Compilation of Records of Surface Waters of the United States, October 1950 to September 1960

Part 7. Lower Mississippi River Basin

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1731

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Prepared under the direction of E. L. HENDRICKS, *Chief, Surface Water Branch*

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UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1964

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GEOLOGICAL SURVEY

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PREFACE

This report contains summaries of streamflow records in the lower Mississippi River basin. It was prepared by the United States Geological Survey in the Water Resources Division, L. B. Leopold, chief, under the general direction of E. L. Hendricks, chief, Surface Water Branch, and F. J. Flynn, chief, Reports Section.

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COMPILATION OF RECORDS OF SURFACE WATERS OF LOWER MISSISSIPPI RIVER BASIN, 1951-60

PURPOSE AND SCOPE

This volume is one of a series of reports presenting monthly and yearly summaries of streamflow and reservoir data collected by the Geological Survey during the period October 1, 1950, to September 30, 1960. Included with these data are some records furnished by other Federal, State, and private agencies. This series of reports is a condensation of the detailed streamflow information presented in the annual series of reports known as "Surface Water Supply of the United States" for each of the years 1951 through 1960. The area covered by this report is the Lower Mississippi River basin.

The purpose of the present series of reports is to make available in summarized form all of the surface-water records collected October 1, 1950, to September 30, 1960, and to continue the series of reports known as Water-Supply Papers 1301-19 and 1372 which summarized all surface-water records through September 30, 1950. The present series of reports includes corrections of errors which have been found in the earlier series. Also included are some records collected prior to October 1, 1950, that were omitted from the 1950 compilation series.

The Geological Survey collected the records mainly in cooperation with State, municipal, and other Federal agencies, and published them in detail in the series of annual reports known as "Surface Water Supply of the United States." Some records furnished by other agencies have been included in the annual reports and in the present series of reports; such records are identified in the station description.

The data presented consist of records of discharge of streams and contents of reservoirs summarized on a monthly and yearly basis. Results of miscellaneous discharge measurements and, in general, stage records have been excluded. Also included is a map of the area showing the location of each station (pl. 1). The reports of the present series are generally similar in the type of data they contain and in the form or presentation; moreover, they conform in style with the earlier series of compilation reports so that the entire record for any station up to September 30, 1960, is available in one or two volumes.

All records compiled for these summary reports were examined for major errors. A few revisions were made and the revised figures, noted as such, are included. Some previously unpublished information is included, as well as a few estimates of discharge that were made to fill short gaps in an otherwise complete period of record.

DESCRIPTION OF DATA

The gaging-station records are arranged in downstream order. The order used in this report is the same as that adopted for use in the annual series of reports on surface-water supply beginning with the water year 1951. In a downstream direction along the main stem, all stations on a tributary entering above a main-stem station are listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indention in the listing of gaging stations in the table of contents represents one rank. This

downstream order and system of indention show which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

As an added means of identification, each station was assigned a number which is shown on the index map and which is a part of the station name in the heading of the description in the text. The numbers are assigned in downstream order in each part (see explanation of "parts" under the heading "Publications," p. 4) beginning with the most upstream station. The numbers are not consecutive because gaps are left to allow for new stations that may be established.

The data presented for most of the gaging stations comprise a description of the station, a table of monthly discharge in cubic feet per second, a table of monthly discharge in acre-feet, and a yearly summary table. The station description gives the name of the river basin, the station number and name, the location, drainage area, records available, types and datums of gages, average discharge, extremes of discharge, general remarks concerning the data, and a credit statement if records were furnished by another agency.

The location of the gaging station and the drainage area are obtained from the best available maps. When more than one site was used during water years 1951-60 and the difference in drainage areas is significant, the area for the latest site is shown first followed by the areas for other sites in chronological order. In some instances drainage-area figures have not been obtained because of the lack of suitable maps or because the boundaries cannot be defined or the effective drainage area determined.

The paragraph "Records available" lists all periods for which there are published records generally equivalent to those at the present site. If equivalent records have been published under another station name, that fact is also noted.

The gage described first is the present gage or the one used most recently. Information is then given in chronological order for all gages used earlier, giving changes in location, type of gage, or datum. The location or datum of all earlier gages is given with reference to the present or most recently used gage. The datum of the gage is the elevation of the zero of the gage above mean sea level. Where information as to datum is not available, the altitude of the gage is given.

The average discharge for a station is the average of all complete water years and is published only if there are five or more complete water years of record. The years used to determine the average are not necessarily consecutive. The average discharge is not published for some stations because of extensive changes in diversion or storage, or other water development, that have occurred upstream.

In general, the momentary maximum and minimum discharges and stages for the entire period of record are published in the "Extremes" paragraph. These are qualified if necessary according to the type of gage used and the completeness of the record. Maximum and minimum discharges at nonrecording gaging stations are qualified as "observed" unless determined from a graph drawn through actual gage heights which approximates the actual hydrograph.

Under "Remarks" information is given on factors which affect the basin runoff characteristics. These include upstream regulation, diversion, and utilization--a history of changes in these items during the period 1951-60 is given when known. Also, references

are made to the records of storage or diversion upstream and to records concerning quality of water, if published.

When discharge records are furnished by another agency, credit is given under "Cooperation."

The streamflow data summarized in this report generally are contained in two monthly tables and one yearly table. The first monthly table is a tabulation of monthly and yearly mean discharges in cubic feet per second. These figures represent discharge passing the station; they are unadjusted for storage or diversion upstream unless otherwise specified under "Remarks" for the individual station. Each monthly figure is the mean flow for the entire month; generally no record for part of a month is tabulated. Likewise, each yearly figure is the mean flow for a full year, and no figure is shown for a partial year. Usually the months are arranged on a water-year basis. Exceptions to this rule are made in connection with seasonal records wherein the months are grouped to give a complete season for each calendar year.

The second monthly table is a tabulation of monthly and yearly discharge in acre-feet.

The third table contains a yearly summary of the streamflow data. The column headed "WSP" lists the number of the water-supply paper in which the figures of daily and monthly discharge are published. If a part of the record has been revised and the revision published, then reference is made to both the original report and the one containing the revised record; if the daily discharge record for the entire year has been republished to include the revisions, then only the later report is listed. However, there is no reference in this column for revisions published for the first time in this report, as the corresponding revised figures of daily discharge will be published in a water-supply paper which will contain daily records for the period 1961-65. For some stations the third table is omitted; however, the report containing records for any particular year can generally be found by referring to the table given on page 4.

In the third table the momentary maximum discharge for each water year and the date of its occurrence is given if known. For nonrecording gage records, momentary maximums were obtained from graphs drawn through the gage readings. The momentary maximum discharge, however obtained, is not qualified in any way if it is believed to be representative of the absolute maximum for the water year.

The minimum daily discharge for each water year is listed if known. Other data listed in this table are the annual mean discharge and discharge in inches or acre-feet, or both, for both the water year and the calendar year. The figures listed for the water year are the same as those given in the yearly columns of the preceding tables.

Most canal and diversion records are given in a single table. There are some records for large canals, however, that are published in the same detail as those for streams. Records of reservoirs also are given in a single table which shows the contents at the end of each month.

Revised figures of discharge for water years 1951-60 are not so indicated if they have been published in an annual report, but are noted as "Revised" if they have not been published in an annual report. Revised daily figures which have not been published in annual reports will be published in the water-supply paper containing records for water years

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1961-65, except for special cases involving only a few figures which are included in this series of reports. Figures that represent corrections of typographical or computational errors whereas no figures of daily discharge have been revised or changed are indicated as "corrected" in this report. Estimates of discharge made to complete months or years for this report are noted as estimates and as "not previously published."

Revisions or corrections of records published in WSP 1311 are included in this report. For stations operated during at least part of the period 1951-60, the revisions or corrections are published with the rest of the data for the station; for stations not operated since the end of the 1950 water year, the revisions or corrections are published in a special section under the heading "Revisions and corrections to records published in WSP 1311 for stations discontinued prior to September 30, 1950." However, revised figures of runoff in inches or discharge per square mile for records prior to October 1, 1950, resulting solely from a revision of drainage area, are not given.

PUBLICATIONS

This series of reports comprises 20 volumes of water-supply papers (WSP) as numbered below. The "Part" numbers and the areas covered are the same as those used for the annual series of reports on surface water supply of the United States since 1951. The boundaries of the parts are indicated in figure 1.

Numbers of water-supply papers for 1960 series of compilation reports

WSP	Part	Area
1721	1-A	North Atlantic slope basins, Maine to Connecticut.
1722	1-B	North Atlantic slope basins, New York to York River.
1723	2-A	South Atlantic slope basins, James River to Savannah River.
1724	2-B	South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River.
1725	3-A	Ohio River basin except Cumberland and Tennessee River basins.
1726	3-B	Cumberland and Tennessee River basins.
1727	4	St. Lawrence River basin.
1728	5	Hudson Bay and upper Mississippi River basins.
1729	6-A	Missouri River basin above Sioux City, Iowa.
1730	6-B	Missouri River basin below Sioux City, Iowa.
1731	7	Lower Mississippi River basin.
1732	8	Western Gulf of Mexico basins.
1733	9	Colorado River basin
1734	10	The Great Basin.
1735	11	Pacific slope basins in California.
1736	12	Pacific slope basins in Washington and upper Columbia River basin.
1737	13	Snake River basin.
1738	14	Pacific slope basins in Oregon and lower Columbia River basin.
1739	-	Hawaii.
1740	-	Alaska.

Records prior to September 30, 1950, were summarized in a series of water-supply papers as listed below. Each of these volumes contains a list of the annual reports from which data prior to 1951 were summarized.

Numbers of water-supply papers for 1950 series of compilation reports

WSP	Part	WSP	Part	WSP	Part
1301	1-A	1308	5	1315-A	11-B
1302	1-B	1309	6-A	1315-B	11-A
1303	2-A	1310	6-B	1316	12
1304	2-B	1311	7	1317	13
1305	3-A	1312	8	1318	14
1306	3-B	1313	9	1319	Hawaii
1307	4	1314	10	1372	Alaska

This report is summarized from the following 10 annual reports which contain records of daily discharge for each of the water years from 1951 to 1960.

Annual water-supply papers, Part 7, 1951-60

Water year	WSP	Water year	WSP
1951	1211	1956	1441
1952	1241	1957	1511
1953	1281	1958	1561
1954	1341	1959	1631
1955	1391	1960	1711

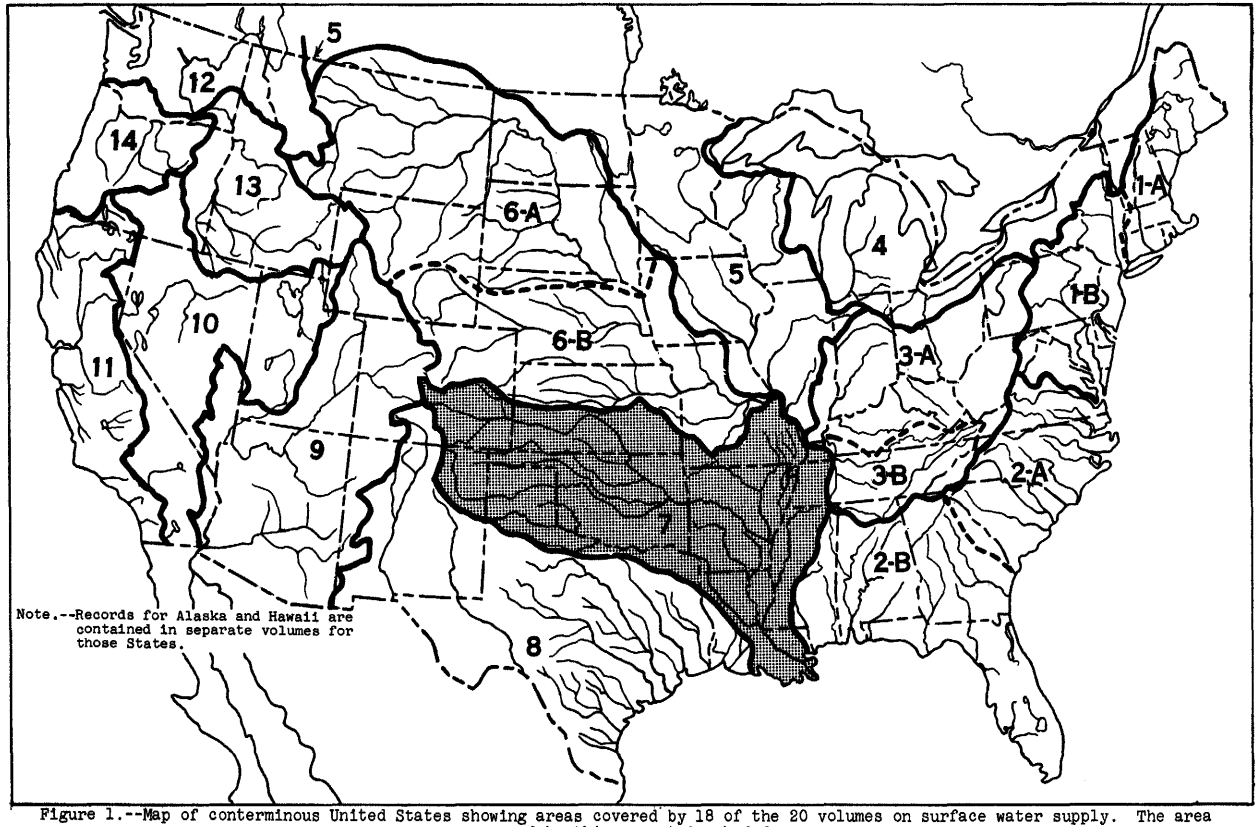

Figure 1.--Map of conterminous United States showing areas covered by 18 of the 20 volumes on surface water supply. The area covered by this report is shaded.

In addition to the customary records of discharge collected during the systematic operation of gaging stations, there is much additional hydrologic information available, both published and unpublished.

Lists of flood reports and other special reports are contained in the introductory pages of each of the annual reports listed above.

Records for many stations have been analyzed by an electronic computor to give: the number of days in each year that the discharge was between selected limits (duration tables); the lowest and highest mean discharges for selected numbers of consecutive days in each year; and other statistical summaries.

Data on low flow or peak flows or both are available for many sites other than gaging stations.

Specific information on unpublished data available can be obtained by writing directly to the district engineer for the State in which the site or gaging station is located.

HYDROLOGIC CONDITIONS

Streamflow, a residual of precipitation after other demands have been met, varies considerably from year to year and from place to place. Figure 2 shows yearly discharge for three widely-separated gaging stations in the report area. The pattern of yearly runoff shown by these streams is generally representative of hydrologic conditions in their part of the report area. Local flooding occurred in widely scattered areas each year during the period 1951-60. Record breaking floods occurred during 1951, 1953, 1955, 1957, and 1960. In spite of the frequency of these floods, drought conditions prevailed at times in each year in some part of the report area. Record low flows at many gaging station sites, especially during the period October 1956 to April 1957, were recorded.

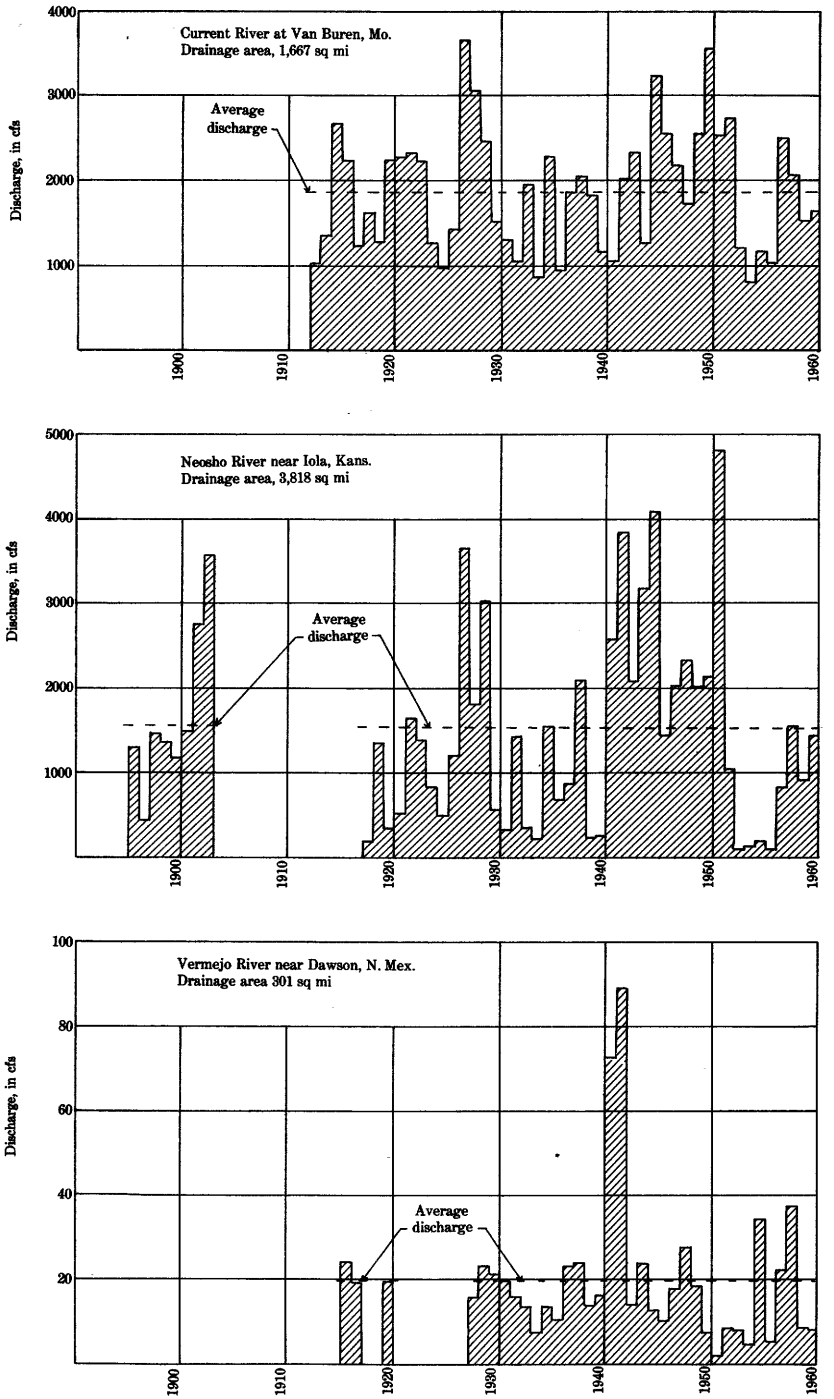

Figure 2.—Yearly discharge at three representative gaging stations.

MISSISSIPPI RIVER MAIN STEM

100. Mississippi River at St. Louis, Mo.

Location.--Lat 38°37'44", long 90°10'47", on downstream side of west pier of Eads Bridge at St. Louis, 15 miles downstream from Missouri River, 19.2 miles upstream from Meramec River, and at mile 180.0 above Ohio River.

Drainage area.--701,000 sq mi, approximately.

Records available.--Discharge: January 1861 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage heights: March 1933 to September 1960 in reports of Geological Survey. Since January 1861 in reports of Mississippi River Commission. Since January 1890, in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 379.94 ft above mean sea level, datum of 1929. Prior to May 5, 1934, staff gage 0.4 mile downstream at same datum. May 5, 1934, to Dec. 9, 1952, water-stage recorder at site 20 ft downstream at same datum.

Average discharge.--99 years (1861-1960), 174,700 cfs (126,500,000 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 844,000 cfs Apr. 30, 1944 (gage height, 39.14 ft); minimum, 27,600 cfs Dec. 12, 1937.

1861-1960: Maximum daily discharge, 1,019,000 cfs June 10, 11, 1903; maximum gage height, 40.28 ft July 22, 1951; minimum daily discharge, 18,000 cfs Dec. 21-23, 1863; minimum gage height, -6.11 Jan. 16, 1940.

Maximum stage known, 41.32 ft June 27, 1844, from floodmarks (discharge, 1,300,000 cfs, computed by Corps of Engineers). Flood in April 1785 may have reached a stage of 42.0 ft.

Remarks.--Natural flow of stream affected by many reservoirs and navigation dams in upper Mississippi River basin and by many reservoirs and diversions for irrigation in Missouri River basin. Records of suspended sediment loads for the period April 1948 to September 1960, particle-size analyses of suspended sediment for the period October 1950 to September 1960, particle-size analyses of bed material for the period May 1951 to September 1960, and water temperatures for the period October 1951 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	107,700	84,800	60,340	73,490	158,300	250,300	443,300	421,100	372,400	653,300	240,300	306,200	264,700
1952	200,000	234,100	140,500	153,400	200,900	515,000	487,600	586,100	217,900	199,500	162,500	102,800	233,200
1953	71,740	80,840	74,050	68,900	118,200	187,400	258,900	218,400	196,600	184,300	146,600	87,530	141,100
1954	69,740	67,160	67,500	54,860	59,790	88,680	145,300	210,900	217,700	166,100	110,300	101,400	113,500
1955	172,200	98,730	77,550	111,900	127,300	190,000	193,600	152,000	161,600	122,900	81,860	73,780	130,300
1956	104,200	66,780	53,190	51,200	59,190	82,490	149,400	145,400	113,400	119,400	107,800	74,160	93,990
1957	58,790	58,340	55,580	56,480	68,980	91,300	188,400	233,700	236,500	221,200	109,800	95,830	123,100
1958	88,800	90,070	93,660	76,070	72,480	190,900	158,600	133,800	173,100	313,200	220,600	121,600	145,100
1959	85,930	89,480	57,350	56,190	151,800	222,000	235,800	216,500	172,900	131,600	109,600	106,300	136,000
1960	204,500	122,800	96,620	182,200	138,000	137,900	518,800	396,000	275,000	206,500	109,500	115,000	208,400

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,620	5,048	3,710	4,519	8,789	15,390	26,380	25,890	22,160	40,170	14,770	18,220	191,700
1952	12,300	13,930	8,639	9,429	11,560	19,370	29,010	23,740	12,970	12,270	9,993	6,119	169,300
1953	4,411	4,810	4,553	4,236	6,567	11,520	15,410	13,430	11,700	11,330	9,013	5,208	102,200
1954	4,288	3,996	4,150	3,373	3,321	5,453	8,648	12,970	12,960	10,210	6,783	6,034	82,190
1955	10,590	5,875	4,768	6,881	7,072	11,280	11,520	9,348	9,614	7,559	5,034	4,390	94,330
1956	6,405	3,974	3,271	3,148	3,405	5,072	8,888	8,941	6,745	7,340	6,628	4,413	68,230
1957	3,615	3,471	3,418	3,473	3,831	5,614	11,210	14,370	14,070	13,600	6,751	5,702	89,120
1958	5,460	5,359	5,759	4,677	4,025	11,740	9,435	8,226	10,300	19,260	13,560	7,235	105,040
1959	5,284	5,324	3,526	3,455	8,429	13,650	14,030	13,310	10,290	8,093	6,739	6,326	98,460
1960	12,580	7,305	5,941	11,200	7,940	8,480	30,870	24,350	16,360	12,700	6,731	6,842	151,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	194,900	141,100,000
1951	1211	782,000	July 21, 1951	42,300	264,700	191,700,000	291,700	211,200,000
1952	1241	684,000	Apr. 29,30, 1952	76,600	233,200	169,300,000	204,200	148,200,000
1953	1281	369,000	Apr. 4, 1953	58,000	141,100	102,200,000	139,300	100,800,000
1954	1341	292,000	June 6, 1954	45,500	113,500	82,190,000	125,700	90,980,000
1955	1391	312,000	Feb. 23, 1955	60,000	130,300	94,330,000	119,800	86,750,000
1956	1441	230,000	Oct. 8, 1955	44,400	93,990	68,230,000	89,650	65,080,000
1957	1511	342,000	May 27, 1957	45,000	123,100	89,120,000	131,500	95,200,000
1958	1561	504,000	July 24, 1958	55,400	145,100	105,040,000	141,700	102,600,000
1959	1631	366,000	June 4, 1959	47,600	136,000	98,460,000	152,100	110,100,000
1960	1711	670,000	Apr. 10, 1960	80,500	208,400	151,300,000	-	-

115. Green Acre Branch near Rolla, Mo.

Location.--Lat 37°54'50", long 91°43'35", in NW¼SW¼ sec.20, T.37 N., R.7 W., on left bank 35 ft upstream from double concrete-box culvert on State Highway 72, 0.4 mile upstream from mouth, and 3 miles southeast of Rolla.

Drainage area.--0.622 sq mi.

Records available.--November 1947 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 958.82 ft above mean sea level, datum of 1929.

Average discharge.--12 years (1948-60), 0.456 cfs (330 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 1,900 cfs June 9, 1950 (gage height, 6.85 ft), from rating curve extended above 520 cfs on basis of slope-area measurement of peak flow; no flow for many days in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.002	0.209	0.002	0.148	1.46	0.835	0.439	0.490	1.65	1.32	0.635	0.502	0.633
1952	.484	1.32	.574	.312	.686	.817	.871	.043	.0003	.008	.105	0	.432
1953	.0003	.023	.009	.088	.015	.451	.646	.058	.064	0	.0006	0	.113
1954	.0006	0	0	0	0	.0003	.002	.366	.792	.105	.081	0	.112
1955	.208	.0003	.115	.042	.704	1.13	.061	.445	.366	.136	.018	.210	.284
1956	.136	.010	.001	.001	.186	.034	.057	1.24	.215	.395	.016	0	.192
1957	.002	.008	.086	.047	1.47	.479	1.47	3.69	.491	.403	.203	.088	.699
1958	.020	.096	.763	.164	.715	2.86	.232	.125	.855	2.58	.398	.006	.740
1959	.038	.149	.008	.181	.322	.952	.787	1.07	.013	.009	.012	.008	.296
1960	.166	.256	1.23	.311	.213	.837	.136	.323	.005	.015	.108	0	.303

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.099	12	0.14	9.1	81	51	26	30	98	81	39	30	457
1952	30	78	35	19	39	50	52	2.6	.02	.5	6.5	0	313
1953	.02	1.4	.5	5.4	.9	28	38	3.6	3.8	0	.04	0	†82
1954	.04	0	0	0	0	.02	.1	23	47	6.4	5.0	0	82
1955	13	.02	7.0	2.6	39	69	3.6	27	22	8.4	1.1	13	206
1956	8.4	.6	.04	0.06	11	2.1	3.4	76	13	24	1.0	0	140
1957	.1	.5	5.3	2.9	82	29	88	227	29	25	12	5.1	506
1958	1.2	5.7	47	10	40	176	14	7.7	51	159	24	.4	536
1959	2.4	8.9	.5	11	18	59	47	66	.8	.5	.8	.4	215
1960	10	15	76	19	12	51	8.1	20	.3	.9	6.7	0	219

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		0.889	19.42	643
1951	1211	413	Aug. 9, 1951	0	0.633	1.02	13.85	457		.814	17.78	588
1952	1241	46.9	Mar. 10, 1952	0	.432	.695	9.45	313		.237	5.19	172
1953	1281	577	Apr. 23, 1953	0	.113	.182	2.47	†82		.110	2.41	80
1954	1341	821	June 9, 1954	0	.112	.180	2.44	82		.140	3.04	102
1955	1391	337	May 12, 1955	0	.284	.457	6.21	206		.269	5.88	195
1956	1441	444	May 30, 1956	0	.192	.309	4.19	140		.188	4.10	136
1957	1511	306	May 25, 1957	0	.699	1.12	15.25	506		.765	16.70	554
1958	1561	513	July 17, 1958	0	.740	1.19	16.14	536		.681	14.88	494
1959	1631	182	Apr. 19, 1959	0	.296	.476	6.45	215		.420	9.14	304
1960	1711	169	May 6, 1960	0	.303	.487	6.63	219		-	-	-

† Corrected.

120. Behmke Branch near Rolla, Mo.

Location.--Lat 37°56'05", long 91°42'35", in NE¼NE¼ sec.17, T.37 N., R.7 W., on right bank 300 ft upstream from highway bridge, a quarter of a mile upstream from mouth, and 3½ miles southeast of Rolla.

Drainage area.--1.05 sq mi.

Records available.--July 1948 to September 1959, water year 1960 (annual maximum).

Gage.--Crest-stage gage. Datum of gage is 928.73 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1959, water-stage recorder at same site and datum.

Average discharge.--11 years (1948-59), 0.904 cfs (654 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 1,190 cfs June 9, 1950 (gage height, 3.36 ft), from rating curve extended above 250 cfs on basis of slope-area measurements at gage heights, 2.31 and 3.36 ft.
1948-59: No flow at times in 1948, 1953-57, 1959.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.043	0.170	0.115	0.436	2.90	1.77	1.25	0.796	2.23	2.50	2.07	1.01	1.26
1952	.941	2.48	1.08	.939	1.77	1.89	2.10	.130	.034	.028	.093	.016	.952
1953	.012	.053	.070	.233	.126	1.04	1.21	.223	.087	.010	.014	0	.257
1954	0	.006	.011	.015	.013	.027	.020	.323	1.34	.102	.068	.001	.160
1955	.298	.056	.434	.268	1.94	2.68	.271	.981	.947	.311	.087	.439	.719
1956	.240	.077	.020	.026	.539	.156	.196	2.31	.707	.655	.105	0	.421
1957	0	.017	.192	.150	3.25	1.58	3.19	7.04	1.03	.507	.139	.118	1.42
1958	.069	.213	1.45	.527	.920	4.06	.670	.541	1.41	3.79	.484	.050	1.19
1959	.069	.254	.098	.412	.744	1.09	.543	2.77	.169	.041	.021	.026	.521
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.7	10	7.0	27	161	109	75	49	133	153	127	60	914
1952	58	147	67	58	102	116	125	8.0	2.0	1.7	5.7	.9	691
1953	.7	3.2	4.3	14	7.0	64	72	14	5.2	.6	.9	0	186
1954	0	.4	.7	.9	.7	1.7	1.2	20	80	6.2	4.2	.06	116
1955	18	3.4	27	16	108	165	16	60	56	19	5.3	26	520
1956	15	4.6	1.2	1.6	31	9.6	12	142	42	40	6.5	0	306
1957	0	1.0	12	9.2	181	97	190	433	61	31	8.5	7.0	1,030
1958	4.2	13	89	32	51	250	40	33	84	233	30	3.0	862
1959	4.2	15	6.0	25	41	67	32	170	10	2.5	1.3	1.5	376
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1.53	19.82	1,110
1951	1211	369	Aug. 9, 1951	0.04	1.26	1.20	16.32	914	1.61	20.81	1,170
1952	1241	88	Mar. 10, 1952	.01	.952	.907	12.33	691	.589	7.63	428
1953	1281	264	Apr. 23, 1953	0	.257	.245	3.33	186	.247	3.20	179
1954	1341	847	June 9, 1954	0	.160	.152	2.06	116	.225	2.91	163
1955	1391	389	May 12, 1955	0	.719	.685	9.31	520	.681	8.80	492
1956	1441	369	May 30, 1956	0	.421	.401	5.45	306	.410	5.32	298
1957	1511	342	May 21, 1957	0	1.42	1.35	18.42	1,030	1.55	20.09	1,120
1958	1561	847	July 17, 1958	.02	1.19	1.13	15.39	862	1.08	13.95	781
1959	1631	389	May 21, 1959	0	.521	.496	6.73	376	-	-	-
1960	-	258	Dec. 17, 1959	-	-	-	-	-	-	-	-

130. Meramec River near Steelville, Mo.

Location.--Lat 37°59'55", long 91°21'40", in NE¼ sec.21, T.38 N., R.4 W., on downstream side of first pier from left end of St. Louis-San Francisco Railway Co. bridge, 400 ft upstream from highway bridge, 0.8 mile upstream from Whittenburg Creek, and 1½ miles north of Steelville.

Drainage area.--781 sq mi.

Records available.--October 1922 to September 1960. Prior to January 1923 monthly discharge only, published in WSP 1311. Gage-height records for 1916-33 at site 1 mile upstream in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 681.68 ft above mean sea level, datum of 1929. Prior to May 24, 1934, chain gage and May 24, 1934, to Oct. 10, 1942, water-stage recorder, at site 400 ft downstream at same datum.

Average discharge.--38 years (1922-60), 585 cfs (423,500 acre-ft per year).

Extremes.--1922-60: Maximum discharge, 47,800 cfs June 26, 1935; maximum gage height, 24.30 ft June 9, 1945; minimum discharge, 74 cfs July 22, 1934 (gage height, 0.35 ft, site then in use).
Maximum stage known, 26.5 ft (present site) Aug. 20, 1915 (discharge, 60,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	207	237	207	404	1,757	1,219	835	809	866	3,287	733	449	914
1952	632	1,577	725	554	804	1,245	1,504	389	244	241	250	171	692
1953	167	187	197	224	209	684	544	417	175	134	124	115	265
1954	126	133	131	133	133	141	138	209	669	114	109	96.4	177
1955	154	138	276	232	622	1,173	310	295	312	377	144	115	345
1956	152	140	119	114	300	170	286	741	467	165	111	82.2	239
1957	85.2	126	173	204	929	696	2,364	3,665	775	488	191	161	820
1958	144	189	887	269	278	1,845	595	360	355	1,133	548	214	573
1959	167	361	215	359	362	790	435	628	235	140	126	123	329
1960	185	261	1,120	456	297	774	590	679	179	143	146	116	414

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12,750	14,100	12,760	24,870	97,560	74,930	49,670	49,720	51,500	202,100	45,060	26,750	661,800
1952	38,870	93,830	44,600	34,090	46,250	76,550	89,520	23,920	14,490	14,810	15,400	10,150	502,500
1953	10,260	11,140	12,100	13,800	11,600	42,080	32,380	25,620	10,430	8,220	7,630	6,850	192,100
1954	7,770	7,920	8,050	8,170	7,360	8,650	8,230	12,870	39,790	7,020	6,700	5,740	128,300
1955	9,480	8,220	16,950	14,280	34,550	72,100	18,430	18,120	18,590	23,190	8,870	6,840	249,600
1956	9,350	8,360	7,340	6,990	17,270	10,460	17,020	45,590	27,800	11,360	6,800	4,890	173,200
1957	5,240	7,480	10,620	12,510	51,570	42,800	140,600	225,400	46,100	30,020	11,750	9,600	593,700
1958	8,880	11,250	54,550	16,560	15,460	113,400	35,380	22,160	21,140	69,650	33,720	12,720	414,900
1959	10,290	21,470	13,220	22,090	20,120	48,600	25,880	38,590	13,970	8,620	7,720	7,330	237,900
1960	11,360	15,550	68,840	28,010	17,060	47,580	35,140	41,720	10,650	8,760	8,960	6,890	300,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	973	16.93	704,500
1951	1211	30,100	July 14, 1951	186	914	1.17	15.89	661,800	1,104	19.18	799,500
1952	1241	9,210	Apr. 13, 1952	158	692	.886	12.06	502,500	494	8.62	358,700
1953	1281	5,160	Mar. 4, 1953	112	265	.339	4.62	192,100	252	4.38	182,400
1954	1341	6,210	June 10, 1954	93	177	.227	3.10	128,300	192	3.37	139,200
1955	1391	10,800	Mar. 21, 1955	93	345	.442	6.00	249,600	332	5.76	240,000
1956	1441	6,640	May 31, 1956	76	239	.306	4.15	173,200	236	4.11	171,500
1957	1511	21,400	May 24, 1957	78	820	1.05	14.26	593,700	891	15.49	645,000
1958	1561	17,700	Mar. 25, 1958	131	573	.734	9.96	414,900	532	9.26	385,200
1959	1631	3,250	May 22, 1959	109	329	.421	5.74	237,900	399	6.94	288,700
1960	1711	11,700	Dec. 28, 1959	109	414	.530	7.21	300,500	-	-	-

145. Meramec River near Sullivan, Mo.

Location.--Lat 38°09'30", long 91°06'30", in SE¼NE¼ sec.35, T.40 N., R.2 W., on right bank at upstream side of Sappington Bridge, 3¾ miles downstream from Brazil Creek and 4 miles southeast of Sullivan.

Drainage area.--1,475 sq mi.

Records available.--September 1921 to September 1933, October 1943 to September 1960. Monthly discharge only for October 1943, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 581.82 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1933, chain gage and Nov. 1, 1943, to Oct. 20, 1952, wire-weight gage, at same site and datum.

Average discharge.--29 years (1921-33, 1943-60), 1,208 cfs (874,600 acre-ft per year).

Extremes.--1921-33, 1943-60: Maximum discharge, 77,300 cfs June 9, 1945 (gage height, 32.0 ft); minimum, 131 cfs Sept. 20, 22, 1956 (gage height, 1.27 ft).
Maximum stage known, 33.5 ft in August 1915, from information by local residents (discharge, 90,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	476	605	478	985	3,728	2,502	1,695	1,447	1,303	6,142	1,474	1,123	1,821
1952	1,294	2,851	1,565	1,178	1,579	2,486	3,292	885	507	482	545	344	1,413
1953	341	468	455	498	445	1,545	1,245	1,071	381	273	233	199	597
1954	245	275	271	278	281	295	347	382	1,127	205	215	176	341
1955	303	295	556	494	1,187	2,373	731	563	561	624	236	198	675
1956	291	306	232	216	718	369	564	1,613	1,035	384	222	146	507
1957	156	249	373	387	1,761	1,642	5,909	7,022	2,352	1,567	431	314	1,844
1958	304	472	1,797	619	696	3,852	1,652	899	841	2,226	1,143	484	1,258
1959	367	804	530	781	861	1,657	918	1,376	585	312	255	242	724
1960	398	498	1,815	894	690	1,570	1,386	1,446	402	288	283	225	828

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	29,260	35,990	29,410	60,590	207,000	153,800	100,900	88,990	77,540	377,700	90,610	66,820	1,319,000
1952	79,540	169,600	96,200	72,410	90,810	152,900	195,900	54,390	30,160	29,610	33,500	20,470	1,025,000
1953	20,990	27,850	27,970	30,640	24,690	94,970	74,060	65,830	22,640	16,790	14,310	11,820	432,600
1954	15,090	16,380	16,680	17,080	15,590	18,150	20,680	23,520	67,030	12,620	13,220	10,500	246,500
1955	18,620	17,540	34,170	30,400	65,900	145,900	43,500	34,600	33,400	38,370	14,490	11,790	488,700
1956	17,890	18,220	14,240	13,270	41,270	22,690	33,530	99,160	61,580	23,600	13,630	8,680	367,800
1957	9,610	14,800	22,950	23,770	97,800	101,000	351,600	431,800	140,000	96,360	26,520	18,680	1,335,000
1958	18,720	28,100	110,500	38,060	38,670	236,800	98,310	55,260	50,060	136,900	70,290	28,810	910,500
1959	22,560	47,860	32,610	48,040	47,840	101,900	54,600	84,580	34,830	19,190	15,680	14,400	524,100
1960	24,500	29,650	111,600	54,950	39,690	96,550	82,490	88,900	23,930	17,700	17,380	13,360	600,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	1,943	17.88	1,406,000
1951	1211	29,800	July 14, 1951	419	1,821	1.23	16.76	1,319,000		2,168	19.95	1,569,000
1952	1241	14,000	Apr. 13, 1952	314	1,413	.958	13.03	1,025,000		1,042	9.62	757,000
1953	1281	8,590	Mar. 4, 1953	189	597	.405	5.50	432,600		558	5.13	403,900
1954	1341	8,190	June 10, 1954	140	341	.231	3.13	246,500		371	3.41	268,700
1955	1391	16,100	Mar. 21, 1955	134	675	.458	6.20	488,700		647	5.95	488,700
1956	1441	8,060	May 16, 1956	131	507	.344	4.67	367,800		502	4.63	364,800
1957	1511	33,700	June 30, 1957	138	1,844	1.25	16.96	1,335,000		1,996	18.36	1,445,000
1958	1561	23,900	Mar. 25, 1958	250	1,258	.853	11.57	910,500		1,183	10.88	856,200
1959	1631	4,490	Mar. 12, 1959	195	724	.491	6.65	524,100		811	7.45	586,800
1960	1711	12,100	Dec. 29, 1959	198	828	.561	7.63	600,700		-	-	-

150. Bourbeuse River near St. James, Mo.

Location.--Lat 38°02'00", long 91°38'45", in NW¼ sec.12, T.38 N., R.7 W., on left bank 735 ft upstream from bridge on State Highway 68 and 3 miles northwest of St. James.

Drainage area.--21.3 sq mi.

Records available.--November 1947 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 899.46 ft above mean sea level, datum of 1929.

Average discharge.--12 years (1948-60), 17.9 cfs (12,960 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 8,250 cfs Oct. 11, 1949 (gage height, 11.08 ft); no flow at times in 1953-57, 1959-60.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.990	2.30	1.41	9.13	67.2	43.8	35.7	14.0	41.9	47.0	17.7	19.9	24.7
1952	19.2	56.5	24.7	18.0	36.5	38.1	38.1	2.05	.334	.428	1.10	.169	19.5
1953	.086	.400	.698	5.56	3.27	26.8	31.3	9.01	2.04	.052	.168	0	6.63
1954	.018	.071	.130	.074	.096	.146	1.43	15.0	31.3	2.87	2.02	.001	4.43
1955	1.01	.59	4.57	3.47	30.5	39.7	7.29	9.25	22.8	9.57	5.28	.64	11.1
1956	3.49	.39	.19	.23	11.2	2.03	1.30	26.3	4.61	7.45	1.80	.007	4.92
1957	.003	.23	4.56	3.25	62.2	30.4	72.3	177	7.00	1.42	3.01	.64	30.0
1958	1.27	1.09	33.7	7.20	19.4	68.4	8.01	20.2	11.8	51.2	16.1	.56	20.1
1959	.24	.77	.81	7.18	18.2	18.4	4.00	60.8	.80	.09	.07	.01	9.29
1960	8.03	6.41	40.4	11.7	7.51	28.2	13.0	18.6	.15	.01	.92	.33	11.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	61	137	87	562	3,730	2,690	2,120	863	2,490	2,890	1,090	1,180	17,900
1952	1,180	3,360	1,520	1,100	2,100	2,340	2,270	126	20	26	67	10	14,120
1953	5.3	24	43	342	182	1,650	1,860	554	121	3.2	10	0	4,790
1954	1.1	4.2	8.0	4.5	5.3	9.0	85	922	1,860	177	125	.08	3,200
1955	62	35	281	214	1,690	2,440	434	569	1,350	589	325	38	8,030
1956	214	23	12	14	644	125	78	1,620	275	458	111	.4	3,570
1957	.2	14	280	200	3,450	1,870	4,300	10,860	416	87	185	38	21,700
1958	78	65	2,070	443	1,080	4,200	477	1,240	700	3,150	989	33	14,520
1959	15	46	50	442	1,010	1,130	238	3,740	48	5.6	4.6	.6	6,730
1960	494	381	2,480	717	432	1,740	775	1,140	9.1	.8	56	20	8,240

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	31.7	20.22	23,000
1951	1211	3,260	June 30, 1951	0.53	24.7	1.16	15.76	17,900	32.7	20.85	23,680
1952	1241	2,020	Dec. 14, 1951	.06	19.5	.915	12.43	14,120	11.2	7.15	8,130
1953	1281	4,540	Apr. 23, 1953	0	6.63	.311	4.23	4,790	6.55	4.17	4,740
1954	1341	5,790	June 9, 1954	0	4.43	.208	2.83	3,200	4.93	3.15	3,570
1955	1391	2,460	Mar. 20, 1955	0	11.1	.521	7.07	8,030	10.9	6.96	7,900
1956	1441	1,130	July 3, 1956	0	4.92	.231	3.14	3,570	4.98	3.18	3,620
1957	1511	6,330	May 21, 1957	0	30.0	1.41	19.1	21,700	32.6	20.80	23,620
1958	1561	3,350	July 31, 1958	.1	20.1	.94	12.79	14,520	17.2	10.93	12,420
1959	1631	4,540	May 21, 1959	0	9.29	.436	5.92	6,730	13.8	8.79	9,970
1960	1711	3,020	Dec. 17, 1959	0	11.4	.535	7.27	8,240	-	-	-

155. Lanes Fork near Rolla, Mo.

Location.--Lat 37°59'33", long 91°43'36", in NE¼NE¼ sec.30, T.38 N., R.7 W., on left bank 100 ft upstream from farm road bridge, 300 ft west of County Highway V, 1 mile north of U. S. Highway 66, and 4½ miles northeast of Rolla.

Drainage area.--0.225 sq mi.

Records available.--March 1952 to September 1960.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 1,170 ft (from topographic map).

Average discharge.--8 years (1952-60), 0.166 cfs (120 acre-ft per year).

Extremes.--1952-60: Maximum discharge, 136 cfs Apr. 23, 1953, June 9, 1954 (gage height, 4.94 ft); no flow for many days in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	-	-	-	-	-	0.535	0.479	0.011	0	0.020	0.052	0	-
1953	0	0.022	0.013	0.107	0.030	.321	.461	.077	.004	.0006	.001	0	0.086
1954	0	0	0	0	0	.003	.065	.200	.363	.004	.061	0	.058
1955	.045	.022	.120	.028	.470	.631	.029	.136	.445	.214	.063	.013	.183
1956	0.063	0	0	0	.202	.002	.009	.293	.008	.065	.074	0	.059
1957	.001	.010	.105	.061	.938	.336	.855	2.04	.099	.032	.057	.010	.376
1958	.047	.033	.578	.086	.371	.972	.083	.100	.223	.805	.147	.0003	.289
1959	0	.008	.007	.128	.264	.215	.024	.528	.005	.002	.006	.003	.099
1960	.161	.097	.666	.175	.094	.498	.141	.271	0	.001	.002	.002	.177

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	-	-	-	-	-	33	28	0.65	0	1.2	3.2	0	-
1953	0	1.3	0.8	6.6	1.7	20	27	4.7	.2	.04	.08	0	†62
1954	0	0	0	0	0	.2	3.9	12	22	.3	3.7	0	†42
1955	2.8	1.3	7.4	1.7	26	39	1.7	8.4	26	13	3.9	.8	132
1956	3.9	0	0	0	12	.1	.5	18	.5	4.0	4 5	0	44
1957	.1	.6	6.5	3.8	52	21	51	125	5.9	2.0	3.5	.6	272
1958	2.9	2.0	36	5.3	21	60	4.9	6.1	13	50	9.1	.02	210
1959	0	.46	.42	7.9	15	13	1.4	32	.30	.10	.38	.18	71
1960	9.9	5.8	41	11	5.4	31	8.4	17	0	.08	.12	.14	130

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952	1241	-	-	-	-	-	-	-	-	-	-
1953	1281	136	Apr. 23, 1953	0	0.086	0.382	5.23	†62	0.084	5.05	†60
1954	1341	136	June 9, 1954	0	.058	.258	3.49	†42	.074	4.44	†54
1955	1391	41.1	Mar. 20, 1955	0	.183	.813	11.01	132	.172	10.38	124
1956	1441	22.4	May 26, 1956	0	.059	.262	3.60	44	.064	3.88	47
1957	1511	131	May 21, 1957	0	.376	1.67	22.66	272	.422	25.43	306
1958	1561	76	July 17, 1958	0	.289	1.28	17.42	210	.234	14.12	170
1959	1631	44.6	Feb. 9, 1959	0	.099	.440	5.95	71	.176	10.59	127
1960	1711	89	May 6, 1960	0	.177	.787	10.72	130	-	-	-

† Corrected.

165. Bourbeuse River at Union, Mo.

Location.--Lat 38°26'45", long 90°59'30", in SW¼ sec.26, T.43 N., R.1 W., on right bank on downstream side of bridge pier on U. S. Highway 50, 800 ft upstream from Flat Creek, half a mile east of Union, and 7 miles upstream from Birch Creek. Records include flow of Flat Creek.

Drainage area.--808 sq mi, includes that of Flat Creek.

Records available.--June 1921 to September 1960. Gage-height records collected at same site since 1916 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 488.58 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1948, datum of all gages 3.00 ft higher. Prior to Sept. 24, 1921, staff gage and Sept. 24, 1921, to Oct. 20, 1933, chain gage, at site 30 ft upstream. Oct. 21, 1933, to June 11, 1944, wire-weight gage and since June 12, 1944, water-stage recorder, at present site (wire-weight gage used for stages below 2.9 ft Oct. 1, 1948, to Aug. 12, 1953).

Average discharge.--39 years (1921-60), 653 cfs (472,800 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 33,100 cfs July 1, 1957 (gage height, 24.44 ft); minimum discharge, 11 cfs Oct. 10, 1956 (gage height, 0.59 ft).

Maximum stage known, 28.5 ft (present datum) Aug. 22, 1915, from floodmarks (discharge, about 50,000 cfs, determined from extension of rating curve for main channel based on measurements made since 1921 and study of overflow areas in vicinity of gaging station).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	104	129	94.1	258	2,075	1,662	977	545	407	2,554	1,037	956	893
1952	564	1,232	596	584	1,316	1,181	1,476	160	67.2	88.9	249	55.4	626
1953	40.2	60.0	75.1	231	172	868	987	343	63.9	47.1	49.1	24.7	247
1954	30.1	28.0	35.4	37.7	42.1	42.0	164	257	522	50.1	39.6	32.7	106
1955	91.5	63.2	128	150	730	1,078	282	173	390	289	77.2	78.3	291
1956	65.1	44.7	36.6	30.7	160	98.7	94.9	754	741	172	50.2	19.2	189
1957	15.0	45.8	465	90.1	1,541	1,851	2,908	4,123	4,319	2,509	89.8	45.2	1,496
1958	40.9	58.5	186	202	242	2,542	516	446	861	634	1,004	77.4	572
1959	40.8	104	71.9	176	1,045	544	201	1,434	184	56.3	64.2	31.1	326
1960	160	162	966	483	331	1,255	591	890	69.1	87.1	51.0	54.0	428

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,400	7,700	5,780	15,840	115,200	102,200	58,150	33,530	24,210	157,000	63,740	56,860	646,600
1952	34,690	73,320	36,660	35,930	75,710	72,640	87,840	9,810	4,000	5,470	15,290	3,300	454,700
1953	2,470	3,570	4,620	14,220	9,540	53,370	58,710	21,080	3,800	2,890	3,020	1,470	178,800
1954	1,850	1,670	2,170	2,320	2,340	2,580	9,780	15,770	31,090	3,080	2,440	1,940	77,000
1955	5,630	3,760	7,850	9,250	40,560	66,260	16,750	10,610	23,190	17,770	4,750	4,660	211,000
1956	4,000	2,660	2,250	1,890	9,230	6,070	5,640	46,330	44,120	10,550	3,090	1,140	137,000
1957	920	2,720	28,600	5,540	85,590	113,800	173,000	253,500	257,000	154,200	5,520	2,690	1,083,000
1958	2,520	3,480	11,450	12,440	13,420	156,300	30,690	27,420	51,250	38,960	61,750	4,610	414,300
1959	2,510	6,210	4,420	10,810	58,010	33,460	11,970	88,150	10,970	3,460	3,950	1,850	235,800
1960	9,870	9,660	59,400	29,680	19,010	77,190	35,180	54,700	4,110	5,360	3,130	3,210	310,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,146	19.25	829,800
1951	1211	19,800	July 15, 1951	68	893	1.11	15.00	646,600	1,066	17.90	771,400
1952	1241	8,970	Apr. 6, 1952	41	626	.775	10.56	454,700	442	7.45	320,600
1953	1281	7,330	Mar. 5, 1953	20	247	.306	4.15	178,800	240	4.03	173,800
1954	1341	6,250	June 11, 1954	19	106	.131	1.79	77,000	122	2.06	88,580
1955	1391	7,670	Feb. 22, 1955	25	291	.360	4.90	211,000	280	4.70	202,700
1956	1441	8,730	June 2, 1956	16	189	.234	3.16	137,000	221	3.70	160,300
1957	1511	33,100	July 1, 1957	12	1,496	1.85	25.13	1,083,000	1,476	24.80	1,068,000
1958	1561	11,000	Mar. 26, 1958	33	572	.708	9.62	414,300	566	9.51	410,000
1959	1631	9,140	Feb. 12, 1959	20	326	.403	5.47	235,800	417	7.00	301,600
1960	1711	7,670	Dec. 29, 1959	26	428	.530	7.20	310,500	-	-	-

170. Meramec River at Robertsville, Mo.

Location.--Lat 38°25'40", long 90°49'35", in SW¼NW¼ sec.32, T.43 N., R.2 E., on left bank on downstream side of pier of highway bridge, 1 mile northeast of Robertsville and 1¾ miles upstream from Calvey Creek.

Drainage area.--2,673 sq mi.

Records available.--October 1939 to September 1951.

Gage.--Water-stage recorder. Datum of gage is 448.24 ft above mean sea level, datum of 1929. Prior to Mar. 2, 1940, wire-weight gage at same site and datum.

Average discharge.--12 years (1939-51), 2,569 cfs (1,860,000 acre-ft per year).

Extremes.--1939-51: Maximum discharge, 102,000 cfs June 10, 1945 (gage height, 34.0 ft); minimum, 256 cfs Aug. 23, 24, 1941 (gage height, 2.47 ft).
Maximum stage known, 36.1 ft in August 1915, from floodmark a quarter of a mile below gage adjusted for slope in water surface (discharge, 125,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	674	975	719	1,501	6,707	4,879	3,053	2,152	2,005	9,202	3,040	2,387	3,089

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	41,460	57,990	44,190	92,300	372,500	300,000	181,700	132,300	119,300	565,800	186,900	142,000	2,236,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	3,748	19.04	2,713,000
1951	1211	45,200	July 16, 1951	530	3,089	1.16	15.69	2,236,000	-	-	-

175. Dry Branch near Bonne Terre, Mo.

Location.--Lat 37°55'55", long 90°27'40", at west-central edge of Survey 3062, T.37 N., R.5 E., on downstream side of highway bridge, 0.5 mile upstream from Terre Bleue Creek and 4.5 miles east of Bonne Terre.

Drainage area.--3.65 sq mi.

Records available.--September 1955 to September 1959, water year 1960 (annual maximum).

Gage.--Crest-stage gage. Altitude of gage is 710 ft (from topographic map). Prior to Oct. 1, 1959, water-stage recorder at same site and datum.

Extremes.--1955-60: Maximum discharge, 1,520 cfs June 30, 1957 (gage height, 5.55 ft); no flow for many days.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	0	0.59	0.03	0.02	3.17	0.84	1.76	6.08	2.09	0.14	0.15	0	1.23
1957	0	.08	.89	1.17	6.18	4.35	20.0	15.3	11.1	2.28	1.53	0	5.20
1958	.003	1.08	3.95	2.77	4.30	8.11	8.00	3.83	1.70	3.12	.88	.08	3.15
1959	.09	2.15	1.35	3.34	3.63	7.84	4.81	6.09	.41	.73	.91	2.13	2.79

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	0	35	2.0	1.2	182	51	105	374	125	8.3	9.5	0	893
1957	0	4.8	55	72	343	267	1,190	938	661	140	94	0	3,760
1958	0.2	64	243	170	239	498	476	235	101	192	54	4.6	2,280
1959	5.8	128	83	205	202	482	286	375	24	45	56	127	2,020

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1955	1441	-	-	-	-	-	-	-	-	-	-
1956	1441	1,060	June 24, 1956	0	1.23	0.337	4.586	893	1.26	4.70	916
1957	1511	1,520	June 30, 1957	0	5.20	1.42	19.32	3,760	5.54	20.60	4,010
1958	1561	409	July 17, 1958	0	3.15	.863	11.70	2,280	3.02	11.24	2,190
1959	1631	570	Apr. 18, 1959	0	2.79	.764	10.38	2,020	-	-	-
1960	-	350	Jan. 14, 1960	-	-	-	-	-	-	-	-

180. Big River near De Soto, Mo.

Location.--Lat 38°07'20", long 90°40'30", in SW¼NW¼ sec.11, T.39 N., R.3 E., near right bank on downstream side of pier of Mammoth Bridge, 300 ft upstream from Mammoth Creek, 1½ miles downstream from Mineral Fork, and 6½ miles west of De Soto. Records include flow of Mammoth Creek.

Drainage area.--718 sq mi, includes that of Mammoth Creek.

Records available.--October 1948 to September 1960. Prior to May 1949 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 538.79 ft above mean sea level, datum of 1929.

Average discharge.--12 years (1948-60), 700 cfs (506,800 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 55,800 cfs June 30, 1957 (gage height, 27.15 ft); minimum, 20 cfs Sept. 19, 1954.

Maximum stage known, about 29.4 ft in August 1915, from floodmark, 1 mile downstream, adjusted to gage site by comparison with recorded flood 5.5 ft lower (discharge, 70,500 cfs, from rating curve extended above 37,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	282	426	383	1,072	2,828	1,507	902	726	810	2,492	555	558	1,034
1952	621	1,882	752	580	944	1,537	2,112	398	199	163	174	156	789
1953	119	334	318	392	319	1,298	790	709	222	118	78.5	55.2	397
1954	87.1	101	96.7	114	124	123	353	188	847	121	78.2	156	198
1955	145	117	398	228	492	1,540	446	356	264	390	69.9	48.8	375
1956	80.2	167	90.5	85.6	513	223	404	943	363	112	78.0	40.6	257
1957	47.5	104	202	227	1,259	1,352	4,384	3,348	2,137	2,331	489	150	1,333
1958	160	474	1,242	546	708	2,074	1,567	848	778	1,174	385	212	849
1959	171	733	376	715	539	1,154	653	879	354	225	212	198	518
1960	368	343	1,187	649	579	999	750	974	232	150	136	130	543

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17,310	25,360	23,520	65,920	157,100	92,640	53,690	44,610	48,200	153,200	34,140	33,190	748,900
1952	38,180	112,000	46,240	35,660	54,310	94,490	125,700	24,450	11,860	10,050	10,680	9,250	572,900
1953	7,310	19,850	19,550	24,100	17,730	79,810	47,000	43,580	13,180	7,230	4,830	3,290	287,500
1954	5,350	6,000	5,940	7,010	6,880	7,580	20,980	11,590	50,380	7,440	4,810	9,290	143,200
1955	8,890	6,970	24,460	14,030	27,350	94,700	26,570	21,880	15,730	23,980	4,300	2,900	271,800
1956	4,930	9,940	5,560	5,270	29,480	13,710	24,040	57,980	21,590	6,890	4,800	2,420	186,600
1957	2,920	6,210	12,430	13,990	69,930	83,110	260,800	205,900	127,100	143,300	30,070	8,950	964,700
1958	9,840	28,190	76,350	33,590	39,300	127,500	93,270	52,140	46,320	72,170	23,690	12,600	615,000
1959	10,500	43,590	23,120	43,950	29,920	70,950	38,830	54,040	21,080	13,820	13,060	11,800	374,700
1960	22,630	20,410	72,960	39,930	33,320	61,450	44,610	59,900	13,810	9,220	8,370	7,740	394,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,160	21.92	839,700
1951	1211	36,200	July 13, 1951	191	1,034	1.44	19.54	748,900	1,214	22.95	879,100
1952	1241	10,600	Apr. 4, 1952	104	789	1.10	14.96	572,900	583	11.05	423,200
1953	1281	11,100	Mar. 4, 1953	45	397	.553	7.51	287,500	356	6.75	258,000
1954	1341	10,700	June 9, 1954	22	198	.276	3.75	143,200	230	4.34	166,300
1955	1391	13,300	Mar. 21, 1955	26	375	.522	7.09	271,800	348	6.58	251,900
1956	1441	7,200	May 16, 1956	25	257	.358	4.88	186,600	259	4.90	187,700
1957	1511	55,800	June 30, 1957	27	1,333	1.86	25.20	964,700	1,461	27.63	1,058,000
1958	1561	15,400	Dec. 18, 1957	102	849	1.18	16.07	615,000	798	15.09	577,800
1959	1631	7,660	Nov. 18, 1958	78	518	.721	9.77	374,700	571	10.79	413,400
1960	1711	12,700	Dec. 18, 1959	83	543	.756	10.28	394,400	-	-	-

185. Big River at Byrnesville, Mo.

Location.--Lat 38°21'45", long 90°39'05", in SE¼ sec.12, T.42 N., R.3 E., on right bank on downstream side of pier of highway bridge at Byrnesville, 4 miles upstream from Head Creek.

Drainage area.--917 sq mi.

Records available.--October 1921 to September 1960. Prior to June 1922 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 433.69 ft above mean sea level, datum of 1929. Prior to Nov. 8, 1934, chain gage and Nov. 8, 1934, to Mar. 8, 1940, wire-weight gage, at same site and datum. Since Aug. 22, 1945, auxiliary wire-weight gage 4 miles downstream, read once or twice daily above 5.0 ft.

Average discharge.--39 years (1921-60), 853 cfs (617,500 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 42,100 cfs July 1, 1957 (gage height, 26.41 ft); minimum, 25 cfs Aug. 30, 1936; minimum gage height, 1.50 ft Aug. 14, 1934.
Maximum stage known, 30.2 ft Aug. 21, 1915, from floodmarks (discharge, 80,000 cfs, by slope-area measurement of peak flow).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	302	618	422	1,231	3,561	2,052	1,196	921	1,082	3,397	960	768	1,363
1952	884	2,393	1,114	800	1,274	2,043	2,686	498	248	201	210	170	1,039
1953	143	372	347	457	382	1,703	1,083	867	272	142	90.1	69.8	495
1954	98.9	118	118	134	139	137	394	204	979	141	84.0	198	227
1955	180	142	450	312	703	1,798	563	424	342	453	97.9	68.4	461
1956	93.4	176	103	94.1	608	271	362	1,303	492	146	98.3	48.7	315
1957	49.7	117	243	238	1,486	1,838	5,814	4,701	2,284	3,895	711	180	1,796
1958	182	532	1,364	713	762	2,714	1,716	1,094	1,014	1,591	492	244	1,039
1959	197	783	468	923	712	1,403	776	1,172	433	236	244	208	630
1960	453	435	1,384	791	708	1,303	1,017	1,206	289	189	139	152	674

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18,590	36,800	25,940	75,670	197,800	126,200	71,190	56,650	64,400	208,900	59,030	45,690	986,900
1952	54,360	142,400	68,530	49,220	73,270	125,600	159,800	30,590	14,770	12,370	12,880	10,140	753,900
1953	8,810	22,110	21,330	28,130	21,220	104,700	64,430	53,340	16,160	8,710	5,540	4,150	358,600
1954	6,080	7,010	7,260	8,220	7,750	8,450	23,450	12,560	58,260	8,690	5,160	11,800	164,700
1955	11,060	8,480	27,670	19,180	39,050	110,500	33,510	26,050	20,340	27,870	6,020	4,070	333,800
1956	5,740	10,490	6,360	5,780	34,950	16,670	21,510	80,120	29,300	8,990	6,050	2,900	228,900
1957	3,060	6,930	14,930	14,660	82,550	113,000	346,000	289,100	135,900	239,500	43,740	10,690	1,300,000
1958	11,220	31,660	83,890	43,850	42,320	166,900	102,100	67,260	60,320	97,810	30,240	14,510	752,100
1959	12,100	46,620	28,770	56,760	39,570	86,280	46,180	72,080	25,770	14,510	15,030	12,370	456,000
1960	27,830	25,860	85,070	48,610	40,710	80,130	60,500	74,140	17,180	11,610	8,520	9,040	489,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,486	21.99	1,076,000
1951	1211	30,500	July 14, 1951	220	1,363	1.49	20.18	986,900	1,617	23.94	1,171,000
1952	1241	10,500	Apr. 14, 1952	124	1,039	1.13	15.42	753,900	745	11.07	540,900
1953	1281	10,200	Mar. 5, 1953	56	495	.540	7.33	358,600	451	6.67	326,700
1954	1341	10,000	June 10, 1954	47	227	.248	3.37	164,700	265	3.93	191,600
1955	1391	12,700	Mar. 22, 1955	45	461	.503	6.83	333,800	427	6.32	309,200
1956	1441	6,640	May 17, 1956	40	315	.344	4.67	228,900	318	4.72	231,200
1957	1511	42,100	July 1, 1957	35	1,796	1.96	26.58	1,300,000	1,936	28.67	1,402,000
1958	1561	15,500	Mar. 26, 1958	130	1,039	1.13	15.40	752,100	985	14.59	712,800
1959	1631	7,100	May 18, 1959	97	630	.687	9.32	456,000	701	10.37	507,300
1960	1711	12,200	Dec. 19, 1959	89	674	.735	10.00	489,200	-	-	-

190. Meramec River near Eureka, Mo.

Location.--Lat 38°30'20", long 90°35'30", in SE¼ sec.32, T.44 N., R.4 E., on right bank 44 ft upstream from bridge on U. S. Highway 66, 2 miles east of Eureka, and 3 miles downstream from Big River.

Drainage area.--3,788 sq mi.

Records available.--August 1903 to July 1906, October 1921 to September 1960. Monthly discharge only for January, February, and March 1904, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 406.18 ft above mean sea level, datum of 1929. Prior to July 21, 1906, chain gage at site 200 ft upstream at different datum. Oct. 6, 1921, to Jan. 16, 1933, chain gage at site 200 ft upstream at datum 1.04 ft higher. Jan. 17, 1933, to Sept. 22, 1937, wire-weight gage at present site and datum.

Average discharge.--41 years (1903-5, 1921-60), 3,089 cfs (2,236,000 acre-ft per year).

Extremes.--1903-6, 1921-60: Maximum discharge, 120,000 cfs June 11, 1945 (gage height, 36.94 ft); minimum, 196 cfs Aug. 27, 31, Sept. 1, 1936.
Maximum stage known, 40.2 ft Aug. 22, 1915, from floodmarks, present site and datum (discharge, 175,000 cfs, by slope-area measurement of peak flow).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,062	1,638	1,164	2,748	10,350	7,229	4,363	3,249	3,230	12,600	4,175	3,268	4,558
1952	3,019	7,086	3,782	2,903	4,810	6,467	8,551	1,752	943	823	1,077	632	3,471
1953	589	927	991	1,240	1,107	4,544	3,663	2,510	849	553	407	297	1,477
1954	418	486	511	530	538	514	945	924	2,830	474	386	486	751
1955	705	630	1,167	1,178	2,652	5,591	1,798	1,242	1,405	1,471	544	408	1,563
1956	548	629	426	374	1,453	949	969	4,141	2,633	844	428	244	1,135
1957	236	464	1,250	768	4,210	7,082	15,500	17,730	11,490	11,500	1,405	615	6,024
1958	578	1,224	3,340	1,939	1,847	9,949	4,330	3,072	3,110	4,983	2,780	921	3,192
1959	717	1,822	1,255	1,925	3,186	4,054	2,126	4,595	1,522	713	612	545	1,917
1960	1,231	1,382	4,436	2,553	2,065	4,715	3,737	4,187	914	692	554	477	2,253

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	65,300	97,490	71,580	169,000	574,900	444,500	259,600	199,800	192,200	774,500	256,700	194,500	3,300,000
1952	185,700	421,600	232,500	178,500	276,700	397,700	508,800	107,700	56,110	50,590	66,240	37,590	2,520,000
1953	36,200	55,190	60,940	76,230	61,500	279,400	217,900	154,400	50,540	33,980	25,050	17,650	1,069,000
1954	25,690	28,910	31,410	32,570	29,860	31,580	56,250	56,820	168,400	29,170	23,750	28,930	543,300
1955	43,360	37,460	71,790	72,410	147,300	343,800	107,000	78,350	83,590	90,470	33,460	24,280	1,131,000
1956	33,670	37,430	26,180	23,020	83,600	58,350	57,650	254,600	156,700	51,880	26,290	14,510	823,900
1957	14,480	27,620	76,870	47,240	233,800	435,500	922,200	1,090,000	683,900	706,900	86,420	36,590	4,362,000
1958	35,540	72,840	205,400	119,200	102,600	611,700	257,600	188,900	185,000	306,400	170,900	54,810	2,311,000
1959	44,110	108,400	77,190	118,400	177,000	249,200	126,500	282,500	90,560	43,830	37,610	32,440	1,388,000
1960	75,700	82,250	272,800	157,000	118,800	289,900	222,300	257,400	54,360	42,530	34,070	28,370	1,635,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		5,496	19.67	3,979,000
1951	1211	50,700	July 15, 1951	800	4,558	1.20	16.33	3,300,000		5,395	19.34	3,906,000
1952	1241	25,500	Apr. 14, 1952	526	3,471	.916	12.48	2,520,000		2,524	9.07	1,832,000
1953	1281	21,800	Mar. 6, 1953	278	1,477	.390	5.28	1,069,000		1,385	4.96	1,003,000
1954	1341	15,600	June 10, 1954	225	751	.198	2.69	543,300		843	3.02	609,900
1955	1391	28,100	Mar. 23, 1955	264	1,563	.413	5.61	1,131,000		1,486	5.34	1,075,000
1956	1441	15,600	June 2, 1956	205	1,135	.300	4.09	823,900		1,165	4.19	845,600
1957	1511	99,500	July 2, 1957	200	6,024	1.59	21.60	4,362,000		6,293	22.57	4,556,000
1958	1561	35,800	Mar. 26, 1958	463	3,192	.843	11.47	2,311,000		3,076	11.05	2,227,000
1959	1631	16,100	May 18, 1959	351	1,917	.506	6.89	1,388,000		2,195	7.88	1,589,000
1960	1711	21,800	Dec. 20, 1959	365	2,253	.595	8.10	1,635,000		-	-	-

205. Mississippi River at Chester, Ill.

Location.--Lat 37°54'00", long 89°49'50", in SW¼ sec.24, T.7 S., R.7 W., 3rd principal meridian, on left bank 0.4 mile downstream from highway bridge at Chester, 8.3 miles downstream from Kaskaskia River, and at mile 109.5 above Ohio River.

Drainage area.--712,600 sq mi, approximately.

Records available.--Discharge: October 1927 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Since August 1873, results of discharge measurements in reports of Mississippi River Commission.

Gage heights: July 1942 to September 1960 in reports of Geological Survey. Since May 1891, in reports of Mississippi River Commission and U. S. Weather Bureau.

Gage.--Staff gage. Datum of gage is 341.05 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--33 years (1927-60), 176,100 cfs (127,500,000 acre-ft per year).

Extremes.--1927-60: Maximum discharge determined, 886,000 cfs July 3, 1947 (discharge, including unmeasured overflow, was greater May 24, 1943); maximum gage height, 39.3 ft July 23, 1951; minimum daily discharge, 30,000 cfs Dec. 12, 1937; minimum gage height, -2.0 ft Dec. 11, 1937, Jan. 29, 1954.

1891-1960: Maximum gage height, 39.3 ft July 23, 1951; minimum, -4.0 ft Jan. 3, 1900. Maximum stage known, 39.8 ft about June 30, 1844 (discharge, 1,350,000 cfs, computed by Corps of Engineers).

Remarks.--Natural flow of stream affected by many reservoirs and navigation dams in upper Mississippi River basin and by many reservoirs and diversions for irrigation in Missouri River basin.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	111,500	90,050	65,690	84,180	180,400	270,500	453,100	429,400	370,800	676,800	252,800	316,000	275,500
1952	205,400	246,900	152,100	162,000	219,400	334,100	498,900	403,800	222,100	204,700	165,100	106,200	243,200
1953	73,390	81,810	76,550	71,170	118,900	195,600	270,400	226,500	197,700	189,100	148,300	89,930	145,000
1954	70,710	68,330	68,790	56,140	59,500	88,150	145,300	213,800	217,000	172,400	110,300	106,400	115,000
1955	171,100	102,100	80,310	115,500	127,100	202,100	197,600	157,700	166,200	130,100	84,000	74,970	134,100
1956	106,800	70,190	53,000	51,040	63,770	86,250	147,100	152,400	120,200	123,600	109,200	76,310	96,770
1957	59,490	59,320	57,850	57,770	76,180	105,300	220,400	275,800	272,600	248,400	118,800	96,750	137,600
1958	90,440	94,630	101,800	86,450	74,850	212,900	170,000	146,800	177,100	315,200	249,900	123,000	154,400
1959	89,750	94,600	63,000	62,050	162,800	231,800	247,700	226,000	179,900	136,200	111,300	105,200	142,200
1960	209,300	127,200	103,900	188,300	147,300	136,600	533,300	404,400	285,800	222,100	109,600	115,000	215,000

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,853	5,358	4,039	5,176	10,020	16,630	26,960	26,400	22,070	41,620	15,540	18,800	199,500
1952	12,630	14,690	9,353	9,959	12,620	20,540	29,690	24,830	13,220	12,590	10,150	6,320	176,600
1953	4,513	4,868	4,707	4,376	6,601	12,030	16,090	13,920	11,760	11,630	9,118	5,351	105,000
1954	4,348	4,066	4,230	3,452	3,304	5,420	8,646	13,140	12,910	10,600	6,784	6,332	83,230
1955	10,520	6,076	4,938	7,100	7,060	12,430	11,760	9,699	9,890	7,999	5,165	4,461	97,100
1956	6,568	4,177	3,259	3,138	3,668	5,303	8,755	9,370	7,155	7,603	6,712	4,541	70,250
1957	3,658	3,530	3,557	3,552	4,231	6,475	13,110	16,960	16,220	15,270	7,307	5,757	99,630
1958	5,561	5,631	6,260	5,316	4,157	13,090	10,120	9,026	10,540	19,380	15,360	7,316	111,800
1959	5,519	5,629	3,874	3,816	9,041	14,260	14,740	13,900	10,700	8,374	6,842	6,258	103,000
1960	12,870	7,571	6,391	11,580	8,471	8,396	31,730	24,860	17,000	13,660	6,741	6,842	156,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	209,600	115,700,000
1951	1211	795,000	July 22, 1951	50,000	275,500	199,500,000	303,700	219,900,000
1952	1241	685,000	Apr. 30, 1952	80,400	243,200	176,600,000	212,000	154,000,000
1953	1281	378,000	Apr. 5, 1953	64,800	145,000	105,000,000	143,000	103,500,000
1954	1341	289,000	June 7, 1954	47,300	115,000	83,230,000	127,300	92,120,000
1955	1391	332,000	Feb. 23, 1955	60,900	134,100	97,100,000	123,700	89,570,000
1956	1441	221,000	Oct. 9, 1955	45,800	96,770	70,250,000	92,280	66,990,000
1957	1511	426,000	May 28, 1957	45,300	137,600	99,630,000	146,900	106,300,000
1958	1561	510,000	July 25, 1958	58,000	154,400	111,800,000	151,000	109,300,000
1959	1631	361,000	June 4, 1959	51,000	142,200	103,000,000	158,500	114,800,000
1960	1711	680,000	Apr. 11, 1960	86,000	215,000	156,100,000	-	-

210. Castor River at Zalma, Mo.

Location.--Lat 37°08'45", long 90°04'30", in SE¼ sec.29, T.29 N., R.9 E., on downstream side of left pier of bridge on State Highway 51 in Zalma, 2½ miles downstream from Perkins Creek.

Drainage area.--423 sq mi.

Records available.--January 1920 to September 1960. Prior to October 1921 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 350.38 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1925, chain gage at site 500 ft upstream at datum 49.82 ft lower. Oct. 1, 1925, to Nov. 12, 1930, chain gage at site 500 ft upstream at datum 0.18 ft higher than present gage. Nov. 13, 1930, to Oct. 26, 1934, chain gage and Oct. 27, 1934, to June 8, 1953, wire-weight gage, at present site and datum. Since Dec. 18, 1949, auxiliary staff gage, read once daily below 8.0 ft and twice daily above, at site 6 miles downstream.

Average discharge.--40 years (1920-60), 515 cfs (372,800 acre-ft per year).

Extremes.--1920-60: Maximum discharge, 40,400 cfs Jan. 14, 1937, from rating curve extended above 25,000 cfs; maximum gage height, 28.20 ft Mar. 11, 1935; minimum discharge, 16 cfs Aug. 31, 1936 (gage height, 0.81 ft).

Flood in August 1915 reached a stage of 28.0 ft (present datum), from floodmark pointed out by local residents.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	112	173	221	1,240	2,029	915	515	263	199	519	191	508	564
1952	416	1,972	765	676	657	1,735	1,154	263	95.8	70.8	77.7	56.5	660
1953	65.3	117	202	238	284	1,037	685	626	96.1	60.4	36.6	31.5	291
1954	48.0	68.7	74.4	127	339	227	235	580	509	57.5	41.4	46.4	195
1955	58.7	98.4	924	313	320	1,424	622	415	147	96.3	43.0	33.3	377
1956	62.7	101	72.1	60.7	1,136	285	162	516	125	72.7	47.0	38.0	220
1957	43.3	112	202	415	891	720	3,184	2,865	708	1,029	135	66.4	862
1958	75.5	1,367	1,232	678	387	1,923	938	1,162	638	624	261	130	788
1959	103	1,088	235	661	659	712	420	398	238	94.1	86.2	118	398
1960	396	308	956	659	439	568	339	1,184	171	67.3	56.1	41.8	434

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,880	10,310	13,560	76,230	112,700	56,270	30,620	16,190	11,850	31,920	11,770	30,200	408,500
1952	25,570	117,400	47,070	41,580	37,760	106,700	68,670	16,170	5,700	4,360	4,780	3,360	479,100
1953	4,020	6,980	12,430	14,630	15,780	63,750	40,740	38,500	5,720	3,710	2,250	1,880	210,400
1954	2,950	4,090	4,570	7,790	18,800	13,980	14,000	35,650	30,290	3,540	2,540	2,760	141,000
1955	3,610	5,860	56,830	19,240	17,760	87,560	37,010	25,520	8,730	5,920	2,640	1,980	272,700
1956	3,850	6,020	4,430	3,730	65,360	17,530	9,650	31,740	7,430	4,470	2,890	2,260	159,400
1957	2,660	6,640	12,410	25,520	49,500	44,240	189,500	176,100	42,140	63,290	8,280	3,950	624,200
1958	4,640	81,350	75,760	41,700	21,470	118,200	55,790	71,440	37,980	38,370	16,060	7,760	570,500
1959	6,360	64,770	14,470	40,670	36,580	43,770	24,970	24,460	14,170	5,790	5,300	6,990	288,300
1960	24,350	18,320	58,790	40,520	25,270	34,950	20,170	72,780	10,160	4,140	3,450	2,490	315,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		971	31.15	702,600
1951	1211	9,950	Feb. 21, 1951	92	564	1.33	18.12	408,500		784	†25.17	567,800
1952	1241	11,000	(a)	50	660	1.56	†21.22	479,100		430	13.84	312,500
1953	1281	4,900	Mar. 4, 1953	29	291	.688	9.33	210,400		274	8.80	198,600
1954	1341	6,290	May 3, 1954	21	195	.461	6.24	141,000		270	8.67	195,600
1955	1391	18,800	Mar. 21, 1955	27	377	.891	12.09	272,700		305	9.79	220,700
1956	1441	5,490	Feb. 19, 1956	27	220	.520	7.09	159,400		230	7.41	166,800
1957	1511	28,100	Apr. 4, 1957	33	862	†2.04	27.68	624,200		1,056	33.90	764,300
1958	1561	17,600	Mar. 25, 1958	52	788	1.86	25.29	570,500		683	21.90	494,400
1959	1631	15,000	Nov. 18, 1958	58	398	.941	12.77	288,300		420	13.48	304,200
1960	1711	5,110	May 20, 1960	38	434	1.03	13.98	315,400		-	-	-

† Corrected.
a Nov. 25, 1951, Mar. 12, 1952.

220. Mississippi River at Thebes, Ill.

Location.--Lat 37°13'00", long 89°27'50", in NW¼ sec.17, T.15 S., R.3 W., near center of span on downstream side of railroad bridge at Thebes, 5.0 miles downstream from head-water diversion channel and at mile 43.7 above Ohio River.

Drainage area.--717,200 sq mi, approximately.

Records available.--Discharge: October 1932 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Prior to April 1941, published as "at Cape Girardeau, Mo."

Gage heights: March 1933 to February 1938 and October 1939 to September 1960 in reports of Geological Survey (prior to April 1941, published as "at Cape Girardeau, Mo."). Since November 1878, under name of "at Grays Point" in files of St. Louis district office of Corps of Engineers. January 1879 to August 1896 published as "at Grays Point" and since May 1896, published as "at Cape Girardeau" in reports of Mississippi River Commission. February 1891 to February 1894 and since 1904, published as "at Cape Girardeau" in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder at present site and datum since Oct. 1, 1944. Datum of gage is at mean sea level, datum of 1929, supplementary adjustment of 1955. Mar. 17, 1933, to Dec. 21, 1934, staff gage and Dec. 22, 1934, to Apr. 4, 1941, water-stage recorder, at site 8.2 miles upstream at datum 304.65 ft above mean sea level, datum of 1929. Apr. 5 to Sept. 30, 1941, wire-weight gage at present site at datum 300.00 ft higher than present datum. Oct. 1, 1941, to Sept. 30, 1943, wire-weight gage at present site at datum 300.07 ft higher than present datum. Oct. 1, 1943, to Sept. 30, 1944, water-stage recorder at present site at datum 300.00 ft higher than present datum. Prior to Apr. 5, 1941, various auxiliary gages used. Since Oct. 1, 1943, former gage at Cape Girardeau used as auxiliary gage.

Average discharge.--28 years (1932-60), 178,600 cfs (129,300,000 acre-ft per year).

Extremes.--1932-60: Maximum discharge, 893,000 cfs May 27, 1943 (elevation, 340.33 ft, present datum); minimum, 23,400 cfs Dec. 13, 1937, at site then in use; minimum elevation, 303.72 ft Jan. 28, 1956.

Maximum elevation known, 345.14 ft present datum, at Grays Point, from floodmarks (discharge, 1,375,000 cfs, computed by Corps of Engineers), July 4, 1844.

Remarks.--Natural flow of stream affected by many reservoirs and navigation dams in upper Mississippi River basin and by many reservoirs and diversions for irrigation in Missouri River basin.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	114,400	95,360	69,470	97,380	189,400	285,700	453,200	434,400	370,000	287,700	259,800	325,500	282,300
1952	212,600	262,300	167,900	168,000	226,900	350,100	503,500	418,800	223,400	208,100	166,600	110,100	251,400
1953	74,430	81,910	78,410	73,480	118,200	200,500	278,000	233,800	198,200	193,200	149,300	92,180	147,700
1954	71,100	69,220	69,890	57,330	58,680	87,290	145,700	217,500	216,800	178,100	109,800	110,300	116,200
1955	171,000	106,500	84,790	120,200	125,600	218,500	203,200	162,900	170,400	134,000	85,290	75,760	138,300
1956	108,700	72,490	53,850	52,200	69,010	91,220	148,300	158,200	122,400	125,400	109,900	77,350	99,190
1957	60,130	60,180	58,130	60,480	81,620	110,800	247,600	294,900	291,700	256,400	126,000	98,340	145,700
1958	91,440	103,400	112,200	98,140	77,790	231,100	179,300	161,900	185,800	528,500	263,600	124,700	164,000
1959	92,530	102,000	67,490	67,250	170,900	240,500	255,500	229,500	186,300	139,600	118,500	106,200	147,700
1960	214,800	131,500	111,100	196,900	153,800	134,800	538,300	410,300	293,300	230,800	110,700	115,800	220,000

† Corrected.

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,033	5,675	4,271	5,988	10,520	17,570	26,970	26,710	22,010	42,290	15,970	19,370	204,400
1952	13,080	15,610	10,320	10,330	13,050	21,530	29,960	25,750	13,300	12,800	10,240	6,552	182,500
1953	4,577	4,874	4,821	4,518	6,562	12,330	16,540	14,380	11,790	11,880	9,180	5,485	106,900
1954	4,372	4,119	4,297	3,525	3,259	5,367	8,670	13,370	12,900	10,950	6,751	6,566	84,150
1955	10,520	6,336	5,213	7,391	6,975	13,430	12,090	10,020	10,140	8,240	5,244	4,506	100,100
1956	6,686	4,313	3,311	3,210	3,970	5,609	8,824	9,729	7,283	7,712	6,756	4,603	72,010
1957	3,697	3,581	3,574	3,719	4,533	6,815	14,740	18,130	17,360	15,760	7,748	5,852	105,500
1958	5,622	6,151	6,900	6,034	4,320	14,210	10,670	9,958	11,060	20,200	16,210	7,420	118,800
1959	5,689	6,069	4,150	4,135	9,491	14,790	15,210	14,110	11,080	8,582	7,285	6,320	106,900
1960	13,210	7,824	6,830	12,110	8,844	8,287	32,030	25,230	17,450	14,190	6,808	6,891	159,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	221,900	160,600,000
1951	1211	805,000	July 24, 1951	45,000	282,300	204,400,000	312,700	226,400,000
1952	1241	685,000	May 2, 1952	80,200	251,400	182,500,000	217,900	157,800,000
1953	1281	382,000	Apr. 6, 1953	68,400	147,700	106,900,000	145,700	105,500,000
1954	1341	292,000	June 7, 1954	50,500	116,200	84,150,000	129,100	93,430,000
1955	1391	329,000	Feb. 25, 1955	62,300	138,300	100,100,000	127,600	92,350,000
1956	1441	220,000	Oct. 9, 1955	46,900	99,190	72,010,000	94,420	68,550,000
1957	1511	463,000	May 23, 1957	49,800	145,700	105,500,000	156,500	113,300,000
1958	1561	534,000	July 25, 1958	60,000	164,000	118,800,000	160,200	116,000,000
1959	1631	364,000	June 5, 1959	53,000	147,700	106,900,000	164,200	118,900,000
1960	1711	685,000	Apr. 11, 1960	89,100	220,000	159,700,000	-	-

225. Perry Creek near Mayfield, Ky.

Location.--Lat 36°40'45", long 88°37'57", on right bank at downstream side of bridge on State Highway 303, 1.8 miles upstream from mouth and 3.5 miles south of city limits of Mayfield, Graves County.

Drainage area.--1.72 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 478.22 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1952-60), 1.68 cfs.

Extremes.--1952-60: Maximum discharge, 846 cfs Mar. 20, 1955; maximum gage height, 7.66 ft Jan. 22, 1957; no flow for many days in each year.
Flood in March 1952 reached a stage of 10.3 ft, from information by local residents.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	1.45	1.40	2.68	9.42	1.17	5.94	0	0.09	0	0	1.86
1954	0	.04	.177	2.00	1.11	1.28	.90	1.01	.88	.33	.50	.50	.73
1955	.52	0	2.12	.06	5.78	6.35	3.46	2.18	1.82	2.25	0	.33	2.05
1956	.21	.14	.33	2.51	8.07	2.75	1.53	.73	0	.83	.3	.10	1.43
1957	0	.02	.25	6.16	5.36	.23	4.44	5.28	4.11	.47	1.49	0	2.30
1958	.14	13.5	6.69	3.08	.96	6.98	1.15	2.06	.18	.33	.20	.47	2.99
1959	0	.04	.006	2.93	2.70	.44	.58	.006	.017	1.11	1.17	.20	.76
1960	.273	.221	3.09	2.07	2.51	2.89	1.31	1.66	.265	1.33	.020	.045	1.31

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	0.98	0.94	1.62	6.31	0.76	3.98	0	0.06	0	0	14.65
1954	0	.03	.12	1.34	.67	.86	.58	.67	.57	.22	.33	.32	5.71
1955	.35	0	1.42	.04	3.50	4.25	2.24	1.46	1.18	1.51	0	.22	16.17
1956	.14	.09	.22	1.68	5.06	1.85	.99	.49	0	.56	.22	.06	11.36
1957	0	.01	.16	4.13	3.24	.16	2.88	3.54	2.66	.32	1.00	0	18.10
1958	.10	8.75	4.49	2.07	.58	4.68	.75	1.38	.11	.22	.14	.30	23.57
1959	0	.03	.004	1.96	1.63	.30	.38	.004	.01	.74	.78	.13	5.97
1960	.18	.14	2.07	1.39	1.57	1.94	.85	1.11	.17	.89	.01	.03	10.35

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950									
1951									
1952									
1953	1391,1511	780	Mar. 3, 1953	0	1.86	1.08	14.65	1.75	13.82
1954	1391,1511	520	Jan. 20, 1954	0	.73	.424	5.71	.93	7.33
1955	1391,1511	846	Mar. 20, 1955	0	2.05	1.19	16.17	1.88	14.85
1956	1441,1511	440	Feb. 2, 1956	0	1.43	.831	11.36	1.40	11.08
1957	1511	707	Jan. 22, 1957	0	2.30	1.34	18.10	3.96	31.27
1958	1561	763	Nov. 18, 1957	0	2.99	1.74	23.57	1.30	10.26
1959	1631	514	Aug. 6, 1959	0	.76	.442	5.97	1.06	8.32
1960	1711	602	July 3, 1960	0	1.31	.762	10.35	-	-

230. Mayfield Creek at Lovelaceville, Ky.

Location.--Lat 36°57'09", long 88°49'30", near right bank on downstream side of pier of bridge on U. S. Highway 62, 400 ft south of Ballard-Carlisle County line, 1.2 miles south of Lovelaceville, and 4 miles upstream from Wilson Creek.

Drainage area.--212 sq mi (revised), includes that of Sugar Creek.

Records available.--April 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 326.22 ft above mean sea level, unadjusted. Prior to July 6, 1939, wire-weight gage at same site and datum.

Average discharge.--22 years (1938-60), 234 cfs.

Extremes.--1938-60: Maximum discharge, 11,200 cfs Nov. 19, 1957 (gage height, 19.64 ft); minimum daily, 5.7 cfs Sept. 11, 12, 1943.
Maximum stage known, 21.1 ft in January 1937, from floodmarks (discharge, 19,800 cfs, slope-area measurement).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24.8	396	244	1,291	735	453	320	28.1	213	69.7	26.3	44.2	318
1952	16.3	368	1,018	843	459	989	260	76.6	19.3	20.6	30.3	29.8	345
1953	14.5	21.3	129	195	216	1,050	157	585	27.3	21.6	20.2	10.0	205
1954	10.8	19.1	38.1	168	145	123	161	207	90.9	23.0	17.5	99.8	91.5
1955	72.7	18.3	227	37.4	390	642	560	201	157	111	49.7	43.6	208
1956	22.0	30.3	23.9	217	834	225	173	94.3	21.5	38.0	28.4	15.5	141
1957	12.6	23.5	25.9	486	552	104	511	800	481	145	95.3	20.7	269
1958	45.5	1,706	938	393	113	856	211	372	33.5	66.0	38.2	43.1	403
1959	17.6	30.0	21.8	258	460	91.1	49.8	41.5	61.8	103	81.5	84.7	106
1960	62.7	41.8	286	292	221	389	242	299	132	51.1	23.2	29.5	173

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.13	2.08	1.33	7.02	3.61	2.46	1.68	0.15	1.12	0.38	0.14	0.23	20.33
1952	.09	1.94	5.53	4.59	2.33	5.38	1.37	.42	.10	.11	.16	.16	22.18
1953	.08	.11	.70	1.06	1.06	5.71	.83	3.18	.14	.12	.11	.05	13.15
1954	.06	.10	.21	.92	.71	.67	.85	1.12	.48	.13	.10	.53	5.88
1955	.40	.10	1.23	.20	1.91	3.49	2.95	1.09	.83	.61	.27	.23	13.31
1956	.12	.16	.13	1.18	4.24	1.22	.91	.51	.11	.21	.15	.08	9.02
1957	.07	.12	.14	2.64	2.71	.57	2.69	4.35	2.53	.79	.52	.11	17.24
1958	.25	8.98	5.10	2.13	.55	4.66	1.11	2.02	.18	.36	.21	.23	25.78
1959	.10	.16	.12	1.40	2.26	.50	.26	.23	.33	.56	.44	.45	6.81
1960	.34	.22	1.56	1.59	1.12	2.11	1.27	1.63	.69	.28	.13	.16	11.10

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	533	34.09
1951	1211	8,300	Jan. 15, 1951	15	318	1.50	20.33	381	24.35
1952	1241	7,400	Mar. 10, 1952	12	345	1.63	22.18	242	15.51
1953	1281	6,170	Mar. 5, 1953	9.0	205	.967	13.15	197	12.63
1954	1341	3,480	May 7, 1954	9.1	91.5	.432	5.88	113	7.24
1955	1391	6,050	Mar. 22, 1955	10	208	.981	13.31	187	11.99
1956	1441	5,090	Feb. 19, 1956	11	141	.665	9.02	140	8.94
1957	1511	6,060	May 23, 1957	10	269	1.27	17.24	488	31.24
1958	1561	11,200	Nov. 19, 1957	13	403	1.90	25.78	185	11.83
1959	1631	5,600	Jan. 21, 1959	14	106	.500	6.81	133	8.55
1960	1711	4,030	Jan. 15, 1960	14	173	.816	11.10	-	-

235. Obion Creek at Pryorsburg, Ky.

Location.--Lat 36°41'10", long 88°43'35", on right bank at downstream side of bridge on U. S. Highway 45, 0.5 mile southwest of Pryorsburg, Graves County, and 3.1 miles upstream from Cane Creek.

Drainage area.--36.8 sq mi.

Records available.--June 1951 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 393.55 ft above mean sea level, datum of 1929. Prior to Dec. 2, 1954, at about same site but upstream from former bridge at same datum.

Average discharge.--9 years (1951-60), 32.8 cfs.

Extremes.--1951-60: Maximum discharge, 5,330 cfs Nov. 18, 1957 (gage height, 12.60 ft), from rating curve extended above 3,100 cfs; no flow for many days in each year.
Flood of Feb. 14, 1949, reached a stage of 13.0 ft, from information by local residents.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	6.13	0.21	8.13	-
1952	0.13	43.4	148	82.6	68.1	167	34.7	9.07	0.14	0	2.62	2.84	46.8
1953	0	1.51	20.9	23.0	31.0	162	28.6	75.4	.637	0	0	0	28.8
1954	0	.98	7.48	37.9	21.6	30.5	29.7	21.2	15.7	13.5	6.32	4.36	15.7
1955	7.09	.05	52.1	1.01	90.0	94.0	50.0	33.7	39.4	6.37	1.83	2.66	31.1
1956	4.57	1.80	3.98	47.8	153	50.5	29.7	11.9	4.14	4.73	2.49	1.69	25.8
1957	0	1.60	3.38	98.1	83.2	14.2	94.0	119	135	14.2	25.4	.08	48.6
1958	4.70	257	168	60.7	17.5	131	18.4	39.0	3.44	8.14	4.31	8.64	60.2
1959	.094	2.16	.39	61.7	78.1	13.5	7.23	5.95	1.77	18.8	16.8	2.15	17.0
1960	2.57	3.16	46.7	33.9	37.6	52.9	30.2	39.6	4.30	3.34	.047	0	21.2

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	0.19	0.006	0.25	-
1952	0.004	1.32	4.62	2.59	2.00	5.24	1.08	0.28	0.004	0	.08	.09	17.31
1953	0	.05	.65	.72	.89	5.08	.87	2.36	.02	0	0	0	10.64
1954	0	.03	.23	1.19	.61	.95	.90	.66	.48	.42	.20	.13	5.80
1955	.22	.001	1.63	.03	2.55	2.94	1.52	1.05	1.19	.20	.06	.08	11.47
1956	.14	.05	.12	1.50	4.47	1.58	.90	.37	.13	.15	.08	.05	9.54
1957	0	.05	.11	3.07	2.36	.45	2.85	3.74	4.08	.44	.80	.003	17.95
1958	.15	7.78	5.25	1.90	.50	4.11	.56	1.22	.10	.25	.13	.26	22.21
1959	.003	.07	.01	1.93	2.21	.42	.22	.19	.05	.60	.53	.07	6.30
1960	.08	.10	1.46	1.06	1.10	1.66	.91	1.24	.13	.10	.001	0	7.84

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950									
1951	1241	2,620	June 30, 1951	-	-	-	-	-	-
1952	1241	2,750	Mar. 22, 1952	0	46.8	1.27	17.31	32.6	12.06
1953	1281	2,360	Mar. 3, 1953	0	28.8	.783	10.64	27.6	10.20
1954	1341	1,910	July 23, 1954	0	15.7	.427	5.80	20.1	7.39
1955	1391	2,110	Mar. 21, 1955	0	31.1	.845	11.47	27.0	9.93
1956	1441	2,440	Feb. 18, 1956	0	25.8	.701	9.54	25.4	9.39
1957	1511	3,990	June 10, 1957	0	48.6	1.32	17.95	83.9	30.97
1958	1561	5,330	Nov. 18, 1957	0	60.2	1.64	22.21	24.7	9.11
1959	1631	2,480	Feb. 14, 1959	0	17.0	.462	6.30	21.3	7.85
1960	1711	2,370	Feb. 10, 1960	0	21.2	.576	7.84	-	-

240. Bayou du Chien near Clinton, Ky.

Location.--Lat 36°37'43", long 88°57'50", on left bank at upstream side of bridge on U. S. Highway 51, 1.1 miles upstream from Cane Creek, 3½ miles southeast of Clinton, Rickman County, and 13½ miles upstream from mouth.

Drainage area.--68.7 sq mi (revised).

Records available.--October 1939 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1954, published as Bayou de Chien near Clinton.

Gage.--Water-stage recorder. Datum of gage is 307.71 ft above mean sea level, unadjusted. Prior to Aug. 2, 1951, wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 87.1 cfs.

Extremes.--1939-60: Maximum discharge, 6,880 cfs Jan. 15, 1951 (gage height, 15.0 ft, from graph based on gage readings); minimum daily, 4 cfs May 29, 1943 (affected by backwater from Mississippi River).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	28.6	260	74.0	464	240	167	176	15.6	89.8	61.8	17.4	16.5	133
1952	14.1	113	205	146	169	367	83.4	51.0	11.7	17.0	32.6	18.9	103
1953	11.6	23.	68.6	86.0	87.8	338	81.8	191	28.6	11.4	9.43	9.00	79.3
1954	9.36	13.6	21.5	76.0	64.7	84.6	40.9	52.4	58.7	26.9	36.5	17.6	41.8
1955	25.8	13.3	65.7	23.8	99.0	175	111	71.9	33.5	25.1	13.4	16.7	55.9
1956	19.7	14.3	24.6	110	335	120	83.1	50.0	17.3	17.1	15.6	8.96	66.9
1957	11.2	16.6	26.3	214	167	35.7	191	342	223	57.6	35.6	12.5	111
1958	24.4	520	318	122	47.0	273	97.4	160	16.4	32.3	20.0	24.2	138
1959	11.6	26.8	19.7	137	191	86.7	52.0	36.5	27.7	37.6	42.6	44.8	58.7
1960	44.7	36.9	130	88.2	95.6	127	105	139	21.8	13.1	12.6	16.5	69.4

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.48	4.24	1.25	7.81	3.65	2.81	2.87	0.26	1.46	1.04	0.29	0.27	26.43
1952	.24	1.84	3.45	2.46	2.67	6.17	1.36	.86	.19	.29	.55	.31	20.39
1953	.19	.38	1.16	1.45	1.33	5.69	1.33	3.21	.47	.19	.16	.15	15.71
1954	.16	.22	.36	1.28	.98	1.42	.67	.88	.96	.45	.61	.29	8.28
1955	.43	.22	1.11	.40	1.50	2.94	1.80	1.21	.55	.42	.23	.27	11.08
1956	.33	.23	.41	1.85	5.28	2.02	1.35	.84	.28	.29	.26	.15	13.29
1957	.19	.27	.44	3.60	2.54	.60	3.11	5.76	3.64	.97	.60	.20	21.92
1958	.41	8.47	5.35	2.06	.72	4.59	1.59	2.69	.27	.54	.34	.39	27.42
1959	.20	.44	.33	2.31	2.90	1.46	.85	.62	.45	.63	.72	.73	11.64
1960	.75	.60	2.19	1.48	1.50	2.13	1.71	2.34	.35	.22	.21	.27	13.75

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	188	37.20
1951	1211	6,880	Jan. 15, 1951	10	133	1.94	26.43	131	25.99
1952	1241	3,650	Mar. 22, 1952	9.9	103	1.50	20.39	83.4	16.59
1953	1281	2,990	Mar. 4, 1953	8.8	79.3	1.15	15.71	74.0	14.72
1954	1341	1,160	Mar. 24, 1954	5.4	41.8	.608	8.28	46.9	9.30
1955	1391	1,800	Mar. 21, 1955	9.0	55.9	.814	11.08	52.0	10.29
1956	1441	3,630	Feb. 18, 1956	8.3	66.9	.974	13.29	66.5	13.22
1957	1511	4,330	May 23, 1957	6.7	111	1.62	21.92	178	35.25
1958	1561	6,470	Nov. 18, 1957	8.9	138	2.01	27.42	71.4	14.16
1959	1631	1,570	Jan. 21, 1959	9.0	58.7	.854	11.64	71.7	14.18
1960	1711	1,410	May 221, 1960	10	69.4	1.01	13.75	-	-

245. South Fork Obion River near Greenfield, Tenn.

Location.--Lat 36°07'05", long 88°48'39", on left bank 75 ft downstream from bridge on U. S. Highway 45E, 1.1 miles downstream from Mosley Branch, 2.5 miles south of Greenfield, Weakley County, and 9.7 miles upstream from Middle Fork.

Drainage area.--431 sq mi.

Records available.--July 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 300.37 ft above mean sea level, datum of 1929. Prior to June 22, 1939, staff gage at site 75 ft upstream at same datum.

Average discharge.--31 years (1929-60), 564 cfs.

Extremes.--1929-60: Maximum discharge, 25,600 cfs Jan. 22, 1937 (gage height, 17.82 ft, from floodmarks), from rating curve extended above 14,000 cfs; minimum, 61 cfs Aug. 21, 1944; minimum gage height observed, 1.5 ft for several days in August and September 1930.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	288	953	1,104	2,632	1,867	740	1,109	191	316	624	214	264	852
1952	166	1,284	2,417	1,069	1,170	1,595	620	255	165	140	141	190	768
1953	149	194	297	384	751	2,059	815	2,200	176	152	107	103	618
1954	111	139	204	1,533	604	475	455	380	255	99.2	98.5	91.2	370
1955	97.5	108	219	161	764	1,818	1,108	505	217	189	160	112	453
1956	147	236	166	926	3,608	803	964	321	154	105	99.6	83.9	621
1957	89.7	129	149	862	1,599	528	895	921	573	726	216	169	566
1958	182	2,921	1,367	539	446	1,079	761	1,033	197	704	158	165	797
1959	122	239	299	841	1,216	447	276	212	295	321	219	251	389
1960	212	225	713	561	516	816	434	455	133	182	153	116	377

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.77	2.47	2.95	7.04	4.51	1.98	2.87	0.51	0.82	1.67	0.57	0.68	26.84
1952	.45	3.32	6.46	2.86	2.93	4.27	1.61	.68	.43	.38	.38	.49	24.26
1953	.40	.50	.79	1.03	1.81	5.51	2.11	5.88	.46	.41	.29	.27	19.46
1954	.30	.36	.54	4.10	1.46	1.27	1.18	1.02	.66	.27	.26	.24	11.66
1955	.26	.28	.59	.43	1.85	4.86	2.87	1.35	.56	.50	.43	.29	14.27
1956	.39	.61	.44	2.48	9.03	2.15	2.49	.86	.40	.28	.27	.22	19.62
1957	.24	.33	.40	2.31	3.86	1.41	2.32	2.52	1.48	1.94	.58	.44	17.83
1958	.49	7.56	3.66	1.44	1.08	2.89	1.97	2.76	.51	1.88	.42	.43	25.09
1959	.33	.62	.80	2.25	2.94	1.20	.72	.57	.76	.86	.58	.65	12.28
1960	.57	.58	1.91	1.50	1.29	2.18	1.12	1.22	.34	.49	.41	.30	11.91

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	1,133	35.67
1951	1211	12,200	Jan. 14, 1951	129	852	1.98	26.84	981	30.88
1952	1241	5,150	Dec. 11, 1951	113	768	1.78	24.26	497	15.72
1953	1281	10,300	May 19, 1953	96	618	1.43	19.46	602	18.97
1954	1341	6,060	Jan. 23, 1954	82	370	.858	11.66	368	11.59
1955	1391	8,640	Mar. 23, 1955	84	453	1.05	14.27	463	14.58
1956	1441	17,500	Jan. 31, 1956	74	621	1.44	19.62	606	19.15
1957	1511	6,550	Feb. 1, 1957	80	566	1.31	17.83	907	28.57
1958	1561	14,900	Nov. 18, 1957	97	797	1.85	25.09	480	15.13
1959	1631	4,400	Feb. 17, 1959	90	389	.903	12.28	431	13.59
1960	1711	1,740	May 21, 1960	79	377	.875	11.91	-	-

250. Rutherford Fork Obion River near Bradford, Tenn.

Location.--Lat 36°03'10", long 88°52'42", on left bank 10 ft downstream from bridge on State Highway 54, 2.0 miles upstream from Camp Creek, and 4.0 miles southwest of Bradford, Gibson County.

