	2,450	2,150	1,250
8	215	1.5	2.2	2.6	2.1	944	2,180	1,610	1,670	2,500	2,040	1,060
9	58	1.1	2.2	2.6	2.1	954	2,020	1,550	1,770	2,640	1,870	852
10	7.6	1.1	2.2	2.6	2.1	1,070	2,050	1,440	1,720	2,760	1,820	739
11	3.2	1.3	393	2.6	2.1	1,160	2,030	1,280	1,870	2,660	1,820	388
12	3.2	1.3	597	2.6	2.1	1,320	1,910	1,120	2,010	2,490	1,660	204
13	3.0	1.3	564	2.6	2.1	1,420	1,540	1,000	1,900	2,160	1,640	204
14	2.7	1.3	552	2.6	2.3	1,420	1,170	1,130	1,800	2,110	1,730	373
15	2.7	596	380	2.7	2.1	1,430	1,120	1,170	1,790	1,960	1,700	234
16	2.7	863	90	2.5	2.1	1,390	1,260	1,120	1,800	2,090	1,770	5.9
17	2.4	819	5.8	2.1	2.1	1,240	1,360	1,190	1,730	2,120	1,980	3.5
18	2.4	697	4.2	2.3	2.1	1,100	1,340	1,300	2,110	2,110	2,180	2.8
19	2.0	405	3.8	2.6	2.1	1,720	1,340	1,260	2,360	2,020	2,200	3.1
20	2.0	120	3.8	2.6	2.1	1,990	1,290	1,340	2,380	1,980	2,160	3.1
21	1.9	32	3.8	2.6	2.1	2,160	1,130	1,530	2,340	2,040	2,270	2.8
22	1.7	4.0	3.8	2.6	2.1	2,340	1,060	1,760	2,220	1,990	2,290	2.4
23	1.7	3.0	3.4	2.6	2.1	2,390	1,180	1,700	2,120	1,980	2,250	2.4
24	1.8	2.6	3.4	2.5	2.1	2,460	1,260	1,450	2,030	2,120	2,150	2.5
25	1.8	2.6	2.8	2.5	2.1	2,510	1,200	1,190	2,200	1,890	2,160	2.6
26	1.8	2.6	3.0	2.5	2.3	2,650	1,190	1,480	2,300	1,720	2,190	2.7
27	1.8	2.4	3.0	2.4	2.3	2,720	1,250	1,280	2,250	1,610	2,230	2.6
28	1.8	2.2	3.0	2.4	2.5	2,760	1,270	1,390	2,210	1,620	2,310	2.5
29	1.7	2.2	2.6	2.4	-	2,800	1,270	1,470	2,240	1,770	2,300	2.4
30	1.7	2.2	2.6	2.3	-	2,730	1,400	1,390	2,310	2,200	2,180	2.3
31	1.7	-	2.6	2.3	-	2,730	-	1,400	-	2,520	2,050	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet	Bonita ditch (acre-feet)†
October	3,720.9	803	1.7	120	7,380	26
November	3,575.6	863	1.1	119	7,090	18
December	2,649.6	597	2.2	85.5	5,260	0
Calendar year 1948	373,675.3	3,030	1.1	1,021	741,200	1,780
January	78.7	2.9	2.1	2.54	156	0
February	60.2	2.5	2.1	2.15	119	0
March	47,812	2,800	2.5	1,542	94,830	109
April	50,970	2,830	1,060	1,699	101,100	195
May	43,400	1,760	1,000	1,400	86,080	139
June	57,090	2,380	1,180	1,903	113,200	126
July	67,810	2,760	1,610	2,187	134,500	65
August	65,110	2,480	1,640	2,100	129,100	314
September	15,947.6	1,980	2.3	532	31,630	9
Water year 1948-49	358,224.6	2,830	2.1	981	710,400	1,001

† Not included in river discharge records. Bonita ditch diverts directly from Caballo Dam.

Reservoirs in Rio Grande Basin

Elephant Butte Reservoir.- Water-stage recorder, lat. 33°09'15", long. 107°11'30", at dam on Rio Grande in NW¼ sec. 30, T. 13 S., R. 3 W. (surveys by Bureau of Reclamation), 1 mile west of Elephant Butte, N. Mex., and 4 miles northeast of Hot Springs. Datum of gage is 43.3 feet above mean sea level. Records available, January 1940 to September 1949. Maximum daily contents during year, 795,400 acre-feet July 28, 29; maximum gage height, 4,351.30 feet July 29; minimum daily contents, 490,000 acre-feet Dec. 11, 12, 16-19, 22-24; minimum gage height, 4,329.69 feet Dec. 12, 23. Maximum daily contents during period 1940-49, 2,303,000 acre-feet June 16-18, 1942 (gage height, 4,409.19 feet); minimum daily, 298,500 acre-feet Aug. 22, 1947 (gage height, 4,311.91 feet).

Reservoir is formed by concrete dam; storage began Jan. 6, 1915; dam completed May 13, 1916. Capacity, 2,197,600 acre-feet between gage heights 4,231.5 feet (sill of lower outlet gate) and 4,407.0 feet (spillway crest). No dead storage, survey of 1946. Figures given herein represent usable contents. Water is used for power development and irrigation on Rio Grande project of Bureau of Reclamation. Contents as here given are computed from mean daily gage heights. Gage-height record and capacity table furnished by Bureau of Reclamation.

Caballo Reservoir.- Water-stage recorder, lat. 32°53'45", long. 107°17'30", at dam on Rio Grande, in SE¼SW¼ sec. 19, T. 16 S., R. 4 W., 0.5 mile downstream from mouth of Apache Canyon, 0.9 mile upstream from Bojarquez Bridge, 2 miles upstream from Percha diversion dam, 3.5 miles northeast of Arrey, and 4.5 miles south of Caballo, N. Mex. Datum of gage is 43.3 feet above mean sea level. Records available, February 1938 to September 1949. Maximum daily contents during year, 181,700 acre-feet Mar. 19 (gage height, 4,164.79 feet); minimum daily, 24,070 acre-feet Oct. 4 (gage height, 4,131.77 feet). Maximum daily contents during period 1938-49, 347,000 acre-feet Mar. 4, 1942 (gage height, 4,182.06 feet); minimum daily, 118 acre-feet Oct. 14, 1938 (gage height, 4,108.1 feet).

Reservoir is formed by earth-fill dam; storage began Feb. 8, 1938; dam completed Sept. 19, 1938. Capacity, 345,900 acre-feet between gage heights, 4,104 feet (bottom of tunnel entrance to gates) and 4,182 feet (gage height above which spillway gates operate automatically). No dead storage. 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. Gage-height record and capacity table furnished by Bureau of Reclamation.

Carson Reservoir.- Water-stage recorder, lat. 36°25'20", long. 105°50'00", in N½NW¼ sec. 12 (revised), T. 25 N., R. 10 E., on Aguaje de la Petaca, 4¾ miles northwest of Carson, Taos County, N. Mex. Records available, January 1940 to September 1949. Maximum daily contents during year, 501 acre-feet about Apr. 25 (gage height, 18.8 feet, from recorded range in stage); no storage for extended periods. Maximum contents during period 1940-49, 3,620 acre-feet May 6, 1941 (gage height, 38.5 feet); no storage for extended periods.

Reservoir is formed by earth-fill dam, rip-rap faced, completed in 1935. Capacity, 5,684 acre-feet between gage heights 8.0 feet (sill of outlet gate) and 45 feet (crest of spillway). Dead storage negligible. Reservoir was designed to provide water for irrigation in Carson Irrigation District near Carson, N. Mex., but little storage value has been realized because of major leaks in reservoir. Gage heights and contents at 12 p.m.

El Vado Reservoir.- Water-stage recorder (records stages above spillway floor only) and inclined staff gage, lat. 36°35'45", long. 106°43'55", at left end of dam, on Rio Chama, in SE¼ sec. 4, T. 27 N., R. 2 E. (projected), 2 miles downstream from old town of El Vado and 13 miles southwest of Tierra Amarilla, N. Mex. Datum of gage is 9.565 feet above mean sea level, datum of 1929. Records available, January 1935 to September 1949. Maximum daily contents during year, 201,500 acre-feet May 28, June 19 (gage height, 6,903.2 feet); minimum daily, 10,460 acre-feet Apr. 3, 4 (gage height, 6,787.7 feet). Maximum daily contents and gage height during period 1935-49, 204,900 acre-feet June 4, 5, 1948; minimum daily, 56 acre-feet Jan. 1, 1935.

Reservoir is formed by rock-fill dam, steel-faced; storage began in January 1935. Capacity, 197,500 acre-feet between gage heights 6,740.0 feet (bottom of trash rack) and 6,902.0 feet (top of spillway gate). Dead storage unknown. Prior to Jan. 1, 1947, figures represent usable contents computed from capacity table furnished by Middle Rio Grande Conservancy District in 1940; after Jan. 1, 1947, figures represent usable contents computed from capacity table based on survey of 1944 by Corps of Engineers. Water is used for irrigation by Middle Rio Grande Conservancy District. Gage read daily about 7:30 a.m. Continuous recorder registers gage heights above 6,879.3 feet (floor of spillway). Contents given herein are those at 7:30 a.m. Staff-gage readings furnished by Middle Rio Grande Conservancy District.

McClure Reservoir.- Water-stage recorder, lat. 35°41'15", long. 105°50'10", in NE¼SW¼ sec. 24, T. 17 N., R. 10 E., at McClure Dam on Santa Fe Creek, 2½ miles upstream from Nichols Reservoir and 6 miles east of Santa Fe, N. Mex. Datum of gage is 7,768.32 feet above mean sea level and 166.1 feet above Public Service Co. of New Mexico assumed datum. Records available, October 1947 to September 1949. Maximum daily contents during year, 2,640 acre-feet May 15-30, July 23 to Aug. 4; maximum daily gage height, 96.8 feet May 15-17, 25-31, July 23-27; minimum daily contents, 1,560 acre-feet Feb. 8-13 (gage height, 79.9 feet).

Reservoir is formed by earth-fill dam. Capacity, 2,614 acre-feet between gage heights -0.4 foot (bottom of lowest sluice gate) and 96.4 feet (crest of spillway). Dead storage negligible. Figures given herein represent total contents at 12 p.m. Water is used for municipal consumption of city of Santa Fe. Capacity table computed from rating table furnished by Public Service Co. of New Mexico.

Reservoirs in Rio Grande Basin--Continued

Nichols Reservoir.- Water-stage recorder, lat. 35°41'20", long. 105°52'40", at dam on Santa Fe Creek, in E½NE¼ sec. 21, T. 17 N., R. 10 E., three-quarters of a mile upstream from lower storage reservoir, 2½ miles downstream from upper storage reservoir of Public Service Co. of New Mexico, and 3½ miles east of Santa Fe, N. Mex. Datum of gage is 7,313.2 feet above mean sea level, datum of 1929. Records available, December 1942 to September 1949. Maximum daily contents during year, 830 acre-feet June 11 (gage height, 171.6 feet); minimum daily, 331 acre-feet Apr. 3-6. Maximum daily contents 1943-49, 830 acre-feet May 30 to June 1, 1947, June 11, 1949 (gage height, 171.6 feet); minimum daily, 16 acre-feet Feb. 11 to Mar. 10, 1944, Feb. 1-19, 1948.

Reservoir is formed by earth-fill dam. Storage began Mar. 16, 1943. Capacity, 796 acre-feet between gage heights 121.2 feet (bottom of lower operational gate) and 171.0 feet (top of flashboards in spillway). Dead storage, 14 acre-feet. Figures given herein represent total contents at 12 p.m. Water is used for municipal consumption of city of Santa Fe. Capacity table computed from survey furnished in 1943 by Public Service Co. of New Mexico.

Alamogordo Reservoir.- Water-stage recorder, 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, 12 miles northwest of Fort Sumner, N. Mex. Datum of gage is at mean sea level, Bureau of Reclamation datum. Drainage area, 4,390 square miles (contributing area). Records available, January 1939 to September 1949. Maximum daily contents during year, 110,900 acre-feet Sept. 10 (elevation, 4,270.05 feet); minimum daily, 5,400 acre-feet Apr. 18 (elevation, 4,213.00 feet). Maximum daily contents during period 1939-49, 149,400 acre-feet Apr. 19, 20, 1942 (elevation, 4,275.30 feet); minimum daily, 1,570 acre-feet July 28, 1946, Apr. 26, 1948 (elevation, 4,205.00 feet).

Reservoir is formed by Alamogordo Dam; completed and storage began in 1938. Total capacity, 132,200 acre-feet by elevation 4,275.0 feet (top of spillway gates) above mean sea level. Dead storage, 284 acre-feet below elevation 4,200.0 feet (sill of outlet gates). Figures given herein represent usable contents. Contents computed from elevations at 8 a.m. Elevation record furnished by Bureau of Reclamation. Figures represent total contents computed from capacity table based on survey of March 1944 by Corps of Engineers.

Lake McMillan.- Staff gage, lat. 32°35'45", long. 104°20'55", in SE¼ sec. 2, T. 20 S., R. 26 E., at dam on Pecos River, 3 miles southeast of Lakewood, N. Mex. Datum of gage is 3,241.6 feet above mean sea level, Bureau of Reclamation datum. Drainage area, 16,990 square miles (contributing area). Records available, January 1939 to September 1949. Maximum daily contents during year, 30,840 acre-feet Sept. 14 (gage height, 24.6 feet); no storage for extended periods. Maximum daily contents during period 1939-49, 68,500 acre-feet Sept. 26, 1941 (gage height, 29.95 feet); no storage at times in 1944-49.

Lake is formed by McMillan Dam, completed and storage began in 1906. Capacity, 38,660 acre-feet between gage heights 0.0 foot (sill of outlet gate) and 26.1 feet (crest of spillway 1). No dead storage. Figures given herein represent usable contents. Water is used for irrigation on Carlsbad project of Bureau of Reclamation. Contents computed from daily readings at 6 a.m. Gage-height record and capacity table furnished by Bureau of Reclamation.

Lake Avalon.- Staff gage, lat. 32°29'25", long. 104°15'00", in SW¼ sec. 12, T. 21 S., R. 26 E., at Avalon Dam on Pecos River, 5 miles north of Carlsbad, N. Mex. Datum of gage is 3,157.0 feet above mean sea level, Bureau of Reclamation datum. Drainage area, 18,070 square miles (contributing area). Records available, January 1939 to September 1949. Maximum daily contents during year, 6,000 acre-feet Feb. 15-28 (gage height, 20,40 feet); minimum daily, 500 acre-feet Oct. 14 (gage height, 12.10 feet). Maximum daily contents during period 1939-49, 11,000 acre-feet May 22, 1941 (gage height, 25.0 feet); no storage at times when natural flow was passing through reservoir.

Lake is formed by Avalon Dam; storage began in 1906. Capacity, 6,600 acre-feet between gage heights 0.0 foot (sill of outlet gates) and 21.0 feet (crest of spillway 1). No dead storage. Figures given herein represent usable contents and are computed from once-daily staff readings at 6 a.m. Water is used for irrigation on Carlsbad project of Bureau of Reclamation who furnishes gage-height record and contents table.

Red Bluff Reservoir.- Staff gage, lat. 31°54'05", long. 103°54'40", at right end of Red Bluff dam on Pecos River, 3 miles upstream from Salt (Screwbean) Draw, 4.5 miles north of Orla, Reeves County, Tex. Datum of gage is 0.30 foot below mean sea level, datum of 1929. Contributing drainage area, 20,720 square miles. Records available, February 1937 to September 1949. Maximum contents observed during year, 59,300 acre-feet Sept. 30 (gage height, 2,806.8 feet); minimum observed, 12,480 acre-feet Sept. 6 (gage height, 2,783.2 feet). Maximum contents observed during period 1937-49, 352,000 acre-feet Sept. 27, 28, 1941 (gage height, 2,846.2 feet, observed on staff gage at service spillway, affected by variable drawdown due to flow through taintor gates); minimum observed, 11,080 acre-feet May 13, 1948 (gage height, 2,781.4 feet).

Reservoir is formed by earth-fill dam, rock-faced; storage began in 1936; dam completed early in 1937. Capacity, 307,000 acre-feet between gage heights 2,764.0 feet (penstock intake sill) and 2,842.0 feet (top of taintor gates). Dead storage, 3,000 acre-feet. Figures given herein represent total contents. Water is used for power development and for irrigation from Mentone to Grandfalls. Contents computed from intermittent gage readings. Gage-height record and capacity curve furnished by Red Bluff Water Power Control District.

Reservoirs in Rio Grande Basin--Continued

Monthly gage height and contents of reservoirs in Rio Grande Basin, water year October 1948 to September 1949

Date	Elephant Butte Reservoir			Caballo Reservoir		
	Elevation or gage height (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation or gage height (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept. 30	4,333.89	543,000	-	4,131.61	23,700	-
Oct. 31	4,331.05	506,800	-36,200	4,142.13	53,270	+29,570
Nov. 30	4,329.97	493,100	-13,700	4,146.88	71,510	+18,240
Dec. 31	4,329.86	491,900	-1,200	4,152.70	99,480	+27,970
Calendar year 1948	-	-	+56,500	-	-	+48,070
Jan. 31	4,330.19	496,200	+4,300	4,157.80	130,500	+31,020
Feb. 28	4,331.89	517,400	+21,200	4,161.79	158,600	+28,100
Mar. 31	4,332.92	530,200	+12,800	4,162.19	161,700	+3,100
Apr. 30	4,331.17	508,100	-22,100	4,160.48	148,900	-12,800
May 31	4,336.01	570,600	+62,500	4,162.44	163,600	+14,700
June 30	4,345.85	710,000	+139,400	4,160.50	149,100	-14,500
July 31	4,351.17	793,000	+83,000	4,153.37	103,300	-45,800
Aug. 31	4,348.24	747,000	-46,000	4,138.44	41,580	-61,720
Sept. 30	4,346.12	713,700	-33,300	4,146.00	67,900	+26,320
Water year 1948-49	-	-	+170,700	-	-	+44,200

Date	Carson Reservoir			El Vado Reservoir		
Sept. 30	-	0	-	6,883.3	142,700	-
Oct. 31	-	-	0	6,882.0	139,300	-3,400
Nov. 30	-	0	0	6,882.6	140,900	+1,600
Dec. 31	-	0	0	6,883.3	142,700	+1,800
Calendar year 1948	-	-	0	-	-	+137,220
Jan. 31	-	0	0	6,884.5	145,800	+3,100
Feb. 28	-	0	0	6,864.4	99,880	-45,920
Mar. 31	-	0	0	6,799.0	17,490	-82,390
Apr. 30	-	a380	+380	6,865.9	102,800	+85,310
May 31	-	0	-380	6,902.8	200,200	+97,400
June 30	-	0	0	6,902.5	199,200	-1,000
July 31	12.3	100	+100	6,902.2	198,200	-1,000
Aug. 31	-	0	-100	6,897.2	182,400	-15,800
Sept. 30	-	0	0	6,891.8	166,200	-16,200
Water year 1948-49	-	-	0	-	-	+23,500

Date	McClure Reservoir			Nichols Reservoir		
Sept. 30	86.1	1,920	-	163.0	571	-
Oct. 31	83.0	1,740	-180	163.5	585	+14
Nov. 30	82.2	1,690	-50	-	a512	-73
Dec. 31	81.3	1,640	-50	-	a531	+19
Calendar year 1948	-	-	+1,473	-	-	+509
Jan. 31	80.3	1,580	-60	-	a412	-119
Feb. 28	80.8	1,610	+30	-	a358	-54
Mar. 31	84.2	1,810	+200	152.9	335	-23
Apr. 30	95.9	2,580	+770	168.6	734	+399
May 31	96.8	2,640	+60	171.4	823	+89
June 30	94.4	2,470	-170	170.4	790	-33
July 31	96.7	2,640	+170	169.1	749	-41
Aug. 31	95.9	2,580	-60	167.2	692	-57
Sept. 30	92.4	2,340	-240	167.3	695	+3
Water year 1948-49	-	-	+420	-	-	+124

Date	Alamogordo Reservoir			Lake McMillan		
Sept. 30	4,214.90	6,590	-	0.0	0	-
Oct. 31	4,216.40	7,520	+930	0.0	0	0
Nov. 30	4,223.85	12,820	+5,300	0.0	0	0
Dec. 31	4,230.30	18,940	+6,120	0.0	0	0
Calendar year 1948	-	-	-1,470	-	-	-2,760
Jan. 31	4,235.45	24,940	+6,000	15.55	1,460	+1,460
Feb. 28	4,239.40	30,300	+5,360	15.25	1,110	-350
Mar. 31	4,241.00	32,690	+2,390	14.6	570	-540
Apr. 30	4,221.70	11,120	-21,570	16.7	3,340	+2,770
May 31	4,240.70	32,230	+21,110	15.6	1,520	-1,820
June 30	4,259.25	73,340	+41,110	21.55	17,820	+16,300
July 31	4,267.90	102,600	+29,260	23.0	23,580	+5,760
Aug. 31	4,267.60	101,400	-1,200	21.7	18,380	-5,200
Sept. 30	4,267.55	101,200	-200	23.85	27,310	+8,930
Water year 1948-49	-	-	+94,610	-	-	+27,310

a No gage-height record; contents interpolated.

Reservoirs in Rio Grande Basin--Continued

Monthly gage height and contents of reservoirs in Rio Grande Basin; water year October 1948 to September 1949--Continued

Date	Lake Avalon			Red Bluff Reservoir		
	Elevation or gage height (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)	Elevation or gage height (feet)	Contents (acre-feet)	Change in contents during month (acre-feet)
Sept.30	16.95	3,030	-	2,787.1	16,630	-
Oct. 31	14.95	1,670	-1,360	2,791.0	21,800	+5,170
Nov. 30	18.05	3,890	+2,220	2,793.0	24,900	+3,100
Dec. 31	20.00	5,620	+1,730	2,794.9	28,220	+3,320
Calendar year 1948	-	-	+3,950	-	-	+2,470
Jan. 31	19.65	5,290	-330	2,798.3	35,060	+6,840
Feb. 28	20.40	6,000	+710	2,800.6	40,500	+5,440
Mar. 31	19.80	5,430	-570	2,800.0	39,000	-1,500
Apr. 30	13.90	1,100	-4,330	2,793.0	24,900	-14,100
May 31	15.50	2,020	+920	2,795.4	29,160	+4,260
June 30	17.95	3,810	+1,790	2,796.9	32,100	+2,940
July 31	15.75	2,180	-1,630	2,787.0	16,500	-15,600
Aug. 31	12.90	720	-1,460	2,784.2	13,400	-3,100
Sept.30	20.00	5,620	+4,900	2,806.8	59,300	+45,900
Water year 1948-49	-	-	+2,590	-	-	+42,670

Transmountain diversions from Colorado River Basin to Rio Grande Basin

The following seven ditches, which are equipped with water-stage recorders, divert water from tributaries of Colorado River to tributaries of Rio Grande in Colorado. Records furnished by State engineer.

Raber-Lohr ditch diverts water from Rincon la Vaca Creek (tributary of Los Pinos River) through Weminuche Pass to Weminuche Creek (tributary of Rio Grande) in sec. 33, T. 40 N., R. 4 W.

Fuchs ditch diverts water from North Fork Los Pinos River through Weminuche Pass to Weminuche Creek (tributary of Rio Grande) in sec. 35, T. 40 N., R. 4 W.

Squaw Pass ditch diverts water from tributaries of Williams Creek through Squaw Pass to a tributary of Rio Grande in sec. 10, T. 39 N., R. 3 W.

Tabor ditch diverts water from Cebolla Creek through Spring Creek Pass to a tributary of Clear Creek in sec. 2, T. 42 N., R. 3 W.

Piedra Pass ditch diverts water from tributaries of Piedra River to South River (tributary of Rio Grande) in sec. 4, T. 38 N., R. 1 W.

Treasure Pass ditch diverts water from Wolf Creek through Wolf Creek Pass to a tributary of South Fork Rio Grande in sec. 31, T. 38 N., R. 2 E.

Tarbell ditch diverts water from a tributary of Cochetopa Creek to a tributary of Saguache Creek in about sec. 17, T. 43 N., R. 2 E.

Inflow from transmountain diversions, in acre-feet, water year October 1948 to September 1949

Month	Raber-Lohr ditch	Fuchs ditch	Squaw Pass ditch	Tabor ditch	Piedra Pass ditch	Treasure Pass ditch	Tarbell ditch	Total
October	0	0	0	0	0	0	0	0
November	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0
January	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0
July	53	20	0	0	0	0	0	73
August	255	70	0	0	0	0	0	325
September	114	0	0	0	0	0	0	114
Water year 1948-49	422	90	0	0	0	0	0	512

Clear Creek below Continental Reservoir, Colo.

Location.- Water-stage recorder and Parshall flume, lat. 37°53', long. 107°11', in sec. 22, T. 42 N., R. 3 W., 1,000 feet downstream from Continental Reservoir and 15 miles west of Creede.

Drainage area.- 51.7 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. May 1929 to September 1949 in reports of State engineer.

Average discharge.- 20 years, 33.0 second-feet.

Extremes.- Maximum discharge during year, 290 second-feet Aug. 9 (gage height, 3.27 feet, from recorded range in stage); minimum daily, 2.2 second-feet Oct. 31 to May 7.
1929-49: Maximum discharge, 329 second-feet July 21, 1948 (gage height, 3.68 feet); from recorded range in stage); no flow June 22, 23, 1935.

Remarks.- Records good above 60 second-feet and fair below. Flow regulated by Continental Reservoir (capacity, 26,700 acre-feet).

Revisions.- W 1008: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	70	160	22	73
2	11	2.2	2.2	2.2	2.2	2.2	2.2	2.2	73	130	22	23
3	9.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	80	101	43	13
4	9.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	85	94	55	12
5	9.8	2.2	2.2	2.2	2.2	2.2	2.2	2.2	87	92	48	13
6	10	2.2	2.2	2.2	2.2	2.2	2.2	2.2	89	91	136	16
7	9.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	92	100	197	15
8	9.0	2.2	2.2	2.2	2.2	2.2	2.2	31	92	98	228	14
9	9.4	2.2	2.2	2.2	2.2	2.2	2.2	61	91	88	250	14
10	9.8	2.2	2.2	2.2	2.2	2.2	2.2	63	96	105	270	15
11	9.4	2.2	2.2	2.2	2.2	2.2	2.2	65	100	97	256	15
12	9.4	2.2	2.2	2.2	2.2	2.2	2.2	67	100	85	204	14
13	9.4	2.2	2.2	2.2	2.2	2.2	2.2	67	70	71	186	15
14	9.8	2.2	2.2	2.2	2.2	2.2	2.2	68	48	61	181	20
15	9.4	2.2	2.2	2.2	2.2	2.2	2.2	67	49	56	199	20
16	11	2.2	2.2	2.2	2.2	2.2	2.2	66	48	56	243	20
17	10	2.2	2.2	2.2	2.2	2.2	2.2	65	49	62	232	20
18	10	2.2	2.2	2.2	2.2	2.2	2.2	66	51	60	236	20
19	10	2.2	2.2	2.2	2.2	2.2	2.2	65	52	65	245	18
20	11	2.2	2.2	2.2	2.2	2.2	2.2	67	51	67	220	16
21	9.8	2.2	2.2	2.2	2.2	2.2	2.2	66	46	65	205	14
22	9.8	2.2	2.2	2.2	2.2	2.2	2.2	70	38	66	203	14
23	10	2.2	2.2	2.2	2.2	2.2	2.2	75	34	67	202	15
24	10	2.2	2.2	2.2	2.2	2.2	2.2	72	82	67	201	16
25	11	2.2	2.2	2.2	2.2	2.2	2.2	67	165	49	193	16
26	10	2.2	2.2	2.2	2.2	2.2	2.2	72	208	22	188	12
27	11	2.2	2.2	2.2	2.2	2.2	2.2	69	197	22	196	9.3
28	10	2.2	2.2	2.2	2.2	2.2	2.2	71	183	22	198	7.1
29	10	2.2	2.2	2.2	-	2.2	2.2	71	170	21	192	8.4
30	7.1	2.2	2.2	2.2	-	2.2	2.2	70	170	22	172	7.5
31	2.2	-	2.2	2.2	-	2.2	-	70	-	22	140	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	297.3	11	2.2	9.59	590
November	66.0	2.2	2.2	2.20	131
December	68.2	2.2	2.2	2.20	135
Calendar year 1948	19,224.7	320	2.0	52.6	38,130
January	68.2	2.2	2.2	2.20	135
February	61.6	2.2	2.2	2.20	122
March	68.2	2.2	2.2	2.20	135
April	66.0	2.2	2.2	2.20	131
May	1,608.4	75	2.2	51.9	3,190
June	2,766	208	34	92.2	5,490
July	2,184	160	21	70.5	4,330
August	5,563	270	22	179	11,030
September	505.3	73	7.1	16.8	1,000
Water year 1948-49	13,322.2	270	2.2	36.5	26,420

Note.- No gage-height record Oct. 31 to May 7 (discharge computed on basis of discharge measurement made Nov. 15 and assumption that leakage through gates at Continental Reservoir was constant), May 8, June 29 to July 2, Aug. 9, 10 (discharge computed on basis of discharge measurement made Aug. 10 and gate openings at Continental Reservoir).

Goose Creek near Wagon Wheel Gap, Colo.

Location.- Water-stage recorder, lat. 37°41', long. 106°50', in NW¼ sec. 26, T. 40 N., R. 1 E., 1½ miles downstream from Roaring Fork and 6 miles south of Wagon Wheel Gap.

Drainage area.- 53.6 square miles.

Records available.- October 1939 to September 1949 (no winter records 1942-47). October 1924 to July 1926 at site 1 mile upstream.

Extremes.- Maximum discharge during year, 1,170 second-feet June 18 (gage height, 2.78 feet), from rating curve extended above 750 second-feet; minimum daily not determined. 1924-26, 1939-49: Maximum discharge, that of June 18, 1949; maximum gage height, 2.99 feet June 23, 1941; minimum daily discharge recorded, 7.8 second-feet Apr. 1, 5, 6, 1945.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Lake Humphreys (capacity, 842 acre-feet) has slight effect on flow.

Revisions.- W 1008: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	25	26						142	234	352	70	30
2	25	26	(*)					165	214	346	74	40
3	25	25						191	217	320	91	37
4	25	22						181	255	310	70	34
5	25	21						165	278	288	61	32
6	25	20						145	303	263	60	32
7	25	22						126	288	346	54	33
8	25	22						114	246	259	52	33
9	25	22						123	264	244	52	33
10	25	18						145	313	254	51	33
11	25	17						156	324	259	47	33
12	25	19					35	172	390	221	45	33
13	25	19						162	450	205	43	33
14	25	19						156	498	186	41	33
15	25	*19						246	478	172	40	32
16	24	19	14	13	14	15		255	536	155	39	32
17	24	19						242	608	145	37	30
18	24	19						*187	722	138	36	30
19	23	19						184	587	132	35	30
20	23	19						187	526	126	33	29
21	23	17						172	478	122	33	29
22	23	16						172	469	122	32	29
23	23	15						191	469	116	32	28
24	23	15					85	221	460	126	32	27
25	23	15					121	259	440	113	32	27
26	23	15					128	283	420	110	32	26
27	23	15					118	283	412	99	32	26
28	23	15					118	268	382	86	32	26
29	23	15			-		125	308	358	79	30	25
30	25	14			-		148	313	358	74	30	25
31	23	-			-		-	283	-	70	29	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	748	25	23	24.1	1,480
November	564	26	14	18.8	1,120
December	434	-	-	14	861
Calendar year 1948	32,984	730	-	90.1	65,430
January	403	-	-	13	799
February	392	-	-	14	778
March	465	-	-	15	922
April	1,648	148	-	54.9	3,270
May	6,197	313	114	200	12,290
June	11,977	722	214	399	23,760
July	5,838	352	70	188	11,580
August	1,367	81	29	44.1	2,710
September	920	40	25	30.7	1,820
Water year 1948-49	30,953	722	-	84.8	61,390

Peak discharge (base, 200 sec.-ft.).- May 3 (9 p.m.) 253 sec.-ft.; May 15 (9:30 p.m.) 298 sec.-ft.; May 29 (11:30 p.m.) 352 sec.-ft.; June 5 (11 p.m.) 335 sec.-ft.; June 18 (4:30 p.m.) 1,170 sec.-ft.; June 23 (10:30 p.m.) 686 sec.-ft.; July 7 (2 a.m.) 498 sec.-ft.

* Winter discharge measurement made on this day.

Note.- No gage-height record Nov. 27 to Apr. 23 (stage-discharge relation affected by ice during most of period), Apr. 28, 29, May 5, 6, June 24, 25, July 3, 4; discharge computed on basis of 1 discharge measurement, weather records, and records for nearby stations.

South Fork Rio Grande at South Fork, Colo.

Location.- Water-stage recorder, lat. 37°40', long. 106°39', in sec. 4, T. 39 N., R. 3 E., near U. S. Highway 160, 1¼ miles upstream from mouth and 1½ miles southwest of village of South Fork. Datum of gage is 8,221.79 feet above mean sea level, datum of 1929.

Drainage area.- 216 square miles.

Records available.- August 1910 to September 1913 and May 1936 to September 1949 in reports of Geological Survey. August 1910 to September 1922 and May 1936 to September 1949 in reports of State engineer. Records for 1910-22 at site 1 mile downstream.

Average discharge.- 25 years (1910-22, 1936-49), 235 second-feet.

Extremes.- Maximum discharge during year, 3,420 second-feet June 18 (gage height, 6.83 feet), from rating curve extended above 1,800 second-feet; minimum daily, 23 second-feet Nov. 19.

1910-22, 1936-49: Maximum discharge, 8,000 second-feet Oct. 5, 1911 (gage height, 9.7 feet, from floodmarks, present site and datum), from rating curve extended above 1,500 second-feet; minimum daily, 20 second-feet Jan. 1, 2, 8, 17, 23-25, 1915, Dec. 20, 1937.

Remarks.- Records good except those for Nov. 6 to Mar. 31, which are fair. A few small diversions above station for irrigation and several small storage reservoirs.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	51	34	35	36	45	49	586	1,110	1,050	258	74
2	59	56	*33	36	36	46	47	656	980	1,010	260	91
3	51	62	35	30	37	46	46	770	968	990	253	78
4	47	60	37	28	38	46	46	751	1,040	927	226	67
5	51	31	33	27	37	47	46	665	1,140	850	190	62
6	62	37	36	31	37	46	66	625	1,220	755	139	66
7	57	34	30	32	38	50	93	536	1,200	861	134	60
8	48	34	36	32	41	49	115	500	1,050	678	131	57
9	46	27	35	30	41	48	110	514	1,080	632	127	56
10	44	38	40	33	41	47	93	578	1,220	610	131	63
11	44	43	43	40	45	49	96	651	1,350	785	119	66
12	43	27	41	43	48	54	140	732	1,470	632	112	91
13	42	30	43	41	47	60	*181	669	1,570	566	105	72
14	41	30	44	43	44	57	194	674	1,770	498	102	105
15	51	29	37	40	44	*61	209	843	1,770	450	96	73
16	44	29	33	38	45	64	229	860	1,920	400	92	60
17	39	28	35	38	45	70	268	737	2,100	378	100	56
18	38	*27	36	40	*46	75	285	678	2,960	342	102	59
19	*42	23	34	*42	47	80	260	643	2,670	308	96	53
20	52	29	38	43	52	84	244	638	a2,450	293	90	50
21	53	27	39	44	53	80	275	570	a2,300	272	86	50
22	46	33	39	44	55	78	349	578	a2,200	253	85	51
23	41	35	35	44	56	80	400	616	a2,100	248	84	50
24	39	32	31	43	57	77	426	714	a1,850	272	80	59
25	38	35	27	44	51	74	493	838	a1,500	248	80	53
26	34	33	29	45	47	69	543	962	a1,300	260	86	48
27	35	30	32	44	46	66	518	1,000	a1,300	244	92	48
28	44	29	*30	41	45	70	504	998	a1,250	221	84	56
29	39	25	31	40	-	68	586	1,090	1,120	202	74	134
30	59	36	32	38	-	*64	634	1,220	1,080	248	70	114
31	59	-	33	36	-	50	-	1,300	-	260	67	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,450	62	34	46.8	2,880
November	1,040	62	23	34.7	2,060
December	1,091	44	27	35.2	2,160
Calendar year 1948	104,459	2,500	23	285	207,200
January	1,185	45	27	38.2	2,350
February	1,255	57	36	44.8	2,490
March	1,900	84	45	61.3	3,770
April	7,545	634	46	252	14,970
May	23,192	1,300	500	748	46,000
June	47,038	2,960	968	1,568	93,300
July	15,743	1,050	202	508	31,230
August	3,751	260	67	121	7,440
September	2,022	134	48	67.4	4,010
Water year 1948-49	107,212	2,960	23	294	212,700

Peak discharge (base, 900 sec.-ft.).- May 15 (11 p.m.) 986 sec.-ft.; May 31 (4:30 a.m.) 1,320 sec.-ft.; June 5 (11:30 p.m.) 1,330 sec.-ft.; June 18 (11 p.m.) 3,420 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of records for station on Rio Grande near Del Norte.

Note.- Stage-discharge relation affected by ice Nov. 6 to Mar. 30 (no gage-height record Dec. 2 to Mar. 30; discharge computed on basis of 6 discharge measurements, weather records, and records for stations on nearby streams).

Pinos Creek near Del Norte, Colo.

Location.- Water-stage recorder and 12-foot Parshall flume, lat. 37°35', long. 106°27', in sec. 29, T. 39 N., R. 5 E., just downstream from Bennett Creek and 8 miles southwest of Del Norte.

Drainage area.- 53 square miles.

Records available.- May 1936 to September 1949 in reports of Geological Survey. May 1919 to September 1924 and May 1936 to September 1949 in reports of State engineer. (No winter records most years.)

Extremes.- Maximum discharge during year, 308 second-feet June 24 (gage height, 2.95 feet); minimum daily recorded, 5.8 second-feet Oct. 17.

1919-24, 1936-49: Maximum daily discharge, 2,400 second-feet June 3, 1922; minimum daily recorded, 3.6 second-feet Oct. 27, 1939, Nov. 9, 1944 (discharge measurement).

Remarks.- Records excellent above 40 second-feet and good below. One small diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.6	9.6				-	6.2	85	132	120	35	15
2	7.6	9.6				-	6.2	99	125	107	37	18
3	7.6	9.0				-	b7.0	120	124	104	35	14
4	7.6	9.6				-	a6.2	112	135	101	35	13
5	6.7	b9.0				-	7.2	96	135	95	30	12
6	7.2	12				-	9.0	90	134	95	30	12
7	6.2	9.0				-	13	72	138	100	29	12
8	7.6	b7.7				-	14	63	130	86	29	12
9	7.6	a6.8				-	13	67	130	79	29	12
10	7.6	*a7.6				-	10	81	141	82	30	12
11	7.2	-				-	10	90	150	100	22	12
12	7.2	-				-	15	103	177	78	19	15
13	6.7	-				-	*20	96	193	73	19	14
14	7.2	-				-	23	113	204	72	19	16
15	7.6	-				-	22	140	200	66	18	13
16	6.7	-				-	26	136	213	61	18	12
17	5.8	-				-	29	123	232	63	17	11
18	6.2	-				-	29	112	269	55	16	11
19	7.6	-				-	25	107	253	52	15	10
20	9.6	-				-	24	103	239	50	14	10
21	9.0	-				-	28	92	221	47	14	10
22	*8.5	-				*10	38	99	211	59	15	9.6
23	8.0	-				9.6	45	107	220	55	14	8.0
24	8.0	-				8.0	49	117	232	55	13	8.5
25	7.2	-				8.5	59	127	187	51	12	8.5
26	6.7	-				8.5	70	134	169	51	13	8.0
27	7.2	-				9.6	67	132	159	44	13	8.0
28	7.2	-				8.5	68	137	144	40	13	9.0
29	6.2	-				7.6	82	149	135	37	12	17
30	11	-				*7.6	93	146	126	36	10	13
31	9.6	-				8.6	-	148	-	35	10	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	233.7	11	5.8	7.54	464
November 1-10	89.9	12	6.8	8.99	178
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March 22-31	86.4	10	7.6	8.64	171
April	913.8	93	6.2	30.5	1,810
May	3,396	149	63	110	6,740
June	6,258	269	124	175	10,430
July	2,149	120	35	69.3	4,260
August	635	37	10	20.5	1,260
September	355.6	18	8.0	11.9	705
Water year	-	-	-	-	-

Peak discharge (base, 120 sec.-ft.).- May 3 (7:30 p.m.) 140 sec.-ft.; May 15 (8 p.m.) 165 sec.-ft.; May 26 (8 p.m.) 220 sec.-ft.; May 28 (10 p.m.) 173 sec.-ft.; June 18 (8:30 a.m.) 292 sec.-ft.; June 24 (1:30 a.m.) 308 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of 1 discharge measurement and weather records.

b Stage-discharge relation affected by ice.

Rock Creek near Monte Vista, Colo.

Location.- Water-stage recorder and 8-foot Parshall flume, lat. 37°29', long. 106°16', in SE¼ sec. 36, T. 38 N., R. 6 E., 3 miles downstream from North Fork and 9 miles southwest of Monte Vista.

Drainage area.- 33.6 square miles.

Records available.- May 1935 to September 1949 in reports of Geological Survey. April 1919 to September 1924 and May 1935 to September 1949 in reports of State engineer. (No winter records.)

Extremes.- Maximum discharge during year, 93 second-feet June 18 (gage height, 1.87 feet); minimum daily recorded, 3.2 second-feet Oct. 7.
1919-24, 1935-49: Maximum discharge, 178 second-feet May 15, 1944 (gage height, 2.88 feet); minimum daily recorded, 1.6 second-feet Oct. 27-31, 1921.

Remarks.- Records excellent above 10 second-feet and good below except those for period of no gage-height record, which are fair. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.2	4.6					4.6	41	50	37	18	9.5
2	4.0	4.4					4.6	45	47	34	18	10
3	3.4	3.8					6.2	54	46	32	19	8.0
4	3.4	3.6					4.8	56	47	32	17	7.4
5	3.4	-				a4.3	6.5	51	46	30	15	7.7
6	3.4	-					6.5	49	45	29	13	8.3
7	3.2	-					8.6	42	48	33	13	7.1
8	3.6	-					10	39	45	27	12	7.7
9	3.6	-					10	39	43	25	13	7.7
10	3.6	(*)					8.9	40	43	26	13	7.7
11	3.6	-					8.6	45	46	26	12	7.4
12	3.6	-					9.2	52	56	25	12	8.0
13	3.6	-					14	48	65	22	11	7.4
14	3.6	-					16	49	68	22	10	6.8
15	3.8	-					18	63	67	21	10	7.4
16	3.8	-				a5.2	19	68	69	20	10	7.1
17	3.6	-					21	64	70	20	10	6.8
18	3.6	-					21	58	80	19	10	6.8
19	4.0	-					19	56	71	18	9.8	6.8
20	4.6	-					18	53	67	18	9.5	6.5
21	4.4	-				a7.0	20	45	64	17	9.2	6.5
22	4.2	-				*a6.6	25	43	60	20	9.2	6.5
23	4.0	-				5.9	30	46	59	18	8.9	6.5
24	4.0	-				6.2	32	48	60	21	8.3	6.5
25	3.8	-				5.9	41	51	52	25	10	6.5
26	4.6	-				5.9	44	53	48	30	9.5	6.2
27	4.6	-				6.5	40	54	45	25	8.6	6.5
28	4.4	-				4.6	39	55	42	22	8.6	6.5
29	3.6	-				4.4	40	58	39	21	8.0	11
30	4.8	-				4.6	42	56	37	21	8.0	8.6
31	4.6	-				6.2	-	56	-	19	8.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	120.6	4.8	3.2	3.89	239
November	-	-	-	-	-
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	158.8	-	-	5.12	315
April	587.5	44	4.6	19.6	1,170
May	1,577	68	39	50.9	3,130
June	1,625	80	37	54.2	3,220
July	755	37	17	24.4	1,500
August	351.6	19	8.0	11.3	697
September	223.4	11	6.2	7.45	443
Water year	-	-	-	-	-

Peak discharge (base, 40 sec.-ft.).- May 3 (8 p.m.) 64 sec.-ft.; May 16 (9 p.m.) 73 sec.-ft.; May 28 (10 p.m.) 64 sec.-ft.; June 18 (2:30 a.m.) 93 sec.-ft.; June 24 (1:30 a.m.) 80 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of discharge measurement made Mar. 22, weather records, and records for stations on nearby streams.

Closed Basin in San Luis Valley. Colo.

Kerber Creek at Ashley Ranch, near Villa Grove, Colo.

Location.- Water-stage recorder, lat. 38°15', long. 106°08', in sec. 7, T. 46 N., R. 8 E., at Ashley Ranch, 10 miles west of Villa Grove.

Drainage area.- 38 square miles.

Records available.- May 1936 to September 1949 in reports of Geological Survey. June 1923 to September 1926 and May 1936 to September 1949 in reports of State engineer. (No winter records some years.)

Extremes.- Maximum discharge during year, 132 second-feet June 18 (gage height, 2.44 feet); minimum not determined.
1923-26, 1936-49: Maximum discharge, 407 second-feet May 14, 1941, from rating curve extended above 150 second-feet; maximum gage height, 5.04 feet May 11, 1947; minimum daily discharge recorded, 1.2 second-feet Aug. 14, 16, 17, 1940, Oct. 4, 1944.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	5.6				3.3	8.0	33	69	51	13	4.5
2	5.3	5.6				3.4	8.4	32	55	51	13	4.3
3	4.6	4.6				3.5	9.0	46	50	45	14	4.3
4	4.9	4.6				3.7	8.8	48	60	40	12	4.1
5	5.6	*5.6				3.8	8.4	44	51	37	10	3.9
6	5.6					3.9	8.7	41	60	36	9.3	3.9
7	4.9					4.0	*10	42	72	36	9.3	3.7
8	4.9					4.0	10	40	65	36	9.3	3.5
9	4.3					3.9	9.9	38	68	48	9.3	4.1
10	4.3					4.0	9.8	36	68	42	8.6	4.5
11	3.8					4.2	9.7	36	65	40	7.7	4.1
12	3.8					4.4	11	35	75	36	7.4	3.9
13	3.5					3.6	13	32	84	34	6.6	3.9
14	3.5					3.8	14	35	91	30	6.6	4.3
15	3.8					4.0	*15	69	86	27	6.0	4.2
16	3.8		3.2	3.0	2.8	4.4	17	73	84	24	6.8	3.6
17	3.2					4.7	19	82	86	22	8.2	3.6
18	3.2	4.0				4.7	21	78	115	22	7.4	3.4
19	3.5					4.7	21	78	112	22	6.3	3.4
20	3.8					4.9	22	84	110	21	6.3	3.1
21	3.5					5.2	26	79	100	19	6.0	3.4
22	3.5					5.4	31	75	90	20	6.0	3.4
23	3.5					*4.6	*35	76	90	19	6.0	3.4
24	3.8					4.4	36	86	76	28	5.1	3.6
25	3.8					4.2	37	91	66	18	4.9	3.9
26	4.1					4.6	38	92	62	16	5.1	4.2
27	3.8					5.2	36	96	58	16	5.1	4.2
28	4.6					5.8	31	90	53	14	4.7	4.2
29	6.0				-	6.8	32	84	50	14	4.5	6.4
30	6.3				-	7.6	32	86	44	13	4.3	6.1
31	4.6	-			-	7.4	-	79	-	13	4.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	133.8	6.3	3.2	4.32	265
November	126.0	-	-	4.20	250
December	99.2	-	-	3.2	197
Calendar year 1948	5,913.2	153	-	16.2	11,720
January	93.0	-	-	3.0	184
February	78.4	-	-	2.8	156
March	142.1	7.6	3.3	4.58	282
April	587.7	38	8.0	19.6	1,170
May	1,936	96	32	62.5	3,840
June	2,215	115	44	73.8	4,390
July	890	51	13	28.7	1,770
August	233.1	14	4.3	7.52	462
September	121.1	6.4	3.1	4.04	240
Water year 1948-49	6,655.4	115	-	18.2	13,210

Peak discharge (base, 70 sec.-ft.).- May 27 (3 r m.) 104 sec.-ft.; June 13 (7:30 p.m.) 99 sec.-ft.; June 18 (8:15 a.m.) 132 sec.-ft.

* Winter discharge measurement made on this day.

Note.- No gage-height record Nov. 5 to Apr. 30 (stage-discharge relation affected by ice during most of period); discharge computed on basis of 5 discharge measurements, weather records, and records for nearby stations.

Closed basin in San Luis Valley, Colo.

Saguache Creek near Saguache, Colo.

Location.- Water-stage recorder, lat. 38°09', long. 106°19', in sec. 11, T. 45 N., R. 6 E., half a mile downstream from Ford Creek and 10 miles northwest of Saguache.

Drainage area.- 595 square miles.

Records available.- August 1910 to September 1912 and October 1933 to September 1949 in reports of Geological Survey. August 1910 to September 1912 and June 1914 to September 1949 in reports of State engineer. (No winter records some years.)

Average discharge.- 32 years (1910-12, 1914-36, 1940-42, 1943-49), 80.9 second-feet.

Extremes.- Maximum discharge during year, 568 second-feet June 19 (gage height, 2.21 feet); minimum daily discharge recorded, 18 second-feet Nov. 5, 9.
1910-12, 1921-49: Maximum discharge, 746 second-feet June 15, 1921 (gage height, 3.45 feet, datum then in use); minimum daily recorded, 11 second-feet Sept. 18, 1948.

Remarks.- Records fair except those for period of no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	41	37				26	44	122	303	255	133	46
2	39	37				27	42	128	296	269	127	46
3	37	38				29	35	146	293	250	130	46
4	37	38				30	39	155	330	248	130	44
5	37	18				30	43	159	362	248	120	46
6	39	21		(*)		31	48	166	335	241	113	51
7	41	41				33	54	175	362	243	108	46
8	41	33				34	57	168	372	279	104	43
9	41	18			(*)	*34	50	175	372	260	91	47
10	38	23				35	44	175	368	255	109	52
11	37	28				34	42	193	392	279	94	50
12	37	38				37	44	215	390	277	86	52
13	37	34				28	51	241	438	238	82	47
14	35	37				30	48	229	458	227	78	50
15	35	38				32	46	255	465	220	77	48
16	34	37	24 (*)	23	22	37	50	277	428	213	77	44
17	32	23				38	58	279	442	206	83	43
18	30	33				38	72	272	505	204	83	41
19	33	*32				37	72	262	548	208	72	37
20	34	33				39	74	262	498	213	66	35
21	34	31				41	80	260	425	213	62	35
22	29	30				44	86	253	398	211	59	34
23	29	32				42	110	248	360	206	54	35
24	32	30				33	115	248	350	206	54	35
25	30	31				29	137	250	320	211	62	35
26	30	28				35	122	257	265	193	66	35
27	29	25				37	134	274	253	184	59	38
28	34	23				41	123	291	248	173	57	38
29	33	24			-	51	128	301	243	166	54	48
30	34	27			-	41	132	305	245	151	48	50
31	39	-			-	39	-	303	-	144	46	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,088	41	29	35.1	2,160
November	918	41	18	30.6	1,820
December	744	-	-	24	1,480
Calendar year 1948	31,954	412	11	87.3	63,390
January	713	-	-	23	1,410
February	616	-	-	22	1,220
March	1,092	51	26	35.2	2,170
April	2,180	137	35	72.7	4,320
May	7,054	305	122	228	13,990
June	11,064	548	243	369	21,950
July	6,891	279	144	222	13,670
August	2,583	133	46	83.3	5,120
September	1,297	52	34	43.2	2,570
Water year 1948-49	36,240	548	-	99.3	71,880

Peak discharge (base, 140 sec.-ft.).- May 16 (6 p.m.) 291 sec.-ft.; June 15 (8 a.m.) 528 sec.-ft.; June 19 (9 p.m.) 568 sec.-ft.; July 8 (10:30 p.m.) 328 sec.-ft.

* Winter discharge measurement made on this day.

Note.- No gage-height record Nov. 19 to Mar. 8 (stage-discharge relation affected by ice during most of period); discharge computed on basis of 4 discharge measurements, weather records, and records for nearby stations.

Closed basin in San Luis Valley, Colo.

North Crestone Creek near Crestone, Colo.

Location.- Water-stage recorder, lat. 38°01', long. 105°41', in sec. 5, T. 43 N., R. 12 E., 1½ miles upstream from Crestone and 3 miles upstream from South Crestone Creek.

Drainage area.- 10.7 square miles.

Records available.- May 1936 to September 1949 (no winter records 1936-47).

Extremes.- Maximum discharge during year, 149 second-feet June 17 (gage height, 2.03 feet); minimum daily not determined, occurred during period of no gage-height record.
1936-49: Maximum discharge, 735 second-feet Aug. 6, 1936 (gage height, 4.33 feet), by slope-area method; minimum daily recorded, 0.4 second-foot Apr. 3, 1945.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.7	2.9					2.7	26	37	46	14	6.2
2	5.7	2.7					3.1	30	33	42	14	6.0
3	5.3	2.7					3.1	38	34	41	14	5.8
4	5.3	2.4					3.2	31	38	40	13	5.5
5	5.3	2.0					3.4	26	46	36	12	5.2
6	4.8	2.6					3.1	23	50	35	11	5.2
7	4.4	a2.5					3.1	21	44	35	10	5.0
8	4.4	a2.0				a1.8	3.4	19	41	32	9.4	4.8
9	4.2	b1.7				(*)	3.1	20	44	34	9.4	5.0
10	4.0	b1.5					3.1	24	55	32	10	5.0
11	4.0	b1.7					3.2	27	59	45	10	4.8
12	3.5	1.9					3.8	33	61	43	8.5	4.5
13	3.1	1.7					5.0	34	81	44	8.2	4.8
14	3.1	1.6					6.0	37	86	38	7.9	6.0
15	*3.3	1.6					6.2	49	86	33	7.6	5.5
16	2.9	1.6	a1.7	a1.6	a1.6		7.3	44	98	30	7.3	5.2
17	2.6	1.6					8.8	42	110	27	7.3	5.0
18	2.4	1.7					9.4	37	102	24	7.3	5.0
19	2.9	*a2.1					8.5	35	94	23	7.0	4.8
20	2.7					a2.3	7.9	36	82	23	6.8	4.5
21	2.3						9.1	31	72	21	6.5	4.5
22	2.4						14	32	72	21	6.2	4.5
23	2.3					*2.4	20	40	69	23	6.0	4.5
24	2.1					3.3	27	48	66	20	5.8	4.5
25	2.1	a2.0				3.8	34	56	57	21	5.8	4.5
26	2.1					3.3	30	66	54	22	6.0	4.1
27	1.9					3.8	24	62	51	20	6.5	4.3
28	2.3					2.9	23	52	50	18	6.2	4.3
29	2.0				-	3.1	29	52	46	14	6.0	7.0
30	3.5				-	4.0	29	54	45	14	5.8	6.8
31	3.3	-			-	3.3	-	45	-	14	6.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	105.9	5.7	1.9	3.42	210
November	60.5	2.9	-	2.02	120
December	52.7	-	-	1.7	105
Calendar year 1948	5,381.8	117	-	14.7	10,680
January	49.6	-	-	1.6	98
February	44.8	-	-	1.6	89
March	73.0	4.0	-	2.35	145
April	336.5	34	2.7	11.2	667
May	1,170	66	19	37.7	2,320
June	1,863	110	33	62.1	3,700
July	911	46	14	29.4	1,810
August	261.5	14	5.8	8.44	519
September	152.8	7.0	4.1	5.09	303
Water year 1948-49	5,081.3	110	-	13.9	10,090

Peak discharge (base, 60 sec.-ft.).- May 26 (7 p.m.) 89 sec.-ft.; June 17 (9 p.m.) 149 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record: discharge computed on basis of 2 discharge measurements, weather records, and records for stations on nearby streams.
b Stage-discharge relation affected by ice.

Closed basin in San Luis Valley, Colo.

Carnero Creek near La Garita, Colo.

Location.- Water-stage recorder, lat. 37°52', long. 106°20', in sec. 26, T. 42 N., R. 6 E., 3 miles northwest of La Garita.

Drainage area.- 117 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. April 1919 to September 1949 in reports of State engineer. (No winter records most years.)

Extremes.- Maximum discharge during year, 667 second-feet July 21 (gage height, 2.94 feet), from rating curve extended above 100 second-feet; minimum daily determined, 1.8 second-feet Nov. 17-19, 28.

1919-49: Maximum discharge, 1,600 second-feet July 21, 1945 (gage height, 5.75 feet), from rating curve extended above 170 second-feet; minimum daily, 0.3 second-foot Aug. 9, 10, 1946.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	3.2				4.0	5.3	60	56	38	33	9.2
2	3.0	3.2				4.2	10	64	55	40	32	8.8
3	2.6	3.8				4.3	b11	69	52	32	33	8.5
4	2.5	4.0				4.4	9.8	72	71	29	34	7.6
5	2.5	3.4				4.6	9.5	70	63	30	28	7.6
6	2.7	3.2				4.6	9.2	68	53	28	25	9.6
7	2.6	4.0				4.5	11	63	60	30	25	7.9
8	2.8	4.2				4.7	11	64	70	33	23	7.3
9	2.8	3.0				4.8	11	80	63	38	21	7.6
10	2.6	b2.4				5.0	11	80	64	40	27	8.2
11	2.7	b3.0				5.2	11	95	60	62	25	7.6
12	2.7	b3.3				5.6	15	110	65	61	20	7.6
13	2.8	b3.2				5.6	18	104	66	48	23	7.0
14	2.8	b3.0				5.7	19	100	64	51	19	8.2
15	*2.6	b2.5				6.0	19	112	60	41	16	7.6
16	2.6	b2.0	2.1	.2.0	3.0	6.5	20	114	60	38	15	6.1
17	2.6	b1.8				6.8	24	103	60	34	15	5.8
18	2.6	*1.8				6.9	28	98	75	42	16	5.3
19	2.7	1.8				6.9	27	95	68	53	13	5.1
20	3.0	1.9				7.0	30	92	60	50	12	4.9
21	3.0	1.9				7.7	33	84	53	83	11	4.7
22	2.9	2.0				*8.0	41	79	50	75	10	4.7
23	2.8	2.1				7.7	52	74	48	57	9.9	4.9
24	2.7	2.1				8.3	59	73	53	60	9.6	4.9
25	2.6	2.2				7.1	64	70	46	62	16	4.9
26	2.4	2.0				7.4	71	73	50	50	15	4.9
27	2.5	1.9				9.5	66	71	41	50	11	5.5
28	3.2	1.8				8.9	52	73	38	50	11	5.8
29	3.2	1.9			-	6.2	63	71	34	44	11	7.6
30	3.2	2.2			-	10	63	63	33	38	9.2	8.5
31	3.2	-			-	12	-	59	-	34	8.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	86.3	3.4	2.4	2.78	171
November	78.8	4.2	1.8	2.63	156
December	65.1	-	-	2.1	129
Calendar year 1948	6,340.0	112	-	17.3	12,570
January	62.0	-	-	2.0	123
February	84.0	-	-	3.0	167
March	200.1	12	4.0	6.45	397
April	873.8	71	5.3	29.1	1,730
May	2,503	114	59	80.7	4,960
June	1,691	75	33	56.4	3,350
July	1,421	83	28	45.8	2,820
August	577.5	34	8.8	18.6	1,150
September	203.9	9.6	4.7	6.80	404
Water year 1948-49	7,846.5	114	-	21.5	15,560

Peak discharge (base, 110 sec.-ft.).- May 16 (2 a.m.) 135 sec.-ft.; July 21 (8:30 p.m.) 667 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.- No gage-height record Nov. 18 to Mar. 21 (stage-discharge relation affected by ice during most of period), May 1-5; discharge computed on basis of discharge measurements made Nov. 18, May 5, weather records, and records for nearby stations.

Closed basin in San Luis Valley, Colo.

La Garita Creek near La Garita, Colo.

Location.- Water-stage recorder, lat. 37°49', long. 106°18', in sec. 10, T. 41 N., R. 6 E., 4 miles southwest of La Garita.

Drainage area.- 61 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. April 1919 to September 1949 in reports of State engineer. (No winter records most years.)

Extremes.- Maximum discharge during year, 154 second-feet May 15 (gage height, 1.59 feet), from rating curve extended above 110 second-feet; minimum daily recorded, 1.7 second-feet Oct. 29.

1919-49: Maximum discharge, 457 second-feet May 16, 1941 (gage height, 5.11 feet), from rating curve extended above 220 second-feet; minimum daily, 0.7 second-foot Aug. 29, 1940.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	3.8					5.6	65	80	39	28	9.0
2	3.9	4.2					7.0	80	72	40	28	9.8
3	3.9	5.6				(*)	7.8	91	70	36	28	8.6
4	3.9	6.0			(*)		6.3	87	80	33	28	7.8
5	4.2	5.1					5.6	70	70	33	23	7.0
					3.0	7.0						
6	4.2	4.6					6.6	63	70	30	22	7.8
7	4.6	b4.8		(*)			7.8	51	80	34	21	7.4
8	5.0	b4.6	3.5	3.7			8.6	49	82	31	21	7.4
9	4.6	b4.0					7.8	56	74	36	19	7.4
10	4.6	b3.4					6.6	65	78	34	21	9.0
11	4.6	b4.1					7.0	70	76	57	18	7.8
12	4.2	b3.9					8.6	84	91	49	17	7.8
13	3.9	b3.7					10	84	87	39	17	7.4
14	3.9	b3.7					10	91	89	38	16	8.2
15	5.0	b4.0					10	122	82	34	15	7.8
					4.0	7.6						
16	3.9	b3.8					12	118	80	22	14	7.4
17	4.6	b4.2					15	112	82	30	13	7.0
18	4.6	*4.3					18	108	97	34	13	7.0
19	5.0	3.7					18	99	87	42	12	6.3
20	5.0	3.8					18	97	80	41	11	6.0
21	5.0				(*)	8.6	23	80	72	42	10	5.6
22	4.6					*8.5	28	82	70	54	10	5.6
23	4.2		3.6	3.3		5.2	34	82	65	41	9.8	6.0
24	4.2					6.3	44	82	70	42	9.8	6.0
25	3.6				6.0	8.2	61	84	56	46	11	6.0
		3.7										
26	3.2					6.6	70	93	61	40	12	6.0
27	2.8					5.6	65	89	49	41	9.8	6.0
28	*3.8					6.3	62	87	43	36	9.0	6.0
29	1.7				-	6.3	66	87	41	33	9.0	7.4
30	5.6				-	7.4	66	86	39	31	8.6	7.8
31	3.5	-			-	7.0	-	84	-	29	9.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	130.8	5.6	1.7	4.22	259
November	122.3	6.0	-	4.08	243
December	110.1	-	-	3.55	218
Calendar year 1948	6,306.2	120	-	17.2	12,510
January	108.3	-	-	3.49	215
February	118.0	-	-	4.21	234
March	222.0	-	-	7.16	440
April	715.3	70	5.6	23.8	1,420
May	2,598	122	49	83.8	5,150
June	2,173	97	39	72.4	4,310
July	1,167	57	22	37.6	2,310
August	493.0	28	8.6	15.9	978
September	216.3	9.8	5.6	7.21	429
Water year 1948-49	8,174.1	122	-	22.4	16,210

Peak discharge (base, 80 sec.-ft.).- May 3 (9 p.m.) 127 sec.-ft.; May 15 (10 p.m.) 154 sec.-ft.; June 18 (3 p.m.) 106 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.- No gage-height record Nov. 5, Nov. 18 to Mar. 22 (stage-discharge relation affected by ice during most of period), Apr. 28 to May 2; discharge computed on basis of 7 discharge measurements, weather records. and records for nearby stations.

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Closed basin in San Luis Valley, Colo.

Big Spring Creek near Hooper, Colo.

Location.- Water-stage recorder, lat. 37°44', long. 105°40', in sec. 9, T. 40 N., R. 12 E., 1½ miles northeast of Medano Ranch headquarters and 11 miles east of Hooper

Records available.- December 1947 to September 1949.

Extremes.- 1947-48: Maximum discharge during period December to September, 13 second-feet June 29; maximum gage height, 2.17 feet Jan. 27 (ice jam); minimum daily discharge, 5.9 second-feet Sept. 29.

1948-49: Maximum discharge during water year, 14 second-feet July 11; maximum gage height, 1.94 feet Jan. 8 (ice jam); minimum daily discharge, 5.3 second-feet Oct. 23-27.

Remarks.- Records fair. No diversion above station.

Cooperation.- Gage-height record and discharge measurements furnished by Bureau of Reclamation.

Discharge, in second-feet, 1947-49

1947-48

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			a7.1	7.8		7.3	7.3	6.8	7.3	6.6	6.2	7.3
2			a7.1	b7.8		7.3	7.1	6.9	7.1	6.6	6.2	7.1
3			a7.1	b7.5		7.3	7.1	6.8	6.9	6.6	6.4	7.1
4			a7.1	b7.4		b7.4	7.1	6.8	6.8	6.6	6.6	7.1
5			7.1	b7.2		b7.5	6.9	6.8	6.6	6.8	6.8	7.3
6			7.1	*6.9		a7.6	6.9	6.9	6.6	6.8	7.1	6.8
7			7.8	6.8		a7.7	7.1	6.9	6.9	6.8	6.8	6.8
8			b7.8	6.9		a7.8	7.1	7.1	6.8	6.6	6.8	6.8
9			7.1	6.8		a7.9	6.9	7.3	6.6	6.8	6.6	6.8
10			*8.4	6.8		a7.9	6.8	7.8	6.6	6.8	6.6	6.8
11			8.2	6.8	a6.8	a7.9	6.9	8.0	7.1	6.9	6.6	6.9
12			8.0	6.9		a7.9	7.3	9.0	6.8	7.1	6.8	7.1
13			b8.0	b6.8		*8.0	7.1	7.5	6.6	6.9	6.8	7.3
14			b8.0	b6.8		8.4	7.3	7.3	6.6	6.9	6.9	7.5
15			b7.8	6.8		8.4	7.1	7.8	6.6	6.9	6.6	7.5
16			b7.6	6.8		8.0	7.1	7.8	6.8	6.9	6.4	7.5
17			b7.6	7.1		8.2	6.8	7.8	6.6	6.9	6.2	7.1
18			b7.6	6.8		8.4	6.8	7.3	6.6	6.9	6.1	6.9
19			b7.6	b6.8		8.0	6.8	7.3	7.3	7.1	6.2	6.8
20			b7.6	a6.8		8.2	6.9	7.3	7.1	6.6	6.4	6.9
21			b7.2	a6.8	*6.8	8.4	6.8	7.1	6.8	6.6	6.6	6.9
22			b7.2	a6.8	7.1	8.0	6.8	7.1	7.1	6.6	6.8	6.9
23			*7.1	6.8	7.1	7.8	6.9	7.1	6.9	6.6	7.1	7.1
24			8.2	6.8	7.1	7.5	7.3	7.5	6.8	6.6	7.3	6.8
25			7.3	6.8	6.9	7.3	7.1	7.3	6.8	6.8	7.5	6.6
26			7.5	b6.8	6.9	8.0	7.5	7.5	6.8	6.6	7.1	6.6
27			7.5	b6.8	6.8	7.8	6.8	7.3	7.3	6.4	7.3	6.2
28			7.5	a6.8	7.1	7.3	6.8	7.3	7.3	6.2	7.1	6.2
29			7.8	a6.8	7.1	7.3	6.6	7.1	8.0	6.2	7.1	5.9
30			6.9	a6.8	-	7.3	6.8	7.1	7.1	6.2	7.1	6.6
31			8.4	a6.8	-	7.5	-	7.5	-	6.4	7.1	-

* Winter discharge measurement made on this day.
a No gage-height record (stage-discharge relation affected by ice during part of period); discharge interpolated.
b Stage-discharge relation affected by ice.