Drainage area.--203 sq mi.

Records available.--July 1929 to September 1957.

Gage.--Water-stage recorder. Datum of gage is 316.54 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 1, 1939, chain gage at bridge 0.8 mile downstream at different datum.

Average discharge.--28 years (1929-57), 244 cfs.

Extremes.--1929-57: Maximum discharge observed, 9,730 cfs Jan. 22, 1937, from rating curve extended above 5,000 cfs; maximum gage height, 20.47 ft Jan. 30, 1956; minimum discharge observed, 12 cfs June 30, July 1, 1931; minimum gage height observed, 0.68 ft July 16, 1937, site and datum then in use.

Revisions.--The momentary maximum discharges for the water years 1946 and 1950, published in WSP 1311, have been revised to 5,540 and 5,590 cfs, respectively.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	85.7	400	350	1,128	795	325	465	67.8	210	404	143	137	373
1952	63.9	540	871	456	536	703	252	103	58.8	48.5	56.4	97.9	315
1953	43.0	62.9	109	139	390	963	405	1,028	43.9	55.8	29.5	29.6	276
1954	33.6	49.2	77.2	632	235	128	155	125	101	33.8	27.1	22.0	135
1955	26.9	28.9	84.4	41.4	291	803	578	250	58.2	98.9	37.7	60.5	196
1956	71.9	70.0	123	527	1,389	309	420	121	48.3	26.6	30.5	21.3	258
1957	23.1	30.3	37.6	521	567	167	404	378	408	125	37.9	41.1	226
1958													
1959													
1960													

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.49	2.20	1.99	6.41	4.08	1.85	2.55	0.39	1.16	2.30	0.81	0.75	24.98
1952	.36	2.97	4.95	2.59	2.85	3.99	1.38	.59	.32	.28	.32	.54	21.14
1953	.24	.35	.62	.79	2.00	5.47	2.23	5.84	.24	.32	.17	.16	18.43
1954	.19	.27	.44	3.59	1.20	.72	.85	.71	.56	.19	.15	.12	8.99
1955	.15	.16	.48	.24	1.49	4.56	3.18	1.42	.32	.56	.21	.33	13.10
1956	.41	.38	.70	2.99	7.38	1.76	2.31	.68	.27	.15	.17	.12	17.32
1957	.13	.17	.21	2.96	2.91	.95	2.22	2.15	2.24	.71	.22	.23	15.10
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	422	28.24
1951	1211	*5,440	Jan. 14, 1951	25	373	1.84	24.98	427	28.58
1952	1241	*3,510	Mar. 11, 1952	36	315	1.55	21.14	210	14.07
1953	1281	*5,080	May 18, 1953	25	276	1.36	18.43	271	18.12
1954	1341	3,210	Jan. 22, 1954	17	135	.665	8.99	133	8.88
1955	1391	4,530	Mar. 23, 1955	21	196	.966	13.10	206	13.80
1956	1441	8,860	Jan. 30, 1956	16	258	1.27	17.32	244	16.34
1957	1511	3,410	June 5, 1957	21	226	1.11	15.10	-	-
1958									
1959									
1960									

* Revised.

255. North Fork Obion River near Union City, Tenn.

Location.--Lat 36°23'59", long 88°59'43", on downstream side of right pier of bridge on State Highway 22, 0.3 mile downstream from Harris Fork Creek, 0.8 mile southeast of Gibbs, 3.9 miles southeast of Union City, Obion County, 4.5 miles upstream from Hoosier Creek, and 10 miles upstream from confluence with South Fork.

Drainage area.--480 sq mi (revised).

Records available.--July 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 286.88 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 20, 1939, and Aug. 26 to Dec. 9, 1959, staff gage at same site and datum.

Average discharge.--31 years (1929-60), 625 cfs.

Extremes.--1929-60: Maximum discharge, 49,200 cfs Jan. 22, 1937 (gage height, 22.0 ft, from floodmarks); minimum, 82 cfs Oct. 5, 1943; minimum gage height observed, 3.38 ft July 27, 1929.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	241	1,236	849	2,844	2,122	1,055	976	216	587	543	169	309	921
1952	168	846	2,067	996	1,008	3,247	594	226	174	208	171	217	830
1953	142	183	360	544	713	2,264	550	1,731	204	141	112	106	590
1954	110	137	260	708	555	826	507	304	519	140	114	117	357
1955	196	119	333	188	892	1,697	1,004	545	321	349	178	160	496
1956	190	217	182	573	3,783	698	758	255	164	253	115	102	593
1957	101	151	150	1,072	1,443	327	1,182	1,685	1,432	498	324	133	702
1958	213	4,480	2,165	688	350	1,478	616	941	183	521	200	201	1,004
1959	132	214	186	765	1,153	357	296	310	386	354	312	306	392
1960	424	330	774	787	412	674	318	584	382	267	142	135	438

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.58	2.87	2.04	6.83	4.60	2.53	2.27	0.52	1.37	1.30	0.41	0.72	26.04
1952	.40	1.97	4.96	2.39	2.26	7.80	1.38	.54	.40	.50	.41	.50	23.51
1953	.34	.43	.86	1.31	1.55	5.44	1.28	4.16	.47	.34	.27	.25	16.70
1954	.26	.32	.62	1.70	1.20	1.98	1.18	.73	1.21	.34	.27	.27	10.08
1955	.47	.28	.80	.45	1.94	4.08	2.33	1.31	.75	.84	.43	.37	14.05
1956	.46	.50	.44	1.38	8.50	1.68	1.76	.61	.38	.61	.28	.24	16.84
1957	.24	.35	.36	2.57	3.13	.79	2.75	4.05	3.33	1.20	.78	.31	19.86
1958	.51	10.41	5.20	1.65	.76	3.55	1.43	2.26	.43	1.25	.48	.47	28.40
1959	.32	.50	.45	1.84	2.50	.86	.69	.74	.90	.85	.75	.71	11.11
1960	1.02	.77	1.86	1.89	.93	1.62	.74	1.40	.89	.64	.34	.31	12.41

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	1,329	37.60
1951	1211	13,800	Jan. 15, 1951	140	921	1.92	26.04	986	27.88
1952	1241	24,900	Mar. 23, 1952	128	830	1.73	23.51	629	17.81
1953	1281	9,500	May 19, 1953	105	590	1.23	16.70	575	16.27
1954	1341	5,100	Mar. 26, 1954	96	357	.744	10.08	369	10.43
1955	1391	5,650	Mar. 22, 1955	101	496	1.03	14.05	491	13.90
1956	1441	14,900	Feb. 19, 1956	97	593	1.24	16.84	578	16.39
1957	1511	9,900	May 23, 1957	98	702	1.46	19.86	1,238	35.03
1958	1561	40,000	Nov. 19, 1957	120	1,004	2.09	28.40	479	13.55
1959	1631	5,680	Feb. 15, 1959	110	392	.817	11.11	477	13.49
1960	1711	4,380	Dec 12, 1959	110	438	.912	12.41	-	-

a Maximum observed.

260. Obion River at Obion, Tenn.

Location.--Lat 36°15'05", long 89°11'33", on right bank 20 ft downstream from bridge on U. S. Highway 51, half a mile upstream from Richland Creek, 0.6 mile south of Obion, Obion County, and 14½ miles downstream from confluence of North and South Forks.

Drainage area.--1,880 sq mi, approximately.

Records available.--July 1929 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 261.23 ft above mean Gulf level. Prior to Oct. 1, 1932, chain gage at present site at datum 10.00 ft lower and Oct. 1, 1932, to Aug. 2, 1939, at present site and datum.

Average discharge.--29 years (1929-58), 2,495 cfs.

Extremes.--1929-58: Maximum discharge, 99,500 cfs Jan. 24, 1937 (gage height, 25.4 ft, from floodmarks); minimum (under conditions of no backwater), 230 cfs Oct. 7-9, 12, 1943; minimum gage height, -0.04 ft Sept. 1, 1936; during period of backwater from Mississippi River, a minimum daily discharge of 15 cfs occurred Feb. 4, 1937; reverse flow of 57 cfs was measured by current meter on that date.

Corrections.--In WSP 1311, the minimum daily discharge for water year 1948 is listed in error; it should be 296 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	932	4,246	3,887	11,600	7,374	3,624	4,050	813	2,102	3,282	677	985	3,608
1952	545	3,916	11,130	5,431	5,529	10,570	2,853	770	508	675	494	613	3,593
1953	407	700	1,280	1,500	2,348	9,205	2,503	9,076	603	503	364	352	2,419
1954	355	474	804	3,841	2,521	2,224	1,665	1,569	1,308	367	371	348	1,315
1955	437	372	760	837	2,822	6,985	4,267	1,576	1,273	1,054	522	319	1,762
1956	603	651	924	788	16,610	3,018	3,012	1,198	515	664	357	264	2,320
1957	270	437	520	2,518	8,849	2,069	4,908	6,660	5,241	3,972	1,101	512	3,044
1958	742	15,500	8,757	3,091	2,097	5,943	3,124	4,823	669	1,976	589	708	4,006
1959													
1960													

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.57	2.52	2.38	7.11	4.08	2.22	2.40	0.50	1.25	2.01	0.42	0.58	26.04
1952	.33	2.32	6.82	3.33	3.17	6.48	1.69	.47	.30	.41	.30	.36	25.98
1953	.25	.42	.79	.92	1.30	5.64	1.49	5.57	.36	.31	.22	.21	17.48
1954	.22	.28	.49	2.36	1.40	1.36	.99	.96	.78	.23	.23	.21	9.51
1955	.27	.22	.47	.51	1.56	4.28	2.53	.97	.76	.65	.32	.19	12.73
1956	.37	.39	.57	.48	9.53	1.85	1.79	.73	.31	.41	.22	.16	16.81
1957	.17	.26	.32	1.54	4.90	1.27	2.91	4.08	3.11	2.44	.68	.30	21.98
1958	.46	9.20	5.37	1.90	1.16	3.64	1.85	2.96	.40	1.21	.36	.42	28.93
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	4,911	35.46
1951	1211	37,100	Jan. 17, 1951	365	3,608	1.92	26.04	4,164	30.04
1952	1241	27,800	Mar. 24, 1952	396	3,593	1.91	25.98	2,481	17.97
1953	1281	26,100	May 21, 1953	342	2,419	1.29	17.48	2,356	17.01
1954	1341	9,880	Jan. 25, 1954	302	1,315	.699	9.51	1,310	9.48
1955	1391	19,000	Mar. 25, 1955	288	1,762	.937	12.73	1,813	13.10
1956	1441	40,100	Feb. 3, 1956	242	2,320	1.23	16.81	2,240	16.23
1957	1511	25,100	May 25, 1957	241	3,044	1.62	21.98	5,022	36.26
1958	1561	53,600	Nov. 20, 1957	380	4,006	2.13	28.93	-	-
1959									
1660									

265. Reelfoot Creek near Samburg, Tenn.

Location.--Lat 36°26'32", long 89°17'50", on left bank 80 ft downstream from bridge on State Highway 22, 1.1 miles downstream from confluence of North Reelfoot and South Reelfoot Creeks, 4 miles upstream from mouth, 5 miles northeast of Samburg, Obion County, and 14 miles west of Union City.

Drainage area.--110 sq mi, approximately.

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 286.26 ft above mean sea level, datum of 1929. Prior to Dec. 6, 1951, staff gage at same site and datum.

Average discharge.--10 years (1950-60), 108 cfs.

Extremes.--1950-60: Maximum discharge, 6,690 cfs Nov. 18, 1957 (gage height, 14.83 ft), from rating curve extended above 1,800 cfs; no flow at times in 1953-57.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	‡20.5	‡218	‡150	449	356	175	140	11.4	164	178	35.6	14.8	‡158
1952	1.8	174	326	221	269	412	127	33.2	2.9	18.4	27.5	3.35	135
1953	1.12	10.3	84.7	66.1	94.8	427	118	213	2.45	8.85	.43	0	86.1
1954	.79	9.47	33 5	136	112	106	30.0	58.8	70.2	1.87	6.15	15.8	48.0
1955	35.3	.68	80.5	3.80	75.6	230	193	116	31.3	49.0	8.91	24.4	70.7
1956	22.7	26.2	32.1	149	496	104	88.9	41.0	1.51	66.7	.10	0	84.1
1957	0	1.55	3.87	162	162	48.5	187	525	281	62.7	64.9	12.3	126
1958	40.8	657	441	215	100	403	185	299	14.7	66.7	8.55	21.3	205
1959	3.15	53.0	10.9	219	263	53.6	73.4	24.9	3.40	80.1	96.3	57.0	77.0
1960	24.3	50.7	136	103	176	182	90.9	272	38.2	31.8	1.46	1.83	92.3

‡ Not previously published; estimated on basis of records for station on North Fork Obion River near Union City.

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	‡0.21	‡2.21	‡1.57	4.71	3.37	1.83	1.42	0.12	1.66	1.86	0.37	0.15	‡19.48
1952	.02	1.76	3.41	2.32	2.64	4.31	1.29	.35	.03	.19	.29	.03	16.64
1953	.01	.10	.89	.69	.90	4.48	1.20	2.24	.02	.09	.004	0	10.62
1954	.008	.10	.35	1.43	1.06	1.11	.30	.62	.71	.02	.06	.16	5.93
1955	.37	.007	.84	.04	.72	2.41	1.96	1.22	.32	.51	.09	.25	8.74
1956	.24	.27	.34	1.56	4.86	1.09	.90	.43	.02	.70	.001	0	10.41
1957	0	.02	.04	1.70	1.53	.51	1.90	5.51	2.85	.66	.68	.12	15.52
1958	.43	6.67	4.62	2.26	.95	4.22	1.88	3.14	.15	.70	.09	.22	25.33
1959	.03	.54	.11	2.30	2.49	.56	.74	.26	.03	.84	1.01	.58	9.49
1960	.25	.51	1.43	1.08	1.72	1.91	.92	2.85	.39	.33	.02	.02	11.43

‡ Not previously published; estimated on basis of records for station on North Fork Obion River near Union City.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950									
1951	1211	a4,130	Jan. 14, 1951	b1	‡158	‡1.44	‡19.48	168	20.68
1952	1241	3,350	Mar. 10, 1952	.9	135	1.23	16.64	101	12.45
1953	1281	3,010	Mar. 18, 1953	0	86.1	.783	10.62	81.7	10.08
1954	1341	2,600	Mar. 24, 1954	0	48.0	.436	5.93	54.2	6.69
1955	1391	2,530	Apr. 13, 1955	0	70.7	.643	8.74	67.6	8.37
1956	1441	4,740	Feb. 18, 1956	0	84.1	.765	10.41	77.7	9.62
1957	1511	5,970	May 22, 1957	0	126	1.15	15.52	220	27.1
1958	1561	6,690	Nov. 18, 1957	.2	205	1.86	25.33	116	14.2
1959	1631	3,880	Jan. 21, 1959	.3	77.0	.700	9.49	89.2	11.00
1960	1711	2,950	May 19, 1960	.1	92.3	.839	11.43	-	-

‡ Not previously published.
a Observed.
b Minimum during period Dec. 15 to Sept. 30.

275. South Fork Forked Deer River at Jackson, Tenn.

Location.--Lat 35°35'38", long 88°48'52", on right bank 20 ft downstream from bridge on U. S. Highway 45, 0.3 mile south of city limits of Jackson, Madison County, and 0.6 mile downstream from Meridian Creek.

Drainage area.--574 sq mi.

Records available.--July 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 330.86 ft above mean sea level, datum of 1929. Prior to Mar. 9, 1933, staff gage and Mar. 9, 1933, to Feb. 3, 1939, chain gage, at same site and datum.

Average discharge.--31 years (1929-60), 732 cfs.

Extremes.--1929-60: Maximum discharge, 43,600 cfs Jan. 21, 1935 (gage height, 24.0 ft, from floodmarks), from rating curve extended above 16,000 cfs; minimum, 67 cfs Oct. 9, 1941; minimum gage height observed, 1.58 ft July 9, 1929.

Revisions.--Some periods for the water years 1936 and 1945 were revised in WSP 1631; the resulting revised records as summarized herewith supersede those published in WSP 1311.

Month	Mean	Per square mile	Inches	Momentary maximum		Minimum day
				Discharge	Date	
February 1936	453	-	0.85	-	-	-
Water year 1935-36	380	0.662	8.99	7,110	July 5, 1936	73
Calendar year 1936	403	-	9.55	-	-	-
February 1945	1,499	-	2.72	-	-	-
Water year 1944-45	907	1.58	21.44	9,900	Jan. 1, 1945	91
Calendar year 1945	1,039	-	24.56	-	-	-

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	285	922	1,108	2,477	1,975	1,172	1,735	289	375	458	232	218	930
1952	217	1,242	2,625	1,541	1,331	2,172	744	313	181	153	223	366	927
1953	169	322	366	559	1,643	1,550	917	2,379	195	210	123	107	708
1954	116	168	304	2,441	1,097	459	508	384	169	141	95.7	93.4	496
1955	112	126	221	212	848	2,034	1,526	777	272	583	186	179	588
1956	195	267	242	612	3,359	854	1,431	368	278	124	138	88.7	650
1957	97.4	132	304	1,760	1,895	739	1,433	1,135	663	515	185	538	775
1958	299	2,361	1,306	611	427	1,010	1,013	836	187	599	150	577	782
1959	166	324	236	959	1,614	567	460	177	394	296	238	162	458
1960	217	300	918	683	714	1,032	456	472	162	238	169	161	461

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.57	1.79	2.23	4.97	3.58	2.35	3.37	0.58	0.73	0.92	0.47	0.42	21.98
1952	.44	2.41	5.27	3.10	2.50	4.36	1.45	.63	.35	.31	.45	.71	21.98
1953	.34	.63	.73	1.12	2.98	3.11	1.78	4.78	.38	.42	.25	.21	16.73
1954	.23	.33	.61	4.90	1.99	.92	.99	.77	.33	.28	.19	.18	11.72
1955	.22	.25	.44	.43	1.54	4.09	2.97	1.56	.53	1.17	.37	.35	13.92
1956	.39	.52	.49	1.23	6.31	1.72	2.78	.74	.54	.25	.28	.17	15.42
1957	.20	.26	.61	3.53	3.44	1.48	2.78	2.28	1.29	1.03	.37	1.04	18.31
1958	.60	4.59	2.62	1.23	.77	2.03	1.97	1.68	.36	1.20	.30	1.12	18.47
1959	.33	.63	.47	1.93	2.93	1.14	.89	.36	.77	.59	.48	.32	10.84
1960	.44	.58	1.84	1.37	1.34	2.07	.89	.95	.32	.48	.34	.31	10.93

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	1,270	30.01
1951	1211	8,390	Jan. 4, 1951	124	930	1.62	21.98	1,080	25.51
1952	1241	8,740	Dec. 15, 1951	112	927	1.61	21.98	656	15.56
1953	1281	7,100	May 20, 1953	94	708	1.23	16.73	685	16.20
1954	1341	10,800	Jan. 22, 1954	72	496	.864	11.72	485	11.46
1955	1391	9,840	Mar. 23, 1955	85	588	1.02	13.92	609	14.41
1956	1441	10,100	Feb. 19, 1956	73	650	1.13	15.42	636	15.09
1957	1511,1561	7,270	Jan. 30, 1957	88	775	1.35	18.31	1,060	25.05
1958	1561	7,480	Nov. 19, 1957	114	782	1.36	18.47	512	12.09
1959	1631	8,050	Feb. 16, 1959	111	458	.798	10.84	518	12.27
1960	1711	3,780	Dec. 12, 1959	108	461	.803	10.93	-	-

280. South Fork Forked Deer River at Chestnut Bluff, Tenn.

Location.--Lat 35°51'43", long 89°20'52", on left bank 20 ft downstream from county highway bridge, 0.8 mile west of Chestnut Bluff, Crockett County, 1.1 miles upstream from Halls Creek, 1.2 miles downstream from Black Creek, 2.9 miles east of Halls, 3.1 miles downstream from State Highway 88, and 16 miles upstream from confluence with North Fork. Records include flow of Halls Creek.

Drainage area.--1,100 sq mi, approximately, includes that of Halls Creek.

Records available.--July 1929 to September 1957 (after September 1949, flow of Halls Creek included).

Gage.--Water-stage recorder. Datum of gage is 256.88 ft, unadjusted, above mean sea level. Prior to July 20, 1939, staff gage at same site and datum.

Average discharge.--28 years (1929-57), 1,410 cfs.

Extremes.--1929-57. Maximum discharge, 45,000 cfs Jan. 22, 1935 (gage height, 22.3 ft, from floodmarks), from rating curve extended above 21,000 cfs; minimum observed, 102 cfs Aug. 31, Sept. 1, 1936; minimum gage height observed, 3.2 ft Aug. 5-13, 1930.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	446	1,948	1,926	5,076	3,906	1,834	3,076	659	662	987	356	543	1,770
1952	342	1,949	4,584	2,245	3,329	3,794	1,559	513	358	274	508	588	1,667
1953	280	449	615	818	2,919	3,944	1,635	6,172	341	408	203	183	1,495
1954	197	285	524	4,072	1,879	955	861	961	342	231	174	165	884
1955	185	205	361	333	1,469	4,108	3,318	968	1,182	1,453	297	221	1,172
1956	469	510	532	1,686	7,738	1,680	2,550	876	413	295	209	141	1,396
1957	162	230	420	1,671	5,392	1,224	2,712	1,658	2,018	1,673	618	648	1,505
1958													
1959													
1960													

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.47	1.98	2.02	5.32	3.70	1.92	3.12	0.69	0.67	1.03	0.37	0.55	21.84
1952	.36	1.98	4.80	2.35	3.26	3.98	1.58	.54	.36	.29	.53	.60	20.63
1953	.29	.46	.64	.86	2.76	4.13	1.66	6.47	.35	.43	.21	.19	18.45
1954	.21	.29	.55	4.27	1.78	1.00	.87	1.01	.35	.24	.18	.17	10.92
1955	.19	.21	.38	.35	1.39	4.31	3.37	1.01	1.20	1.52	.31	.22	14.46
1956	.49	.52	.56	1.77	7.59	1.76	2.59	.92	.42	.31	.22	.14	17.29
1957	.17	.23	.44	1.75	5.10	1.28	2.75	1.74	2.05	1.75	.65	.66	18.57
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	2,656	32.79
1951	1211	17,200	Jan. 15, 1951	207	1,770	1.61	21.84	1,987	24.51
1952	1241	11,000	Dec. 18, 1951	195	1,667	1.52	20.63	1,203	14.88
1953	1281	30,600	May 18, 1953	170	1,495	1.36	18.45	1,466	18.11
1954	1341	13,500	Jan. 22, 1954	138	884	.804	10.92	863	10.65
1955	1391	12,100	Mar. 23, 1955	163	1,172	1.07	14.46	1,236	15.25
1956	1441	26,200	Jan. 31, 1956	131	1,396	1.27	17.29	1,338	16.56
1957	1511	14,200	Feb. 1, 1957	148	1,505	1.37	18.57	-	-
1958									
1959									
1960									

285. North Fork Forked Deer River at Trenton, Tenn.

Location.--Lat 35°58'49", long 88°55'35", on downstream side of right bank bridge pier on State Highways 77 and 104, 0.8 mile east of Trenton, Gibson County, 1.0 mile downstream from Thompson Levee Creek, 1.6 miles upstream from Cain Creek, and 16.5 miles upstream from Middle Fork.

Drainage area.--71.3 sq mi.

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 303.51 ft above mean sea level, datum of 1929.

Average discharge.--10 years (1950-60), 104 cfs.

Extremes.--1950-60: Maximum discharge, 11,800 cfs Jan. 30, 1956 (gage height, 13.39 ft, from floodmark in gage shelter), from rating curve extended above 3,600 cfs on basis of velocity-area study; minimum, 12 cfs for many days in several years.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	‡44.5	‡178	‡150	541	335	133	156	18.1	89.1	146	76.1	80.8	‡161
1952	27.7	274	361	157	213	293	69.4	33.0	20.5	18.2	22.2	48.7	128
1953	18.1	22.6	65.2	61.8	116	404	145	471	16.3	37.5	14.5	14.5	116
1954	16.6	22.1	38.6	337	110	45.5	55.6	55.3	82.0	14.1	13.7	14.2	66.9
1955	14.2	14.5	31.6	19.1	159	292	228	65.7	26.9	69.7	16.7	20.4	79.3
1956	46.9	42.4	60.2	367	521	110	148	75.7	19.0	12.7	18.8	12.4	118
1957	12.3	17.3	20.7	255	217	59.6	170	231	237	62.0	17.7	17.7	109
1958	34.7	514	276	99.3	50.9	201	119	190	16.1	78.3	19.1	31.8	136
1959	18.5	36.4	34.1	149	268	57.9	37.4	31.6	17.2	75.5	61.0	23.3	66.2
1960	45.1	25.7	109	61.9	50.2	157	34.9	140	15.8	54.6	14.2	15.6	60.8

‡ Not previously published; estimated on basis of records for Middle Fork Forked Deer River near Alamo.

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	†0.72	†2.79	†2.43	8.75	4.90	2.15	2.44	0.29	1.39	2.37	1.23	1.26	‡30.72
1952	.45	4.29	5.84	2.54	3.21	4.73	1.09	.53	.32	.29	.36	.76	24.41
1953	.29	.35	1.05	1.00	1.70	6.54	2.26	7.62	.25	.61	.23	.23	22.13
1954	.27	.35	.62	5.44	1.60	.74	.87	.89	1.28	.23	.22	.22	12.73
1955	.23	.23	.51	.31	2.32	4.73	3.58	1.06	.42	1.13	.27	.32	15.11
1956	.76	.66	.97	5.94	7.89	1.78	2.32	1.22	.30	.20	.30	.19	22.53
1957	.20	.27	.33	4.12	3.17	.96	2.65	3.73	3.70	1.00	.29	.28	20.70
1958	.56	8.04	4.46	1.60	.74	3.25	1.86	3.06	.25	1.27	.31	.50	25.90
1959	.30	.57	.55	2.41	3.91	.94	.59	.51	.27	1.22	.99	.37	12.63
1960	.73	.40	1.76	1.00	.76	2.54	.55	2.27	.25	.88	.23	.24	11.61

‡ Not previously published; estimated on basis of records for Middle Fork Forked Deer River near Alamo.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1951	1241	6,540	Jan. 14, 1951	a15	‡161	‡2.26	‡30.72	186	35.36
1952	1241	3,880	Mar. 11, 1952	15	128	1.80	24.41	81.4	15.52
1953	1281	4,660	May 17, 1953	13	116	1.63	22.13	114	21.68
1954	1341	3,220	Jan. 21, 1954	13	66.9	.938	12.73	65.5	12.46
1955	1391	3,400	Mar. 21, 1955	12	79.3	1.11	15.11	86.8	16.53
1956	1441	11,800	Jan. 30, 1956	12	118	1.65	22.53	110	20.94
1957	1511	3,000	June 5, 1957	12	109	1.53	20.70	173	32.96
1958	1581	3,760	Nov. 18, 1957	13	136	1.91	25.90	74.9	14.26
1959	1631	2,620	Feb. 14, 1959	12	66.2	.928	12.63	73.9	14.10
1960	1711	1,360	Mar. 10, 1960	12	60.8	.853	11.61	-	-

‡ Not previously published.
a Minimum during period Dec. 26, to Sept. 30.

290. Middle Fork Forked Deer River near Alamo, Tenn.

Location.--Lat 35°51'00", long 89°04'00", on right bank 30 ft downstream from bridge on State Highway 54, 3 miles upstsream from Buck Creek, 5 miles north of Alamo, Crockett County, and 13 miles upstream from mouth.

Drainage area.--410 sq mi, approximately.

Records available.--July 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 288.34 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 12, 1939, staff gage at same site and datum.

Average discharge.--31 years (1929-60), 533 cfs.

Extremes.--1929-60: Maximum discharge, 34,300 cfs Jan. 30, 1956 (gage height, 16.70 ft), from rating curve extended above 6,500 cfs on basis of contracted-opening measurement of peak flow; minimum observed, 68 cfs June 30, July 1, 1936; minimum gage height observed, 1.26 ft July 1, 11, 17, 1931.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	240	917	770	2,257	1,486	728	1,094	197	475	725	236	268	778
1952	167	868	2,056	983	1,121	1,654	497	232	181	148	193	288	699
1953	137	169	237	290	1,022	1,782	733	2,398	152	196	117	108	612
1954	113	150	202	1,682	481	278	277	296	155	114	110	101	330
1955	105	105	181	146	649	1,695	1,298	561	259	521	121	150	482
1956	194	171	142	1,709	2,949	618	981	370	239	111	92.1	87.1	629
1957	96.8	108	145	1,132	1,896	475	805	764	893	550	155	190	591
1958	218	1,869	811	426	312	943	545	736	140	317	122	185	553
1959	138	204	159	704	1,129	425	235	130	160	241	193	190	320
1960	155	145	439	290	308	746	249	273	134	187	119	101	263

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.68	2.50	2.17	6.35	3.77	2.05	2.98	0.55	1.29	2.04	0.66	0.73	25.77
1952	.47	2.36	5.78	2.76	2.95	4.65	1.35	.65	.49	.42	.54	.78	23.20
1953	.39	.46	.67	.82	2.60	5.01	1.99	6.74	.41	.55	.33	.29	20.26
1954	.32	.41	.57	4.73	1.22	.78	.75	.83	.42	.32	.31	.27	10.93
1955	.30	.29	.51	.41	1.65	4.77	3.53	1.58	.71	1.46	.34	.41	15.96
1956	.55	.46	.40	4.81	7.76	1.74	2.67	1.04	.65	.31	.26	.24	20.89
1957	.27	.29	.41	3.18	4.82	1.34	2.19	2.15	2.43	1.55	.44	.52	19.59
1958	.61	5.09	2.28	1.20	.79	2.65	1.48	2.07	.38	.89	.34	.50	18.28
1959	.39	.56	.45	1.98	2.87	1.19	.64	.37	.43	.68	.54	.52	10.62
1960	.44	.39	1.23	.82	.81	2.10	.68	.77	.36	.53	.34	.27	8.74

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	943	31.24
1951	1211	9,520	Jan. 15, 1951	138	778	1.90	25.77	877	29.03
1952	1241	6,730	Mar. 11, 1952	125	699	1.70	23.20	485	16.11
1953	1281	9,970	May 18, 1953	101	612	1.49	20.26	605	20.04
1954	1341	6,500	Jan. 15, 1954	90	330	.805	10.93	324	10.73
1955	1391	7,340	Mar. 22, 1955	86	482	1.18	15.96	491	16.27
1956	1441	34,300	Jan. 30, 1956	84	629	1.53	20.89	616	20.45
1957	1511	7,520	Feb. 2, 1957	88	591	1.44	19.59	803	26.60
1958	1561	a5,980	Nov. 19, 1957	98	553	1.35	18.28	353	11.70
1959	1631	5,520	Feb. 15, 1959	100	320	.780	10.62	341	11.28
1960	1711	4,760	Mar. 10, 1960	82	263	.641	8.74	-	-

a Observed.

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295. Hatchie River at Bolivar, Tenn.

Location.--Lat 35°16'40", long 88°58'30", on upstream end of left bank pier of bridge on State Highway 18, 250 ft upstream from Illinois Central Railroad bridge, 2,000 ft downstream from Spring Creek, and 1.5 miles northeast of Bolivar, Hardeman County.

Drainage area.--1,430 sq mi, approximately.

Records available.--July 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 323.86 ft above mean Gulf level (levels by Corps of Engineers). Prior to July 27, 1932, staff gage at bridge 40 ft upstream. July 27, 1932, to Feb. 6, 1939, staff gage at same site. Feb. 7, 1939, to Aug. 19, 1959, water-stage recorder on right bank at downstream side of bridge. Aug. 20, 1959, to Sept. 26, 1960, wire-weight gage on downstream side of bridge and staff gage on left bank 100 ft downstream from bridge. All gages at same datum.

Average discharge.--31 years (1929-60), 2,357 cfs.

Extremes.--1929-60: Maximum discharge, 56,300 cfs Feb. 15, 1948 (gage height, 21.53 ft), from rating curve extended above 32,000 cfs; minimum, 78 cfs Sept. 2, 1943 (gage height, 0.63 ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	661	3,224	4,103	7,649	9,320	4,660	5,997	1,048	787	1,370	388	340	3,254
1952	366	1,734	7,815	4,840	5,635	6,394	2,884	1,068	471	268	679	287	2,702
1953	286	578	854	1,509	8,069	6,607	4,053	9,493	509	2,078	464	205	2,867
1954	208	340	758	4,449	4,391	1,711	1,957	1,482	612	287	193	131	1,358
1955	192	244	422	555	2,142	7,643	6,034	1,273	936	2,017	418	178	1,835
1956	219	553	682	661	10,610	2,560	4,350	1,857	557	400	207	129	1,857
1957	150	233	1,146	2,944	10,980	2,812	5,483	1,194	2,325	1,378	418	1,300	2,463
1958	797	7,457	4,786	2,199	1,763	2,353	3,572	5,877	644	1,207	453	2,738	2,821
1959	825	992	883	3,291	3,744	2,123	2,307	761	1,856	482	294	347	1,475
1960	1,119	681	3,757	3,798	3,543	5,192	1,650	1,380	653	661	471	340	1,940

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.53	2.52	3.31	6.17	6.79	3.76	4.68	0.85	0.61	1.10	0.31	0.27	30.90
1952	.30	1.35	6.30	3.90	4.25	5.15	2.25	.86	.37	.22	.55	.22	25.72
1953	.23	.45	.69	1.22	5.88	5.33	3.16	7.65	.40	1.68	.37	.16	27.22
1954	.17	.26	.61	3.59	3.20	1.38	1.53	1.20	.48	.23	.16	.10	12.91
1955	.15	.19	.34	.45	1.56	6.16	4.71	1.03	.73	1.63	.34	.14	17.43
1956	.18	.43	.55	.53	8.00	2.06	3.39	1.50	.43	.32	.17	.10	17.66
1957	.12	.18	.92	2.37	7.99	2.27	4.28	.96	1.81	1.11	.34	1.01	23.36
1958	.64	5.82	3.86	1.77	1.28	1.90	2.79	4.74	.50	.97	.37	2.14	26.78
1959	.66	.77	.71	2.65	2.73	1.71	1.80	.61	1.45	.39	.24	.27	13.99
1960	.90	.53	3.03	3.06	2.67	4.19	1.29	1.11	.51	.53	.38	.27	18.47

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	4,013	38.09
1951	1211	17,200	Apr. 2, 1951	203	3,254	2.28	30.90	3,421	32.49
1952	1241	14,400	Dec. 17, 1951	176	2,702	1.89	25.72	2,011	19.14
1953	1281	22,600	May 19, 1953	180	2,867	2.00	27.22	2,832	26.89
1954	1341	10,400	Jan. 20, 1954	113	1,358	.950	12.91	1,321	12.55
1955	1391	33,100	Mar. 25, 1955	130	1,835	1.28	17.43	1,885	17.91
1956	1441	24,700	Feb. 6, 1956	109	1,857	1.30	17.66	1,864	17.72
1957	1511	33,900	Feb. 3, 1957	114	2,463	1.72	23.36	3,420	32.46
1958	1561	19,400	Nov. 19, 1957	244	2,821	1.97	26.78	1,960	18.60
1959	1631	6,710	Jan. 26, 1959	198	1,475	1.03	13.99	1,718	16.31
1960	1711	8,410	Dec. 19, 1959	184	1,940	1.36	18.47	-	-

300. Hatchie River near Stanton, Tenn.

Location.--Lat 35°31'22", long 89°20'57", near right bank on downstream end of pier of bridge on U. S. Highways 70 and 79, 2.9 miles downstream from Louisville and Nashville Railroad bridge, 4.6 miles northeast of Stanton, Haywood County, and 7 miles upstream from Big Muddy Creek.

Drainage area.--1,940 sq mi, approximately.

Records available.--July 1929 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 267.34 ft above mean Gulf level (levels by Corps of Engineers). Prior to Aug. 7, 1939, staff gage at same site and datum.

Average discharge.--29 years (1929-38), 2,965 cfs.

Extremes.--1929-58: Maximum discharge observed, 59,000 cfs Jan. 22, 1935 (gage height, 20.35 ft); minimum, 217 cfs Sept. 26,27, 1956; minimum gage height, 1.40 ft Sept. 3, 1943.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	950	2,818	5,218	8,845	9,648	4,660	6,651	1,742	1,048	1,481	651	534	3,648
1952	527	2,166	8,510	5,728	7,386	7,473	3,887	1,436	877	490	830	508	3,312
1953	459	758	1,074	1,485	7,881	8,014	4,625	10,650	1,279	1,334	1,463	396	3,263
1954	380	541	999	5,757	5,279	2,962	2,508	2,116	862	437	349	285	1,854
1955	338	411	562	770	2,113	7,827	8,442	1,997	1,543	2,309	1,074	396	2,313
1956	486	706	888	872	13,980	3,860	4,929	2,183	758	756	379	261	2,451
1957	269	365	1,112	3,347	13,820	3,745	6,576	1,930	3,080	1,815	875	1,337	3,106
1958	1,154	7,832	6,425	2,612	2,406	2,615	3,701	7,045	820	1,275	763	1,981	3,222
1959													
1960													

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.56	1.62	3.10	5.26	5.18	2.77	3.83	1.04	0.60	0.88	0.39	0.31	25.54
1952	.31	1.25	5.06	3.40	4.11	4.44	2.24	.85	.50	.29	.49	.29	23.23
1953	.27	.44	.64	.88	4.23	4.76	2.66	6.33	.74	.79	.87	.23	22.84
1954	.23	.31	.59	3.42	2.83	1.76	1.44	1.26	.50	.26	.21	.16	12.97
1955	.20	.24	.33	.46	1.13	4.65	4.85	1.19	.89	1.37	.64	.23	16.18
1956	.29	.41	.53	.52	7.77	2.29	2.83	1.30	.44	.45	.23	.15	17.21
1957	.16	.21	.66	1.99	7.42	2.23	3.78	1.15	1.77	1.08	.52	.77	21.74
1958	.69	4.50	3.82	1.55	1.29	1.55	2.13	4.19	.47	.76	.45	1.14	22.54
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	4,777	33.41
1951	1211	23,400	Jan. 15, 1951	415	3,648	1.88	25.54	3,838	26.88
1952	1241	18,700	Dec. 15, 1951	402	3,312	1.71	23.23	2,561	17.96
1953	1281	18,800	May 21, 1953	360	3,263	1.68	22.84	3,232	22.62
1954	1341	16,900	Jan. 23, 1954	273	1,854	.956	12.97	1,803	12.61
1955	1391	28,600	Mar. 27, 1955	297	2,313	1.19	16.18	2,377	16.64
1956	1441	26,200	Feb. 9, 1956	217	2,451	1.26	17.21	2,424	17.01
1957	1511	34,200	Feb. 6, 1957	247	3,106	1.60	21.74	4,246	29.72
1958	1561	21,800	Nov. 20, 1957	489	3,222	1.66	22.54	-	-
1959									
1960									

301. Cane Creek at Ripley, Tenn.

Location.--Lat 35°45'25", long 89°33'05", on upstream side of right bank pier of bridge on State Highway 19, 1.3 miles upstream from Hyde Creek and 1.5 miles northwest of Ripley, Lauderdale County.

Drainage area.--30 sq mi, approximately.

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 309.78 ft above mean sea level, from preliminary field elevations by U. S. Coast and Geodetic Survey. Prior to Nov. 14, 1957, staff gage at same site and datum.

Extremes.--1957-60: Maximum discharge, 3,120 cfs Nov. 8, 18, 1957 (gage height, 14.30 ft), from rating curve extended above 1,200 cfs; minimum, 0.1 cfs May 19, 24-26, Sept. 25, 1959; minimum gage height, 1.60 ft Sept. 7, 1958.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	59.3	298	60.5	34.8	48.3	86.3	98.9	117	3.26	58.8	0.75	67.2	77.6
1959	2.95	39.1	4.05	85.1	157	27.1	2.21	27.8	125	122	14.3	6.14	50.3
1960	4.85	4.72	34.0	19.2	16.1	35.2	11.4	22.7	19.0	56.6	.59	1.37	18.9

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	2.28	11.09	2.32	1.34	1.68	3.31	3.68	4.50	0.12	2.26	0.03	2.50	35.11
1959	.11	1.46	.16	3.27	5.46	1.04	.08	1.07	4.66	4.70	.55	.23	22.79
1960	.19	.18	1.31	.74	.58	1.35	.42	.87	.71	2.17	.02	.05	8.59

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1958	1561	3,120	Nov.8,18,1957	0.3	77.6	2.59	35.11	46.7	21.15
1959	1631	2,590	Feb. 14, 1959	.1	50.3	1.68	22.79	50.2	22.74
1960	1711	1,100	July 3, 1960	.2	18.9	.630	8.59	-	-

305. Wolf River at Rossville, Tenn.

Location.--Lat 35°03'15", long 89°32'30", on left bank 100 ft downstream from new county highway bridge, 0.4 mile upstream from Hurricane Creek, half a mile north of Rossville, Fayette County, 3½ miles downstream from Grissum Creek, and at mile 60.

Drainage area.--503 sq mi.

Records available.--July 1929 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 300.74 ft above mean sea level, datum of 1929, supplementary adjustments of 1941 and 1944. Prior to June 13, 1939, chain gage at same site and datum.

Average discharge.--31 years (1929-60), 676 cfs.

Extremes.--1929-60: Maximum discharge, 40,000 cfs Jan. 20, 1935 (gage height, 13.75 ft, from floodmarks), from rating curve extended above 12,000 cfs; minimum, 100 cfs Sept. 16, 17, 1942; minimum gage height observed, 2.24 ft Aug. 12-14, 1930.

Corrections.--In WSP 1311, the Water-Supply Paper number in which revisions are contained for water years 1937-38 was listed in error; it should be 1391.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	283	794	1,301	2,517	1,818	995	987	315	301	535	246	236	856
1952	241	990	1,908	1,253	1,377	1,644	615	305	243	198	231	204	767
1953	189	310	357	403	1,886	1,249	964	3,771	247	620	205	190	862
1954	199	232	389	1,497	1,658	368	380	525	339	168	175	150	500
1955	211	197	247	271	871	1,854	2,144	274	305	438	202	166	595
1956	158	279	296	450	2,918	556	778	412	205	206	148	133	534
1957	142	181	343	1,215	2,152	574	989	461	870	300	260	469	651
1958	265	1,745	1,165	505	396	596	804	1,522	270	315	220	975	732
1959	232	346	334	936	1,056	750	477	257	558	193	224	224	461
1960	325	262	934	712	780	1,168	350	434	364	181	299	181	500

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.65	1.76	2.98	5.77	3.76	2.28	2.19	0.72	0.67	1.23	0.56	0.52	23.09
1952	.55	2.20	4.37	2.87	2.95	3.77	1.36	.70	.54	.45	.53	.45	20.74
1953	.43	.69	.82	.92	3.90	2.86	2.14	8.64	.55	1.42	.47	.42	23.26
1954	.46	.51	.89	3.43	3.43	.84	.84	1.20	.75	.39	.40	.33	13.47
1955	.48	.44	.57	.62	1.80	4.25	4.76	.63	.68	1.00	.46	.37	16.06
1956	.36	.62	.68	1.03	6.26	1.28	1.73	.94	.45	.47	.34	.30	14.46
1957	.33	.40	.79	2.79	4.45	1.32	2.19	1.06	1.93	.69	.59	1.03	17.58
1958	.61	3.87	2.67	1.16	.82	1.37	1.78	3.49	.60	.72	.50	2.16	19.75
1959	.53	.77	.77	2.14	2.19	1.72	1.06	.59	1.24	.44	.51	.50	12.46
1960	.75	.58	2.14	1.63	1.67	2.68	.78	1.00	.81	.41	.69	.40	13.54

Yearly discharge, in cubic feet per second

Year	W.S.P.	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	989	26.67
1951	1211	11,400	Jan. 14, 1951	198	856	1.70	23.09	920	24.82
1952	1241	6,010	Jan. 29, 1952	164	767	1.52	20.74	575	15.56
1953	1281	12,800	May 19, 1953	177	862	1.71	23.26	859	23.18
1954	1341	11,800	Feb. 17, 1954	146	500	.994	13.47	486	13.10
1955	1391	12,300	Mar. 22, 1955	154	595	1.18	16.06	601	16.23
1956	1441	11,600	Feb. 4, 1956	128	534	1.06	14.46	529	14.32
1957	1511	11,800	Feb. 2, 1957	137	651	1.29	17.58	860	23.21
1958	1561	8,400	May 10, 1958	190	732	1.46	19.75	544	14.67
1959	1631	5,640	Feb. 15, 1959	166	461	.917	12.46	513	13.86
1960	1711	2,710	Mar. 9, 1960	159	500	.994	13.54	-	-

315. Marys Creek at Pisgah Road, near Fisherville, Tenn.

Location.--Lat 35°07'45", long 89°42'35", on left bank just upstream from bridge on Pisgah Road, 2 miles upstream from mouth, 3½ miles southwest of Fisherville, Shelby County, and 6½ miles northwest of Collierville.

Drainage area.--13.6 sq mi.

Records available.--October 1954 to July 1957.

Gage.--Water-stage recorder. Datum of gage is 281.72 ft above mean sea level (U. S. Soil Conservation Service bench mark).

Extremes.--1954-57: Maximum discharge, 1,540 cfs (revised) Apr. 6, 1955 (gage height, 10.69 ft); no flow for many days in each year.

Remarks.--Flow partly regulated by Fisherville Lake.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	0.669	0	1.17	0.191	*26.0	*46.8	*73.7	*13.0	*5.57	12.4	3.63	0.344	*15.1
1956	.004	.616	.075	7.18	67.7	11.0	25.3	7.48	4.99	.037	.549	0	10.1
1957	.378	.616	1.82	72.7	36.7	18.0	25.6	29.1	32.4	-	-	-	-

* Revised. Revised daily discharge for the periods thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	0.06	0	0.10	0.02	*1.99	*3.97	*6.05	*1.10	*0.46	*1.05	0.31	0.03	*15.14
1956	.0003	.05	.006	.61	5.37	.93	2.07	.63	.41	.003	.05	0	10.13
1957	.03	.05	.15	6.16	2.81	1.53	2.10	2.47	2.65	-	-	-	-

* Revised. See footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	W.S.P.	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1955	1391	*1,540	Apr. 6, 1955	0	*15.1	*1.11	*15.14	*15.1	*15.04
1956	1441	993	Feb. 3, 1956	0	10.1	.743	10.13	10.3	10.30
1957	1511	1,330	June 4, 1957	0	-	-	-	-	-

* Revised.

320. Mississippi River at Memphis, Tenn.

Location.--Lat 35°07'37", long 90°04'25", on left bank 50 ft downstream from Harahan Bridge at Memphis, Shelby County, 1¼ miles downstream from Wolf River, 1.3 miles downstream from Beale Street gage, 70 miles upstream from St. Francis River, and at mile 731.5.

Drainage area.--932,800 sq mi, approximately.

Records available.--Discharge: January 1933 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage heights: October 1934 to September 1951 and October 1952 to September 1960 in reports of Geological Survey. Since November 1871, at Beale Street gage, in reports of Mississippi River Commission. December 1890 to August 1932 at Beale Street gage, September 1932 to December 1934 at staff gage 1,000 ft downstream, and since December 1934 at water-stage recorder at present site, in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 183.91 ft above mean sea level, datum of 1929, 184.21 ft above mean Gulf level (1912 Mississippi River Commission), and 190.86 ft on Memphis datum (1881 Mississippi River Commission). Prior to Apr. 16, 1934, Beale Street staff gage 1.3 miles upstream at same datum. Apr. 16 to Dec. 21, 1934, staff gage 1,000 ft downstream at same datum.

Average discharge.--27 years (1933-60), 456,400 cfs (330,400,000 acre-ft per year).

Extremes.--1933-60: Maximum discharge, 1,980,000 cfs Feb. 8, 1937; maximum gage height, 48.69 ft Feb. 10, 1937; minimum discharge, 79,200 cfs Aug. 26, 1936; minimum gage height, -5.35 ft Jan. 24, 1956.

Maximum stage known prior to 1937, 46.55 ft at Beale Street gage or about 45.2 ft Apr. 9, 1913, at present site.

Remarks.--Natural flow of stream affected by many reservoirs and navigation dams.

Monthly and yearly mean discharge, in thousands of cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	280.8	348.2	635.5	709.7	876.1	1,054	1,051	760.6	545.4	859.5	409.0	421.0	661.6
1952	294.6	461.0	771.2	851.8	995.4	900.1	1,055	734.6	429.2	329.9	257.7	182.5	603.9
1953	132.2	138.9	226.6	340.2	494.4	711.6	622.4	677.1	424.7	314.5	236.6	153.3	372.1
1954	119.9	113.8	145.5	294.0	296.1	332.5	395.2	453.5	335.6	283.5	193.1	190.9	262.6
1955	276.9	218.0	233.7	428.2	463.6	994.6	809.6	436.0	347.6	270.2	188.5	134.7	399.9
1956	198.5	215.4	203.7	127.3	807.0	849.5	682.6	475.4	372.4	315.5	296.0	192.0	392.7
1957	139.8	145.5	289.2	347.3	926.9	470.3	780.0	602.6	616.1	485.6	237.7	180.2	431.1
1958	179.3	486.1	681.8	560.8	462.1	533.3	608.5	825.7	422.1	606.3	684.7	279.1	528.9
1959	219.7	215.1	239.5	360.6	764.8	627.8	580.2	469.4	359.8	238.0	223.8	177.1	370.2
1960	322.6	285.6	496.9	605.5	571.4	509.5	926.3	610.6	498.5	483.8	221.6	221.7	479.0

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17,270	20,720	39,080	43,640	48,660	64,800	62,520	46,770	32,460	52,850	25,150	25,050	479,000
1952	18,110	27,430	47,420	52,380	57,260	55,350	62,760	45,170	25,540	20,280	15,850	10,860	438,400
1953	8,128	8,263	13,930	20,920	27,460	43,760	37,030	41,630	25,270	19,340	14,550	9,124	269,400
1954	7,371	6,774	8,943	18,080	16,440	20,440	23,520	27,890	19,970	17,430	11,880	11,360	190,100
1955	17,030	12,970	14,370	26,330	25,750	61,160	48,180	26,810	20,680	16,610	11,590	8,017	289,500
1956	12,210	12,820	12,520	7,827	46,420	52,230	40,620	29,230	22,160	19,400	18,200	11,420	285,100
1957	8,596	8,660	17,780	21,360	51,480	28,920	46,420	37,060	36,660	29,860	14,620	10,720	312,100
1958	11,030	28,920	41,920	34,480	25,670	32,790	36,210	50,770	25,110	37,280	42,100	16,610	382,900
1959	13,510	12,800	14,730	22,170	42,470	38,600	34,530	28,860	21,410	14,630	13,760	10,540	268,000
1960	19,830	16,990	30,550	37,230	32,870	31,330	55,120	37,550	29,660	29,750	13,630	13,190	347,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	703,500	509,300,000
1951	1211	1,217,000	Mar. 3, 1951	184,000	661,600	479,000,000	683,500	494,900,000
1952	1241	1,323,000	Apr. 1, 1952	145,000	603,900	438,400,000	517,600	375,800,000
1953	1281	843,000	May 24, 1953	114,000	372,100	269,400,000	362,100	262,200,000
1954	1341	630,000	Jan. 29,30,1954	108,000	262,600	190,100,000	292,000	211,400,000
1955	1391	1,247,000	Apr. 1, 2, 1955	114,000	399,900	289,500,000	390,500	282,700,000
1956	1441	1,012,000	Feb. 28, 29, 1956	100,000	392,700	285,100,000	389,200	282,500,000
1957	1511	1,060,000	Feb. 16, 1957	114,000	431,100	312,100,000	495,800	359,000,000
1958	1561	967,000	July 31, 1958	152,000	528,900	382,900,000	472,500	342,100,000
1959	1631	884,000	Feb. 26, 1959	128,000	370,200	268,000,000	406,600	294,300,000
1960	1711	1,137,000	Apr. 17, 1960	193,000	479,000	347,700,000	-	-

350. Little St. Francis River at Fredericktown, Mo.

Location.--Lat 37°33'30", long 90°18'45", in SW¼ sec.7, T.33 N., R.7 E., at bridge on State Highway 72, half a mile downstream from Saline Creek and 1 mile west of Fredericktown.

Drainage area.--90.5 sq mi.

Records available.--February to September 1939, October 1959 to September 1960.

Gage.--Wire-weight gage. Datum of gage is 678.58 ft above mean sea level, datum of 1929.

Extremes.--1939, 1959-60: Maximum discharge, 6,320 cfs Mar. 5, 1939 (gage height, 16.49 ft); minimum, 0.3 cfs Sept. 23-28, 1939, Sept. 24, 1960; minimum gage height, 1.87 ft Sept. 24, 1960.
Maximum stage known, 21.4 ft sometime in 1931, from floodmark (discharge, 11,000 cfs, estimated).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	39.5	25.4	234	88.5	94.3	149	83.8	142	58.0	4.41	2.61	2.01	77.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	2,430	1,510	14,410	5,440	5,420	9,170	4,980	8,760	3,450	271	161	119	56,120

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1960	1711	2,460	Dec. 12, 1959	0.3	77.3	0.854	11.61	56,120	-	-	-

355. Barnes Creek near Fredericktown, Mo.

Location.--Lat 37°34'20", long 90°23'00", in SW¼SE¼ sec.4, T.33 N., R.6 E., on right downstream abutment of bridge on State Highway 72, 1.1 miles upstream from Little St. Francis River and 5.3 miles west of Fredericktown.

Drainage area.--4.03 sq mi.

Records available.--September 1955 to September 1959, water year 1960 (annual maximum).

Gage.--Crest-stage gage. Altitude of gage is 660 ft (from topographic map). Prior to Oct. 1, 1959, water-stage recorder at same site and datum.

Extremes.--1955-60: Maximum discharge, 5,550 cfs May 21, 1957 (gage height, 9.62 ft). No flow for many days.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	0.12	2.81	0.13	0.13	12.9	3.25	4.50	7.09	0.76	0.06	0	0	2.60
1957	0	.18	1.57	3.32	11.2	7.56	31.2	31.1	25.6	2.53	.33	0	9.49
1958	.22	5.13	11.3	4.56	6.06	15.3	10.3	5.46	11.2	18.7	1.99	2.00	7.71
1959	.25	8.59	2.47	6.02	6.19	8.56	4.98	.64	.41	.14	.01	.40	3.19

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	7.5	167	8.1	7.9	740	200	268	436	45	4.0	0	0	1,880
1957	0	11	97	204	624	465	1,860	1,910	1,520	156	20	0	6,870
1958	13	305	696	280	336	942	615	336	669	1,150	123	119	5,580
1959	15	511	152	370	344	526	297	39	25	8.5	.8	24	2,310

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1955	1441	-	-	-	-	-	-	-	-	-	-
1956	1441	900	Nov. 15, 1955	0	2.60	0.645	8.78	1,880	2.49	8.42	1,810
1957	1511	5,550	May 21, 1957	0	9.49	2.35	31.98	6,870	10.7	36.20	7,770
1958	1561	3,050	July 18, 1958	0	7.71	1.91	25.97	5,580	7.25	24.41	5,250
1959	1631	810	Nov. 16, 1958	0	3.19	0.79	10.75	2,310	-	-	-
1960	-	418	June 13, 1960	-	-	-	-	-	-	-	-

375. St. Francis River near Patterson, Mo.

Location.--Lat 37°11'40", long 90°30'10", in NE¼ sec.16, T.29 N., R.5 E., near left bank on downstream side of pier of bridge on State Highway 34, 1 mile upstream from Clark Creek and 3 miles east of Patterson.

Drainage area.--956 sq mi.

Records available.--October 1920 to September 1960. Prior to June 1921 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 370.45 ft above mean sea level, datum of 1929. Prior to Oct. 26, 1934, chain gage and Oct. 26, 1934, to Sept. 30, 1938, wire-weight gage, at site 50 ft upstream at datum 2.00 ft higher. Oct. 1, 1938, to Apr. 12, 1939, wire-weight gage and Apr. 13, 1939, to Sept. 5, 1956, water-stage recorder, at site 50 ft upstream at present datum. Sept. 6, 1956, to Sept. 26, 1958, wire-weight gage at same site and datum.

Average discharge.--40 years (1920-60), 1,128 cfs (816,600 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 79,200 cfs Mar. 11, 1935 (gage height, 30.70 ft), from rating curve extended above 55,000 cfs; maximum gage height, 31.0 ft Apr. 14, 1945 (backwater from Wappapello Dam); minimum discharge, 8 cfs Aug. 28 to Sept. 1, 1936; minimum gage height, 1.32 ft Aug. 16, 1941.

Maximum stage known, 33.8 ft (present datum) in August 1915, from floodmarks (discharge, 100,000 cfs, from rating curve extended above 55,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	155	337	445	2,038	4,577	1,975	1,448	865	884	2,465	804	1,405	1,429
1952	1,170	4,441	1,452	1,049	1,425	3,339	2,953	381	108	115	94.0	52.4	1,376
1953	48.6	258	483	712	677	2,437	1,162	977	108	63.1	18.8	14.8	581
1954	29.0	48.1	60.9	238	662	283	622	1,405	1,868	66.5	29.7	53.2	443
1955	91.6	103	1,140	483	1,298	3,002	1,097	754	224	185	39.8	14.8	702
1956	67.5	219	91.1	64.9	2,418	694	587	1,594	469	110	38.5	33.4	524
1957	33.6	119	417	673	1,886	1,644	7,264	5,869	2,352	2,513	285	58.6	1,921
1958	97.1	1,799	2,718	1,196	940	4,091	2,735	2,114	1,611	2,138	804	211	1,712
1959	124	1,579	483	1,663	1,704	2,199	1,783	832	350	146	103	186	922
1960	776	308	2,643	1,145	1,090	1,688	1,008	2,073	268	75.6	57.6	59.5	938

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,520	20,050	27,370	125,300	254,200	121,500	86,150	53,190	52,590	151,600	49,420	83,580	1,034,000
1952	71,930	264,300	89,280	64,500	81,980	205,300	175,700	23,400	6,410	7,050	5,780	3,120	998,800
1953	2,990	15,340	29,700	43,780	37,600	149,800	69,140	60,080	6,400	3,880	1,160	883	420,800
1954	1,790	2,860	3,740	14,610	36,790	17,430	37,040	86,360	111,200	4,090	1,820	3,160	320,900
1955	5,630	6,130	70,120	29,680	72,110	184,600	65,280	46,360	13,350	11,390	2,450	881	508,000
1956	4,150	13,060	5,600	3,990	139,100	42,700	34,920	98,030	27,890	6,760	2,370	1,990	380,600
1957	2,070	7,110	25,650	41,410	104,800	101,100	432,300	360,900	140,000	154,500	17,520	3,490	1,391,000
1958	5,970	107,100	167,100	73,540	52,230	251,600	162,700	130,000	95,870	131,400	49,430	12,550	1,239,000
1959	7,640	93,960	29,670	102,300	94,630	135,200	106,100	51,150	20,830	8,970	6,300	11,070	667,800
1960	47,700	18,340	162,500	70,430	62,720	103,800	59,970	127,500	15,930	4,650	3,540	3,540	680,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	1,788	25.38	1,294,000
1951	1211	24,800	Feb. 21, 1951	114	1,429	1.49	20.29	1,034,000		1,938	27.51	1,403,000
1952	1241	24,100	Nov. 23, 1951	37	1,376	1.44	19.60	998,800		856	12.20	621,300
1953	1281	20,300	Mar. 4, 1953	13	581	.608	8.27	420,800		526	7.50	381,100
1954	1341	26,700	May 2, 1954	12	443	.463	6.30	320,900		545	7.74	394,400
1955	1391	30,900	Mar. 21, 1955	9.2	702	.734	9.96	508,000		620	8.80	448,900
1956	1441	17,200	May 16, 1956	18	524	.548	7.47	380,600		541	7.70	392,600
1957	1511	66,500	June 30, 1957	19	1,921	2.01	27.26	1,391,000		2,260	32.08	1,636,000
1958	1561	36,500	Mar. 24, 1958	35	1,712	1.79	24.31	1,239,000		1,506	21.38	1,091,000
1959	1631	23,100	Nov. 17, 1958	69	922	.964	13.10	667,800		1,057	15.02	765,100
1960	1711	21,800	Dec. 18, 1959	34	938	.981	13.36	680,600		-	-	-

377. Clark Creek near Piedmont, Mo.

Location.--Lat 37°11'10", long 90°37'45", in SE¼NE¼ sec.17, T.29 N., R.4 E., at downstream side of right abutment of bridge on State Highway 34, 3.5 miles northeast of Piedmont, Mo.

Drainage area.--4.39 sq mi.

Records available.--October 1956 to September 1959, water year 1960 (annual maximum).

Gage.--Crest-stage gage. Altitude of gage is 530 ft (from topographic map). Prior to Oct. 1, 1959, water-stage recorder at same site and datum.

Extremes.--1956-60: Maximum discharge, 1,400 cfs May 22, 1957 (gage height, 6.10 ft), from rating curve extended above 360 cfs by logarithmic plotting.
1956-59: Minimum discharge, 0.2 cfs Feb. 21, 1958, result of unknown cause upstream (gage height, 1.59 ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	0.84	1.01	1.42	2.18	5.70	4.80	29.2	27.0	6.64	7.27	1.80	0.69	7.38
1958	.88	9.61	5.11	3.66	2.24	17.7	6.51	12.9	2.21	1.35	1.4	.81	5.40
1959	.69	13.3	1.45	3.98	3.63	3.65	3.15	1.58	1.60	1.31	.63	.64	2.95

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	52	60	87	134	317	295	1,740	1,660	395	447	111	41	5,340
1958	54	572	314	225	124	1,090	387	795	132	83	87	48	3,910
1959	42	794	89	245	202	224	188	97	95	81	38	38	2,130

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1957	1511	1,400	May 22, 1957	0.6	7.38	1.68	22.81	5,340	8.40	25.97	6,080
1958	1561	831	May 2, 1958	.5	5.40	1.23	16.70	3,910	5.38	16.64	3,900
1959	1631	1,250	Nov. 16, 1958	.4	2.95	.672	9.09	2,130	-	-	-
1960	-	586	May 19, 1960	-	-	-	-	-	-	-	-

390. Wappapello Reservoir at Wappapello, Mo.

Location.--Lat 36°55'42", long 90°17'04", in NW¼SE¼ sec.3, T.26 N., R.7 E., at intake tower at dam on St. Francis River, 0.8 mile southwest of Wappapello.

Drainage area.--1,310 sq mi, approximately.

Records available.--March 1941 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 347.71 ft above mean sea level, datum of 1929. Prior to June 19, 1941, staff gage at same site and datum.

Extremes.--1941-60: Maximum contents, 729,800 acre-ft Apr. 16, 1945 (gage height, 51.35 ft); minimum since initial filling to conservation pool level, 39,380 acre-ft Nov. 2, 1944 (gage height, 7.14 ft).

Remarks.--Reservoir is formed by earthfill dam. Closure of channel at dam began July 10, 1940; river began to flow through outlet structure July 24, 1940. Stoplogs placed in outlet structure and storage began Apr. 1, 1941; conservation pool level reached Apr. 20, 1941. Capacity at bottom of outlet tunnels (gage height, -9.0 ft), 4,000 acre-ft; at conservation pool level (gage height, 7.0 ft), 38,600 acre-ft; at spillway crest (gage height, 47.0 ft), 625,000 acre-ft; at maximum pool level (gage height, 62.4 ft, uncontrollable above spillway crest), 1,034,000 acre-ft. Figures given herein represent total contents. Under normal operating conditions reservoir surface will not be drawn below conservation pool level, which is maintained for purposes of conservation and recreation. Storage above this level used for flood control.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, at 8 a.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	62,580	61,560	48,300	57,280	105,900	61,300	61,300	66,940	65,310	58,680	60,240	53,940
1952	71,510	115,800	59,460	53,580	54,660	77,080	72,760	61,940	53,580	54,300	54,300	51,060
1953	55,020	61,300	49,720	56,100	57,900	64,920	62,970	67,780	61,300	54,660	49,720	44,200
1954	47,120	51,780	43,640	48,100	57,130	52,140	51,060	66,530	54,300	54,300	54,300	55,020
1955	62,190	61,800	91,080	46,150	70,260	82,800	62,580	66,120	54,300	53,940	54,660	54,660
1956	60,240	62,680	44,520	41,680	72,340	49,720	49,720	65,700	54,300	54,300	53,940	54,660
1957	57,110	62,190	50,380	60,160	88,410	81,040	161,100	279,500	56,460	69,850	53,720	54,300
1958	62,810	65,700	79,720	66,450	56,960	142,470	103,460	65,000	63,750	65,540	54,520	54,520
1959	62,190	65,870	†47,840	73,830	65,150	63,590	68,940	75,140	54,370	54,440	55,160	56,100
1960	62,350	61,570	79,370	57,180	52,720	78,490	56,750	65,620	54,080	54,370	55,240	54,080

† Corrected.

395. St. Francis River at Wappapello, Mo.

Location.--Lat 36°55'41", long 90°15'55", in NW¼SE¼ sec.2, T.26 N., R.7 E., on right bank at downstream side of highway bridge, 0.5 mile southeast of Wappapello and 1.25 miles downstream from Wappapello Dam.

Drainage area.--1,311 sq mi.

Records available.--October 1940 to September 1960 in reports of Geological Survey. Since January 1939 in reports of Mississippi River Commission. Gage-height records collected in this vicinity since April 1920 are contained in reports of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 325.15 ft above mean sea level, datum of 1929. Prior to Oct. 14, 1940, staff gages in the vicinity at same datum.

Average discharge.-- 20 years (1940-60), 1,609 cfs (1,165,000 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 22,300 cfs Apr. 16, 1945 (gage height, 25.60 ft); no flow July 20-24, 1940, June 2, 1952, and part of each day May 16, 1941, Aug. 31, 1954, result of closure of outlet gates at dam.
Maximum stage known since 1920, 30.7 ft May 15, 1933 (discharge, 82,500 cfs, determined by Corps of Engineers).

Remarks.--Flow regulated by Wappapello Reservoir (see preceding page).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	65.2	527	827	2,586	5,174	3,420	1,924	1,111	1,165	3,022	858	1,720	1,845
1952	1,101	4,959	2,857	1,725	1,927	4,400	4,019	834	302	180	179	181	1,883
1953	40.5	318	874	813	954	3,188	1,707	1,328	272	211	125	107	829
1954	36.4	43.8	296	344	843	648	825	1,415	2,310	91.0	63.7	91.2	579
1955	91.1	216	1,364	1,449	1,237	3,871	1,842	1,193	600	408	55.2	34.0	1,032
1956	34.1	305	450	191	2,503	1,416	693	1,604	737	181	82.5	66.7	681
1957	40	149	762	804	2,051	2,450	8,762	6,886	5,860	3,509	676	108	2,665
1958	62.3	2,793	3,357	1,905	1,130	4,737	3,955	4,165	2,060	2,692	1,215	378	2,382
1959	106	2,473	970	1,640	2,232	2,519	2,069	991	865	250	178	396	1,213
1960	809	521	2,915	1,939	1,479	1,599	1,635	2,648	659	159	122	118	1,221

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,010	31,380	50,840	159,000	287,400	210,300	114,500	68,290	69,320	185,800	52,740	102,300	1,336,000
1952	67,680	295,100	175,700	106,000	110,800	270,600	239,100	51,250	17,970	11,040	10,990	10,790	1,367,000
1953	2,490	18,940	53,740	49,970	52,960	196,000	101,600	81,640	16,170	12,940	7,660	6,380	600,500
1954	2,240	2,600	18,220	21,160	46,820	39,840	49,080	86,990	137,400	5,590	3,920	5,420	419,300
1955	5,600	12,840	83,850	89,100	68,720	238,000	109,600	73,380	35,690	25,110	3,390	2,020	747,300
1956	2,100	18,120	27,660	11,750	144,000	87,070	41,260	98,620	43,840	11,140	5,080	3,970	†494,600
1957	2,460	8,850	46,870	49,410	113,900	150,900	521,400	423,400	348,700	215,800	41,570	6,460	1,930,000
1958	3,830	166,200	206,400	117,200	62,730	291,300	235,300	256,100	122,600	165,600	74,730	22,500	1,724,000
1959	6,490	147,200	59,650	100,800	124,000	154,900	123,100	60,960	51,450	15,340	10,970	23,580	878,400
1960	49,760	31,000	179,200	119,200	85,090	98,320	97,300	162,800	39,210	9,750	7,500	7,000	886,100

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		2,619	27.13	1,896,000
1951	1211	9,990	Feb. 23, 1951	30	1,845	1.41	19.11	1,336,000		2,470	-	1,788,000
1952	1241	9,410	Nov. 26, 1951	0	1,883	-	-	1,367,000		1,245	-	903,700
1953	1281	6,060	Mar. 6, 1953	30	829	-	-	600,500		758	-	548,400
1954	1341	7,190	June 11, 1954	30	579	-	-	419,300		689	-	498,500
1955	1391	9,850	Mar. 22, 1955	33	1,032	-	-	747,300		957	-	692,900
1956	1441	6,130	Feb. 19, 1956	31	681	-	-	†494,600		695	-	504,900
1957	1511	10,300	Apr. 11, 1957	40	2,665	-	-	1,930,000		3,105	-	2,248,000
1958	1561	10,200	Mar. 27, 1958	40	2,382	-	-	1,724,000		2,157	-	1,561,000
1959	1631	8,300	Nov. 19, 1958	40	1,213	-	-	878,400		1,278	-	925,100
1960	1711	7,410	Dec. 19, 1959	40	1,221	-	-	886,100		-	-	-

† Corrected.

410. Little River ditch 81 near Kennett, Mo.

Location.--Lat 36°14'10", long 89°58'55", in NE¼ sec.4, T.18 N., R.10 E., on upstream side of bridge on State Highway 84, about 4 miles east of Kennett.

Drainage area.--111 sq mi.

Records available.--October 1926 to September 1960.

Gage.--Wire-weight gage. Datum of gage is 241.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 30, 1934, chain gage at same site and datum.

Average discharge.--34 years (1926-60), 206 cfs (149,100 acre-ft per year).

Extremes.--1926-60: Maximum discharge, 2,760 cfs (including some overflow from levee breaks on St. Francis River) Apr. 21, 1927 (gage height, 15.1 ft); minimum observed, 8 cfs Sept. 1, 1943, Sept. 18, 1954; minimum gage height, 1.92 ft Sept. 18, 1954.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	109	157	151	444	559	257	200	104	121	347	82.3	70.2	215
1952	55.5	439	511	642	412	567	230	142	73.1	59.7	46.8	35.1	268
1953	30.7	31.8	79.1	86.1	126	352	119	181	81.3	69.9	39.0	20.0	102
1954	18.8	23.8	33.3	81.0	84.4	85.4	76.8	122	91.0	46.3	27.2	14.6	58.6
1955	24.4	21.7	72.3	62.0	63.5	215	170	160	120	111	48.7	24.9	91.5
1956	29.3	36.4	31.7	68.0	421	122	93.7	107	75.3	60.3	29.2	18.3	89.6
1957	19.6	24.1	27.9	171	214	136	457	751	396	472	287	98.5	255
1958	190	1,118	484	339	230	737	262	370	127	144	103	77.1	349
1959	67.1	127	87.9	185	270	141	93.0	87.7	73.9	55.1	44.2	46.2	105
1960	54.2	96.5	124	130	115	183	88.3	219	101	64.0	42.5	24.1	104

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,700	9,330	9,310	27,290	31,070	15,770	11,890	6,380	7,200	21,340	5,060	4,180	155,500
1952	3,420	26,120	31,440	39,450	23,690	34,830	13,720	8,750	4,350	3,670	2,880	2,090	194,400
1953	1,890	1,890	4,860	5,290	7,020	21,660	7,070	11,160	4,840	4,300	2,400	1,190	†73,570
1954	1,160	1,410	2,040	4,980	4,690	5,250	4,570	7,520	5,410	2,850	1,670	871	42,420
1955	1,500	1,290	4,440	3,810	3,530	13,240	10,100	9,840	7,150	6,850	2,990	1,480	66,220
1956	1,800	2,170	1,950	4,180	24,220	7,480	5,580	6,610	4,480	3,710	1,800	1,090	65,070
1957	1,210	1,430	1,720	10,510	11,890	8,340	27,190	46,200	23,580	29,000	17,670	5,860	184,600
1958	11,660	66,520	29,790	20,830	12,750	45,290	15,560	22,750	7,530	8,830	6,350	4,590	252,400
1959	4,130	7,570	5,410	11,380	14,990	8,690	5,530	5,390	4,400	3,390	2,720	2,750	76,350
1960	3,330	5,740	7,630	7,980	6,630	11,260	5,250	13,460	6,000	3,940	2,610	1,430	75,260

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	405	49.49	292,900
1951	1211	2,200	Feb. 21, 1951	51	215	1.94	26.27	155,500	264	32.29	191,200
1952	1241	2,230	Jan. 5, 1952	27	268	2.41	32.83	194,400	196	23.99	142,100
1953	1281	1,310	Mar. 18, 1953	16	102	.919	12.43	†73,570	96.1	11.76	69,540
1954	1341	548	Jan. 21, 1954	8	58.6	.528	7.17	42,420	62.2	7.60	45,040
1955	1391	1,550	Mar. 21, 1955	14	91.5	.824	11.20	66,220	89.7	10.98	64,910
1956	1441	2,060	Feb. 18, 1956	10	89.6	.807	10.99	65,070	87.5	-	63,510
1957	1511	2,300	July 2, 1957	16	255	-	-	184,600	398	-	288,200
1958	1561	2,440	Nov. 19, 1957	64	349	-	-	252,400	223	-	161,600
1959	1631	1,490	Feb. 14, 1959	32	105	-	-	76,350	105	-	75,940
1960	1711	1,310	May 21, 1960	19	104	-	-	75,260	-	-	-

† Corrected.

420. Little River ditch 1 near Kennett, Mo.

Location.--Lat 36°14'10", long 89°58'50", in NE¼ sec.4, T.18 N., R.10 E., on upstream side of bridge on State Highway 84, 4 miles east of Kennett.

Drainage area.--235 sq mi.

Records available.--October 1926 to September 1960.

Gage.--Wire-weight gage. Datum of gage is 241.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 30, 1934, chain gage at same site and datum.

Average discharge.--34 years (1926-60), 427 cfs (309,100 acre-ft per year).

Extremes.--1926-60: Maximum discharge observed, 7,660 cfs Jan. 14, 1950 (includes some inflow from Little River ditches 66, 66-A, and 251); maximum gage height, 16.80 ft Jan. 25, 1937; minimum discharge, 8 cfs Sept. 13-18, 1932; minimum gage height observed, 0.71 ft Sept. 15, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	145	324	309	1,322	1,610	640	394	186	235	831	186	132	520
1952	98.0	860	1,189	1,588	899	1,320	413	230	128	88.0	67.8	44.3	578
1953	33.9	44.5	96.6	140	225	929	258	404	128	93.1	46.9	26.1	203
1954	28.9	34.3	44.3	165	138	132	114	267	270	80.9	46.3	24.4	112
1955	36.1	28.8	186	109	103	543	297	369	238	182	76.8	37.2	185
1956	35.1	46.3	38.9	108	961	244	171	232	165	88.7	47.5	32.4	177
1957	28.0	32.7	42.1	428	587	292	1,103	1,824	1,115	731	517	136	569
1958	291	2,672	1,020	727	394	1,743	470	676	164	267	136	99.2	723
1959	74.3	132	98.2	411	606	273	139	113	107	103	102	150	190
1960	126	215	325	311	248	440	176	537	206	117	75.3	44.3	236

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,890	19,300	19,010	81,280	89,390	39,380	23,430	11,440	14,000	51,070	11,450	7,850	376,500
1952	6,030	51,140	73,140	97,640	51,730	81,170	24,560	14,170	7,640	5,410	4,170	2,640	419,400
1953	2,080	2,650	5,940	8,600	12,490	57,140	15,330	24,870	7,590	5,720	2,890	1,550	146,800
1954	1,780	2,040	2,720	10,180	7,690	8,090	6,770	16,440	16,080	4,970	2,840	1,450	81,050
1955	2,220	1,710	11,450	6,700	5,750	33,390	17,650	22,680	14,180	11,170	4,720	2,220	133,800
1956	2,160	2,750	2,390	6,620	55,260	15,020	10,170	14,290	9,810	5,450	2,920	1,930	128,800
1957	1,720	1,940	2,590	26,310	32,620	17,940	65,620	112,100	66,370	44,970	31,800	8,110	412,100
1958	17,920	159,000	62,720	44,700	21,890	107,200	27,970	41,590	9,770	16,410	8,360	5,900	523,400
1959	4,570	7,860	6,040	25,300	33,630	16,800	8,290	6,960	6,370	6,330	6,260	8,940	137,400
1960	7,740	12,810	19,960	19,150	14,280	27,050	10,480	33,000	12,240	7,210	4,630	2,640	171,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,097	794,400
1951	1211	6,140	Jan. 16, 1951	104	520	376,500	635	459,600
1952	1241	5,900	Jan. 5, 1952	29	578	419,400	413	299,800
1953	1281	3,020	Mar. 19, 1953	23	203	146,800	197	142,700
1954	1341	1,860	Jan. 21, 1954	10	112	81,050	124	89,890
1955	1391	3,840	Mar. 21, 1955	19	185	133,800	174	125,800
1956	1441	4,330	Feb. 18, 1956	8.2	177	128,800	176	127,700
1957	1511	5,200	May 25, 1957	21	569	412,100	892	645,500
1958	1561	6,250	Mar. 25, 1958	72	723	523,400	417	302,300
1959	1631	3,720	Feb. 15, 1959	60	190	137,400	220	159,400
1960	1711	3,630	May 21, 1960	33	236	171,200	-	-

425. Little River ditch 251 near Lilbourn, Mo.

Location.--Lat 36°33'20", long 89°40'10", on line between secs.8 and 17, T.22 N., R.13 E., 100 ft from right abutment on upstream side of bridge on U. S. Highway 62, 3.7 miles southwest of Lilbourn, and 4 miles northwest of Marston.

Drainage area.--235 sq mi.

Records available.--October 1945 to September 1960. Prior to January 1946 monthly discharge only, published in WSP 1311.

Gage.--Wire-weight gage. Datum of gage is 263.46 ft above mean sea level (levels by State Highway Department).

Average discharge.--15 years (1945-60), 317 cfs (229,500 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 3,210 cfs Feb. 15, 1950 (gage height, 15.16 ft); minimum, 29 cfs Sept. 20, 1954 (gage height, 2.51 ft).
Flood in June 1945 reached a stage of 15.6 ft, from floodmark (discharge, 3,200 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	161	294	339	695	887	498	344	217	271	436	168	132	367
1952	104	551	803	902	683	923	391	260	213	135	122	84.6	431
1953	74.4	78.3	110	153	221	641	247	349	148	113	71.5	44.1	188
1954	36.7	41.6	55.9	134	115	116	97.8	184	177	74.4	66.5	39.3	94.7
1955	49.1	43.1	154	128	126	425	285	315	252	186	105	64.2	178
1956	58.9	64.8	49.5	109	560	220	195	254	178	111	65.3	61.5	159
1957	46.1	55.6	71.0	287	431	264	700	1,096	804	642	468	188	421
1958	343	1,552	769	552	352	996	422	507	291	294	187	140	534
1959	130	149	134	330	405	267	186	184	173	121	104	111	190
1960	129	192	214	229	228	301	199	312	192	155	109	79.8	195

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,900	17,510	20,820	42,720	49,260	30,630	20,490	13,350	16,110	26,810	10,300	7,870	265,800
1952	6,370	32,810	49,400	55,460	39,290	56,760	23,260	15,960	12,660	8,310	7,530	5,030	312,800
1953	4,580	4,660	6,790	9,410	12,290	39,430	14,680	21,460	8,780	6,920	4,400	2,620	136,000
1954	2,260	2,470	3,440	8,220	6,390	7,130	5,820	11,280	10,540	4,580	4,090	2,340	68,560
1955	3,020	2,570	9,450	7,850	7,020	26,110	16,940	19,350	15,020	11,430	6,450	3,820	129,000
1956	3,620	3,860	3,040	6,730	32,220	13,500	11,620	15,620	10,600	6,830	4,010	3,660	115,300
1957	2,830	3,310	4,370	17,670	23,940	16,250	41,660	67,390	47,850	39,480	28,790	11,170	304,700
1958	21,120	92,340	47,280	33,940	19,520	61,240	25,140	31,160	17,310	18,080	11,490	8,310	386,900
1959	8,020	8,850	8,220	20,280	22,510	16,390	11,040	11,290	10,300	7,470	6,410	6,580	137,400
1960	7,940	11,440	13,130	14,050	13,140	18,490	11,860	19,170	11,410	9,530	6,710	4,750	141,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	640	36.94	463,100
1951	1211	2,700	Feb. 21, 1951	122	367	1.56	21.22	265,800	423	24.44	306,100
1952	1241	2,780	Jan. 4, 1952	76	431	1.83	24.96	312,800	331	19.17	240,300
1953	1281	1,950	Mar. 17, 1953	34	188	.800	10.85	136,000	177	10.22	128,200
1954	1341	994	Jan. 20, 1954	29	94.7	.403	5.48	68,560	104	6.02	75,430
1955	1391	2,240	Mar. 21, 1955	38	178	.757	10.27	129,000	172	9.92	124,500
1956	1441	2,390	Feb. 18, 1956	40	159	.677	9.21	115,300	159	9.21	115,300
1957	1511	2,970	May 23, 1957	42	421	1.79	24.32	304,700	628	36.30	454,900
1958	1561	3,150	Nov. 18,19,1957	128	534	2.27	30.88	386,900	347	20.07	251,300
1959	1631	1,890	Jan. 21, 1959	83	190	.809	10.97	137,400	200	11.55	144,800
1960	1711	1,660	May 20, 1960	72	195	.830	11.31	141,600	-	-	-

430. Castor River at Aquilla, Mo.

Location.--Lat 36°57'10", long 89°54'25", in NE¼SE¼ sec.25, T.27 N., R.10 E., on downstream side of bridge on State Highway 25, half a mile north of Aquilla and 4 miles north of Bloomfield.

Drainage area.--175 sq mi.

Records available.--October 1945 to September 1960. Prior to January 1946 monthly discharge only, published in WSP 1311.

Gage.--Wire-weight gage. Datum of gage is 317.11 ft above mean sea level (levels by State Highway Department). Prior to Apr. 11, 1948, wire-weight gage at site 50 ft downstream at same datum.

Average discharge.--15 years (1945-60), 157 cfs (113,700 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 4,100 cfs May 23, 1957 (gage height, 14.00 ft); no flow Sept. 4-7, 1946, Sept. 22 to Oct. 4, Oct. 8-11, 1953, Sept. 18-20, 1955.
Flood in June 1945 reached a stage of 14.2 ft, from floodmark.

Remarks.--Entire flow from headwater of Castor River is diverted 22 miles above station to Headwater diversion channel. See Castor River at Zalma for records of flow above diversion.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22.9	191	67.7	418	673	252	72.7	19.0	41.4	95.4	5.62	66.0	157
1952	9.14	450	300	402	369	736	207	118	10.5	17.7	17.9	7.09	220
1953	.55	9.01	33.2	53.9	27.3	438	94.4	162	6.86	3.97	1.64	.22	70.1
1954	.18	.70	1.68	24.6	70.2	46.3	54.1	134	90.9	1.28	86.4	22.0	44.2
1955	104	8.83	307	81.9	57.4	390	210	57.3	33.0	47.3	14.6	.57	110
1956	50.3	8.78	3.30	9.15	389	92.9	100	88.8	24.8	42.1	39.6	27.2	71.7
1957	4.46	15.6	7.87	187	243	198	809	922	308	268	49.0	8.76	252
1958	12.7	731	319	215	116	784	213	437	131	32.1	10.2	7.44	252
1959	8.48	47.1	8.78	185	199	73.9	19.2	94.5	42.0	16.0	7.99	20.0	59.3
1960	49.0	25.1	106	161	113	220	25.5	128	10.6	18.7	32.4	2.00	74.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,410	11,360	4,160	25,700	37,400	15,520	4,330	1,170	2,460	5,870	346	3,930	113,700
1952	562	26,750	18,440	24,750	21,210	45,280	12,290	7,260	625	1,090	1,100	422	159,800
1953	34	536	2,040	3,320	1,520	26,960	5,620	9,950	408	244	101	13	50,750
1954	11	42	103	1,510	3,900	2,840	3,220	8,240	5,410	79	5,310	1,310	31,980
1955	6,420	525	18,860	5,040	3,190	23,950	12,530	3,520	1,960	2,910	900	34	79,840
1956	3,090	522	203	563	22,400	5,710	5,970	5,460	1,480	2,590	2,440	1,620	52,050
1957	274	931	484	11,510	13,520	12,200	48,160	56,710	18,320	16,450	3,010	521	182,100
1958	781	43,470	19,630	13,230	6,430	48,200	12,660	26,850	7,800	1,970	628	443	182,100
1959	521	2,800	540	11,360	11,080	4,540	1,140	5,810	2,500	982	492	1,190	42,960
1960	3,010	1,490	6,510	9,910	6,480	13,550	1,520	7,880	628	1,150	1,990	119	54,240

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	417	32.33	301,700
1951	1211	1,760	Jan. 15, 1951	0.6	157	0.897	12.17	113,700	197	15.26	142,500
1952	1241	1,960	Mar. 11, 1952	.7	220	1.26	17.14	159,800	161	12.51	116,800
1953	1281	1,500	Mar. 22, 1953	0	70.1	.401	5.44	50,750	66.7	5.18	48,290
1954	1341	810	May 3, 1954	0	44.2	.253	3.41	31,980	79.6	6.17	57,620
1955	1391	1,730	Mar. 22, 1955	0	110	.629	8.56	79,840	79.9	6.20	57,850
1956	1441	1,580	Feb. 18, 1956	.6	71.7	.410	5.57	52,050	68.8	5.34	49,920
1957	1511	4,100	May 23, 1957	.6	252	1.44	19.51	182,100	337	26.17	244,300
1958	1561	2,980	Mar. 24, 1958	4.7	252	1.44	19.52	182,100	169	13.10	122,100
1959	1631	1,300	Jan. 21, 1959	2.5	59.3	.339	4.62	42,960	69.2	5.38	50,100
1960	1711	1,010	Mar. 21, 1960	1.6	74.7	.427	5.79	54,240	-	-	-

435. Little River ditch 1 near Morehouse, Mo.

Location.--Lat 36°50'05", long 89°43'50", in NW¼SE¼ sec.2, T.25 N., R.12 E., on downstream side of bridge on U. S. Highway 60, 1½ miles downstream from Little River ditch 39 and 2 miles west of Morehouse.

Drainage area.--450 sq mi.

Records available.--October 1945 to September 1960. Prior to January 1946 monthly discharge only, published in WSP 1311.

Gage.--Wire-weight gage. Datum of gage is 280.76 ft above mean sea level, datum of 1929. Prior to Nov. 17, 1949, wire-weight gage at same site and datum. Nov. 17, 1949, to June 10, 1951, staff gage at site 50 ft downstream at same datum.

Average discharge.--15 years (1945-60), 492 cfs (356,200 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 7,660 cfs Mar. 25, 1958 (gage height, 18.26 ft, from graph based on gage readings); minimum, 21 cfs Sept. 18, 1954 (gage height, 3.13 ft).

Flood in June 1945 reached a stage of 19.85 ft, from floodmark (discharge, 5,830 cfs).

Remarks.--This Little River ditch 1 flows into Little River ditch 251 at point 35.3 miles downstream. It is independent of the ditch for which records are published as Little River ditch 1 near Kennett.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	188	690	377	1,234	1,679	822	348	186	333	529	158	242	559
1952	177	1,334	801	1,057	1,089	2,046	479	310	155	112	354	85.8	666
1953	61.9	86.5	160	193	207	1,011	366	553	126	80.2	49.6	35.0	245
1954	30.6	50.2	73.5	117	183	163	172	281	261	70.9	150	57.7	134
1955	161	78.5	738	305	194	1,057	919	395	251	251	99.5	47.1	377
1956	80.0	68.5	73.9	97.6	1,132	417	371	352	180	154	85.3	167	261
1957	66.8	96.9	111	732	931	562	2,186	2,395	992	817	274	114	771
1958	120	2,615	1,061	444	317	2,274	810	1,147	922	418	152	103	867
1959	95.7	172	111	569	581	350	176	294	219	146	109	101	242
1960	184	152	302	315	291	587	207	404	166	125	118	79.3	245

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,550	41,450	23,380	75,900	93,440	50,520	20,900	11,420	19,830	32,520	9,710	14,430	405,000
1952	10,900	79,360	49,270	64,990	62,620	125,800	28,510	19,080	9,220	6,870	21,780	5,110	483,500
1953	3,800	5,150	9,860	11,860	11,480	62,170	21,790	34,000	7,510	4,930	3,050	2,080	177,700
1954	1,880	2,990	4,520	7,180	10,160	10,010	10,250	17,260	15,520	4,360	9,230	3,430	96,790
1955	9,910	4,670	45,350	18,760	10,800	65,010	54,710	24,310	14,950	15,420	6,120	2,800	272,800
1956	4,920	4,080	4,540	6,000	65,120	25,610	22,080	21,640	10,710	9,480	5,240	9,920	189,300
1957	4,110	5,760	6,850	45,000	51,700	34,540	130,100	147,200	59,040	50,220	16,840	6,760	558,100
1958	7,350	155,600	65,260	27,310	17,630	139,800	48,220	70,500	54,890	25,720	9,350	6,120	627,800
1959	5,880	10,240	6,810	34,990	32,270	21,520	10,490	18,100	13,010	8,960	6,720	5,980	175,000
1960	11,340	9,070	18,560	19,370	16,760	36,090	12,300	24,820	9,890	7,710	7,270	4,720	177,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,045	31.50	756,300
1951	1211	5,570	Jan. 15, 1951	90	559	1.24	16.88	405,000	647	19.51	468,200
1952	1241	7,020	Mar. 11, 1952	60	666	1.48	20.14	483,500	500	15.11	362,800
1953	1281	4,540	Mar. 23, 1953	25	245	.544	7.41	177,700	232	7.02	168,300
1954	1341	1,300	May 3, 1954	21	134	.298	4.03	96,790	204	6.13	147,300
1955	1391	6,170	Mar. 21, 1955	38	377	.838	11.35	272,800	313	9.42	226,400
1956	1441	5,340	Feb. 18, 1956	48	261	.580	7.88	189,300	265	8.02	193,500
1957	1511	6,250	May 26, 1957	58	771	1.71	23.24	558,100	1,063	32.05	769,600
1958	1561	7,660	Mar. 25, 1958	79	867	1.93	26.17	627,800	584	17.62	422,500
1959	1631	3,320	Jan. 21, 1959	76	242	.538	7.29	175,000	264	7.95	191,000
1960	1711	2,130	Mar. 21, 1960	73	245	.544	7.40	177,900	-	-	-

440. Little River ditch 251 near Kennett, Mo.

Location.--Lat 36°14'10", long 89°58'40", in NW¼ sec.3, T.18 N., R.10 E., on upstream side of bridge on State Highway 84, 4 miles east of Kennett.

Drainage area.--883 sq mi, includes that of Little River ditches 66 and 66-A.

Records available.--November 1926 to September 1960.

Gage.--Wire-weight gage. Datum of gage is 241.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench marks). Prior to Oct. 30, 1934, chain gage at same site and datum.

Average discharge.--33 years (1927-60), 743 cfs (537,900 acre-ft per year).

Extremes.--1926-60: Maximum discharge, 8,380 cfs Nov. 20, 1957; maximum gage height, 21.70 ft May 24, 1957; minimum discharge, 52 cfs Sept. 5-8, 1930 (gage height, 2.10 ft).

Remarks.--Little River ditches 66 and 66-A divert water at a point 7.6 miles upstream. Prior to April 1951, above discharge of about 4,000 cfs, a spillway 6.3 miles upstream diverted water from ditches 66, 66-A, and 251 to Little River ditch 1.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	433	945	857	1,777	2,253	1,226	833	499	764	1,127	375	410	950
1952	285	1,697	1,938	2,191	1,633	2,465	1,020	690	431	317	462	200	1,111
1953	160	185	324	445	541	1,593	648	1,021	383	306	171	101	491
1954	90.9	108	129	305	379	384	356	551	566	206	235	114	285
1955	195	158	674	510	399	1,274	977	806	574	494	287	157	544
1956	190	169	164	274	1,703	631	609	604	416	324	186	277	457
1957	132	184	215	894	1,303	925	2,505	3,082	1,930	1,529	1,072	393	1,178
1958	667	3,735	2,061	1,484	848	2,874	1,314	1,751	1,036	771	419	301	1,441
1959	256	404	333	957	1,176	702	440	547	451	334	252	252	504
1960	334	473	673	808	708	990	475	914	499	390	301	191	564

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	26,620	56,220	52,700	109,200	125,100	75,390	49,570	30,680	45,460	69,280	23,090	24,410	687,700
1952	17,540	101,000	119,200	134,700	93,930	151,600	60,710	42,410	25,620	19,520	28,390	11,890	806,500
1953	9,830	11,020	19,940	27,380	30,020	97,950	38,530	62,810	22,790	18,800	10,490	6,010	355,600
1954	5,590	6,420	7,960	18,770	21,050	23,620	21,190	33,870	33,680	12,660	14,450	6,810	206,100
1955	11,990	9,420	41,430	31,350	22,150	78,340	58,150	49,530	34,160	30,390	17,670	9,350	393,900
1956	11,710	10,070	10,090	16,830	97,940	38,800	36,260	37,150	24,770	19,940	11,450	16,490	331,500
1957	8,120	10,930	13,210	54,990	72,350	56,870	149,000	189,500	114,900	94,010	65,930	23,370	853,200
1958	41,020	222,200	126,700	91,270	47,080	176,700	78,210	107,600	61,660	47,420	25,760	17,890	1,044,000
1959	15,720	24,020	20,490	58,820	65,310	43,180	26,150	33,650	26,860	20,520	15,480	15,000	365,200
1960	20,550	28,140	41,360	49,710	40,730	60,900	28,260	56,210	29,710	24,000	18,500	11,350	409,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,420	1,028,000
1951	1211	6,560	Feb. 22, 1951	238	950	687,700	1,091	789,900
1952	1241	7,140	Jan. 6, 1952	154	1,111	806,500	840	609,600
1953	1281	3,200	Mar. 24, 1953	82	491	355,600	462	334,800
1954	1341	1,760	June 11, 1954	74	285	206,100	344	248,900
1955	1391	5,380	Mar. 23, 1955	107	544	393,900	501	363,000
1956	1441	5,320	Feb. 19, 1956	112	457	331,500	457	331,900
1957	1511	7,600	May 26, 1957	124	1,178	853,200	1,673	1,211,000
1958	1561	8,380	Nov. 20, 1957	263	1,441	1,044,000	986	713,800
1959	1631	4,600	Jan. 22, 1959	170	504	365,200	546	395,000
1960	1711	3,160	May 21, 1960	170	564	409,400	-	-

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450. Little River ditch 66 near Kennett, Mo.

Location.--Lat 36°14'10", long 89°58'45", in NE¼ sec.4, T.18 N., R.10 E., on upstream side of bridge on State Highway 84, 4 miles east of Kennett.

Records available.--October 1926 to September 1960.

Gage.--Wire-weight gage. Datum of gage is 241.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 30, 1934, chain gage at same site and datum.

Average discharge.--34 years (1926-60), 289 cfs (209,200 acre-ft per year).

Extremes.--1926-60: Maximum discharge, 4,350 cfs Jan. 24, 25, 1937; maximum gage height, 21.60 ft May 24, 1957; no flow at times since 1944.

Remarks.--An auxiliary ditch, Little River ditch 66-A (see following page), received part of the flow through cutoffs above stage 6.4 ft. Above stage 13 ft, the low narrow bank between the main and auxiliary ditches is submerged, and the 2 unite to form 1 stream in the vicinity of the gage. To segregate the discharge of each ditch, the division line between the two is taken as the top of the bank that separates them at low stages. Little River ditches 66 and 66-A head in Little River ditch 251 at a point 7.6 miles upstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	34.7	256	185	640	921	426	196	55.2	155	361	33.2	50.8	272
1952	19.3	619	846	831	625	994	285	127	56.4	20.5	77.3	1.07	375
1953	0	.11	21.1	54.1	65.2	590	101	274	32.7	12.5	0	0	96.8
1954	0	0	.01	35.1	33.8	30.3	22.6	98.2	101	.41	12.5	0	27.8
1955	14.6	.33	170	91.4	25.4	420	259	171	79.4	59.4	4.73	0	109
1956	6.43	0	.01	47.0	618	98.1	119	96.6	31.2	11.5	.23	22.8	85.4
1957	0	.45	.03	234	272	160	778	1,002	539	360	175	12.2	294
1958	94.6	1,228	540	310	92.5	869	241	415	182	95.8	15.3	1.43	342
1959	0	16.2	3.13	191	217	50.4	10.8	36.1	15.9	1.91	0	.03	44.2
1960	7.02	23.0	77.5	93.4	56.6	168	21.9	133	15.8	2.85	0	0	50.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,130	15,220	11,380	39,330	51,140	26,220	11,670	3,400	9,220	22,200	2,040	3,020	197,000
1952	1,180	36,840	52,000	51,110	35,980	61,130	16,960	7,800	3,360	1,260	4,750	64	272,400
1953	0	6.5	1,300	3,330	3,620	36,260	6,000	16,820	1,950	766	0	0	70,050
1954	0	0	.4	2,160	1,880	1,860	1,350	6,040	6,040	25	768	0	20,120
1955	896	20	10,440	5,620	1,410	25,800	15,400	10,520	4,730	3,650	291	0	78,780
1956	395	0	.6	2,890	35,570	6,030	7,070	5,940	1,860	707	14	1,350	61,830
1957	0	27	1.6	14,360	15,120	9,850	46,310	61,610	32,070	22,130	10,740	726	212,900
1958	5,820	73,090	33,180	19,080	5,140	53,450	14,330	25,500	10,810	5,890	942	85	247,300
1959	0	961	192	11,760	12,040	3,100	640	2,220	945	117	0	1.6	31,980
1960	432	1,370	4,760	5,740	3,250	10,310	1,300	8,150	938	175	0	0	36,420

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	495	358,400
1951	1211	2,670	Feb. 22, 1951	7	272	197,000	357	258,300
1952	1241	2,720	Jan. 6, 1952	0	375	272,400	253	183,700
1953	1281	1,460	Mar. 24, 1953	0	96.8	70,050	95.0	68,750
1954	1341	735	June 11, 1954	0	27.8	20,120	43.5	31,480
1955	1391	2,220	Mar. 23, 1955	0	109	78,780	93.7	67,820
1956	1441	2,180	Feb. 19, 1956	0	85.4	61,830	84.7	61,460
1957	1511	2,790	May 26, 1957	0	294	212,900	449	325,000
1958	1561	3,100	Nov. 20, 1957	0	342	247,300	188	136,400
1959	1631	1,510	Jan. 22, 1959	0	44.2	31,980	51.6	37,390
1960	1711	960	May 21, 1960	0	50.2	36,420	-	-

455. Little River ditch 66-A near Kennett, Mo.

Location.--Lat 36°14'10", long 89°58'45", in NE¼ sec.4, T.18 N., R.10 E., on upstream side of bridge on State Highway 84, 4 miles east of Kennett.

Records available.--January 1927 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Wire-weight gage. Datum of gage is 241.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Aug. 7, 1940, chain gage at same site and datum.

Average discharge.--33 years (1927-60), 44.4 cfs (32,140 acre-ft per year).

Extremes.--1927-60: Maximum discharge, 2,340 cfs (including some overflow from levee breaks on Mississippi River) Apr. 25, 1927; maximum gage height, 21.55 ft May 24, 1957; no flow at times in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	9.0	0	96.5	158	11.7	1.1	0	0	13.9	0	0	23.4
1952	0	133	79.7	202	84.2	229	8.0	0	0	0	0	0	61.5
1953	0	0	0	0	0	43.9	0	15.4	0	0	0	0	5.04
1954	0	0	0	0	0	0	0	.02	.03	0	0	0	.004
1955	0	0	7.27	1.01	0	76.2	6.89	0	0	0	0	0	7.74
1956	0	0	0	.79	103	0	0	0	0	0	0	0	8.22
1957	0	0	0	43.3	16.2	8.33	231	371	141	92.2	32.8	0	78.3
1958	7.24	559	138	64.9	3.5	277	4.4	103	21.5	0	0	0	98.3
1959	0	0	0	48.5	26.6	0	0	0	0	0	0	0	6.16
1960	0	0	.74	2.36	0	12.2	0	14.5	0	0	0	0	2.53

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	538	0	5,930	8,800	720	67	0	0	853	0	0	16,910
1952	0	7,910	4,900	12,400	4,850	14,080	476	0	0	0	0	0	44,620
1953	0	0	0	0	0	2,700	0	947	0	0	0	0	3,650
1954	0	0	0	0	0	0	0	1.4	1.6	0	0	0	3.0
1955	0	0	447	62	0	4,680	410	0	0	0	0	0	5,600
1956	0	0	0	48	5,920	0	0	0	0	0	0	0	5,970
1957	0	0	0	2,670	900	512	13,720	22,830	8,360	5,670	2,020	0	56,680
1958	455	33,250	8,460	3,990	194	17,010	260	6,320	1,280	0	0	0	71,210
1959	0	0	0	2,990	1,480	0	0	0	0	0	0	0	4,470
1960	0	0	46	145	0	749	0	895	0	0	0	0	1,840

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	107	77,730
1951	1211	1,020	Feb. 22, 1951	0	23.4	16,910	40.3	29,180
1952	1241	1,130	Jan. 6, 1952	0	61.5	44,620	43.8	31,810
1953	1281	332	Mar. 24, 1953	0	5.04	3,650	5.04	3,650
1954	1341	1.8	(a)	0	.004	3.0	.62	450
1955	1391	752	Mar. 23, 1955	0	7.74	5,600	7.12	5,150
1956	1441	788	Feb. 19, 1956	0	8.22	5,970	8.22	5,970
1957	1511	1,340	May 24, 1957	0	78.3	56,680	137	98,840
1958	1561	1,640	Nov. 20, 1957	0	98.3	71,210	40.1	29,050
1959	1631	705	Jan. 22, 1959	0	6.16	4,470	6.23	4,520
1960	1711	278	May 21, 1960	0	2.53	1,840	-	-

a May 4, June 11, 1954.

460. Little River ditch 259 near Kennett, Mo.

Location.--Lat 36°14'10", long 89°58'35", in NW¼ sec.3, T.18 N., R.10 E., on upstream side of bridge on State Highway 84, 4 miles east of Kennett.

Drainage area.--89.0 sq mi.

Records available.--November 1926 to September 1960.

Gage.--Wire-weight gage. Datum of gage is 241.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 30, 1934, chain gage at same site and datum.

Average discharge.--33 years (1927-60), 105 cfs (76,020 acre-ft per year).

Extremes.--1926-60: Maximum discharge, 4,140 cfs (including some overflow from levee breaks on Mississippi River) Apr. 29, 1927 (gage height, 15.57 ft); no flow for many days in 1936, 1944-45, 1952-53.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	30.2	134	94.5	495	499	84.6	75.2	23.5	68.8	117	†12.2	9.8	135
1952	7.1	240	561	590	262	416	98.9	25.3	10.2	5.29	3.49	1.10	186
1953	.03	.24	41.1	26.8	45.7	204	47.9	164	14.9	7.13	7.62	9.49	47.8
1954	10.6	10.2	10.6	70.1	54.5	53.0	18.7	94.0	29.1	8.8	9.59	2.19	30.9
1955	1.78	1.60	23.1	8.44	36.4	155	113	135	18.3	72.8	5.14	2.55	48.0
1956	2.83	2.33	2.54	95.6	651	36.5	14.1	15.2	14.5	10.2	4.81	2.14	68.5
1957	.95	1.62	1.95	141	144	40	324	654	258	531	321	18.9	204
1958	97.2	942	219	188	108	376	70.4	289	23.4	30.9	14.6	9.93	197
1959	6.53	48.3	18.8	206	276	46.4	17.0	34.3	26.9	10.5	8.19	9.79	57.6
1960	6.56	47.5	95.1	72.9	62.7	139	21.4	138	37.9	19.5	11.3	†8.14	55.2

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,860	7,990	5,810	30,410	27,740	5,200	4,470	1,440	4,090	7,190	752	581	97,530
1952	438	14,290	34,510	36,280	15,050	25,570	5,880	1,550	607	325	215	65	134,800
1953	2.0	14	2,530	1,650	2,540	12,520	2,850	10,110	887	439	468	565	34,580
1954	651	607	653	4,310	3,030	3,260	1,110	5,780	1,730	540	589	130	22,390
1955	109	95	1,420	519	2,020	9,510	6,740	8,320	1,090	4,470	316	152	34,760
1956	174	139	156	5,880	37,460	2,250	842	934	863	629	296	127	49,750
1957	59	97	120	8,660	7,990	2,460	19,290	40,180	15,350	32,670	19,730	1,120	147,700
1958	5,980	56,030	13,480	11,570	6,020	23,100	4,190	17,790	1,390	1,900	899	591	142,900
1959	401	2,870	1,160	12,650	15,310	2,850	1,010	2,110	1,600	644	504	583	41,690
1960	404	2,830	5,850	4,480	3,600	8,520	1,280	8,490	2,260	1,200	695	485	40,090

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	247	37.66	178,700
1951	1211	2,110	Feb.22,23,1951	7	135	1.52	20.41	97,530	181	27.61	131,100
1952	1241	2,370	Mar. 11, 1952	0	186	2.09	28.40	134,800	121	-	88,090
1953	1281	1,080	Mar. 18, 1953	0	47.8	-	-	34,580	46.9	-	33,940
1954	1341	1,120	May 29, 1954	.7	30.9	-	-	22,390	30.5	-	22,100
1955	1391	2,000	May 29, 1955	.4	48.0	-	-	34,760	46.4	-	33,610
1956	1441	3,080	Feb. 18, 1956	.5	68.5	-	-	49,750	68.3	-	49,560
1957	1511	2,920	July 4, 1957	.4	204	-	-	147,700	308	-	222,900
1958	1561	2,720	Nov. 20, 1957	6.9	197	-	-	142,900	99.3	-	71,880
1959	1631	2,440	Jan. 21, 1959	4.8	57.6	-	-	41,690	64.0	-	46,340
1960	1711	1,650	May 21, 1960	4.6	55.2	-	-	40,090	-	-	-

470. St. Francis River floodway near Marked Tree, Ark.

Location.--Lat 35°36', long 90°27', in SE¼ sec.10, T.11 N., R.6 E., at dam of Poinsett County Drainage District 7, 3 miles north of Marked Tree.

Records available.--September 1927 to September 1931, July 1934 to September 1960.

Gage.--Staff gage. Datum of gage is 198.71 ft above Memphis datum or 192.08 ft above mean sea level (Morgan Engineering Co. bench mark).

Average discharge.--26 years (1934-60), 4,260 cfs (3,084,000 acre-ft per year).

Extremes.--1927-31, 1934-60: Maximum discharge, 48,300 cfs Jan. 26-28, 1937 (gage height, 31.1 ft); no flow at times in most years.

Remarks.--Flow diverted from St. Francis River bypasses Marked Tree and returns to St. Francis River immediately below Parkin. Flow regulated by Wappapello Reservoir since Apr. 1, 1941 (see p. 44).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	439	2,412	5,715	10,120	11,780	13,350	5,532	2,685	1,761	6,161	1,583	1,301	5,210
1952	475	4,961	17,470	17,130	9,119	13,370	11,950	4,116	1,407	456	599	693	6,821
1953	390	462	2,038	2,207	3,702	9,330	6,496	6,761	1,913	663	675	276	2,910
1954	16	124	369	2,054	2,751	2,735	2,468	2,967	1,688	442	0	0	1,292
1955	12.4	191	1,069	2,875	708	4,612	10,620	3,933	3,015	1,257	223	0	2,379
1956	3.2	426	788	588	11,620	7,542	2,296	1,866	1,331	300	19.8	55.2	2,198
1957	5.0	242	696	1,437	7,828	5,146	14,940	16,940	23,550	12,630	7,386	1,894	7,698
1958	1,606	19,780	16,650	12,720	7,396	10,670	15,970	15,620	3,684	3,919	2,902	600	9,301
1959	198	1,894	3,722	3,735	9,466	6,847	2,515	1,715	1,385	442	81.9	63.0	2,629
1960	232	1,145	3,321	5,073	4,222	4,478	4,124	4,202	3,230	1,846	281	60.7	2,682

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	27,000	143,500	351,400	622,200	654,100	820,900	329,200	165,100	104,800	378,800	97,360	77,410	3,772,000
1952	29,190	295,200	1,074,000	1,053,000	524,500	821,800	710,900	253,100	83,700	28,050	36,840	41,240	4,952,000
1953	23,950	27,520	125,300	135,700	205,600	573,700	386,500	415,700	113,800	40,750	41,510	16,450	2,106,000
1954	992	7,380	22,690	126,300	152,800	168,200	146,800	182,400	100,500	27,170	0	0	935,200
1955	764	11,360	65,730	176,800	39,330	283,600	632,200	241,800	179,400	77,300	13,700	0	1,722,000
1956	194	25,330	48,440	36,180	668,500	463,800	136,600	114,800	79,200	18,440	1,220	3,280	1,596,000
1957	307	14,430	42,780	88,380	434,700	316,400	889,300	1,042,000	1,401,000	776,600	454,200	112,700	5,573,000
1958	98,760	1,177,000	1,024,000	782,100	410,800	656,100	950,200	960,600	219,200	241,000	178,400	35,680	6,734,000
1959	12,200	112,700	228,800	229,600	525,700	421,000	149,600	105,400	82,410	27,150	5,040	3,750	1,903,000
1960	14,240	68,110	204,200	311,900	242,800	275,300	245,400	258,400	192,200	113,500	17,260	3,610	1,947,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	9,836	7,121,000
1951	1211	20,600	Mar. 1,2, 1951	0	5,210	3,772,000	6,421	4,648,000
1952	1241	25,700	Jan.11,12,1952	195	6,821	4,952,000	5,138	3,730,000
1953	1281	15,300	Mar.23,24,1953	150	2,910	2,106,000	2,709	1,961,000
1954	1341	4,570	(a)	0	1,292	935,200	1,356	982,000
1955	1391	13,200	Apr. 7,8, 1955	0	2,379	1,722,000	2,373	1,718,000
1956	1441	17,500	Feb. 25, 1956	0	2,198	1,596,000	2,176	1,580,000
1957	1511	36,800	June 2,3, 1957	0	7,698	5,573,000	10,790	7,815,000
1958	1561	45,700	Nov.23-25,1957	90	9,301	6,734,000	6,613	4,788,000
1959	1631	12,800	Feb.24-26,1959	0	2,629	1,903,000	2,536	1,836,000
1960	1711	8,420	May 28, 1960	0	2,682	1,947,000	-	-

a Jan. 25-28, May 6-9, 1954.

475. St. Francis River at Marked Tree, Ark.

Location.--Lat 35°31'58", long 90°25'25", in NE¼SW¼ sec.35, T.11 N., R.6 E., near left bank on downstream side of bridge on U. S. Highway 63 at Marked Tree, 4.8 miles downstream from Little River and 7 miles downstream from dam of Poinsett County Drainage District 7.

Records available.--July 1934 to September 1960. Gage-height records collected in same vicinity since 1904 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 196.44 ft above mean sea level, datum of 1929. Prior to Jan. 18, 1935, staff gage at site 300 ft upstream at same datum. Auxiliary wire-weight gage Dec. 23, 1934, to Feb. 18, 1941, and since Feb. 19, 1941, water-stage recorder, 3 miles upstream.

Average discharge.--26 years (1934-60), river only, 1,669 cfs (1,208,000 acre-ft per year). Combined flow of river and floodway, 5,929 cfs (4,292,000 acre-ft per year).

Extremes.--1934-60: Maximum discharge, river only: 7,120 cfs Feb. 6, 7, 1937; maximum gage height, 18.88 ft Feb. 7, 1937; minimum discharge, 63 cfs Oct. 13, 1941. Combined flow of river and floodway: Maximum daily discharge, 58,000 cfs Jan. 27, 1937; minimum, 63 cfs Oct. 13, 1941.

Remarks.--Flood flows diverted through St. Francis River floodway at dam of Poinsett County Drainage District 7, 7 miles above station and bypassed to vicinity of Parkin. Flow regulated by Wappapello Reservoir since Apr. 1, 1941 (see p. 44), and by siphons at dam of Poinsett County Drainage District 7. Monthly figures of discharge for river and floodway must be combined in order to obtain total flow of St. Francis River basin at Marked Tree. Records of chemical analyses and water temperatures for the period October 1949 to September 1955 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,338	2,170	1,267	2,231	2,831	2,548	2,193	1,836	2,108	2,140	2,018	1,300	2,077
1952	1,517	1,497	2,922	3,099	3,296	3,269	2,593	1,903	1,465	821	765	263	1,949
1953	144	129	282	349	1,540	2,714	2,232	2,633	1,982	1,204	255	156	1,132
1954	229	114	131	576	543	444	625	1,338	1,364	1,157	563	186	607
1955	225	214	113	893	1,434	1,837	2,935	2,101	1,934	1,575	1,202	549	1,248
1956	438	119	158	558	2,046	1,995	1,766	1,713	1,508	1,298	696	338	1,049
1957	306	122	128	840	2,598	1,964	2,493	2,614	2,171	2,312	2,078	1,662	1,599
1958	1,462	2,560	2,555	2,452	2,290	2,973	2,778	2,713	1,757	2,030	1,615	1,442	2,219
1959	1,330	587	389	873	2,374	2,032	1,718	1,541	1,547	1,390	1,169	1,147	1,334
1960	1,315	1,485	1,154	1,865	1,831	2,102	1,748	1,849	1,689	978	1,329	1,161	1,541

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	143,700	129,100	77,880	137,200	157,200	156,700	130,500	112,900	125,400	131,600	124,100	77,370	1,504,000
1952	93,280	89,110	179,600	190,600	189,600	201,000	154,300	117,000	87,170	50,480	47,060	15,670	1,415,000
1953	8,850	7,660	17,350	21,490	85,550	166,900	132,800	161,900	117,900	74,040	15,650	9,290	819,400
1954	14,050	6,810	8,080	35,390	30,130	27,270	37,200	82,280	81,150	71,120	34,640	11,070	439,200
1955	13,860	12,710	6,940	54,890	79,660	113,000	174,600	129,200	115,100	96,830	73,890	32,690	903,400
1956	26,910	7,100	9,710	34,330	117,700	122,700	105,100	105,300	89,710	79,800	42,790	20,090	761,200
1957	18,820	7,290	7,870	51,620	144,300	120,700	148,300	160,700	129,200	142,200	127,800	98,900	1,158,000
1958	89,910	152,400	157,100	150,800	127,200	182,800	165,300	166,800	104,500	124,800	99,290	85,820	1,607,000
1959	81,780	34,910	23,930	53,670	131,900	125,000	102,200	94,730	92,050	85,470	71,870	68,280	965,800
1960	80,870	88,380	70,940	114,700	105,300	129,200	104,000	113,700	100,500	60,160	81,690	69,070	1,119,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	2,797	2,025,000
1951	1211	3,790	Feb.22,23,1951	272	2,077	1,504,000	2,093	1,515,000
1952	1241	4,380	Feb. 23, 1952	170	1,949	1,415,000	1,497	1,087,000
1953	1281	3,940	May 18, 1953	118	1,132	819,400	1,125	814,500
1954	1341	2,210	May 23, 1954	66	607	439,200	613	443,800
1955	1391	3,660	Apr. 15, 1955	64	1,248	903,400	1,262	913,600
1956	1441	3,130	Feb. 18, 1956	90	1,049	761,200	1,035	751,500
1957	1511	3,450	Apr. 4, 1957	86	1,599	1,158,000	2,104	1,523,000
1958	1561	4,130	Nov. 18, 1957	426	2,219	1,607,000	1,862	1,348,000
1959	1631	3,640	Feb. 14, 1959	240	1,334	965,800	1,472	1,065,000
1960	1711	2,590	Mar. 16, 1960	260	1,541	1,119,000	-	-

480. West Fork White River at Greenland, Ark.

Location.--Lat 35°59', long 94°10', in NW¼ sec.16, T.15 N., R.30 W., near left bank on downstream side of pier of bridge on U. S. Highway 71, 1 mile south of Greenland, 5½ miles upstream from small tributary, and 10.5 miles upstream from mouth.

Drainage area.--83 sq mi.

Records available.--October 1945 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,233.00 ft above mean sea level, datum of 1929. Prior to Oct. 20, 1945, wire-weight gage at same site and datum.

Average discharge.--15 years (1945-60), 118 cfs (85,400 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 34,700 cfs May 6, 1960 (gage height, 14.50 ft in gage well, 13.60 ft from floodmarks), from rating curve extended above 12,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in 1947-48, 1953-54, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10.9	4.69	3.49	44.5	580	158	167	79.0	124	95.9	6.97	2.60	103
1952	31.8	195	104	75.6	132	208	264	144	14.5	.53	14.1	1.20	98.4
1953	.21	7.54	22.0	36.4	25.8	416	348	270	3.92	.53	.61	.14	94.9
1954	0	.04	1.62	39.4	19.3	23.4	53.4	127	4.08	.18	0	.04	22.5
1955	30.9	9.48	184	121	231	273	199	217	132	5.86	.48	.20	116
1956	.12	.57	.60	.48	57.9	23.4	164	247	36.9	2.65	.18	0	44.3
1957	0	2.03	14.1	37.6	277	124	758	870	252	7.30	5.79	18.3	196
1958	4.18	150	37.0	31.0	98.2	315	123	210	65.0	363	115	37.2	130
1959	14.9	145	26.5	31.0	79.7	252	233	186	29.2	26.0	5.29	1.51	85.7
1960	121	198	149	128	101	126	137	627	24.5	97.2	9.66	.60	144

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	672	279	214	2,740	32,210	9,740	9,940	4,860	7,350	5,900	428	155	74,490
1952	1,960	11,610	6,400	4,650	7,600	12,820	15,700	8,870	865	33	868	71	71,450
1953	13	448	1,360	2,240	1,430	25,610	20,680	16,600	233	32	37	8.5	68,690
1954	0	2.2	99	2,420	1,070	1,440	3,180	7,820	243	11	0	2.4	16,290
1955	1,900	564	11,310	7,470	12,820	16,810	11,840	13,330	7,830	360	29	12	84,280
1956	7.5	34	37	29	3,330	1,440	9,750	15,170	2,200	163	11	0	32,170
1957	0	121	868	2,310	15,380	7,600	45,090	53,510	14,980	449	356	1,090	141,800
1958	257	8,920	2,280	1,900	5,450	19,340	7,340	12,910	3,870	22,340	7,080	2,210	93,900
1959	914	8,620	1,630	1,900	4,430	15,490	13,880	11,410	1,730	1,600	325	90	62,020
1960	7,470	11,780	9,170	7,850	5,810	7,740	8,140	38,560	1,460	5,980	594	36	104,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	150	24.47	108,400
1951	1211	7,410	Feb. 18,20, 1951	0.8	103	1.24	16.83	74,490	129	21.08	93,290
1952	1241	5,700	May 23, 1952	.2	98.4	1.19	16.16	71,450	73.4	12.06	53,300
1953	1281	9,800	Mar. 14, 1953	.1	94.9	1.14	15.51	68,690	92.5	15.12	66,970
1954	1341	3,270	May 2, 1954	0	22.5	.271	3.67	16,290	41.4	6.77	29,960
1955	1391	7,180	Apr. 21, 1955	.1	116	1.40	19.05	84,280	97.5	15.95	70,580
1956	1441	10,800	May 15, 1956	0	44.3	.534	7.28	32,170	45.6	7.49	33,080
1957	1511	27,700	Apr. 3, 1957	0	196	2.36	32.03	141,800	210	34.39	152,200
1958	1561	9,420	July 12, 1958	2.3	130	1.57	21.22	93,900	129	21.16	93,600
1959	1631	7,400	Mar. 5, 1959	.1	85.7	1.03	14.02	62,020	110	17.91	79,280
1960	1711	34,700	May 6, 1960	.2	144	1.73	23.62	104,600	-	-	-

490. War Eagle Creek near Hindsville, Ark.

Location.--Lat 36°12'02", long 93°51'16", in SE¼NE¼ sec.28, T.18 N., R.27 W., on right bank at downstream side of bridge on State Highway 45, 3.8 miles downstream from Clear Creek and 3.9 miles north of Hindsville.

Drainage area.--262 sq mi.

Records available.--June 1952 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,170.06 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1952-60), 299 cfs (216,500 acre-ft per year).

Extremes --1952-60: Maximum discharge, 34,600 cfs Apr. 3, 1957 (gage height, 23.86 ft); minimum, 0.2 cfs Aug. 18, 19, 1954.
Flood of May 10, 1943, reached a stage of 28.1 ft, from information by local resident.

Remarks.--Records of chemical analyses for the period October 1953 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	-	-	-	-	-	-	-	-	-	20.8	118	17.4	-
1953	10.6	48.6	69.3	80.8	74.9	989	992	783	38.6	26.6	15.2	5.55	263
1954	9.02	10.1	11.1	53.5	44.9	73.8	129	210	23.3	2.63	1.49	2.29	47.7
1955	94.7	22.0	354	226	424	602	304	272	220	55.0	14.1	13.9	216
1956	22.2	9.59	10.1	9.97	346	93.8	438	688	97.2	137	16.4	3.26	155
1957	3.72	36.0	55.3	126	821	464	2,254	2,582	1,162	130	38.5	74.7	641
1958	27.0	365	93.9	75.7	149	860	365	617	136	497	524	148	324
1959	37.5	322	124	132	246	606	579	385	420	174	39.4	22.9	256
1960	687	571	363	438	349	481	355	1,542	131	795	91.9	20.5	488

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	-	-	-	-	-	-	-	-	-	1,280	7,250	1,030	-
1953	650	2,890	4,260	4,970	4,160	60,800	59,020	48,150	2,290	1,640	933	330	190,100
1954	555	603	685	3,290	2,490	4,540	7,670	12,940	1,390	162	92	136	34,550
1955	5,830	1,310	21,770	13,880	23,550	37,000	18,110	16,710	13,080	3,380	865	828	156,300
1956	1,370	571	622	613	19,930	5,770	26,050	42,310	5,780	8,420	1,010	194	112,600
1957	229	2,140	3,400	7,740	45,590	28,550	134,100	158,800	69,130	7,970	2,370	4,450	464,500
1958	1,660	21,730	5,780	4,650	8,280	52,860	21,720	37,930	8,070	30,550	32,190	8,810	234,200
1959	2,310	19,170	7,610	8,090	13,650	37,280	34,460	23,660	24,980	10,690	2,420	1,360	185,700
1960	42,250	33,950	22,300	26,920	20,090	29,560	21,150	94,840	7,780	48,910	5,650	1,220	354,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952	1281	-	-	-	-	-	-	-	-	-	-
1953	1281	9,770	May 13, 1953	4.5	263	1.00	13.61	190,100	254	13.18	184,100
1954	1341	3,810	May 2, 1954	.2	47.7	.182	2.48	34,550	85.1	4.42	61,620
1955	1391	11,900	Mar. 21, 1955	2.1	216	.824	11.20	156,300	180	9.31	130,000
1956	1441	12,300	May 15, 1956	1.9	155	.592	8.04	112,600	160	8.27	115,800
1957	1511	34,600	Apr. 3, 1957	2.1	641	2.45	33.23	464,500	674	34.91	487,900
1958	1561	12,200	Aug. 2, 1958	22	324	1.24	16.75	234,200	323	16.74	234,200
1959	1631	5,890	June 12, 1959	11	256	.977	13.30	185,700	352	18.27	255,100
1960	1711	22,700	July 25, 1960	18	488	1.86	25.39	354,600	-	-	-

495. White River near Rogers, Ark.

Location.--Lat 36°19'59", long 94°01'07", in N½ sec.12, T.19 N., R.29 W., on right bank at downstream side of pier of bridge on State Highway 12, 2.6 miles upstream from Prairie Creek, 5½ miles east of Rogers, and at mile 643.2.

Drainage area.--1,020 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,006.47 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1952-60), 1,157 cfs (837,600 acre-ft per year).

Extremes.--1952-60: Maximum discharge, 65,700 cfs Apr. 4, 1957 (gage height, 43.73 ft); minimum, 3.1 cfs Sept. 5, 6, 27, 1954.
Maximum stage known since at least 1892, 52.9 ft in May 1943 (discharge, 100,000 cfs). Flood in April 1945 reached a stage of 50.4 ft (discharge, 89,000 cfs). Data on these floods from information by local residents.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	41.8	142	250	325	304	3,978	3,760	3,198	158	90.6	57.7	26.6	1,034
1954	34.1	39.2	50.7	228	194	282	571	1,056	95.6	11.1	11.1	10.3	216
1955	309	114	1,357	1,092	2,117	2,618	1,605	1,484	900	209	44.9	27.5	984
1956	88.5	38.9	41.0	39.4	1,049	345	1,287	2,932	740	340	66.2	22.3	581
1957	12.3	103	202	537	2,915	1,824	8,217	9,578	3,383	508	148	287	2,297
1958	113	1,653	446	382	803	3,561	1,652	2,602	534	2,267	1,963	564	1,386
1959	178	1,345	478	427	887	2,355	2,315	1,771	1,045	620	179	63.1	970
1960	2,162	2,044	1,405	1,647	1,257	1,795	1,362	6,454	615	2,152	320	76.4	1,785

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	2,570	8,450	15,400	19,970	16,870	244,600	223,700	196,600	9,380	5,570	3,550	1,580	748,200
1954	2,090	2,330	3,120	14,020	10,770	17,360	33,970	64,950	5,690	684	683	613	156,300
1955	19,010	6,780	83,420	67,160	117,600	161,000	95,500	91,230	53,570	12,830	2,760	1,640	712,500
1956	5,440	2,310	2,520	2,420	60,340	21,220	76,580	180,300	44,020	20,920	4,070	1,320	421,500
1957	759	6,110	12,430	32,990	161,900	112,200	488,900	589,000	201,300	31,210	9,110	17,080	1,663,000
1958	6,920	98,380	27,400	23,480	44,610	219,000	98,320	160,000	31,800	139,400	120,700	33,570	1,004,000
1959	10,930	80,040	29,410	26,240	49,280	144,800	137,700	108,900	62,160	38,130	10,990	3,750	702,300
1960	133,000	121,600	86,390	101,300	72,320	110,400	81,010	396,900	36,600	132,300	19,660	4,540	1,296,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Galendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952											
1953	1281	28,300	May 13, 1953	20	1,034	1.01	13.76	748,200	1,008	13.31	729,400
1954	1341	11,600	May 3, 1954	3.1	216	.212	2.86	156,300	356	4.72	258,000
1955	1391	24,500	Mar. 21, 1955	15	984	.965	13.09	712,500	847	11.28	613,600
1956	1441	32,200	May 16, 1956	10	581	.570	7.73	421,500	593	7.89	430,500
1957	1511	65,700	Apr. 4, 1957	8.4	2,297	2.25	30.57	1,663,000	2,454	32.66	1,766,000
1958	1561	20,100	Aug. 3, 1958	82	1,386	1.36	18.45	1,004,000	1,369	18.22	991,300
1959	1631	17,400	Mar. 6, 1959	36	970	.951	12.90	702,300	1,275	16.96	922,900
1960	1711	51,400	May 7, 1960	64	1,785	1.75	23.82	1,296,000	-	-	-

500. White River at Beaver, Ark.

Location.--Lat 36°28'20", long 93°45'55", in NE¼ sec.20, T.21 N., R.26 W., on upstream side at center of main truss of Missouri & North Arkansas Railway bridge, a quarter of a mile east of Beaver, 2¾ miles upstream from Leatherwood Creek, and at mile 595.5.

Drainage area.--1,238 sq mi.

Records available.--July 1909 to December 1910, October 1921 to September 1958. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Wire-weight gage. Datum of gage is 883.04 ft above mean sea level, datum of 1929. Prior to Jan. 1, 1911, chain gage at same site and datum. Oct. 24, 1921, to Apr. 30, 1923, staff gage at site 1,500 ft upstream at different datum. May 16, 1923, to Oct. 6, 1934, chain gage at present site and datum.

Average discharge.--38 years (1909-10, 1921-58), 1,558 cfs (1,128,000 acre-ft per year).

Extremes.--1909-10, 1921-58: Maximum discharge, 105,000 cfs May 12, 1943 (gage height, 42.33 ft); minimum, 1.0 cfs Sept. 18-20, 1954 (gage height, 1.24 ft).

Remarks.--Records of chemical analyses and water temperatures for the period October 1949 to September 1953 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	358	167	144	691	8,041	2,620	2,127	1,267	2,046	2,320	229	170	1,636
1952	542	3,592	1,608	1,220	1,724	3,594	3,745	1,724	322	107	650	122	1,574
1953	51.9	172	311	390	363	4,109	3,974	3,613	222	113	67.5	29.9	1,125
1954	36.0	46.5	60.7	228	229	341	624	1,338	134	15.7	10.9	5.24	257
1955	364	158	1,436	1,301	2,607	2,775	1,668	1,772	1,342	382	62.9	27.5	1,150
1956	108	48.6	54.6	49.2	1,090	370	936	3,594	841	378	91.1	36.9	632
1957	12.6	114	277	699	3,050	2,123	9,001	11,190	4,273	715	170	319	2,650
1958	148	1,837	500	429	884	4,053	1,994	3,212	698	2,679	2,181	588	1,610
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22,010	9,960	8,880	42,480	446,600	161,100	126,500	77,910	121,700	142,700	14,090	10,090	1,184,000
1952	33,350	213,700	98,870	75,040	99,150	221,000	222,800	106,000	19,170	6,590	39,960	7,260	1,143,000
1953	3,190	10,200	19,140	23,990	20,190	252,700	236,500	222,200	13,200	6,970	4,150	1,780	814,200
1954	2,210	2,760	3,730	14,000	12,720	20,990	37,120	82,250	7,990	964	670	312	185,700
1955	22,410	9,380	88,300	80,000	144,800	170,600	99,250	108,900	79,860	23,490	3,870	1,640	832,500
1956	6,620	2,890	3,360	3,020	62,710	22,730	55,670	221,000	50,060	23,210	5,600	2,190	459,100
1957	776	6,790	17,020	42,960	169,400	130,500	535,600	588,100	254,300	43,960	10,420	18,970	1,919,000
1958	9,130	109,300	30,750	26,350	49,120	249,200	118,700	197,500	41,510	164,700	134,100	34,970	1,165,000
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,634	28.88	1,907,000
1951	1211	45,900	Feb. 20, 1951	127	1,636	1.32	17.91	1,184,000	2,057	22.55	1,489,000
1952	1241	24,100	Apr. 14, 1952	61	1,574	1.27	17.33	1,143,000	1,143	12.57	829,500
1953	1281	27,100	May 14, 1953	21	1,125	.909	12.33	814,200	1,092	11.97	790,400
1954	1341	12,100	May 4, 1954	1.0	257	.208	2.80	185,700	410	4.50	297,100
1955	1391	23,900	Mar. 22, 1955	15	1,150	.929	12.60	832,500	1,002	10.97	725,300
1956	1441	31,800	May 17, 1956	12	632	.511	6.94	459,100	649	7.12	470,800
1957	1511	61,600	Apr. 5, 1957	7.3	2,650	2.14	29.07	1,919,000	2,822	30.97	2,043,000
1958	1561	17,700	Aug. 3, 1958	111	1,610	1.30	17.65	1,165,000	-	-	-
1959											
1960											

505. Kings River near Berryville, Ark.

Location.--Lat 36°25'30", long 93°37'20", in E½ sec.3, T.20 N., R.25 W., on right bank at downstream side of highway bridge, 1¼ miles downstream from Bee Creek, 2¼ miles upstream from Clabber Creek, and 5¼ miles northwest of Berryville.

Drainage area.--532 sq mi.

Records available.--April 1939 to September 1960. Monthly discharge only for April 1939, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 963.10 ft above mean sea level, datum of 1929. Apr. 4 to July 11, 1939, wire-weight gage and July 12, 1939, to Sept. 30, 1951, water-stage recorder, at site 5 miles upstream at datum 27.71 ft higher. Oct. 1, 1951, to Oct. 22, 1952, wire-weight gage at present site and datum.

Average discharge.--21 years (1939-60), 600 cfs (434,400 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 59,000 cfs May 10, 1943 (gage height, 30.20 ft, site and datum then in use, or about 37.0 ft, present site and datum); minimum, 0.1 cfs Aug. 27, 28, 1954.
Flood of Apr. 14, 1927, reached a stage of about 38.0 ft, present site and datum, from information by local residents (discharge, 62,000 cfs).

Remarks.--Records of chemical analyses for the period October 1953 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	129	65.3	52.0	309	2,792	1,062	851	374	931	635	107	38.2	596
1952	201	1,552	622	506	855	1,685	1,522	703	121	36.5	301	33.1	676
1953	17.1	106	141	141	152	1,630	1,723	1,440	75.3	56.2	27.6	4.25	462
1954	7.96	17.1	26.0	72.9	69.4	151	258	348	83.0	9.21	1.08	15.0	88.3
1955	112	41.6	551	370	765	1,009	397	870	719	313	29.5	10.6	431
1956	35.7	18.6	20.8	20.7	591	164	688	1,351	217	336	40.2	5.89	290
1957	1.61	57.4	128	240	1,517	912	4,045	4,211	2,494	298	99.7	166	1,172
1958	52.3	754	172	129	259	1,874	784	1,593	546	771	730	248	663
1959	84.0	541	262	245	431	849	1,090	817	888	171	64.4	36.9	455
1960	1,015	898	676	795	885	1,131	588	2,602	212	1,252	133	28.2	856

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,960	3,880	3,200	18,980	155,100	65,270	50,630	23,010	55,410	39,050	6,580	2,270	431,300
1952	12,350	92,340	38,250	31,100	49,210	103,600	90,540	43,240	7,180	2,250	18,540	1,970	490,600
1953	1,050	6,320	8,660	8,690	8,440	100,200	102,500	88,530	4,480	3,460	1,700	253	334,300
1954	489	1,020	1,600	4,480	3,850	9,260	15,350	21,380	4,940	566	66	891	63,890
1955	6,880	2,470	33,880	22,770	42,510	62,060	23,600	53,490	42,810	19,280	1,810	630	312,200
1956	2,200	1,100	1,280	1,270	33,990	10,070	40,960	83,060	12,910	20,690	2,470	351	210,400
1957	99	3,420	7,870	14,750	84,280	56,060	240,700	258,900	148,400	18,330	6,130	9,880	848,800
1958	3,210	44,890	10,570	7,940	14,380	115,200	46,640	97,940	32,470	47,410	44,870	14,770	480,300
1959	5,170	32,210	16,090	15,080	23,920	52,190	64,840	50,250	52,850	10,520	3,960	2,200	329,300
1960	62,420	53,440	41,560	48,850	50,900	69,540	34,970	160,000	12,590	77,010	8,190	1,680	621,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,005	26.40	727,900
1951	1211	25,900	Feb. 18, 1951	17	596	1.12	15.19	431,300	772	19.70	559,200
1952	1241	13,700	Mar. 11, 1952	13	676	1.27	17.28	490,600	501	12.81	363,700
1953	1281	12,800	May 13, 1953	1.6	462	.868	11.79	334,300	444	11.34	321,400
1954	1341	2,760	May 3, 1954	.2	88.3	.166	2.26	63,890	144	3.66	104,000
1955	1391	12,300	May 21, 1955	1.5	431	.810	11.00	312,200	378	9.65	273,500
1956	1441	17,900	May 15, 1956	1.2	290	.545	7.43	210,400	299	7.66	217,200
1957	1511	46,300	Apr. 4, 1957	.7	1,172	2.20	29.92	848,800	1,238	31.58	896,100
1958	1561	8,780	Mar. 24, 1958	38	663	1.25	16.91	480,300	656	16.74	475,100
1959	1631	12,100	June 12, 1959	12	455	.855	11.61	329,300	598	15.26	433,200
1960	1711	40,000	July 26, 1960	17	856	1.61	21.87	621,200	-	-	-

507. James River near Springfield, Mo.

Location.--Lat 37°12'12", long 93°09'00", in NE¼NW¼ sec.11, T.28 N., R.21 W., on left bank on county road at Kinser Bridge, 2½ miles southeast of Springfield.

Drainage area.--246 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 1,140 ft (from topographic map). Prior to Dec. 19, 1955, wire-weight gage at same site and datum.

Average discharge.--5 years (1955-60), 197 cfs (142,600 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 24,800 cfs Dec. 17, 1957 (gage height, 18.20 ft); minimum, 0.1 cfs Sept. 16, 24, 25, 1956 (gage height, 2.18 ft).
Maximum stage known, about 22 ft in July 1909, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	15.3	10.1	8.26	6.63	46.6	20.1	24.1	309	139	44.5	7.91	1.05	52.8
1957	2.74	19.6	77.7	68.8	298	395	855	1,212	617	244	25.5	114	327
1958	21.3	112	574	75.8	54.6	897	343	343	107	1,148	262	110	342
1959	30.6	33.5	25.6	66.0	78.9	275	106	135	160	52.0	13.4	15.8	82.7
1960	342	151	379	161	208	343	163	354	41.8	18.0	12.5	3.51	182

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	938	598	508	408	2,680	1,230	1,430	18,990	8,250	2,740	487	63	38,320
1957	168	1,170	4,780	4,230	†16,530	24,280	50,870	74,540	36,730	14,980	1,560	6,790	236,600
1958	1,310	6,690	35,260	4,660	3,030	55,140	20,420	21,110	6,360	70,610	16,110	6,530	247,200
1959	1,880	1,990	1,570	4,060	4,380	16,920	6,280	8,290	9,500	3,200	826	942	59,840
1960	21,010	8,980	23,320	9,870	11,970	21,070	9,690	21,790	2,490	1,100	770	209	132,300

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	12,400	May 15, 1956	0.3	52.8	0.215	2.92	38,320	58.4	3.22	42,400
1957	1511	14,100	May 23, 1957	.6	327	1.33	18.03	236,600	378	20.87	273,800
1958	1561	24,800	Dec. 17, 1957	9.9	342	1.39	18.85	247,200	289	15.96	209,400
1959	1631	1,590	June 1, 1959	3.8	82.7	.336	4.54	59,840	149	8.19	107,700
1960	1711	10,400	May 6, 1960	2.6	182	.740	10.08	132,300	-	-	-

525. James River at Galena, Mo.

Location.--Lat 36°48'20", long 93°27'50", in NW¼ sec.7, T.24 N., R.23 W., on left bank at downstream side of bridge on State Highways 13 and 44 in Galena, half a mile upstream from Railey Creek and 42.3 miles above mouth.

Drainage area.--987 sq mi.

Records available.--October 1921 to September 1960. Monthly discharge only for October 1921, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 921.37 ft above mean sea level, datum of 1929. Prior to Dec. 11, 1927, chain gage at site 500 ft downstream at datum 1.48 ft higher. Dec. 11, 1927, to Feb. 27, 1935, chain gage, Feb. 28, 1935, to July 22, 1939, wire-weight gage, and July 23, 1939, to Sept. 30, 1953, water-stage recorder, at same site at datum 2.00 ft higher.

Average discharge.--39 years (1921-60), 949 cfs (687,000 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 52,700 cfs May 20, 1943 (gage height, 29.82 ft, present datum); minimum, 10 cfs Sept. 20, 1954 (gage height, 1.25 ft, present datum).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	267	172	141	272	2,577	1,779	1,698	792	2,369	4,010	498	309	1,230
1952	465	3,021	913	748	2,214	1,974	2,439	486	215	146	291	114	1,075
1953	85.2	128	167	204	226	1,068	1,103	1,000	220	101	66.6	45.8	369
1954	58.0	65.3	91.5	77.5	87.4	129	145	518	123	46.0	22.6	53.8	119
1955	802	334	1,096	937	1,625	1,825	514	426	475	415	124	73.8	717
1956	140	89.2	79.2	68.8	227	135	209	1,945	661	479	147	74.9	356
1957	60.1	130	339	330	1,387	1,698	4,039	5,494	3,505	1,231	242	287	1,559
1958	141	346	1,446	342	252	3,414	2,161	2,017	406	2,825	1,123	430	1,255
1959	179	177	142	185	264	803	394	514	857	278	115	209	343
1960	1,550	684	1,384	792	811	1,242	732	1,705	329	192	166	82.2	810

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16,440	10,240	8,680	16,700	143,100	109,400	101,000	48,700	140,900	246,500	30,590	18,360	890,600
1952	28,590	179,700	56,150	45,960	127,400	121,400	145,100	29,870	12,800	9,000	17,880	6,770	780,600
1953	5,240	7,590	10,240	12,550	12,530	65,660	65,630	61,510	13,070	6,180	4,100	2,720	267,000
1954	3,570	3,880	5,630	4,770	4,860	7,960	8,610	31,870	7,310	2,830	1,390	3,200	85,880
1955	49,290	19,890	67,410	57,600	90,260	112,200	30,560	26,180	28,280	25,490	7,610	4,390	519,200
1956	8,580	5,310	4,870	4,230	13,060	8,310	12,440	119,600	39,320	29,440	9,020	4,460	258,600
1957	3,700	7,760	20,820	20,310	77,010	104,400	240,300	337,800	208,500	75,670	14,900	17,100	1,128,000
1958	8,660	20,610	88,910	21,050	13,970	209,900	128,600	124,000	24,180	173,700	69,020	25,570	908,200
1959	11,020	10,530	8,700	11,360	14,680	49,380	23,450	31,580	51,000	17,090	7,070	12,460	248,300
1960	95,320	40,710	85,120	48,710	46,630	76,340	43,570	104,800	19,580	11,780	10,200	4,890	587,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		1,236	17.00	894,900
1951	1211	29,900	July 5, 1951	124	1,230	1.25	16.92	890,600		1,547	21.28	1,120,000
1952	1241	16,800	Feb. 2, 1952	86	1,075	1.09	14.83	780,600		743	10.24	539,200
1953	1281	4,900	Mar. 15, 1953	39	369	.374	5.08	267,000		355	4.90	257,000
1954	1341	4,900	May 3, 1954	11	119	.121	1.63	85,880		289	3.98	209,400
1955	1391	16,400	Feb. 20, 1955	49	717	.726	9.85	519,200		554	7.60	401,300
1956	1441	27,200	May 15, 1956	46	356	.361	†4.91	258,600		375	5.18	272,200
1957	1511	25,600	May 24, 1957	42	1,559	1.58	21.44	1,128,000		1,677	23.06	1,214,000
1958	1561	28,600	Dec. 18, 1957	110	1,255	1.27	17.26	908,200		1,133	15.60	820,200
1959	1631	7,950	June 1, 1959	47	343	.348	4.73	248,300		607	8.35	439,200
1960	1711	15,200	May 7, 1960	64	810	.821	11.16	587,600		-	-	-

† Corrected.

530. White River near Reeds Spring, Mo.

Location.--Lat 36°37'20", long 93°25'20", in NE¼SE¼ sec.9, T.22 N., R.23 W., on downstream side of center pier of bridge on State Highway 13, 5¾ miles downstream from James River, 12 miles south of Reeds Spring, and at mile 543.8.

Drainage area.--3,617 sq mi.

Records available.--February 1938 to September 1952.

Gage.--Water-stage recorder. Datum of gage is 739.00 ft above mean sea level, datum of 1929. Prior to Dec. 18, 1938, wire-weight gage; Dec. 18, 1938, to May 10, 1943, water-stage recorder; May 11, to Oct. 1, 1943, wire-weight gage; Oct. 2, 1943, to Mar. 10, 1945, water-stage recorder; and Mar. 11, 1945, to Feb. 14, 1947, wire-weight gage; all at same site and datum.

Average discharge.--14 years (1938-52), 4,368 cfs (3,162,000 acre-ft per year).

Extremes.--1938-52: Maximum discharge, 196,000 cfs Apr. 16, 1945 (gage height, 47.0 ft, from floodmark); minimum, 145 cfs Sept. 27, 1939 (gage height, 0.09 ft).
Maximum stage known prior to 1945, 46.8 ft Apr. 15, 1927, from floodmark.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,189	589	492	1,649	16,950	6,715	5,417	3,004	5,847	9,144	1,080	714	4,310
1952	1,371	9,873	4,395	3,577	5,947	9,326	9,312	3,406	944	432	1,595	385	4,194

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	73,080	35,070	30,250	101,400	941,600	412,900	322,400	184,700	347,900	562,200	66,390	42,460	3,120,000
1952	84,310	587,500	270,200	220,000	342,100	573,400	554,100	209,400	56,190	26,580	98,090	22,900	3,045,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	6,087	22.74	4,408,000
1951	1211	75,000	Feb. 21, 1951	419	4,310	1.19	16.17	3,120,000	5,420	20.34	3,924,000
1952	1241	36,400	Apr. 14, 1952	236	4,194	1.16	15.79	3,045,000	-	-	-

534. Table Rock Reservoir near Branson, Mo.

Location.--Lat 36°35'46", long 93°18'38", in NW¼ sec.22, T.22 N., R.22 W., at dam on White River, 6.1 miles southwest of Branson.

Drainage area.--4,020 sq mi.

Records available.--September 1956 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 18, 1958, staff gage at same site and datum.

Extremes.--1956-60: Maximum contents, 2,901,000 acre-ft May 23, 1960, (elevation, 919.51 ft); minimum since initial filling to bottom of power pool level, 941,300 acre-ft Sept. 24-25, 1959 (elevation, 855.75 ft).

Remarks.--Reservoir is formed by a combination concrete-gravity and embankment-type dam. Storage began Sept. 9, 1956. Storage for the purpose of filling to power pool level began Nov. 24, 1958. Bottom of power pool was first reached May 21, 1959. Capacity, nominal top of flood-control pool, 3,462,000 acre-ft (elevation, 931 ft), of which 760,000 acre-ft (between elevations 915 and 931 ft) is reserved for flood control, 1,932,300 acre-ft (between elevations 846 and 915 ft) is used for power, and 769,700 acre-ft (below elevation 846 ft) is dead storage. Capacity at spillway crest (elevation, 896 ft), 1,976,000 acre-ft. Reservoir used for flood control, power, and incidental recreational purposes.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in thousands of acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1956	-	-	-	-	-	-	-	-	-	-	-	4.11
1957	4.33	6.00	7.66	17.75	107.3	101.4	837.0	1,807.8	1,628.6	1,128.4	508.2	69.99
1958	9.54	16.48	17.34	17.52	16.38	389.1	224.7	312.4	48.97	146.7	50.66	52.27
1959	49.93	72.10	77.60	81.36	133.8	388.4	631.5	831.2	1,003.2	1,018.1	983.5	946.0
1960	1,264.1	1,475.8	1,706.5	1,902.8	2,073.8	2,365.0	2,474.2	2,730.4	2,596.8	2,714.0	2,622.0	2,485.4

535. White River near Branson, Mo.

Location.--Lat 36°35'51", long 93°17'42", in SE¼NE¼ sec.22, T.22 N., R.22 W., on left bank 0.9 mile downstream from Table Rock Dam, 5 miles southwest of Branson, 7.4 miles upstream from Missouri Pacific Railroad Co. bridge, and at mile 527.8.

Drainage area.--4,022 sq mi.

Records available.--July 1909 to December 1910 (gage heights and discharge measurements only), October 1951 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 696.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). July 19, 1909, to Dec. 31, 1910, chain gage at site 7.4 miles downstream at different datum. Oct. 1, 1951, to Mar. 6, 1952, staff gage at present site and datum.

Average discharge.--9 years (1951-60), 3,372 cfs (2,441,000 acre-ft per year).

Extremes.--1951-60: Maximum discharge, 89,100 cfs May 16, 1956 (gage height, 36.9 ft); minimum prior to building dam, 24 cfs Sept. 20, 1954; no outflow from reservoir at various times since storage began.
Maximum stage known, 52.8 ft Apr. 16, 1945, from floodmark (discharge, 203,000 cfs).

Remarks.--Records of discharge based on power releases, conduit releases, fish hatchery releases, and pool elevation at Table Rock Reservoir. Fish hatchery releases began Feb. 18, 1959. Some regulation by Table Rock Reservoir (see preceding page) since Sept. 9, 1956.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	1,638	11,150	4,761	3,823	6,338	10,170	10,020	3,616	984	442	1,575	415	4,557
1953	237	606	915	1,030	1,018	9,602	8,916	8,408	779	861	274	136	2,747
1954	167	189	276	483	545	1,214	1,538	3,447	519	140	51.3	151	729
1955	2,435	907	4,398	4,201	7,753	8,520	3,973	4,632	5,113	2,298	481	195	3,722
1956	479	257	267	228	2,640	912	1,803	11,530	3,952	2,462	400	183	2,096
1957	128	440	1,325	1,919	6,800	7,256	10,830	13,080	19,950	11,660	11,390	8,988	7,797
1958	1,588	3,716	2,479	1,112	1,843	6,978	9,450	9,897	7,211	6,137	6,842	1,651	4,927
1959	740	2,111	1,226	1,168	1,236	1,124	1,045	1,005	1,036	1,072	942	991	1,139
1960	1,032	990	820	988	1,220	1,291	2,077	12,290	3,969	2,291	2,200	2,305	2,634

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	100,700	663,700	292,800	235,000	364,600	625,500	596,200	222,300	58,570	27,150	96,850	24,670	3,308,000
1953	14,550	36,080	56,260	63,330	56,550	590,400	530,600	517,000	46,340	52,960	16,820	8,090	1,989,000
1954	10,290	11,250	17,000	29,710	30,290	74,630	91,380	211,900	30,870	8,620	3,150	8,990	528,100
1955	149,700	53,950	270,400	258,300	430,600	523,900	236,400	284,800	304,200	141,300	29,570	11,600	2,695,000
1956	29,470	15,300	16,420	14,010	151,900	56,050	107,300	709,200	235,200	151,400	24,610	10,890	1,522,000
1957	7,840	26,190	81,450	118,000	377,700	446,200	644,500	804,100	1,187,000	717,200	700,200	534,800	5,645,000
1958	97,650	221,100	152,400	68,360	102,400	429,000	562,300	608,500	429,100	377,400	420,700	98,220	3,567,000
1959	45,520	125,600	75,410	71,840	68,570	69,080	62,210	61,780	61,650	65,900	57,930	58,970	824,500
1960	63,480	58,920	50,430	60,740	70,190	79,370	123,600	755,600	236,200	140,900	135,300	137,200	1,912,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952	1241	38,000	Apr. 14, 1952	245	4,557	1.13	15.43	3,308,000	3,248	11.01	2,358,000
1953	1281	32,600	Mar. 16, 1953	126	2,747	.683	9.28	1,989,000	2,653	8.96	1,921,000
1954	1341	17,800	May 4, 1954	25	729	.181	2.46	528,100	1,331	4.49	963,600
1955	1391	40,600	Mar. 21,22, 1955	68	3,722	.925	12.56	2,695,000	3,152	10.64	2,282,000
1956	1441	89,100	May 16, 1956	3	2,096	.521	7.11	1,522,000	2,171	-	1,576,000
1957	1511	25,900	June 10,11, 1957	106	7,797	-	-	5,645,000	8,289	-	6,001,000
1958	1561	10,600	May 16, 1958	1	4,927	-	-	3,567,000	4,617	-	3,343,000
1959	1631	7,300	Nov. 20,21, 1958	0	1,139	-	-	824,500	1,037	-	750,800
1960	1711	18,000	May 15, 1960	35	2,634	-	-	1,912,000	-	-	-

540. White River at Forsyth, Mo.

Location.--Lat 36°40'55", long 93°06'05", in SE¼ sec.33, T.24 N., R.20 W., on left bank at downstream side of bridge on State Highway 80 in Forsyth, a quarter of a mile downstream from Swan Creek, 2 miles downstream from hydroelectric plant of Empire District Electric Co., and at mile 503.8.

Drainage area.--4,544 sq mi.

Records available.--January to September 1926 (incomplete), October 1929 to March 1953. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 640.64 ft above mean sea level, datum of 1929. Prior to Sept. 30, 1926, at datum 2.00 ft lower.

Average discharge.--23 years (1929-52), 4,959 cfs (359,000 acre-ft per year).

Extremes.--1926, 1929-53: Maximum discharge, 209,000 cfs Apr. 16, 1945 (gage height, 43.77 ft); minimum, 30 cfs Sept. 2, 3, 1936; minimum gage height, 0.58 ft Oct. 16, 25, 26, 1948; minimum daily discharge, 34 cfs Sept. 3, 1936.
Maximum stage known, 45.36 ft Apr. 16, 1927, from floodmark (discharge, 212,000 cfs, by computation of flow over dam). Flood in 1898 reached a stage of 38.80 ft, from floodmark (discharge, 160,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,199	672	541	2,004	19,210	8,350	6,761	3,869	7,104	11,580	1,311	943	5,196
1952	1,879	13,330	5,365	4,305	7,032	11,740	11,860	3,793	1,023	517	1,689	430	5,221
1953	243	733	1,104	1,204	1,131	-	-	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	73,740	39,960	33,240	123,200	1,067,000	513,400	402,300	237,900	422,700	711,800	80,600	56,120	3,762,000
1952	115,500	793,200	329,900	264,700	404,500	721,800	705,400	233,200	60,900	31,790	103,800	25,590	3,790,000
1953	14,910	43,600	67,880	74,050	62,800	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	7,429	5,379,000
1951	1211	†82,400	Feb. 20, 1951	121	5,196	3,762,000	6,704	4,854,000
1952	1241	40,100	Apr. 14, 1952	127	5,221	3,790,000	3,689	2,678,000
1953	1281	-	-	-	-	-	-	-

† Corrected.

545. Bull Shoals Reservoir near Flippin, Ark.

Location.--Lat 36°21'56", long 92°34'29", at dam on White River in NW¼ sec.21, T.20 N., R.15 W., 6.3 miles northeast of Flippin, 12½ miles downstream from Little North Fork, and at mile 418.6.

Drainage area.--6,036 sq mi.

Records available.--January 1951 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to July 20, 1951, staff gage at same site and datum.

Extremes.--1951-60: Maximum contents, 5,366,100 acre-ft June 21, 1957 (elevation, 694.41 ft); minimum since bottom of power pool was first reached, 950,200 acre-ft Jan. 14, 1952 (elevation, 587.29 ft).

Remarks.--Reservoir is formed by concrete-gravity dam. Storage for purpose of filling to power pool level began July 23, 1951. Bottom of power pool was first reached Nov. 16, 1951. Capacity at top of spillway gates, 5,408,000 acre-ft (elevation, 695.0 ft), of which 2,360,000 acre-ft (between elevations 654.0 and 695.0 ft) will be used for flood control, 2,084,000 acre-ft (between elevations 588.0 and 654.0 ft) will be used for power, and 964,000 acre-ft (below elevation 588.0 ft) will be dead storage. Capacity at spillway crest (elevation, 667.0 ft), 3,682,500 acre-ft. Contents at lowest outlet, 8,400 acre-ft (elevation, 477.1 ft). Reservoir is used for flood control, power, and incidental recreational purposes. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in thousands of acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	-	-	-	40.8	508.8	17.6	20.3	13.4	87.5	223.6	336.8	402.3
1952	582.1	1,378.0	964.6	1,022.8	1,538.2	2,135.6	2,202.6	2,272.3	2,311.6	2,328.1	2,440.2	2,447.1
1953	2,403.4	2,408.3	2,392.7	2,410.2	2,398.8	3,041.7	3,184.6	3,047.6	2,863.6	2,689.3	2,479.8	2,235.2
1954	2,003.3	1,795.2	1,679.4	1,565.3	1,466.8	1,447.4	1,360.5	1,446.9	1,307.0	1,161.8	988.5	965.6
1955	1,150.7	1,179.5	1,558.9	1,859.9	2,372.4	2,944.4	2,967.9	3,039.0	3,083.0	2,962.5	2,724.4	2,527.2
1956	2,395.8	2,251.0	2,104.4	1,959.1	2,204.3	2,103.0	2,136.6	2,998.1	3,084.4	3,044.4	2,868.3	2,639.3
1957	2,477.0	2,345.4	2,296.4	2,342.0	2,844.2	2,964.3	3,681.5	4,645.8	5,287.3	4,692.8	4,181.6	3,405.7
1958	2,827.0	2,851.9	2,764.3	2,534.7	2,477.0	3,040.8	2,967.9	3,311.2	3,147.0	3,151.2	3,047.6	2,951.4
1959	2,768.0	2,891.1	2,825.3	2,709.2	2,670.1	2,726.5	2,774.8	2,774.8	2,796.9	2,706.3	2,546.9	2,453.2
1960	2,542.6	2,564.3	2,669.7	2,772.2	2,746.6	2,761.3	2,860.5	3,293.5	3,029.6	3,014.3	2,951.4	2,932.9

550. White River near Flippin, Ark.

Location.--Lat 36°18'50", long 92°33'20", in NE¼ sec.10, T.19 N., R.15 W., on right bank 1.3 miles upstream from Hightower Creek, 3 miles northeast of Flippin, 11.5 miles downstream from Bull Shoals Dam, 11.8 miles upstream from Crooked Creek, and at mile 406.7.

Drainage area.--6,067 sq mi.

Records available.--October 1928 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 419.66 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Dec. 21, 1938, staff gage at site 1.1 miles upstream at datum 1.52 ft higher.

Average discharge.--32 years (1928-60), 6,135 cfs (4,442,000 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 215,000 cfs Apr. 17, 1945 (gage height, 39.82 ft); minimum daily, 90 cfs Aug. 3, 1949, caused by temporary storage behind Bull Shoals Dam upstream.

Maximum stage known, 45.4 ft Apr. 16, 1927, original site and datum, or about 41 ft, present site and datum (discharge, 240,000 cfs, from data by Corps of Engineers).

Remarks.--Flow completely regulated since July 24, 1951, by Bull Shoals Reservoir (see preceding station). Prior to this date some regulation at low flow by Lake Taneycomo 100 miles upstream (total capacity, 23,700 acre-ft). Some regulation July 1949 to July 1951 by construction of Bull Shoals Dam.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,749	953	841	2,521	16,170	20,030	9,688	5,851	9,032	15,040	237	209	6,804
1952	151	3,410	13,420	4,915	251	6,468	15,330	3,962	417	329	214	288	4,109
1953	762	1,399	1,915	1,742	1,954	4,537	10,050	13,660	4,283	3,537	3,474	4,038	4,291
1954	3,882	3,745	2,298	2,861	2,766	2,841	3,916	3,076	3,007	2,461	2,915	553	2,862
1955	247	974	909	454	1,356	3,079	4,583	4,397	6,557	6,076	4,386	3,657	3,061
1956	2,643	2,741	2,731	2,795	2,731	3,097	3,182	3,386	4,009	4,814	3,573	4,083	3,317
1957	3,023	3,369	3,814	2,949	2,594	7,854	9,780	9,402	15,430	22,900	19,130	22,390	10,250
1958	11,290	4,531	4,734	5,726	4,266	5,445	13,520	9,490	12,180	8,792	10,290	4,782	7,942
1959	3,885	2,095	2,793	3,599	3,212	2,507	2,706	2,898	3,848	3,203	3,830	3,018	3,135
1960	2,395	2,681	2,405	1,516	3,699	4,555	2,076	10,500	9,420	3,386	3,520	2,568	4,060

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	107.5	56.70	51.74	155.0	898.0	1,231	576.5	359.7	537.5	925.0	14.57	12.41	4,926
1952	9.26	202.90	825.2	302.2	14.45	397.7	911.9	243.6	24.82	20.20	13.14	17.12	2,982
1953	46.83	83.27	117.7	107.1	108.5	279.0	598.1	840.1	254.9	217.5	213.6	240.3	3,107
1954	238.7	222.8	141.3	175.9	153.6	174.7	233.0	189.2	178.9	151.3	179.2	32.91	2,072
1955	15.19	57.98	55.88	27.89	75.32	189.3	272.7	270.4	390.2	373.6	269.7	217.6	2,216
1956	162.5	163.1	167.9	171.9	157.1	190.5	189.3	208.2	238.5	296.0	219.7	243.0	2,408
1957	185.9	200.5	234.5	181.3	144.0	482.9	582.0	578.1	918.4	1,408	1,176	1,332	7,424
1958	694.3	269.6	291.1	352.1	236.9	334.8	804.5	583.5	725.0	540.6	632.9	284.5	5,750
1959	238.9	124.6	171.7	221.3	178.4	154.1	161.0	178.2	229.0	196.9	235.5	179.6	2,269
1960	147.2	159.5	147.8	93.22	212.7	280.1	123.5	645.5	560.5	208.2	216.4	152.8	2,947

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		10,330	23.11	7,477,000
1951	1211	43,900	Feb.23,24,1951	136	6,804	-	-	4,926,000		7,939	-	5,747,000
1952	1241	21,500	Apr. 25, 1952	133	4,109	-	-	2,982,000		3,021	-	2,193,000
1953	1281	27,500	May 3, 1953	383	4,291	-	-	3,107,000		4,782	-	3,462,000
1954	1341	10,500	Apr. 22, 1954	110	2,862	-	-	2,072,000		2,207	-	1,598,000
1955	1391	24,800	July 1, 1955	121	3,061	-	-	2,216,000		3,564	-	2,580,000
1956	1441	11,100	Sept.12, 1956	912	3,317	-	-	2,408,000		3,492	-	2,535,000
1957	1511	27,200	July 25, 1957	684	10,250	-	-	7,424,000		11,130	-	8,058,000
1958	1561	24,400	Oct. 3, 1957	1,970	7,942	-	-	5,750,000		6,948	-	5,030,000
1959	1631	9,680	Aug. 31, 1959	632	3,135	-	-	2,269,000		3,023	-	2,188,000
1960	1711	25,800	June 6, 1960	742	4,060	-	-	2,947,000		-	-	-

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560. Buffalo River near St. Joe, Ark.

Location.--Lat 35°59', long 92°45', in SW¼ sec.36, T.16 N., R.17 W., near right bank on downstream side of pier of bridge on U. S. Highway 65, 1¼ miles downstream from Mill Creek, 4 miles upstream from Bear Creek, and 4½ miles southeast of St. Joe.

Drainage area.--825 sq mi.

Records available.--October 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 560.35 ft above mean sea level, datum of 1929. Prior to Mar. 1, 1940, wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 1,119 cfs (810,000 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 100,000 cfs Apr. 15, 1945 (gage height, 41.00 ft), from rating curve extended above 69,000 cfs by logarithmic plotting; minimum, 6.6 cfs Sept. 16, 17, 20, 1954.
Maximum stage known, 50.5 ft in August 1915, from information by Corps of Engineers.

Remarks.--Records of chemical analyses for the period October 1953 to September 1957, and water temperatures for the period October 1956 to September 1957 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	182	130	108	855	4,985	928	2,042	937	1,351	867	157	104	1,023
1952	446	3,661	1,236	1,285	1,410	3,926	3,923	1,811	256	97.3	193	67.9	1,522
1953	35.4	962	686	695	825	3,904	2,990	2,884	156	97.7	59.9	22.7	1,113
1954	24.4	33.4	56.8	671	790	561	1,185	1,612	129	29.6	15.0	10.2	424
1955	68.2	64.3	725	506	1,606	2,645	1,985	1,638	1,131	677	123	51.0	931
1956	114	73.7	80.4	54.3	2,940	369	761	1,318	232	140	53.8	21.6	503
1957	16.4	59.2	140	418	2,056	1,111	6,739	6,153	2,870	368	327	205	1,694
1958	117	1,432	362	317	534	3,526	1,458	2,987	330	475	1,082	188	1,074
1959	114	1,915	580	515	894	1,671	2,618	762	1,862	418	125	99.9	958
1960	1,110	1,456	1,648	1,688	1,611	1,518	890	3,924	448	585	132	61.5	1,258

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,200	7,740	6,620	52,570	276,900	57,090	121,500	57,590	80,380	53,310	9,670	6,220	740,800
1952	27,430	217,900	76,020	79,030	81,080	241,400	233,400	111,300	15,230	5,980	11,880	4,040	1,105,000
1953	2,180	57,250	42,170	42,730	45,830	240,000	177,900	177,400	9,280	6,010	3,680	1,350	805,800
1954	1,500	1,990	3,490	41,230	43,880	34,470	70,540	99,130	7,670	1,820	920	609	307,200
1955	4,190	3,830	44,550	31,100	89,170	162,600	118,100	100,700	67,300	41,620	7,590	3,030	673,800
1956	7,010	4,380	4,940	3,340	169,100	22,710	45,300	81,040	13,780	8,620	3,310	1,290	364,800
1957	1,010	3,520	8,600	25,730	114,200	68,310	401,000	378,300	170,800	22,640	20,130	12,190	1,226,000
1958	7,200	85,230	22,270	19,490	29,680	216,800	86,780	183,700	19,660	29,200	66,500	11,180	777,700
1959	7,000	113,900	35,680	31,680	49,620	102,800	155,800	46,850	110,800	25,680	7,670	5,940	693,400
1960	68,250	86,660	101,300	102,600	92,660	93,350	52,940	241,300	26,630	36,000	8,140	3,660	913,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,605	26.40	1,162,000
1951	1211	50,900	Feb. 20, 1951	75	1,023	1.24	16.83	740,800	1,432	23.55	1,037,000
1952	1241	35,400	Apr. 12, 1952	43	1,522	1.84	25.11	1,105,000	1,219	20.12	884,900
1953	1281	29,400	Mar. 18, 1953	19	1,113	1.35	18.31	805,800	982	16.16	711,200
1954	1341	35,200	May 2, 1954	7.0	424	.514	6.97	307,200	487	8.01	352,800
1955	1391	42,200	Mar. 21, 1955	8.6	931	1.13	15.34	673,800	881	14.51	637,500
1956	1441	18,700	Feb. 2, 1956	12	503	.610	8.30	364,800	498	8.23	361,600
1957	1511	62,600	Apr. 4, 1957	12	1,694	2.05	27.87	1,226,000	1,834	30.18	1,328,000
1958	1561	19,900	Mar. 9, 1958	73	1,074	1.30	17.66	777,700	1,132	18.61	819,600
1959	1631	24,900	Apr. 19, 1959	50	958	1.16	15.76	693,400	1,095	18.02	793,000
1960	1711	31,600	May 20, 1960	49	1,258	1.52	20.75	913,500	-	-	-

570. Buffalo River near Rush, Ark.

Location.--Lat 36°07', long 92°33', in NE¼ sec.15, T.17 N., R.15 W., on left bank 0.8 mile upstream from Rush Creek, 1.5 miles southeast of Rush, and 24.3 miles upstream from mouth.

Drainage area.--1,091 sq mi.

Records available.--October 1928 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 451.98 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Jan. 27, 1939, staff gage at site 0.6 mile downstream at same datum.

Average discharge.--32 years (1928-60), 1,367 cfs (989,700 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 121,000 cfs Apr. 15, 1945 (gage height, 38.86 ft); minimum, 12 cfs Sept. 17, 18, 20, 1954.

Maximum stage known, 45.5 ft Aug. 19, 1915, from floodmarks, original site (discharge, 164,000 cfs by slope-area measurement of peak flow). Flood of Apr. 14, 1927, reached a stage of 35.9 ft, from floodmarks, original site (discharge, 110,000 cfs by slope-area measurement). Data on floods in 1915 and 1927 furnished by Corps of Engineers.

Remarks.--Records of chemical analyses for the period October 1958 to September 1960 and water temperatures for the period October 1958 to September 1959 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	255	190	155	1,168	5,905	1,109	2,593	1,267	1,431	1,123	217	156	1,262
1952	543	4,577	1,534	1,675	1,755	4,980	4,753	2,139	377	166	233	97.6	1,897
1953	61.3	1,353	884	913	1,029	4,829	3,328	3,497	247	139	83.4	38.5	1,371
1954	39.4	55.3	78.0	774	864	679	1,340	2,020	171	42.5	26.1	22.6	507
1955	89.5	93.0	772	615	1,857	3,170	2,287	2,094	1,676	1,011	195	76.1	1,157
1956	146	101	99.8	73.7	3,748	475	880	1,597	306	178	77.4	38.0	630
1957	30.9	90.2	197	505	2,690	1,367	8,006	7,635	3,487	538	499	242	2,093
1958	157	1,723	440	403	627	4,408	1,732	3,817	456	578	1,250	232	1,327
1959	144	2,496	711	667	1,106	2,066	3,219	889	2,048	431	166	129	1,165
1960	1,295	1,828	2,178	2,031	2,014	1,912	1,111	5,301	638	668	183	91.2	1,609

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15,710	11,340	9,560	71,800	327,900	68,170	154,300	77,910	85,120	69,060	13,340	9,280	913,500
1952	33,410	272,400	94,340	103,000	100,900	306,200	282,800	131,500	22,440	10,210	14,310	5,810	1,377,000
1953	3,770	80,500	54,330	56,150	57,130	296,900	198,000	215,000	14,680	8,560	5,130	2,290	992,400
1954	2,420	3,290	4,790	47,560	47,990	41,720	79,710	124,200	10,150	2,610	1,600	1,340	367,400
1955	5,500	5,530	47,480	37,800	103,200	194,900	136,100	128,700	99,710	62,150	12,000	4,530	837,600
1956	8,980	6,010	6,140	4,530	215,600	29,220	52,390	98,210	18,220	10,940	4,760	2,260	457,300
1957	1,900	5,370	12,100	31,060	149,400	84,040	476,400	469,400	207,500	33,070	30,670	14,390	1,515,000
1958	9,640	102,500	27,030	24,800	34,800	271,000	103,100	234,700	27,140	35,560	76,860	13,830	961,000
1959	8,870	148,500	43,740	41,030	61,420	127,000	191,500	54,640	121,900	26,520	10,230	7,690	843,000
1960	79,650	108,800	133,900	124,900	115,800	117,600	66,090	325,900	37,960	41,100	11,260	5,430	1,168,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,983	24.66	1,436,000
1951	1211	56,000	Feb. 20, 1951	113	1,262	1.16	15.69	913,500	1,764	21.94	1,277,000
1952	1241	41,300	Mar. 11, 1952	70	1,897	1.74	23.67	1,377,000	1,537	19.17	1,116,000
1953	1281	32,800	Mar. 18, 1953	30	1,371	1.26	17.04	992,400	1,194	14.85	864,300
1954	1341	37,200	May 2, 1954	12	507	.465	6.30	367,400	574	7.13	415,400
1955	1391	45,000	Mar. 21, 1955	32	1,157	1.06	14.40	837,600	1,105	13.75	800,200
1956	1441	22,000	Feb. 18, 1956	20	630	.577	7.85	457,300	627	7.82	455,500
1957	1511	67,000	Apr. 4, 1957	20	2,093	1.92	26.05	1,515,000	2,259	28.11	1,635,000
1958	1561	21,300	Mar. 9, 1958	103	1,327	1.22	16.52	961,000	1,413	17.58	1,023,000
1959	1631	29,500	Apr. 19, 1959	73	1,165	1.07	14.49	843,000	1,332	16.58	964,300
1960	1711	38,200	May 21, 1960	66	1,609	1.47	20.08	1,168,000	-	-	-

575. North Fork River near Tecumseh, Mo.

Location.--Lat 36°37'22", long 92°14'53", in NE¼SE¼ sec.35, T.23 N., R.12 W., on right bank 3.2 miles downstream from Spring Creek and 3½ miles northeast of Tecumseh.

Drainage area.--561 sq mi.

Records available.--October 1944 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 584.67 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 12, 1945, staff gage at same site at datum 0.22 ft lower.

Average discharge.--16 years (1944-60), 743 cfs (537,900 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 27,400 cfs Jan. 4, 1950 (gage height, 18.05 ft), minimum, 187 cfs Sept. 14-18, 1954 (gage height, 2.06 ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	430	399	364	495	1,335	1,149	992	867	778	1,632	616	511	794
1952	719	1,714	980	781	974	1,762	1,942	879	592	471	402	362	963
1953	348	425	411	417	410	1,115	890	788	429	352	284	250	511
1954	248	244	258	296	318	447	435	425	276	239	204	193	299
1955	236	224	396	375	555	1,162	468	441	512	544	304	239	455
1956	230	245	223	201	624	312	499	1,408	443	450	264	219	426
1957	214	254	343	346	750	571	2,781	2,775	1,318	565	423	401	893
1958	366	457	559	432	419	1,430	887	1,190	678	1,569	889	650	798
1959	438	948	517	475	553	802	800	637	572	460	405	363	580
1960	761	607	883	820	725	872	744	1,215	570	488	407	325	703

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	26,460	23,720	22,380	30,420	74,150	70,630	59,060	53,300	46,300	100,400	37,860	30,410	575,100
1952	44,190	102,000	60,250	48,020	56,030	108,400	115,600	54,040	35,210	28,980	24,710	21,520	699,000
1953	21,410	25,280	25,280	25,650	22,790	68,570	52,970	48,430	25,550	21,620	17,440	14,860	369,800
1954	15,270	14,510	15,870	18,220	17,640	27,500	25,890	26,140	16,410	14,710	12,530	11,490	216,200
1955	14,540	13,350	24,340	23,050	30,830	71,450	27,860	27,140	30,480	33,420	18,690	14,200	329,400
1956	14,150	14,580	13,710	12,380	35,900	19,170	29,700	86,590	26,340	27,670	16,250	13,020	309,500
1957	13,180	15,080	21,060	21,270	41,640	35,090	165,500	170,600	78,420	34,740	25,990	23,880	646,400
1958	22,530	27,210	34,350	26,550	23,260	87,920	52,750	73,160	40,350	96,450	54,650	38,690	577,900
1959	26,930	56,400	31,800	29,240	30,700	49,290	47,610	39,140	34,040	28,290	24,910	21,570	419,900
1960	46,760	36,100	54,290	50,400	41,700	53,840	44,250	74,720	33,920	30,020	25,050	19,320	510,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,086	26.28	786,500
1951	1211	6,450	Feb. 19, 1951	341	794	1.42	19.22	575,100	979	23.70	709,000
1952	1241	10,300	Apr. 12, 1952	349	963	1.72	23.36	699,000	777	18.86	564,500
1953	1281	3,920	Apr. 18, 1953	244	511	.911	12.35	369,800	475	11.47	343,500
1954	1341	3,780	Mar. 24, 1954	187	299	.533	7.22	216,200	308	7.45	222,800
1955	1391	25,100	Mar. 21, 1955	198	455	.811	11.01	329,400	441	10.68	319,600
1956	1441	22,100	May 15, 1956	195	426	.759	10.33	309,500	436	10.55	316,300
1957	1511	17,900	May 23, 1957	202	893	1.59	21.59	646,400	941	22.76	681,200
1958	1561	11,200	July 12, 1958	340	798	1.42	19.32	577,900	841	20.35	608,900
1959	1631	8,150	Nov. 16, 1958	302	580	1.03	14.04	419,900	610	14.78	441,900
1960	1711	5,050	Dec. 27, 1959	307	703	1.25	17.04	510,200	-	-	-

580. Bryant Creek near Tecumseh, Mo.

Location.--Lat 36°37'35", long 92°18'25", in E½ sec.32, T.23 N., R.12 W., on left bank three-quarters of a mile downstream from Pine Creek, 3 miles northwest of Tecumseh, and 5 miles upstream from mouth.
Drainage area.--570 sq mi.
Records available.--October 1944 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 573.15 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 30, 1945, staff gage at same site and datum.
Average discharge.--16 years (1944-60), 561 cfs (406,100 acre-ft per year).
Extremes.--1944-60: Maximum discharge, 26,800 cfs May 15, 1956 (gage height, 19.64 ft); minimum, 96 cfs Sept. 16, 17, 1954 (gage height, 2.08 ft).
Revisions.--Some periods for the water years 1945 and 1950 and maximum discharges in 1946-47 were revised in WSP 1441; resulting revised records as summarized herewith supersede those published in WSP 1311.

Month	Mean	Per square mile	Inches	Acre-feet	Momentary maximum	
					Discharge	Date
April 1945	3,497	-	-	208,100	-	-
Water year 1944-45	1,080	1.89	25.78	783,900	22,600	Apr.14,15, 1945
Calendar year 1945	1,093	1.92	26.05	791,600	-	-
Water year 1945-46	-	-	-	-	17,200	Feb. 14, 1946
Water year 1946-47	-	-	-	-	18,000	Nov. 10, 1946
January 1950	2,350	-	-	144,500	-	-
Water year 1949-50	987	1.73	23.50	714,400	26,500	Jan. 4, 1950
Calendar year 1950	964	1.69	22.95	697,900	-	-

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	245	222	202	325	1,164	858	758	569	825	1,748	450	311	637
1952	491	1,664	759	520	795	1,513	1,614	548	310	218	199	162	730
1953	168	244	218	240	233	897	607	516	205	163	132	123	313
1954	128	136	137	149	147	289	185	175	118	110	105	103	149
1955	130	127	276	231	411	887	275	272	331	346	140	116	295
1956	126	136	119	112	520	186	412	1,250	219	247	135	111	297
1957	112	151	211	241	664	429	2,102	3,049	1,769	348	229	194	790
1958	172	249	373	258	274	1,450	680	1,013	484	1,382	635	402	619
1959	225	496	255	221	294	497	501	389	446	584	199	185	358
1960	574	495	578	612	599	658	504	995	345	295	230	157	504

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15,070	13,180	12,410	19,980	64,620	52,730	45,090	34,960	49,090	107,500	27,690	18,520	460,800
1952	30,180	99,000	46,680	31,960	45,730	93,010	96,030	33,720	18,450	13,410	12,210	9,620	530,000
1953	10,330	14,500	13,420	14,730	12,920	55,170	36,130	31,700	12,180	10,050	8,110	7,300	226,500
1954	7,870	8,120	8,420	9,160	8,150	17,800	11,020	10,740	6,990	6,750	6,440	6,120	107,600
1955	7,980	7,550	16,950	14,210	22,840	54,520	16,370	16,750	19,690	21,240	8,610	6,910	213,600
1956	7,730	8,080	7,320	6,910	29,910	11,420	24,500	76,840	13,050	15,180	8,280	6,580	215,800
1957	6,890	9,000	12,960	14,840	36,860	26,360	125,100	187,500	105,200	21,370	14,080	11,550	571,700
1958	10,580	14,820	22,920	15,880	15,240	89,140	40,490	62,260	28,800	84,950	39,010	23,940	448,000
1959	13,820	29,490	15,650	13,600	16,300	30,570	29,810	23,940	26,540	35,910	12,260	11,030	258,900
1960	35,290	29,440	35,540	37,600	34,430	40,450	30,020	61,180	20,530	18,130	14,140	9,320	366,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		†964	†22.95	†697,900
1951	1211	10,700	July 1, 1951	192	637	1.12	15.16	460,800		823	19.61	596,000
1952	1241	8,840	Mar. 11, 1952	148	730	1.28	17.44	530,000		541	12.91	392,400
1953	1281	3,490	Mar. 18, 1953	119	313	.549	7.45	226,500		294	7.00	212,700
1954	1341	4,140	Mar. 24, 1954	97	149	.261	3.54	107,600		160	3.80	115,600
1955	1391	19,200	Mar. 21, 1955	106	295	.518	7.03	213,600		282	6.72	204,300
1956	1441	26,800	May 15, 1956	104	297	.521	7.11	215,800		305	7.31	221,500
1957	1511	16,500	May 23, 1957	104	790	1.39	18.81	571,700		817	19.44	591,200
1958	1561	12,100	May 30, 1958	160	619	1.09	14.73	448,000		634	15.07	458,700
1959	1631	10,400	July 5, 1959	151	358	.628	8.51	258,900		415	9.88	300,200
1960	1711	4,400	May 6, 1960	142	504	.884	12.06	366,100		-	-	-

† Corrected.

595. Norfork Reservoir near Norfork, Ark.

Location.--Lat 36°14'57", long 92°14'16", at dam on North Fork River in SE¼ sec.2, T.18 N., R.12 W., 4.3 miles northeast of Norfork.

Drainage area.--1,806 sq mi.

Records available.--June 1943 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 1, 1945, staff gage at same site and datum.

Extremes.--1943-60: Maximum contents, 1,788,900 acre-ft June 10-11, 1957 (elevation, 573.44 ft); minimum since power-pool stage was first reached, 541,500 acre-ft Sept. 21, 1954 (elevation, 509.78 ft).

Remarks.--Reservoir is formed by concrete-gravity dam. Storage began June 18, 1943; power-pool stage was first reached Feb. 27, 1945. Capacity at top of spillway gate, 1,983,000 acre-ft at elevation 580.0 ft, of which 731,800 acre-ft (between elevations 552.0, permanent spillway crest, and 580.0 ft) will be reserved for flood control, 707,000 acre-ft (between elevations 510.0 and 552.0 ft) will be used for power, and 544,200 acre-ft (below elevation 510.0 ft) will be dead storage. Contents at lowest outlet elevation, 2,500 acre-ft (elevation, 395.0 ft). Reservoir is used for flood control, power development, and recreational purposes. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in thousands of acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	1,127.4	1,071.1	1,012.2	1,014.0	1,212.5	1,197.0	1,221.1	1,220.4	1,260.4	1,283.3	1,217.0	1,155.0
1952	1,141.9	1,314.2	1,225.3	1,198.3	1,176.5	1,248.6	1,276.1	1,202.6	1,151.0	1,070.1	1,025.7	977.3
1953	960.6	1,014.0	1,028.8	1,032.9	1,026.7	1,171.9	1,265.9	1,248.6	1,200.3	1,135.8	1,063.2	991.6
1954	909.6	844.7	805.8	743.0	716.1	710.3	682.2	710.2	670.6	611.3	552.0	546.8
1955	571.4	592.4	662.0	707.8	799.9	987.9	1,037.7	1,115.2	1,183.6	1,224.5	1,157.5	1,070.9
1956	1,039.6	985.5	931.1	889.1	972.7	925.0	926.6	1,135.0	1,198.8	1,251.0	1,176.1	1,123.1
1957	1,058.7	1,014.4	1,001.2	995.6	1,153.5	1,211.0	1,513.5	1,748.1	1,713.0	1,522.6	1,273.0	1,203.0
1958	1,164.4	1,162.9	1,153.5	1,071.3	1,037.5	1,251.4	1,212.9	1,345.0	1,302.5	1,276.1	1,266.6	1,198.1
1959	1,108.1	1,170.4	1,078.6	1,007.8	978.7	1,038.3	1,095.3	1,073.9	1,123.5	1,146.0	1,096.7	1,054.1
1960	1,101.2	1,081.2	1,171.1	1,148.9	1,126.8	1,153.9	1,155.8	1,292.3	1,279.0	1,277.7	1,245.9	1,191.9

600. North Fork River at Norfork Dam, near Norfork, Ark.

Location.--Lat 36°15', long 92°14', in SE¼ sec.2, T.18 N., R.12 W., at Norfork Dam, 4.3 miles northeast of Norfork.

Drainage area.--1,806 sq mi.

Records available.--May 1944 to September 1960.

Gage.--Water-stage recorder in float well in powerplant. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--16 years (1944-60), 1,931 cfs (1,398,000 acre-ft per year).

Extremes.--1944-60: Maximum daily discharge, 21,000 cfs Apr. 16, 1945; no flow at times.

Remarks.--Discharge computed from powerplant records, flow through flood-control conduits, and flow over spillway. Flow regulated by Norfork Reservoir (see preceding station). Records of chemical analyses for the water years 1953-60 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,521	1,559	1,558	1,557	1,621	3,189	3,124	1,921	1,995	4,635	2,353	1,977	2,257
1952	1,958	2,056	3,720	2,776	2,841	4,530	5,147	3,157	1,798	1,958	1,451	1,313	2,726
1953	691	746	741	1,111	1,161	1,262	1,091	2,529	1,505	1,526	1,456	1,426	1,272
1954	1,595	1,425	1,005	1,668	1,293	1,266	1,368	893	1,097	1,234	1,199	360	1,201
1955	65.8	65.0	67.5	66.1	64.8	83.1	297	133	67.2	472	1,443	1,711	379
1956	791	1,263	1,210	1,043	1,368	1,432	1,289	295	93.1	372	1,565	1,065	981
1957	1,352	1,217	965	981	340	549	4,265	4,448	4,138	4,168	4,444	1,712	2,393
1958	1,118	1,262	1,256	2,211	1,582	1,613	2,967	2,126	2,578	3,688	1,867	2,416	2,058
1959	2,080	2,351	2,464	2,109	1,889	1,006	1,470	1,721	561	925	1,398	1,367	1,611
1960	1,316	1,705	1,294	2,516	2,406	1,946	1,671	1,577	1,320	1,113	1,213	1,328	1,614

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	93,540	92,790	95,820	95,720	90,010	196,100	185,900	118,100	118,700	285,000	144,700	117,600	1,634,000
1952	120,400	122,300	228,700	170,700	163,400	278,600	306,300	194,100	107,000	120,400	89,200	78,110	1,979,000
1953	42,470	44,370	45,540	68,330	64,460	77,570	64,920	155,500	89,550	93,840	89,530	84,870	921,000
1954	98,040	84,810	61,800	102,600	71,820	77,850	81,380	54,920	65,260	75,870	73,730	21,420	869,500
1955	4,050	3,870	4,150	4,060	3,600	5,110	17,680	8,170	4,000	29,040	88,730	101,800	274,300
1956	48,640	75,130	74,400	64,130	78,680	88,030	76,710	18,160	5,540	22,870	96,200	63,350	711,800
1957	83,120	72,410	59,330	60,350	18,880	33,730	253,800	273,500	246,200	256,300	273,300	101,800	1,733,000
1958	68,740	75,070	77,220	135,900	87,830	99,180	176,500	130,700	153,400	226,800	114,800	143,800	1,490,000
1959	127,900	139,900	151,500	129,700	104,900	61,840	87,440	105,800	33,380	56,880	85,940	81,350	1,167,000
1960	80,910	101,500	79,580	154,700	138,400	119,700	99,460	96,960	78,560	68,430	74,610	79,020	1,172,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Maximum day		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3,145	2,277,000
1951	1211	5,450	July 31, 1951	510	2,257	1,634,000	2,518	1,823,000
1952	1241	10,400	Mar. 18, 1952	0	2,726	1,979,000	2,259	1,640,000
1953	1281	8,780	May 28, 1953	20	1,272	921,000	1,427	1,033,000
1954	1341	2,980	Apr. 30, 1954	20	1,201	869,500	880	636,900
1955	1391	2,600	Sept.16, 1955	52	379	274,300	636	460,400
1956	1441	2,660	Mar. 23, 1956	60	981	711,800	1,004	728,500
1957	1511	5,900	Aug. 15, 1957	50	2,393	1,733,000	2,402	1,739,000
1958	1561	7,590	July 19, 1958	60	2,058	1,490,000	2,332	1,688,000
1959	1631	4,040	Dec. 1, 1958	60	1,611	1,167,000	1,394	1,009,000
1960	1711	3,720	Jan. 22, 1960	72	1,614	1,172,000	-	-

605. White River at Calico Rock, Ark.

Location.--Lat 36°07', long 92°09', in SW¼ sec.23, T.17 N., R.11 W., on left bank at Calico Rock just upstream from Calico Creek, 3¼ miles downstream from Cataract Creek, 6 miles upstream from Piney Creek, and at mile 359.1.

Drainage area.--9,965 sq mi.

Records available.--October 1939 to September 1960. Gage-height records collected at same site since 1904 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 317.38 ft above mean sea level, datum of 1929. Prior to Jan. 26, 1940, staff gage at same site and Jan. 27 to Aug. 13, 1940, staff gage at site 500 ft downstream, both at datum 1.07 ft higher.

Average discharge.--21 years (1939-60), 10,420 cfs (7,544,000 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 310,000 cfs Apr. 16, 1945 (gage height, 48.84 ft); minimum observed, 305 cfs Sept. 27, 1954; minimum daily, 310 cfs Sept. 27, 1954.
Maximum stage known, 51.9 ft Jan. 31, 1916, present datum, from records of U. S. Weather Bureau (discharge, 350,000 cfs).

Remarks.--Flow regulated since July 24, 1951, by Bull Shoals Reservoir (see p. 66). Prior to this date some regulation by Lake Taneycomo 147 miles upstream (total capacity, 23,700 acre-ft). Some regulation by Norfork Reservoir (see p. 72) since 1943. Some regulation July 1949 to July 1951 by construction of Bull Shoals Dam.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,060	3,062	2,784	6,006	26,610	25,630	17,100	9,966	12,590	22,040	3,299	2,772	11,230
1952	3,228	12,730	20,680	11,430	6,778	19,920	28,620	10,860	3,225	2,872	2,317	1,905	10,390
1953	1,709	4,684	4,317	4,640	4,980	13,040	15,950	22,100	6,351	5,438	5,252	5,681	7,865
1954	5,815	5,543	3,704	5,816	5,481	5,329	7,145	7,290	4,541	4,000	4,329	1,119	5,010
1955	584	1,243	2,398	1,680	4,199	7,956	7,903	7,588	9,901	8,911	6,338	5,675	5,365
1956	3,868	4,386	4,350	4,180	10,130	5,576	6,002	6,737	5,547	5,594	5,398	5,252	5,563
1957	4,346	4,846	5,190	4,834	7,710	10,540	26,690	25,810	25,760	29,410	25,390	25,180	16,330
1958	13,150	8,439	6,922	8,687	7,032	13,790	19,110	17,990	16,190	12,960	14,100	7,756	12,210
1959	6,462	8,939	6,519	6,839	7,051	6,959	9,322	6,192	7,096	4,890	5,541	4,838	6,709
1960	5,947	7,238	7,624	7,697	9,388	10,210	6,383	19,620	12,220	5,769	5,363	4,618	8,511

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	249.6	182.2	171.2	369.3	1,478.0	1,576	1,017	612.8	749.0	1,355	202.9	164.9	8,128
1952	198.5	757.2	1,271	702.5	389.9	1,225	1,703	667.9	191.9	176.6	142.5	113.3	7,539
1953	105.1	278.7	265.4	285.3	276.6	801.6	949.1	1,359.0	377.9	334.4	322.9	338.0	5,694
1954	357.6	329.8	227.7	357.6	304.4	327.7	425.1	448.3	270.2	246.0	266.2	66.56	3,627
1955	35.89	73.96	147.5	103.3	233.2	489.2	470.3	466.6	589.1	547.9	389.7	337.7	3,884
1956	237.8	261.0	267.5	257.0	582.7	342.9	357.1	414.3	330.1	343.9	331.9	312.5	4,039
1957	267.2	288.4	319.1	297.2	428.2	647.8	1,588	1,587	1,533	1,808	1,561	1,499	11,820
1958	808.5	502.2	425.6	534.1	390.5	848.1	1,137	1,106	963.4	796.7	867.1	461.5	8,841
1959	397.3	531.9	400.8	420.5	391.6	427.9	554.7	380.7	422.2	300.7	340.7	287.9	4,857
1960	365.7	430.7	468.8	473.3	540.0	627.8	379.8	1,206	727.0	354.7	329.7	274.8	6,178

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	16,990	12,300,000
1951	1211	110,000	Feb. 21, 1951	1,560	11,230	8,128,000	13,470	9,752,000
1952	1241	66,600	Mar. 11, 1952	733	10,390	7,539,000	8,212	5,962,000
1953	1281	46,900	Mar. 18, 1953	906	7,865	5,694,000	8,232	5,960,000
1954	1341	42,400	May 3, 1954	310	5,010	3,627,000	4,101	2,969,000
1955	1391	51,100	Mar. 21, 1955	336	5,365	3,884,000	6,068	4,393,000
1956	1441	33,400	Feb. 18, 1956	1,720	5,563	4,039,000	5,713	4,147,000
1957	1511	106,000	Apr. 4, 1957	713	16,330	11,820,000	17,520	12,690,000
1958	1561	40,000	May 10, 1958	3,890	12,210	8,841,000	11,650	8,434,000
1959	1631	39,000	Nov. 17, 1958	1,770	6,709	4,857,000	6,619	4,792,000
1960	1711	58,600	May 21, 1960	2,070	8,511	6,178,000	-	-

610. White River at Batesville, Ark.

Location.--Lat 35°45'37", long 91°38'28", in NE¼ sec.21, T.13 N., R.6 W., on left bank at downstream side of bridge on State Highway 11 at Batesville, 0.3 mile upstream from lock and dam 1, 0.6 mile downstream from Polk Bayou, and at mile 300.1.

Drainage area.--11,062 sq mi.

Records available.--July 1937 to September 1958. Gage-height records collected at lower lock gage since 1904 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder and concrete dam. Datum of gage is 237.72 ft above mean sea level, datum of 1929. Prior to Jan. 28, 1939, staff gage on upper lock wall of dam 1, 0.3 mile downstream at same datum.

Average discharge.--21 years (1937-58), 12,360 cfs (8,948,000 acre-ft per year).

Extremes.--1937-58: Maximum discharge, 324,000 cfs Apr. 16, 1945 (gage height, 29.43 ft); minimum, 580 cfs Sept. 28, 1954; minimum daily, 592 cfs Sept. 28, 1954.
Maximum stage known, 31.1 cfs Feb. 1, 1916, at former site, observed by employee of Corps of Engineers (discharge, 382,000 cfs).

Remarks.--For regulation see Remarks for station at Calico Rock on preceding page.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,025	4,209	3,534	7,939	29,270	27,680	19,530	11,200	12,890	24,100	3,872	3,381	12,610
1952	3,432	16,370	22,220	15,020	8,901	23,810	32,750	12,700	4,036	3,250	2,774	2,224	12,290
1953	2,030	5,979	6,086	6,195	6,346	18,110	17,600	24,880	7,329	5,814	5,583	5,800	9,339
1954	6,113	5,944	4,034	6,600	6,388	6,168	7,794	9,525	5,026	4,291	4,685	1,480	5,671
1955	1,224	1,587	3,126	2,485	5,035	10,460	9,587	9,230	11,510	10,150	6,908	6,049	6,449
1956	4,373	4,564	4,625	4,603	14,460	6,420	7,076	7,809	6,543	6,413	5,950	5,697	6,508
1957	4,490	4,943	5,436	5,886	9,328	11,240	34,470	30,090	26,670	29,620	25,860	24,680	17,740
1958	13,760	11,760	7,952	9,758	7,912	17,740	21,040	22,260	17,190	13,300	14,420	8,331	13,820
1959													
1960													

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	309	250.5	217.3	488.2	1,626	1,702	1,162	688.5	767.2	1,482	238.1	201.2	9,132
1952	211	973.9	1,366	923.4	512	1,464	1,949	780.7	240.2	199.9	170.6	132.4	8,923
1953	124.8	355.8	374.2	380.9	352.5	1,114	1,047	1,530	436.1	357.5	343.3	345.1	6,761
1954	375.9	353.7	248	405.8	354.8	379.2	463.8	585.7	299.1	263.9	288.1	88.09	4,106
1955	75.24	94.45	192.2	152.8	279.6	643.1	570.5	567.5	684.7	624	424.8	360	4,669
1956	268.9	271.6	284.4	283	831.8	394.8	421.1	480.2	389.3	394.3	365.8	339	4,724
1957	276.1	294.1	334.3	361.9	518	691.3	2,051	1,850	1,587	1,821	1,590	1,469	12,840
1958	846.1	699.9	488.9	600	439.4	1,091	1,252	1,369	1,023	817.6	886.6	495.7	10,010
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	19,210	13,910,000
1951	1211	107,000	Feb. 21, 1951	1,960	12,610	9,132,000	15,060	10,910,000
1952	1241	77,700	Mar. 12, 1952	1,570	12,290	8,923,000	9,955	7,227,000
1953	1281	63,500	Mar. 18, 1953	1,180	9,339	6,761,000	9,508	6,884,000
1954	1341	47,900	May 2, 1954	592	5,671	4,106,000	4,821	3,490,000
1955	1391	58,500	Mar. 22, 1955	738	6,449	4,669,000	7,088	5,132,000
1956	1441	45,700	Feb. 18, 1956	2,210	6,508	4,724,000	6,617	4,804,000
1957	1511	124,000	Apr. 4, 1957	1,360	17,740	12,840,000	19,300	13,970,000
1958	1561	56,100	May 9, 1958	5,190	13,820	10,010,000	-	-
1959								
1960								

613. East Fork Black River at Lesterville, Mo.

Location.--Lat 37°27'00", long 90°49'40", in NE¼SE¼ sec.16, T.32 N., R.2 E., at bridge on State Highway 21 at Lesterville, ¾ mile upstream from Black River.

Drainage area.--94.5 sq mi.

Records available.--January to September 1960.

Gage.--Water-stage recorder. Datum of gage is 655.34 ft above mean sea level, datum of 1929.

Extremes.--January to September 1960: Maximum discharge, 2,080 cfs May 6 (gage height, 7.15 ft); minimum, 0.9 cfs Sept. 18 (gage height, 2.30 ft).
Flood in March 1935 reached a stage of about 13.8 ft, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	92.9	113	171	98.6	148	14.8	6.55	4.69	2.79	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	5,710	6,490	10,530	5,870	9,130	882	403	289	166	-

615. Black River near Annapolis, Mo.

Location.--Lat 37°20'10", long 90°47'15", in SW¼NW¼ sec.25, T.31 N , R.2 E., on right bank 0.4 mile downstream from Mayberry Branch, 7 miles southwest of Annapolis, 11 miles downstream from East Fork, and at mile 278.5.

Drainage area.--484 sq mi.

Records available.--April 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 569.72 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Aug. 21, 1942, at site 415 ft upstream at same datum.

Average discharge.--21 years (1939-60), 572 cfs (414,100 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 45,400 cfs June 8, 10, 1945 (gage height, 20.1 ft); minimum, 66 cfs Sept. 14-18, 1954, Sept. 18-20, 1955; minimum gage height, 1.36 ft Sept. 25-28, 1948.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	195	232	217	701	1,824	920	869	695	969	1,800	424	455	768
1952	576	1,897	633	461	761	1,483	1,629	370	196	211	224	163	714
1953	158	404	316	322	362	1,049	574	522	164	120	92.0	84.2	348
1954	109	127	127	188	366	240	417	425	694	88.5	92.4	76.6	244
1955	128	127	446	283	800	1,001	456	397	315	298	115	72.4	368
1956	105	184	119	108	913	302	372	1,003	457	169	87.4	91.2	323
1957	84.8	212	375	373	784	717	3,467	2,928	1,081	916	192	128	936
1958	158	622	1,219	397	419	1,729	1,083	738	334	587	301	182	650
1959	164	791	263	524	549	919	771	491	277	137	117	147	427
1960	489	288	1,037	513	446	681	571	781	184	121	107	105	445

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12,000	13,810	13,340	43,080	101,300	56,540	51,710	42,760	57,660	110,700	26,060	27,070	556,000
1952	35,440	112,900	38,940	28,370	43,780	91,190	96,930	22,750	11,660	12,970	13,780	9,700	518,400
1953	9,690	24,050	19,450	19,820	20,080	64,510	34,180	32,120	9,750	7,400	5,660	5,010	251,700
1954	6,690	7,530	7,820	11,530	20,320	14,730	24,790	26,110	41,300	5,440	5,680	4,560	176,500
1955	7,850	7,580	27,410	17,370	44,410	61,560	27,150	24,420	18,760	18,310	7,100	4,310	266,200
1956	6,460	10,940	7,330	6,630	52,500	18,570	22,110	61,690	27,200	10,420	5,380	5,420	234,600
1957	5,210	12,590	23,030	22,910	43,560	44,070	206,300	180,000	64,350	56,340	11,790	7,590	677,700
1958	9,730	37,010	74,980	24,410	23,290	106,300	64,420	45,350	19,890	36,110	18,490	10,850	470,800
1959	10,100	47,070	16,150	32,200	30,470	56,500	45,870	30,220	16,500	8,440	7,170	8,730	309,400
1960	30,090	17,110	63,750	31,550	25,630	41,860	33,960	48,030	10,960	7,420	6,580	6,220	323,200

Yearly discharge, in cubic feet per second, of Black River near Annapolis, Mo.

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	829	23.26	600,100
1951	1211	19,000	July 13, 1951	176	768	1.59	21.54	556,000	973	27.27	704,200
1952	1241	12,300	Mar. 11, 1952	138	714	1.48	20.08	518,400	529	14.89	384,300
1953	1281	8,240	Mar. 4, 1953	81	348	.719	9.75	251,700	305	8.54	220,600
1954	1341	8,240	June 8, 1954	66	244	.504	6.84	176,500	273	7.64	197,300
1955	1391	14,600	Mar. 21, 1955	66	368	.760	10.31	266,200	343	9.61	248,100
1956	1441	18,300	May 15, 1956	70	323	.667	9.08	234,600	345	9.71	250,800
1957	1511	42,100	Apr. 4, 1957	70	936	1.93	26.25	677,700	1,048	29.38	758,600
1958	1561	34,400	Dec. 17, 1957	95	650	1.34	18.25	470,800	584	16.38	422,400
1959	1631	12,600	Nov. 17, 1958	102	427	.882	12.00	309,400	479	13.46	347,000
1960	1711	11,500	Dec. 18, 1959	80	445	.919	12.51	323,200	-	-	-

620. Clearwater Reservoir near Piedmont, Mo.

Location.--Lat 37°08'00", long 90°46'31", in NW¼ sec.6, T.28 N., R.3 E., in intake tower at dam on Black River, 4½ miles west of Piedmont and at mile 257.4.

Drainage area.--898 sq mi.

Records available.--June 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1948-60: Maximum contents, 399,400 acre-ft May 28, 1957 (elevation, 565.59 ft); minimum since initial filling to conservation pool level, 18,340 acre-ft Oct. 24, 1956 (elevation, 491.72 ft).

Remarks.--Reservoir is formed by earthfill dam. Storage began June 3, 1948; conservation pool level reached July 4, 1948. Capacity, 413,700 acre-ft at elevation 567 ft (crest of spillway), of which 391,800 acre-ft is available for flood-control storage, and 21,920 acre-ft is permanent storage which under normal operating conditions will be maintained for purposes of conservation and recreation at elevation 494 ft. Reservoir used for flood control and incidental recreational purposes.

Contents, in acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	21,850	22,080	21,820	22,100	91,130	23,930	31,270	24,800	35,410	90,250	21,680	21,560
1952	25,420	93,340	21,970	22,000	22,030	69,840	73,770	24,400	23,370	22,650	21,760	21,330
1953	21,920	23,320	21,900	21,950	22,120	22,870	24,540	24,470	23,570	22,850	20,730	18,950
1954	21,400	21,990	22,160	21,920	22,000	24,380	24,620	24,160	22,820	21,430	20,960	20,080
1955	22,150	22,150	31,170	21,790	23,810	39,360	24,480	23,520	23,000	22,880	21,450	20,030
1956	22,180	21,990	21,940	21,990	22,020	24,480	26,610	26,340	23,830	22,880	21,610	20,210
1957	18,790	22,100	22,070	22,100	31,930	24,850	238,500	389,400	322,400	256,500	101,100	22,150
1958	22,080	22,000	34,980	22,000	24,850	109,100	79,610	51,820	23,270	22,600	22,030	21,850
1959	22,000	23,900	21,950	21,870	22,020	24,420	28,260	26,870	23,350	22,800	22,640	21,510
1960	21,380	21,950	26,340	21,940	21,840	26,770	24,740	24,190	23,180	22,900	22,430	21,190

625. Black River at Leeper, Mo.

Location.--Lat 37°04'45", long 90°42'50", in SE¼SE¼ sec.22, T.28 N., R.3 E., on downstream side of pier at right end of left truss of bridge on State Highway 34, half a mile northwest of Leeper, 2 miles downstream from McKenzie Creek, 6 miles downstream from Clearwater Dam, and at mile 251.0.

Drainage area.--957 sq mi.

Records available.--June 1921 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 428.51 ft above mean sea level, datum of 1929. Prior to Oct. 22, 1937, chain gage, Oct. 22, 1937, to Jan. 21, 1942, water-stage recorder, and Jan. 22 to Apr. 6, 1942, staff gage, all at site 1,900 ft downstream at datum 3.85 ft lower.

Average discharge.--39 years (1921-60), 973 cfs (704,400 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 78,400 cfs May 14, 1933 (gage height, 20.01 ft, site and datum then in use), from rating curve extended above 55,000 cfs; minimum, about 70 cfs Nov. 5, 6, 1959 (gage height, about -0.2 ft), gates closed at dam; minimum prior to regulation, 133 cfs Aug. 11, 1934.
Maximum stage known, about 22.3 ft in March 1904 (present site and datum), from flood-marks (discharge, 125,000 cfs, from rating curve extended above 55,000 cfs).

Remarks.--Flow regulated since June 1948 by Clearwater Reservoir (see preceding page).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	364	399	394	1,220	1,805	3,082	1,236	1,240	1,143	2,121	2,160	807	1,332
1952	951	1,972	2,468	880	1,212	1,726	2,489	1,628	430	407	416	346	1,243
1953	296	588	617	557	619	1,691	939	840	365	278	243	214	605
1954	189	250	265	378	582	368	582	916	1,067	219	195	183	431
1955	205	234	510	694	1,106	1,687	1,020	730	508	436	251	185	628
1956	177	307	226	209	1,135	435	419	1,507	699	332	219	201	486
1957	197	248	503	518	922	1,118	2,039	2,440	2,851	2,506	3,162	1,652	1,516
1958	329	1,147	1,658	963	570	1,627	2,346	2,236	1,181	870	549	373	1,158
1959	319	1,548	569	806	942	1,428	1,239	907	602	308	256	297	765
1960	805	451	1,467	954	799	1,001	908	1,398	403	265	253	245	748

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22,400	23,740	24,220	74,990	100,200	189,500	73,550	76,250	68,010	130,400	132,800	48,020	964,100
1952	58,480	117,400	151,700	54,080	69,690	106,100	148,100	100,100	25,580	25,000	25,570	20,560	902,400
1953	18,170	34,990	37,960	34,220	34,370	104,000	55,890	51,650	21,730	17,100	14,940	12,720	437,700
1954	11,630	14,870	16,310	23,240	32,310	22,640	34,620	56,300	63,470	13,480	11,980	10,890	311,700
1955	12,610	13,910	31,380	42,700	61,410	103,800	60,700	44,880	30,250	26,830	15,430	11,010	454,900
1956	10,900	18,280	13,900	12,850	65,300	26,750	24,910	92,680	41,600	20,390	13,470	11,930	353,000
1957	12,120	14,740	30,910	31,840	51,190	68,760	121,300	150,000	169,700	154,100	194,400	98,330	1,097,000
1958	20,240	68,260	101,900	59,230	31,670	100,000	139,600	137,500	70,260	53,480	33,770	22,200	838,100
1959	19,620	92,100	35,010	49,540	52,320	87,780	73,750	55,780	35,850	18,930	15,750	17,680	554,100
1960	49,480	26,850	90,200	58,650	45,980	61,580	54,010	85,960	23,950	16,280	15,550	14,560	543,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,642	1,189,000
1951	1211	5,560	Feb. 20, 1951	297	1,332	964,100	1,687	1,221,000
1952	1241	4,200	Dec. 6, 1951	257	1,243	902,400	917	665,900
1953	1281	3,950	Mar. 10, 1953	152	605	437,700	538	389,400
1954	1341	3,630	Feb. 18, 1954	174	431	311,700	451	326,800
1955	1391	11,400	Mar. 20, 1955	160	628	454,900	609	440,100
1956	1441	3,200	May 22,23,1956	157	486	353,000	508	367,600
1957	1511	10,400	May 23, 1957	173	1,516	1,097,000	1,699	1,230,000
1958	1561	4,470	Dec. 19, 1957	213	1,158	838,100	1,097	794,400
1959	1631	8,550	Nov. 17, 1958	205	765	554,100	793	573,900
1960	1711	3,300	Dec. 21, 1959	70	748	543,000	-	-

630. Black River at Poplar Bluff, Mo.

Location.--Lat 36°45'35", long 90°23'15", in SW¼NW¼ sec.2, T.24 N., R.6 E., on right bank at City Light and Water plant in Poplar Bluff, 1,500 ft upstream from bridge on U. S. Highway 60, 4¾ miles downstream from Indian Creek, and at mile 211.2.