Discharge, in second-feet, of Big Spring Creek near Hooper, Colo., 1947-49--Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
	1948-49											
1	6.1	5.4	6.6	b7.2	b6.4	7.5	9.1	8.6	8.0	7.3	7.5	6.6
2	5.6	5.4	6.6	b7.2	b6.6	7.3	9.1	8.4	8.2	7.1	7.8	6.6
3	5.4	5.4	6.6	b7.2	6.8	7.5	9.1	8.4	8.0	7.3	8.0	6.6
4	5.4	5.6	6.6	b7.2	7.3	7.5	8.9	8.6	8.2	7.3	8.0	6.6
5	5.4	5.6	b6.6	b7.2	7.8	7.5	8.9	8.4	8.0	7.8	7.8	6.6
6	5.4	5.6	b6.8	b7.0	7.1	7.8	8.9	9.1	8.0	7.8	7.8	6.6
7	5.6	5.7	6.9	b7.0	7.8	7.8	8.9	9.3	8.9	7.5	8.0	6.6
8	5.7	6.4	*6.9	b7.0	7.8	7.8	8.9	8.6	a8.0	7.5	7.8	6.6
9	5.7	5.4	6.8	6.9	*7.8	7.8	9.3	8.2	7.1	7.5	8.0	6.6
10	5.6	5.6	6.8	6.6	7.3	7.5	9.3	8.6	8.2	8.2	8.0	6.6
11	5.9	5.7	6.9	6.8	7.1	7.5	8.9	8.6	7.8	9.6	7.8	6.6
12	5.7	5.7	6.9	6.6	6.9	7.5	9.1	8.6	7.5	8.0	7.8	6.4
13	5.7	5.7	6.9	6.6	7.3	7.8	9.1	8.4	7.8	8.0	7.5	6.9
14	5.9	5.7	6.9	6.6	6.9	7.8	9.3	8.2	7.5	8.0	7.5	6.9
15	5.7	5.9	7.1	b6.6	7.8	7.8	9.3	8.2	7.5	7.5	7.3	6.8
16	5.7	5.9	6.9	b6.6	7.3	7.5	9.3	8.2	7.5	7.3	7.1	6.6
17	5.9	6.1	7.1	b6.6	7.3	8.0	9.3	8.2	7.1	7.3	7.3	6.8
18	5.9	5.9	7.3	b6.2	7.3	8.0	9.3	8.2	7.3	7.3	6.6	6.8
19	5.7	b6.0	7.1	*b5.4	7.1	8.0	9.3	8.2	7.5	7.5	6.4	6.9
20	5.9	6.1	7.8	5.9	7.1	8.0	9.3	8.2	7.3	7.5	6.4	6.9
21	5.7	5.9	7.5	6.4	7.1	8.0	9.3	8.2	7.3	7.8	6.4	7.1
22	5.4	6.1	*7.5	6.4	7.5	8.2	9.3	8.2	7.8	7.8	5.9	6.9
23	5.3	6.2	7.5	5.9	7.5	8.6	9.3	8.2	7.8	7.5	5.9	6.9
24	5.3	6.2	b7.5	5.7	7.8	8.6	9.1	8.2	7.1	7.3	5.9	6.9
25	5.3	6.2	b7.5	5.9	7.8	8.6	9.1	8.2	7.1	8.9	5.9	6.9
26	5.3	b6.2	7.5	5.7	7.8	8.9	9.1	8.2	7.8	8.2	5.9	6.8
27	5.3	b6.4	7.5	6.1	7.5	8.9	9.3	8.2	6.8	7.5	5.9	6.8
28	5.9	b6.4	b7.4	6.4	7.5	8.9	9.1	8.6	7.8	7.5	5.9	6.6
29	5.7	b6.4	b7.2	b6.4	-	8.9	8.9	8.2	7.3	7.3	5.9	8.0
30	5.4	b6.4	b7.2	b6.4	-	9.3	8.6	8.0	7.5	7.3	6.2	6.9
31	5.6	-	b7.2	b6.4	-	8.9	-	8.0	-	7.3	6.4	-

* Winter discharge measurement made on this day.
a No gage-height record; discharge interpolated.
b Stage-discharge relation affected by ice.

Monthly discnarge, in second-feet, 1947-49

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	-	-	-	-	-
November	-	-	-	-	-
December 1947	234.3	8.4	6.9	7.56	465
Calendar year	-	-	-	-	-
January 1948	215.1	7.8	6.8	6.94	427
February	198.9	-	-	6.86	395
March	241.3	8.4	7.3	7.78	479
April	209.8	7.3	6.6	6.99	416
May	226.1	8.0	6.8	7.29	448
June	207.2	8.0	6.6	6.91	411
July	207.3	7.1	6.2	6.69	411
August	209.2	7.5	6.1	6.75	415
September	207.2	7.5	5.9	6.91	411
The period	-	-	-	-	4,280
October 1948	174.1	6.1	5.3	5.62	345
November	177.2	6.4	5.4	5.91	351
December	219.6	7.8	6.6	7.08	436
Calendar year 1948	2,493.0	9.4	5.3	6.81	4,940
January 1949	202.1	7.2	5.4	6.52	401
February	205.3	7.8	6.4	7.33	407
March	249.7	9.3	7.3	8.05	495
April	273.7	9.3	8.6	9.12	543
May	259.4	9.3	8.0	8.37	515
June	229.7	8.9	6.8	7.66	456
July	237.7	9.6	7.1	7.67	471
August	216.6	8.0	5.9	6.99	430
September	203.4	8.0	6.4	6.78	403
Water year 1948-49	2,648.5	9.6	5.3	7.26	5,250

Closed basin in San Luis Valley, Colo.

Little Spring Creek near Hooper, Colo.

Location.- Water-stage recorder, lat. 37°43', long. 105°40', in sec. 16, T. 40 N., R. 12 E., 1½ miles east of Medano Ranch headquarters and 12 miles east of Hooper.

Records available.- December 1947 to September 1949.

Extremes.- 1947-48: Maximum discharge during period December to September, 6.0 second-feet Sept. 30 (gage height, 0.76 foot); minimum daily discharge, 1.2 second-feet at times during period July to September.

1948-49: Maximum discharge during water year, 14 second-feet July 11, from rating curve extended above 3.2 second-feet; maximum gage height, 1.38 feet Jan. 3 (ice jam); minimum daily discharge, 1.2 second-feet Aug. 20-24.

Remarks.- Records fair. No diversion above station.

Cooperation.- Gage-height record and discharge measurements furnished by Bureau of Reclamation.

Discharge, in second-feet, 1947-49

			1947-48									
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							2.2	2.1	2.3	1.4	1.5	1.2
2							2.3	2.0	2.3	1.4	1.6	1.2
3							2.4	2.1	2.3	1.4	1.9	1.2
4							2.5	2.0	2.2	1.2	2.2	1.3
5							2.6	1.9	2.2	1.3	2.2	1.4
6							2.6	2.0	2.1	1.2	2.0	1.4
7							2.5	2.0	2.2	1.2	1.9	1.4
8				(*)			2.5	2.0	2.2	1.4	2.0	1.5
9							2.2	2.1	2.1	1.2	1.9	1.4
10							*2.6	2.1	1.9	1.4	1.9	1.4
11							2.7	2.1	2.1	1.4	1.9	1.4
12							2.7	2.1	2.1	1.4	2.0	1.4
13							2.6	1.9	1.9	1.3	2.0	1.4
14							2.5	1.7	1.7	1.2	2.0	1.4
15							2.2	1.7	1.6	1.2	1.7	1.4
			2.0	2.0	2.0	2.0						
16							2.0	1.9	1.6	1.2	1.6	1.4
17							1.9	1.9	1.6	1.2	1.6	1.4
18							2.0	1.9	1.5	1.2	1.6	1.6
19							2.0	1.9	2.0	1.4	1.9	1.7
20							2.0	1.9	2.0	1.5	1.9	1.7
21							2.0	1.9	1.7	1.2	1.7	1.7
22							2.1	2.0	2.0	1.4	1.9	1.6
23			(*)				2.2	2.0	1.7	1.4	1.6	1.7
24							2.2	2.1	1.6	1.4	1.6	1.7
25							2.2	2.2	1.5	1.4	1.5	1.5
26							2.3	2.1	1.4	1.4	1.5	1.6
27							2.3	2.0	1.6	1.4	1.4	1.9
28							2.0	2.1	1.6	1.3	1.3	1.7
29							2.0	2.1	1.5	1.4	1.3	1.7
30					-		2.1	2.2	1.4	1.5	1.3	2.2
31					-		-	2.3	-	1.6	1.2	-

* Winter discharge measurement made on this day.

Note.- No gage-height record Dec. 1 to Apr. 4 (stage-discharge relation affected by ice during part of period); discharge computed on basis of 2 discharge measurements.

Discharge, in second-feet, of Little Spring Creek near Hooper, Colo., 1947-49--Continued

	1948-49											
Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.9	1.9	2.0	2.3	3.0	3.0	3.5	2.9	2.3	1.8	1.8	1.8
2	2.0	1.8	2.0	2.3	*3.2	3.0	3.5	2.9	2.2	1.8	2.0	1.6
3	1.8	1.8	2.2	b2.3	b3.0	3.0	3.5	2.8	2.3	1.7	2.0	1.6
4	1.8	1.8	1.9	2.4	b3.0	3.0	3.7	2.8	2.2	1.9	1.6	1.5
5	1.9	1.8	1.9	2.6	b3.1	3.0	3.3	2.8	2.0	2.0	1.6	1.5
6	1.8	1.8	2.0	2.6	b3.1	3.3	3.2	2.9	2.3	2.3	1.8	1.5
7	1.8	1.8	1.9	2.6	b3.1	3.5	3.2	3.2	2.6	2.3	1.7	1.5
8	2.0	1.7	2.0	2.6	b2.8	3.3	3.2	2.5	2.9	2.3	1.6	1.4
9	2.0	1.9	2.0	2.6	a2.8	3.3	3.7	2.4	2.3	2.0	1.8	1.6
10	1.9	2.0	2.0	2.5	a2.8	3.3	3.2	2.6	2.4	2.5	1.6	1.6
11	1.8	2.0	1.9	2.6	a2.8	3.3	3.0	2.8	1.9	4.2	1.5	1.6
12	1.9	1.9	*1.9	*2.9	a2.8	3.3	3.0	2.8	1.8	2.4	1.5	1.5
13	1.9	2.0	1.9	2.9	a2.8	3.5	3.0	2.6	1.8	2.2	1.5	1.6
14	1.9	1.9	1.9	2.8	a2.9	3.7	3.0	2.5	1.8	2.0	1.5	1.6
15	1.8	1.9	1.9	2.6	a3.0	3.3	3.0	2.4	1.8	1.9	1.5	1.4
16	1.8	2.0	1.9	b2.6	*2.9	3.2	3.0	2.4	1.9	1.8	1.5	1.4
17	1.8	1.9	1.9	2.8	2.9	3.3	3.0	2.4	1.8	1.8	1.6	1.5
18	1.9	1.9	1.9	2.9	3.0	3.3	3.0	2.3	1.9	1.9	1.4	1.4
19	1.9	1.8	2.0	3.0	2.9	3.2	3.3	2.3	1.9	1.7	1.3	1.5
20	1.9	1.9	2.0	3.0	2.9	3.3	3.2	2.4	1.7	1.7	1.2	1.5
21	1.9	1.9	1.9	2.9	3.0	3.5	3.0	2.3	1.7	1.8	1.2	1.5
22	2.0	1.9	1.9	2.8	2.9	3.2	2.9	2.3	1.7	1.9	1.2	1.3
23	2.2	1.9	2.2	2.8	2.9	3.2	2.9	2.3	1.8	1.9	1.2	1.3
24	2.2	1.9	2.0	2.8	2.9	3.3	2.8	2.3	1.7	2.0	1.2	1.3
25	2.0	1.9	1.9	2.8	3.2	3.2	2.6	2.2	1.6	2.0	1.4	1.3
26	2.0	1.9	2.0	2.8	3.2	3.2	2.9	2.3	1.6	1.9	1.4	1.3
27	2.0	2.0	b2.1	2.6	3.2	3.2	2.8	2.3	1.5	1.7	1.4	1.3
28	2.4	1.9	2.4	2.9	3.3	3.2	2.8	2.3	1.6	1.7	1.4	1.3
29	2.3	2.0	2.3	2.9	-	3.3	2.9	2.3	1.7	1.7	1.5	2.0
30	1.9	2.0	2.2	3.0	-	3.0	3.2	2.3	1.7	1.7	1.4	1.7
31	1.9	-	2.3	2.9	-	3.0	-	2.3	-	1.7	1.4	-

* Winter discharge measurement made on this day.
a No gage-height record (stage-discharge relation affected by ice during part of period); discharge computed on basis of weather records.
b Stage-discharge relation affected by ice.

Monthly discharge, in second-feet, 1947-48

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	-	-	-	-	-
November	-	-	-	-	-
December 1947	62.0	-	-	2.0	123
Calendar year	-	-	-	-	-
January 1948	62.0	-	-	2.0	123
February	58.0	-	-	2.0	115
March	62.0	-	-	2.0	123
April	68.4	2.7	1.9	2.28	136
May	62.3	2.3	1.7	2.01	124
June	55.9	2.3	1.4	1.86	111
July	41.5	1.6	1.2	1.34	82
August	53.6	2.2	1.2	1.73	106
September	45.5	2.2	1.2	1.52	90
The period	-	-	-	-	1,130
October 1948	60.3	2.4	1.8	1.95	120
November	56.8	2.0	1.7	1.89	113
December	62.3	2.4	1.9	2.01	124
Calendar year 1948	688.6	2.7	1.2	1.88	1,370
January 1949	84.1	3.0	2.3	2.71	167
February	83.4	3.3	2.8	2.98	165
March	100.4	3.7	3.0	3.24	199
April	93.3	3.7	2.6	3.11	185
May	77.9	3.2	2.2	2.51	155
June	58.4	2.9	1.5	1.95	116
July	62.2	4.2	1.7	2.01	123
August	46.7	2.0	1.2	1.51	93
September	44.9	2.0	1.3	1.50	89
Water year 1948-49	830.7	4.2	1.2	2.28	1,650

Closed basin in San Luis Valley, Colo.

North Zapato Creek near Blanca, Colo.

Location.- Water-stage recorder, lat. 37°39', long. 105°33', in SW¼ sec. 33, T. 27 S., R. 73 W. of the Sixth Principal meridian, 700 feet upstream from Middle Zapato Creek, 2 miles east of Zapato Ranch, and 15 miles north of Blanca.

Records available.- May 1948 to September 1949.

Extremes.- 1948: Maximum discharge during period May to September, 20 second-feet May 18 (gage height, 1.04 feet), from rating curve extended above 12 second-feet; minimum, 0.6 second-foot Sept. 15, 17, 23-26.

1948-49: Maximum discharge during year, 60 second-feet June 12 (gage height, 1.95 feet), from rating curve extended above 12 second-feet; minimum daily, 0.2 second-foot at times during period November to March.

Remarks.- Records fair. No diversion above station.

Cooperation.- Gage-height record and discharge measurements furnished by Bureau of Reclamation.

Discharge, in second-feet, 1948-49

1948

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								a3.5	10	3.6	1.4	0.7
2								a3.5	11	3.5	1.4	.7
3								3.5	13	3.5	1.4	.7
4								3.5	13	3.3	1.4	.7
5								3.6	13	3.1	1.8	.7
6								3.8	13	2.9	1.5	.7
7								4.0	12	2.9	1.5	.7
8								5.0	12	2.7	1.5	.7
9								5.0	11	2.7	1.4	.8
10								4.5	11	2.7	1.2	.8
11								4.5	11	2.4	1.2	.7
12								4.0	11	2.4	1.4	.7
13								3.6	10	2.2	1.2	.7
14								4.3	7.3	2.2	1.2	.7
15								6.1	6.3	2.2	1.1	.6
16								8.6	6.6	1.9	1.1	.7
17								12	6.1	1.9	1.1	.6
18								16	5.8	1.9	.9	.7
19								15	6.1	1.9	.9	.7
20								14	6.1	1.8	.9	.7
21								13	5.8	1.8	.8	.7
22								14	6.1	2.1	.9	.7
23								12	6.1	1.8	.9	.6
24								11	5.3	1.8	.8	.6
25								10	4.5	1.9	1.1	.6
26								10	4.5	1.8	.9	.6
27								10	4.8	1.6	.8	.7
28								10	4.5	1.6	.8	.7
29								12	4.3	1.6	.7	.7
30								11	3.6	1.5	.7	.8
31								12	-	1.5	.7	-

a No gage-height record; discharge computed on basis of records for nearby stations.

Discharge, in second-feet, of North Zapato Creek near Blanca, Colo., 1948-49--Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
					1948-49							
1	0.9	1.2	a0.3	0.3	0.3	0.2	0.4	3.1	9.3	5.8	3.5	1.3
2	1.1	1.2	.3	.3	.3	.2	.4	3.3	6.6	5.5	3.5	1.1
3	.9	1.1	.3	.3	.3	.2	.4	3.5	6.3	5.5	3.2	1.1
4	.8	*1.1	.3	b.2	.3	.2	.4	3.8	6.3	5.3	3.0	1.1
5	.8	1.1	.3	b.2	.3	.2	.4	3.6	6.3	5.0	2.8	1.1
6	.8	.8	.3	b.3	.3	.2	.4	3.6	6.6	5.0	2.8	1.1
7	.8	.7	.3	.4	.3	.2	.5	3.6	7.3	5.0	2.8	1.1
8	.8	.8	.3	.4	.3	.2	.6	3.5	7.3	4.8	2.8	1.0
9	.8	.8	.3	.5	.2	.2	.7	3.6	7.3	4.5	2.8	1.1
10	.8	.7	.3	.5	.2	.2	.7	5.0	9.0	4.8	2.6	1.3
11	.8	.7	.3	.6	.2	.2	.6	6.3	13	4.8	2.4	1.3
12	.8	.6	.3	*.6	.2	.2	.6	7.3	44	4.8	2.2	1.3
13	.8	.6	.3	.6	.2	.2	.7	7.3	33	5.3	1.9	1.5
14	.8	.6	.3	.5	.2	.2	.9	7.3	26	5.5	1.7	1.5
15	.8	.6	*.3	.6	.2	.2	1.1	8.6	20	5.3	1.5	1.3
16	.8	.6	.3	b.5	.2	.3	1.2	9.3	16	5.3	1.5	1.1
17	.8	.6	.3	b.3	.2	.3	1.1	9.3	15	5.3	1.3	1.1
18	.7	.5	.3	b.2	.2	.3	1.5	9.3	14	5.0	1.1	1.1
19	.7	.4	.3	b.2	.2	.3	1.5	9.0	12	5.0	1.1	1.1
20	.8	.4	.3	b.3	.2	.3	1.5	9.3	12	4.8	1.0	1.1
21	.9	.4	.3	.3	.2	.3	1.5	8.6	9.6	4.2	1.1	.8
22	.9	.4	.2	.3	.2	.3	1.6	7.3	8.2	3.7	1.3	.6
23	.9	.4	.2	.3	.2	.3	2.7	7.3	7.5	3.5	1.1	.6
24	.9	.4	.2	.4	.2	.3	4.0	7.3	7.5	3.7	1.1	.6
25	.8	.4	b.2	.4	.2	.4	4.8	8.0	6.8	4.0	1.1	.6
26	.9	.4	.3	*.4	.2	.4	4.3	9.0	6.5	4.2	1.1	.6
27	.8	.4	.3	.3	.2	.4	3.6	9.7	6.5	4.5	1.1	.6
28	.9	a.3	.3	.3	.2	.4	3.1	9.0	6.1	4.2	1.1	.6
29	.9	a.2	.3	.2	-	.4	3.3	8.6	6.1	4.2	1.1	.6
30	.8	a.3	.3	.2	-	.4	3.3	9.0	5.8	3.7	1.1	.6
31	1.1	-	.3	.3	-	.4	-	8.6	-	3.5	1.1	-

* Winter discharge measurement made on this day.
a No gage-height record: discharge computed on basis of weather records.
b Stage-discharge relation affected by ice.

Monthly discharge, in second-feet, 1948-49

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October					
November					
December					
Calendar year					
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	-	-	-	-
May 1948	253.0	16	3.5	8.16	502
June	244.8	13	3.6	8.16	486
July	70.7	3.6	1.5	2.28	140
August	34.6	1.8	.7	1.12	69
September	20.7	.8	.6	.69	41
The period	-	-	-	-	1,240
October 1948	26.1	1.1	.7	.84	52
November	18.7	1.2	.2	.62	37
December	8.9	.3	.2	.29	18
Calendar year	-	-	-	-	-
January 1949	11.2	.6	.2	.36	22
February	6.4	.3	.2	.23	13
March	8.5	.4	.2	.27	17
April	47.8	4.8	.4	1.59	95
May	212.0	9.7	3.1	6.84	420
June	347.9	44	5.8	11.6	690
July	145.7	5.8	3.5	4.70	289
August	57.8	3.5	1.0	1.86	115
September	29.9	1.5	.6	1.00	59
Water year 1948-49	920.9	44	.2	2.52	1,830

Alamosa Creek above Terrace Reservoir, Colo.

Location.- Water-stage recorder, lat. 37°23', long. 106°21', in sec. 8, T. 36 N., R. 6 E., 3 miles upstream from Terrace Reservoir Dam and 15 miles northwest of Capulin.

Drainage area.- 107 square miles.

Records available.- September 1911 to June 1912 and October 1934 to September 1949 in reports of Geological Survey. April 1915 to October 1919, October 1923 to September 1927, and October 1934 to September 1949 in reports of State engineer. (No winter records most years).

Extremes.- Maximum discharge during year, 1,630 second-feet June 17 (gage height, 4.07 feet), from rating curve extended above 1,060 second-feet; minimum not determined, occurred during period of no gage-height record.

1911-12, 1915-19, 1923-27, 1934-49: Maximum discharge, 5,200 second-feet Oct. 5, 1911 (gage height, 11.0 feet, datum then in use, from floodmark), computed by weir formula; minimum not determined.

Remarks.- Records excellent above 100 second-feet and good below except those for period of ice effect or no gage-height record, which are fair. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	22	16	12	13	18	21	303	545	533	121	39
2	19	22	16	13	13	17	22	360	482	498	121	45
3	18	24	16	13	13	17	21	466	527	510	118	39
4	18	25	15	12	13	18	20	466	593	482	112	35
5	18	17	14	13	13	19	20	370	654	450	103	33
6	19	24	16	14	12	18	20	342	687	400	96	34
7	18	23	18	14	12	19	25	271	581	445	94	30
8	18	21	*20	14	12	20	30	230	482	356	88	29
9	19	13	21	14	11	*18	29	237	557	342	86	29
10	19	14	23	14	11	22	27	299	694	320	91	32
11	19	13	22	15	12	22	25	320	700	395	81	35
12	*18	*13	22	*15	12	18	*30	370	819	346	78	46
13	18	13	23	15	13	18	53	324	856	303	72	39
14	18	12	22	16	12	19	64	375	968	283	69	57
15	18	12	22	15	12	18	72	539	936	248	64	40
16	18	12	19	15	12	*20	83	569	1,070	230	61	34
17	17	13	18	14	*12	21	101	498	1,230	217	60	30
18	16	11	18	15	12	24	115	400	1,370	197	57	28
19	18	9	17	16	13	25	96	365	1,230	197	52	26
20	23	10	14	16	13	29	87	370	1,080	200	51	25
21	22	11	14	17	13	26	99	307	1,010	181	49	25
22	21	10	14	17	14	26	140	324	920	210	48	25
23	21	11	14	15	15	26	184	390	880	197	45	24
24	21	12	14	15	16	26	213	493	984	210	45	26
25	19	14	12	15	18	25	245	629	714	188	44	25
26	19	12	10	15	18	24	295	721	707	197	44	25
27	18	11	13	16	17	23	279	714	687	166	44	25
28	21	11	13	14	17	26	275	593	642	146	41	28
29	16	13	12	13	-	26	324	668	587	133	38	52
30	21	16	12	12	-	24	333	777	587	131	36	56
31	24	-	12	13	-	22	-	742	-	125	35	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	591	24	16	19.1	1,170
November	444	25	9	14.8	881
December	512	23	10	16.5	1,020
Calendar year 1948	53,696.5	1,220	9	147	106,500
January	447	17	12	14.4	887
February	374	18	11	13.4	742
March	674	29	17	21.7	1,340
April	3,348	333	20	112	6,640
May	13,832	777	230	446	27,440
June	23,779	1,370	482	793	47,160
July	8,836	533	125	285	17,530
August	2,144	121	35	69.2	4,250
September	1,016	57	24	33.9	2,020
Water year 1948-49	55,997	1,370	9	153	111,100

Peak discharge (base, 670 sec.-ft.).- May 26 (12 p.m.) 819 sec.-ft.; May 30 (12:30 a.m.) 880 sec.-ft.; June 5 (11 p.m.) 864 sec.-ft.; June 17 (11 p.m.) 1,630 sec.-ft.; June 24 (2 a.m.) 1,320 sec.-ft.

* Winter discharge measurement made on this day.

Note.- No gage-height record Nov. 9 to Mar. 9, Apr. 8-12 (stage-discharge relation affected by ice during most of period); discharge computed on basis of 6 discharge measurements, weather records, and records for nearby stations. Stage-discharge relation affected by ice Mar. 10 to Apr. 7.

Alamosa Creek below Terrace Reservoir, Colo.

Location.- Water-stage recorder, lat. 37°21', long. 106°17', in sec. 23, T. 36 N., R. 6 E., half a mile downstream from Terrace Reservoir and 11 miles northwest of Capulin.
Drainage area.- 116 square miles.
Records available.- April 1909 to June 1912 and October 1933 to September 1949 in reports of Geological Survey. April 1909 to November 1912, April to October 1915, February 1917 to October 1920, and April 1922 to September 1949 in reports of State engineer.
Average discharge.- 31 years (1909-10, 1915-18, 1922-49), 122 second-feet.
Extremes.- Maximum discharge during year, 720 second-feet June 24 (gage height, 4.27 feet); minimum daily, 9.1 second-feet Dec. 1-10.
1909-12, 1915, 1917-20, 1922-49: Maximum daily discharge, 1,450 second-feet June 16-18, 1917; minimum daily, 0.2 second-foot Nov. 13, 1942.
Remarks.- Records excellent except those for period of no gage-height record; which are good. Flow regulated by Terrace Reservoir (capacity, 17,700 acre-feet). No diversion above station.

Rating tables, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Mar. 9 to Apr. 15, June 8-17, Sept. 17-30)

Oct. 1 to June 14

2.0	8	2.4	40	3.2	220
2.1	13	2.6	69	3.5	330
2.2	19	2.7	87	4.1	595
2.3	28	2.9	131		

June 15 to Sept. 30

2.4	40	2.8	116
2.5	54	3.1	212
2.6	70	3.6	405
2.7	91	4.3	735

Note.- Same as preceding table below 2.4 feet.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	25	9.1	9.9	11	12	20	298	523	567	244	125
2	15	25	9.1	9.9	11	12	20	318	523	615	237	116
3	15	25	9.1	9.9	11	12	21	354	528	576	212	96
4	15	25	9.1	10	11	12	21	358	528	544	202	98
5	15	18	9.1	10	11	12	21	358	528	544	172	108
6	15	12	9.1	10	11	12	22	362	528	549	165	122
7	15	12	9.1	10	11	12	22	366	523	544	137	128
8	15	12	*9.1	11	11	12	22	362	532	531	156	116
9	15	12	9.1	11	11	*12	22	358	528	482	178	116
10	15	12	9.1	11	11	12	34	354	541	459	178	111
11	24	12	9.2	11	11	12	46	290	536	450	175	108
12	33	*12	9.2	*11	11	12	47	290	541	428	172	98
13	27	12	9.2	11	11	12	47	290	582	423	159	62
14	27	12	9.3	11	11	12	48	290	568	418	156	91
15	27	12	9.3	11	11	12	56	298	580	418	159	89
16	26	12	9.3	11	11	12	64	358	600	397	178	78
17	25	12	9.4	11	*11	12	69	366	620	353	146	68
18	25	12	9.4	11	11	14	93	366	635	381	131	67
19	25	12	9.4	11	11	29	93	366	645	365	128	67
20	25	12	9.5	11	11	54	93	366	655	361	106	56
21	25	11	9.5	11	11	53	93	366	685	357	104	13
22	26	11	9.5	11	11	53	95	366	700	357	128	13
23	26	11	9.6	11	11	53	102	366	705	333	125	13
24	26	11	9.6	11	11	51	113	370	695	317	116	13
25	26	11	9.6	11	11	35	214	397	610	313	125	13
26	26	10	9.7	11	11	11	258	406	605	309	125	13
27	26	10	9.7	11	11	11	258	456	610	305	111	13
28	26	10	9.7	11	11	11	268	518	610	297	94	13
29	26	10	9.8	11	-	11	298	518	605	244	101	13
30	25	10	9.8	11	-	12	298	523	558	241	116	13
31	25	-	9.8	11	-	19	-	523	-	205	116	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	697	33	15	22.5	1,380
November	403	25	10	13.4	799
December	290.5	9.8	9.1	9.37	576
Calendar year 1948	53,925.5	1,090	9.1	147	106,900
January	333.7	11	9.9	10.8	662
February	308	11	11	11.0	611
March	621	54	11	20.0	1,230
April	2,878	298	20	95.9	5,710
May	11,577	523	290	373	22,960
June	17,627	705	523	588	34,960
July	12,683	615	205	409	25,160
August	4,652	244	94	150	9,230
September	2,050	128	13	68.3	4,070
Water year 1948-49	54,120.2	705	9.1	148	107,300

* Winter discharge measurement made on this day.
Note.- No gage-height record Nov. 10 to Mar. 8; discharge computed on basis of 4 discharge measurements and gate openings at Terrace Reservoir.

La Jara Creek at Gallegos Ranch, near Capulin, Colo.

Location.- Water-stage recorder, lat. 37°09', long. 106°13', in NE¼ sec. 32, T. 34 N., R. 7 E., 2 miles upstream from former station (published as La Jara Creek near Capulin), 2¼ miles upstream from Canyon Del Rancho, 11 miles southwest of Capulin, and 11½ miles downstream from La Jara Reservoir.

Drainage area.- 79 square miles.

Records available.- May 1936 to September 1949 (no winter records).

Extremes.- Maximum discharge during year, 288 second-feet Apr. 25 (gage height, 3.97 feet), from rating curve extended above 190 second-feet; minimum daily recorded, 5.6 second-feet Oct. 11.

1936-49: Maximum discharge, 653 second-feet Apr. 15, 1937 (gage height, 5.94 feet), from rating curve extended above 220 second-feet; minimum daily recorded, 3.5 second-feet Nov. 28, 1936.

Remarks.- Records good. Small diversions above station for irrigation. Flow regulated by La Jara Reservoir (capacity, 14,040 acre-feet).

Revisions.- W 878: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	32				-	10	104	34	10	10	27
2	7.6	31				-	9.8	115	27	11	10	19
3	7.2	32				-	12	147	24	10	12	16
4	6.8	32				-	10	140	24	10	17	15
5	6.8	34				-	10	102	24	10	13	10
6	7.2	39				-	11	99	22	10	11	10
7	6.8	35				-	12	99	24	11	10	9.6
8	6.4	b26				-	14	79	28	11	9.1	9.1
9	6.4	-				-	13	67	27	10	26	9.6
10	6.4	-				-	11	75	31	10	34	10
11	5.6	-				-	11	84	29	16	27	9.6
12	*8.0	(*)				-	14	104	27	16	24	10
13	10	-				-	22	96	25	12	24	9.6
14	10	-				-	34	78	20	12	26	16
15	14	-				-	34	92	17	12	35	16
16	14	-				-	55	91	15	11	32	16
17	14	-				-	91	79	14	12	34	15
18	15	-				-	93	67	17	11	34	15
19	28	-				-	85	58	19	11	32	15
20	32	-				-	106	61	16	10	22	15
21	26	-				-	114	47	14	10	20	15
22	24	-				-	119	47	13	11	19	15
23	23	-				-	130	44	14	20	20	14
24	23	-				-	148	45	17	23	35	10
25	22	-				*14	172	42	17	15	37	10
26	31	-				10	152	40	14	19	39	14
27	31	-				11	125	40	12	18	39	17
28	34	-				10	128	41	11	12	37	17
29	34	-				10	132	37	10	10	35	23
30	33	-				11	116	32	10	11	29	38
31	34	-				9.8	-	38	-	10	26	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	535.2	34	5.6	17.3	1,060
November 1-8	261	39	26	32.6	518
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March 25-31	75.8	14	9.8	10.8	150
April	1,993.8	172	9.8	66.5	3,950
May	2,290	147	32	73.9	4,540
June	596	34	10	19.9	1,180
July	385	23	10	12.4	764
August	778.1	39	9.1	25.1	1,540
September	445.5	38	9.1	14.8	884
Water year	-	-	-	-	-

* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.

Trinchera Creek above Turners Ranch, near Fort Garland, Colo.

Location.- Water-stage recorder, lat. 37°22', long. 105°19', in sec. 2, T. 31 S., R. 71 W., just upstream from Turners Ranch and 7 miles southeast of Fort Garland.

Drainage area.- 45 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. April 1923 to September 1949 in reports of State engineer. (No winter records most years.)

Extremes.- Maximum discharge during year, 180 second-feet June 19 (gage height, 3.35 feet); minimum not determined, occurred during period of no gage-height record.
1923-49: Maximum discharge, 689 second-feet May 27, 1942, from rating curve extended above 240 second-feet; maximum gage height, 3.73 feet May 10, 1947 (corrected); minimum daily discharge recorded, 3.0 second-feet Oct. 3, 1942.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	7.4					9.8	56	97	78	35	19
2	10	7.4					a9.4	55	92	72	35	16
3	9.2	7.4					a9.8	61	86	67	34	14
4	8.9	8.0					a10	66	86	64	33	14
5	8.9	6.5					10	70	88	58	33	14
6	9.2	8.0					9.8	81	92	60	30	14
7	8.6	8.0					9.8	75	97	62	31	13
8	8.9						11	64	95	55	31	13
9	9.2						11	58	92	64	30	13
10	8.9					a9.0	11	61	92	60	28	13
11	8.9						10	66	95	62	27	12
12	8.9						12	67	101	62	27	13
13	8.3						14	66	108	58	25	14
14	8.9						14	67	112	57	24	15
15	8.9		a8.0	a7.5	a7.5		15	77	117	52	24	13
16	8.6						16	75	129	51	24	12
17	8.9	(*)					18	75	132	49	25	12
18	*8.9					*8.9	20	74	145	48	23	12
19	8.9	a8.0				8.9	19	75	162	45	19	12
20	9.5					9.5	20	79	166	44	18	11
21	9.2					9.5	24	77	156	48	18	11
22	8.6					9.2	32	75	145	52	18	12
23	8.3					8.9	41	74	134	47	18	12
24	8.0					b9.0	49	77	135	45	18	12
25	8.0					*10	58	81	122	47	19	12
26	8.3					8.9	58	88	112	45	17	12
27	8.0					9.8	52	92	99	42	18	12
28	8.3					8.3	51	95	90	41	16	12
29	8.6				-	8.6	54	95	84	40	16	12
30	8.6				-	11	60	97	78	39	16	12
31	8.0	-			-	9.5	-	103	-	36	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	273.4	11	8.0	8.82	542
November	236.7	-	-	7.89	469
December	248.0	-	-	8.0	492
Calendar year 1948	9,384.3	143	-	25.6	18,600
January	232.5	-	-	7.5	461
February	210.0	-	-	7.5	417
March	283.0	-	-	9.13	561
April	738.6	60	9.4	24.6	1,460
May	2,322	103	55	74.9	4,610
June	3,339	166	78	111	6,620
July	1,650	78	36	53.2	3,270
August	746	35	16	24.1	1,480
September	388	19	11	12.9	770
Water year 1948-49	10,667.2	166	-	29.2	21,150

Peak discharge (base, 50 sec.-ft.).- May 6 (1 p.m.) 83 sec.-ft.; May 31 (7 a.m.) 108 sec.-ft.; June 19 (10 p.m.) 180 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of 1 discharge measurement, weather records, and records for nearby stations.

b Stage-discharge relation affected by ice.

Trinchera Creek above Mountain Home Reservoir, near Fort Garland, Colo.

Location.- Water-stage recorder upstream from rating flume, lat. 37°24', long. 105°32', in sec. 31, T. 30 S., R. 71 W., 1½ miles upstream from Mountain Home Reservoir Dam and 4 miles southeast of Fort Garland.

Drainage area.- 61 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. May 1923 to September 1949 in reports of State engineer. (No winter records most years.)

Extremes.- Maximum discharge during year, 144 second-feet June 20 (gage height, 1.41 feet), from rating curve extended above 110 second-feet; minimum daily recorded, 4.6 second-feet Oct. 3, 4.

1923-49: Maximum discharge, 421 second-feet May 11, 1947 (gage height, 3.02 feet), from rating curve extended above 110 second-feet; minimum not determined.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.2	8.2				6.3	8.8	28	70	45	32	11
2	5.4	7.6				6.2	8.9	27	64	45	30	11
3	4.6	7.6				6.2	8.2	32	60	45	29	9.4
4	4.6	6.6				6.5	10	38	63	45	26	11
5	8.2	6.6				6.8	11	39	69	45	25	11
6	8.2	4.6				7.2	11	44	70	42	25	8.8
7	8.2					7.6	11	52	81	40	26	8.2
8	7.6					7.7	11	51	84	39	25	8.2
9	7.6		(*)			8.0	11	39	75	40	23	8.8
10	7.0				(*)	*9.0	11	29	75	39	22	8.8
11	7.6					7.6	12	34	76	43	19	9.4
12	7.6					8.8	12	35	83	40	16	10
13	7.6	5.6				8.8	13	35	89	35	16	8.8
14	6.6					9.4	12	36	90	37	19	12
15	6.6					10	12	53	92	35	17	11
16	6.6		6.2	5.8	5.7	9.4	12	50	98	35	13	11
17	6.6	(*)				7.2	14	45	100	36	14	11
18	*6.6					*6.0	16	45	117	31	17	10
19	6.2					7.0	16	48	132	29	10	10
20	6.6			(*)		6.6	16	52	134	29	8.8	11
21	7.6					7.0	16	54	122	30	9.4	11
22	7.6					6.6	19	50	107	39	8.8	11
23	7.6					7.2	23	44	99	38	8.8	11
24	7.6				(*)	8.6	28	48	100	39	7.6	11
25	7.6	6.0				*9.8	32	51	86	39	6.6	12
26	7.6					9.0	33	55	74	40	6.6	12
27	6.6					9.4	28	65	64	38	10	11
28	7.0					8.8	23	76	54	36	10	11
29	8.2		(*)		-	9.0	24	80	50	32	9.4	12
30	8.2				-	9.8	29	72	47	32	8.2	12
31	8.2	-			-	8.5	-	81	-	34	8.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	220.0	8.2	4.6	7.10	436
November	180.0	-	-	6.00	357
December	192.2	-	-	6.2	381
Calendar year 1948	7,280.6	136	1.2	19.9	14,440
January	179.8	-	-	5.8	357
February	159.6	-	-	5.7	317
March	246.0	10	6.0	7.94	488
April	491.9	33	8.2	16.4	976
May	1,488	81	27	48.0	2,950
June	2,525	134	47	84.2	5,010
July	1,172	45	29	37.8	2,320
August	507.0	32	6.6	16.4	1,010
September	314.4	12	8.2	10.5	624
Water year 1948-49	7,675.9	134	-	21.0	15,230

Peak discharge (base, 40 sec.-ft.).- May 7 (9 p.m.) 55 sec.-ft.; May 15 (10:30 p.m.) 60 sec.-ft.; May 31 (11 a.m.) 89 sec.-ft.; June 20 (2 a.m.) 144 sec.-ft.

* Winter discharge measurement made on this day.

Note.- No gage-height record Nov. 7 to Mar. 10, Mar. 17, 18, Mar. 23 to Apr. 4, Apr. 12-15 (stage-discharge relation affected by ice during part of periods); discharge computed on basis of 9 discharge measurements and weather records.

Trinchera Creek below Smith Reservoir, near Blanca, Colo.

Location.- Water-stage recorder, lat. 37°23', long. 105°35', in sec. 5, T. 31 S., R. 73 W., 1 mile downstream from Smith Reservoir and 5 miles southwest of Blanca.

Drainage area.- 396 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. October 1929 to September 1949 in reports of State engineer. (No winter records most years.)

Average discharge.- 11 years (1930-31, 1933-36, 1937-38, 1943-49), 15.9 second-feet.

Extremes.- Maximum discharge during year, 94 second-feet Apr. 27 (gage height, 1.70 feet); minimum daily, 0.3 second-foot Oct. 1-5, 7, 21.
1929-49: Maximum daily discharge, 1,340 second-feet May 11, 1942; minimum daily recorded, 0.1 second-foot at times in 1937, 1938, 1945, and 1947.

Remarks.- Records good except those for period of no gage-height record, which are fair. Diversions above station for irrigation. Flow regulated by Smith Reservoir (capacity, 5,335 acre-feet).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	0.5	0.6	0.8	0.9	16	14	81	22	0.7	0.9	0.8
2	.3	.5	.6	.8	.9	17	24	77	16	.6	4.2	.8
3	.3	.8	.6	.8	.9	*17	33	69	19	.5	5.9	.8
4	.3	.8	.6	.8	.9	17	29	65	6.8	.5	7.2	.8
5	.3	.8	.6	.8	.9	18	29	64	4.2	.6	11	.8
6	.4	.8	.6	.9	.8	19	30	64	3.6	.6	11	.8
7	.3	.8	.6	.9	.8	20	30	63	2.4	.7	10	.8
8	.4	.9	.6	.9	.8	21	28	80	1.8	.7	10	.8
9	.4	.8	*.6	.9	.8	20	32	81	2.4	.7	10	.8
10	.4	.8	.6	.9	*.8	*19	39	68	2.1	.6	10	.9
11	.4	.7	.6	1.0	.8	19	36	65	3.0	.6	9.6	.9
12	.4	.7	.6	1.0	.8	19	35	68	13	.6	7.2	.8
13	.4	.7	.6	1.0	.8	19	33	71	41	.6	3.0	.8
14	.4	.7	.6	1.0	.8	19	40	73	55	.6	2.4	.8
15	.4	.7	.6	1.0	.8	19	34	77	56	.6	2.1	.8
16	.4	.6	.7	1.1	.9	21	33	80	55	.5	1.8	.8
17	.4	*.6	.7	1.1	.9	23	33	80	54	.5	1.5	.8
18	*.5	.6	.7	1.1	.9	24	39	78	59	.6	1.5	.8
19	.4	.6	.7	1.1	.9	25	49	73	66	.7	1.2	.8
20	.4	.6	.7	*1.1	.9	26	54	62	69	.6	1.2	.6
21	.3	.6	.7	1.1	.9	26	54	55	63	.6	1.2	.6
22	.4	.6	.7	1.1	.9	25	55	52	54	.6	1.2	.6
23	.4	.6	.7	1.1	.9	24	61	48	46	.6	1.2	.6
24	.5	.6	.7	1.1	*.9	23	69	36	38	.7	1.1	.6
25	.4	.6	.7	1.1	15	22	80	27	28	.7	1.0	.6
26	.4	.6	.7	1.0	17	21	85	22	19	.7	.9	.6
27	.4	.6	.7	1.0	17	20	89	19	13	.7	.9	.6
28	.4	.6	.7	1.0	17	18	90	19	6.8	1.1	.9	.6
29	.5	.6	*.7	1.0	-	5.9	83	27	2.7	1.1	.9	.6
30	.5	.6	.7	1.0	-	11	81	33	.9	1.1	1.0	.6
31	.5	-	.7	1.0	-	20	-	27	-	1.0	1.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	12.2	0.5	0.3	0.39	24
November	20.0	.9	.5	.67	40
December	20.2	.7	.6	.65	40
Calendar year 1948	10,372.7	179	.3	28.3	20,580
January	30.5	1.1	.8	.98	60
February	86.6	17	.8	3.09	172
March	613.9	26	5.9	19.8	1,220
April	1,421	90	14	47.4	2,820
May	1,804	81	19	58.2	3,580
June	822.7	69	.9	27.4	1,630
July	21.0	1.1	.5	.68	42
August	123.0	11	.9	3.97	244
September	22.0	.9	.6	.73	44
Water year 1948-49	4,997.1	90	.3	13.7	9,920

* Winter discharge measurement made on this day.
Note.- No gage-height record Nov. 8 to Mar. 5 (stage-discharge relation affected by ice during most of period); discharge computed on basis of 7 discharge measurements and gate openings at Smith Reservoir.

Sangre de Cristo Creek near Fort Garland, Colo.

Location.- Water-stage recorder, lat. 37°26', long. 105°24', in sec. 23, T. 30 S., R. 72 W., just downstream from bridge on U. S. Highway 160, 1½ miles east of Fort Garland, and 4 miles upstream from Ute Creek.

Drainage area.- 187 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. March to October 1916 and May 1923 to September 1949 in reports of State engineer. (No winter records most years.)

Extremes.- Maximum discharge during year, 240 second-feet Aug. 9 (gage height, 6.08 feet); no flow Sept. 8, 9, 22.

1916, 1923-49: Maximum discharge, 1,520 second-feet Aug. 31, 1936, by slope-area method; maximum gage height, 7.65 feet May 10, 1942, from floodmarks; no flow at times during 1934-36, 1939-40, 1943, 1946, 1949.

Remarks.- Records good above 15 second-feet and fair below except those for periods of ice effect or no gage-height record, which are poor. A few diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.2	8.2					19	103	53	12	7.2	2.1
2	8.2	7.8					b22	102	46	14	6.9	3.1
3	6.4	7.3					32	106	42	13	6.9	1.9
4	5.6	7.8					16	109	46	12	6.9	.7
5	5.6	b8.0					*18	106	43	11	5.8	.4
						10						
6	4.7	8.2					21	105	43	8.6	5.2	.4
7	5.2	8.7					20	108	52	9.5	6.9	.2
8	5.6						24	98	57	11	10	0
9	5.6		(*)				27	88	49	9.0	38	0
10	5.6				(*)	(*)	22	80	48	8.6	12	4.3
11	6.0						24	92	53	18	8.0	3.4
12	6.0						27	90	49	18	5.8	1.7
13	6.0					9	32	96	53	15	5.2	1.3
14	6.0						33	96	48	14	4.6	2.8
15	6.0						29	99	43	12	3.4	2.8
			7	8	10							
16	6.0					13	32	99	39	10	3.1	1.9
17	6.4	(*)				15	37	94	36	10	3.7	1.1
18	*5.6					*16	48	89	35	8.3	5.8	.5
19	5.6	8				18	48	83	36	10	4.9	.3
20	5.6			(*)		22	48	79	34	8.0	4.3	.2
21	7.3					21	55	73	29	7.2	1.9	.1
22	6.4					19	61	70	26	10	1.1	0
23	6.0					22	70	66	22	12	.5	.2
24	5.6				(*)	16	81	62	21	9.5	.4	.4
25	5.6					*19	87	58	21	9.5	.1	.5
26	5.6					18	100	55	18	14	.2	.7
27	5.6					16	100	54	16	10	.7	1.9
28	5.6					18	96	58	15	8.0	.9	1.1
29	7.8		(*)		-	19	103	66	12	6.6	.7	1.7
30	8.2				-	b17	109	53	12	6.2	.4	2.8
31	7.8	-			-	18	-	58	-	7.6	.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	191.4	8.2	4.7	6.17	380
November	240.0	-	-	8.00	476
December	217	-	-	7	430
Calendar year 1948	13,859.9	294	.1	37.9	27,500
January	248	-	-	8	492
February	280	-	-	10	555
March	432	22	-	13.9	857
April	1,441	109	16	48.0	2,860
May	2,595	109	53	83.7	5,150
June	1,097	57	12	36.6	2,180
July	332.6	18	6.2	10.7	660
August	161.9	38	.1	5.22	321
September	38.5	4.3	0	1.28	76
Water year 1948-49	7,274.4	109	0	19.9	14,440

Peak discharge (base, 75 sec.-ft.).- May 8 (3:30 a.m.) 113 sec.-ft.; May 16 (8 a.m.) 102 sec.-ft.; Aug. 9 (2:30 a.m.) 240 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.- No gage-height record Nov. 8 to Mar. 18 (stage-discharge relation affected by ice during most of period); discharge computed on basis of 8 discharge measurements and weather records.

Ute Creek near Fort Garland, Colo.

Location.- Water-stage recorder upstream from rating flume, lat. 37°28', long. 105°24', in sec. 2, T. 30 S., R. 72 W., 2½ miles north of Fort Garland and 6 miles upstream from mouth.

Drainage area.- 32 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. March to October 1916 and May 1923 to September 1949 in reports of State engineer. (No winter records most years.)

Extremes.- Maximum discharge during year, 139 second-feet June 18 (gage height, 2.33 feet); minimum daily not determined.
1916, 1923-49: Maximum daily discharge, 630 second-feet May 15, 1941; minimum daily recorded, 1.5 second-feet Sept. 23, 1944.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. A few diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	6.5					8.5	64	64	76	26	9.2
2	11	6.5					7.0	64	52	76	27	10
3	11	6.5					b12	72	47	71	26	9.2
4	12	6.5					13	73	48	68	25	7.4
5	12	4.4					*10	68	49	66	22	7.0
						5.6						
6	10	4.4					9.0	62	57	68	20	7.8
7	8.8	5.4					9.5	68	64	66	17	7.0
8	10						11	60	60	70	19	6.5
9	12						10	52	52	68	18	8.3
10	11					(*)	8.0	49	58	66	17	13
11	10						10	60	69	88	14	11
12	9.2						13	61	86	84	14	9.2
13	8.8					6.0	14	61	98	65	14	9.2
14	7.8						16	61	86	60	14	18
15	6.5		5.0	4.5	5.0		14	76	91	52	12	14
16	5.1					6.0	16	80	96	47	11	12
17	4.8					6.3	21	77	105	47	13	11
18	*5.1					*6.5	26	68	124	43	20	9.6
19	5.4	*5.6				12	26	61	122	40	16	8.3
20	5.8					11	25	59	118	39	13	7.8
21	6.5					9.5	31	54	113	39	12	6.5
22	6.2					10	38	55	121	39	11	6.2
23	6.2					10	46	57	112	43	9.6	6.5
24	5.8					10	57	61	110	74	7.8	7.8
25	5.8					*8.5	72	68	91	56	8.3	7.8
26	5.8					7.5	75	76	88	68	9.6	7.8
27	5.4					8.5	68	81	82	45	10	7.4
28	5.8					8.5	62	80	78	37	9.2	7.4
29	6.2				-	8.0	72	79	71	35	7.8	11
30	6.2				-	8.0	70	76	69	31	7.4	16
31	6.5	-			-	b8.0	-	76	-	26	7.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	244.7	12	4.8	7.89	485
November	169.0	-	-	5.63	335
December	155.0	-	-	5.0	307
Calendar year 1948	9,295.7	141	2.8	25.4	18,450
January	139.5	-	-	4.5	277
February	140.0	-	-	5.0	278
March	224.3	12	-	7.24	445
April	870.0	75	7.0	29.0	1,730
May	2,059	-81	49	66.4	4,080
June	2,481	124	47	82.7	4,920
July	1,753	88	26	56.5	3,480
August	457.7	27	7.0	14.8	908
September	279.9	18	6.2	9.33	555
Water year 1948-49	8,973.1	124	-	24.6	17,800

Peak discharge (base, 80 sec.-ft.).- Apr. 25 (10 p.m.) 86 sec.-ft.; May 16 (1 a.m.) 83 sec.-ft.; May 27 (2 a.m.) 88 sec.-ft.; June 13 (6 a.m.) 111 sec.-ft.; June 18 (2 a.m.) 139 sec.-ft.; July 11 (4:30 a.m.) 131 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.- No gage-height record Nov. 8 to Mar. 18 (stage-discharge relation affected by ice during most of period); discharge computed on basis of 3 discharge measurements, weather records, and records for nearby stations.

Conejos River at Platoro, Colo.

Location.- Water-stage recorder, lat. 37°21'00", long. 106°31'30", in sec. 22, T. 36 N., R. 4 E., half a mile east of Platoro and 5 miles downstream from Adams Fork.

Drainage area.- 44.4 square miles.

Records available.- April 1937 to September 1949 (no winter records).

Extremes.- Maximum discharge during year, 1,380 second-feet June 18 (gage height, 3.37 feet), from rating curve extended above 820 second-feet; minimum daily determined, 4.9 second-feet Nov. 19.
1937-49: Maximum discharge, that of June 18, 1949; minimum daily recorded, 3.5 second-feet Oct. 20, 1943.

Remarks.- Records excellent above 50 second-feet and good below except those for periods of ice effect or no gage-height record, which are fair. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	12						a270	392	626	98	16
2	13	12						a300	342	593	93	18
3	12	13						333	351	593	86	17
4	11	15						294	400	560	81	16
5	12	12						232	500	522	73	16
6	15	8.8						200	532	470	67	16
7	12	11						160	465	522	67	16
8	12	15						145	410	420	61	16
9	12	b11						157	480	392	55	16
10	11	7.0						200	610	360	63	20
11	11	6.3						221	604	425	53	27
12	9.7	12						221	648	364	48	38
13	9.7	11						196	694	351	48	30
14	9.7	7.9						256	796	333	44	45
15	11	7.0						360	836	276	42	27
16	9.7	5.6						356	940	256	40	22
17	8.8	a5.6						285	1,000	236	38	20
18	7.9	a5.4						232	1,280	214	38	18
19	9.7	a4.9						228	1,130	218	35	16
20	16	a6.0						218	1,040	218	32	14
21	16	a5.6						193	959	189	28	13
22	16	a6.0						221	907	180	27	12
23	14	a6.8						268	907	189	27	13
24	12	a6.2						346	952	183	24	13
25	12	a7.5						420	754	207	24	11
26	11	a5.5						485	772	186	24	11
27	9.7	a5.5						475	742	151	25	11
28	16	a5.2						400	706	130	20	12
29	8.8	a6.1						445	670	119	18	44
30	12	a5.9						527	694	111	17	37
31	12	-						510	-	111	16	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	367.7	16	7.9	11.9	729
November	248.8	15	4.9	8.29	493
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	-	-	-	-
May	9,154	527	145	295	18,160
June	21,513	1,280	342	717	42,670
July	9,705	626	111	313	19,250
August	1,412	98	16	45.5	2,800
September	601	45	11	20.0	1,190
Water year	-	-	-	-	-

Peak discharge (base, 830 sec.-ft.).- June 18 (10 a.m.) 1,380 sec.-ft.; June 24 (2 a.m.) 1,270 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

b Stage-discharge relation affected by ice.

Conejos River near Mogote, Colo.

Location.- Water-stage recorder, lat. 37°03', long. 106°11', in SE¼ sec. 34, T. 33 N., R.7 E., three-quarters of a mile downstream from Fox Creek and 5½ miles west of Mogote.

Drainage area.- 282 square miles.

Records available.- September 1899 to March 1900, April 1903 to September 1913, and October 1933 to September 1949 in reports of Geological Survey. September 1899 to March 1900 and April 1903 to September 1949 in reports of State engineer.

Average discharge.- 47 years (1902-49), 371 second-feet.

Extremes.- Maximum discharge during year, 3,410 second-feet June 19 (gage height, 5.20 feet); minimum daily, 30 second-feet Dec. 5.
1899-1900, 1903-49: Maximum discharge, 9,000 second-feet Oct. 5, 1911 (gage height, 8.50 feet, site and datum then in use), from rating curve extended above 3,500 second-feet; minimum, 18 second-feet (discharge measurement) Dec. 19, 1939.

Remarks.- Records good except those for period of ice effect or no gage-height record, which are fair. No diversion or regulation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	64	*42	45	*44	*51	66	830	1,480	1,510	306	87
2	66	65	39	45	45	49	62	890	1,240	1,290	302	95
3	61	71	39	44	45	48	56	1,090	1,210	1,310	316	88
4	56	78	36	43	46	49	60	1,160	1,310	1,260	377	80
5	56	56	30	*44	45	53	57	953	1,490	1,160	293	76
6	61	56	40	46	43	51	68	864	1,710	1,100	266	77
7	60	65	46	48	43	56	86	711	1,550	1,170	248	76
8	58	60	53	50	43	55	112	584	1,320	1,000	234	70
9	58	43	50	48	42	47	110	584	1,360	890	224	68
10	58	51	52	50	43	49	97	741	1,720	864	234	77
11	54	58	51	52	44	54	95	856	1,810	953	214	83
12	54	55	49	54	44	54	119	1,030	1,930	1,000	189	122
13	52	55	51	53	43	55	184	908	1,970	848	178	115
14	48	57	50	56	42	55	224	953	2,120	908	166	139
15	54	54	*51	53	*42	60	229	1,330	2,100	765	155	119
16	54	*53	41	52	42	66	255	1,470	2,180	704	144	94
17	49	57	47	52	43	82	313	1,270	2,500	675	136	82
18	46	44	48	*55	43	84	365	1,040	3,010	609	139	74
19	49	32	46	56	44	97	338	980	3,070	572	124	70
20	62	52	47	57	44	107	345	1,010	2,720	578	113	68
21	70	45	48	57	45	97	365	848	2,580	554	105	66
22	64	47	49	58	46	97	447	926	2,390	514	99	63
23	58	55	48	58	47	99	566	1,070	2,310	508	95	63
24	55	51	45	52	53	83	690	1,260	2,640	514	92	66
25	51	58	35	53	55	78	741	1,450	1,900	514	90	64
26	49	38	45	54	54	69	873	1,640	1,840	548	92	62
27	47	38	46	56	51	68	839	1,730	1,720	447	109	61
28	54	36	44	51	46	77	814	1,510	1,630	381	101	68
29	56	42	41	46	-	71	935	1,510	1,490	341	90	111
30	56	41	41	42	-	62	935	1,720	1,480	338	85	161
31	70	-	44	43	-	62	-	1,850	-	338	83	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,747	70	46	56.4	3,470
November	1,577	78	32	52.6	3,130
December	1,394	53	30	45.0	2,760
Calendar year 1948	142,083	3,050	30	388	281,800
January	1,573	58	42	50.7	3,120
February	1,267	55	42	45.2	2,510
March	2,085	107	47	67.3	4,140
April	10,446	935	56	348	20,720
May	34,768	1,850	584	1,122	68,960
June	57,780	3,070	1,210	1,926	114,600
July	24,163	1,510	338	779	47,930
August	5,399	377	83	174	10,710
September	2,545	161	61	84.8	5,050
Water year 1948-49	144,744	3,070	30	397	287,100

Peak discharge (base, 1,710 sec.-ft.).- May 31 (6 a.m.) 1,910 sec.-ft.; June 6 (6 a.m.) 1,810 sec.-ft.; June 19 (9:30 a.m.) 3,410 sec.-ft.; June 27 (6 a.m.) 2,010 sec.-ft.

* Winter discharge measurements made on this day.

Note.- Stage-discharge relation affected by ice Nov. 26 to Feb. 28 (no gage-height record Feb. 1-28; discharge computed on basis of 2 discharge measurements, weather records, and records for stations on nearby streams.

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Conejos River near La Sauses, Colo.

Location.- Two water-stage recorders (two channels), lat. 37°23', long. 105°45', in sec. 2, T. 35 N., R. 11 E., 100 feet downstream from bridge on State Highway 158, half a mile upstream from mouth, and 2 miles north of La Sauses. Datum of gage (north channel) is 7,495.02 feet above mean sea level (Colorado State Highway Department bench mark).

Drainage area.- 887 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. March 1921 to September 1949 in reports of State engineer.

Average discharge.- 28 years, 236 second-feet.

Extremes.- Maximum discharge during year, 2,690 second-feet June 20; minimum daily, 1.6 second-feet Aug. 5.
1921-49: Maximum discharge, 3,890 second-feet May 15, 1941; no flow at times in 1934 and 1948.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.8	20	41	42	51	76	53	595	1,300	599	15	15
2	5.4	20	41	43	50	76	46	518	804	575	3.8	15
3	5.2	20	41	a43	51	75	47	604	606	534	2.3	14
4	5.0	21	41	a46	52	72	50	796	583	516	1.8	15
5	5.0	21	45	a46	57	75	52	740	653	443	1.6	15
6	5.4	18	41	a46	57	75	48	629	713	346	2.1	15
7	5.4	17	41	a47	50	75	50	599	761	355	10	15
8	7.5	17	39	a46	51	74	52	485	796	360	14	15
9	7.3	17	38	a44	53	62	53	402	810	289	14	15
10	7.1	17	39	44	53	56	57	463	890	266	13	15
11	7.1	19	42	46	54	55	56	715	1,220	262	13	14
12	7.3	18	42	48	55	54	53	1,010	1,390	382	13	14
13	7.1	18	42	49	57	56	51	1,140	1,550	426	13	14
14	7.1	18	42	50	57	55	50	1,010	1,650	359	14	15
15	7.6	18	44	50	60	57	46	1,160	1,710	344	14	14
16	7.6	23	44	a49	59	57	46	1,380	1,660	277	14	15
17	7.8	24	43	a49	59	55	49	a1,410	a1,800	220	15	26
18	8.5	23	45	a50	59	48	52	a1,240	a2,000	183	15	27
19	9.0	22	44	a50	59	47	74	a1,030	a2,390	122	13	28
20	10	23	43	47	60	41	61	a900	2,540	80	14	26
21	9.6	23	44	47	62	41	46	a775	2,230	66	14	23
22	9.3	23	45	47	63	41	50	a691	1,930	56	15	12
23	11	32	47	47	66	41	94	664	1,730	53	14	12
24	14	38	47	47	70	41	234	659	1,670	54	14	12
25	16	40	47	49	74	44	354	716	1,820	48	14	12
26	15	41	47	49	76	46	405	852	1,540	39	15	12
27	15	41	46	49	74	46	428	1,020	1,380	40	15	11
28	15	42	44	50	77	48	379	1,140	1,160	40	15	10
29	17	42	42	a48	-	52	413	1,060	878	32	15	11
30	17	42	42	a46	-	53	554	1,090	668	24	15	11
31	19	-	42	52	-	53	-	1,240	-	22	15	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	296.1	19	5.0	9.55	587
November	758	42	17	25.3	1,500
December	1,331	47	38	42.9	2,640
Calendar year 1948	100,355.2	2,380	0	274	199,000
January	1,464	52	42	47.2	2,900
February	1,666	77	50	59.5	3,300
March	1,744	76	41	56.3	3,460
April	4,003	554	46	133	7,940
May	26,733	1,410	402	862	53,020
June	40,832	2,540	583	1,361	80,990
July	7,412	599	22	239	14,700
August	376.6	15	1.6	12.1	747
September	468	28	10	15.6	928
Water year 1948-49	87,083.7	2,540	1.6	239	172,700

Peak discharge (base, 2,000 sec.-ft.).- June 20 (10 a.m.) 2,690 sec.-ft.

a No gage-height record on main channel; discharge computed on basis of discharge measurements made Jan. 5, 18, weather records, and records for nearby stations.

Note.- Stage-discharge relation affected by ice on secondary channel Feb. 2-12. No gage-height record on secondary channel Nov. 27-29, Dec. 5-10, 25, 27-30, Jan. 3-12, 16-23, Jan. 28 to Feb. 1; discharge computed on basis of discharge measurements made Jan. 5, 18, weather records, and records for nearby stations.

San Antonio River at Ortiz, Colo.

Location.- Water-stage recorder, lat. 37°00', long. 106°02', in New Mexico, in sec. 19, T. 32 N., R. 9 E., a quarter of a mile south of Colorado-New Mexico State line, half a mile south of Ortiz, and half a mile upstream from Los Pinos Creek.

Drainage area.- 110 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. January to October 1915, May 1919 to October 1920, and October 1924 to September 1949 in reports of State engineer. (No winter records prior to 1941.)

Extremes.- Maximum discharge during year, 520 second-feet May 12 (gage height, 3.19 feet), from rating curve extended above 350 second-feet; no flow Oct. 1-4, 6-10, Aug. 22 to Sept. 2, Sept. 7-30.

1915, 1919-20, 1924-49: Maximum discharge, 1,750 second-feet Apr. 15, 1937 (gage height, 5.38 feet), from rating curve extended above 1,100 second-feet; no flow at times in most years.

Remarks.- Records good above 20 second-feet and fair below except those for period of no gage-height record, which are poor. A few small diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	7.0	(*)		(*)		*14	315	82	7.3	0.8	0
2	0	5.8					13	327	67	38	.7	0
3	0	5.5					17	405	57	13	.9	.1
4	0	6.7				(*)	15	346	51	9.2	.9	.2
5	.2	6.4					13	288	46	7.6	1.0	.2
6	0	4.4					18	259	41	5.5	.9	.1
7	0	4.6					31	215	39	5.2	.7	0
8	0	2.7					*25	166	38	5.2	1.8	0
9	0	1.8					34	191	37	3.8	1.5	0
10	0	2.4					29	270	36	2.5	5.8	0
11	.1	2.9					26	385	39	2.0	1.6	0
12	.3	1.8					28	435	35	4.4	1.0	0
13	.2	3.2		(*)			41	327	33	5.8	.8	0
14	.6	4.1					58	321	28	3.5	.5	0
15	1.3	4.4					70	340	24	2.7	.3	0
16	1.5	*4.6	1.3	2.0	4.0	8.0 (*)	77	279	21	2.4	.2	0
17	1.5	5.0			(*)		121	234	19	1.6	.2	0
18	.8	3.0					164	215	19	2.4	.2	0
19	.3	2.5					142	199	24	2.4	.2	0
20	.3	3.0					148	183	21	1.6	.4	0
21	.2	2.0	(*)				156	145	16	1.0	.2	0
22	1.8	2.3					191	137	14	7.0	0	0
23	1.8	2.5					226	131	13	8.5	0	0
24	1.1	2.7					239	124	13	14	0	0
25	1.1	2.3					256	116	13	8.5	0	0
26	1.1	1.9					270	106	10	5.5	0	0
27	1.5	1.6					223	106	8.5	4.4	0	0
28	1.8	1.0					262	111	7.3	2.5	0	0
29	5.8	1.2			-		343	93	6.4	1.5	0	0
30	6.1	1.0			-		369	77	4.6	1.0	0	0
31	7.0	-			-		-	97	-	.8	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	36.4	7.0	0	1.17	72
November	100.3	7.0	1.0	3.34	199
December	40.3	-	-	1.3	80
Calendar year 1948	9,260.5	352	0	25.3	18,370
January	62.0	-	-	2.0	123
February	112.0	-	-	4.0	222
March	248.0	-	-	8.0	492
April	3,609	369	13	120	7,160
May	6,943	435	77	224	13,770
June	862.8	82	4.6	28.8	1,710
July	180.8	38	.8	5.83	359
August	20.6	5.8	0	.66	41
September	.6	.2	0	.02	1.2
Water year 1948-49	12,215.8	435	0	33.5	24,230

Peak discharge (base, 330 sec.-ft.).- Apr. 30 (12:45 p.m.) 471 sec.-ft.; May 3 (1 a.m.) 492 sec.-ft.; May 12 (1 a.m.) 520 sec.-ft.

* Winter discharge measurements made on this day.

Note.- No gage-height record Nov. 17 to Apr. 7 (stage discharge relation affected by ice during most of period); discharge computed on basis of 8 discharge measurements, weather records, and records for stations on nearby streams.

San Antonio River at mouth, near Manassa, Colo.

Location.- Water-stage recorder, lat. 37°11', long. 105°53', in sec. 21, T. 34 N., R. 10 E., 200 feet downstream from bridge on State Highway 142, 1 mile upstream from mouth, and 2½ miles east of Manassa.

Drainage area.- 348 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. April 1923 to September 1949 in reports of State engineer.

Average discharge.- 26 years, 98.8 second-feet.

Extremes.- Maximum discharge during year, 1,240 second-feet May 16 (gage height, 5.81 feet); no flow Oct. 1-31, Nov. 2-5, Sept. 20-23.
1923-49: Maximum discharge, 2,620 second-feet May 14, 1941 (gage height, 6.26 feet), from rating curve extended above 2,200 second-feet; no flow at times in most years.

Remarks.- Records excellent above 20 second-feet and fair below except those for Oct. 1 to Mar. 2, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0.1				12	0.9	613	567	74	9.5	0.5
2		0			(*)	11	1.1	597	431	105	11	.5
3		0				*11	1.1	749	381	92	9.9	.4
4		0				b12	1.2	812	374	83	12	.4
5		0				b13	1.9	720	390	72	11	.4
6		.1			2	b12	2.0	672	393	62	7.2	.4
7		.1				b13	1.4	605	386	78	7.5	.3
8		.1	(*)			12	1.1	494	386	80	6.9	.2
9		.1				8.6	1.2	462	366	51	5.6	.4
10		.1				8.2	1.2	560	364	42	3.4	.4
11		.2				8.6	1.2	794	407	42	3.2	.4
12		.2				7.8	1.1	1,000	410	57	3.4	.3
13		.2		(*)	5	9.9	.8	952	438	58	3.2	.2
14		.2				12	.7	880	448	43	2.3	.3
15		.2				9.5	.6	1,030	438	40	2.0	.3
16		*.2	0.3	0.5		9.9	2.5	1,100	410	32	2.0	.2
17		.1			(*)	*7.5	15	940	412	22	1.5	.2
18		.1				5.3	40	749	502	23	1.5	.1
19		.1				3.6	49	681	670	25	1.4	.1
20		.1				2.2	40	667	649	29	.9	0
21		.1	(*)			2.2	52	560	490	30	.7	0
22		.1			9	2.2	84	560	362	30	.6	0
23		.1				2.0	164	547	299	38	.5	0
24		.1				1.5	297	590	320	43	.4	.1
25		.1				1.4	390	587	336	57	.4	.1
26		.1				1.4	474	597	248	50	.4	.1
27		.1				1.2	431	584	200	48	.4	.1
28		.1				1.1	426	570	170	31	.4	.1
29		.1			-	1.1	522	547	137	17	.4	.1
30		.1			-	1.1	644	524	87	9.5	.3	.1
31		-			-	1.1	-	550	-	6.6	.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	3.2	.2	0	.11	6.3
December	9.3	-	-	.3	18
Calendar year 1948	43,311.9	1,080	0	118	85,910
January	15.5	-	-	.5	31
February	162	-	-	5.8	321
March	203.4	13	1.1	6.56	403
April	3,648.0	644	.6	122	7,240
May	21,293	1,100	462	687	42,230
June	11,471	670	87	382	22,750
July	1,470.1	105	6.6	47.4	2,920
August	110.2	12	.3	3.55	219
September	6.7	.5	0	.22	13
Water year 1948-49	38,392.4	1,100	0	105	76,150

Peak discharge (base, 500 sec.-ft.).- May 4 (11:30 a.m.) 940 sec.-ft.; May 12 (3 p.m.) 1,120 sec.-ft.; May 16 (12:30 p.m.) 1,240 sec.-ft.; June 1 (6 a.m.) 631 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.- No gage-height record Nov. 17 to Mar. 3 (stage-discharge relation affected by ice during most of period); discharge computed on basis of 6 discharge measurements, weather records, and records for stations on nearby streams.

Los Pinos River near Ortiz, Colo.