Drainage area.--1,245 sq mi.

Records available.--October 1936 to September 1937, October 1939 to September 1960. Gage-height records collected at site 1,800 ft downstream September 1923 to July 1935 and since July 1935 at site 1,500 ft downstream are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 317.38 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1940, wire-weight gage at site 1,500 ft downstream at datum 2.00 ft higher and Oct. 1, 1940, to June 7, 1955, at site 1,500 ft downstream at present datum.

Average discharge.--22 years (1936-37, 1939-60), 1,297 cfs (939,000 acre-ft per year).

Extremes.--1936-37, 1939-60: Maximum discharge, 52,600 cfs May 12, 1943, from rating curve extended above 44,000 cfs; maximum gage height, 20.80 ft June 10, 1945, from graph based on gage readings; minimum discharge observed, 236 cfs Aug. 12, 1944; minimum gage height, 1.24 ft Nov. 8, 1959.

Maximum discharge known, 100,000 cfs (estimated) in March 1904; maximum stage known, 21.1 ft Mar. 12, 1935, present datum (affected by levees constructed since 1904).

Remarks.--Flow regulated since June 1949 by Clearwater Reservoir (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	519	598	599	1,672	2,417	3,501	1,676	1,407	1,356	2,394	2,214	1,030	1,614
1952	1,008	2,787	2,751	1,469	1,602	2,579	3,146	1,995	616	562	566	486	1,629
1953	432	642	834	706	820	2,210	1,436	1,260	512	367	311	294	820
1954	268	315	335	475	778	687	807	1,135	1,124	321	288	268	564
1955	301	333	880	964	1,180	2,164	1,509	1,105	774	600	387	278	872
1956	276	417	343	309	1,646	744	710	1,831	834	455	330	298	679
1957	259	354	652	761	1,367	1,518	3,766	3,784	3,196	3,153	3,232	1,847	1,993
1958	503	1,996	2,074	1,533	867	2,717	2,836	3,325	1,417	1,054	798	497	1,641
1959	440	1,863	851	1,090	1,329	1,756	1,515	1,225	899	470	383	415	1,015
1960	998	678	1,711	1,438	1,159	1,310	1,259	1,966	661	428	433	386	1,038

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	31,890	35,560	36,850	102,800	134,200	215,300	99,740	86,540	80,680	147,200	136,200	61,270	1,168,000
1952	62,000	165,800	169,200	90,320	92,160	158,600	187,200	122,600	36,670	34,550	34,830	28,910	1,183,000
1953	26,570	38,170	51,260	43,410	45,430	135,900	85,430	77,480	30,470	22,590	19,120	17,480	593,400
1954	16,480	18,740	20,590	29,180	43,230	42,240	48,020	69,770	66,910	19,740	17,740	15,960	408,600
1955	18,490	19,790	54,120	59,300	65,540	133,000	89,770	67,920	46,090	36,880	23,810	16,540	631,200
1956	16,980	24,820	21,070	18,970	94,690	45,770	42,220	112,600	49,640	27,960	20,300	17,710	492,700
1957	15,950	21,040	40,100	46,800	74,920	93,330	224,100	232,700	190,200	193,900	198,700	109,900	1,443,000
1958	30,930	118,800	127,500	94,280	48,170	167,100	168,700	204,400	84,340	64,800	49,080	29,590	1,188,000
1959	27,020	110,800	52,350	67,000	73,800	108,000	90,140	75,310	53,500	28,900	23,520	24,710	735,000
1960	61,390	40,350	105,200	88,440	66,690	80,550	74,900	120,900	39,350	26,310	26,640	22,960	753,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	2,149	1,556,000
1951	1211	6,060	Feb. 21, 1951	446	1,614	1,168,000	2,018	1,461,000
1952	1241	7,210	Nov. 25, 1951	397	1,629	1,183,000	1,242	901,800
1953	1281	3,630	Mar. 29, 1953	273	820	593,400	737	533,200
1954	1341	2,840	May 9, 1954	242	564	408,600	615	445,200
1955	1391	7,370	Mar. 22, 1955	244	872	631,200	831	601,700
1956	1441	4,400	Feb. 18, 1956	244	679	492,700	698	507,000
1957	1511	14,300	Apr. 5, 1957	251	1,993	1,443,000	2,269	1,643,000
1958	1561	10,200	Mar. 25, 1958	371	1,641	1,188,000	1,520	1,101,000
1959	1631	7,220	Nov. 18, 1958	328	1,015	735,000	1,038	751,800
1960	1711	3,800	May 21, 1960	311	1,038	753,700	-	-

640. Black River near Corning, Ark.

Location.--Lat 36°24'05", long 90°32'30", near center of sec.4, T.20 N., R.5 E., near left bank on downstream side of pier of bridge on U. S. Highway 62, 2¼ miles east of Corning, 13.9 miles downstream from Cane Creek, and at mile 152.2.

Drainage area.--1,749 sq mi.

Records available.--October 1938 to September 1960. Gage-height records collected at site 7 miles downstream January 1925 to December 1929 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 272.90 ft above mean Gulf level (Corps of Engineers bench mark). Prior to Nov. 28, 1938, staff gage, Nov. 28, 1938, to Nov. 4, 1953, wire-weight gage, and Nov. 5, 1953, to Oct. 9, 1957, water-stage recorder, all at site 30 ft downstream at same datum.

Average discharge.--22 years (1938-60), 1,795 cfs (1,300,000 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 48,600 cfs June 13, 1945; maximum gage height, 16.92 ft June 13, 1945; minimum discharge, 224 cfs Sept. 22-27, 1941; minimum gage height observed, -0.52 ft Sept. 26, 1941.
Flood of Apr. 18, 1927, reached a stage of 14.4 ft, from records of Corps of Engineers.

Remarks.--Flow regulated by Clearwater Reservoir (see p. 77) 105 miles upstream since June 3, 1948. Records of chemical analyses for the period October 1954 to September 1960 and water temperatures for the period October 1956 to September 1959 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	687	937	898	2,981	4,472	4,281	2,631	1,583	1,316	3,773	2,274	1,120	2,236
1952	936	4,033	4,107	3,222	2,791	4,662	3,983	2,565	790	584	574	473	2,392
1953	382	564	1,029	925	1,126	3,561	2,070	2,021	670	420	339	295	1,119
1954	284	340	381	566	1,013	935	978	1,405	1,176	371	278	252	662
1955	299	367	839	1,378	937	2,980	2,331	1,635	1,104	690	413	273	1,106
1956	285	401	356	319	2,739	1,070	1,018	1,806	1,183	612	338	289	859
1957	269	346	641	1,171	2,052	1,719	6,562	6,282	3,553	3,858	3,266	2,116	2,653
1958	683	4,509	2,833	2,725	1,296	4,725	3,898	5,606	1,876	1,412	1,180	639	2,625
1959	504	1,633	1,468	1,547	2,189	2,222	1,565	1,724	1,288	562	425	430	1,290
1960	1,047	808	1,886	2,128	1,583	1,726	1,767	2,800	983	573	466	383	1,349

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	42,250	55,770	55,210	183,300	248,400	263,200	156,600	97,350	78,330	232,000	139,800	66,670	1,619,000
1952	57,550	240,000	252,600	198,100	160,600	286,700	237,000	157,700	47,010	35,900	35,300	28,130	1,737,000
1953	23,460	33,580	63,250	56,880	62,510	219,000	123,200	124,300	39,880	25,830	20,870	17,560	810,300
1954	17,460	20,230	23,400	34,830	56,270	57,480	58,170	86,390	69,990	22,820	17,100	15,000	479,100
1955	18,390	21,830	51,620	84,710	52,040	183,200	138,700	100,500	65,710	42,450	25,370	16,240	800,800
1956	17,550	23,840	21,870	19,640	157,600	65,780	60,580	111,000	70,390	37,610	20,760	17,220	623,800
1957	16,550	20,590	39,430	71,990	114,000	105,700	390,500	386,300	211,400	237,200	200,800	125,900	1,920,000
1958	41,990	268,300	174,200	167,500	72,000	290,500	232,000	344,700	111,600	86,810	72,540	38,040	1,900,000
1959	31,000	97,160	90,260	95,100	121,600	136,600	93,140	106,000	76,670	34,540	26,140	25,610	933,800
1960	64,370	48,070	116,000	130,800	91,070	106,100	105,200	172,200	58,480	35,260	28,630	22,780	979,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	3,262	25.30	2,361,000
1951	1211	10,200	Feb. 24, 1951	576	2,236	1.28	17.35	1,619,000	2,784	21.61	2,016,000
1952	1241	12,000	Nov. 28, 1951	375	2,392	1.37	18.60	1,737,000	1,800	13.99	1,307,000
1953	1281	5,340	Mar. 20, 1953	273	1,119	.640	8.69	810,300	1,037	8.06	751,100
1954	1341	2,630	Mar. 28, 1954	237	662	.379	5.13	479,100	704	5.45	509,900
1955	1391	8,950	Mar. 25, 1955	248	1,106	.632	8.58	800,800	1,067	8.28	772,200
1956	1441	7,210	Feb. 21, 1956	258	859	.491	6.68	623,800	878	6.82	637,100
1957	1511	18,700	Apr. 8, 1957	263	2,653	1.52	20.58	1,920,000	3,216	24.96	2,328,000
1958	1561	15,000	Mar. 28, 1958	466	2,625	1.50	20.39	1,900,000	2,257	17.53	1,634,000
1959	1631	4,060	Jan. 24, 1959	349	1,290	.738	10.00	933,800	1,304	10.11	943,800
1960	1711	6,150	May 23, 1960	362	1,349	.711	10.51	979,000	-	-	-

645. Big Creek near Yukon, Mo.

Location.--Lat 37°14'00", long 91°51'00", in SW¼NW¼ sec.5, T.29 N., R.8 W., on downstream side of right pier of bridge on State Highway 137, 3 miles south of Yukon.

Drainage area.--8.36 sq mi.

Records available.--June 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,194.81 ft above mean sea level, datum of 1929.

Average discharge.--11 years (1949-60), 7.08 cfs (5,130 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 4,860 cfs May 15, 1956, from rating curve extended above 2,800 cfs on basis of contracted-opening measurement of peak flow (gage height, 5.20 ft in gage well, 6.15 ft from floodmark); no flow at times in 1952-57, 1959-60.

Flood in April 1945 reached a stage of about 10.5 ft and next highest flood (since 1932) reached a stage of about 10.0 ft in February 1935, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	.33	.35	.26	4.27	29.9	13.4	16.5	5.73	20.5	14.6	3.21	7.06	9.49
1952	21.2	45.4	6.39	5.51	12.2	28.0	25.5	2.44	.326	2.32	.235	.077	12.4
1953	.049	1.75	1.39	3.11	2.50	16.9	5.93	3.71	.260	.059	.022	.013	2.99
1954	.021	.028	.016	.525	1.69	6.18	2.22	3.38	.606	.283	.006	0	1.25
1955	.19	.41	8.74	1.85	16.1	13.2	1.15	4.00	1.16	1.97	.07	0	4.01
1956	.02	0	0	0	7.49	1.13	3.58	23.2	2.20	.12	.24	.01	3.16
1957	.02	.32	6.94	3.25	21.6	5.73	56.4	31.3	3.44	1.11	.10	.04	10.7
1958	.05	1.86	12.6	1.15	6.65	35.0	12.1	13.7	.47	20.7	4.77	9.42	9.93
1959	1.05	15.8	1.76	5.38	3.81	9.59	9.16	6.88	1.10	.12	.02	.02	4.54
1960	4.51	5.88	19.5	4.83	4.53	18.9	5.45	9.79	1.02	.42	.03	0	6.28

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	20	21	16	262	1,660	826	981	352	1,220	897	197	420	6,870
1952	1,300	2,700	393	339	700	1,720	1,520	150	19	142	14	4.6	9,000
1953	3.0	104	86	191	139	1,040	353	228	15	3.6	1.4	.77	2,160
1954	1.3	1.7	.97	32	94	380	132	208	36	17	.40	0	903
1955	12	24	537	114	896	813	69	246	69	121	4.2	0	2,910
1956	1.0	0	0	0	431	69	213	1,420	131	7.5	14	.8	2,290
1957	1.4	19	427	200	1,200	352	3,360	1,920	205	68	6.0	2.4	7,760
1958	3.4	110	773	70	370	2,150	718	842	28	1,270	293	561	7,190
1959	65	942	108	331	212	589	545	423	65	7.5	1.0	1.0	3,290
1960	277	350	1,200	297	261	1,160	324	602	61	26	1.6	0	4,560

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	11.5	18.65	8,330
1951	1211	2,950	June 30, 1951	0.2	9.49	1.14	15.41	6,870	15.5	25.15	11,210
1952	1241	1,140	Oct. 27, 1951	.01	12.4	1.48	20.20	9,000	6.61	10.76	4,800
1953	1281	475	Mar. 3, 1953	.01	2.99	.358	4.85	2,160	2.73	4.43	1,980
1954	1341	462	Mar. 25, 1954	0	1.25	.150	2.03	903	2.04	3.31	1,470
1955	1391	895	Mar. 20, 1955	0	4.01	.480	6.51	2,910	3.22	5.22	2,330
1956	1441	4,860	May 15, 1956	0	3.16	.378	5.14	2,290	3.77	6.14	2,730
1957	1511	1,430	May 18, 1957	0	10.7	1.28	17.40	7,760	11.3	18.38	8,200
1958	1561	2,480	Dec. 17, 1957	0	9.93	1.19	16.14	7,190	10.2	16.65	7,420
1959	1631	871	Nov. 17, 1958	0	4.54	.543	7.37	3,290	5.52	8.97	4,000
1960	1711	1,000	Dec. 27, 1959	0	6.28	.751	10.23	4,560	-	-	-

660. Jacks Fork at Eminence, Mo.

Location.--Lat 37°09'15", long 91°21'30", in W½ sec.26, T.29 N., R.4 W., on upstream hand-rail of left span of bridge on State Highway 19 at Eminence, 1½ miles downstream from Mahans Creek and 8.0 miles upstream from mouth.

Drainage area.--398 sq mi.

Records available.--October 1921 to September 1960. Monthly discharge only for October 1921, published in WSP 1311.

Gage.--Wire-weight gage. Datum of gage is 617.91 ft above mean sea level, datum of 1929. Prior to Jan. 27, 1934, chain gage at site 1,400 ft upstream at datum 2.11 ft higher. Jan. 27, 1934, to Jan. 10, 1935, wire-weight gage at site 25 ft downstream at datum 0.04 ft lower.

Average discharge.--39 years (1921-60), 444 cfs (321,400 acre-ft per year).

Extremes.--1921-60: Maximum discharge observed, 40,000 cfs June 13, 1928 (gage height, 16.24 ft, site and datum then in use), from rating curve extended above 21,000 cfs; minimum, 64 cfs Aug. 28, 1936; minimum gage height observed, 0.66 ft Sept. 16, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	180	185	176	299	1,234	726	708	430	393	1,682	360	323	554
1952	588	1,655	653	460	707	1,300	1,290	411	258	213	178	158	654
1953	160	270	234	213	215	707	437	290	147	116	111	108	251
1954	112	119	124	141	163	202	203	341	183	95.8	82.6	81.8	154
1955	104	98.1	237	174	448	1,125	294	328	183	194	96.8	84.8	280
1956	99.7	120	96.9	89.8	316	139	213	908	246	116	87.1	73.1	209
1957	76.5	110	205	163	591	330	2,351	2,012	688	230	162	143	586
1958	140	253	354	232	258	1,308	763	1,111	284	558	307	325	494
1959	199	805	312	284	354	495	604	422	302	172	133	159	352
1960	504	288	738	480	329	534	504	725	246	192	155	133	404

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,080	11,030	10,820	18,410	68,560	44,660	42,110	26,450	23,390	103,400	22,140	19,190	401,200
1952	36,150	98,450	40,130	28,260	40,670	79,940	76,760	25,300	15,380	13,070	10,940	9,420	474,500
1953	9,830	16,040	14,400	13,090	11,950	43,500	26,000	17,830	8,750	7,150	6,840	6,400	181,800
1954	6,900	7,100	7,600	8,690	9,030	12,390	12,090	20,960	10,880	5,890	5,080	4,870	111,500
1955	6,400	5,840	14,560	10,700	24,880	69,170	17,500	20,180	10,910	11,910	5,950	5,050	203,000
1956	6,130	7,130	5,960	5,520	18,160	8,550	12,680	55,830	14,630	7,110	5,360	4,350	151,400
1957	4,710	6,760	12,610	10,050	32,810	20,310	139,900	123,700	40,930	14,140	9,960	8,530	424,400
1958	8,580	15,060	21,780	14,250	14,350	80,430	45,370	68,320	16,880	34,310	18,870	19,330	357,500
1959	12,230	47,880	19,210	17,430	19,630	30,410	35,940	25,930	17,980	10,600	8,200	9,480	254,900
1960	31,010	17,110	45,360	29,520	18,930	32,820	30,010	44,570	14,630	11,800	9,530	7,900	293,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	757	25.81	547,900
1951	1211	9,860	July 10, 1951	159	554	1.39	18.89	401,200	750	25.57	543,000
1952	1241	8,870	Mar. 11, 1952	150	654	1.64	22.36	474,500	468	16.03	340,000
1953	1281	4,150	Mar. 4, 1953	102	251	.631	8.56	181,800	225	7.68	163,100
1954	1341	3,400	May 28, 1954	74	154	.387	5.26	111,500	161	5.51	116,700
1955	1391	20,500	Mar. 21, 1955	80	280	.704	9.56	203,000	270	9.20	195,500
1956	1441	24,800	May 15, 1956	67	209	.525	7.14	151,400	215	7.36	156,300
1957	1511	21,600	Apr. 4, 1957	71	586	1.47	20.00	424,400	616	21.01	445,800
1958	1561	13,000	Mar. 24, 1958	129	494	1.24	16.86	357,500	541	18.46	391,400
1959	1631	10,300	Nov. 17, 1958	112	352	.884	12.01	254,900	372	12.68	269,100
1960	1711	13,000	Dec. 28, 1959	112	404	1.02	13.82	293,200	-	-	-

665. Current River near Eminence, Mo.

Location.--Lat 37°11'00", long 91°15'30", in SW¼NE¼ sec.15, T.29 N., R.3 W., on right bank 1 mile downstream from Jacks Fork, 8 miles northeast of Eminence, and at mile 123.0.

Drainage area.--1,272 sq mi.

Records available.--August 1921 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 568.82 ft above mean sea level, datum of 1929. Prior to Oct. 20, 1921, staff gage at site 1,200 ft upstream at different datum. Oct. 20, 1921, to Dec. 8, 1934, staff gage at site 30 ft upstream at datum 0.06 ft higher than present datum.

Average discharge.--39 years (1921-60), 1,467 cfs (1,062,000 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 75,100 cfs Dec. 27, 1942 (gage height, 26.97 ft), from rating curve extended above 48,000 cfs; minimum, 324 cfs Oct. 7, 8, 1956 (gage height, 0.41 ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	822	773	711	1,115	3,626	2,520	2,344	1,757	1,681	4,925	1,866	1,404	1,953
1952	1,916	4,623	2,059	1,483	2,076	3,660	3,908	1,549	1,057	992	796	707	2,063
1953	683	895	870	778	789	1,942	1,427	1,157	704	592	503	458	901
1954	486	503	486	518	592	631	680	967	784	442	375	345	567
1955	424	399	789	656	1,384	2,416	933	903	701	894	437	380	858
1956	440	454	385	363	1,123	559	653	3,186	983	521	470	375	793
1957	347	459	665	610	1,513	1,147	6,759	6,078	2,785	1,138	767	670	1,906
1958	619	827	1,803	827	812	3,730	2,555	2,878	977	1,492	1,006	972	1,550
1959	683	1,967	914	1,064	1,259	1,793	1,892	1,642	1,081	693	558	565	1,173
1960	1,302	904	2,394	1,459	999	1,603	1,527	1,986	836	619	565	495	1,228

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	50,560	46,020	43,690	68,550	201,400	154,900	139,500	108,000	100,000	302,900	114,700	83,560	1,414,000
1952	117,800	275,100	126,600	91,180	119,400	225,100	232,500	95,250	62,900	60,970	48,970	42,070	1,498,000
1953	41,970	53,270	53,470	47,860	43,800	119,400	84,920	71,160	41,910	36,380	30,910	27,260	652,300
1954	29,860	29,950	29,880	31,850	32,880	38,800	40,450	59,460	46,650	27,200	23,040	20,540	410,600
1955	26,050	23,740	48,520	40,340	76,880	148,600	55,500	55,550	41,710	54,980	26,860	22,640	621,400
1956	27,040	27,020	23,660	22,340	64,570	34,350	38,850	195,900	58,470	32,030	28,910	22,340	575,500
1957	21,320	27,330	40,880	37,530	84,010	70,500	402,200	373,700	165,700	70,000	47,180	39,870	1,380,000
1958	38,040	49,180	110,900	50,850	45,110	229,400	152,100	176,900	58,150	91,710	61,830	57,830	1,122,000
1959	41,980	117,100	56,230	65,450	69,920	110,200	112,600	101,000	64,300	42,580	34,330	33,600	849,300
1960	80,070	53,790	147,200	89,710	57,470	98,540	90,840	122,100	49,720	38,070	34,760	29,430	891,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,545	27.16	1,842,000
1951	1211	25,300	July 13, 1951	663	1,953	1.54	20.84	1,414,000	2,477	26.42	1,793,000
1952	1241	20,400	Apr. 13, 1952	678	2,063	1.62	22.08	1,498,000	1,553	16.62	1,127,000
1953	1281	7,790	Mar. 4, 1953	449	901	.708	9.64	652,300	820	8.76	593,300
1954	1341	7,250	May 28, 1954	334	567	.446	6.05	410,600	579	6.17	419,200
1955	1391	35,000	Mar. 21, 1955	352	858	.675	9.10	621,400	830	8.81	600,800
1956	1441	58,400	May 15, 1956	347	793	.623	8.49	575,500	809	8.65	587,300
1957	1511	48,900	Apr. 4, 1957	334	1,906	1.50	20.34	1,380,000	2,056	21.94	1,489,000
1958	1561	30,100	Mar. 24, 1958	541	1,550	1.22	16.52	1,122,000	1,573	16.79	1,139,000
1959	1631	15,700	Nov. 17, 1958	439	1,173	.922	12.53	849,300	1,264	13.49	915,000
1960	1711	32,500	Dec. 28, 1959	444	1,228	.965	13.13	891,700	-	-	-

670. Current River at Van Buren, Mo.

Location.--Lat 36°59'30", long 91°00'55", in NE¼NW¼ sec.25, T.27 N., R.1 W., near right bank on downstream side of pier of bridge on U. S. Highway 60 in Van Buren, 0.4 mile downstream from Pike Creek, 4.7 miles upstream from Big Spring, and at mile 90.4.

Drainage area.--1,667 sq mi.

Records available.--October 1912 to September 1960. Prior to July 1921 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 442.78 ft above mean sea level, datum of 1929. Prior to Sept. 1, 1926, chain gage at site 100 ft downstream at different datum. Sept. 1, 1926, to Oct. 19, 1934, chain gage and Oct. 20, 1934, to Sept. 30, 1939, water-stage recorder at present site at datum 3.00 ft higher.

Average discharge.--48 years (1912-60), 1,876 cfs (1,358,000 acre-ft per year).

Extremes.--1912-60: Maximum discharge, 125,000 cfs Aug. 21, 1915 (gage height, 25.9 ft, present datum), from rating curve extended above 62,000 cfs; minimum, 473 cfs Oct. 7, 8, 1956; minimum gage height, 1.69 ft Sept. 23, 24, 1959.
Maximum stage known, 29.0 ft Mar. 26, 1904, present datum, from floodmarks.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,118	1,059	994	1,499	4,758	3,363	2,911	2,129	1,922	6,465	2,368	1,958	2,534
1952	2,601	6,018	2,932	2,140	2,609	4,708	4,898	2,143	1,441	1,272	1,051	943	2,724
1953	878	1,146	1,129	1,083	1,073	2,594	1,905	1,493	935	811	706	668	1,203
1954	664	668	660	704	789	875	924	1,570	†1,084	618	532	501	799
1955	601	573	1,135	902	1,797	3,354	1,273	1,228	930	1,143	643	523	1,174
1956	576	587	535	538	1,566	793	805	3,860	1,231	651	579	495	1,018
1957	492	577	853	777	1,844	1,509	8,547	8,256	3,683	1,589	1,012	852	2,493
1958	800	1,282	2,320	1,319	1,239	4,937	3,358	3,953	1,314	1,730	1,295	1,164	2,069
1959	899	2,661	1,229	1,300	1,539	2,327	2,394	1,980	1,428	969	746	805	1,520
1960	1,817	1,184	2,786	2,024	1,441	2,036	2,023	2,625	1,125	874	805	739	1,628

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	68,750	63,030	61,130	92,190	264,200	206,800	173,200	130,900	114,400	397,500	145,600	116,500	1,834,000
1952	159,900	358,100	180,300	131,600	150,000	289,500	291,500	131,800	85,770	78,210	64,650	56,140	1,977,000
1953	53,980	68,180	69,440	66,620	59,570	159,500	113,300	91,810	55,630	49,890	43,400	39,730	871,000
1954	40,800	39,730	40,600	43,300	43,800	53,830	55,000	96,530	64,480	37,970	32,700	29,790	578,500
1955	36,940	34,070	69,820	55,480	99,810	206,200	75,770	75,520	55,350	70,290	39,540	31,100	849,900
1956	35,440	34,920	32,900	33,060	90,100	48,770	47,890	237,400	73,280	40,050	35,610	29,460	738,900
1957	30,230	34,320	52,420	47,800	102,400	92,810	508,600	507,600	218,300	97,690	62,250	50,720	1,805,000
1958	49,190	76,270	142,700	81,100	68,810	303,600	199,800	243,100	78,190	106,400	79,650	69,280	1,498,000
1959	55,250	158,400	75,590	79,960	85,490	143,100	142,500	121,700	84,970	59,570	45,860	47,890	1,100,000
1960	111,700	70,460	171,300	124,400	82,870	125,200	120,400	161,400	66,950	53,750	49,490	43,960	1,182,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	3,369	27.46	2,439,000
1951	1211	24,300	July 11, 1951	900	2,534	1.52	20.64	1,834,000	3,232	26.33	2,340,000
1952	1241	20,400	(a)	874	2,724	1.63	22.25	1,977,000	2,026	16.55	1,471,000
1953	1281	8,240	Mar. 4, 1953	650	1,203	.722	9.80	871,000	1,106	9.01	800,600
1954	1341	10,600	May 2, 1954	484	799	.479	6.54	578,500	826	6.76	598,200
1955	1391	34,300	Mar. 21, 1955	500	1,174	.704	9.55	849,900	1,122	9.12	812,300
1956	1441	56,900	May 16, 1956	479	1,018	.611	8.30	738,900	1,037	8.46	752,600
1957	1511	51,100	Apr. 4, 1957	476	2,493	1.50	20.31	1,805,000	2,702	22.00	1,956,000
1958	1561	36,600	Mar. 24, 1958	725	2,069	1.24	16.84	1,498,000	2,098	17.08	1,519,000
1959	1631	18,300	Nov. 18, 1958	685	1,520	.912	12.38	1,100,000	1,609	13.11	1,164,000
1960	1711	27,100	Dec. 28, 1959	695	1,628	.977	13.29	1,182,000	-	-	-

a Mar. 12, Apr. 13, 1952.

675. Big Spring near Van Buren, Mo.

Location.--Lat 36°57'05", long 90°59'35", in SW¼NE¼ sec.6, T.26 N., R.1 E., on right bank 400 ft downstream from spring outlet, 0.4 mile upstream from Current River, and 3½ miles southeast of Van Buren.

Records available.--October 1921 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Published as "near Chicopee" prior to 1924.

Gage.--Staff gage. Datum of gage is 429.08 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1934, at datum 1.0 ft higher.

Average discharge.--39 years (1921-60), 434 cfs (314,200 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 1,300 cfs (estimated) sometime in June 1928, during period of backwater from Current River; minimum, 236 cfs Oct. 6, 1957.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	365	370	361	464	621	653	588	545	477	749	528	428	512
1952	457	664	640	584	542	710	756	649	519	455	397	365	561
1953	346	353	350	331	339	529	488	445	356	346	326	315	377
1954	306	292	287	284	288	329	393	500	347	286	271	264	321
1955	266	262	301	331	365	495	406	363	327	304	272	254	329
1956	252	253	252	247	326	290	297	463	328	293	266	250	293
1957	243	248	254	262	355	381	820	944	754	528	383	339	459
1958	319	444	462	372	355	663	780	863	520	423	363	353	494
1959	345	550	470	366	386	545	510	455	382	341	331	309	416
1960	451	358	453	462	408	485	444	579	394	342	313	293	416

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22,470	21,990	22,180	28,530	34,490	40,170	34,970	33,480	28,390	46,080	32,470	25,480	370,700
1952	28,100	39,490	39,360	35,920	31,200	43,630	44,980	39,910	30,880	27,960	24,420	21,720	407,600
1953	21,290	20,980	21,500	20,360	18,830	32,530	29,030	27,340	21,170	21,250	20,060	18,740	273,100
1954	18,820	17,400	17,670	17,480	15,980	20,200	23,410	30,760	20,650	†17,590	16,650	15,690	232,300
1955	16,330	15,600	18,540	20,330	20,290	30,460	24,180	22,320	19,430	18,660	16,730	15,130	238,000
1956	15,490	15,050	15,490	15,190	18,750	17,850	17,690	28,440	19,490	18,020	16,340	14,880	212,700
1957	14,930	14,750	15,610	16,090	19,740	23,450	48,820	58,070	44,870	32,470	23,520	20,150	332,500
1958	19,640	26,410	28,400	22,890	19,700	40,760	46,410	53,050	30,970	26,030	22,330	20,980	357,600
1959	21,210	32,760	28,880	22,490	21,450	33,520	30,340	27,990	22,720	20,980	20,340	18,370	301,000
1960	27,750	21,300	27,860	28,440	23,470	29,830	26,440	35,610	23,450	21,030	19,240	17,430	301,800

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	622	450,200
1951	1211	1,000	July 14, 1951	354	512	370,700	568	411,000
1952	1241	900	Nov. 25,26,1951	354	561	407,600	502	364,400
1953	1281	700	Apr. 20, 1953	315	377	273,100	364	263,200
1954	1341	900	May 3, 1954	263	321	232,300	316	228,900
1955	1391	900	Mar. 21, 1955	252	329	238,000	323	233,600
1956	1441	900	May 16, 1956†	240	293	212,700	292	211,900
1957	1511	1,200	Apr. 4, 1957	236	459	332,500	499	361,600
1958	1561	1,200	Mar. 25, 1958	304	494	357,600	505	366,000
1959	1631	1,000	Nov. 19, 1958	300	416	301,000	408	295,100
1960	1711	900	Dec. 28, 1959	288	416	301,800	-	-

† Corrected.

680. Current River at Doniphan, Mo.

Location.--Lat 36°37'25", long 90°50'55", in NW¼NW¼ sec.27, T.23 N., R.2 E., on right bank half a mile upstream from U. S. Highway 160, 1 mile west of Doniphan, 2½ miles upstream from Briar Creek, and at mile 51.3.

Drainage area.--2,038 sq mi.

Records available.--October 1918 to September 1960. Prior to July 1921 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 322.21 ft above mean sea level, datum of 1929. Prior to July 3, 1936, nonrecording gages at several sites half a mile downstream at various datums.

Average discharge.--42 years (1918-60), 2,750 cfs (1,991,000 acre-ft per year).

Extremes.--1918-60: Maximum discharge, 94,400 cfs Mar. 12, 1935 (gage height, 22.0 ft, present site and datum), from rating curve extended above 60,000 cfs; minimum, 852 cfs Oct. 8-19, 1956; minimum gage height, 0.83 ft Sept. 21, 1960.
Maximum stage known, 24.9 ft in March 1904, from floodmarks, present site and datum (discharge, 130,000 cfs, from rating curve extended above 60,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,695	1,638	1,541	2,443	5,905	4,635	4,101	3,204	2,797	7,676	3,028	2,546	3,421
1952	3,088	7,001	3,991	3,328	3,666	6,554	6,473	3,133	2,168	1,949	1,650	1,519	3,704
1953	1,435	1,706	1,685	1,539	1,617	3,655	2,933	2,536	1,682	1,346	1,195	1,126	1,873
1954	1,119	1,124	1,101	1,176	1,318	1,450	1,620	2,332	1,715	1,081	974	903	1,326
1955	953	927	1,566	1,648	2,331	4,304	2,285	2,305	1,628	1,650	1,091	920	1,800
1956	1,025	1,048	950	917	2,343	1,486	1,476	4,519	1,998	1,218	1,057	915	1,578
1957	872	1,000	1,314	1,306	2,484	2,402	10,630	10,430	5,098	2,559	1,623	1,530	3,432
1958	1,392	2,578	3,455	2,163	1,889	6,695	4,561	6,175	2,382	2,518	2,003	1,841	3,151
1959	1,472	4,098	2,057	1,922	2,327	3,118	3,151	2,791	2,262	1,790	1,326	1,319	2,298
1960	2,420	1,685	3,524	3,055	2,353	2,870	2,891	4,112	1,885	1,511	1,412	1,275	2,422

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	104,200	97,450	94,770	150,200	327,900	285,000	244,000	197,000	166,400	472,000	186,200	151,500	2,477,000
1952	189,900	416,600	245,400	204,600	210,800	403,000	385,200	192,600	129,000	119,900	101,500	90,370	2,689,000
1953	88,260	101,500	103,600	94,650	89,790	224,700	174,500	155,900	100,100	82,750	73,470	67,000	1,356,000
1954	68,790	66,860	67,720	72,340	73,190	89,180	96,420	143,400	102,000	66,450	59,890	53,710	960,000
1955	58,620	55,170	96,300	101,400	129,400	264,600	136,000	141,700	96,870	101,400	67,080	54,760	1,303,000
1956	68,050	62,370	58,390	56,400	134,800	91,360	87,810	277,900	118,900	74,920	65,020	54,440	1,145,000
1957	53,620	59,530	80,790	80,310	138,000	147,700	632,300	641,100	303,400	157,300	99,810	91,020	2,485,000
1958	85,570	153,400	212,400	133,000	104,900	411,700	271,400	379,700	141,700	154,800	123,200	109,600	2,281,000
1959	90,510	243,900	126,500	118,200	129,200	191,700	187,500	171,600	134,600	110,100	81,520	78,510	1,664,000
1960	148,800	100,300	216,700	187,800	135,300	176,500	172,000	252,900	112,200	92,930	86,800	75,890	1,758,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	4,316	28.76	3,125,000
1951	1211	24,400	July 11, 1951	1,420	3,421	1.68	22.78	2,477,000	4,188	27.89	3,032,000
1952	1241	22,200	Mar. 12, 1952	1,430	3,704	1.82	24.73	2,689,000	2,935	19.58	2,130,000
1953	1281	8,530	Mar. 5, 1953	1,110	1,873	.919	12.48	1,356,000	1,749	11.66	1,266,000
1954	1341	9,530	May 3, 1954	879	1,326	.651	8.83	960,000	1,335	8.90	966,700
1955	1391	30,900	Mar. 22, 1955	899	1,800	.883	11.98	1,303,000	1,764	11.73	1,277,000
1956	1441	49,000	May 16, 1956	868	1,578	.774	10.54	1,145,000	1,592	10.63	1,155,000
1957	1511	54,600	Apr. 5, 1957	852	3,432	1.68	22.87	2,485,000	3,788	25.24	2,742,000
1958	1561	39,600	Mar. 25, 1958	1,300	3,151	1.55	20.98	2,281,000	3,164	21.06	2,291,000
1959	1631	28,700	Nov. 17, 1958	1,170	2,298	1.13	15.30	1,664,000	2,305	15.35	1,669,000
1960	1711	21,900	Dec 29, 1959	1,230	2,422	1.19	16.17	1,758,000	-	-	-

690. Black River at Pocahontas, Ark.

Location.--Lat 36°15', long 90°58', in SW¼ sec.27, T.19 N., R.1 E., near right bank on downstream side of pier of bridge on U. S. Highway 67 at Pocahontas, 1.6 miles downstream from Fourche Creek, 6.1 miles downstream from Current River, 18.1 miles upstream from Spring River, and at mile 90.1.

Drainage area.--4,843 sq mi.

Records available.--January 1936 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 242.43 ft above mean Gulf level (Corps of Engineers bench mark). Prior to July 15, 1937, staff gage at site 0.3 mile upstream at same datum. July 15, 1937, to July 23, 1940, wire-weight gage at present site and datum.

Average discharge.--24 years (1936-60), 5,756 cfs (4,167,000 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 59,600 cfs June 17, 1945 (gage height, 24.32 ft); minimum, 1,080 cfs Oct. 16-19, 1956 (gage height, -0.18 ft).
Maximum stage known, 25.9 ft Apr. 17, 1927, present site and datum.

Remarks.--Flow regulated by Clearwater Reservoir (see p. 77) 167 miles upstream since June 3, 1948.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,163	3,397	3,051	7,456	12,200	12,950	9,478	6,025	4,619	12,520	6,287	4,455	7,110
1952	4,050	10,850	12,600	10,230	8,536	14,410	13,510	7,104	3,413	2,661	2,320	2,181	7,652
1953	1,997	2,504	3,673	3,143	3,677	10,420	6,575	6,232	2,786	1,927	1,626	1,504	3,845
1954	1,511	1,576	1,637	2,145	2,926	3,042	3,561	4,776	3,365	1,625	1,282	1,213	2,383
1955	1,440	1,410	2,444	3,600	3,450	7,985	7,148	5,078	4,028	2,714	1,671	1,273	3,521
1956	1,423	1,460	1,408	1,408	6,817	3,967	3,140	6,204	4,160	2,097	1,463	1,234	2,881
1957	1,149	1,390	1,996	3,163	6,542	5,137	20,260	21,750	13,520	7,833	5,498	3,945	7,669
1958	2,507	10,310	8,135	7,159	4,544	12,180	13,000	15,980	4,940	4,837	4,433	2,904	7,600
1959	2,336	6,171	4,805	4,240	6,455	6,734	5,552	4,984	4,442	3,015	2,004	1,853	4,364
1960	3,492	3,024	5,436	7,279	5,423	5,712	5,597	8,606	4,042	2,391	1,983	1,678	4,561

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	194.5	202.2	187.6	458.5	677.5	796.3	564.0	370.4	274.9	769.6	386.6	265.1	5,147
1952	249.0	645.8	774.7	628.7	491.0	885.9	803.9	436.8	203.1	163.6	142.6	129.8	5,555
1953	122.8	149.0	225.9	193.3	204.2	640.6	391.2	383.2	165.8	118.5	100.0	89.49	2,784
1954	92.91	93.78	100.7	131.9	162.5	187.1	211.9	293.7	200.2	99.93	78.80	72.16	1,726
1955	88.56	83.90	150.3	221.4	191.6	491.0	425.4	312.3	239.7	166.8	102.7	75.73	2,549
1956	87.49	86.90	86.58	86.56	392.1	243.9	186.9	381.5	247.5	129.0	89.95	73.45	2,092
1957	70.65	82.71	122.7	194.5	363.3	315.9	1,206	1,338	804.5	481.6	338.1	234.7	5,553
1958	154.2	613.7	500.2	440.2	252.4	748.6	773.8	982.3	293.9	297.4	272.5	172.8	5,502
1959	143.6	367.2	295.4	260.70	358.5	414.1	330.3	306.4	264.3	185.4	123.2	110.2	3,159
1960	214.7	179.9	334.3	447.6	312.0	351.2	333.0	529.2	240.5	147.0	121.9	99.87	3,311

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	10,070	28.22	7,289,000
1951	1211	23,600	Feb. 25,26, 1951	2,530	7,110	1.47	19.91	5,147,000	8,609	24.11	6,232,000
1952	1241	23,600	Dec. 1, 1951	1,980	7,652	1.58	21.49	5,555,000	6,038	16.96	4,383,000
1953	1281	14,500	Mar. 24, 1953	1,480	3,845	.794	10.78	2,784,000	3,555	9.96	2,574,000
1954	1341	10,200	May 4, 1954	1,160	2,383	.492	6.70	1,726,000	2,432	6.83	1,761,000
1955	1391	16,200	Mar. 26, 1955	1,210	3,521	.727	9.87	2,549,000	3,436	9.65	2,488,000
1956	1441	13,700	May 20, 1956	1,140	2,881	.595	8.11	2,092,000	2,902	8.16	2,107,000
1957	1511	42,800	May 29, 1957	1,080	7,669	1.58	21.49	5,553,000	9,039	25.34	6,545,000
1958	1561	32,400	Mar. 29,30, 1958	2,060	7,600	1.57	21.32	5,502,000	6,962	19.52	5,040,000
1959	1631	15,000	Nov. 22, 1958	1,580	4,364	.901	12.24	3,159,000	4,257	11.94	3,082,000
1960	1711	12,600	May 22, 1960	1,610	4,561	.942	12.82	3,311,000	-	-	-

695. Spring River at Imboden, Ark.

Location.--Lat 36°12', long 91°10', in NE¼ sec.15, T.18 N., R.2 W., near left bank on downstream side of pier of bridge on U. S. Highway 62 at Imboden, 3.9 miles downstream from Janes Creek, 8.5 miles upstream from Eleven Point River, and 12.1 miles upstream from mouth.

Drainage area.--1,162 sq mi.

Records available.--February 1936 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 254.07 ft above mean sea level, datum of 1929. Prior to July 17, 1937, staff gage at site 200 ft downstream at same datum. July 17, 1937, to Feb. 8, 1939, wire-weight gage at present site and datum.

Average discharge.--24 years (1936-60), 1,365 cfs (988,200 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 78,500 cfs Jan. 24, 1949 (gage height, 28.42 ft), from rating curve extended above 45,000 cfs; minimum daily, 215 cfs Aug. 1, 1936. Maximum stage known, about 32.1 ft in August 1915, from information by Corps of Engineers (about 125,000 cfs).

Remarks.--Low flow slightly regulated by powerplant at Mammoth Spring. Records of chemical analyses for the period October 1953 to September 1960 and water temperatures for the period December 1955 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	841	883	757	2,211	3,931	2,703	3,120	1,763	1,303	2,716	1,034	927	1,835
1952	1,178	3,617	1,935	2,833	2,027	4,472	3,356	1,666	831	605	504	516	1,960
1953	404	899	1,098	885	1,000	3,074	2,002	2,212	810	527	405	351	1,141
1954	333	347	341	606	693	822	826	1,481	556	348	287	278	576
1955	401	296	576	508	883	1,632	1,170	1,384	736	633	374	292	741
1956	301	328	297	286	2,099	667	775	1,156	627	850	425	300	670
1957	281	324	379	735	1,945	927	6,765	4,861	1,589	799	500	446	1,624
1958	411	2,164	1,053	1,168	842	3,172	1,935	4,019	992	1,192	1,071	632	1,561
1959	548	3,374	960	839	1,299	1,582	1,169	880	897	514	510	416	1,076
1960	652	650	1,427	1,306	1,224	1,479	952	2,365	937	708	508	424	1,055

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	51,740	52,550	46,550	135,900	218,300	166,200	185,700	108,400	77,550	167,000	63,560	55,150	1,329,000
1952	72,450	215,200	119,000	174,200	116,600	274,900	199,700	102,500	49,460	37,200	30,990	30,710	1,423,000
1953	24,850	53,470	67,530	54,440	55,520	189,000	119,100	136,000	48,220	32,410	24,880	20,870	826,300
1954	20,470	20,660	20,950	37,250	38,500	50,530	49,170	91,070	33,100	21,400	17,670	16,520	417,300
1955	24,670	17,600	35,390	31,250	49,050	100,400	69,600	85,110	43,800	38,930	22,970	17,380	536,200
1956	18,480	19,510	18,240	17,610	120,700	41,000	46,110	71,050	37,330	52,250	26,160	17,870	486,300
1957	17,290	19,260	23,300	45,200	108,000	57,000	402,500	298,900	94,560	49,110	33,810	26,530	1,175,000
1958	25,260	128,800	64,770	71,840	46,740	195,000	115,200	247,100	59,060	73,290	65,840	37,600	1,130,000
1959	33,680	200,800	59,050	51,560	72,120	97,290	69,570	54,100	53,370	31,620	31,330	24,730	779,200
1960	40,070	38,700	87,770	80,330	70,380	90,940	56,630	145,400	55,740	43,510	31,220	25,250	765,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,312	26.99	1,674,000
1951	1211	26,200	Feb. 20, 1951	583	1,835	1.58	21.43	1,329,000	2,189	25.56	1,584,000
1952	1241	32,400	Nov. 24, 1951	403	1,960	1.69	22.96	1,423,000	1,601	18.75	1,162,000
1953	1261	13,400	Mar. 18, 1953	324	1,141	.982	13.33	826,300	1,026	11.98	742,500
1954	1341	12,500	May 3, 1954	250	576	.496	6.74	417,300	598	6.99	432,900
1955	1391	14,200	Mar. 21, 1955	271	741	.638	8.64	536,200	711	8.29	514,700
1956	1441	10,600	Feb. 18, 1956	224	670	.577	7.83	486,300	675	7.90	489,900
1957	1511	54,200	Apr. 4, 1957	260	1,624	1.40	18.98	1,175,000	1,843	21.55	1,334,000
1958	1561	30,600	May 5, 1958	351	1,561	1.34	18.25	1,130,000	1,665	19.44	1,205,000
1959	1631	60,500	Nov. 17, 1958	367	1,076	.926	12.56	779,200	901	10.52	652,200
1960	1711	10,200	May 7, 1960	351	1,055	.908	12.37	765,900	-	-	-

700. King's Creek near Willow Springs, Mo.

Location.--Lat 36°58'15", long 91°55'40", in NW¼SW¼ sec.34, T.27 N., R.9 W., on downstream side of right wingwall of bridge on U. S. Highway 60, 0.5 mile upstream from Eleven Point River and 2½ miles southeast of Willow Springs.

Drainage area.--4.91 sq mi.

Records available.--September 1955 to September 1959, water year 1960 (annual maximum).

Gage.--Crest-stage gage. Datum of gage is 1,168.3 ft above mean sea level, datum of 1929 (levels by State Highway Commission). Prior to Oct. 1, 1959, water-stage recorder at same site and datum.

Extremes.--1955-60: Maximum discharge, 568 cfs May 14, 1956 (gage height, 8.90 ft), from rating curve extended above 35 cfs on basis of contracted-opening measurement of peak flow; no flow for most of time.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	0.007	-
1956	0.003	0.01	0	0	0.03	0	0.20	4.65	0.12	0.26	0	0	0.446
1957	0	.02	.01	.003	.04	0	9.94	11.0	.22	0	0	0	1.77
1958	0	.05	.05	0	0	2.30	.007	.54	.003	4.45	.89	.55	.748
1959	0	2.39	0	0	0	0	0	0	0	0	0	.02	.198

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	-	-
1956	0.2	0.6	0	0	2.0	0	12	286	6.9	16	0	0.4 0	324
1957	0	1.0	.8	.2	2.0	0	591	676	13	0	0	0	1,280
1958	0	3.0	2.8	0	0	141	.4	33	.2	274	55	33	542
1959	0	142	0	0	0	0	0	0	0	0	0	1.0	143

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1955	1511	-	-	-	-	-	-	-	-	-	-
1956	1511	568	May 14, 1956	0	0.446	0.091	1.24	324	0.448	1.24	325
1957	1511	424	May 21, 1957	0	1.77	.360	4.91	1,280	1.78	4.92	1,290
1958	1561	403	July 17, 1958	0	.748	.152	2.06	542	.937	2.58	679
1959	1631	204	Nov. 17, 1958	0	.198	.040	.54	143	-	-	-
1960	-	139	Dec 27, 1959	0	-	-	-	-	-	-	-

705. Eleven Point River near Thomasville, Mo.

Location.--Lat 36°47'05", long 91°29'30", in NE¼NE¼ sec.3, T.24 N., R.5 W., on left bank attached to bluff at end of Grandpappy Ridge, 500 ft upstream from Posy Spring, 1½ miles downstream from Barren Fork, and 2½ miles east of Thomasville.

Drainage area.--361 sq mi.

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 610 ft (from topographic map).

Average discharge.--10 years (1950-60), 94.9 cfs (68,700 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 16,900 cfs Apr. 3, 1957 (gage height, 17.95 ft, from floodmark), from rating curve extended above 2,400 cfs on basis of slope-area measurements at gage heights, 13.8 and 17.95 ft; minimum, 2.7 cfs Sept. 13, 14, 15, 16, 1954; minimum gage height, 1.23 ft Sept. 14, 17, 1953.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	36.3	33.4	25.8	70.4	400	268	212	124	90.7	335	96.1	58.6	144
1952	141	390	207	176	124	448	420	178	96.4	56.5	35.0	19.5	191
1953	16.2	35.3	35.9	26.1	30.4	122	137	88.0	32.0	14.5	8.42	6.09	46.0
1954	6.95	8.73	6.94	9.71	17.1	59.9	86.1	148	18.2	8.02	5.25	3.89	31.7
1955	7.97	6.99	33.8	22.4	68.6	224	35.3	41.5	27.2	26.0	11.5	5.87	42.7
1956	6.73	12.0	7.28	5.19	58.0	17.8	16.5	136	22.9	17.9	8.31	5.07	26.1
1957	4.97	5.95	6.95	10.1	46.1	22.4	898	582	191	60.1	27.3	15.6	155
1958	13.8	55.8	36.4	32.7	25.1	314	158	484	86.2	171	98.4	36.8	127
1959	26.5	489	94.2	40.4	55.2	120	95.5	67.3	47.9	17.7	11.4	10.3	89.1
1960	138	32.0	184	144	85.0	122	107	219	54.9	28.9	21.8	11.4	96.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,230	1,990	1,590	4,330	22,190	16,460	12,620	7,610	5,400	20,600	5,910	3,490	104,400
1952	8,680	23,200	12,720	10,820	7,110	27,540	25,020	10,920	5,730	3,480	2,150	1,160	138,500
1953	998	2,100	2,210	1,600	1,690	7,500	8,120	5,410	1,900	895	517	362	33,300
1954	428	520	426	597	952	3,680	5,120	9,080	1,080	493	323	231	22,930
1955	490	416	2,080	1,380	3,810	13,800	2,100	2,550	1,620	1,600	710	349	30,900
1956	414	716	447	319	3,330	1,100	980	8,370	1,360	1,100	511	302	18,950
1957	305	354	428	620	2,560	1,370	53,440	35,780	11,370	3,690	1,680	928	112,500
1958	849	3,320	2,240	2,010	1,400	19,320	9,420	29,760	5,130	10,520	6,050	2,190	92,210
1959	1,630	29,070	5,790	2,480	3,060	7,370	5,680	4,140	2,850	1,090	702	615	64,480
1960	8,460	1,900	11,340	8,830	4,890	7,470	6,360	13,440	3,270	1,780	1,340	680	69,760

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951	1281	4,280	July 10, 1951	20	144	0.399	5.42	104,400	198	7.44	143,200
1952	1281	5,170	Nov. 24, 1951	16	191	.529	7.20	138,500	137	5.15	99,240
1953	1281	1,660	Apr. 18, 1953	5.3	46.0	.127	1.73	33,300	40.6	1.53	29,370
1954	1341	5,480	May 2, 1954	3.0	31.7	.088	1.20	22,930	33.9	1.29	24,540
1955	1391	6,850	Mar. 21, 1955	4.8	42.7	.118	1.61	30,900	40.7	1.53	29,500
1956	1441	4,640	May 15, 1956	3.6	26.1	.072	.99	18,950	25.4	.97	18,460
1957	1511	16,900	Apr. 3, 1957	4.1	155	.429	5.85	112,500	163	6.12	117,800
1958	1561	5,560	May 5, 1958	†10	127	.352	4.78	92,210	169	6.34	122,300
1959	1631	11,400	Nov. 16, 1958	8.3	89.1	.247	3.35	64,480	68.7	2.59	49,690
1960	1711	5,020	Dec. 28, 1959	5.6	96.1	.266	3.63	69,760	-	-	-

† Corrected.

710. Greer Spring at Greer, Mo.

Location.--Lat 36°47'10", long 91°20'50", in SE¼SW¼ sec.36, T.25 N., R.4 W., on right bank 300 ft downstream from lower outlet of spring, 1 mile upstream from Eleven Point River, and 1 mile north of Greer.

Records available.--August to December 1904 (gage heights and discharge measurements only), October 1921 to September 1960. October to December 1921 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 564.00 ft above mean sea level, datum of 1929. Aug. 10 to Dec. 31, 1904, staff gage at site 250 ft downstream at different datum. Nov. 17, 1921, to June 25, 1934, staff gage at site 250 ft downstream at datum 0.74 ft lower than present datum.

Average discharge.--39 years (1921-60), 337 cfs (244,000 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 1,510 cfs Nov. 17, 1958, includes about 900 cfs of surface runoff (gage height, 2.63 ft), from rating curve extended above 900 cfs; maximum excluding surface runoff, 903 cfs May 26, 1927; minimum, 104 cfs Nov. 16-19, 1956, Jan. 18, 19, 1957.

Remarks.--Occasional runoff from drainage area of 2.97 sq mi included in records.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	321	304	275	309	394	489	474	438	392	529	414	354	391
1952	366	523	499	425	406	517	560	501	445	393	361	324	443
1953	289	287	286	248	249	403	408	379	306	265	231	214	297
1954	194	173	154	154	168	200	239	303	218	165	140	128	186
1955	118	111	142	186	209	321	303	234	225	178	141	120	190
1956	116	118	113	108	224	169	181	318	264	202	150	123	174
1957	111	112	124	125	249	251	584	633	560	445	370	306	322
1958	256	281	286	281	258	429	516	558	388	421	425	366	373
1959	330	472	440	350	355	412	398	374	366	308	262	230	358
1960	432	345	385	458	379	398	422	486	371	320	284	251	378

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	19,730	18,070	16,910	18,990	21,860	30,070	28,180	26,960	23,350	32,510	25,450	21,080	283,200
1952	22,500	31,100	30,680	26,110	23,350	31,800	33,310	30,830	26,450	24,140	22,190	19,250	321,700
1953	17,740	17,070	17,590	15,250	13,830	24,770	24,280	23,290	18,220	16,270	14,230	12,730	215,300
1954	11,920	10,300	9,470	9,450	9,330	12,290	14,230	18,610	12,990	10,150	8,590	7,630	135,000
1955	7,240	6,600	8,760	11,420	11,600	19,750	18,020	14,410	13,380	10,920	8,650	7,120	137,900
1956	7,120	7,000	6,960	6,660	12,880	10,370	10,740	19,550	15,720	12,450	9,240	7,330	126,000
1957	6,840	6,650	7,630	7,660	13,840	15,460	34,720	38,900	33,330	27,380	22,770	18,200	233,400
1958	15,760	16,710	17,560	17,270	14,350	26,380	30,690	34,300	23,070	25,870	26,140	21,800	269,900
1959	20,290	28,110	27,060	21,500	19,700	25,350	23,700	23,020	21,800	18,920	16,120	13,690	259,300
1960	26,540	20,520	23,700	28,180	21,830	24,460	25,140	29,900	22,080	19,690	17,450	14,940	274,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	492	356,300
1951	1211	690	July 9, 1951	259	391	283,200	432	312,700
1952	1241	677	Nov. 24, 1951	306	443	321,700	399	289,800
1953	1281	543	Apr. 19, 1953	202	297	215,300	269	194,600
1954	1341	502	May 3, 1954	119	186	135,000	174	125,900
1955	1391	555	Mar. 21, 1955	107	190	137,900	188	136,400
1956	1441	508	May 15-17, 1956	108	174	126,000	174	126,100
1957	1511	870	Apr. 3, 1957	104	322	233,400	362	262,300
1958	1561	814	May 4, 1958	235	373	269,900	408	295,300
1959	1631	1,510	Nov. 17, 1958	215	358	259,300	352	254,600
1960	1711	612	May 6, 1960	244	378	274,400	-	-

715. Eleven Point River near Bardley, Mo.

Location.--Lat 36°38'55", long 91°12'03", in NE¼SE¼ sec.17, T.23 N., R.2 W., on downstream side of right pier of main truss of bridge on U. S. Highway 160, 7 miles southwest of Bardley and 7½ miles upstream from Fredericks Fork.

Drainage area.--793 sq mi.

Records available.--October 1921 to September 1960. Monthly discharge only for October 1921, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 410.84 ft above mean sea level, datum of 1929. Prior to June 26, 1934, chain gage at site 100 ft upstream at datum 0.06 ft higher. June 26 to Nov. 1, 1934, chain gage and Nov. 2, 1934, to Oct. 19, 1939, wire-weight gage, at present site and datum.

Average discharge.--39 years (1921-60), 759 cfs (549,500 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 40,000 cfs Apr. 14, 1927 (gage height, 18.74 ft, from floodmarks), from rating curve extended above 25,000 cfs; minimum, 152 cfs Jan. 27, 1956, Jan. 11, 1957; minimum gage height, 1.06 ft Sept. 6-11, 1925 (present site and datum).

Maximum stage known, 19.7 ft in August 1915, from floodmarks (discharge, 44,000 cfs, from rating curve extended above 25,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	559	519	458	798	1,618	1,555	1,312	1,032	877	1,559	824	673	978
1952	739	1,547	1,251	1,125	946	1,951	1,856	1,177	837	681	566	473	1,096
1953	412	450	484	408	448	1,007	1,001	864	562	441	351	297	561
1954	275	263	247	253	290	429	666	892	384	256	208	189	363
1955	199	184	288	327	467	1,021	642	632	445	332	232	194	414
1956	187	202	170	159	526	311	362	679	425	313	228	181	311
1957	168	176	197	207	468	400	2,792	2,669	1,342	757	549	440	846
1958	356	680	540	478	436	1,435	1,144	2,112	856	866	743	588	857
1959	496	1,979	812	558	665	907	739	630	554	416	349	323	701
1960	694	481	700	826	677	768	792	1,189	646	482	408	337	668

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	34,380	30,900	28,170	49,040	89,850	95,600	78,090	63,460	52,200	95,860	50,680	40,020	708,200
1952	45,420	92,070	76,920	69,190	54,440	119,900	110,400	72,360	49,820	41,900	34,820	28,120	795,400
1953	25,310	26,780	29,750	25,070	24,880	61,930	59,560	53,150	33,450	27,140	21,580	17,680	406,300
1954	16,890	15,670	15,220	15,550	16,090	26,390	39,620	54,820	22,860	15,760	12,800	11,240	262,900
1955	12,240	10,940	17,690	20,120	25,930	62,760	38,200	38,870	26,460	20,390	14,280	11,530	299,400
1956	11,520	12,030	10,430	9,790	30,230	19,150	21,510	41,760	25,270	19,250	14,040	10,790	225,800
1957	10,320	10,480	12,110	12,730	25,990	24,580	166,200	164,100	79,850	46,520	33,760	26,190	612,800
1958	21,920	40,480	33,190	29,400	24,190	88,260	68,080	129,800	50,940	53,260	45,720	35,000	620,200
1959	30,500	117,800	49,940	34,340	36,920	55,760	43,980	38,750	32,990	25,580	21,470	19,220	507,200
1960	42,690	28,610	43,060	50,800	38,960	47,190	47,160	73,080	38,430	29,630	25,080	20,080	484,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,296	22.20	938,600
1951	1211	7,020	Feb. 21, 1951	423	978	1.23	16.75	708,200	1,145	19.61	829,200
1952	1241	9,040	Nov. 24, 1951	437	1,096	1.38	18.81	795,400	913	15.67	662,800
1953	1281	2,530	Apr. 18, 1953	280	561	.707	9.60	406,300	514	8.80	372,200
1954	1341	10,800	May 2, 1954	181	363	.458	6.22	262,900	354	6.06	256,000
1955	1391	12,000	Mar. 21, 1955	175	414	.522	7.08	299,400	404	6.91	292,500
1956	1441	5,420	May 16, 1956	155	311	.392	5.34	225,800	310	5.32	224,700
1957	1511	28,600	Apr. 4, 1957	158	846	1.07	14.49	612,800	933	15.97	675,500
1958	1561	10,400	May 5, 1958	317	857	1.08	14.67	620,200	999	17.09	722,900
1959	1631	30,100	Nov. 17, 1958	289	701	.884	11.98	507,200	585	10.01	423,400
1960	1711	5,420	Dec. 28, 1959	316	668	.842	11.46	484,800	-	-	-

720. Eleven Point River near Ravenden Springs, Ark.

Location.--Lat 36°21', long 91°07', in SE¼SE¼ sec.30, T.20 N., R.1 W., on left bank at downstream side of bridge on State Highway 90, 4½ miles downstream from small tributary, 6¼ miles northeast of Ravenden Springs, and 21 miles upstream from mouth.

Drainage area.--1,123 sq mi.

Records available.--October 1929 to September 1933, October 1935 to September 1960. Prior to October 1949, published as "near Elevenpoint." Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 291.98 ft above mean sea level, datum of 1929. Prior to Nov. 21, 1938, chain gage at same site at datum 0.04 ft higher; Nov. 21 to Dec. 11, 1938, wire-weight gage at present site and datum.

Average discharge.--29 years (1929-33, 1935-60), 1,111 cfs (804,300 acre-ft per year).

Extremes.--1929-33, 1935-60: Maximum discharge, 37,600 cfs Nov. 17, 1958 (gage height, 20.83 ft), from rating curve extended above 23,000 cfs; minimum observed, 226 cfs Sept. 9, 1936 (gage height, 2.13 ft, present datum).

Remarks.--Records of chemical analyses for the period October 1953 to September 1959 and water temperatures for the period October 1956 to September 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	825	770	711	1,478	2,643	2,378	2,052	1,557	1,291	2,105	1,118	945	1,482
1952	959	2,326	1,831	2,004	1,547	3,191	2,740	1,607	1,123	928	750	648	1,637
1953	551	626	752	610	694	1,683	1,489	1,380	820	604	498	432	846
1954	398	378	360	421	473	604	1,018	1,178	600	402	334	306	539
1955	334	296	455	490	709	1,450	986	942	683	534	384	317	632
1956	296	325	276	266	1,017	541	616	955	671	471	362	291	505
1957	272	284	302	425	879	677	4,408	4,242	1,817	1,053	774	642	1,313
1958	522	1,395	928	932	734	2,390	1,700	3,327	1,182	1,297	1,108	902	1,374
1959	744	3,028	1,154	937	1,109	1,432	1,185	942	990	707	559	472	1,102
1960	867	683	1,012	1,164	1,038	1,183	1,043	1,749	980	748	605	499	966

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	50,740	45,840	43,700	90,900	146,800	146,200	122,100	95,720	76,800	129,400	68,720	56,210	1,073,000
1952	58,950	138,400	112,600	123,200	88,980	196,200	163,000	98,840	66,830	57,050	46,100	38,530	1,189,000
1953	33,850	37,220	46,260	37,520	38,540	103,500	88,580	84,850	48,790	37,160	30,630	25,710	612,600
1954	24,470	22,490	22,150	25,900	26,250	37,130	60,580	72,410	35,720	24,690	20,570	18,190	390,600
1955	20,540	17,590	27,960	30,120	39,350	89,190	58,700	57,920	40,650	32,830	23,610	18,850	457,300
1956	18,190	19,340	17,000	16,350	58,480	33,260	36,680	58,730	39,930	28,940	22,260	17,330	366,500
1957	16,710	16,930	18,580	26,150	48,820	41,650	262,300	260,800	108,100	64,760	47,600	38,220	950,600
1958	32,080	83,010	57,030	57,320	40,750	147,000	101,100	204,600	70,330	79,740	68,110	53,650	994,700
1959	45,770	180,200	70,960	57,640	61,560	88,050	70,500	57,930	58,920	43,470	34,390	28,100	797,500
1960	53,280	40,660	62,230	71,580	59,700	72,760	62,090	107,500	58,300	45,980	37,210	29,690	701,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		2,025	24.47	1,466,000
1951	1211	10,600	Feb. 20, 1951	611	1,482	1.32	17.93	1,073,000		1,717	20.75	1,243,000
1952	1241	11,600	Mar. 12, 1952	571	1,637	1.46	19.85	1,189,000		1,372	16.64	996,100
1953	1281	5,340	Mar. 18, 1953	410	846	.753	10.23	612,600		780	9.43	564,400
1954	1341	7,960	May 3, 1954	283	539	.480	6.52	390,600		535	6.46	387,500
1955	1391	12,000	Mar. 22, 1955	283	632	.563	7.63	457,300		616	7.43	445,800
1956	1441	4,640	Feb. 18, 1956	258	505	.450	6.11	366,500		502	6.08	364,200
1957	1511	26,400	Apr. 5, 1957	246	1,313	1.17	15.88	950,600		1,479	17.89	1,071,000
1958	1561	16,400	May 5, 1958	482	1,374	1.22	16.62	994,700		1,546	18.69	1,120,000
1959	1631	37,600	Nov. 17, 1958	425	1,102	.981	13.31	797,500		907	10.97	656,700
1960	1711	4,640	Dec. 29, 1959	450	966	.860	11.72	701,000		-	-	-

725. Black River at Black Rock, Ark.

Location.--Lat 36°06'15", long 91°05'50", in NW¼ sec.21, T.17 N., R.1 W., on right bank 900 ft downstream from St. Louis-San Francisco Railway bridge at Black Rock, 3.7 miles downstream from Spring River, and at mile 68.3.

Drainage area.--7,323 sq mi.

Records available.--June 1929 to September 1931, October 1939 to September 1960. Gage-height records collected in same vicinity since 1904 are contained in reports of U. S. Weather Bureau.

Gage.--Staff gage. Datum of gage is 229.56 ft above mean sea level, datum of 1929. Prior to Aug. 1, 1946, at site 900 ft upstream at same datum.

Average discharge.--23 years (1929-31, 1939-60), 8,305 cfs (6,013,000 acre-ft per year).

Extremes.--1929-31, 1939-60: Maximum discharge, 103,000 cfs Jan. 25, 1949 (gage height, 28.5 ft); minimum, 1,730 cfs in September, October, and November 1956.
Maximum stage known, 31.9 ft Aug. 21, 1915, from records of U. S. Weather Bureau (discharge, 160,000 cfs).

Remarks.--Flow regulated by Clearwater Reservoir (see p. 77) 189 miles upstream since June 3, 1948. Records of chemical analyses and water temperatures for the period October 1952 to September 1953 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,988	5,246	4,667	11,230	18,620	18,920	14,920	9,658	7,390	17,630	8,739	6,552	10,670
1952	6,108	16,400	16,060	16,210	12,750	23,080	20,910	10,910	5,654	4,185	3,578	3,349	11,680
1953	2,859	3,898	5,816	4,805	5,729	15,860	10,530	10,400	4,800	3,181	2,515	2,245	6,063
1954	2,274	2,349	2,381	3,227	4,141	4,526	5,489	7,354	4,609	2,455	2,028	1,853	3,552
1955	2,373	2,154	3,360	4,776	4,831	11,100	9,990	7,815	5,576	3,792	2,493	1,928	5,018
1956	2,099	2,174	2,042	1,998	10,620	5,500	4,542	8,230	5,590	3,389	2,325	1,899	4,173
1957	1,797	1,984	2,649	4,470	9,652	7,249	33,550	32,630	18,890	9,735	6,745	5,236	11,190
1958	3,502	14,660	10,700	9,730	6,560	17,350	18,290	24,980	7,431	7,655	7,034	4,530	11,070
1959	3,692	12,840	7,514	5,834	9,321	10,030	8,064	6,746	6,564	4,555	3,239	2,870	6,743
1960	5,316	4,780	8,129	10,590	8,152	8,461	8,032	13,440	6,479	4,096	3,163	2,680	6,953

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	306.7	312.1	287	690.3	1,034	1,163	887.6	593.9	439.7	1,084	537.3	389.9	7,726
1952	375.6	975.7	1,049	996.7	733.5	1,419	1,244	670.6	336.5	257.3	220.0	199.3	8,477
1953	175.8	231.9	357.6	295.5	318.1	975.2	626.7	639.4	285.6	195.6	154.7	133.6	4,390
1954	139.8	139.8	146.4	198.4	230.0	278.3	326.6	452.2	274.3	150.9	124.7	110.2	2,572
1955	145.9	128.2	206.6	293.7	268.3	682.4	594.4	480.5	331.8	233.2	153.3	114.7	3,633
1956	129.1	129.4	125.6	122.9	610.8	338.2	270.3	506.1	332.6	208.4	142.9	113.0	3,029
1957	110.5	118.0	162.9	274.8	536.1	445.7	1,996	2,006	1,124	598.6	414.7	311.6	8,099
1958	215.3	872.4	658.1	598.3	364.3	1,067	1,088	1,536	442.2	470.7	432.5	269.6	8,014
1959	227.0	763.9	462.0	358.7	517.7	616.9	479.9	414.8	390.6	280.1	199.1	170.8	4,882
1960	326.9	284.4	499.8	651.2	468.9	520.2	477.9	826.6	385.5	251.9	194.5	159.5	5,047

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	15,090	27.97	10,920,000
1951	1211	38,800	Feb. 22, 1951	3,900	10,670	1.46	19.80	7,726,000	12,740	23.63	9,220,000
1952	1241	40,600	(a)	2,960	11,680	1.59	21.71	8,477,000	9,425	17.52	6,842,000
1953	1281	30,100	Mar. 18, 1953	2,170	6,063	.828	11.24	4,390,000	5,595	10.37	4,050,000
1954	1341	24,900	May 3, 1954	1,750	3,552	.485	6.59	2,572,000	3,628	6.73	2,626,000
1955	1391	26,200	Mar. 21, 1955	1,880	5,018	.685	9.30	3,633,000	4,885	9.05	3,536,000
1956	1441	25,700	Feb. 18, 1956	1,730	4,173	.570	7.75	3,029,000	4,183	7.77	3,037,000
1957	1511	77,800	Apr. 5, 1957	1,730	11,190	1.53	20.73	8,099,000	13,060	24.20	9,453,000
1958	1561	50,200	May 6, 1958	2,910	11,070	1.51	20.52	8,014,000	10,670	19.77	7,722,000
1959	1631	57,800	Nov. 18, 1958	2,500	6,743	.921	12.51	4,882,000	6,270	11.64	4,540,000
1960	1711	27,400	May 20, 1960	2,400	6,953	.949	12.93	5,047,000	-	-	-

a Nov. 27, 1951, Mar. 12, 1952.

730. Strawberry River near Evening Shade, Ark.

Location.--Lat 36°06', long 91°36', in NE¼ sec.27, T.17 N., R.6 W., near left bank on downstream side of bridge on U. S. Highway 167, 2 miles north of Evening Shade and 6.3 miles upstream from Piney Fork.

Drainage area.--225 sq mi.

Records available.--February 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 406.56 ft above mean sea level, datum of 1929. Prior to July 23, 1939, wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 216 cfs (156,400 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 31,000 cfs Jan. 24, 1949 (gage height, 26.59 ft), from rating curve extended above 16,000 cfs by logarithmic plotting; minimum, 2.8 cfs Sept. 23, 1954.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	88.5	162	84.1	409	664	228	475	186	469	694	165	137	311
1952	205	1,113	281	556	367	826	552	207	47.9	23.5	18.1	37.8	352
1953	12.2	233	240	180	153	898	257	371	45.0	22.8	12.5	9.11	204
1954	9.45	11.3	11.9	110	96.2	134	79.6	236	34.7	12.2	7.54	19.6	63.5
1955	20.5	11.7	135	58.5	188	377	238	432	82.6	35.5	14.0	7.98	133
1956	12.1	12.5	10.1	12.0	649	72.0	142	175	152	95.9	20.8	9.11	111
1957	7.86	13.9	23.8	148	428	136	1,631	648	122	66.7	21.2	23.7	269
1958	16.7	424	131	170	112	691	302	785	121	49.4	73.9	21.6	243
1959	28.0	606	84.7	84.8	210	222	143	57.8	40.0	21.4	20.0	46.7	129
1960	73.5	139	350	191	224	251	69.5	427	121	93.3	28.4	15.1	166

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,440	9,650	5,170	25,170	36,850	14,010	28,260	11,450	27,900	42,640	10,120	8,160	224,800
1952	12,590	66,230	17,280	34,180	21,120	50,800	32,860	12,700	2,850	1,450	1,110	2,250	255,400
1953	748	13,880	14,780	11,090	8,520	55,240	15,320	22,790	2,680	1,400	770	542	147,800
1954	581	673	733	6,750	5,350	8,230	4,740	14,500	2,070	753	464	1,170	46,010
1955	1,260	698	8,300	3,600	10,440	23,160	14,140	26,540	4,920	2,180	861	475	96,570
1956	743	741	620	735	37,320	4,430	8,470	10,760	9,040	5,900	1,280	542	80,580
1957	483	827	1,460	9,080	23,790	8,360	97,030	39,870	7,250	4,100	1,310	1,410	195,000
1958	1,030	25,210	8,080	10,450	6,220	42,500	17,980	48,290	7,220	3,040	4,540	1,280	175,800
1959	1,720	36,050	5,210	5,210	11,680	13,650	8,510	3,550	2,380	1,310	1,230	2,780	93,280
1960	4,520	8,260	21,530	11,750	12,900	15,420	4,140	26,240	7,200	5,730	1,750	899	120,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	348	20.97	251,900
1951	1211	8,090	July 4, 1951	24	311	1.38	18.72	224,800	415	25.05	300,700
1952	1241	10,900	Nov. 24, 1951	13	352	1.56	21.29	255,400	260	15.73	188,700
1953	1281	6,480	Mar. 18, 1953	8.2	204	.907	12.31	147,800	166	10.03	120,300
1954	1341	4,940	May 3, 1954	5.4	63.5	.282	3.84	46,010	75.0	4.52	54,280
1955	1391	7,840	May 20, 1955	7.4	133	.591	8.04	96,570	122	7.36	88,420
1956	1441	5,410	June 25, 1956	6.4	111	.493	6.72	80,580	112	6.78	81,250
1957	1511	14,700	Apr. 4, 1957	6.4	269	1.20	16.25	195,000	313	18.88	226,500
1958	1561	15,200	May 5, 1958	11	243	1.08	14.65	175,800	255	15.36	184,500
1959	1631	17,100	Nov. 17, 1958	12	129	.573	7.76	93,280	117	7.05	84,610
1960	1711	5,910	May 20, 1960	12	166	.738	10.03	120,300	-	-	-

735. Piney Fork Strawberry River at Evening Shade, Ark.

Location.--Lat 36°05', long 91°37', in NE¼ sec.34, T.17 N., R.6 W., on right bank 20 ft upstream from bridge on U. S. Highway 167, three-quarters of a mile north of Evening Shade, and 5.8 miles upstream from mouth.

Drainage area.--99 sq mi.

Records available.--February 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 420.62 ft above mean sea level, datum of 1929. Prior to Oct. 5, 1945, wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 95.0 cfs (68,780 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 17,500 cfs Jan. 24, 1949 (gage height, 23.42 ft), from rating curve extended above 11,000 cfs by logarithmic plotting; no flow at times in 1941, 1944, 1947, 1954.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	60.5	44.1	26.0	175	256	102	205	80.2	132	131	57.9	67.3	110
1952	72.3	430	123	294	175	309	242	77.4	25.3	10.5	6.26	11.1	147
1953	3.55	73.9	120	74.9	66.2	334	93.5	196	26.2	12.5	4.92	1.74	84.5
1954	2.51	4.61	3.79	37.6	38.4	35.9	28.9	65.8	36.5	5.41	1.06	21.4	23.4
1955	7.59	4.05	46.2	29.2	52.0	135	177	149	61.4	44.8	36.2	3.60	62.3
1956	4.00	4.18	2.51	6.70	289	39.8	36.1	69.0	105	40.0	8.46	2.29	49.4
1957	1.21	3.83	4.53	79.4	136	62.8	758	298	68.2	44.9	17.3	8.62	123
1958	10.2	264	75.3	86.7	56.4	276	174	393	43.4	27.0	34.4	10.9	121
1959	5.65	106	30.8	41.4	80.0	121	53.9	28.8	15.9	6.75	35.0	28.2	45.8
1960	42.6	95.0	134	98.9	110	110	38.4	188	66.8	45.5	21.6	22.3	81.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,720	2,620	1,600	10,740	14,240	6,290	12,200	4,930	7,870	8,050	3,560	4,000	79,820
1952	4,450	25,560	7,540	18,100	10,050	19,000	14,390	4,760	1,510	645	385	658	107,000
1953	218	4,390	7,390	4,600	3,680	20,560	5,560	12,060	1,560	766	302	103	61,190
1954	154	274	233	2,310	2,130	2,210	1,720	4,050	2,170	333	65	1,270	16,920
1955	467	241	2,840	1,800	2,890	8,320	10,500	9,170	3,650	2,760	2,230	214	45,080
1956	246	249	154	412	16,640	2,450	2,150	4,240	6,240	2,460	520	136	35,900
1957	74	228	279	4,880	7,540	3,860	45,100	18,340	4,060	2,760	1,060	513	88,690
1958	626	15,740	4,630	5,330	3,130	16,960	10,380	24,160	2,580	1,660	2,120	649	87,960
1959	348	6,330	1,890	2,540	4,440	7,420	3,210	1,770	944	415	2,150	1,680	33,140
1960	2,620	5,650	8,250	6,080	6,330	6,780	2,280	11,570	3,980	2,800	1,330	1,330	59,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	181	24.78	130,800
1951	1211	4,480	Feb. 20, 1951	16	110	1.11	15.11	79,820	151	20.71	109,400
1952	1241	4,170	Nov. 24, 1951	3.1	147	1.48	20.27	107,000	112	15.43	81,500
1953	1281	3,750	Mar. 18, 1953	.8	84.5	.854	11.59	61,190	68.9	9.44	49,850
1954	1341	1,720	Sept.30, 1954	0	23.4	.236	3.20	16,920	27.4	3.76	19,810
1955	1391	2,760	Mar. 21, 1955	1.1	62.3	.629	8.55	45,080	58.2	8.00	42,180
1956	1441	2,950	Feb. 18, 1956	.5	49.4	.499	6.81	35,900	49.3	6.78	35,830
1957	1511	9,620	Apr. 4, 1957	.3	123	1.24	16.78	88,690	151	20.66	109,100
1958	1561	5,680	May 5, 1958	3.8	121	1.22	16.66	87,960	104	14.31	75,540
1959	1631	3,660	Nov. 17, 1958	3.2	45.8	.463	6.30	33,140	56.8	7.80	41,090
1960	1711	3,930	May 20, 1960	5.8	81.3	.821	11.16	59,000	-	-	-

740. Strawberry River near Poughkeepsie, Ark.

Location.--Lat 36°07', long 91°27', in NW¼ sec.19, T.17 N., R.4 W., on right bank at downstream side of bridge on State Highway 58, half a mile downstream from Hurricane Creek and 2½ miles northeast of Poughkeepsie.

Drainage area.--476 sq mi.

Records available.--February 1936 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 298.07 ft above mean sea level (Corps of Engineers bench mark). Prior to May 13, 1938, staff gage and May 13 to Dec. 10, 1938, wire-weight gage at same site and datum.

Average discharge.--24 years (1936-60), 531 cfs (384,400 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 52,000 cfs Jan. 24, 1949 (gage height, 29.30 ft), from rating curve extended above 27,000 cfs on basis of slope-area measurement of peak flow; minimum observed, 31 cfs Oct. 4, 1938.

Remarks.--Records of chemical analyses for the period October 1953 to September 1958 and water temperatures for the period October 1956 to September 1958 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	231	330	205	929	1,474	580	1,052	503	722	1,028	365	354	641
1952	415	2,324	708	1,457	896	1,710	1,161	440	156	64.5	67.5	121	793
1953	50.9	424	606	426	408	1,819	602	937	152	90.5	59.7	50.2	471
1954	53.2	58.2	59.4	256	256	298	218	523	165	60.3	46.0	84.2	173
1955	111	61.8	311	178	368	779	711	810	265	131	84.5	46.3	322
1956	57.6	56.3	53.3	71.9	1,445	206	251	343	480	198	72.6	47.8	268
1957	42.3	56.0	75.9	408	828	335	3,706	1,415	379	185	93.7	92.8	628
1958	88.5	1,276	421	483	310	1,414	810	1,923	297	189	245	110	633
1959	111	958	224	256	523	667	315	162	180	78.5	108	130	307
1960	189	352	703	495	546	604	207	919	302	213	107	109	396

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14,210	19,610	12,600	57,100	81,860	35,680	62,590	30,930	42,980	63,190	22,460	21,080	464,300
1952	25,540	138,300	43,510	89,560	51,540	105,100	69,080	27,050	9,260	5,200	4,150	7,230	575,500
1953	3,130	25,230	37,270	26,220	22,680	111,800	36,800	57,610	9,030	5,560	3,670	2,990	341,000
1954	3,270	3,470	3,650	15,750	14,240	18,330	12,980	32,170	9,840	3,710	2,830	5,010	125,200
1955	6,830	3,680	19,090	10,940	20,440	47,920	42,300	49,810	15,780	8,060	5,200	2,760	232,800
1956	3,540	3,350	3,270	4,420	83,090	12,660	14,950	21,100	28,590	12,180	4,460	2,840	194,400
1957	2,600	3,330	4,670	25,100	45,990	20,600	220,500	87,010	22,530	11,350	5,760	5,520	455,000
1958	5,440	75,910	25,860	29,680	17,220	86,920	48,190	118,200	17,690	11,600	15,050	6,540	458,300
1959	6,840	57,010	13,790	15,720	29,070	41,020	18,740	9,990	10,730	4,830	6,660	7,760	222,200
1960	11,610	20,940	43,240	30,460	31,390	37,140	12,340	56,520	17,980	13,110	6,600	6,460	287,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	848	24.18	614,100
1951	1211	17,400	Feb. 20, 1951	109	641	1.35	18.29	464,300	864	24.63	625,200
1952	1241	17,400	Nov. 25, 1951	53	793	1.67	22.66	575,500	598	17.07	433,800
1953	1281	12,900	Mar. 18, 1953	44	471	.989	13.42	341,000	395	11.25	285,800
1954	1341	6,200	May 2, 1954	40	173	.363	4.94	125,200	200	5.69	144,500
1955	1391	12,100	May 20, 1955	41	322	.676	9.16	232,800	295	8.40	213,400
1956	1441	10,800	Feb. 18, 1956	40	268	.563	7.66	194,400	268	7.67	194,900
1957	1511	32,700	Apr. 4, 1957	38	628	1.32	17.93	455,000	762	21.74	551,600
1958	1561	19,800	May 5, 1958	52	633	1.33	18.06	458,300	592	16.90	428,700
1959	1631	16,500	Nov. 18, 1958	54	307	.645	8.75	222,200	304	8.67	220,300
1960	1711	9,980	May 20, 1960	58	396	.832	11.34	287,800	-	-	-

745. White River at Newport, Ark.

Location.--Lat 35°36'20", long 91°17'20", in NE¼ sec.10, T.11 N., R.3 W., on right bank on downstream side of pier of bridge on U. S. Highway 67 at Newport, 7.2 miles downstream from Black River and at mile 257.6.

Drainage area.--19,812 sq mi.

Records available.--September 1927 to September 1931 (published as "near Newport), October 1937 to September 1960. Gage-height records collected at present site since 1885 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 194.09 ft above mean sea level, datum of 1929. September 1927 to September 1931, staff gage at site 2.8 miles downstream, at datum 2.30 ft lower. Oct. 1, 1937, to Aug. 14, 1953, staff gage at present site and datum.

Average discharge.--27 years (1927-31, 1937-60), 23,480 cfs (17,000,000 acre-ft per year).

Extremes.--1927-31, 1937-60: Maximum discharge, 343,000 cfs Apr. 17, 1945; maximum gage height observed, 35.9 ft Apr. 18, 1945; minimum discharge, 2,870 cfs Sept. 27-30, 1954. Maximum stage known, that of Apr. 18, 1945. Flood of Apr. 16, 1927, reached a stage of 35.6 ft, from records of U. S. Weather Bureau.

Remarks.--Flow regulated since July 24, 1951, by Bull Shoals Reservoir (see p. 66). Prior to this date, some regulation by Lake Taneycomo 197 miles upstream (total capacity, 23,700 acre-ft), by Norfork Reservoir (see p. 72), since 1943, and by Clearwater Reservoir (see p. 77) since 1948. Records of chemical analyses and water temperatures are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,800	11,610	9,860	22,520	46,190	54,780	37,270	24,040	21,600	43,020	15,060	12,070	25,710
1952	10,340	32,810	48,060	38,510	25,890	48,810	56,940	27,760	11,020	8,160	7,013	6,209	26,800
1953	5,214	9,826	14,840	12,900	15,190	39,300	32,370	39,810	13,510	9,346	8,408	8,134	17,440
1954	8,564	8,671	6,815	10,530	11,570	11,530	13,920	18,220	9,955	7,074	6,910	3,702	9,782
1955	3,783	3,795	6,336	8,255	9,991	22,940	23,910	19,930	19,020	14,940	9,645	7,848	12,540
1956	6,659	6,771	6,691	6,705	32,070	14,500	12,800	17,180	13,520	9,995	8,145	7,364	11,780
1957	6,222	7,097	8,259	11,210	21,260	19,790	68,590	69,650	55,420	39,350	34,390	29,530	30,880
1958	19,210	32,570	23,260	23,380	16,790	36,290	49,720	56,050	27,680	22,900	23,750	13,640	28,840
1959	10,940	24,430	16,660	15,060	21,500	23,140	19,420	13,870	14,530	10,090	9,380	8,554	15,570
1960	11,680	14,430	18,740	24,710	22,610	24,700	16,620	40,040	23,970	11,910	9,529	7,942	18,920

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	725.7	691.1	606.2	1,385	2,565	3,368	2,218	1,478	1,285	2,645	926.1	718.3	18,610
1952	635.7	1,952	2,955	2,368	1,489	3,001	3,388	1,707	655.6	501.8	431.2	369.4	19,450
1953	320.6	584.7	912.6	793.2	843.6	2,417	1,926	2,448	804	574.7	517	484	12,630
1954	526.6	516	419	647.6	642.7	708.8	828.5	1,121	592.3	434.9	424.9	220.3	7,083
1955	232.6	225.8	389.6	507.6	554.9	1,411	1,423	1,225	1,132	918.5	593	467	9,080
1956	409.5	402.9	411.4	412.3	1,844	891.8	761.6	1,056	804.7	614.6	500.8	438.2	8,548
1957	382.6	422.3	507.8	689.4	1,181	1,217	4,081	4,283	3,298	2,420	2,115	1,757	22,350
1958	1,181	1,938	1,430	1,437	932.4	2,232	2,958	3,446	1,647	1,408	1,460	811.8	20,880
1959	673	1,454	1,024	926.2	1,194	1,423	1,155	852.9	864.6	620.6	576.8	509	11,270
1960	718.1	858.8	1,153	1,519	1,301	1,519	988.8	2,462	1,427	732.2	585.9	472.6	13,740

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	38,240	27,680,000
1951	1211	104,000	Feb. 23, 1951	8,630	25,710	18,610,000	30,570	22,130,000
1952	1241	75,200	Apr. 15, 1952	5,020	26,800	19,450,000	21,670	15,730,000
1953	1281	66,300	Mar. 20, 1953	4,550	17,440	12,630,000	16,950	12,270,000
1954	1341	48,000	May 3, 1954	2,870	9,782	7,083,000	8,935	6,469,000
1955	1391	54,800	Mar. 22, 1955	3,070	12,540	9,080,000	13,060	9,456,000
1956	1441	55,300	Feb. 19, 1956	4,520	11,780	8,548,000	11,900	8,637,000
1957	1511	101,000	Apr. 6, 1957	3,880	30,880	22,350,000	35,350	25,590,000
1958	1561	92,800	May 11,12,1958	11,600	28,840	20,880,000	26,910	19,480,000
1959	1631	60,300	Nov. 17, 1958	6,600	15,570	11,270,000	14,990	10,850,000
1960	1711	70,200	May 22, 1960	6,120	18,920	13,740,000	-	-

750. Middle Fork Little Red River at Shirley, Ark.

Location.--Lat 35°39', long 92°18', in SW¼ sec.20, T.12 N., R.12 W., on right bank half a mile downstream from Sugar Camp (or Wevers) Creek and 1 mile east of Shirley.

Drainage area.--294 sq mi.

Records available.--February 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 483.12 ft above mean sea level, datum of 1929. Prior to June 6, 1939, wire-weight gage at site 70 ft upstream at same datum. June 6, 1939, to July 15, 1952, water-stage recorder on downstream side of pier of Missouri & Arkansas Railway bridge 70 ft upstream at same datum.

Average discharge.--21 years (1939-60), 502 cfs (363,400 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 101,000 cfs Jan. 24, 1949 (gage height, 28.3 ft in gage well; about 31 ft on wire-weight gage, from stage-relation curve), from rating curve extended above 60,000 cfs by logarithmic plotting; no flow at times.
Maximum stage known, that of Jan. 24, 1949.
Note.--Maximum gage heights published prior to 1949 water year were referred to wire-weight gage.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	93.8	206	89.6	944	1,533	371	962	260	288	321	38.4	88.1	424
1952	178	1,879	533	967	699	1,529	1,744	484	37.0	3.30	4.81	5.97	669
1953	.23	850	602	650	510	1,949	1,008	975	19.1	1.70	.95	.01	548
1954	0	0	6.37	351	304	225	255	756	26.4	1.23	.15	0	160
1955	15.8	22.5	419	215	870	1,228	1,164	766	742	387	27.7	2.54	485
1956	23.8	18.8	24.7	45.6	2,079	175	333	323	63.3	26.6	5.83	1.19	252
1957	0	17.1	221	830	1,290	495	2,874	1,472	484	164	1,179	184	762
1958	195	1,430	307	357	325	1,566	520	1,481	95.2	127	192	74.6	558
1959	32.9	1,276	342	315	455	1,094	563	205	299	98.1	24.5	69.7	396
1960	432	875	1,110	672	702	651	170	1,488	141	114	23.2	10.0	534

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,770	12,260	5,510	58,030	85,140	22,840	57,260	16,000	17,130	19,760	2,360	5,240	307,300
1952	10,940	111,800	32,790	59,440	40,210	93,990	103,800	29,780	2,200	203	296	355	485,800
1953	14	50,570	37,030	39,960	28,340	119,800	60,000	59,940	1,140	104	59	.4	397,000
1954	0	0	392	21,570	16,890	13,860	15,190	46,470	1,570	76	9.5	0	116,000
1955	970	1,340	25,790	13,220	48,330	75,510	69,240	47,090	44,180	23,820	1,700	151	351,300
1956	1,470	1,120	1,520	2,800	119,600	10,780	19,810	19,850	3,770	1,640	358	71	182,800
1957	0	1,020	13,570	51,010	71,620	30,460	171,000	90,530	28,810	10,070	72,500	10,950	551,500
1958	11,970	85,070	18,860	21,980	18,020	96,320	30,920	91,060	5,660	7,830	11,780	4,440	403,900
1959	2,020	75,910	21,030	19,340	25,280	67,250	33,510	12,620	17,820	6,030	1,510	4,150	286,500
1960	26,560	52,080	68,260	41,290	40,370	40,000	10,100	91,520	8,390	7,000	1,420	598	387,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	789	36.44	571,200
1951	1211	20,000	Feb. 20, 1951	20	424	1.44	19.59	307,300	607	28.01	439,300
1952	1241	16,500	Nov. 24, 1951	.7	669	2.28	30.97	485,800	576	26.63	417,900
1953	1281	27,900	Nov. 25, 1952	0	548	1.86	25.31	397,000	428	19.75	309,700
1954	1341	29,000	May 2, 1954	0	160	.544	7.40	116,000	199	9.17	143,700
1955	1391	22,800	Mar. 21, 1955	0	485	1.65	22.41	351,300	452	20.88	327,400
1956	1441	15,300	Feb. 2, 1956	0	252	.857	11.66	182,800	266	12.32	193,300
1957	1511	51,700	Aug. 13, 1957	0	762	2.59	35.17	551,500	902	41.63	652,800
1958	1561	15,000	May 9, 1958	7.8	558	1.90	25.75	403,900	535	24.67	387,000
1959	1631	37,200	Nov. 17, 1958	8.2	396	1.35	18.26	286,500	462	21.31	334,400
1960	1711	36,200	Nov. 4, 1959	2.7	534	1.82	24.70	387,600	-	-	-

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755. South Fork Little Red River near Clinton, Ark.

Location.--Lat 35°34', long 92°23', in NE¼ sec.29, T.11 N., R.13 W., on left bank 1¾ miles downstream from Pedee Creek, 4¼ miles southeast of Clinton, and 6 miles downstream from Archey Fork.

Drainage area.--316 sq mi.

Records available.--February 1939 to September 1960. Monthly discharge only for February 1939, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 430.02 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 14, 1939, staff gage at same site and datum.

Average discharge.--21 years (1939-60), 579 cfs (419,200 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 59,500 cfs Aug. 13, 1957 (gage height, 28.16 ft); no flow at times.
Maximum stage known prior to beginning of record, 25.2 ft, date unknown, from information by local resident.

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

Revisions.--Some periods for the water years 1943 and 1949 were revised in WSP 1511; the resulting records as summarized herewith supersede those published in WSP 1311.

Month	Mean	Per square mile	Inches	Acre-feet	Momentary maximum		Minimum day
					Discharge	Date	
May 1943.....	-	-	-	-	43,800	May 11, 1943	-
January 1949.....	3,763	-	-	231,400	54,900	Jan. 24, 1949	-
Water year 1948-49.	718	2.27	30.82	519,500	-	-	-
Calendar year 1949.	852	2.70	36.61	617,100	-	-	-

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	125	305	97.3	1,093	1,510	545	907	287	201	291	59.9	70.1	450
1952	237	2,040	653	1,191	758	1,784	2,142	468	52.5	3.85	.42	.27	775
1953	.09	850	835	716	658	2,284	1,359	1,093	31.2	3.33	.62	0	654
1954	0	0	.36	263	375	216	254	849	48.9	1.26	0	0	167
1955	9.82	29.8	327	214	1,051	1,554	885	648	359	165	14.8	1.87	435
1956	40.1	27.7	42.2	62.4	2,366	208	382	413	53	18.2	1.65	.21	292
1957	0	28.8	296	1,064	1,593	608	3,205	1,816	803	248	1,440	380	950
1958	341	1,883	471	551	377	1,874	827	1,891	73.2	130	146	47	721
1959	28.3	1,122	346	426	611	1,319	694	290	874	276	56.5	160	514
1960	410	527	1,307	805	703	693	146	1,511	136	147	31.4	7.91	538

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,660	18,130	5,980	67,180	83,850	33,540	53,960	17,640	11,980	17,910	3,690	4,170	325,700
1952	14,590	121,400	40,140	73,210	43,600	109,700	127,400	28,770	3,120	237	26	16	562,200
1953	5.6	50,590	51,370	44,040	36,520	140,400	80,870	67,230	1,850	205	38	0	473,100
1954	0	0	22	16,180	20,820	13,300	15,140	52,230	2,910	78	0	0	120,700
1955	604	1,780	20,140	13,170	58,340	95,550	52,680	39,840	21,360	10,180	911	111	314,700
1956	2,470	1,650	2,590	3,840	136,100	12,790	22,700	25,390	3,150	1,120	102	12	211,900
1957	0	1,720	18,210	65,420	88,450	37,360	190,700	111,600	47,780	15,280	88,560	22,620	687,700
1958	20,950	112,100	28,950	33,880	20,950	115,200	49,230	116,300	4,350	8,010	8,960	2,790	521,700
1959	1,740	66,770	21,270	26,220	33,950	81,100	41,320	17,820	52,010	17,000	3,470	9,550	372,200
1960	25,200	31,340	80,360	49,480	40,440	42,620	8,700	92,930	8,070	9,030	1,930	470	390,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	846	36.34	612,500
1951	1211	11,400	Feb. 20, 1951	14	450	1.42	19.32	325,700	649	27.89	470,000
1952	1241	16,800	Mar. 11, 1952	.1	775	2.45	33.36	562,200	672	28.96	488,000
1953	1281	25,500	Nov. 25, 1952	0	654	2.07	28.07	473,100	513	22.02	371,200
1954	1341	19,800	May 2, 1954	0	167	.528	7.17	120,700	198	8.50	143,200
1955	1391	19,300	Mar. 21, 1955	0	435	1.38	18.67	314,700	413	17.73	298,900
1956	1441	16,300	Feb. 2, 1956	0	292	.924	12.59	211,900	310	13.37	225,100
1957	1511	59,500	Aug. 13, 1957	0	950	3.01	40.79	687,700	1,146	49.22	829,800
1958	1561	19,500	Nov. 18, 1957	6.2	721	2.28	30.96	521,700	621	26.67	449,400
1959	1631	22,800	Nov. 17, 1958	12	514	1.63	22.09	372,200	579	24.90	419,300
1960	1711	18,100	May 20, 1960	2.7	538	1.70	23.19	390,600	-	-	-

760. Little Red River near Heber Springs, Ark.

Location.--Lat 35°32', long 92°00', in NE¼ sec.6, T.10 N., R.9 W., on left bank 2¾ miles downstream from Peter Creek and 3 miles northeast of town of Heber Springs.

Drainage area.--1,141 sq mi.

Records available.--September 1927 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 271.81 ft above mean sea level, datum of 1929. Prior to Dec. 15, 1938, staff gage at site half a mile upstream at datum 1.06 ft lower.

Average discharge.--33 years (1927-60), 1,888 cfs (1,367,000 acre-ft per year).

Extremes.--1927-60: Maximum discharge, 117,000 cfs Jan. 25, 1949 (gage height, 46.53 ft in gage well and 46.9 ft from outside gage); no flow at times in some years.
Maximum stage known, that of Jan. 25, 1949. Flood in April 1927 reached a stage of 44.0 ft, original site and datum (discharge, 78,900 cfs).

Remarks.--Records of chemical analyses for the periods November 1949 to October 1952 and October 1954 to September 1960 and water temperatures for the period November 1949 to October 1952 are published in reports of Geological Survey.

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

Revisions.--Some periods for the water year 1941 were revised in WSP 1391; the resulting records as summarized herewith superseded those published in WSP 1311.

Month	Mean	Per square mile	Inches	Acre-feet
May 1941.....	1,081	-	-	66,440
Water year 1940-41	851	0.746	10.14	616,400
Calendar year 1941	1,573	1.38	18.72	1,139,000

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	502	1,234	431	3,697	4,997	1,825	2,858	989	843	1,715	289	619	1,642
1952	447	7,125	2,422	4,517	2,832	5,186	5,844	1,237	183	15.4	8.62	7.27	2,475
1953	.81	2,221	2,766	2,546	2,252	7,363	3,803	3,855	120	14.9	3.72	.11	2,083
1954	0	0	5.19	924	1,262	808	888	2,833	146	13.3	.20	0	571
1955	7.32	54.7	852	671	2,504	4,915	3,696	1,882	1,808	807	99.2	11.7	1,434
1956	72.1	82.3	117	232	8,307	698	1,222	1,155	187	100	17.0	3.16	983
1957	.06	34.2	611	3,383	4,712	1,950	10,930	6,475	1,951	679	4,198	983	2,973
1958	700	6,847	1,658	1,902	1,179	6,150	2,368	6,126	323	636	465	268	2,394
1959	127	3,519	1,187	1,355	2,352	4,186	1,807	644	1,274	430	150	303	1,434
1960	897	1,888	3,774	2,740	2,496	2,520	539	5,132	782	617	129	26.6	1,802

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	30,890	73,440	26,500	227,300	277,500	112,200	170,100	60,790	50,170	105,500	17,740	36,860	1,189,000
1952	27,470	424,000	148,900	277,800	162,900	318,900	347,800	76,090	10,870	948	530	430	1,797,000
1953	50	132,200	170,100	156,500	125,100	452,700	226,300	237,000	7,130	919	228	65	1,508,000
1954	0	0	319	56,800	70,070	49,650	52,860	174,200	8,700	821	12	0	413,400
1955	450	3,250	52,360	41,280	139,100	302,200	219,900	115,700	107,600	49,630	6,100	696	1,038,000
1956	4,430	4,900	7,210	14,290	477,800	42,930	72,730	71,010	11,110	6,160	1,050	188	713,800
1957	4.0	2,040	37,580	208,000	261,700	119,900	650,600	398,100	116,100	41,760	258,100	58,470	2,152,000
1958	43,070	407,400	102,000	117,000	65,490	378,100	140,900	376,700	19,230	39,130	28,600	15,920	1,734,000
1959	7,810	209,400	72,990	83,300	130,600	257,400	107,500	39,610	75,800	26,430	9,250	18,040	1,038,000
1960	55,140	112,300	232,000	168,500	143,600	155,000	32,090	315,500	46,530	37,940	7,950	1,580	1,308,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		2,984	35.50	2,161,000
1951	1211	38,600	Feb. 21, 1951	72	1,642	1.44	19.54	1,189,000		2,291	27.25	1,659,000
1952	1241	40,100	Mar. 11, 1952	2.0	2,475	2.17	29.53	1,797,000		2,064	24.62	1,499,000
1953	1281	49,400	Mar. 18, 1953	0	2,083	1.83	24.79	1,508,000		1,666	19.84	1,206,000
1954	1341	45,000	May 3, 1954	0	571	.500	6.79	413,400		648	7.70	469,200
1955	1391	40,700	Mar. 21, 1955	0	1,434	1.26	17.07	1,038,000		1,380	16.42	998,700
1956	1441	40,700	Feb. 18, 1956	0	983	.862	11.73	713,800		1,015	12.11	736,900
1957	1511	96,500	Apr. 4, 1957	0	2,973	2.61	35.37	2,152,000		3,681	43.81	2,665,000
1958	1561	48,200	May 3, 1958	28	2,394	2.10	28.50	1,734,000		2,032	24.18	1,471,000
1959	1631	50,400	Nov. 17, 1958	46	1,434	1.26	17.07	1,038,000		1,585	18.87	1,147,000
1960	1711	49,900	May 21, 1960	10	1,802	1.58	21.51	1,308,000		-	-	-

770. White River at De Valls Bluff, Ark.

Location.--Lat 34°47', long 91°27', in SE¼ sec.17, T.2 N., R.4 W., near center of span on downstream side of pier of bridge on U. S. Highway 70, 1 mile northeast of De Valls Bluff, 7.5 miles downstream from Wattensaw Bayou, 24.1 miles upstream from Cache River, and at mile 125.3.

Drainage area.--23,431 sq mi.

Records available.--October 1927 to September 1945 (large portion of flood flow above station overflowed into Cache River and was not included in the records), October 1949 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 152.93 ft above mean sea level, datum of 1929. Prior to Dec. 22, 1933, staff gage at same site and datum.

Average discharge.--11 years (1949-60), 28,090 cfs (20,340,000 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 154,000 cfs Jan. 19-22, 1950; maximum gage height, 28.42 ft Jan. 20, 21, 1950; minimum discharge, 3,230 cfs Sept. 29 to Oct. 1, Oct. 29, 1954.

Maximum stage known, 34.6 ft Apr. 23, 1927. Flood in January-February 1949 reached a stage of 31.35 ft Feb. 3 (discharge, 220,000 cfs, by current-meter measurement), furnished by Corps of Engineers.