Location.- Water-stage recorder, lat. 36°58', long. 106°03', in New Mexico, in N½ sec. 34, T. 32 N., R. 8 E., 1 mile south of Colorado-New Mexico State line, 2 miles southwest of Ortiz, and 2½ miles upstream from mouth.

Drainage area.- 167 square miles.

Records available.- October 1933 to September 1949 in reports of Geological Survey. January 1914 to November 1920 and October 1924 to September 1949 in reports of State engineer. (No winter records most years).

Average discharge.- 10 years (1927-28, 1940-49), 132 second-feet.

Extremes.- Maximum discharge during year, 1,620 second-feet May 15 (gage height, 4.57 feet), from rating curve extended above 1,000 second-feet; minimum daily recorded, 11 second-feet Sept. 8, 9.

1914-20, 1924-49: Maximum discharge, 3,160 second-feet May 12, 1914 (gage height, 5.77 feet), from rating curve extended above 1,600 second-feet; minimum observed, 4.0 second-feet Dec. 17, 1945 (discharge measurements), but may have been less during period of no gage-height record.

Remarks.- Records good except those for period of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	20	(*)			16	*31	695	599	266	41	14
2	19	20			(*)	16	29	785	543	227	39	19
3	18	20				*16	38	936	531	200	40	15
4	15	22				16	34	888	563	185	69	12
5	17	22				17	29	810	583	182	43	12
6	19	18				18	32	713	583	168	39	12
7	18	33				18	39	575	519	180	34	12
8	16	25				20	45	491	459	140	31	11
9	15	19				18	46	563	447	128	36	11
10	15	22				19	41	722	503	122	34	14
11	15	24				20	39	894	523	158	29	15
12	14	22				21	45	981	495	178	26	19
13	14	21				21	60	846	499	134	25	19
14	14	23				23	67	1,010	527	122	23	25
15	15	27	13	13	15	24	73	1,200	511	112	20	21
16	16	*25				*26	87	1,090	523	105	20	18
17	15	34			(*)	30	107	852	567	99	21	15
18	15	26				34	130	708	659	83	23	15
19	16	21				38	118	713	663	77	19	15
20	20	b23				33	148	691	567	69	17	15
21	24	b20	(*)			37	190	607	499	64	15	15
22	19	b23				33	248	659	455	72	15	15
23	19	b24				32	342	695	439	103	15	15
24	18	b23				45	419	718	447	75	15	18
25	16	b20				38	523	736	352	73	15	18
26	16	b16				34	607	740	320	92	15	17
27	16	b15				30	587	708	296	66	23	16
28	19	b13				30	623	635	272	53	16	19
29	19	b16			-	29	745	639	248	47	15	26
30	15	b15			-	31	790	655	236	47	13	38
31	22	-			-	29	-	790	-	48	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	527	24	14	17.0	1,050
November	652	34	13	21.7	1,290
December	403	-	-	13	799
Calendar year 1948	50,526	1,230	-	138	100,200
January	403	-	-	13	799
February	420	-	-	15	833
March	812	45	16	26.2	1,610
April	6,312	790	29	210	12,520
May	23,745	1,200	491	766	47,100
June	14,428	663	236	481	28,620
July	3,675	266	47	119	7,290
August	798	69	12	25.7	1,580
September	506	38	11	16.9	1,000
Water year 1948-49	52,681	1,200	-	144	104,500

Peak discharge (base, 900 sec.-ft.).- May 2 (10 p.m.) 1,110 sec.-ft.; May 11 (9 p.m.) 1,170 sec. ft.; May 15 (10 p.m.) 1,620 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Note.- No gage-height record Dec. 1 to Mar. 18 (stage-discharge relation affected by ice during most of period); discharge computed on basis of 7 discharge measurements, weather records, and records for stations on nearby streams.

Culebra Creek at San Luis, Colo.

Location.- Water-stage recorder and 12-foot Parshall flume, lat. 37°11', long. 105°26', in sec. 35, T. 3 N., R. 72 W., Beaubien Grant survey, 1 mile southeast of San Luis and 1½ miles upstream from Rito Seco.

Drainage area.- 220 square miles.

Records available.- January 1910 to December 1911 and October 1933 to September 1949 in reports of Geological Survey. May 1909 to December 1910 and April 1927 to September 1949 in reports of State engineer. 1911-19 (unpublished) in files of State engineer.

Average discharge.- 32 years (1909-19, 1927-49), 64.8 second-feet.

Extremes.- Maximum discharge during year, 352 second-feet July 21 (gage height, 3.33 feet); minimum daily, 9.5 second-feet Oct. 3, 17.
1909-19, 1927-49: Maximum discharge, 654 second-feet July 1, 1947 (gage height, 5.09 feet), from rating curve extended above 300 second-feet; minimum daily, 5 second-feet Sept. 14-16, 1934.

Remarks.- Records excellent above 20 second-feet and good below except those for periods of no gage-height record, which are fair. Diversions above station for irrigation. Flow regulated by Sanchez Reservoir on Ventero Creek (capacity, 103,000 acre-feet).

Rating table, water year 1948-49 (gage height, in feet, and discharge, in second-feet)
(Shifting-control method used Oct. 1-23, Nov. 23 to Dec. 22, Feb. 8 to Mar. 2, Apr. 6-18, Sept. 11-30)

0.2	9	1.0	61
.4	19	1.3	90
.6	31	2.2	195
.8	45	3.2	333

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	18	31	10	a21	12	14	13	82	257	264	125
2	18	30	30	10	a21	15	15	13	84	195	326	85
3	9.5	32	12	15	a21	33	15	12	99	114	318	81
4	18	32	12	29	a21	34	16	14	97	47	299	37
5	29	29	12	29	a15	26	18	14	86	175	260	83
6	20	11	12	27	a12	15	16	14	151	222	240	99
7	15	10	17	27	a15	15	16	16	159	224	183	116
8	23	18	32	26	12	14	15	14	130	221	218	99
9	20	30	34	25	13	14	16	14	130	200	258	96
10	10	30	34	29	12	13	16	14	110	175	233	74
11	10	31	26	30	12	14	14	16	112	198	203	59
12	29	31	16	30	12	13	13	17	78	81	179	75
13	29	12	30	30	12	12	13	16	99	67	149	84
14	12	10	14	30	12	12	12	16	109	86	151	64
15	17	10	14	21	12	13	12	16	137	93	193	47
16	22	11	13	12	12	16	12	16	167	115	214	44
17	9.5	10	14	30	14	32	12	16	163	105	212	37
18	20	31	13	28	30	32	33	16	173	220	161	21
19	30	32	12	a24	13	30	34	16	183	265	139	27
20	31	29	13	30	14	14	16	16	207	292	121	41
21	30	28	14	30	13	16	14	16	202	275	109	41
22	30	31	17	26	12	15	13	16	217	84	152	41
23	24	12	38	12	14	14	13	16	243	51	166	51
24	10	12	29	12	15	14	13	16	213	34	152	41
25	30	12	13	12	14	14	13	18	175	42	130	25
26	31	12	12	12	14	14	13	41	149	61	103	25
27	31	11	12	17	14	14	14	44	152	83	93	20
28	31	12	12	a19	14	15	14	44	238	77	94	20
29	32	32	11	a18	-	14	14	25	300	173	121	20
30	26	32	10	a14	-	15	13	59	292	170	134	18
31	11	-	10	a21	-	15	-	85	-	171	134	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	674.0	32	9.5	21.7	1,340
November	641	32	10	21.4	1,270
December	569	38	10	18.4	1,130
Calendar year 1948	21,244.0	286	9.5	58.0	42,100
January	685	30	10	22.1	1,360
February	416	30	12	14.9	825
March	539	34	12	17.4	1,070
April	462	34	12	15.4	916
May	679	85	12	21.9	1,350
June	4,747	300	78	158	9,420
July	4,573	292	34	148	9,070
August	5,708	326	93	184	11,320
September	1,696	125	18	56.5	3,360
Water year 1948-49	21,389.0	326	9.5	58.6	42,430

a No gage-height record; discharge computed on basis of weather records and records for operation of flour mill at San Luis.

Culebra Creek below San Luis, Colo.

Location.- Water-stage recorder, lat. 37°12', long. 105°26', in sec. 27, T. 3 N., R. 72 W., Beaubien Grant survey, 500 feet downstream from bridge on State Highway 159, 600 feet downstream from Rito Seco, and a quarter of a mile southwest of San Luis.

Drainage area.- 255 square miles.

Records available.- August 1938 to September 1949 (no winter records prior to 1941).

Extremes.- Maximum discharge during year, 390 second-feet July 21 (gage height, 3.03 feet); minimum daily, 19 second-feet Feb. 6.

1938-49: Maximum discharge, 866 second-feet May 30, 1942 (gage height, 4.54 feet), from rating curve extended above 400 second-feet; minimum daily, 13 second-feet Apr. 21, 1946.

Remarks.- Records excellent above 25 second-feet and good below except those for periods of no gage-height record, which are fair. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	34	44	23	27	24	30	31	76	268	274	125
2	23	41	45	24	27	27	31	30	78	194	341	95
3	20	42	42	28	26	44	31	28	93	114	337	89
4	32	42	28	42	27	45	32	26	91	55	315	53
5	40	40	22	47	24	37	36	26	85	152	271	87
6	34	25	22	45	19	28	32	26	143	208	241	99
7	32	24	25	42	22	29	31	28	179	213	179	114
8	36	29	44	39	20	28	31	27	136	213	208	101
9	32	41	47	36	23	27	33	25	132	192	256	97
10	25	42	46	40	22	27	33	25	116	169	227	80
11	24	44	35	42	22	28	29	26	116	197	192	68
12	39	41	26	41	21	27	27	26	87	87	174	83
13	37	24	42	40	22	27	27	28	105	74	143	95
14	25	24	23	35	22	27	27	26	110	85	145	80
15	27	23	23	32	22	28	27	25	136	87	181	66
16	31	22	22	30	22	29	26	24	169	103	208	63
17	21	23	23	43	26	47	28	26	164	99	208	56
18	30	39	23	42	40	47	48	28	176	210	154	42
19	41	41	22	40	27	45	48	29	194	271	129	46
20	41	39	22	43	23	32	30	28	230	302	114	55
21	39	25	23	42	22	34	27	27	219	283	107	53
22	41	41	24	36	26	33	27	26	247	107	143	52
23	34	24	53	30	26	31	27	26	271	66	159	63
24	25	24	42	22	27	30	29	25	241	51	147	53
25	40	24	23	21	27	31	29	26	197	60	129	42
26	41	23	23	21	25	31	30	42	171	78	110	40
27	40	23	22	23	27	31	33	47	159	91	99	37
28	42	24	22	27	26	31	32	45	250	89	99	37
29	42	42	21	25	-	32	31	34	315	176	118	37
30	38	42	22	21	-	33	31	55	302	176	132	37
31	26	-	24	27	-	32	-	76	-	187	132	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,018	42	20	32.8	2,020
November	972	44	22	32.4	1,930
December	925	53	21	29.8	1,830
Calendar year 1948	24,847	289	20	67.9	49,280
January	1,049	47	21	33.8	2,080
February	691	40	19	24.7	1,370
March	1,002	47	24	32.3	1,990
April	933	48	26	31.1	1,850
May	967	76	24	31.2	1,920
June	4,988	315	76	166	9,890
July	4,657	302	51	150	9,240
August	5,672	341	99	183	11,250
September	2,045	125	37	68.2	4,060
Water year 1948-49	24,919	341	19	68.3	49,430

Note.- No gage-height record Oct. 1-3, 17, 18, Jan. 6-20, Jan. 22 to Feb. 17, Feb. 19-21; discharge computed on basis of 3 discharge measurements, weather records, and records for station at San Luis.

Costilla Creek above reservoir, near Costilla, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 36°54'25", long. 105°15'00", in Sangre de Cristo Grant, 2¾ miles by road upstream from Costilla Dam and 17 miles southeast of Costilla, Taos County.

Records available.- April 1937 to September 1949 (irrigation seasons only).

Extremes.- Maximum discharge recorded during year, 60 second-feet July 22 (gage height, 1.06 feet); minimum daily recorded, 2.0 second-feet Oct. 7, Sept. 18-22.

1937-49: Maximum discharge recorded, 346 second-feet May 11, 1944 (gage height, 1.60 feet), from rating curve extended above 90 second-feet by logarithmic plotting; maximum gage height, 1.90 feet May 15, 1938, former site and datum; minimum daily discharge recorded, 1.2 second-feet Nov. 7, 1944.

Remarks.- Records good. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.6							-	20	7.0	9.8	5.8
2	3.6							-	17	5.8	10	4.0
3	2.4							-	16	6.1	15	2.4
4	2.4							-	18	8.9	11	2.2
5	2.4							-	17	10	8.4	2.6
6	2.4							-	18	14	7.9	3.0
7	2.0							-	18	18	8.9	2.4
8	2.4							-	16	14	8.9	2.4
9	2.6							-	13	10	9.3	2.2
10	2.4							-	14	10	7.5	2.2
11	2.4							-	12	16	6.6	2.2
12	2.4							-	13	20	6.6	2.4
13	2.4							-	14	15	7.0	3.0
14	2.4							23	11	13	5.8	4.7
15	2.4							29	18	11	5.0	2.6
16	2.2							27	21	10	5.4	2.4
17	2.2							24	19	10	11	2.2
18	2.2							23	23	11	7.9	2.0
19	2.2							23	29	11	5.0	2.0
20	2.6							23	21	10	4.4	2.0
21	-							20	23	11	4.0	2.0
22	-							21	20	18	4.0	2.0
23	-							21	18	24	3.6	2.2
24	-							23	25	14	3.3	2.4
25	-							24	13	15	3.6	2.2
26	-							27	9.8	19	4.0	2.2
27	-							30	7.5	14	3.3	2.2
28	-							34	6.6	12	2.6	2.2
29	-							28	5.4	10	2.4	2.6
30	-							24	5.4	9.8	2.6	3.3
31	-							25	-	9.3	3.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October 1-20	49.6	3.6	2.0	2.48	98
November	-	-	-	-	-
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	-	-	-	-
May 14-31	449	34	20	24.9	891
June	481.7	29	5.4	16.1	955
July	386.9	24	5.8	12.5	767
August	198.1	15	2.4	6.39	393
September	78.0	5.8	2.0	2.60	155
Water year	-	-	-	-	-

Peak discharge (base, 50 sec.-ft.).- May 28 (9 p.m.) 54 sec.-ft.; June 24 (2:30 a.m.) 51 sec.-ft.; July 11 (10 p.m.) 54 sec.-ft.; July 22 (11:50 p.m.) 60 sec.-ft.

Costilla Creek below reservoir, near Costilla, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 36°52'25", long. 105°16'55", in Sangre de Cristo Grant, 125 feet downstream from outlet of reservoir at Costilla Dam and 18 miles southeast of Costilla, Taos County.

Records available.- April 1937 to September 1949 (irrigation seasons only except 1945-47).

Extremes.- Maximum discharge recorded during year, 144 second-feet July 19 (gage height, 1.48 feet); minimum daily recorded, 0.2 second-foot May 14-18, 25-30.
1937-49: Maximum discharge recorded, 286 second-feet May 9, 10, 1942 (gage height, 2.65 feet); no flow at times.

Remarks.- Records fair. Diversions above station for irrigation. Flow regulated by Costilla Reservoir (capacity, 15,700 acre-feet).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	5.8						-	0.3	56	114	62
2	14	5.8						-	.3	25	133	30
3	14	5.8						-	.3	25	132	21
4	14	5.8						-	.3	43	132	21
5	14	5.8						-	6.4	101	130	30
6	14	5.8						-	h23	121	130	41
7	11	5.8						-	h23	116	130	31
8	9.7	5.8						-	h23	58	120	31
9	10	-						-	h23	28	88	23
10	11	-						-	h9.2	48	64	19
11	11	-						-	a.3	92	77	19
12	11	-						-	h21	36	65	19
13	10	-						-	h62	46	58	19
14	9 7	-						0.2	h67	78	58	19
15	9.7	-						.2	h75	86	56	19
16	9.7	-						.2	75	86	48	14
17	9.2	-						.2	26	94	54	11
18	7.2	-						.2	.3	121	70	14
19	7.2	-						.3	4.2	133	74	35
20	7.2	-						.3	15	143	74	56
21	6.7	-						.3	57	143	74	56
22	6.2	-	h0.2					.3	64	141	74	47
23	5.8	-						.3	64	141	74	19
24	5.8	-						.3	22	51	74	12
25	5.8	-						.2	.3	30	74	17
26	5.8	-						.2	18	56	59	27
27	5.8	-						.2	69	56	49	24
28	5.8	-						.2	88	62	49	24
29	5.8	-						.2	101	66	55	24
30	5.8	-						.2	114	59	69	16
31	5.8	-						.3	-	72	69	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	282.7	14	5.8	9.12	561
November 1-8	46.4	5.8	5.8	5.80	92
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	-	-	-	-
May 14-31	4.3	.3	.2	.24	8.5
June	1,051.9	114	.3	35.1	2,090
July	2,413	143	25	77.8	4,790
August	2,527	133	48	81.5	5,010
September	800	62	11	26.7	1,590
Water year	-	-	-	-	-

a No gage-height record; discharge computed on basis of records for stations near Amalia and near Costilla.
h Computed from staff-gage reading.

Costilla Creek near Amalia, N. Mex.

Location.- Water-stage recorder, lat. 36°52'15", long. 105°23'10", in Sangre de Cristo Grant, 1.5 miles downstream from Latir Creek, 6½ miles southeast of Amalia, and 12 miles southeast of Costilla.

Records available.- May to September 1949.

Extremes.- Maximum discharge during period, 259 second-feet July 23 (gage height, 3.15 feet); minimum daily, 17 second-feet Sept. 17, 18.

Remarks.- Records good except those for periods of no gage-height record, which are poor. No diversion between station and Costilla Reservoir 13 miles upstream (capacity, 15,700 acre-feet).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1								-	85	129	124	73
2								-	78	85	144	42
3								-	76	a70	154	26
4								-	76	a85	149	24
5								-	74	136	141	28
6								-	94	162	144	49
7								-	102	164	146	37
8								-	98	116	141	37
9								-	91	a70	113	33
10								-	87	a80	82	27
11								-	66	135	92	27
12								-	74	a90	85	26
13								127	130	a80	77	28
14								127	127	a100	74	29
15								a140	133	a105	71	27
16								a150	131	110	62	23
17								a130	96	112	69	17
18								116	61	138	84	17
19								110	64	149	87	36
20								106	62	162	85	67
21								101	108	164	85	67
22								95	124	172	85	63
23								91	120	184	85	32
24								89	93	a150	84	20
25								89	a60	a80	88	20
26								92	a70	91	69	34
27								98	116	87	55	30
28								107	133	81	54	30
29								98	144	88	55	31
30								89	157	78	73	30
31								94	-	82	76	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October					
November					
December					
Calendar year					
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	-	-	-	-
May 15-31	2,049	150	89	108	4,060
June	2,930	157	60	97.7	5,810
July	3,535	184	70	114	7,010
August	2,[illegible]	154	54	94.6	5,820
September	1,030	73	17	34.3	2,040
The period	-	-	-	-	24,740

a No gage-height record; discharge computed on basis of records for station near Costilla.

Costilla Creek near Costilla, N. Mex.

Location.- Water-stage recorder, lat. 36°56'30", long. 105°30'10", in Sangre de Cristo Grant, 1 mile upstream from diversion dam and 2 miles southeast of Costilla, Taos County.

Records available.- March 1936 to September 1949 (irrigation seasons only 1936-43).

Extremes.- Maximum discharge during year, 324 second-feet July 23 (gage height, 3.54 feet); minimum daily, 4.5 second-feet Nov. 27, 28, Dec 6, 7, 25.
1936-49: Maximum discharge, 1,150 second-feet May 11, 1942 (gage height, 5.37 feet, site and datum then in use); minimum daily recorded, 2 second-feet Dec. 30, 1946.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation. Flow partly regulated by Costilla Reservoir 20 miles upstream (capacity, 15,700 acre-feet).

Rating table, water year 1948-49, except periods of ice effect (gage-height, in feet, and discharge, in second-feet).

1.2	3.7	2.5	95
1.5	11	3.0	184
2.0	40	3.6	345

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	19	b6	b8	b8	b13	15	100	98	143	127	88
2	26	17	b6	b8	b9	b13	15	102	90	87	160	64
3	24	18	b6	b7	b9	b13	11	112	86	72	176	43
4	23	20	b5.5	b6.5	b9	b15	15	113	86	67	178	38
5	23	15	4.8	a6	b9	b16	12	117	88	112	162	39
6	22	14	b4.5	a7	b8	b16	17	113	98	154	170	61
7	22	15	b4.5	a8	b8	b16	20	113	106	164	178	50
8	20	a13	b5	a9	b8	b15	24	96	104	134	168	48
9	19	a10	b5.5	b9	b7	b15	22	83	92	74	141	46
10	19	a11	b6	b9	b6	b15	20	87	95	69	106	38
11	20	a12	b6.5	b9	b7	b15	18	110	81	132	107	38
12	20	a12	b7	b10	b9	b15	23	131	75	96	102	37
13	20	13	b7	b10	b9	15	32	138	124	78	91	38
14	18	13	b7	b10	b8	11	38	134	127	101	88	42
15	18	13	b7	b9	b7	14	44	151	132	108	85	38
16	18	13	b6.5	b8	b7	17	49	158	132	108	76	36
17	18	14	b6	b7	b8	18	63	151	134	108	80	29
18	17	b13	b6	b7	b9	16	69	136	80	131	90	28
19	17	b11	b6	b7	b10	20	55	124	98	145	95	34
20	18	a14	b6.5	b8	b10	25	57	118	87	166	94	68
21	17	a13	b6.5	b9	b11	23	72	107	108	176	92	70
22	16	a10	b7	b9	*b11	20	86	102	129	205	91	71
23	15	a17	b7	b9	b11	21	60	98	124	247	91	47
24	15	*b17	b6	b9	b12	16	100	98	120	171	91	31
25	15	11	b4.5	*b9	b13	16	102	101	71	82	92	30
26	14	4.6	b5	b9	b13	17	110	107	61	125	87	42
27	15	b4.5	b7	b9	b12	13	101	108	98	124	67	39
28	17	b4.5	b7	b8	b13	17	96	117	122	110	66	39
29	19	b5	b6	b7	-	19	108	112	131	115	63	41
30	19	b6	b7	b7	-	16	113	106	149	101	78	43
31	19	-	b8	b7	-	16	-	110	-	94	85	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	587	26	14	18.9	1,160
November	372.6	20	4.5	12.4	739
December	190.3	8	4.5	6.14	377
Calendar year 1948	20,150.1	304	4.5	55.1	39,960
January	254.5	10	6	8.21	505
February	261	13	6	9.32	518
March	507	25	11	16.4	1,010
April	1,567	113	11	52.2	3,110
May	3,553	158	83	115	7,050
June	3,126	149	61	104	6,200
July	3,799	247	67	123	7,540
August	3,377	178	63	109	6,700
September	1,356	88	28	45.2	2,690
Water year 1948-49	18,950.4	247	4.5	51.9	37,600

Peak discharge (base, 250 sec.-ft.).- July 23 (6 a.m.) 324 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records, discharge measurements, and records for nearby stations.
b Stage-discharge relation affected by ice.

Costilla Creek at Garcia, Colo.

Location.- Water-stage recorder, lat. 36°59'40", long. 105°32'00", in Sangre de Cristo Grant, 300 feet upstream from New Mexico-Colorado State line and half a mile south of Garcia.

Records available.- June 1944 to September 1949 (no winter records).

Extremes.- Maximum discharge recorded during year, 308 second-feet July 23 (gage height, 4.16 feet); minimum daily recorded, 0.3 second-foot Sept. 25.
1944-49: Maximum discharge recorded, that of July 23, 1949; no flow at times.

Remarks.- Records poor. Diversions above station for irrigation. Flow partly regulated by Costilla Reservoir (capacity, 15,700 acre-feet).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.1						-	92	3.4	5.8	a15	6.2
2	2.6						-	90	4.5	.6	a20	3.1
3	2.6						-	97	5.4	.9	a30	2.8
4	2.3						-	88	7.0	2.3	a35	3.1
5	2.8						-	92	6.2	3.9	a20	2.6
6	3.6						-	86	5.4	4.7	a30	4.5
7	4.2						-	81	4.5	4.7	a40	1.8
8	3.6						-	70	5.0	3.1	29	2.3
9	2.8						-	48	4.7	3.4	23	1.8
10	2.3						-	43	5.0	4.2	21	1.3
11	2.0						-	53	6.2	3.9	20	2.0
12	1.8						-	64	7.3	3.6	11	1.8
13	1.5						-	67	7.7	3.9	6.6	1.5
14	1.0						-	70	8.1	5.8	7.0	3.6
15	.7						-	79	8.5	6.2	7.7	4.2
16	.9						-	90	8.1	6.6	15	2.8
17	1.0						-	81	7.7	7.0	20	1.5
18	1.2						-	57	8.1	7.0	14	1.2
19	.7						-	59	13	7.7	9.9	1.0
20	.7						-	40	8.5	26	7.0	1.0
21	.9						-	36	4.7	112	7.3	3.1
22	.7						-	36	4.7	148	8.5	8.1
23	.7						-	29	4.7	204	8.1	1.5
24	.7						90	18	5.0	112	7.7	.4
25	.6						90	15	4.5	37	7.0	.3
26	.6						101	16	4.5	34	7.7	.6
27	.6						92	11	4.7	46	6.2	1.5
28	1.0						86	11	5.0	23	6.6	1.3
29	1.5						97	9.9	5.0	a15	6.2	1.8
30	1.3						106	9.9	5.0	a10	3.6	2.8
31	1.5						-	7.7	-	a10	2.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	50.5	4.2	0.6	1.63	100
November	-	-	-	-	-
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April 24-30	662	106	86	94.6	1,310
May	1,646.5	97	7.7	53.1	3,270
June	182.1	13	3.4	6.07	361
July	862.3	204	.6	27.8	1,710
August	452.9	40	2.8	14.6	898
September	71.5	8.1	.3	2.38	142
Water year	-	-	-	-	-

Peak discharge (base, 200 sec.-ft.).- July 23 (7 a.m.) 308 sec.-ft.
a No gage-height record; discharge computed on basis of records for Costilla Creek near Costilla, Acequia Madre and Cerro Canal at Costilla.

Casias Creek near Costilla, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 36°54'05", long. 105°15'30", in Sangre de Cristo Grant, 200 feet downstream from road crossing, 2.5 miles by road upstream from Costilla Dam, and 17 miles southeast of Costilla, Taos County.

Records available.- April 1937 to September 1949 (irrigation seasons only).

Extremes.- Maximum discharge recorded during year, 98 second-feet Aug. 3 (gage height, 1.65 feet); minimum daily determined, 0.2 second-foot Nov. 15, 16.

1937-49: Maximum discharge recorded, 121 second-feet Aug. 10, 1943; maximum gage height recorded, 1.90 feet June 14, 1938 (backwater from Costilla Reservoir); minimum daily discharge determined, 0.2 second-foot Nov. 3-7, 1947, Nov. 15, 16, 1948.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	3.6						-	47	40	23	14
2	6.6	4.4						-	44	37	22	11
3	5.3	4.8						-	42	34	40	9.3
4	4.8	3.6						-	47	31	31	8.8
5	4.8	b3.4						-	48	32	25	9.3
6	4.4	b3.2						-	51	37	26	8.8
7	3.6	b3.0						-	51	47	25	8.4
8	4.4	b2.8						-	49	38	24	7.9
9	4.4	a2.6						-	46	34	23	7.9
10	4.4	a2.4						-	47	34	21	8.4
11	4.4	a2.2						-	46	38	19	8.4
12	4.4	a2.0						-	51	42	18	7.9
13	4.4	1.9						-	53	42	18	11
14	4.4	2.4						25	52	41	16	10
15	4.4	.2						29	53	36	15	8.4
16	4.4	.2						29	54	33	17	7.5
17	4.4	-						28	56	32	20	6.7
18	4.0	-						27	56	30	17	7.1
19	4.4	-						28	64	33	14	6.7
20	4.8	-						28	63	32	14	6.7
21	4.4	-						25	61	32	13	6.7
22	3.6	-						25	58	36	13	6.7
23	3.6	-						28	57	39	12	6.3
24	3.6	-						30	58	32	11	6.7
25	3.6	-						33	51	33	11	6.3
26	3.6	-						39	48	33	12	5.9
27	4.0	-						43	43	30	11	5.9
28	4.8	-						51	41	28	11	6.3
29	1.1	-						51	39	26	10	6.7
30	9.4	-						51	37	25	10	7.5
31	5.8	-						51	-	24	11	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	140.8	9.4	1.1	4.54	279
November 1-16	42.7	4.8	.2	2.67	85
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	-	-	-	-
May 14-31	621	51	25	34.5	1,230
June	1,513	64	37	50.4	3,000
July	1,061	47	24	34.2	2,100
August	553	40	10	17.8	1,100
September	239.2	14	5.9	7.97	474
Water year	-	-	-	-	-

Peak discharge (base, 50 sec.-ft.).- May 28 (8 p.m.) 61 sec.-ft.; June 19 (1 a.m.) 77 sec.-ft.; July 7 (3:15 p.m.) 82 sec.-ft.; July 11 (8:30 p.m.) 63 sec.-ft.; Aug. 3 (6:45 p.m.) 98 sec.-ft.

a No gage-height record; discharge interpolated.

b Stage-discharge relation affected by ice.

Santistevan Creek near Costilla, N. Mex.

Location.- Water-stage recorder and metal Parshall flume, lat 36°53'05", long. 105°16'50", in Sangre de Cristo Grant, 200 feet upstream from road crossing, 0.9 mile upstream from Costilla Dam, and 16 miles southeast of Costilla, Taos County.

Records available.- April 1937 to September 1949 (irrigation seasons only).

Extremes.- Maximum discharge recorded during year, 11 second-feet Aug. 3 (gage height, 1.24 feet); minimum daily recorded, 0.1 second-foot Nov. 13-17.
1937-49: Maximum discharge recorded, 18 second-feet Aug. 11, 1941 (gage height, 1.73 feet); minimum daily recorded that of Nov. 13-17, 1948.

Remarks.- Records good except those for periods of ice effect or no gage-height record and those for May 25 to June 9, which are poor. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	0.7						-	4.9	5.0	2.8	1.8
2	1.1	.8						-	4.7	4.6	2.7	1.6
3	1.0	.7						-	4.7	4.2	3.8	1.4
4	.9	.7						-	4.9	4.0	3.0	1.4
5	1.0	b.7						-	4.9	3.8	2.7	1.5
6	.9	b.7						-	5.2	3.9	3.1	1.4
7	.8	b.7						-	5.8	4.1	2.9	1.4
8	.8	b.7						-	a5.9	3.6	2.8	1.4
9	.8	a.7						-	6.0	3.4	2.8	1.4
10	.8	a.7						-	6.1	3.4	2.6	1.3
11	a.8	a.4						-	6.0	3.4	2.6	1.4
12	a.8	a.2						-	6.0	3.3	2.6	1.2
13	a.8	.1						-	5.9	3.3	2.6	1.4
14	a.8	.1						2.4	5.8	2.9	2.5	1.1
15	a.7	.1						2.6	5.7	2.6	2.4	1.1
16	a.7	.1						2.7	6.0	2.6	2.6	1.0
17	a.7	.1						3.0	6.1	2.6	2.5	1.0
18	.7	-						3.1	6.3	2.6	2.2	1.0
19	.7	-						3.2	6.6	2.9	2.2	1.0
20	.7	-						3.1	6.4	2.9	2.1	1.0
21	.7	-						3.3	6.6	3.0	2.0	.9
22	.7	-						3.4	6.4	3.2	1.9	.9
23	.7	-						3.5	6.4	3.1	1.9	.9
24	.7	-						3.9	6.7	2.9	1.9	.9
25	.7	-						3.6	6.0	3.1	1.9	.9
26	.7	-						3.8	5.8	3.0	1.8	.9
27	.7	-						4.3	5.4	2.8	1.8	.9
28	.7	-						4.5	5.1	2.7	1.7	.9
29	.6	-						4.5	4.9	2.8	1.6	.9
30	.7	-						4.6	4.8	2.7	1.6	.9
31	.7	-						5.4	-	2.8	1.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	24.2	1.1	0.6	0.78	48
November 1-17	8.2	.8	.1	.48	16
December	-	-	-	-	-
Calendar year	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	-	-	-	-	-
May 14-31	64.9	5.4	2.4	3.61	129
June	172.0	6.7	4.7	5.73	341
July	101.2	5.0	2.6	3.26	201
August	73.4	3.8	1.6	2.37	146
September	34.8	1.8	.9	1.16	69
Water year	-	-	-	-	-

Peak discharge (base, 5 sec.-ft.).- June 18 (11:30 p.m.) 8.1 sec.-ft.; July 7 (5:30 p.m.) 7.5 sec.-ft.; Aug. 3 (4:15 p.m.) 11 sec.-ft.

a No gage-height record; discharge computed on basis of weather records.
b Stage-discharge relation affected by ice.

Ute Creek near Amalia, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 36°57'10", long. 105°24'35", 100 feet downstream from road crossing and 2.6 miles northeast of Amalia.

Records available.- April to September 1949.

Extremes.- Maximum discharge during period, 52 second-feet July 25 (gage height, 1.77 feet); minimum daily, 2.0 second-feet, Sept. 27, 28.

Remarks.- Records good Aug. 31 to Sept. 30, others poor. Two known diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	3.2	8.8	13	12	3.9
2							-	3.9	8.3	13	11	3.5
3							-	3.8	8.8	12	13	3.2
4							-	3.9	11	13	12	3.1
5							-	3.9	13	14	11	3.5
6							-	3.8	10	18	12	3.2
7							-	3.3	9.8	15	a10	3.1
8							-	3.1	10	16	9.0	2.8
9							-	3.0	12	18	8.8	2.7
10							-	4.2	12	18	8.3	2.7
11							-	5.4	13	20	7.8	2.8
12							-	4.8	14	20	7.4	2.6
13							-	5.1	14	22	6.7	3.1
14							-	7.4	14	22	5.6	3.0
15							-	11	15	22	5.1	2.6
16							-	9.3	15	22	5.1	2.5
17							-	8.3	16	22	6.3	2.4
18							-	8.3	17	21	5.8	2.3
19							-	8.8	16	22	5.3	2.1
20							-	9.0	13	22	5.1	2.1
21							-	8.3	12	22	4.8	2.1
22							6.2	8.8	12	24	4.5	2.1
23							5.8	9.8	12	20	4.5	2.3
24							7.4	12	12	19	4.4	2.2
25							8.5	14	11	23	4.4	2.1
26							5.6	13	11	28	4.3	2.1
27							3.3	10	11	28	4.0	2.0
28							3.0	9.8	11	24	3.6	2.0
29							3.1	11	13	20	3.5	2.1
30							2.6	11	13	16	3.4	2.1
31							-	12	-	14	3.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October					
November					
December					
Calendar year					
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April 22-30	45.5	8.5	2.6	5.06	90
May	233.2	14	3.0	7.52	463
June	368.7	17	8.3	12.3	731
July	603	28	12	19.5	1,200
August	212.2	13	3.4	6.85	421
September	78.3	3.9	2.0	2.61	155
The period	-	-	-	-	3,060

Peak discharge (base, 35 sec.-ft.).- July 11 (8 p.m.) 38 sec.-ft.; July 22 (6:30 p.m.) 44 sec.-ft.; July 25 (4:30 p.m.) 52 sec.-ft.; Aug. 6 (7 p.m.) 41 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

Principal diversions from Costilla Creek, N. Mex. and Colo.

Records of discharge are collected at nine gaging stations on four diversions from Costilla Creek. Each of these stations is equipped with a water-stage recorder and a Parshall flume. Water diverted is used for irrigation in the Sangre de Cristo Grant in New Mexico and Colorado below the gaging station near Costilla. Records are collected during irrigation seasons only.

Acequia Madre at Costilla, N. Mex.- Lat. 36°58'00", long. 105°30'50", 275 feet downstream from diversion dam. Records available, May 1944 to September 1949. Acequia diverts from right bank of Costilla Creek.

Mesa ditch near Garcia, Colo.- Lat. 36°59'50", long. 105°30'45", 429 feet north of mile-post No. 136+54 on New Mexico-Colorado State line. Records available, June 1944 to September 1949. Ditch diverts from right bank of Acequia Madre for irrigation in Colorado.

Middle ditch at Garcia, Colo.- Lat. 36°59'50", long. 105°31'25", 300 feet north of New Mexico-Colorado State line. Records available, July 1944 to September 1949. Ditch diverts from Acequia Madre for irrigation in Colorado.

Cordillera ditch at Garcia, Colo.- Lat. 36°59'40", long. 105°31'40", 570 feet south of New Mexico-Colorado State line. Records available, June 1944 to September 1949. Ditch diverts from Acequia Madre for irrigation in Colorado.

Cerro Canal at Costilla, N. Mex.- Lat. 36°57'50", long. 105°31'10", 1,400 feet downstream from diversion dam. Records available, April 1944 to September 1949. Canal diverts from left bank of Costilla Creek.

Cerro Canal near Jaroso, Colo.- Lat. 36°59'35", long. 105°34'35". Records available, June 1944 to September 1949. Flow measured is delivered to Colorado and to New Mexico branch of Cerro Canal.

New Mexico Branch Cerro Canal near Jaroso, Colo.- Lat. 36°59'35", long. 105°34'45", 225 feet downstream from head gate. Records available, June 1944 to September 1949. Canal diverts from left bank of Cerro Canal for irrigation in New Mexico.

Alire ditch at Garcia, Colo.- Lat. 36°59'45", long. 105°32'05", 430 feet southeast of mile post No. 137+54 on New Mexico-Colorado State line. Records available, June 1944 to September 1949. Ditch diverts from left bank of Costilla Creek for irrigation in Colorado.

Eastdale No. 1 intake canal near Jaroso, Colo.- Lat. 37°02'40", long. 105°37'00", 1,100 feet downstream from head gate. Records available, June 1944 to September 1949. Canal diverts from right bank of Costilla Creek to Eastdale Reservoir No. 1 for irrigation in Colorado.

Diversions in acre-feet, water year October 1948 to September 1949

Month	Acequia Madre	Mesa ditch	Middle ditch	Cordillera ditch	Cerro Canal at Costilla	Cerro Canal near Jaroso, Colo	New Mexico branch Cerro Canal	Alire ditch	Eastdale No. 1 intake
October.....	a240	a33	0	b13	b547	b353	b92	b39	7.5
November.....	-	-	0	-	-	-	-	-	7.9
December.....	-	-	c0	-	-	-	-	-	0
January.....	-	-	-	-	-	-	-	-	0
February.....	-	-	-	-	-	-	-	-	0
March.....	-	-	-	-	-	-	-	-	0
April.....	e28	e0	e0	e7.5	e22	d0	d0	e50	1,070
May.....	1,050	111	20	114	1,340	686	107	87	1,720
June.....	1,360	458	28	45	3,290	2,330	590	49	87
July.....	1,540	473	16	48	3,200	2,300	481	26	712
August.....	1,730	464	23	29	3,220	2,570	524	11	139
September.....	868	190	3.8	12	1,240	928	81	9.5	74
Water year...	-	-	-	-	-	-	-	-	3,820

a Oct. 1-21.
b Oct. 1-31.
c Dec. 1-9.
d Apr. 20-30.
e Apr. 21-30.

Latir Creek near Cerro, N. Mex.

Location.- Water-stage recorder and concrete Parshall flume, lat. 36°49'45", long. 105°32'45", in S½SW¼ sec. 15, T. 30 N., R. 13 E., at mouth of canyon, 100 feet upstream from heading of Cerro community ditch and 6 miles northeast of Cerro.

Drainage area.- 10 square miles.

Records available.- April 1937 to September 1949 (irrigation seasons only prior to 1946).

Extremes.- Maximum discharge during year not determined, probably occurred June 13 during period of no gage-height record; minimum daily, 2.0 second-feet Jan. 15-20, 1 26-31.
1937-49: Maximum discharge determined, 121 second-feet June 3, 1942, from rating curve extended above 56 second-feet by logarithmic plotting; maximum gage height recorded, 4.2 feet July 19, 1945 (log jam); minimum daily discharge recorded, 0.6 second-foot May 9, 1937.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.3	2.8	2.8	2.5	a2.2	2.8	3.1	10	19	a25	10	4.7
2	4.0	2.8	2.8	2.5	a2.2	2.8	3.3	13	21	a24	7.3	5.1
3	3.6	2.8	2.8	2.5	a2.2	2.8	4.0	14	23	a23	7.5	4.5
4	3.6	2.6	2.8	b2.4	a2.2	2.8	3.8	14	28	a22	7.3	4.3
5	3.6	2.6	2.8	b2.3	a2.2	3.0	3.3	13	31	a20	6.8	4.3
6	3.4	3.0	2.8	b2.4	a2.2	3.0	3.3	11	35	a18	7.3	4.3
7	3.3	3.4	2.6	2.6	a2.2	3.0	3.4	9.0	34	a17	7.3	4.1
8	3.4	2.8	2.6	2.6	a2.2	2.8	3.4	9.2	33	16	8.2	4.1
9	3.4	2.4	2.5	2.6	a2.2	2.8	3.0	9.7	a32	16	9.5	4.5
10	3.4	3.1	2.6	2.6	a2.2	2.8	3.0	11	a31	16	8.4	4.5
11	3.4	3.3	2.8	2.6	a2.5	2.6	3.1	13	a33	20	7.7	4.5
12	3.4	3.1	2.8	2.6	a2.5	2.6	3.6	15	a35	17	7.5	4.3
13	3.4	3.1	2.8	b2.5	a2.6	2.6	4.0	15	a37	15	7.0	4.9
14	3.4	3.1	2.8	b2.3	a2.7	2.6	4.1	16	a39	14	6.6	4.7
15	3.6	3.1	2.8	b2.0	*2.8	2.6	4.0	17	a40	13	6.1	4.1
16	3.4	3.1	2.8	b2.0	2.8	2.8	4.3	15	a40	12	6.1	4.0
17	3.1	3.1	2.8	b2.0	2.8	3.0	4.9	13	a40	12	6.8	3.8
18	3.0	3.1	2.6	b2.0	2.8	3.1	4.9	13	a44	13	5.9	3.6
19	3.1	3.1	2.6	b2.0	2.8	3.1	4.3	14	a48	13	5.5	3.6
20	3.4	3.1	2.8	b2.0	2.8	3.1	4.0	12	a45	18	5.3	3.6
21	3.1	3.1	2.8	b2.2	2.8	3.0	4.5	12	a42	20	5.1	3.6
22	3.0	3.1	2.8	b2.2	2.8	3.0	5.7	12	a40	18	5.1	a3.6
23	3.0	3.1	2.8	b2.2	2.8	3.0	7.5	13	a38	22	5.1	3.6
24	3.0	3.1	2.6	b2.2	2.8	3.1	9.0	15	a36	20	4.9	3.6
25	3.1	3.1	2.8	b2.2	2.8	3.0	9.2	16	a33	17	5.1	3.8
26	3.1	3.1	2.8	b2.0	2.8	2.8	9.0	17	a31	16	4.9	3.6
27	3.1	3.0	2.8	a2.0	2.8	3.1	7.7	17	a30	12	4.7	3.6
28	3.1	2.8	a2.7	a2.0	2.8	3.0	10	19	a29	11	4.7	4.0
29	3.0	2.8	a2.6	a2.0	-	3.0	13	21	a27	10	4.5	4.1
30	3.1	3.0	*2.5	a2.0	-	3.0	11	21	a26	10	4.3	4.9
31	3.0	-	2.5	a2.0	-	3.1	-	22	-	9.7	4.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	102.8	4.3	3.0	3.32	204
November	89.7	3.4	2.4	2.99	178
December	84.4	2.8	2.5	2.72	167
Calendar year 1948	2,591.0	41	2.4	7.08	5,130
January	70.0	2.6	2.0	2.26	139
February	71.5	2.8	2.2	2.55	142
March	89.8	3.1	2.6	2.90	178
April	161.4	13	3.0	5.38	320
May	441.9	22	9.0	14.3	876
June	1,020	48	19	34.0	2,020
July	509.7	25	9.7	16.4	1,010
August	197.2	10	4.3	6.36	391
September	123.9	5.1	3.6	4.13	246
Water year 1948-49	2,962.3	48	2.0	8.12	5,870

Peak discharge (base, 30 sec.-ft.).- June 5 (9 p.m.) 48 sec.-ft.; July 20 (8:20 p.m.) 45 sec.-ft.; July 23 (7 p.m.) 40 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

b Stage-discharge relation affected by ice.

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Red River near Red River, N. Mex.

Location.- Water-stage recorder, lat. 36°37'20", long. 105°23'20", in NE¼ sec. 36, T. 28 N., R. 14 E., 100 feet downstream from confluence of Middle and East Forks and 6 miles south of Red River. Datum of gage is 9,394.2 feet above mean sea level (plane-table levels by Division of Water and Power).

Records available.- July 1940 to September 1949 (no winter records prior to 1944). Prior to October 1947, published as Rio Colorado near Red River.

Extremes.- Maximum discharge during year, 134 second-feet June 19; maximum gage height, 3.63 feet Dec. 2 (ice jam); minimum daily discharge not determined, occurred during period of no gage-height record or indefinite stage-discharge relation.

1940-49: Maximum discharge recorded, 218 second-feet June 19, 1941, from rating curve extended above 160 second-feet by logarithmic plotting; maximum gage height, 3.63 feet Dec. 2, 1948 (ice jam); minimum daily discharge, 3 second-feet Jan. 28, 1948.

Remarks.- Records fair except those for Oct. 15 to Apr. 13, which are poor. No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.2		d6					39	68	50	24	14
2	9.2		e6					44	63	46	22	13
3	8.7							48	59	44	22	12
4	8.3							51	59	41	22	11
5	8.3							51	68	38	20	12
6	7.9							48	70	38	19	11
7	7.5						a6	44	70	36	20	11
8	7.1	e7		e5	e5	a4		38	63	36	19	10
9	7.1							39	59	34	20	12
10	7.1							45	60	33	20	12
11	7.1							51	63	33	19	11
12	7.1							53	72	30	19	10
13	7.1		d6					44	88	28	18	12
14	7.1						6.1	46	94	29	17	12
15							6.4	59	92	27	16	11
16							8.3	54	82	26	16	10
17						a5	9.6	53	84	25	17	9.6
18							10	45	88	24	15	9.2
19							12	45	119	24	14	9.2
20							12	39	106	31	14	9.2
21							12	36	108	27	14	9.2
22	e7				a5		15	33	88	34	14	9.2
23		e6					19	36	80	29	14	10
24				e4			21	41	73	27	13	12
25							24	50	65	32	14	11
26						a6	27	59	60	31	14	10
27			e6				28	59	56	28	13	9.6
28							30	62	53	26	12	9.2
29		d6			-		34	63	48	24	12	10
30		d6			-		39	66	48	24	12	15
31		-			-		-	75	-	23	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	277.8	9.2	-	7.35	452
November	197	-	-	6.57	391
December	186	-	-	6.00	369
Calendar year 1948	6,165.4	90	-	16.8	12,220
January	139	-	-	4.48	276
February	140	-	-	5.00	278
March	152	-	-	4.90	301
April	391.4	39	-	13.0	776
May	1,516	75	33	48.9	3,010
June	2,206	119	48	73.5	4,380
July	978	50	23	31.5	1,940
August	517	24	12	16.7	1,030
September	326.4	15	9.2	10.9	647
Water year 1948-49	6,976.6	119	-	19.1	13,850

Peak discharge (base, 50 sec.-ft.).- May 3 (10 p.m.) 51 sec.-ft.; May 12 (2 a.m.) 57 sec.-ft.; June 19 (1 a.m.) 134 sec.-ft.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

d Doubtful gage-height record; discharge computed as explained in footnote a.

e Stage-discharge relation indefinite; discharge computed as explained in footnote a.

Red River near Questa, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 36°42'10", long. 105°34'00", in SW¼ sec. 33, T. 29 N., R. 13 E. (projected), 1¾ miles upstream from Cabresto Creek and 2 miles east of Questa. Datum of gage is 7,449.88 feet above mean sea level.

Drainage area.- 112 square miles.

Records available.- October 1912 to August 1915 (fragmentary) and October 1930 to September 1949 in reports of Geological Survey. October 1912 to December 1931 in reports of State engineer. Prior to October 1947, published as Rio Colorado near Questa.

Average discharge.- 33 years (1915-25, 1926-49), 65.1 second-feet.

Extremes.- Maximum discharge during year, 474 second-feet June 19 (gage height, 1.44 feet); minimum daily, 15 second-feet Feb. 10, 14-18, Mar. 1, 3.
1930-49: Maximum discharge, 886 second-feet May 25, 1942 (gage height, 2.32 feet), from rating curve extended above 450 second-feet by logarithmic plotting; minimum daily, 6.3 second-feet Nov. 24, 25, 1931.

Remarks.- Records good except those for periods of ice effect, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	18	20	20	b17	15	22	147	205	171	64	38
2	19	18	22	20	b18	16	21	165	184	159	58	40
3	19	18	22	20	b18	15	19	177	171	142	72	35
4	19	18	22	20	b17	16	20	212	171	127	62	32
5	19	18	22	20	b17	16	18	221	212	122	54	34
6	19	18	*22	20	b17	16	20	221	230	132	54	34
7	18	18	22	19	b17	16	23	177	212	127	58	30
8	18	18	22	19	b17	17	24	137	177	122	54	29
9	18	19	22	19	b16	17	24	122	165	108	60	31
10	18	19	21	19	b15	17	23	137	191	104	58	35
11	18	19	21	19	b16	17	22	191	198	108	54	32
12	18	19	21	19	b16	18	24	230	230	108	54	30
13	18	19	20	19	b16	17	25	247	265	100	53	31
14	18	19	20	19	b15	17	27	256	265	87	50	35
15	18	19	20	19	b15	19	30	330	274	84	47	32
16	18	19	20	b19	b15	20	35	330	310	82	46	31
17	18	19	20	b19	b15	21	43	291	330	79	49	30
18	17	19	20	19	b15	20	47	212	370	77	47	29
19	18	20	20	20	b16	22	45	191	400	74	43	29
20	18	20	20	19	b16	22	46	191	390	94	43	30
21	18	21	20	18	b17	22	50	184	320	94	42	28
22	18	21	20	18	b17	21	68	184	282	104	40	28
23	18	21	20	18	*17	21	84	184	256	87	40	29
24	18	21	20	18	17	19	97	198	238	79	39	31
25	18	21	20	18	17	18	104	205	221	97	43	31
26	18	21	19	*18	16	19	122	256	238	90	45	28
27	17	20	19	18	17	18	117	282	221	79	40	28
28	17	20	19	16	16	21	127	238	184	74	40	28
29	18	20	20	b17	-	21	147	247	177	72	38	29
30	18	20	19	b16	-	20	177	265	171	68	36	43
31	18	-	20	b16	-	20	-	247	-	64	35	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	563	21	17	18.2	1,120
November	580	21	18	19.3	1,150
December	635	22	19	20.5	1,260
Calendar year 1948	21,826	400	14	59.6	43,290
January	580	20	16	18.7	1,150
February	458	18	15	16.4	908
March	574	22	15	18.5	1,140
April	1,651	177	18	55.0	3,270
May	6,675	330	122	215	13,240
June	7,258	400	165	242	14,400
July	3,115	171	64	100	6,180
August	1,518	72	35	49.0	3,010
September	950	43	28	31.7	1,880
Water year 1948-49	24,557	400	15	67.3	48,710

Peak discharge (base, 160 sec.-ft.).- May 4 (6:40 p.m.) 282 sec.-ft.; May 15 (2:20 a.m.) 350 sec.-ft.; May 17 (2:30 a.m.) 380 sec.-ft.; May 27 (3 a.m.) 291 sec.-ft.; June 19 (6:45 a.m.) 474 sec.-ft.; Aug. 3 (5 p.m.) 198 sec.-ft.;

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice; discharge computed on basis of weather records and records for nearby stations.

Cabresto Creek near Questa, N. Mex.

Location.- Water-stage recorder and 3-foot concrete Parshall flume, lat. 36°43'45", long. 105°33'10", in SE¼SE¼ sec. 21, T. 29 N., R. 13 E., a quarter of a mile downstream from Llano ditch heading, 3 miles northeast of Questa, and 3½ miles upstream from mouth.
Records available.- September 1943 to September 1949.
Extremes.- Maximum discharge during year, 96 second-feet May 15 (gage height, 3.02 feet); minimum daily, 2.6 second-feet Nov. 19.
1943-49: Maximum discharge, 135 second-feet May 13, 1945 (gage height, 3.32 feet); minimum daily, 2.4 second-feet Oct. 13, 1945.
Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Llano ditch (see p. 282) diverts water half a mile above station for irrigation. Flow largely regulated by Cabresto Reservoir (capacity, 732 acre-feet).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.9	4.6	4.2	3.7	4.6	3.6	5.5	50	46	18	a10	8.9
2	5.0	4.5	4.1	4.0	4.6	3.5	5.0	61	38	18	a10	9.1
3	4.8	4.4	4.1	3.7	4.5	3.7	4.6	70	36	13	a10	8.2
4	4.5	4.4	4.2	b3.5	4.5	3.7	5.3	70	36	11	a10	7.9
5	4.4	a4	3.5	a3	4.2	3.8	5.2	67	35	12	a10	7.9
6	4.6	a4	4.1	a3.5	4.2	3.7	6.0	60	13	13	a10	7.9
7	4.5	a4	3.7	a4	4.2	3.8	6.2	50	14	12	a10	7.6
8	4.4	a4	4.2	a4	4.2	3.8	6.8	50	14	11	a10	9.5
9	4.4	a3.5	3.8	a4	4.1	3.6	7.0	57	13	12	a10	19
10	4.4	a4	4.1	4.0	4.0	4.0	7.0	61	13	13	a10	18
11	4.2	a4	4.0	3.6	4.0	4.0	7.0	64	11	14	a8	14
12	4.2	a4	3.7	3.5	3.8	4.0	7.4	68	10	13	a8	10
13	4.2	a4	3.7	3.2	3.8	3.8	8.4	69	11	12	a8	8.9
14	4.1	a4.5	3.8	3.4	3.8	3.5	9.4	73	9.3	13	a10	9.3
15	4.1	a4	4.0	3.5	b3.8	4.1	11	81	11	13	a8	8.2
16	4.0	a4	4.0	3.0	3.8	4.5	11	80	13	14	a8	7.8
17	4.0	3.9	4.1	3.6	3.8	4.6	14	77	12	14	a10	7.4
18	3.8	3.6	4.0	3.7	3.8	4.8	16	67	12	14	a10	7.1
19	3.8	2.6	3.6	4.1	3.8	5.2	16	61	11	14	a10	7.1
20	4.2	4.2	4.1	4.4	4.0	6.0	15	60	13	16	a10	7.1
21	4.2	4.1	4.2	4.1	3.7	5.9	16	57	21	16	a10	7.0
22	4.2	3.5	4.2	*4.1	3.7	5.8	19	56	22	15	a10	6.8
23	4.1	4.5	4.1	4.2	*3.8	5.6	23	56	19	15	a10	7.0
24	4.1	4.2	3.4	4.2	3.7	4.9	30	55	17	13	a10	7.3
25	4.0	4.2	2.9	4.1	3.7	4.9	34	56	15	13	a10	7.4
26	3.6	3.7	4.5	4.1	3.2	5.2	34	55	9.8	8.4	a10	7.3
27	3.4	3.8	4.4	4.1	3.5	4.6	35	53	11	a8	a10	7.1
28	4.2	2.9	4.2	4.1	3.6	5.2	37	56	14	a8	a10	7.0
29	4.5	3.6	3.5	b3.5	-	5.6	42	50	13	a8	a10	7.9
30	4.4	4.1	*3.5	b3.5	-	5.2	48	46	15	a8	a9	8.9
31	4.6	-	3.8	4.5	-	5.2	-	53	-	a8	8.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	131.8	5.0	3.4	4.25	261
November	118.8	4.6	2.6	3.96	236
December	121.7	4.5	2.9	3.93	241
Calendar year 1948	3,696.3	59	2.6	10.1	7,330
January	117.9	4.5	3	3.80	234
February	110.4	4.6	3.2	3.94	219
March	139.8	6.0	3.5	4.51	277
April	491.8	48	4.6	16.4	975
May	1,889	81	46	60.9	3,750
June	528.1	46	9.3	17.6	1,050
July	390.4	18	8	12.6	774
August	297.6	10	8	9.60	590
September	264.6	19	6.8	8.82	525
Water year 1948-49	4,601.9	81	2.6	126	9,130

* Winter discharge measurement made on this day.
a *No gage-height record; discharge computed on basis of weather records and records for nearby stations.*
b Stage-discharge relation affected by ice.

Llano ditch near Questa, N. Mex.

Location.- Water-stage recorder and 3-foot Parshall flume, lat. 36°43'45", long. 105°33'00" 105°33'00", in SE¼SE¼ sec. 21, T. 29 N., R. 13 E., 3¼ miles northeast of Questa and 3¼ miles upstream from mouth of Cabresto Creek.
Records available.- September 1943 to September 1949 (irrigation season only).
Extremes.- Maximum daily discharge recorded, 27 second-feet June 24, 25; no flow at times.
1943-49: Maximum daily discharge recorded, 32 second-feet June 7, 11, 16-18, 1945; no flow at times.
Remarks.- Records good except those for July to September, which are poor. Ditch diverts water from right bank of Cabresto Creek for irrigation near Questa.

Monthly discharge, 1948-49

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	0.4	0	0.02	1.2
November 1-17	0	0	0	0
April 7-30	7.2	0	2.15	102
May	26	2.9	14.0	863
June	27	8.8	21.4	1,270
July	15	0	7.03	432
August	5	0	.68	42
September	0	0	0	0

Rio Hondo near Valdez, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 36°32'20", long. 105°33'30", in S½ sec. 28, T. 27 N., R. 13 E. (projected), a quarter of a mile upstream from Forest Service gate, 1½ miles east of Valdez, and 9 miles upstream from mouth.

Records available.- August 1934 to September 1949. October 1930 to September 1934 at site half a mile downstream, below two diversions.

Average discharge.- 15 years (1934-49), 42.6 second-feet.

Extremes.- Maximum discharge during year, 199 second-feet June 19; maximum gage height, 2.14 feet Jan. 6 (backwater from ice); minimum daily discharge, 8 second-feet Feb. 10, 15.
1934-49: Maximum discharge, 541 second-feet May 13, 1941, from rating curve extended above 300 second-feet by logarithmic plotting; maximum gage height, 5.59 feet Dec. 15, 1936 (ice jam), datum then in use; minimum daily discharge, 3.0 second-feet Jan. 21, 1935.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	17	a12	b11	11	b10	a9	13	96	144	91	48	25
2	16	a12	b11	11	b10	a9	13	98	128	85	47	25
3	15	a12	12	b10	a10	a9	13	116	130	81	45	23
4	15	a13	b11	b9	a10	a9	13	120	154	80	42	22
5	15	a13	b10	b9	a9	a9	13	118	172	80	41	22
6	15	a13	b10	b10	a9	a9	14	118	160	80	40	23
7	15	a13	b10	b11	a9	a9	16	113	135	80	40	21
8	15	a13	b12	b11	a9	9.6	19	89	116	74	38	22
9	15	a13	b10	a11	a9	9.6	18	80	106	67	39	23
10	15	a14	b10	10	a8	9.6	16	85	113	64	37	23
11	15	a14	11	10	a9	10	16	102	108	72	35	22
12	15	a15	a12	10	a9	10	18	106	118	67	34	21
13	15	a15	a12	11	a9	10	21	111	128	64	33	23
14	15	a15	a12	11	a9	9.6	25	113	128	61	31	23
15	15	a15	a12	9.6	a8	11	28	120	130	56	30	21
16	14	a15	a12	b9	a9	12	31	118	135	54	31	20
17	14	a15	a11	b9	a9	14	35	125	141	52	33	20
18	13	a15	a11	b9	a9	15	37	123	149	52	31	20
19	13	*17	b10	b9	a9	16	34	118	189	52	28	19
20	15	13	b10	b10	a9	18	33	120	183	58	27	20
21	14	13	10	b11	a9	16	34	116	172	54	27	19
22	13	b12	10	11	a9	15	46	116	166	54	25	19
23	a12	13	11	10	a9	15	66	125	160	51	24	20
24	a13	13	b10	11	*9.4	14	78	125	149	48	24	20
25	a14	12	b10	11	a10	14	81	125	118	56	24	19
26	a14	b11	b10	11	a9	13	91	141	111	58	24	20
27	a14	b10	11	*11	a9	12	91	149	102	51	24	19
28	a13	b10	10	10	a9	13	89	138	98	48	24	19
29	a12	b11	b10	b10	-	14	102	138	93	47	24	21
30	a12	13	b10	b9	-	13	113	146	93	47	24	26
31	a12	-	b11	b9	-	13	-	163	-	48	24	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	440	17	12	14.2	873
November	395	17	10	13.2	783
December	333	12	10	10.7	660
Calendar year 1948	11,621.7	152	8	31.8	23,050
January	314.6	11	9	10.1	624
February	255.4	10	8	9.12	507
March	369.4	18	9	11.9	733
April	1,217	113	13	40.6	2,410
May	3,671	163	80	118	7,280
June	4,029	189	93	134	7,990
July	1,932	91	47	62.3	3,830
August	998	48	24	32.2	1,980
September	640	26	19	21.3	1,270
Water year 1948-49	14,594.4	189	8	40.0	28,940

Peak discharge (base, 100 sec.-ft.).- May 17 (1 p.m.) 128 sec.-ft.; June 5 (1 a.m.) 183 sec.-ft.; June 19 (6 a.m.) 199 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records, and records for nearby stations.

b Stage-discharge relation affected by ice; discharge computed as explained in footnote a.

Rio Hondo at Arroyo Hondo, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 36°31'55", long. 105°41'05", in sec. 32, T. 27 N., R. 12 E., 1 mile downstream from Arroyo Hondo and 1¼ miles upstream from mouth.

Records available.- April 1910 to August 1915 (at site 200 yards above mouth, published as Rio Hondo near Arroyo Hondo) and January 1932 to September 1949 in reports of Geological Survey. April 1910 to December 1928 in reports of State engineer.

Average discharge.- 17 years (1932-49), 30.4 second-feet.

Extremes.- Maximum discharge during year, 118 second-feet June 20 (gage height, 1.88 feet); minimum daily, 7.4 second-feet Oct. 1, 2.

1932-49: Maximum discharge, 2,510 second-feet Aug. 23, 1935 (gage height, 5.45 feet, datum then in use), from rating curve extended above 170 second-feet by logarithmic plotting; minimum daily, 4.0 second-feet July 13-16, 1934.

Remarks.- Records good except those for periods of ice effect, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.4	12	18	17	b14	15	13	66	72	35	15	13
2	7.4	13	18	17	16	15	13	68	66	33	15	13
3	7.6	13	19	15	16	16	13	82	66	30	15	11
4	8.5	14	18	b12	15	16	13	77	72	29	14	11
5	8.3	14	16	b12	15	16	13	70	79	26	14	11
6	8.1	13	*17	15	14	16	13	74	75	25	14	11
7	8.1	15	16	17	13	16	13	75	75	23	14	11
8	8.1	16	20	18	14	15	14	58	70	23	13	11
9	8.1	15	17	18	b12	14	12	56	69	22	12	11
10	8.7	16	18	18	b13	14	11	56	72	23	12	12
11	8.7	17	18	18	14	14	12	66	68	29	12	12
12	8.7	19	19	18	14	15	11	69	69	23	15	11
13	*8.7	18	18	18	14	15	12	72	68	23	13	12
14	8.7	18	18	18	13	14	13	72	66	23	13	12
15	8.7	18	18	17	12	14	15	80	68	24	15	12
16	8.3	18	18	13	13	15	16	82	70	23	15	12
17	8.3	18	18	13	13	15	16	79	74	21	16	12
18	8.3	18	18	13	13	15	19	69	80	18	15	12
19	9.0	16	16	*14	13	15	26	64	104	18	14	12
20	9.0	20	18	18	15	14	25	60	104	18	13	12
21	8.7	19	18	18	15	13	26	57	93	17	11	11
22	9.2	17	18	17	17	12	29	58	93	19	12	11
23	9.2	19	19	17	*17	12	33	57	87	18	12	16
24	9.0	19	18	17	18	13	38	60	80	18	12	14
25	9.7	19	14	17	18	13	41	64	69	20	11	12
26	11	17	b12	17	16	13	50	70	63	19	11	11
27	12	17	b13	17	16	13	49	74	53	18	12	11
28	12	b14	17	16	15	13	54	68	44	17	12	12
29	12	18	17	b12	-	12	68	68	39	16	12	13
30	11	19	14	b11	-	14	75	69	37	16	12	16
31	12	-	15	b13	-	14	-	75	-	16	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	282.5	12	7.4	9.11	560
November	499	20	12	16.6	990
December	531	20	12	17.1	1,050
Calendar year 1948	7,230	87	6.8	19.8	14,340
January	491	18	11	15.8	974
February	408	18	12	14.6	809
March	441	16	12	14.2	875
April	756	75	11	25.2	1,500
May	2,115	82	56	68.2	4,200
June	2,145	104	37	71.5	4,250
July	683	35	16	22.0	1,350
August	408	16	11	13.2	809
September	361	16	11	12.0	716
Water year 1948-49	9,120.5	104	7.4	25.0	18,080

Peak discharge (base, 100 sec.-ft.).- June 20 (1:20 a.m.) 118 sec.-ft.; Sept. 23 (4:45 p.m.) 112 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice; discharge computed on basis of recorder record, weather records, and records for Latir Creek near Cerro.

Rio Pueblo de Taos near Taos, N. Mex.

Location.- Water-stage recorder, lat. 36°26', long. 105°30', in sec. 36, T. 26 N., R. 13 E., 2½ miles east ot Taos Pueblo, 4½ miles northeast of Taos, and 5 miles upstream from confluence with Rio Lucero.

Records available.- February 1940 to September 1949.

Extremes.- Maximum discharge during year, 182 second-feet May 5 (gage height, 2.08 feet); minimum daily, 4 second-feet Jan. 30.

1940-49: Maximum discharge, 970 second-feet May 14, 1941 (gage height, 3.90 feet, from high-water mark in gage well), from rating curve extended above 290 second-feet by logarithmic plotting; minimum daily, 3.7 second-feet Nov. 7, 1947.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.2	8.6	5.6	6.3	b5	6.3	11	141	104	45	a24	14
2	9.1	8.6	6.3	6.3	b6	5.3	11	136	97	43	a25	15
3	7.6	8.2	5.6	b6	6.3	7.2	11	156	93	39	a25	12
4	7.2	8.2	5.3	b5	6.3	7.6	11	167	95	36	30	11
5	7.6	6.6	5.6	b5	6.3	8.6	9.5	162	97	35	27	11
6	7.9	6.3	b5	b6	6.3	8.2	12	132	95	36	25	11
7	7.6	7.9	b5	7.2	6.3	8.6	15	122	93	34	25	10
8	7.9	7.2	6.0	7.2	6.0	8.2	20	108	86	31	24	10
9	7.6	5.0	6.0	7.2	6.3	8.2	20	100	83	30	25	10
10	7.6	7.2	6.0	6.9	6.6	7.9	18	108	83	33	27	11
11	*7.2	7.9	6.3	6.6	6.3	8.6	18	122	83	35	22	11
12	6.9	7.6	6.0	6.3	6.3	9.5	22	134	86	32	21	11
13	6.9	6.9	5.3	6.3	6.0	9.1	31	112	90	31	20	11
14	6.9	6.9	5.3	6.3	6.0	8.2	37	108	86	27	19	14
15	6.9	6.9	5.3	6.3	6.0	9.5	40	120	85	25	17	10
16	6.6	7.2	5.3	5.3	7.6	11	45	129	85	24	17	9.9
17	6.6	7.2	5.6	b5	6.3	13	49	122	83	22	24	9.5
18	6.9	7.2	5.6	b4.5	5.6	13	53	108	85	22	19	9.5
19	7.2	5.6	5.6	b4.5	5.6	14	48	104	98	21	17	9.5
20	7.6	b5	*5.6	b5	6.0	16	51	106	92	27	16	9.1
21	7.6	b5.5	5.6	b5.6	6.3	14	60	102	85	31	15	8.6
22	6.9	*b6	5.6	b6	6.0	12	82	100	82	50	15	8.6
23	6.9	6.3	6.0	6.3	6.6	11	102	100	76	37	14	9.1
24	6.6	6.3	5.6	6.3	*6.9	11	116	100	76	32	14	9.9
25	6.6	6.0	5.3	6.3	6.9	11	125	104	68	34	14	9.9
26	6.6	5.6	6.9	*6.3	6.6	11	143	110	62	35	15	9.5
27	6.9	6.0	6.3	6.3	6.0	9.5	132	110	56	31	14	9.1
28	7.6	6.6	6.0	6.0	6.6	11	127	110	53	27	14	9.1
29	9.5	7.2	5.6	b5	-	12	134	110	48	25	12	9.5
30	8.2	5.6	b5	b4	-	12	156	108	44	24	12	14
31	8.2	-	b5.5	b4.5	-	11	-	108	-	a24	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	228.6	9.5	6.6	7.37	453
November	203.3	8.6	5	6.78	403
December	175.7	6.9	5	5.67	348
Calendar year 1948	9,041.4	141	4.2	24.7	17,930
January	181.7	7.2	4	5.86	360
February	175.0	7.6	5	6.25	347
March	313.5	16	5.3	10.1	622
April	1,709.5	156	9.5	57.0	3,390
May	3,659	167	100	118	7,260
June	2,449	104	44	81.6	4,860
July	978	45	21	31.5	1,940
August	600	30	12	19.4	1,190
September	316.8	15	8.6	10.6	628
Water year 1948-49	10,990.1	167	4	30.1	21,800

Peak discharge (base, 70 sec.-ft.).- May 5 (7 p.m.) 182 sec.-ft.; May 12 (11:40 p.m.) 159 sec.-ft.; June 19 (2:30 a.m.) 114 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Rio Lucero near Arroyo Seco and Rio Taos at Los Cordovas.

b Stage-discharge relation affected by ice.

Rio Taos at Los Cordovas, N. Mex.

Location.- Water-stage recorder, lat. 36°23'20", long. 105°38'00", in N½ sec. 23, T. 25 N., R. 12 E. (projected), in Martinez Grant, 50 feet downstream from Rio Ranchos de Taos and Arroyo Seco, half a mile northeast of Los Cordovas, and 3½ miles west of Taos.

Drainage area.- 359 square miles.

Records available.- April 1910 to August 1915 and October 1930 to September 1949 in reports of Geological Survey. April 1910 to December 1931 in reports of State engineer.

Average discharge.- 38 years (1910-25, 1926-49), 64.0 second-feet.

Extremes.- Maximum discharge during year, 302 second-feet Apr. 30 (gage height, 2.97 feet); minimum daily, 9.5 second-feet Sept. 22.
1930-49: Maximum discharge, 1,830 second-feet May 14, 1941 (gage height, 5.81 feet), from rating curve extended above 1,300 second-feet by logarithmic plotting; minimum daily, 1.4 second-feet Aug. 5, 10, 1934.

Remarks.- Records good except those for periods of no gage-height record and those for January and February, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	20	28	26	18	33	32	240	151	38	21	17
2	12	20	28	24	b19	30	32	224	134	36	23	17
3	11	20	30	18	18	30	38	246	120	33	21	16
4	11	20	27	b16	17	32	39	263	121	29	24	13
5	12	20	b26	b15	18	32	33	240	132	26	23	12
6	12	20	30	b18	18	30	39	220	136	24	21	12
7	12	20	28	b22	15	38	40	194	136	24	23	12
8	12	20	27	b25	16	38	51	153	121	23	21	12
9	12	20	26	b26	b16	36	54	120	105	29	20	11
10	12	a20	27	b26	b16	34	59	118	103	20	23	11
11	12	a20	27	b26	b18	34	61	172	107	39	20	12
12	12	a20	28	26	19	34	66	207	107	34	18	12
13	13	a20	28	26	19	33	72	224	120	33	17	14
14	13	a20	28	28	18	30	79	209	107	30	17	14
15	13	a20	28	27	24	33	88	233	93	29	16	13
16	13	a20	27	17	26	34	95	251	84	26	15	13
17	13	a20	28	b15	29	34	109	231	81	23	18	12
18	14	a20	28	b15	29	34	116	184	79	20	19	12
19	15	a20	26	*b20	28	36	103	151	127	19	18	12
20	16	a21	28	26	26	40	103	140	121	26	17	12
21	16	a21	30	25	*26	40	111	129	112	24	16	12
22	15	a22	30	b25	a30	36	136	120	123	33	16	9.5
23	15	*23	*31	27	a35	38	182	107	111	36	15	11
24	15	25	25	28	40	32	209	102	127	32	14	12
25	15	26	b20	28	40	32	217	105	118	33	16	12
26	16	25	25	27	36	32	277	120	96	34	16	12
27	17	24	26	26	32	29	249	136	83	30	15	11
28	20	b26	25	21	32	30	220	149	58	26	15	11
29	24	28	20	20	-	29	237	159	46	24	15	12
30	19	28	b22	b18	-	33	282	153	42	21	14	15
31	19	-	25	b18	-	33	-	166	-	21	15	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	443	24	11	14.3	879
November	649	28	20	21.6	1,290
December	832	31	20	26.8	1,650
Calendar year 1948	19,347.8	472	6.5	52.9	38,370
January	705	28	15	22.7	1,400
February	678	40	15	24.2	1,340
March	1,039	40	29	33.5	2,060
April	3,429	282	32	114	6,800
May	5,466	263	102	176	10,840
June	3,201	151	42	107	6,350
July	875	39	19	28.2	1,740
August	562	24	14	18.1	1,110
September	376.5	17	9.5	12.6	747
Water year 1948-49	18,255.5	282	9.5	50.0	36,210

Peak discharge (base, 200 sec.-ft.).- Apr. 30 (7 a.m.) 302 sec.-ft.; May 16 (7:30 a.m.) 275 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

b Stage-discharge relation affected by ice.

Rio Lucero near Arroyo Seco, N. Mex.

Location.- Water-stage recorder and wooden control, lat. 36°30', long 105°32', in sec. 10, T. 26 N., R. 13 E., in Antoine Leroux Grant, 200 feet upstream from diversion dam for Tenorio and Indian ditches, 2 miles southeast of Arroyo Seco, 4½ miles north of Taos Pueblo, and 7½ miles northeast of Taos.

Records available.- April 1910 to December 1916 (published as Rio Lucero near Taos) and November 1933 to September 1949 in reports of Geological Survey. January 1911 to December 1915 in reports of State engineer.

Average discharge.- 15 years (1934-49), 25.4 second-feet.

Extremes.- Maximum discharge during year, 160 second-feet June 18 (gage height, 2.24 feet); minimum daily, 2 second-feet Dec. 25, Jan. 31.
1933-49: Maximum discharge, 300 second-feet May 13, 1941 (gage height, 3.12 feet); minimum daily, that of Dec. 25, 1948, Jan. 31, 1949.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.7	7.3	b6	3.7	b2.5	4.0	7.3	55	77	55	27	15
2	8.5	6.9	b6	3.7	a3	4.0	8.1	58	71	52	25	14
3	8.1	6.9	b6	4.0	a3	4.0	7.7	62	72	48	25	14
4	7.7	6.6	a5	3.7	a3	4.3	6.9	61	82	45	23	14
5	7.7	5.3	a5	3.7	a3	4.3	7.3	59	92	41	23	13
6	7.7	5.8	a5	3.7	a3	4.6	8.5	58	89	40	23	13
7	7.3	6.2	a5	3.7	a3	4.6	12	52	82	37	23	13
8	7.7	5.4	a5	3.4	a3	4.6	13	47	75	34	23	14
9	7.7	6.6	a5	3.4	a3	4.6	12	47	71	33	23	14
10	7.7	7.3	a6	3.4	a3	5.0	11	52	72	32	23	14
11	7.7	7.7	a6	3.7	*3.1	5.8	10	54	74	32	22	14
12	7.7	6.2	a6	3.7	3.1	5.8	13	53	82	28	21	14
13	7.3	6.2	a6	3.7	3.1	5.8	16	53	84	29	20	14
14	7.3	6.9	a6	3.7	3.1	5.8	19	54	87	28	20	14
15	7.3	6.9	b5	3.7	3.4	6.2	20	63	92	27	19	13
16	7.3	6.6	b4.5	3.4	3.4	6.2	24	66	99	26	19	13
17	6.9	5.8	4.3	b3	3.4	8.1	28	60	103	25	20	13
18	6.9	5.4	4.3	b2.5	3.1	8.5	26	54	114	23	17	12
19	6.9	b5.5	4.0	b2.5	3.1	9.4	23	54	131	23	18	12
20	7.3	b6	*2.2	b2.5	3.4	10	22	56	126	29	16	12
21	6.9	b6	2.5	b3	3.4	9.8	24	52	115	31	15	11
22	6.9	*5.8	2.8	3.4	3.4	9.4	35	54	101	33	14	11
23	6.9	5.8	b3	3.4	3.7	9.0	50	57	98	30	14	12
24	6.6	6.2	2.8	3.4	3.7	8.1	56	61	93	28	16	12
25	6.6	5.8	b2	3.4	3.7	7.7	58	69	79	31	16	12
26	6.6	5.4	b3	3.7	3.7	7.3	58	83	72	32	16	11
27	6.6	5.4	3.4	3.7	3.7	7.3	52	85	67	30	16	11
28	7.3	5.8	3.7	3.7	3.7	6.9	52	81	62	29	16	11
29	6.9	b6	3.4	3.7	-	7.3	59	83	59	28	15	12
30	6.6	b6	3.4	b3	-	7.3	63	88	56	28	14	13
31	6.9	-	3.4	b2	-	7.3	-	89	-	28	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	225.2	8.5	6.6	7.26	447
November	185.7	7.7	5.3	6.19	368
December	135.7	6	2	4.38	269
Calendar year 1948	7,316.7	116	2	20.0	14,500
January	105.2	4.0	2	3.39	209
February	90.7	3.7	2.5	3.24	180
March	203.7	10	4.0	6.57	404
April	801.8	63	6.9	26.7	1,590
May	1,920	89	47	61.9	3,810
June	2,577	131	56	85.9	5,110
July	1,015	55	23	32.7	2,010
August	596	27	14	19.2	1,180
September	385	15	11	12.8	764
Water year 1948-49	8,241.0	131	2	22.6	16,340

Peak discharge (base, 70 sec.-ft.).- June 18 (10 p.m.) 160 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for Rio Pueblo de Taos near Taos, Rio Taos at Los Cordovas, and other nearby streams.
b Stage-discharge relation affected by ice.

Principal diversions from Rio Lucero, N. Mex.

Records of discharge are collected for five ditches that divert water from the Rio Lucero below gaging station on that stream near Arroyo Seco. Each of these ditches is equipped with a water-stage recorder for collecting gage-height records. Water diverted by these ditches is used for irrigation in the valley of Rio Lucero below gaging station near Arroyo Seco.

Tenorio ditch diverts from right bank in sec. 10, T. 26 N., R. 13 E. (projected), 200 feet downstream from gaging station on Rio Lucero near Arroyo Seco. Records available, June 1935 to September 1949 (irrigation seasons only).

Indian ditch diverts from left bank in sec. 10, T. 26 N., R. 13 E. (projected), 200 feet downstream from gaging station on Rio Lucero near Arroyo Seco. Records available, July 1934 to September 1949 (irrigation seasons only).

Seco ditch diverts from right bank in sec. 10, T. 26 N., R. 13 E. (projected), 600 feet downstream from gaging station on Rio Lucero near Arroyo Seco. Records available, July 1934 to September 1949 (irrigation seasons only except water years 1938-40).

Juan Manual ditch diverts from right bank in sec. 16, T. 26 N., R. 13 E. (projected). Records available, June 1935 to September 1949 (irrigation seasons only).

Prado ditch diverts from right bank in sec. 21, T. 26 N., R. 13 E. (projected). Records available, May 1934 to September 1949 (irrigation seasons only except water years 1938-40).

Diversions, in acre-feet, water year October 1948 to September 1949

Month	Tenorio ditch	Indian ditch	Seco ditch	Juan Manuel ditch	Prado ditch
October	60	196	83	4.4	61
November	-	-	-	a3.0	-
December	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	-	-	-	-	-
April	b102	b22	c124	c121	c183
May	192	275	225	617	741
June	228	574	904	891	774
July	196	528	348	163	576
August	117	516	135	0	264
September	71	308	73	5.0	118

a Nov. 1-23.
b Apr. 11-30.
c Apr. 15-30.

Embudo Creek at Dixon, N. Mex.

Location.- Water-stage recorder, lat. 36°12'35", long. 105°54'35", in NW¼SW¼ sec. 20, T. 23 N., R. 10 E., at bridge on U. S. Highway 64, 0.5 mile upstream from mouth, three-quarters of a mile east of Embudo, and 1¼ miles northwest of Dixon.

Drainage area.- 305 square miles.

Records available.- October 1930 to September 1949 in reports of Geological Survey. October 1923 to December 1931 in reports of State engineer.

Average discharge.- 26 years (1923-49), 92.4 second-feet.

Extremes.- Maximum discharge during year, 905 second-feet Aug. 7 (gage height, 5.57 feet); minimum daily, 11 second-feet Oct. 9, 10.
1930-49: Maximum discharge, 2,180 second-feet Aug. 22, 1946 (gage height, 7.00 feet); minimum daily, 1 second-foot July 23, 24, 1932.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	19	36	28	32	b25	31	54	371	285	74	87	57
2	22	31	28	31	b25	26	48	364	255	79	74	59
3	20	30	30	23	27	31	49	424	240	67	74	60
4	19	31	27	b21	*28	36	54	460	249	63	70	59
5	17	27	32	b20	28	45	48	460	267	57	78	55
6	16	25	23	b25	28	42	67	428	264	52	93	48
7	14	31	26	*31	b25	43	69	385	291	55	157	43
8	13	31	28	b25	27	42	78	318	270	63	a115	42
9	11	20	25	28	b25	36	79	288	231	60	103	39
10	11	21	22	31	b30	34	76	303	228	67	91	38
11	12	27	26	31	*b30	39	74	364	222	81	76	38
12	12	31	28	31	28	42	79	452	225	91	67	38
13	12	28	26	32	31	36	87	452	231	107	62	42
14	12	31	32	34	27	34	95	432	203	91	57	49
15	14	32	32	32	b25	43	103	460	181	76	51	45
16	15	32	18	25	b30	48	114	444	169	63	36	38
17	14	36	26	b25	31	49	124	388	145	51	32	32
18	16	36	30	b20	30	46	136	329	145	39	57	30
19	17	20	14	*b20	28	49	126	294	194	30	45	23
20	21	33	22	34	30	55	120	285	181	31	46	22
21	24	31	30	35	30	57	142	264	164	38	52	a22
22	22	27	33	35	31	51	189	252	192	81	52	22
23	22	32	36	36	*36	51	246	243	164	89	48	23
24	21	33	30	38	39	41	249	234	200	118	49	25
25	20	41	14	35	39	36	291	240	176	169	48	31
26	17	25	32	34	32	42	368	273	147	118	49	26
27	20	24	38	31	30	36	336	303	124	97	49	26
28	33	22	*26	27	32	48	318	312	99	81	51	22
29	36	27	15	b20	-	49	388	297	79	65	52	35
30	32	31	19	b20	-	49	448	288	67	60	55	46
31	39	-	35	b20	-	43	-	303	-	89	55	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	593	39	11	19.1	1,180
November	882	41	20	29.4	1,750
December	831	38	14	26.8	1,650
Calendar year 1948	37,951.6	655	6.4	104	75,290
January	883	38	20	28.5	1,750
February	827	39	25	29.5	1,640
March	1,310	57	26	42.3	2,600
April	4,655	448	48	155	9,230
May	10,710	460	234	345	21,240
June	5,888	291	67	196	11,680
July	2,302	169	30	74.3	4,570
August	2,031	157	32	65.5	4,030
September	1,135	60	22	37.8	2,250
Water year 1948-49	32,047	460	11	87.8	63,570

Peak discharge (base, 800 sec.-ft.).- Aug. 7 (3 p.m.) 905 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for Rio Grande near Taos and at Embudo.
b Stage-discharge relation affected by ice.

Rio Chama at Park View, N. Mex.

Location.- Water-stage recorder, lat. 36°44'15", long. 106°34'40", in Tierra Amarilla Grant, at bridge on State Highway 51, just below present mouth (shifts position) of Rio Brazos and half a mile northwest of Park View, Rio Arriba County.

Drainage area.- 405 square miles.

Records available.- November 1912 to September 1916 and October 1930 to September 1949 in reports of Geological Survey. November 1912 to September 1916 and April 1925 to December 1931 in reports of State engineer. Records include flow of Rio Brazos.

Average discharge.- 26 years (1913-15, 1925-49), 377 second-feet.

Extremes.- Maximum discharge during year, 4,640 second-feet May 15 (gage height, 6.45 feet); minimum daily, 22 second-feet Oct. 4, 12.

1930-49: Maximum discharge, 8,530 second-feet Apr. 16, 1937; maximum gage height, 8.12 feet May 26, 1941, site and datum then in use; minimum daily discharge, 3 second-feet July 6, 7, 1934.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	49	b35	b35	b35	b40	125	2,480	1,740	651	139	43
2	27	45	b35	a35	*b35	b35	114	2,780	1,640	595	139	61
3	23	49	b35	a30	b35	b40	114	3,100	1,600	535	242	55
4	22	53	b30	a30	b35	b45	117	2,910	1,640	505	242	55
5	26	35	b25	a30	b35	b50	121	2,620	1,600	525	156	58
6	29	32	b32	a35	b35	b50	166	2,320	1,600	454	142	62
7	29	39	b30	a35	b35	b56	228	1,940	1,490	480	178	66
8	29	39	b31	a35	b35	*60	300	1,700	1,440	382	159	70
9	27	32	*b31	a35	b35	47	286	1,940	1,380	390	152	76
10	26	29	b31	a35	b35	55	263	2,480	1,450	390	253	94
11	23	35	b33	*b40	b35	60	286	3,060	1,490	824	159	97
12	22	43	b33	b40	b35	57	412	3,290	1,470	930	136	129
13	23	39	b33	b40	b35	55	535	2,710	1,420	722	126	129
14	26	39	b35	b35	b35	60	595	2,910	1,380	586	117	242
15	27	37	b38	b35	b35	66	595	3,730	1,350	460	112	145
16	29	*35	b35	b35	b35	78	651	3,160	1,350	389	110	123
17	27	37	b35	b35	b35	102	733	2,570	1,380	341	102	114
18	27	35	b35	b35	b35	110	837	2,220	1,620	274	104	114
19	27	27	b30	b35	b35	125	837	2,220	1,640	258	88	117
20	34	32	*b35	b35	b35	143	864	2,180	1,420	231	76	114
21	37	b28	b35	b35	b40	148	920	1,940	1,330	218	72	112
22	34	b30	b40	b35	b40	148	1,140	2,100	1,280	258	66	112
23	30	b35	b35	b35	b40	138	1,350	2,200	1,240	470	61	117
24	29	b30	b35	b35	*b45	121	1,470	2,300	1,280	327	58	126
25	29	41	b30	*b35	b50	117	1,510	2,280	1,160	423	51	126
26	29	b35	b35	b35	b50	117	1,620	2,280	1,050	423	47	132
27	30	b30	b40	b40	b45	114	1,620	2,220	976	247	44	132
28	43	b25	b35	b35	b45	134	1,960	2,050	850	200	41	120
29	47	*b35	b35	b30	-	143	2,570	1,920	759	167	38	175
30	45	b35	*b30	b30	-	130	2,740	1,850	686	145	40	186
31	55	-	b35	b30	-	114	-	2,120	-	139	42	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	937	55	22	30.2	1,860
November	1,085	53	25	36.2	2,150
December	1,042	40	25	33.6	2,070
Calendar year 1948	120,284	3,300	10	329	238,600
January	1,075	40	30	34.7	2,130
February	1,055	50	35	37.7	2,090
March	2,758	148	35	89.0	5,470
April	25,079	2,740	114	836	49,740
May	75,580	3,730	1,700	2,438	149,900
June	40,711	1,740	686	1,357	80,750
July	12,939	930	139	417	25,660
August	3,492	253	38	113	6,930
September	3,302	242	43	110	6,550
Water year 1948-49	169,055	3,730	22	463	335,300

Peak discharge (base, 2,700 sec.-ft.).- May 2 (10:30 p.m.) 3,730 sec.-ft.; May 11 (9:45 p.m.) 3,910 sec.-ft.; May 14 (11 p.m.) 4,590 sec.-ft.; May 15 (10 p.m.) 4,640 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records, discharge measurements, and records for San Juan River at Pagosa Springs, Colo.

b Stage-discharge relation affected by ice.

Rio Chama below El Vado Dam, N. Mex.

Location.- Water-stage recorder, lat. 36°34'50", long. 106°43'30", in NW¼ sec. 15, T. 27 N., R. 2 E. (projected), 1.5 miles downstream from El Vado Dam, 2.7 miles upstream from Rio Nutrias, and 13 miles southwest of Tierra Amarilla.

Records available.- October 1935 to September 1949 in reports of Geological Survey. October 1913 to November 1916 at site 1.5 miles upstream (records of unregulated flow), published as Rio Chama near El Vado and near Tierra Amarilla in reports of Geological Survey. October 1913 to September 1916 and February 1920 to December 1924 in reports of State engineer.

Average discharge.- 13 years (1936-49), 431 second-feet, subsequent to completion of El Vado Dam.

Extremes.- Maximum discharge during year, 2,940 second-feet June 19 (gage height, 5.20 feet); minimum daily, 6.2 second-feet Apr. 10-12.
1935-49: Maximum discharge, 6,010 second-feet May 17, 1941 (gage height, 6.89 feet); maximum gage height, 9.63 feet May 30, 1937, site and datum then in use; minimum daily discharge, 0.9 second-foot Dec. 30, 1946.

Remarks.- Records good above 10 second-feet, fair below. Diversions above station for irrigation. Flow regulated by El Vado Reservoir (see p. 234).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	13	12	12	13	1,430	1,200	8.2	1,700	415	218	1,500
2	22	13	12	12	13	1,430	1,180	8.2	1,700	415	190	1,250
3	21	12	12	12	11	1,410	510	8.2	1,440	415	161	445
4	21	12	12	12	11	1,410	11	8.2	1,340	410	161	440
5	20	12	11	12	10	1,400	12	8.9	1,340	405	161	440
6	19	12	10	13	10	1,390	7.8	9.7	1,340	310	161	435
7	18	12	10	13	13	1,380	7.0	10	1,350	232	161	435
8	18	11	11	13	11	1,380	7.0	10	1,350	232	164	435
9	16	11	11	12	13	1,370	6.6	10	1,350	229	164	430
10	16	11	11	12	13	1,360	6.2	11	1,000	226	164	430
11	16	12	11	13	13	1,360	6.2	11	814	222	161	430
12	16	12	11	13	10	1,350	6.2	12	1,160	345	161	430
13	16	12	11	13	10	1,340	6.6	131	1,370	435	161	134
14	16	12	12	13	65	1,340	6.6	215	1,110	435	161	74
15	16	12	12	12	1,470	1,330	6.6	218	974	435	161	72
16	16	12	12	13	1,480	1,320	6.6	218	982	435	161	67
17	15	12	12	12	1,470	1,320	6.6	218	990	346	158	65
18	15	13	12	12	1,480	1,310	7.0	334	1,370	250	161	63
19	16	13	12	13	1,480	1,290	7.0	1,020	1,850	250	158	61
20	16	13	12	12	1,470	1,280	7.4	1,030	1,760	250	158	59
21	16	13	12	11	1,470	1,270	7.4	1,030	1,430	250	154	61
22	983	13	12	11	1,470	1,270	7.0	1,100	789	250	154	61
23	484	13	13	11	1,470	1,260	7.0	1,600	754	246	151	59
24	484	12	12	11	1,460	1,250	7.0	2,020	982	246	151	61
25	302	12	12	11	1,460	1,240	7.0	2,050	982	246	227	59
26	16	11	12	11	1,450	1,230	7.4	1,680	871	246	1,470	59
27	16	11	13	11	1,450	1,220	7.4	1,760	649	246	982	59
28	13	11	12	11	1,440	1,200	7.4	2,270	649	246	982	65
29	13	12	12	11	-	618	7.8	2,270	549	246	974	65
30	13	12	12	13	-	702	8.2	1,880	410	246	1,240	65
31	13	-	12	13	-	1,210	-	1,690	-	232	1,510	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,704	983	13	87.2	5,360
November	362	13	11	12.1	718
December	363	13	10	11.7	720
Calendar year 1948	74,775.5	1,810	3.3	204	148,300
January	374	13	11	12.1	742
February	20,736	1,480	10	741	41,130
March	39,670	1,430	818	1,280	78,680
April	3,088.0	1,200	6.2	103	6,120
May	22,849.4	2,270	8.2	737	45,320
June	34,355	1,850	410	1,145	68,140
July	9,392	435	222	303	18,630
August	11,301	1,510	151	365	22,420
September	8,309	1,500	59	277	16,480
Water year 1948-49	153,503.4	2,270	6.2	421	304,500

Rio Chama near Abiquiu, N. Mex.

Location.- Water-stage recorder, lat. 36°13'00", long. 106°15'00", at bridge on State Highway 96 in Juan Jose Lobato Grant, 1¾ miles upstream from El Rito Creek, 5 miles downstream from Abiquiu, Rio Arriba County, and 13.5 miles downstream from Abiquiu dam site. Datum of gage is 5,873.17 feet above mean sea level, datum of 1929.

Records available.- January 1942 to September 1949.

Extremes.- Maximum discharge during year, 2,500 second-feet May 28; maximum gage height, 5.42 feet Feb. 15 (ice jam); minimum daily discharge, 15 second-feet Oct. 13, 14.
1942-49: Maximum discharge, 6,300 second-feet Apr. 23, 1942 (gage height, 5.80 feet), from rating curve extended above 3,300 second-feet by logarithmic plotting; minimum daily, 1 second-foot June 11, 1947.

Remarks.- Records fair except those for periods of ice effect or doubtful or no gage-height record, which are poor. Diversions above and below station for irrigation. Flow regulated by El Vado Reservoir (see p. 234). Records of suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	72	26	40	b20	1,540	1,350	511	1,780	a450	238	1,540
2	28	50	34	35	b20	1,510	1,310	455	1,760	a440	221	1,520
3	30	38	28	b33	b22	1,520	1,280	455	1,680	a430	237	978
4	29	32	25	a30	b28	1,620	391	434	1,420	a430	178	434
5	27	30	b24	a27	b35	1,560	171	372	1,450	a430	178	448
6	25	29	b30	a25	b33	1,560	189	322	1 430	402	230	462
7	24	29	b32	a26	b28	1,560	201	310	1,450	322	238	462
8	22	28	b30	a28	b24	1,620	171	305	1,460	238	421	476
9	22	27	b29	a30	*b22	1,430	164	252	1,480	243	294	476
10	21	27	*b30	a33	b20	1,420	161	230	1,450	271	269	g483
11	19	27	b31	a30	b22	1,420	120	338	1,060	480	193	g483
12	18	26	b32	a35	b25	1,430	100	462	1,060	280	178	g462
13	15	26	b33	*b37	b30	1,360	114	560	1,460	1,020	168	490
14	15	26	b35	b40	b28	1,380	142	553	1,430	600	164	278
15	20	25	37	b35	780	1,380	164	667	1,110	525	161	128
16	22	25	30	b30	1,620	1,380	182	676	1,110	518	158	100
17	23	25	32	b28	1,570	1,430	193	624	1,100	504	212	86
18	23	*25	39	b30	1,540	1,360	225	539	d1,100	354	384	80
19	22	23	b29	b28	*1,560	1,380	271	887	d1,900	277	178	74
20	26	b22	b25	b32	1,570	1,390	344	1,320	d1,940	276	168	70
21	40	b23	*b31	b30	1,570	1,380	380	1,350	d1,700	316	164	67
22	35	b24	38	b28	1,540	1,360	441	1,400	d1,100	493	161	62
23	373	b23	39	b29	1,540	1,350	568	1,650	d800	795	155	62
24	576	26	36	b20	1,540	1,360	703	1,880	d1,000	462	155	146
25	584	30	b30	*b31	1,540	1,350	740	2,210	d1,100	420	213	80
26	600	26	b32	b30	1,600	1,330	790	1,980	d950	349	544	70
27	419	25	37	b30	1,540	1,320	608	1,960	d800	300	1,130	62
28	97	26	29	b29	1,540	1,310	546	2,210	d700	285	1,010	58
29	74	32	b28	b28	-	1,310	616	2,300	d600	268	988	85
30	112	*32	b33	b25	-	486	649	2,120	a500	258	976	89
31	80	-	*b35	b22	-	1,040	-	2,180	-	252	1,360	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,447	600	15	111	6,840
November	879	72	22	29 3	1,740
December	979	39	24	31.6	1,940
Calendar year 1948	90,992	1,590	10	249	180,500
January	944	40	22	30.5	1,870
February	21,407	1,620	20	765	42,460
March	42,846	1,620	486	1,382	84,980
April	13,264	1,350	100	442	26,310
May	31,132	2,300	230	1,004	61,750
June	37,860	1,940	500	1,262	75,090
July	12,684	1,020	238	409	25,160
August	11,324	1,360	155	365	22,460
September	10,311	1,540	58	344	20,450
Water year 1948-49	187,077	2,300	15	513	371,000

* Winter discharge measurement made on this day
a No gage-height record; discharge computed on basis of records for stations below El Vado Dam and near Chamita.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record; discharge computed as explained in footnote a.
g Computed from graph based on gage readings.

Rio Chama near Chamita, N. Mex.

Location.- Water-stage recorder, lat. 36°04'20", long. 106°06'40", in NE¼ sec. 8, T. 21 N., R. 8 E., 200 feet downstream from Espanola-Ojo Caliente highway bridge, 2½ miles upstream from mouth, and 2½ miles northwest of Chamita.

Records available.- October 1912 to June 1915 and October 1930 to September 1949 in reports of Geological Survey. October 1912 to December 1931 in reports of State engineer.

Average discharge.- 35 years (1913-17, 1918-49), 665 second-feet.

Extremes.- Maximum discharge during year, 2,580 second-feet May 28 (gage height, 4.36 feet); minimum daily, 9.0 second-feet Oct. 18.
1930-49: Maximum discharge, 9,910 second-feet May 14, 1941; maximum gage height, 8.11 feet May 16, 1941; no flow at times.

Remarks.- Records fair except those for periods of ice effect or doubtful or no gage-height record, which are poor. Diversions above station for irrigation. Flow regulated by El Vado Reservoir (see p.). Records of suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	124	47	b55	b30	1,620	d1,250	1,400	a1,800	352	a250	1,390
2	22	100	52	65	b32	1,590	d1,300	1,270	a1,650	370	a230	1,460
3	22	82	58	b54	b40	1,590	d1,300	1,360	a1,850	352	a230	1,120
4	20	63	49	b50	b50	1,660	d850	1,230	1,480	334	a190	a550
5	23	63	b45	b40	b55	1,720	a250	1,030	1,450	340	a170	a470
6	24	58	b50	b33	b50	1,760	320	899	1,410	334	a220	472
7	23	54	*b55	*b36	b45	1,700	427	767	1,400	275	a300	472
8	20	49	b50	b40	b40	1,810	445	745	1,400	206	458	472
9	18	47	b47	b42	*b38	1,590	481	745	1,380	210	240	486
10	19	45	b45	b50	b35	1,550	445	789	1,400	225	305	532
11	16	45	b47	b45	b37	1,550	313	1,130	1,180	428	174	508
12	14	42	b50	b50	b45	1,580	313	1,270	1,110	328	145	479
13	16	42	b54	b55	b55	1,540	409	1,220	1,360	672	124	479
14	15	40	*63	b65	b45	1,510	472	1,080	1,440	730	112	437
15	15	42	54	61	b350	1,520	540	1,250	1,180	508	118	194
16	16	42	44	b50	1,490	1,520	590	d1,150	1,090	500	112	102
17	10	42	38	b45	1,560	1,540	640	d1,000	1,090	508	235	88
18	9.0	44	45	b50	*1,580	1,510	745	d850	1,130	400	473	71
19	17	40	37	b45	1,590	1,470	822	d1,100	1,520	265	159	64
20	20	40	30	b52	1,580	1,470	958	1,590	2,000	280	138	55
21	42	40	33	*b50	1,610	1,450	958	1,550	1,520	305	a120	51
22	44	40	42	b47	1,580	1,410	1,070	1,550	a1,200	500	115	44
23	49	40	47	b50	1,580	1,400	1,180	1,750	a850	d900	108	46
24	d500	47	47	b55	1,590	1,400	1,370	1,970	890	d600	102	53
25	d500	47	b40	b60	1,610	1,370	1,420	2,420	1,030	d500	170	141
26	d490	*45	b35	58	1,690	1,370	1,580	2,190	962	d400	304	91
27	d480	42	47	52	1,660	1,330	1,250	a1,900	822	d350	1,100	66
28	132	b40	58	45	1,650	1,310	1,240	2,110	669	d300	951	51
29	79	b45	*b45	b40	-	1,310	1,480	2,420	636	d280	940	60
30	136	b50	b37	b35	-	d950	1,630	2,310	508	d270	973	178
31	120	-	b45	b32	-	d650	-	a1,850	-	a260	1,320	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,934	500	9.0	94.6	5,820
November	1,540	124	40	51.3	3,050
December	1,436	63	30	46.3	2,850
Calendar year 1948	125,113	1,950	6.0	342	248,200
January	1,507	65	32	48.6	2,990
February	21,717	1,690	30	776	43,080
March	45,750	1,810	650	1,476	90,740
April	26,048	1,630	250	868	51,670
May	43,895	2,420	745	1,416	87,060
June	37,407	2,000	508	1,247	74,200
July	12,282	900	206	396	24,360
August	10,586	1,320	102	341	21,000
September	10,682	1,460	44	356	21,190
Water year 1948-49	215,784	2,420	9.0	591	428,000

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of records for Rio Chama near Abiquiu and Rio Grande at Otowi Bridge.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record; discharge computed as explained in footnote a.

Willow Creek near Park Veiw, N. Mex.

Location.- Water-stage recorder, lat. 36°40'20", long. 106°42'10", in Tierra Amarilla Grant, 400 feet upstream from Willow Creek dam site, 0.3 mile downstream from Horse Lake Creek, and 7 miles southwest of Park View, Rio Arriba County.

Records available.- May 1936 to September 1949. (No winter records prior to 1943.)

Extremes.- Maximum discharge during year, 1,450 second-feet Apr. 13, July 11; maximum gage height, 6.25 feet July 11; no flow at times.
1936-49: Maximum discharge, 4,500 second-feet Apr. 23, 1942 (gage height, 10.49 feet), by slope-area method; no flow at times.

Remarks.- Records fair except those for May to September and those for periods of no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	3			0	2	51	30	5	1	0	0
2	0	2			0	2	42	34	5	6	0	0
3	0	1			0	3	56	34	5	4	5	0
4	0	0			0	8	124	30	3	2	4	0
5	0	0			0	12	211	28	3	1	2	0
6	0	0			0	20	233	25	3	1	2	0
7	0	0			0	22	242	30	4	1	16	0
8	0	0			0	24	477	28	3	1	7	0
9	0	0			0	22	484	23	8	1	5	0
10	0	0			0	22	338	21	22	10	10	0
11	0	0			0	23	471	30	16	129	4	2
12	0	0			0	23	680	109	5	58	2	3
13	0	0			0	22	730	38	5	13	1	9
14	0	0			0	24	334	28	3	16	1	9
15	0	0			0	29	517	24	2	7	1	4
16	0	0			1	46	436	22	2	6	1	3
17	0	0			1	63	316	21	3	2	1	2
18	0	0			2	76	303	23	4	2	0	2
19	0	0			2	155	344	19	14	1	0	1
20	0	0			3	113	395	16	10	3	0	1
21	0	0			4	98	220	14	7	2	0	1
22	0	0			8	128	100	13	4	3	0	1
23	0	0			14	81	71	11	3	17	0	1
24	0	0			22	39	38	10	6	19	0	2
25	0	0			18	29	34	9	6	228	0	2
26	0	0			12	30	40	9	6	16	0	1
27	0	0			8	51	32	12	4	3	0	1
28	0	0			4	88	32	9	3	1	0	1
29	2	0			-	76	33	9	2	1	0	11
30	2	0			-	46	32	7	1	0	0	18
31	2	-			-	51	-	5	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	6	2	0	0.2	12
November	6	3	0	.2	12
December	0	0	0	0	0
Calendar year 1948	6,669	442	0	18.2	13,230
January	0	0	0	0	0
February	99	22	0	3.5	196
March	1,428	155	2	46.1	2,830
April	7,416	730	32	247	14,710
May	721	109	5	23.3	1,430
June	167	22	1	5.6	331
July	555	228	0	17.9	1,100
August	62	16	0	2.0	123
September	75	18	0	2.5	149
Water year 1948-49	10,535	730	0	28.9	20,890

Peak discharge (base, 800 sec.-ft.).- Apr. 13 (6 p.m.) 1,450 sec.-ft.; July 11 (9:20 p.m.) 1,450 sec.-ft.; July 25 (5 a.m.) 950 sec.-ft.

Note.- No gage-height record Oct. 4-10, 16-20, Jan. 12 to Mar. 7, July 26 to Aug. 1, Aug 9-13, Sept. 16-22; discharge computed on basis of weather records and records for El Rito Creek near El Rito and Rio Ojo Caliente near La Madera.

El Rito Creek near El Rito, N. Mex.

Location.- Water-stage recorder, lat. 36°23'30", long. 106°14'20", in NW¼ sec. 19, T. 25 N., R. 7 E., three-quarters of a mile upstream from boundary of Carson National Forest and 3 miles northwest of El Rito.

Records available.- May 1931 to September 1949. (No winter records 1937-41.)

Average discharge.- 14 years (1931-37, 1941-49), 19.0 second-feet.

Extremes.- Maximum discharge during year, 376 second-feet May 11 (gage height, 3.53 feet); minimum daily, 0.3 second-foot Nov. 9, 10.
1931-49: Maximum discharge not determined; minimum daily recorded, 0.3 second-foot at times in 1934, 1946, 1948, 1949.

Remarks.- Records fair except those for periods of ice effect or doubtful or no gage-height record, and those for May to September, which are poor. One diversion above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	2.0	b1.0	b1.0	b0.8	b2	7.0	196	34	a10	a3.5	1.2
2	2.3	1.6	b.8	b1.1	b1.7	b1.5	6.0	244	30	a8	a2.5	1.3
3	1.3	1.6	b.6	b1.0	b1.8	b1.8	6.3	258	28	a8	a3.5	1.0
4	1.1	1.6	b.4	b.9	b1.6	b1.8	7.0	235	29	a6	3.8	.8
5	1.1	b.6	b.4	b1.2	b1.3	b2	7.8	191	25	a6	2.7	.9
6	1.2	b.6	b.4	*b1.2	b1.4	b2	22	165	24	a5	2.9	1.0
7	1.1	b.8	*.5	b1.3	*2.0	*2.0	21	138	22	a5	3.3	1.2
8	1.2	b.9	1.3	b1.2	2.2	1.7	29	114	21	a3	a2.5	1.1
9	1.2	b.3	1.0	b1.2	2.2	2.2	21	142	22	a4	a2	1.1
10	1.1	*b.3	1.2	b1.3	d2	2.5	18	206	24	a4	a2	5.2
11	1.0	b.8	2.2	b1.2	d2	3.3	17	292	23	a20	a2	2.2
12	1.0	b.6	2.3	b1.1	d2	3.1	25	264	18	a20	a2	1.8
13	1.0	b.8	2.0	b1.2	d1.5	3.8	38	211	16	a16	a2	1.7
14	1.1	b.8	b1.6	b1.4	a1.5	3.8	42	216	13	a12	a2	a4
15	1.1	b.8	b1.2	b1.4	a1	4.5	48	210	10	a10	a2	a2.5
16	1.1	b.8	*1.6	b1.3	a1	4.5	48	161	9.6	a6	a2	a1.5
17	1.0	b1.2	1.6	b1.3	a1	5.1	54	129	9.2	a4	2.5	a1.5
18	1.0	b.6	1.6	b1.5	a1.4	6.7	59	119	12	a3	2.5	a1.5
19	1.1	b.5	1.1	b2.5	a1.4	7.7	71	118	17	a3	1.8	a1
20	1.6	b1.0	1.6	b2.0	a1.8	8.4	81	97	14	3.8	1.6	a1
21	1.4	b1.3	2.0	b1.8	a2	8.0	95	82	9.6	4.3	1.4	a1
22	1.2	b1.2	1.4	b1.7	*2.5	7.4	114	91	8.8	12	1.4	a1
23	1.1	b1.4	1.2	b2.0	2.9	7.7	108	86	7.4	a20	1.4	a1.5
24	1.1	b1.3	.9	b1.6	b3.5	6.7	124	78	9.2	a10	1.4	a1.5
25	1.1	b1.0	b1.3	b1.6	b2	6.0	162	66	8.8	a6	1.3	a2.5
26	1.2	*b1.4	b1.2	*1.3	b.6	6.3	239	60	6.7	a4	1.4	a1.5
27	1.3	b.8	1.0	1.2	b.5	5.1	165	55	5.7	a3	1.3	a1.5
28	2.0	b.8	.8	1.1	b1.6	7.0	198	49	4.8	a2	1.4	1.6
29	*2.0	b.6	*b1.0	b1.0	-	6.7	227	44	a4.5	a1	1.4	2.5
30	2.0	b.9	b.8	b1.1	-	6.7	214	38	a4.5	a3	1.1	3.8
31	2.3	-	1.1	b1.0	-	7.0	-	46	-	5.4	1.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	41.0	2.3	1.0	1.32	81
November	28.9	2.0	.3	.96	57
December	37.1	2.3	.4	1.20	74
Calendar year 1948	5,286.3	145	.3	14.4	10,490
January	41.7	2.5	.9	1.35	83
February	47.2	3.5	.5	1.69	94
March	145.0	8.4	1.5	4.68	288
April	2,274.1	239	6.0	75.8	4,510
May	4,401	292	38	142	8,730
June	470.8	34	4.5	15.7	934
July	227.5	20	1	7.34	451
August	63.8	3.8	1.1	2.06	127
September	51.9	5.2	.8	1.73	103
Water year 1948-49	7,830.0	292	.3	21.5	15,530

Peak discharge (base, 160 sec.-ft.).- May 11 (3:30 a.m.) 376 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records, recorded range in stage, and records for streams with similar drainage conditions.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record; discharge computed as explained in footnote a.

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Rio Ojo Caliente at La Madera, N. Mex.

Location.- Water-stage recorder, lat. 36°20'45", long. 106°02'50", in NE¼ sec. 1, T. 24 N., R. 8 E., 2.5 miles south of La Madera, 3 miles downstream from confluence of Rio Vallecitos and Rio Tusas, and 4 miles north of Ojo Caliente.

Records available.- April 1932 to September 1949.

Average discharge.- 17 years (1932-49), 82.7 second-feet.

Extremes.- Maximum discharge during year, 1,050 second-feet Apr. 30 (gage height, 4.00 feet); minimum daily, 6.0 second-feet Aug. 13.

1932-49: Maximum discharge 2,980 second-feet Apr. 23, 1942, from rating curve extended above 1,300 second-feet by logarithmic plotting; maximum gage height, 7.60 feet July 15, 1933, site and datum then in use; minimum daily discharge, 1 second-foot at times.

Remarks.- Records fair. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.0	14	12	17	a12	32	84	756	204	39	22	13
2	7.4	13	13	16	a15	26	75	780	149	34	20	15
3	7.4	12	13	b14	18	36	75	840	124	34	22	12
4	7.4	12	13	b11	*17	50	75	762	118	28	24	9.6
5	7.4	12	12	b14	18	59	95	666	118	28	22	10
6	7.8	10	15	*a16	b17	62	153	600	111	24	74	10
7	7.8	11	13	17	b18	64	172	528	105	19	55	9.6
8	7.8	11	15	b16	b19	70	218	435	102	18	50	9.1
9	7.4	9.6	13	b17	b19	57	204	484	105	20	24	9.6
10	7.4	9.6	13	b17	a19	57	172	605	105	19	18	10
11	7.8	10	13	17	*19	59	146	793	168	55	13	9.6
12	8.3	10	14	17	19	64	192	819	138	54	7.4	10
13	7.4	11	14	18	19	59	273	678	121	57	6.0	11
14	8.3	12	15	20	18	54	295	632	98	42	7.0	12
15	9.1	11	17	19	16	64	310	644	75	34	9.3	15
16	8.7	11	15	b15	b16	81	310	566	59	32	10	13
17	8.7	12	17	b15	16	89	345	484	47	26	12	10
18	9.6	13	18	17	17	84	400	430	50	24	9.1	10
19	10	10	13	a16	18	86	425	380	118	26	6.6	9.6
20	11	11	14	*17	19	108	484	360	81	26	9.1	9.1
21	12	10	15	18	20	95	500	281	52	27	12	10
22	10	10	18	18	*24	98	528	290	38	50	14	9.6
23	11	13	19	20	32	98	600	276	42	89	16	11
24	9.6	13	18	19	42	81	678	272	57	50	16	17
25	9.1	14	14	19	52	78	750	250	54	40	18	20
26	9.1	10	17	19	40	70	732	240	42	32	20	18
27	9.1	9.6	18	17	32	64	644	237	40	19	18	18
28	9.6	9.6	16	b15	34	72	750	291	32	12	17	20
29	11	11	*13	b13	-	81	858	227	31	8.3	16	36
30	11	12	13	b12	-	75	890	192	30	25	14	48
31	13	-	16	b10	-	72	-	232	-	36	13	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	278.2	13	7.0	8.97	552
November	337.4	14	9.6	11.2	669
December	459	19	12	14.8	910
Calendar year 1948	32,226.8	1,090	2.5	88.1	63,920
January	506	20	10	16.3	1,000
February	625	52	12	22.3	1,240
March	2,145	108	26	69.2	4,250
April	11,433	890	75	381	22,680
May	15,030	840	192	485	29,810
June	2,614	204	30	87.1	5,180
July	1,027.3	89	8.3	33.1	2,040
August	594.5	74	6.0	19.2	1,180
September	424.8	48	9.1	14.2	843
Water year 1948-49	35,474.2	890	6.0	97.2	70,350

Peak discharge (base, 600 sec.-ft.).- Apr. 30 (2:30 a.m.) 1,050 sec.-ft.; May 11 (11:45 p.m.) 910 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for nearby stations.

b Stage-discharge relation affected by ice.

Rio Santa Cruz at Cundiyo, N. Mex.

Location.- Water-stage recorder, lat. 35°57'40", long. 105°54'10", in SE¼NW¼ sec. 17, T. 20 N., R. 10 E., 135 feet downstream from highway bridge at confluence of Rio Medio and Rio Frijoles and a quarter of a mile northwest of Cundiyo.

Records available.- September 1931 to September 1949 in reports of Geological Survey. September 1915 to December 1931 (published as Rio Medio at Cundiyo and Rio Santa Cruz above Chimayo) in reports of State engineer.

Average discharge.- 32 years (1916-29, 1930-49), 33.8 second-feet.

Extremes.- Maximum discharge during year, 701 second-feet July 10 (gage height, 3.63 feet); minimum daily, 4 second-feet Dec. 19, 25.

1931-49: Maximum discharge, 2,610 second-feet Sept. 24, 1931 (gage height, 8.20 feet, datum then in use), from rating curve extended above 170 second-feet by logarithmic plotting; minimum daily, 3 second-feet Feb. 3, 1932, Jan. 21, 1935.

Remarks.- Records good except those for periods of ice effect or no gage-height record and those for June to September, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11	12	b8	a8	a7	9.2	a20	94	119	38	48	8.4
2	12	11	b7	a8	a7	b9	a18	89	114	37	44	8.0
3	10	11	*b8	a6	a8	*8.8	a18	99	114	35	43	6.1
4	9.6	11	b8	b5	a8	9.2	a19	101	117	34	38	5.8
5	9.6	6.8	b8	b6	a8	8.8	a17	99	117	32	35	5.8
6	9.6	9.2	b6	b7	a8	8.8	a17	99	112	33	34	6.4
7	8.8	12	b7	a7	a8	9.6	a25	94	114	33	35	6.1
8	8.8	6.1	b7	a8	a8	8.8	34	85	109	30	34	6.8
9	9.2	*6.1	b6	a9	a8	8.0	31	89	96	38	33	6.1
10	8.8	b6.5	b6	*9.2	*a8	7.6	30	92	106	47	30	8.4
11	8.8	b7	b6	8.8	8.8	8.4	30	109	109	42	25	6.8
12	8.0	b10	b7	8.8	8.0	9.2	38	112	104	72	24	6.4
13	8.0	b10	*b7	8.4	8.0	9.6	44	112	106	60	22	5.8
14	8.4	b10	8.4	9.2	8.4	11	48	114	96	47	19	16
15	12	b9	8.0	b9	b8	11	53	122	89	40	16	d13
16	9.2	b9	b6	b7	b9	14	56	119	83	37	16	d11
17	8.8	9.6	b8	b6	b9	15	58	112	78	36	18	d10
18	8.8	b7	b7	b5	b9	15	55	101	76	32	18	d9
19	9.2	b5	b4	*b6	b9	16	47	96	76	48	15	d8
20	10	b5	b5	b8	b9	20	44	96	70	40	14	d8
21	10	b8	b7	10	*8.8	16	50	94	69	58	13	d8
22	8.8	b8	8.0	10	b9	14	72	96	69	119	12	d8
23	8.8	b9	8.8	9.6	b10	14	81	96	58	114	12	a9
24	8.8	*b9	*b6	9.2	b10	13	72	96	63	112	12	a10
25	9.2	b8	b4	8.8	8.0	a10	87	101	55	136	13	a10
26	8.8	b7	b7	9.2	8.0	a11	104	109	48	104	12	a9
27	10	b6	a8	9.2	7.6	a10	92	114	42	83	10	a8
28	12	b6	a7	b8	7.6	a12	94	122	37	72	9.6	a8
29	12	b7	a5	b7	-	a15	106	122	37	61	8.8	a11
30	12	b8	a6	b6	-	a15	109	122	36	55	8.4	a15
31	14	-	a8	*b7	-	a14	-	122	-	48	8.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	303.0	14	8.0	9.77	601
November	249.3	12	5	8.31	494
December	210.2	8.8	4	6.78	417
Calendar year 1948	12,466.0	250	4	34.1	24,740
January	243.4	10	5	7.85	483
February	233.2	10	7	8.33	463
March	361.0	20	7.6	11.6	716
April	1,569	109	17	52.3	3,110
May	3,228	122	85	104	6,400
June	2,519	119	36	84.0	5,000
July	1,773	136	30	57.2	3,520
August	680.2	48	8.4	21.9	1,350
September	257.9	16	5.8	8.60	512
Water year 1948-49	11,627.2	136	4	31.9	23,070

Peak discharge (base, 200 sec.-ft.).- July 10 (5:05 p.m.) 701 sec.-ft.; July 12 (7:20 p.m.) 624 sec.-ft.; July 19 (9:10 p.m.) 294 sec.-ft.; July 21 (5:40 p.m.) 274 sec.-ft.; July 25 (12:50 a.m.) sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, weather records, and records for Embudo Creek at Dixon.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed as explained in footnote a.

Rio Santa Cruz at Riverside, N. Mex.

Location.- Water-stage recorder, lat. 35°59'15", long. 106°04'05", in SW¼ sec. 2, T. 20 N., R. 8 E., at bridge on U. S. Highway 285, at south edge of Riverside, half a mile upstream from mouth and three-quarters of a mile east of Espanola.

Records available.- January 1942 to September 1949.

Extrêmes.- Maximum discharge during year, 835 second-feet Aug. 7 (gage height, 2.97 feet from floodmark); no flow at times.

1942-49: Maximum discharge, that of Aug. 7, 1949, from rating curve extended above 200 second-feet by logarithmic plotting; maximum gage height, 4.85 feet June 7, 1942; no flow at times.

Remarks.- Records poor. Diversions above station for irrigation. Flow partly regulated by Santa Cruz Reservoir (capacity, 4,614 acre-feet, original survey).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	b5	3	b4	7	4	0	2	21	1	32
2		0	b7	4	b4	7	8	0	0	a15	29	18
3		0	b9	b4	b4	7	8	0	1	a10	32	11
4		0	b9	a3	b4	6	6	0	16	a10	12	14
5		0	b8	a3	b4	5	5	0	6	a10	2	6
6		0	b8	a4	b4	4	2	1	3	a10	2	8
7		0	b8	*b5	b4	7	0	77	36	15	52	9
8		0	*b8	b6	b4	7	0	91	66	41	36	5
9		0	b7	b6	b5	8	0	32	50	36	41	8
10		0	b6	b6	*b5	8	0	10	a50	34	44	12
11		1	b6	b6	b6	6	a0	60	47	36	36	15
12		*4	b5	6	8	8	0	80	74	50	29	14
13		2	b4	5	8	7	0	98	e65	134	23	16
14		0	4	6	7	2	0	94	e60	122	23	12
15		2	2	5	b6	a2	0	102	e50	102	29	5
16		0	*9	b4	b5	2	0	84	e45	84	15	4
17		0	9	b4	b4	2	0	55	e40	63	58	3
18		0	9	b3	*b3	1	0	41	e40	55	29	2
19		b1	b5	b3	2	0	1	44	e60	55	12	0
20		b1	b7	4	2	0	0	29	39	106	12	0
21		a1	b8	*4	2	1	1	27	a35	98	21	0
22		a1	9	4	2	1	0	11	a30	147	18	1
23		a1	10	6	2	2	0	2	a25	196	9	1
24		a3	9	5	3	2	0	0	24	138	15	1
25		a5	b8	5	4	2	0	0	18	185	11	1
26		a4	7	5	4	3	0	0	a12	176	9	0
27		a3	7	b4	4	6	0	25	a8	74	7	1
28		a3	4	2	8	2	0	52	a5	130	12	11
29		a3	*b4	b0	-	1	0	52	a3	80	11	15
30		*4	b4	b2	-	2	0	52	a2	2	12	9
31		-	3	*b1	-	0	-	0	-	14	21	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	39	5	0	1.3	77
December	208	10	2	6.7	413
Calendar year 1948	7,229	332	0	19.8	14,340
January	128	6	0	4.1	254
February	122	8	2	4.4	242
March	118	8	0	3.8	234
April	35	8	0	1.2	69
May	1,072	102	0	34.6	2,130
June	912	74	0	30.4	1,810
July	2,249	196	2	72.5	4,460
August	663	58	1	21.4	1,320
September	234	32	0	7.8	464
Water year 1948-49	5,780	196	0	15.8	11,470

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records, available trace, recorded range in stage, and field notes by engineers.
b Stage-discharge relation affected by ice.
e Stage-discharge relation uncertain; discharge computed as explained in footnote a.

Nambe Creek near Nambe, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 35°52', long. 105°57', in sec. 24, T. 19 N., R. 9 E., in Nambe Pueblo Grant, 1,000 feet downstream from diversion dam for Nambe Canal, 2½ miles southeast of Nambe, and 6½ miles upstream from Rio Tesuque.

Records available.- October 1932 to September 1949.

Average discharge.- 17 years, 11.5 second-feet.

Extremes.- Maximum discharge during year, 684 second-feet July 21 (gage height, 5.95 feet), from rating curve extended above 65 second-feet by logarithmic plotting; minimum daily, 1.5 second-feet Dec. 25.

1932-49: Maximum discharge recorded, 878 second-feet Aug. 23, 1935 (gage height, 6.43 feet), from rating curve extended above 65 second-feet by logarithmic plotting; no flow for several days in October 1934.

Remarks.- Records good except those for periods of ice effect, which are poor. Nambe Canal diverts water for irrigation 1,000 feet above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	3.8	b3	3.1	b3	3.1	3.8	22	32	17	14	6.4
2	2.8	3.6	*b3	3.1	b3	3.4	3.1	26	32	15	13	6.2
3	2.4	3.6	b3.5	b3	b3.5	*3.1	4.3	30	32	12	13	6.2
4	2.4	*3.6	b3	b2	b3	3.0	3.9	30	36	13	13	6.9
5	3.6	2.1	b3	b2.5	b3	3.1	3.4	27	35	13	12	6.4
6	3.8	3.1	b3	b3	b3	3.0	2.7	27	34	12	15	7.1
7	3.4	3.8	b3	b3	b3	3.3	5.0	25	34	11	14	7.4
8	3.1	3.1	3.1	3.4	b3.5	3.1	5.4	23	30	9.0	14	7.4
9	3.1	1.7	b3	3.3	b3	3.1	5.4	24	30	12	16	6.2
10	3.1	2.7	b3	3.3	b3	3.0	5.4	25	38	16	18	6.6
11	3.3	3.4	3.1	3.3	b3	3.3	5.2	27	40	18	14	5.7
12	3.0	3.1	b3	3.3	3.4	3.3	5.7	28	38	16	14	6.9
13	3.1	3.0	3.4	3.6	3.4	3.3	6.4	27	40	18	13	7.1
14	3.0	3.0	3.4	*3.8	3.4	3.4	7.1	30	38	14	13	7.6
15	4.5	3.1	3.3	b3	b3	3.6	8.3	32	36	14	13	6.9
16	3.3	3.3	b3	b2.5	b3.5	3.9	9.6	32	33	13	10	6.4
17	3.1	3.3	3.3	b2.5	b3.5	4.3	9.6	30	32	13	11	6.4
18	3.3	2.7	3.0	b2.5	*b3.5	4.1	10	30	32	12	11	6.2
19	3.6	b2	b3	b3	b3.5	4.3	9.6	30	35	11	11	6.2
20	3.9	b2	3.1	3.4	3.6	4.8	10	30	34	13	10	5.9
21	3.8	b2	b3	3.4	3.1	3.6	11	30	32	50	9.3	5.7
22	3.0	b2.5	3.3	b3.4	3.6	4.3	14	31	32	37	9.0	5.0
23	2.4	2.8	3.3	3.4	3.6	4.1	16	32	28	36	8.6	5.2
24	2.3	3.3	b2.5	3.4	3.1	3.6	15	34	29	26	8.6	4.3
25	2.3	3.1	b1.5	3.3	3.1	3.6	18	34	25	23	9.0	3.9
26	2.3	b2.5	3.8	3.1	3.0	3.9	21	35	23	17	8.3	3.6
27	2.7	b2	3.8	3.1	2.8	3.4	20	36	20	15	8.3	3.4
28	3.6	b2.5	3.1	b3	3.0	3.9	22	34	19	13	8.3	3.3
29	3.8	b3	b3	b2.5	-	4.3	25	34	17	11	6.9	5.2
30	3.1	b3	b3	b2	-	3.9	25	35	16	11	6.6	6.6
31	4.3	-	3.3	b2.5	-	3.4	-	36	-	13	6.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	98.8	4.5	2.3	3.19	196
November	86.7	3.8	1.7	2.89	172
December	95.8	3.8	1.5	3.09	190
Calendar year 1948	3,598.1	51	1.5	9.83	7,140
January	93.7	3.8	2	3.02	186
February	90.1	3.6	2.8	3.22	179
March	111.5	4.8	3.0	3.60	221
April	310.9	25	2.7	10.4	617
May	926	36	22	29.9	1,840
June	932	40	16	31.1	1,850
July	524	50	9.0	16.9	1,040
August	351.3	18	6.4	11.3	697
September	179.2	7.6	3.3	5.97	355
Water year 1948-49	3,800.0	50	1.5	10.4	7,540

Peak discharge (base, 60 sec.-ft.).- July 21 (3:30 p.m.) 684 sec.-ft.; July 22 (6:15 p.m.) 264 sec.-ft.

* Winter discharge measurement made on this day.

b Stage-discharge relation affected by ice.

Principal diversions from Nambe Creek, N. Mex.

Records of discharge are collected for 11 ditches that divert water from Nambe Creek between Nambe diversion dam, 2½ miles upstream from Nambe, and confluence with Rio Tesuque. Each of these ditches is equipped with a water-stage recorder for collecting gage-height records and each one, except Las Joyas, with a Parshall flume. Water diverted by these ditches is used for irrigation in the valley of Nambe Creek, except that diverted by Jacona ditch, which is used for irrigation on the left bank of Rio Pojoaque below Rio Tesuque.

Nambe Canal diverts from right bank in SE¼ sec. 24, T. 19 N., R. 9 E., 1,000 feet upstream from gaging station on Nambe Creek near Nambe. Records available, May 1932 to September 1949 (except winter periods for water years 1942-46).

Llano Frio ditch diverts from right bank in SW¼ sec. 14, T. 19 N., R. 9 E. Records available, March 1936 to September 1949 (irrigation seasons only after 1941).

Llano ditch diverts from right bank in SW¼ sec. 14, T. 19 N., R. 9 E. Records available, March 1936 to September 1949 (irrigation seasons only after 1941).

Mocha ditch diverts from right bank in SW¼ sec. 14, T. 19 N., R. 9 E. Records available, May 1936 to September 1949 (irrigation seasons only after 1941).

Comunidad ditch diverts from right bank in NE¼ sec. 14, T. 19 N., R. 9 E. Records available, March 1936 to September 1949 (irrigation seasons only after 1941).

Ortiz ditch diverts from right bank in SE¼ sec. 10, T. 19 N., R. 9 E. Small flow diverted between gage and head gate for irrigation of about 5 acres. Records available, February 1936 to September 1949 (irrigation seasons only after 1941).

Canyon ditch diverts from right bank in NW¼ sec. 10, T. 19 N., R. 9 E. Records available, March 1936 to September 1949 (irrigation seasons only after 1941).

Acequia Rincon diverts from left bank in SE¼ sec. 9, T. 19 N., R. 9 E. Records available, March 1936 to September 1949 (irrigation seasons only after 1941).

Las Joyas diverts from right bank in NW¼ sec. 9, T. 19 N., R. 9 E. Records available, March 1936 to September 1949 (irrigation seasons only after 1941).

Barranco Alto ditch diverts from left bank in NW¼ sec. 8, T. 19 N., R. 9 E. Records available, March 1936 to September 1949 (irrigation seasons only after 1941).

Jacona ditch diverts from left bank in NE¼ sec. 7, T. 19 N., R. 9 E. Gaging station is three-quarters of a mile downstream from head and 4½ miles east of San Ildefonso. Records include seepage inflow and, at times, inflow from Rio Tesuque. Records available, January 1940 to October 1948 (irrigation seasons only after 1941). Records not equivalent to those for Jacona ditch near Nambe collected for period April 1936 to December 1939. Station discontinued Nov. 3, 1948.

Several other ditches divert from Nambe Creek, but no records for them were obtained.

Diversions in acre-feet, water year October 1948 to September 1949

Month	Nambe Canal	Llano Frio ditch	Llano ditch	Mocha ditch	Comunidad ditch	Ortiz ditch
October	46	52	40	0	51	26
November	42	-	-	-	-	a6.1
December	18	-	-	-	-	-
January	11	-	-	-	-	-
February	0	-	-	-	-	-
March	0	b101	b23	b0	b5.0	c26
April	2.8	157	49	2.6	103	48
May	30	299	211	31	141	112
June	63	220	99	8.7	69	83
July	83	57	85	2.6	90	63
August	102	28	99	15	79	104
September	69	23	101	0	90	52

Month	Canyon ditch	Acequia Rincon	Las Joyas ditch	Barranco Alto ditch	Jacona ditch
October	30	22	59	24	30
November	-	a0	-	a2.2	-
December	-	-	-	-	-
January	-	-	-	-	-
February	-	-	-	-	-
March	-	c0	c0	c0	-
April	-	46	46	23	-
May	161	189	268	85	-
June	163	69	183	36	-
July	43	52	92	38	-
August	70	113	101	26	-
September	51	87	88	38	-

a Nov. 1-5.
b Mar. 16-31.
c Mar. 17-31.

Rio Tesuque above diversions, near Santa Fe, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 35°44', long. 105°54', in SE¼ sec. 32, T. 18 N., R. 10 E., 1 mile upstream from Rito Tesuque and 4 miles northeast of Santa Fe.

Records available.- March 1936 to September 1949 in reports of Geological Survey. May to October 1919 at site 175 feet downstream in reports of State engineer.

Average discharge.- 13 years (1936-49), 3.59 second-feet.

Extremes.- Maximum discharge during year, 174 second-feet July 10 (gage height, 3.40 feet); minimum daily, 0.6 second-foot Nov. 9, Feb. 14, 15.

1936-49: Maximum discharge, 425 second-feet July 19, 1938 (gage height, 4.2 feet, from floodmarks), from rating curve extended above 10 second-feet by logarithmic plotting on basis of slope-area determination at gage height 4.0 feet; minimum daily, 0.2 second-foot Dec. 11, 1945.

Remarks.- Records good.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	a1.1	0.9	1.0	0.8	0.7	1.4	a10	12	4.2	5.8	1.6
2	1.1	a1.1	.9	1.0	.8	.7	1.2	a11	12	3.8	5.5	1.6
3	1.0	1.1	.9	a1.0	.8	.8	1.6	a11	11	3.6	4.9	1.4
4	.9	1.1	.9	a.8	.8	1.0	1.4	10	11	3.4	5.2	1.3
5	.9	.9	.9	a.8	.7	1.1	1.2	11	11	3.1	4.5	1.3
6	.9	1.0	.9	a1.0	.7	1.0	2.0	11	11	3.1	4.5	1.4
7	.9	1.1	.9	a1.0	.7	1.1	2.3	11	12	2.9	4.7	1.3
8	.9	1.0	.9	a1.0	.7	1.1	2.6	9.8	11	2.6	4.5	1.2
9	.8	.6	.8	a1.0	.7	1.0	2.6	8.4	10	3.1	4.2	1.2
10	.7	1.1	.7	a1.0	.7	1.1	2.6	8.4	12	8.0	3.8	1.4
11	.8	1.0	.8	a1.0	.7	1.1	2.6	9.8	11	5.2	3.4	1.2
12	.8	1.0	.9	a1.0	.7	1.1	2.9	10	11	5.8	3.4	1.2
13	1.1	.9	.9	a1.0	.7	1.2	3.4	11	12	5.8	3.1	1.3
14	1.1	1.1	.9	1.1	.6	1.1	3.8	12	12	5.5	2.7	1.4
15	1.2	1.0	.9	.9	.6	1.3	4.5	14	12	4.5	2.6	1.2
16	1.1	1.0	.9	.8	a.7	1.7	5.8	15	12	4.2	2.6	1.1
17	1.1	1.0	.9	1.0	a.7	1.9	5.8	14	11	4.0	2.4	1.1
18	1.1	.8	.8	1.0	.7	2.0	5.8	14	11	4.0	2.3	1.1
19	1.2	.7	.8	.8	.7	2.1	5.2	13	11	3.8	2.0	1.1
20	1.6	1.1	.9	.9	.7	2.3	5.2	13	10	4.0	1.9	1.1
21	1.3	.9	.9	.9	.7	2.0	5.5	12	9.8	4.5	1.9	1.1
22	1.1	1.0	.9	.9	.8	1.9	7.4	12	9.8	6.4	1.9	1.1
23	1.1	1.0	1.0	.9	.9	1.7	9.3	12	8.9	12	1.9	1.9
24	1.1	1.0	.9	.9	.9	1.6	8.9	12	8.4	8.9	1.7	1.0
25	1.1	1.0	.7	.9	.9	1.4	9.3	12	7.7	10	1.7	.9
26	1.1	.9	1.1	.9	.8	1.4	9.8	12	7.1	8.0	1.6	.9
27	1.1	1.0	1.0	.9	.7	1.1	9.8	12	6.0	7.7	1.6	.9
28	a1.1	.9	1.0	.8	.7	1.7	9.8	13	4.9	7.1	1.4	.9
29	a1.5	.9	.8	.7	-	1.7	a10	13	4.5	6.8	1.4	1.1
30	a1.1	.9	.9	.8	-	1.4	a11	13	4.5	6.8	1.4	1.3
31	a1.1	-	1.0	.8	-	1.4	-	12	-	6.4	1.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	33.0	1.6	0.7	1.06	65
November	29.2	1.1	.6	.97	58
December	27.6	1.1	.7	.89	55
Calendar year 1948	1,028.3	15	.4	2.81	2,040
January	28.5	1.1	.7	.92	57
February	20.6	.9	.6	.74	41
March	42.7	2.3	.7	1.38	85
April	154.7	11	1.2	5.16	307
May	362.4	15	8.4	11.7	719
June	297.6	12	4.5	9.92	590
July	169.2	12	2.6	5.46	336
August	92.1	5.8	1.4	2.97	183
September	36.6	1.9	.9	1.22	73
Water year 1948-49	1,294.2	15	.6	3.55	2,570

Peak discharge (base, 40 sec.-ft.).- July 10 (12:10 p.m.) 174 sec.-ft.; Sept. 23 (6:20 p.m.) 100 sec.-ft.

a No gage-height record; discharge computed on basis of weather records, recorded range in stage, and records for stations on Nambe Creek.

Mitchell ditch near Santa Fe, N. Mex.

Location.- Water-stage recorder and 1-foot rectangular weir, lat. 35°46', long. 105°56', near N¼ corner sec. 25, T. 18 N., R. 9 E., at pipe-line outlet 5½ miles north of Santa Fe.

Records available.- June 1936 to September 1949 (not continuous).

Remarks.- Records good. Discharge computed by formula for rectangular weir. Ditch supplied by underground flow from pipe line laid in bed of Rio Tesuque. Water diverted is used for irrigation. No diversion between station and head.

Monthly discharge, 1948-49

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	0.3	0.2	0.21	13
November	-	-	-	-
December	-	-	-	-
January	-	-	-	-
February	-	-	-	-
March 16-31	.2	0	.03	1.0
April	.6	0	.26	15
May	.7	.5	.61	38
June	.9	.7	.77	46
July	.9	.7	.81	50
August	.9	.6	.68	42
September	.8	.5	.62	37

Well ditch at San Ildefonso, N. Mex.

Location.- Water-stage recorder and 1-foot Parshall flume, lat. 35°54', long. 106°06', in NW¼ sec. 9, T. 19 N., R. 8 E., 50 feet downstream from head of open ditch and three-quarters of a mile northeast of San Ildefonso.

Records available.- June 1938 to September 1949 (irrigation season only after 1941).

Remarks.- Records good. Ditch supplied by underground flow from pipe line in bed of Rio Pojoaque; water is used for irrigation. No diversions between station and head.

Monthly discharge, 1948-49

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	0.8	0.7	0.75	46
November	-	-	-	-
December	-	-	-	-
January	-	-	-	-
February	-	-	-	-
March 16-31	1.4	.9	1.12	36
April	1.5	.9	1.20	71
May	1.8	1.2	1.55	95
June	2.5	1.2	2.04	122
July	2.2	.7	1.42	87
August	1.3	.5	.87	54
September	1.4	1.2	1.30	77

Sante Fe Creek near Santa Fe, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 35°41'15", long. 105°50'35", in NE¼SE¼ sec. 23, T. 17 N., R. 10 E., about 0.4 mile downstream from McClure Dam and 5½ miles east of Santa Fe.