Remarks.--Flow regulated since July 24, 1951, by Bull Shoals Reservoir (see p. 66). Prior to this date, some regulation by Lake Taneycomo 329 miles upstream (total capacity, 23,700 acre-ft), by Norfork Reservoir (see p. 72) since 1943, and by Clearwater Reservoir (see p. 77) since 1948.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15,330	15,890	14,550	30,630	39,830	71,900	44,180	34,310	21,440	48,560	22,870	14,940	31,210
1952	11,280	31,470	67,180	57,460	36,400	54,500	72,510	46,570	14,540	8,836	7,476	6,707	34,600
1953	5,608	8,884	26,260	18,500	27,770	49,760	48,200	58,110	22,410	10,680	9,337	8,825	24,530
1954	8,867	8,957	7,164	13,510	17,550	14,050	16,740	29,750	11,380	7,822	7,112	4,276	12,240
1955	3,715	3,831	5,260	11,030	12,410	31,200	41,660	28,160	29,510	19,990	12,010	9,131	17,330
1956	7,807	7,476	7,793	7,816	56,300	26,890	16,310	20,920	14,580	11,940	9,354	7,792	16,080
1957	6,907	7,464	9,555	15,810	37,840	30,390	75,360	90,730	73,590	44,880	48,900	33,560	39,510
1958	24,550	48,890	39,020	30,040	23,760	39,990	61,640	77,830	35,580	25,290	27,040	16,880	37,620
1959	13,110	24,300	25,350	19,910	34,320	34,760	25,200	18,180	18,610	12,310	10,210	9,700	20,390
1960	13,520	17,460	25,460	36,640	30,470	32,320	20,720	38,140	36,270	19,540	11,180	8,422	24,180

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	942.3	945.5	894.3	1,883	2,212	4,421	2,629	2,110	1,276	2,986	1,406	888.8	22,590
1952	693.7	1,873	4,131	3,533	2,094	3,351	4,314	2,864	865.3	543.3	459.7	399.1	25,120
1953	344.8	528.6	1,615	1,137	1,542	3,060	2,868	3,573	1,333	656.4	574.1	525.1	17,760
1954	545.2	533	440.5	831	974.9	863.8	995.9	1,829	677.1	481	437.3	254.4	8,863
1955	228.4	228	323.4	678	689.2	1,918	2,479	1,732	1,756	1,229	738.4	543.3	12,540
1956	480.1	444.9	479.1	480.6	3,238	1,653	970.3	1,286	867.4	734.1	575.2	463.6	11,670
1957	424.7	444.2	587.5	972.3	2,101	1,868	4,484	5,579	4,379	2,760	3,007	1,997	28,600
1958	1,510	2,909	2,399	1,847	1,319	2,459	3,668	4,786	2,117	1,555	1,662	1,005	27,240
1959	806.1	1,446	1,559	1,224	1,906	2,137	1,499	1,118	1,108	756.7	627.7	577.3	14,760
1960	831.5	1,039	1,566	2,253	1,752	1,987	1,233	2,345	2,158	1,202	687.3	501.1	17,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	48,860	35,380,000
1951	1211	94,900	Mar. 3, 1951	11,000	31,210	22,590,000	36,620	26,510,000
1952	1241	82,000	(a)	5,900	34,600	25,120,000	28,810	20,910,000
1953	1281	82,000	Mar. 25,26, 1953	5,220	24,530	17,760,000	23,190	16,790,000
1954	1341	58,100	May 7,8, 1954	3,230	12,240	8,863,000	11,220	8,124,000
1955	1391	58,000	Mar. 27-30, 1955	3,230	17,330	12,540,000	18,190	13,170,000
1956	1441	77,400	Feb. 24, 1956	6,300	16,080	11,670,000	16,150	11,720,000
1957	1511	117,000	May 4,5, 1957	5,860	39,510	28,600,000	46,920	33,970,000
1958	1561	101,000	May 15, 1958	13,600	37,620	27,240,000	33,470	24,230,000
1959	1631	53,600	Feb. 18,19, 1959	7,550	20,390	14,760,000	19,880	14,390,000
1960	1711	62,000	May 29,30, 1960	7,070	24,180	17,550,000	-	-

a Dec. 8-10, 1951, Apr. 27-29, 1952.

775. Cache River at Patterson, Ark.

Location.--Lat 35°15'30", long 91°14'40", in S½ sec.6, T.7 N., R.2 W., at bridge on U. S. Highway 64 at Patterson, 9.5 miles upstream from Maple Slough.

Drainage area.--1,041 sq mi.

Records available.--October 1928 to September 1931, February 1937, August 1937 to September 1960. Monthly discharge only October 1927 to January 1928, published in WSP 1311. Gage-height records July 11, 1916, to Dec. 31, 1931, are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 182.96 ft above mean sea level, datum of 1929. Prior to September 1931, staff gage at site 1,000 ft upstream at present datum. January 1937 to Oct. 5, 1949, staff gage at site 250 ft upstream at mean Gulf level or 0.24 ft below mean sea level, datum of 1929. Oct. 6, 1949, to Dec. 31, 1950, water-stage recorder at present site at mean Gulf level or 0.24 ft below mean sea level, datum of 1929.

Average discharge.--27 years (1927-31, 1937-60), 1,261 cfs (912,900 acre-ft per year).

Extremes.--1927-31, 1937-60: Maximum discharge, 13,200 cfs Jan. 24, 1937 (gage height, 13.2 ft, present datum); no flow Oct. 27-30, 1956.
Maximum stage known, 16.1 ft, revised (from floodmarks), present datum, Apr. 19, 1927, due to break in White River levee (discharge, 24,500 cfs).

Remarks.--Records of chemical analyses and water temperatures for the period October 1952 to May 1955 are published in reports of Geological Survey.

Cooperation.--Records computed and furnished by Corps of Engineers.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	454	1,620	1,500	2,480	3,610	2,580	1,320	891	509	1,170	917	495	1,450
1952	227	1,540	5,080	6,040	3,060	4,450	2,650	643	276	126	170	140	2,040
1953	67	114	2,060	943	2,430	4,210	2,280	2,860	282	249	95	67	1,300
1954	59	40	67	1,480	1,230	640	658	1,050	176	58	75	68	463
1955	73	23	150	729	298	2,250	2,240	1,440	1,090	203	152	81	730
1956	167	62	92	189	6,730	2,040	321	237	167	176	76	80	837
1957	12	46	73	736	4,170	1,120	4,650	5,350	3,220	877	1,170	381	1,800
1958	165	5,300	6,170	2,820	1,750	2,920	3,040	4,910	407	1,030	455	328	2,450
1959	118	1,080	233	830	3,070	1,730	319	190	417	197	176	189	695
1960	136	851	1,730	1,380	1,510	2,050	290	1,970	1,010	1,200	421	235	1,070

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	27.91	96.64	92.46	152.4	200.6	158.8	78.29	54.80	30.28	71.84	56.36	29.43	1,050
1952	13.94	91.87	312.3	371.4	175.9	273.5	157.9	39.56	16.45	7.78	10.47	8.34	1,479
1953	4.11	6.75	126.5	58.00	134.7	258.8	135.5	175.8	16.77	15.29	5.86	4.00	942.1
1954	3.63	2.37	4.14	91.19	68.11	39.38	39.14	64.28	10.46	3.54	4.59	4.06	334.9
1955	4.51	1.38	9.22	44.85	16.57	138.5	133.4	88.73	64.95	12.50	9.35	4.84	528.8
1956	10.30	3.70	5.68	11.62	386.8	125.6	19.11	14.60	9.94	10.83	4.70	4.76	607.6
1957	.754	2.77	4.47	45.26	231.4	69.06	276.8	329.2	191.9	53.90	71.79	22.69	1,300
1958	10.17	315.2	379.2	173.6	97.13	179.4	180.7	302.0	24.20	63.35	27.97	19.52	1,772
1959	7.26	64.15	14.32	51.01	170.5	106.1	18.99	11.66	24.80	12.11	10.80	11.24	502.9
1960	8.35	50.64	106.2	85.09	86.75	126.0	17.24	121.0	60.00	74.04	25.91	14.01	775.2

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,780	36.22	2,010,000
1951	(a)	5,370	Feb. 23, 1951	184	1,450	1.39	18.92	1,050,000	1,730	22.54	1,251,000
1952	(a)	8,550	Jan. 8, 1952	67	2,040	1.96	26.65	1,479,000	1,650	21.59	1,199,000
1953	(a)	8,640	Mar. 24, 1953	51	1,300	1.25	16.97	942,100	1,130	14.68	814,900
1954	(a)	3,880	May 4, 1954	29	463	.445	6.03	334,900	469	6.12	339,900
1955	(a)	5,720	Mar. 24, 1955	11	730	.701	9.53	528,800	739	9.62	533,400
1956	(a)	9,250	Feb. 19, 20, 1956	30	837	.804	10.94	607,600	821	10.72	596,000
1957	(a)	11,200	May 25, 1957	0	1,800	1.73	23.41	1,300,000	2,760	35.96	1,997,000
1958	(a)	8,590	May 11, 1958	64	2,450	2.35	31.93	1,772,000	1,590	20.79	1,154,000
1959	(a)	5,510	Feb. 23, 1959	45	695	.668	9.06	502,900	806	10.48	582,400
1960	(a)	4,870	May 28, 1960	55	1,070	1.03	13.95	775,200	-	-	-

a From reports of Mississippi River Commission; not previously published by Geological Survey.

780. Lagrue Bayou near Stuttgart, Ark.

Location.--Lat 34°31'55", long 91°21'20", in NW¼ sec.17, T.2 S., R.3 W., near center of span on downstream side of bridge on State Highway 146, 7½ miles downstream from small tributary, 11 miles east of Stuttgart, and 24 miles upstream from Little Lagrue Bayou.

Drainage area.--175 sq mi.

Records available.--August 1935 to September 1954.

Gage.--Water-stage recorder. Datum of gage is 175.14 ft above mean Gulf level (Corps of Engineers bench mark). Prior to Sept. 13, 1940, staff gage at same site and datum.

Average discharge.--19 years (1935-54), 226 cfs (163,600 acre-ft per year).

Extremes.--1935-54: Maximum discharge, 6,580 cfs Jan. 24, 1937 (gage height, 16.9 ft, from floodmark), from rating curve extended above 3,000 cfs by velocity-area studies; no flow at times.

Remarks.--Diversions for irrigation of about 6,600 acres above station. Records of chemical analyses for the period October 1953 to February 1955 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	90.5	98.2	146	911	610	80.2	202	14.3	76.3	117	43.9	82.9	204
1952	23.2	70.7	631	363	402	361	134	33.7	7.37	.31	22.6	32.3	173
1953	2.00	35.2	94.9	197	777	608	298	1,184	7.89	34.4	2.82	10.6	269
1954	7.06	.25	27.0	712	488	40.5	13.0	18.5	2.39	.13	.49	.06	107

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,570	5,840	8,960	56,030	33,880	4,930	12,020	878	4,540	7,170	2,700	4,930	147,400
1952	1,430	4,200	38,780	22,350	23,110	22,220	7,970	2,070	438	19	1,390	1,920	125,900
1953	123	2,100	5,840	12,140	43,170	37,360	17,740	72,820	469	2,110	174	628	194,700
1954	434	15	1,660	43,810	27,110	2,490	772	1,140	142	8.1	30	3.4	77,610

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	414	299,400
1951	1211	3,530	Jan. 15, 1951	0	204	147,400	237	171,500
1952	1240	1,410	Dec. 14, 1951	0	173	125,900	123	89,550
1953	1281	3,310	May 17, 1953	0	269	194,700	261	188,700
1954	1341	1,620	Jan. 17, 1954	0	107	77,610	-	-

ARKANSAS RIVER BASIN

9-485. Fremont Pass ditch at Fremont Pass, Colo. (Transmountain diversion)

Location.--Lat 39°22'00", long 106°11'10", in sec.11, T.8 S., R.79 W., at Fremont Pass.

Records available.--October 1928 to September 1960. Diversion prior to 1937 published in WSP 1311.

Gage.--Water-stage recorder and 4-foot Parshall flume since May 31, 1939. Altitude of gage is 11,320 ft (from topographic map). June 25, 1929, to Aug. 24, 1931, water-stage recorder and 8-foot Parshall flume and May 9, 1932, to May 30, 1939, water-stage recorder and 6-foot Parshall flume, at about same site.

Remarks.--No transmountain diversion August 1943 to September 1960, as water was used at Climax. Diversion is from tributaries of Tenmile Creek in secs.2 and 3, T.8 S., T.79 W., in Colorado River basin, to East Fork Arkansas River in sec.11, T.8 S., R.79 W., in Arkansas River basin.

Cooperation.--Records furnished by State engineer of Colorado.

9-615. Columbine ditch near Fremont Pass, Colo.
(Transmountain diversion)

Location.--Lat 39°22'45", long 106°13'40", in NW¼ sec.9, T.8 S., R.79 W., near Fremont Pass.

Records available.--October 1930 to September 1960. Diversion prior to 1938 published in WSP 1311.

Gage.--Water-stage recorder and 6-foot sharp-crested weir since May 21, 1960. Altitude of gage is 11,430 ft (from topographic map). June 5, 1931, to May 20, 1960, water-stage recorder and 4-foot Parshall flume.

Remarks.--Diversion is from tributaries of Eagle River in sec.5, T.8 S., R.79 W., in Colorado River basin, to Chalk Creek (tributary of East Fork Arkansas River) in NW¼ sec.9, T.8 S., R.79 W., in Arkansas River basin.

Cooperation.--Records furnished by State engineer of Colorado.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	0	0	0	0	0	0	990	701	53	0	1,740
1952	0	0	0	0	0	0	0	0	810	164	46	0	1,020
1953	0	0	0	0	0	0	0	0	906	133	4	0	1,040
1954	0	0	0	0	0	0	0	449	321	74	0	0	844
1955	0	0	0	0	0	0	0	426	563	89	79	1.4	1,160
1956	0	0	0	0	0	0	0	312	1,000	77	3	0	1,390
1957	0	0	0	0	0	0	0	0	463	613	34	0	1,110
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	46	1,120	139	29	0	1,330
1960	0	0	0	0	0	0	0	196	1,370	292	27	0	1,880

9-620. Ewing ditch at Tennessee Pass, Colo.
(Transmountain diversion)

Location.--Lat 39°21'40", long 106°18'15", in sec.11, T.8 S., R.80 W., at Tennessee Pass.

Records available.--January 1908 to September 1960. Diversion for 1908-15, 1924-25, 1928-36 published in WSP 1311.

Gage.--Water-stage recorder and 4-foot Cippoletti weir since May 1, 1956. Altitude of gage is 10,500 ft (from topographic map). May 1, 1923, to June 4, 1927, water-stage recorder and 4-foot rectangular flume at about same site. June 5, 1927, to Apr. 30, 1956, water-stage recorder and 4-foot Parshall flume. Prior to May 1, 1923, type of gage and exact location not known.

Remarks.--Diversion is from Piney Creek (tributary of Eagle River) in sec.11, T.8 S., R.80 W., in Colorado River basin, to Thayer Gulch (tributary of Tennessee Creek) in sec.11, T.8 S., R.80 W., in Arkansas River basin. First diversion by this ditch was in 1880 for placer mining. Records prior to 1908 are not available.

Cooperation.--Records furnished by State engineer of Colorado.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	0	0	0	0	0	288	763	272	86	10	1,420
1952	0	0	0	0	0	0	0	355	1,050	223	112	81	1,820
1953	20	0	0	0	0	0	0	154	689	204	76	0	1,140
1954	0	0	0	0	0	0	33	216	156	88	5	0	498
1955	0	0	0	0	0	0	0	209	164	42	0	0	415
1956	0	0	0	0	0	0	0	511	454	106	24	0	1,100
1957	0	0	0	0	0	0	0	48	601	482	120	105	1,360
1958	43	0	0	0	0	0	0	483	680	120	17	0	1,340
1959	0	0	0	0	0	0	0	219	653	153	35	0	1,060
1960	0	0	0	0	0	0	11	270	797	196	31	0	1,300

9-625. Wurtz ditch near Tennessee Pass, Colo.
(Transmountain diversion)

Location.--Lat 39°21'15", long 106°21'05", in sec.17, T.8 S., R.80 W., near Tennessee Pass.

Records available.--October 1931 to September 1960. Diversion prior to 1938 published in WSP 1311.

Gage.--Water-stage recorder and 6-foot Parshall flume since Apr. 26, 1934. Altitude of gage is 10,570 ft (from topographic map). May 18 to June 18, 1932, water-stage recorder and 8-foot Parshall flume; May 19 to July 24, 1933, water-stage recorder and 6-foot Parshall flume; and July 24 to Aug. 6, 1933, water-stage recorder and 3-foot Parshall flume; all at different datums but at about same site.

Remarks.--Diversion is from tributaries of Eagle River between headgate in sec.32, T.7 S., R.80 W., and Tennessee Pass in Colorado River basin, to West Tennessee Creek (tributary of Tennessee Creek), revised, in sec.17, T.8 S., R.80 W., in Arkansas River basin.

Cooperation.--Records furnished by State engineer of Colorado.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	0	0	0	0	0	805	1,530	476	130	0.8	2,940
1952	0	0	0	0	0	0	0	517	1,960	301	148	25	2,950
1953	0	0	0	0	0	0	0	432	1,360	191	23	0	2,010
1954	0	0	0	0	0	0	2.6	600	249	53	0	0	905
1955	0	0	0	0	0	0	0	576	582	142	49	0	1,350
1956	0	0	0	0	0	0	0	1,410	1,040	122	15	0	2,590
1957	0	0	0	0	0	0	0	44	1,410	952	212	21	2,640
1958	0	0	0	0	0	0	0	1,170	809	63	0	0	2,040
1959	0	0	0	0	0	0	0	502	1,150	238	37	0	1,930
1960	0	0	0	0	0	0	19	710	1,320	144	9.9	0	2,200

9-775. Busk-Ivanhoe tunnel at east portal, near Malta, Colo.
(Transmountain diversion)

Location.--Lat 39°14'55", long 106°28'15", in sec.20, T.9 S., R.81 W., at east portal of Busk-Ivanhoe tunnel.

Records available.--October 1924 to September 1960. Diversion prior to 1937 published in WSP 1311.

Gage.--Water-stage recorder and 8-foot Parshall flume since May 9, 1960. Altitude of gage is 10,790 ft, revised (from topographic map). June 9, 1925, to June 3, 1926, water-stage recorder and 6-foot rectangular weir and June 4, 1926, to Aug. 21, 1945, water-stage recorder and 12-foot rectangular weir, at about same site. Aug. 22, 1945, to May 8, 1960, water-stage recorder and 5-foot Parshall flume.

Remarks.--Diversion is from Ivanhoe Lake (Fryingpan Creek) in sec.13, T.9 S., R.82 W., in Colorado River basin, to Busk Creek (tributary of Lake Fork) in sec.20, T.9 S., R.81 W., in Arkansas River basin.

Cooperation.--Records furnished by State engineer of Colorado.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	0	0	0	0	65	857	2,120	1,660	431	1	5,130
1952	0	0	0	0	0	0	0	1,280	2,830	1,550	612	63	6,340
1953	235	0	0	0	0	0	0	493	2,450	1,460	439	0	5,080
1954	0	0	0	0	0	0	0	1,450	1,230	519	0	0	3,200
1955	202	0	0	0	0	0	135	1,250	2,150	1,060	267	202	5,270
1956	0	0	0	0	0	0	0	1,530	2,290	519	57	0	4,400
1957	0	0	0	0	0	0	0	62	2,380	2,810	259	0	5,510
1958	0	0	0	0	0	0	0	590	1,600	98	363	0	2,650
1959	0	0	0	0	0	0	0	599	3,340	1,100	136	0	5,180
1960	0	0	0	0	0	0	0	482	3,850	561	417	0	5,310

820. Lake Fork above Sugar Loaf Reservoir, Colo.

Location.--Lat 39°16'10", long 106°23'40", in sec. 13, T.9 S., R.81 W., on left bank 1,000 ft upstream from high-water line of Sugar Loaf Reservoir and 6 miles west of Leadville.

Drainage area.--18 sq mi.

Records available.--May 1946 to September 1960. Monthly discharge only for some periods, published in WSP 1241 and 1311.

Gage.--Water-stage recorder. Altitude of gage is 9,800 ft (from topographic map).

Average discharge.--14 years (1946-60), 41.2 cfs (29,830 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 610 cfs June 28, 1957 (gage height, 5.22 ft), from rating curve extended above 320 cfs; minimum daily recorded, 1.0 cfs Sept. 10-15, 1959.

Remarks.--No diversion above station. Transmountain diversions from Colorado River basin to Busk Creek above station through Busk-Ivanhoe tunnel (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.05	4.0	2.5	2.0	1.5	1.5	4.0	103	275	144	35.4	9.98	49.1
1952	5.04	4.0	3.0	2.5	2.0	2.0	5.0	92.1	319	105	43.0	14.2	49.6
1953	6.53	4.6	4.4	4.0	3.2	3.8	8.2	102	250	98	27.7	5.27	43.2
1954	5.25	6.4	5.0	4.4	4.2	4.6	15	115	79.0	33.0	7.78	5.16	23.9
1955	9.56	4.0	3.5	3.0	3.0	3.0	8.0	93.9	168	63.3	27.6	11.0	33.2
1956	4.16	5	4.5	4	3.5	3	5	156	190	39.6	13.0	4.92	36.1
1957	3.49	3.5	3	2	2.5	2	8	50	311	272	58.9	16.1	61.2
1958	9.85	8.38	4	4	3.5	3.5	4.5	100	242	41.0	23.0	9.56	37.7
1959	3.76	2.5	2	1.5	1.5	2	4	71.4	267	71.1	17.7	2.21	37.2
1960	3	3	2.5	2	1.5	2.5	7	70.0	234	57.2	20.3	8.32	34.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	311	238	154	123	83	92	238	6,300	16,340	8,880	2,180	594	35,530
1952	310	238	184	154	115	123	298	5,660	19,000	6,450	2,640	842	36,010
1953	402	274	271	246	178	234	488	6,270	14,880	6,030	1,700	314	31,290
1954	323	381	307	271	233	283	893	7,080	4,700	2,030	478	307	17,290
1955	588	238	215	184	167	184	476	5,770	9,980	3,890	1,700	655	24,050
1956	256	298	277	246	201	184	298	9,580	11,310	2,440	796	293	26,180
1957	214	208	184	123	139	123	476	3,070	18,500	16,710	3,620	959	44,330
1958	606	499	246	246	194	215	268	6,150	14,380	2,520	1,420	569	27,310
1959	231	149	123	92	83	123	238	4,390	15,910	4,370	1,090	132	26,930
1960	184	179	154	123	86	154	417	4,300	13,920	3,520	1,250	495	24,780

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	31.8	23,000
1951	1211,1241	473	June 21, 1951	-	49.1	35,530	49.1	35,560
1952	1241	534	June 11, 1952	-	49.6	36,010	49.9	36,230
1953	1281	-	-	-	43.2	31,290	43.3	31,350
1954	1341	223	May 21, 1954	-	23.9	17,290	23.9	17,320
1955	1391	296	June 9, 1955	-	33.2	24,050	32.9	23,840
1956	1441	441	June 2, 1956	-	36.1	26,180	35.8	25,950
1957	1511	610	June 28, 1957	-	61.2	44,330	62.3	45,070
1958	1561	559	June 6, 1958	-	37.7	27,310	36.5	26,460
1959	1631	426	June 8, 1959	-	37.2	26,930	37.2	26,940
1960	1711	375	June 17, 1960	-	34.1	24,780	-	-

825. Lake Fork below Sugar Loaf Reservoir, Colo.

Location.--Lat 39°15'15", long 106°22'15", in NE¼ sec.19, T.9 S., R.80 W., on right bank 600 ft downstream from Sugar Loaf Reservoir Dam and 4 miles west of Leadville.

Drainage area.--26 sq mi.

Records available.--May to October 1890, June to September 1903 (gage height and discharge measurements only), and May 1946 to September 1952 (no winter records). Published as "near Leadville" in 1890 and as Lake Fork of Arkansas River at Arkansas Junction in 1903.

Gage.--Water-stage recorder and sharp-crested weir. Altitude of gage is 9,760 ft (from topographic map). Apr. 23 to Oct. 31, 1890, and June 1 to Sept. 27, 1903, staff gages near present site at different datums.

Extremes.--1890, 1946-52: Maximum daily discharge, 428 cfs May 23, 1890; no flow May 24-27, 1951.

Remarks.--Flow not regulated in 1890. Flow regulated by Sugar Loaf Reservoir (capacity, 17,400 acre-ft) in 1946-52. Records include inflow from Fryingpan Creek in Colorado River basin through Busk-Ivanhoe tunnel (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.00	-	-	-	-	-	-	150	68.2	122	101	35.5	-
1952	4.71	-	-	-	-	-	94.4	129	125	168	127	32.7	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	185	-	-	-	-	-	-	9,200	4,060	7,480	6,240	2,110	-
1952	289	-	-	-	-	-	5,620	7,910	7,420	10,300	7,820	1,940	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	291	May 29, 1951	-	-	-	-	-
1952	1241	327	June 9, 1952	-	-	-	-	-

830. Halfmoon Creek near Malta, Colo.

Location.--Lat 39°11'10", long 106°22'55", in NW¼ sec.18, T.10 S., R.80 W., on left bank 2 miles upstream from mouth and 3½ miles southwest of Malta.

Drainage area.--23 sq mi.

Records available.--July 1946 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 9,740 ft (from topographic map). Prior to May 13, 1948, at datum 0.18 ft lower.

Average discharge.--14 years (1946-60), 29.8 cfs (21,570 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 450 cfs June 30, 1957; maximum gage height, 3.80 ft Apr. 10, 1960 (ice jam); minimum discharge not determined.

Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8.19	6.40	4.2	3.4	2.5	2.1	5.30	49.5	131	116	43.1	14.0	32.4
1952	11.0	9.2	7.0	5.4	4.5	4.0	10.8	49.4	164	86.8	46.7	21.0	35.0
1953	11.2	6.58	3.5	2.2	1.7	1.4	5.38	28.6	130	81.9	40.7	12.0	27.2
1954	7.49	6.67	5.5	4.5	4.0	4.0	9.50	51.1	66.6	41.5	18.4	12.6	19.4
1955	12.0	5.5	4.8	4.7	4.4	3.9	8.36	35.8	84.4	46.5	29.2	12.4	21.1
1956	6.23	5.71	5.00	4.25	3.45	3.26	5.12	68.5	124	36.0	16.6	8.75	23.8
1957	6.36	4.78	4.10	2.96	3.75	3.54	4.97	24.1	166	239	72.4	20.0	46.3
1958	11.4	8.76	5.4	5.2	4.5	4.5	5.40	76.5	146	45.7	21.5	13.8	29.1
1959	8.55	6	5	3	3	3.3	5.56	32.3	162	63.8	29.7	13.3	28.0
1960	13.1	13	8	7	6	7	10.4	38.9	150	70.2	23.1	12.8	29.9

Monthly and yearly discharge, in acre-feet, of Halfmoon Creek near Malta, Colo.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	503	381	258	209	139	129	316	3,040	7,810	7,160	2,650	833	23,430
1952	679	547	430	332	259	246	643	3,040	9,730	5,340	2,870	1,250	25,370
1953	687	392	215	135	94	86	320	1,760	7,720	5,040	2,500	715	19,660
1954	461	397	338	277	222	246	565	3,140	3,960	2,550	1,130	752	14,040
1955	739	327	295	289	244	240	497	2,200	5,020	2,860	1,790	736	15,240
1956	383	340	307	261	198	201	304	4,210	7,350	2,210	1,020	521	17,300
1957	391	284	252	182	208	217	296	1,480	9,880	14,690	4,450	1,190	33,520
1958	703	521	332	320	250	277	321	4,710	8,710	2,810	1,320	819	21,090
1959	526	357	307	184	167	203	331	1,990	9,640	3,930	1,830	793	20,260
1960	805	774	492	430	345	430	621	2,390	8,900	4,320	1,420	762	21,690

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	20.7	14,960
1951	1211	218	June 20, 1951	-	32.4	23,430	33.1	23,940
1952	1241	345	June 11, 1952	-	35.0	25,370	34.5	25,000
1953	1281	330	June 14, 1953	-	27.2	19,660	27.0	19,570
1954	1341	104	May 20, 1954	-	19.4	14,040	19.6	14,200
1955	1391	169	June 11, 1955	-	21.1	15,240	20.6	14,910
1956	1441	241	June 2, 1956	2.7	23.8	17,300	23.7	17,200
1957	1511	450	June 30, 1957	2.2	46.3	33,520	47.2	34,150
1958	1561	329	June 7, 1958	-	29.1	21,090	28.6	20,730
1959	1631	313	June 16, 1959	-	28.0	20,260	29.2	21,140
1960	1711	320	June 17, 1960	-	29.9	21,690	-	-

9-730. Twin Lakes tunnel at east portal, near Twin Lakes, Colo. (Transmountain diversion)

Location.--Lat 39°05'00", long 106°32'30", in sec.22, T.11 S., R.82 W., at east portal of Twin Lakes tunnel.

Records available.--October 1934 to September 1960.

Gage.--Water-stage recorder since May 24, 1935. An 8-foot Parshall flume used at east portal May to October and 3-foot Parshall flume used in the tunnel at west portal 3.8 miles from main gage November to April of each year. Altitude of gage is 10,500 ft (from topographic map).

Remarks.--Diversion is from tributaries of Roaring Fork between headgates (in sec.21, T.11 S., R.83 W., and sec.11, T.11 S., R.82 W.) and west portal of Twin Lakes tunnel (in sec.24, T.11 S., R.83 W.) in Colorado River basin, to North Fork Lake Creek in sec.22, T.11 S., R.82 W., in Arkansas River basin. Diversion began May 24, 1935.

Cooperation.--Records furnished by State engineer of Colorado.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	221	100	157	123	128	113	155	5,750	22,020	12,680	3,000	478	44,920
1952	475	320	224	280	153	148	503	7,150	25,140	11,380	4,260	1,330	51,360
1953	448	223	234	257	215	215	239	3,740	22,950	8,570	2,840	374	40,300
1954	16	216	163	119	105	109	869	10,750	10,340	4,640	139	0	27,470
1955	1,530	463	89	80	54	62	498	7,720	15,990	5,780	2,710	88	35,060
1956	0	123	90	99	82	61	105	13,260	19,040	3,300	282	0	36,440
1957	29	190	69	94	55	73	87	1,300	13,570	10,500	5,440	1,330	32,740
1958	639	549	281	178	165	103	158	7,800	9,480	3,820	544	313	24,030
1959	0	83	155	117	103	121	125	6,530	24,530	6,540	1,740	377	40,420
1960	211	366	132	75	80	86	485	6,260	24,480	8,220	1,520	0	41,920

845. Lake Creek above Twin Lakes Reservoir, Colo.

Location.--Lat 39°03'45", long 106°24'20", in sec.26, T.11 S., R.81 W., on left bank 1.5 miles upstream from high-water line of Twin Lakes Reservoir and 2 miles southwest of village of Twin Lakes.
Drainage area.--75 sq mi.
Records available.--April 1946 to September 1960. Monthly discharge only for some periods, published in WSP 1241 and 1311.
Gage.--Water-stage recorder. Altitude of gage is 9,300 ft (from topographic map). Prior to May 20, 1950, at site 190 ft downstream at different datum. May 20, 1950, to Apr. 7, 1953, at site 10 ft upstream at present datum.
Average discharge.--14 years (1946-60), 155 cfs (112,200 acre-ft per year).
Extremes.--1946-60: Maximum discharge, 3,150 cfs June 10, 1952 (gage height, 5.74 ft), from rating curve extended above 1,400 cfs; minimum not determined.
Remarks.--No diversion above station. Records include inflow from Roaring Fork in Colorado River basin through Twin Lakes tunnel (see preceding page).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	29.2	19.9	14	11	8	7	17	276	838	500	155	47.4	161
1952	34.0	20	19	17	12	11	38.0	329	1,115	501	210	82.9	199
1953	37.6	26	22	18	16	18	19	145	785	384	147	39.4	138
1954	22.6	23.3	22	19	16	12	53.4	405	415	231	58.0	33.8	110
1955	68.2	26.9	19	17	16	15	40	255	538	225	130	37.5	116
1956	21.1	18.7	18	15	12	11	19.4	491	826	164	53.1	26.1	139
1957	18.8	17.5	17	15	13	14	25	108	1,000	939	287	89.8	213
1958	44.7	37.6	32	28	26	24	36	467	583	194	65.2	43.3	132
1959	‡23	‡16	‡15	‡15	‡14	‡12	‡33	‡170	‡997	‡296	‡102	‡40	‡144
1960	49.8	35.7	26	22	18	19	50.5	303	1,135	378	104	41.5	181

‡ Not previously published; estimated by State engineer of Colorado on basis of reservoir records, outflow, and diversion records.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,790	1,180	861	676	444	430	1,010	16,990	49,860	30,730	9,520	2,820	116,300
1952	2,090	1,190	1,170	1,050	690	676	2,260	20,250	66,340	30,820	12,910	4,930	144,400
1953	2,310	1,550	1,350	1,110	889	1,110	1,130	8,920	46,710	23,580	9,050	2,350	100,100
1954	1,390	1,390	1,350	1,170	889	738	3,180	24,900	24,700	14,190	3,570	2,010	79,480
1955	4,190	1,600	1,170	1,050	889	922	2,380	15,670	32,030	13,810	8,010	2,230	83,950
1956	1,300	1,110	1,110	922	690	676	1,150	30,180	49,140	10,110	3,260	1,550	101,200
1957	1,150	1,040	1,050	922	722	861	1,490	6,640	59,510	57,710	17,640	5,350	154,100
1958	2,750	2,240	1,970	1,720	1,440	1,480	2,140	28,740	34,720	11,940	4,010	2,580	95,730
1959	‡1,410	‡952	‡922	‡922	‡778	‡738	‡1,960	‡10,450	‡59,330	‡18,200	‡6,270	‡2,380	‡104,300
1960	3,060	2,130	1,600	1,350	1,040	1,170	3,000	18,630	67,560	23,270	6,410	2,470	131,700

‡ Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	107	77,750
1951	1211,1241	1,880	June 18, 1951	-	161	116,300	162	116,900
1952	1241,1711	3,150	June 10, 1952	-	199	144,400	200	145,100
1953	1281	-	-	-	138	100,100	137	98,980
1954	1341	966	May 21, 1954	-	110	79,480	114	82,310
1955	1391	1,120	June 8, 1955	-	116	83,950	111	80,510
1956	1441	1,900	June 1, 1956	-	139	101,200	139	100,900
1957	1511	2,190	June 28, 1957	-	213	154,100	218	157,800
1958	1561	1,590	May 27, 1958	-	132	95,730	‡127	‡92,050
1959	-	-	-	-	‡144	‡104,300	‡149	‡107,800
1960	1711	1,960	June 17, 1960	-	181	131,700	-	-

‡ Not previously published.

855. Lake Creek below Twin Lakes Reservoir, Colo.

Location.--Lat 39°04'50", long 106°18'40", in NE¼ sec.22, T.11 S., R.80 W., on left bank 100 ft downstream from Twin Lakes Reservoir Dam and 3½ miles northwest of Granite.
Drainage area.--107 sq mi.
Records available.--June to October 1890, June to September 1899, July to September 1900, August to September 1910, and April 1946 to September 1953 (no winter records prior to 1953). Records for April and May 1890 have been found to be unreliable and should not be used. Published as Twin Lake Creek below Twin Lakes in 1890, as Lake Creek at Twin Lakes in 1899, as Lake Creek below Twin Lakes in 1900, and as Twin Lakes Outlet near Twin Lakes in 1910.
Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 9,160 ft (from topographic map). Prior to 1946, staff gages or water-stage recorder at several sites within half a mile at different datums.
Extremes.--1890, 1946-53: Maximum discharge, 1,420 cfs June 22, 1947; maximum gage height, 5.65 ft June 17, 1950; no flow Nov. 28-30, 1949.
Remarks.--No diversion above station. Flow regulated since 1896 by Twin Lakes Reservoir (capacity, 53,260 acre-ft). Records include inflow from Roaring Fork in Colorado River basin through Twin Lakes tunnel (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second, of Lake Creek below Twin Lakes Reservoir, Colo.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	38.1	29.9	-	-	-	-	-	221	353	792	335	155	-
1952	34.4	-	-	-	-	-	-	295	663	579	523	161	-
1953	39.8	14.5	4	5.3	14	12.5	9.5	195	565	510	285	142	150

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,340	1,780	-	-	-	-	-	13,600	20,980	48,690	20,620	9,240	-
1952	2,110	-	-	-	-	-	-	18,140	39,450	35,620	32,150	9,560	-
1953	2,450	863	246	325	778	770	565	11,990	33,620	31,360	17,540	8,450	109,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	1,220	July 4, 1951	-	-	-	-	-
1952	1241	1,250	June 27, 1952	-	-	-	-	-
1953	1281	a976	June 13, 1953	-	150	109,000	-	-

a Maximum observed.

860. Arkansas River at Granite, Colo.

Location.--Lat 39°02'35", long 106°15'55", in SW¼ sec.31, T.11 S., R.79 W., on right bank at Granite, a short distance east of U. S. Highway 24, just upstream from Cache Creek.
Drainage area.--427 sq mi.
Records available.--April to October 1895, May to December 1897, August to September 1898, March to October 1899, April to May 1901 (gage heights and discharge measurements only in 1895, 1899, and 1901), April 1910 to September 1960. Monthly discharge only for some periods, published in WSP 1311.
Gage.--Water-stage recorder. Datum of gage is 8,914.86 ft above mean sea level, datum of 1929. Prior to Apr. 6, 1910, staff gages near present site at different datums. Apr. 6, 1910, to Oct. 25, 1917, water-stage recorder or staff gage at site 1,000 ft upstream at different datum.
Average discharge.--50 years (1910-60), 351 cfs (254,100 acre-ft per year).
Extremes.--1895, 1897-99, 1910-60: Maximum discharge, 5,360 cfs June 28, 1957 (gage height, 7.20 ft); minimum not determined.
Remarks.--Diversions above station for irrigation of about 5,150 acres. Sugar Loaf and Twin Lakes Reservoirs are on tributaries above station (combined capacity, 70,680 acre-ft). Transmountain diversions from Colorado River basin to Arkansas River basin enter above this station (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	113	105	84.4	83.2	72.5	75.4	144	742	1,205	1,334	690	321	416
1952	150	114	103	102	109	114	438	854	1,727	1,098	870	340	502
1953	149	87.1	89.7	94.6	92.7	92.4	111	543	1,717	910	542	267	392
1954	118	134	106	87.9	78.2	82.0	166	642	618	480	239	112	240
1955	130	103	107	93.3	74.4	85.0	182	377	818	630	471	194	273
1956	94.0	101	93.7	90.7	90.0	113	239	958	1,314	576	300	141	343
1957	127	92.6	88.3	78.9	76.9	69.8	120	383	1,550	2,258	851	406	512
1958	205	117	81	82	79	78.0	179	934	1,348	740	600	241	392
1959	104	91.9	83.6	74.9	70.2	86.5	253	428	1,285	840	529	226	340
1960	188	107	87.0	83.0	91.7	114	285	563	1,610	766	684	222	400

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,920	6,220	5,190	5,120	4,020	4,640	8,560	45,610	71,690	82,000	42,400	19,090	301,500
1952	9,230	6,780	6,330	6,260	6,250	6,990	26,060	52,530	102,700	67,510	53,470	20,220	364,300
1953	9,160	5,180	5,520	5,820	5,150	5,680	6,630	33,380	102,200	55,930	33,330	15,890	283,900
1954	7,250	7,980	6,500	5,400	4,340	5,040	9,910	39,480	36,750	29,540	14,730	6,640	173,600
1955	8,020	6,110	6,580	5,730	4,130	5,220	10,840	23,150	48,660	38,750	28,960	11,530	197,700
1956	5,780	5,980	5,760	5,580	5,180	6,980	14,240	58,910	78,190	35,440	18,460	8,410	248,900
1957	7,800	5,510	5,430	4,850	4,270	4,290	7,150	23,560	92,230	138,800	52,310	24,160	370,400
1958	12,630	6,970	4,980	5,040	4,390	4,800	10,630	57,440	80,210	45,500	36,890	14,360	283,800
1959	6,420	5,470	5,140	4,610	3,900	5,320	15,050	26,330	76,440	51,630	32,510	13,460	246,300
1960	11,540	6,340	5,350	5,110	5,280	7,030	16,950	34,600	95,820	47,090	42,080	13,240	290,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	330	239,100
1951	1211	2,000	July 5, 1951	56	416	301,500	422	305,500
1952	1241	3,620	June 8, 1952	88	502	364,300	499	361,800
1953	1281	a2,700	June 12, 1953	68	392	283,900	395	285,700
1954	1341	1,510	May 22, 1954	76	240	173,600	238	172,500
1955	1391	1,250	June 25, 1955	65	273	197,700	269	194,500
1956	1441	2,760	June 3, 1956	80	343	248,900	345	250,100
1957	1511	5,360	June 28, 1957	64	512	370,400	520	376,200
1958	1561	2,270	June 8, 1958	-	392	283,800	382	276,300
1959	1631	1,750	June 16, 1959	65	340	246,300	349	252,500
1960	1711	2,270	June 8, 1960	66	400	290,400	-	-

a About.

865. Clear Creek above Clear Creek Reservoir, Colo.

Location.--Lat 39°01'05", long 106°16'55", in S½ sec.12, T.12 S., R.80 W. on left bank 0.5 mile upstream from water line (elevation, 8,878 ft) of Clear Creek Reservoir and 2 miles southwest of Granite.

Drainage area.--59 sq mi.

Records available.--May 1946 to September 1960. Monthly discharge only for some periods, published in WSP 1241 and 1311.

Gage.--Water-stage recorder. Datum of gage is 8,889 ft above mean sea level (river-profile survey). Prior to Apr. 21, 1954, at site 200 ft downstream at datum 2.19 ft lower.

Average discharge.--14 years (1946-60), 71.8 cfs (51,980 acre-ft per year).

Extremes.--1946-60: Maximum daily discharge, 1,300 cfs June 29, 1957; maximum gage height recorded, 4.34 ft (site and datum then in use) June 16, 1952; minimum discharge not determined.

Remarks.--Diversions for irrigation of about 250 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	21.6	15.2	10	8	6	5	11.8	109	348	194	86.4	29.3	70.6
1952	21.5	17.9	14	12	10	8	29.6	174	531	197	111	49.2	97.7
1953	27.9	17.6	14	12	13	16.5	16.1	57.7	286	149	68.5	31.0	59.1
1954	20.7	17.8	14.6	12.2	10.9	11.0	25.4	147	184	112	40.2	27.4	52.1
1955	33.4	18.9	12	10	11	12	19.2	77.3	249	108	66.5	30.3	54.0
1956	16.9	7.77	8.5	8	7.5	7	14.0	178	346	91.7	39.6	21.8	62.1
1957	18.6	17	15	13	13	13	15	41.0	465	771	153	63.7	134
1958	27	22	17	15	14	13	16	182	250	58.3	38.0	38.0	57.6
1959	27.3	18.2	14	12	12	11	13.2	57.5	283	72.8	45.5	24.4	49.2
1960	30.5	19.3	13	11	9	9.5	23.1	98.1	354	137	46.4	29.5	64.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,330	906	615	492	333	307	700	6,710	20,720	11,950	5,310	1,740	51,110
1952	1,320	1,070	861	738	575	492	1,760	10,710	31,580	12,090	6,830	2,930	70,960
1953	1,710	1,050	861	738	722	1,010	960	3,550	16,990	9,140	4,210	1,850	42,790
1954	1,270	1,060	900	748	607	679	1,510	9,020	10,930	6,870	2,470	1,630	37,690
1955	2,050	1,130	738	615	611	738	1,140	4,750	14,800	6,630	4,090	1,800	39,090
1956	1,040	462	523	492	431	430	834	10,920	20,620	5,640	2,430	1,300	45,120
1957	1,140	1,010	922	799	722	799	893	2,520	27,660	47,390	9,410	3,790	97,060
1958	1,660	1,310	1,050	922	778	799	952	11,170	14,900	3,580	2,330	2,260	41,710
1959	1,680	1,080	861	738	666	676	785	3,530	16,850	4,480	2,800	1,450	35,600
1960	1,880	1,150	799	676	518	584	1,370	6,030	21,090	8,390	2,850	1,750	47,090

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	54.4	39,390
1951	1211,1241	910	June 19, 1951	-	70.6	51,110	71.2	51,510
1952	1241	1,130	June 10, 1952	-	97.7	70,960	98.3	71,330
1953	1281	-	-	-	59.1	42,790	58.6	42,400
1954	1341	330	May 20, 1954	8.5	52.1	37,690	53.0	38,380
1955	1391	521	June 8, 1955	-	54.0	39,090	51.4	37,200
1956	1441	760	June 2, 1956	-	62.1	45,120	63.8	46,170
1957	1511	a1,300	June 29, 1957	-	134	97,060	135	98,000
1958	1561	576	June 6, 1958	-	57.6	41,710	57.1	41,310
1959	1631	488	June 8, 1959	-	49.2	35,600	49.5	35,800
1960	1711	621	June 17, 1960	-	64.9	47,090	-	-

a Maximum daily.

870. Clear Creek below Clear Creek Reservoir, Colo.

Location.--Lat 39°01'10", long 106°14'30", in SE¼ sec.8, T.12 S., R.79 W., on left bank 100 ft downstream from Clear Creek Reservoir Dam, 1,500 ft upstream from mouth, and 2 miles southeast of Granite.

Drainage area.--62 sq mi.

Records available.--April to October 1890 (published as "near Granite"), May 1946 to September 1953 (no winter records prior to 1953). Records for April 1890 and May to November 1910 have been found to be unreliable and should not be used. Prior to 1946, published as "near Granite."

Gage.--Water-stage recorder and wooden control. Altitude of gage is 8,800 ft (from topographic map). Apr. 20 to Oct. 31, 1890, probably a staff gage a short distance upstream from mouth at different datum.

Extremes.--1890, 1946-53: Maximum discharge, 454 cfs June 21, 1947 (gage height, 3.95 ft); no flow at times in 1946, 1950-53.

Remarks.--Diversions for irrigation of about 350 acres above station. Flow regulated by Clear Creek Reservoir in 1946-53 (capacity, 11,210 acre-ft). No regulation in 1890. Records since May 1946 do not include flow over emergency spillway.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22.4	-	-	-	-	-	-	89.0	150	175	119	31.2	-
1952	20.5	-	-	-	-	-	-	170	316	292	167	53.5	-
1953	27.6	16	4	2	6	8	18	65	292	167	73.9	23.5	58.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,370	-	-	-	-	-	-	5,470	8,910	10,760	7,320	1,860	-
1952	1,260	-	-	-	-	-	-	10,470	18,830	17,970	10,290	3,190	-
1953	1,700	952	246	123	333	492	1,070	4,000	17,380	10,270	4,540	1,400	42,510

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	416	June 24, 1951	0	-	-	-	-
1952	1241	447	July 7, 1952	0	-	-	-	-
1953	1281	a382	June 20, 1953	0	58.7	42,510	-	-

a Maximum observed.

890. Cottonwood Creek below Hot Springs, near Buena Vista, Colo.

Location.--Lat 38°48'46", long 106°13'18", in SE¼SE¼ sec.21, T.14 S., R.79 W., on left bank a quarter of a mile downstream from Cottonwood Hot Springs, 1 mile downstream from confluence of Middle Cottonwood and South Cottonwood Creeks, 3 miles upstream from North Cottonwood Creek, and 5½ miles southwest of Buena Vista.

Drainage area.--65 sq mi.

Records available.--October 1910 to September 1923, August 1949 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 8,532 ft (river-profile survey). Prior to Oct. 1, 1923, staff gage near present site at different datum.

Average discharge.--24 years (1910-23, 1949-60), 59.4 cfs (43,000 acre-ft per year).

Extremes.--1910-23, 1949-60: Maximum discharge, 1,180 cfs July 1, 1957 (gage height, 4.52 ft, from floodmarks), from rating curve extended above 690 cfs; minimum observed, 10 cfs Mar. 20-23, 25, Apr. 9, 19, 1914.

Remarks.--Several small diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22.9	22.0	21.4	21.3	18.8	18.2	19.5	65.6	165	88.3	63.5	35.2	46.9
1952	25.7	27.3	24.9	26.1	23.1	16.4	26.2	101	307	135	82.4	50.3	70.4
1953	35.1	29.8	27.0	23.5	22.4	20.8	20.4	56.4	213	106	59.3	33.8	54.0
1954	32.6	28.1	24.8	22.8	20.8	19.7	24.0	74.1	77.3	56.6	32.7	28.9	37.0
1955	26.3	21.9	20.7	19.9	18.4	18.0	20.9	56.2	156	79.3	67.8	35.4	45.1
1956	28.4	24.7	24.8	22.5	19.2	18.3	19.6	101	191	66.7	43.1	30.7	49.1
1957	27.6	25.9	23.7	21.8	20.5	18.7	20.0	36.7	336	387	129	68.8	93.3
1958	49.4	36.5	31.3	25.6	25.0	22.3	24.0	114	178	58.8	40.3	35.1	53.4
1959	28.2	24.2	24.2	22.1	21.6	20.1	21.0	50.1	153	59.0	41.1	31.4	41.3
1960	36.7	32.7	25.8	20.0	19.9	19.3	27.4	62.7	199	89.5	39.5	30.3	50.2

Monthly and yearly discharge, in acre-feet, of Cottonwood Creek below Hot Springs, near Buena Vista, Colo.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,410	1,310	1,310	1,310	1,040	1,120	1,160	4,040	9,820	5,430	3,910	2,090	33,950
1952	1,580	1,620	1,530	1,600	1,330	1,010	1,560	6,230	18,280	8,280	5,070	2,990	51,080
1953	2,160	1,770	1,660	1,440	1,240	1,280	1,210	3,470	12,690	6,520	3,640	2,010	39,090
1954	2,000	1,670	1,530	1,400	1,160	1,210	1,430	4,560	4,600	3,480	2,010	1,720	26,770
1955	1,620	1,310	1,270	1,220	1,020	1,110	1,240	3,460	9,280	4,870	4,170	2,100	32,670
1956	1,750	1,470	1,530	1,380	1,100	1,120	1,170	6,180	11,390	4,100	2,650	1,830	35,670
1957	1,700	1,540	1,460	1,340	1,140	1,150	1,190	2,260	19,980	23,770	7,950	4,100	67,580
1958	3,040	2,170	1,920	1,580	1,390	1,370	1,430	7,030	10,570	3,620	2,480	2,090	38,690
1959	1,730	1,440	1,490	1,360	1,200	1,240	1,250	3,080	9,120	3,630	2,520	1,870	29,930
1960	2,260	1,950	1,580	1,230	1,140	1,190	1,630	3,850	11,860	5,500	2,430	1,800	36,420

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	41.8	30,250
1951	1211	335	June 19, 1951	17	46.9	33,950	47.9	34,650
1952	1241	496	June 11, 1952	15	70.4	51,080	71.5	51,940
1953	1281	378	June 13, 1953	18	54.0	39,090	53.5	38,700
1954	1341	150	May 22, 1954	18	37.0	26,770	35.6	25,770
1955	1391	314	June 9, 1955	18	45.1	32,670	45.9	33,220
1956	1441	a370	June 3, 1956	18	49.1	35,670	49.1	35,620
1957	1511	1,180	July 1, 1957	18	93.3	67,580	96.7	70,010
1958	1561	373	June 6, 1958	20	53.4	38,690	50.0	36,220
1959	1631	264	June 7, 1959	19	41.3	29,930	42.9	31,060
1960	1711	382	June 18, 1960	17	50.2	36,420	-	-

a About.

910. Chalk Creek near Nathrop, Colo.

Location.--Lat 38°44', long 106°09', in NW¼ sec.19, T.15 S., R.78 W., on right bank 200 ft upstream from county highway bridge at Mount Princeton Hot Springs, 4 miles west of Nathrop, and 5½ miles upstream from mouth.

Drainage area.--97 sq mi, approximately.

Records available.--September to December 1910 (fragmentary gage-height record and discharge measurements only, published as "near Buena Vista"), August 1949 to September 1956.

Gage.--Water-stage recorder. Datum of gage is 8,113 ft (river-profile survey). Sept. 6 to Dec. 29, 1910, staff gage at practically same site at different datum.

Average discharge.--7 years (1949-56), 54.9 cfs (39,750 acre-ft per year).

Extremes.--1949-56: Maximum discharge, 1,050 cfs June 10, 1952 (gage height, 2.70 ft), from rating curve extended above 620 cfs; minimum, 13 cfs Mar. 12, 1954, Apr. 4, 1955; minimum gage height, 0.44 ft Mar. 4, 1951.

Maximum stage known, 3.4 ft in June 1949 (discharge not determined), from high-water mark verified by local residents.

Remarks.--Several small diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	19.9	19.5	19.5	19.3	18.5	18.0	17.7	93.7	205	77.1	58.7	31.1	49.9
1952	22.9	21.4	20.6	20.4	19.1	18.0	19.8	138	450	154	80.7	47.7	84.1
1953	34.5	24.3	21.5	20.5	19.6	17.3	17.6	60.4	228	117	71.4	33.2	55.6
1954	29.0	26.0	19.7	19.1	19.4	18.0	22.9	91.4	93.2	53.3	25.6	41.4	38.3
1955	37.6	25.7	18.3	18.8	18.0	18.0	18.9	63.6	183	83.4	82.2	34.3	50.2
1956	28.0	22.4	21.2	20.7	19.8	18.8	20.8	141	251	70.3	42.1	28.5	57.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,220	1,160	1,200	1,190	1,030	1,110	1,050	5,760	12,180	4,740	3,610	1,850	36,100
1952	1,410	1,280	1,270	1,250	1,100	1,110	1,180	8,480	26,760	9,460	4,960	2,840	61,100
1953	2,120	1,450	1,320	1,260	1,090	1,060	1,050	3,720	13,570	7,220	4,390	1,980	40,230
1954	1,780	1,550	1,210	1,180	1,080	1,110	1,360	5,620	5,550	3,270	1,570	2,460	27,740
1955	2,310	1,530	1,130	1,160	1,000	1,110	1,120	3,910	10,880	5,130	5,050	2,040	36,370
1956	1,720	1,330	1,300	1,280	1,140	1,160	1,240	8,650	14,960	4,320	2,590	1,700	41,390

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	47.9	34,670
1951	1211	448	May 28, 1951	17	49.9	36,100	50.4	36,480
1952	1241	1,050	June 10, 1952	17	84.1	61,100	85.4	62,030
1953	1281	720	June 13, 1953	16	55.6	40,230	55.1	39,880
1954	1341	155	May 22, 1954	17	38.3	27,740	38.9	28,170
1955	1391	399	June 9, 1955	17	50.2	36,370	49.4	35,750
1956	1391	640	June 3, 1956	18	57.0	41,390	-	-

915. Arkansas River at Salida, Colo.

Location.--Lat 38°32'45", long 106°00'36", in NE¼ sec.31, T.50 N., R.9 E., on right bank at Salida, 450 ft upstream from bridge on State Highway 291 and 2.7 miles upstream from South Arkansas River.

Drainage area.--1,218 sq mi.

Records available.--April to October 1895, May to December 1897, August 1898 to September 1899, April to October 1900, April 1901 to October 1903, October 1909 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 7,050.45 ft above mean sea level, datum of 1929. Apr. 11, 1895, to Nov. 18, 1903, staff gage and Nov. 3, 1909, to Dec. 2, 1936, water-stage recorder, at site 1½ miles downstream at different datum. Dec. 3, 1936, to Dec. 5, 1957, water-stage recorder at same site at datum 1.00 ft higher.

Average discharge.--54 years (1898-99, 1901-3, 1909-60), 620 cfs (448,900 acre-ft per year).

Extremes.--1895-1903, 1909-60: Maximum discharge, 9,220 cfs June 29, 1957 (gage height, 7.82 ft, present datum); minimum observed, 100 cfs Oct. 4, 6, 7, 1898.

Remarks.--Natural flow of stream affected by transmountain diversions (see elsewhere in this report), storage reservoirs (combined capacity, 81,890 acre-ft), diversions for irrigation of about 16,000 acres above station, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	233	260	235	231	216	219	254	1,004	1,733	1,799	1,055	472	646
1952	283	301	282	274	255	245	657	1,292	3,072	1,827	1,381	582	871
1953	350	323	296	274	247	226	242	702	2,541	1,433	859	400	659
1954	300	363	300	270	231	203	272	925	860	694	384	309	427
1955	317	233	270	233	220	223	286	481	1,241	896	823	380	468
1956	241	256	262	232	225	210	338	1,243	2,140	830	509	323	567
1957	272	255	243	216	233	177	237	598	2,968	5,161	1,673	688	1,067
1958	454	400	317	301	283	256	392	1,716	2,387	974	830	430	730
1959	250	243	223	200	218	186	316	512	1,758	656	476	376	451
1960	431	314	288	216	190	231	434	835	2,226	1,093	927	447	636

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14,300	15,450	14,480	14,200	11,980	13,490	15,130	61,710	103,100	110,600	64,860	28,110	467,400
1952	17,420	17,890	17,340	16,880	14,690	15,060	39,070	79,460	182,800	112,400	84,890	34,640	632,500
1953	21,540	19,240	18,220	16,860	13,710	13,890	14,430	43,180	151,200	88,140	52,840	23,800	477,000
1954	18,460	21,580	18,430	16,600	12,830	12,500	16,180	56,870	51,180	42,670	23,640	18,410	309,400
1955	19,510	13,840	16,630	14,340	12,240	13,740	17,030	29,570	73,860	55,090	50,610	22,610	339,100
1956	14,830	15,210	16,130	14,290	12,920	12,910	20,110	76,400	127,300	51,040	31,270	19,230	411,600
1957	16,750	15,150	14,970	13,280	12,920	10,870	14,090	36,780	176,600	317,400	102,800	40,970	772,600
1958	27,940	23,820	19,500	18,510	15,710	15,720	23,350	105,500	142,000	59,920	51,060	25,580	528,600
1959	15,400	14,480	13,730	12,280	12,090	11,410	18,800	31,490	104,600	40,310	29,290	22,400	326,300
1960	26,500	18,700	17,720	13,270	10,910	14,210	25,850	51,370	132,500	67,220	57,000	26,590	461,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	540	390,800
1951	1211	2,800	July 5, 1951	180	646	467,400	657	475,800
1952	1241	4,760	June 8, 1952	210	871	632,500	880	638,900
1953	1281	a4,400	June 13, 1953	190	659	477,000	658	476,500
1954	1341	1,950	May 22, 1954	177	427	309,400	416	300,900
1955	1391	1,980	June 25, 1955	183	468	339,100	463	335,300
1956	1441	3,740	June 3, 1956	190	567	411,600	568	412,300
1957	1511	9,220	June 29, 1957	150	1,067	772,600	1,101	797,000
1958	1561	5,300	June 6, 1958	242	730	528,600	692	501,000
1959	1631	2,870	June 16, 1959	158	451	326,300	477	345,600
1960	1711	3,180	June 6, 1960	170	636	461,800	-	-

a About.

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9-1150. Larkspur ditch at Marshall Pass, Colo. (Transmountain diversion)

Location.--Lat 38°24', long 106°15', in SE¼ sec.24, T.48 N., R.6 E., at Marshall Pass.

Records available.--October 1934 to September 1960. Diversion prior to 1948 published in WSP 1311.

Gage.--Water-stage recorder and 3-foot Parshall flume since June 1, 1958. Altitude of gage is 10,850 ft. June 13, 1935, to May 20, 1956, water-stage recorder and 5-foot Parshall flume. May 21, 1956, to May 31, 1958, water-stage recorder and 4-foot Parshall flume.

Remarks.--Diversion is from tributaries of Tomichi Creek in Gunnison River basin, between headgates (in sec.11, T.48 N., R.6 E., and sec.1, T.47 N., R.6 E.) and Marshall Pass, to Poncha Creek (tributary of South Arkansas River, revised) in SE¼ sec.24, T.48 N., R.6 E., in Arkansas River basin.

Cooperation.--Records furnished by State engineer of Colorado.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	0	0	0	0	0	24	97	0	0	0	121
1952	0	0	0	0	0	0	0	14	338	70	0	0	422
1953	0	0	0	0	0	0	0	0	196	21	0	0	217
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	12	3.6	0	0	0	16
1956	0	0	0	0	0	0	0	15	20	0	0	0	35
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0	185	14	0	0	199
1959	0	0	0	0	0	0	0	8.5	42	0	0	0	50
1960	0	0	0	0	0	0	0	41	31	0	0	0	72

945. Arkansas River at Parkdale, Colo.

Location.--Lat 38°29'30", long 105°22'10", in NE¼ sec.18, T.18 S., R.71 W., on right bank at Parkdale, 300 ft downstream from bridge on U. S. Highway 50 and half a mile upstream from Copper Gulch.

Drainage area.--2,556 sq mi.

Records available.--October 1945 to September 1955. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 5,650 ft (from topographic map).

Average discharge.--10 years (1945-55), 772 cfs (558,900 acre-ft per year).

Extremes.--1945-55: Maximum discharge, 5,880 cfs June 22, 1947 (gage height, 9.02 ft); minimum daily, 224 cfs Apr. 5, 1954.

Remarks.--Natural flow of stream affected by transmountain diversions, storage reservoirs, diversions for irrigation of about 32,000 acres above station, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	297	351	353	304	346	297	312	1,087	2,058	2,024	1,175	516	763
1952	317	384	370	351	327	271	642	1,528	3,912	2,088	1,485	631	1,025
1953	394	415	432	383	348	315	303	736	2,919	1,556	952	465	769
1954	362	481	395	358	308	263	288	946	936	755	390	327	485
1955	360	267	341	296	278	290	328	522	1,403	958	904	433	533

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18,280	20,890	21,710	18,670	19,220	18,260	18,550	66,850	122,400	124,400	72,270	30,700	552,200
1952	19,470	22,830	22,750	21,590	18,800	16,660	38,210	93,950	232,800	128,400	91,320	37,540	744,300
1953	24,210	24,680	26,560	23,540	19,350	19,360	18,030	45,240	173,700	95,640	58,560	27,650	556,500
1954	22,250	28,640	24,310	22,020	17,120	16,190	17,160	58,190	55,680	46,450	23,960	19,470	351,400
1955	22,130	15,890	20,940	18,210	15,430	17,840	19,530	32,070	83,460	58,900	55,600	25,780	385,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	632	457,300
1951	1211	3,150	June 19, 1951	233	763	552,200	769	556,400
1952	1241	5,720	June 8, 1952	232	1,025	744,300	1,040	754,700
1953	1281	4,970	June 13, 1953	250	769	556,500	768	556,300
1954	1341	3,230	July 14, 1954	224	485	351,400	463	335,200
1955	1391	2,670	Aug. 4, 1955	230	533	385,800	-	-

950. Grape Creek near Westcliffe, Colo.

Location.--Lat 38°10'47", long 105°29'19", in NW¼SE¼ sec.36, T.21 S., R.73 W., on left bank 0.5 mile upstream from Swift Creek and 3.2 miles northwest of Westcliffe.

Drainage area.--320 sq mi.

Records available.--October 1924 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,705 ft (from topographic map). Prior to Aug. 19, 1938, at site 10 ft upstream at same datum.

Average discharge.--36 years (1924-60), 32.1 cfs (23,240 acre-ft per year).

Extremes.--1924-60: Maximum discharge, 1,960 cfs Apr. 23, 1942 (gage height, 5.26 ft), from rating curve extended above 830 cfs; minimum daily, 0.1 cfs June 19-22, 1936.

Remarks.--Diversions above station for irrigation of about 15,000 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.20	12.1	14	12	14	16.6	23.2	6.02	5.81	6.89	4.55	3.86	10.3
1952	5.17	10.1	10	9.6	10	18.8	24.2	30.0	100	23.3	26.8	7.97	23.0
1953	6.83	10.0	9	11	13	21.9	20.0	16.1	20.9	22.3	11.2	4.40	13.9
1954	6.37	11.6	13.0	17	19.7	19.8	10.8	12.4	3.26	5.88	9.52	5.03	11.2
1955	6.54	8.94	8.0	7.0	5.3	16.5	16.5	35.0	10.5	6.13	15.6	4.58	11.8
1956	6.81	9.14	16.6	16.7	15.0	25.0	30.0	7.04	4.82	4.42	4.45	3.75	12.0
1957	5.59	8.33	10	12	12	12.3	25.2	94.5	374	356	84.0	19.9	84.8
1958	12.3	13	11	8	8	10	31.6	55.8	43.3	11.5	8.88	12.4	18.8
1959	12.0	13.0	6.0	3.5	3.3	6.3	49.4	29.5	53.5	17.1	23.5	5.68	18.6
1960	14	12	13	15	15	47.9	44.6	27.4	79.5	56.7	12.1	7.92	28.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	320	719	861	738	778	1,020	1,380	370	346	424	280	230	7,470
1952	318	601	615	590	575	1,160	1,440	1,840	5,970	1,430	1,650	474	16,660
1953	420	595	553	676	722	1,340	1,190	990	1,250	1,370	689	262	10,060
1954	392	692	799	1,050	1,090	1,220	645	762	194	361	585	299	8,090
1955	402	532	492	430	294	1,010	980	2,150	626	377	961	272	8,530
1956	419	544	1,020	1,030	861	1,540	1,780	733	287	272	274	223	8,680
1957	344	496	615	738	666	758	1,500	5,810	22,260	21,880	5,170	1,180	61,420
1958	756	774	676	492	444	615	1,880	3,430	2,580	706	546	738	13,640
1959	741	776	367	218	183	388	2,940	1,810	3,180	1,050	1,450	338	13,440
1960	861	714	799	922	863	2,950	2,660	1,680	4,730	3,490	746	471	20,890

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	10.8	7,830
1951	1211	217	July 23, 1951	1.6	10.3	7,470	9.80	7,100
1952	1241	271	June 9, 1952	3.2	23.0	16,660	23.0	16,700
1953	1281	138	July 18, 1953	3.5	13.9	10,060	14.3	10,370
1954	1341	119	Aug. 23, 1954	1.6	11.2	8,090	10.6	7,630
1955	1391	735	May 20, 1955	2.2	11.8	8,530	12.6	9,080
1956	1441	218	Apr. 19, 1956	-	12.0	8,680	11.2	6,160
1957	1511	1,260	June 12, 1957	-	84.8	61,420	85.9	62,170
1958	1561	214	June 6, 1958	.8	18.8	13,640	18.4	13,320
1959	1631	293	May 8, 1959	-	18.6	13,440	19.2	13,930
1960	1711	206	June 6, 1960	5.2	28.8	20,890	-	-

960. Arkansas River at Canon City, Colo.

Location.--Lat 38°26', long 105°15', in sec.32, T.18 S., R.70 W., on right bank in Canon City, 800 ft upstream from Sand Creek.

Drainage area.--3,117 sq mi.

Records available.--January 1888 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Published as "near Canyon" 1900-1906.

Gage.--Water-stage recorder. Datum of gage is 5,342.87 ft above mean sea level, datum of 1929. Prior to Mar. 27, 1922, staff gage, chain gage, or water-stage recorder at sites about a quarter of a mile upstream at various datums. Mar. 27, 1922, to Sept. 30, 1957, water-stage recorder at present site at datum 1.00 ft higher.

Average discharge.--72 years (1888-1960), 720 cfs (521,300 acre-ft per year).

Extremes.--1888-1960: Maximum discharge, 19,000 cfs Aug. 2, 1921 (gage height, 10.7 ft, site and datum then in use, from floodmark), from rating curve extended above 5,000 cfs; minimum daily, 69 cfs May 13, 1959.

Remarks.--Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, diversions for irrigation of about 53,000 acres, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	186	272	282	296	285	236	226	910	1,747	1,712	985	395	630
1952	228	336	341	317	301	278	550	1,275	3,163	1,752	1,314	482	862
1953	285	341	379	343	335	266	226	582	2,553	1,326	785	350	648
1954	273	411	378	341	268	207	189	802	738	589	291	222	393
1955	254	185	302	298	285	256	222	426	1,216	834	834	345	456
1956	216	274	336	271	307	271	332	1,250	2,158	764	442	245	572
1957	241	276	290	280	295	181	304	795	3,855	5,541	2,134	797	1,256
1958	472	563	520	530	451	384	428	1,886	2,339	974	956	423	829
1959	239	312	353	311	295	294	338	484	1,957	954	706	286	544
1960	653	484	336	250	264	384	388	787	2,614	1,299	802	310	714

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,410	16,160	17,360	18,210	15,830	14,540	13,430	55,960	104,000	105,300	60,560	23,480	456,200
1952	14,030	19,970	20,980	19,480	17,340	17,080	32,710	78,410	188,200	107,700	80,820	28,680	625,400
1953	17,530	20,290	23,290	21,070	18,580	16,350	13,420	35,770	151,900	81,550	48,240	20,820	468,800
1954	16,770	24,430	23,260	20,940	14,900	12,720	11,270	49,310	43,890	36,190	17,910	13,190	284,800
1955	15,610	10,990	18,560	18,340	15,830	15,720	13,210	26,160	72,340	51,300	51,290	20,530	329,900
1956	13,270	16,310	20,650	16,680	17,690	16,670	19,770	76,890	128,400	46,960	27,180	14,560	415,000
1957	14,790	16,430	17,860	17,190	16,390	11,110	18,090	48,870	229,400	340,700	131,200	47,440	909,500
1958	29,000	33,500	31,950	32,570	25,060	23,610	25,500	115,900	139,200	59,880	58,770	25,140	600,100
1959	14,680	18,580	21,680	19,110	16,390	18,090	20,090	29,730	116,500	58,660	43,400	17,030	393,900
1960	40,130	28,780	20,670	15,370	15,180	23,580	23,100	48,420	155,500	79,850	49,300	18,450	518,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	532	385,100
1951	1211	2,660	(a)	164	630	456,200	644	466,300
1952	1241	5,330	June 8, 1952	167	862	625,400	870	631,500
1953	1281	a4,540	June 13, 1953	139	648	468,800	652	472,200
1954	1341	3,050	July 15, 1954	137	393	284,800	367	265,500
1955	1391	2,700	Aug. 4, 1955	157	456	329,900	463	335,000
1956	1441	3,960	June 3, 1956	166	572	415,000	570	413,900
1957	1511	10,300	June 29, 1957	148	1,256	909,500	1,319	954,800
1958	1561	5,040	May 30, 1958	231	829	600,100	774	560,600
1959	1631	2,920	June 16, 1959	69	544	393,900	592	428,600
1960	1711	4,720	July 12, 1960	206	714	518,300	-	-

a June 19, July 6, 1951.
b Maximum observed.

965. Oil Creek near Canon City, Colo.

Location.--Lat 38°27'00", long 105°10'30", in sec.26, T.18 S., R.70 W., on right bank 600 ft upstream from bridge on U. S. Highway 50, 1¼ miles upstream from mouth, 1.8 miles east of city limits of Canon City, and 5 miles downstream from Wilson Creek.
Drainage area.--432 sq mi.
Records available.--April to October 1910 (gage heights and discharge measurements only), October 1948 to September 1953. Published as "Oil or Fourmile Creek" in 1910.
Gage.--Water-stage recorder. Altitude of gage is 5,330 ft (from topographic map). Apr. 17 to Oct. 15, 1910, staff gage about three-quarters of a mile downstream at different datum.
Average discharge.--5 years (1948-53), 7.44 cfs (5,390 acre-ft per year).
Extremes.--1948-53: Maximum discharge, 4,260 cfs July 11, 1951 (gage height, 9.25 ft, from floodmarks), from rating curve extended above 140 cfs on basis of slope-area measurements at gage heights 4.60 and 9.25 ft; no flow Sept. 3-10, 30, 1950, Sept. 23, 1951. Flood of July 4, 1944, discharge, 20,600 cfs by slope-area measurement on Wilson Creek at mouth, at point 5 miles upstream from station, information furnished by Bureau of Reclamation.
Remarks.--Diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.70	7.39	5.16	4.71	3.33	3.74	1.83	4.78	1.75	5.24	1.70	1.84	3.77
1952	2.12	4.56	5.29	3.20	2.79	3.03	7.27	8.31	9.40	1.83	1.72	1.47	4.24
1953	1.74	3.20	3.77	3.79	2.90	.94	3.05	3.85	1.71	3.96	4.10	3.42	3.04

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	228	440	318	290	185	230	109	294	104	322	104	109	2,730
1952	130	271	325	197	160	186	433	511	559	112	106	88	3,080
1953	107	191	232	233	161	58	181	236	102	244	252	203	2,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	6.67	4,830
1951	1211	4,260	July 11, 1951	0	3.77	2,730	3.42	2,470
1952	1241	140	Apr. 28, 1952	.7	4.24	3,080	3.97	2,880
1953	1281	732	Aug. 2, 1953	.2	3.04	2,200	-	-

970. Arkansas River at Portland, Colo.

Location.--Lat 38°23'40", long 105°00'40", in sec.21, T.19 S., R.68 W., on right bank at Portland, 400 ft downstream from bridge on State Highway 120 and 1 mile downstream from Hardscrabble Creek.
Drainage area.--4,024 sq mi.
Records available.--May 1939 to September 1952.
Gage.--Water-stage recorder. Datum of gage is 5,021.56 ft above mean sea level, datum of 1929.
Average discharge.--13 years (1939-52), 760 cfs (550,200 acre-ft per year).
Extremes.--1939-52: Maximum discharge, 21,100 cfs June 5, 1949 (gage height, 12.18 ft), from rating curve extended above 5,300 cfs; minimum daily, 71 cfs Apr. 2, 1945.
Remarks.--Natural flow of stream affected by transmountain diversions, storage reservoirs, diversions above station for irrigation of about 60,000 acres, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	165	236	228	235	239	187	173	896	1,752	1,691	951	323	592
1952	191	267	264	235	254	250	556	1,322	3,301	1,750	1,279	454	843

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10,140	14,060	14,030	14,470	13,300	11,530	10,280	55,110	104,300	104,000	58,490	19,200	428,900
1952	11,770	15,900	16,210	14,430	14,630	15,370	33,070	81,310	196,400	107,600	78,610	27,020	612,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	514	372,200
1951	1211	5,720	July 12, 1951	142	592	428,900	600	434,600
1952	1241	5,080	June 16, 1952	154	843	612,300	-	-

995. Arkansas River near Pueblo, Colo.

Location.--Lat 38°16'00", long 104°39'00", in sec.34, T.20 S., R.65 W., on right bank at intake of south-side waterworks, 1 mile upstream from Dry Creek and 2½ miles west of city hall in Pueblo.

Drainage area.--4,686 sq mi.

Records available.--May to June 1885, January 1886 to December 1887, May to August 1889, September 1894 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Published as "at Rock Canyon" in 1889 and as "at Pueblo" 1885-87, 1894-1924.

Gage.--Water-stage recorder and concrete control on river; water-stage recorder and Parshall flume at north-side waterworks intake. Datum of river gage is 4,689.82 ft above mean sea level, datum of 1929. May 16, 1885, to Sept. 12, 1886, staff gage at site 2½ miles downstream at different datum. June 1, 1887, to Aug. 31, 1889, staff gage at site 6½ miles upstream at different datum. Sept. 19, 1894, to May 25, 1925, staff gage, chain gage, or water-stage recorder about 2½ miles downstream at various sites and datums.

Average discharge.--67 years (1886-87, 1894-1960), 717 cfs (519,100 acre-ft per year).

Extremes.--1885-87, 1889, 1894-1960: Maximum discharge, 103,000 cfs June 3, 1921 (gage height, 24.66 ft, site and datum then in use), from rating curve extended above 6,800 cfs on basis of float measurement at gage height 11.2 ft and slope-area measurement of peak flow; minimum daily, 18 cfs (including 13 cfs diverted into intake of north-side waterworks) Apr. 7, 1935.

Remarks.--Records include flow of river below south-side waterworks diversion and water diverted above station into intake of north-side waterworks for municipal supply of Pueblo, but not water diverted by south-side waterworks. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, diversions, above station for irrigation of about 88,000 acres, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	76.4	156	156	229	210	117	113	688	1,442	1,335	952	237	478
1952	121	253	297	255	208	129	474	1,204	3,069	1,658	1,148	399	768
1953	187	254	358	277	190	108	120	482	2,285	1,203	700	228	533
1954	123	322	328	290	156	77.5	61.0	704	702	589	243	109	310
1955	144	71.6	176	194	206	102	86.8	632	1,017	713	816	239	368
1956	64.4	205	242	236	287	146	214	1,075	1,991	577	434	98.7	463
1957	120	106	95.1	185	202	58.5	328	1,482	4,422	5,776	2,614	752	1,354
1958	463	553	490	476	417	329	357	1,725	1,874	693	565	278	686
1959	161	261	338	322	273	184	300	390	1,610	855	650	242	466
1960	611	483	376	300	266	405	401	675	2,094	1,095	736	286	644

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,700	9,280	9,610	14,080	11,670	7,170	6,700	42,310	85,780	82,090	58,560	14,100	346,000
1952	7,440	15,040	18,240	15,680	11,950	7,930	28,190	74,030	182,600	101,900	70,580	23,740	557,300
1953	11,530	15,100	21,990	17,040	10,550	6,660	7,120	29,610	136,000	74,000	43,060	13,570	386,200
1954	7,580	19,150	20,190	17,840	8,680	4,770	3,630	43,310	41,800	36,230	14,930	6,470	224,600
1955	8,830	4,260	10,840	11,930	11,410	6,250	5,160	38,860	60,510	43,840	50,160	14,230	266,300
1956	3,960	12,200	14,900	14,470	16,500	8,960	12,720	66,080	118,500	35,510	26,660	5,870	336,300
1957	7,350	6,300	5,850	11,400	11,230	3,600	19,490	91,110	263,100	355,200	160,700	44,750	980,100
1958	28,460	32,920	30,140	29,290	23,160	20,260	21,240	106,100	111,500	42,630	34,760	16,560	497,000
1959	9,870	15,550	20,810	19,820	15,150	11,330	17,840	23,970	95,780	52,580	39,960	14,370	337,000
1960	37,540	28,750	23,140	18,440	15,300	24,880	23,850	41,510	124,600	67,350	45,260	17,040	467,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	424	307,300
1951	1211	9,300	Aug. 3, 1951	37	478	346,000	502	363,200
1952	1241	4,740	June 8, 1952	55	768	557,300	779	565,200
1953	1281	6,770	July 21, 1953	35	533	386,200	531	384,500
1954	1341	10,200	June 30, 1954	22	310	224,600	278	201,600
1955	1391	11,100	May 19, 1955	20	368	266,300	378	273,400
1956	1441	8,010	Aug. 1, 1956	26	463	336,300	447	324,800
1957	1511	9,070	June 29, 1957	22	1,354	980,100	1,453	1,052,000
1958	1561	4,540	June 5, 1958	65	686	497,000	624	451,700
1959	1631	2,820	June 17, 1959	71	466	377,000	525	380,200
1960	1711	5,260	June 8, 1960	100	644	467,700	-	-

9-420. Hoosier Pass tunnel at Hoosier Pass, Colo. (Transmountain diversion)

Location.--Lat 39°21'35", long 106°04'35", in sec.14, T.8 S., R.78 W., at south portal of Hoosier Pass tunnel, 0.8 mile west of Hoosier Pass.

Records available.--October 1951 to September 1960.

Gage.--Water-stage recorder and 8-foot Parshall flume. Altitude of gage is 10,830 ft (from topographic map).

Remarks.--Diversion is from tributaries of Blue River in Colorado River basin to Montgomery Reservoir (Middle Fork South Platte River) in sec.14, T.8 S., R.78 W., in Platte River basin; this water is again diverted to South Catamount Creek (tributary of Catamount Creek) in SE¼ sec.14, T 13 S., R.69 W., in the Arkansas River basin. Three collection conduits, from Monte Cristo Creek in SW¼NE¼ sec.2, T.8 S., R.78 W., Bemrose Creek in SW¼SW¼ sec.6, T.8 S., R.77 W., and McCullough Gulch in sec.26, T.7 S., R.78 W., intercept intermediate tributaries and converge at north portal of the tunnel. Diversion began June 30, 1952.

Cooperation.--Records furnished by State engineer of Colorado.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	0	0	0	0	0	0	0	0	50	1,310	898	123	2,380
1953	0	0	0	0	0	0	0	294	2,320	1,500	646	85	4,840
1954	0	0	0	0	0	0	0	1,060	1,400	1,050	42	0	3,550
1955	0	0	0	0	0	0	0	688	1,780	2,110	1,870	0	6,450
1956	0	0	0	0	0	0	0	2,200	4,760	1,840	492	0	9,290
1957	0	0	0	0	0	0	0	374	4,660	2,080	0	0	7,110
1958	0	0	0	0	0	0	0	3,040	2,130	1,250	0	0	6,420
1959	0	0	0	0	0	0	0	489	5,040	2,470	496	0	8,500
1960	0	0	0	0	0	0	0	901	4,610	2,390	315	0	8,220

1037. Fountain Creek near Colorado Springs, Colo.

Location.--Lat 38°51'17", long 104°52'39", in SE¼SW¼ sec.3, T.14 S., R.67 W., on left bank 200 ft upstream from diversion to city of Colorado Springs, half a mile east of bridge on U. S. Highway 24 near west city limits of Colorado Springs, and 1 mile downstream from Sutherland Creek.

Drainage area.--102 sq mi.

Records available.--April 1958 to September 1960.

Gage.--Water-stage recorder and Parshall flume with overflow weirs. Altitude of gage is 6,110 ft (from topographic map).

Extremes.--1958-60: Maximum discharge, 752 cfs July 5, 1958 (gage height, 4.73 ft), from rating curve extended above 50 cfs on basis of slope-area measurement at gage height 3.87 ft; minimum daily, 3.0 cfs Jan. 3, 1959.

Remarks.--Natural flow of stream affected by storage reservoirs, power developments, diversions for irrigation and municipal use, and at times, transbasin diversions from Beaver Creek drainage and transmountain diversions from Colorado River basin.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	22.2	54.3	28.5	16.6	16.8	11.8	-
1959	10.7	9.22	10.8	8.13	8.87	9.93	14.6	14.1	16.6	11.8	10.4	7.57	11.1
1960	12.3	8.36	6.37	6.59	7.10	11.2	15.9	17.2	14.2	13.2	7.48	7.42	10.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	1,320	3,340	1,690	1,020	1,040	700	-
1959	659	549	663	500	493	611	867	867	988	724	639	451	8,010
1960	757	497	392	405	408	690	948	1,060	844	815	460	441	7,720

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1958	1561	a752	July 5, 1958	-	-	-	-	-
1959	1631	584	June 20, 1959	3.0	11.1	8,010	10.8	7,790
1960	1711	89	July 11, 1960	4.0	10.6	7,720	-	-

a Maximum during period April to September.

1039. West Monument Creek near Pikeview, Colo.

Location.--Lat 38°58'17", long 104°53'56", in SW¼ sec.28, T.12 S., R.67 W., on right bank in Air Force Academy Reservation, 4 miles upstream from mouth and 11½ miles northwest of Pikeview.

Drainage area.--15.4 sq mi.

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 7,080.78 ft (city of Colorado Springs bench mark).

Extremes.--1957-60: Maximum discharge, 27 cfs about May 14, 1958 (gage height, 1.59 ft); no flow for many days in each year.

Remarks.--Natural flow of stream affected by storage reservoirs (combined capacity, 1,520 acre-ft) and diversions for municipal use.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	1.03	0.56	0.11	0.02	0.21	0.16	0.68	13.5	5.17	0.74	0	0.04	1.87
1959	0	0	.08	.01	.01	.02	.73	1.12	.58	.20	.29	.01	.26
1960	.75	.11	0	0	0	.72	2.82	1.35	.03	.24	.40	.35	.56

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	63	34	6.5	1.0	12	9.7	40	830	308	45	0	2.4	1,350
1959	0	0	5.2	.6	.6	1.2	43	69	34	12	18	.8	184
1960	46	6.7	0	0	0	44	168	83	2.0	15	25	21	411

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1958	1561	27	May 14, 1958a/	0	1.87	1,350	1.73	1,250
1959	1631	8.5	Aug. 26, 1959	0	.26	184	.32	232
1960	1711	8.0	Mar. 30, 1960	0	.56	411	-	-

a About.

1045. Templeton Gap Floodway at Colorado Springs, Colo.

Location.--Lat 38°53'17", long 104°49'01", in SE¼ sec.30, T.13 S., R.66 W., on left bank 75 ft upstream from mouth of concrete flume, 400 ft upstream from bridge on U. S. Highways 85 and 87, and three-quarters of a mile north of Colorado Springs.

Drainage area.--8.46 sq mi.

Records available.--July 1951 to September 1960.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 6,200 ft (from topographic map).

Average discharge.--9 years (1951-60), 0.12 cfs (87 acre-ft per year).

Extremes.--1951-60: Maximum discharge, 458 cfs July 2, 1956 (gage height, 2.63 ft), from rating curve based on computation of flow at critical depth at gage heights 1.3, 1.4, 1.8, and 3.0 ft; no flow for most of time.

Remarks.--This is an artificial channel constructed to divert flood flows from normally dry channels around Colorado Springs during periods of heavy rainfall.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	0	0	-
1952	0	0	0	0	0	0	0	0.003	0	0.003	0	0	0.0006
1953	0	0	0	0	0	0	0	0	0	.47	.85	0	.11
1954	0	0	0	0	0	0	0	0	.1	0	0	0	.01
1955	0	0	0	0	0	0	0	2.90	0	0	.49	1.40	.40
1956	0	0	0	0	0	0	0	0	0	2.25	1.98	0	.36
1957	0	0	0	0	0	0	0	.25	0	1.54	.30	0	.18
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0	.04	0	0	.003

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	-	-	-
1952	0	0	0	0	0	0	0	0.2	0	0	0	0	0.4
1953	0	0	0	0	0	0	0	0	0	29	52	0	81
1954	0	0	0	0	0	0	0	0	4.0	0	0	0	4.0
1955	0	0	0	0	0	0	0	178	0	0	30	83	291
1956	0	0	0	0	0	0	0	0	0	138	122	0	260
1957	0	0	0	0	0	0	0	15	0	95	18	0	128
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0	2.2	0	0	2.2

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	1211	-	-	-	-	-	-	-
1952	1241	5.7	May 31, 1952	0	0.0006	0.4	0.001	0.4
1953	1281	261	Aug. 15, 1953	0	.11	81	.11	81
1954	1341	29	June 30, 1954	0	.01	4.0	.01	4.0
1955	1391	168	May 18, 1955	0	.40	291	.40	291
1956	1441	458	July 2, 1956	0	.36	260	.36	260
1957	1511	232	July 30, 1957	0	.18	128	.18	128
1958	1561	0	-	0	0	0	0	0
1959	1631	0	-	0	0	0	0	0
1960	1711	21	July 5, 1960	0	.003	2.2	-	-

1060. Fountain Creek near Fountain, Colo.

Location.--Lat 38°36'08", long 104°40'13", in NE¼ sec.4, T.17 S., R.65 W., on right bank 250 ft upstream from bridge on county road, 1¼ miles downstream from Little Fountain Creek, and 5¼ miles southeast of Fountain.
Drainage area.--676 sq mi.
Records available.--October 1938 to September 1954.
Gage.--Water-stage recorder. Datum of gage is 5,341.74 ft above mean sea level, datum of 1929. Prior to Mar. 2, 1940, wire-weight gage at highway bridge 250 ft downstream at same datum.
Average discharge.--16 years (1938-54), 54.2 cfs (39,240 acre-ft per year).
Extremes.--1938-54: Maximum discharge, 22,100 cfs May 28, 1940 (gage height, 9.19 ft), from rating curve extended above 3,000 cfs on basis of slope-area measurement of peak flow; no flow Sept. 24, 30, 1939.
Maximum stage known, 14.4 ft May 30, 1935.
Remarks.--Diversions above station for irrigation of about 18,000 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10.1	14.7	8.65	16.7	10.0	13.5	8.28	23.9	16.6	27.1	49.6	3.60	17.0
1952	10.1	13.5	8.44	6.99	8.37	14.6	15.0	41.5	9.06	3.47	35.6	6.81	14.5
1953	7.78	12.1	5.14	7.28	17.9	8.17	10.5	12.0	4.50	20.2	16.0	1.99	10.3
1954	3.7	11	11	7.6	6.1	7.5	4.3	17.5	54.1	5.83	3.15	2.55	11.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	618	875	532	1,030	555	828	493	1,470	990	1,670	3,050	214	12,320
1952	623	805	519	430	482	900	894	2,550	539	214	2,190	405	10,550
1953	478	718	316	448	997	502	625	739	268	1,240	986	118	7,440
1954	228	655	676	467	339	461	256	1,080	3,220	359	194	152	8,090

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	17.1	12,370
1951	1211	4,580	Aug. 23, 1951	1.1	17.0	12,320	16.9	12,250
1952	1241	5,240	Aug. 21, 1952	1.7	14.5	10,550	14.0	10,120
1953	1281	1,460	July 30, 1953	1.2	10.3	7,440	10.3	7,480
1954	1341	6,800	June 30, 1954	-	11.2	8,090	-	-

1065. Fountain Creek at Pueblo, Colo.

Location.--Lat 38°16'20", long 104°35'40", in SW¼ sec.30, T.20 S., R.64 W., on left bank at downstream side of Eighth Street Bridge in Pueblo, 2 miles upstream from mouth.
Drainage area.--926 sq mi.
Records available.--January 1922 to September 1925, October 1940 to September 1960.
Monthly discharge only for some periods, published in WSP 1311.
Gage.--Water-stage recorder. Datum of gage is 4,663.45 ft above mean sea level, datum of 1929. Prior to Feb. 13, 1923, staff gage at site half a mile upstream at different datum. Feb. 13 to July 11, 1923, staff gage and July 12, 1923, to Sept. 30, 1925, water-stage recorder, within 200 ft of present site at various datums.
Average discharge.--23 years (1922-25, 1940-60), 53.6 cfs (38,800 acre-ft per year).
Extremes.--1922-25, 1940-60: Maximum discharge, 17,800 cfs July 10, 1945 (gage height, 9.50 ft), from rating curve extended above 2,400 cfs on basis of slope-area measurement at gage height 8.05 ft; no flow at times.
Flood of June 4, 1921, discharge, 34,000 cfs, by slope-area measurement of peak flow. Flood of May 30, 1935, discharge, 35,000 cfs, by slope-area measurement of peak flow.

Remarks.--Diversions above station for irrigation of about 22,500 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.27	2.06	8.66	26.0	22.0	6.95	2.41	3.41	8.52	34.6	23.5	1.36	11.7
1952	.65	2.02	4.26	8.95	7.97	6.18	33.9	2.20	1.50	1.42	13.4	0.65	6.89
1953	.84	2.27	4.43	3.91	2.85	1.95	1.71	4.10	.75	10.9	18.0	.70	4.42
1954	.8	1.1	1.4	1.9	1.4	1.0	1.6	14.7	23.0	4.74	10.9	.9	5.30
1955	.9	.9	1.1	1.9	2.0	1.7	1.1	147	3.12	14.7	143	3.66	27.2
1956	.97	2.39	4.4	3.7	8.8	6.4	8.80	1.6	1.1	3.43	73.6	1.1	9.76
1957	.85	1.12	2.87	2.31	1.71	2.01	91.4	620	313	151	123	13.2	111
1958	91.0	86.1	72.7	107	95.9	69.2	53.0	325	53.3	3.35	18.1	4.65	81.8
1959	3.64	8.34	32.2	56.1	54.5	57.9	103	28.3	2.40	1.45	5.72	.68	29.3
1960	41.2	37.0	53.4	38.9	31.8	57.8	33.4	34.8	78.5	11.6	.71	.83	29.2

Monthly and yearly discharge, in acre-feet, of Fountain Creek at Pueblo, Colo.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	78	123	532	1,600	1,220	427	143	210	507	2,130	1,450	81	8,500
1952	40	120	262	550	459	380	2,020	135	89	87	825	39	5,010
1953	52	135	273	241	158	120	102	252	45	671	1,110	42	3,200
1954	49	65	86	117	78	61	95	903	1,370	292	668	54	3,840
1955	55	54	68	117	111	105	65	9,010	185	904	8,790	218	19,680
1956	60	142	271	228	506	394	524	98	65	211	4,520	65	7,080
1957	52	67	177	142	95	123	5,440	38,140	18,630	9,290	7,550	787	80,490
1958	5,590	5,130	4,470	6,570	5,320	4,260	3,150	19,980	3,170	206	1,110	277	59,230
1959	224	496	1,980	3,450	3,030	3,560	6,140	1,740	143	89	351	40	21,240
1960	2,540	2,200	3,280	2,390	1,830	3,560	1,990	2,140	467	711	43	49	21,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	10.4	7,510
1951	1211	11,600	July 30, 1951	0.6	11.7	8,500	11.3	8,190
1952	1241	5,170	Aug. 28, 1952	.1	6.89	5,010	6.96	5,040
1953	1281	3,730	Aug. 16, 1953	.2	4.42	3,200	4.06	2,940
1954	1341	5,800	Aug. 6, 1954	-	5.30	3,840	5.26	3,820
1955	1391	11,500	Aug. 6, 1955	-	27.2	19,680	27.6	19,990
1956	1441	5,250	Aug. 18, 1956	-	9.76	7,080	9.52	6,910
1957	1511	6,180	May 15, 1957	.5	111	80,490	132	95,390
1958	1561	3,750	Aug. 5, 1958	.5	81.8	59,230	64.6	46,740
1959	1631	204	Apr. 11, 1959	.4	29.3	21,240	36.7	26,560
1960	1711	2,530	July 13, 1960	.5	29.2	21,200	-	-

1085. St. Charles River near Pueblo, Colo.

Location.--Lat 38°12'20", long 104°31'40", in sec.23, T.21 S., R.64 W., on downstream side of right abutment of highway bridge, 500 ft downstream from Bessemer ditch siphon, 5 miles upstream from mouth, and 6 miles southeast of city hall in Pueblo.

Drainage area.--468 sq mi.

Records available.--January 1941 to September 1953. Monthly discharge only prior to October 1942, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 4,690 ft (from topographic map). Jan. 11 to Aug. 20, 1941, water-stage recorder and Aug. 21, 1941, to Mar. 31, 1942, chain gage at site 2 miles downstream at different datum. April to Dec. 2, 1942, chain gage at present site and datum.

Average discharge.--12 years (1941-53), 39.2 cfs (28,380 acre-ft per year).

Extremes.--1941-53: Maximum discharge, 17,600 cfs July 26, 1950 (gage height, 9.20 ft), from rating curve extended above 2,000 cfs on basis of slope-area measurements at gage heights 6.50 and 9.2 ft, and float measurement at gage height 8.52 ft; no flow for several days in July and August 1943, May 1948, August 1952.

Maximum discharge known, 56,000 cfs June 3, 1921 (determined by State engineer's office). Flood of May 19, 1955, reached a stage of 7.53 ft (dsicharge, 20,600 cfs).

Remarks.--Diversions for irrigation of about 8,500 acres, part of which is above and part below station. Diversions above station to reservoirs for industrial use.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.2	1.1	1.0	2.7	3.5	2.81	2.40	49.9	72.0	43.1	38.9	0.40	18.4
1952	.30	4.32	3.50	4.89	2.68	2.04	33.8	137	56.1	7.03	21.4	2.90	23.1
1953	.30	.26	2.42	2.32	7.40	1.34	.63	4.22	6.52	16.4	129	1.06	14.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	74	65	61	166	194	173	143	3,070	4,280	2,650	2,390	24	13,290
1952	18	257	215	300	154	126	2,010	8,400	3,340	432	1,310	173	16,740
1953	18	15	149	143	411	83	37	259	388	1,010	7,910	63	10,490

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	24.5	17,760
1951	1211	7,350	Aug. 3, 1951	0.2	18.4	13,290	18.8	13,580
1952	1241	3,430	July 30, 1952	0	23.1	16,740	22.6	16,430
1953	1281	7,300	Aug. 16, 1953	.2	14.5	10,490	-	-

1095. Arkansas River near Avondale, Colo.

Location.--Lat 38°15'00", long 104°24'00", in NW¼ sec.1, T.21 S., R.63 W., on left bank half a mile upstream from Sixmile Creek and 2½ miles west of Avondale.
Drainage area.--6,327 sq mi (revised).
Records available.--May 1939 to September 1951.
Gage.--Water-stage recorder. Datum of gage is 4,508.16 ft above mean sea level, datum of 1929
Average discharge.--12 years (1939-51), 892 cfs (645,800 acre-ft per year).
Extremes.--1939-51: Maximum discharge, 13,900 cfs Apr. 24, 1942, from rating curve extended above 7,000 cfs; maximum gage height, 8.83 ft June 13, 1948; minimum daily discharge, 50 cfs Apr. 2, 1940.
Remarks.--Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation of about 123,000 acres, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	174	269	322	382	395	278	222	817	1,625	1,527	1,022	363	618

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10,720	16,010	19,790	23,470	21,920	17,110	13,230	50,240	96,690	93,890	62,860	21,570	447,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	605	438,200
1951	1211	10,300	Aug. 3, 1951	142	618	447,500	-	-

1110. Huerfano River at Manzanares Crossing, near Redwing, Colo.

Location.--Lat 37°43'40", long 105°21'10", in sec.5, T.27 S., R.71 W., on left bank at Manzanares Crossing, a quarter of a mile downstream from Manzanares Creek and 3½ miles southwest of Redwing.
Drainage area.--73 sq mi.
Records available.--July 1923 to September 1960. Monthly discharge only for some periods, published in WSP 1311.
Gage.--Water-stage recorder. Altitude of gage is 8,150 ft (from topographic map). Prior to Sept. 8, 1934, at sites about 500 ft upstream at different datums. Sept. 8, 1934, to Mar. 15, 1937, at datum 1.36 ft higher, Mar. 16, 1937, to Sept. 30, 1945, at datum 0.86 ft higher, and Oct. 1, 1945, to Apr. 25, 1946, at datum 0.36 ft higher than present datum.
Average discharge.--37 years (1923-60), 33.3 cfs (24,110 acre-ft per year).
Extremes.--1923-60: Maximum discharge, 10,200 cfs Aug. 2, 1951 (gage height, 8.14 ft), from rating curve extended above 270 cfs on basis of slope-area measurement of peak flow; minimum daily determined, 4 cfs Jan. 22, 1937.
Remarks.--Diversions above station for irrigation of about 1,800 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12.9	10.4	9.21	8.27	9.01	11.2	14.0	44.7	43.6	17.8	42.0	11.4	19.6
1952	9.48	10.9	10.4	7.61	9.42	7.64	19.0	70.3	120	49.0	22.6	16.1	29.4
1953	13.9	15	13	13.5	13.6	13.5	13.2	36.4	66.9	33.9	27.8	14.0	22.9
1954	13.3	11.5	11.7	10.8	11.8	11.0	14.5	38.8	34.1	28.5	28.1	12.6	19.0
1955	12.0	9.37	8.6	7.6	8.6	10.3	11.8	45.4	90.2	39.4	30.1	16.7	24.2
1956	11.5	11	10	9	8.4	9.21	13.2	30.9	31.9	8.44	13.3	6.80	13.6
1957	6.64	7.55	6.4	6.0	6.8	7.96	11.3	49.4	*193	*142	122	38.5	*49.9
1958	25.7	19.5	12	9.6	9.1	12	27.3	105	87.5	38.6	23.4	19.3	32.5
1959	17.3	13.7	12	10	11	7.7	16.1	44.3	63.4	27.7	48.4	15.7	24.0
1960	21	17	14	12	13	18.0	47.8	71.7	116	58.4	32.6	18.8	36.7

* Revised; revised daily discharges for periods this affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	795	616	566	509	500	687	832	2,750	2,600	1,090	2,580	680	14,200
1952	583	651	637	468	542	469	1,130	4,320	7,140	3,010	1,390	956	21,300
1953	853	893	799	833	758	833	783	2,240	3,980	2,090	1,710	833	16,600
1954	819	685	719	662	656	679	861	2,390	2,030	1,750	1,730	753	13,730
1955	740	558	529	467	478	634	705	2,790	5,370	2,420	1,850	996	17,540
1956	704	655	615	553	483	566	784	1,900	1,900	519	816	405	9,900
1957	408	449	394	369	378	489	671	3,040	*11,480	*8,700	7,480	2,290	*36,150
1958	1,580	1,160	738	590	505	738	1,620	6,450	5,200	2,370	1,440	1,150	23,540
1959	1,060	813	734	625	619	474	958	2,720	3,770	1,770	2,980	934	17,390
1960	1,290	1,010	861	738	748	1,100	2,840	4,410	6,910	3,590	2,000	1,120	26,620

* Revised; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Huerfano River at Manzanares Crossing, near Redwing, Colo.

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	14.4	10,390
1951	1211	10,200	Aug. 2, 1951	5.6	19.6	14,200	19.5	14,100
1952	1241	778	Aug. 21, 1952	-	29.4	21,300	30.3	21,970
1953	1281	a90	May 29, 1953	-	22.9	16,600	22.5	16,280
1954	1341	98	Aug. 5, 1954	7.9	19.0	13,730	18.4	13,340
1955	1391	148	Aug. 19, 1955	-	24.2	17,540	24.4	17,680
1956	1441	a58	June 3, 1956	-	13.6	9,900	12.6	9,180
1957	1511	*960	Aug. 17, 1957	-	*49.9	*36,150	*53.0	*38,380
1958	1561	160	May 24, 1958	-	32.5	23,540	31.3	22,670
1959	1631	99	June 20, 1959	-	24.0	17,390	24.8	17,940
1960	1711	149	June 5, 1960	-	36.7	26,620	-	-

* Revised.
a Maximum daily.

1125. Huerfano River at Badito, Colo.

Location.--Lat 37°43'40", long 105°00'30", in sec.4, T.27 S., R.68 W., on right bank at Badito, 460 ft downstream from bridge on State Highway 69, half a mile downstream from South Oak Creek, and 15 miles northwest of Walsenburg.

Drainage area.--532 sq mi.

Records available.--August to December 1912, April 1923 to October 1925, March 1938 to September 1941, October 1946 to September 1954. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 6,415.20 ft above mean sea level, datum of 1929. Aug. 28 to Dec. 20, 1912, chain gage and Apr. 19, 1923, to Aug. 6, 1924, water-stage recorder, at bridge 460 ft upstream at different datum. Aug. 7, 1924, to Sept. 30, 1925, water-stage recorder at site 660 ft upstream at different datum. Mar. 6 to Dec. 22, 1938, chain gage and Dec. 23, 1938, to Aug. 6, 1941, Sept. 10, 1946, to Oct. 8, 1948, water-stage recorder, at bridge 460 ft upstream at datum 1.90 ft higher than present datum. Oct. 9, 1948, to May 26, 1953, at site 75 ft downstream at present datum.

Average discharge.--13 years (1923-25, 1938-41, 1946-54), 22.4 cfs (16,220 acre-ft per year).

Extremes.--1912, 1923-25, 1938-41, 1946-54: Maximum discharge, 5,510 cfs July 15, Aug. 1, 1923 (gage height, 9.20 ft, site and datum then in use), from rating curve extended above 150 cfs on basis of slope-area measurement of peak flow; no flow at times in 1923, 1940-41, 1951-53.

Flood of July 31, 1945, reached a discharge of 7,400 cfs (slope-area measurement) and flood of Aug. 14, 1945, a discharge of 8,480 cfs (from records for station near Badito 0.6 mile upstream).

Remarks.--Diversions above station for irrigation of about 15,800 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.54	0.62	0.84	6.27	7.11	6.36	3.66	7.09	12.1	7.26	10.3	2.62	5.40
1952	1.31	1.82	2.37	2.65	2.33	4.09	9.18	64.6	58.4	19.6	7.49	7.90	15.2
1953	4.98	2.50	6.02	8.41	3.56	.38	6.38	11.9	18.2	17.9	18.9	1.58	8.45
1954	1.39	1.62	3.35	4.81	1.37	2.98	7.10	12.1	29.1	5.33	11.6	4.18	7.09

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	33	37	51	386	395	391	218	436	722	446	636	156	3,910
1952	81	108	146	163	134	252	546	3,970	3,480	1,210	461	470	11,020
1953	306	149	370	517	198	24	380	729	1,080	1,100	1,160	94	6,110
1954	86	96	206	296	76	183	422	744	1,730	328	712	249	5,130

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	8.20	5,930
1951	1211	1,280	Aug. 3, 1951	0	5.40	3,910	5.69	4,120
1952	1241	288	July 9, 1952	0	15.2	11,020	15.9	11,510
1953	1281	2,050	Aug. 16, 1953	0	8.45	6,110	7.84	5,670
1954	1341	1,520	Aug. 6, 1954	0	7.09	5,130	-	-

1140. Cucharas River at Boyd Ranch, near La Veta, Colo.

Location.--Lat 37°25', long 105°03', in sec.24, T.30 S., R.69 W., on left bank at Boyd Ranch, 6 miles south of La Veta.

Drainage area.--56 sq mi.

Records available.--October 1934 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 7,800 ft (from base map).

Average discharge.--26 years (1934-60), 25.2 cfs (18,240 acre-ft per year).

Extremes.--1934-60: Maximum discharge, 444 cfs May 23, 1955 (gage height, 4.05 ft); minimum daily, 2 cfs for several days November 1934 to January 1935, Sept. 29, 1950.

Remarks.--Diversions for irrigation of about 500 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.93	4.91	4.15	4.08	4.88	5.96	11.3	20.9	24.5	11.3	9.54	6.56	9.34
1952	8.38	7.37	5.56	6.57	5.83	8.09	24.5	103	156	36.2	14.9	9.52	31.9
1953	9.0	8.0	6.7	7.63	8.04	8.29	7.40	14.9	29.3	20.3	11.2	4.92	11.3
1954	6.03	6.77	6.5	5.5	5.57	7.18	12.9	37.3	26.6	13.2	7.68	5.16	11.7
1955	5.55	5.28	4.78	4.8	5.5	7.43	14.1	113	143	45.0	30.8	20.7	33.4
1956	12.0	11.0	8.8	10.5	7.76	7.78	12.5	25.6	22.1	10.9	7.33	4.24	11.7
1957	4.60	5.03	4.54	5	6	5.87	27.1	104	222	95.0	40.9	18.4	44.9
1958	18.3	19.0	15	9	8.2	9.6	19.2	122	65.7	21.4	10.0	8.75	27.3
1959	8.01	8.42	8.1	6.4	8	8.7	26.3	65.5	56.2	22.7	10.2	8.80	19.8
1960	11	8.5	8.5	7	9	16	43.0	53.0	52.3	26.6	10.7	8.61	21.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	241	292	255	251	271	367	675	1,290	1,460	693	587	391	6,770
1952	393	439	342	404	336	497	1,460	6,320	9,300	2,230	914	566	23,200
1953	553	476	412	469	447	510	440	916	1,750	1,250	691	293	8,210
1954	371	403	400	338	309	442	769	2,290	1,580	812	472	307	8,490
1955	341	314	294	295	305	457	837	6,960	8,490	2,770	1,890	1,230	24,180
1956	740	652	541	646	446	479	741	1,580	1,320	668	450	252	8,420
1957	283	299	279	307	333	361	1,610	6,420	13,190	5,840	2,520	1,100	32,540
1958	1,130	1,130	922	553	458	591	1,150	7,490	3,910	1,310	616	520	19,780
1959	492	501	499	394	444	538	1,560	4,030	3,340	1,400	629	524	14,350
1960	676	506	523	430	518	984	2,560	3,260	3,110	1,640	657	512	15,380

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	6.54	4,740
1951	1211	64	July 30, 1951	2.9	9.34	6,770	9.88	7,160
1952	1241	305	June 11, 1952	-	31.9	23,200	32.3	23,470
1953	1281	-	-	-	11.3	8,210	11.0	7,940
1954	1341	70	May 23, 1954	-	11.7	8,490	11.4	8,270
1955	1391	444	May 23, 1955	-	33.4	24,180	34.8	25,170
1956	1441	49	May 27, 1956	3.4	11.7	8,520	10.3	7,440
1957	1511	365	June 1, 1957	-	44.9	32,540	48.1	34,860
1958	1561	202	May 23, 1958	-	27.3	19,780	25.0	18,090
1959	1631	100	May 15, 1959	-	19.8	14,350	20.1	14,560
1960	1711	95	June 14, 1960	-	21.2	15,380	-	-

1160. Huerfano River below Huerfano Valley Dam, near Undercliffe, Colo.

Location.--Lat 38°00', long 104°28', in S½ sec.32, T.23 S., R.63 W., at left end of diversion dam for Huerfano Valley ditch, 8 miles southwest of Undercliffe.

Drainage area.--1,673 sq mi.

Records available.--October 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 4,886.29 ft above mean sea level, datum of 1929. Prior to July 26, 1950, at site 0.3 mile downstream at datum 14.27 ft lower and July 26, 1950, to Dec. 15, 1954, at site 0.3 mile downstream at datum 16.27 ft lower.

Average discharge.--21 years (1939-60), 40.7 cfs (29,470 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 16,800 cfs July 5, 1958 (gage height, 14.5 ft), from rating curve extended above 380 cfs on basis of computation of flow over dam at gage heights 11.04 and 14.5 ft; no flow at times in nearly every year.
Revisions.--The momentary maximum discharge for the water year 1950 published in WSP 1311 has been revised to 16,700 cfs.
Maximum stage and discharge known since at least 1900, that of July 5, 1958, from information by local residents.

Remarks.--Diversions above station for irrigation of about 43,000 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.54	1.49	1.54	1.88	7.79	14.9	6.15	2.21	5.34	17.7	55.7	1.16	9.86
1952	.14	1.17	.19	8.25	2.71	3.39	37.2	31.6	12.4	7.69	21.1	1.23	10.6
1953	.17	.43	5.79	7.01	2.28	.54	.49	.99	.76	37.7	44.4	.05	8.52
1954	.1	.05	.64	2.55	.3	.5	.1	.18	9.14	7.77	42.8	.58	5.46
1955	.08	0	0	0	.1	0	0	314	105	24.5	45.0	8.0	41.8
1956	6.78	5.7	5.87	9.16	10.9	14.5	6.92	32.5	4.65	15.9	5.00	.53	9.92
1957	0	.58	1.05	1.05	.61	.23	11.6	148	360	103	86.9	19.3	61.1
1958	20.5	38.8	36.4	73.7	61.9	23.8	23.0	58.3	11.9	118	26.6	5.60	41.6
1959	2.95	5.19	8.22	13.2	6.55	8.79	17.8	7.62	3.75	3.38	1.90	.52	6.65
1960	4.06	6.77	10.3	6.98	12.7	15.5	6.55	12.7	22	30.6	.80	6.15	11.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	94	89	95	115	433	915	366	136	318	1,090	3,420	69	7,140
1952	8.7	70	12	507	156	208	2,210	1,940	741	473	1,290	73	7,690
1953	11	25	356	431	127	33	29	61	45	2,320	2,730	3.2	6,170
1954	6.1	1.8	39	157	17	31	6.0	11	544	478	2,630	34	3,950
1955	5.0	0	0	0	5.6	0	0	19,300	6,240	1,510	2,770	476	30,310
1956	417	337	361	563	625	893	412	2,000	277	979	307	31	7,200
1957	0	34	64	64	34	14	689	9,080	21,430	6,310	5,350	1,150	44,220
1958	1,260	2,310	2,240	4,530	3,440	1,470	1,370	3,590	706	7,260	1,640	333	30,150
1959	181	309	505	813	364	540	1,060	468	223	208	117	31	4,820
1960	250	403	634	429	730	955	390	780	1,340	1,880	49	366	8,210

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	28.5	20,600
1951	1211	6,640	July 22, 1951	0	9.86	7,140	9.60	6,950
1952	1241	4,100	Aug. 22, 1952	0	10.6	7,690	11.0	7,990
1953	1281	6,000	Aug. 17, 1953	0	8.52	6,170	8.04	5,830
1954	1341	2,610	June 30, 1954	0	5.46	3,950	5.41	3,910
1955	1391,1561	11,300	May 19, 1955	0	41.8	30,310	43.4	31,420
1956	1441	a1,320	July 22, 1956	0	9.92	7,200	8.52	6,180
1957	1511	3,690	May 15, 1957	0	61.1	44,220	69.0	49,930
1958	1561	16,800	July 5, 1958	0	41.6	30,150	35.0	25,330
1959	1631	221	Mar. 4, 1959	0	6.65	4,820	7.06	5,110
1960	1711	1,560	July 12, 1960	0	11.3	8,210	-	-

a Maximum observed.

1170. Arkansas River near Nepesta, Colo.

Location.--Lat 38°11', long 104°10', in NW¼ sec.31, T.21 S., R.60 W., on right bank 100 ft downstream from diversion dam of Oxford Farmers Co. canal, 1¼ miles west of Nepesta, and 6 miles downstream from Huerfano River.

Drainage area.--9,345 sq mi, of which 54 sq mi is probably noncontributing.

Records available.--April to October 1903, April to November 1912, October 1913 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Records originally published for October 1933 to June 1936 did not include diversion to Oxford Farmers Co. canal, but monthly figures only for this period have been adjusted for diversion and published in WSP 1311.

Records for river below Oxford Farmers Co. canal (diversion to canal not included), published as "at Nepesta," September 1897 to October 1902 (irrigation seasons only), April to October 1904, June 1906 to September 1908 (irrigation seasons only), September 1909 to December 1910, February to September 1911 (gage heights and discharge measurements only), October 1911 to November 1912, March to August 1913 (discharge measurements only). Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorders on river and on Oxford Farmers Co. canal. Datum of river gage is 4,378.68 ft above mean sea level, datum of 1929. Prior to June 5, 1921, staff gages or water-stage recorders at various sites within 5 miles upstream and 2 miles downstream at different datums. June 5, 1921, to Oct. 1, 1952, water-stage recorders at sites on river or river and canal within 300 ft at approximately present datum.

Average discharge.--47 years (1913-60), 699 cfs (506,100 acre-ft per year).

Extremes.--1897-1904, 1906-12, 1913-60: Maximum discharge, 180,000 cfs June 4, 1921 (gage height not determined), by slope-area measurement of peak flow at point 9 miles upstream upstream; no flow at times in 1902, 1910, 1931, 1934.

Remarks.--Discharge computed by combining discharge of river below canal with that of Oxford Farmers Co. canal. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 230,000 acres, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	143	231	280	288	330	202	204	645	1,305	1,139	875	211	489
1952	171	323	321	349	298	293	476	1,258	2,566	1,614	998	356	753
1953	242	347	336	322	301	208	189	383	2,101	1,104	698	142	531
1954	160	399	409	236	247	180	114	781	607	451	178	85.8	321
1955	150	139	291	270	245	167	93.6	1,486	1,002	578	1,055	273	482
1956	171	269	332	318	314	289	239	930	1,713	411	235	65.5	440
1957	126	213	258	267	277	125	663	2,819	4,510	5,649	2,169	729	1,493
1958	516	427	618	641	576	541	441	1,795	1,637	504	439	266	701
1959	227	330	398	270	263	330	467	512	1,179	498	334	129	411
1960	732	552	547	232	186	443	494	624	1,634	924	273	233	573

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,760	13,750	17,210	17,690	18,320	12,440	12,130	39,650	77,660	70,060	53,770	12,560	354,000
1952	10,490	19,250	19,740	21,480	17,120	18,050	28,300	77,370	152,700	99,270	61,360	21,180	546,300
1953	14,870	20,650	20,660	19,790	16,700	12,810	11,240	23,570	125,000	67,890	42,940	8,440	384,600
1954	9,860	23,720	25,150	14,520	13,720	11,050	6,800	48,010	36,110	27,710	10,970	5,110	232,700
1955	9,220	8,290	17,920	16,610	13,600	10,240	5,570	91,370	59,610	35,540	64,870	16,250	349,100
1956	10,530	16,020	20,430	19,580	18,040	17,800	14,210	57,170	101,900	25,270	14,430	3,900	319,300
1957	7,730	12,700	15,880	16,440	15,370	7,710	39,460	173,300	268,400	347,400	133,400	43,370	1,081,000
1958	31,710	25,390	38,020	39,410	31,970	33,250	26,220	110,400	97,390	30,960	26,980	15,830	507,500
1959	13,940	19,610	24,480	16,590	14,590	20,290	27,780	31,500	70,140	30,600	20,550	7,680	297,800
1960	44,990	32,830	33,620	14,260	10,680	27,210	29,380	38,350	97,260	56,820	16,810	13,870	416,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	451	326,700
1951	1211	14,700	Aug. 3, 1951	100	489	354,000	502	363,800
1952	1241	6,180	Aug. 29, 1952	90	753	546,300	762	553,000
1953	1281	11,900	Aug. 16, 1953	38	531	384,600	535	387,100
1954	1341	12,200	June 30, 1954	28	321	232,700	289	209,400
1955	1391	40,200	May 19, 1955	36	482	349,100	498	360,600
1956	1441	3,560	Aug. 1, 1956	27	440	319,300	425	308,600
1957	1511	38,200	May 16, 1957	39	1,493	1,081,000	1,574	1,140,000
1958	1561	14,800	July 5, 1958	108	701	507,500	650	470,400
1959	1631	5,880	June 19, 1959	21	411	297,800	485	351,200
1960	1711	9,680	July 5, 1960	48	573	416,100	-	-

1195. Apishapa River near Fowler, Colo.

Location.--Lat 38°05'28", long 103°58'52", in SE¼NW¼ sec.35, T.22 S., R.59 W., near right bank on downstream side of county highway bridge, 4 miles southeast of Fowler and 5.4 miles upstream from mouth.

Drainage area.--1,125 sq mi.

Records available.--April 1922 to September 1925, May 1939 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 4,317.05 ft above mean sea level, datum of 1929. Prior to Aug. 29, 1923, at site 3 miles downstream at different datum. Aug. 29, 1923, to Sept. 30, 1925, at present site at different datum.

Average discharge.--24 years (1922-25, 1939-60), 37.3 cfs (27,000 acre-ft per year).

Extremes.--1922-25, 1939-60: Maximum discharge, 83,000 cfs Aug. 22, 1923, by slope-area measurement 2 miles upstream from present station, caused by failure of Apishapa Dam 31 miles upstream; no flow Feb. 5, 1951.

Remarks.--Waste water from Oxford Farmers Co. and Rocky Ford Highline canals enter river above station. Diversions above station for irrigation of about 4,700 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6.21	11.0	9.98	16.4	2.18	2.68	1.63	33.8	116	126	182	3.53	43.0
1952	3.26	8.74	5.45	13.6	7.70	3.50	19.7	34.1	16.4	13.6	30.4	6.74	13.6
1953	4.74	4.76	2.87	2.65	3.45	2.27	4.76	19.6	13.9	33.0	68.7	4.00	13.9
1954	2.88	5.41	3.91	2.65	7.35	1.78	1.40	5.79	1.13	13.9	118	1.56	14.0
1955	1.57	1.96	1.33	6.57	2.04	1.35	.94	576	70.0	11.9	190	2.72	73.3
1956	3.46	8.08	12.9	5.01	4.66	6.07	1.62	1.66	13.6	93.1	47.1	1.07	16.7
1957	1.08	1.64	1.86	4.48	2.96	2.15	9.91	128	242	82.0	37.4	14.4	44.0
1958	29.1	26.2	23.0	7.43	17.1	12.4	28.4	140	32.7	306	42.9	8.88	56.8
1959	3.98	12.1	6.35	8.81	11.8	11.7	12.4	5.40	16.0	2.01	12.6	2.41	8.75
1960	19.9	23.8	15.4	5.66	2.43	7.49	11.2	3.48	15.3	87.6	2.06	39.1	19.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	382	654	614	1,010	121	165	97	2,080	6,900	7,750	11,160	210	31,140
1952	201	520	335	834	443	215	1,170	2,100	974	835	1,870	401	9,900
1953	292	283	177	163	192	140	283	1,210	825	2,030	4,230	238	10,060
1954	177	322	240	163	408	109	83	356	67	854	7,250	93	10,120
1955	96	116	82	404	113	83	56	35,430	4,160	731	11,660	162	53,090
1956	213	481	794	308	268	373	96	102	810	5,730	2,900	63	12,140
1957	66	98	114	276	165	132	589	7,880	14,370	5,040	2,300	858	31,890
1958	1,790	1,560	1,410	457	952	765	1,690	8,620	1,950	18,790	2,640	528	41,150
1959	245	721	390	542	658	722	735	332	952	124	774	143	6,340
1960	1,230	1,420	948	348	140	461	669	214	909	5,380	127	2,330	14,180

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	35.1	25,400
1951	1211	11,100	July 31, 1951	0	43.0	31,140	42.2	30,550
1952	1241	2,520	Aug. 5, 1952	.5	13.6	9,900	13.2	9,590
1953	1281	a5,310	Aug. 17, 1953	.8	13.9	10,060	13.9	10,050
1954	1341	14,800	Aug. 6, 1954	.7	14.0	10,120	13.4	9,680
1955	1391	17,000	May 19, 1955	.5	73.3	53,090	75.0	54,290
1956	1441	7,160	July 23, 1956	.8	16.7	12,140	15.0	10,930
1957	1511	5,320	June 12, 1957	.8	44.0	31,890	50.2	36,370
1958	1561	12,100	July 6, 1958	.4	56.8	41,150	52.1	37,750
1959	1631	1,210	Aug. 16, 1959	.3	8.75	6,340	11.8	8,580
1960	1711	12,000	July 13, 1960	.9	19.5	14,180	-	-

a Maximum observed.

1230. Arkansas River at La Junta, Colo.

Location.--Lat 37°59', long 103°31', in sec.2, T.24 S., R.55 W., on downstream side near middle of East Bridge in La Junta, just upstream from King Arroyo.

Drainage area.--12,210 sq mi, of which 115 sq mi is probably noncontributing.

Records available.--May to August 1889, September 1893 to December 1895 (gage heights, discharge measurements, and flood data only), April to October 1903, June to November 1908 (gage heights and discharge measurements only), April 1912 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Published as "near La Junta" in 1903.

Gage.--Water-stage recorder and chain gage. Datum of gage is 4,039.60 ft above mean sea level, datum of 1929. Prior to Apr. 11, 1912, staff gages at several sites within 2 miles at various datums. Apr. 11, 1912, to June 12, 1940, water-stage recorder and staff or chain gages at several sites within 1 mile at various datums.

Average discharge.--48 years (1912-60), 265 cfs (191,900 acre-ft per year).

Extremes.--1889, 1893-95, 1903, 1908, 1912-60: Maximum discharge, 200,000 cfs June 4, 1921 (gage height, 18.4 ft, at present site, datum then in use), from rating curve extended above 15,000 cfs on basis of slope-area measurement of peak flow; no flow Jan. 20-23, Mar. 20-22, 1915.

Remarks.--Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 400,000 acres, and return flow from irrigated areas.

Correction.--In WSP 1311, some figures for water year and calendar year 1922 are listed in error; they should be as follows:

Month	Mean	Acre-feet
March 1922	31.6	1,950
Water year 1921-22	164	-
Calendar year 1922	-	112,000

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	20.1	25.8	15.6	38.5	23.5	32.0	33.0	66.3	418	469	293	38.5	124
1952	36.1	53.5	30.4	37.3	19.9	38.5	144	166	838	454	367	118	192
1953	45.1	93.9	32.3	21.9	42.2	42.5	26.8	109	627	355	224	40.5	138
1954	37.5	55.3	30.9	24.2	22.5	20.0	37.7	197	127	146	187	32.6	77.1
1955	21.9	12.9	35.9	39.0	36.1	24.7	42.8	1,899	72.1	93.1	266	60.9	220
1956	15.4	31.5	31.9	23.5	21.7	40.5	36.1	217	606	103	68.4	33.3	102
1957	21.2	23.1	29.7	27.1	23.7	15.0	200	936	1,196	3,174	755	81.5	546
1958	140	56.8	247	75.8	44.1	21.0	54.6	718	575	274	92.9	42.1	196
1959	39.5	35.9	33.1	20.0	44.5	39.7	44.8	82.5	149	90.5	74.5	41.9	58.0
1960	124	42.8	34.7	21.8	38.8	41.2	44.7	77.3	532	341	55.9	52.1	117

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,230	1,530	960	2,370	1,310	1,970	1,960	4,080	24,880	28,830	18,010	2,290	89,420
1952	2,220	3,190	1,870	2,290	1,140	2,370	8,570	10,190	49,880	27,920	22,590	7,010	139,200
1953	2,770	5,590	1,980	1,350	2,340	2,610	1,600	6,720	37,280	21,850	13,760	2,410	100,300
1954	2,310	3,290	1,900	1,490	1,250	1,230	2,250	12,120	7,580	8,970	11,530	1,940	55,860
1955	1,350	769	2,180	2,400	2,010	1,520	2,540	116,800	4,290	5,730	16,350	3,620	159,600
1956	949	1,880	1,960	1,440	1,250	2,490	2,150	13,340	36,030	6,340	4,200	1,980	74,010
1957	1,300	1,370	1,830	1,670	1,320	920	11,880	57,530	71,190	195,200	46,410	4,850	395,500
1958	8,610	3,380	15,180	4,660	2,450	1,290	3,250	44,140	34,190	16,860	5,710	2,510	142,200
1959	2,430	2,140	2,040	1,230	2,470	2,440	2,670	5,070	8,850	5,560	4,580	2,490	41,970
1960	7,630	2,540	2,140	1,340	2,230	2,530	2,660	4,750	31,630	20,970	3,440	3,100	84,960

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	97.2	70,340
1951	1211	27,900	July 23, 1951	0.4	124	89,420	128	92,980
1952	1241	5,060	Apr. 22, 1952	4.2	192	139,200	196	142,300
1953	1281	17,700	July 12, 1953	10	138	100,300	135	97,420
1954	1341	9,720	Aug. 7, 1954	10	77.1	55,860	72.7	52,660
1955	1391	50,000	May 20, 1955	5.4	220	159,600	221	160,000
1956	1441	a5,000	July 23, 1956	8.9	102	74,010	102	73,720
1957	1561	17,500	May 16, 1957	5.8	546	395,500	578	418,100
1958	1561	20,400	July 6, 1958	11	196	142,200	168	121,700
1959	1631	680	June 20, 1959	7.0	58.0	41,970	65.9	47,670
1960	1711	9,860	July 13, 1960	5.8	117	84,960	-	-

a Maximum observed.

1240. Arkansas River at Las Animas, Colo.

Location.--Lat 38°05'08", long 103°12'50", in SW¼ sec.35, T.22 S., R.52 W., on left bank 0.4 mile downstream from bridge on U. S. Highway 50, 1.5 miles north of courthouse in Las Animas, and 3½ miles upstream from Purgatoire River.

Drainage area.--14,417 sq mi, of which 441 sq mi is probably noncontributing.

Records available.--May to November 1898 (gage heights only), August to November 1909 (gage heights and discharge measurements only), May 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 3,874.97 ft above mean sea level, datum of 1929. May 13 to Nov. 12, 1898, and Aug. 1 to Nov. 10, 1909, staff gage within half a mile of present site at different datum.

Average discharge.--21 years (1939-60), 248 cfs (179,500 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 44,000 cfs May 20, 1955 (gage height, 15.03 ft), from rating curve extended above 24,000 cfs on basis of slope-area measurement of peak flow; minimum daily, 1.6 cfs Sept. 17, 1956.

Remarks.--Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 412,000 acres, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	34.4	28.9	38.8	62.7	52.5	36.9	19.9	43.8	362	205	247	19.4	96.1
1952	20.4	37.8	33.6	57.6	47.8	36.9	79.1	67.5	626	317	296	85.5	142
1953	27.3	71.2	63.9	58.0	34.5	23.9	24.3	88.6	491	294	217	14.3	118
1954	12.6	28.1	38.3	42.5	33.6	15.9	13.9	175	43.9	88.2	138	13.4	54.0
1955	7.29	6.34	9.97	24.7	23.5	9.34	8.93	1,823	36.4	14.7	235	10.4	187
1956	8.53	9.90	13.5	18.1	34.1	18.2	16.9	111	443	96.0	23.0	4.66	66.0
1957	4.24	5.17	7.80	8.55	8.23	7.88	123	1,011	1,396	3,016	718	20.6	533
1958	183	76.3	259	149	126	69.3	52.7	622	441	267	51.3	46.2	196
1959	16.1	28.1	43.3	51.8	90.6	40.2	12.1	17.6	14.8	11.5	8.69	6.85	28.1
1960	56.8	23.7	25.6	29.3	37.3	92.0	51.9	14.0	391	302	8.68	10.9	86.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,110	1,720	2,380	3,850	2,920	2,270	1,180	2,690	21,530	12,600	15,160	1,150	69,560
1952	1,250	2,250	2,070	3,540	2,750	2,270	4,710	4,150	37,240	19,500	18,210	5,090	103,000
1953	1,680	4,230	3,930	3,570	1,920	1,470	1,440	5,450	29,200	18,090	13,360	851	85,190
1954	778	1,670	2,350	2,610	1,870	976	825	10,750	2,610	5,420	8,460	798	39,120
1955	448	377	613	1,520	1,310	574	532	112,100	2,170	906	14,480	619	135,600
1956	525	589	831	1,110	1,960	1,120	1,010	6,830	26,380	5,900	1,410	277	47,940
1957	261	308	480	526	457	485	7,320	62,160	83,050	185,500	44,160	1,230	385,900
1958	11,260	4,540	15,950	9,170	7,010	4,260	3,140	38,230	26,250	16,430	3,160	2,750	142,200
1959	992	1,670	2,660	3,190	5,030	2,470	720	1,080	879	709	534	408	20,340
1960	3,490	1,410	1,580	1,800	2,140	5,650	3,090	858	23,290	18,550	534	650	63,040

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	79.5	57,580
1951	1211	6,370	Aug. 1, 1951	15	96.1	69,560	95.2	68,920
1952	1241	3,060	Apr. 22, 1952	17	142	103,000	148	107,300
1953	1281	6,260	July 12, 1953	10	118	85,190	111	80,150
1954	1341	5,880	Aug. 7, 1954	5.6	54.0	39,120	49.4	35,760
1955	1391	44,000	May 20, 1955	5.9	187	135,600	188	136,200
1956	1441	3,150	July 23, 1956	1.6	66.0	47,940	64.8	47,050
1957	1511	21,480	May 17, 1957	2.6	533	385,900	575	416,600
1958	1561	6,280	July 6, 1958	7.8	196	142,200	160	115,700
1959	1631	286	Feb. 16, 1959	4.2	28.1	20,340	29.7	21,500
1960	1711	4,950	July 13, 1960	5.8	86.8	63,040	-	-

1245. Purgatoire River at Trinidad, Colo.

Location.--Lat 37°10'14", long 104°30'30", in NW¼SE¼ sec.13, T.33 S., R.64 W., on right bank 90 ft upstream from railroad bridge at foot of College Street, 500 ft downstream from Animas Street Bridge in Trinidad.

Drainage area.--795 sq mi.

Records available.--October 1895 to September 1899, August to December 1905, November 1906 to March 1907, October 1907 to November 1908, May to August 1909 (gage heights and discharge measurements only), September 1909 to November 1912, October 1915 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1915, published as "Purgatory River."

Gage.--Water-stage recorder. Datum of gage is 5,981.76 ft above mean sea level, datum of 1929. May 1, 1896, to July 31, 1899, staff gage on downstream side of Animas Street Bridge 500 ft upstream at datum 0.3 ft lower. Aug. 25, 1905, to Nov. 30, 1912, chain gage on upstream side of Animas Street Bridge at datum 2.0 ft lower. Apr. 1, 1916, to Nov. 10, 1921, inclined gage painted on concrete bank protection wall at site 590 ft downstream at right bank and 200 ft upstream from Commercial Street Bridge at datum 2.99 ft lower. Nov. 11, 1921, to Nov. 30, 1922, water-stage recorder at site about three-quarters of a mile upstream and 150 ft downstream from former Main Street Bridge at different datum. Dec. 1, 1922, to Mar. 19, 1934, water-stage recorder at site about half a mile upstream at different datum. Mar. 20, 1934, to Dec. 10, 1950, water-stage recorder at site 1,310 ft upstream at foot of State Street at datum 5.00 ft higher. Supplemental chain gage at site 90 ft downstream on downstream side of railroad bridge at datum 5.00 ft lower since May 30, 1955.

Average discharge.--53 years (1895-99, 1907-8, 1909-12, 1915-60), 90.6 cfs (65,590 acre-ft per year).

Extremes.--1895-99, 1905-12, 1915-60: Maximum discharge, 28,000 cfs May 19, 1955 (gage height, 14.35 ft, present datum), from rating curve extended above 2,800 cfs on basis of indirect measurements of peak flow above and below station; no flow for several days during summer of 1896, June 11, 1950, Sept. 20, 25, 28, 29, Oct. 3-5, 7, 8, 1956.

Revisions.--The momentary maximum discharges for the water years 1925 and 1942 published in WSP 1311 have been revised to 23,500 and 27,000 cfs, respectively.

Maximum discharge known since at least 1859, 45,400 cfs Sept. 30, 1904 (gage height, 13.6 ft, at present site and datum by levels from floodmark 170 ft downstream corrected for slope), by slope-area measurement of peak flow.

Remarks.--Diversions above station for irrigation of about 6,500 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7.19	12.2	11.5	14.6	23.5	10.8	17.5	31.7	53.6	58.3	26.9	4.16	22.7
1952	5.92	16.8	21.4	22.6	27.0	16.8	30.7	190	360	107	129	64.2	82.5
1953	24.6	24.7	51.2	32.7	19	18	9.0	54.2	185	195	115	32.7	63.8
1954	14.5	17.7	15.7	14.7	12.6	14.7	14.7	65.3	68.6	107	153	13.9	43.0
1955	28.3	14.8	10.9	7.75	7.36	6.85	12.5	994	270	98.6	289	64.2	152
1956	27.3	16.5	24.5	16.4	20.6	17.3	17.3	53.5	71.9	65.5	64.1	4.47	33.4
1957	3.70	9.98	15.1	12.8	11.2	14.7	37.0	206	653	491	359	106	161
1958	45.3	35.8	21.0	24.2	22.9	27.2	92.7	458	401	101	76.3	30.1	112
1959	19.2	22.9	22.8	24.3	22.1	27.1	30.8	62.8	110	58.4	80.8	23.2	42.1
1960	21.5	16.8	11.3	10.5	11.5	72.1	52.8	50.8	88.3	102	40.9	20.6	41.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	442	728	709	899	1,300	664	1,040	1,950	3,190	3,580	1,650	248	16,400
1952	364	1,000	1,320	1,390	1,550	1,030	1,830	11,650	21,400	6,590	7,930	3,820	59,870
1953	1,520	1,470	3,150	2,010	1,060	1,110	536	3,330	11,010	11,970	7,080	1,950	46,200
1954	893	1,050	965	902	700	904	874	4,020	4,080	6,570	9,380	826	31,160
1955	1,740	878	670	476	409	421	747	61,140	16,100	6,060	17,770	3,820	110,200
1956	1,680	983	1,510	1,010	1,190	1,060	1,030	3,290	4,280	4,030	3,940	266	24,270
1957	227	594	926	784	624	904	2,200	12,670	38,840	30,190	22,090	6,330	116,400
1958	2,780	2,130	1,290	1,490	1,270	1,670	5,520	28,150	23,850	6,240	4,690	1,790	80,870
1959	1,180	1,360	1,400	1,490	1,230	1,670	1,830	3,860	6,520	3,590	4,970	1,380	30,480
1960	1,320	1,000	693	647	662	4,430	3,140	3,120	5,260	6,290	2,510	1,220	30,290

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	32.3	23,420
1951	1211	3,570	July 24, 1951	0.4	22.7	16,400	23.8	17,200
1952	1241	9,090	Aug. 21, 1952	.8	82.5	59,870	87.2	63,330
1953	1281	7,440	Sept. 1, 1953	2.4	63.8	46,200	59.3	42,960
1954	1341	9,300	July 22, 1954	.4	43.0	31,160	43.6	31,540
1955	1391	28,000	May 19, 1955	.8	152	110,200	153	111,100
1956	1441	6,290	Aug. 2, 1956	0	33.4	24,270	30.1	21,840
1957	1511	5,520	Aug. 28, 1957	0	161	116,400	167	120,800
1958	1561	5,290	July 31, 1958	8.0	112	80,870	109	78,610
1959	1631	4,150	Aug. 20, 1959	6.2	42.1	30,480	40.8	29,550
1960	1711	2,940	Aug. 7, 1960	.3	41.7	30,290	-	-

1250. Purgatoire River near Hoehne, Colo.

Location.--Lat 37°14'50", long 104°23'50", in sec.13, T.32 S., R.63 W., on left bank 5 ft downstream from bridge on county road, 40 ft upstream from diversion dam for Hoehne ditch, 2½ miles southwest of Hoehne, and 8 miles northeast of city hall in Trinidad.

Drainage area.--857 sq mi.

Records available.--September 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 5,740.99 ft above mean sea level, datum of 1929.

Average discharge.--6 years (1954-60), 37.3 cfs (27,000 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 35,000 cfs May 19, 1955 (gage height, 13.97 ft), from rating curve extended above 180 cfs by logarithmic plotting on basis of flow-over-dam computations at gage heights 3.2, 4.5, and 7.34 ft; no flow for many days in each year.
Greatest flood known since at least 1859 occurred Sept. 30, 1904.

Remarks.--Flow partly regulated by off-stream reservoirs and a flood control dam on unnamed creek in Pinon Canyon. Diversions above station for irrigation of about 10,500 acres. Diversion by Hoehne ditch 40 ft below gage is not included in these records.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	0.92	0.02	0.50	1.03	0.27	0	0	1,042	101	15.0	114	4.09	108
1956	.32	1.59	4.47	.47	.55	.14	1.66	7.00	5.81	24.2	24.0	0	5.92
1957	0	0	0	0	.03	.003	2.62	*43.1	*276	*200	*69.1	*17.8	*50.9
1958	.23	4.36	5.09	3.22	3.23	13.9	13.2	*363	*152	*70.8	*18.4	.12	*54.6
1959	.05	.12	.06	1.51	1.78	1.22	2.35	1.13	1.35	3.88	2.12	.34	1.32
1960	1.50	2.65	2.11	1.7	4.02	10.3	1.05	.28	.28	*9.99	.17	.09	*2.86

* Revised; revised daily discharge for the periods thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	57	1.4	31	63	15	0	0	64,090	5,980	919	7,040	243	78,440
1956	19	94	275	29	32	8.3	99	430	346	1,490	1,470	0	4,290
1957	0	0	0	0	2.0	.2	156	*2,650	*16,410	*12,320	*4,250	*1,060	*36,850
1958	14	260	313	198	179	854	787	*22,350	*9,080	*4,350	*1,130	6.9	*39,500
1959	2.8	7.1	4.0	93	99	75	140	69	81	238	130	20	959
1960	92	157	130	106	231	634	62	17	17	*614	11	5.4	*2,080

* Revised; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1955	1391	35,000	May 19, 1955	0	108	78,440	109	78,740
1956	1441	2,950	Aug. 2, 1956	0	5.92	4,290	5.38	3,900
1957	1511	1,480	July 31, 1957	0	*50.9	*36,850	*51.7	*37,440
1958	1561	6,300	July 31, 1958	0	*54.6	*39,500	*53.8	*38,930
1959	1631	376	July 5, 1959	0	1.32	959	1.83	1,320
1960	1711	798	July 3, 1960	0	*2.86	*2,080	-	-

* Revised.

1251. Frijole Creek near Alfalfa, Colo.

Location.--Lat 37°12'00", long 104°11'40", in NW¼ sec.2, T.33 S., R.61 W., on right bank at downstream side of bridge on U. S. Highway 160, 1 mile upstream from mouth, 4 miles west of Alfalfa, and 16 miles east of city limits of Trinidad.

Drainage area.--80 sq mi.

Records available.--March 1957 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 5,400 ft (from topographic map).

Extremes.--1957-60: Maximum discharge, 2,310 cfs Aug. 21, 1958 (gage height, 8.81 ft), from rating curve extended above 180 cfs on basis of slope-area measurement of peak flow; no flow for many days in each year.
Flood of June 22, 1954, reached a stage of 17.23 ft, from floodmarks (discharge, 13,500 cfs, from rating curve extended above 8,800 cfs on basis of contracted-opening measurements of peak flow).

Remarks.--Minor diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second, of Frijole Creek, near Alfalfa, Colo.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	0.26	1.23	27.7	16.4	9.66	6.61	0.20	-
1958	0	0.72	0.21	0	0	0	0	3.55	1.26	7.72	13.9	.98	2.40
1959	0	.05	.5	.3	2.2	1.0	.2	3.5	4.0	.50	4.95	0	1.42
1960	.16	0	.02	.04	.23	12.5	1.54	.02	0	2.45	1.64	.04	1.57

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	16	73	1,700	973	594	406	12	-
1958	0	43	13	0	0	0	0	218	75	474	853	58	1,730
1959	0	2.8	28	16	123	61	12	214	238	31	304	0	1,030
1960	9.9	0	1.2	2.4	13	767	92	1.4	0	151	101	2.2	1,140

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1957	1511	1,180	May 15, 1957	0	-	-	-	-
1958	1561	2,310	Aug. 21, 1958	0	2.40	1,730	2.36	1,710
1959	1631	725	Aug. 4, 1959	0	1.42	1,030	1.40	1,010
1960	1711	1,100	July 23, 1960	0	1.57	1,140	-	-

1255. San Francisco Creek near Alfalfa, Colo.

Location.--Lat 37°11'10", long 104°07'50", in sec.8, T.33 S., R.60 W., on downstream side of right abutment of bridge on U. S. Highway 160, half a mile upstream from mouth, 1½ miles south of Alfalfa, and 20 miles east of Trinidad.

Drainage area.--160 sq mi.

Records available.--October 1954 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 5,320 ft (from topographic map).

Average discharge.--6 years (1954-60), 11.2 cfs (8,110 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 15,500 cfs May 19, 1955 (gage height, 13.00 ft), from rating curve extended above 250 cfs on basis of slope-area measurement of peak flow; no flow for many days in each year.
Flood of July 22, 1954, reached a stage of 14.40 ft, from floodmarks (discharge, 26,300 cfs, by contracted-opening measurement of peak flow).

Remarks.--Diversions above station for irrigation of about 500 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	0.1	0.1	0.1	0.1	0	0.06	3.73	419	0.86	10.7	37.1	2.05	40.3
1956	.12	.10	.11	.39	.73	.47	.11	1.14	.62	5.86	17.4	.03	2.29
1957	.05	.10	.05	.05	.05	.15	8.74	14.6	38.2	10.1	.4	0	6.03
1958	1.59	.70	.20	.18	1.75	.70	35.6	9.85	3.01	8.61	22.3	.14	7.06
1959	.05	.02	.3	.6	1.63	1.60	9.80	20.5	11.9	.80	.24	.02	3.96
1960	.05	.10	.05	.3	.9	38.0	34.2	4.42	1.08	5.42	.22	5.22	7.50

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	6.1	6.0	6.1	6.1	0	4.0	222	25,790	51	656	2,280	122	29,150
1956	7.3	6.1	6.5	24	42	29	6.5	70	37	360	1,070	1.6	1,660
1957	2.8	6.0	3.0	3.2	2.8	9.3	520	899	2,270	621	25	0	4,360
1958	98	41	12	11	97	43	2,120	605	179	530	1,370	8.5	5,110
1959	3.2	1.0	18	37	90	98	583	1,260	708	49	15	1.2	2,860
1960	2.8	5.8	2.8	16	52	2,340	2,030	272	64	333	13	311	5,440

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1955	1391	15,500	May 19, 1955	0	40.3	29,150	40.3	29,150
1956	1441	2,030	Aug. 18, 1956	0	2.29	1,660	2.27	1,650
1957	1511	4,100	June 1, 1957	0	6.03	4,360	6.22	4,500
1958	1561	2,380	Aug. 21, 1958	0	7.06	5,110	6.88	4,990
1959	1631	2,970	June 29, 1959	0	3.96	2,860	3.94	2,850
1960	1711	454	July 4, 1960	0	7.50	5,440	-	-

1260. Purgatoire River near Alfalfa, Colo.

Location.--Lat 37°11'30", long 104°07'30", in NW¼ sec.9, T.33 S., R.60 W., on right bank 700 ft downstream from San Francisco Creek, 1½ miles southeast of Alfalfa, and 20 miles east of Trinidad.

Drainage area.--1,320 sq mi.

Records available.--March 1905 to September 1907 (published as "Purgatory River"). March 1924 to September 1928, October 1951 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 5,280 ft (from topographic map). Mar. 22, 1905, to Sept. 30, 1907, staff gage 650 ft downstream at different datum. Feb. 27, 1924, to Sept. 30, 1928, water-stage recorder 1 mile downstream at different datum. Oct. 1, 1951, to July 5, 1955, water-stage recorder at site 150 ft upstream at datum 3.0 ft higher.

Average discharge.--15 years (1905-7, 1924-28, 1951-60), 59.7 cfs (43,220 acre-ft per year).

Extremes.--1905-7, 1924-28, 1951-60: Maximum discharge, 41,900 cfs May 19, 1955 (gage height, 31.9 ft, from floodmarks, present site and datum), from rating curve extended above 2,700 cfs on basis of slope-area measurements at gage heights 9.79, 13.35, 15.75, 30.60, and 31.9 ft; no flow at times in most years.

Remarks.--Diversions above station for irrigation of about 29,000 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	4.0	12	10	8.0	10	9.0	11.3	33.0	111	3.23	53.5	43.0	25.6
1953	11.8	15.0	19.1	17.9	17.4	8.74	3.17	78.9	66.3	104	78.5	19.9	36.9
1954	3.57	8.26	7.24	11.4	10.0	4.77	1.03	15.1	2.04	265	22.9	2.76	30.0
1955	8.39	2.5	7.10	10	4.5	5.0	5.5	1,520	120	30	175	18.4	161
1956	14.4	12.3	15.7	9.13	14.7	7.64	2.45	61.4	22.7	86.7	112	1.96	30.4
1957	.75	3.88	2.93	3.35	5.80	4.10	20.9	137	410	248	106	33.8	81.6
1958	34.7	26.4	21.9	20.0	28.7	30.4	63.9	190	201	114	150	21.1	75.5
1959	15.8	20.7	13.9	16.9	27.3	27.4	29.9	42.9	46.2	12.0	28.6	3.13	23.7
1960	9.38	14.8	16.6	10	22	88.6	43.9	15.2	6.93	25.2	7.66	15.5	23.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	246	714	615	492	575	553	671	2,030	6,610	198	3,290	2,560	18,550
1953	727	891	1,170	1,100	966	537	188	4,850	3,940	6,360	4,820	1,180	26,730
1954	220	492	445	703	556	294	61	926	121	16,300	1,410	164	21,690
1955	516	149	436	615	250	307	327	93,430	7,140	1,840	10,760	1,100	116,900
1956	888	734	966	561	847	469	146	3,770	1,350	5,330	6,870	117	22,050
1957	46	231	180	206	322	252	1,240	8,420	24,390	15,260	6,500	2,010	58,060
1958	2,140	1,570	1,340	1,230	1,590	1,870	3,800	11,690	11,980	6,990	9,210	1,250	54,660
1959	970	1,230	855	1,040	1,520	1,690	1,780	2,640	2,750	740	1,760	186	17,160
1960	577	879	1,020	619	1,280	5,450	2,610	933	412	1,550	471	921	16,720

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952	1241	3,440	Sept.13, 1952	0.3	25.6	18,550	27.2	19,770
1953	1281	8,740	June 16, 1953	.7	36.9	26,730	34.7	25,100
1954	1341	37,800	July 22, 1954	.1	30.0	21,690	29.9	21,640
1955	1391	41,900	May 19, 1955	-	161	116,900	163	118,400
1956	1441	13,000	May 23, 1956	0	30.4	22,050	27.4	19,920
1957	1511	5,790	June 1, 1957	0	81.6	58,060	87.9	63,650
1958	1561	5,460	Aug. 21, 1958	9.0	75.5	54,660	72.8	52,660
1959	1631	3,500	June 24, 1959	.7	23.7	17,160	22.9	16,580
1960	1711	2,480	July 23, 1960	.5	23.0	16,720	-	-

1265. Purgatoire River at Ninemile Dam, near Higbee, Colo.

Location.--Lat 37°44', long 103°29', in NW¼ sec.7, T.27 S., R.54 W., on left bank 850 ft upstream from Ninemile Dam, 4 miles southwest of Higbee, and 5½ miles upstream from Smith Canyon.

Drainage area.--2,900 sq mi.

Records available.--October 1924 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 4,240.59 ft above mean sea level, datum of 1929. Prior to Oct. 28, 1934, water-stage recorder at site 500 ft downstream at datum 0.60 ft higher. Oct. 28, 1934, to May 19, 1955, water-stage recorder (destroyed by flood) at present site and datum. May 25, 1955, to June 13, 1956, staff or chain gages at nearby sites at different datums. June 14 to Dec. 5, 1956, chain gage at present site and datum.

Average discharge.--36 years (1924-60), 106 cfs (76,740 acre-ft per year).

Extremes.--1924-60: Maximum discharge, 80,000 cfs May 19, 1955 (gage height, 17.7 ft), from rating curve extended above 20,200 cfs on basis of computation of peak flow over dam; no flow at times.

Remarks.--Diversions for irrigation of about 32,000 acres above station.

Correction .--In WSP 1311, the maximum discharge for the water year 1929 was listed in error; it should be 33,700 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6.23	7.99	12.4	13.3	12.8	4.10	13.9	50.6	65.1	330	467	5.12	83.6
1952	.27	11.0	8.34	13.0	12.6	8.50	21.8	35.2	69.1	32.2	32.9	85.0	27.4
1953	4.45	9.21	18.0	15.9	17.6	8.46	2.83	87.4	41.7	655	345	57.9	107
1954	.38	10.6	14.8	19.3	11.0	8.48	.36	17.2	11.1	547	427	7.32	91.1
1955	14.8	3.03	4.33	14.2	14.7	6.25	12.4	2,569	153	22.1	452	82.0	283
1956	8.13	15.4	11.3	7.26	15.6	10.1	3.61	66.8	26.4	144	205	4.49	43.7
1957	0	0	1.56	3.79	5.28	8.07	99.0	186	399	328	153	60.0	104
1958	16.3	53.8	29.8	31.5	40.0	41.4	86.4	250	319	350	242	17.1	124
1959	5.67	20.9	16.5	25.9	36.3	29.8	52.3	57.4	58.0	35.7	46.8	4.26	32.4
1960	6.71	14.7	19.2	23.2	66.8	227	95.2	19.9	7.47	89.7	15.0	42.7	52.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	383	475	762	819	709	252	827	3,110	3,870	20,290	28,710	305	60,510
1952	17	653	513	800	723	523	1,300	2,170	4,110	1,980	2,030	5,060	19,880
1953	273	548	1,110	976	976	520	168	5,370	2,480	40,300	21,200	3,440	77,360
1954	23	633	908	1,190	613	521	21	1,060	659	33,620	26,280	436	65,960
1955	910	180	266	876	815	384	738	158,000	9,080	1,360	27,780	4,880	205,300
1956	500	918	692	446	899	619	215	4,110	1,570	8,870	12,600	267	31,710
1957	0	0	96	233	293	496	5,890	11,410	23,750	20,170	9,390	3,570	75,300
1958	1,000	3,200	1,830	1,940	2,220	2,540	5,140	15,360	18,960	21,520	14,900	1,020	89,630
1959	349	1,240	1,020	1,590	2,020	1,830	3,110	3,530	3,450	2,200	2,880	253	23,470
1960	413	875	1,180	1,430	3,840	13,940	5,670	1,220	445	5,510	921	2,540	37,980

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	61.0	44,130
1951	1211	23,400	July 23, 1951	0	83.6	60,510	83.0	60,080
1952	1241	4,830	July 2, 1952	0	27.4	19,880	28.4	20,630
1953	1281	24,200	July 12, 1953	0	107	77,360	106	76,990
1954	1341	45,000	July 23, 1954	0	91.1	65,960	90.8	65,760
1955	1391	80,000	May 19, 1955	0	283	205,300	285	206,000
1956	1441	7,920	May 24, 1956	0	43.7	31,710	40.9	29,690
1957	1561	6,650	May 18, 1957	0	104	75,300	112	81,230
1958	1561	11,400	July 6, 1958	3.1	124	89,630	119	86,210
1959	1631	2,770	June 30, 1959	0	32.4	23,470	32.2	23,330
1960	1711	3,590	July 5, 1960	0	52.3	37,980	-	-

1280. Purgatoire River at Highland Dam, near Las Animas, Colo.

Location.--Lat 37°55', long 103°18', in sec.1, T.25 S., R.53 W., on left bank 70 ft upstream from diversion dam for Highland ditch and 11 miles southwest of Las Animas.

Drainage area.--3,376 sq mi.

Records available.--October 1931 to September 1955. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 3,980 ft (from topographic map).

Average discharge.--24 years (1931-55), 114 cfs (82,530 acre-ft per year).

Extremes.--1931-55: Maximum discharge, 73,400 cfs May 20, 1955 (gage height, 19.30 ft), from rating curve extended above 22,000 cfs on basis of computation of flow over dam at gage heights 15.5 and 19.3 ft and slope-area measurement at gage height about 16.8 ft; no flow at times in most years.

Remarks.--Diversions above station for irrigation of about 33,000 acres.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6.27	5.16	19.3	9.58	9.95	1.67	10.8	44.3	86.5	344	722	5.36	107
1952	0	6.32	4.04	4.81	2.59	2.87	18.9	17.5	52.5	48.6	36.3	88.6	23.5
1953	.09	1.96	10.7	13.1	11.4	4.40	1.95	75.1	59.7	602	299	36.9	94.5
1954	0	.31	6.52	9.80	11.7	5.83	.03	7.18	1.30	711	528	6.05	109
1955	14.8	.33	.83	3.02	4.16	2.49	7.07	2711	180	44.5	780	99.7	326

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	385	307	1,190	589	552	103	641	2,720	5,150	21,150	44,390	319	77,500
1952	0	376	248	296	149	176	1,120	1,070	3,120	2,990	2,230	5,270	17,040
1953	5.6	116	661	806	631	271	116	4,620	3,550	37,040	18,380	2,190	68,390
1954	0	18	401	603	650	358	1.8	442	77	43,730	32,440	360	79,080
1955	913	19	51	185	231	153	421	166,700	10,690	2,740	47,960	5,930	236,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	69.4	50,270
1951	1211	17,200	July 23, 1951	0	107	77,500	105	76,240
1952	1241	8,700	July 3, 1952	0	23.5	17,040	23.7	17,200
1953	1281	a21,300	July 12, 1953	0	94.5	68,390	94.0	68,020
1954	1341	40,300	July 23, 1954	0	109	79,080	110	79,640
1955	1391	73,400	May 20, 1955	0	326	236,000	-	-

a Maximum observed.

1285. Purgatoire River near Las Animas, Colo.

Location.--Lat 38°02'02", long 103°12'00", in sec.23, T.23 S., R.52 W., near right bank on downstream side of pier of bridge on State Highway 101, 2.3 miles southwest of courthouse in Las Animas and 4.5 miles upstream from mouth.

Drainage area.--3,503 sq mi.

Records available.--May to September 1889, July to October 1909 (gage heights and discharge measurements only), January 1922 to September 1931, July 1948 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Published as Purgatoire Creek at Las Animas in 1889 and as Purgatory River near Las Animas in 1909.

Gage.--Water-stage recorder. Datum of gage is 3,877.94 ft above mean sea level, datum of 1929. May 22 to Sept. 30, 1889, staff gage, July 31 to Oct. 9, 1909, chain gage, and Apr. 1, 1922, to June 30, 1924, water-stage recorder, at railroad bridge 4 miles downstream at various datums. July 1, 1924, to Sept. 30, 1931, water-stage recorder at present site at various datums and July 23, 1948, to Sept. 30, 1955, at datum 2.00 ft higher.

Average discharge.--21 years (1922-31, 1948-60), 147 cfs (106,400 acre-ft per year).

Extremes.--1889, 1922-31, 1948-60: Maximum discharge, 70,000 cfs May 20, 1955 (gage height, 17.00 ft, present datum), from rating curve extended above 38,000 cfs by logarithmic plotting; no flow at times in 1924-25, 1927, 1949.

Greatest flood known occurred Oct. 1, 1904.

Remarks.--Diversions for irrigation of about 36,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13.0	13.3	15.2	16.2	18.4	9.72	6.10	26.3	196	317	502	4.70	95.8
1952	3.57	34.4	13.6	8.75	5.82	8.42	10.4	40.6	89.0	31.7	27.1	78.1	29.2
1953	5.80	11.8	16.8	15.3	18.4	4.95	4.48	101	68.0	704	377	17.1	114
1954	1.75	2.67	14.8	12.7	12.2	4.41	2.04	4.56	.83	731	571	2.21	115
1955	3.19	1.77	3.86	13.0	14.6	3.44	2.63	2,793	230	13.5	651	61.5	321
1956	1.98	6.80	15.8	9.15	16.9	11.2	2.56	55.4	42.1	262	444	3.21	73.6
1957	1.82	2.92	3.68	5.31	4.39	2.93	118	308	376	242	140	83.4	108
1958	71.7	46.9	32.9	18.4	29.0	35.7	81.6	323	298	620	313	38.3	161
1959	11.5	26.4	33.5	26.1	41.9	34.2	32.6	32.5	36.2	60.3	11.6	1.21	28.9
1960	5.60	15.7	27.5	25.2	37.1	289	114	12.6	7.67	60.6	12.0	26.2	53.0

Monthly and yearly discharge, in acre-feet, of Purgatoire River near Las Animas, Colo.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	797	793	935	997	1,020	598	363	1,610	11,650	19,460	30,870	280	69,370
1952	219	2,040	834	538	335	518	617	2,500	5,300	1,950	1,660	4,650	21,160
1953	357	701	1,030	944	1,020	304	267	6,200	4,050	43,290	23,180	1,020	82,360
1954	107	159	912	783	676	271	121	281	49	44,980	35,110	132	83,580
1955	196	105	237	798	810	211	157	171,700	13,670	830	40,030	3,660	232,400
1956	122	405	974	563	970	690	152	3,410	2,500	16,130	27,290	191	53,400
1957	112	174	227	326	244	180	7,020	18,920	22,400	14,900	8,620	4,960	78,080
1958	4,410	2,790	2,020	1,130	1,610	2,190	4,850	19,830	17,710	38,150	19,220	2,280	116,200
1959	706	1,570	2,060	1,610	2,320	2,100	1,940	2,000	2,150	3,710	713	72	20,950
1960	345	935	1,690	1,550	2,140	17,780	6,800	775	457	3,730	737	1,560	38,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	95.6	69,230
1951	1211	17,600	July 23, 1951	1.2	95.8	69,370	96.6	69,940
1952	1241	5,600	July 3, 1952	1.2	29.2	21,160	27.8	20,160
1953	1281	20,900	July 12, 1953	1.7	114	82,360	112	81,450
1954	1341	38,800	July 23, 1954	.1	115	83,580	115	82,940
1955	1391	70,000	May 20, 1955	1.2	321	232,400	322	233,400
1956	1441	14,200	Aug. 19, 1956	.4	73.6	53,400	72.2	52,410
1957	1511	5,520	June 2, 1957	1.5	108	78,080	120	86,790
1958	1561	9,710	July 6, 1958	3.5	161	116,200	154	111,300
1959	1631	4,490	June 24, 1959	.6	28.9	20,950	27.1	19,580
1960	1711	5,040	Apr. 13, 1960	1.3	53.0	38,500	-	-

1300. John Martin Reservoir at Caddoa, Colo.

Location.--Lat 38°04'05", long 102°56'13", in NE¼NW¼ sec.8, T.23 S., R.49 W., at dam on Arkansas River at Caddoa, 3.2 miles southeast of Hasty and 58 miles upstream from Colorado-Kansas State line.

Drainage area.--18,915 sq mi, of which 785 sq mi is probably noncontributing.

Records available.--January 1943 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 3,760.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark); gage readings have been reduced to elevations above mean sea level.

Extremes.--1943-60: Maximum contents, 360,300 acre-ft July 27, 1958 (elevation, 3,850.44 ft); no contents at times in 1943, 1945-47, 1952-57, 1959-60.

Remarks.--Reservoir is formed by concrete and earthfill dam. Storage began while dam was under construction prior to 1943, and record of contents began Jan. 1, 1943. Capacity, 645,500 acre-ft at elevation 3,870.00 ft (top of spillway gates), of which 366,600 acre-ft (between elevations 3,769.0 ft, elevation of no contents, and 3,850.97 ft) is for conservation and 278,900 acre-ft (between elevations 3,850.97 and 3,870.00 ft) is reserved for flood control. No dead storage. Figures given herein represent total contents.

Cooperation.--Records of contents furnished by Corps of Engineers.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	58,520	63,190	67,940	74,260	79,420	81,500	57,710	41,280	73,660	71,370	71,880	48,490
1952	22,830	28,870	35,000	41,310	47,390	51,740	a30,050	1,170	1,200	1,140	0	b0
1953	0	2,290	8,260	14,350	18,360	21,270	0	0	0	0	0	0
1954	0	1,390	6,390	11,160	c13,920	15,850	0	0	0	29,400	13,220	0
1955	0	0	260	2,900	5,180	6,030	0	244,300	223,700	146,100	124,100	68,120
1956	47,410	d39,040	41,080	42,940	46,550	48,360	0	0	0	0	2,600	0
1957	0	0	740	1,810	2,950	3,890	0	e50,680	141,000	271,300	248,200	225,100
1958	220,100	227,000	245,500	261,400	270,900	278,700	282,200	331,900	f342,700	357,300	316,800	266,100
1959	231,000	233,500	238,600	244,300	252,600	256,400	226,300	184,900	143,000	84,450	28,060	0
1960	930	5,390	9,840	13,680	22,490	47,500	49,690	0	0	0	0	0

a Contents by capacity table used beginning Apr. 1, 1952; contents Mar. 31, 1952, by capacity table used beginning Apr. 1, 1952, was 46,450 acre-ft.
b Contents by capacity table used beginning Sept. 1, 1952; no contents Aug. 31, 1952, by capacity table used beginning Sept. 1, 1952.
c Contents by capacity table used beginning Feb. 1, 1954; contents Jan. 31, 1954, by capacity table used beginning Feb. 1, 1954, was 10,240 acre-ft.
d Contents by capacity table used beginning Nov. 1, 1955; contents Oct. 31, 1955, by capacity table used beginning Nov. 1, 1955, was 38,220 acre-ft.
e Contents by capacity table used beginning May 20, 1957; no contents Apr. 30, 1957, by capacity table used beginning May 20, 1957.
f Contents by capacity table used beginning June 1, 1958; contents May 31, 1958, by capacity table used beginning June 1, 1958, was 332,600 acre-ft.

1305. Arkansas River below John Martin Reservoir, Colo.

Location.--Lat 38°05'02", long 102°55'10", in NW¼NW¼ sec.4, T.23 S., R.49 W., on left bank 1.1 miles upstream from Caddoa Creek, 1.7 miles downstream from John Martin Dam, and 2.9 miles southeast of Hasty.

Drainage area.--18,917 sq mi, of which 785 sq mi is probably noncontributing.

Records available.--March 1938 to September 1960. Published as "at Caddoa" prior to October 1947.

Gage.--Water-stage recorder. Datum of gage is 3,737.40 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Feb. 22, 1940, at site 3 miles upstream at datum 22.83 ft higher. Feb. 22, 1940, to Feb. 4, 1943, at site 700 ft upstream at datum 3.64 ft higher than present datum.

Average discharge.--22 years (1938-60), 369 cfs (267,100 acre-ft per year), adjusted for storage in John Martin Reservoir.

Extremes.--1938-60: Maximum discharge, 40,000 cfs Apr. 24, 1942 (gage height, 10.46 ft, site and datum then in use), from rating curve extended above 12,000 cfs on basis of flow-over-dam and critical-depth measurement of peak flow; no flow at times in 1945-47; minimum daily prior to contruction of John Martin Reservoir, 5 cfs July 16, 1939.

Remarks.--Storage and diversions above station for irrigation of about 438,000 acres and for flood control. Flow regulated by John Martin Reservoir (see preceding page). Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	314	26.3	8.24	4.50	4.34	20.8	450	361	75.0	484	829	422	252
1952	411	6.90	3.94	4.35	3.97	4.94	389	587	640	364	322	179	244
1953	58.5	68.4	2.76	3.03	2.59	8.79	413	175	516	803	493	70.4	219
1954	28.3	41.3	2.05	2.04	1.63	1.78	280	198	52.0	254	842	209	161
1955	23.5	20.3	21.5	2.32	1.69	8.70	116	110	464	1,217	1,139	967	343
1956	351	6.39	2.51	3.06	3.02	2.43	843	160	487	330	405	68.5	222
1957	18.7	26.1	5.88	1.67	1.88	1.53	339	265	193	937	1,117	430	281
1958	340	6.36	5.43	7.65	5.85	5.80	39.5	115	401	529	896	805	265
1959	520	9.62	6.75	8.61	7.45	6.57	545	708	712	978	924	471	411
1960	96.8	3.54	2.93	2.82	3.36	3.46	136	844	358	422	22.6	33.8	162

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	19,320	1,560	507	277	241	1,280	26,770	22,210	4,460	29,730	50,970	25,120	182,400
1952	25,280	411	242	268	228	303	23,170	36,070	38,080	22,410	19,800	10,630	176,900
1953	3,600	4,070	170	186	144	540	24,580	10,780	30,700	49,350	30,330	4,190	158,600
1954	1,740	2,460	126	126	91	110	16,670	12,170	3,090	15,620	51,740	12,450	116,400
1955	1,440	1,210	1,320	143	94	535	6,900	6,780	27,620	74,840	70,050	57,540	248,500
1956	21,550	380	154	188	174	149	50,180	9,840	29,000	20,310	24,880	4,080	160,900
1957	1,150	1,560	362	103	104	94	20,160	16,320	11,500	57,600	68,670	25,590	203,200
1958	20,890	378	334	470	325	356	2,350	7,040	23,880	32,500	55,100	47,910	191,500
1959	31,950	573	415	529	414	404	32,460	43,550	42,370	60,110	56,830	28,020	297,600
1960	5,950	211	180	173	193	213	8,110	51,900	21,290	25,970	1,390	2,010	117,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	290	209,800
1951	1211	1,810	Aug. 30, 1951	4.0	252	182,400	258	187,000
1952	1241	2,510	May 31, 1952	3	244	176,900	219	158,800
1953	1281	2,300	July 13, 1953	2.0	219	158,600	214	155,100
1954	1341	1,630	May 24, 1954	1.2	161	116,400	160	116,000
1955	1391	1,370	July 2, 1955	1.2	343	248,500	368	266,600
1956	1441	3,000	Aug. 19, 1956	.8	222	160,900	195	141,900
1957	1511	1,860	May 16, 1957	.6	281	203,200	306	221,700
1958	1561	1,350	Sept. 8, 1958	4.8	265	191,500	280	202,900
1959	1631	1,840	Sept. 25, 1959	4.8	411	297,600	374	271,000
1960	1711	2,430	July 6, 1960	2.6	162	117,600	-	-

1330. Arkansas River at Lamar, Colo.

Location.--Lat 38°06'15", long 102°37'08", in SE¼ sec.30, T.22 S., R.46 W., on right bank 450 ft upstream from bridge on U. S. Highways 50 and 287 and 1.2 miles north of city hall in Lamar.

Drainage area.--19,780 sq mi, of which 950 sq mi is probably noncontributing.

Records available.--May 1913 to September 1955, April 1959 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 3,599.81 ft above mean sea level, datum of 1929. Prior to June 4, 1941, at site 450 ft downstream on highway bridge at datum 5.07 ft higher. June 4, 1941, to Apr. 3, 1946, at site 1,250 ft downstream and Apr. 4, 1946, to Sept. 30, 1955, at site 600 ft downstream, both at datum 4.07 ft higher.

Average discharge.--43 years (1913-55, 1959-60), 245 cfs (177,400 acre-ft per year).

Extremes.--1913-55, 1959-60: Maximum discharge, 130,000 cfs June 5, 1921 (gage height, 17.0 ft, present datum), from rating curve extended above 10,000 cfs by logarithmic plotting and confirmed by relationship of discharges at La Junta 60 miles upstream and Syracuse 52 miles downstream; no flow at times in 1913-15, 1953.

Remarks.--Flow regulated by John Martin Reservoir (see elsewhere in this report). Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 487,000 acres, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15.9	17.1	26.8	32.5	31.7	19.5	35.4	192	74.7	79.5	312	77.9	76.9
1952	56.0	11.7	16.7	31.5	13.5	7.19	88.0	123	52.4	16.0	27.6	20.9	38.8
1953	6.32	8.29	25.5	20.8	9.75	9.49	154	19.1	38.2	304	152	4.80	63.2
1954	4.20	4.96	5.56	5.95	12.9	9.83	110	10.1	3.80	186	321	79.5	63.3
1955	2.57	2.89	4.05	4.98	2.03	3.16	25.8	50.4	80.8	564	559	452	147
1956													
1957													
1958													
1959	-	-	-	-	-	-	147	261	199	381	379	237	-
1960	27.6	26.6	16.2	12.5	20.4	69.2	93.2	342	16.4	65.9	11.4	4.38	59.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	978	1,020	1,650	2,000	1,760	1,200	2,110	11,820	4,440	4,890	19,180	4,640	55,690
1952	3,440	697	1,030	1,940	776	442	5,240	7,560	3,120	986	1,700	1,240	28,170
1953	389	493	1,560	1,280	541	584	9,160	1,180	2,270	18,700	9,320	286	45,760
1954	258	295	342	366	714	605	6,520	618	226	11,420	19,720	4,730	45,810
1955	158	172	249	306	113	194	1,540	3,100	4,810	34,690	34,350	26,910	106,600
1956													
1957													
1958													
1959	-	-	-	-	-	-	8,720	16,040	11,870	23,430	23,290	14,090	-
1960	1,700	1,580	995	772	1,170	4,260	5,540	21,050	975	4,050	702	261	43,060

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	89.9	65,090
1951	1211	1,920	July 22, 1951	4.8	76.9	55,690	79.0	57,210
1952	1241	611	Aug. 29, 1952	5.2	38.8	28,170	35.0	25,450
1953	1281	2,450	Aug. 2, 1953	3.0	63.2	45,760	61.1	44,220
1954	1341	4,790	July 26, 1954	0	63.3	45,810	62.8	45,500
1955	1391	3,140	Aug. 8, 1955	1.0	147	106,600	-	-
1956								
1957								
1958								
1959	1631	1,900	Sept. 25, 1959	-	-	-	-	-
1960	1711	1,800	July 6, 1960	2.8	59.3	43,060	-	-

1355. Arkansas River at Holly, Colo.

Location.--Lat 38°02'37", long 102°07'09", in SE¼SE¼ sec.15, T.23 S., R.42 W., on left bank 300 ft upstream from bridge on State Highway 89, half a mile upstream from Wild Horse Creek, and half a mile south of Holly.

Drainage area.--25,073 sq mi (revised), of which 1,648 sq mi is probably noncontributing.

Records available.--January to December 1894 (gage heights only), May 1901 to May 1902 (gage heights, one discharge measurement, and observations of no flow only), October 1907 to September 1953. Monthly discharge only for some periods, published in WSP 1311. Published as "at Byron" 1894, "near Barton" 1901, and "at Barton" 1902. Records include flow of Holly drain above Wild Horse Creek Aug. 28, 1935, to Sept. 30, 1938.

Gage.--Water-stage recorder. Datum of gage is 3,377.95 ft above mean sea level, datum of 1929. Prior to May 4, 1902, staff gages at railroad bridge 6 miles upstream at different datums. Oct. 15, 1907, to 1912, chain and staff gages at bridge 300 ft downstream at different datums. From 1912 to June 6, 1921, water-stage recorder supplemented by chain and staff gages at bridge 300 ft downstream at different datum. June 7, 1921, to May 9, 1951, water-stage recorder supplemented by chain and staff gages at various sites within 900 ft of present site, at datum 0.86 ft higher June 7, 1921, to Apr. 25, 1942, and at present datum thereafter.

Average discharge.--46 years (1907-53), 334 cfs (241,800 acre-ft per year).

Extremes.--1894, 1901-2, 1907-53: Maximum discharge observed, 110,000 cfs Oct. 20, 1908 (gage height, 11.0 ft, site and datum then in use), from rating curve extended above 1,100 cfs on basis of logarithmic plotting; no flow at times in 1894, 1901, 1910, 1924-25.

Remarks.--Flow regulated by John Martin Reservoir (see elsewhere in this report) since 1943. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation of about 500,000 acres, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	134	118	144	144	147	103	63.1	1,535	504	175	422	232	312
1952	174	135	139	166	149	141	142	180	69.9	48.9	107	61.9	126
1953	41.0	58.6	127	118	99.1	64.8	154	70.8	45.4	287	363	47.7	124

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,220	7,010	8,850	8,850	8,140	6,310	3,750	94,370	30,000	10,770	25,950	13,800	226,000
1952	10,730	8,010	8,570	10,200	8,570	8,670	8,440	11,050	4,160	3,010	6,570	3,690	91,670
1953	2,520	3,490	7,790	7,250	5,510	3,990	9,190	4,360	2,700	17,650	22,330	2,840	89,620

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	217	157,200
1951	1211	59,900	May 15, 1951	21	312	226,000	317	229,200
1952	1241	1,480	Aug. 21, 1952	22	126	91,670	108	78,160
1953	1281	3,070	Aug. 20, 1953	22	124	89,620	-	-

1370. Frontier ditch near Coolidge, Kans.

Location.--Lat 38°02'18", long 102°02'19", in NE¼ sec.21, T.23 S., R.43 W., on left bank 0.3 mile east of Colorado-Kansas State line, 0.5 mile downstream from Holly drain diversion, 1.5 miles west of Coolidge, and 2.3 miles downstream from diversion from Arkansas River.

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorders and Parshall flume. Datum of gage is 3,353.14 ft above mean sea level, datum of 1929.

Extremes.--1950-60: Maximum daily discharge, 70 cfs May 7, 1959; no flow for many days.

Remarks.--This ditch diverts water from Arkansas River in Colorado for use in Kansas. These records and records for Arkansas River near Coolidge represent total flow of Arkansas River at Colorado-Kansas State line.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	20.8	8.90	0	0	0	1.84	22.9	†9.45	.02	8.83	21.3	18.2	9.40
1952	12.1	8.48	0	0	0	0	13.1	20.1	15.9	15.3	20.3	21.0	10.5
1953	27.7	25.4	0	0	0	.93	30.1	28.3	27.1	27.8	20.8	25.0	17.8
1954	32.0	16.7	.08	0	0	0	16.0	28.0	18.8	18.7	20.9	16.8	14.1
1955	17.9	0	0	0	0	3.9	14.4	24.5	23.3	38.7	41.7	34.8	16.7
1956	18.3	0	0	0	0	0	28.0	32.5	19.9	28.9	32.8	26.4	15.6
1957	21.0	17.5	0	0	0	0	5.79	27.8	7.63	27.4	43.2	17.3	14.1
1958	8.32	12.1	0	0	0	0	0	0	14.3	20.7	38.3	27.8	10.2
1959	19.4	.37	0	0	0	0	9.6	46.3	28.4	40.4	41.2	31.2	18.2
1960	5.77	0	0	0	0	0	0	26.5	6.77	29.1	27.1	22.8	9.91

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,280	530	0	0	0	113	1,370	581	1.4	543	1,310	1,080	6,810
1952	744	505	0	0	0	0	781	1,240	948	940	1,250	1,250	7,660
1953	1,710	1,510	0	0	0	57	1,790	1,740	1,610	1,710	1,280	1,490	12,900
1954	1,970	991	4.8	0	0	0	950	1,720	1,120	1,150	1,280	1,000	10,190
1955	1,100	0	0	0	0	242	857	1,510	1,390	2,380	2,570	2,070	12,120
1956	1,120	0	0	0	0	0	1,670	2,000	1,180	1,780	2,020	1,570	11,340
1957	1,290	1,040	0	0	0	0	345	1,710	454	1,680	2,650	1,030	10,200
1958	512	720	0	0	0	0	0	0	852	1,270	2,350	1,650	7,350
1959	1,190	22	0	0	0	0	573	2,850	1,690	2,490	2,530	1,860	13,200
1960	355	0	0	0	0	0	0	1,630	403	1,790	1,660	1,360	7,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Maximum day		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	1211	40	Aug. 27, 1951	0	9.40	6,810	8.62	6,250
1952	1241	39	Sept.16, 1952	0	10.5	7,660	13.3	9,630
1953	1281	50	Apr. 11, 1953	0	17.8	12,900	17.5	12,640
1954	1341	61	July 24, 1954	0	14.1	10,190	11.5	8,320
1955	1391	57	Aug. 12, 1955	0	16.7	12,120	16.8	12,140
1956	1441	62	Aug.19-20,1956	0	15.6	11,340	17.3	12,550
1957	1511	61	July 26, 1957	0	14.1	10,200	12.6	9,100
1958	1561	53	Aug.9,10,12,1958	0	10.2	7,350	10.1	7,330
1959	1631	70	May 7, 1959	0	18.2	13,200	17.0	12,350
1960	1711	57	May 26, 1960	0	9.91	7,200	-	-

1375. Arkansas River near Coolidge, Kans.

Location.--Lat 38°01'33", long 102°01'00", in NW¼ sec.26, T.23 S., R.43 W., on right bank 1,560 ft upstream from highway bridge, 1 mile south of Coolidge, and 1½ miles downstream from Colorado-Kansas State line.

Drainage area.--25,410 sq mi, of which 1,708 sq mi is probably noncontributing.

Records available.--May to October 1903, March to May 1921, October 1950 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 3,333.84 ft above mean sea level, datum of 1929. May 5 to Oct. 31, 1903, staff gage on upstream side of bridge 1,560 ft downstream at different datum. Mar. 1, to May 31, 1921, water-stage recorder at bridge 1,560 ft downstream at different datum.

Average discharge.--10 years (1950-60), 196 cfs (141,900 acre-ft per year).

Extremes.--1903, 1921, 1950-60: Maximum discharge, 60,000 cfs May 15, 1951 (gage height, 10.67 ft), from rating curve extended above 11,000 cfs by logarithmic plotting; no flow for many days in 1903, 1954, 1960.

Remarks.--Combined flow of river and Frontier ditch (see preceding page) represents entire flow that enters Kansas. Flow regulated by John Martin Reservoir (see elsewhere in this report). Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversion for irrigation of about 500,000 acres, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	181	185	182	185	183	134	102	1,656	686	230	424	285	372
1952	240	198	179	188	174	182	165	194	78.3	41.3	120	63.2	152
1953	52.6	77.0	138	126	115	77.6	155	66.6	34.7	234	358	28.8	123
1954	11.3	68.1	100	103	107	79.9	122	45.6	4.20	205	579	90.5	127
1955	23.7	37.7	43.7	59.8	51.0	33.8	37.1	461	112	429	496	450	188
1956	138	91.4	78.5	68.5	77.6	66.9	298	64.9	46.1	258	310	57.9	130
1957	3.67	23.4	37.7	43.7	53.6	52.5	158	562	279	386	569	364	212
1958	246	111	112	123	138	129	114	378	219	340	310	327	213
1959	276	163	157	142	144	140	198	367	266	374	470	423	261
1960	246	177	159	135	178	331	206	406	209	107	3.31	.90	180

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,140	11,020	11,210	11,380	10,180	8,260	6,090	101,800	40,840	14,130	26,070	16,940	269,100
1952	14,750	11,800	11,000	11,550	10,030	11,190	9,830	11,900	4,660	2,540	7,400	3,760	110,400
1953	3,240	4,580	8,500	7,720	6,400	4,770	9,240	4,090	2,060	14,390	22,030	1,710	88,730
1954	697	4,050	6,150	6,360	5,930	4,910	7,240	2,800	250	12,610	35,590	5,390	91,980
1955	1,460	2,240	2,690	3,680	2,830	2,080	2,210	28,370	6,680	26,400	30,470	26,750	135,900
1956	8,470	5,440	4,830	4,210	4,460	4,110	17,700	3,990	2,740	15,870	19,070	3,440	94,330
1957	226	1,400	2,320	2,690	2,980	3,230	9,410	34,530	16,630	23,760	34,960	21,640	153,800
1958	15,160	6,590	6,890	7,570	7,680	7,960	6,750	23,250	13,010	20,890	19,050	19,470	154,300
1959	16,960	9,720	9,680	8,710	7,990	8,640	11,800	22,550	15,850	22,970	28,900	25,180	189,000
1960	15,100	10,550	9,810	8,280	10,220	20,330	12,250	24,990	12,430	6,610	204	54	130,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	1211	60,000	May 15, 1951	52	372	269,100	377	273,200
1952	1241	2,020	Aug. 21, 1952	6	152	110,400	123	89,180
1953	1281	3,510	Aug. 20, 1953	.6	123	88,730	115	83,310
1954	1341	10,900	Aug. 7, 1954	0	127	91,980	121	87,470
1955	1391	13,200	May 20, 1955	4.0	188	135,900	205	148,200
1956	1441	8,510	Aug. 20, 1956	.5	130	94,330	110	79,540
1957	1511	13,400	May 16, 1957	1.9	212	153,800	247	178,500
1958	1561	4,680	May 14, 1958	52	213	154,300	224	162,000
1959	1631	6,280	Sept.25, 1959	45	261	189,000	260	188,000
1960	1711	1,030	Mar. 11, 1960	0	180	130,800	-	-

1380. Arkansas River at Syracuse, Kans.

Location.--Lat 37°58', long 101°45', in SW¼ sec.18, T.24 S., R.40 W., near center of stream on downstream side of pier of bridge on U. S. Highway 270, half a mile south of Syracuse and at mile 1,080.9.

Drainage area.--25,763 sq mi, of which 1,857 sq mi is probably noncontributing.

Records available.--August 1902 to September 1906 ("published as near Syracuse"), October 1920 to September 1960. Monthly discharge only for some periods published in WSP 1311.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 3,209.32 ft above mean sea level, datum of 1929. Aug. 21, 1902, to July 31, 1906, staff gage at site 150 ft downstream at different datum. June 20, 1921, to Sept. 30, 1929, water-stage recorder at site 150 ft downstream at datum 5.0 ft higher. Oct. 1, 1929, to July 1, 1952, water-stage recorder at site 150 ft downstream at datum 3.0 ft higher. July 2, 1952, to Nov. 14, 1956, at present site at datum 3.0 ft higher.

Average discharge.--44 years (1902-6, 1920-60), 382 cfs (276,600 acre-ft per year).

Extremes.--1902-6; 1920-60: Maximum discharge, 62,000 cfs June 6, 1921 (gage height, 14.75 ft, present datum); no flow Aug. 17, 1946.

Remarks.--Flow regulated by John Martin Reservoir (see p.140). Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	197	209	190	185	211	141	124	2,207	837	295	508	336	456
1952	257	223	174	218	192	177	156	200	69.1	21.0	133	54.9	156
1953	50.7	83.0	147	165	138	77.5	162	50.2	32.5	233	365	27.4	128
1954	10.2	70.0	104	111	117	86.1	126	44.5	7.04	170	597	85.3	128
1955	11.4	32.1	53.6	62.1	61.3	36.3	48.4	471	140	351	502	423	184
1956	153	92.3	90.2	84.4	84.8	74.9	260	73.7	61.5	250	304	59.1	133
1957	7.00	31.7	42.8	34.2	62.4	58.3	174	678	360	354	498	365	223
1958	255	130	128	132	139	140	134	489	236	389	300	302	232
1959	275	179	164	144	159	149	177	364	253	336	427	419	255
1960	255	191	176	152	181	357	226	381	204	122	5.14	3.60	188

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12,140	12,450	11,690	11,370	11,690	8,690	7,370	135,700	49,800	18,110	31,240	19,970	330,200
1952	15,830	13,260	10,720	13,410	11,030	10,870	9,250	12,290	4,110	1,290	8,160	3,270	113,500
1953	3,120	4,940	9,030	10,130	7,640	4,760	9,640	3,090	1,940	14,310	22,450	1,630	92,680
1954	625	4,160	6,400	6,850	6,520	5,300	7,520	2,730	419	10,450	36,720	5,070	92,760
1955	701	1,910	3,300	3,820	3,400	2,230	2,880	28,930	8,320	21,600	30,900	25,150	133,100
1956	9,410	5,490	5,550	5,190	4,880	4,610	15,470	4,530	3,660	15,380	18,690	3,520	96,380
1957	430	1,880	2,630	2,100	3,470	3,590	10,380	41,700	21,420	21,750	30,640	21,720	161,700
1958	15,650	7,710	7,860	8,120	7,700	8,610	7,980	30,070	14,040	23,940	18,450	17,950	168,100
1959	16,880	10,640	10,090	8,870	8,830	9,180	10,550	22,380	15,070	20,650	26,270	24,940	184,400
1960	15,700	11,370	10,820	9,370	10,410	21,950	13,460	23,450	12,120	7,520	316	214	136,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	264	190,900
1951	1211	54,300	May 15, 1951	60	456	330,200	461	333,800
1952	1241	3,510	Aug. 21, 1952	6.8	156	113,500	125	90,770
1953	1281	3,160	Aug. 21, 1953	4.2	128	92,680	120	86,780
1954	1341	8,200	Aug. 7, 1954	2.1	128	92,760	121	87,490
1955	1391	8,930	May 20, 1955	6.5	184	133,100	204	147,700
1956	1441	7,700	Aug. 20, 1956	5.0	133	96,380	111	80,870
1957	1511	13,800	May 29, 1957	3.5	223	161,700	260	188,000
1958	1561	5,240	May 15, 1958	48	232	168,100	241	174,500
1959	1631	4,280	Sept.25, 1959	45	255	184,400	255	184,600
1960	1711	1,090	Mar. 10, 1960	2.7	188	136,700	-	-

1390. Arkansas River at Garden City, Kans.

Location.--Lat 37°57', long 100°52', in NW¼ sec.19, T.24 S., R.32 W., near left bank on downstream side of pier of bridge on U. S. Highway 83, half a mile south of Garden City and at mile 1,024.2.

Drainage area.--27,071 sq mi, of which about 2,368 sq mi is probably noncontributing.

Records available.--June 1922 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 2,824.43 ft above mean sea level, datum of 1929. Prior to May 9, 1957, water-stage recorder at site 60 ft downstream at same datum.

Average discharge.--38 years (1922-60), 208 cfs (150,600 acre-ft per year).

Extremes.--1922-60: Maximum discharge, 33,500 cfs May 16, 1951 (gage height, 9.57 ft); no flow at times in most years.

Remarks.--Flow regulated by John Martin Reservoir (see p. 140). Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversion for irrigation, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	212	195	139	227	267	154	54.2	1,927	1,119	469	170	271	435
1952	96.6	282	243	289	169	183	61.4	60.2	12.1	8.0	21.4	3.81	119
1953	6.6	21.3	109	76.7	30.1	14.8	10.0	9.9	2.00	9.63	190	6.02	40.9
1954	10.1	17.7	93.4	82.9	62.3	35.6	14.1	9.1	6.6	37.5	231	5 19	50.8
1955	14.7	29.2	45.6	51.6	56.8	41.4	62.4	449	40.0	10.3	35.1	16.9	71.5
1956	12.1	40.9	90.0	50.4	86.9	38.8	10.9	58.2	5.37	9.78	29.8	2.82	36.3
1957	5.77	4.11	16.9	19.3	24.0	11.4	60.9	324	428	48.0	24.5	41.4	84.0
1958	29.6	118	127	138	155	179	147	456	238	345	173	22.4	178
1959	20.8	64.7	209	169	207	189	97.8	58.1	45.5	15.5	21.5	59.8	95.9
1960	247	224	221	137	193	387	153	22.4	171	15.0	4.28	6.83	148

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13,010	11,600	8,530	13,980	14,800	9,480	3,230	118,500	66,570	28,860	10,440	16,150	315,200
1952	5,940	16,750	14,950	17,780	9,710	11,250	3,650	3,700	720	494	1,320	227	86,490
1953	407	1,270	6,730	4,720	1,670	912	597	611	119	592	11,660	358	29,650
1954	623	1,050	5,740	5,100	3,460	2,190	837	561	395	2,310	14,230	309	36,800
1955	902	1,740	2,800	3,170	3,150	2,540	3,710	27,590	2,380	635	2,160	1,010	51,790
1956	743	2,430	5,530	3,100	5,000	2,380	646	3,580	320	601	1,830	168	26,330
1957	355	245	1,040	1,190	1,330	699	3,620	19,900	25,490	2,950	1,510	2,470	60,800
1958	1,820	7,010	7,820	8,510	8,600	10,980	8,750	28,070	14,160	21,190	10,610	1,330	128,800
1959	1,280	3,850	12,870	10,380	11,480	11,630	5,820	3,570	2,710	955	1,320	3,560	69,420
1960	15,200	13,320	13,590	8,420	11,120	23,790	9,080	1,380	10,170	924	263	406	107,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	185	133,900
1951	1211	33,500	May 16, 1951	12	435	315,200	441	319,600
1952	1241	616	Jan. 1, 1952	.2	119	86,490	78.9	57,260
1953	1281	3,090	Aug. 22, 1953	0	40.9	29,650	39.6	28,650
1954	1341	7,840	Aug. 8, 1954	0	50.8	36,800	48.1	34,830
1955	1391	9,500	May 21, 1955	2	71.5	51,790	76.1	55,050
1956	1441	3,500	May 28, 1956	0	36.3	26,330	26.5	19,260
1957	1511	4,220	May 18, 1957	.3	84.0	60,800	105	75,810
1958	1561	2,800	July 7, 1958	3.5	178	128,800	180	130,200
1959	1631	901	Sept.27, 1959	3.1	95.9	69,420	129	93,540
1960	1711	745	Mar. 11, 1960	0	148	107,700	-	-

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1395. Arkansas River at Dodge City, Kans.

Location.--Lat 37°45', long 100°01', in NE¼ sec.35, T.26 S., R.25 W., near center of stream on downstream side of pier of Second Street Bridge in Dodge City, at mile 970.2.

Drainage area.--30,600 sq mi, of which 5,583 sq mi is probably noncontributing.

Records available.--October 1902 to September 1906 (published as "near Dodge"), September 1944 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-heights records collected at same site at different datum 1909-32 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 2,467.71 ft above mean sea level, datum of 1929. Nov. 28, 1902, to Aug. 10, 1906, staff gage at same site at datum about 5 ft higher. Sept. 1 to Nov. 5, 1944, wire-weight gage at present site and datum.

Average discharge.--20 years (1902-6, 1944-60), 256 cfs (185,300 acre-ft per year).

Extremes.--1902-6, 1944-60: Maximum discharge, 19,700 cfs May 18, 1951; maximum gage height, 13.29 ft June 8, 1949; no flow at times in 1903, 1946, 1954, 1956.

Remarks.--Flow regulated by John Martin Reservoir (see p. 140). Natural flow of stream affected by transmoutain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	357	258	225	247	321	243	163	1,881	1,125	800	246	343	520
1952	168	350	274	324	245	250	162	131	49.0	18.8	11.9	8.17	166
1953	17.0	45.1	126	142	86.4	83.7	55.1	46.0	12.8	18.6	74.1	23.2	60.9
1954	21.0	57.4	69.9	84.6	107	89.1	65.4	68.6	38.8	11.7	116	20.3	62.3
1955	19.1	42.4	64.9	74.6	84.2	96.4	88.8	435	230	83.5	43.8	28.7	108
1956	43.4	60.8	102	92.9	118	104	61.5	39.5	35.6	12.7	3.83	.71	56.1
1957	2.43	15.3	33.4	45.8	57.9	51.7	121	279	463	165	46.3	102	115
1958	66.7	123	154	173	185	222	237	397	320	403	249	72.9	217
1959	58.7	89.2	236	238	264	231	180	105	83.3	70.6	35.4	35.6	135
1960	219	231	238	187	267	456	263	104	170	61.3	23.7	17.7	186

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	21,960	15,340	13,810	15,220	17,840	14,950	9,680	115,700	66,940	49,170	15,100	20,420	376,100
1952	10,300	20,820	16,860	19,940	14,120	15,370	9,670	8,080	2,920	1,160	733	486	120,500
1953	1,040	2,680	7,750	8,750	4,800	5,150	3,280	2,830	763	1,140	4,550	1,380	44,110
1954	1,290	3,410	4,300	5,200	5,970	5,480	3,890	4,220	2,310	722	7,120	1,210	45,120
1955	1,180	2,520	3,990	4,590	4,680	5,930	5,280	26,720	13,710	5,140	2,690	1,710	78,140
1956	2,670	3,620	6,280	5,710	6,820	6,360	3,660	2,430	2,120	781	235	42	40,730
1957	149	908	2,050	2,820	3,220	3,180	7,220	17,180	27,570	10,130	2,850	6,050	83,330
1958	4,100	7,300	9,490	10,630	10,270	13,670	14,080	24,440	19,040	24,770	15,290	4,340	157,400
1959	3,610	5,310	14,510	14,630	14,650	14,230	10,690	6,450	4,950	4,340	2,180	2,120	97,670
1960	13,470	13,730	14,610	11,490	15,350	28,050	15,650	6,390	10,130	3,770	1,460	1,050	135,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	249	180,100
1951	1211	19,700	May 18, 1951	100	520	376,100	515	373,000
1952	1241	-	-	5.8	166	120,500	116	83,950
1953	1281	440	Aug. 26, 1953	1.7	60.9	44,110	57.5	41,640
1954	1341	948	Aug. 10, 1954	0	62.3	45,120	60.5	43,810
1955	1391	4,340	May 22, 1955	5	108	78,140	115	83,020
1956	1441	191	May 31, 1956	0	56.1	40,730	43.1	32,260
1957	1511	2,040	May 20, 1957	0	115	83,330	140	101,100
1958	1561	1,530	July 9, 1958	54	217	157,400	221	160,000
1959	1631	698	July 6, 1959	11	135	97,670	160	116,000
1960	1711	1,260	Mar. 18, 1960	8.8	186	135,200	-	-

1400. Arkansas River near Kinsley, Kans.

Location.--Lat 37°56', long 99°22', on south line of sec.26, T.24 S., R.19 W., near center of stream on downstream side of pier of bridge on U. S. Highway 50, 2 miles east of Kinsley and at mile 920.3.

Drainage area.--31,066 sq mi, of which 5,660 sq mi is probably noncontributing.

Records available.--September 1944 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,144.64 ft above mean sea level, datum of 1929. Prior to Nov. 10, 1944, wire-weight gage at same site and datum.

Average discharge.--16 years (1944-60), 219 cfs (158,500 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 11,700 cfs May 19, 1951 (gage height, 11.20 ft); minimum, 0.7 cfs Oct. 28, 1956.

Remarks.--Flow regulated by John Martin Reservoir (see p. 140). Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals and diversions for irrigation, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	355	255	257	229	328	268	213	2,189	1,239	1,174	306	447	608
1952	218	356	312	368	303	298	302	222	91.0	37.7	20.0	12.9	211
1953	22.1	62.0	129	181	118	122	85.6	62.5	20.7	14.4	22.7	30.8	72.5
1954	31.1	61.3	74.6	89.2	122	102	76.9	84.6	57.9	11.1	82.0	23.5	68.6
1955	16.9	39.0	62.6	83.2	90.0	100	89.7	680	453	119	48.4	60.0	154
1956	61.8	67.7	104	107	131	133	80.2	49.3	49.6	23.0	4.19	1.57	67.5
1957	1.22	9.11	27.2	41.0	68.7	55.4	148	267	438	189	72.8	185	125
1958	91.6	123	155	172	183	220	249	394	417	478	288	107	241
1959	75.5	97.5	194	216	272	227	211	198	118	111	39.6	84.3	153
1960	269	244	251	204	250	564	337	168	246	108	38.3	23.4	225

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	21,840	15,190	15,820	14,110	18,210	16,500	12,690	134,600	73,740	72,200	18,810	26,620	440,300
1952	13,420	21,190	19,200	22,650	17,410	18,300	17,960	13,650	5,410	2,320	1,230	770	153,500
1953	1,360	3,690	7,900	11,150	6,560	7,530	5,090	3,850	1,230	883	1,400	1,830	52,470
1954	1,920	3,650	4,590	5,490	7,360	6,290	4,570	5,200	3,450	683	5,040	1,400	49,640
1955	1,040	2,320	3,850	5,110	5,000	6,150	5,340	41,790	26,970	7,320	2,980	3,570	111,400
1956	3,800	4,030	6,370	6,580	7,550	8,150	4,770	3,030	2,950	1,420	258	93	49,000
1957	75	542	1,670	2,520	3,810	3,410	8,790	16,420	26,060	11,610	4,480	11,000	90,390
1958	5,630	7,340	9,530	10,560	10,160	13,550	14,840	24,200	24,840	29,390	17,730	6,390	174,200
1959	4,650	5,800	11,930	13,300	15,130	13,950	12,570	12,170	7,000	6,800	2,440	5,010	110,800
1960	16,560	14,550	15,440	12,520	14,360	34,710	20,080	10,330	14,640	6,620	2,360	1,390	163,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	279	201,900
1951	1211	11,700	May 19, 1951	100	608	440,300	610	441,300
1952	1241	1,960	Apr. 19, 1952	11	211	153,500	155	112,600
1953	1281	460	Jan. 9, 1953	9.4	72.5	52,470	68.6	49,680
1954	1341	320	Aug. 14, 1954	5.4	68.6	49,640	64.5	46,690
1955	1391	4,210	May 20, 1955	9.6	154	111,400	164	118,400
1956	1441	206	Mar. 5, 1956	1.2	67.5	49,000	51.1	37,090
1957	1511	1,280	June 27, 1957	.8	125	90,390	153	110,600
1958	1561	1,690	June 26, 1958	84	241	174,200	240	174,000
1959	1631	1,150	May 5, 1959	12	153	110,800	186	134,900
1960	1711	1,930	Mar. 20, 1960	17	225	163,600	-	-

1412. Pawnee River near Larned, Kans.

Location.--Lat 38°12'00", long 99°20'50", in NW¼ sec.30, T.21 S., R.18 W., 0.8 mile north of U. S. Highway 156, 14 miles west of Larned, and at mile 24.8.

Drainage area.--2,148 sq mi, of which 138 sq mi is porbably noncontributing.

Records available.--April to September 1924 (gage heights and discharge measurements only), October 1924 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Concrete control since June 2, 1959. Datum of gage is 2,040.90 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1924, at highway bridge 14 miles downstream at different datum. Nov. 21, 1924, to May 15, 1933, at site 2.8 miles downstream at datum 16.50 ft lower. May 16, 1933, to Feb. 17, 1949, at highway bridge 2.9 miles downstream at datum 19.60 ft lower. Feb. 18, 1949, to June 1, 1959, at highway bridge 1.5 miles downstream at datum 8.17 ft lower.

Average discharge.--36 years (1924-60), 88.2 cfs (64,070 acre-ft per year).

Extremes.--1924-60: Maximum discharge, 16,300 cfs July 28, 1958 (gage height, 28.22 ft, site and datum then in use, or 22.9 ft, present site and datum); no flow at times in most years.

Remarks.--Diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	722	61.8	52.9	41.3	40.0	36.6	115	1,005	2,298	1,829	219	136	549
1952	66.6	65.9	61.3	59.7	51.6	51.6	198	73.6	28.4	11.6	1.65	1.31	55.8
1953	1.41	3.62	13.2	17.3	12.1	15.3	10.8	5.32	2.36	42.7	541	2.67	56.6
1954	1.83	5.94	4.65	5.16	10.2	7.26	20.0	27.5	31.3	5.4	11.5	0	10.9
1955	9.92	.25	0	.72	2.33	.49	79.4	212	488	56.9	1.00	11.0	71.7
1956	.41	0	0	0	.10	.21	0	0	2.8	122	0	0	10.7
1957	21.8	7.42	0	0	0	0	18.2	71.3	772	342	10.6	342	131
1958	4.52	1.78	1.58	2.51	3.01	44.0	71.4	413	221	2,264	330	80.7	291
1959	29.8	22.1	24.0	22.6	23.3	22.0	19.5	33.7	32.1	139	10.5	170	45.7
1960	317	8.83	6.99	7.25	10.5	552	85.1	61.3	175	19.1	.74	15.5	106

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	44,410	3,680	3,250	2,540	2,220	2,250	6,830	61,800	136,700	112,500	13,460	8,070	397,700
1952	4,100	3,920	3,770	3,670	2,970	3,180	11,780	4,530	1,690	715	101	78	40,500
1953	87	216	811	1,060	674	940	643	327	140	2,630	33,270	159	40,960
1954	112	354	286	318	569	446	1,190	1,690	1,860	329	708	0	7,860
1955	610	15	0	44	130	30	4,720	13,060	29,060	3,500	62	653	51,880
1956	25	0	0	0	5.6	13	0	0	167	7,520	0	0	7,730
1957	1,340	442	0	0	0	0	1,080	4,380	45,910	21,030	650	20,360	95,190
1958	278	106	97.4	154	167	2,710	4,250	25,390	13,150	139,200	20,270	4,800	210,600
1959	1,830	1,320	1,470	1,390	1,290	1,350	1,160	2,070	1,910	8,550	643	10,120	33,100
1960	19,460	525	430	445	602	33,920	5,060	3,770	10,390	1,170	46	924	76,740

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	359	259,800
1951	1211	9,510	June 23, 1951	34	549	397,700	495	358,200
1952	1241	2,110	Apr. 21, 1952	.1	55.8	40,500	41.1	29,830
1953	1281	6,700	Aug. 3, 1953	0	56.6	40,960	56.1	40,600
1954	1341	950	Apr. 25, 1954	0	10.9	7,860	10.7	7,740
1955	1391	3,670	June 18, 1955	0	71.7	51,880	70.8	51,280
1956	1441	1,100	July 7, 1956	0	10.7	7,730	13.1	9,490
1957	1511	4,710	June 28, 1957	0	131	95,190	130	93,890
1958	1561	16,300	July 28, 1958	1.0	291	210,600	297	214,700
1959	1631	1,370	Sept.23, 1959	0	45.7	33,100	67.6	48,900
1960	1711	6,300	Mar. 22, 1960	0	106	76,740	-	-

1413. Arkansas River at Great Bend, Kans.

Location.--Lat 38°21', long 98°46', in SE¼ sec.33, T.19 S., R.13 W., near left bank on downstream side of pier of bridge on U. S. Highway 281, half a mile south of Great Bend, 4½ miles upstream from Walnut Creek, and at mile 873.2.

Drainage area.--34,356 sq mi, of which 6,002 sq mi is probably noncontributing.

Records available.--September 1940 to September 1960. Fragmentary gage-height records collected at same site (at datum 3 ft higher) 1906, 1908-12, are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 1,839.82 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--20 years (1940-60), 472 cfs (341,700 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 20,200 cfs May 1, 1942 (gage height, 10.34 ft); no flow at times in 1940, 1946, 1956.

Remarks.--Flow regulated by John Martin Reservoir (see p. 140). Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation and to Cheyenne Bottoms State Waterfowl Refuge, and return flow from irrigated areas.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,187	414	383	349	372	383	450	3,356	4,089	4,033	725	708	1,378
1952	405	520	453	510	427	459	679	507	215	107	73.4	36.2	366
1953	36.6	83.5	168	241	158	177	148	111	45.2	137	582	57.9	163
1954	50.4	83.4	112	102	173	146	151	164	136	32.6	53.6	33.8	103
1955	24.0	45.0	59.1	93.0	98.3	118	156	804	1,064	241	66.8	63.7	236
1956	105	84.1	123	111	133	130	105	76.3	55.3	117	14.7	1.54	88.1
1957	4.85	24.1	23.5	30.3	75.6	71.9	204	394	1,258	1,134	131	888	353
1958	148	165	193	203	222	321	406	999	753	3,267	1,122	298	681
1959	190	168	219	263	370	311	271	329	171	376	56.1	163	240
1960	617	279	288	235	321	1,444	563	311	452	165	35.0	11.1	395

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	73,000	24,630	23,530	21,460	20,640	23,580	26,780	206,400	243,300	248,000	44,550	42,120	998,000
1952	24,900	30,940	27,850	31,370	24,560	28,230	40,410	31,200	12,790	6,580	4,510	2,150	265,500
1953	2,250	4,970	10,360	14,830	8,760	10,860	8,790	6,810	2,690	8,410	35,770	3,450	118,000
1954	3,100	4,960	6,880	6,250	9,620	8,980	8,990	10,080	8,070	2,010	3,300	2,010	74,250
1955	1,480	2,680	3,630	5,720	5,460	7,240	9,310	49,440	63,330	14,790	4,110	3,790	171,000
1956	6,430	5,000	7,580	6,820	7,660	8,010	6,230	4,690	3,290	7,220	904	91	63,920
1957	298	1,440	1,450	1,860	4,200	4,420	12,120	24,250	74,850	69,710	8,030	52,830	255,500
1958	9,080	9,790	11,840	12,460	12,320	19,710	24,130	61,430	44,790	200,900	68,980	17,740	493,200
1959	11,670	10,020	13,440	16,200	20,530	19,110	16,140	20,250	10,160	23,120	3,450	9,690	173,800
1960	37,950	16,580	17,720	14,450	18,470	88,800	33,510	19,140	26,890	10,170	2,150	659	286,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	693	501,500
1951	1211	13,900	May 25, 1951	140	1,378	998,000	1,327	960,500
1952	1241	2,030	Apr. 22, 1952	28	366	265,500	275	199,400
1953	1281	4,630	Aug. 5, 1953	25	163	118,000	159	115,300
1954	1341	662	Apr. 26, 1954	18	103	74,250	92.7	67,100
1955	1391	5,190	May 23, 1955	14	236	171,000	252	182,200
1956	1441	642	July 9, 1956	0	88.1	63,920	66.3	48,100
1957	1511	6,920	July 1, 1957	.4	353	255,500	391	283,000
1958	1561	15,800	July 30, 1958	110	681	493,200	687	497,600
1959	1631	1,010	July 3, 1959	7.2	240	173,800	291	210,900
1960	1711	7,180	Mar. 24, 1960	3.2	395	286,500	-	-

1419. Walnut Creek at Albert, Kans.

Location.--Lat 38°27'40", long 99°00'50", on west line of sec.29, T.18 S., R.15 W., on right bank at downstream side of pier of highway bridge, 0.2 mile north of Albert, 14 miles northwest of Great Bend, and at mile 43.0.

Drainage area.--1,410 sq mi, approximately, of which 104 sq mi is probably noncontributing.

Records available.--May 1958 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,897.37 ft above mean sea level (Corps of Engineers bench mark).

Extremes.--1958-60: Maximum discharge, 12,700 cfs Sept. 22, 1959 (gage height, 25.75 ft); no flow part of each day Aug. 5-7, 1960 (caused by storage behind temporary dam upstream).

Maximum stage known prior to July 1958 and since at least 1908, 21.3 ft in August 1927, from floodmark and information by local residents (discharge not determined but due to levees built in 1934 is substantially greater than indicated by current rating).

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	46.3	997	193	60.1	-
1959	10.9	10.1	12.0	10.2	13.2	11.5	11.7	31.0	13.0	71.7	15.8	1,370	130
1960	492	32.6	24.3	23.1	43.4	576	118	165	315	37.2	14.0	20.4	156

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	-	-	2,750	61,280	11,850	3,570	-
1959	673	599	741	627	733	709	694	1,910	771	4,410	970	81,520	94,360
1960	30,260	1,940	1,500	1,420	2,500	35,430	7,030	10,130	18,760	2,290	861	1,210	113,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1958	1561	a4,560	July 30, 1958	-	-	-	-	-
1959	1631	12,700	Sept.22, 1959	0.2	130	94,360	174	126,000
1960	1711	4,320	Mar. 23, 1960	.5	156	113,300	-	-

a Maximum during period May to September.

1426.2. Rattlesnake Creek near Raymond, Kans.

Location.--Lat 38°13'50", long 98°25'00", on west line of sec.15, T.21 S., R.10 W., at downstream side of bridge on county road, 3½ miles south of Raymond and 5.4 miles upstream from mouth.

Records available.--April to September 1960.

Drainage area.--1,167 sq mi, of which 569 sq mi is probably noncontributing.

Gage.--Water-stage recorder. Datum of gage is 1,701.64 ft above mean sea level, datum of 1929, supplementary adjustment of 1955. Prior to July 27, 1960, wire-weight gage at same site and datum.

Extremes.--April to September 1960: Maximum discharge, 230 cfs June 17 (gage height, 4.70 ft); minimum, 2.7 cfs Sept. 20.

Maximum stage known since at least 1891, about 8.5 ft, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	-	-	114	131	37.3	17.8	10.4	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	-	-	7,020	7,820	2,290	1,090	622	-

1433. Cow Creek near Lyons, Kans.

Location.--Lat 38°18', long 98°11', in SW¼ sec.15, T.20 S., R.8 W., on left bank 60 ft upstream from Missouri Pacific Railroad Co. bridge, 400 ft downstream from Little Cow Creek, and 3 miles south of Lyons.

Drainage area.--728 sq mi (includes 229 sq mi in Cheyenne Bottoms).

Records available.--October 1937 to September 1951. Monthly discharge only for some periods, published in WSP 1311. Occasional low flow measurements, water years 1954-60. Water year 1960 (annual maximum).

Gage.--Water-stage recorder. Datum of gage is 1,628.16 ft (revised), above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 3, 1938, staff gage at same site and datum.