Records available.- May to June 1910 (at site 3 miles downstream), April 1913 to December 1914 (at site 2 miles downstream), and October 1930 to September 1949 in reports of Geological Survey. January 1913 to November 1930 (at site 2 miles downstream) and November 1930 to December 1931 in reports of State engineer.

Average discharge.- 19 years (1930-49), 8.09 second-feet.

Extremes.- Maximum daily discharge during year, 44 second-feet June 11; minimum daily, 1.2 second-feet on many days during February and March.

1930-49: Maximum discharge, 418 second-feet Apr. 23, 1942 (gage height, 3.51 feet, site and datum then in use), from rating curve extended above 150 second-feet; minimum daily, 0.2 second-foot Dec. 3-14, 16-29, 1943.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow regulated by McClure Reservoir (see p. 234). No diversion above station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.7	1.8	1.7	1.7	1.7	1.2	1.8	41	30	10	17	9.8
2	8.0	1.7	1.7	1.7	1.7	1.2	1.7	41	29	3.1	14	10
3	8.0	1.7	1.7	1.7	1.7	1.2	1.7	39	29	3.0	14	9.8
4	8.0	1.7	1.7	1.7	1.7	1.2	1.7	34	a28	3.0	13	9.8
5	7.7	1.7	1.7	1.7	1.7	1.3	1.8	30	a32	3.0	16	9.8
6	7.4	1.7	1.7	1.7	1.7	1.3	2.1	25	a30	3.0	18	9.8
7	7.4	1.7	1.7	1.7	1.7	1.2	2.3	21	27	3.1	18	9.8
8	7.4	1.7	1.7	1.7	1.7	1.2	2.7	21	25	3.1	19	10
9	7.4	1.7	1.7	1.7	1.7	1.2	2.7	21	23	3.1	19	9.8
10	7.2	1.7	1.7	1.7	1.7	1.2	2.4	21	32	3.1	19	9.8
11	7.2	1.7	1.7	1.7	1.7	1.3	2.4	21	44	3.1	19	9.8
12	6.9	1.7	1.7	1.7	1.7	1.3	2.5	20	36	3.1	16	9.8
13	6.9	1.7	1.7	1.7	1.7	1.2	2.4	20	35	3.1	10	10
14	6.9	1.7	1.7	1.8	1.7	1.2	2.3	21	32	3.1	10	10
15	3.9	1.7	1.7	1.7	1.7	1.2	2.1	29	29	3.1	10	10
16	1.7	1.7	1.7	1.7	1.7	1.2	2.0	34	27	3.1	10	10
17	1.6	1.7	1.7	1.7	1.6	1.2	2.0	33	25	3.1	10	10
18	1.7	1.7	1.7	1.7	1.5	1.2	2.0	32	24	3.1	10	10
19	1.7	1.7	1.7	1.7	1.3	1.2	2.0	30	24	3.1	10	10
20	1.8	1.7	1.7	1.7	1.2	1.3	2.7	29	22	3.3	10	9.8
21	1.8	1.7	1.7	1.7	1.2	1.3	3.1	28	21	3.3	10	14
22	1.7	1.7	1.7	1.7	1.2	1.4	3.1	28	21	3.3	10	19
23	1.7	1.7	1.7	1.7	1.2	1.4	3.0	28	20	11	10	18
24	1.7	1.7	1.7	1.7	1.2	1.5	3.0	29	20	19	10	18
25	1.7	1.7	1.7	1.7	1.2	1.5	3.5	32	20	20	10	18
26	1.7	1.7	1.7	1.7	1.2	1.6	21	32	20	18	10	18
27	1.7	1.7	1.7	1.7	1.2	1.6	40	34	20	17	10	17
28	1.7	1.7	1.7	1.7	1.2	1.7	40	34	20	16	10	17
29	1.7	1.7	1.7	1.7	-	1.7	41	33	20	15	10	17
30	1.7	1.7	1.7	1.7	-	1.8	41	32	20	15	10	16
31	1.8	-	1.7	1.7	-	1.8	-	32	-	15	10	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	135.4	8.0	1.6	4.37	269
November	51.1	1.8	1.7	1.70	101
December	52.7	1.7	1.7	1.70	105
Calendar year 1948	1,820.4	54	1.2	4.97	3,610
January	52.8	1.8	1.7	1.70	105
February	42.4	1.7	1.2	1.51	84
March	41.8	1.8	1.2	1.35	83
April	242.0	41	1.7	8.07	480
May	905	41	20	29.2	1,800
June	785	44	20	26.2	1,560
July	221.3	20	3.0	7.14	439
August	392	19	10	12.6	778
September	369.8	19	9.8	12.3	733
Water year 1948-49	3,291.3	44	1.2	9.02	6,540

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

Galisteo Creek at Domingo, N. Mex.

Location.- Water-stage recorder, lat. 35°30'45", long. 106°18'55", in SW¼ sec. 21, T. 15 N., R. 6 E., in Santo Domingo Pueblo Grant, at highway bridge, 0.3 mile northeast of Domingo, 2¾ miles east of Santo Domingo Pueblo, and 4 miles upstream from mouth. Datum of gage is 5,255.5 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Records available.- October 1941 to September 1949.

Extremes.- 1947-48: Maximum discharge during water year, 4,940 second-feet Sept. 25 (gage height, 5.98 feet); no flow at times.

1948-49: Maximum discharge during water year, 10,500 second-feet Aug. 3 (gage-height, 8.80 feet), from rating curve extended above 3,100 second-feet on basis of slope-area determinations at gage heights 5.45 and 8.8 feet; no flow at times.

1941-49: Maximum discharge, that of Aug. 3, 1949; no flow at times each year.

Revisions.- The figures of maximum discharge and gage height for the water years 1942-47 have been revised as shown in the following table. They supersede those published in the water-supply papers indicated.

Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (second-feet)
958.....	1942	July 27	6.10	4,940
978.....	1943	July 17	5.90	4,110
1008.....	1944	July 5	5.27	3,190
1038.....	1945	July 2	5.02	2,630
1058.....	1946	Aug. 10	7.30	-
1058.....	1946	Aug. 20	-	6,940
1088.....	1947	Aug. 22	5.85	4,770

Remarks.- Records poor. Several small diversions above station for irrigation. Records of suspended sediment loads for the water year 1949 are given in Water-Supply Paper 1163

Revisions.- Revised figures of discharge for water years 1942, 1944, 1946-47 (high-water periods only, 1944, 1946), superseding those published in Water-Supply Papers 958, 1008, 1058, 1088, are given herewith.

Day (water year)	Discharge (second-feet)	Day (water year)	Discharge (second-feet)
1943-44		1945-46	
July 5.....	118	Aug. 10....	754
Aug. 6.....	333	20....	616
		21....	280
1945-46		26....	204
Aug. 9.....	236		

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
July 1944.....	356	118	0	11.5	706
August.....	515	333	0	16.6	1,020
Water year 1943-44.....	1,015	333	0	2.8	2,010
Calendar year 1944.....	1,052	333	0	2.9	2,090
August 1946.....	2,370	754	0	76.5	4,700
Water year 1945-46.....	2,897	754	0	7.9	5,740

Revised peak discharges (base, 3,000 sec.-ft.).- 1945-46: Aug. 10 (1 a.m.) 6,560 sec.-ft.; Aug. 20 (10 p.m.) 6,940 sec.-ft.; Aug. 26 (8 p.m.) 4,110 sec.-ft.

Discharge, in second-feet, of Galisteo Creek at Domingo, N. Mex., 1941-42, 1946-49

1941-42

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	15	1	b2	0	1	0	38	0	216	12	97
2	31	18	1	b1	0	0	0	19	0	5	0	33
3	84	12	1	b1	0	0	0	12	0	1	5	7
4	141	9	1	a0	0	1	0	10	0	0	32	5
5	43	11	0	a0	0	0	0	5	0	0	5	5
6	14	8	0	*a0	0	0	2	4	0	0	2	2
7	10	6	0	a0	0	0	2	4	0	0	1	2
8	6	7	1	a0	0	0	1	4	10	0	1	11
9	3	7	1	b10	0	0	0	4	2	0	1	4
10	1	6	2	a4	0	0	a0	1	0	0	4	49
11	2	4	3	a2	0	0	a0	a0	0	0	2	531
12	1	4	2	a1	0	1	a1	a0	0	0	1	774
13	4	5	1	a1	0	0	a0	a0	0	0	1	193
14	2	4	1	1	0	0	a0	a0	0	0	164	a50
15	12	2	1	0	0	1	a0	a0	0	0	375	a10
16	4	2	1	1	0	0	a0	0	0	0	21	4
17	2	2	1	1	0	0	20	0	0	0	12	1
18	2	4	0	0	0	0	28	0	0	0	5	0
19	1	2	0	1	0	0	33	0	0	0	2	1
20	1	1	0	0	0	0	35	0	0	8	1	0
21	2	2	1	0	0	0	31	0	0	0	1	0
22	6	2	1	0	0	0	339	2	0	19	0	0
23	122	3	0	0	0	0	684	6	0	1	0	0
24	367	1	0	1	0	0	340	1	0	0	17	0
25	78	1	0	1	0	0	90	0	0	0	85	0
26	11	1	0	0	0	0	97	0	0	0	12	0
27	8	1	0	*0	0	0	87	0	0	506	6	0
28	12	*3	7	0	1	0	74	0	0	11	4	0
29	485	2	10	0	-	0	61	0	0	1	9	0
30	19	1	6	0	-	0	50	0	73	0	110	0
31	15	-	4	0	-	0	-	0	-	43	15	-

Peak discharge (base, 3,000 sec.-ft.).- Apr. 22 (9 p.m.) 4,600 sec.-ft.; July 27 (3 a.m.) 4,940 sec.-ft.; Sept. 11 (9 p.m.) 4,270 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of discharge measurements, available recorder trace, and weather records.

b Stage-discharge relation affected by ice.

1946-47

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1	0	0	a0	1	0		0	0	0	0	2
2	1	1	1	a0	0	0		0	0	15	0	0
3	1	3	1	a0	0	0		0	0	0	0	0
4	1	a3	1	a0	0	0		0	0	0	0	13
5	38	2	1	a0	0	0		0	0	0	0	7
6	9	2	1	a0	0	0		0	0	0	0	1
7	46	2	1	a0	0	0		0	0	0	0	3
8	10	2	1	b0	0	0		0	0	0	23	a0
9	5	2	1	b0	0	0		3	0	0	5	a1
10	4	2	1	b0	1	1		27	0	0	0	0
11	4	2	1	b0	0	0		5	0	0	0	0
12	4	2	1	b0	0	0		1	0	0	0	0
13	2	2	1	b0	0	0		1	0	0	110	0
14	1	1	1	0	0	0		0	0	0	0	0
15	1	2	1	0	0	0		0	0	0	11	0
16	1	1	1	0	0	0		0	0	0	21	0
17	1	1	0	0	0	0		0	0	0	264	0
18	1	1	1	0	0	0		0	8	15	2	0
19	1	1	0	0	0	0		0	0	a0	0	0
20	1	1	0	0	0	0		0	0	a0	13	0
21	1	1	0	0	0	0		0	0	0	139	0
22	1	1	0	a0	0	0		0	0	0	195	0
23	1	1	1	a0	0	0		0	0	0	174	0
24	0	1	1	a0	0	0		0	0	0	33	0
25	0	1	0	a0	0	0		0	0	a0	46	0
26	1	1	1	a0	0	0		0	0	a0	10	0
27	1	1	0	a0	3	0		0	0	a0	3	0
28	0	1	0	0	1	0		0	0	a0	1	0
29	1	1	0	0	-	0		0	0	0	0	0
30	0	1	1	0	-	0		0	0	0	1	0
31	0	-	a1	1	-	0		0	-	0	3	-

Peak discharge (base, 3,000 sec.-ft.).- Aug. 22 (11 p.m.) 4,770 sec.-ft.

a No gage-height record; discharge computed on basis of weather records, available recorder trace, and recorded range in stage.

b Stage-discharge relation affected by ice.

Discharge, in second-feet, of Galisteo Creek at Domingo, N. Mex., 1941-42, 1946-49--Continued

1947-48

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1	0	a1	b0	2			0		0	0
2	0	1	0	a1	b0	0			0		0	0
3	0	0	1	a0	*0	1			0		0	0
4	0	0	*0	a0	0	0			0		17	0
5	0	0	1	a0	1	0			0		268	0
6	0	0	1	*a0	0	0			0		a15	0
7	0	0	0	a0	0	0			0		a5	0
8	0	0	0	a0	0	0			0		a1	0
9	0	0	1	0	0	0			0		a0	0
10	0	0	1	0	0	0			0		a0	0
11	0	0	1	*0	0	1			4		0	0
12	0	0	*b1	0	0	1			0		0	0
13	0	0	a1	0	a0	1			0		0	0
14	92	0	a1	0	a0	1			0		0	0
15	17	0	a1	0	a0	0			0		0	0
16	1	0	a1	0	a0	0			0		0	0
17	0	0	a1	0	0	0			0		0	0
18	0	0	a1	0	0	0			0		0	0
19	0	1	a1	0	a0	0			34		0	0
20	0	1	a1	*0	a0	0			a8		0	0
21	0	1	*a1	0	a0	0			a3		0	0
22	0	1	a1	0	a0	0			a1		0	0
23	0	1	a0	0	a1	0			a0		1	0
24	0	1	0	0	a2	0			0		0	0
25	0	1	0	0	a4	0			a0		0	325
26	0	1	0	0	6	0			a0		0	a50
27	0	1	0	0	4	0			a0		0	a5
28	0	0	0	a1	2	0			a0		0	a1
29	0	0	0	*a1	1	0			a0		0	1
30	0	0	0	b0	-	0			a0		0	0
31	0	-	b5	b0	-	0			-		0	-

Peak discharge (base, 3,000 sec.-ft.).- Sept. 25 (5:40 p.m.) 4,940 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of field estimates, available recorder trace, weather records and records for Rio Grande at Cochiti and at San Felipe.
b Stage-discharge relation affected by ice.

1948-49

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	1		0	0	0	0	0	0	0	60	0
2	0	1		0	0	0	0	0	0	0	97	0
3	0	0		0	0	0	0	0	0	0	1,160	0
4	0	0		0	0	0	0	0	0	0	242	0
5	0	0		*0	0	0	0	0	0	0	28	0
6	0	0		0	0	0	0	0	0	0	1	0
7	0	0		a0	0	0	0	0	0	0	249	0
8	0	0		a0	0	0	0	0	0	0	175	0
9	0	0		a0	0	0	2	0	0	0	10	0
10	0	0		a1	0	0	3	0	2	3	0	36
11	0	0		*a1	2	0	1	1	1	57	0	1
12	0	0		b1	0	0	1	2	0	35	0	0
13	0	0		b0	0	0	9	0	0	205	0	1
14	5	0		b0	0	0	1	0	0	833	0	3
15	0	0		0	1	0	0	0	0	a1	0	1
16	0	0		0	0	0	0	0	0	a0	0	0
17	0	0		0	0	0	0	0	0	a0	3	0
18	0	0		0	0	0	0	0	0	6	9	0
19	0	0		0	0	0	0	0	518	25	5	0
20	0	0		b1	0	0	0	0	8	27	0	0
21	0	0		b2	0	0	0	0	0	118	0	0
22	0	0		b2	0	0	0	0	3	755	0	0
23	0	0		0	0	0	0	0	1	457	0	0
24	0	0		*0	0	0	0	0	0	96	0	0
25	0	0		0	0	0	0	0	0	2	1	0
26	0	0		0	0	0	0	0	0	0	59	0
27	0	0		1	0	0	0	0	0	0	1	0
28	2	0		1	0	0	0	0	0	0	a0	59
29	1	0		0	-	0	0	0	0	0	0	205
30	0	0		0	-	*1	0	0	0	59	0	669
31	0	-		0	-	0	-	0	-	128	0	-

Peak discharge (base, 3,000 sec.-ft.).- June 19 (5:20 a.m.) 4,430 sec.-ft.; July 14 (3 a.m.) 4,270 sec.-ft.; July 22 (12:30 a.m.) 4,270 sec.-ft.; July 23 (7:45 p.m.) 5,110 sec.-ft.; Aug. 3 (7:30 p.m.) 10,500 sec.-ft.; Aug. 7 (9 p.m.) 4,030 sec.-ft.; Sept. 30 (12:30 a.m.) 3,490 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of discharge measurements, available recorder trace, field notes, and weather records.
b Stage-discharge relation affected by ice.

Monthly discharge, in second-feet, of Galisteo Creek at Domingo, N. Mex., 1941-42, 1946-49

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October 1941	1,541	485	1	49.7	3,060
November	146	18	1	4.9	290
December	47	10	0	1.5	93
Calendar year	-	-	-	-	-
January 1942	28	10	0	.9	56
February	1	1	0	.04	2.0
March	4	1	0	.1	8.0
April	1,975	684	0	65.8	3,920
May	110	38	0	3.5	218
June	85	73	0	2.8	169
July	811	506	0	26.2	1,610
August	904	373	0	29.2	1,790
September	1,779	774	0	59.3	3,530
Water year 1941-42	7,431	774	0	20.4	14,750
Calendar year 1942	5,870	774	0	16.1	11,650
October 1946	139	46	0	4.5	276
November	43	3	0	1.4	85
December	21	1	0	.7	42
Calendar year 1946	3,028	754	0	8.3	6,010
January 1947	1	1	0	.03	2.0
February	6	3	0	.2	12
March	1	1	0	.03	2.0
April	0	0	0	0	0
May	37	27	0	1.2	73
June	8	8	0	.3	16
July	30	15	0	1.0	60
August	1,054	264	0	34.0	2,090
September	27	13	0	.9	54
Water year 1946-47	1,367	264	0	3.7	2,710
October 1947	110	92	0	3.5	218
November	11	1	0	.4	22
December	22	5	0	.7	44
Calendar year 1947	1,307	264	0	3.6	2,590
January 1948	4	1	0	.1	8.0
February	21	6	0	.8	42
March	7	2	0	.2	14
April	0	0	0	0	0
May	0	0	0	0	0
June	50	34	0	1.7	99
July	0	0	0	0	0
August	307	268	0	9.9	609
September	382	325	0	12.7	758
Water year 1947-48	914	325	0	2.5	1,810
October 1948	8	5	0	.3	16
November	2	1	0	.07	4.0
December	0	0	0	0	0
Calendar year 1948	718	325	0	2.1	1,550
January 1949	10	2	0	.3	20
February	3	2	0	.1	6.0
March	1	1	0	.03	2.0
April	17	9	0	.6	34
May	3	2	0	.1	6.0
June	533	518	0	17.8	1,060
July	2,807	833	0	90.5	5,570
August	2,100	1,160	0	67.7	4,170
September	975	669	0	32.5	1,930
Water year 1948-49	6,459	1,160	0	17.7	12,820

Jemez River near Bernalillo, N. Mex.

Location.- Water-stage recorders on right and left banks, lat. 35°23'40", long. 106°32'25", in S½ sec. 32, T. 14 N., R. 4 E., about 2 miles upstream from mouth and 6.2 miles north of Bernalillo. Datum of gage is 5,120.11 feet above mean sea level, datum of 1929.

Records available.- March 1936 to January 1938, March 1943 to September 1949.

Extremes.- Maximum discharge during year, 2,020 second-feet July 24 (gage height, 3.21 feet), from rating curve extended above 1,000 second-feet by logarithmic plotting; no flow at times.

1936-38, 1943-49: Maximum discharge, 15,300 second-feet Oct. 18, 1944, from rating curve extended above 3,000 second-feet by logarithmic plotting; maximum gage height, 5.62 feet Aug. 29, 1943; no flow at times.

Remarks.- Records poor. Diversions above station for irrigation. Records of suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	23	22	b20	a0	29	49	586	34	0	13	0
2	a8	1	31	b15	*a0	23	45	490	32	0	1	0
3	a4	9	24	a10	b2	25	49	450	18	0	9	0
4	a2	14	20	a0	b2	26	58	470	10	0	43	0
5	a0	8	a10	a0	b2	25	84	450	13	0	8	0
6	0	7	a8	*a0	b1	30	108	490	17	0	3	0
7	0	9	a6	a1	b1	46	148	460	23	0	6	0
8	1	9	a6	a2	b5	52	206	480	14	0	43	0
9	7	6	*8	a3	*b0	57	327	526	23	0	56	0
10	0	17	b10	a2	b1	53	381	652	19	0	52	0
11	0	9	b10	a1	b2	50	345	680	23	6	28	0
12	0	11	b10	a2	b4	43	372	514	38	19	12	0
13	0	3	12	b5	a8	39	538	514	28	56	1	0
14	4	6	16	b3	a5	33	846	480	10	40	0	8
15	6	12	28	b1	a10	31	1,170	420	11	22	0	1
16	2	11	25	a0	14	34	1,060	279	11	12	0	0
17	0	14	34	a0	20	52	846	237	12	9	0	0
18	0	5	40	a0	*23	53	750	188	14	1	18	0
19	1	4	18	a0	21	70	526	182	15	0	1	0
20	6	16	17	a1	24	60	526	130	14	0	0	0
21	9	14	30	a2	29	60	502	100	14	11	0	0
22	8	17	36	a2	31	50	502	79	24	29	0	0
23	8	15	29	a1	29	48	550	104	14	24	0	0
24	6	15	25	*0	28	52	586	104	10	138	0	0
25	3	23	13	b0	40	65	562	111	8	62	0	0
26	2	23	17	b0	38	82	410	104	3	68	0	0
27	1	11	23	a0	28	62	293	108	0	43	0	0
28	4	10	49	a0	34	57	460	97	0	20	0	0
29	7	11	19	a0	-	55	550	70	0	5	0	32
30	8	20	*18	a0	-	70	460	60	0	0	0	a5
31	42	-	18	a0	-	48	-	40	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	151	42	0	4.9	300
November	353	23	1	11.8	700
December	632	49	6	20.4	1,250
Calendar year 1948	21,433	830	0	58.6	42,510
January	71	20	0	2.3	141
February	402	40	0	14.4	797
March	1,480	82	23	47.7	2,940
April	13,309	1,170	45	444	26,400
May	9,655	680	40	311	19,150
June	452	38	0	15.1	897
July	565	138	0	18.2	1,120
August	294	56	0	9.5	583
September	46	32	0	1.5	91
Water year 1948-49	27,410	1,170	0	75.1	54,370

Peak discharge (base, 2,000 sec.-ft.).- July 24 (1:30 a.m.) 2,020 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records, discharge measurements, and records for stations on Rio Grande.

b Stage-discharge relation affected by ice.

Tijeras Creek near Albuquerque, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 35°03'40", long. 106°29'40", in SW¼ sec. 26, T. 10 N., R. 4 E., at Mann diversion dam and 9 miles east of Albuquerque.

Records available.- April 1943 to July 1949 (discontinued) in reports of Geological Survey. January 1921 to January 1922 in reports of State engineer.

Extremes.- Maximum discharge during period, 19 second-feet Oct. 1 (gage height, 2.06 feet); no flow Apr. 5, June 4-7.
1943-49: Maximum discharge, 6,410 second-feet July 19, 1944 (gage height, 8.75 feet), from rating curve extended above 1,100 second-feet; no flow Apr. 5, June 4-7, 1949.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.7	0.2	a0.4	0.2	0.3	0.1	0.4	0.2	0.3	0.1		
2	.8	.2	a.5	.2	.3	.1	.4	.2	.2	.1		
3	a.3	.2	.4	.2	.2	.1	.4	.2	.1	.1		
4	a.2	.3	.4	.2	.2	.1	.4	.2	0	.1		
5	a.2	.2	.4	.2	.2	.1	0	.2	0	.1		
6	a.2	.2	.4	.3	.1	.1	.2	.2	0	.1		
7	a.2	.2	.4	.3	.1	.1	.2	.2	0	.1		
8	.2	.2	.4	.3	.1	.1	a.2	.2	.1	-		
9	.2	.2	.4	.4	.1	.2	a.2	.2	.1	-		
10	.2	.2	.4	.2	.1	.2	a.2	.2	.1	-		
11	.2	.2	.4	.2	.1	.2	.2	.5	.1	-		
12	.2	.2	.3	.2	.1	a.2	.2	.3	.1	-		
13	.2	.2	.3	.2	.1	a.2	.2	.2	.1	-		
14	.2	.2	.3	.2	.1	a.2	.2	.2	.1	-		
15	.2	.2	.3	.2	.1	.2	.1	.2	.1	-		
16	.2	.2	.3	.2	.1	.2	.2	.2	.1	-		
17	.2	.2	.3	.3	.1	.2	.2	.2	.1	-		
18	.2	.2	.3	.3	.1	.3	.2	.2	.1	-		
19	a.2	a.2	.2	.4	.1	.3	.2	.2	.1	-		
20	a.2	a.2	.2	.4	.1	.3	.2	.2	.1	-		
21	a.2	a.2	.2	.3	.2	.3	.2	.2	.1	-		
22	a.2	a.2	.2	.3	.2	.3	.2	.3	.1	-		
23	a.2	a.2	.2	.3	.2	.3	.2	.3	.1	-		
24	a.2	a.2	.2	.3	.2	.3	.2	.3	.1	-		
25	a.2	a.2	.2	.3	.2	.3	.2	.3	.1	-		
26	a.2	a.2	.2	.3	.2	.2	.3	.2	.1	-		
27	a.2	a.2	.2	.3	.2	.2	.2	.3	.1	-		
28	.2	a.2	.2	.3	.2	.2	.2	.3	.1	-		
29	.2	a.3	.2	.3	-	.4	.2	.3	.1	-		
30	.2	a.3	.2	.2	-	.3	.2	.3	.1	-		
31	.3	-	.2	.2	-	.2	-	.3	-	-		

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	8.5	1.7	0.2	0.27	17
November	6.3	.3	.2	.21	12
December	9.2	.5	.2	.30	18
Calendar year 1948	160.9	20	.1	.44	319
January	8.2	.4	.2	.26	16
February	4.3	.3	.1	.15	8.5
March	6.5	.4	.1	.21	13
April	6.6	.4	.0	.22	13
May	7.5	.5	.2	.24	15
June	2.9	.3	0	.10	5.8
July 1-7	.7	.1	.1	.10	1.4
August	-	-	-	-	-
September	-	-	-	-	-
The period	-	-	-	-	120

Peak discharge (base, 150 sec.-ft.).- No peak above base.
a No gage-height record; discharge computed on basis of available fragments of gage-height record, recorded range in stage weather records, and engineers' notes.

Rio Puerco near Cabezon, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 35°42'10", long. 107°00'40", in SE¼ sec. 14, T. 17 N., R. 2 W., 1½ miles downstream from San Luis diversion dam, 2½ miles northeast of San Luis, 7 miles northeast of Cabezon, and 15 miles upstream from Chico Arroyo.

Drainage area.- 360 square miles.

Records available.- February 1943 to September 1949.

Extremes.- Maximum discharge during year, 1,340 second-feet June 10, Aug. 6, from rating curve extended above 300 second-feet on basis of slope-area determinations at gage-heights 10.28 and 10.6 feet; maximum gage height, 5.13 feet Aug. 6; no flow at times.
1943-49: Maximum discharge, 4,400 second-feet June 28, 1943 (gage height, 10.6 feet), by slope-area method; no flow at times.

Remarks.- Records fair except those for periods of ice effect* or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a0.1	23	a0.2	0.2	*0.2	a5	7.8	a60	a0.5	14	1.0	0.1
2	a0	4.2	a.2	.2	.2	a5	5.7	a50	a.2	4.8	10	.1
3	0	3.4	a.2	b.1	.4	a8	3.4	56	a0	.2	36	.1
4	0	a1	a.2	b0	.3	a10	5.1	37	a0	.1	12	0
5	0	.4	a.1	0	.4	a10	24	a25	a0	.1	2.8	0
6	.1	.3	a.1	0	b.2	a5	4.6	a15	a0	.1	331	0
7	.1	.3	a.1	.4	b0	a5	4.2	a10	a0	.1	a5	0
8	.2	.3	a.1	1.1	*b0	25	8.3	a8	.8	.1	75	0
9	.1	.2	a.2	.5	b.1	6.6	8.8	a8	.5	0	50	0
10	.1	a.2	a.2	.5	b.1	3.5	6.6	a40	64	137	36	.1
11	0	a.3	.2	.4	b.1	1.9	5.1	a50	39	154	2.5	.1
12	.1	.3	.1	*.2	b.1	1.4	2.2	a30	a10	a20	.4	.1
13	.2	.3	.1	b3	b.1	1.7	1.4	a35	a1	183	.2	.2
14	.2	.3	.1	b2	.3	1.4	2.2	a30	a.4	102	.2	1.2
15	.2	.2	.1	b1	.4	.6	4.0	a30	a.4	a10	.2	.2
16	.2	.3	.1	.6	.4	.3	7.4	a40	a.4	a1	.2	.2
17	.2	.3	.2	*0	.3	.2	7.0	37	a1	a.5	.4	.2
18	.2	.2	.2	.2	.2	.2	7.8	8.3	a.3	a.1	.3	.2
19	.2	a.2	.2	.2	16	.2	12	.4	a3	a.1	.3	.2
20	.3	a.2	.2	.2	31	.2	8.9	a.2	a1	61	.2	.2
21	.3	a.2	.2	.2	a45	.2	.6	a0	a.5	34	.2	.2
22	.2	a.2	.2	.2	a60	.2	.2	a0	a.2	a15	.2	.3
23	.3	a.2	.2	.2	a80	.2	.1	a0	.2	267	.2	.4
24	.3	a.4	.2	.1	*104	.2	7.1	a0	.3	a20	5.2	.4
25	.3	a.2	.2	.1	a75	.2	21	a0	.2	a100	.2	.6
26	.3	a.2	.2	*8.8	a45	.1	40	a0	.2	a10	.1	.4
27	.4	a.2	.2	b.5	a30	.1	46	a4	.2	a2	.1	.5
28	.5	a.2	.3	b.4	a10	.1	56	a9	.2	1.0	.1	.5
29	14	.5	*.3	b.3	-	.2	65	a6	.2	.6	.1	81
30	6.3	.4	.3	b.2	-	.2	81	a4	.2	.7	.1	17
31	116	-	.2	b.1	-	5.2	-	a2	-	1.2	.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	141.4	116	0	4.56	280
November	38.6	23	.2	1.29	77
December	5.6	.3	.1	.18	11
Calendar year 1948	3,307.8	162	0	9.04	6,560
January	21.9	8.8	0	.71	43
February	499.8	104	0	17.8	991
March	98.1	25	.1	3.16	195
April	453.5	81	.1	15.1	900
May	594.9	60	0	19.2	1,180
June	124.9	64	0	4.16	248
July	1,139.7	267	0	36.8	2,260
August	570.3	331	.1	18.4	1,130
September	104.5	81	0	3.48	207
Water year 1948-49	3,793.2	331	0	10.4	7,520

Peak discharge (base, 600 sec.-ft.).- June 10 (10 p.m.) 1,340 sec.-ft.; July 10 (11:30 p.m.) 650 sec.-ft.; July 13 (5:30 p.m.) 1,070 sec.-ft.; July 14 (4:30 p.m.) 935 sec.-ft.; July 23 (4 a.m.) 1,090 sec.-ft.; Aug. 6 (5 a.m.) 1,340 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records and records for Rio Puerco at Cabezon and Chico Arroyo near Guadalupe.

b Stage-discharge relation affected by ice.

Rio Puerco at Cabezon, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 35°37'20", long. 107°07'00", in NW¼ sec. 13, T. 16 N., R. 3 W., 0.7 mile southwest of Cabezon and 5½ miles upstream from Chico Arroyo.

Records available.- October 1945 to September 1949.

Extremes.- Maximum discharge during year, 904 second-feet June 11 (gage height, 2.48 feet); no flow for many days.

1945-49: Maximum discharge, 2,440 second-feet Aug. 2, 1946, from rating curve extended above 80 second-feet on basis of records for station near Cabezon; maximum gage height, 3.55 feet Aug. 9, 1946; no flow at times.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation. Records of suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	23	0	0	a0	a10	3.2	97	a2	19	0.4	0
2	.2	a3	0	.1	a0	a5	4.3	76	1.0	12	.2	0
3	a.1	a2	0	0	a0	a5	a3	76	.2	1.5	33	0
4	a.1	a1	0	b0	a0	a12	5.3	55	0	.1	16	0
5	0	.6	0	a0	a0	a12	13	39	0	0	a1	0
6	0	.3	0	a0	a0	a7	10	27	0	.2	234	0
7	0	.3	0	a0	a0	a5	a4	23	0	.2	39	0
8	0	.2	0	a0	a0	a20	8.7	13	0	0	25	0
9	0	.1	0	a0	a0	a10	11	9.3	0	0	76	0
10	0	.1	0	a0	a0	a5	10	17	0	81	68	0
11	0	.1	0	a0	a0	a1	9.3	55	101	75	5.3	0
12	0	.1	0	*a0	a0	a.5	6.4	58	8.2	11	1.6	0
13	0	a.1	0	a2	a0	a2	4.6	55	a1	106	.3	18
14	0	a0	0	a1.5	a0	a.5	4.0	46	a.2	87	0	3.4
15	0	a0	0	a.5	a0	a.2	4.9	42	a.2	22	0	.5
16	0	a0	0	a.2	a0	a.2	8.2	42	a.2	a2	0	0
17	0	0	0	a.1	a.1	a.1	7.3	52	a1.5	a.5	11	0
18	0	0	0	a0	a.5	a0	7.3	36	a1	a.2	1.2	0
19	0	0	0	a0	a15	a0	10	12	a1.5	a0	.1	0
20	0	0	0	a0	a25	a0	11	6.0	a3	69	0	0
21	0	0	0	a0	a50	a0	9.3	a2.5	a1	62	0	0
22	0	0	0	a0	a70	a0	6.4	a1	a.1	31	0	0
23	0	0	.2	a0	a90	a0	6.0	a.2	0	225	0	0
24	0	0	0	a0	a120	a0	8.2	a.1	.1	29	5.1	0
25	0	0	0	a0	a100	a0	17	a0	0	146	1.2	0
26	0	0	0	a7	a70	a0	36	a0	0	31	.2	0
27	0	0	0	a3	a40	a0	65	a2	0	a2.5	0	0
28	.1	0	0	a1	a20	a0	62	a4	0	1.8	0	0
29	1.3	0	*0	a.5	-	a0	46	8.2	0	.4	0	42
30	1.6	0	.2	a0	-	a0	68	a6	0	.1	0	14
31	157	-	0	a0	-	1.4	-	a4.5	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	160.7	157	0	5.18	319
November	30.9	23	0	1.03	61
December	.4	.2	0	.01	.8
Calendar year 1948	4,451.1	159	0	12.2	8,820
January	15.9	7	0	.51	32
February	600.6	120	0	21.4	1,190
March	96.9	20	0	3.13	192
April	469.4	68	3	15.6	931
May	864.8	97	0	27.9	1,720
June	122.2	101	0	4.07	242
July	1,015.5	225	0	32.8	2,010
August	518.6	234	0	16.7	1,030
September	77.9	42	0	2.60	155
Water year 1948-49	3,973.8	234	0	10.9	7,880

Peak discharge (base, 800 sec.-ft.).- June 11 (12:50 a.m.) 904 sec.-ft.; Aug. 6 (5 a.m.) 826 sec.-ft.

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

a No gage-height record; discharge computed on basis of available fragments of gage-height record, weather records, and records for station near Cabezon.

b Stage-discharge relation affected by ice.

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Rio Puerco at Rio Puerco, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 34°47'35", long. 106°59'15", in W½ sec. 31, T. 7 N., R. 1 W. (projected), in hamlet of Rio Puerco in San Clemente Grant, at Atchison, Topeka & Santa Fe Railway bridge, 7 miles downstream from San Jose River.

Drainage area.- 5,160 square miles.

Records available.- September 1910 to October 1911, August 1912 to December 1914 (records fragmentary, gage heights only prior to March 1913), and March 1934 to September 1949 in reports of Geological Survey. January 1913 to December 1925 and September 1926 to December 1927 in reports of State engineer.

Average discharge.- 24 years (1913-17, 1919-20, 1921-24, 1926-27, 1934-49), 89.8 second-feet.

Extremes.- Maximum discharge during year, 6,050 second-feet July 23 (gage height, 3.29 feet); no flow at times.
1934-49: Maximum discharge, 28,000 second-feet Aug. 21, 1935 (gage height, 7.24 feet), by computation of flow over dam; no flow at times.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, and those below 10 second-feet, which are poor. Several diversions above station for irrigation. Records of suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	828		0	0	41	0	26	0	0	66	0
2	11	164		0	0	22	2	42	0	0	45	0
3	a4	26		0	0	a15	1	42	0	80	137	0
4	1	14		0	0	a10	1	18	0	24	269	0
5	0	7		0	0	7	1	36	0	6	211	0
6	0	4		0	0	6	0	39	0	3	26	0
7	0	1		0	0	22	0	30	0	22	219	0
8	0	1		0	0	46	0	25	0	69	297	0
9	0	0		2	0	22	0	10	0	15	753	2
10	0	0		*3	0	51	0	9	0	34	1,180	355
11	0	0		2	0	24	1	53	0	539	355	203
12	0	0		1	0	7	0	623	0	380	44	18
13	0	0		1	0	7	0	439	0	308	13	8
14	0	0		b0	1	11	0	120	0	a200	3	284
15	0	0		b0	0	3	0	48	0	a40	0	206
16	0	0		b0	0	1	0	39	0	50	0	57
17	0	0		b0	0	1	0	45	0	8	0	14
18	0	0		b0	0	1	0	36	0	1	132	5
19	0	0		b0	0	0	0	a10	0	0	65	0
20	0	0		b0	1	0	0	a5	0	0	15	0
21	0	0		b0	2	0	0	a2	337	119	3	0
22	29	0		b0	2	0	0	a0	37	142	0	0
23	20	0		b0	129	0	0	a0	11	1,020	0	0
24	7	0		b2	192	0	0	a0	6	1,180	15	0
25	4	0		*8	330	0	0	a0	3	180	0	0
26	1	0		4	254	0	0	a0	2	403	0	0
27	1	0		1	186	0	0	a0	7	77	0	0
28	1	0		0	87	0	0	a0	3	16	0	0
29	0	0		0	-	0	0	a0	0	7	0	0
30	0	0		0	-	0	16	a0	0	2	0	615
31	20	-		0	-	0	-	0	-	30	0	0

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	111	29	0	3.6	220
November	1,045	828	0	34.8	2,070
December	0	0	0	0	0
Calendar year 1948	7,727.1	828	0	21.1	12,320
January	24	8	0	.8	48
February	1,184	330	0	42.3	2,350
March	297	51	0	9.6	589
April	22	16	0	.7	44
May	1,697	623	0	54.7	3,370
June	406	337	0	13.5	805
July	4,955	1,180	0	160	9,830
August	3,848	1,180	0	124	7,630
September	1,767	615	0	58.9	3,500
Water year 1948-49	15,356	1,180	0	42.1	30,460

Peak discharge (base, 6,000 sec.-ft.).- July 23 (8:40 p.m.) 6,050 sec.-ft.
* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for stations near Cabezon and near Bernardo.
b Stage-discharge relation affected by ice.

Rio Puerco near Bernardo, N. Mex.

Location.- Water-stage recorder, lat. 34°24'30", long. 106°51'10", in SE¼ sec. 8, T. 2 N., R. 1 E., at bridge on U. S. Highway 85, 1.2 miles southwest of Bernardo, 3 miles upstream from mouth, and 16 miles south of Belen.

Records available.- November 1939 to September 1949. September 1910 to August 1914 (fragmentary gage heights only) at site 1½ miles downstream, published as Rio Puerco near La Joya.

Extremes.- Maximum discharge during year, 3,220 second-feet July 24 (gage height, 8.48 feet); no flow for extended periods.

1939-49: Maximum discharge, 18,800 second-feet Sept. 23, 1941, from rating curve extended above 7,800 second-feet by logarithmic plotting; maximum gage height, 10.00 feet July 22, 1944; no flow for extended periods.

Remarks.- Records fair. Diversions above station for irrigation. Records of suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	413			0	42		0	0	0	43	0
2	23	402			0	34		0	0	0	54	0
3	16	60			0	23		9	0	0	37	0
4	13	18			0	14		23	0	27	168	0
5	7	8			0	12		12	0	24	275	0
6	3	3			0	8		15	0	5	108	0
7	1	1			0	4		17	0	1	146	0
8	0	0			0	4		10	0	13	140	0
9	0	0			0	29		10	0	61	367	0
10	0	0			0	18		7	0	24	818	122
11	0	0			0	28		338	4	51	668	403
12	0	0			0	17		962	9	606	150	63
13	0	0			0	8		540	3	382	46	27
14	0	0			0	3		176	0	502	14	17
15	1	0			0	2		57	0	123	3	262
16	1	0			0	1		24	0	47	0	84
17	0	0			0	0		11	0	51	0	39
18	0	0			0	0		8	0	10	0	12
19	0	0			0	0		8	2	3	110	5
20	0	0			0	0		4	0	1	23	2
21	0	0			0	0		1	0	10	4	0
22	0	0			0	0		0	0	125	0	0
23	0	0			0	0		0	0	110	0	0
24	5	0			98	0		0	12	1,540	23	0
25	2	0			205	0		0	1	342	1	0
26	2	0			173	0		0	0	396	0	0
27	1	0			127	0		0	0	217	0	0
28	0	0			85	0		0	0	57	0	0
29	0	0			-	0		0	0	23	0	509
30	0	0			-	0		0	0	11	0	474
31	0	-			-	0		0	-	5	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	137	62	0	4.4	272
November	905	413	0	30.2	1,800
December	0	0	0	0	0
Calendar year 1948	5,925	503	0	16.2	11,760
January	0	0	0	0	0
February	688	205	0	24.6	1,360
March	247	42	0	8.0	490
April	0	0	0	0	0
May	2,232	962	0	72.0	4,430
June	31	12	0	1.0	61
July	4,767	1,540	0	154	9,460
August	3,198	818	0	103	6,340
September	2,019	509	0	67.3	4,000
Water year 1948-49	14,224	1,540	0	39.0	28,210

Peak discharge (base, 3,200 sec.-ft.).- July 24 (10:20 a.m.) 3,220 sec.-ft.

Chico Arroyo near Guadalupe, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 35°35'30", long. 107°11'05", in W½ sec. 29, T. 16 N., R. 3 W., a quarter of a mile upstream from mouth, 5 miles northwest of Guadalupe, 8.1 miles by road west of Cabezon.

Drainage area.- 1,390 square miles.

Records available.- November 1943 to September 1949.

Extremes.- Maximum discharge during year, 5,600 second-feet July 23 (gage height, 8.85 feet), from rating curve extended above 900 second-feet on basis of slope-area determination at gage height 12.8 feet; no flow at times.

1943-49: Maximum discharge, 12,700 second-feet July 21, 1944, from rating curve extended above 2,500 second-feet by logarithmic plotting; maximum gage height, 12.8 feet Aug. 16, 1947; no flow at times.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. No diversions above station. Records of suspended sediment loads for the water year 1949 are given in Water-Supply Paper 1157.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1	132			*b0	a20	0	0	0	52	0	0
2	1	6			b0	a15	1	0	0	5	6	0
3	0	0			b0	a10	3	0	0	a1	25	0
4	0	0			b0	a15	12	0	0	a0	55	0
5	0	0			b0	29	5	0	0	a0	1	0
6	0	0			b0	55	2	0	1	52	30	0
7	0	0			b0	35	0	0	0	35	125	0
8	0	0			*b0	26	0	0	0	a2	440	0
9	0	0			b0	23	0	0	0	0	803	413
10	0	0			b0	3	0	0	0	331	417	197
11	0	0			b0	4	1	0	7	144	9	29
12	0	0			b0	6	0	1	0	174	1	5
13	0	0			b0	7	0	0	0	99	0	274
14	0	0			b0	4	0	0	0	5	0	210
15	0	0			b0	2	0	0	0	1	0	9
16	0	0			b0	2	0	0	0	0	0	a5
17	0	0			b0	1	0	0	0	0	281	a3
18	0	0			b0	0	0	0	1	0	17	a1
19	0	0			b0	0	0	0	121	0	9	1
20	170	0			1	0	0	0	a30	218	1	0
21	78	0			28	0	0	0	a3	69	0	0
22	6	0			54	0	0	0	a1	169	0	1
23	0	0			51	0	0	0	0	1,400	0	1
24	0	0			*66	0	0	0	5	195	a0	11
25	0	0			75	0	0	0	a0	254	0	4
26	0	0			42	0	0	0	a0	a35	0	0
27	0	1			21	0	0	0	a0	7	0	0
28	0	0			a15	0	0	0	a0	1	0	0
29	0	1			-	0	0	0	a0	0	0	76
30	7	1			-	0	0	0	a0	0	0	60
31	403	-			-	0	-	0	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	666	403	0	21.5	1,320
November	141	132	0	4.7	280
December	0	0	0	0	0
Calendar year 1948	2,660.1	403	0	7.3	5,280
January	0	0	0	0	0
February	353	75	0	12.6	700
March	257	55	0	8.3	510
April	24	12	0	.8	48
May	1	1	0	.03	2.0
June	169	121	0	5.6	335
July	3,249	1,400	0	105	6,440
August	2,220	803	0	71.6	4,400
September	1,300	413	0	43.3	2,580
Water year 1948-49	8,380	1,400	0	23.0	16,620

Peak discharge (base, 2,300 sec.-ft.).- July 23 (2 a.m.) 5,600 sec.-ft.; Aug. 17 (1:30 p.m.) 2,680 sec.-ft.; Sept. 9 (6 p.m.) 2,960 sec.-ft.

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

a No gage-height record; discharge computed on basis of weather records, and observer's notes.

b Stage-discharge relation affected by ice.

Bluewater Creek near Bluewater, N. Mex.

Location.- Water-stage recorder, lat. 35°17'50", long. 108°01'40", in W½SW¼ sec. 5, T. 12 N., R. 11 W., 2½ miles northwest of Bluewater and 8 miles downstream from storage reservoir of Bluewater-Toltec Irrigation District.

Drainage area.- 235 square miles.

Records available.- May 1912 to December 1914 and October 1930 to September 1949 in reports of Geological Survey. May 1912 to June 1919 and April 1921 to December 1931 in reports of State Engineer.

Average discharge.- 19 years (1930-49), 14.0 second-feet (unadjusted).

Extremes.- Maximum discharge during year, 67 second-feet Aug. 24 (gage height, 3.54 feet); minimum daily, 0.8 second-foot Jan. 3.

1930-49: Maximum discharge, 1,010 second-feet Sept. 1, 1936 (gage height, 6.15 feet, site and datum then in use), from rating curve extended above 65 second-feet by logarithmic plotting; no flow Mar. 3, 1931, Feb. 3, 1935, and at times in 1946.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Flow regulated by Bluewater-Toltec Reservoir (capacity, 46,00 acre-feet).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.6	2.2	1.6	1.3	a2	*2.0	2.8	41	35	46	9.6	24
2	3.1	2.0	1.5	1.1	a2.5	2.2	2.7	41	39	13	16	25
3	2.1	1.8	1.8	.8	b2.5	2.1	2.8	41	40	3.7	24	25
4	5.5	2.0	1.8	b1	b2	2.1	3.1	40	38	3.2	27	23
5	6.8	1.8	1.8	b1	b2	2.2	2.8	40	24	3.2	27	14
6	6.6	1.8	2.7	b1.5	b2	2.1	2.8	44	32	17	27	12
7	9.8	1.6	2.0	b1.5	b2.5	2.2	2.8	46	37	21	22	13
8	10	1.6	2.3	b2	b2	2.0	3.0	46	35	21	19	14
9	7.2	b1.5	2.4	b2	b1.5	1.8	3.0	44	23	21	19	14
10	7.2	*1.8	2.4	b2	b2	1.8	3.2	45	19	23	18	13
11	3.5	1.6	2.6	2.2	b2	1.8	3.4	44	24	25	22	10
12	4.7	1.6	2.2	2.4	b2.5	1.8	3.4	27	24	17	27	10
13	5.3	1.3	2.0	*2.7	b2	1.8	3.4	23	23	3.7	27	22
14	5.1	1.2	1.8	1.8	b2	1.8	3.4	27	23	2.8	27	8.4
15	2.4	1.1	1.4	1.2	b4	1.8	3.5	26	32	6.1	27	6.1
16	2.0	*1.2	1.1	1.6	4.7	2.0	3.7	44	35	7.9	28	5.9
17	1.8	1.2	1.1	b1.5	5.1	1.8	3.9	47	45	8.1	28	11
18	1.8	b1	1.1	b1.5	6.3	1.8	4.0	49	43	18	27	11
19	2.1	1.3	1.1	a1.5	6.1	2.0	4.0	50	38	23	28	11
20	3.1	1.4	*1.3	a1.5	8.1	2.1	4.0	49	37	22	40	11
21	2.2	1.3	1.3	b2	4.4	2.2	3.9	43	41	16	39	4.7
22	2.0	1.2	1.5	2.1	3.0	2.2	3.9	42	44	13	35	1.8
23	1.8	1.4	1.8	2.1	2.8	2.3	4.0	42	44	7.2	35	4.0
24	1.8	1.3	1.2	1.8	2.8	2.4	4.0	43	39	4.2	36	6.8
25	1.8	1.3	1.6	1.6	2.8	2.4	4.0	46	35	4.7	43	6.8
26	2.0	1.3	1.5	1.6	2.4	2.6	25	47	34	2.8	40	13
27	2.0	1.3	1.3	1.4	2.3	2.4	36	44	37	2.7	21	14
28	2.1	.9	1.4	1.5	2.3	2.4	37	41	39	2.6	17	14
29	*2.3	1.5	1.0	1.3	-	2.7	37	32	40	2.4	17	20
30	2.2	1.5	1.4	a1	-	2.7	41	32	46	2.4	17	22
31	3.0	-	1.4	a2	-	2.6	-	31	-	3.5	14	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	119.9	10	1.8	3.87	238
November	44.0	2.2	.9	1.47	87
December	51.4	2.7	1.1	1.66	102
Calendar year 1948	4,354.1	50	.5	11.9	8,630
January	50.5	2.7	.8	1.63	100
February	86.6	8.1	1.5	3.09	172
March	66.1	2.7	1.8	2.13	131
April	261.5	41	2.7	8.72	519
May	1,257	50	23	40.5	2,490
June	1,045	46	19	34.8	2,070
July	367.2	46	2.4	11.8	728
August	803.6	43	9.6	25.9	1,590
September	390.5	25	1.8	13.0	775
Water year 1948-49	4,543.3	50	.8	12.4	9,000

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of available fragments of gage-height record and weather records.

b Stage-discharge relation affected by ice.

San Jose River near Grants, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 35°04', long. 107°44', in SE¼SE¼ sec. 23, T. 10 N., R. 9 W., at west boundary of Acoma Indian Reservation and 8½ miles southeast of Grants.

Records available.- June 1936 to September 1949.

Average discharge.- 13 years, 7.25 second-feet.

Extremes.- Maximum discharge during year, 708 second-feet Aug. 8 (gage height, 3.48 feet); minimum daily, 4.4 second-feet Oct. 12-30.
1936-49: Maximum discharge, 1,330 second-feet Aug. 21, 1947 (gage height, 4.15 feet, from floodmarks), from rating curve extended above 500 second-feet by logarithmic plotting; minimum daily, 2.5 second-feet May 7-10, 1943.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Diversions above and below station for irrigation.

Revisions (water years).- W 898: 1936-39(M).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.7	4.6	4.6	4.9	a6	5.1	5.4	5.4	5.1	5.4	5.1	5.1
2	5.4	4.9	4.6	4.9	a6	5.1	5.4	5.4	5.1	5.4	5.1	5.1
3	5.4	4.6	4.9	4.9	a6	5.1	5.4	5.4	5.1	5.4	5.1	5.1
4	5.7	4.6	4.9	4.9	a6	5.1	5.4	5.4	5.4	5.7	5.1	5.1
5	6.0	4.9	4.9	a5	a6	5.1	5.4	5.4	5.4	5.7	5.1	5.1
6	5.4	4.9	4.9	a5	a5.5	5.1	5.4	5.4	5.1	5.1	5.1	5.4
7	5.4	4.9	4.9	a5	a5.5	5.1	5.4	5.7	5.1	5.4	5.1	5.4
8	5.4	4.9	4.9	a5	a5.5	5.1	5.4	5.4	5.4	5.4	35	5.1
9	5.4	5.1	4.9	a5	a5.5	5.1	5.4	5.4	5.4	5.4	15	5.4
10	5.4	5.1	4.9	a5	a5.5	5.1	5.1	5.4	5.4	31	8.8	5.4
11	5.1	5.1	4.9	a5	a5.5	5.1	5.1	5.7	5.4	19	7.5	5.4
12	4.4	5.1	4.9	a5	a5.5	5.1	5.1	5.7	5.1	17	5.7	5.4
13	4.4	5.1	4.9	5.4	a5.5	5.1	5.1	5.4	5.1	9.5	5.4	5.7
14	4.4	5.1	4.9	5.4	a5.5	5.1	5.1	5.1	5.1	6.0	5.1	5.4
15	4.4	5.1	4.9	5.4	a5.5	5.1	5.1	5.1	5.1	5.7	5.4	5.7
16	4.4	5.1	4.9	5.4	a5.5	5.1	5.1	5.7	5.1	5.4	5.1	5.7
17	4.4	5.1	4.9	5.4	a5.5	5.4	5.1	5.4	5.4	5.1	16	5.4
18	4.4	5.1	4.9	5.7	a5.5	5.4	5.1	5.7	5.4	5.1	13	5.1
19	4.4	5.1	4.9	5.7	a5.5	5.4	5.1	5.7	5.1	5.1	5.7	4.9
20	4.4	5.1	4.9	5.7	a5.5	5.4	5.1	5.4	5.1	27	5.4	4.9
21	4.4	5.1	4.9	5.4	a5.5	5.4	5.1	5.7	5.1	44	5.1	4.9
22	4.4	5.1	4.9	5.4	a5.5	5.4	5.1	5.7	5.4	13	5.1	4.9
23	4.4	5.1	4.9	5.4	a5	5.4	5.1	5.7	5.4	23	5.4	4.9
24	4.4	5.1	4.9	5.4	a5	5.4	5.1	5.7	5.4	15	5.1	4.9
25	4.4	5.1	4.9	5.4	a5	5.4	5.1	5.7	5.4	8.1	5.1	4.9
26	4.4	5.1	4.9	5.7	a5	5.4	5.1	5.4	5.7	6.3	5.1	4.9
27	4.4	5.1	4.9	5.7	a5	5.4	5.4	5.7	5.7	5.4	5.1	4.9
28	4.4	5.1	4.9	5.7	a5	5.4	5.4	5.4	5.7	5.1	5.4	4.9
29	4.4	4.9	4.9	5.7	-	5.4	5.4	5.4	5.7	5.1	5.1	4.9
30	4.4	4.9	5.1	5.7	-	5.4	5.4	5.4	5.7	5.1	5.1	4.9
31	5.1	-	5.1	a6	-	5.4	-	5.4	-	5.1	5.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	149.0	6.0	4.4	4.81	296
November	150.1	5.1	4.6	5.00	298
December	151.7	5.1	4.6	4.89	301
Calendar year 1948	2,122.8	76	4.4	5.80	4,210
January	165.2	6	4.9	5.33	328
February	153.5	6	5	5.48	304
March	162.6	5.4	5.1	5.25	323
April	156.9	5.4	5.1	5.23	311
May	170.4	5.7	5.1	5.50	338
June	159.6	5.7	5.1	5.32	317
July	320.0	44	5.1	10.3	635
August	225.5	35	5.1	7.27	447
September	154.8	5.7	4.9	5.16	307
Water year 1948-49	2,119.3	44	4.4	5.81	4,200

Peak discharge (base, 100 sec.-ft.).- July 23 (7:10 p.m.) 152 sec.-ft.; Aug. 8 (8 p.m.) 708 sec.-ft.; Aug. 17 (4:45 p.m.) 139 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage and records for station at Correo.

San Jose River at Correo, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 34°58'00", long. 107°10'10", in NE¼ sec. 32, T. 9 N., R. 3 W., 0.6 mile upstream from U. S. Highway 66, 0.7 mile northeast of Correo, and 13 miles upstream from mouth.

Records available.- April 1943 to September 1949.

Extremes.- Maximum discharge during year, 1,580 second-feet Aug. 3 (gage height, 4.25 feet); no flow at times.
1943-49: Maximum discharge, 8,010 second-feet May 26, 1944 (gage height, 9.20 feet), from rating curve extended above 1,700 second-feet by logarithmic plotting; no flow at times.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. Several diversions above station for irrigation. Records of suspended sediment loads for the water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	30	0	0	0	13		0	0	0	85	0
2	14	2.7	0	0	*0	9.8		0	0	0	20	0
3	2.1	.6	0	0	0	8.4		0	0	0	315	0
4	.2	0	0	a0	0	6.9		0	0	0	208	0
5	0	.1	0	a0	0	6.2		0	0	0	77	0
6	0	.1	0	0	.1	5.5		0	0	0	31	5.4
7	0	0	0	0	0	6.2		0	0	72	1.8	0
8	0	0	0	0	0	6.9		0	0	3.4	143	0
9	0	0	0	0	.2	2.4		0	0	0	44	.3
10	0	0	0	0	0	.6		0	0	0	173	152
11	0	0	0	0	0	.4		20	.7	44	54	24
12	0	0	.8	.7	1.1	2.1		508	8.4	46	24	1.1
13	0	0	0	*3.7	.3	.2		327	.4	33	2.1	.1
14	1.1	0	.4	b4.7	b.5	0		101	0	3.0	0	.1
15	.3	0	.4	b2.5	0	0		57	0	.6	0	55
16	0	0	.2	b.7	0	0		15	0	0	0	28
17	0	0	.3	b.6	0	0		2.4	0	0	0	3.4
18	0	0	.4	*b0	3.0	0		.6	0	0	0	.2
19	0	0	0	b.6	4.7	0		.1	0	0	0	0
20	0	0	0	0	7.6	0		0	0	0	0	0
21	0	0	0	0	*6.2	0		0	0	0	0	0
22	0	0	0	8.7	6.9	0		0	0	5.6	0	0
23	0	0	0	20	31	0		0	0	126	0	0
24	0	0	.4	22	38	0		0	0	78	0	0
25	0	0	0	*6.9	28	0		0	0	109	4.2	0
26	0	0	0	5.5	13	0		0	0	53	3.8	0
27	0	0	2.0	.5	6.2	0		0	0	9.1	0	0
28	0	0	0	.4	7.6	0		0	0	.6	0	0
29	0	0	0	0	-	0		0	0	0	0	0
30	0	0	0	0	-	0		0	0	0	0	24
31	61	-	0	0	-	0		0	-	.6	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	111.7	61	0	3.60	222
November	33.5	30	0	1.12	66
December	4.9	2.0	0	.16	9.7
Calendar year 1948	2,899.6	501	0	7.92	5,750
January	77.5	22	0	2.50	154
February	154.4	38	0	5.51	306
March	68.6	13	0	2.21	136
April	0	0	0	0	0
May	1,031.1	508	0	33.3	2,050
June	9.5	8.4	0	.32	19
July	583.9	126	0	18.8	1,160
August	1,185.9	315	0	38.3	2,350
September	293.6	152	0	9.79	582
Water year 1948-49	3,554.6	508	0	9.74	7,050

Peak discharge (base, 800 sec.-ft.).- May 12 (10:30 a.m.) 830 sec.-ft.; Aug. 3 (2:30 a.m.) 1,580 sec.-ft.

* Winter discharge measurement made on this day.
a No gage-height record; discharge computed on basis of weather records and records for Rio Puerco.
b Stage-discharge relation affected by ice.

Rio Salado near San Acacia, N. Mex.

Location.- Water-stage recorder, lat. 34°16'40", long. 106°52'55", in E½ sec. 30, T. 1 N., R. 1 E., 1 mile upstream from mouth, 2 miles northeast of San Acacia, 1.7 miles downstream from bridge on U. S. Highway 85, and 15 miles north of Socorro.

Records available.- October 1947 to September 1949.

Extremes.- Maximum discharge during year, 6,810 second-feet July 13 (gage height, 11.19 feet), from rating curve extended above 580 second-feet by logarithmic plotting; no flow at times.

1947-49: Maximum discharge, that of July 13, 1949; no flow at times.

Remarks.- Records poor. Diversions above station for irrigation. Records of suspended sediment loads for the water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3	a2						0	0	0	0	292
2	2	a0						0	0	0	6	a4
3	2	a0						0	0	0	196	3
4	1	a0						0	0	0	5	0
5	0	a0						0	0	0	2	0
6	0	a0						0	0	0	1	11
7	0	a0						0	0	a2	1	3
8	0	a0						0	0	a6	170	0
9	0	a0						0	0	a1	58	82
10	0	a0						0	0	29	a10	126
11	0	a0						30	a0	104	a0	220
12	0	a0						36	a0	13	0	a1
13	0	a0						1	a0	527	0	0
14	114	a0						0	0	28	0	0
15	76	a0						0	0	2	0	163
16	a5	a0						0	0	0	0	a20
17	a1	0						0	0	a1	0	0
18	a0	0						0	0	0	41	0
19	a0	0						0	10	6	a3	0
20	17	0						0	0	16	a0	0
21	a1	0						0	0	34	0	3
22	a0	0						0	0	204	0	0
23	a0	0						0	0	606	0	0
24	a0	0						0	0	48	5	0
25	a0	0						0	0	a0	17	0
26	a0	0						0	0	1	4	0
27	a0	0						0	0	0	2	0
28	a0	0						0	0	0	1	0
29	a0	a0						0	1	0	0	56
30	a0	a0						0	1	0	0	116
31	a8	-						0	-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	230	114	0	7.4	456
November	2	2	0	.1	4
December	0	0	0	0	0
Calendar year 1948	1,056.4	351	0	2.9	2,100
January	0	0	0	0	0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	67	36	0	2.2	133
June	12	10	0	.4	24
July	1,628	606	0	52.5	3,230
August	522	196	0	16.8	1,040
September	1,100	292	0	36.7	2,180
Water year 1948-49	3,561	606	0	9.8	7,070

Peak discharge (base, 800 sec.-ft.).- Oct. 14 (10:20 p.m.) 1,150 sec.-ft.; July 13 (1:20 a.m.) 6,810 sec.-ft.; July 23 (6:30 a.m.) discharge unknown; Aug. 3 (8:15 a.m.) 858 sec.-ft.; Aug. 8 (3:40 a.m.) 1,460 sec.-ft.; Sept. 1 (6 a.m.) 2,700 sec.-ft.; Sept. 9 (9 p.m.) 3,280 sec.-ft.; Sept. 15 (9:45 a.m.) 988 sec.-ft.; Sept. 30 (12:20 a.m.) 3,000 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and observers' notes.

Socorro main canal north at San Acacia, N. Mex.

Location.- Water-stage recorder, lat. 34°15'15", long. 106°53'50", in SE¼NW¼ sec. 1, T. 1 S., R. 1 W., at San Acacia, half a mile downstream from point of diversion from Rio Grande. Datum of gage is 4,659.74 feet above mean sea level, datum of 1929.

Records available.- April 1936 to September 1949.

Extremes.- Maximum daily discharge during year, 188 second-feet Aug. 22; no flow at times.
1937-49: Maximum daily discharge, 234 second-feet Aug. 26, 1938; no flow at times.

Remarks.- Records fair. Canal diverts water from right bank of Rio Grande for irrigation. Three acequias, together irrigating about 300 acres, divert water from canal above station.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	142	38	95.2	5,850
November	5	0	.20	12
December	0	0	0	0
Calendar year 1948	165	0	63.9	46,360
January	0	0	0	0
February	70	0	28.0	1,550
March	130	63	94.7	5,820
April	146	72	119	7,050
May	144	69	124	7,650
June	158	92	139	8,280
July	167	18	120	7,400
August	188	72	137	8,400
September	164	0	89.6	5,330
Water year 1948-49	188	0	79.2	57,340

Socorro main canal south near San Antonio, N. Mex.

Location.- Water-stage recorder, lat. 33°53'30", long. 106°52'00", in NW¼ sec. 8, T. 5 S., R. 1 E., 0.2 mile north of San Antonito School and 1¾ miles south of San Antonio.

Records available.- April 1937 to July 1938 at site 1½ miles downstream (published as Socorro main canal south at end near San Antonio) and March 1948 to September 1949.

Extremes.- Maximum daily discharge during period, 26 second-feet Sept. 4; no flow for many days.
1937-38, 1948-49: Maximum daily discharge, 33 second-feet Sept. 11, Oct. 16, 1937; no flow at times.

Remarks.- Records fair. Canal diverts water from Socorro Riverside drain for irrigation. Lateral diversions above station.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	16	1.2	11.3	694
November	.2	0	.007	.4
December	.3	0	.07	4.4
Calendar year	-	-	-	-
January	2.2	0	.16	10
February	.2	0	.07	4.0
March	17	0	6.71	412
April	17	3.5	7.94	472
May	14	7.1	9.91	609
June	9.4	.9	5.50	327
July	21	1.4	8.33	512
August	20	.6	8.54	525
September	26	4.7	16.2	962
Water year 1948-49	26	0	6.26	4,530

San Antonio Riverside drain near San Antonio, N. Mex.

Location.- Water-stage recorder, lat. 33°53'00", long. 106°51'05", in SW¼SW¼ sec. 9, T. 5 S., R. 1 E., 1 mile east of U. S. Highway 85 and railroad, 1.2 miles upstream from Bosque del Apache Grant (wildlife refuge) boundary, and 2 miles southeast of San Antonio. Prior to Apr. 1, 1949, at site 1.2 miles downstream at datum 1.14 feet lower. Comparative measurements at two sites show an average gain of 2.3 percent from new to old site during period.

Records available.- March 1948 to September 1949. May 1936 to February 1938 at site 50 feet below Elmendorf interior drain, records not equivalent.

Extremes.- Maximum daily discharge, 119 second-feet June 24; minimum daily, 18 second-feet Oct. 17, 18.
1948-49: Maximum daily discharge, that of June 24; minimum daily, 11 second-feet Sept. 8, 9, 1948.

Remarks.- Records good. Diversions above and below station, interior drains and canal wasteways above.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	51	18	28.7	1,770
November	43	20	32.7	1,950
December	49	42	45.6	2,810
Calendar year 1948	-	-	-	-
January	53	47	50.1	3,080
February	69	55	59.5	3,300
March	89	70	76.2	4,680
April	96	74	84.8	5,050
May	105	86	95.3	5,860
June	119	85	102	6,060
July	112	74	93.9	5,780
August	104	40	67.6	4,160
September	112	41	73.9	4,400
Water year 1948-49	119	18	67.5	48,900

San Antonio Riverside drain near San Marcial, N. Mex.

Location.- Water-stage recorder, lat. 33°44'50", long. 106°55'30", in Bosque del Apache Grant (wildlife refuge), half a mile upstream from outlet to Rio Grande, 5 miles northeast of San Marcial, and 10 miles south of San Antonio.

Records available.- March 1948 to September 1949.

Extremes.- Maximum daily discharge during year, 138 second-feet Apr. 20, 21, May 14; minimum daily, 15 second-feet Oct. 8, 12, 13.
1948-49: Maximum daily discharge, 157 second-feet May 31, June 1, 1948; minimum daily, 6.4 second-feet Sept. 15, 1948.

Remarks.- Records good. Diversions above station for irrigation.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	43	15	21.1	1,300
November	44	24	34.4	2,050
December	56	44	50.2	3,090
Calendar year	-	-	-	-
January	92	50	71.5	4,400
February	91	82	87.1	4,840
March	105	68	89.7	5,510
April	138	98	113	6,750
May	138	86	118	7,240
June	130	103	117	6,950
July	120	96	108	6,620
August	112	52	81.8	5,030
September	99	42	72.5	4,310
Water year 1948-49	138	15	80.2	58,090

Elmendorf interior drain near San Antonio, N. Mex.

Location.- Water-stage recorder, lat. 33°52'15", long. 106°52'05", in SW¼ sec. 17, T. 5 S., R. 1 E., 550 feet north of north boundary of Bosque del Apache Grant (Wildlife Refuge), 0.3 mile east of highway and railroad and 3 miles south of San Antonio.

Records available.- July 1936 to January 1938 and March 1948 to September 1949.

Extremes.- Maximum daily discharge during year, 12 second-feet Apr. 4; minimum daily, 0.3 second-foot Aug. 20, 21.
1948-49: Maximum daily discharge, that of Apr. 4, 1949; minimum daily, 0.2 second-foot Aug. 29 to Sept. 2, 1948.

Remarks.- Records good except those for September, hich are fair.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	5.5	2.6	4.09	251
November	2.2	.4	.56	34
December	.7	.5	.59	36
Calendar year	-	-	-	-
January	.9	.5	.68	42
February	.8	.6	.70	39
March	8.0	.7	3.32	204
April	12	1.3	5.65	336
May	10	1.8	5.66	348
June	8.9	1.2	3.82	227
July	7.8	.7	2.80	172
August	3.4	.3	.93	57
September	2.0	.6	1.19	71
Water year 1948-49	12	.3	2.51	1,820

Pecos River near Pecos, N. Mex.

Location.- Water-stage recorder, lat. 35°42'25", long. 105°41'00", in NE¼NE¼ sec. 17, T. 17 N., R. 12 E., at bridge on private road, 600 feet upstream from Indian Creek, 2 miles downstream from Holy Ghost Creek, and 11 miles north of Pecos.