Average discharge.--14 years (1937-51), 66.7 cfs (48,290 acre-ft per year).

Extremes.--1938-51: Maximum discharge, 12,400 cfs Oct. 20, 1941 (gage height, 20.49 ft), from rating curve extended above 5,000 cfs by logarithmic plotting; no flow at times in 1938, 1946.

Maximum stage known, 22.75 ft July 11, 1929, from records of Missouri Pacific Railroad Co. (discharge, about 28,000 cfs, from rating curve extended above 5,000 cfs on basis of velocity-area studies and logarithmic plotting).

Remarks.--Extreme low flow sustained by waste from salt plants near station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	52.7	21.4	20.5	20.0	23.6	22.5	117	355	291	509	82.8	132	138

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,240	1,280	1,260	1,230	1,310	1,390	6,950	21,820	17,330	31,270	5,090	7,850	100,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950							130	94,060
1951	1211	6,300	July 13, 1951	16	138	100,000	-	-
1960	1711	-	Oct. 2, 1959	-	-	-	-	-

1433.3. Arkansas River near Hutchinson, Kans.

Location.--Lat 37°56'47", long 97°46'29", on west line of sec.21, T.24 S., R.4 S., on downstream side of bridge on State Highway 96, 3 miles north of Haven, 4.5 miles downstream from Cow Creek, 11 miles southeast of Hutchinson, and at mile 800.3.

Drainage area.--38,910 sq mi, of which 7,186 sq mi is probably noncontributing.

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,454.10 ft above mean sea level, datum of 1929. Prior to June 22, 1960, wire-weight gage at same site and datum.

Extremes.--1959-60: Maximum discharge, 11,900 cfs Mar. 26, 1960 (gage height, 11.20 ft); minimum, 159 cfs Sept. 18-22, 1960.

Flood in May 1941 reached a stage of about 12.1 ft, the highest known since at least 1901, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	1,767	551	478	502	938	3,303	1,517	1,057	1,495	556	333	295	1,068

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	108,700	32,790	29,370	30,850	53,940	203,100	90,290	65,000	88,960	34,210	20,500	17,560	775,300

1442. Little Arkansas River at Valley Center, Kans.

Location.--Lat 37°49'56", long 97°23'16", river gage is in W½ sec.36, T.25 S., R.1 W., near right bank on downstream side of highway bridge, half a mile west of Valley Center and at mile 15.6. Little Arkansas River floodway gage is in NE¼ sec.34, T.25 S., R.1 W., near center of stream on downstream side of highway bridge, 1.2 miles northwest of river gage.

Drainage area.--1,327 sq mi, of which about 77 sq mi is probably noncontributing.

Records available.--June 1922 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--River gage is water-stage recorder. Datum of gage is 1,327.66 ft above mean sea level, datum of 1929. Prior to Feb. 12, 1935, chain gage at site 2 miles downstream at different datum. Feb. 12, 1935, to July 1, 1951, water-stage recorder and July 2, 1951, to Feb. 16, 1952, wire-weight gage, at present site and datum. Floodway gage is water-stage recorder. Datum of floodway gage is 1,340.00 ft above mean sea level (levels by Wichita-Valley Center Flood Control Project).

Average discharge.--38 years (1922-60), 244 cfs (176,600 acre-ft per year).

Extremes.--1922-60: Maximum discharge, 32,000 cfs Apr. 16, 1945 (gage height, 22.05 ft), from rating curve extended above 12,000 cfs on basis of slope-area measurement of peak flow; minimum, 1.0 cfs Oct. 6, 1956.

Remarks.--Natural flow of stream affected by diversions and ground-water withdrawal for irrigation and municipal supply. Since May 1957, part of high-water flow bypasses river gage through floodway channel for which separate records are computed; figures representing combined discharges are given herein. Records of suspended sediment loads and water temperatures for water years 1958-60 are published in reports of Geological Survey.

Cooperation.--Gage-height record at floodway gage collected in cooperation with Wichita-Valley Center Flood Control Project.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	148	65.4	61.0	58.5	65.5	68.4	146	3,464	1,785	4,143	361	1,205	973
1952	478	161	119	119	98.7	331	369	262	114	46.2	37.8	30.1	181
1953	29.2	36.8	46.1	42.0	39.3	64.5	40.9	95.5	48.7	103	33.0	19.4	50.1
1954	18.8	25.3	34.4	25.9	36.2	32.5	32.8	156	52.6	15.9	21.2	13.2	38.8
1955	15.7	14.8	17.3	19.1	24.7	19.4	34.2	43.0	39.7	11.1	6.29	400	53.3
1956	372	21.6	20.5	19.3	22.6	17.0	17.1	17.0	32.8	16.6	4.29	3.49	47.5
1957	5.06	10.9	11.2	9.37	11.8	76.1	352	2,739	1,187	767	49.3	61.7	444
1958	42.5	44.7	36.5	36.3	39.6	883	230	563	61.4	2,171	234	736	428
1959	94.2	58.8	54.9	66.6	102	126	86.3	703	91.7	234	29.4	38.0	141
1960	363	59.4	48.9	144	375	1,281	236	1,273	826	83.5	1,112	569	533

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,120	3,890	3,750	3,590	3,640	4,210	8,680	213,000	106,200	254,800	22,190	71,690	704,800
1952	29,390	9,570	7,340	7,330	5,680	20,340	21,940	16,120	6,800	2,840	2,330	1,790	131,500
1953	1,800	2,190	2,840	2,580	2,180	3,970	2,430	5,870	2,900	6,330	2,030	1,160	36,280
1954	1,160	1,510	2,110	1,590	2,010	2,000	1,950	9,580	3,130	975	1,310	785	28,110
1955	966	883	1,070	1,170	1,370	1,190	2,040	2,650	2,360	682	387	23,790	38,560
1956	22,900	1,290	1,260	1,190	1,300	1,050	1,020	1,050	1,950	1,020	264	208	34,500
1957	311	649	686	576	654	4,679	20,960	168,400	70,640	47,140	3,030	3,670	321,400
1958	2,610	2,660	2,240	2,230	2,200	54,280	13,670	34,630	3,650	133,500	14,390	43,790	309,800
1959	5,790	3,500	3,370	4,100	5,640	7,770	5,140	43,200	5,460	14,400	1,800	2,260	102,400
1960	22,300	3,530	3,000	8,830	21,580	78,770	14,050	78,300	49,140	5,140	68,390	33,880	386,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	344	248,900
1951	1211	22,400	May 17, 1951	30	973	704,800	1,014	734,300
1952	1241	2,750	Oct. 6, 1951	28	181	131,500	127	92,000
1953	1281	643	July 15, 1953	16	50.1	36,280	47.3	34,230
1954	1341	1,440	May 3, 1954	9.8	38.8	28,110	36.2	26,250
1955	1391	3,560	Sept. 29, 1955	4.0	53.3	38,560	84.4	61,090
1956	1441	2,710	Oct. 3, 1955	2.6	47.5	34,500	14.7	10,700
1957	1511	19,800	May 17, 1957	1.1	444	321,400	452	327,300
1958	1561	11,300	July 17, 1958	27	428	309,800	435	315,000
1959	1631	3,240	May 12, 1959	20	141	102,400	164	118,600
1960	1711	11,200	Aug. 27, 1960	35	533	386,900	-	-

1443. Arkansas River at Wichita, Kans.

Location.--Lat 37°41'08", long 97°20'34", river gage is in sec.20, T.27 S., R.1 E., near left bank on downstream side of pier of Douglas Avenue Bridge in Wichita, half a mile downstream from Little Arkansas River and at mile 762.9. Big Slough-Cowskin Floodway gage is in sec.11, T.27 S., R.1 W., at center of stream on downstream side of Bickel Avenue Bridge in Wichita, 1 mile downstream from control structure and 4 miles northwest of Douglas Avenue gage.

Drainage area.--40,420 sq mi, of which 7,263 sq mi is probably noncontributing.

Records available.--July 1934 to September 1960. Gage-height records collected at same site since 1897 are contained in reports of U. S. Weather Bureau.

Gage.--River gage is water-stage recorder. Datum of gage is 1,277.81 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1956, datum of gage was 3.00 ft higher. Floodway gage is water-stage recorder. Datum of floodway gage is 1,300.00 ft above mean sea level (levels by Wichita-Valley Center Flood Control Project).

Average discharge.--26 years (1934-60), 1,100 cfs (796,400 acre-ft per year).

Extremes.--1934-60: Maximum discharge, 30,700 cfs May 17, 1957; minimum, 3 cfs Sept. 3, 1934.

Floods of May 18, 1877, and July 8, 1904, reached stages of 21 and 20.3 ft, respectively, present river gage site and datum (from reports of U. S. Weather Bureau).

Remarks.--Some diurnal fluctuation of low flow from dam at mouth of Little Arkansas River. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation, and return flow from irrigated areas. Since May 1957, part of high-water flow bypasses river gage through floodway channel for which separate records are computed; figures representing combined discharges are given herein.

Cooperation.--Gage-height record collected in cooperation with U. S. Weather Bureau and Wichita-Valley Center Flood Control Project.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,423	814	746	681	780	834	991	9,215	8,851	12,080	2,405	3,573	3,640
1952	1,678	1,331	985	1,156	979	1,397	1,912	1,468	722	263	231	107	1,019
1953	109	203	333	417	380	492	324	356	153	379	843	137	345
1954	92.3	178	304	209	340	300	232	508	424	59.0	29.6	30.4	225
1955	27.1	60.5	88.0	130	150	175	284	563	1,254	385	87.2	608	316
1956	1,417	210	197	193	262	238	203	157	119	118	14.2	7.90	263
1957	10.2	30.7	23.4	18.8	53.7	240	846	5,326	4,309	4,195	623	1,613	1,449
1958	820	617	494	451	451	2,322	1,934	2,464	1,195	6,939	4,057	2,503	2,039
1959	992	610	625	573	801	842	807	2,320	685	1,046	366	772	872
1960	2,457	692	590	708	1,270	4,409	1,800	2,383	2,133	706	1,773	998	1,665

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	149,000	48,420	45,860	41,850	43,350	51,260	58,990	566,600	526,700	742,600	147,900	212,600	2,635,000
1952	103,200	79,220	60,550	71,060	56,300	85,920	113,800	90,290	42,930	16,150	14,230	6,360	740,000
1953	6,690	12,080	20,470	25,630	21,080	30,220	19,270	21,870	9,100	23,300	51,840	8,130	249,700
1954	5,670	10,580	18,710	12,820	18,870	18,420	13,800	31,240	25,220	3,630	1,820	1,810	162,600
1955	1,670	3,600	5,410	7,990	8,320	10,780	16,880	34,640	74,610	23,670	5,360	36,200	229,100
1956	87,110	12,500	12,130	11,890	15,100	14,620	12,070	9,630	7,060	7,230	871	470	190,700
1957	625	1,830	1,440	1,160	2,980	14,760	50,360	327,500	256,400	258,000	38,300	95,980	1,049,000
1958	50,450	36,690	30,370	27,750	25,050	142,800	115,100	151,500	71,130	426,600	249,500	149,000	1,476,000
1959	61,000	36,270	38,460	35,210	44,510	51,750	48,040	142,600	40,740	64,290	22,500	45,940	631,300
1960	151,100	41,160	36,270	43,550	73,070	271,100	107,100	146,500	126,900	43,380	109,000	59,410	1,209,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,787	1,294,000
1951	1211	27,600	July 1, 1951	250	3,640	2,635,000	3,639	2,635,000
1952	1241	5,210	Apr. 24, 1952	81	1,019	740,000	739	536,300
1953	1281	5,320	Aug. 7, 1953	73	345	249,700	339	245,400
1954	1341	1,470	May 3, 1954	19	225	162,600	191	138,300
1955	1391	4,750	Sept. 29, 1955	7	316	229,100	456	330,200
1956	1441	12,300	Oct. 3, 1955	6	263	190,700	114	82,840
1957	1511	30,700	May 17, 1957	5	1,449	1,049,000	1,606	1,163,000
1958	1561	18,200	July 17, 1958	270	2,039	1,476,000	2,064	1,494,000
1959	1631	6,120	May 12, 1959	140	872	631,300	1,000	724,100
1960	1711	17,100	Mar. 27, 1960	295	1,665	1,209,000	-	-

1448. North Fork Ninnescah River near Cheney, Kans.

Location.--Lat 37°40', long 97°46', on line between secs.28 and 33, T.27 S., R.4 W., near right bank on downstream side of pier of bridge on U. S. Highway 54, 3 miles northeast of Cheney, 4 miles upstream from Spring Creek, 22 miles west of Wichita, and at mile 8.8.

Drainage area.--930 sq mi, of which 237 sq mi is probably noncontributing.

Records available.--August 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,336.45 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Dec. 1, 1950, wire-weight gage at same site and datum.

Average discharge.--10 years (1950-60), 169 cfs (122,400 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 23,700 cfs May 16, 1957 (gage height, 15.09 ft); no flow at times in 1953-56.
Flood in June 1923 reached a stage of about 13.9 ft, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	-	-	-	-	176	-
1951	121	99.1	111	112	150	152	164	1,238	1,126	510	174	1,082	420
1952	288	252	184	204	181	312	407	237	62.7	13.8	78.8	7.44	186
1953	17.6	49.3	95.9	117	97.5	149	74.7	83.3	12.6	34.9	9.20	.48	61.8
1954	12.0	52.8	72.3	58.6	87.5	67.1	49.6	178	43.4	.82	0	0	51.7
1955	.11	11.9	31.1	48.4	57.8	50.6	42.2	43.2	298	21.7	3.53	89.1	57.6
1956	483	37.8	49.1	48.7	84.7	58.0	45.6	50.0	9.14	15.1	.01	.04	74.0
1957	16.6	14.1	20.6	18.0	41.8	80.3	213	1,394	1,296	340	30.1	72.9	296
1958	87.0	122	106	115	99.8	496	272	250	95.4	296	62.0	404	201
1959	99.3	85.9	86.9	123	126	199	134	400	94.6	181	35.5	12.2	132
1960	355	118	122	183	291	462	286	258	145	36.0	160	81.2	208

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	-	-	-	-	10,490	-
1951	7,430	5,890	6,830	6,890	8,330	9,340	9,730	76,100	66,970	31,380	10,680	64,400	304,000
1952	17,690	14,970	11,310	12,540	10,410	19,210	24,230	14,600	3,730	850	4,850	443	134,800
1953	1,080	2,930	5,900	7,190	5,410	9,170	4,440	5,120	749	2,150	566	29	44,730
1954	739	3,140	4,440	3,600	4,860	4,130	2,950	10,940	2,580	51	0	0	37,430
1955	67	706	1,910	2,980	3,210	3,110	2,510	2,660	17,720	1,340	217	5,300	41,670
1956	29,730	2,250	3,020	3,000	4,870	3,560	2,710	3,070	544	927	.8	24	53,680
1957	1,020	841	1,270	1,100	2,320	4,940	12,680	85,700	77,090	20,910	1,850	4,340	214,100
1958	5,350	7,240	6,490	7,050	5,540	30,520	16,170	15,350	5,670	18,200	3,810	24,040	145,400
1959	6,110	5,110	5,340	7,530	7,020	12,210	8,000	24,610	5,630	11,110	2,180	727	95,580
1960	21,830	7,050	7,490	11,270	16,740	28,390	17,000	15,860	8,620	2,220	9,860	4,830	151,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	1211	-	-	-	-	-	-	-
1951	1211	14,800	Sept. 5, 1951	38	420	304,000	453	327,800
1952	1241	1,680	Apr. 23, 1952	3.1	186	134,800	139	100,800
1953	1281	391	Mar. 14, 1953	0	61.8	44,730	59.6	43,140
1954	1341	1,440	May 24, 1954	0	51.7	37,430	43.8	31,730
1955	1391	2,770	June 18, 1955	0	57.6	41,670	102	74,050
1956	1441	14,200	Oct. 2, 1955	0	74.0	53,680	30.1	21,820
1957	1511	23,700	May 16, 1957	0	296	214,100	318	230,000
1958	1561	4,740	Sept.16, 1958	28	201	145,400	197	142,900
1959	1631	2,630	May 10, 1959	9.3	132	95,580	159	115,400
1960	1711	7,560	Aug. 26, 1960	11	208	151,200	-	-

1452. South Fork Ninnescah River near Murdock, Kans.

Location.--Lat 37°34', long 97°51', on line between sec.34, T.28 S., R.5 W., and sec.3, T.29 S., R.5 W., near right bank on downstream side of pier of county highway bridge, 4 miles southeast of Murdock and at mile 68.0.

Drainage area.--650 sq mi, of which 107 sq mi is probably noncontributing.

Records available.--August 1950 to September 1959.

Gage.--Water-stage recorder. Datum of gage is 1,357.81 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Mar. 30, 1951, wire-weight gage at same site and datum.

Average discharge.--9 years (1950-59), 189 cfs (136,800 acre-ft per year).

Extremes.--1950-59: Maximum discharge, 25,900 cfs June 26, 1957 (gage height, 11.87 ft); minimum, 7.9 cfs Aug. 4, 8, 9, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	-	-	-	-	198	-
1951	132	142	170	146	180	182	183	842	809	747	154	764	348
1952	261	262	234	220	188	265	443	222	158	53.7	150	59.4	209
1953	80.3	135	178	148	136	188	142	131	47.0	135	52.3	37.7	118
1954	83.4	134	149	118	146	118	111	304	97.3	31.2	25.2	34.8	113
1955	60.2	83.5	97.3	99.4	123	93.9	84.3	152	552	81.4	55.7	122	133
1956	212	90.8	111	119	127	97.9	88.1	86.7	41.5	60.5	13.7	19.0	89.0
1957	38.4	71.9	79.6	72.1	125	130	204	1,100	1,808	260	65.4	132	340
1958	137	139	133	144	140	277	228	218	256	249	96.5	278	191
1959	107	117	122	142	138	199	148	420	119	220	94.5	85.9	160
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	-	-	-	-	11,760	-
1951	8,140	8,460	10,480	8,960	10,000	11,200	10,910	51,790	48,150	29,120	9,450	45,460	252,100
1952	16,060	15,560	14,370	13,510	10,790	16,290	26,380	13,630	9,410	3,300	9,240	3,530	152,100
1953	4,930	8,040	10,920	9,090	7,540	11,530	8,450	8,070	2,800	8,290	3,210	2,250	85,120
1954	5,130	7,980	9,190	7,270	8,120	7,250	6,610	18,670	5,790	1,920	1,550	2,070	81,550
1955	3,700	4,970	5,980	6,110	6,850	5,770	5,020	9,340	32,860	5,010	3,430	7,290	96,330
1956	13,020	5,400	6,830	7,310	7,300	6,020	5,240	5,330	2,470	3,720	843	1,130	64,610
1957	2,360	4,280	4,890	4,440	6,950	8,010	12,120	67,660	107,600	15,990	4,020	7,850	246,200
1958	8,390	8,260	8,190	8,860	7,800	17,010	13,550	13,420	15,200	15,290	5,940	16,530	138,400
1959	6,600	6,960	7,500	8,730	7,650	12,240	8,820	25,830	7,070	13,540	5,810	5,110	115,900
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	1211	a6,000	Aug. 30, 1950	-	-	-	-	-
1951	1211	7,080	Sept. 5, 1951	60	348	252,100	374	271,000
1952	1241	2,970	Apr. 20, 1952	37	209	152,100	179	130,000
1953	1281	1,080	July 13, 1953	25	118	85,120	115	83,530
1954	1341	3,200	May 27, 1954	11	113	81,550	102	73,900
1955	1391	4,340	June 5, 1955	20	133	96,330	148	106,900
1956	1441	1,980	Oct. 2, 1955	7.9	89.0	64,610	70.1	50,890
1957	1511	25,900	June 26, 1957	22	340	246,200	358	259,500
1958	1561	7,040	Sept.16, 1958	66	191	138,400	186	134,700
1959	1631	7,280	May 11, 1959	37	160	115,900	-	-
1960								

a Maximum during period August to September.

1455. Ninnescah River near Peck, Kans.

Location.--Lat 37°28', long 97°25', in NW¼ sec.10, T.30 S., R.1 W., near center of span on downstream side of pier of highway bridge, 3 miles southwest of Peck and at mile 31.6.

Drainage area.--2,129 sq mi, of which 344 sq mi is probably noncontributing.

Records available.--October 1937 to September 1960. Prior to April 1938 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,222.38 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 4, 1939, wire-weight gage at same site and datum.

Average discharge.--23 years (1937-60), 546 cfs (395,300 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 38,200 cfs May 17, 1957 (gage height, 21.85 ft); minimum daily, 0.2 cfs Sept. 3, 1956.
Maximum stage known, 26.4 ft June 9, 1923, from floodmark.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	290	247	281	309	371	408	695	3,743	2,485	1,603	439	2,589	1,124
1952	650	683	480	515	436	761	985	524	394	78.5	215	63.5	482
1953	87.3	165	292	281	264	489	248	341	59.7	167	103	26.3	211
1954	70.3	174	223	192	241	198	155	743	186	18.3	8.63	17.0	186
1955	47.7	80.9	114	146	192	157	134	330	1,167	110	47.6	205	226
1956	920	147	185	172	232	167	171	129	43	100	5.43	3.24	191
1957	46.3	82.8	95.5	81.5	160	214	607	3,488	3,813	947	157	301	834
1958	260	326	267	283	281	1,164	623	528	425	809	197	1,341	543
1959	279	264	274	321	361	471	350	971	358	884	186	121	405
1960	1,755	373	349	459	818	1,312	676	768	474	284	457	240	665

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17,830	14,710	17,260	19,010	20,610	25,100	41,350	230,100	147,900	98,540	26,970	154,100	813,500
1952	39,970	40,660	29,490	31,670	25,070	46,770	58,580	32,200	23,440	4,830	13,240	3,780	349,700
1953	5,370	9,810	17,940	17,300	14,670	30,040	14,730	20,950	3,550	10,300	6,330	1,560	152,600
1954	4,320	10,340	13,730	11,790	13,410	12,140	9,210	45,690	11,080	1,130	531	1,010	134,400
1955	2,930	4,820	7,030	8,990	10,640	9,640	7,980	20,310	69,420	6,780	2,930	12,200	163,700
1956	56,560	8,750	11,380	10,570	13,350	10,300	10,190	7,960	2,560	6,150	334	193	138,300
1957	2,850	4,920	5,870	5,010	8,860	13,130	36,100	214,500	226,900	58,200	9,650	17,900	603,900
1958	16,010	19,410	16,390	17,420	15,610	71,550	37,080	32,490	25,270	49,730	12,090	79,790	392,800
1959	17,140	15,710	16,840	19,750	20,060	28,980	20,850	59,720	21,290	54,330	11,420	7,180	293,300
1960	107,900	22,210	21,440	28,230	47,040	80,690	40,250	47,190	28,220	17,470	28,070	14,250	483,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	447	323,700
1951	1211	25,100	May 17, 1951	130	1,124	813,500	1,207	873,800
1952	1241	3,970	June 5, 1952	45	482	349,700	376	272,700
1953	1281	4,540	Mar. 31, 1953	18	211	152,600	204	147,800
1954	1341	7,480	May 28, 1954	1.0	186	134,400	167	120,800
1955	1391	7,010	June 6, 1955	13	226	163,700	312	225,600
1956	1441	12,300	Oct. 3, 1955	.2	191	138,300	104	75,250
1957	1511	38,200	May 17, 1957	5.4	834	603,900	887	642,100
1958	1561	15,000	Sept.17, 1958	119	543	392,800	540	390,700
1959	1631	10,700	July 23, 1959	56	405	293,300	546	395,100
1960	1711	15,000	Oct. 3, 1959	99	665	483,000	-	-

1465. Arkansas River at Arkansas City, Kans.

Location.--Lat 37°03'30", long 97°03'24", in NE¼ sec.35, T.34 S., R.3 E., near left bank on downstream side of pier of bridge on U. S. Highway 166, 0.1 mile downstream from St. Louis-San Francisco Railway Co. bridge, 0.5 mile west of Arkansas City, 5.4 miles upstream from Walnut River, and at mile 701.4.

Drainage area.--43,713 sq mi, of which 7,607 sq mi is probably noncontributing.

Records available.--September 1902 to September 1906, September 1921 to September 1960. Published as "near Arkansas City" 1903-4. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,050.04 ft above mean sea level (levels by Corps of Engineers). Sept. 23, 1902, to July 31, 1906, staff gage at site 0.5 mile upstream at datum 9.5 ft higher. Sept. 10, 1921, to Sept. 27, 1929, chain gage and Sept. 28, 1929, to Aug. 28, 1956, water-stage recorder, at site 0.5 mile upstream at datum 2.97 ft higher than present datum.

Average discharge.--43 years (1902-6, 1921-60), 1,743 cfs (1,262,000 acre-ft per year).

Extremes.--1902-6, 1921-60: Maximum discharge, 103,000 cfs June 10, 1923 (gage height, 25.46 ft, from floodmarks, site and datum then in use), from rating curve extended above 8,000 cfs on basis of field estimate; minimum, 1 cfs Oct. 9, 1921 (result of diversion by local power canal).

Remarks.--Flow regulated by John Martin Reservoir (see p. 140). Diversions above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,047	1,389	1,331	1,277	1,437	1,535	2,056	15,850	12,960	17,190	3,622	7,870	5,830
1952	2,904	2,802	1,839	2,014	1,840	2,708	3,288	2,429	1,628	549	617	269	1,907
1953	288	449	679	867	825	1,048	918	770	308	565	849	229	650
1954	233	416	554	405	617	578	439	1,241	750	190	72.3	66.7	463
1955	81.6	145	194	293	373	377	468	1,289	3,010	704	223	632	647
1956	3,571	494	449	463	559	490	453	372	248	272	66.5	32.4	626
1957	64.9	129	146	127	231	408	2,207	10,420	10,480	6,726	2,218	2,514	2,900
1958	1,342	1,455	965	996	1,006	4,418	3,519	3,619	2,062	9,493	4,978	4,313	3,202
1959	1,771	1,195	1,183	1,166	1,500	1,652	1,338	3,560	1,406	3,083	1,089	1,239	1,688
1960	7,744	1,448	1,226	1,402	2,767	6,394	3,397	3,935	3,186	1,501	3,728	1,882	3,228

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	187.4	82.65	81.84	78.51	79.81	94.37	122.3	974.7	771.4	1,057	222.7	468.3	4,221
1952	178.6	166.7	113.1	123.8	105.8	166.5	195.6	149.4	96.86	33.75	37.94	16.03	1,384
1953	17.7	26.73	41.75	53.3	45 84	64.45	54.65	47.33	18.33	34.71	52.19	13.65	470.6
1954	14.35	24.77	34.09	24.92	34.29	35.52	26.14	76.33	44.63	11.71	4.45	3.97	335.2
1955	5.02	8.65	11.94	18.02	20.7	23.16	27.83	79.24	179.1	43.31	13.7	37.58	468.2
1956	219.6	29.37	27.59	28.46	32.16	30.1	26.96	22.87	14.74	16.73	4.09	1.93	454.6
1957	3.99	7.65	8.99	7.81	12.82	25.07	131.3	640.4	623.4	413.6	74.86	149.6	2,099
1958	82.53	86.6	59.31	61.26	55.89	271.7	209.4	222.5	122.7	583.7	306.1	256.7	2,318
1959	108.9	71.11	72.75	71.72	83.31	101.6	79.62	218.9	83.69	189.6	66.95	73.75	1,222
1960	476.2	86.16	75.39	86.19	159.1	393.1	202.1	242	189.6	92.27	229.2	112	2,343

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	2,944	2,131,000
1951	1211	66,000	May 19, 1951	700	5,830	4,221,000	5,978	4,327,000
1952	1241	9,170	Apr. 24, 1952	222	1,907	1,384,000	1,394	1,012,000
1953	1281	5,360	Apr. 1, 1953	150	650	470,600	632	457,700
1954	1341	7,260	May 29, 1954	24	463	335,200	397	287,600
1955	1391	11,600	May 26, 1955	32	647	468,200	993	719,200
1956	1441	21,500	Oct. 4, 1955	27	626	454,600	274	198,700
1957	1511	73,100	May 18, 1957	27	2,900	2,099,000	3,187	2,307,000
1958	1561	22,100	July 4, 1958	660	3,202	2,318,000	3,236	2,343,000
1959	1631	12,700	May 12, 1959	337	1,688	1,222,000	2,219	1,607,000
1960	1711	39,100	Oct. 3, 1959	473	3,228	2,343,000	-	-

1471. Whitewater River at Augusta, Kans.

Location.--Lat 37°44'20", long 97°00'30", on north line sec.4, T.27 S., R.4 E., on downstream side near center of span of highway bridge, 4 miles northwest of Augusta and 6.6 miles upstream from mouth.

Drainage area.--456 sq mi; at site November 1950 to April 1954, 473 sq mi.

Records available.--November 1950 to September 1955.

Gage.--Wire-weight gage. Altitude of gage is 1,220 ft (from topographic map). Nov. 17, 1950, to Apr. 17, 1951, wire-weight gage and Apr. 18, 1951, to Apr. 18, 1954, water-stage recorder, 3 miles downstream (at Loomis bridge) at datum 1,202.95 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Oct. 1, 1952, to Apr. 18, 1954, auxiliary staff gage on Walnut River at Augusta.

Extremes.--1950-55: Maximum discharge, 27,200 cfs May 27, 1953; maximum gage height, 26.52 ft May 27, 1953 (site and datum then in use); no flow at times in 1954-55.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	22.5	22.4	124	69.1	136	1,535	1,238	2,039	200	760	-
1952	198	87.8	58.8	51.8	41.0	201	194	206	43.4	23.1	16.3	4.69	94.3
1953	4.43	10.7	18.6	15.5	12.9	97.4	32.2	768	97.7	27.6	5.89	2.95	90.9
1954	3.17	6.48	7.35	5.15	8.34	17.2	8.90	13.8	6.33	3.97	.55	1.06	6.85
1955	7.44	2.00	1.74	1.97	19.2	1.87	2.45	45.1	69.0	2.36	.14	27.7	14.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	1,390	1,380	6,880	4,250	8,070	94,360	73,690	125,400	12,300	45,240	-
1952	12,180	5,220	3,620	3,190	2,360	12,380	11,550	12,660	2,580	1,420	1,000	279	68,440
1953	273	636	1,140	954	718	5,990	1,920	47,240	4,740	1,700	362	176	65,850
1954	195	386	452	316	463	1,060	529	849	377	244	34	63	4,970
1955	457	119	107	121	1,070	115	146	2,770	4,100	145	8.3	1,650	10,810

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1951	1211	11,800	May 1, 1951	-	-	-	542	392,600
1952	1241	2,680	Oct. 7, 1951	3.8	94.3	68,440	68.2	49,470
1953	1281	27,200	May 27, 1953	2.1	90.9	65,850	89.5	64,830
1954	1341	348	Mar. 25, 1954	0	6.85	4,970	6.37	4,620
1955	1391	900	June 18, 1955	0	14.9	10,810	-	-

1478. Walnut River at Winfield, Kans.

Location.--Lat 37°14', long 97°00', in NE¼ sec.33, T.32 S., R.4 E., near left bank on pier of bridge on U. S. Highway 77, 1 mile south of Winfield, 1 mile upstream from Black Crook Creek, and at mile 24.3.

Drainage area.--1,840 sq mi.

Records available.--October 1921 to September 1960. October to November 1921 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,082.86 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 1, 1934, chain gage on upstream side of former bridge just upstream from present gage at same datum.

Average discharge.--39 years (1921-60), 726 cfs (525,600 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 105,000 cfs Apr. 23, 1944 (gage height, 38.30 ft); no flow at times in 1929, 1936, 1954-56.
Maximum floods known since at least 1877, that of Apr. 23, 1944, discharge, 105,000 cfs (gage height, 38.30 ft) and Nov. 18, 1928, discharge, 94,400 cfs (gage height, 41.0 ft, from graph based on gage readings at former site).

Remarks.--Some regulation at low flow by City Water Works Dam above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	156	104	104	92.8	360	311	679	6,305	4,921	9,335	722	3,251	2,210
1952	666	933	378	304	218	1,493	1,156	868	319	85.8	69.4	18.3	544
1953	14.9	36.6	47.6	38.0	40.8	91.4	374	1,425	234	75.0	22.5	7.31	202
1954	15.9	35.2	34.3	24.4	28.5	33.0	35.0	74.9	24.8	8.75	.09	0	26.2
1955	14.3	7.17	6.80	11.7	32.8	9.69	8.87	213	295	32.3	2.02	37.7	55.7
1956	534	8.74	11.0	10.6	16.4	10.9	16.6	4.50	105	80.0	8.37	.22	67.9
1957	0	.84	4.12	4.33	7.10	8.73	829	4,250	4,286	705	98.5	329	879
1958	113	382	126	148	237	3,800	1,007	371	441	3,266	177	1,005	931
1959	131	182	113	113	140	159	431	1,071	299	3,967	864	250	651
1960	5,495	360	491	638	814	2,204	872	1,613	647	546	1,712	300	1,319

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,580	6,180	6,410	5,710	19,980	19,130	40,410	387,700	292,800	574,000	44,400	193,500	1,600,000
1952	40,920	55,520	23,270	18,700	12,530	91,830	68,820	53,390	18,970	5,280	4,270	1,090	394,600
1953	918	2,180	2,930	2,340	2,270	5,620	22,280	87,640	13,920	4,610	1,380	435	146,500
1954	976	2,090	2,110	1,500	1,580	2,030	2,080	4,610	1,480	538	5.4	0	19,000
1955	880	427	418	718	1,820	596	528	13,080	17,540	1,980	124	2,240	40,350
1956	32,850	520	679	653	944	668	985	277	6,240	4,920	515	13	49,260
1957	0	50	253	266	394	537	49,330	261,300	255,000	43,330	6,050	19,560	636,100
1958	6,920	22,750	7,760	9,080	13,140	233,700	59,920	22,820	26,250	200,800	10,890	59,780	673,800
1959	8,070	10,830	6,920	6,970	7,770	9,750	25,650	65,870	17,790	243,900	53,110	14,880	471,500
1960	337,900	21,450	30,220	39,240	46,800	135,500	51,910	99,200	38,470	33,570	105,200	17,830	957,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	827	598,500
1951	1211	83,000	July 1, 1951	62	2,210	1,600,000	2,344	1,697,000
1952	1241	10,500	Mar. 11, 1952	12	544	394,600	387	280,900
1953	1281	21,700	May 30, 1953	2.6	202	146,500	201	145,700
1954	1341	462	May 28, 1954	0	26.2	19,000	21.5	15,550
1955	1391	3,730	June 18, 1955	0	55.7	40,350	100	72,670
1956	1441	5,630	Oct. 3, 1955	0	67.9	49,260	21.4	15,520
1957	1511	30,100	May 19, 1957	0	879	636,100	930	673,200
1958	1561	27,700	July 4, 1958	58	931	673,800	915	662,200
1959	1631	27,100	July 18, 1959	80	651	471,500	1,154	835,300
1960	1711	30,500	Oct. 4, 1959	90	1,319	957,300	-	-

1483.5. Salt Fork Arkansas River near Winchester, Okla.

Location.--Lat 36°57'45", long 98°47'00", in SE¼ sec.26, T.29 N., R.15 W., near left bank on downstream side of county highway bridge, 1 mile northeast of Winchester, 2.5 miles upstream from Greenwood Creek, 4.9 miles downstream from Yellowstone Creek, 5 miles downstream from State line, 19 miles northwest of Alva, and at mile 156.2 (revised).

Drainage area.--856 sq mi (revised).

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 1,440 ft (from topographic map).

Extremes.--1959-60: Maximum discharge recorded, 10,500 cfs (revised) Aug. 26, 1960 (gage height, 10.91 ft), from rating curve extended above 3,900 cfs by logarthmic plotting and velocity-area study; minimum daily, 0.1 cfs Aug. 7, 1960.

Flood in May 1957 reached a stage of 15.4 ft, from information by county engineer.

Remarks.--Records of chemical analyses and water temperatures for the period June to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	‡280	‡70	‡70	69.7	208	189	79.6	135	51.7	53.3	*238	10.7	‡122

* Revised; revised daily discharges for the period thus affected are available and will be published in a future water-supply paper.

‡ Not previously published; estimated on basis of weather records and records for Medicine Lodge River near Kiowa, Kans.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	‡17,220	‡4,170	‡4,300	4,290	11,950	11,620	4,740	8,280	3,080	3,280	*14,640	638	‡88,210

* Revised; see footnote to preceding table.

‡ Not previously published; see footnote to preceding table.

1484. Salt Fork Arkansas River near Alva, Okla.

Location.--Lat 36°48'45", long 98°38'50", in SW¼SW¼ sec.18, T.27 N., R.13 W., near left bank on downstream side of pier of bridge on State Highway 14, 1 mile northeast of Alva, 19.0 miles upstream from Medicine Lodge River, and at mile 126.0.

Drainage area.--1,009 sq mi.

Records available.--April 1904 to December 1905 (gage heights and discharge measurements only), October 1937 to September 1951. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,297.04 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). During 1904-5, chain gage at site three-quarters of a mile upstream at different datum. Feb. 10 to Mar. 4, 1938, chain gage at present site and datum.

Average discharge.--14 years (1937-51), 158 cfs (114,400 acre-ft per year).

Extremes.--1937-51: Maximum discharge, 27,000 cfs Oct. 23, 1941, from rating curve extended above 13,000 cfs by logarithmic plotting; maximum gage height, 9.43 ft May 16, 1949; no flow at times in most years.
Maximum stage known, 10.6 ft May 16, 1957, from floodmark.

Remarks.--Extreme low flow sustained by sewage from Alva. Records of chemical analyses and water temperatures for water year 1951 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15.5	27.5	31.3	37.3	69.3	61.7	57.9	792	1,420	361	30.7	231	261

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	955	1,640	1,920	2,290	3,850	3,790	3,450	48,670	84,490	22,220	1,880	13,720	188,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	--	-	-	-	-	102	73,940
1951	1211	21,700	June 30, 1951	-	261	188,900	-	-

1490. Medicine Lodge River near Kiowa, Kans.

Location.--Lat 37°03', long 98°28', in SW¼ sec.36, T.34 S., R.11 W., at downstream side of bridge on State Highway 14, 200 ft downstream from The Atchison, Topeka and Santa Fe Railway Co. bridge and 1½ miles northeast of Kiowa.

Drainage area.--914 sq mi.

Records available.--May 1895 to October 1896, October 1937 to September 1950, October 1954 to September 1955, June 1959 to September 1960. Published as Medicine River near Kiowa 1895-96. All figures of discharge above 2,000 cfs for June and July 1896, published in Eighteenth Annual Report of Geological Survey (Part 4), have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 1,286.99 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). May 1895 to Oct. 1896, staff gage at site 2 miles upstream at different datum. Feb. 11 to Mar. 2, 1938, chain gage and Mar. 3, 1938, to Sept. 30, 1944, water-stage recorder, at present site at datum 3.00 ft higher. Oct. 1, 1944, to Sept. 30, 1950, and Oct. 1, 1954, to Sept. 30, 1955, water-stage recorder at present site and datum.

Average discharge.--15 years (1937-50, 1954-55, 1959-60), 161 cfs (116,600 acre-ft per year).

Extremes.--1895-96, 1937-50, 1954-55, 1959-60: Maximum discharge, 16,000 cfs Oct. 22, 1941 (gage height, 11.75 ft, present datum); no flow at times in most years.
Floods of May 8, 1922, and June 1957 reached stages of about 16 and 15.5 ft, respectively, present site and datum, from The Atchison, Topeka and Santa Fe Railway Co. records and information by local resident.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	0	0	18.3	26.7	31.0	42.5	38.6	146	275	22.5	47.5	50.4	58.1
1959	-	-	-	-	-	-	-	-	-	22.2	64.6	35.6	-
1960	307	95.2	91.7	112	218	276	134	283	139	52.0	137	18.4	156

Monthly and yearly discharge, in acre-feet, of Medicine Lodge River near Kiowa, Kans.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	0	0	1,130	1,640	1,720	2,610	2,300	8,990	16,340	1,380	2,920	3,000	42,030
1959	-	-	-	-	-	-	-	-	-	1,360	3,970	2,120	-
1960	18,890	5,660	5,640	6,860	12,550	16,960	7,990	17,380	8,280	3,200	8,450	1,100	113,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1955	1391	3,340	May 26, 1955	0	58.1	42,030	-	-
1959	1631	a2,400	Aug. 16, 1959	-	-	-	-	-
1960	1711	3,870	Aug. 26, 1960	10	156	113,000	-	-

a Maximum during period June to September.

1500. Great Salt Plains Reservoir near Jet, Okla.

Location.--Lat 36°45', long 98°08', in NW¼SE¼ sec.11, T.26 N., R.9 W., at right end of Great Salt Plains Dam on Salt Fork Arkansas River, 4½ miles upstream from Wagon Creek, 5½ miles northeast of Jet, and at mile 103.3.

Drainage area.--3,200 sq mi.

Records available.--July 1941 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1941-60: Maximum contents, 189,400 acre-ft July 2, 1951 (elevation, 1,134.38 ft); minimum, 20,900 acre-ft Jan. 17, 1955 (elevation, 1,121.50 ft).

Remarks.--Reservoir is formed by earth dam. Outlet works consist of a 310-foot uncontrolled concrete spillway containing a series of three weirs to form a cascade. Storage began in June 1941; conservation pool stage was first reached Oct. 21, 1941. Capacity, 292,400 acre-ft at elevation 1,138.5 ft (crest of upper weir) and 46,700 acre-ft at elevation 1,125.0 ft (crest of intermediate weir and conservation pool). Reservoir is used for flood control and as a wildlife refuge. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	47,240	48,140	48,680	48,320	51,110	50,750	49,760	72,320	147,200	54,660	47,780	50,210
1952	52,780	51,110	50,300	49,940	50,390	50,300	61,700	53,720	43,550	34,660	34,340	29,100
1953	24,620	26,580	31,270	35,460	38,820	45,710	46,700	45,530	39,300	47,600	42,560	37,700
1954	40,180	40,180	44,450	45,800	47,330	47,600	49,940	54,040	45,530	37,700	31,620	26,120
1955	24,320	22,700	21,440	21,500	24,500	23,900	22,580	53,300	54,880	45,350	45,440	47,780
1956	45,440	43,910	44,720	46,610	47,060	46,250	43,820	40,660	39,540	47,150	40,820	35,220
1957	32,600	31,200	31,060	30,850	31,480	38,900	56,980	80,480	139,600	48,860	43,730	49,400
1958	50,030	49,220	48,140	48,680	48,410	54,040	49,490	48,230	74,360	49,220	44,900	47,600
1959	45,440	47,060	47,960	48,050	48,140	51,720	47,780	52,670	46,700	44,810	44,450	62,220
1960	50,480	48,410	48,950	50,120	50,660	54,240	48,950	60,860	46,340	49,130	64,880	48,140

1505. Salt Fork Arkansas River near Jet, Okla.

Location.--Lat 36°45', long 98°08', in NE¼NE¼ sec.11, T.26 N., R.9 W., near center of span on downstream side of county highway bridge, 0.6 mile downstream from Great Salt Plains Dam, 4 miles upstream from Wagon Creek, 6 miles northeast of Jet, and at mile 102.7.

Drainage area.--3,202 sq mi, of which 8 sq mi is probably noncontributing.

Records available.--October 1937 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,092.20 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 17, 1938, staff gage at site 2½ miles upstream at datum 13.46 ft higher. Mar. 17, 1938, to Apr. 26, 1953, water-stage recorder at site 200 ft upstream at datum 5.00 ft higher than present datum prior to Oct. 1, 1950, and at present datum thereafter.

Average discharge.--23 years (1937-60), 407 cfs (294,700 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 25,900 cfs May 19, 1938 (gage height, 13.80 ft, present datum); no flow at times in 1939-41, 1944, 1955-56.

Remarks.--Flow regulated since June 1941 by Great Salt Plains Reservoir (see preceding page). Records of chemical analyses and water temperatures for water year 1955 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	71.7	45.9	93.6	120	159	175	259	2,737	3,403	4,479	298	834	1,063
1952	320	384	240	268	234	430	1,137	937	231	42.5	34.9	25.0	357
1953	16.0	16.1	12.3	12.8	9.96	45.8	28.1	53.7	21.1	207	21.9	5.96	38.0
1954	6.75	6.32	1.30	1.82	9.68	17.8	25.3	387	124	10.5	15.0	14.0	52.0
1955	7.40	.41	1.23	.94	.78	.38	1.52	108	1,420	250	7.44	65.1	154
1956	305	5.96	1.68	1.30	33.9	11.7	5.66	5.24	3.72	53.0	7.17	2.91	36.8
1957	3.10	2.83	4.02	3.92	3.94	4.45	685	4,190	3,338	2,773	42.8	389	959
1958	302	260	138	160	135	385	438	310	765	1,122	123	65.5	352
1959	39.8	38.5	57.9	75.2	122	230	312	570	165	44.7	10.6	557	185
1960	1,835	207	211	269	912	741	351	322	786	505	570	426	594

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,410	2,730	5,760	7,370	8,840	10,780	15,390	168,300	202,500	275,400	18,330	49,630	769,400
1952	19,660	22,820	14,770	16,510	13,460	26,430	67,640	57,630	13,760	2,610	2,140	1,490	258,900
1953	986	960	756	786	553	2,820	1,670	3,300	1,260	12,710	1,350	355	27,510
1954	415	376	80	112	538	1,090	1,500	23,800	7,360	646	922	832	37,670
1955	455	25	76	58	43	24	90	6,610	84,480	15,380	457	3,870	111,600
1956	18,730	354	103	80	1,950	722	337	322	221	3,260	441	173	26,690
1957	191	168	247	241	219	274	40,740	257,600	198,600	170,500	2,630	23,140	694,600
1958	18,570	15,470	8,460	9,830	7,510	23,690	26,090	19,040	45,530	68,990	7,540	3,900	254,600
1959	2,440	2,290	3,560	4,620	6,770	14,150	18,540	35,040	9,820	2,750	651	33,160	133,800
1960	112,900	12,310	12,950	16,540	52,460	45,560	20,870	19,780	46,800	31,050	35,020	25,330	431,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	290	210,100
1951	1211	9,650	July 2, 1951	23	1,063	769,400	1,124	813,800
1952	1241	3,600	Apr. 23, 1952	16	357	258,900	282	204,400
1953	1281	757	July 16, 1953	2.6	38.0	27,510	35.5	25,680
1954	1341	1,470	May 26, 1954	.1	52.0	37,670	51.6	37,360
1955	1391	4,700	June 20, 1955	0	154	111,600	180	130,200
1956	1441	1,540	Oct. 5, 1955	0	36.8	26,690	11.2	8,110
1957	1511	9,820	May 18, 1957	.2	959	694,600	1,017	736,400
1958	1561	4,490	June 28, 1958	8.0	352	254,600	304	220,400
1959	1631	3,470	Sept. 26, 1959	4.1	185	133,800	364	263,700
1960	1711	5,670	Oct. 4, 1959	26	594	431,600	-	-

1510. Salt Fork Arkansas River at Tonkawa, Okla.

Location.--Lat 36°40'30", long 97°18'40", in NE¼SW¼ sec.4, T.25 N., R.1 W., near right bank on downstream side of pier of bridge on U. S. Highway 177 in Tonkawa, 4 miles downstream from Thompson Creek, 7.8 miles upstream from Chikaskia River, and at mile 33.8.

Drainage area.--4,528 sq mi, of which 8 sq mi is probably noncontributing.

Records available.--September 1903 to October 1905 (gage heights only), October 1935 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Published as Arkansas River (Salt Fork) near Tonkawa 1903-4 and as "near Tonkawa" 1905.

Gage.--Water-stage recorder. Datum of gage is 930.22 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). September 1903 to October 1905, staff gage at same site at different datum. Jan. 2, 1936, to Jan. 23, 1939, wire-weight gage at same site and datum. Jan. 24, 1939, to June 20, 1960, water-stage recorder 100 ft upstream at same datum.

Average discharge.--25 years (1935-60), 704 cfs (509,700 acre-ft per year).

Extremes.--1903-5, 1935-60: Maximum discharge, 40,800 cfs May 20, 1938; maximum gage height, 23.48 ft Oct. 5, 1959; no flow Aug. 31 to Oct. 12, Oct. 14-16, 1936.
Maximum stage known, 26.8 ft June 10, 1923, from information by Corps of Engineers. Flood of July 11, 1904, reached a stage of 14.6 ft, datum then in use.

Remarks.--Some regulation by Great Salt Plains Reservoir (see p. 164). Records of chemical analyses and water temperatures for the period November 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	152	90.2	127	154	250	262	336	4,277	4,705	8,821	595	1,604	1,795
1952	448	620	363	363	323	715	1,470	1,087	671	61.1	132	44.2	524
1953	27.8	39.2	43.4	34.5	35.3	90.4	43.1	114	22.3	653	101	9.72	103
1954	53.6	65.1	102	19.2	21.3	64.3	42.5	492	240	5.69	30.6	1.00	95.5
1955	27.7	4.82	3.56	8.51	14.5	10.6	13.6	603	2,118	466	40.7	77.7	282
1956	1,616	35.1	20.0	16.4	37.8	24.4	17.2	8.78	7.92	57.3	5.50	0	156
1957	.64	7.22	14.3	7.52	10.9	33.8	2,158	7,070	7,539	4,481	197	678	1,857
1958	400	466	242	227	202	698	790	439	958	2,023	630	118	603
1959	97.1	109	105	152	172	270	554	1,521	347	369	99.4	1,281	423
1960	5,602	350	370	539	1,482	1,203	527	431	1,541	1,279	1,637	1,185	1,349

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,370	5,370	7,810	9,470	13,890	16,120	19,960	263,000	279,900	542,400	36,570	95,420	1,299,000
1952	27,540	36,890	22,320	22,340	18,580	43,970	87,440	66,840	39,950	3,760	8,110	2,630	380,400
1953	1,710	2,330	2,670	2,120	1,960	5,560	2,560	7,020	1,330	40,180	6,190	578	74,210
1954	3,300	3,870	6,300	1,180	1,180	3,950	2,530	30,230	14,310	350	1,880	60	69,140
1955	1,700	287	219	523	807	650	807	37,080	126,000	28,670	2,510	4,630	203,900
1956	99,360	2,090	1,230	1,010	2,180	1,500	1,020	540	471	3,530	338	0	113,300
1957	39	430	882	462	604	2,080	128,400	434,700	448,600	275,500	12,140	40,320	1,344,000
1958	24,620	27,750	14,880	13,980	11,230	42,940	47,020	27,010	57,030	124,400	38,720	7,020	436,600
1959	5,970	6,470	6,480	9,360	9,530	16,590	32,970	93,510	20,640	22,700	6,110	76,200	306,500
1960	344,500	20,810	22,760	33,130	85,260	73,960	31,340	26,480	91,670	78,640	100,700	70,500	979,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	497	360,000
1951	1211	31,200	July 15, 1951	44	1,795	1,299,000	1,883	1,363,000
1952	1241	6,620	Apr. 22, 1952	33	524	380,400	414	300,300
1953	1281	3,370	July 12, 1953	4.0	103	74,210	112	80,970
1954	1341	2,380	May 26, 1954	.4	95.5	69,140	80.0	57,880
1955	1391	9,470	June 19, 1955	1.0	282	203,900	420	304,400
1956	1441	12,100	Oct. 3, 1955	0	156	113,300	16.4	11,940
1957	1511	21,200	June 25, 1957	0	1,857	1,344,000	1,948	1,410,000
1958	1561	5,720	July 7, 1958	77	603	436,600	536	388,300
1959	1631	10,900	Sept. 26, 1959	37	423	306,500	933	675,700
1960	1711	28,400	Oct. 5, 1959	145	1,349	979,800	-	-

1515. Chikaskia River near Corbin, Kans.

Location.--Lat 37°08', long 97°36', on west line of sec.36, T.33 S., R.3 W., near left bank on downstream side of pier of bridge on State Highway 49, 1 mile upstream from Prairie Creek, 3 miles west of Corbin, and at mile 67.5.

Drainage area.--794 sq mi.

Records available.--August 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,108.00 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Mar. 23, 1951 wire-weight gage at same site and datum.

Average discharge.--10 years (1950-60), 223 cfs (161,400 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 38,100 cfs May 17, 1957; no flow at times in 1953-54, 1956.
Maximum stage known, about 28 ft June 9, 1923, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	-	-	-	-	181	-
1951	73.2	80.7	83.5	78.8	108	139	210	2,258	2,055	1,496	165	525	609
1952	171	201	132	151	148	235	334	186	116	14.0	56.2	8.11	146
1953	17.1	39.3	68.5	70.0	67.0	127	100	134	12.9	118	93.0	.92	71.1
1954	5.59	28.5	43.1	36.6	52.1	50.7	38.6	171	36.9	.80	14.9	.10	40.0
1955	.13	1.44	13.7	23.4	34.6	32.0	26.9	663	844	73.9	33.4	17.4	147
1956	431	42.9	48.5	38.9	59.1	44.9	47.8	24.0	13.0	291	0	0	63.2
1957	0	0	14.2	15.4	30.3	33.9	384	2,010	1,909	457	74.4	202	429
1958	85.2	126	91.6	95.6	88.0	360	233	213	440	309	71.8	144	188
1959	49.3	64.5	64.8	79.6	97.2	125	125	330	111	457	56.0	356	160
1960	1,714	174	140	195	387	518	212	297	234	192	261	129	373

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	-	-	-	-	10,760	-
1951	4,500	4,800	5,130	4,850	5,970	8,520	12,490	138,800	122,300	91,990	10,170	31,250	440,800
1952	10,490	11,970	8,090	9,270	8,520	14,430	19,880	11,420	6,900	859	3,460	482	105,800
1953	1,050	2,340	4,210	4,300	3,720	7,790	5,950	8,270	767	7,270	5,720	55	51,440
1954	344	1,700	2,650	2,250	2,890	3,120	2,300	10,500	2,200	49	918	6.0	28,930
1955	7.9	86	840	1,440	1,920	1,970	1,600	40,760	50,200	4,550	2,060	1,040	106,500
1956	26,500	2,550	2,980	2,390	3,400	2,760	2,840	1,480	774	179	0	0	45,850
1957	0	0	876	947	1,680	2,080	22,880	123,600	113,600	28,090	4,570	12,020	310,300
1958	5,240	7,520	5,630	5,880	4,890	22,160	13,860	13,120	26,180	18,990	4,410	8,590	136,500
1959	3,030	3,840	3,980	4,900	5,400	7,700	7,450	20,320	6,630	28,080	3,440	21,190	116,000
1960	105,400	10,340	8,630	11,980	22,240	31,860	12,620	18,240	13,940	11,780	16,030	7,700	270,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	35,100	May 17, 1951	30	609	440,800	631	456,900
1952	1241	1,630	June 5, 1952	2.3	146	105,800	114	82,820
1953	1281	4,600	Aug. 3, 1953	0	71.1	51,440	67.0	48,540
1954	1341	1,920	May 24, 1954	0	40.0	28,930	34.8	25,170
1955	1391	18,800	May 26, 1955	0	147	106,500	190	137,600
1956	1441	7,060	Oct. 2, 1955	0	63.2	45,850	20.3	14,700
1957	1511	38,100	May 17, 1957	0	429	310,300	453	327,900
1958	1561	4,560	June 25, 1958	31	188	136,500	178	128,900
1959	1631	6,320	July 22, 1959	9.4	160	116,000	317	229,500
1960	1711	21,100	Oct. 2, 1959	16	373	270,800	-	-

1520. Chikaskia River near Blackwell, Okla.

Location.--Lat 36°49', long 97°17', in NW¼ sec.23, T.27 N., R.1 W., near left bank on downstream side of pier of St. Louis-San Francisco Railway Co. bridge at northeast edge of Blackwell, 0.2 mile downstream from Bitter Creek and at mile 28.2.

Drainage area.--1,859 sq mi. At site 0.6 mile upstream, 1,711 sq mi.

Records available.--October 1935 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 967.41 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 29, 1938, wire-weight gage at site 2¾ miles upstream at different datum. Apr. 29, 1938, to Jan. 24, 1939, May 26 to June 21, 1955, wire-weight gage and Jan. 25, 1939, to Apr. 16, 1952, water-stage recorder, at site 0.6 mile upstream at datum 8.06 ft higher than present datum.

Average discharge.--25 years (1935-60), 485 cfs (351,100 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 85,000 cfs June 22, 1942 (gage height, 33.3 ft, from floodmark, present site and datum); no flow at times in 1954, 1956.
Maximum stage known, about 34 ft June 10, 1923, present site and datum, from information by local residents (discharge, 100,000 cfs).

Remarks.--Some regulation at low flow by Braman Reservoir (capacity, 3,600 acre-ft), 12.6 miles above station. Small diversion made from reservoir for municipal supply of city of Blackwell. Records of chemical analyses and water temperatures for the period November 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	103	99.4	107	110	173	211	292	4,907	5,093	5,129	282	822	1,453
1952	239	311	218	224	201	377	542	263	569	24.8	73.3	11.3	254
1953	19.8	52.9	84.0	78.1	82.7	131	152	173	37.7	178	308	2.74	109
1954	36.2	53.8	106	44.5	67.0	85.9	46.6	302	68.8	6.17	31.0	.77	71.0
1955	7.23	1.08	1.34	13.9	34.4	32.3	29.4	1,917	1,308	137	111	69.4	307
1956	1,547	55.7	59.1	55.0	68.5	50.9	57.3	27.1	62.3	7.33	.63	.64	168
1957	†.90	1.87	1.64	4.35	10.3	30.7	1,510	4,126	4,380	1,030	115	519	979
1958	138	268	139	141	129	895	587	285	1,247	896	111	195	420
1959	58.5	134	91.4	101	125	188	223	666	137	2,082	272	1,513	468
1960	5,244	343	272	334	848	1,068	340	451	569	320	795	241	908

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,310	5,910	6,580	6,770	9,600	13,000	17,370	301,700	303,100	315,400	17,370	48,890	1,052,000
1952	14,700	18,490	13,380	13,750	11,590	23,180	32,270	16,160	33,830	1,520	4,510	672	184,100
1953	1,220	3,150	5,170	4,800	4,590	8,040	9,060	10,640	2,240	10,930	18,930	163	†78,930
1954	2,220	3,200	6,510	2,740	3,720	5,280	2,770	18,540	4,090	379	1,910	46	51,400
1955	444	64	82	853	1,910	1,990	1,750	117,900	77,860	8,450	6,850	4,130	222,300
1956	95,100	3,320	3,630	3,380	3,800	3,130	3,410	1,660	3,710	451	39	38	121,700
1957	55	111	101	267	570	1,890	89,990	253,700	260,700	63,180	7,060	30,880	708,500
1958	8,470	15,970	8,550	8,670	7,160	55,040	34,940	17,510	74,220	55,100	6,830	11,630	304,100
1959	3,600	7,960	5,620	6,210	6,930	11,570	13,280	40,940	8,160	128,000	16,710	90,020	339,000
1960	322,500	20,400	16,740	20,560	48,790	65,650	20,260	27,760	33,870	19,680	48,900	14,340	659,400

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	352	254,600
1951	1211	53,000	May 18, 1951	45	1,453	1,052,000	1,491	1,080,000
1952	1241	8,130	June 5, 1952	7.1	254	184,100	203	147,000
1953	1281	7,280	Aug. 4, 1953	.8	109	†78,930	112	81,320
1954	1341	3,120	May 25, 1954	0	71.0	51,400	55.3	40,060
1955	1391	39,300	May 27, 1955	.4	307	222,300	447	323,700
1956	1441	14,600	Oct. 3, 1955	0	168	121,700	27.4	19,880
1957	1511	55,000	May 18, 1957	.1	979	708,500	1,024	741,200
1958	1561	9,050	June 26, 1958	44	420	304,100	398	288,300
1959	1631	20,000	July 23, 1959	23	468	339,000	†941	681,500
1960	1711	48,000	Oct. 3, 1959	46	908	659,400	-	-

† Corrected.

1525. Arkansas River at Ralston, Okla.

Location.--Lat 36°30'10", long 96°43'30", in NW¼ sec.1, T.23 N., R.5 E., near left bank on downstream side of pier of bridge on State Highway 18 at Ralston, 2 miles downstream from Salt Creek, 2 miles upstream from Grayhorse Creek, and at mile 594.0.

Drainage area.--54,465 sq mi, of which 7,615 sq mi is probably noncontributing.

Records available.--October 1925 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1922 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 776.70 ft (revised) above mean sea level, datum of 1929. Oct. 1, 1925, to Nov. 13, 1935, chain gage at site of former highway bridge 1,200 ft downstream at same datum. Nov. 14, 1935, to Feb. 23, 1939, wire-weight gage at present site and datum.

Average discharge.--35 years (1925-60), 4,605 cfs (3,334,000 acre-ft per year).

Extremes.--1925-60: Maximum discharge, 179,000 cfs Apr. 25, 1944 (gage height, 22.82 ft in gage well, 23.65 ft from outside gage); minimum, 14 cfs Oct. 12, 1956.
Maximum stage known, 23.8 ft June 11, 1923, referred to outside gage on basis of stages observed in 1923 and 1944 at site 1,200 ft downstream.

Remarks.--Some regulation by John Martin and Great Salt Plains Reservoirs (see elsewhere in this report). Records of chemical analyses and water temperatures for the period January 1950 to September 1960 are published in reports of Geological Survey.

Cooperation.--Records for 1951-55 computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,528	1,964	1,855	1,782	2,564	2,647	3,330	33,340	30,780	47,660	6,592	16,280	12,770
1952	5,417	6,503	3,918	3,958	3,127	7,841	7,360	5,340	4,759	1,231	1,127	616	4,267
1953	347	609	855	961	1,058	1,612	1,845	2,435	1,586	1,932	1,525	416	1,268
1954	280	763	903	612	704	746	678	2,584	1,533	281	141	74.9	776
1955	243	180	211	326	450	454	460	6,001	6,720	2,335	666	261	1,530
1956	9,364	762	570	556	733	605	611	431	426	474	115	36.6	1,235
1957	36.9	123	146	156	233	357	7,676	30,500	39,310	18,510	2,392	4,034	8,646
1958	2,294	3,068	1,815	1,783	1,726	11,140	9,566	5,487	4,918	16,840	7,681	6,215	6,081
1959	2,469	1,649	1,533	1,502	1,862	2,059	3,433	7,023	2,997	13,460	3,400	5,667	3,942
1960	34,220	4,175	3,335	4,024	6,677	11,050	6,995	7,630	7,526	5,931	9,109	4,807	8,833

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	216.9	116.9	114.1	109.6	142.4	162.7	198.1	2,050	1,832	2,930	405.3	968.8	9,247
1952	333.1	386.9	240.9	243.4	179.8	482.1	438	328.3	283.2	75.67	69.27	36.64	3,097
1953	21.32	36.25	52.56	59.08	58.78	99.09	109.8	149.7	94.38	118.8	93.79	24.76	918.3
1954	17.24	45.42	55.51	37.62	39.1	45.84	40.34	158.9	91.21	17.28	8.68	4.45	561.6
1955	14.93	10.71	12.98	20.04	25.02	27.94	27.36	369	399.9	143.6	40.94	15.52	1,108
1956	575.8	45.37	35.07	34.18	42.15	37.2	36.34	26.49	25.36	29.15	7.09	2.18	896.4
1957	2.27	7.32	8.99	9.59	12.95	21.97	456.7	1,875	2,339	1,138	147.1	240.1	6,259
1958	141.1	182.5	111.6	109.6	95.86	684.7	569.2	334.4	292.7	1,036	472.3	369.8	4,403
1959	151.2	98.12	94.25	92.33	103.4	126.6	204.3	431.8	178.3	827.3	209.0	337.2	2,854
1960	2,104	248.4	205.1	247.4	384.0	679.2	416.3	469.2	447.8	364.7	560.1	286.1	6,412

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	5,719	4,140,000
1951	1211	135,000	July 3, 1951	1,350	12,770	9,247,000	13,480	9,760,000
1952	1241	25,800	June 6, 1952	418	4,267	3,097,000	3,095	2,247,000
1953	1281	17,500	May 31, 1953	190	1,268	918,300	1,280	926,400
1954	1341	18,700	May 2, 1954	56	776	561,600	666	482,000
1955	1391	36,300	May 29, 1955	66	1,530	1,108,000	2,383	1,726,000
1956	1441	49,200	Oct. 5, 1955	18	1,235	896,400	356	258,700
1957	1511	120,000	May 20, 1957	15	8,646	6,259,000	9,222	6,676,000
1958	1561	56,800	July 7, 1958	1,070	6,081	4,403,000	5,955	4,311,000
1959	1631	54,800	July 17, 1959	450	3,942	2,854,000	7,000	5,068,000
1960	1711	158,000	Oct. 5, 1959	2,120	8,833	6,412,000	-	-

1530. Black Bear Creek at Pawnee, Okla.

Location.--Lat 36°20'35", long 96°48'00", on east line of SE¼NE¼ sec.31, T.22 N., R.5 E., on downstream side of left pier of bridge on State Highway 18 in north Pawnee, 300 ft downstream from Skedee Creek and at mile 23.4.

Drainage area.--576 sq mi.

Records available.--July 1944 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 802.73 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 21, 1944, wire-weight gage and Sept. 21, 1944, to Aug. 26, 1953, water-stage recorder, at present site and datum. Aug. 27, 1953, to Apr. 29, 1954, staff gage at site 500 ft downstream at present datum.

Average discharge.--16 years (1944-60), 189 cfs (136,800 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 30,200 cfs Oct. 3, 1959 (gage height, 31.43 ft); no flow at times in 1954, 1956-57.
Maximum stage known, that of Oct. 3, 1959.

Cooperation.--Records for 1951-55 computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4.58	2.57	3.14	4.67	57.5	6.26	11.5	596	543	773	36.0	249	192
1952	37.7	63.7	15.8	20.5	28.1	359	122	150	383	10.3	18.0	1.75	101
1953	.61	.91	2.55	2.32	2.27	40.6	22.2	143	66.1	266	4.60	3.16	46.8
1954	3.95	47.0	29.0	1.13	2.66	.90	14.6	166	8.54	.30	0	0	23.1
1955	0	0	2.00	.69	2.30	15.6	1.14	1,752	193	6.74	26.4	5.22	170
1956	546	4.06	4.42	3.78	6.70	2.26	3.38	2.28	7.34	20.0	.23	0	50.8
1957	0	1.41	.26	.37	2.40	3.85	1,096	2,144	2,181	363	10.6	101	492
1958	5.80	21.0	7.09	9.15	6.62	253	58.9	25.1	239	186	91.4	92.7	83.4
1959	2.59	7.40	4.45	5.53	5.55	15.4	71.6	113	77.6	932	38.3	626	159
1960	2,636	49.6	145	73.6	238	197	110	474	270	757	230	18.6	438

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	282	153	193	287	3,190	385	682	36,660	32,340	47,510	2,210	14,840	138,700
1952	2,320	3,790	974	1,260	1,620	22,080	7,260	9,220	22,800	634	1,110	104	73,170
1953	37	54	156	142	126	2,500	1,320	8,800	3,930	16,350	283	188	33,890
1954	243	2,800	1,780	69	148	55	870	10,230	508	19	0	0	16,720
1955	0	0	123	43	128	962	68	107,800	11,480	414	1,620	310	122,900
1956	33,560	242	272	232	386	161	201	140	437	1,230	14	0	36,880
1957	0	84	16	23	133	237	65,200	131,800	129,800	22,310	652	6,030	356,300
1958	357	1,250	436	562	368	15,580	3,510	1,550	14,230	11,430	5,620	5,510	60,400
1959	159	440	274	340	308	945	4,260	6,970	4,620	57,290	2,360	37,220	115,200
1960	162,100	2,950	8,900	4,530	13,690	12,110	6,560	29,140	16,070	46,520	14,170	1,110	317,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	113	81,520
1951	1211	4,280	July 3, 1951	1.3	192	138,700	201	145,200
1952	1241	4,790	June 7, 1952	.2	101	73,170	91.4	66,340
1953	1281	2,610	July 14, 1953	.2	46.8	33,890	53.1	38,460
1954	1341	2,810	May 2, 1954	0	23.1	16,720	16.6	12,020
1955	1391	8,720	May 28, 1955	0	170	122,900	217	156,900
1956	1441	5,430	Oct. 5, 1955	0	50.8	36,880	4.00	2,900
1957	1511	12,200	May 18, 1957	0	492	356,300	495	358,200
1958	1561	3,880	July 12, 1958	1.6	83.4	60,400	81.8	59,230
1959	1631	8,890	Sept. 27, 1959	.8	159	115,200	398	288,300
1960	1711	30,200	Oct. 3, 1959	7.1	438	317,800	-	-

1531. Ranch Creek at Cleveland Dam, near Cleveland, Okla.

Location.--Lat 36°17'00", long 96°34'35", in SW¼NE¼ sec.20, T.21 N., R.7 E., on intake tower at Cleveland Dam on Ranch Creek, a quarter of a mile upstream from Carpenter Creek, half a mile upstream from Turkey Creek, and 6½ miles southwest of Cleveland.

Drainage area.--21.9 sq mi.

Records available.--November 1944 to September 1960.

Gage.--Water-stage recorder and concrete-spillway control. Datum of gage is 743.0 ft above mean sea level (from construction plans).

Average discharge.--15 years (1945-60), 8.23 cfs (5,960 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 11,800 cfs Oct. 2, 1959 (gage height, 29.20 ft); no flow at times in each year. A discharge of 32,400 cfs occurred Sept. 4, 1940, at a site about 4 miles upstream (result of contracted-opening measurement).

Remarks.--Records not previously published.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	20.2	0	2.69	28.8	113	147	7.94	1.13	6.23	63.6	-
1946	1.81	0	0	9.06	9.45	10.2	.32	13.0	1.58	.06	0	0	3.78
1947	0	0	0	0	0	0	33.0	23.3	5.26	0	0	0	5.12
1948	0	0	0	0	0	0	0	0	37.3	.02	17.4	0	4.53
1949	0	0	0	0	17.4	2.94	.67	89.1	10.7	12.1	0	1.97	11.3
1950	0	0	0	0	1.0	.85	0	22.6	3.74	28.2	16.7	0	6.19
1951	0	0	0	0	2.08	.17	0	5.48	4.70	5.57	0	.63	1.55
1952	17.6	7.55	.42	.20	5.44	35.7	18.9	8.47	15.1	0	0	0	9.11
1953	0	0	0	0	0	0	.95	.05	.01	0	0	0	.08
1954	0	0	0	0	0	0	10.0	8.24	27.1	0	0	0	3.75
1955	0	0	0	0	0	0	0	46.2	.09	0	0	0	3.93
1956	0	0	0	0	0	0	0	2.58	.91	0	0	0	.29
1957	0	0	0	0	0	0	72.4	215	71.7	12.8	0	.95	31.3
1958	0	.27	0	3.97	.11	54.3	8.15	1.38	.06	8.33	.39	0	6.51
1959	0	0	0	0	0	0	0	5.77	1.65	14.7	.04	26.3	4.03
1960	206	.10	5.08	4.74	14.4	13.9	9.30	63.9	7.55	54.4	0	0	32.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1945	-	-	1,240	0	149	1,770	6,700	9,010	472	70	383	3,780	-
1946	111	0	0	557	525	625	19	802	94	4.0	0	0	2,740
1947	0	0	0	0	0	0	1,960	1,430	313	0	0	0	3,700
1948	0	0	0	0	0	0	0	0	2,220	1.0	1,070	0	3,290
1949	0	0	0	0	968	181	40	5,480	635	742	0	117	8,160
1950	0	0	0	0	56	53	0	1,390	222	1,730	1,030	0	4,480
1951	0	0	0	0	115	11	0	337	280	343	0	37	1,120
1952	1,080	449	26	12	313	2,190	1,120	521	900	0	0	0	6,610
1953	0	0	0	0	0	0	56	34	.4	0	0	0	60
1954	0	0	0	0	0	0	595	507	1,610	0	0	0	2,710
1955	0	0	0	0	0	0	0	2,840	5.6	0	0	0	2,850
1956	0	0	0	0	0	0	0	159	54	0	0	0	213
1957	0	0	0	0	0	0	4,310	13,230	4,270	789	0	57	22,660
1958	0	16	0	244	6.1	3,340	485	85	3.6	512	24	0	4,720
1959	0	0	0	0	0	0	0	355	98	901	2.6	1,560	2,920
1960	12,640	5.8	312	291	829	854	554	3,930	449	3,350	0	0	23,210

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1945	-	2,210	Sept.30, 1945	-	-	-	31.0	22,440
1946	-	898	May 30, 1946	0	3.78	2,740	3.63	2,630
1947	-	1,770	May 16, 1947	0	5.12	3,700	5.12	3,700
1948	-	1,500	June 23, 1948	0	4.53	3,290	4.53	3,290
1949	-	3,690	May 19, 1949	0	11.3	8,160	11.3	8,160
1950	-	2,040	May 26, 1950	0	6.19	4,480	6.19	4,480
1951	-	330	May 1, 1951	0	1.55	1,120	3.70	2,680
1952	-	676	Oct. 28, 1951	0	9.11	6,610	6.97	5,060
1953	-	8.6	Apr. 6, 1953	0	.08	60	.08	60
1954	-	a1,200	Apr. 30, 1954	0	3.75	2,710	3.75	2,710
1955	-	2,570	May 20, 1955	0	3.93	2,850	3.93	2,850
1956	-	80	May 31, 1956	0	.29	213	.29	213
1957	-	7,260	May 21, 1957	0	31.3	22,660	31.3	22,670
1958	-	763	Mar. 23, 1958	0	6.51	4,720	6.49	4,700
1959	-	660	Sept.25, 1959	0	4.03	2,920	21.9	15,870
1960	-	11,800	Oct. 2, 1959	0	32.0	23,210	-	-

a Estimated.

1535. Cimarron River near Guy, N. Mex.

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

Drainage area.--545 sq mi.

Records available.--April 1942 to September 1960.

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

Average discharge.--18 years (1942-60), 11.7 cfs (8,470 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 8,500 cfs Oct. 5, 1954 (gage height, 20.5 ft), from rating curve extended above 3,000 cfs on basis of velocity-area study and logarithmic plotting; no flow at times.

Remarks.--Diversions for irrigation of about 6,500 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4.64	3.07	4.16	3.70	4.10	3.25	3.25	20.6	7.51	1.37	12.4	1.12	5.80
1952	1.26	2.21	2.94	2.30	2.49	1.64	2.36	2.25	.70	16.0	62.6	.72	8.23
1953	1.24	2.39	2.55	3.02	2.44	2.15	1.88	1.27	.27	10.6	47.8	.68	6.44
1954	.46	1.28	1.92	2.84	1.58	1.25	.64	.76	0	60.5	110	6.97	15.9
1955	67.9	2.55	2.18	1.93	1.87	1.93	3.15	278	4.21	36.9	60.7	2.37	39.3
1956	2.26	4.56	5.01	4.23	3.14	2.91	2.35	6.93	44.9	24.3	15.0	1.88	9.79
1957	1.57	2.73	2.62	2.85	2.83	5.96	8.32	3.96	2.74	13.5	16.6	3.75	5.62
1958	2.09	2.69	3.06	3.18	2.83	2.94	3.02	15.4	8.22	30.8	4.76	2.11	6.82
1959	1.83	2.26	2.47	3.27	2.36	1.84	1.89	1.47	13.2	1.63	9.54	.82	3.55
1960	1.92	2.07	2.16	2.59	2.20	15.6	15.8	4.13	5.44	1.50	9.99	14.4	6.48

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	285	183	256	227	228	200	194	1,270	447	84	763	66	4,200
1952	78	131	181	141	143	101	141	138	42	986	3,850	43	5,980
1953	76	142	157	185	135	132	112	78	16	652	2,940	40	4,660
1954	28	76	118	175	87	77	38	47	0	3,720	6,750	415	11,530
1955	4,170	152	134	119	104	119	187	17,080	250	2,270	3,730	141	28,460
1956	139	271	308	260	180	179	140	426	2,670	1,490	923	112	7,100
1957	96.6	163	161	175	157	367	495	243	163	831	1,020	223	4,090
1958	128	160	188	195	157	180	180	944	489	1,900	293	126	4,940
1959	112	134	152	201	131	113	112	90	787	100	586	49	2,570
1960	118	123	133	159	126	960	940	254	324	92	614	859	4,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	11.6	8,380
1951	1211	1,330	Aug. 23, 1951	0.7	5.80	4,200	5.34	3,870
1952	1241	3,950	Aug. 23, 1952	0	8.23	5,980	8.21	5,960
1953	1281	2,800	Aug. 16, 1953	0	6.44	4,660	6.23	4,510
1954	1341	8,100	Aug. 6, 1954	0	15.9	11,530	21.8	15,760
1955	1391	8,500	Oct. 5, 1954	.6	39.3	28,460	34.1	24,720
1956	1441	5,200	June 27, 1956	.9	9.79	7,100	9.38	6,800
1957	1511	1,820	July 30, 1957	.2	5.62	4,090	5.73	4,150
1958	1561	1,610	July 6, 1958	.6	6.82	4,940	6.71	4,860
1959	1631	1,190	Aug. 13, 1959	.1	3.55	2,570	3.51	2,540
1960	1711	3,270	Aug. 29, 1960	.1	6.48	4,700	-	-

1545. Cimarron River near Kenton, Okla.

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

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

Records available.--April 1904 to July 1905 (gage heights only), October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 4,267.08 ft above mean sea level, datum of 1929 (levels by State Highway Commission). April 1904 to July 1905 staff gage at site 0.9 mile upstream at different datum.

Average discharge.--10 years (1950-60), 23.0 cfs (16,650 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 26,300 cfs July 6, 1958 (gage height, 13.67 ft), from rating curve extended above 6,000 cfs by logarithmic plotting; no flow at times in most years.

Remarks.--Diversions for irrigation of about 7,400 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.0	3.0	3.91	2.76	3.43	1.94	0.93	55.4	86.6	5.20	54.2	1.61	18.7
1952	1.81	5.57	3.31	1.57	1.88	2.04	6.37	9.98	1.32	17.4	60.0	.19	9.39
1953	.55	1.47	2.71	1.66	1.40	1.00	.04	.29	28.2	67.3	197	1.65	25.7
1954	.50	2.24	1.95	.78	.89	.60	.45	.69	0	73.1	265	10.3	30.2
1955	98.7	1.45	1.02	1.73	1.71	1.04	.32	525	17.6	41.4	79.8	4.19	65.6
1956	.75	2.19	1.31	.77	.93	.77	.08	36.6	54.7	61.7	108	0	22.6
1957	.08	1.15	1.24	1.11	.48	1.83	4.66	19.1	11.8	114	91.9	5.25	21.4
1958	2.15	3.82	2.06	2.70	3.04	4.42	2.50	39.1	19.9	204	6.08	4.42	24.9
1959	1.42	2.18	2.75	5.27	4.24	3.06	2.36	1.87	2.92	27.2	8.42	.37	5.22
1960	1.09	1.47	1.81	1.86	1.83	1.30	.74	.48	1.77	3.01	3.05	55.2	6.06

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	307	179	240	170	191	119	55	3,410	5,160	320	3,330	96	13,580
1952	111	331	203	97	108	126	379	614	79	1,070	3,690	11	6,820
1953	34	88	167	102	78	61	2.2	18	1,680	4,140	12,120	98	18,590
1954	31	133	120	48	50	37	27	42	0	4,500	16,280	615	21,880
1955	6,070	86	62	107	95	64	19	32,270	1,050	2,540	4,910	250	47,520
1956	46	131	81	47	54	48	4.8	2,250	3,260	3,790	6,660	0	16,370
1957	5.0	68	76	68	27	112	277	1,170	700	7,020	5,650	312	15,480
1958	132	227	127	166	169	272	149	2,400	1,180	12,570	374	263	18,030
1959	87	130	169	324	236	188	141	115	174	1,670	518	22	3,770
1960	67	87	111	115	105	80	44	30	105	185	187	3,280	4,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	1211	‡2,850	Aug. 21, 1951	0	18.7	13,580	18.6	13,500
1952	1241	‡3,130	Aug. 23, 1952	0	9.39	6,820	8.90	6,460
1953	1281	‡6,610	Aug. 17, 1953	0	25.7	18,590	25.7	18,580
1954	1341	‡14,100	Aug. 13, 1954	0	30.2	21,880	38.4	27,820
1955	1391	‡11,800	May 20, 1955	0	65.6	47,520	57.4	41,560
1956	1441	10,000	Aug. 18, 1956	0	22.6	16,370	22.4	16,260
1957	1511	6,780	Aug. 18, 1957	0	21.4	15,480	21.9	15,820
1958	1561	26,300	July 6, 1958	.1	24.9	18,030	24.8	17,930
1959	1631	3,160	July 13, 1959	0	5.22	3,770	5.05	3,650
1960	1711	7,970	Sept. 9, 1960	0	6.06	4,400	-	-

‡ Not previously published.

1550. Cimarron River above Ute Creek, near Boise City, Okla.

Location.--Lat 36°55', long 102°36', in SE¼ sec.10, T.5 N., R.4 E., on right bank 1,000 ft downstream from Kohler's dam, 1 mile upstream from Cold Springs Creek, 5.5 miles upstream from Ute Creek, 14 miles northwest of Boise City, and at mile 560.0.

Drainage area.--1,955 sq mi, of which 76 sq mi is probably noncontributing.

Records available.--May 1905 to August 1907 (published as "near Garrett"), October 1942 to September 1954.

Gage.--Water-stage recorder and concrete control. Datum of gage is 3,932.85 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation). May 1905 to August 1907, staff gage at site half a mile upstream at different datum. Supplemental water-stage recorder in Kohler's diversion canal 40 ft downstream from headgate at datum 5.19 ft higher.

Average discharge.--13 years (1905-6, 1942-54), 42.4 cfs (30,700 acre-ft per year).

Extremes.--1905-7, 1942-54: Maximum discharge, 17,200 cfs May 15, 1951, July 3, 1953, from rating curve extended above 4,200 cfs on basis of computation of peak flow over dam; maximum gage height, 10.22 ft May 15, 1951; no flow at times in most years.

Flood of Apr. 20, 1942, reached a stage of 20.1 ft, from floodmarks (discharge, 80,000 cfs, mean of slope-area measurement of peak flow at present site and discharge at site 8.5 miles downstream determined from rating curve extended above 41,000 cfs on basis of logarithmic plotting).

Remarks.--Records include water diverted at Kohler's dam 1,000 ft above gage for sluicing of canal, from which the water returns to stream just below the gage control, and for irrigation of about 650 acres below station, from which the return flow enters stream 8.3 miles below gage. Diversions for irrigation of about 8,600 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16.9	7.84	7.80	8.86	7.75	4.04	2.20	268	113	105	175	1.62	60.5
1952	0	7.31	3.71	3.88	9.27	3.98	10.6	8.36	8.67	13.4	66.1	0	11.3
1953	0	0	0	0	0	0	0	0	24.4	204	318	.2	46.3
1954	0	0	0	0	.02	0	0	0	0	226	357	8.02	50.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,040	467	480	545	430	249	131	16,450	6,750	6,460	10,740	97	43,840
1952	0	435	228	239	533	245	631	514	516	822	4,060	0	8,220
1953	0	0	0	0	0	0	0	0	1,450	12,520	19,540	14	33,520
1954	0	0	0	0	1.4	0	0	0	0	13,890	21,950	477	36,320

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	85.9	62,200
1951	1211	17,200	May 15, 1951	0	60.5	43,840	58.7	42,520
1952	1241	2,720	Aug. 24, 1952	0	11.3	8,220	10.4	7,560
1953	1281	17,200	July 3, 1953	0	46.3	33,520	46.3	33,520
1954	1341	14,700	Aug. 13, 1954	0	50.2	36,320	-	-

1570. Cimarron River near Mocane, Okla.

Location.--Lat 36°59', long 100°19', in SW¼NW¼ sec.24, T.6 N., R.25 E., near right bank on downstream side of county highway bridge, 6½ miles northeast of Mocane, 14.7 miles upstream from Crooked Creek, and at mile 364.1.

Drainage area.--8,670 sq mi, of which 4,365 sq mi is probably noncontributing.

Records available.--October 1942 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,206.12 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Nov. 9, 1942, staff gage at same site and datum.

Average discharge.--18 years (1942-60), 103 cfs (74,570 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 53,400 cfs May 17, 1951 (gage height, 9.94 ft), from rating curve extended above 6,300 cfs on basis of slope-area measurement of peak flow; no flow at times in August 1943, July 1946.
Maximum stage known, about 13 ft in 1914, from information by local residents.

Remarks.--Diversion for irrigation of about 11,000 acres above station. Records of chemical analyses and water temperatures for water years 1946-60 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	159	81.3	72.4	82.0	133	77.1	76.5	1,040	317	152	142	73.8	202
1952	64.2	88.0	87.9	105	78.7	84.3	91.5	73.8	35.4	28.5	62.9	49.7	70.8
1953	61.3	76.6	127	79.5	76.5	70.7	63.4	54.5	31.3	109	274	69.7	91.5
1954	62.9	71.4	76.1	98.8	100	64.6	72.7	53.9	33.8	84.9	207	35.4	80.3
1955	85.5	59.7	69.7	90.6	98.0	74.9	253	1,101	102	57.9	87.9	56.6	179
1956	58.0	60.9	85.3	61.7	87.2	79.3	54.4	67.1	37.4	88.6	88.0	20.2	65.8
1957	38.1	68.4	66.4	60.5	80.0	104	84.8	328	175	117	222	190	128
1958	71.6	68.7	78.8	72.9	62.5	74.9	106	64.1	353	592	128	69.8	146
1959	54.8	76.9	64.7	73.8	73.6	83.0	70.5	94.6	38.7	42.1	37.7	26.6	61.4
1960	49.2	60.8	90.8	85.9	100	97.9	62.1	62.9	72.7	41.9	21.0	40.6	65.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,800	4,840	4,450	5,040	7,410	4,740	4,550	63,930	18,860	9,350	8,720	4,390	146,100
1952	3,950	5,230	5,400	6,430	4,520	5,180	5,440	4,540	2,100	1,750	3,870	2,960	51,370
1953	3,770	4,560	7,790	4,890	4,250	4,350	3,770	3,350	1,860	6,670	16,830	4,150	66,240
1954	3,870	4,250	4,680	6,080	5,570	3,970	4,330	3,310	2,010	5,220	12,740	2,110	58,140
1955	5,260	3,550	4,290	5,570	5,440	4,600	15,040	67,690	6,100	3,560	5,400	3,370	129,900
1956	3,570	3,630	5,250	3,800	5,020	4,880	3,240	4,130	2,230	5,450	5,410	1,200	47,810
1957	2,340	4,070	4,080	3,720	4,440	6,380	5,040	20,180	10,400	7,170	13,680	11,290	92,790
1958	4,400	4,090	4,850	4,480	3,470	4,610	6,300	3,940	20,990	36,430	7,880	4,150	105,600
1959	3,370	4,580	3,980	4,540	4,090	5,100	4,200	5,820	2,300	2,590	2,320	1,580	44,470
1960	3,020	3,620	5,590	5,280	5,780	6,020	3,690	3,870	4,330	2,570	1,290	2,420	47,480

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	149	107,500
1951	1211	53,400	May 17, 1951	-	202	146,100	196	141,600
1952	1241	1,080	Aug. 23, 1952	12	70.8	51,370	72.9	52,910
1953	1281	4,650	Aug. 20, 1953	7	91.5	66,240	86.9	62,920
1954	1341	4,300	Aug. 15, 1954	9.0	80.3	58,140	80.7	58,440
1955	1391	11,200	May 22, 1955	24	179	129,900	178	129,200
1956	1441	2,460	Aug. 21, 1956	10	65.8	47,810	63.1	45,850
1957	1511	9,300	May 16, 1957	19	128	92,790	132	95,640
1958	1561	21,300	July 8, 1958	28	146	105,600	144	104,200
1959	1631	3,360	May 4, 1959	15	61.4	44,470	61.8	44,770
1960	1711	3,330	June 8, 1960	4.9	65.4	47,480	-	-

1575. Crooked Creek near Nye, Kans.

Location.--Lat 37°02', long 100°12', at southeast corner of sec.1, T.35 S., R.27 W., on right bank at upstream side of bridge on county road, 6½ miles east of Nye and at mile 14.0.

Drainage area.--1,157 sq mi, of which 344 sq mi is probably noncontributing.

Records available.--August 1942 to September 1960. Monthly discharge only for August 1942, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 2,163.79 ft above mean sea level, unadjusted. Prior to Sept. 12, 1942, staff gage at same site and datum.

Average discharge.--18 years (1942-60), 53.7 cfs (38,880 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 13,600 cfs May 20, 1955 (gage height, 8.01 ft), from rating curve extended above 2,400 cfs on basis of contracted-opening measurement of peak flow at site 10 miles upstream and a mean of slope-area measurement and discharge measurement at site 10 miles upstream at gage height 7.59 ft; no flow at times in most years.

Maximum stage known, that of May 20, 1955.

Remarks.--Diversion for irrigation of about 800 acres above station. Records of chemical analyses and water temperatures for water years 1954 and 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	33.9	19.1	17.2	20.7	21.9	28.4	61.8	1,210	152	288	17.2	213	176
1952	14.5	19.0	17.9	21.8	16.6	27.1	37.4	20.3	9.34	0	3.00	.66	15.6
1953	4.68	8.90	22.9	19.4	11.9	12.0	9.32	7.97	1.53	46.0	32.5	1.26	15.0
1954	7.75	15.3	16.4	34.1	20.2	15.4	9.60	10.4	.82	4.19	12.1	0	12.2
1955	1.78	8.21	11.9	15.2	14.0	10.9	8.96	1,233	306	19.1	8.24	2.46	138
1956	6.69	8.44	9.89	12.5	14.7	9.89	6.91	3.71	.60	7.73	0	0	6.74
1957	0	1.22	12.6	6.29	10.8	23.6	26.2	102	136	90	22.3	184	51.2
1958	12.9	14.4	14.7	14.1	16.7	23.3	21.2	11.8	10.6	111	270	22.1	45.8
1959	6.16	11.9	14.1	17.6	21.5	15.8	14.3	60.9	6.29	31.3	23.4	1.26	18.8
1960	19.1	13.1	14.6	11.9	22.2	49.5	16.5	7.30	14.1	6.43	4.55	2.29	15.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,080	1,370	1,060	1,270	1,220	1,750	3,680	74,410	9,050	17,700	1,060	12,700	127,400
1952	894	1,130	1,100	1,340	957	1,660	2,230	1,250	556	0	184	39	11,340
1953	288	530	1,410	1,190	663	738	555	490	91	2,830	2,000	75	10,860
1954	476	910	1,010	2,100	1,120	945	571	636	49	257	745	0	8,820
1955	109	488	731	936	779	672	533	75,800	18,190	1,170	507	147	100,100
1956	411	502	608	770	843	608	411	228	36	475	0	0	4,890
1957	0	72	776	387	598	1,450	1,560	6,260	8,120	5,530	1,370	10,920	37,040
1958	795	859	906	867	928	1,430	1,260	723	631	6,800	16,620	1,320	33,140
1959	379	707	870	1,080	1,190	973	851	3,740	374	1,930	1,440	75	13,610
1960	1,180	780	899	729	1,280	3,040	982	449	838	395	280	136	10,990

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	103	74,920
1951	1211	10,000	May 23, 1951	-	176	127,400	174	126,000
1952	1241	3,730	Apr. 29, 1952	0	15.6	11,340	14.4	10,440
1953	1281	3,210	July 11, 1953	0	15.0	10,860	15.2	11,030
1954	1341	1,320	July 23, 1954	0	12.2	8,820	10.7	7,750
1955	1391	13,600	May 20, 1955	0	138	100,100	138	100,300
1956	1441	1,640	July 3, 1956	0	6.74	4,890	5.81	4,220
1957	1511	4,220	May 16, 1957	0	51.2	37,040	53.5	38,760
1958	1561	13,200	Aug. 20, 1958	0	45.8	33,140	44.9	32,540
1959	1631	2,450	May 4, 1959	0	18.8	13,610	20.0	14,510
1960	1711	748	June 8, 1960	0	15.1	10,990	-	-

1580. Cimarron River near Waynoka, Okla.

Location.--Lat 36°30'55", long 98°52'45", near center of sec.35, T.24 N., R.16 W., near left bank on downstream side of bridge on U. S. Highway 281, three-quarters of a mile downstream from Main Creek, 5 miles south of Waynoka, and at mile 247.0.

Drainage area.--13,334 sq mi, of which 4,830 sq mi is probably noncontributing.

Records available.--September 1903 to December 1905 (gage heights and discharge measurements only), October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,367.50 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). September 1903 to December 1905 staff gage at The Atchison, Topeka and Santa Fe Railway Co. bridge 5 miles upstream at different datum. Feb. 4 to Mar. 3, 1938, chain gage and Mar. 4, 1938, to Oct. 24, 1956, water-stage recorder, on old highway bridge 50 ft downstream at present datum.

Average discharge.--23 years (1937-60), 433 cfs (313,500 acre-ft per year).

Extremes.--1903-5, 1937-60: Maximum discharge, 94,500 cfs May 16, 1957 (gage height, 15.10 ft), from rating curve extended above 45,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in most years.

Maximum stage known, that of May 16, 1957. Previous maximum stage, about 14 ft, probably occurred in 1914.

Revisions.--The momentary maximum discharge for the water year 1950 published in WSP 1311 has been revised to 58,000 cfs.

Remarks.--Diversion for irrigation of about 11,000 acres above station.

Corrections.--In WSP 1311, the runoff for August 1938 was shown in error; it should be 32,890 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	244	155	195	201	278	219	309	4,834	3,455	1,514	149	670	1,023
1952	142	230	152	214	203	304	674	485	47.9	8.05	79.8	.33	212
1953	.03	3.63	76.1	115	98.5	123	32.6	62.8	12.6	481	229	56.1	108
1954	32.7	59.4	81.8	71.1	84.4	52.5	62.0	521	43.0	2.91	105	11.2	94.5
1955	9.20	.67	1.98	16.1	55.2	12.8	162	3,878	1,718	90.8	35.8	18.4	504
1956	14.9	3.51	42.5	59.6	83.3	45.1	6	29.4	43.3	210	102	0	53.6
1957	.82	.81	2.54	3.21	30.1	175	951	5,673	3,674	1,612	96.4	678	1,081
1958	256	126	96.1	116	119	307	356	257	1,040	1,209	308	73.2	357
1959	7.49	67.9	141	190	180	225	292	540	104	118	33.5	1,212	258
1960	643	173	207	250	576	483	220	524	1,107	414	552	186	444

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15,000	9,210	11,960	12,340	15,440	13,450	18,370	297,200	205,600	93,100	9,180	39,900	740,800
1952	8,760	13,690	9,340	13,150	11,700	18,710	40,130	29,840	2,850	495	4,910	20	153,600
1953	1.8	22	4,680	7,080	5,470	7,540	1,940	3,860	752	29,590	14,080	3,340	78,360
1954	2,010	3,530	5,030	4,370	4,690	3,230	3,690	32,010	2,560	179	6,480	666	68,440
1955	566	40	122	990	3,070	775	9,630	238,500	102,200	5,580	2,200	1,090	364,800
1956	915	209	2,620	3,670	4,790	2,770	357	1,810	2,580	12,930	6,280	0	38,930
1957	50	48	156	197	1,670	10,780	56,560	348,800	218,600	99,140	5,920	40,320	782,200
1958	15,720	7,500	5,910	7,120	6,620	18,900	21,210	15,800	61,870	74,370	18,910	4,360	258,300
1959	461	4,040	8,680	11,650	9,980	13,860	17,390	33,210	6,180	7,260	2,060	72,110	186,900
1960	39,560	10,270	12,740	15,370	33,130	29,710	13,110	32,220	65,880	25,440	33,940	11,050	322,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	770	557,200
1951	1211	37,700	May 18, 1951	25	1,023	740,800	1,017	736,400
1952	1241	7,640	May 1, 1952	0	212	153,600	174	126,500
1953	1281	6,010	July 12, 1953	0	108	78,360	116	84,220
1954	1341	9,540	May 24, 1954	0	94.5	68,440	80.9	58,600
1955	1391	41,800	May 19, 1955	0	504	364,800	508	367,800
1956	1441	6,290	Aug. 19, 1956	0	53.6	38,930	488	35,440
1957	1511	94,500	May 16, 1957	0	1,081	782,200	1,120	811,100
1958	1561	16,400	June 26, 1958	1.6	357	258,300	335	242,300
1959	1631	27,300	Sept.24, 1959	0	258	186,900	326	236,300
1960	1711	33,500	June 8, 1960	4	444	322,400	-	-

1585. Preacher Creek near Dover, Okla.

Location.--Lat 36°03', long 98°01', in NW¼NW¼ sec.13, T.18 N., R.8 W., on right bank 75 ft downstream from highway bridge, 1.4 miles upstream from mouth, and 7 miles northwest of Dover.

Drainage area.--14.5 sq mi.

Records available.--October 1951 to May 1957.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 1,073 ft (by barometer). Gage destroyed by flood of May 15, 1957.

Average discharge.--5 years (1952-56), 0.689 cfs (499 acre-ft per year).

Extremes.--1951-57: Maximum discharge, 6,420 cfs May 15, 1957 (gage height, 9.1 ft, from floodmark), from rating curve extended above 70 cfs on basis of slope-area measurements at gage heights 4.73 and 9.1 ft; no flow at times in each year.
Maximum stage known since at least 1918, that of may 15, 1957.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	0.779	1.34	1.02	1.24	1.29	1.54	1.23	0.446	0.059	0	0	0	0.744
1953	0	.085	.504	.492	.568	.833	.712	.457	0	5.53	.042	0	.777
1954	.393	.509	.916	.589	.521	.558	.379	1.42	.310	0	.002	0	.468
1955	0	0	0	.027	.39	.15	.092	5.77	3.71	.428	0	.001	.884
1956	.228	.335	.578	.645	1.07	.531	.307	.530	.605	.002	0	0	.574
1957	0	0	0	.117	.544	.959	2.82	-	-	-	-	-	-
1958													
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	48	80	63	77	74	94	73	27	3.5	0	0	0	540
1953	0	5.1	31	30	32	51	42	28	0	340	2.6	0	562
1954	24	30	56	36	29	34	23	87	18	0	.1	0	337
1955	0	0	0	1.6	22	9.2	5.5	355	221	26	0	.1	640
1956	140	20	36	40	62	33	18	33	36	.1	0	0	418
1957	0	0	0	7.2	30	59	168	-	-	-	-	-	-
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952	1241	9.2	Apr. 22, 1952	0	0.744	540	0.531	415
1953	1281	431	July 24, 1953	0	.777	562	.902	652
1954	1341	32	May 24, 1954	0	.468	337	.315	227
1955	1381	512	May 26, 1955	0	.884	640	1.15	836
1956	1441	118	Oct. 4, 1955	0	.574	418	.304	222
1957	1511	6,420	May 15, 1957	-	-	-	-	-
1958								
1959								
1960								

1590. Turkey Creek near Drummond, Okla.

Location.--Lat 36°19'05", long 98°00'03", in NE¼NE¼ sec.12, T.21 N., R.8 W., near right bank on downstream side of pile bent of highway bridge, 2¼ miles northeast of Drummond, 2½ miles downstream from Clear Creek, and 9 miles southwest of Enid.

Drainage area.--248 sq mi.

Records available.--October 1947 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,148.22 ft above mean sea level, datum of 1929. Prior to Apr. 22, 1948, wire-weight gage at same site and datum.

Average discharge.--13 years (1947-60), 60.1 cfs (43,510 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 18,800 cfs May 16, 1957 (gage height, 21.61 ft), from rating curve extended above 7,300 cfs by logarithmic plotting; no flow at times in most years.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6.70	5.37	5.95	5.00	35.1	7.08	9.11	370	263	325	10.6	5.45	87.9
1952	6.59	9.54	3.19	5.71	6.10	8.70	21.5	4.06	1.84	0	2.09	0	5.75
1953	.17	.10	.36	.35	.40	.44	1.21	17.3	13.9	43.1	2.63	.06	6.75
1954	2.97	.03	9.63	.35	.45	2.62	10.7	43.2	1.61	0	0	0	6.04
1955	4.19	.04	.10	.14	.36	.03	.09	209	503	16.6	1.33	4.86	61.5
1956	114	.61	.52	.73	1.90	.60	2.20	.44	8.46	.12	0	0	11.0
1957	0	.05	.31	.25	.47	.84	158	1,030	803	97.1	5.21	45.4	179
1958	4.15	22.4	5.31	5.70	4.87	20.9	10.1	4.16	35.4	1.97	21.0	.12	11.3
1959	.35	1.28	1.31	2.17	1.94	3.73	10.0	15.9	3.41	.09	.25	126	13.8
1960	475	9.71	16.7	19.4	77.5	27.3	9.30	246	253	226	401	38.1	151

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	412	320	366	307	1,950	435	542	22,730	15,650	19,960	655	324	63,650
1952	405	568	196	351	351	535	1,280	250	109	0	128	0	4,170
1953	11	6.1	22	21	22	27	72	1,060	827	2,650	161	3.8	4,880
1954	183	2.0	592	21	25	161	634	2,660	96	0	0	0	4,370
1955	257	2.4	6.3	8.7	20	1.6	5.2	12,850	29,950	1,020	82	289	44,490
1956	7,040	36	32	45	109	37	131	27	503	7.5	0	0	7,970
1957	0	2.8	19	15	26	52	9,370	63,340	47,790	5,970	320	2,700	129,600
1958	255	1,330	327	350	271	1,280	600	256	2,110	121	1,290	7.3	8,200
1959	22	76	81	134	108	229	597	978	203	5.8	15	7,520	9,970
1960	29,210	578	1,030	1,190	4,460	1,680	553	15,120	15,030	13,900	24,660	2,270	109,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	104	75,450
1951	1211	2,710	June 21, 1951	0.5	87.9	63,650	88.0	63,720
1952	1241	254	Apr. 22, 1952	0	5.75	4,170	4.19	3,040
1953	1281	1,230	June 5, 1953	0	6.75	4,880	7.77	5,620
1954	1341	908	May 25, 1954	0	6.04	4,370	5.33	3,860
1955	1391	5,320	June 18, 1955	0	61.5	44,490	70.9	51,330
1956	1441	1,750	Oct. 2, 1955	0	11.0	7,970	1.21	881
1957	1511	18,800	May 16, 1957	0	179	129,600	182	131,500
1958	1561	695	Nov. 17, 1957	0	11.3	8,200	8.93	6,460
1959	1631	1,590	Sept. 25, 1959	0	13.8	9,970	56.1	40,610
1960	1711	5,950	May 28, 1960	4.7	151	109,700	-	-

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1595. Bluff Creek above Lake Hefner, near Oklahoma City, Okla.

Location.--Lat 35°32'33", long 97°35'46", in SW¼ sec.2, T.12 N., R.4 W., on left bank at upstream side of bridge in Lake Hefner recreational area, just upstream from Lake Hefner, 6¼ miles northwest of the State Capitol in Oklahoma City.

Drainage area.--1.62 sq mi.

Records available.--March 1950 to September 1958.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 1,199.86 ft above mean sea level, datum of 1929.

Average discharge (revised).--8 years (1950-58), 0.391 cfs (283 acre-ft per year).

Extremes.--1950-58: Maximum discharge, 1,070 cfs June 16, 1955 (gage height, 4.95 ft), from rating curve extended above 80 cfs by flow-over-weir measurement of peak flow; no flow at times in each year.