Drainage area.- 189 square miles (contributing area).

Records available.- October 1930 to September 1949 (revised) in reports of Geological Survey. August 1919 to December 1931 in reports of State engineer. A station published as Pecos River near Cowles, N. Mex., was operated 3 miles above present gage March 1910 to December 1914 and 1915-19 (monthly figures only), major tributary between stations.

Average discharge.- 19 years (1930-49), 109 second-feet.

Extremes.- Maximum discharge during year, 709 second-feet May 15 (gage height, 3.56 feet); minimum daily, 14 second-feet Jan. 4.
1930-49: Maximum discharge, 1,960 second-feet May 14, 1941 (gage height, 4.57 feet); minimum daily, 6.1 second-feet Jan. 16, 1934.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	32	b20	23	b21	31	39	407	474	172	137	58
2	36	31	b22	23	b22	30	36	442	447	154	124	58
3	32	32	b24	b20	b22	30	38	528	432	140	140	52
4	30	32	*b20	b14	b22	*31	35	580	458	135	191	50
5	31	*23	b20	b16	b23	32	33	568	437	127	154	53
6	32	28	b20	b20	b24	32	47	517	422	127	140	55
7	28	29	b20	b23	b25	32	57	437	432	132	137	53
8	27	24	b20	b23	b25	31	65	378	392	124	137	53
9	26	25	b20	b23	b25	30	61	378	359	124	137	50
10	25	b30	b20	b2[illegible]	b25	29	57	397	453	117	132	57
11	26	33	b22	b23	b27	32	53	453	495	135	117	49
12	26	29	b24	b25	b29	33	65	539	447	160	122	47
13	25	28	b26	b25	b30	32	82	54[illegible]	432	188	119	48
14	27	26	28	b22	b28	32	93	574	402	154	107	52
15	36	26	21	a20	b27	35	105	640	378	135	99	46
16	29	24	b21	a19	b27	42	117	634	354	127	95	44
17	26	25	21	a18	b28	46	101	568	336	117	110	41
18	25	*24	18	a18	b30	46	112	522	322	115	107	40
19	26	24	b18	a19	b30	48	101	512	345	110	87	40
20	26	b22	b18	a20	b32	54	105	500	304	105	80	39
21	30	b23	b18	a20	b32	47	129	479	326	107	78	37
22	28	b23	19	a20	*34	44	179	468	392	179	76	38
23	27	b24	23	a21	39	43	212	479	322	240	73	41
24	26	b23	19	a22	36	39	205	495	327	226	75	42
25	25	23	b20	*22	30	34	229	517	275	226	73	43
26	24	b22	b22	b22	28	35	318	544	248	195	71	42
27	26	b21	23	b21	27	30	318	550	226	172	65	40
28	32	b20	21	b19	26	40	314	539	204	151	64	40
29	34	b20	b21	b19	-	44	427	512	188	140	61	49
30	31	b21	b21	b19	-	42	490	500	176	140	58	65
31	34	-	b21	b20	-	36	-	512	-	143	58	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	891	36	24	28.7	1,770
November	767	33	20	25.6	1,520
December	651	28	18	21.0	1,290
Calendar year 1948	39,894	702	12	109	79,130
January	642	25	14	20.7	1,270
February	774	39	21	27.6	1,540
March	1,142	54	29	36.8	2,270
April	4,223	490	33	141	8,380
May	15,713	640	378	507	31,170
June	10,806	495	176	360	21,430
July	4,617	240	105	149	9,160
August	3,224	191	58	104	6,390
September	1,422	65	37	47.4	2,820
Water year 1948-49	44,872	640	14	123	89,010

Peak discharge (base, 310 sec.-ft.).- Apr. 29 (11:30 p.m.) 568 sec.-ft.; May 4 (10 p.m.) 634 sec.-ft.; May 15 (9 p.m.) 709 sec.-ft.; June 11 (12:20 a.m.) 604 sec.-ft.; June 22 (1 a.m.) 474 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of weather records, discharge measurements, and records for station near Anton Chico.

b Stage-discharge relation affected by ice.

Pecos River near Anton Chico, N. Mex.

Location.- Water-stage recorder, lat. 35°10'50", long. 105°06'20", in Anton Chico Grant, 2 miles upstream from Canyon Blanco, 2½ miles southeast of Anton Chico, and 10 miles downstream from Tecolote Creek.

Drainage area.- 1,050 square miles (contributing area).

Records available.- April 1910 to December 1914 and October 1930 to September 1949 in reports of Geological Survey. April 1910 to December 1931 in reports of State engineer. During successive periods prior to July 2, 1937, station was at five different sites ranging from a sixth of a mile to 5 miles upstream from present site.

Average discharge.- 19 years (1930-49), 150 second-feet.

Extremes.- Maximum discharge during year, 14,100 second-feet July 22 (gage height, 10.32 feet); minimum daily, 3.0 second-feet Jan. 1.
1930-49: Maximum discharge, 40,300 second-feet June 1, 1937 (gage height, 20.34 feet, present site and datum), by slope-area method; no flow at times.

Remarks.- Records good except those for periods of ice effect or doubtful or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	52	11	3.0	a27	48	92	616	455	202	a380	323
2	14	38	8.2	4.1	a28	43	92	536	430	180	a350	111
3	18	22	*9.6	b4	a29	46	92	548	420	152	425	104
4	15	15	13	4.1	a30	41	94	629	430	130	572	78
5	13	15	b10	b4	a32	48	91	642	425	117	299	72
6	12	19	b9	b6	a35	52	70	629	420	109	263	78
7	12	21	b8	*b8	*b40	56	83	603	416	98	232	70
8	12	23	b9	b10	b30	62	130	519	530	98	248	103
9	12	21	b10	b10	b25	64	180	435	597	125	278	1,120
10	12	22	b10	b8	b30	60	211	425	1,410	662	344	774
11	14	21	*b10	b12	*b35	58	208	524	715	475	180	a300
12	15	22	b10	b14	44	58	195	603	648	266	a160	a100
13	15	24	b14	b16	43	60	236	715	629	1,000	a170	a50
14	16	24	22	*b18	40	64	287	670	560	1,050	163	a40
15	14	18	26	b15	40	64	299	700	514	606	a120	a35
16	14	15	d20	b16	19	63	312	748	480	742	96	a32
17	9.1	15	d14	b16	26	68	312	730	380	a180	166	a29
18	10	15	d10	b20	25	83	293	636	348	a190	199	a27
19	7.7	12	*11	b25	25	97	308	564	950	230	143	24
20	10	12	6.4	b30	26	102	287	566	514	166	96	21
21	10	11	7.7	b40	26	111	275	530	440	445	87	18
22	9.6	10	13	*b40	23	114	305	497	1,150	2,690	78	16
23	9.1	11	25	b35	24	103	356	480	590	450	70	16
24	8.6	12	*25	b30	26	94	407	475	a450	572	64	16
25	8.6	13	20	b30	37	87	416	542	a390	542	62	17
26	8.6	12	b16	b30	45	85	420	524	340	445	70	22
27	9.1	18	b10	b30	40	80	524	542	a300	412	72	18
28	11	15	b8	b27	42	74	572	530	a250	a400	62	299
29	9.6	6.7	b6	a25	-	67	519	514	a230	a350	51	221
30	15	12	*b5	a23	-	92	603	470	a215	a420	46	990
31	17	-	b4	a25	-	97	-	450	-	a300	44	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	373.0	18	7.7	12.0	740
November	544.7	52	6.7	18.2	1,080
December	380.9	26	4	12.3	756
Calendar year 1948	41,558.6	706	.7	114	82,440
January	578.2	40	3.0	18.7	1,150
February	894	45	19	31.9	1,770
March	2,241	114	41	72.3	4,440
April	8,281	603	70	276	16,430
May	17,610	746	425	568	34,930
June	15,606	1,410	215	520	30,950
July	13,804	2,690	98	445	27,380
August	5,590	572	44	180	11,090
September	5,124	1,120	16	171	10,160
Water year 1948-49	71,026.8	2,690	3.0	195	140,900

Peak discharge (base, 3,000 sec.-ft.).- June 10 (7 p.m.) 11,600 sec.-ft.; June 22 (12:15 a.m.) 4,900 sec.-ft.; July 13 (5:10 a.m.) 4,520 sec.-ft.; July 14 (4 a.m.) 3,870 sec.-ft.; July 16 (3:20 a.m.) 3,200 sec.-ft.; July 22 (2:45 a.m.) 14,100 sec.-ft.; Sept. 1 (7:30 p.m.) 4,420 sec.-ft.; Sept. 9 (11:20 p.m.) 4,520 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, weather records, and records for stations near Pecos and at Santa Rosa.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed as explained in footnote a.

Pecos River at Santa Rosa, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 34°56'05", long. 104°41'25", in SW¼SW¼ sec. 2, T. 8 N., R. 21 E., at bridge on U. S. Highway 66 at Santa Rosa, 1 mile upstream from Rio Agua Negra Chiquita.

Drainage area.- 2,650 square miles (contributing area).

Records available.- May 1903 to December 1906 (gage heights only), February 1910 to July 1911, September 1912 to December 1914, and October 1930 to September 1949 in reports of Geological Survey. February 1910 to July 1911 and September 1912 to December 1931 in reports of State engineer.

Average discharge.- 30 years (1912-14, 1916-23, 1928-49), 170 second-feet.

Extremes.- Maximum discharge during year, 14,700 second-feet Sept. 2 (gage height, 11.30 feet); minimum daily, 14 second-feet Jan. 25, 28.
1930-49: Maximum discharge, 55,200 second-feet June 2, 1937 (gage height, 25.7 feet), from rating curve extended above 32,000 second-feet by logarithmic plotting; minimum daily, 2.7 second-feet June 25, 1937.

Remarks.- Records good except those for periods of ice effect or no gage-height record, and those above 1,000 second-feet, which are poor. Several diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	31	25	26	b23	24	35	419	152	34	245	64
2	26	26	28	26	24	22	29	381	163	28	152	3,180
3	26	26	*26	23	b23	21	29	351	141	32	282	213
4	25	29	26	b22	b24	20	26	412	135	33	451	87
5	24	28	b22	b23	*b26	20	25	433	159	31	260	53
6	24	28	23	b30	b25	19	31	433	183	36	213	44
7	24	28	b26	*30	b25	18	23	419	141	36	141	a200
8	24	26	28	28	26	17	21	357	316	36	106	a900
9	24	28	*25	28	23	17	20	318	402	40	152	3,250
10	25	28	26	21	*23	19	51	265	615	538	314	4,030
11	24	28	26	22	23	19	108	270	1,170	1,220	208	492
12	26	26	25	31	24	18	90	461	405	1,140	135	175
13	26	26	26	31	23	19	69	454	534	3,170	83	101
14	26	26	29	29	23	19	109	426	509	1,420	71	62
15	33	26	28	22	21	19	163	405	345	1,090	121	58
16	28	25	26	b21	22	21	171	461	260	1,230	69	56
17	28	25	26	b19	22	19	204	461	236	657	120	56
18	26	25	26	b22	21	20	213	399	179	773	87	58
19	26	25	22	24	21	21	195	357	488	204	167	55
20	31	26	23	*24	21	21	167	323	736	159	115	53
21	37	26	24	29	20	23	128	301	376	83	64	50
22	30	25	23	26	21	32	128	255	1,400	3,650	53	48
23	29	26	24	25	21	28	163	191	447	769	51	47
24	28	*26	24	21	21	28	236	167	290	412	45	48
25	28	26	22	14	26	30	301	167	260	795	43	48
26	26	25	28	19	31	32	290	204	231	1,380	45	50
27	28	25	26	b21	26	34	318	231	148	290	43	50
28	30	b22	23	b14	25	38	440	231	95	222	43	48
29	26	26	*23	*b15	-	41	363	208	67	226	43	264
30	25	26	26	b18	-	41	490	195	47	290	44	1,540
31	26	-	28	b22	-	41	-	159	-	847	41	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	835	37	24	26.9	1,660
November	789	31	22	26.3	1,560
December	783	29	22	25.3	1,550
Calendar year 1948	32,928	3,310	12	90.0	65,310
January	726	31	14	23.4	1,440
February	654	31	20	23.4	1,300
March	761	41	17	24.5	1,510
April	4,634	490	20	154	9,190
May	10,114	461	159	326	20,060
June	10,630	1,400	47	354	21,080
July	20,871	3,650	28	673	41,400
August	3,987	451	41	129	7,910
September	15,380	4,030	44	513	30,510
Water year 1948-49	70,164	4,030	14	192	139,200

Peak discharge (base, 4,000 sec.-ft.).- June 11 (5:15 a.m.) 4,710 sec.-ft.; July 13 (2:30 p.m.) 8,500 sec.-ft.; July 22 (11:30 a.m.) 11,100 sec.-ft.; July 26 (12:15 a.m.) 6,650 sec.-ft.; Sept. 2 (5 a.m.) 14,700 sec.-ft.; Sept. 9 (11 a.m.) 11,500 sec.-ft.; Sept. 10 (9:30 a.m.) 10,600 sec.-ft.; Sept. 30 (6:15 a.m.) 5,850 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of available fragments of gage-height records, weather records, and records for stations at Anton Chico and near Puerto de Luna.

b Stage-discharge relation affected by ice.

Pecos River near Puerto de Luna, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 34°43', long. 104°32', in sec. 29, T. 6 N., R. 23 E., 10 miles southeast of Puerto de Luna and 14 miles upstream from Alamogordo Dam.

Drainage area.- 3,970 square miles (contributing area).

Records available.- April 1938 to September 1949.

Average discharge.- 11 years, 279 second-feet.

Extremes.- Maximum discharge during year, 10,800 second-feet Sept. 2 (gage height, 5.71 feet); minimum daily, 44 second-feet Jan. 30.
1938-49: Maximum discharge, 48,600 second-feet Sept. 1, 1942 (gage height, 17.00 feet), from rating curve extended above 7,400 second-feet on basis of flow at Santa Rosa; minimum daily, 44 second-feet Jan. 30, 1949.

Remarks.- Records fair except those for periods of ice effect or doubtful or no gage-height record, and those above 1,000 second-feet, which are poor. Many diversions above station for irrigation. Discharge represents inflow to Alamogordo Reservoir (capacity, 132,200 acre-feet). Records of chemical analyses, water temperatures, and suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Cooperation.- Gage-height record collected in cooperation with Bureau of Reclamation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	88	140	109	109	48	122	78	a540	270	a150	562	132
2	91	122	115	100	62	126	94	a480	246	a130	264	4,380
3	91	97	118	97	85	129	106	a450	252	a100	246	940
4	88	100	112	62	91	112	115	402	240	a90	1,210	335
5	97	106	91	62	97	100	118	490	1,860	a90	a600	a210
6	85	109	109	85	109	103	122	510	335	a90	a330	170
7	88	103	109	112	112	106	100	530	711	94	240	154
8	97	100	109	109	115	112	82	510	349	416	200	1,870
9	118	103	112	115	112	103	85	434	335	324	190	2,840
10	100	106	115	103	106	103	85	335	1,520	577	230	d5,000
11	103	106	115	122	103	97	140	321	1,190	2,000	394	2,060
12	91	106	112	106	115	94	178	729	970	1,530	246	a740
13	97	97	115	122	118	94	174	610	562	2,800	215	a390
14	94	97	109	122	122	94	154	530	480	1,970	218	a260
15	109	94	122	115	103	85	200	500	402	2,120	205	a210
16	106	94	126	85	103	88	258	510	378	1,710	195	178
17	91	97	112	78	106	91	246	540	363	d1,200	150	158
18	94	106	112	80	103	85	282	500	1,010	d800	258	154
19	100	118	112	97	94	82	288	442	1,270	d800	182	143
20	106	115	109	97	97	82	258	378	a500	d350	461	132
21	109	112	112	106	91	82	264	370	a800	d300	a350	129
22	94	109	112	103	100	88	235	321	a700	a2,400	a200	126
23	94	112	112	100	97	100	220	300	a1,500	a3,700	a140	136
24	88	112	118	85	103	100	215	282	480	a1,000	136	132
25	91	115	115	78	118	106	282	515	418	a700	136	122
26	100	118	118	80	132	91	307	307	a380	a1,600	129	122
27	100	115	115	94	129	88	300	321	a350	a600	122	140
28	100	109	126	94	122	82	335	335	a300	a300	126	118
29	100	106	109	70	-	82	a480	314	a250	356	126	199
30	103	109	109	44	-	88	a520	307	a200	805	118	2,260
31	122	-	109	54	-	80	-	300	-	963	122	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	3,035	122	85	97.9	6,020
November	3,233	140	94	108	6,410
December	3,498	126	91	113	6,940
Calendar year 1948	60,408	2,470	60	165	119,800
January	2,886	122	44	93.1	5,720
February	2,893	132	48	103	5,740
March	2,995	129	80	96.6	5,940
April	6,321	520	78	211	12,540
May	13,413	729	282	433	26,600
June	18,621	1,860	200	621	36,930
July	30,065	3,700	90	970	59,630
August	8,301	1,210	118	268	16,460
September	23,940	5,000	118	798	47,480
Water year 1948-49	119,201	5,000	44	327	236,410

Peak discharge (base, 3,500 sec.-ft.).- June 5 (4 p.m.) 6,500 sec.-ft.; July 8 (9:15 p.m.) 3,900 sec.-ft.; July 11 (8 a.m.) 3,780 sec.-ft.; July 13 (7:45 p.m.) 6,640 sec.-ft.; July 14 (8 p.m.) 4,640 sec.-ft.; Aug. 20 (9:30 p.m.) 3,780 sec.-ft.; Sept. 2 (11 a.m.) 10,800 sec.-ft.; Sept. 8 (7:30 p.m.) 6,500 sec.-ft.; Sept. 30 (8 p.m.) 6,910 sec.-ft.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, field notes, weather records, and records for station at Santa Rosa.

d Doubtful gage-height record; discharge computed as explained in footnote a.

Pecos River below Alamogordo Dam, N. Mex.

Location.- Water-stage recorder, lat. 34°36'20", long. 104°23'10", in lot 1 sec. 2, T. 4 N., R. 24 E., 1,200 feet downstream from Alamogordo Dam, 1½ miles downstream from Alamogordo Creek, and 4½ miles northeast of Guadalupe. Datum of gage is 4,142.67 feet above mean sea level (Bureau of Reclamation datum).

Drainage area.- 4,390 square miles (contributing area).

Records available.- October 1912 to December 1914, October 1930 to September 1936 (at site 1½ miles upstream), and September 1936 to September 1949 in reports of Geological Survey. October 1912 to December 1931 in reports of State engineer. Prior to October 1944, published as Pecos River near Guadalupe.

Average discharge.- 21 years (1913-16, 1918-25, 1926-37), 264 second-feet (prior to completion of Alamogordo Dam), 12 years (1937-49), 263 second-feet.

Extremes.- Maximum discharge during year, 10,800 second-feet July 27 (gage height, 6.14 feet); minimum daily, 0.8 second-foot Feb. 7.

1930-49: Maximum discharge, 42,800 second-feet Sept. 1, 1942, by computation of flow over spillway and through outlet gates of Alamogordo Dam by Bureau of Reclamation; maximum gage height, 13.58 feet Sept. 22, 1941, from floodmark; no flow at times.

Remarks.- Records good. Diversions above station for irrigation. Flow regulated by Alamogordo Reservoir (see p. 235). Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	82	1.2	1.4	1.5	1.7	109	100	76	94	630	112
2	71	82	1.4	1.4	1.5	1.5	54	102	81	87	630	618
3	71	82	1.2	1.4	1.5	2.0	2.2	103	81	108	618	932
4	82	82	1.4	2.0	1.5	2.2	16	104	83	116	618	916
5	90	53	1.2	1.7	1.5	2.2	628	105	70	115	618	901
6	91	a1.2	1.2	1.7	1.0	2.2	1,480	104	13	115	618	901
7	92	a1.2	1.4	1.5	.8	2.2	1,440	106	39	113	173	409
8	92	a1.2	1.7	1.7	1.0	2.2	1,420	103	74	110	117	104
9	92	a1.2	1.4	1.7	1.2	2.2	1,400	104	81	115	117	1,350
10	92	a1.2	1.4	1.5	1.5	2.0	1,380	105	4.3	115	117	2,630
11	93	a1.2	1.2	1.5	1.7	1.7	1,360	106	1.7	124	126	3,150
12	93	h1.2	1.2	1.5	2.0	1.7	1,330	106	1.5	98	118	2,180
13	93	a1.2	1.2	1.5	2.2	1.7	1,280	38	1.2	70	118	280
14	83	a1.3	1.2	1.2	2.2	1.7	1,220	2.5	23	74	118	97
15	78	a1.3	1.2	1.2	2.0	1.7	1,170	19	104	73	117	96
16	90	a1.4	1.4	2.2	2.0	1.7	1,170	100	103	17	117	109
17	92	a1.4	1.4	1.5	2.0	1.7	923	85	79	10	118	128
18	69	1.4	1.4	1.5	1.7	1.7	66	76	112	96	118	155
19	63	1.7	1.4	1.7	1.7	1.7	47	81	194	139	117	158
20	74	1.7	1.2	1.7	1.5	1.7	38	99	124	101	132	158
21	82	1.4	1.2	1.5	1.5	89	82	99	103	78	135	160
22	82	1.4	1.4	1.5	1.5	240	106	99	104	84	135	160
23	82	1.7	1.4	1.5	1.5	116	85	99	83	315	139	160
24	82	1.4	1.4	1.2	1.5	110	75	100	63	449	144	163
25	82	1.4	1.4	1.5	1.5	105	39	100	85	449	142	163
26	82	1.4	1.7	1.5	1.2	106	2.2	100	98	383	142	163
27	82	1.4	1.7	1.5	1.2	106	2.2	100	109	461	142	163
28	82	1.4	1.4	1.5	1.5	106	104	100	110	1,110	142	129
29	82	1.4	1.2	1.5	-	105	218	85	113	786	142	115
30	82	1.2	1.4	1.5	-	106	100	71	112	630	142	396
31	82	-	1.4	1.5	-	108	-	73	-	630	122	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,574	93	63	83.0	5,110
November	414.9	82	1.2	13.8	823
December	41.9	1.7	1.2	1.35	83
Calendar year 1948	58,581.7	1,390	1.1	160	116,200
January	47.7	2.2	1.2	1.54	95
February	43.4	2.2	.8	1.55	86
March	1,334.4	240	1.5	43.0	2,650
April	17,346.6	1,480	2.2	578	34,410
May	2,774.5	106	2.5	89.5	5,500
June	2,325.7	194	1.2	77.5	4,610
July	7,265	1,110	10	234	14,410
August	6,982	630	117	225	13,850
September	17,156	3,150	96	572	34,030
Water year 1948-49	58,306.1	3,150	.8	160	115,700

a No gage-height record; discharge computed on basis of recorded range in stage and known regulation.
h Computed from staff-gage reading.

Pecos River near Acme, N. Mex.

Location.- Water-stage recorder, lat. 33°32'10", long. 104°22'40", in NW¼ sec. 14, T. 9 S., R. 25 E., 1 mile southeast of Melena railroad station, 3½ miles downstream from Salt Creek, 5 miles southwest of Acme, and 13 miles northeast of Roswell.

Drainage area.- 11,380 square miles (contributing area).

Records available.- July 1937 to September 1949 in reports of Geological Survey. August 1921 to July 1923 in reports of State engineer.

Average discharge.- 12 years (1937-49), 265 second-feet.

Extremes.- Maximum discharge during year, 11,800 second-feet June 11 (gage height, 8.74 feet); no flow at times.

1937-49: Maximum discharge, 45,000 second-feet Sept. 23, 1941 (gage height, 13.71 feet), from rating curve extended above 15,000 second-feet by logarithmic plotting; no flow at times.

Maximum discharge during flood of May 28, 1937, 53,000 second-feet (gage height, 14.82 feet, from floodmarks, site and datum then in use), by slope-area method.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Diversions above station for irrigation. Flow regulated by Alamogordo Reservoir (see p. 235). Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0		0	a2	3	0	31	4	9	685	92
2		0		0	a3	3	0	20	1	4	439	362
3		0		0	a4	3	3	13	0	4	507	247
4		0		0	7	2	9	21	0	3	572	363
5		0		0	17	2	24	135	395	2	618	580
6		0		0	31	1	44	60	320	1	472	618
7		0		0	37	0	234	31	40	1	500	708
8		1		0	33	0	1,030	118	1,040	0	426	810
9		7		0	20	0	1,110	76	1,330	13	302	3,110
10		44		0	12	0	1,090	38	1,610	43	164	822
11		43		0	9	0	1,060	24	6,420	26	262	4,730
12		24		0	8	0	1,020	18	1,020	40	110	4,310
13		14		0	8	0	1,000	1,150	271	101	64	3,510
14		9		0	8	0	1,010	1,000	216	292	34	965
15		6		0	9	0	1,030	302	a130	484	103	432
16		4		b5	9	0	968	216	a90	906	394	318
17		2		0	7	0	913	93	a60	899	335	190
18		1		0	5	a0	830	51	a30	518	157	142
19		0		0	3	a0	1,240	31	a30	233	91	138
20		0		4	3	a0	364	20	a90	138	67	142
21		0		4	2	a0	198	31	a60	96	91	157
22		0		6	1	a0	113	20	32	134	41	242
23		0		14	1	a0	78	7	37	56	38	203
24		0		16	0	0	62	5	33	103	30	183
25		0		15	2	0	44	3	38	82	35	179
26		0		7	1	0	37	1	22	108	24	176
27		0		5	1	0	33	3	14	334	18	168
28		0		7	2	0	38	5	12	352	16	183
29		0		a4	-	0	87	8	12	448	15	164
30		0		a2	-	0	64	27	16	790	49	164
31		-		3	-	0	-	12	-	535	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	155	44	0	5.2	307
December	0	0	0	0	0
Calendar year 1948	37,712	1,540	0	103	74,800
January	92	16	0	3.0	182
February	245	37	0	8.8	486
March	14	3	0	.5	28
April	13,733	1,240	0	458	27,240
May	3,570	1,150	1	115	7,080
June	13,373	6,420	0	446	26,520
July	6,755	906	0	218	13,400
August	6,690	685	15	216	13,270
September	24,408	4,730	92	814	48,410
Water year 1948-49	69,035	6,420	0	189	136,900

Peak discharge (base, 1,400 sec.-ft.).- Apr. 19 (2:45 p.m.) 2,940 sec.-ft.; May 14 (2:20 a.m.) 2,330 sec.-ft.; June 5 (10 p.m.) 2,170 sec.-ft.; June 8 (2 p.m.) 2,500 sec.-ft.; June 9 (9 a.m.) 2,090 sec.-ft.; June 11 (3 p.m.) 11,800 sec.-ft.; Aug. 16 (2:30 p.m.) 1,550 sec.-ft.; Sept. 9 (1 p.m.) 8,510 sec.-ft.; Sept. 11 (8 a.m.) 7,350 sec.-ft.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, weather records, field notes, and records for stations below Alamogordo Dam and near Lake Arthur.

b Stage-discharge relation affected by ice.

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Pecos River near Lake Arthur, N. Mex.

Location.- Water-stage recorder, lat. 32°59'25", long. 104°19'10", on line between secs. 26 and 27, T. 15 S., R. 26 E., 1,100 feet upstream from highway bridge, 3 miles east of Lake Arthur, 10 miles upstream from Cottonwood Creek, and 11 miles northeast of Artesia.

Drainage area.- 14,760 square miles (contributing area).

Records available.- August 1938 to September 1949.

Average discharge.- 11 years (1938-49), 391 second-feet.

Extremes.- Maximum discharge during year, 12,700 second-feet July 15 (gage height, 12.7 feet, from floodmarks); minimum daily, 6.9 second-feet Mar. 31.

1938-49: Maximum discharge, 49,600 second-feet Sept. 24, 1941 (gage height, 21.90 feet), from rating curve extended above 16,100 second-feet on basis of slope-area determinations at gage height 21.77 feet and logarithmic plotting; no flow Aug. 21, 22, 1947.

Flood of May 30, 1937, reached a stage of 21.77 feet (discharge, 51,500 second-feet, by slope-area method), but may have been exceeded by floods of 1904 and 1919.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are fair. Diversions above station for irrigation. Flow partly regulated by Alamogordo Reservoir, 150 miles above station (see p. 235).

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	64	94	60	*119	75	9.1	146	a37	98	578	2,920
2	37	59	94	59	113	75	11	117	a35	89	760	624
3	38	59	91	*55	111	69	32	96	a32	87	430	483
4	40	62	92	51	104	64	46	103	a30	79	458	306
5	38	56	92	b46	98	66	26	279	a30	68	568	412
6	34	56	89	b48	100	69	19	216	5,030	53	652	652
7	34	70	100	53	106	66	13	166	871	49	492	645
8	29	74	98	55	117	64	155	134	795	43	487	652
9	32	69	96	56	111	62	862	136	1,130	41	458	756
10	38	72	94	60	106	60	990	143	1,120	58	412	2,110
11	42	75	96	63	104	53	1,010	119	2,810	73	306	1,590
12	41	89	98	68	96	53	1,060	98	5,150	182	352	4,130
13	40	106	98	68	92	49	1,030	96	1,350	416	235	4,010
14	34	104	100	64	91	47	974	1,440	573	263	181	3,050
15	40	96	89	63	87	35	958	775	377	4,500	148	1,120
16	38	91	80	63	85	34	942	319	235	3,880	115	603
17	39	83	70	b63	82	39	942	270	244	2,110	152	458
18	40	80	70	b63	83	28	934	166	370	856	444	344
19	39	76	68	106	83	25	894	125	402	551	310	310
20	46	87	66	104	78	28	1,200	94	168	291	216	336
21	56	83	64	*102	83	46	389	74	134	195	366	306
22	60	83	60	102	78	28	242	73	143	394	394	252
23	75	80	63	100	78	28	167	71	134	588	193	277
24	68	75	64	96	74	20	157	64	121	210	107	295
25	60	85	66	87	70	12	139	56	125	166	89	239
26	53	89	68	100	72	8.6	125	53	111	797	84	229
27	51	92	69	109	78	11	119	57	117	242	77	207
28	53	91	70	111	74	17	107	a53	100	643	68	176
29	53	94	64	b115	-	12	101	a50	311	458	74	163
30	60	92	54	b124	-	10	105	a45	139	709	56	166
31	63	-	58	b127	-	6.9	-	a40	-	1,070	53	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,405	75	29	45.3	2,790
November	2,392	106	56	79.7	4,740
December	2,475	100	54	79.8	4,910
Calendar year 1948	62,070.5	5,000	4	170	123,100
January	2,441	127	46	78.7	4,840
February	2,573	119	70	91.9	5,100
March	1,260.5	75	6.9	40.7	2,500
April	13,758.1	1,200	9.1	459	27,290
May	5,674	1,440	40	183	11,250
June	22,224	5,150	30	741	44,080
July	19,259	4,500	41	621	38,200
August	9,315	760	53	300	18,480
September	27,821	4,130	163	927	55,180
Water year 1948-49	110,597.6	5,150	6.9	303	219,400

Peak discharge (base, 1,500 sec.-ft.).- Apr. 20 (1:15 p.m.) 1,900 sec.-ft.; May 14 (10:30 p.m.) 2,010 sec.-ft.; June 6 (9 a.m.) 9,590 sec.-ft.; June 9 (9 a.m.) 1,860 sec.-ft.; June 10 (5 a.m.) 1,620 sec.-ft.; June 12 (3 p.m.) 6,370 sec.-ft.; July 15 (8:40 p.m.) 12,700 sec.-ft.; July 16 (9 p.m.) 4,260 sec.-ft.; July 26 (7 a.m.) 2,340 sec.-ft.; Sept. 1 (1 p.m.) 8,320 sec.-ft.; Sept. 10 (9 a.m.) 3,530 sec.-ft.; Sept. 12 (7:30 a.m.) 4,500 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of recorded range in stage, available fragments of gage-height record, weather records, and records for station near Artesia.

b Stage discharge relation affected by ice.

Pecos River near Artesia, N. Mex.

Location.- Water-stage recorder, lat. 32°50'05", long. 104°19'25", in W½NW¼ sec. 18, T. 17 S., R. 27 E., at bridge on Artesia-Lovington highway, 4.3 miles east of Artesia, 7.0 miles north of mouth of Rio Penasco, and 17 miles north of McMillan Dam.
Drainage area.- 15,300 square miles (contributing area).
Records available.- March 1905 to September 1925, October 1931 to February 1936 (published as Pecos River near Dayton), and February 1936 to September 1949 in reports of Geological Survey. March 1905 to December 1931 in reports of State engineer.
Average discharge.- 13 years (1936-49), 431 second-feet.
Extremes.- Maximum discharge during year, 5,550 second-feet July 16 (gage height, 12.01 feet); minimum daily, 5.4 second-feet Apr. 2.
1905-49: Maximum gage height, 15.9 feet Sept. 18, 1919, site and datum then in use (discharge not determined). Flood of May 30, 1937, reached a gage height of 14.7 feet (discharge, 51,500 second-feet, by slope-area method); no flow Aug. 17-24, 1934, Aug. 14-25, 1946, Aug. 1-22, 1947.
Remarks.- Records good except those for periods of ice effect or no gage-height record, and those for Aug. 10-20, which are poor. Diversions above station for irrigation. Flow partly regulated by Alamogordo Reservoir (see p. 235). Discharge represents inflow to Lake McMillan, which stores water for irrigation of about 25,000 acres of Carlsbad project. Records of chemical analyses, water temperatures, and suspended sediment loads for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	67	101	66	*b150	76	6.5	124	38	163	760	1,600
2	32	67	103	68	135	76	5.4	135	37	112	732	1,040
3	32	64	105	67	132	71	7.5	104	32	103	628	415
4	34	64	103	63	129	72	36	99	27	97	500	500
5	35	63	104	60	118	68	39	187	25	86	590	342
6	35	61	103	64	115	73	20	256	2,830	72	690	672
7	32	69	101	64	115	73	16	187	1,250	59	590	655
8	32	81	108	66	121	70	12	155	899	49	500	690
9	29	80	101	70	129	71	574	128	964	39	500	708
10	32	78	100	74	117	71	960	160	1,330	47	g440	2,240
11	34	80	104	79	114	65	960	141	2,060	56	g342	1,140
12	38	85	106	82	108	59	1,000	121	4,150	105	g262	3,850
13	37	104	108	82	103	52	1,020	106	1,920	440	g267	4,000
14	35	112	112	82	99	57	960	857	655	345	g183	3,520
15	33	106	106	81	92	48	940	1,140	a450	1,550	g158	1,350
16	41	101	95	79	87	36	880	413	308	4,240	g117	742
17	38	97	88	81	87	33	900	319	234	2,570	g202	545
18	40	89	82	87	85	37	920	211	332	1,160	g590	a428
19	41	85	78	a112	85	20	920	153	393	620	g342	366
20	45	91	76	a122	83	26	1,220	117	208	440	258	342
21	52	93	74	122	85	27	516	93	170	297	219	415
22	58	92	72	122	78	29	319	78	175	330	440	297
23	62	91	70	122	80	17	224	71	158	590	269	277
24	66	85	71	117	78	16	187	65	136	342	131	342
25	61	85	73	110	74	10	166	60	132	232	76	267
26	55	95	76	108	76	8.9	140	54	131	593	69	240
27	52	100	79	122	77	5.7	128	54	131	366	55	221
28	51	100	78	122	80	10	115	57	122	496	53	194
29	52	103	76	a122	-	14	108	52	426	560	54	168
30	56	104	70	a140	-	12	105	48	448	515	46	166
31	63	-	64	a160	-	6.7	-	45	-	1,060	31	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,335	66	29	43.1	2,650
November	2,592	112	61	86.4	5,140
December	2,787	112	64	89.9	5,530
Calendar year 1948	64,397.9	3,230	4.0	176	127,700
January	2,916	160	60	94.1	5,780
February	2,832	150	74	101	5,620
March	1,310.3	76	5.7	42.3	2,600
April	13,404.4	1,220	5.4	447	26,590
May	5,790	1,140	45	187	11,480
June	20,171	4,150	25	672	40,010
July	17,734	4,240	39	572	35,170
August	10,094	760	31	326	20,020
September	27,732	4,000	166	924	55,010
Water year 1948-49	108,697.7	4,240	5.4	298	215,600

Peak discharge (base, 1,200 sec.-ft.).- Apr. 20 (4 p.m.) 1,750 sec.-ft.; May 15 (3:40 a.m.) 1,990 sec.-ft.; June 6 (1:45 p.m.) 4,600 sec.-ft.; June 9 (2 p.m.) 1,530 sec.-ft.; June 10 (12:30 p.m.) 1,480 sec.-ft.; June 12 (7:30 p.m.) 4,450 sec.-ft.; July 16 (4 a.m.) 5,550 sec.-ft.; July 31 (7 a.m.) 1,200 sec.-ft.; Sept. 1 (6 p.m.) 4,950 sec.-ft.; Sept. 10 (2 p.m.) 3,450 sec.-ft.; Sept. 12 (10:30 a.m.) 4,150 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, weather records, discharge measurements, and records for stations upstream.

b Stage-discharge relation affected by ice.

g Computed from graph based on staff-gage readings.

Pecos River below McMillan Dam, N. Mex.

Location.- Water-stage recorder, lat. 32°35'30", long. 104°21'00", in NE¼ sec. 11, T. 20 S., R. 26 E., 700 feet downstream from gates in McMillan Dam and 3 miles southeast from Lakewood.

Drainage area.- 16,990 square miles (contributing area).

Records available.- August 1939 to December 1940, December 1946 to September 1949.

Extremes.- Maximum discharge during year, 3,210 second-feet Sept. 16 (gage height, 7.47 feet); no flow at times.

1939-40, 1946-49: Maximum discharge, that of Sept. 16, 1949; no flow during many periods.

Flood of Oct. 2, 1904, was estimated as 82,000 second-feet by chief engineer of Pecos River Irrigation Co.

Remarks.- Records excellent except those for periods of no gage-height record, which are fair. Flow regulated by Alamogordo Reservoir and Lake McMillan (see p. 235). Many diversions above station for irrigation. Discharge represents water released from Lake McMillan for irrigation on Carlsbad project.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	21	59	38			0	239	0.3	0.2	0	125
2	2.9	26	72	36			0	200	548	.2	60	109
3	0	21	74	35			0	129	13	.2	268	32
4	0	30	33	55			0	658	.3	.2	268	0
5	0	21	83	35			0	312	.4	.2	185	0
6	0	18	71	49			0	164	.6	.1	111	0
7	0	10	67	33			0	217	.6	.2	111	0
8	9.8	37	77	60			253	195	.7	.2	111	0
9	12	31	60	59			15	157	.8	200	113	0
10	7.9	32	72	54			243	111	.8	286	113	0
11	7.1	37	50	64			692	115	.8	326	45	0
12	7.7	50	100	90			850	a1	.8	395	0	0
13	11	41	86	86			896	a.5	.8	363	0	424
14	7.9	56	97	82			868	a.4	.8	73	43	1,840
15	7.9	49	88	59			881	a.3	.8	0	218	2,840
16	12	68	94	28			605	a.3	.9	.2	218	3,000
17	8.3	44	78	42			1.5	.3	1.0	46	169	1,920
18	3.8	70	74	27			a.7	.3	1.0	253	119	238
19	12	52	58	.2			a.5	.3	1.0	259	119	795
20	21	56	55	.2			a.3	.3	1.0	262	117	1,420
21	24	60	51	.2			78	.3	1.0	231	117	419
22	23	55	60	.2			262	.3	.9	195	117	.6
23	24	65	46	.2			256	.3	.8	109	117	.6
24	21	22	55	0			256	.3	.5	0	117	.6
25	26	54	52	0			256	.3	.2	0	117	.6
26	26	55	53	0			253	.3	.3	0	180	.6
27	26	57	55	0			250	.3	.3	0	234	.6
28	20	49	49	0			245	.3	.3	0	259	.6
29	28	64	52	0			242	.3	.2	0	259	.6
30	28	70	56	0			239	.3	.2	0	256	.6
31	20	-	55	0			-	.3	-	0	236	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	397.3	28	0	12.8	788
November	1,321	70	10	44.0	2,620
December	2,032	100	33	65.5	4,030
Calendar year 1948	21,949.4	700	0	60.0	43,530
January	893.0	90	0	28.8	1,770
February	0	0	0	0	0
March	0	0	0	0	0
April	7,641.0	896	0	255	15,160
May	2,504.0	658	.3	80.8	4,970
June	579.1	548	.2	19.3	1,150
July	2,999.7	395	0	96.8	5,950
August	4,397	268	0	142	8,720
September	13,167.4	3,000	0	439	26,120
Water year 1948-49	35,931.5	3,000	0	98.4	71,280

a No gage-height record; discharge computed on basis of available fragments of gage-height record, and records for station at Major Johnson Springs.

Pecos River below Major Johnson Springs, near Carlsbad, N. Mex.

Location.- Water-stage recorder, lat. 32°33'15", long. 104°23'05", in SE¼ sec. 21, T. 20 S., R. 26 E., about 1¼ miles downstream from upper end of Major Johnson Springs, 1½ miles downstream from Seven Rivers, and 15 miles northwest of Carlsbad.

Records available.- January 1947 to September 1949.

Extremes.- Maximum discharge during year, 4,160 second-feet Sept. 15 (gage height, 5.38 feet), from rating curve extended above 630 second-feet by logarithmic plotting; minimum daily, 22 second-feet Apr. 7.

1947-49: Maximum discharge, that of Sept. 15, 1949; minimum daily, 11 second-feet Oct. 2, 3, 1947.

Flood of Oct. 2, 1904, was estimated as 82,000 second-feet at McMillan Dam (5 miles upstream) by chief engineer of Pecos River Irrigation Co.

Remarks.- Records good. Flow regulated by Alamogordo Reservoir and Lake McMillan (see p. 235). Many diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	46	75	72	63	81	30	342	130	180	190	407
2	36	54	97	63	66	81	28	317	627	185	200	305
3	34	57	94	44	69	81	27	253	204	185	419	253
4	36	54	75	81	75	78	26	695	122	190	426	205
5	36	51	78	57	78	78	24	545	111	195	377	205
6	36	51	84	66	78	78	23	248	100	200	293	205
7	34	46	94	72	81	75	22	287	94	200	293	200
8	34	60	97	63	84	75	193	281	94	200	293	200
9	36	63	84	84	87	75	40	236	97	331	299	200
10	40	60	84	78	87	69	144	190	108	482	299	200
11	38	69	81	75	90	66	575	166	186	468	253	195
12	38	72	97	104	90	63	780	90	125	538	205	195
13	38	72	94	90	94	66	828	91	125	503	205	878
14	40	81	111	84	97	63	820	78	130	281	218	1,940
15	38	78	100	75	97	63	836	69	134	185	391	3,490
16	40	94	111	72	97	60	685	72	138	180	391	3,610
17	38	78	90	42	100	60	54	81	148	190	363	2,410
18	38	90	94	66	100	57	51	87	184	398	311	550
19	40	78	87	34	97	54	37	94	166	405	311	940
20	48	81	75	30	100	51	63	97	170	412	311	1,720
21	51	84	78	27	100	51	96	104	210	391	311	835
22	48	78	72	28	100	48	287	108	185	356	311	248
23	51	87	69	28	97	46	299	111	180	305	311	242
24	48	63	72	32	94	46	311	114	180	195	311	242
25	51	58	72	36	94	46	317	118	180	234	311	236
26	54	81	72	42	90	44	323	122	180	205	363	236
27	57	87	78	46	87	42	329	125	185	190	412	236
28	54	63	75	51	87	38	335	125	180	190	440	231
29	54	75	75	54	-	36	342	125	175	190	433	231
30	60	90	75	57	-	34	342	130	175	190	433	231
31	57	-	84	60	-	32	-	130	-	190	494	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,339	60	34	43.2	2,660
November	2,101	94	46	70.0	4,170
December	2,624	111	69	84.6	5,200
Calendar year 1948	50,507	733	34	138	100,200
January	1,813	104	27	58.5	3,600
February	2,479	100	63	88.5	4,920
March	1,837	81	32	59.3	3,640
April	8,287	836	22	276	16,440
May	5,624	698	69	181	11,160
June	5,023	627	94	167	9,960
July	8,544	538	180	276	16,950
August	10,178	494	190	328	20,190
September	21,276	3,610	195	709	42,200
Water year 1948-49	71,125	3,610	22	195	141,100

Pecos River at dam site 3, near Carlsbad, N. Mex.

Location.- Water-stage recorder, lat. 32°30'45", long. 104°19'50", in lot 14, sec. 6, T. 21 S., R. 26 E., at dam site 3 of Carlsbad project of Bureau of Reclamation, about 1 miles upstream from flow line of Lake Avalon, 1.3 miles downstream from Rocky Arroyo, and 8 miles northwest of Carlsbad. Datum of gage is 3,172.31 feet above mean sea level (Bureau of Reclamation datum).

Drainage area.- 17,620 square miles (contributing area).

Records available.- August 1939 to December 1940, August 1944 to September 1949.

Extremes.- Maximum discharge during year, 6,100 second-feet July 13 (gage height, 6.60 feet), from rating curve extended above 2,200 second-feet by logarithmic plotting; minimum daily, 27 second-feet Apr. 7.

1939-40; 1944-49: Maximum discharge, 18,200 second-feet May 31, 1948 (gage height, 12.3 feet); minimum daily, 16 second-feet June 18-21, 1946, Oct. 11, 1947.

Flood of Oct. 2, 1904, was estimated at 82,000 second-feet at McMillan Dam (about 10 miles upstream) by chief engineer of Pecos River Irrigation Co.

Remarks.- Records good except those for periods of no gage-height record and those above 1,000 second-feet, which are poor. Flow regulated by storage in Alamogordo Reservoir and Lake McMillan (see p. 235). Many diversions above station for irrigation. Discharge represents inflow of Lake Avalon.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	47	89	76	66	92	37	369	130	199	209	732
2	41	58	96	63	69	92	35	356	481	199	209	328
3	39	60	100	43	74	91	32	286	339	199	445	282
4	39	54	94	68	78	89	31	581	125	199	480	216
5	37	52	88	63	80	87	30	636	115	202	440	212
6	37	58	85	63	85	87	28	244	102	199	338	209
7	36	50	100	76	87	85	27	311	92	199	338	209
8	36	57	89	62	89	78	132	311	91	199	342	209
9	37	60	91	87	92	80	130	263	96	305	342	216
10	41	62	87	81	94	78	120	209	104	525	342	209
11	42	71	102	78	96	73	600	193	199	495	307	209
12	41	69	97	106	98	69	819	96	139	668	226	209
13	41	76	100	98	100	69	873	85	123	1,070	226	909
14	43	76	119	87	98	66	873	78	130	847	226	1,950
15	41	81	110	81	100	64	887	73	132	216	417	4,360
16	43	a90	119	89	102	63	799	71	139	202	440	4,410
17	42	87	98	44	104	63	91	78	146	199	420	2,830
18	41	87	100	68	106	60	64	85	156	410	351	642
19	41	74	94	46	104	57	69	92	184	445	351	848
20	51	89	83	34	106	54	76	98	162	455	351	1,710
21	56	85	80	31	106	51	85	104	283	440	351	983
22	52	81	73	31	104	52	315	110	196	425	351	270
23	57	92	81	31	106	48	342	115	181	385	351	263
24	56	81	76	32	100	47	351	121	184	216	351	255
25	56	58	80	37	100	47	360	121	184	228	351	251
26	58	89	76	42	96	44	369	123	187	280	a380	247
27	57	89	85	44	94	46	369	125	187	209	a430	244
28	60	69	78	51	94	43	374	125	187	209	a460	240
29	54	85	74	56	-	38	374	128	190	209	a450	240
30	60	98	73	58	-	37	369	128	196	209	a450	233
31	58	-	89	63	-	37	-	128	-	209	552	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,435	60	36	46.3	2,850
November	2,185	98	47	72.8	4,330
December	2,795	119	73	90.2	5,540
Calendar year 1948	61,361	2,320	36	168	121,700
January	1,889	106	31	60.9	3,750
February	2,628	106	66	93.9	5,210
March	1,987	92	37	64.1	3,940
April	9,061	887	27	302	17,970
May	5,843	636	71	188	11,590
June	5,160	481	91	172	10,230
July	10,451	1,070	199	337	20,730
August	11,278	552	209	364	22,370
September	24,125	4,410	209	804	47,850
Water year 1948-49	78,837	4,410	27	216	156,400

Peak discharge (base, 1,700 sec.-ft.).- July 13 (10:30 p.m.) 6,100 sec.-ft.; Sept. 1 (2 a.m.) 2,280 sec.-ft.; Sept. 13 (1:40 p.m.) 2,250 sec.-ft.; Sept. 15 (12:50 p.m.) 5,580 sec.-ft.; Sept. 19 (9 p.m.) 1,710 sec.-ft.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, weather records, and records for stations at Major Johnson Springs and below McMillan Dam.

Pecos River at Carlsbad, N. Mex.

Location.- Water-stage recorder, lat. 32°24'50", long. 104°13'20", in NW¼SE¼ sec. 6, T. 22 S., R. 27 E., at Green Street Bridge in Carlsbad and half a mile upstream from Dark Canyon. Datum of gage is 3,080.38 feet above mean sea level, datum of 1929.

Drainage area.- 18,100 square miles (contributing area).

Records available.- May 1903 to March 1908, May 1914 to September 1925, October 1928 to September 1930, and October 1931 to September 1949 in reports of Geological Survey. June 1903 to December 1906, May 1914 to December 1928, and January 1930 to December 1931 in reports of State engineer.

Average discharge.- 23 years (1914-37), 304 second-feet (prior to completion of Alamogordo Dam); 12 years (1937-49), 286 second-feet.

Extremes.- Maximum discharge during year, 4,800 second-feet Sept. 16 (gage height, 6.36 feet); minimum daily, 6 second-feet Feb. 25, 26.

1903-8, 1914-49: Maximum discharge, 85,700 second-feet Aug. 7, 1916 (gage height, about 21.0 feet), from rating curve extended above 34,000 second-feet by logarithmic plotting; no flow May 9, 1904.

Remarks.- Records good except those for periods of no gage-height record, and those below 30 second-feet, which are fair. Flow regulated by Alamogordo Reservoir, Lake McMillan, Lake Avalon, and at low stages by power plant above station. Many diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	53	59	56	a55	a70	83	53	56	62	50	73	107
2	56	59	56	a55	a70	65	64	62	62	53	64	73
3	56	59	59	a54	a72	67	53	62	73	53	62	53
4	53	62	56	53	a72	67	59	62	70	59	67	56
5	56	56	56	50	a72	67	56	62	339	56	64	64
6	56	56	56	48	a72	79	62	59	67	59	64	62
7	56	56	a56	119	a72	90	67	59	76	56	67	62
8	56	56	a56	342	a72	73	73	59	73	56	73	64
9	56	50	a56	86	a72	79	76	59	73	59	62	266
10	59	53	a56	76	76	83	53	59	70	56	64	50
11	62	56	a50	76	83	83	70	56	109	56	62	59
12	59	53	a50	76	83	83	70	59	70	59	62	62
13	62	56	a45	76	101	79	73	64	70	59	64	689
14	59	53	a45	73	108	70	73	56	70	64	67	1,520
15	62	44	a45	70	104	64	76	50	59	62	67	3,560
16	59	a50	a45	70	111	73	70	59	62	62	62	4,490
17	56	44	a45	67	111	73	70	48	59	62	62	3,240
18	59	50	a45	a66	111	67	67	53	56	64	64	993
19	56	50	a45	a65	111	70	67	50	56	62	62	233
20	56	53	a45	a65	111	73	64	50	62	64	64	1,460
21	56	53	a45	a65	111	73	67	50	62	64	62	1,460
22	56	53	a45	a65	111	76	67	53	62	64	62	67
23	56	56	a45	a65	111	83	62	62	59	64	64	189
24	56	53	a60	a65	72	79	62	56	56	64	64	187
25	56	53	a60	a65	6	83	64	59	50	67	62	76
26	59	53	a60	a65	6	76	56	56	53	67	62	76
27	62	59	a60	a65	11	70	56	62	56	64	59	73
28	62	53	a60	a65	64	79	56	56	53	64	59	73
29	62	56	a60	a65	-	73	59	56	53	67	62	73
30	59	56	a60	a65	-	70	59	62	56	67	62	70
31	62	-	a60	a68	-	64	-	64	-	67	105	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,793	62	53	57.8	3,560
November	1,620	62	44	54.0	3,210
December	1,638	60	45	52.8	3,250
Calendar year 1948	32,942	5,530	31	90.0	65,330
January	2,360	342	48	76.1	4,680
February	2,246	111	6	80.2	4,450
March	2,314	90	64	74.6	4,590
April	1,924	76	53	64.1	3,820
May	1,780	64	48	57.4	3,530
June	2,201	339	50	73.4	4,370
July	1,890	67	50	61.0	3,750
August	2,019	105	59	65.1	4,000
September	19,209	4,490	50	640	38,100
Water year 1948-49	40,994	4,490	6	112	81,310

a No gage-height record; discharge computed on basis of weather records and records for stations near Malaga and at Red Bluff.

Pecos River near Malaga, N. Mex.

Location.- Water-stage recorder, lat. 32°12'30", long. 104°01'30", in NW¼NW¼ sec. 19, T. 24 S., R. 29 E., 3 miles southeast of Malaga and 3 miles downstream from Black River. Datum of gage is 2,895.68 feet above mean sea level, datum of 1929 (3 feet higher prior to Mar. 25, 1949).

Drainage area.- 19,190 square miles (contributing area).

Records available.- May 1920 to September 1925 and October 1931 to September 1949 in reports of Geological Survey. January 1921 to December 1931 in reports of State engineer.

Average discharge.- 17 years (1920-37), 299 second-feet (prior to completion of Alamogordo Reservoir). 12 years (1937-49), 358 second-feet.

Extremes.- Maximum discharge during year, 5,180 second-feet Sept. 16 (gage height, 10.68 feet, from floodmarks); minimum daily, 30 second-feet Mar. 29.

1920-49: Maximum discharge, 63,700 second-feet Sept. 21, 1941, from rating curve extended above 22,500 second-feet by logarithmic plotting; maximum gage height, 35.1 feet, present datum, May 22, 1941, from floodmarks; no flow Aug. 20-22, 1934.

Remarks.- Records good except those for periods of no gage height record, which are poor. Flow regulated by Alamogordo Reservoir, Lakes McMillan and Avalon, and by several small diversion dams that divert for power and irrigation. Many diversions above station for irrigation. Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	55	97	a80	86	121	76	32	57	55	82	49	114
2	55	92	a80	84	121	78	31	88	56	75	46	125
3	57	95	a80	82	121	107	36	90	46	80	49	87
4	62	93	a85	84	120	118	44	100	125	90	62	86
5	57	93	a85	86	116	118	45	224	84	93	65	74
6	57	88	a85	90	116	116	47	123	1,550	93	65	75
7	56	92	84	88	116	111	42	105	198	92	50	68
8	75	92	84	145	116	111	42	97	107	92	50	64
9	87	92	86	276	116	109	42	102	100	55	98	a500
10	104	88	82	138	112	98	54	107	87	50	90	a200
11	102	88	81	134	111	109	53	84	391	51	92	a100
12	102	90	78	125	114	104	49	72	768	49	72	a100
13	100	92	61	123	116	93	44	67	172	57	67	a500
14	98	92	51	116	121	90	45	60	104	109	67	a900
15	95	93	54	114	131	88	44	62	93	97	71	a2,000
16	95	93	55	114	131	87	41	67	86	98	60	a4,000
17	90	97	51	120	134	86	41	56	84	65	54	a4,000
18	87	98	49	116	138	84	41	61	81	54	47	a2,000
19	93	88	48	111	138	82	35	60	84	51	82	a500
20	98	88	45	109	a138	84	39	60	80	55	87	a700
21	104	95	47	109	a138	87	45	67	75	50	86	1,620
22	104	a97	50	111	a138	54	39	65	75	73	86	868
23	98	a95	49	118	a138	40	39	65	64	203	86	189
24	95	a95	50	114	a135	37	40	69	56	185	86	353
25	93	a90	87	112	a115	36	44	64	51	109	51	238
26	92	a90	87	116	87	33	44	54	50	84	50	178
27	95	a90	87	116	82	39	42	65	48	78	57	230
28	95	a85	87	112	80	33	44	64	50	72	53	248
29	95	a80	88	111	-	30	51	57	64	84	53	257
30	95	a80	86	116	-	34	47	54	82	60	56	246
31	93	-	86	118	-	39	-	55	-	57	60	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,684	104	55	86.6	5,320
November	2,738	98	80	91.3	5,430
December	2,208	88	45	71.2	4,380
Calendar year 1948	44,947	8,950	15	123	89,130
January	3,594	276	82	116	7,130
February	3,360	138	80	120	6,660
March	2,411	118	30	77.8	4,780
April	1,282	54	31	42.7	2,540
May	2,421	224	54	78.1	4,800
June	4,966	1,550	46	166	9,850
July	2,543	203	49	82.0	5,040
August	2,047	98	46	66.0	4,060
September	20,620	4,000	64	687	40,900
Water year 1948-49	50,874	4,000	30	139	100,900

Peak discharge (base, 1,000 sec.-ft.).- June 6 (4:40 a.m.) 4,740 sec.-ft.; June 12 (7:45 a.m.) 1,960 sec.-ft.; Sept. 16 (about 9 a.m.) 5,180 sec.-ft.; Sept. 22 (1 a.m.) 2,960 sec.-ft.

a No gage-height record; discharge computed on basis of recorded range in stage, weather records, and records for stations at Carlsbad and at Red Bluff.

Pecos River at Red Bluff, N. Mex.

Location.- Water-stage recorder, lat. 32°04'40", long. 104°02'20", at Red Bluff, Eddy County, just downstream from Red Bluff Creek and 5½ miles upstream from Delaware River. Datum of gage is 2,850.0 feet above mean sea level, datum of 1929.

Drainage area.- 19,540 square miles (contributing area).

Records available.- October 1937 to September 1949. May 1914 to September 1937 at site 6 miles downstream near Angeles, Tex.; records comparable to combined flow of Pecos River at Red Bluff and Delaware River near Red Bluff.

Average discharge.- 12 years, 365 second-feet.

Extremes.- Maximum discharge during year, 4,570 second-feet Sept. 16 (gage height, 8.82 feet); minimum, 20 second-feet Mar. 31 (gage height, 2.75 feet).

1937-49: Maximum discharge, 52,600 second-feet May 24, 1941 (gage height, 28.3 feet), by slope-area method; minimum, 14 second-feet Aug. 19, 1946.

Maximum stage known prior to 1941, 28.0 feet in October 1904, from information by Panhandle & Santa Fe Railway.

Remarks.- Records excellent. Flow regulated to large extent by reservoirs above Carlsbad. Many diversions above station for irrigation. Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	56	86	80	89	120	82	30	55	76	91	71	63
2	55	82	82	91	122	80	26	66	72	87	59	145
3	55	80	79	95	124	84	28	84	71	82	52	118
4	55	89	76	91	124	112	41	84	68	89	58	102
5	74	89	79	89	122	118	53	145	161	95	80	106
6	74	89	84	89	122	118	53	322	1,130	96	79	96
7	71	87	79	91	120	114	46	166	510	98	80	96
8	69	89	76	93	120	110	44	114	174	100	63	91
9	91	87	74	270	118	112	48	108	135	82	66	703
10	104	87	76	202	118	104	50	114	120	53	159	436
11	108	86	74	152	118	100	53	108	367	45	145	171
12	104	87	79	142	122	104	58	98	899	46	114	122
13	106	87	86	131	124	98	51	96	430	44	89	465
14	102	87	84	127	124	91	47	86	159	85	82	1,050
15	100	87	77	124	135	89	44	76	116	125	77	2,160
16	96	87	72	122	133	89	44	84	110	91	74	4,180
17	95	87	68	122	140	84	41	87	102	88	60	4,310
18	91	93	62	127	144	84	41	79	100	59	56	2,850
19	84	89	62	118	147	82	42	84	98	48	46	1,090
20	95	80	62	118	144	82	42	80	102	44	86	656
21	102	80	58	116	144	86	39	80	89	46	93	1,410
22	106	89	60	118	144	87	42	87	87	46	86	1,550
23	100	87	71	122	144	66	40	86	84	221	86	332
24	95	80	68	122	144	48	48	89	74	174	87	234
25	95	79	71	118	144	37	48	89	68	203	84	406
26	93	80	95	118	124	36	51	84	63	110	59	233
27	93	80	93	120	95	33	47	79	59	86	60	220
28	93	79	93	118	84	36	38	105	58	80	66	276
29	93	82	86	110	-	29	39	86	59	76	60	283
30	86	80	82	116	-	22	50	80	69	80	55	279
31	89	-	82	120	-	23	-	77	-	66	55	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,730	108	55	88.1	5,410
November	2,551	93	79	85.0	5,060
December	2,370	95	58	76.5	4,700
Calendar year 1948	48,185	7,110	23	132	95,570
January	3,781	270	89	122	7,500
February	3,564	147	84	127	7,070
March	2,440	118	22	78.7	4,840
April	1,324	58	26	44.1	2,630
May	3,078	322	55	99.3	6,110
June	5,710	1,130	58	190	11,330
July	2,736	221	44	88.3	5,430
August	2,387	159	46	77.0	4,730
September	24,233	4,310	63	808	48,070
Water year 1948-49	56,904	4,310	22	156	112,900

Pecos River near Orla, Tex.

Location.- Water-stage recorder, lat. 31°49', long. 103°48', 600 feet upstream from Pasotex pipe-line crossing, 6 miles southeast of Orla, Reeves County, 11 miles downstream from Salt (Screwbean) Draw, and 14 miles downstream from Red Bluff Dam. Datum of gage is 2,718.0 feet above mean sea level, datum of 1929.

Drainage area.- 21,300 square miles (contributing area).

Records available.- May 1937 to September 1949.

Average discharge. 12 years, 370 second-feet.

Extremes.- Maximum discharge during year, 1,380 second-feet Sept. 11 (gage height, 3.82 feet); minimum, 0.3 second-foot Oct. 2-9, 14.
1937-49: Maximum discharge, 23,700 second-feet Sept. 29, 1941 (gage height, 20.74 feet); no flow Sept. 9-14, Nov. 4, 1946.

Remarks.- Records excellent. Flow regulated by Red Bluff Reservoir (see p. 235). Occasional runoff from draws between dam and station. Many diversions above station for irrigation. Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Revision (water years).- W 928: 1937.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.1	4.4	4.4	8.0	4.4	11	266	49	30	476	307	131
2	.4	3.6	4.4	7.4	4.0	10	262	49	30	486	240	134
3	.3	41	4.0	7.4	4.0	9.4	266	49	29	486	238	137
4	.3	146	7.1	6.9	3.6	8.0	186	33	53	461	238	137
5	.3	145	48	6.9	3.6	7.4	180	16	18	381	239	140
6	.3	110	6.9	6.9	3.6	6.9	182	14	11	273	176	137
7	.3	11	4.0	6.4	3.2	6.9	183	12	11	263	118	137
8	.3	7.4	3.6	9.3	3.6	6.9	179	12	11	262	160	137
9	.3	5.9	3.2	40	3.6	6.4	177	13	50	304	119	242
10	1.9	5.4	3.2	9.4	5.4	24	179	13	21	401	119	158
11	2.0	5.4	3.2	21	5.9	12	180	13	13	339	119	625
12	1.2	5.4	3.2	70	9.8	11	262	13	19	339	114	164
13	.7	5.4	3.2	52	37	10	411	14	28	343	52	149
14	29	5.4	3.6	11	11	9.4	392	14	14	347	12	170
15	90	4.9	3.6	6.9	8.7	9.4	382	13	11	339	9.4	167
16	7.4	7.0	3.6	4.4	8.7	11	406	15	22	339	7.4	74
17	4.0	31	3.2	4.0	8.7	17	411	14	49	331	7.4	24
18	3.6	7.4	3.6	3.6	9.4	8.0	406	71	12	242	6.9	17
19	4.0	24	3.6	2.9	9.4	7.4	374	75	10	238	6.9	15
20	4.9	6.9	3.6	2.9	9.4	13	300	172	78	234	6.9	127
21	5.4	5.4	3.6	2.4	9.4	26	287	140	94	163	96	80
22	25	4.9	3.2	2.4	9.4	214	300	125	97	163	134	27
23	8.4	4.9	3.6	2.9	10	224	300	125	92	166	134	18
24	4.9	4.9	4.0	3.2	10	224	292	125	119	164	131	15
25	4.9	4.9	4.0	3.2	10	206	171	87	157	171	127	13
26	4.4	4.9	20	5.4	11	177	110	77	257	162	120	12
27	4.0	4.9	53	5.4	18	173	107	44	396	163	131	12
28	4.0	4.4	10	4.4	11	170	107	41	411	183	131	11
29	4.4	4.0	7.4	3.6	-	173	84	41	505	307	131	6.9
30	4.4	4.4	27	3.2	-	196	56	41	542	307	131	5.9
31	4.4	-	17	4.0	-	266	-	33	-	307	131	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	226.5	90	0.3	7.31	449
November	630.1	146	3.6	21.0	1,250
December	276.0	53	3.2	8.90	547
Calendar year 1948	42,389.0	802	.3	116	84,080
January	327.4	70	2.4	10.6	649
February	245.8	37	3.2	8.78	488
March	2,254.1	266	6.4	72.7	4,470
April	7,398	411	56	247	14,670
May	1,553	172	12	50.1	3,080
June	3,190	542	10	106	6,330
July	9,140	486	162	295	18,130
August	3,692.9	307	6.9	119	7,320
September	3,222.8	625	5.9	107	6,390
Water year 1948-49	32,156.6	625	.3	88.1	63,770

Pecos River at Pecos, Tex.

Location.- Water-stage recorder, lat. 31°26', long. 103°28', at bridge on U. S. Highway 80, 195 feet downstream from Texas & Pacific Railway bridge, 1.7 miles east of Pecos, Reeves County, and 11 miles upstream from Toyah Creek. Datum of gage is 2,552.0 feet above mean sea level, datum of 1929.

Drainage area.- 22,100 square miles (contributing area).

Records available.- August 1939 to September 1949. January 1898 to June 1907 at flume of Barstow Irrigation Co. (old Marguerretta Canal Co.), 6.4 miles upstream, published as Pecos River near Pecos. April 1914 to August 1915 at site 7 miles downstream, published as Pecos River near Barstow. March 1922 to July 1926 at site about 10 miles upstream, published as Pecos River above Barstow.

Average discharge.- 10 years (1939-49), 294 second-feet.

Extremes.- Maximum discharge during year, 286 second-feet Apr. 14 (gage height, 5.30 feet); minimum daily, 3.2 second-feet Oct. 7.

1898-1907, 1914-15, 1922-26, 1939-49: Maximum gage height, about 20 feet, present datum, at railroad bridge above gage, Oct. 5, 1904 (discharge not determined); flood of Sept. 30, 1941, reached a stage of 19.68 feet, present datum, at site then in use (discharge, 22,200 second-feet); minimum daily discharge 1939-49, 1.2 second-feet Feb. 29, 1948.

Flood of August 1893 reached approximately the same stage as that of Oct. 5, 1904, from information by local residents.

Remarks.- Records good. Flow regulated to large extent by reservoirs above Orla. Several diversions between station near Orla and this station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.4	4.0	5.7	11	7.2	10	178	58	5.7	190	190	93
2	4.4	3.6	5.7	9.4	7.2	10	202	47	5.2	154	190	95
3	4.0	4.0	5.7	13	7.2	11	214	32	5.7	202	160	95
4	4.0	3.6	5.2	12	7.2	11	226	22	6.7	220	140	95
5	3.5	3.6	5.2	10	6.7	11	202	18	13	214	149	99
6	3.6	19	5.2	8.8	6.7	10	160	17	13	178	148	101
7	3.2	62	5.2	8.2	6.7	10	154	16	16	98	142	101
8	3.6	42	5.7	8.2	6.7	9.4	154	16	19	90	105	100
9	4.4	20	6.2	8.2	6.7	9.4	150	16	18	76	80	102
10	4.8	14	7.7	8.2	6.2	8.8	152	16	15	76	59	136
11	4.4	11	7.7	10	6.2	8.2	152	16	12	154	44	79
12	4.4	8.2	7.2	18	6.2	7.7	153	16	9.4	138	44	133
13	4.0	7.2	6.7	18	6.2	7.2	172	16	8.2	148	55	44
14	4.0	6.7	6.7	25	6.2	8.8	250	16	7.2	190	71	35
15	3.6	5.7	6.7	30	6.7	9.4	220	15	6.7	202	49	20
16	3.6	5.7	6.7	20	8.8	8.8	208	14	6.7	196	39	20
17	3.6	5.7	6.7	15	12	8.8	214	13	6.2	196	31	41
18	3.6	5.2	6.7	13	10	8.8	250	13	6.2	196	22	21
19	3.6	5.2	6.7	11	9.4	8.2	250	11	5.7	154	18	19
20	3.6	5.7	6.2	10	8.8	7.7	244	8.8	5.2	121	15	19
21	3.5	5.7	6.2	8.8	8.8	8.8	202	8.2	5.2	117	14	14
22	5.7	5.7	6.2	8.8	8.8	8.2	160	17	5.2	101	11	20
23	5.2	5.7	6.2	8.2	8.8	7.7	166	16	5.2	58	11	16
24	4.8	5.7	6.2	8.2	8.8	106	154	13	4.4	54	59	12
25	4.4	5.7	6.7	7.7	9.4	142	166	14	4.8	52	72	11
26	4.4	5.7	6.7	8.2	9.4	152	154	18	4.4	63	76	10
27	4.0	5.7	6.7	8.2	9.4	138	101	15	4.0	53	71	a8.8
28	4.0	5.2	6.2	7.7	10	132	67	13	42	53	83	a8.2
29	3.6	5.2	5.7	7.7	-	131	49	10	76	55	89	a7.7
30	4.0	5.7	9.4	7.7	-	127	70	7.2	99	112	87	a7.2
31	4.4	-	13	7.2	-	122	-	6.7	-	178	87	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	126.5	5.	3.2	4.08	251
November	298.1	62	3.6	9.94	591
December	204.7	13	5.2	6.60	406
Calendar year 1948	21,616.7	476	1.2	59.1	42,880
January	355.4	30	7.2	11.5	705
February	222.4	12	6.2	7.94	441
March	1,258.9	152	7.2	40.6	2,500
April	5,194	250	49	173	10,300
May	534.9	58	6.7	17.3	1,060
June	441.0	99	4.0	14.7	875
July	4,089	220	52	132	8,110
August	2,411	190	11	77.8	4,780
September	1,562.9	136	7.2	52.1	3,100
Water year 1948-49	16,698.8	250	3.2	45.8	33,120

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

Pecos River below Grandfalls, Tex.

Location.- Water-stage recorder, lat. 31°18', long. 102°46', at bridge on State Farm to Market Road 11 between Grandfalls and Imperial, 7.1 miles southeast of Grandfalls, Ward County, and 10 miles downstream from Chacatori Draw. Datum of gage is 2,373.0 feet above mean sea level, datum of 1929 (levels by Corps of Engineers).

Drainage area.- 27,820 square miles (contributing area).

Records available.- August 1939 to September 1949. December 1921 to July 1926 at site about 12 miles downstream, published as Pecos River near Buena Vista.

Average discharge.- 10 years (1939-49), 231 second-feet.

Extremes.- Maximum discharge during year, 92 second-feet June 6 (gage height, 3.16 feet); minimum daily, 12 second-feet Oct. 2-5.
1921-26, 1939-49: Maximum discharge, 22,000 second-feet Oct. 2, 1941 (gage height, 20.98 feet); minimum daily, 8.0 second-feet July 27, 1925.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Flow regulated to large extent by reservoirs above Orla. Many diversions between station near Orla and this station for irrigation. Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	16	36	26	33	37	26	22	22	16	15	18
2	12	16	34	22	33	36	21	22	25	18	14	18
3	12	16	34	18	33	36	23	25	24	17	14	18
4	12	16	33	16	33	40	29	39	23	16	14	21
5	12	15	31	18	32	46	24	24	23	15	15	18
6	16	15	31	24	31	27	21	20	64	14	16	21
7	17	15	30	28	31	28	20	19	39	14	17	21
8	16	15	30	31	31	28	20	19	25	14	18	22
9	16	15	30	30	31	25	19	20	25	15	22	22
10	16	16	30	32	31	22	19	20	24	14	18	22
11	16	16	29	35	32	21	19	26	30	14	25	18
12	17	16	29	40	32	21	19	45	45	16	20	18
13	17	16	29	40	33	21	19	46	33	17	17	20
14	17	16	30	39	33	22	18	45	25	16	17	19
15	19	16	31	41	33	22	18	36	24	15	18	19
16	18	26	31	45	32	28	18	32	24	14	22	20
17	15	36	31	53	31	28	19	30	23	14	18	19
18	17	37	30	63	31	22	22	26	21	14	36	19
19	20	36	30	58	33	21	28	25	20	14	48	19
20	22	31	29	48	35	21	31	24	19	14	42	19
21	19	31	29	44	38	21	50	22	18	14	37	17
22	20	30	29	43	38	21	50	22	18	14	32	34
23	20	34	27	43	38	21	41	21	18	14	28	38
24	20	42	27	42	37	20	39	21	18	18	26	33
25	19	43	29	39	37	20	31	21	17	20	23	30
26	17	44	31	38	39	18	28	22	17	17	22	27
27	17	44	31	37	40	26	26	21	17	16	22	25
28	17	43	31	36	38	29	25	19	16	15	22	24
29	17	41	30	35	-	67	24	18	16	15	21	22
30	17	37	29	35	-	62	23	19	16	17	20	21
31	17	-	27	34	-	43	-	21	-	15	19	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	520	22	12	16.8	1,030
November	790	44	15	26.3	1,570
December	938	36	27	30.3	1,860
Calendar year 1948	7,519	44	12	20.5	14,930
January	1,133	63	16	36.5	2,250
February	949	40	31	33.9	1,880
March	900	67	18	29.0	1,790
April	770	50	18	25.7	1,530
May	792	46	18	25.5	1,570
June	729	64	16	24.3	1,450
July	476	20	14	15.4	944
August	698	48	14	22.5	1,380
September	662	38	17	22.1	1,310
Water year 1948-49	9,357	67	12	25.6	18,560

Note.- No gage-height record Oct. 15-25, June 15-19, June 21 to Aug. 2, Aug. 31 to Sept. 4, Sept. 6-8, 13-19, 21, 24-30; discharge computed on basis of weather records and records for stations above and below.

Pecos River near Girvin, Tex.

Location.- Water-stage recorder, lat. 31°05', long. 102°22', at bridge on U. S. Highway 67, about half a mile downstream from Panhandle & Santa Fe Railway bridge, 2.1 miles east of Girvin, Pecos County, and 6½ miles downstream from Comanche Creek. Datum of gage is 2,269.7 feet above mean sea level, datum of 1929.

Drainage area.- 29,560 square miles (contributing area).

Records available.- August 1939 to September 1949.

Average discharge.- 10 years (1939-49), 266 second-feet.

Extremes.- Maximum discharge during year, 198 second-feet June 13 (gage height, 3.07 feet); minimum daily, 22 second-feet Oct. 1-7.

1939-49: Maximum discharge, 20,000 second-feet Oct. 5, 1941 (gage height, 20.49 feet); minimum daily, 20 second-feet Oct. 17, 18, 20, 23, Nov. 8, 1947.

Flood of September 1932 reached a stage of 17 feet, from information by local residents.

Remarks.- Records fair except those for periods of no gage-height record, which are poor. Flow regulated to large extent by reservoirs above Orla. Many diversions above station for irrigation. Some water from drain and two wasteways returns to river between station below Grandfalls and this station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	22	33	60	45	52	47	69	37	33	30	28	29
2	22	30	56	43	52	49	66	37	32	30	26	28
3	22	29	56	42	50	49	57	41	33	30	26	28
4	22	28	53	40	50	49	52	49	32	32	26	29
5	22	27	48	39	50	49	48	60	33	30	29	28
6	22	27	48	38	49	49	48	60	43	28	28	30
7	22	28	47	38	49	56	48	51	37	29	30	32
8	23	27	47	41	48	50	45	42	69	28	31	29
9	24	27	47	45	48	43	42	39	69	28	28	33
10	29	27	47	46	47	42	39	36	49	28	33	34
11	34	28	47	47	47	40	38	43	40	30	31	50
12	32	28	47	47	47	37	38	51	69	29	43	36
13	28	28	46	49	47	36	37	61	153	30	41	37
14	32	29	46	51	45	33	35	65	92	30	35	36
15	31	30	46	52	44	34	34	65	60	33	33	32
16	30	30	45	52	44	34	33	54	47	30	31	38
17	33	30	47	53	45	34	33	43	40	29	29	34
18	32	28	47	g57	44	36	33	34	39	29	31	34
19	28	38	47	60	44	40	34	32	39	28	36	35
20	30	47	46	75	45	42	37	31	38	28	32	36
21	33	50	46	75	44	37	47	30	37	27	43	36
22	36	50	45	74	45	37	65	29	36	27	46	34
23	33	47	46	72	50	37	70	29	36	27	49	45
24	34	45	46	64	53	34	70	29	34	28	42	33
25	34	47	46	60	105	36	60	29	33	28	39	40
26	34	50	46	58	48	33	55	30	32	36	36	44
27	34	57	46	58	45	32	47	30	31	29	36	39
28	32	57	46	57	44	34	44	32	31	29	31	37
29	32	58	46	56	-	33	41	32	31	29	32	37
30	33	58	46	52	-	38	39	33	30	29	31	36
31	34	-	46	52	-	48	-	34	-	32	30	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	909	36	22	29.3	1,800
November	1,118	58	27	37.3	2,220
December	1,478	60	45	47.7	2,930
Calendar year 1948	12,734	82	21	34.8	25,250
January	1,638	75	38	52.8	3,250
February	1,381	105	44	49.3	2,740
March	1,248	56	32	40.3	2,480
April	1,404	70	33	46.8	2,780
May	1,268	65	29	40.9	2,520
June	1,378	153	30	45.9	2,730
July	910	36	27	29.4	1,800
August	1,042	49	26	33.6	2,070
September	1,049	50	28	35.0	2,080
Water year 1948-49	14,823	153	22	40.6	29,400

g Computed from graph based on gage reading.

Note.- No gage-height record Dec. 9 to Jan. 17, Jan. 19, Apr. 14 to May 24; discharge computed on basis of weather records and records for stations below Grandfalls and near Sheffield.

Pecos River near Sheffield, Tex.

Location.- Water-stage recorder, lat. 30°39', long. 101°45', at bridge on U. S. Highway 290, 3½ miles southeast of Sheffield, Pecos County, and 4 miles upstream from Liveoak Creek. Datum of gage is 2,026.3 feet above mean sea level, datum of 1929.

Drainage area.- 31,660 square miles (contributing area).

Records available.- October 1921 to April 1925, October 1939 to September 1949 (discontinued).

Average discharge.- 11 years (1922-24, 1940-49), 272 second-feet.

Extremes.- Maximum discharge during year, 5,560 second-feet July 26 (gage height, 11.40 feet); minimum, 32 second-feet Oct. 8.

1921-25, 1939-49: Maximum discharge, 13,800 second-feet Oct. 8, 1941 (gage height, 16.75 feet); minimum, 15 second-feet Aug. 15, 1923.

Maximum stage known, about 23.5 feet in September 1916, site and datum in use prior to May 1, 1925, from information by local residents.

Remarks.- Records fair except those for periods of no gage-height record, which are poor. Flow regulated to large extent by reservoirs above Orla. Many diversions between Orla and this station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	38	37	60	57	64	58	51	94	46	45	65	42
2	37	37	61	57	64	57	52	83	46	44	60	42
3	36	37	61	57	64	55	58	79	46	44	55	41
4	35	37	62	57	64	56	67	1,270	45	43	51	40
5	35	35	61	56	62	55	66	1,090	44	43	49	38
6	34	35	61	56	62	55	64	498	125	42	75	38
7	34	35	61	55	61	54	58	169	46	42	120	38
8	33	35	61	54	60	54	54	116	71	42	85	38
9	34	34	61	53	60	55	49	98	57	42	f70	38
10	34	34	61	54	59	56	46	342	51	42	f74	40
11	34	35	60	56	58	54	45	114	62	40	74	45
12	34	37	60	59	58	54	43	213	176	41	67	42
13	34	38	59	61	58	54	42	96	151	39	63	42
14	34	40	60	61	58	53	41	71	255	40	60	48
15	35	47	60	61	58	52	41	63	129	74	f61	68
16	35	48	59	61	57	52	40	71	93	80	f59	853
17	34	44	59	62	55	52	40	180	82	59	56	66
18	34	43	58	62	54	52	40	247	73	54	62	50
19	36	43	58	62	55	51	42	326	65	53	60	45
20	37	44	58	62	54	50	47	100	58	47	54	44
21	37	45	57	63	54	50	47	79	55	46	53	42
22	41	46	57	67	54	52	50	68	54	45	52	42
23	38	50	56	72	54	52	58	58	52	44	53	42
24	38	53	57	72	54	52	2,070	56	51	42	53	42
25	38	54	58	78	158	52	207	54	50	42	54	42
26	36	55	58	78	284	51	118	53	48	1,210	54	45
27	36	54	59	77	92	52	132	58	47	1,300	52	42
28	36	55	59	75	64	52	1,330	52	46	200	50	40
29	37	56	58	73	-	50	272	49	46	101	50	44
30	37	58	57	70	-	50	118	48	45	75	47	45
31	37	-	57	68	-	51	-	47	-	70	45	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,108	41	33	35.7	2,200
November	1,301	58	34	43.4	2,580
December	1,834	62	56	59.2	3,640
Calendar year 1948	22,617	331	33	61.8	44,860
January	1,956	78	53	63.1	3,880
February	1,999	284	54	71.4	3,960
March	1,643	58	50	53.0	3,260
April	5,388	2,070	40	180	10,690
May	5,942	1,270	47	192	11,790
June	2,215	255	44	73.8	4,390
July	4,131	1,300	39	133	8,190
August	1,883	120	45	60.7	3,730
September	2,124	853	38	70.8	4,210
Water year 1948-49	31,524	2,070	33	86.4	62,520

f Computed on basis of partly estimated gage-height record.

Note.- No gage-height record Jan. 25 to Feb. 7, June 22 to July 7, July 30 to Aug. 6, Aug. 12-14, 17, 20-24, Sept. 18-21; discharge computed on basis of weather records and records for stations below Grandfalls and near Girvin.

Gallinas River near Montezuma, N. Mex.

Location.- Water-stage recorder, lat. 35°39'00", long. 105°19'10", in Las Vegas Grant, 2 miles west of Montezuma, San Miguel County, and 6 miles northwest of Las Vegas.

Drainage area.- 84 square miles.

Records available.- October 1930 to September 1949 in reports of Geological Survey. March 1915 to December 1931 (no winter records 1915-26) in reports of State engineer.

Average discharge.- 23 years (1926-49), 21.2 second-feet.

Extremes.- Maximum discharge during year, 690 second-feet June 19 (gage height, 3.8 feet, estimated on basis of records for station at Montezuma); minimum daily, 2 second-feet Jan. 4, 5, 30, 31.

1930-49: Maximum discharge, 3,310 second-feet Sept. 23, 1941 (gage height, 7.78 feet), from rating curve extended above 350 second-feet by logarithmic plotting; minimum daily, 0.8 second-foot Aug. 15-18, 21, 25, 26, 30, 1934, Jan. 20, 1938.

Remarks.- Records good except those for periods of ice effect or doubtful or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.0	5.5	b3.2	b2.5	b2.5	7.2	13	76	36	a34	26	7.5
2	3.4	4.5	b3.4	b2.5	b3	6.2	12	73	32	a30	26	8.8
3	3.4	4.0	b3.6	b2.5	b3.5	6.5	12	78	28	a27	75	8.2
4	3.0	4.2	b3.8	b2	b4	*7.5	12	84	30	a25	115	6.5
5	2.9	4.0	b3	b2	b4.5	8.8	11	82	29	a25	64	14
6	2.7	*4.0	*b4	b2.5	b5	9.8	18	77	28	a22	47	11
7	2.5	3.8	b4	b3	b4.5	11	23	68	35	a22	42	10
8	2.5	b3.5	b4	b3	b4	12	30	57	30	23	39	20
9	2.5	b3.7	b3.5	b3.5	b4	11	32	55	45	25	41	24
10	2.5	b4.0	b3	b3.5	b3.5	11	29	56	95	27	41	9.5
11	2.5	4.5	b3.5	b3	b4	12	32	80	104	43	35	7.2
12	2.5	4.8	b4	b3	b5	12	42	d125	73	40	32	6.0
13	2.5	4.5	b4	b3	b4.5	12	51	d120	59	49	31	6.2
14	2.7	3.8	b4	b3	b4.5	12	51	99	49	45	28	7.5
15	3.2	3.6	b4	b3	b4.5	13	51	106	41	35	23	6.2
16	3.0	3.0	b3.5	b3	*b5	14	51	95	36	30	21	6.2
17	2.9	3.0	b3.5	b2.5	b5	18	46	83	32	26	20	5.2
18	3.0	3.2	b3.5	b2.5	b5	18	48	72	35	23	17	h5.8
19	2.9	3.6	b3.5	b3	b6	18	48	64	a240	22	15	a5
20	3.2	3.0	b3.5	b3	6.0	21	46	60	a100	19	14	a4.5
21	4.2	3.2	b3.5	b3	6.0	19	48	54	170	80	16	a4
22	3.8	3.0	b3	b3	6.0	17	56	51	295	77	14	4.0
23	3.4	b2.8	b3	b3	6.8	16	62	48	226	a90	12	4.0
24	3.2	b2.6	b3	b3	7.5	15	64	48	142	a75	10	4.2
25	3.2	2.5	b2.5	b3	6.8	14	69	46	a120	63	16	4.5
26	3.0	*3.8	b2.5	b3.5	6.2	13	82	46	a90	60	10	5.0
27	3.0	b3.4	b2.5	b3.5	6.2	12	77	46	a70	52	9.1	4.8
28	3.6	b3.4	b3	b3	6.2	12	71	46	a55	43	8.8	5.8
29	4.0	b3.2	b3	b2.5	-	14	73	43	a45	38	8.2	10
30	3.8	b3.2	b3	b2	-	14	85	41	a35	33	7.5	32
31	4.5	-	b2.5	b2	-	13	-	39	-	29	7.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	96.5	4.5	2.5	3.11	191
November	109.3	5.5	2.5	3.64	217
Dacember	104.0	4	2.5	3.35	206
Calendar year 1948	5,334.2	74	2.1	14.6	10,580
January	87.5	3.5	2	2.82	174
February	139.7	7.5	2.5	4.99	277
March	400	21	6.2	12.9	793
April	1,345	85	11	44.8	2,670
May	2,118	125	39	68.3	4,200
June	2,405	295	28	80.2	4,770
July	1,232	90	19	39.7	2,440
August	870.8	115	7.2	28.1	1,730
September	257.6	32	4.0	8.59	511
Water year 1948-49	9,165.4	295	2	25.1	18,180

Peak discharge (base, 150 sec.-ft.).- June 10 (2 p.m.) 292 sec.-ft.; June 11 (6:15 p.m.) 270 sec.-ft.; June 19 (about 1 a.m.) about 690 sec.-ft.; June 21 (8:40 p.m.) 416 sec.-ft.; July 21 (7:20 p.m.) 354 sec.-ft.; Aug. 3 (8 p.m.) 298 sec.-ft.; Sept. 9 (6 p.m.) 199 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, observer's notes, weather records, and records for station at Montezuma.

b Stage-discharge relation affected by ice.

d Doubtful gage-height record; discharge computed as explained in footnote a.

h Computed from staff-gage readings.

Gallinas River at Montezuma, N. Mex.

Location.- Water-stage recorder, lat. 35°39'15", long. 105°16'30", in Las Vegas Grant, at highway bridge half a mile downstream from Montezuma, San Miguel County, and 5 miles northwest of Las Vegas.

Drainage area.- 87 square miles.

Records available.- August 1903 to December 1914 (prior to October 1904, gage heights only) and October 1930 to September 1949 in reports of Geological Survey. October 1904 to December 1931 in reports of State engineer (prior to 1930, published as Gallinas River near Las Vegas).

Average discharge.- 42 years (1905-11, 1913-49), 21.3 second-feet.

Extremes.- Maximum discharge during year, 673 second-feet June 19 (gage height, 5.36 feet); minimum daily, 0.4 second-foot Oct. 3-12, 16, 17.

1930-49: Maximum discharge, 2,590 second-feet Sept. 23, 1941 (gage height, 6.23 feet), from rating curve extended above 1,000 second-feet by logarithmic plotting; no flow Oct. 4-7, 1934.

A very destructive flood, probably the greatest known, occurred Sept. 29-30, 1904.

Remarks.- Records good except those for periods of ice effect or no gage-height record, which are poor. Flow regulated by reservoirs owned by Public Service Co. of New Mexico. Several diversions above station for irrigation and municipal water supply.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.5	0.6	1.1	1.8	a1.2	3.2	12	71	37	32	21	3.8
2	.5	.5	1.2	1.4	a1.2	3.5	9.6	70	33	26	21	5.5
3	.5	.6	1.2	1.2	a1.2	4.4	10	76	28	24	58	5.9
4	.5	.6	1.2	.9	a1.3	5.1	9.6	83	24	24	144	5.1
5	.5	.5	b1.4	.8	1.4	2.6	10	82	24	23	67	9.1
6	.5	*.6	*1.2	.8	1.4	2.2	16	74	22	19	46	9.6
7	.5	.6	1.2	*1.1	1.4	2.9	23	63	32	21	37	8.1
8	.4	.8	1.2	1.6	2.0	5.5	29	53	30	22	35	15
9	.4	.8	1.2	2.0	1.6	4.1	32	51	40	24	35	26
10	.4	.8	1.4	1.4	1.2	4.1	30	51	87	26	38	16
11	.4	.8	1.4	1.6	1.6	4.4	31	74	115	37	30	7.1
12	.4	b1.0	1.2	1.6	1.8	4.4	42	119	80	34	30	4.4
13	.5	b.6	1.2	1.8	1.6	5.9	50	115	60	39	27	4.8
14	.5	b.6	1.2	b2.5	2.0	8.1	50	100	44	49	25	5.9
15	.5	b.8	1.2	b2.0	1.8	8.6	50	104	34	30	22	5.5
16	.4	b.8	.9	b2.0	*2.2	a10	50	98	28	26	19	5.5
17	.4	b.8	.9	b1.6	2.4	a11	39	82	29	22	19	5.1
18	.5	b1.0	.9	b1.6	3.5	a13	39	66	27	19	16	5.5
19	.6	.9	.8	b1.8	5.1	15	39	56	266	19	12	a5.0
20	.6	.8	.8	2.0	5.5	18	37	55	88	18	10	a4.5
21	.6	.8	.8	2.0	5.5	16	39	49	123	59	12	a4.0
22	.6	.8	.8	2.4	5.5	14	49	48	301	110	13	h4.1
23	.5	.8	1.1	2.6	5.5	14	54	50	243	91	8.6	a4.0
24	.6	.8	1.2	2.2	4.1	12	59	50	165	70	7.6	4.1
25	.6	.8	1.2	1.6	5.1	12	62	45	115	58	11	2.9
26	.6	*.8	1.1	2.4	4.1	11	79	39	77	a54	8.6	3.2
27	.6	.8	1.2	1.6	3.8	9.6	71	39	59	a45	5.1	4.1
28	.6	.9	1.8	1.6	4.1	10	63	37	48	a38	5.5	5.5
29	.6	1.1	1.2	1.1	-	12	62	39	37	a33	5.9	8.6
30	.6	1.2	.9	1.1	-	12	80	37	33	26	5.1	35
31	.8	-	1.4	a1.0	-	11	-	35	-	24	3.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	16.2	0.8	0.4	0.52	32
November	23.3	1.2	.5	.78	46
December	35.5	1.8	.8	1.15	70
Calendar year 1948	4,377.4	100	.4	12.0	8,680
January	51.1	2.6	.8	1.65	101
February	79.1	5.5	1.2	2.82	157
March	269.6	18	2.2	8.70	535
April	1,226.2	80	9.6	40.9	2,430
May	2,011	119	35	64.9	3,990
June	2,329	301	22	77.6	4,620
July	1,142	110	18	36.8	2,270
August	798.2	144	3.8	25.7	1,580
September	232.9	35	2.9	7.76	462
Water year 1948-49	8,214.1	301	.4	225	16,290

Peak discharge (base, 100 sec.-ft.).- May 12 (11 p.m.) 129 sec.-ft.; June 9 (9:15 p.m.) 149 sec.-ft.; June 10 (4:30 p.m.) 209 sec.-ft.; June 11 (10 p.m.) 234 sec.-ft.; June 19 (3 a.m.) 673 sec.-ft.; June 21 (10:30 p.m.) 420 sec.-ft.; July 21 (9:40 p.m.) 342 sec.-ft.; July 23 (10:30 a.m.) 140 sec.-ft.; Aug. 3 (10 p.m.) 321 sec.-ft.

* Winter discharge made on this day.

a No gage-height record; discharge computed on basis of recorder range in stage, weather records, and records for station near Montezuma.

b Stage-discharge relation affected by ice.

h Computed from staff-gage readings.

Rio Ruidoso at Hondo, N. Mex.

Location.- Water-stage recorder, lat. 33°23'00", long. 105°16'30", in NE¼SW¼ sec. 4, T. 11 S., R. 17 E., a quarter of a mile upstream from confluence with Rio Bonito and half a mile southwest of Hondo.

Drainage area.- 307 square miles.

Records available.- October 1930 to September 1949 in reports of Geological Survey. August 1930 to December 1931 in reports of State engineer.

Average discharge.- 19 years (1930-49), 22.7 second-feet.

Extremes.- Maximum discharge during year, 947 second-feet July 13 (gage height, 5.08 feet), from rating curve extended above 91 second-feet by logarithmic plotting; minimum daily, 0.4 second-foot Oct. 31 to Nov. 3.

1930-49: Maximum discharge, 12,400 second-feet Sept. 29, 1941 (gage height, 21.13 feet, from floodmarks), from rating curve extended above 130 second-feet on basis of velocity-area studies; no flow Aug. 15, 16, 1935.

Remarks.- Records good except those above 100 second-feet and below 1 second-foot, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.8	0.4	0.9	7.9	7.5	24	18	93	8.6	7.5	14	13
2	.8	.4	.8	7.2	9.4	24	39	76	7.2	2.4	11	7.9
3	.8	.4	.8	3.6	8.6	25	40	65	5.6	2.2	9.9	4.9
4	.9	.5	.7	1.5	7.2	25	39	56	3.3	4.9	11	4.6
5	.9	.6	.8	1.5	7.2	24	36	51	1.2	4.6	12	4.9
6	.8	.5	.8	1.5	6.0	24	35	52	1.6	1.9	12	4.9
7	.8	.5	.9	1.6	5.6	26	33	51	1.4	1.2	13	4.9
8	.8	.6	.9	1.4	5.6	27	32	50	1.4	1.4	12	4.9
9	.8	.6	.9	1.2	6.0	30	34	39	1.2	5.4	59	11
10	.7	.6	.9	1.2	6.4	33	40	29	1.5	4.1	39	53
11	.6	.6	.8	1.2	6.8	30	45	29	1.8	16	53	58
12	.7	.6	1.2	1.2	8.3	33	46	37	2.4	21	86	53
13	.6	.7	1.2	1.1	20	33	44	38	2.4	100	47	66
14	.7	.6	1.0	1.1	36	36	48	34	2.4	48	48	71
15	.8	.6	.8	6.0	29	37	66	37	2.8	32	42	91
16	.8	.6	1.0	7.5	21	39	82	35	2.8	28	38	98
17	.8	.6	1.5	7.9	18	40	100	32	2.2	36	56	89
18	.7	.7	1.5	4.6	18	40	108	28	2.8	26	68	66
19	.7	.7	1.5	5.6	20	38	108	20	10	26	59	51
20	.7	.9	1.0	5.1	21	45	96	12	7.9	23	47	76
21	.7	.9	1.0	5.4	20	55	87	13	9.9	36	41	69
22	.7	.9	1.2	4.9	18	51	91	12	8.3	25	35	55
23	.7	.9	1.2	4.9	16	47	96	9.9	5.1	18	29	47
24	.7	.9	1.2	5.6	18	46	112	8.6	5.4	27	26	40
25	.5	1.0	1.2	6.0	18	46	110	9.0	4.4	30	18	37
26	.5	.9	1.0	7.2	18	44	112	7.9	4.1	39	19	34
27	.5	1.0	1.0	8.3	18	39	118	6.4	3.8	52	14	32
28	.5	.9	37	7.5	18	30	112	9.4	1.8	30	13	32
29	.5	.9	20	8.0	-	20	108	12	25	25	11	31
30	.5	.8	9.4	4.9	-	16	98	11	6.8	18	9.4	30
31	.4	-	8.6	6.4	-	12	-	9.0	-	16	7.2	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	21.4	0.9	0.4	0.69	42
November	20.8	1.0	.4	.69	41
December	102.7	37	.7	3.31	204
Calendar year 1948	2,425.3	321	.4	6.63	4,810
January	137	8.3	1.1	4.42	272
February	411.6	36	5.6	14.7	816
March	1,039	55	12	33.5	2,080
April	2,133	118	18	71.1	4,230
May	972.2	93	6.4	31.4	1,930
June	145.1	25	1.2	4.84	288
July	707.6	100	1.2	22.8	1,400
August	959.5	86	7.2	31.0	1,900
September	1,240	98	4.6	41.3	2,480
Water year 1948-49	7,889.9	118	.4	21.6	15,640

Peak discharge (base, 200 sec.-ft.).- June 29 (1:50 p.m.) 286 sec.-ft.; July 13 (3:45 p.m.) 947 sec.-ft.; July 17 (11 p.m.) 262 sec.-ft.; July 21 (7:50 p.m.) 252 sec.-ft.; July 27 (4 p.m.) 485 sec.-ft.; Aug. 9 (8 p.m.) 464 sec.-ft.; Aug. 12 (3:40 p.m.) 503 sec.-ft.

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Rio Hondo at Diamond A Ranch, near Roswell, N. Mex.

Location.- Water-stage recorder, lat. 33°20'40", long. 104°51'10", in NE¼ sec. 20, T. 11 S., R. 21 E., at Diamond A Ranch, 8 miles upstream from Rocky Arroyo and 18 miles west of Roswell.

Drainage area.- 960 square miles (contributing area).

Records available.- May 1939 to September 1949 in reports of Geological Survey. May 1908 to August 1909 in reports of State engineer.

Average discharge.- 10 years, 47.7 second-feet.

Extremes.- Maximum discharge during year, 4,510 second-feet July 16 (gage height, 22.63 feet); no flow at times.
1939-49: Maximum discharge, 27,000 second-feet Sept. 22, 1941 (gage height, 28.78 feet), by slope-area method; no flow at times.

Remarks.- Records fair except those for periods of ice effect or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10		0	0	a10	9	4	128	0	66	44	65
2	6		0	0	*b10	10	7	128	0	a25	36	10
3	1		2	0	b10	11	21	94	0	a10	a30	2
4	0		0	0	*b11	a10	25	87	0	a8	204	0
5	0		1	0	b12	a10	26	79	0	a6	a70	0
6	0		2	0	b13	a10	19	71	10	a8	50	0
7	0		0	8	*13	a10	10	70	0	a14	41	14
8	a0		0	2	13	a11	9	64	0	a8	41	a2
9	a0		0	1	16	17	8	64	0	a10	57	62
10	a0		0	1	16	30	11	52	85	a6	199	429
11	a0		0	2	18	23	20	46	142	8	105	a200
12	a0		0	4	17	14	15	47	44	36	151	95
13	a0		0	2	17	13	8	80	30	91	125	93
14	0		0	0	23	15	12	76	25	433	131	122
15	0		0	0	35	15	7	64	28	620	88	203
16	0		1	0	31	17	18	74	12	827	77	148
17	0		1	0	26	17	82	63	11	a135	169	141
18	0		0	a0	24	20	117	44	9	a85	97	122
19	0		0	a0	18	21	125	35	10	74	87	110
20	0		1	a0	10	23	140	25	39	75	75	88
21	0		1	a0	16	38	135	14	a25	76	86	98
22	0		1	a10	a12	41	135	13	21	297	91	88
23	0		1	a11	a8	42	138	14	21	81	54	80
24	0		1	13	6	40	152	9	17	71	78	69
25	0		4	16	8	35	172	4	12	194	122	59
26	0		7	18	8	30	149	1	10	347	23	53
27	0		2	*16	7	26	153	0	12	252	a20	48
28	0		0	15	8	26	148	0	10	163	a15	44
29	0		0	20	-	13	136	9	9	176	a12	42
30	0		0	a15	-	7	134	6	97	a169	8	35
31	0		0	a12	-	5	-	2	-	56	a4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	17	10	0	0.55	34
November	0	0	0	0	0
December	25	7	0	.81	50
Calendar year 1948	8,101	2,270	0	22.1	16,070
January	166	20	0	5.35	329
February	416	35	6	14.9	825
March	609	42	5	19.6	1,210
April	2,136	172	4	71.2	4,240
May	1,463	128	0	47.2	2,900
June	679	142	0	22.6	1,350
July	4,427	827	6	143	8,780
August	2,390	204	4	77.1	4,740
September	2,522	429	0	84.1	5,000
Water year 1948-49	14,850	827	0	40.7	29,460

Peak discharge (base, 600 sec.-ft.).- June 10 (12:30 a.m.) 823 sec.-ft.; July 14 (12:30 a.m.) 998 sec.-ft.; July 14 (11 p.m.) 3,200 sec.-ft.; July 15 (5 a.m.) 2,710 sec.-ft.; July 16 (5:40 a.m.) 4,510 sec.-ft.; July 22 (4 a.m.) 1,110 sec.-ft.; July 25 (7 p.m.) 931 sec.-ft.; July 26 (10:40 p.m.) 2,440 sec.-ft.; July 28 (12:30 p.m.) 781 sec.-ft.; Aug. 4 (about 8:30 a.m.) 802 sec.-ft.; Sept. 1 (3 a.m.) 741 sec.-ft.; Sept. 10 (10:30 a.m.) 1,770 sec.-ft.; Sept. 11 (1 a.m.) 682 sec.-ft.

* Winter discharge measurement made on this day.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, engineers' notes, weather records, and records for Rio Buidosa at Hondo and Rio Bonito at Hondo.

b Stage-discharge relation affected by ice.

Rio Bonito at Hondo, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 33°23'20", long. 105°16'30", in NE¼NW¼ sec. 4, T. 11 S., R. 17 E., at Hondo, half a mile upstream from confluence with Rio Ruidoso.

Drainage area.- 306 square miles (contributing area).

Records available.- October 1930 to Septebmer 1949 in reports of Geological Survey. August 1930 to December 1931 in reports of State engineer.

Average discharge.- 19 years (1930-49), 11.9 second-feet.

Extremes.- Maximum discharge during year, 3,900 second-feet Sept. 10 (gage height, 10.84 feet), from rating curve extended above 220 second-feet on basis of slope-area determination at gage height 19.0 feet; no flow at times.

1930-49: Maximum discharge, 11,000 second-feet Sept. 28 or 29, 1941 (gage height, 20.92 feet, from floodmark), from rating curve extended above 220 second-feet on basis of slope-area determination at gage height 19.0 feet; no flow at times.

Remarks.- Records fair except those for periods of no gage-height record, and those above 100 second-feet, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	0.2		0	0	0.5	72	0.9	17	13	12
2		0	.3		0	0	1.7	55	.4	7.2	6.8	8.5
3		.2	.4		0	0	3.1	44	.3	6.0	58	5.2
4		.1	.4		0	0	2.2	44	a.1	6.0	399	14
5		.1	.2		0	0	1.9	40	a.2	5.6	17	32
6		.1	.7		0	0	.8	38	a.1	4.5	9.1	56
7		.1	.5		0	0	.1	32	a.1	5.2	4.2	48
8		.1	.5		0	.6	0	28	.8	3.7	16	111
9		.2	.5		0	16	0	23	1.5	3.7	51	140
10		.2	.4		0	6.8	.1	22	40	2.7	71	459
11		.2	0		0	a.9	.6	20	61	35	68	a8
12		.2	0		0	a.5	0	38	7.6	66	34	3.1
13		.2	0		0	a.4	0	42	6.4	86	62	16
14		.2	0		0	.2	.1	34	2.2	a6	29	8.0
15		.2	0		.1	.1	1.2	34	3.4	a6	21	112
16		.2	0		.5	0	22	34	4.5	a7	118	29
17		.2	0		.2	0	40	28	1.3	10	a90	29
18		.1	0		0	0	48	20	0	28	a90	26
19		.3	0		0	.5	52	14	28	11	85	21
20		.1	0		0	3.3	58	9.7	4.0	9.7	82	14
21		.2	0		.3	7.6	58	8.0	8.0	336	125	16
22		.2	0		0	9.1	55	6.8	a5.5	a100	91	11
23		.2	0		0	7.6	58	6.4	a3.5	11	21	7.2
24		.2	0		0	4.8	63	4.5	a4.5	22	67	5.6
25		.2	0		0	3.3	66	.5	4.0	49	a17	3.5
26		.2	0		0	.9	63	.3	3.7	a50	a14	2.2
27		.2	0		0	.7	72	2.8	3.5	a40	13	2.7
28		.2	0		0	.6	78	15	2.4	a50	10	1.5
29		.2	0		-	.6	69	8.5	21	a60	7.2	1.0
30		.2	0		-	.6	66	4.0	24	a30	4.0	.9
31		-	0		-	.6	-	1.3	-	a20	4.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	5.0	.3	0	.17	9.9
December	4.1	.7	0	.13	8.1
Calendar year 1948	1,915.7	719	0	5.23	3,800
January	0	0	0	0	0
February	1.1	.5	0	.04	2.2
March	65.7	16	0	2.12	130
April	880.3	78	0	29.3	1,750
May	729.8	72	.3	23.5	1,450
June	242.9	61	0	8.10	482
July	1,094.3	336	2.7	35.3	2,170
August	1,697.8	399	4.0	54.8	3,370
September	1,203.4	459	.9	40.1	2,390
Water year 1948-49	5,924.4	459	0	16.2	11,760

Peak discharge (base, 1,000 sec.-ft.).- July 21 (8 p.m.) 3,350 sec.-ft.; Aug. 4 (2 a.m.) 3,100 sec.-ft.; Aug. 16 (6 p.m.) 1,220 sec.-ft.; Sept. 8 (7:40 p.m.) 1,020 sec.-ft.; Sept. 10 (2 a.m.) 3,900 sec.-ft.

a No gage-height record; discharge computed on basis of available fragmentary gage-height record, of engineer's notes, weather records, and records for Rio Ruidoso at Hondo and Rio Hondo at Diamond A Ranch.

949150 O - 51 - 24

Rio Felix at old highway bridge, near Hagerman, N. Mex.

Location.- Water-stage recorder, lat. 33°07'30", long. 104°20'40", in SW¼ sec. 4, T. 14 S., R. 26 E., on downstream side on bridge, 1¼ miles northwest of Hagermen, and 2½ miles upstream from mouth.

Drainage area.- 932 square miles (contributing area).

Records available.- April 1939 to September 1949. March 1932 to April 1939 at site 1 mile downstream. Records for periods of low flow not equivalent.

Average discharge.- 10 years (1939-49), 23.3 second-feet.

Extremes.- Maximum discharge during year, 16,100 second-feet June 5 (gage height, 20.41 feet, from floodmark); by slope-area method; minimum daily, 0.3 second-foot Oct. 26, 27. 1939-49: Maximum discharge, 20,000 second-feet Sept. 22, 1941 (gage height, 23.0 feet), from rating curve extended above 5,100 second-feet by logarithmic plotting; minimum daily, 0.1 second-foot June 24, 27, July 25, 1947.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	3.7	0.6	0.8	31	0.6	1.0	0.5	0.7	3.1	50	2,950
2	.4	2.8	.6	.7	30	.6	1.1	.5	.6	2.2	39	130
3	.4	2.8	.5	.7	30	.6	1.1	.6	.6	2.0	19	6.5
4	.4	2.6	.5	.7	29	.6	1.1	151	.6	1.8	15	a2.6
5	.4	6.0	.4	.7	29	.6	1.1	242	1,120	1.8	44	a1.5
6	.4	23	.4	.7	29	.6	1.0	22	2,680	1.6	53	a1.0
7	.4	22	.4	.7	28	.6	1.0	9.6	100	1.8	41	1.0
8	.5	19	.5	.8	15	.6	.8	1.9	37	2.0	40	1.0
9	.5	17	.5	.7	6.2	.6	.8	1.8	21	2.0	26	1.0
10	.6	18	.5	.7	7.0	.6	.8	1.6	19	2.2	72	1.0
11	.6	25	.5	.7	3.4	.6	.7	1.2	843	38	60	31
12	.6	25	.5	1.0	.8	.6	.6	2.2	204	2.5	44	38
13	a.6	25	.5	.7	.6	.6	.7	1.6	31	39	27	41
14	a.7	27	.5	.7	.5	.6	.7	1.1	2.8	.4	30	105
15	.7	26	4.7	.6	.6	.6	.6	1.0	16	3,820	33	55
16	.7	25	.6	2.0	.7	.6	.6	1.0	21	1,510	18	54
17	.7	18	.5	30	.7	.6	.6	.8	18	380	35	61
18	.7	15	.5	35	.7	.6	.6	.7	13	21	32	56
19	.7	29	.6	35	.7	.6	.6	.7	11	2.4	28	48
20	2.2	27	.7	33	.7	.6	.4	.6	4.4	1.6	33	167
21	3.4	27	1.0	34	.7	.6	.4	.6	1.4	15	406	44
22	22	18	.7	26	.7	.7	.4	.7	1.1	183	92	33
23	13	8.5	.7	19	.6	.7	.5	.7	1.0	47	16	37
24	4.4	3.4	.8	6.2	.6	.7	.5	.7	.8	8.5	2.6	34
25	.5	1.6	.8	4.0	.6	.7	.5	.7	.6	59	1.2	32
26	.3	1.2	1.0	20	.6	.7	.5	.7	.7	642	1.0	24
27	.3	1.1	.8	26	.6	1.4	.4	.7	.6	61	1.0	10
28	.5	1.0	.8	28	.6	.8	.4	.7	91	183	1.0	2.1
29	7.0	.8	.8	30	-	1.0	.4	.7	212	46	1.0	2.0
30	7.5	.7	.8	30	-	1.0	.5	.7	4.7	34	1.1	1.8
31	7.0	-	.8	31	-	1.0	-	.7	-	42	1.1	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	78.5	22	0.3	2.53	156
November	422.2	29	.7	14.1	837
December	23.5	4.7	.4	.76	47
Calendar year 1948	2,693.3	460	.2	7.36	5,340
January	400.1	35	.6	12.9	794
February	248.6	31	.5	8.88	493
March	21.3	1.4	.6	.69	42
April	20.4	1.1	.4	.68	40
May	449.9	242	.5	14.5	892
June	5,457.6	2,680	.6	182	10,820
July	7,155.9	3,820	.4	231	14,190
August	1,263.0	406	1.0	40.7	2,510
September	3,971.5	2,950	1.0	132	7,880
Water year 1948-49	19,512.5	3,820	.3	53.5	38,700

Peak discharge (base, 500 sec.-ft.).- May 4 (about 11 p.m.) 1,080 sec.-ft.; June 5 (about 11 p.m.) 16,100 sec.-ft.; June 11 (3 a.m.) 4,100 sec.-ft.; June 28 (12 p.m.) 1,640 sec.-ft.; July 15 (about 10 a.m.) 15,400 sec.-ft.; July 16 (3:40 p.m.) 5,260 sec.-ft.; July 22 (4 p.m.) 695 sec.-ft.; July 26 (12:10 a.m.) 4,180 sec.-ft.; July 28 (3 a.m.) 1,000 sec.-ft.; Aug. 21 (4:30 a.m.) 1,280 sec.-ft.; Sept. 1 (5:10 a.m.) 14,500 sec.-ft.

a No gage-height record; discharge computed on basis of weather records, and engineer's notes.

Cottonwood Creek near Lake Arthur, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 32°55'00", long. 104°22'00", in SW¼SE¼ sec. 15, T. 16 S., R. 26 E., 1½ miles upstream from mouth and 6 miles south of town of Lake Arthur.

Drainage area.- 199 square miles (contributing area).

Records available.- March 1932 to September 1949.

Average discharge.- 17 years, 9.79 second-feet.

Extremes.- Maximum discharge during year, 258 second-feet June 29 (gage height, 8.46 feet), from rating curve extended above 200 second-feet by logarithmic plotting; minimum daily, 0.6 second-foot June 1.

1932-49: Maximum discharge, 1,100 second-feet June 13, 1935, from rating curve extended above 15 second-feet by logarithmic plotting; maximum gage height, 12.0 feet May 30, 1937, present datum, from floodmarks (backwater from Pecos River); no flow at times.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	3.1	6.8	2.2	8.4	7.0	a2.4	3.7	0.6	24	2.2	29
2	1.4	3.3	6.8	2.6	8.7	6.5	a3.0	3.7	1.5	13	2.2	42
3	1.4	3.4	7.0	2.4	8.7	6.1	a4.4	3.8	3.1	12	1.3	13
4	1.4	3.4	7.4	2.3	8.7	5.7	a4.4	4.0	3.0	11	2.0	8.7
5	1.4	3.4	7.4	2.2	9.2	7.0	a4.0	4.1	3.1	9.5	2.0	7.6
6	1.4	3.5	7.2	2.3	7.4	5.7	a4.0	4.1	33	8.7	1.8	5.7
7	1.4	3.7	7.0	2.5	7.8	6.8	a4.0	4.6	11	6.8	1.9	5.1
8	1.5	4.0	7.0	3.3	7.2	6.8	a4.0	4.1	5.2	4.9	1.5	5.1
9	1.6	4.1	7.0	5.9	6.5	5.5	a4.0	4.3	5.7	6.1	2.0	10
10	1.6	4.3	7.0	5.9	6.5	4.4	a4.0	4.4	5.5	5.2	2.7	7.2
11	1.6	4.4	7.6	5.9	4.7	1.6	a3.0	4.7	8.1	5.4	3.1	7.0
12	1.7	4.6	7.6	5.9	3.7	1.5	a3.0	4.9	29	5.5	3.4	7.0
13	1.7	4.6	7.4	5.9	3.8	2.0	a3.0	5.1	8.1	35	3.3	8.1
14	1.6	4.6	8.1	6.3	3.8	2.2	a3.0	5.2	6.1	13	3.0	9.0
15	1.8	4.9	7.6	6.5	3.8	1.5	a3.0	5.2	6.3	21	2.8	11
16	1.8	4.9	7.4	5.7	4.6	1.4	a4.0	5.4	6.3	32	3.3	11
17	1.8	4.9	7.4	6.1	5.4	1.4	a4.0	2.4	6.3	7.0	3.4	11
18	1.9	4.9	5.7	6.3	7.0	1.7	a4.0	1.6	6.1	6.8	3.5	11
19	2.2	5.1	4.0	6.3	7.0	2.0	a4.0	2.7	8.4	5.9	2.6	11
20	2.3	5.2	7.0	6.8	6.8	2.3	4.1	5.1	6.5	6.3	2.4	a12
21	2.4	5.4	7.0	6.8	5.1	1.2	4.0	4.6	7.2	4.6	2.3	a13
22	2.4	5.5	6.8	7.2	2.0	1.2	3.8	4.1	8.1	5.2	2.3	a12
23	2.4	5.5	6.8	7.6	2.7	2.0	3.8	4.4	7.4	3.0	2.4	a11
24	2.4	5.7	6.8	7.0	2.6	1.2	3.8	4.6	6.5	4.1	2.0	a10
25	2.5	5.7	6.5	7.0	4.3	1.3	4.0	3.4	6.1	4.4	2.3	a10
26	2.7	5.9	6.8	7.4	4.4	.8	4.0	3.5	6.5	5.2	2.3	a10
27	2.8	6.1	6.8	8.1	3.1	1.8	3.8	4.0	6.5	3.3	2.3	a10
28	2.8	6.1	4.6	7.4	5.9	2.3	3.8	1.9	6.5	3.1	2.2	a10
29	3.0	6.1	3.4	7.2	-	2.4	4.0	.9	186	2.2	1.9	a10
30	3.0	6.5	3.3	7.8	-	a2.4	4.0	.7	138	1.7	1.7	a10
31	3.1	-	1.9	8.4	-	a2.4	-	.7	-	2.7	1.7	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	62.4	3.1	1.4	2.01	124
November	142.8	6.5	3.1	4.76	283
December	201.1	8.1	1.9	6.49	399
Calendar year 1948	1,834.1	176	.6	5.01	3,630
January	175.2	8.4	2.2	5.65	348
February	159.8	9.2	2.0	5.71	317
March	98.1	7.0	.8	3.16	195
April	112.3	4.4	2.4	3.74	223
May	115.9	5.4	.7	3.74	230
June	541.7	186	.6	18.1	1,070
July	278.6	35	1.7	8.99	553
August	73.8	3.5	1.3	2.38	146
September	337.5	42	5.1	11.2	669
Water year 1948-49	2,299.2	186	.6	6.30	4,560

Peak duscharge (base, 40 sec.-ft.).- June 6 (5:30 p.m.) 62 sec.-ft.; June 12 (6 p.m.) 48 sec.-ft.; June 29 (2 p.m.) 258 sec.-ft.; July 13 (10 a.m.) 61 sec.-ft.; July 16 (3 a.m.) 73 sec.-ft.; Sept. 1 (7:30 p.m.) 78 sec.-ft.

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

Black River above Malaga, N. Mex.

Location.- Water-stage recorder, lat. 32°14'00", long. 104°09'15", in E½ sec. 11, T. 24 S., R. 27 E., 0.6 mile upstream from Black River diversion dam, 4.8 miles west of Malaga and 7 miles upstream from mouth.

Drainage area.- 343 square miles.

Records available.- March to December 1940 and December 1946 to September 1949.

Extremes.- Maximum discharge during year, 1,040 second-feet July 22 (gage height 3.66 feet), from rating curve extended above 127 second-feet on basis of logarithmic plotting and peak-flow comparisons with rated stations downstream; minimum daily, 5.0 second-feet Aug. 26.

1940, 1946-49: Maximum discharge, 9,230 second-feet July 22, 1948 (gage height, 9.82 feet), from rating curve extended above 127 second-feet on basis of logarithmic plotting and peak-flow comparisons with rated stations downstream; minimum daily, 2.4 second-feet Oct. 10, 1940.

Maximum stage known, 19.0 feet in September 1941, from well defined floodmarks determined in 1947 (discharge not determined).

Remarks.- Records good except those above 140 second-feet, which are poor. Diversions above and below station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	9.4	13	12	15	18	9.4	10	7.5	11	7.5	6.2
2	8.0	9.4	12	12	15	18	9.4	10	7.5	10	7.5	7.5
3	8.0	10	12	12	15	18	10	10	8.4	8.4	7.0	5.6
4	8.0	9.4	12	12	15	18	10	61	12	8.0	8.0	5.9
5	7.5	9.4	12	12	15	17	10	69	65	7.5	8.0	10
6	7.5	10	12	12	15	15	10	21	71	7.5	7.5	22
7	8.0	10	12	13	15	15	10	12	23	7.0	7.0	12
8	8.0	10	12	13	15	14	10	10	17	7.0	14	8.4
9	8.9	10	12	14	15	14	10	8.9	12	6.6	66	133
10	8.9	11	12	15	15	14	9.4	8.9	24	8.0	24	26
11	8.4	11	12	15	15	14	10	10	127	7.0	16	12
12	8.4	12	12	15	15	14	10	10	67	6.6	8.4	9.4
13	8.4	12	12	15	16	14	9.4	9.4	20	6.6	6.6	88
14	8.4	12	12	15	16	14	9.4	9.4	14	7.0	6.2	20
15	8.4	12	12	15	15	14	9.4	8.9	13	53	5.9	187
16	8.4	12	11	15	15	13	9.4	8.4	12	16	5.9	53
17	8.4	12	11	15	16	12	10	8.4	12	7.5	5.9	22
18	8.9	12	11	15	16	12	10	8.4	17	7.0	20	13
19	8.9	12	11	15	16	12	10	8.4	21	6.6	6.6	59
20	9.4	12	11	15	16	12	10	8.4	17	6.6	6.2	15
21	14	12	11	15	16	11	10	8.0	14	6.6	6.2	10
22	10	12	12	15	16	11	10	8.0	13	88	6.2	10
23	10	13	12	15	17	11	10	8.0	12	15	5.9	9.4
24	9.4	13	12	15	17	10	11	8.0	12	124	5.6	8.9
25	9.4	12	12	15	18	10	10	8.4	12	37	5.2	8.9
26	9.4	13	12	15	18	8.9	10	8.4	12	20	5.0	8.9
27	9.4	13	12	15	17	8.9	10	8.4	12	16	5.2	8.9
28	9.4	12	12	15	17	8.9	34	8.4	12	10	5.6	8.9
29	10	12	12	15	-	8.9	20	8.4	12	8.9	5.9	8.9
30	9.4	12	12	15	-	8.4	13	7.5	12	8.0	5.6	8.9
31	9.4	-	12	15	-	8.9	-	7.5	-	7.5	5.6	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	276.6	14	7.5	8.92	549
November	341.6	13	9.4	11.4	678
December	367	13	11	11.8	728
Calendar year 1948	6,251.7	788	7.0	17.1	12,400
January	442	15	12	14.3	877
February	442	18	15	15.8	877
March	397.9	18	8.4	12.8	789
April	333.8	34	9.4	11.1	662
May	399.5	69	7.5	12.9	792
June	690.4	127	7.5	23.0	1,370
July	545.9	124	6.6	17.6	1,080
August	306.2	66	5.0	9.88	607
September	808.7	187	5.6	26.9	1,600
Water year 1948-49	5,349.6	187	5.0	14.7	10,610

Peak discharge (base, 200 sec.-ft.).- May 4 (10 p.m.) 560 sec.-ft.; June 5 (7.30 p.m.) 456 sec.-ft.; June 11 (12:10 a.m.) 1,010 sec.-ft.; July 15 (5:15 p.m.) 342 sec.-ft.; July 22 (7 p.m.) 1,040 sec.-ft.; July 24 (1 a.m.) 510 sec.-ft.; Aug 8 (11:50 p.m.) 361 sec.-ft.; Sept. 9 (1:20 a.m.) 535 sec.-ft.; Sept. 13 (8:20 a.m.) 495 sec.-ft.; Sept. 15 (11 a.m.) 752 sec.-ft.; Sept. 19 (1:30 p.m.) 207 sec.-ft.;

Delaware River near Red Bluff, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 32°01', long. 104°03', sec. 23, T. 26 S., R. 28 E., at bridge on U. S. Highway 285, 3½ miles upstream from mouth and 4 miles south of Red Bluff, Eddy County. Datum of gage is 2,900.7 feet above mean sea level, datum of 1929.

Drainage area.- 689 square miles.

Records available.- October 1937 to September 1949. April 1912 to September 1913 at site 3 miles upstream (published as Delaware River near Malaga, N. Mex.). May 1914 to June 1915 at site 2½ miles downstream (published as Delaware River near Angeles, Tex.)

Average discharge.- 13 years (1912-13, 1937-49), 12.0 second-feet.

Extremes.- Maximum discharge during year, 6,460 second-feet Sept. 9 (gage height, 8.06 feet); no flow at times.
1912-13, 1914-15, 1937-49: Maximum discharge, 34,600 second-feet June 27, 1938 (gage height, 18.00 feet, from floodmarks), by slope-area method; no flow at times.

Remarks.- Records good. No diversions above station.

Revisions.- W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.9	1.8	2.2	2.9	2.2	1.5	1.2	1.3	0	0.9	0
2	0	.9	1.8	2.2	2.7	2.2	1.5	1.0	.8	0	.7	0
3	0	.9	1.9	2.2	2.7	2.2	1.9	.9	.7	0	.4	0
4	0	.8	1.9	2.2	2.6	2.2	2.7	1.0	.5	0	.3	0
5	0	.7	1.8	2.2	2.4	2.2	2.6	1.6	.4	0	.4	.3
6	0	.7	1.8	2.2	2.2	2.1	2.2	417	1.8	0	.4	0
7	0	.9	1.8	2.3	2.2	2.0	1.9	69	100	0	.5	84
8	0	.9	1.8	2.3	2.2	1.9	1.7	3.7	62	1.8	5.3	14
9	0	1.0	1.8	2.3	2.2	1.9	1.5	2.1	20	1.5	4.7	1,190
10	0	1.3	1.8	3.3	2.2	1.9	1.4	1.5	3.8	.9	2.0	35
11	0	1.3	1.8	4.4	2.2	1.9	1.4	21	53	.2	2.4	9.7
12		1.4	1.9	4.4	2.2	1.9	1.4	9.1	33	.1	1.3	5.2
13		1.4	1.9	4.0	2.2	1.9	1.3	5.1	8.5	0	.6	99
14		1.5	2.1	3.7	2.2	1.9	1.2	3.4	6.2	1.8	.3	5.8
15		1.5	2.2	3.2	2.0	1.9	1.0	2.2	3.4	26	.1	561
16	a.4	1.5	2.2	3.2	2.0	1.9	1.0	1.5	2.1	13	.1	151
17		1.5	2.1	3.5	2.0	1.8	1.1	1.2	1.5	4.8	0	21
18		1.4	2.0	3.5	2.0	1.8	1.1	.9	1.1	2.2	0	8.8
19		1.4	1.9	3.4	2.1	1.8	1.1	.7	13	.9	0	369
20	.7	1.5	1.9	3.2	2.1	2.1	1.3	.5	5.0	a.5	0	106
21	.9	1.5	1.8	3.0	2.0	2.0	26	.3	2.0	g.2	0	8.8
22	1.1	1.5	1.7	3.2	2.0	1.9	29	.3	1.1	a0	0	5.2
23	1.1	1.6	1.8	3.9	2.1	1.8	8.0	.2	.8	0	0	3.9
24	1.0	1.7	1.9	3.6	2.2	1.5	5.1	.2	.4	11	0	3.4
25	1.0	1.7	2.0	3.5	2.2	1.5	3.7	.2	.3	39	0	2.9
26	.9	1.7	2.3	3.2	2.2	1.4	2.7	284	.2	100	0	2.6
27	.9	1.6	2.4	3.4	2.1	1.5	2.2	26	.1	17	0	2.3
28	.9	1.6	2.3	3.0	2.1	1.5	2.1	8.0	0	8.2	0	2.2
29	1.0	1.8	2.2	2.7	-	1.5	1.7	4.2	0	4.2	0	2.1
30	1.0	1.8	2.1	2.8	-	1.4	1.5	2.5	0	2.6	0	139
31	1.0	-	2.1	2.9	-	1.4	-	1.8	-	1.6	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	14.7	1.1	0	0.47	29
November	39.9	1.8	.7	1.33	79
December	60.8	2.4	1.7	1.96	121
Calendar year 1948	1,437.6	523	0	3.93	2,850
January	95.1	4.4	2.2	3.07	189
February	62.2	2.9	2.0	2.22	123
March	57.1	2.2	1.4	1.84	113
April	112.8	29	1.0	3.76	224
May	872.3	417	.2	28.1	1,730
June	323.0	100	0	10.8	641
July	237.5	100	0	7.66	471
August	20.4	5.3	0	.66	40
September	2,832.2	1,190	0	94.4	5,620
Water year 1948-49	4,728.0	1,190	0	13.0	9,380

Peak discharge (base, 650 sec.-ft.).- May 6 (10:15 p.m.) 5,850 sec.-ft.; May 26 (6 a.m.) 1,960 sec.-ft.; June 6 (12 p.m.) 830 sec.-ft.; June 8 (9:15 p.m.) 840 sec.-ft.; Sept. 9 (3:30 a.m.) 6,460 sec.-ft.; Sept. 15 (7:45 p.m.) 2,380 sec.-ft.; Sept. 19 (8 p.m.) 2,930 sec.-ft.

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

g Computed from graph based on gage reading.

Salt (Screwbean) Draw near Orla, Tex.

Location.- Water-stage recorder and low-water control, lat. 31°52'40", long. 103°56'50" at bridge on U. S. Highway 285, 157 feet upstream from Panhandle & Santa Fe Railway bridge, 2.7 miles southwest of Red Bluff Dam, 4.1 miles northwest of Orla, Reeves County, and 5 miles upstream from mouth. Datum of gage is 2,804.2 feet above mean sea level, datum of 1929.

Drainage area.- 464 square miles.

Records available.- August 1939 to December 1940, October 1943 to September 1949.

Extremes.- Maximum discharge during year, 2,860 second-feet Sept. 10 (gage height, 13.64 feet), from rating curve extended above 1,500 second-feet; no flow at times.
1939-40, 1943-49: Maximum discharge, 3,040 second-feet Aug. 18, 1944 (gage height, 13.88 feet), from rating curve extended above 1,500 second-feet; no flow at times.
Floods have reached a stage of 18 or 19 feet, from information by local residents.

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

Revisions.- W 1118: Drainage area.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1			0	0.3	0			0	0	0	0
2	.1			0	.2	0			0	0	0	0
3	.1			0	.2	0			0	0	0	0
4	0			0	.2	0			0	0	0	0
5	0			0	.2	0			0	0	0	0
6	0			0	.2	0			0	0	0	0
7	0			0	.2	0			0	0	56	0
8	0			0	.2	0			37	0	30	0
9	0			0	.1	0			34	0	4.3	57
10	0			0	.1	0			2.3	.1	12	377
11	0			0	.1	0			1.4	0	3.2	238
12	0			0	.1	0			25	0	2.0	8.6
13	0			.4	.1	0			2.9	0	1.7	5.6
14	0			.5	.1	0			1.2	0	.3	4.1
15	0			1.0	.1	0			.3	0	.2	59
16	0			.4	.1	.1			.2	0	.1	12
17	0			.5	.1	0			.2	0	.1	4.7
18	0			.4	.1	0			.1	0	.3	3.2
19	0			.3	.1	0			0	0	.2	2.6
20	0			.3	0	.1			0	0	.1	193
21	0			.3	0	0			0	0	0	15
22	0			.4	0	0			0	0	0	5.6
23	0			1.2	0	0			0	0	0	3.8
24	0			1.2	0	0			0	0	0	2.6
25	0			1.2	0	0			0	5.7	0	2.0
26	0			1.2	0	0			0	2.0	0	1.7
27	0			1.0	0	0			0	.3	0	1.4
28	0			.4	0	0			4.5	.1	0	1.2
29	0			.3	-	0			1.7	0	0	1.2
30	0			.3	-	0			.1	0	0	1.0
31	0			.3	-	0			-	0	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0.3	0.1	0	0.01	0.6
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	403.3	120	0	1.10	799
January	11.6	1.2	0	.37	23
February	2.8	.3	0	.10	5.6
March	.2	.1	0	.01	.4
April	0	0	0	0	0
May	0	0	0	0	0
June	110.9	37	0	3.70	220
July	8.2	5.7	0	.26	16
August	110.5	56	0	3.56	219
September	1,000.3	377	0	33.3	1,980
Water year 1948-49	1,244.8	377	0	3.41	2,460

Peak discharge (base, 600 sec.-ft.).- Sept. 10 (9 p.m.) 2,860 sec.-ft.
Note.- No gage-height record Oct. 1-20; discharge computed on basis of recorded range in stage and weather records.

Principal diversions from Pecos River between Red Bluff Reservoir and Imperial, Tex.

Records of discharge are collected for eight canals that divert water from Pecos River between Red Bluff Reservoir and Imperial, Tex. Each of these canals is equipped with a water-stage recorder for collecting gage-height records. All stations are located within 2 miles of canal head gate except as noted herein. Water diverted by these canals is used for irrigation of lands on both sides of Pecos River in Reeves, Ward, and Pecos Counties. Stations prior to 1941 were published separately (daily discharge figures for the earlier records). Gage-height records collected in cooperation with Red Bluff Water Power Control District, Pecos, Tex.

Reeves County Water Improvement District No. 2 Canal near Mentone, diverts from right bank, lat. 31°38', long. 103°34'. Records available, February 1922 to July 1925 (published as Farmers Independent Canal near Porterville, Tex.) and August 1939 to September 1949.

Ward County Water Improvement District No. 3 Canal near Barstow, diverts from left bank, lat. 31°34', long. 103°31'. Records available, August 1939 to September 1949.

Ward County Irrigation District No. 1 Canal near Barstow, diverts from left bank, lat. 31°33', long. 103°29'. Records available, February 1922 to September 1925 at site about half a mile upstream (published as Barstow Canal near Barstow, Tex.), and August 1939 to September 1949.

Grandfalls-Big Valley Canal near Barstow, diverts from left bank, lat. 31°25', long. 103°15'. Records available, March 1922 to November 1925, September 1939 to September 1949. Water diverted through Ward County Water Improvement District No. 2 Canal irrigates most of lands formerly supplied by this canal.

Pecos County Water Improvement District No. 2 upper diversion canal near Grandfalls, diverts from right bank, lat. 31°20', long. 102°58' (gage 12½ miles downstream from head gates). Records available, March 1922 to July 1925 at site 11 miles upstream (published as Imperial High-line Canal near Grandfalls, Tex.); August 1939 to November 1947 at site 2½ miles downstream at different datum; and December 1947 to September 1949.

Pecos County Water Improvement District No. 2 Canal near Imperial, diverts from right bank, lat. 31°16', long. 102°45' (gage 7½ miles below outlet head gate at Imperial Reservoir). Records available, April 1940 to September 1949.

Pecos County Water Improvement District No. 3 Canal near Imperial, diverts from Pecos County Water Improvement District No. 2 Canal above station near Imperial on that canal, lat. 31°18', long. 102°45'. Records available, March 1940 to September 1949.

Ward County Water Improvement District No. 2 Canal near Grandfalls, diverts from left bank, lat. 31°22', long. 103°01'. Records available, August 1939 to September 1949.

Several smaller diversions (pumps) divert water between Red Bluff Reservoir and Imperial for irrigation of lands adjacent to Pecos River, but no records for them were obtained.

Diversions, in acre-feet, water year October 1948 to September 1949

Month	Reeves County District 2 Canal near Mentone	Ward County District 3 Canal near Barstow	Ward County District 1 Canal near Barstow	Grandfalls-Big Valley Canal near Barstow
October	a54	0.8	a0	0
November	20	0	95	0
December	13	0	42	1.0
Calendar year 1948	5,380	5,890	16,820	2,130
January	0	0	41	34
February	0	0	29	8.7
March	84	0	32	2.6
April	1,030	1,250	1,280	0
May	c402	0	1,170	0
June	c496	256	1,610	222
July	1,280	1,530	4,570	691
August	ac425	0	a1,920	262
September	ac991	566	a2,290	0
Water year 1948-49	4,800	3,600	13,080	1,220

Month	Pecos County District 2 Canal (upper diver.) near Grandfalls	Pecos County District 2 Canal near Imperial*	Pecos County District 3 Canal near Imperial*	Ward County District 2 Canal near Grandfalls
October	371	0	0	0
November	599	0	178	0
December	0	0	0	0
Calendar year 1948	25,330	10,280	8,780	14,690
January	0	0	0	0
February	0	0	0	0
March	687	0	19	1,160
April	7,160	744	1,250	2,880
May	804	137	0	492
June	1,540	23	1.8	288
July	3,490	2,740	3,420	2,870
August	1,660	1,180	0	2,320
September	2,720	1,150	595	848
Water year 1948-49	19,030	5,970	5,460	10,860

* Combined flow of Pecos County Water Improvement District No. 2 Canal near Imperial and Pecos County Water Improvement District No. 3 Canal near Imperial represents released water from Imperial Reservoir (fed by Pecos County Water Improvement District No. 2 upper diversion canal) plus water diverted from Pecos River by Pecos County Water Improvement District No. 2 lower diversion canal.

a No gage-height record at times; discharge computed on basis of recorded range in stage, engineers' notes, and records for nearby stations.

c Backwater from check gates part of month.

Madera Canyon near Toyahvale, Tex.

Location.- Water-stage recorder, lat. 30°52', long. 103°58', in Jeff Davis County, 11 miles upstream from Aguja Canyon and 12 miles southwest of Toyahvale, Reeves County.

Drainage area.- 54 square miles.

Records available.- July 1932 to September 1949 (discontinued).

Average discharge.- 17 years, 4.34 second-feet.

Extremes.- Maximum discharge during year, 102 second-feet Aug. 18 (gage height, 2.42 feet); no flow most of time.

1932-49: Maximum discharge, 5,120 second-feet Sept. 29, 1932 (gage height, 8.00 feet, from floodmark), from rating curve extended above 200 second-feet on basis of slope-area determination at gage height 6.8 feet; no flow at times.

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

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0						0	0.3	
2				0						0	.3	
3				0						0	.2	
4				0						0	.2	
5				0	0.5	1.0		0.1		0	.1	
6				0			0.1			0	.2	
7				0						0	3.2	
8				0						0	2.3	
9				0				0		0	3.4	
10				0		.3		.6		0	7.1	
11				0	.7	.3		.2		0	5.1	
12				0	.8	.3	.2	.3		0	2.9	
13				0		.3		1.7		0	1.8	
14				0		.3	.1	2.0		0	1.1	
15				0				.8		0	.8	0.4
16								.5		0	.6	
17							0	.4		0	11	
18							0	.3		0	31	
19								.2		0	7.2	
20					1.0			.2		0	4.3	
21								.2		0	2.6	
22						.1		.1		0	1.6	
23								.1		0	1.0	
24				.1				.1		0	.6	
25							0	.1		0	.4	
26								.1		2.5		
27								0		12		
28								0		5.4		
29					-			0		3.0	.3	
30					-			0		1.2		
31					-		-	0		.6		-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	18.0	16	0	.05	36
January	1.6	-	0	.05	3.2
February	22.5	-	-	.80	45
March	12.2	-	-	.39	24
April	1.7	-	0	.06	3.4
May	8.7	2.0	0	.28	17
June	0	0	0	0	0
July	24.7	12	0	.80	49
August	91.1	31	-	2.94	181
September	12.0	-	-	.40	24
Water year 1948-49	174.5	31	0	.48	347

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

Note.- No gage-height record Jan. 16 to Feb. 10, Feb. 13 to Mar. 9, Mar. 15 to Apr. 11, Apr. 13-16, Apr. 19 to May 8, Aug. 26 to Sept. 30; discharge computed on basis of recorded range in stage and weather records.

Toyah Creek below Toyah Lake, near Pecos, Tex.

Location.- Water-stage recorder, lat. 31°21', long. 103°24', at bridge on county road between Pecos and Grandfalls, at lower end of Toyah Lake, 6 miles upstream from mouth and 7.4 miles southeast of Pecos, Reeves County.

Drainage area.- 3,709 square miles (contributing area).

Records available.- August 1939 to September 1949.

Average discharge.- 10 years, 7.78 second-feet.

Extremes.- Maximum discharge during year, 815 second-feet June 7 (gage height, 2.58 feet); no flow most of time.

1939-49: Maximum discharge, 5,850 second-feet Aug. 7, 1940 (gage height, 4.17 feet); no flow most of time.

Flood of September 1932 reached a stage of 7.7 feet, from information by local residents.

Remarks.- Records good. Several diversions above station for irrigation. Flood flow materially affected by use of spread-out dams above station. Records of chemical analyses for water year 1949 are given in Water-Supply Paper 1163.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0				0	0			
2				0				0	0			
3				0				0	0			
4				0				.8	0			
5				0				.1	0			
6				0				0	0			
7				0				0	365			
8				0				0	572			
9				0				0	273			
10				0				0	121			
11				0				0	67			
12				0				0	46			
13				0				0	32			
14				0				0	21			
15				0				0	15			
16				0				0	11			
17				0				0	6.0			
18				0				0	3.2			
19				0				0	.5			
20				0				0	.2			
21				0				0	0			
22				0				0	0			
23				0				0	0			
24				0				0	0			
25				0				0	0			
26				0				0	0			
27				1.9				0	0			
28				.1				0	0			
29				0				0	0			
30				0				0	0			
31				0				0	-			

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0
Calendar year 1948	82.8	16	0	.23	165
January	2.0	1.9	0	.06	4.0
February	0	0	0	0	0
March	0	0	0	0	0
April	0	0	0	0	0
May	.9	.8	0	.03	1.8
June	1,532.9	572	0	51.1	3,040
July	0	0	0	0	0
August	0	0	0	0	0
September	0	0	0	0	0
Water year 1948-49	1,535.8	572	0	4.21	3,050

Peak discharge (base, 400 sec.-ft.).- June 7 (11 p.m.) 815 sec.-ft.

Phantom Lake Spring near Toyahvale, Tex.

Location.- Water-stage recorder and Parshall flume, lat. 30°56', long. 103°51', on outlet canal 375 feet below source of spring, 4 miles southwest of Toyahvale, Reeves County, and 8 miles southwest of Balmorhea. Datum of gage is 3,472.7 feet above mean sea level (U. S. Bureau of Reclamation bench mark). Former gage at site 400 feet downstream at different datum.

Records available.- December 1931 to December 1933, October 1948 to September 1949. 1931, 1934, 1941-48 (occasional discharge measurements published as miscellaneous measurements).

Extremes.- Maximum daily discharge during year, 16 second-feet July 7 to Aug. 7; minimum daily, 13 second-feet Oct. 1-7, May 1 to June 7.
1931-33, 1948-49: Maximum daily discharge, 114 second-feet Oct. 2, 3, 1932; minimum daily, 12 second-feet at times in June, July and August 1932.

Remarks.- Records good. Discharge represents total flow of spring. Spring flow fluctuates slowly; check gates below gage affect stage-discharge relation frequently; daily discharge determined from hydrograph based on discharge measurements. Water used for irrigation in vicinity of Toyahvale and Balmorhea.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	15	15	14	14	14	14	13	13	15	16	15
2	13	a15	15	14	14	14	14	13	13	15	16	15
3	13	a15	15	14	14	14	14	13	13	15	16	15
4	13	15	15	14	14	14	14	13	13	15	16	15
5	13	15	15	14	14	14	14	13	13	15	16	15
6	13	15	15	14	14	14	14	13	13	15	16	14
7	13	15	15	14	14	14	14	13	13	16	16	14
8	14	15	15	14	14	14	14	13	14	16	15	14
9	14	15	15	14	14	14	14	13	14	16	15	14
10	14	15	15	14	14	14	14	13	14	16	15	14
11	14	15	15	14	14	14	14	13	14	16	15	14
12	14	15	14	14	14	14	14	13	14	16	15	14
13	14	15	14	14	14	14	14	13	14	16	15	14
14	14	15	14	14	14	14	14	13	14	16	15	14
15	14	15	14	14	14	14	14	13	14	16	15	14
16	14	15	14	14	14	14	14	13	14	16	15	14
17	14	15	14	14	14	14	14	13	14	16	15	14
18	14	15	14	14	14	14	14	13	14	16	15	14
19	14	15	14	14	14	14	14	13	14	16	15	14
20	14	15	14	14	14	14	14	13	14	16	15	14
21	14	15	14	14	14	14	14	13	14	16	15	14
22	14	15	14	14	14	14	14	13	14	16	15	14
23	14	15	14	14	14	14	14	13	14	16	15	14
24	14	15	14	14	14	14	14	13	14	16	15	14
25	14	15	14	14	14	14	14	13	15	16	15	14
26	14	15	14	14	14	14	14	13	15	16	15	14
27	14	15	14	14	14	14	14	13	15	16	15	14
28	14	15	14	14	14	14	14	13	15	16	15	14
29	14	15	14	14	-	14	14	13	15	16	15	14
30	14	15	14	14	-	14	14	13	15	16	15	14
31	14	-	14	14	-	14	-	13	-	16	15	-

Month	Second-foot-day	Maximum	Minimum	Mean	Runoff in acre-feet
October	427	14	13	13.8	847
November	450	15	15	15.0	893
December	445	15	14	14.4	883
Calendar year 1948	-	-	-	-	-
January	434	14	14	14.0	861
February	392	14	14	14.0	778
March	434	14	14	14.0	861
April	420	14	14	14.0	833
May	403	13	13	13.0	799
June	419	15	13	14.0	831
July	490	16	15	15.8	972
August	472	16	15	15.2	936
September	425	15	14	14.2	843
Water year 1948-49	5,211	16	13	14.3	10,340

a No gage-height record; discharge interpolated.
Note.- Backwater from check gage Nov. 24-29, Mar. 4-10, 16-19, Apr. 8-14, May 3, 7, 8, 12-18, June 1, 3-12, 14, 17, 18, 24-29, July 1, 13-19, 22-29, Aug. 6, 7, 21-25; discharge interpolated.

..an Solomon Springs at Toyahvale, Tex.

Location.- Water-stage recorder and sharp-crested weir, lat. 30°56', long. 103°47', on South Canal at Toyahvale, Reeves County, and 540 feet downstream from spring pool. Datum of gage is 3,311.0 feet above mean sea level, datum of 1929.

Records available.- October 1931 to December 1933, March 1941 to September 1949. 1900, 1904, 1919, 1922-25, 1934-36 (occasional discharge measurements published as miscellaneous measurements).

Average discharge.- 10 years (1931-33, 1941-49), 38.0 second-feet.

Extremes.- Maximum daily discharge during year, 33 second-feet June 13 to Aug. 10; minimum daily, 28 second-feet Jan. 26 to Feb. 24.

1931-33, 1941-49: Maximum daily discharge, 71 second-feet Oct. 7-9, 1932, Oct. 26-30, 1941; minimum daily, that of Jan. 26 to Feb. 24, 1949.

Maximum discharge measured during years when occasional measurements were made, 46 second-feet Sept. 5, 1900, July 21, 1904.

Remarks.- Records good. Discharge represents total flow of springs and is determined by combining flows in South Canal and two additional outlets (flow measured periodically), Middle and North Canals. Flow into each canal regulated by operation of head gates. Water used for irrigation in vicinity of Balmorhea.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	30	30	29	28	29	31	31	32	33	33	32
2	30	30	30	29	28	29	31	31	32	33	33	32
3	30	30	30	29	28	29	31	31	32	33	33	32
4	30	30	30	29	28	29	a31	31	32	33	33	32
5	30	30	30	29	28	29	31	31	32	33	33	32
6	29	30	30	29	28	30	31	31	32	33	33	32
7	29	30	30	29	28	30	31	31	32	33	33	32
8	30	30	29	29	28	30	31	31	32	33	33	32
9	30	30	29	29	28	30	31	31	32	33	33	32
10	30	30	29	29	28	31	31	31	32	33	33	32
11	30	30	29	29	28	31	31	31	32	33	32	32
12	30	30	29	29	28	31	31	31	32	33	32	32
13	30	30	29	29	28	31	31	31	33	33	32	32
14	30	30	29	29	28	31	31	31	33	33	32	31
15	30	30	29	29	28	31	31	31	33	33	32	31
16	30	30	29	29	28	31	31	31	33	33	32	31
17	30	30	29	29	28	31	31	31	33	33	32	31
18	30	30	29	29	28	31	31	31	33	33	32	31
19	30	30	29	29	28	31	31	31	33	33	32	31
20	30	30	29	29	28	31	31	31	33	33	32	31
21	30	30	29	29	28	31	31	31	33	33	32	31
22	30	30	29	29	28	31	31	31	33	33	32	31
23	30	30	29	29	28	31	31	31	33	33	32	31
24	30	30	29	29	28	31	31	31	a33	33	32	31
25	30	30	29	29	29	a31	31	31	33	33	32	31
26	30	30	29	28	29	31	31	31	33	33	32	31
27	30	30	29	28	29	a31	31	31	33	33	32	31
28	30	30	29	28	29	31	31	32	33	33	32	31
29	30	30	29	28	-	31	31	32	33	33	32	31
30	30	30	29	28	-	31	31	32	33	33	32	31
31	30	-	29	28	-	31	-	32	-	33	32	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	929	31	29	30.0	1,840
November	900	30	30	30.0	1,790
December	906	30	29	29.2	1,800
Calendar year 1948	11,407	34	29	31.2	22,640
January	893	29	28	28.8	1,770
February	788	29	28	28.1	1,560
March	947	31	29	30.5	1,880
April	930	31	31	31.0	1,840
May	965	32	31	31.1	1,910
June	978	33	32	32.6	1,940
July	1,023	33	33	33.0	2,030
August	1,002	33	32	32.3	1,990
September	943	32	31	31.4	1,870
Water year 1948-49	11,204	33	28	30.7	22,220

a No gage-height record; discharge interpolated.

Note.- Discharge computed from graph based on once-daily staff-gage readings Mar. 14-24, 26, Mar. 28 to Apr. 3, Apr. 5-11, May 17 to June 23, June 25-27, June 29 to July 2.

Comanche Springs at Fort Stockton, Tex.

Location.- Water-stage recorder, lat. 30°53', long. 102°52', on outlet canal of Pecos County Water Improvement District No. 1, in eastern outskirts of Fort Stockton, Pecos County, a quarter of a mile upstream from bridge on U. S. Highway 290 and 0.5 mile downstream from head of springs. Datum of gage is 2,922.8 feet above mean sea level, datum of 1929.

Records available.- February 1941 to September 1949. 1899, 1904, 1919, 1922, 1924-25, 1932-41 (occasional discharge measurements published as miscellaneous measurements).

Extremes.- Maximum daily discharge during year, 40 second-feet Jan. 29 to Mar. 30; minimum daily, 34 second-feet July 24 to Aug. 2.

1941-49: Maximum daily discharge, 54 second-feet Jan. 30, 1942; minimum daily, 33 second-feet Aug. 6 to Sept. 5, 1948.

Maximum discharge measured prior to 1941, 66 second-feet June 23, 1899; minimum measured, 38.7 second-feet July 14, 1936.

Remarks.- Records good. Discharge represents total flow of springs exclusive of surface runoff from precipitation. Spring flow fluctuates slowly and aquatic growth changes stage-discharge relation frequently; daily discharge determined from hydrograph based on discharge measurements. About 6,000 acres of land irrigated below station.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	35	38	38	39	40	40	39	38	37	38	34	35
2	36	38	38	39	40	40	39	38	37	38	34	35
3	36	38	38	39	40	40	39	38	37	39	35	35
4	36	38	38	39	40	40	39	37	37	39	35	35
5	36	38	38	39	40	40	39	37	37	39	35	35
6	36	38	38	39	40	40	39	37	37	39	35	35
7	36	38	38	39	40	40	39	37	37	39	35	35
8	36	38	38	39	40	40	39	37	37	39	35	35
9	36	38	38	39	40	40	39	37	37	39	35	35
10	36	38	38	39	40	40	39	37	37	38	35	35
11	37	38	39	39	40	40	39	37	37	38	35	35
12	37	38	39	39	40	40	39	37	38	38	35	35
13	37	38	39	39	40	40	39	37	38	37	35	35
14	37	38	39	39	40	40	38	37	38	37	35	35
15	37	38	39	39	40	40	38	37	38	37	35	35
16	37	38	39	39	40	40	38	37	38	36	35	35
17	37	38	39	39	40	40	38	37	38	36	35	35
18	37	38	39	39	40	40	38	37	38	35	35	35
19	37	38	39	39	40	40	38	37	38	35	35	35
20	38	38	39	39	40	40	38	37	38	35	35	35
21	38	38	39	39	40	40	38	37	38	35	35	35
22	38	38	39	39	40	40	38	37	38	35	35	35
23	38	38	39	39	40	40	38	37	38	35	35	35
24	38	38	39	39	40	40	38	37	38	34	35	35
25	38	38	39	39	40	40	38	37	38	34	35	35
26	38	38	39	39	40	40	38	37	38	34	35	35
27	38	38	39	39	40	40	38	37	38	34	35	35
28	38	38	39	39	40	40	38	37	38	34	35	35
29	38	38	39	40	-	40	38	37	38	34	35	35
30	38	38	39	40	-	40	38	37	38	34	35	35
31	38	-	39	40	-	39	-	37	-	34	35	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	1,148	38	35	37.0	2,280
November	1,140	38	38	38.0	2,260
December	1,199	39	38	38.7	2,380
Calendar year 1948	13,558	39	33	37.0	26,910
January	1,212	40	39	39.1	2,400
February	1,120	40	40	40.0	2,220
March	1,239	40	39	40.0	2,460
April	1,153	39	38	38.4	2,290
May	1,150	38	37	37.1	2,280
June	1,129	38	37	37.6	2,240
July	1,128	39	34	36.4	2,240
August	1,083	35	34	34.9	2,150
September	1,050	35	35	35.0	2,080
Water year 1948-49	13,751	40	34	37.7	27,280

Devils River near Juno, Tex.

Location.- Water-stage recorder, lat. 29°58', long. 101°09', 500 feet downstream from Walter Baker ranch house, 2 miles upstream from Phillips Creek, and 13½ miles southwest of Juno, Val Verde County. Datum of gage is 1,489.7 feet above mean sea level, datum of 1929 (Corps of Engineers bench mark).
Drainage area.- 2,733 square miles.
Records available.- May 1925 to September 1949 (discontinued).
Average discharge.- 24 years, 196 second-feet.
Extremes.- Maximum discharge during year, 47,600 second-feet July 26 (gage height, 15.33 feet), from rating curve extended above 16,000 second-feet on basis of slope-area determinations at gage heights 15.80, 26.8, and 33.8 feet; minimum, 59 second-feet Feb. 17, 18.
1925-49: Maximum discharge, 370,000 second-feet Sept. 1, 1932 (gage height, 33.8 feet, from floodmarks), by slope-area method; minimum, 38 second-feet May 1, 2, 4, 5, 1948.
Remarks.- Records good except those above 500 second-feet, which are poor. No diversion above station.
Revisions (water years).- W 1118: 1932 (maximum gage height)

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	a80	85	75	70	64	126	73	228	132	112	150	140
2	a80	83	75	70	62	118	73	196	132	114	144	140
3	a80	83	73	70	62	112	73	181	132	116	140	138
4	a78	82	73	70	62	109	73	7,660	132	114	138	138
5	a78	80	73	70	62	107	71	9,530	130	112	136	136
6	a78	80	73	70	64	105	71	1,180	140	112	144	134
7	a76	80	73	70	62	99	71	326	132	112	214	134
8	76	80	73	70	62	98	71	219	171	111	1,320	134
9	78	80	73	70	62	96	71	189	275	111	1,520	138
10	78	78	71	68	60	92	65	177	150	111	277	144
11	78	78	71	66	60	90	68	166	146	111	219	138
12	76	80	71	66	62	90	68	170	142	109	202	136
13	76	80	71	66	62	89	68	164	138	109	191	134
14	76	80	73	66	62	89	68	160	134	109	183	138
15	76	80	73	65	60	87	68	158	144	109	177	132
16	78	80	73	65	60	85	66	154	136	109	172	146
17	82	78	73	65	59	83	66	152	132	109	168	142
18	78	76	73	64	59	82	68	150	132	107	166	138
19	78	76	73	64	60	80	115	148	130	107	164	134
20	78	76	73	64	60	83	96	148	128	107	158	132
21	82	78	73	64	60	82	85	144	126	105	158	130
22	357	76	73	70	60	80	83	144	124	105	156	128
23	112	76	73	66	80	78	119	142	122	105	154	128
24	107	76	73	66	82	78	5,300	140	122	103	152	128
25	101	76	73	65	408	78	1,670	140	122	103	150	128
26	98	76	71	65	990	76	278	140	124	5,380	148	126
27	94	76	71	64	189	76	200	138	120	317	146	126
28	92	75	71	64	142	75	1,060	138	118	204	144	124
29	90	75	70	62	-	76	1,000	138	112	175	144	124
30	89	75	70	64	-	76	487	136	111	162	142	122
31	87	-	70	64	-	75	-	134	-	154	140	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	2,867	357	76	92.5	5,690
November	2,354	85	75	78.5	4,670
December	2,244	75	70	72.4	4,450
Calendar year 1948	133,633	96,200	59	365	265,100
January	2,063	70	62	66.5	4,090
February	3,237	990	59	116	6,420
March	2,770	126	75	89.4	5,490
April	11,745	5,300	65	391	23,300
May	22,990	9,530	134	742	45,600
June	4,089	275	111	136	8,110
July	9,124	5,380	103	294	18,100
August	7,617	1,520	136	246	15,110
September	4,010	146	122	134	7,950
Water year 1948-49	75,110	9,530	59	206	149,000

Peak discharge (base, 500 sec.-ft.).- Oct. 22 (2:30 a.m.) 2,020 sec.-ft.; Feb. 25 (10:30 p.m.) 2,020 sec.-ft.; Apr. 24 (4:30 p.m.) 15,600 sec.-ft.; Apr. 28 (4:30 p.m.) 3,520 sec.-ft.; May 4 (5 p.m.) 24,400 sec.-ft.; June 8 (11:30 p.m.) 919 sec.-ft.; July 26 (11:30 a.m.) 47,600 sec.-ft.; Aug. 8 (7 p.m.) 4,410 sec.-ft.
a No gage-height record; discharge computed on basis of recorded range in stage.

Las Moras Springs at Brackettville, Tex.

Location.- Lat. 29°18', long. 100°25', at Brackettville; Kinney County, a quarter of a mile upstream from bridge on Brackettville-Fort Clark road.
Records available.- December 1895 to August 1938 (occasional miscellaneous discharge measurements), September 1938 to September 1949 (discharge measurements only).
Extremes.- 1895-1949: Maximum discharge measured, 60 second-feet (by Prof. T. U. Taylor) June 30, 1899; minimum measured, 5.7 second-feet July 21, 1945.
Remarks.- Discharge measurements represent total flow of springs. Springs issue from limestone in Balcones fault zone and respond to rainfall on Edwards Plateau. Elevation of spring pool is regulated by outlet gate which materially affects discharge. City of Brackettville diverts water from spring pool for domestic and recreational uses.

Discharge measurements, in second-feet, of Las Moras Springs at Brackettville, Tex., 1948-49

Date	Discharge (sec.-ft.)	Date	Discharge (sec.-ft.)	Date	Discharge (sec.-ft.)
Oct. 9.....	9.61	Mar. 5.....	48.5	Aug. 2.....	18.6
Nov. 20.....	9.20	Apr. 13.....	42.9	Sept.23.....	40.3
Dec. 17.....	8.80	May 24.....	30.8		
Feb. 7.....	10.6	June 25.....	19.4		

MIMBRES RIVER BASIN

Mimbres River near Mimbres, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 32°52'20", long. 107°59'00", in NE¼SW¼ sec. 33, T. 16 S., R. 11 W., a quarter of a mile downstream from Bear Canyon and 1½ miles northwest of Mimbres.

Drainage area.- 183 square miles.

Records available.- October 1930 to September 1949 in reports of Geological Survey. May 1921 to December 1931 in reports of State engineer.

Average discharge.- 26 years (1921-24, 1926-49), 12.2 second-feet.

Extremes.- Maximum discharge during year, 622 second-feet Jan. 13 (gage height, 5.36 feet), from rating curve extended above 110 second-feet on basis of logarithmic plotting; minimum daily, 1.8 second-feet Oct. 1.

1930-49: Maximum discharge, 2,230 second-feet Aug. 19, 1944 (gage height, 5.54 feet), from rating curve extended above 120 second-feet by logarithmic plotting; minimum daily, 0.9 second-foot July 22, 1947.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow partly regulated by Bear Canyon Reservoir (capacity, 700 acre-feet). Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.8	a3.5	4.4	12	27	86	40	54	11	6.2	5.2	5.3
2	1.9	a3.5	4.0	11	26	74	36	46	9.0	6.6	4.9	7.4
3	2.1	a3.5	4.1	11	25	71	34	44	8.8	6.6	3.7	6.4
4	2.4	3.5	4.1	a10	24	82	35	43	8.6	7.3	2.8	9.6
5	2.8	3.4	4.1	10	24	110	30	40	9.9	6.9	3.1	7.3
6	2.9	3.2	4.1	10	24	128	30	36	9.4	6.7	3.6	6.2
7	2.8	3.4	4.2	10	24	249	33	33	9.9	6.9	3.2	7.9
8	2.5	3.6	4.5	10	24	286	39	30	9.9	6.4	3.4	7.7
9	2.5	3.6	4.5	11	24	216	46	28	9.4	5.9	3.5	31
10	2.5	3.6	4.6	11	23	167	46	27	8.8	19	3.8	13
11	2.5	3.6	4.5	12	23	129	40	26	8.8	9.0	3.8	8.4
12	2.6	3.6	4.8	19	25	121	40	25	8.8	11	4.2	7.7
13	2.9	3.6	4.6	284	26	101	46	23	8.2	11	5.0	8.2
14	2.9	3.7	4.6	277	25	91	52	20	8.2	8.8	3.8	31
15	2.8	3.8	4.5	157	24	84	59	19	8.2	8.8	3.5	66
16	2.8	3.7	4.6	95	24	84	69	19	8.4	8.6	2.8	15
17	2.9	3.8	4.5	66	25	99	69	17	7.5	8.0	26	11
18	3.0	3.8	4.4	47	28	118	69	17	7.3	7.7	7.7	9.0
19	3.2	3.8	4.4	43	42	115	65	17	7.1	7.5	5.9	8.8
20	3.1	3.8	4.4	40	49	121	63	17	6.9	8.0	5.0	8.8
21	2.9	4.1	4.2	35	53	115	57	17	7.1	20	4.9	8.0
22	2.8	4.2	4.4	35	60	109	54	16	7.1	8.2	5.0	7.1
23	3.0	4.4	4.8	38	77	99	55	16	7.1	13	4.6	7.3
24	3.1	4.2	4.6	52	100	87	61	15	7.1	41	5.2	7.3
25	3.2	4.2	5.0	55	114	79	61	15	6.9	15	5.4	7.5
26	5.1	4.1	13	59	122	75	65	16	6.6	39	5.0	8.2
27	3.4	3.8	142	51	114	67	67	15	5.4	22	4.6	7.3
28	3.4	3.8	a100	44	98	61	67	15	5.2	8.8	4.9	7.3
29	a3.5	4.1	a30	35	-	55	63	14	5.4	7.1	5.0	7.5
30	a4.0	4.1	14	29	-	46	63	14	4.9	5.2	5.0	7.3
31	a3.5	-	12	28	-	41	-	13	-	5.2	5.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October.....	88.8	4.0	1.8	2.86	176
November.....	113.0	4.4	3.2	3.77	224
December.....	421.9	142	4.0	13.6	837
Calendar year 1948.....	1,835.8	142	1.6	5.02	3,640
January.....	1,607	284	10	51.8	3,190
February.....	1,274	122	23	45.5	2,530
March.....	3,366	286	41	109	6,680
April.....	1,554	69	30	51.8	3,080
May.....	747	54	13	24.1	1,480
June.....	236.9	11	4.9	7.90	470
July.....	351.4	41	5.2	11.5	697
August.....	159.5	26	2.8	5.15	316
September.....	350.5	66	5.3	11.7	695
Water year 1948-49.....	10,270.0	286	1.8	28.1	20,380

Peak discharge (base, 290 sec.-ft.).- Dec. 27 (4:30 p.m.) 308 sec.-ft.; Jan. 13 (4:50 p.m.) 622 sec.-ft.; Mar. 7 (6 p.m.) 454 sec.-ft.; July 26 (7 p.m.) 372 sec.-ft.; Aug. 17 (1:30 p.m.) 545 sec.-ft.; Sept. 14 (6:15 p.m.) 418 sec.-ft.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, recorded range in stage, and records for station near Faywood.

Mimbres River near Faywood, N. Mex.

Location.- Water-stage recorder, lat. 32°35'10", long.107°55'10", in NW¼ sec. 7, T. 20 S., R 10 W., 6 miles northeast of Faywood Hot Springs, 10 miles northeast of Faywood, and 12 miles upstream from San Vicente Arroyo.

Drainage area.- 485 square miles.

Records available.- April 1908 to December 1914 and October 1930 to September 1949 in reports of Geological Survey. April 1908 to December 1931 in reports of State engineer.

Average discharge.- 33 years (1908-10, 1912-17, 1919-24, 1926-27, 1929-49), 21.1 second-feet.

Extremes.- Maximum discharge during year, 4,240 second-feet Sept. 14 (gage height, 6.8 feet), from rating curve extended above 600 second-feet on basis by logarithmic plotting; no flow at times.

1930-49: Maximum discharge not determined; maximum gage height, 11.0 feet Aug. 4, 1939, present datum; no flow at times.

Remarks.- Records fair except those for periods of ice affect or no gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.2		0	a0.5	51	156	62	48	3.1	2.5	3.8	2.3
2	0		0	a.6	50	139	64	45	3.1	3.1	a3.5	23
3	0		0	1.0	45	130	55	38	3.1	2.7	3.6	13
4	0		0	.3	39	133	54	a30	2.9	3.1	3.8	2.9
5	0		0	b.3	34	152	52	25	2.7	2.9	3.6	6.8
6	0		0	b.3	32	171	51	22	2.7	2.7	2.9	6.8
7	0		0	b.5	30	240	52	22	2.7	1.8	21	15
8	0		0	3.1	29	720	53	22	2.9	1.6	26	19
9	0		0	3.8	25	466	58	18	2.9	20	a11	54
10	0		0	8.3	24	310	60	14	3.1	29	20	53
11	0		0	7.3	25	207	59	14	3.1	69	4.1	23
12	0		0	12	125	182	54	14	3.1	72	3.6	14
13	0		0	506	199	164	54	11	2.9	52	2.9	11
14	0		0	1,240	137	150	55	8.3	3.1	12	2.7	341
15	0		0	415	75	144	55	5.8	3.1	46	2.7	1,050
16	0		0	222	67	142	56	4.1	2.9	a13	2.7	128
17	0		0	131	76	140	61	3.8	2.7	4.8	83	55
18	0		0	106	92	154	64	3.1	2.5	4.1	31	24
19	0		0	95	109	154	66	3.1	2.9	3.1	3.8	11
20	0		0	83	118	152	66	2.9	2.7	2.7	3.8	a7
21	0		0	78	121	150	66	3.1	2.9	2.1	3.8	a4.5
22	0		0	82	131	139	61	3.6	2.7	29	3.8	a3
23	0		0	82	152	128	56	3.1	2.3	133	3.8	a3
24	0		0	111	191	118	56	3.4	2.5	318	3.4	a3
25	0		0	116	214	107	53	3.6	2.5	112	51	a3.5
26	0		0	130	219	103	50	4.1	2.5	42	3.6	a3.5
27	0		180	116	195	93	53	3.4	2.5	63	2.5	a3
28	0		393	98	177	85	52	3.4	2.3	20	2.3	a3
29	0		76	74	-	80	52	3.4	2.3	10	2.3	a3
30	4.4		16	a66	-	74	48	3.4	2.1	5.5	2.3	2.7
31	0		4.6	59	-	66	-	3.1	-	3.6	2.3	-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	4.6	4.4	0	0.15	9.1
November	0	0	0	0	0
December	669.6	393	0	21.6	1,330
Calendar year 1948	1,186.8	393	0	3.24	2,360
January	3,848	1,240	.3	124	7,630
February	2,782	219	24	99.4	5,520
March	5,349	720	66	173	10,610
April	1,698	66	48	56.6	3,370
May	391.7	48	2.9	12.6	777
June	82.8	3.1	2.1	2.76	164
July	1,086.3	318	1.6	35.0	2,150
August	320.6	83	2.3	10.3	636
September	1,892.0	1,050	2.3	63.1	3,750
Water year 1948-49	18,124.6	1,240	0	49.7	35,950

Peak discharge (base, 800 sec.-ft.).- Jan. 14 (12:40 a.m.) 2,260 sec.-ft.; Mar. 8 (5 a.m.) 846 sec.-ft.; July 24 (2:20 p.m.) 2,260 sec.-ft.; Aug. 25 (2:15 p.m.) 820 sec.-ft.; Sept. 14 (9 p.m.) 4,240 sec.-ft.

a No gage-height record; discharge computed on basis of available fragments of gage-height record, weather records, and records for station near Mimbres.

b Stage-discharge relation affected by ice.

Bear Canyon near Mimbres, N. Mex.

Location.- Water-stage recorder and concrete Parshall flume, lat. 32°52'50", long. 107°59'20", in SW¼SW¼ sec. 28, T. 16 S., R. 11 W., 100 feet downstream from bridge on State Highway 167, 200 feet downstream from Bear Canyon Dam, and 2 miles northwest of Mimbres.

Records available.- October 1937 to September 1949.

Average discharge.- 12 years, 1.10 second-feet.

Extremes (regulated).- Maximum discharge during year, 83 second-feet Mar. 7 (gage height, 2.64 feet); no flow for long periods.
1937-49: Maximum discharge, that of Mar. 7, 1949; maximum gage height, 2.88 feet Sept. 29, 1941; no flow for long periods.

Remarks.- Records good. Flow regulated by Bear Canyon Reservoir (capacity, 700 acre-feet). One small diversion above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	5.1	5.7	13	8.8	0.9	0.2	0.1		0
2			0	5.0	5.6	12	5.7	.8	.2	.1		0
3			0	4.7	5.6	11	2.6	.8	.2	.1		0
4			0	4.6	5.4	12	3.5	.8	.2	.1		0
5			0	4.5	5.3	20	3.2	.8	.2	.1		0
6			0	4.4	5.3	26	3.0	.8	.1	.1		0
7			0	4.3	5.2	43	3.0	.7	.1	.1		0
8			0	4.4	5.1	46	5.1	.7	.1	.1		0
9			0	4.3	5.0	30	7.9	.6	.1	.1		0
10			0	4.2	4.8	21	4.4	.7	.1	.1		0
11			0	4.1	4.8	15	1.7	.8	.1	0		0
12			0	3.9	4.7	13	1.7	.7	.1	0		0
13			0	4.3	4.6	11	7.8	.7	.1	0		0
14			0	19	4.4	9.3	9.1	.6	.1	0		.1
15			0	39	4.4	8.2	7.2	.6	.1	0		.4
16			0	28	4.4	7.8	5.8	.6	.1	.1		.4
17			0	14	4.5	15	4.3	.4	.1	.1		.4
18			0	10	4.5	31	3.0	.4	.1	.1		.4
19			0	8.8	4.4	30	2.9	.4	.1	.1		.5
20			0	6.9	4.4	30	2.9	.3	.1	.1		.5
21			0	5.9	4.4	30	2.7	.3	.1	.1		.5
22			0	5.4	4.3	29	1.7	.3	.1	.1		.5
23			0	5.1	4.4	28	1.3	.3	.1	.1		.5
24			0	7.8	4.4	26	1.2	.3	.1	.1		.5
25			0	10	7.9	25	1.1	.3	.1	0		.5
26			0	12	22	24	1.1	.3	.1	0		.5
27			.9	9.7	17	22	1.0	.3	.1	0		.5
28			3.2	8.1	14	22	1.0	.3	0	0		.5
29			3.0	7.3	-	18	1.0	.2	.1	0		.5
30			3.2	6.1	-	13	1.0	.2	.1	0		.5
31			5.2	5.8	-	11	-	.2	-	0		-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	0	0	0	0	0
November	0	0	0	0	0
December	15.0	5.2	0	.50	31
Calendar year 1948	159.0	9.8	0	.43	316
January	266.7	39	3.9	8.60	529
February	176.5	22	4.3	6.30	350
March	652.3	46	7.8	21.0	1,290
April	106.7	9.1	1.0	3.56	212
May	16.1	.9	.2	.52	32
June	3.4	.2	0	.11	6.7
July	1.9	.1	0	.06	3.8
August	0	0	0	0	0
September	7.7	.5	0	.26	15
Water year 1948-49	1,246.8	46	0	3.42	2,470

Rio Tularosa near Bent, N. Mex.

Location.- Water-stage recorder and concrete control, lat. 33°08'45", long. 105°53'50", E½NW¼ sec. 32, T. 13 S., R. 11 E. 50 feet downstream from bridge on U. S. Highway 70, 3 miles west of Bent, and 8.5 miles northeast of Tularosa.

Records available.- December 1947 to September 1949.

Extremes.- Maximum discharge during year, 780 second-feet Sept. 21 (gage height, 3.28 feet), from rating curve extended above 33 second-feet on basis of logarithmic plotting and slope-area determination at gage height about 5.2 feet; minimum not determined, probably occurred in September during period of doubtful gage-height record.
1947-49: Maximum discharge, that of Sept. 21, 1949; minimum not determined.

Remarks.- Records good except those for periods of ice effect or doubtful gage-height record, which are poor. Diversions above station for irrigation.

Discharge, in second-feet, water year October 1948 to September 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	13	14	13	14	16	19	6.1	15	11	13	
2	13	13	13	13	14	16	19	5.5	15	11	13	
3	12	12	13	13	14	16	18	7.4	14	11	13	
4	6.1	12	13	b14	14	16	18	13	15	11	22	
5	6.1	12	14	b12	14	16	16	13	15	11	13	d4
6	12	13	13	8.2	15	16	15	13	12	9.8	12	
7	12	13	12	11	15	16	15	13	9.8	9.0	9.0	
8	12	12	*12	14	16	16	15	13	9.0	8.2	14	
9	12	12	12	16	16	16	16	9.8	8.2	9.0	11	
10	12	12	12	15	15	18	18	12	9.8	4.0	12	
11	12	12	12	14	15	16	16	12	9.8	4.0	12	d7
12	12	12	12	14	21	16	15	13	6.7	5.0	13	
13	12	12	12	15	21	16	15	12	11	12	11	
14	12	12	12	16	21	15	15	12	11	12	6.1	
15	11	12	12	15	19	15	15	6.7	14	11	4.5	
16	12	12	12	15	19	14	15	6.1	13	12	7.4	d4
17	13	12	12	b16	19	15	15	6.7	12	11		
18	13	13	12	15	18	15	14	13	13	9.8		
19	12	13	13	16	18	16	14	13	13	9.0		
20	13	13	13	15	16	16	15	12	6.7	9.0	d8	
21	12	13	13	15	16	16	13	12	7.4	9.8		d50
22	12	12	14	*15	16	13	14	12	8.2	12		d13
23	12	11	14	14	16	14	14	9.8	7.4	11		13
24	12	11	14	14	15	14	12	9.8	7.4	12		13
25	12	12	14	15	16	15	13	12	8.2	9.8		13
26	12	12	14	16	15	19	13	12	5.0	8.2	d10	13
27	13	12	b15	15	15	18	12	11	5.0	8.2		13
28	14	12	15	15	15	14	8.2	11	5.0	11		13
29	13	12	14	b14	-	14	8.2	5.0	13	11		12
30	13	13	14	b14	-	14	9.0	5.5	12	12	d6	12
31	14	-	13	b14	-	13	-	6.1	-	13		-

Month	Second-foot-days	Maximum	Minimum	Mean	Runoff in acre-feet
October	371.2	14	6.1	12.0	736
November	367	13	11	12.2	728
December	404	15	12	13.0	801
Calendar year 1948	4,497.7	19	4.6	12.3	8,920
January	441.2	16	8.2	14.2	875
February	458	21	14	16.4	908
March	480	19	13	15.5	952
April	434.4	19	8.2	14.5	862
May	318.5	13	5.0	10.3	632
June	311.6	15	5.0	10.4	618
July	307.8	13	4.0	9.93	611
August	310.0	22	4.5	10.0	615
September	254	50	-	8.47	504
Water year 1948-49	4,457.7	50	-	12.2	8,840

Peak discharge (base, 300 sec.-ft.).- Sept. 21 (1:30 p.m.) 780 sec.-ft.
* Winter discharge measurement made on this day.
b Stage-discharge relation affected by ice.
d Doubtful gage-height record; discharge computed on basis of recorder trace, weather records, and knowledge of local operations.

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Alamogordo-La Luz ditch at La Luz, N. Mex.

Location.- Water-stage recorder and concrete Parshall flume, lat. 32°58'50", long. 105°56'15", in SW¼ sec. 25, T. 15 S., R. 10 E., a quarter of a mile upstream from La Luz and half a mile downstream from head gate.

Records available.- October 1934 to March 1949 (discontinued).

Average discharge.- 14 years (1934-48), 6.81 second-feet.

Extremes.- Maximum daily discharge during period, 13 second-feet Jan. 9, 14, Feb. 12; minimum daily, 3.5 second-foot Oct. 2.
1934-49: Maximum daily discharge, 22 second-feet Feb. 2, 3, 5-13, 1942; no flow at times.

Remarks.- Records fair. Ditch diverts water from left bank of Rio La Luz for irrigation.

Monthly discharge, in second-feet, October 1948 to March 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	9.3	3.5	4.61	283
November	6.6	4.7	5.34	318
December	10	4.7	6.09	374
Calendar year 1948	11	.6	4.96	3,590
January	13	6.5	8.35	514
February	13	6.4	7.78	432
March 1-23	7.2	5.2	6.21	283
April	-	-	-	-
May	-	-	-	-
June	-	-	-	-
July	-	-	-	-
August	-	-	-	-
September	-	-	-	-
The period	-	-	-	2,200

Alamogordo water supply near Alamogordo, N. Mex.

Location.- Water-stage recorder and rectangular contracted weir, lat. 32°52'25" long. 105°55'40", in NW¼ sec. 33, T. 16 S., R. 10 E., at lower end of pipe line, about 1 mile downstream from Alamo Canyon and 2 miles southeast of Alamogordo.

Records available.- October 1932 to September 1949.

Average discharge.- 17 years, 1.81 second-feet.

Extremes.- Maximum daily discharge during year, 1.6 second-feet July 19, 20; minimum daily, 1.0 second-foot Oct. 1-3, 6, Dec. 9.
1932-49: Maximum daily discharge, 4.2 second-feet Sept. 15, 1942; no flow July 7, 1933, Sept. 29, 1941.

Remarks.- Records good.

Monthly discharge, in second-feet, water year October 1948 to September 1949

Month	Maximum	Minimum	Mean	Runoff in acre-feet
October	1.2	1.0	1.13	70
November	1.2	1.2	1.20	71
December	1.2	1.0	1.19	73
Calendar year 1948	1.9	.6	1.26	909
January	1.2	1.1	1.18	73
February	1.2	1.2	1.20	67
March	1.4	1.2	1.21	75
April	1.3	1.2	1.29	77
May	1.5	1.2	1.31	80
June	1.5	1.3	1.31	78
July	1.6	1.1	1.32	81
August	1.4	1.2	1.30	80
September	1.3	1.2	1.22	73
Water year 1948-49	1.6	1.0	1.24	898

Measurements of stream flow in the western Gulf of Mexico basins made at points other than gaging stations are given in the following table:

Miscellaneous discharge measurements in western Gulf of Mexico basins during water year October 1948 to September 1949

Mermentau River Basin, La.

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Nov. 17	Bayou Plaquemine Brule.	Bayou des Cannes...	In NW¼SW¼ sec. 29, T. 9 S., R. 1 E. Louisiana meridian, at bridge on State Highway 370, 1¼ miles northwest of Crowley.	84.1
Dec. 17	....do.....	....do.....	....do.....	2,020
Feb. 23	....do.....	....do.....	....do.....	137
Mar. 16	....do.....	....do.....	....do.....	2,010
Jan. 12	Bayou Queue de Tortue.	Mermentau River....	Sec. 18, T. 11 S., R. 1 W. Louisiana meridian, at bridge on State Highway 128, 100 feet downstream from Southern Pacific R. R. bridge and half a mile northeast of Riceville.	-247
Feb. 16	....do.....	....do.....	....do.....	128
Mar. 15	....do.....	....do.....	....do.....	1,330
June 21	....do.....	....do.....	....do.....	80.3
July 19	....do.....	....do.....	....do.....	1,910
Aug. 16	....do.....	....do.....	....do.....	183

Note.- Negative figure of discharge indicates reverse flow.

Sabine River Basin, Tex.

Oct. 9	Little Cow Creek...	Sabine River.....	At bridge on State Highway 87, above McGraw Creek and ½ mile south of Burkeville, Newton County.	a28.4
Dec. 10	....do.....	....do.....	....do.....	a43.0
Jan. 11	....do.....	....do.....	....do.....	a52.0
Aug. 23	....do.....	....do.....	....do.....	a42.8
Sept.27	....do.....	....do.....	....do.....	a43.3
Oct. 9	McGraw Creek.....	Little Cow Creek...	1 mile above mouth and 2 miles southeast of Burkeville, Newton County.	a12.0
Dec. 10	....do.....	....do.....	....do.....	a24.9
Jan. 11	....do.....	....do.....	....do.....	a33.4
June 21	....do.....	....do.....	....do.....	a34.0
Aug. 23	....do.....	....do.....	....do.....	a18.0
Sept.27	....do.....	....do.....	....do.....	a18.6
Oct. 9	Plum Creek.....	....do.....	Lat. 30°59', long. 93°38', 2.8 miles southeast of Burkeville, Newton County.	*.3
9	Yellow Bayou.....	....do.....	Lat. 31°00', long. 93°44', 1.7 miles west of Wiergate, Newton County.	*.7
9	....do.....	....do.....	Lat. 30°58', long. 93°41', 2.8 miles southwest of Burkeville, Newton County.	*1.3
9	Quicksand Creek....	Sabine River.....	Lat. 30°56', long. 93°43', 4.7 miles southwest of Burkeville, Newton County.	0
21	....do.....	....do.....	Lat. 30°49', long. 93°39', 6.8 miles southeast of Newton, Newton County.	3.70
21	....do.....	....do.....	At U. S. Highway 190, 0.7 mile above mouth and 1¼ miles east of Bon Wier, Newton County.	16.0
Nov. 17	....do.....	....do.....	....do.....	27.8
Dec. 9	....do.....	....do.....	....do.....	27.7
Jan. 10	....do.....	....do.....	....do.....	52.2
Aug. 23	....do.....	....do.....	....do.....	30.3
Sept.27	....do.....	....do.....	....do.....	25.4
Oct. 9	Little Quicksand Creek.	Quicksand Creek....	Lat. 30°53', long. 93°43', 3.4 miles northeast of Newton, Newton County.	*.45
9	Two Mile Branch....	Little Quicksand Creek.	Lat. 30°52', long. 93°44', 1.6 miles northeast of Newton, Newton County.	*.15
21	Caney Creek.....	Sabine River.....	Lat. 30°50', long. 93°45', 0.5 mile south of Newton, Newton County.	1.84
21	....do.....	....do.....	Lat. 30°45', long. 93°38', 0.5 mile east of Bon Wier, Newton County.	4.39
9	Big Cow Creek.....	....do.....	Lat. 30°59', long. 93°49', at Farrsville, Newton County.	a12.6
8	....do.....	....do.....	Lat. 30°49', long. 93°47', 2.5 miles southwest of Newton, Newton County.	a28.4
8	....do.....	....do.....	Lat. 30°36', long. 93°48', 4.8 miles east of Call, Newton County.	38.8
9	Hunters Creek.....	Big Cow Creek.....	Lat. 30°58', long. 93°51', 2.9 miles west of Farrsville, Newton County.	a6.35
9	Melhouns Creek.....	....do.....	Lat. 30°57', long. 93°55', 5.7 miles northeast of Jasper, Jasper County.	a7.96
9	Bishop Creek.....	Melhouns Creek.....	Lat. 30°57', long. 93°55', 5.5 miles northeast of Jasper, Jasper County.	*a.5
8	White Oak Creek....	Big Cow Creek.....	Lat. 30°44', long. 93°50', 6.5 miles northeast of Kirbyville, Jasper County.	*a3.0
8	Thickety Creek.....	....do.....	Lat. 30°42', long. 93°50', 4.9 miles northeast of Kirbyville, Jasper County.	*a.9
8	Newton Slough.....	Thickety Creek.....	Lat. 30°42', long. 93°50', 5.0 miles northeast of Kirbyville, Jasper County.	0
8	Trout Creek.....	Big Cow Creek.....	Lat. 30°37', long. 93°49', 3.8 miles east of Call, Newton County.	*a1.2
8	Nichols Creek.....	Sabine River.....	Lat. 30°26', long. 93°47', 9.8 miles north of Deweyville, Newton County.	0

* Field estimate.
a Spring flow only.

Miscellaneous discharge measurements in western Gulf of Mexico basins during water year October 1948 to September 1949--Continued

Sabine River Basin, Tex.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Oct. 8	Big Cypress Creek..	Sabine River.....	Lat. 30°21', long. 93°48', 4.8 miles northwest of Deweyville, Newton County.	0
8	Cow Bayou.....	....do.....	Lat. 30°11', long. 93°55', 3.0 miles southwest of Mauriceville, Orange County.	*a.1

* Field estimate.
a Spring flow only.

Neches River Basin, Tex.

Oct. 7	Neches River.....	Gulf of Mexico...	Lat. 32°02', long. 95°26', 11.04 miles northwest of Jacksonville, Cherokee County.	10.7
1	Bodano Bayou.....	Neches River.....	Lat. 31°24', long. 94°56', at bridge on State Highway 103, 11¾ miles west northwest of Lufkin, Angelina County.	0
1	North and South Forks Cochino Bayou.	....do.....	Lat. 31°22', long. 95°10', at bridge on State Highway 103, 17.3 miles east of Crockett, Houston County.	0
1	Crawford Creek.....	....do.....	Lat. 31°23', long. 94°51', at bridge on State Highway 103, 7 miles west northwest of Lufkin, Angelina County.	0
1	Jack Creek.....	....do.....	Lat. 31°22', long. 94°48', at bridge on State Highway 103, 4 1/8 miles west northwest of Lufkin, Angelina County.	0
1	....do.....	....do.....	Lat. 31°20', long. 94°49', at bridge on State Highway 94, 4½ miles west of Lufkin, Angelina County.	0
1	Piney Creek.....	....do.....	Lat. 31°09', long. 95°05', at bridge on State Highway 94, 6.4 miles north northeast of Groveton, Trinity County.	0
1	Caney Creek.....	Piney Creek.....	Lat. 31°06', long. 95°06', at bridge on State Highway 94, 3.8 miles north northeast of Groveton, Trinity County.	0
2	Bayou Carisso.....	Angelina River...	Lat. 31°34', long. 94°34', at bridge on State Highway 21, 5.7 miles east of Nacogdoches, Nacogdoches County.	0
2	Tuscosso Creek.....	Bayou Carisso....	Lat. 31°34', long. 94°31', at bridge on State Highway 21, 12.2 miles east of Nacogdoches, Nacogdoches County.	0
2	Moss Creek.....	Angelina River...	Lat. 31°33', long. 94°27', at bridge on State Highway 21, 12.7 miles east of Nacogdoches, Nacogdoches County.	0
10	Naconiche Creek....	Attoyac Bayou....	Lat. 31°46', long. 94°34', 4.3 miles northeast of Appleby, Nacogdoches County.	6.93
10	Wanders Creek.....	Naconiche Creek..	Lat. 31°48', long. 94°31', 2.4 miles southwest of Garrison, Nacogdoches County.	*2.9
2	Amalqderos Creek...	Attoyac Bayou....	Lat. 31°30', long. 94°20', at bridge on State Highway 21, 19.7 miles east southeast of Nacogdoches, Nacogdoches County.	0
9	Indian Creek.....	Angelina River...	Lat. 30°57', long. 94°07', 7.0 miles west of Jasper, Jasper County.	*7.6
9	Sandy Creek.....	Neches River.....	Lat. 30°55', long. 94°00', at Jasper, Jasper County.	12.4
9	do.....	....do.....	Lat. 30°51', long. 94°07', at Beech Grove, Jasper County.	24.8
9	Walnut Run Creek...	....do.....	Lat. 30°52', long. 94°00', 2.5 miles south of Jasper, Jasper County.	*2.2
9	....do.....	....do.....	Lat. 30°51', long. 94°06', 0.9 mile east of Beech Grove, Jasper County.	9.54
8	West Fork Bayou....	....do.....	Lat. 30°08', long. 94°16', 7.6 miles east of Sour Lake, Hardin County.	3.63
8	Pine Island Bayou..	West Fork Bayou.	Lat. 30°11', long. 94°24', 3.4 miles northeast of Sour Lake, Hardin County.	0
8	Big Black Creek....	....do.....	Lat. 30°12', long. 94°21', 5.7 miles northeast of Sour Lake, Hardin County.	0

* Field estimate.

Trinity River Basin, Tex.

Dec. 4	West Fork Trinity River.	Trinity River....	Lat. 32°47', long. 97°24', ½ mile below Lake Worth, 5.5 miles northwest of Fort Worth post office, Tarrant County.	14.4
4	....do.....	....do.....	Lat. 32°47', long. 96°55', 2.3 miles northwest of Arcadia Park, Dallas County.	79.5
Jan. 5	....do.....	....do.....	....do.....	82.3
Dec. 4	Elm Fork Trinity River.	....do.....	Lat. 32°48', long. 96°54', 2.5 miles east of Irving, Dallas County.	55.3
Jan. 5	....do.....	....do.....	....do.....	42.3
Oct. 1	Big Creek.....	Trinity River....	Lat. 31°16', long. 95°33', at bridge on State Highway 21, 6.7 miles southwest of Crockett, Houston County.	0

Miscellaneous discharge measurements in western Gulf of Mexico basins during water year October 1948 to September 1949--Continued

Trinity River Basin, Tex.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Oct. 1	Blockhouse Creek..	Big Creek.....	Lat. 31°11', long. 95°38', at bridge on State Highway 21, 14 miles southwest of Crockett, Houston County.	0
11	South Fork Bedias Creek.	Bedias Creek.....	Lat. 30°50', long. 95°45', 14.1 miles west northwest of Huntsville, Walker County.	0
11	Unnamed Creek.....	South Fork Bedias Creek.	Lat. 30°51', long. 95°45', 14.6 miles west northwest of Huntsville, Walker County.	0
11	North Fork Bedias Creek.	....do.....	Lat. 30°51', long. 95°45', 15.1 miles west northwest of Huntsville, Walker County.	0
11	Unnamed Creek.....	North Fork Bedias Creek.	Lat. 30°52', long. 95°45', 15.7 miles west northwest of Huntsville, Walker County.	0
11	Nelsons Creek.....	Trinity River.....	Lat. 30°47', long. 95°41', 8.7 miles west northwest of Huntsville, Walker County.	0
12	....do.....	....do.....	Lat. 30°54', long. 95°31', 7.3 miles west northwest of Riverside, Walker County.	1.49
11	Harmons Creek.....	Trinity River.....	Lat. 30°47', long. 95°29', 5.8 miles northeast of Huntsville, Walker County.	a.89
11	....do.....	....do.....	Lat. 30°52', long. 95°26', 2 miles west of Riverside, Walker County.	a.71
11	Mill Creek.....	....do.....	Lat. 30°50', long. 95°20', 4.3 miles east of Riverside, Walker County.	0
1	White Rock Creek...	....do.....	Lat. 31°20', long. 95°19', at bridge on State Highway 103, 8 miles east of Crockett, Houston County.	0
1	....do.....	....do.....	Lat. 30°58', long. 95°20', at bridge on State Highway 94, 2.8 miles northeast of Trinity, Trinity County.	0
12	Combined flow of White Rock Creek.	....do.....	Lat. 30°55', long. 95°16', 6.7 miles southeast of Trinity, Trinity County.	0
1	Tantabogue Creek...	White Rock Creek...	Lat. 31°04', long. 95°25', at bridge on State Highway 45, 17.8 miles south of Crockett, Houston County.	0
1	Caney Creek.....	....do.....	Lat. 31°03', long. 95°14', at bridge on State Highway 94, 8 miles west of Groveton, Trinity County.	0
12	Sulphur Creek.....	Trinity River.....	Lat. 30°54', long. 95°14', 9.0 miles southeast of Trinity, Trinity County.	*a.15
12	North Fork Mill Creek.	Mill Creek.....	Lat. 30°54', long. 95°14', 9.5 miles southeast of Trinity, Trinity County.	a.68
12	South Fork Mill Creek.	....do.....	Lat. 30°54', long. 95°13', 10 miles southeast of Trinity, Trinity County.	0
12	Kickapoo Creek.....	Trinity River.....	Lat. 30°46', long. 95°06', 2.1 miles southeast of Onalaska, Polk County	0
12	Long King Creek....	....do.....	Lat. 30°41', long. 94°57', 2.2 miles west southwest of Livingston, Polk County.	a2.53
11	....do.....	....do.....	Lat. 30°36', long. 94°57', 0.8 mile west of Goodrich, Polk County.	*4.0
12	Choates Creek.....	Long King Creek...	Lat. 30°42', long. 94°57', at Livingston, Polk County.	a2.07

* Field estimate.
a Spring flow only.

San Jacinto River Basin, Tex.

Oct. 11	Combined flow of Big Chinquapin Creek, Little Chinquapin Creek, and Prairie Branch Creek.	East Sandy Creek...	Lat. 30°37', long. 95°32', at dam site at Sam Houston State Park, about 7 miles south of Huntsville.	0.95

Brazos River Basin, Tex.

Aug. 21	Brazos River.....	Gulf of Mexico.....	Lat. 32°52', long. 98°25', 1.5 miles below Possum Kingdon Dam, Grafford, Palo Pinto County.	26.3
Sept. 11	....do.....	....do.....	....do.....	23.5
June 29	South Texas Canal Co.'s canal.	Brazos River.....	Lat. 29°27', long. 95°31', 3½ miles west of Juliff, Fort Bend County.	b560

b 3 pumps in operation.

San Benard River Basin, Tex.

Jan. 5	San Benard River...	Gulf of Mexico.....	Lat. 29°19', long. 95°54', 7 miles southeast of Needville, Fort Bend County.	11.7
10	....do.....	....do.....	....do.....	12.6
10	....do.....	....do.....	Lat. 29°16', long. 95°52', 8 miles west of Damon, Brazoria County.	c0

c Measurement made just below Texas Gulf Sulphur Co. dam. No flow over dam; river not inspected below dam for discharge through pipe in dam.

Miscellaneous discharge measurements in western Gulf of Mexico basins during water year October 1948 to September 1949--Continued

San Benard River Basin, Tex.--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Feb. 5	San Benard River...	Gulf of Mexico....	Lat. 29°16', long. 95°52', 8 miles west of Damon, Brazoria County.	d35.5
10	....do.....	....do.....	....do.....	d37.3
16	....do.....	....do.....	....do.....	e36.7
4	....do.....	....do.....	Lat. 29°13', long. 95°46', 5½ miles south of Damon, Brazoria County.	48.0
10	....do.....	....do.....	....do.....	39.3
Jan. 10	....do.....	....do.....	Lat. 29°10', long. 95°46', 6.5 miles west of West Columbia, Brazoria County.	12.8
10	Cedar Creek.....	San Benard River..	Lat. 29°15', long. 95°49', 4.6 miles southwest of Damon, Brazoria County.	*.45

* Field estimate.
d Texas Gulf Sulphur Co. not diverting water from river during this measurement. Measurement does not include 1 second-foot (estimated) overflow from Texas Gulf Sulphur sewerage plant, which enters river just above railroad bridge.
e Discharge includes 0.5 second-foot outflow from Texas Gulf Sulphur sewerage plant.

Colorado River Basin, Tex.

Aug. 17	South Concho River	Concho River.....	Lat. 31°08', long. 100°30', 3.9 miles south of Christoval, Tom Green County, on William Anson Ranch.	f11.0
Nov. 24	San Saba River.....	Colorado River....	Lat. 30°50', long. 100°05', 0.9 mile northeast of Fort McKavett, Menard County.	f11.7
24	Clear Creek.....	San Saba River....	7.5 miles west of Menard, Menard County.	12.9
23	Unnamed spring.....	Colorado River....	Lat. 30°05', long. 97°21', 2½ miles below bridge on U. S. Highway 290, at Bastrop, Bastrop County.	.09

f Total flow of springs.

Guadalupe River Basin, Tex.

Nov. 5	Hueco Springs.....	Guadalupe River...	Lat. 29°45'35", long. 98°08'25", 3.8 miles north of New Braunfels.	0
Dec. 9	....do.....	....do.....	....do.....	0
Jan. 22	....do.....	....do.....	....do.....	0
Feb. 22	....do.....	....do.....	....do.....	0
Apr. 1	....do.....	....do.....	....do.....	g26.8
May 16	....do.....	....do.....	....do.....	f91.5
June 16	....do.....	....do.....	....do.....	f50.9
July 23	....do.....	....do.....	....do.....	g19.2
Aug. 26	....do.....	....do.....	....do.....	g13.4
Sept. 28	....do.....	....do.....	....do.....	g7.88
Oct. 2	San Marcos Springs (San Marcos River).	....do.....	At San Marcos.....	f103
Nov. 6	....do.....	....do.....	....do.....	f105
Dec. 11	....do.....	....do.....	....do.....	f93.4
Jan. 24	....do.....	....do.....	....do.....	f104
Feb. 21	....do.....	....do.....	....do.....	f101
Apr. 5	....do.....	....do.....	....do.....	f110
May 16	....do.....	....do.....	....do.....	f166
June 18	....do.....	....do.....	....do.....	f138
July 27	....do.....	....do.....	....do.....	f126
Aug. 27	....do.....	....do.....	....do.....	f123
17	Cibolo Creek.....	San Antonio River.	Lat. 29°18', long. 98°04', 0.7 mile above swimming pool, near Sutherland Springs.	12.6
17	....do.....	....do.....	Lat. 29°17', long. 98°07', ½ mile below swimming pool, near Sutherland Springs.	14.1

f Total flow of springs.
g Flow in West Springs only, no flow in East Springs.

Nueces River Basin, Tex.

July 30	Nueces River.....	Gulf of Mexico....	Lat. 29°37'18", long. 100°00'36", at bridge on State Highway 55, 5½ miles north of Montell.	47.9
Oct. 11	Frio River.....	Nueces River.....	Near Texas & New Orleans R. R. bridge, 0.6 mile above Dry Frio and 10 miles northeast of Uvalde.	h0
May 16	....do.....	....do.....	About ½ mile above Yeager Creek, near Fowlerton, La Salle County.	15.6
17	....do.....	....do.....	About 1 mile above mouth of San Miguel Creek, near Tilden, McMullen County.	39.6
17	....do.....	....do.....	200 yards above mouth of Atascosa River, near Three Rivers, Live Oak County.	98.6
17	San Miguel Creek...	Frio River.....	About 1 mile above mouth near Tilden, McMullen County.	16.0

h Observations of no flow also made on following dates: Nov. 22, Dec. 19, Feb. 8, Mar. 6, Apr. 15, May 23, June 26, July 31, Aug. 12, Sept. 24.

Rio Grande Basin

May 17	Arena Creek.....	Closed basin in San Luis Valley.	At north end of sand dunes, in sec. 31, T. 25 S., R. 73 W. of sixth principal meridian, Colo.	78.7
June 2	....do.....	....do.....	....do.....	46.1
July 29	....do.....	....do.....	....do.....	24.1

Miscellaneous discharge measurements in western Gulf of Mexico basins during water year October 1948 to September 1949--Continued

Rio Grande Basin--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Aug. 15	Arena Creek.....	Closed basin in San Luis Valley.	At north end of sand dunes, in sec. 31, T. 25 S., R. 73 W. of sixth principal meridian, Colo.	0
May 10	Medano Creek.....	....do.....	At Sand Dunes Picnic Grounds, in sec. 9, T. 27 S., R. 73 W. of sixth principal meridian, Colo.	9.0
26	....do.....	....do.....	....do.....	11.5
July 26	....do.....	....do.....	....do.....	7.5
Aug. 23	....do.....	....do.....	....do.....	0
8	Middle Zapato Creek	Medano Creek.....	In sec. 4, T. 28 S., R. 73 W. of sixth principal meridian, Colo.	4.2
23	....do.....	....do.....	....do.....	2.4
Sept. 9	....do.....	....do.....	....do.....	2.0
22	....do.....	....do.....	....do.....	1.6
May 26	South Zapato Creek.	....do.....	Near Zapato Ranch, in sec. 5, T. 28 S., R. 73 W. of sixth principal meridian, Colo.	6.2
June 1	....do.....	....do.....	....do.....	2.6
9	....do.....	....do.....	....do.....	7.6
21	....do.....	....do.....	....do.....	19.8
July 26	....do.....	....do.....	....do.....	4.8
Aug. 8	....do.....	....do.....	....do.....	2.5
23	....do.....	....do.....	....do.....	.9
June 1	Uracca Creek.....	Closed basin in San Luis Valley.	Near Zapato Ranch, in sec. 20, T. 28 S., R. 73 W. of sixth principal meridian, Colo.	1.1
21	....do.....	....do.....	....do.....	2.3
July 26	....do.....	....do.....	....do.....	3.3
Aug. 8	....do.....	....do.....	....do.....	.3
Sept. 9	....do.....	....do.....	....do.....	0
Oct. 5	Santa Fe Creek.....	Rio Grande.....	Lat. 35°41', long. 105°50', in sec. 24, T. 17 N., R. 10 E., above McClure Reservoir, 6½ miles east of Santa Fe, N. Mex.	1.34
18	....do.....	....do.....	....do.....	1.27
27	....do.....	....do.....	....do.....	1.12
Nov. 9	....do.....	....do.....	....do.....	.37
22	....do.....	....do.....	....do.....	1.16
Dec. 3	....do.....	....do.....	....do.....	.98
13	....do.....	....do.....	....do.....	.98
23	....do.....	....do.....	....do.....	1.15
Jan. 5	....do.....	....do.....	....do.....	.98
18	....do.....	....do.....	....do.....	1.21
June 11	....do.....	....do.....	In SW¼NE¼ sec. 29, T. 16 N., R. 6 E., 75 feet above main road, N. Mex.	3.09
Feb. 15	Pecos River.....	....do.....	Lat. 33°22'25", long. 104°24'00", in NE¼ sec. 9, T. 11 S., R. 25 E., above Rio Hondo, 6 miles east of Roswell, N. Mex.	27.8
16	....do.....	....do.....	....do.....	29.8
15	....do.....	....do.....	At Dexter Bridge, in NW¼ sec. 10, T. 13 S., R. 26 E., 2½ miles northeast of Dexter, N. Mex.	65.1
16	....do.....	....do.....	....do.....	58.2
15	....do.....	....do.....	In sec. 35, T. 13 S., R. 26 E., ¼ mile above Rio Felix and 2 miles northeast of Hagerman, N. Mex.	69.6
16	....do.....	....do.....	....do.....	69.3
May 28	Agua Pura ditch....	Gallinas River.....	Lat. 35°39', long. 105°19', 45 feet below head, ½ mile below gaging station near Gallinas, and 6 miles northwest of Las Vegas, N. Mex.	9.36
28	....do.....	....do.....	70 feet above long flume.....	8.64
28	....do.....	....do.....	35 feet below long flume.....	7.77
28	....do.....	....do.....	At end of pipe line from pump.....	7.57
28	....do.....	....do.....	80 feet above old railroad bridge....	7.10
Feb. 15	Rio Hondo.....	Pecos River.....	At mouth in E½ sec. 9, T. 11 S., R. 25 E., about 6 miles east of Roswell, N. Mex.	10.2
16	....do.....	....do.....	....do.....	9.51
15	Hagerman Canal.....	Rio Hondo.....	Lat. 33°24'20", long. 104°26'20", in NE¼ sec. 31, T. 10 S., R. 25 E., at head, 5 miles east of Roswell, N. Mex.	40.2
16	....do.....	....do.....	....do.....	30.6
15	Rio Felix.....	Pecos River.....	In S½ sec. 35, T. 13 S., R. 26 E., ¼ mile above mouth and 2 miles north of Hagerman, N. Mex.	3.48
16	....do.....	....do.....	....do.....	3.96
15	Walnut Creek.....	....do.....	Lat. 32°58', long. 104°22', in lot 2, sec. 2, T. 16 S., R. 26 E., at mouth, 3 miles south of Lake Arthur, N. Mex.	1.74
16	....do.....	....do.....	....do.....	1.61
16	Medley drain.....	....do.....	In W½ sec. 10, T. 13 S., R. 26 E., ¼ mile south of Dexter Bridge, N. Mex.	.49
15	Pump ditch.....	Rio Felix.....	½ mile above mouth of Rio Felix, N. Mex.	3.25
16	....do.....	....do.....	....do.....	3.04
16	....do.....	Cottonwood Creek...	In SW¼ sec. 10, T. 16 S., R. 26 E., 1 mile above Cottonwood Creek gaging station, N. Mex.	3.41

Miscellaneous discharge measurements in western Gulf of Mexico basins during water year October 1948 to September 1949--Continued

Rio Grande Basin--Continued

Date	Stream	Tributary to or diverting from--	Locality	Discharge (sec.-ft.)
Oct. 7	La Luz ditch.....	Alamogordo-La Luz ditch.	Lat. 32°58'45", long. 105°56'20", in SW¼ sec. 25, T. 15 S., R. 10 E., at head, ½ mile above La Luz and 6 miles north of Alamogordo, N. Mex.	0.76
Nov. 9	....do.....	....do.....	....do.....	1.05
Dec. 8	....do.....	....do.....	....do.....	1.00
Jan. 22	....do.....	....do.....	....do.....	.80
Oct. 27	Giffin Springs.....	Main canal of Reeves County Water Improvement District No. 1.	Lat. 30°57', long. 103°47', in middle of northeast boundary, sec. 20, block 13, Houston & Great Northern R. R. Survey, at Toyahvale, Tex.	f4.49
Jan. 10	....do.....	....do.....	....do.....	f4.80
Mar. 13	....do.....	....do.....	....do.....	f3.94
May 9	....do.....	....do.....	....do.....	f4.26
July 27	....do.....	....do.....	....do.....	f5.22
Oct. 27	West Sandia Springs	Canal of Reeves County Water Improvement District No. 1.	Lat. 30°59', long. 103°44', at head of feeder canal, 500 feet south of U. S. Highway 290, at Balmorhea, Tex.	f1.02
Jan. 10	....do.....	....do.....	....do.....	f1.52
Mar. 13	....do.....	....do.....	....do.....	f.56
May 9	....do.....	....do.....	....do.....	f1.03
July 28	....do.....	....do.....	....do.....	f.83
Oct. 27	East Sandia Springs	....do.....	Lat. 30°59', long. 103°44', at former gaging station just below small dam, 1 mile east of Balmorhea, Tex.	f.76
Jan. 10	....do.....	....do.....	....do.....	f.71
Mar. 13	....do.....	....do.....	....do.....	f.82
May 9	....do.....	....do.....	....do.....	f.69
July 28	....do.....	....do.....	....do.....	f.43
Oct. 28	Leon Springs Well C or No. 9.	Leon Creek.....	8 miles west of Fort Stockton, Tex...	1.35
Dec. 7	....do.....	....do.....	....do.....	1.14
Oct. 28	Leon Springs Well B or No. 10.	....do.....	....do.....	3.76
Dec. 7	....do.....	....do.....	....do.....	3.23
Oct. 28	Leon Springs Sulphur Well.	....do.....	....do.....	1.54
Dec. 7	....do.....	....do.....	....do.....	1.23
Oct. 28	Leon Springs Well No. 3.	....do.....	....do.....	*.03
Dec. 7	....do.....	....do.....	....do.....	*.01
Oct. 28	Leon Springs Well No. 2.	....do.....	....do.....	1.45
Dec. 7	....do.....	....do.....	....do.....	1.58
Oct. 28	Leon Springs Well No. 1.	....do.....	....do.....	.32
Dec. 7	....do.....	....do.....	....do.....	.32
Oct. 28	Leon Springs Well A or No. 11.	....do.....	....do.....	2.96
Dec. 7	....do.....	....do.....	....do.....	2.56
Oct. 28	Leon Springs Total Spring flow and wells.	....do.....	....do.....	12.3
Dec. 7	....do.....	....do.....	....do.....	12.5
Jan. 11	....do.....	....do.....	....do.....	10.1
Oct. 26	San Pedro Springs..	San Pedro Co.'s canal.	Lat. 30°59', long. 102°49', in W½ Survey 208, Joseph Burleson, Pecos County, just below source, 7 miles northeast of Fort Stockton, Tex.	3.30
Dec. 7	....do.....	....do.....	....do.....	3.51
Jan. 18	....do.....	....do.....	....do.....	j6.42
Feb. 9	....do.....	....do.....	....do.....	j5.96
Mar. 11	....do.....	....do.....	....do.....	4.08
Apr. 19	....do.....	....do.....	....do.....	4.31
May 24	....do.....	....do.....	....do.....	4.21
July 7	....do.....	....do.....	....do.....	4.33
28	....do.....	....do.....	....do.....	4.46
Aug. 25	....do.....	....do.....	....do.....	4.34

* Field estimate.
f Total flow of springs.
j Total flow of San Pedro, Cold, and Cedar Springs.

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