Remarks.--Occasional regulation at low flow by gravel plant above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.095	0.170	0.208	0.221	0.431	0.430	0.593	3.77	1.28	0.674	0.099	0.093	0.676
1952	.016	.207	.177	.581	.351	.512	.370	.760	.076	.065	.025	0	.262
1953	0	0	0	.130	.146	.661	.741	.411	0	.390	.002	0	.208
1954	.220	.200	.232	.170	.330	.129	.189	.922	.050	0	0	0	.203
1955	0	0	0	0	.069	.077	.029	1.44	3.08	.091	.001	.011	.398
1956	2.56	.144	.434	.235	.300	.107	.080	.208	0	0	0	0	.342
1957	0	0	0	0	0	.031	.892	1.19	2.84	.102	0	.430	.455
1958	.052	.579	.196	.247	.274	.951	1.87	.566	1.85	.118	.127	.207	.583
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.9	10	13	14	24	26	35	232	76	41	6.1	5.5	488
1952	1.0	12	11	36	20	31	22	47	4.5	4.0	1.6	0	190
1953	0	0	0	8.0	8.0	41	44	25	0	24	.14	0	150
1954	14	12	14	10	18	7.9	11	57	3.0	0	0	0	147
1955	0	0	0	0	3.8	4.8	1.7	88	183	5.6	.1	.6	288
1956	157	8.5	27	14	17	6.6	4.7	13	0	0	0	0	248
1957	0	0	0	0	0	1.9	53	73	169	6.3	0	26	329
1958	3.2	34	12	15	15	58	112	35	110	7.3	7.8	12	421
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211,1391	452	May 27, 1951	0	0.676	488	0.669	484
1952	1241	47	May 23, 1952	0	.262	190	.229	166
1953	1281,1391	136	July 20, 1953	0	.208	150	.262	190
1954	1341,1391	170	May 1, 1954	0	.203	147	.149	107
1955	1391	1,070	June 16, 1955	0	.398	288	.664	480
1956	1441	199	Oct. 2, 1955	0	.342	248	.077	55
1957	1511	154	June 22, 1957	0	.455	329	.523	378
1958	1561	255	Apr. 19, 1958	0	.583	421	-	-
1959								
1960								

1600. Cimarron River near Guthrie, Okla.

Location.--Lat 35°55'10", long 97°25'35", in NE¼SE¼ sec.29, T.17 N., R.2 W., on left bank 125 ft upstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 1.2 miles downstream from Cottonwood Creek, 2½ miles north of Guthrie, 6.5 miles upstream from Skeleton Creek (Ephraim Creek), and at mile 121.8.

Drainage area.--16,892 sq mi, of which 4,926 sq mi is probably noncontributing.

Records available.--October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 900.50 ft above mean sea level (Corps of Engineers bench mark). Prior to Mar. 10, 1939, chain gage at railway bridge 125 ft downstream at same datum.

Average discharge.--23 years (1937-60), 966 cfs (699,400 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 158,000 cfs May 17, 1957 (gage height, 18.58 ft); minimum, 0.1 cfs Nov. 2, 1939.
Maximum stage known, that of May 17, 1957. Flood in May 1935 reached a stage of 16.5 ft, from information by Corps of Engineers.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	407	223	263	270	443	371	437	7,797	4,226	3,963	352	546	1,620
1952	243	396	243	323	284	613	845	1,063	293	22.3	61.5	10.1	367
1953	.79	9.29	71.1	123	122	233	142	173	58.6	934	294	124	192
1954	180	449	262	102	130	126	86.1	1,421	251	9.58	38.1	8.03	257
1955	5.19	.70	1.39	9.84	53.9	24.7	91.4	6,102	4,751	621	151	258	1,011
1956	3,302	109	93.6	108	192	95.1	66.5	79.6	188	256	62.9	13.3	385
1957	43.4	21.4	10.1	11.1	21.7	126	2,633	14,960	11,780	2,661	414	1,460	2,856
1958	‡577	‡462	‡291	‡317	‡297	‡555	‡729	‡400	‡3,291	‡1,543	‡866	‡910	‡852
1959	173	153	202	211	271	299	473	1,249	261	194	161	3,138	563
1960	7,032	489	779	700	1,773	1,121	742	1,743	3,051	2,000	2,307	515	1,862

‡ Not previously published; computed from gage-height record or estimated on basis of records for nearby stations.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	25,030	13,250	16,200	16,580	24,580	22,820	25,990	479,400	251,400	243,700	21,670	32,490	1,173,000
1952	14,960	23,560	14,960	19,840	16,350	37,690	50,260	65,340	17,440	1,370	3,780	601	266,200
1953	48	553	4,370	7,590	6,760	14,300	8,490	10,620	3,490	57,440	18,090	7,380	139,100
1954	11,070	26,740	16,090	6,270	7,200	7,730	5,120	87,370	14,960	589	2,340	478	186,000
1955	319	42	86	605	2,990	1,520	5,440	375,200	282,700	38,190	9,290	15,360	731,700
1956	203,000	6,500	5,750	6,620	11,070	5,850	3,960	4,900	11,190	15,720	3,870	793	279,200
1957	2,670	1,270	622	683	1,210	7,780	156,700	919,800	700,800	163,600	25,430	86,860	2,067,000
1958	‡35,490	‡27,510	‡17,900	‡19,520	‡16,510	‡34,150	‡43,350	‡24,600	‡195,900	‡94,900	‡53,240	‡54,180	‡617,200
1959	10,660	9,110	12,400	12,950	15,070	18,400	28,150	76,800	15,540	11,940	9,910	186,700	407,600
1960	432,400	29,080	47,900	43,060	102,000	68,950	44,180	107,200	181,600	123,000	141,900	30,640	1,352,000

‡ Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,145	829,000
1951	1211	42,500	May 20, 1951	110	1,620	1,173,000	1,619	1,172,000
1952	1241	4,230	May 3, 1952	.8	367	266,200	300	217,600
1953	1281	5,620	July 20, 1953	.5	192	139,100	260	188,100
1954	1341	11,000	May 26, 1954	.8	257	186,000	183	132,500
1955	1391	43,400	May 21, 1955	.4	1,011	731,700	1,307	946,500
1956	1441	39,400	Oct. 5, 1955	1.2	385	279,200	94.4	68,540
1957	1511	158,000	May 17, 1957	1.1	2,856	2,067,000	‡2,961	‡2,144,000
1958	-	‡31,200	June 26, 1958	‡107	‡852	‡617,200	‡785	‡568,500
1959	1631	51,800	Sept. 25, 1959	18	563	407,600	1,222	884,800
1960	1711	86,800	Oct. 2, 1959	176	1,862	1,352,000	-	-

‡ Not previously published.

1605. Skeleton Creek near Lovell, Okla.

Location.--Lat 36°04', long 97°35', in SW¼ sec.1, T.18 N., R.4 W., near right bank on downstream side of pier of bridge on State Highway 74, 2 miles upstream from Otter Creek, 2¾ miles east of Lovell, and at mile 14.6.

Drainage area.--410 sq mi.

Records available.--October 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 914.76 ft above mean sea level, datum of 1929 (State Highway Commission bench mark). Prior to Dec. 5, 1949, staff gage at site 60 ft downstream at datum 0.30 ft lower.

Average discharge.--11 years (1949-60), 127 cfs (91,940 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 75,200 cfs May 16, 1957 (gage height, 34.58 ft); no flow at times in 1953-54, 1956.
Maximum stage known, that of May 16, 1957. Flood of Aug. 17, 1932, reached a stage of 32.0 ft, from floodmark.

Remarks.--Records of chemical analyses and water temperatures for water years 1951-55 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14.5	13.2	11.8	10.8	25.7	13.6	14.3	437	271	198	7.51	43.3	88.9
1952	10.5	25.2	9.81	12.4	10.9	40.4	25.2	21.3	18.2	1.17	41.3	1.45	18.2
1953	.40	2.57	6.42	3.23	3.81	12.0	10.3	29.7	73.2	32.1	25.6	2.76	16.9
1954	35.0	63.2	32.6	4.63	19.2	12.1	5.30	72.4	14.6	.34	24.7	23.7	25.7
1955	2.46	1.34	2.13	3.71	6.42	2.55	2.80	1,555	535	28.0	5.38	21.4	182
1956	657	9.68	9.93	9.11	18.0	8.57	6.85	9.70	23.9	7.89	7.57	.4	64.9
1957	3.22	4.53	3.88	3.54	5.44	10.2	409	2,850	1,390	217	14.4	261	434
1958	22.1	26.9	18.4	19.4	17.0	63.9	152	64.8	309	24.0	41.1	73.7	69.0
1959	5.54	14.6	9.08	9.59	9.76	13.4	28.8	54.5	8.41	18.4	5.19	408	48.4
1960	1,473	31.1	82.9	56.3	167	98.2	134	355	412	580	345	37.9	317

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	889	783	727	666	1,420	834	851	26,890	16,100	12,160	462	2,570	64,350
1952	648	1,500	603	761	626	2,490	1,500	1,310	1,080	72	2,540	86	13,220
1953	24	153	395	198	212	740	615	1,830	4,350	1,970	1,580	164	12,230
1954	2,160	3,760	2,000	285	1,070	741	316	4,450	867	21	1,520	1,410	18,600
1955	151	80	131	228	356	157	167	95,600	31,840	1,720	331	1,280	132,000
1956	40,400	576	611	560	1,030	527	408	596	1,420	485	466	24	47,100
1957	198	269	239	218	302	625	24,320	175,200	82,700	13,320	886	15,550	313,800
1958	1,360	1,600	1,130	1,190	942	3,930	9,050	3,990	18,390	1,470	2,530	4,380	49,960
1959	341	869	558	590	542	824	1,720	3,350	500	1,130	319	24,300	35,040
1960	90,590	1,850	5,100	3,460	9,580	6,040	7,990	21,840	24,540	35,670	21,240	2,260	230,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	129	93,480
1951	1211	2,550	July 2, 1951	0.2	88.9	64,350	89.4	64,700
1952	1241	638	Aug. 9, 1952	.1	18.2	13,220	15.2	11,040
1953	1281	1,400	June 7, 1953	0	16.9	12,230	27.0	19,580
1954	1341	1,430	Dec. 4, 1953	0	25.7	18,600	15.3	11,040
1955	1391	11,100	May 26, 1955	.7	182	132,000	239	173,300
1956	1441	7,960	Oct. 4, 1955	0	64.9	47,100	8.58	6,220
1957	1511	75,200	May 16, 1957	0	434	313,800	438	317,200
1958	1561	2,710	June 25, 1958	4.7	69.0	49,960	65.8	47,640
1959	1631	5,900	Sept. 25, 1959	1.9	48.4	35,040	181	130,800
1960	1711	14,600	Oct. 4, 1959	11	317	230,200	-	-

1610. Cimarron River at Perkins, Okla.

Location.--Lat 35°58', long 97°02', in SW¼SW¼ sec.7, T.17 N., R.3 E., near right bank on downstream side of pier of bridge on State Highway 40, 1 mile south of Perkins, 1½ miles upstream from Dugout Creek, 4 miles downstream from Wildhorse Creek, and at mile 87.3.

Drainage area.--17,852 sq mi, of which 4,926 sq mi is probably noncontributing.

Records available.--June 1939 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1927 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 819.88 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 26, 1940, and Jan. 9 to Apr. 7, 1954, staff or wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 1,283 cfs (928,900 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 149,000 cfs May 17, 1957 (gage height, 19.53 ft); minimum, 0.8 cfs Dec. 8, 1954.
Maximum stage known, that of May 17, 1957. Flood of Oct. 4, 5, 1926, reached a stage of 17.0 ft, from floodmarks, from information by Corps of Engineers.

Remarks.--Records of chemical analyses and water temperatures for water years 1953-60 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	463	254	286	297	517	412	494	9,105	5,574	4,936	436	894	1,986
1952	302	556	307	401	375	757	908	1,215	424	40.7	106	23.3	454
1953	4.09	12.1	77.5	130	132	281	181	245	162	1,053	342	173	235
1954	219	579	365	118	166	144	95.2	1,472	369	21.6	18.7	77.1	305
1955	26.3	2.15	3.50	14.2	62.3	28.5	97.6	8,850	5,811	764	196	234	1,349
1956	4,870	166	134	140	215	110	81.9	106	245	281	62.9	29.3	543
1957	604	33.6	16.7	16.3	26.3	119	3,501	17,800	14,190	2,994	460	2,042	3,450
1958	600	472	312	329	325	694	931	469	3,653	1,655	993	975	950
1959	179	172	194	220	277	314	516	1,245	277	418	200	4,370	695
1960	11,480	628	1,172	851	2,632	1,737	967	2,381	4,240	2,956	2,610	656	2,705

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	28,490	15,090	17,580	18,250	28,690	25,340	29,400	559,900	331,700	303,500	26,840	53,210	1,438,000
1952	18,570	33,060	18,890	24,650	21,600	46,570	54,010	76,930	25,230	2,500	6,530	1,390	329,900
1953	251	719	4,760	7,980	7,350	17,300	10,760	15,070	9,640	64,740	21,000	10,270	169,800
1954	13,460	34,460	22,450	7,240	9,230	8,830	5,660	90,530	21,970	1,330	1,150	4,590	220,900
1955	1,620	128	215	874	3,460	1,750	5,810	544,100	345,800	46,980	12,050	13,950	976,700
1956	299,500	9,890	8,250	8,580	12,350	6,760	4,880	6,510	14,600	17,260	3,870	1,750	394,200
1957	3,710	2,000	1,030	1,000	1,460	7,300	208,300	1,065,000	844,200	184,100	28,260	121,500	2,498,000
1958	36,910	28,100	19,200	20,260	18,030	42,660	55,370	28,850	217,400	101,800	61,050	58,030	687,700
1959	10,980	10,240	11,900	13,520	15,370	19,340	30,670	76,530	16,480	25,690	12,270	260,100	503,100
1960	702,400	37,180	71,700	52,040	150,600	106,300	57,250	145,700	251,000	180,900	159,700	38,860	1,954,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,418	1,027,000
1951	1211	50,200	May 20, 1951	113	1,986	1,438,000	1,999	1,447,000
1952	1241	4,120	May 3, 1952	6.4	454	329,900	365	265,100
1953	1281	5,470	July 21, 1953	2.7	235	169,800	324	234,500
1954	1341	11,000	May 27, 1954	1.5	305	220,900	211	152,500
1955	1391	49,600	May 21, 1955	.9	1,349	976,700	1,785	1,292,000
1956	1441	53,700	Oct. 5, 1955	3.2	543	394,200	115	83,300
1957	1511	149,000	May 17, 1957	2.5	3,450	2,498,000	3,557	2,575,000
1958	1561	35,000	June 26, 1958	178	950	687,700	879	636,600
1959	1631	55,500	Sept. 26, 1959	60	695	503,100	1,775	1,281,000
1960	1711	98,600	Oct. 3, 1959	256	2,705	1,954,000	-	-

1630. Council Creek near Stillwater, Okla.

Location.--Lat 36°07', long 96°52', in SE¼SW¼ sec.15, T.19 N., R.4 E., on right bank 200 ft upstream from county road bridge, 10 miles east of Stillwater, and 10.0 miles upstream from mouth.

Drainage area.--31 sq mi.

Records available.--March 1934 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 838.28 ft above mean sea level, adjustment of 1912. Prior to May 4, 1934, staff gage at same site and datum.

Average discharge.--26 years (1934-60), 11.7 cfs (8,470 acre-ft per year).

Extremes.--1934-60: Maximum discharge, 25,000 cfs Oct. 2, 1959 (gage height, 18.9 ft, from floodmarks), from rating curve extended above 2,500 cfs on basis of slope-area measurements at gage heights 13.4 and 17.5 ft; no flow at times in each year.

Maximum stage known, that of Oct. 2, 1959. Flood of Apr. 27, 1912, reached a stage of 16.6 ft at gage, based on floodmarks set by local resident in 1912 and 1942 at site 900 ft downstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.34	0.59	0.53	1.21	9.26	2.71	4.66	25.3	12.8	9.09	1.00	12.8	6.66
1952	12.3	9.64	1.49	1.67	4.73	30.2	9.55	4.25	13.7	.08	2.12	0	7.48
1953	0	0	0	.05	.30	6.61	5.26	3.03	1.66	20.4	3.64	.87	3.53
1954	0	0	.69	.03	.13	.07	4.54	17.6	.04	0	0	0	1.95
1955	0	0	0	0	0	0	0	38.3	.39	0	0	0	3.29
1956	4.38	0	0	0	0	0	0	3.21	.04	.38	0	0	.68
1957	0	.61	0	0	0	.05	32.7	80.4	95.8	15.0	.17	11.0	19.6
1958	.06	3.23	.56	2.20	.62	27.2	3.47	2.76	17.0	22.8	9.36	.88	7.59
1959	0	.13	.19	.34	.59	2.33	2.48	29.5	36.9	110	31.8	113	27.3
1960	429	4.61	10.7	4.88	15.8	14.3	11.5	67.0	3.86	14.6	2.06	.27	48.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	21	35	32	75	514	167	277	1,560	762	559	62	760	4,820
1952	759	574	91	103	272	1,860	568	261	814	4.8	130	0	5,440
1953	0	0	0	2.8	17	406	313	187	99	1,250	224	52	2,550
1954	0	0	43	1.6	7.1	4.6	270	1,080	2.2	0	0	0	1,410
1955	0	0	0	0	0	0	0	2,360	23	0	0	0	2,380
1956	269	0	0	0	0	0	0	198	2.4	24	0	0	493
1957	0	36	0	0	0	3.0	1,940	4,940	5,700	924	10	653	14,210
1958	3.8	192	34	135	35	1,670	206	170	1,010	1,400	576	52	5,480
1959	0	7.7	12	21	33	143	147	1,810	2,200	6,790	1,950	6,740	19,850
1960	26,380	274	658	300	912	877	684	4,120	229	899	127	16	35,480

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	10.5	4.59	7,610
1951	1211	1,970	May 1, 1951	0	6.66	0.215	2.92	4,820	8.50	3.74	6,160
1952	1241	1,600	June 5, 1952	0	7.48	.241	3.28	5,440	5.52	2.41	4,010
1953	1281	1,530	July 23, 1953	0	3.53	.114	1.55	2,550	3.59	1.58	2,590
1954	1341	1,470	May 1, 1954	0	1.95	.063	.85	1,410	1.89	.82	1,370
1955	1391	1,560	May 19, 1955	0	3.29	.106	1.43	2,380	3.66	1.59	2,650
1956	1441	524	Oct. 4, 1955	0	.68	.022	.291	493	.36	.15	260
1957	1511	16,400	May 20, 1957	0	19.6	.632	8.60	14,210	19.9	8.72	14,400
1958	1561	1,560	Mar. 29, 1958	0	7.59	.245	3.31	5,480	7.30	3.18	5,270
1959	1631	8,390	Sept.24, 1959	0	27.3	.884	12.02	19,850	65.1	28.53	47,150
1960	1711	25,000	Oct. 2, 1959	0	48.9	1.58	21.45	35,480	-	-	-

1640. Cimarron River at Mannford, Okla.

Location (revised).--Lat 36°09'40", long 96°23'10", in SW¼NW¼ sec.5, T.19 N., R.9 E., near left bank on downstream side of pier of county highway bridge, half a mile north of Mannford, 1½ miles downstream from House Creek, and at mile 17.7.

Drainage area.--18,849 sq mi, of which 4,926 sq mi is probably noncontributing.

Records available.--October 1938 to September 1950, October 1959 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 682.92 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1942, chain or wire-weight gage at site 1 1/8 miles upstream at datum 5.00 ft higher. Oct. 1, 1942, to Sept. 30, 1950, water-stage recorder at present site and datum.

Average discharge.--13 years (1938-50, 1959-60), 1,766 cfs (1,279,000 acre-ft per year).

Extremes.--1938-50, 1959-60: Maximum discharge, 131,000 cfs Oct. 3, 1959 (gage height, 27.37 ft); minimum observed, 5 cfs Oct. 25, 1939.
Maximum stage known, 28.85 ft May 18, 1957, from floodmark, from information by Corps of Engineers (discharge, 145,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	16,900	944	1,449	1,159	2,814	1,934	1,766	3,754	5,517	3,695	3,138	1,094	3,700

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	1,039,000	56,190	89,100	71,280	161,900	118,900	105,100	230,800	328,300	227,200	192,900	65,130	2,686,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1960	1711	131,000	Oct. 3, 1959	391	3,700	2,686,000	-	-

1645. Arkansas River at Tulsa, Okla.

Location.--Lat 36°08'40", long 96°00'10", in NW¼ sec.11, T.19 N., R.12 E., near left bank on downstream side of pier of bridge on U. S. Highway 66 in Tulsa, 10.1 miles upstream from Polecat Creek, 17.1 miles downstream from Cimarron River, and at mile 523.7.

Drainage area.--74,615 sq mi, of which 12,541 sq mi is probably noncontributing.

Records available.--October 1925 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1904 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 615.23 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Feb. 2, 1939, chain or wire-weight gage and Feb. 2, 1939, to Sept. 30, 1952, water-stage recorder, at datum 3.00 ft higher.

Average discharge.--35 years (1925-60), 6,546 cfs (4,739,000 acre-ft per year).

Extremes.--1925-60: Maximum discharge, 246,000 cfs Oct. 5, 1959 (gage height, 22.00 ft); minimum, 27 cfs Oct. 12, 13, 1956.
Maximum stage known, 22.8 ft June 13, 1923, present datum, from reports of U. S. Weather Bureau.

Remarks.--Some regulation by John Martin and Great Salt Plains Reservoir (see elsewhere in this report). Records of chemical analyses and water temperatures at site 7 miles upstream (published as "at Sand Springs Bridge near Tulsa") are published in reports of Geological Survey.

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

Corrections.--In WSP 1311, the monthly runoff for November 1936 is listed in error; it should be 62,200 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,631	2,430	2,243	2,241	3,654	3,443	4,277	42,850	37,670	56,650	8,155	18,080	15,620
1952	6,702	8,083	4,588	4,427	3,842	10,600	9,215	7,646	6,635	1,476	1,404	691	5,444
1953	378	631	940	1,106	1,194	2,525	2,833	2,803	2,623	4,144	1,898	716	1,822
1954	500	1,431	1,336	762	856	844	906	5,115	2,811	416	196	156	1,280
1955	271	240	243	392	523	650	545	16,960	13,410	33,712	1,045	529	3,227
1956	14,860	936	702	712	971	781	761	720	897	908	261	895	1,901
1957	125	245	210	214	311	407	14,550	58,090	61,100	27,170	3,613	6,766	14,450
1958	3,390	3,841	2,769	2,595	2,452	13,100	11,970	6,498	9,149	19,900	9,791	7,206	7,761
1959	3,082	1,920	1,747	1,743	2,155	2,182	4,763	9,740	4,828	18,420	4,434	11,710	5,586
1960	56,740	5,831	5,529	5,973	11,340	14,320	11,420	13,100	13,570	10,980	11,810	6,892	14,020

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	284.8	144.6	137.9	137.8	202.9	211.7	254.5	2,635	2,242	3,483	501.4	1,076	11,310
1952	412.1	481.0	282.1	272.2	221.0	651.9	548.3	470.1	394.8	90.79	86.36	41.13	3,952
1953	23.27	37.56	57.82	68.00	66.29	155.2	168.6	172.3	156.1	254.8	116.7	42.59	1,319
1954	30.75	85.17	82.16	46.83	47.51	51.92	53.89	314.5	167.3	25.56	12.03	9.31	926.9
1955	16.67	14.26	14.95	24.08	29.03	39.99	32.41	1,043	797.8	228.2	64.27	31.48	2,336
1956	913.4	55.67	43.19	43.80	55.85	48.03	45.30	44.28	53.37	55.86	16.04	5.32	1,380
1957	7.71	14.60	12.89	13.17	17.26	25.03	865.6	3,572	3,636	1,670	222.2	402.6	10,460
1958	208.5	228.6	170.2	159.6	136.2	805.6	712.3	399.6	544.4	1,223	602.0	428.8	5,619
1959	189.5	114.2	107.4	107.2	119.7	134.2	283.4	598.9	287.3	1,132	272.6	696.9	4,043
1960	3,489	347.0	340.0	367.3	652.5	880.8	679.4	805.2	807.7	675.0	726.4	410.1	10,180

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	7,751	5,611,000
1951	1211	149,000	July 4, 1951	1,740	15,620	11,310,000	16,460	11,920,000
1952	1241	32,900	June 7, 1952	458	5,444	3,952,000	3,988	2,895,000
1953	1281	17,000	June 1, 1953	300	1,822	1,319,000	1,932	1,399,000
1954	1341	26,000	May 3, 1954	85	1,280	926,900	1,070	774,700
1955	1391	60,700	May 29, 1955	89	3,227	2,336,000	4,562	3,303,000
1956	1441	97,600	Oct. 6, 1955	59	1,901	1,380,000	555	403,000
1957	1511	235,000	May 21, 1957	30	14,450	10,460,000	15,240	11,030,000
1958	1561	62,200	July 8, 1958	2,010	7,761	5,619,000	7,491	5,423,000
1959	1631	78,800	Sept. 26, 1959	615	5,586	4,043,000	10,790	7,808,000
1960	1711	246,000	Oct. 5, 1959	2,740	14,020	10,180,000	-	-

1650. Heyburn Reservoir near Heyburn, Okla.

Location.--Lat 35°57', long 96°18', in SE¼ sec.13, T.17 N., R.9 E., at intake structure at right abutment of Heyburn Dam on Polecat Creek, 2½ miles northwest of Heyburn, 3.4 miles upstream from bridge on U. S. Highway 66, 11 miles southwest of Sapulpa, and at mile 48.6.

Drainage area.--123 sq mi.

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1950-60: Maximum contents, 26,670 acre-ft June 25, 1958 (elevation, 772.60 ft); minimum since conservation pool was first reached, 7,230 acre-ft Oct. 13, 14, 1956 (elevation, 758.48 ft).

Remarks.--Reservoir is formed by an earth dam. Outlet works consist of an 8-foot 3-inch diameter concrete conduit extending from an uncontrolled concrete drop inlet at the upstream side of dam to a concrete stilling basin near downstream toe of dam and three 36-inch gated low-flow pipes which drain into the conduit below the drop inlet. Spillway is a 200-foot channel in a natural saddle about 1,000 ft west of right abutment. Storage began Sept. 29, 1950; conservation pool stage was first reached Mar. 10, 1951. Capacity, 147,000 acre-ft at elevation 802.0 ft (maximum pool), 57,220 acre-ft at elevation 784.0 ft (spillway crest and top of flood-control pool), and 8,150 acre-ft at elevation 761.5 ft (conservation pool). Dead storage, 377 acre-ft below elevation 740.0 ft (invert of low-flow sluices). Reservoir was designed for flood control and conservation. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	4,750	4,770	4,790	5,090	9,590	10,140	10,850	10,110	11,540	10,160	9,580	10,140
1952	10,800	10,310	10,090	10,150	10,520	10,380	10,580	10,480	9,810	10,130	9,870	9,080
1953	8,580	8,580	8,560	8,670	8,670	10,300	10,820	10,180	9,890	10,080	9,810	9,720
1954	9,960	9,830	9,830	9,780	9,930	9,700	13,160	10,420	9,820	9,040	8,460	8,040
1955	7,750	7,490	7,550	7,480	7,690	7,630	7,560	10,500	9,860	9,150	8,670	8,270
1956	8,550	8,190	8,070	8,000	8,050	7,830	7,530	10,970	9,930	9,630	8,760	7,580
1957	7,650	8,040	8,200	8,230	8,290	9,390	11,090	12,320	11,370	10,300	9,960	10,230
1958	10,090	10,180	10,100	10,300	10,290	11,230	10,560	11,660	12,640	10,450	10,450	10,510
1959	10,050	9,990	10,060	10,120	10,330	10,440	10,290	11,050	10,420	12,220	10,410	a9,810
1960	8,400	8,320	8,620	8,550	8,550	8,460	10,250	8,840	8,330	8,820	8,440	7,940

a Contents from capacity table used beginning Oct. 1, 1959; contents Sept. 30, 1959, by capacity table used prior to Oct. 1, 1959, is 11,860 acre-ft.

1655. Polecat Creek below Heyburn Reservoir, near Heyburn, Okla.

Location.--Lat 35°57', long 96°18', in SE¼ sec.13, T.17 N., R.9 E., at intake structure at right abutment of Heyburn Dam on Polecat Creek, 2½ miles northwest of Heyburn, 3.4 miles upstream from bridge on U. S. Highway 66, 11 miles southwest of Sapulpa, and at mile 48.6.

Drainage area.--123 sq mi. At site 3.4 miles downstream, 129 sq mi.

Records available.--October 1943 to September 1960. Prior to October 1956, published as Polecat Creek at Heyburn.

Gage.--Water-stage recorder, modified morning-glory type drop inlet structure, and uncontrolled concrete emergency spillway. Datum of gage is 760.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 22, 1949, wire-weight gage and Feb. 22, 1949, to Feb. 16, 1956, water-stage recorder, at site 3.4 miles downstream at datum 53.53 ft lower. Feb. 17, 1956, to Apr. 17, 1957, Oct. 1, 1957, to Mar. 7, 1958, Oct. 1, 1958, to May 5, 1959, water-stage recorder at site 1,100 ft downstream at datum 42.00 ft lower.

Average discharge.--17 years (1943-60), 56.6 cfs (40,980 acre-ft per year).

Extremes.--1943-60: Maximum discharge, 17,300 cfs June 23, 1948, May 19, 1949, from rating curve extended above 6,100 cfs; maximum gage height, 28.53 ft May 19, 1949, site and datum then in use; no flow at times in most years.
Maximum stage known, 31.5 ft Sept. 4, 1940, from floodmark, site and datum then in use.

Remarks.--Flow regulated since Sept. 29, 1950, by Heyburn Reservoir (see preceding page), with occasional prior regulation from Mar. 16, 1950, by reservoir construction operations.

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

Corrections.--In WSP 1311, the monthly mean discharge for September 1948 was listed in error; it should be 0.37 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13.21	0.02	0.17	0.33	8.81	23.2	45.9	39.6	12.9	42.7	0.13	5.13	15.0
1952	17.8	15.0	2.12	2.23	14.1	104	66.6	48.0	17.9	17.4	.12	3.94	25.8
1953	0	.02	0	.08	.03	63.4	202	98.8	2.19	3.17	.03	2.57	31.1
1954	.92	.43	1.96	.42	1.29	1.06	30.6	156	4.31	.10	.14	.01	16.6
1955	0	0	.05	0	.12	.16	.50	59.6	4.18	0	.73	0	5.54
1956	0	0	0	0	0	0	1.29	1.83	10.6	.25	0	7.62	1.78
1957	2.63	0	0	0	1.48	1.36	337	678	517	68.7	3.07	18.0	136
1958	.80	3.72	1.23	5.98	4.42	152	86.2	14.0	498	205	146	15.1	94.4
1959	2.93	.39	.32	1.05	7.81	11.0	7.21	105	73.8	277	78.6	40.4	51.1
1960	373	68.3	31.0	57.1	90.6	65.2	145	381	32.6	118	14.9	1.56	116

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13	1.0	11	20	489	1,430	2,730	2,440	769	2,630	7.9	305	10,850
1952	1,100	893	131	137	813	6,390	3,960	2,950	1,060	1,070	7.5	235	18,750
1953	0	1.4	0	4.8	1.6	3,900	12,030	6,080	130	195	1.6	153	22,500
1954	57	25	121	26	72	65	1,820	9,570	256	6.0	8.3	.4	12,030
1955	0	0	3	0	6.9	9.9	30	3,670	249	0	45	0	4,010
1956	0	0	0	0	0	0	77	112	652	15	0	453	1,290
1957	162	0	0	0	82	84	20,030	41,690	30,790	4,220	189	1,070	98,320
1958	49	222	75	368	246	9,350	5,130	864	29,620	12,580	8,960	898	68,360
1959	180	23	20	65	434	679	429	6,470	4,390	17,050	4,830	2,410	36,980
1960	22,940	4,060	1,900	3,510	5,210	4,010	8,620	23,460	1,940	7,280	915	93	83,940

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	60.5	43,810
1951	1211	613	Feb. 20, 1951	0	15.0	10,850	17.9	12,940
1952	1241	1,180	May 23, 1952	0	25.8	18,750	22.9	16,620
1953	1281	1,700	Apr. 23, 1953	0	31.1	22,500	31.3	22,700
1954	1341	1,610	May 2, 1954	0	16.6	12,030	16.3	11,830
1955	1391	718	May 24, 1955	0	5.54	4,010	5.54	4,010
1956	1441	154	Sept.13, 1956	0	1.78	1,290	2.00	1,450
1957	1511	1,880	May 25, 1957	0	136	98,320	136	98,500
1958	1561	1,890	June 25, 1958	0	94.4	68,360	94.3	68,240
1959	1631	1,740	July 27, 1959	0	51.1	36,980	90.7	65,660
1960	1711	1,750	Oct. 4, 1959	0	116	83,940	-	-

1657. Verdigris River near Madison, Kans.

Location.--Lat 38°08'15", long 96°06'44", in SW¼ sec.16, T.22 S., R.12 E., on downstream side of bridge on State Highway 57, 1.5 miles east of Madison, Greenwood County, 3.0 miles upstream from Halderman Creek, and at mile 321.9.

Drainage area.--181 sq mi.

Records available.--September 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,034.51 ft above mean sea level, datum of 1929, supplementary (Kansas City) adjustment of 1943 (levels by Corps of Engineers). Prior to Oct. 6, 1955, wire-weight gage at same site and datum.

Average discharge.--5 years (1955-60) 94.1 cfs (68,130 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 34,700 cfs July 16, 1958 (gage height, 27.35 ft); no flow for many days in 1955-57.
Flood of July 11, 1951, reached a stage of 33.4 ft, from floodmark (discharge, 128,000 cfs, on basis of slope-area measurement of peak flow).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	4.8	-
1956	12.2	0.02	0	0.04	1.74	1.66	1.04	5.35	1.87	3.00	0	0	2.26
1957	0	0	0	0	0	18.1	255	594	232	19.7	1.24	13.2	94.9
1958	25.0	79.3	26.5	39.2	68.7	503	143	40.5	187	680	22.6	83.7	159
1959	9.59	95.4	23.8	33.1	65.5	48.7	113	112	24.5	228	63.6	14.4	69.4
1960	609	39.7	73.4	123	164	382	115	36.7	107	8.75	58.5	8.52	145

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	284	-
1956	749	1.4	0	2.4	100	102	62	329	111	184	0	0	1,640
1957	0	0	0	0	0	1,110	15,160	36,540	13,790	1,210	76	788	68,670
1958	1,530	4,720	1,630	2,410	3,820	30,910	8,510	2,490	11,130	41,810	1,390	4,980	115,300
1959	590	5,680	1,460	2,040	3,640	3,000	6,700	6,880	1,460	14,000	3,910	858	50,220
1960	37,470	2,360	4,510	7,560	9,450	23,520	6,840	2,260	6,380	538	3,600	507	105,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1955	1441	-	-	-	-	-	-	-
1956	1441	408	Oct. 5, 1955	0	2.26	1,640	1.23	890
1957	1511	26,600	May 16, 1957	0	94.9	68,670	106	76,550
1958	1561	34,700	July 16, 1958	1.6	159	115,300	159	115,200
1959	1631	4,960	July 18, 1959	3.5	69.4	50,220	120	86,830
1960	1711	18,300	Oct. 2, 1959	1.6	145	105,000	-	-

1659. Toronto Reservoir near Toronto, Kans.

Location.--Lat 37°44'30", long 95°56'00", in SW¼NE¼ sec.36, T.26 S., R.13 E., in left bank end of control tower of dam on Verdigris River, 4 miles southeast of town of Toronto and at mile 271.5.

Drainage area.--730 sq mi.

Records available.--March to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--March to September 1960: Maximum elevation, 907.84 ft June 7, 1960 (contents, 43,680 acre-ft).

Remarks.--Reservoir is formed by compacted earthfill dam. Storage began Mar. 15, 1960. Maximum pool is 311,200 acre-ft at elevation 940.6 ft consisting of the following: minimum pool, 13,000 acre-ft at elevation 897.0 ft; pollution abatement and supplemental water-supply storage pool, 10,290 acre-ft between elevations 897.0 and 901.5 ft; flood-control pool, 172,000 acre-ft between elevations 901.5 and 931.0 ft; uncontrolled storage, 115,900 acre-ft between elevations 931.0 and 940.6 ft. Reservoir is used for flood control and conservation. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1960	-	-	-	-	-	26,180	28,200	24,210	23,340	23,130	24,240	22,940

1660. Verdigris River near Coyville, Kans.

Location.--Lat 37°42'20", long 95°54'20", in SW¼ sec.8, T.27 S., R.14 E., near left bank on downstream side of pier of county highway bridge, 1¼ miles upstream from Meadow Creek, 1½ miles northwest of Coyville, 2½ miles downstream from Pig Creek, and at mile 268.0.

Drainage area.--747 sq mi.

Records available.--August 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 845.28 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Jan. 25, 1952, wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 471 cfs (341,000 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 130,000 cfs July 12, 1951 (gage height, 41.25 ft, from graph based on gage readings), from rating curve extended above 46,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1939-41, 1953-57.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	88.0	22.7	19.8	20.4	69.5	111	173	1,853	3,755	6,850	979	2,886	1,393
1952	284	465	123	185	108	1,460	1,345	215	57.7	9.77	5.54	1.06	355
1953	.73	2.89	3.55	2.88	2.84	21.9	61.6	16.4	3.35	47.4	.43	.01	13.7
1954	.20	.19	.26	.43	5.80	4.16	252	206	105	.33	0	0	47.8
1955	6.93	.70	.17	.72	3.08	8.90	9.51	231	16.9	7.74	.03	50.7	28.3
1956	79.5	.06	.10	.10	.26	.47	4.77	241	117	15.4	0	0	38.5
1957	0	0	0	0	0	0	594	2,634	2,348	96.3	3.61	64.8	479
1958	130	246	77.5	155	222	2,432	613	366	377	2,577	81.0	347	641
1959	31.7	247	60.7	85.5	164	134	513	820	72.3	1,973	418	186	396
1960	2,530	131	144	329	562	1,013	555	538	886	18.2	270	34.7	586

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,410	1,350	1,220	1,250	3,860	6,810	10,300	113,900	223,500	421,200	60,210	159,800	1,009,000
1952	17,480	27,690	7,530	11,380	6,220	89,770	80,020	13,250	3,440	601	341	63	257,800
1953	45	172	218	177	158	1,350	3,670	1,010	199	2,910	26	.8	9,940
1954	12	11	16	26	322	256	14,990	12,690	6,250	20	0	0	34,590
1955	426	42	11	44	170	547	566	14,200	1,000	476	1.6	3,010	20,490
1956	4,890	3.4	6.3	6.3	15	29	284	14,800	6,970	944	0	0	27,950
1957	0	0	0	0	0	0	35,330	162,000	139,700	5,920	222	3,860	347,000
1958	7,980	14,660	4,770	9,530	12,310	149,500	36,490	22,510	22,430	158,400	4,980	20,650	464,200
1959	1,950	14,680	3,730	5,260	9,120	8,230	30,530	50,450	4,300	121,300	25,680	11,100	286,300
1960	155,600	7,800	8,830	20,240	32,300	62,260	33,000	33,090	52,710	1,120	16,610	2,070	425,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	422	305,000
1951	1211	130,000	July 12, 1951	12	1,393	1,009,000	1,455	1,054,000
1952	1241	9,310	Mar. 10, 1952	.5	355	257,800	283	205,500
1953	1281	1,870	Apr. 1, 1953	0	13.7	9,940	13.2	9,940
1954	1341	7,700	Apr. 27, 1954	0	47.8	34,590	48.4	35,030
1955	1391	6,470	May 26, 1955	0	28.3	20,490	34.4	24,910
1956	1441	7,500	May 31, 1956	0	38.5	27,950	31.7	23,050
1957	1511	43,500	May 17, 1957	0	479	347,000	517	374,400
1958	1561	29,000	July 17, 1958	1.5	641	464,200	632	457,200
1959	1631	9,000	July 14, 1959	1.8	396	286,300	605	438,200
1960	1711	14,600	Oct. 5, 1959	5.1	586	425,600	-	-

1665. Verdigris River near Altoona, Kans.

Location.--Lat 37°29'26", long 95°40'49", in SW¼ sec.29, T.29 S., R.16 E., on downstream side of right pier of highway bridge, 2½ miles southwest of Altoona, 2½ miles downstream from Big Cedar Creek, 6 miles upstream from Chetopa Creek, and at mile 227.9.

Drainage area.--1,138 sq mi.

Records available.--October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 780.18 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 9, 1944, wire-weight gage at same site and datum.

Average discharge.--22 years (1938-60), 670 cfs (485,100 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 71,000 cfs July 12, 1951 (gage height, 31.09 ft); no flow at times in 1939-41, 1952-57.

Remarks.--Diversion above station from Altoona Reservoir for municipal supply of Altoona.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	97.6	27.3	24.9	26.0	82.1	137	347	2,295	4,196	11,000	1,146	3,294	1,903
1952	324	906	211	347	236	2,098	1,649	277	73.2	12.4	6.35	1.61	512
1953	0	1.85	5.63	4.15	3.51	24.8	86.4	57.7	2.52	54.2	0	8.39	20.9
1954	0	2.80	2.12	1.00	17.8	11.2	400	765	131	4.13	0	16.8	113
1955	51.9	4.98	.33	8.70	42.7	68.2	26.4	479	91.5	26.7	.55	54.2	71.8
1956	120	.11	0	.01	.25	.03	.02	59.2	306	21.2	0	0	42.1
1957	0	0	0	0	0	0	678	3,334	3,998	183	6.52	66.8	689
1958	154	290	99.8	161	295	3,350	1,138	716	483	3,090	135	408	868
1959	40.4	242	70.1	95.9	175	149	628	970	100	4,140	421	222	611
1960	3,507	175	169	404	744	1,483	1,072	904	1,253	43.8	597	87.6	873

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,000	1,620	1,530	1,600	4,560	8,430	20,660	141,100	249,700	676,200	70,440	196,000	1,378,000
1952	19,930	53,880	12,950	21,350	13,550	129,000	98,150	17,060	4,350	765	391	96	371,500
1953	0	110	346	256	195	1,530	5,140	3,550	150	3,340	0	499	15,120
1954	0	166	130	62	988	688	23,810	47,010	7,810	254	0	1,000	81,920
1955	3,190	296	20	535	2,370	4,200	1,570	29,470	5,440	1,640	34	3,220	51,980
1956	7,360	6.7	0	.8	14	1.8	1.4	3,640	18,230	1,300	0	0	30,550
1957	0	0	0	0	0	0	40,320	205,000	237,900	11,280	401	3,980	498,900
1958	9,480	17,240	6,140	9,930	16,400	206,000	67,720	44,040	28,750	190,000	8,270	24,250	628,200
1959	2,480	14,410	4,310	5,900	9,710	9,150	37,340	59,630	5,970	254,600	25,900	13,200	442,600
1960	215,700	10,430	10,400	24,830	42,820	91,200	63,810	55,590	74,550	2,700	36,710	5,210	634,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	516	373,600
1951	1211	71,000	July 12, 1951	17	1,903	1,378,000	2,010	1,455,000
1952	1241	8,510	Mar. 12, 1952	0	512	371,500	393	285,200
1953	1281	1,520	Apr. 2, 1953	0	20.9	15,120	20.6	14,960
1954	1341	14,300	May 2, 1954	0	113	81,920	118	85,130
1955	1391	6,050	May 27, 1955	0	71.8	51,980	77.2	55,850
1956	1441	4,920	June 1, 1956	0	42.1	30,550	31.9	23,190
1957	1511	28,700	June 1, 1957	0	689	498,900	734	531,700
1958	1561	18,900	July 19, 1958	4.6	868	628,200	852	616,600
1959	1631	33,200	July 15, 1959	16	611	442,600	909	657,900
1960	1711	13,900	Oct. 7, 1959	14	873	634,000	-	-

1670. Fall River near Eureka, Kans.

Location.--Lat 37°47', long 96°14', on west line of sec.17, T.26 S., R.11 E., near left bank 30 ft upstream from bridge on State Highway 99, 3 miles southeast of Eureka, 5 miles downstream from Spring Creek, and at mile 76.3.

Drainage area.--336 sq mi.

Records available.--August 1946 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 988.50 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--14 years (1946-60), 162 cfs (117,300 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 91,800 cfs June 29, 1951 (gage height, 29.60 ft, from floodmark in gage house), from rating curve extended above 70,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1953-57.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	76.5	19.5	15.2	13.1	26.2	94.3	127	911	2,212	1,667	265	684	510
1952	122	199	79.5	60.5	41.7	553	605	166	48.2	7.55	3.07	1.24	157
1953	1.82	2.95	1.26	1.16	1.32	4.04	6.23	11.0	1.52	.62	.08	.08	2.69
1954	.13	.28	.49	.51	.97	1.59	16.6	29.3	20.5	0	0	.06	5.87
1955	2.16	.29	.41	.94	1.14	.80	.33	59.8	14.0	2.04	0	26.8	9.11
1956	163	2.23	2.44	1.80	4.78	3.95	2.22	10.1	4.61	4.44	0	0	16.9
1957	0	0	0	.15	.52	.003	187	986	747	124	10.4	41.4	175
1958	51.4	124	56.1	86.1	138	1,039	322	118	53.1	237	26.3	59.8	194
1959	17.5	128	43.7	55.5	86.4	78.6	174	653	76.9	521	384	68.6	192
1960	1,022	93.9	88.6	172	244	584	289	310	199	25.8	78.7	9.19	261

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,710	1,160	936	805	1,460	5,330	7,570	56,040	131,600	102,500	16,300	40,700	369,600
1952	7,510	11,840	4,890	3,720	2,400	33,980	36,020	10,180	2,870	464	189	74	114,100
1953	112	176	78	71	73	249	371	678	90	38	4.8	4.6	1,950
1954	7.9	17	30	32	54	98	988	1,800	1,220	.2	0	3.8	4,250
1955	133	17	25	58	63	49	19	3,680	831	126	0	1,600	6,600
1956	10,030	132	150	111	275	243	132	620	274	273	0	0	12,240
1957	0	0	0	8.9	29	.2	11,160	60,640	44,460	7,650	638	2,460	127,000
1958	3,160	7,370	3,450	5,300	7,690	63,910	19,130	7,270	3,160	14,590	1,620	3,560	140,200
1959	1,070	7,610	2,690	3,420	4,800	4,830	10,330	40,140	4,570	32,010	23,590	4,080	139,100
1960	62,840	5,590	5,450	10,560	14,050	35,900	17,220	19,050	11,830	1,590	4,840	547	189,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	187	135,300
1951	1211	91,800	June 29, 1951	9.1	510	369,600	535	387,000
1952	1241	9,840	Mar. 10, 1952	.8	157	114,100	124	90,260
1953	1281	47	May 16, 1953	0	2.69	1,950	2.26	1,630
1954	1341	860	Apr. 27, 1954	0	5.87	4,250	6.04	4,370
1955	1391	1,960	May 25, 1955	0	9.11	6,600	23.1	16,740
1956	1441	9,660	Oct. 2, 1955	0	16.9	12,240	2.66	1,930
1957	1511	67,200	May 16, 1957	0	175	127,000	195	141,000
1958	1561	7,230	Mar. 29, 1958	9.7	194	140,200	190	137,600
1959	1631	27,600	May 17, 1959	9.7	192	139,100	279	201,600
1960	1711	30,000	Oct. 2, 1959	3.5	261	189,500	-	-

1675. Otter Creek at Climax, Kans.

Location.--Lat 37°42'30", long 96°13'30", in SW¼ sec.8, T.27 S., R.11 E., near right bank on downstream side of pier of bridge on State Highway 99, half a mile south of Climax, 5¼ miles upstream from mouth, and 5½ miles downstream from South Branch.

Drainage area.--129 sq mi.

Records available.--August 1946 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 977.76 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--14 years (1946-60), 66.7 cfs (48,290 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 15,400 cfs June 30, 1951 (gage height, 23.73 ft); no flow at times in 1953-57.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13.6	5.61	4.15	3.52	19.1	23.5	73.3	367	857	695	42.9	290	200
1952	54.4	175	40.0	35.9	18.7	183	171	47.9	19.5	2.12	.85	.16	62.3
1953	.10	.44	.28	.25	.24	1.02	.29	3.80	.09	0	0	0	.55
1954	0	0	0	0	0	.52	.14	26.3	5.28	.06	0	0	2.73
1955	.02	0	0	0	0	1.39	.04	30.5	23.3	2.78	0	.06	4.86
1956	2.41	0	0	0	.02	0	.46	9.51	1.90	0	0	0	1.20
1957	0	0	0	0	0	0	97.4	237	498	23.4	.62	10.1	72.0
1958	6.04	30.6	9.35	29.1	34.0	464	118	51.0	69.0	165	4.82	172	96.6
1959	8.83	22.5	8.92	15.0	22.1	28.3	101	94.6	14.1	463	14.1	9.39	67.5
1960	359	24.1	14.7	50.7	106	240	83.2	133	50.6	13.6	9.30	1.06	90.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	337	334	255	217	1,060	1,450	4,390	22,590	50,970	42,710	2,640	17,290	144,700
1952	3,340	10,400	2,460	2,210	1,080	11,280	10,190	2,950	1,160	130	52	9.3	45,260
1953	6.1	26	17	15	13	63	17	234	5.2	0	0	0	396
1954	0	0	0	0	0	32	8.5	1,620	314	4.0	0	0	1,980
1955	1.4	0	0	0	0	85	2.6	1,870	1,380	171	0	3.6	3,510
1956	148	0	0	0	1.0	0	27	585	113	0	0	0	874
1957	0	0	0	0	0	0	5,800	14,600	29,620	1,440	38	604	52,100
1958	372	1,820	575	1,790	1,890	28,520	7,030	3,140	4,100	10,140	297	10,260	69,930
1959	543	1,340	548	922	1,230	1,740	5,990	5,820	839	28,460	867	559	48,860
1960	22,090	1,430	902	3,120	6,070	14,750	4,950	8,180	3,010	837	572	63	65,970

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	56.0	40,510
1951	1211	15,400	June 30, 1951	2.3	900	144,700	220	159,500
1952	1241	4,200	Mar. 10, 1952	.1	62.3	45,260	40.1	29,110
1953	1281	148	May 18, 1953	0	.55	396	.48	347
1954	1341	866	May 24, 1954	0	2.73	1,980	2.73	1,980
1955	1391	1,820	June 26, 1955	0	4.86	3,510	5.07	3,660
1956	1441	593	May 31, 1956	0	1.20	874	1.00	726
1957	1511	9,300	June 1, 1957	0	72.0	52,100	75.8	54,870
1958	1561	10,400	Sept.16, 1958	.8	96.6	69,930	96.1	69,600
1959	1631	11,900	July 17, 1959	2.6	67.5	48,860	97.9	70,850
1960	1711	9,110	Oct. 2, 1959	.5	90.9	65,970	-	-

1680. Fall River Reservoir near Fall River, Kans.

Location.--Lat 37°39', long 96°04', in NE¼ sec.3, T.28 S., R.12 E., in right bank control tower at dam on Fall River, 4 miles northwest of town of Fall River and 54.2 miles above mouth of Fall River.

Drainage area.--585 sq mi.

Records available.--April 1949 to September 1960. Monthly records only, prior to October 1957.

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

Extremes.--1949-60: Maximum contents, 260,200 acre-ft July 13, 1951 (elevation, 987.18 ft); minimum, 3,110 acre-ft Feb. 3, 1955 (elevation, 933.08 ft).

Remarks.--Reservoir is formed by an earth dam. Spillway is a concrete, gravity, ogee-weir type, controlled by eight 50- by 25-foot taintor gates, with net length of 400 ft and over-all length, including seven intermediate piers, of 470 ft. Normal regulation is accomplished by means of seven gated 5- by 8½-foot rectangular sluices through the intermediate piers of spillway. Low-flow releases are regulated by a 30-inch diameter pipe conduit. A 12-inch water-supply pipe is also included in outlet works. Natural flow was diverted through sluices during period Aug. 12, 1948, to Apr. 19, 1949. Regulated storage began Apr. 20, 1949. Conservation pool stage (elevation, 948.5 ft) was first reached June 5, 1949. Reservoir was designed for flood control and conservation. Pertinent data regarding dam are as follows:

	Elevation (feet)	Capacity (acre-feet)†
Top of dam.....	996.5	-
Maximum design pool.....	990.0	-
Flood-control pool.....	987.5	263,000
Conservation pool.....	948.5	‡27,000
Flood-control storage.....	948.5 to 987.5	236,000
Invert of sluices.....	915.0	-
Invert of 30-inch conduit..	929.0	-

† 1939 reservoir survey.
‡ Storage of 17,000 acre-ft is for pollution abatement.

Cooperation.--Elevations and contents furnished by Corps of Engineers.

Contents, in acre-feet, of last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	26,990	26,600	26,480	26,520	27,730	27,460	29,670	27,600	220,200	61,430	27,140	26,890
1952	27,260	27,060	27,110	27,060	26,990	26,970	27,060	27,240	26,160	25,470	23,540	21,430
1953	19,170	18,760	18,390	18,170	17,980	18,500	18,020	19,650	17,720	15,870	12,420	9,980
1954	9,010	8,030	7,090	6,670	6,530	6,260	7,470	10,470	10,470	8,110	6,480	5,220
1955	4,480	3,950	3,250	3,130	3,230	3,860	3,640	11,910	13,610	11,980	9,600	9,900
1956	18,480	17,200	16,570	15,990	15,730	14,770	14,100	16,240	14,900	12,830	9,980	7,550
1957	6,200	5,520	5,030	4,500	4,240	4,020	20,460	83,150	29,750	27,410	26,040	27,410
1958	27,190	27,060	27,460	27,800	28,070	36,030	27,060	27,140	27,580	27,060	26,570	27,600
1959	26,940	27,060	27,240	26,940	27,110	27,820	26,870	26,920	27,360	27,190	29,020	27,060
1960	27,430	26,970	27,650	27,140	27,110	29,470	28,440	27,360	27,110	26,940	27,060	26,210

1685. Fall River near Fall River, Kans.

Location.--Lat 37°38', long 96°03', in NW¼ sec.2, T.28 S., R.13 E., near left bank on downstream side of pier of highway bridge, 0.3 mile downstream from Fall River Dam, 2.5 miles upstream from Salt Creek, 3 miles northwest of town of Fall River, and at mile 53.9.

Drainage area.--585 sq mi.

Records available.--April 1904 to September 1905, gage heights only (published as "at Fall River"), May 1939 to September 1960. Monthly discharge only for May 1939, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 898.44 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 30, 1905, chain gage at site 4.7 miles downstream at datum 21.6 ft lower. May 5, 1939, to June 12, 1946, wire-weight gage at present site and datum. June 13 to Aug. 26, 1946, wire-weight gage and Aug. 27, 1946, to Sept. 30, 1957, water-stage recorder, at site 3.1 miles downstream at datum 12.79 ft lower.

Average discharge.--21 years (1939-60), 316 cfs (228,800 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 45,600 cfs Apr. 16, 1945 (gage height, 31.15 ft, present site and datum); no flow at times in 1939-40, 1946, 1955.
Maximum stages known prior to 1906 (at site and datum used 1904-5); 39.0 ft June 16, 1904; 37.3 ft June 10, 1904; 35.7 ft July 6, 1904; 35.6 ft in 1869; 35.5 ft in 1898.

Remarks.--Flow regulated by Fall River Reservoir, 0.3 mile above station (see preceding station).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	86.5	22.4	16.5	14.0	51.3	130	247	1,886	681	5,757	980	1,349	946
1952	205	531	151	145	81.5	828	913	222	67.6	8.99	16.1	18.0	265
1953	22.5	14.5	7.53	2.90	3.13	2.25	9.28	.82	16.4	20.3	39.8	27.4	14.0
1954	19.2	15.5	15.5	6.17	3.62	4.16	3.73	1.65	6.64	23.7	20.2	16.4	11.5
1955	14.2	7.09	11.8	4.03	1.44	.24	.91	14.5	.19	13.5	26.3	20.8	9.69
1956	6.66	13.8	11.3	10.5	7.78	11.2	11.0	11.3	15.7	23.4	33.9	29.4	15.5
1957	22.5	11.6	10.6	8.85	8.48	4.26	1.08	457	2,873	186	12.7	31.0	300
1958	67.0	170	60.5	119	1.83	1,795	678	264	152	629	25.4	313	373
1959	24.7	159	52.7	80.7	117	108	378	979	82.9	1,298	352	126	316
1960	1,761	136	107	277	437	975	451	632	379	40.3	114	11.6	446

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,320	1,330	1,010	858	2,850	8,020	14,720	116,000	40,520	354,000	60,280	80,290	685,200
1952	12,580	31,610	9,280	8,900	4,690	50,890	54,320	13,680	4,020	553	990	1,070	192,600
1953	1,380	865	463	178	174	138	552	51	973	1,250	2,450	1,630	10,100
1954	1,180	923	955	380	201	256	222	101	395	1,460	1,240	976	8,290
1955	875	422	724	248	80	15	54	894	12	831	1,620	1,240	7,020
1956	410	819	694	649	447	688	653	697	933	1,440	2,090	1,750	11,270
1957	1,380	690	653	544	471	262	64	28,130	170,900	11,460	779	1,840	217,200
1958	4,120	10,120	3,720	7,350	10,170	110,400	40,360	16,220	9,020	38,660	1,560	18,600	270,300
1959	1,520	9,480	3,240	4,960	6,500	6,650	22,460	60,210	4,930	79,830	21,620	7,520	228,900
1960	108,300	8,070	6,600	17,060	25,120	59,930	26,820	38,870	22,550	2,480	7,000	692	323,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	279	201,800
1951	1211	10,600	July 8, 1951	3.9	946	685,200	1,010	731,000
1952	1241	5,030	Apr. 24, 1952	.3	265	192,600	195	141,800
1953	1281	59	Aug. 16, 1953	.2	14.0	10,100	14.4	10,450
1954	1341	96	May 2, 1954	.1	11.5	8,290	10.0	7,250
1955	1391	896	May 26, 1955	0	9.69	7,020	9.55	6,920
1956	1441	290	May 31, 1956	.2	15.5	11,270	16.6	12,070
1957	1511	8,540	June 8, 1957	.2	300	217,200	321	232,400
1958	1561	6,740	Mar. 27, 1958	.5	373	270,300	368	266,600
1959	1631	6,840	July 22, 1959	.5	316	228,900	466	337,600
1960	1711	7,040	Oct. 11, 1959	5.0	446	323,500	-	-

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1695. Fall River at Fredonia, Kans.

Location.--Lat 37°30'30", long 95°50'00", in NW¼ sec.24, T.29 S., R.14 E., on right bank 300 ft downstream from State Highway 96, three-quarters of a mile upstream from Clear Creek, 1 mile downstream from Salt Creek, 1 mile south of Fredonia, and at mile 25.3.

Drainage area.--827 sq mi.

Records available.--October 1938 to September 1960. Monthly discharge only for October and November 1938, published in WSP 1311. Published as "near Fredonia" 1952-57.

Gage.--Staff gage. Datum of gage is 819.09 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Dec. 21, 1949, wire-weight gage and Dec. 22, 1949, to Jan. 11, 1960, water-stage recorder, at site 300 ft upstream at same datum.

Average discharge.--22 years (1938-60), 436 cfs (315,700 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 49,000 cfs Apr. 16, 1945 (gage height, 36.17 ft); no flow at times in 1939-40.

Remarks.--Flow regulated by Fall River Reservoir (see p. 194) and during low flow by Fredonia City Water Reservoir 1 mile upstream.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	89.4	29.0	21.6	19.0	68.8	142	319	2,248	2,045	6,435	1,174	1,605	1,194
1952	225	799	221	251	172	1,278	1,122	272	91.3	12.4	17.7	19.2	373
1953	21.8	20.9	8.27	5.15	4.63	11.7	10.1	19.5	13.8	20.5	36.5	24.1	16.5
1954	23.1	12.4	17.4	5.05	9.03	5.31	109	228	10.3	22.1	16.6	19.7	40.2
1955	23.7	4.79	13.0	5.13	6.92	6.91	1.71	131	21.8	10.9	22.5	19.6	22.5
1956	29.8	12.0	11.3	9.73	7.75	11.2	10.4	29.4	25.6	20.9	24.6	22.8	18.0
1957	20.7	11.1	10.5	7.34	8.68	5.51	31.4	937	3,806	232	27.1	37.5	425
1958	74.7	181	71.1	126	221	2,520	1,039	459	193	850	54.9	460	524
1959	33.5	169	62.7	94.3	129	140	511	1,162	105	2,078	389	159	424
1960	2,447	179	115	347	552	1,261	780	912	514	64.1	117	16.3	*612

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,500	1,730	1,330	1,170	3,820	8,740	18,960	138,200	121,700	395,700	72,190	95,510	864,600
1952	13,850	47,570	13,560	15,400	9,920	78,610	66,760	16,690	5,430	764	1,090	1,140	270,800
1953	1,340	1,240	509	316	257	718	602	1,200	821	1,260	2,250	1,430	11,940
1954	1,420	737	1,070	311	502	326	6,510	14,040	613	1,360	1,020	1,170	29,080
1955	1,460	285	800	315	384	425	102	8,020	1,300	669	1,390	1,170	16,320
1956	1,830	713	693	598	446	687	619	1,810	1,520	1,290	1,510	1,360	13,080
1957	1,270	661	645	451	482	339	1,870	57,610	226,500	14,280	1,670	2,230	308,000
1958	4,590	10,780	4,370	7,750	12,280	154,900	61,800	28,210	11,490	52,250	3,370	27,360	379,200
1959	2,060	10,040	3,860	5,800	7,180	8,600	30,420	71,450	6,260	127,800	23,900	9,480	306,800
1960	150,400	10,640	7,090	21,330	31,750	77,510	46,390	56,080	30,580	3,940	7,220	970	443,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	331	239,700
1951	1211	20,200	June 30, 1951	8.5	1,194	864,600	1,286	931,000
1952	1241	6,670	Mar. 10, 1952	5.3	373	270,800	274	198,900
1953	1281	311	May 18, 1953	5	16.5	11,940	16.7	12,080
1954	1341	8,920	May 2, 1954	1.2	40.2	29,080	39.2	28,400
1955	1391	4,500	May 26, 1955	.2	22.5	16,320	23.5	17,010
1956	1441	1,510	May 31, 1956	.4	18.0	13,080	17.1	12,420
1957	1511	14,000	June 9, 1957	1.8	425	308,000	449	325,200
1958	1561	9,780	Mar. 23, 1958	15	524	379,200	519	375,400
1959	1631	13,200	July 14, 1959	8.1	424	306,800	634	459,000
1960	1711	9,870	Oct. 4, 1959	9.0	612	443,900	-	-

1700. Elk River near Elk City, Kans.

Location.--Lat 37°16', long 95°55', in NE¼ sec.18, T.32 S., R.14 E., on right bank at downstream side of highway bridge, 150 ft downstream from Salt Creek, 1.8 miles south of Elk City, and at mile 24.7.

Drainage area.--575 sq mi.

Records available.--October 1938 to September 1960. Monthly discharges only for October and November 1938, published in WSP 1311.

Gage.--Water-stage recorder. Artificial control since July 29, 1954. Datum of gage is 795.80 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to July 29, 1954, wire-weight gage at same site and datum.

Average discharge.--22 years (1938-60), 316 cfs (228,800 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 81,500 cfs June 30, 1951 (gage height, 30.65 ft), from rating curve extended above 32,000 cfs on basis of slope-area measurement of peak flow; no flow at times.
Maximum stage known since at least 1869, that of June 30, 1951.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11.8	7.14	8.87	9.30	70.6	62.9	220	1,237	2,721	2,461	51.8	415	608
1952	68.3	603	164	210	164	850	585	95.5	49.3	6.57	3.17	.05	233
1953	0	0	1.14	1.04	76	18.9	4.20	96.4	2.14	3.24	0	0	10.8
1954	.60	13.4	6.16	.27	4.76	2.69	264	608	21.2	.62	9.73	1.35	78.4
1955	72.2	.62	.07	2.80	13.9	3.45	4.50	625	149	8.39	.80	0	74.3
1956	91.9	0	0	0	0	0	0	4.36	25.6	35.9	.05	0	13.3
1957	0	0	0	0	.83	1.83	156	1,562	2,322	68.8	34.0	40.2	349
1958	16.2	88.6	20.0	49.0	88.9	1,885	756	514	75.5	440	19.7	259	354
1959	13.9	26.5	12.9	20.4	30.2	62.7	292	452	40.3	767	79.4	25.3	154
1960	1,754	78.4	52.3	172	393	774	437	405	107	53.4	67.9	7.85	361

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	725	425	545	572	3,920	3,870	13,090	76,040	161,900	151,400	3,190	24,670	440,300
1952	4,200	35,870	10,090	12,910	9,450	52,270	34,790	5,870	2,930	404	195	3.0	169,000
1953	0	0	70	64	42	1,160	250	5,920	127	199	0	0	7,830
1954	37	800	379	17	264	165	15,710	37,400	1,260	38	598	80	56,750
1955	4,440	37	4.6	172	771	212	268	38,420	8,880	516	49	0	53,770
1956	5,650	0	0	0	0	0	0	268	1,520	2,210	2.8	0	9,650
1957	0	0	0	0	46	113	9,300	96,050	138,200	4,250	2,090	2,390	252,400
1958	995	5,270	1,230	3,010	4,930	115,900	44,980	31,590	4,490	27,040	1,210	15,430	256,100
1959	856	1,580	793	1,250	1,680	3,860	17,390	27,800	2,400	47,160	4,880	1,510	111,200
1960	107,800	4,660	3,210	10,580	22,620	47,580	26,000	24,920	6,370	3,280	4,180	467	261,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	183	132,200
1951	1211	81,500	June 30, 1951	5.0	608	440,300	675	488,800
1952	1241	12,200	Mar. 10, 1952	0	233	169,000	164	118,900
1953	1281	1,540	May 18, 1953	0	10.8	7,830	12.4	8,980
1954	1341	17,500	May 2, 1954	0	78.4	56,750	82.9	60,010
1955	1391	11,100	May 26, 1955	0	74.3	53,770	75.9	54,940
1956	1441	3,200	Oct. 2, 1955	0	13.3	9,650	5.51	4,000
1957	1511	15,800	May 17, 1957	0	349	252,400	359	259,900
1958	1561	14,600	Mar. 23, 1958	1.0	354	256,100	348	251,800
1959	1631	7,300	July 18, 1959	4.6	154	111,200	309	223,600
1960	1711	14,700	Oct. 5, 1959	.7	361	261,700	-	-

1705. Verdigris River at Independence, Kans.

Location.--Lat 37°13', long 95°41', in NE¼ sec.32, T.32 S., R.16 E., near right bank on downstream side of pier of bridge on U. S. Highway 160, 2 miles east of Independence, 3.6 miles downstream from Elk River, and at mile 194.3.

Drainage area.--2,892 sq mi.

Records available.--August 1895 to September 1904 (monthly figures only, published in WSP 1311), October 1921 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 716.63 ft above mean sea level, datum of 1929. Aug. 2, 1895, to Nov. 30, 1903, staff gage at former milldam 5 miles downstream and 2½ miles northwest of Liberty, at datum about 4 ft lower. Apr. 20, to Sept. 25, 1904, chain gage at Myrtle Street highway bridge three-quarters of a mile upstream at different datum. Nov. 14, 1921, to Sept. 30, 1929, chain gage at Myrtle Street bridge at datum 0.87 ft higher than present datum. Oct. 1, 1929, to Dec. 25, 1933, chain or wire-weight gages at present site and datum.

Average discharge.--48 years (1895-1904, 1921-60), 1,577 cfs (1,142,000 acre-ft per year).

Extremes.--1895-1904, 1921-60: Maximum discharge, 117,000 cfs Apr. 17, 1945 (gage height, 47.28 ft); maximum gage height, 47.60 ft May 19, 1943; no flow at times in 1932, 1934, 1936, 1939-40, 1953-55.

Remarks.--Flow regulated since 1949 by Fall River Reservoir (see p. 194).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	208	62.9	60.3	61.0	258	364	952	6,199	7,834	24,070	2,605	6,179	4,105
1952	627	2,540	772	985	688	4,661	3,535	717	238	30.5	22.4	12.9	1,235
1953	13.3	21.2	15.7	11.1	7.12	77.8	110	315	32.6	69.7	21.3	86.4	65.6
1954	18.2	57.5	40.9	11.6	36.0	19.8	730	2,730	171	18.8	11.8	10.1	325
1955	264	6.28	9.58	35.5	83.9	90.4	42.4	1,671	474	44.5	10.7	56.5	235
1956	404	6.62	9.25	8.96	6.93	8.26	9.23	58.7	381	79.7	10.2	9.59	82.8
1957	10.0	6.34	10.3	4.10	13.9	11.4	996	7,028	12,020	723	65.5	135	1,750
1958	257	605	204	308	607	8,473	3,694	2,049	823	4,918	246	1,129	1,958
1959	90.3	410	153	204	343	375	1,544	2,508	289	7,432	908	432	1,243
1960	8,493	516	350	1,029	1,889	3,862	2,689	2,586	2,043	174	821	148	2,059

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12.77	3.74	3.71	3.75	14.31	22.37	56.65	381.1	466.1	1,480	160.1	367.7	2,972
1952	38.57	151.1	47.45	60.57	39.56	286.6	210.3	44.11	14.14	1.87	1.38	.766	896.4
1953	.817	1.26	.965	.681	.396	4.78	6.58	19.36	1.94	4.29	1.31	5.14	47.52
1954	1.12	3.42	2.52	.711	2.00	1.22	43.45	167.9	10.18	1.15	.727	.590	235.0
1955	16.20	.373	.589	2.18	4.66	5.56	2.52	102.7	28.19	2.74	.660	3.36	169.7
1956	24.82	.394	.569	.551	.399	.508	.549	3.61	22.65	4.90	.624	.571	60.14
1957	.618	.377	.633	.252	.772	.701	59.29	432.1	715.5	44.45	4.03	8.00	1,267
1958	15.79	35.97	12.54	18.91	33.73	521.0	219.8	126.0	48.98	302.4	15.12	67.19	1,417
1959	5.55	24.38	9.39	12.54	19.03	23.07	91.85	158.6	17.20	456.9	55.82	25.73	900.1
1960	522.2	30.71	21.54	63.30	108.7	237.4	160.0	159.0	121.6	10.70	50.51	8.79	1,494

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	120	870,300
1951	1211	104,000	July 1, 1951	38	4,105	2,972,000	4,405	3,189,000
1952	1241	21,800	Mar. 11, 1952	10	1,235	896,400	912	662,300
1953	1281	2,440	Sept. 4, 1953	8	65.6	47,520	71.2	51,540
1954	1341	29,100	May 3, 1954	0	325	235,000	339	245,100
1955	1391	17,500	May 28, 1955	0	235	169,700	246	178,400
1956	1441	5,140	June 2, 1956	1.4	82.8	60,140	49.6	35,990
1957	1511	27,500	June 3, 1957	.2	1,750	1,267,000	1,836	1,329,000
1958	1561	27,300	Mar. 25, 1958	18	1,958	1,417,000	1,923	1,392,000
1959	1631	28,500	July 19, 1959	29	1,243	900,100	1,982	1,435,000
1960	1711	29,400	Oct. 6, 1959	28	2,059	1,494,000	-	-

1707. Big Hill Creek near Cherryvale, Kans.

Location.--Lat 37°16', long 95°28', on south line of sec.7, T.32 S., R.18 E., on right downstream abutment of bridge on county road, 4.3 miles east of Cherryvale and at mile 32.5.

Drainage area.--37 sq mi.

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 795.93 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 6, 1958, wire-weight gage at same site and datum.

Extremes.--1957-60: Maximum discharge, 3,180 cfs July 14, 1959 (gage height, 17.45 ft); no flow at times.
Maximum stage known, 18.92 ft in 1951, from information by local residents.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	0	0.70	0.29	1.30	1.40	102	45.2	40.0	33.7	125	1.29	1.53	29.7
1959	.03	.33	.23	.28	5.89	7.43	15.3	16.9	.56	113	1.22	.28	13.6
1960	94.0	3.30	5.05	10.4	16.7	54.1	44.1	39.3	48.2	.70	18.2	.08	27.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	0	41	18	80	78	6,290	2,690	2,460	2,000	7,680	79	91	21,510
1959	1.8	19	14	17	327	457	908	1,040	33	6,970	75	17	9,880
1960	5,780	197	310	640	958	3,330	2,630	2,410	2,870	43	1,120	4.6	20,290

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1958	1631	2,720	July 7, 1958	0	29.7	21,510	29.7	21,480
1959	1631	3,180	July 14, 1959	0	13.6	9,880	22.3	16,130
1960	1711	1,880	Oct. 4, 1959	0	27.9	20,290	-	-

1710. Verdigris River near Lenapah, Okla.

Location.--Lat 36°51', long 95°35', at center of sec.3, T.27 N., R.16 E., near right bank on downstream side of pier of county highway bridge, 2¾ miles east of Lenapah, 4½ miles upstream from Cedar Creek, and at mile 144.6.

Drainage area.--3,639 sq mi.

Records available.--October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 644.89 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--22 years (1938-60), 2,110 cfs (1,528,000 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 137,000 cfs May 20, 1943 (gage height, 40.44 ft, from floodmark); no flow at times in 1939-40, 1956.

Remarks.--Some regulation by Fall River Reservoir on Fall River (see p. 194) and low-water dams below Independence and Coffeyville, Kans. Records of chemical analyses and water temperatures for water years 1952-60 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	251	76.0	79.5	87.7	692	535	1,287	6,302	7,718	25,170	2,859	6,414	4,323
1952	1,021	3,873	997	1,256	938	5,362	3,779	756	269	37.7	21.8	12.3	1,525
1953	6.80	20.3	20.6	15.4	17.3	164	282	601	83.5	83.0	17.5	115	120
1954	17.5	77.1	54.0	17.5	25.6	23.2	715	3,415	265	16.9	2.72	1.39	390
1955	1,224	32.3	24.3	306	220	288	123	2,676	1,072	85.1	5.44	67.5	515
1956	1,250	7.05	7.65	10.9	15.2	5.34	9.33	58.9	475	149	3.61	.43	167
1957	2.07	14.5	9.07	6.64	67.3	51.8	2,160	10,200	15,560	1,049	83.2	160	2,445
1958	312	713	236	365	790	10,210	4,822	2,577	1,038	6,254	328	1,204	2,423
1959	112	483	172	224	503	636	1,821	3,060	409	9,237	1,002	554	1,534
1960	10,610	653	631	1,329	2,313	4,804	3,675	3,837	2,654	190	955	178	2,664

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15,440	4,520	4,890	5,390	38,430	32,880	76,550	387,500	459,200	1,548,000	175,800	381,600	3,130,000
1952	62,760	230,500	61,310	77,240	53,940	329,700	224,900	46,490	16,000	2,320	1,340	732	1,107,000
1953	418	1,210	1,270	948	962	10,100	16,770	36,960	4,970	5,100	1,080	6,830	86,620
1954	1,070	4,590	3,320	1,080	1,420	1,430	42,560	†210,000	15,750	1,040	167	83	282,500
1955	75,240	1,920	1,490	18,800	12,220	17,690	7,310	164,600	63,810	5,230	334	4,020	372,700
1956	76,880	419	470	669	876	328	591	3,680	28,240	9,190	222	26	121,600
1957	127	863	558	408	3,740	3,180	128,500	627,200	926,100	64,530	5,120	9,520	1,770,000
1958	19,170	42,450	14,510	22,470	43,890	627,900	287,000	158,500	61,760	384,600	20,150	71,640	1,754,000
1959	6,890	28,750	10,610	13,770	27,950	39,110	108,300	188,100	24,320	568,000	61,630	32,950	1,110,000
1960	652,700	38,840	38,780	81,730	133,000	295,400	218,700	235,900	157,900	11,690	58,720	10,570	1,934,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,648	1,193,000
1951	1211	94,800	July 3, 1951	44	4,323	3,130,000	4,779	3,460,000
1952	1241	20,300	Mar. 12, 1952	10	1,525	1,107,000	1,041	755,600
1953	1281	5,660	May 13, 1953	4.3	120	86,620	128	92,700
1954	1341	26,100	May 4, 1954	.2	390	282,500	486	352,200
1955	1391	21,800	May 29, 1955	2.8	515	372,700	513	371,800
1956	1441	16,800	Oct. 3, 1955	0	167	121,600	62.5	45,370
1957	1511	31,500	June 15, 1957	0	2,445	1,770,000	2,548	1,844,000
1958	1561	25,900	Mar. 26, 1958	27	2,423	1,754,000	2,381	1,724,000
1959	1631	29,100	July 16, 1959	32	1,534	1,110,000	2,479	1,794,000
1960	1711	28,600	Oct. 5, 1959	28	2,664	1,934,000	-	-

1720. Caney River near Elgin, Kans.

Location.--Lat 37°00', long 96°19', in SE¼ sec.16, T.35 S., R.10 E., near right bank on downstream side of pier of county highway bridge, 2 miles west of Elgin and at mile 117.8.

Drainage area.--445 sq mi.

Records available.--October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 763.32 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--22 years (1938-60), 226 cfs (163,600 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 35,500 cfs Apr. 10, 1944 (gage height, 29.80 ft); no flow at times.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	37.4	20.5	17.8	14.5	61.0	70.4	175	884	1,651	1,201	575	451	387
1952	200	690	193	183	148	767	508	117	94.2	8.02	2.71	.04	242
1953	0	.57	1.62	1.40	.82	8.15	12.9	180	15.8	8.96	.04	0	19.5
1954	0	0	0	0	0	0	6.69	260	9.35	0	0	0	23.4
1955	103	.31	.18	.78	4.76	3.37	4.91	624	51.3	120	0	.04	67.2
1956	69.6	.78	1.92	1.65	2.08	1.27	.47	7.37	35.2	1.85	0	0	10.2
1957	0	0	0	0	0	0	349	1,586	2,242	118	12.3	17.0	361
1958	5.90	33.7	17.4	21.0	41.1	932	829	371	35.3	362	30.8	57.2	229
1959	12.6	11.2	8.80	9.03	11.0	26.4	211	169	83.7	1,174	44.5	48.3	153
1960	1,787	99.2	68.3	147	309	473	316	209	75.9	35.9	70.9	13.3	302

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,300	1,220	1,090	892	3,390	4,330	10,430	54,360	98,230	73,820	3,530	26,830	280,400
1952	12,320	41,070	11,840	11,240	8,490	47,180	30,240	7,180	5,610	493	167	2.4	175,800
1953	0	34	99	86	46	501	770	11,060	941	551	2.4	0	14,090
1954	0	0	0	0	0	0	398	16,010	556	0	0	0	16,960
1955	6,310	19	11	48	265	207	292	38,380	3,050	74	0	2.2	48,660
1956	4,280	46	118	102	119	78	28	453	2,090	114	0	0	7,430
1957	0	0	0	0	0	0	20,740	98,120	133,400	7,280	757	1,010	261,300
1958	363	2,000	1,070	1,290	2,280	57,280	49,320	22,820	2,100	22,240	1,890	3,410	166,100
1959	777	667	541	555	611	1,620	12,580	10,420	4,980	72,180	2,740	2,870	110,500
1960	109,900	5,900	4,200	9,020	17,790	29,090	18,810	12,870	4,520	2,210	4,360	791	219,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	343	248,400
1951	1211	30,000	June 30, 1951	9.9	387	280,400	471	341,000
1952	1241	13,500	Mar. 10, 1952	0	242	175,800	153	110,700
1953	1281	2,240	May 16, 1953	0	19.5	14,090	19.3	13,960
1954	1341	16,300	May 1, 1954	0	23.4	16,960	32.2	23,300
1955	1391	16,300	May 26, 1955	0	67.2	48,660	64.6	46,760
1956	1441	2,720	June 23, 1956	0	10.2	7,430	4.11	2,980
1957	1511	32,500	June 12, 1957	0	361	261,300	366	264,700
1958	1561	17,900	Apr. 3, 1958	2.2	229	166,100	227	164,600
1959	1631	23,600	July 15, 1959	4.0	153	110,500	316	228,600
1960	1711	23,600	Oct. 13, 1959	4.0	302	219,500	-	-

1725. Hulah Reservoir near Hulah, Okla.

Location.--Lat 36°56', long 96°05', in SE¼ sec.2, T.28 N., R.11 E., in stair tower at right end of Hulah Dam on Caney River, half a mile downstream from Hickory Creek, 2 miles west of Hulah, 15.7 miles upstream from Caney Creek, and at mile 96.2.

Drainage area.--732 sq mi.

Records available.--April 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to Feb. 15, 1951, wire-weight gage at same site and datum.

Extremes.--1950-60: Maximum contents, 293,400 acre-ft June 23, 1957 (elevation, 764.87 ft); minimum since conservation pool was first reached, 11,250 acre-ft Mar. 20, 1957 (elevation, 723.22 ft).

Remarks.--Reservoir is formed by an earth dam. Spillway is a 472-foot concrete ogee-type weir controlled by 10 taintor gates. Outlet works consist of nine rectangular sluices, two 24-inch gated pipes, and one 10-inch water-supply pipe. Closure for diversion made Feb. 6, 1950; regulated storage began Oct. 25, 1950; conservation pool was first reached Sept. 24, 1951. Capacity, 292,600 acre-ft at elevation 765.0 ft (top of taintor gates), 65,600 acre-ft at elevation 740.0 ft (crest of spillway), and 34,660 acre-ft at elevation 733.0 ft (conservation pool). Dead storage, 506 acre-ft below elevation 706.0 ft (invert of sluices). Reservoir is used for flood control, conservation, and municipal water supply. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	235	710	1,100	2,590	7,360	8,240	12,260	8,240	80,320	7,800	7,690	29,330
1952	29,330	30,000	29,970	30,030	29,270	29,650	29,910	28,820	28,690	27,380	24,900	22,570
1953	20,360	19,920	19,140	18,520	18,040	19,110	22,440	29,680	33,440	32,490	29,300	28,210
1954	27,170	26,790	25,780	24,840	23,970	22,620	24,570	31,830	29,870	26,050	23,270	21,380
1955	30,550	28,850	27,950	27,700	29,230	30,320	29,040	70,630	29,680	26,700	23,970	21,810
1956	28,750	27,350	26,580	26,170	25,520	24,250	23,030	21,980	22,600	19,800	17,550	15,220
1957	14,300	13,220	12,730	12,120	11,760	11,600	46,940	172,200	208,600	35,920	34,240	34,000
1958	32,740	34,000	33,920	34,140	35,360	46,860	36,830	36,940	37,000	36,660	35,640	36,340
1959	a33,150	32,450	31,960	31,460	31,200	31,890	34,620	34,730	34,810	115,500	34,990	34,700
1960	35,220	34,730	34,660	34,590	34,810	35,730	34,810	38,060	34,330	35,140	34,990	33,020

a Contents by capacity table used beginning Oct. 1, 1958; contents Oct. 31, 1958, by capacity table used prior to Oct. 1, 1958, was 34,980 acre-ft.

1730. Caney River near Hulah, Okla.

Location.--Lat 36°56', long 96°05', in NW¼ sec.12, T.28 N., R.11 E., on right bank 1,000 ft downstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 0.9 mile downstream from Hulah Dam, 1½ miles upstream from Opossum Creek, 2½ miles west of Hulah, and at mile 95.3.

Drainage area.--736 sq mi.

Records available.--October 1937 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 681.96 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 18, 1939, wire-weight gage and Feb. 18, 1939, to Sept. 30, 1948, water-stage recorder, at county highway bridge 0.8 mile upstream at datum 3.00 ft higher.

Average discharge.--23 years (1937-60), 360 cfs (260,600 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 51,000 cfs Apr. 10, 1944 (gage height, 39.45 ft, former site and datum); no flow at times in 1939-40, 1946.
Maximum stage known, 40.2 ft, former site and datum, date unknown, from floodmark, from information by Corps of Engineers.

Remarks.--Flow completely regulated since February 1950 by Hulah Reservoir (see preceding page).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	46.0	19.0	14.2	0.38	53.3	81.6	243	1,347	849	2,727	66.4	665	514
1952	372	1,122	287	272	252	1,295	740	142	126	17.0	22.2	13.5	388
1953	14.8	9.12	12.5	8.94	7.66	5.86	1.92	212	16.6	13.0	18.2	11.5	28.1
1954	14.1	12.6	12.1	11.8	11.2	11.6	11.2	632	46.5	19.3	20.5	13.8	69.0
1955	84.6	19.8	17.6	13.0	12.2	15.3	33.5	518	777	17.2	21.3	26.0	130
1956	230	12.0	11.9	11.0	10.1	10.9	12.7	13.5	12.9	18.6	15.8	14.4	31.5
1957	12.9	15.2	10.1	8.46	8.27	6.24	102	881	3,186	2,922	16.1	18.0	601
1958	17.5	18.1	17.5	17.6	21.0	1,339	1,499	444	34.2	495	28.0	26.5	332
1959	15.0	12.5	15.2	15.9	17.4	17.2	197	332	93.0	1,835	1,384	104	342
1960	2,781	157	209	272	490	753	488	235	138	11.6	79.9	19.2	472

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,830	1,130	872	23	2,960	5,010	14,440	82,850	50,520	167,700	4,080	39,550	372,000
1952	22,880	66,740	17,670	16,730	14,470	79,650	44,020	8,700	7,530	1,040	1,360	805	281,600
1953	910	543	766	550	426	360	114	13,060	987	799	1,120	682	20,320
1954	869	752	744	728	623	716	665	38,860	2,770	1,190	1,260	819	50,000
1955	5,200	1,180	1,080	801	678	940	2,000	31,870	46,260	1,060	1,310	1,550	93,930
1956	14,160	714	734	676	579	670	754	831	770	1,140	974	859	22,860
1957	794	902	620	520	459	384	6,090	54,170	189,600	179,700	988	1,070	435,300
1958	1,080	1,080	1,080	1,080	1,170	82,330	89,210	27,280	2,030	30,410	1,720	1,570	240,000
1959	922	742	932	980	966	1,060	11,720	20,440	5,530	112,800	85,110	6,190	247,400
1960	171,000	9,350	12,860	16,740	28,200	46,310	29,060	14,420	8,230	716	4,920	1,140	342,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	579	418,800
1951	1211	7,930	July 9, 1951	0.1	514	372,000	655	474,400
1952	1241	4,670	Mar. 14, 1952	.2	388	281,600	243	176,500
1953	1281	1,870	May 19, 1953	.2	28.1	20,320	28.3	20,460
1954	1341	4,350	May 6, 1954	.2	69.0	50,000	76.1	55,090
1955	1391	4,540	June 1, 1955	5.8	130	93,930	141	102,100
1956	1441	2,300	Oct. 7, 1955	10	31.5	22,860	13.2	9,570
1957	1511	9,240	June 27, 1957	.2	601	435,300	602	436,200
1958	1561	6,400	Mar. 28, 1958	9.7	332	240,000	331	239,400
1959	1631	7,200	July 30, 1959	8.3	342	247,400	605	438,000
1960	1711	7,820	Oct. 23, 1959	1.0	472	342,900	-	-

1735. Bee Creek near Havana, Kans.

Location.--Lat 37°10'50", long 95°59'30", in N½ sec.16, T.33 S., R.13 E., on right bank at downstream side of county highway bridge, 1.5 miles west of Chautauqua-Montgomery County line and 7 miles northwest of Havana.

Drainage area.--11.0 sq mi.

Records available.--August 1954 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 794.82 ft above mean sea level (levels by U. S. Soil Conservation Service).

Extremes.--1954-58: Maximum discharge, 348 cfs May 24, 1957 (gage height, 11.03 ft); no flow at times in 1954-58.

Flood in August 1926 was the highest known and reached a stage of about 18 ft, from information by local residents.

Remarks.--Flows are affected by detention reservoirs and watershed treatment practices calculated to minimize surface runoff.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1954	-	-	-	-	-	-	-	-	-	-	-	0.003	-
1955	0.38	0	0.01	0.02	0.04	0.02	0	28.9	0.79	0.08	0.22	.22	2.60
1956	6.13	.68	.43	.37	.49	0	.003	.09	.04	2.53	.23	.14	.94
1957	.16	.01	0	0	.02	1.20	8.11	72.5	56.8	.73	.27	0	11.7
1958	.31	.10	.66	1.14	.02	25.2	18.3	6.25	.22	5.83	.30	.003	4.90

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1954	-	-	-	-	-	-	-	-	-	-	-	0.2	-
1955	23	0	0.8	1.0	2.0	1.0	0	1,770	47	5.0	13	13	1,880
1956	377	40	27	23	28	0	.2	5.4	2.6	156	14	8.1	681
1957	10	.8	0	0	1.4	74	483	4,460	3,380	45	17	0	8,470
1958	19	6.1	40	70	1.4	1,550	1,090	384	13	358	19	.2	3,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1954	1511	-	-	-	-	-	-	-
1955	1511	302	May 28, 1955	0	2.60	1,880	3.18	2,300
1956	1511	247	Oct. 2, 1955	0	.94	681	.34	248
1957	1511	348	May 24, 1957	0	11.7	8,470	11.8	8,530
1958	1561	306	Apr. 3, 1958	0	4.90	3,550	-	-

1740. Caney Creek near Copan, Okla.

Location.--Lat 36°58'15", long 95°56'05", on south line of sec.19, T.29 N., R.13 E., at downstream side of right pier of highway bridge, 500 ft downstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 3½ miles upstream from Cotton Creek, 5 miles north of Copan, and at mile 18.9.

Drainage area.--424 sq mi.

Records available.--October 1943 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 690.03 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 26, 1944, chain gage at site 500 ft upstream at present datum. May 26, 1944, to Sept. 11, 1947, wire-weight gage at present site and datum.

Average discharge.--15 years (1943-58), 238 cfs (172,300 acre-ft per year).

Extremes.--1943-58: Maximum discharge, 36,400 cfs Apr. 10, 1944 (gage height, 30.58 ft, from graph based on gage readings), from rating curve extended above 16,000 cfs on basis of records for Caney River near Hulah; no flow at times in 1946, 1952-57.

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

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	21.5	10.2	10.6	16.3	98.0	54.6	130	627	1,276	1,673	22.7	169	344
1952	96.1	565	150	149	118	750	388	49.0	33.1	6.95	2.62	0	192
1953	0	.16	.20	.24	.95	20.5	37.4	232	57.4	47.1	.06	63.0	38.5
1954	.17	31.8	11.9	.24	1.44	.38	22.7	647	28.1	.01	0	0	63.0
1955	235	1.86	2.73	35.2	23.8	25.8	10.1	775	31.8	1.43	0	.26	96.8
1956	155	.18	.13	.24	.34	.19	.18	.50	.52	13.1	.05	0	14.4
1957	0	.40	.08	.03	.10	4.57	290	2,314	2,358	65.4	1.95	1.42	420
1958	.95	19.9	4.54	14.6	27.6	1,145	692	303	16.1	101	3.76	21.6	197
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,320	607	653	1,000	5,440	3,360	7,760	38,540	75,930	102,900	1,390	10,040	248,900
1952	5,910	33,600	9,220	9,190	6,770	46,140	23,080	3,010	1,970	427	161	0	139,500
1953	0	9.3	12	14	53	1,260	2,230	14,240	3,410	3,900	3.6	3,750	27,880
1954	10	1,890	733	15	80	24	1,350	39,800	1,670	.8	0	0	45,570
1955	14,470	110	168	2,160	1,320	1,580	603	47,640	1,890	88	0	16	70,040
1956	9,510	11	8.1	14	20	12	11	31	31	805	3.4	0	10,460
1957	0	24	4.8	2.0	5.6	281	17,250	142,300	140,300	4,020	120	84	304,400
1958	59	1,180	279	897	1,530	70,370	41,200	18,660	955	6,210	231	1,280	142,900
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	330	238,600
1951	1211	36,300	June 30, 1951	5.7	344	248,900	408	295,100
1952	1241	8,410	Mar. 11, 1952	0	192	139,500	125	90,770
1953	1281	2,040	May 13, 1953	0	38.5	27,880	42.1	30,490
1954	1341	10,800	May 3, 1954	0	63.0	45,570	79.7	57,690
1955	1391	6,120	May 27, 1955	0	96.8	70,040	89.6	64,830
1956	1441	2,630	Oct. 3, 1955	0	14.4	10,460	1.32	956
1957	1511	15,600	June 13, 1957	0	420	304,400	423	305,900
1958	1561	9,900	Apr. 4, 1958	.2	197	142,900	-	-
1959								
1960								

1742. Caney Creek below Cotton Creek, near Copan, Okla.

Location.--Lat 36°54', long 95°58', in W½ sec.19, T.28 N., R.13 E., near right bank on downstream side of pier of bridge on State Highway 10, 2 miles west of Copan, 4¼ miles downstream from Cotton Creek, and at mile 8.8.
Drainage area.--502 sq mi.
Records available.--October 1958 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 672.23 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).
Extremes.--1958-60: Maximum discharge, 12,200 cfs Oct. 15, 1959 (gage height, 23.93 ft); minimum recorded, 0.1 cfs Sept. 22, 1960.
Flood in April 1944 reached a stage of 29.3 ft, from floodmarks.
Cooperation.--Records computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	1.11	0.62	0.62	2.30	4.47	14.4	91.2	359	61.3	1,147	22.7	22.1	146
1960	1,722	943	109	163	242	543	390	246	51.2	6.38	71.0	2.59	306

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	68	37	38	142	248	885	5,430	22,080	3,650	70,520	1,390	1,320	105,800
1960	105,900	5,610	6,700	10,010	13,930	33,420	23,230	15,120	3,050	393	4,360	154	221,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1959	1631	8,000	July 17, 1959	-	146	105,800	309	223,900
1960	1711	12,200	Oct. 15, 1959	0.2	306	221,900	-	-

1745. Caney River at Bartlesville, Okla.

Location.--Lat 36°45', long 95°58', in SE¼NE¼ sec.7, T.26 N., R.13 E., near right bank on downstream side of pier of bridge on U. S. Highway 60 at Bartlesville, 0.7 mile downstream from Coon Creek, 3.2 miles upstream from Sand Creek, and at mile 67.0.
Drainage area.--1,465 sq mi.
Records available.--October 1949 to September 1956.
Gage.--Water-stage recorder. Datum of gage is 634.80 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).
Average discharge.--7 years (1949-56), 494 cfs (357,600 acre-ft per year).
Extremes.--1949-56: Maximum discharge, 26,400 cfs July 21, 1950 (gage height, 35.62 ft); minimum, 0.1 cfs Sept. 29, 1953.
Maximum stage known, 41.80 ft Oct. 3, 1926, from floodmark 250 ft upstream. Flood of Apr. 11, 1944, reached a stage of 41.07 ft, from floodmark 300 ft upstream.
Remarks.--Considerable regulation since February 1950 by Hulah Reservoir (see p. 202).
Cooperation.--Records computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	94.6	41.8	35.6	32.5	293	220	476	2,308	1,843	5,362	110	1,170	1,006
1952	594	2,221	467	493	444	2,513	1,461	281	196	32.8	29.6	13.9	728
1953	12.9	11.9	11.5	9.95	11.5	57.1	139	582	154	58.8	17.3	146	102
1954	13.3	47.5	26.7	11.5	13.7	10.8	124	1,587	251	13.9	19.3	11.5	180
1955	343	28.8	24.4	88.7	69.5	124	61.8	1,618	941	14.7	17.5	22.9	281
1956	469	8.66	10.5	11.3	10.8	9.34	12.2	11.8	17.4	28.2	7.56	3.47	50.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,820	2,490	2,190	2,000	16,260	13,550	28,300	141,900	109,700	329,700	6,760	69,650	728,300
1952	36,510	132,200	28,710	30,330	25,540	154,500	86,950	17,260	11,650	2,020	1,820	827	528,300
1953	795	706	709	612	637	3,510	8,290	35,790	9,140	3,620	1,060	8,670	73,540
1954	815	2,830	1,640	706	763	663	7,390	97,560	14,960	854	1,190	687	130,100
1955	21,090	1,710	1,500	5,460	3,860	7,620	3,680	99,510	55,970	901	1,080	1,360	203,700
1956	28,840	516	643	693	619	574	726	725	1,030	1,730	465	207	36,770

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,083	784,000
1951	1211	21,300	July 2, 1951	16	1,006	728,300	1,264	915,200
1952	1241	6,900	Nov. 12, 1951	6.5	728	528,300	459	333,100
1953	1281	3,280	June 6, 1953	2.4	102	73,540	106	76,610
1954	1341	7,300	May 2, 1954	2.4	180	130,100	206	149,100
1955	1391	6,550	May 26, 1955	4.8	281	203,700	289	209,400
1956	1441	2,580	Oct. 7, 1955	2.4	50.7	36,770	-	-

1746. Sand Creek at Okesa, Okla.

Location.--Lat 36°43', long 96°08', on line between secs. 20 and 21, T.26 N., R.11 E., on downstream side of left abutment of county highway bridge, half a mile northeast of Okesa, 9 miles southwest of Bartlesville, and at mile 17.2.

Drainage area.--139 sq mi.

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 689.20 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 25, 1960, wire-weight gage at same site and datum.

Extremes.--1959-60: Maximum discharge, 10,400 cfs Oct. 2, 1959 (gage height, 23.37 ft); no flow Sept. 17-30, 1960.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	490	16.8	61.8	57.9	90.5	143	100	81.1	17.3	2.15	9.39	0.43	89.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	30,160	997	3,800	3,560	5,200	8,790	5,970	4,990	1,030	132	577	25	65,230

1747. Caney River near Ochelata, Okla.

Location.--Lat 36°38'26", long 95°56'02", in SW¼SW¼ sec.16, T.25 N., R.13 E., near right bank on downstream side of pier of bridge on U. S. Highway 75, 3.5 miles upstream from Fish Creek, 4 miles northeast of Ochelata, 8 miles southeast of Bartlesville, and at mile 53.8.

Drainage area.--1,753 sq mi.

Records available.--April 1956 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 611.98 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1956-60: Maximum discharge, 33,800 cfs June 13, 1957 (gage height, 38.82 ft); minimum, 0.4 cfs Sept. 28, 29, 1956.

Remarks.--Some regulation by Hulah Reservoir (see p. 202).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	14.2	12.0	16.5	20.4	5.97	1.57	-
1957	2.17	11.9	9.46	5.53	9.06	27.6	1,184	6,550	9,885	3,503	26.4	49.5	1,775
1958	23.6	47.7	33.9	60.7	57.8	3,345	2,632	972	79.8	1,027	105	79.7	711
1959	20.5	19.8	18.7	23.4	55.6	109	371	1,691	314	5,428	1,684	147	836
1960	6,335	377	724	656	1,132	1,916	1,462	1,217	347	49.7	194	31.4	1,211

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	844	737	981	1,250	367	93	-
1957	134	710	582	340	503	1,700	70,430	402,800	588,200	215,400	1,620	2,950	1,285,000
1958	1,450	2,840	2,090	3,730	3,210	205,700	156,800	59,740	4,750	63,150	6,480	4,740	514,500
1959	1,260	1,180	1,150	1,440	3,090	6,690	22,080	104,000	18,680	333,700	103,500	8,750	605,500
1960	389,500	22,450	44,520	40,350	65,130	117,800	87,000	74,810	20,630	3,060	11,960	1,870	879,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	-		-	-	-	-	-
1957	1511	33,800	June 13, 1957	0.7	1,775	1,285,000	1,782	1,290,000
1958	1561	7,680	Apr. 6, 1958	18	711	514,500	707	511,700
1959	1631	24,700	July 23, 1959	13	836	605,500	1,462	1,058,000
1960	1711	15,600	Oct. 3, 1959	14	1,211	879,100	-	-

1750. Double Creek subwatershed No. 5 near Ramona, Okla.

Location.--Lat 36°30'50", long 95°56'25", in SE¼SE¼ sec.32, T.23 N., R.13 E., near center of upstream side of dam on Nellie Bly Creek, 1¾ miles southwest of Ramona.

Drainage area.--2.39 sq mi.

Records available.--November 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 688.00 ft above mean sea level, datum of 1929 (levels by U. S. Soil Conservation Service).

Average discharge.--5 years (1955-60), 1.67 cfs (1,210 acre-ft per year).

Extremes.--1954-60: Maximum outflow, 1,100 cfs Oct. 2, 1959 (gage height, 32.04 ft); no outflow for most of time. Maximum inflow, 3,580 cfs (average for 5-minute interval) June 23, 1957, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records not previously published. Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure and emergency spillway. Reservoir is formed by earth dam; dam completed and storage began in November 1954. Outlet structure is a 3-foot square concrete drop inlet connected to a 12-inch concrete outlet pipe. Top of drop outlet is a flat-top wall at gage height 14.50 ft. The emergency spillway is at about gage height 29.5 ft. Capacity at top of emergency spillway, 750 acre-ft and at outlet structure, 145 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	-	-	0	0	0	0.05	1.08	2.30	0.27	0	0	0	-
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	4.62	11.7	15.7	8.63	0	0	3.40
1958	0	0	0	0	.15	7.00	1.92	.28	0	0	0	0	.79
1959	0	0	0	0	0	1.18	.85	.63	.14	3.96	.10	.69	.64
1960	22.1	.58	3.54	1.84	2.10	2.52	2.74	5.80	.66	0	0	0	3.53

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953												
1954												
1955	-	-	a1	14.4	36.5	148	145	146	145	130	121	112
1956	109	102	98.2	95.8	93.4	89.3	86.5	83.2	78.8	65.7	50.3	38.7
1957	30.8	26.8	24.6	20.3	19.4	55.3	301	668	640	143	131	131
1958	125	124	122	143	146	150	146	144	133	125	123	116
1959	107	118	114	111	120	149	145	146	140	147	135	200
1960	147	a148	148	a147	147	146	146	147	147	135	126	114

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1955	-	10	May 21,22,1955	297	May 21, 1955	0	-	0.31
1956	-	0	-	45	June 3, 1956	0	0	0
1957	-	593	June 12, 1957	3,580	June 23, 1957	0	3.40	3.40
1958	-	11	(b)	123	Mar. 13, 1958	0	.79	.79
1959	-	16	July 22, 1959	830	July 22, 1959	0	.64	2.86
1960	-	1,100	Oct. 2, 1959	2,810	Oct. 2, 1959	0	3.53	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak outflow.
b Mar. 19-21, 23, 24, 1958.

1755. Caney River near Ramona, Okla.

Location.--Lat 36°30'30", long 95°50'30", in NE¼NW¼ sec.5, T.23 N., R.14 E., near left bank on downstream side of pier of county highway bridge, 1 mile upstream from Buck Creek, 2¼ miles downstream from Double Creek, 4½ miles southeast of Ramona, and at mile 32.0.

Drainage area.--1,955 sq mi.

Records available.--October 1935 to February 1939 (published as "near Collinsville"), September 1945 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 586.43 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Dec. 4, 1935, to Feb. 28, 1939, wire-weight gage at site 16.2 miles downstream at datum 21.41 ft lower. Sept. 1, 1945, to Feb. 15, 1946, wire-weight gage at present site and datum.

Average discharge.--18 years (1935-38, 1945-60), 868 cfs (628,400 acre-ft per year).

Extremes.--1935-39, 1945-60: Maximum discharge, 38,500 cfs Oct. 3, 1945 (gage height, 30.12 ft); no flow Aug. 9 to Sept. 15, 1936, Sept. 11 to Nov. 3, 1956.

Remarks.--Some regulation since February 1950 by Hulah Reservoir (see p. 202). Records of chemical analyses for water year 1960 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	127	50.3	45.1	44.8	511	362	579	2,411	1,863	5,851	133	1,305	1,113
1952	714	2,922	596	605	618	2,939	1,753	487	231	39.2	31.6	14.8	911
1953	10.9	15.5	14.9	12.1	11.3	135	459	1,033	213	62.7	13.1	192	182
1954	14.4	58.3	28.5	13.0	16.3	11.3	81.8	2,171	396	11.4	21.8	7.06	239
1955	425	40.6	25.1	119	104	303	108	2,441	1,232	23.1	16.3	25.2	408
1956	574	5.91	10.1	12.7	11.5	10.9	23.2	11.5	14.7	22.2	4.46	.16	59.3
1957	0	10.1	16.1	5.33	9.85	39.1	1,544	7,397	11,440	3,812	32.7	53.5	2,033
1958	26.0	55.7	38.7	71.4	66.4	3,535	2,841	1,024	87.0	1,057	128	88.0	757
1959	19.5	32.7	17.4	23.5	73.4	155	417	1,903	354	5,851	1,784	155	913
1960	6,960	413	908	741	1,181	2,048	1,607	1,772	425	63.8	212	36.9	1,373

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,830	2,990	2,770	2,750	28,370	22,240	34,480	148,300	110,800	359,800	8,190	77,640	806,200
1952	43,920	173,900	36,670	37,230	35,570	180,700	104,300	29,940	13,770	2,410	1,950	881	661,200
1953	668	922	917	746	626	8,290	27,300	63,530	12,680	3,860	808	11,430	131,800
1954	886	3,470	1,750	799	906	695	4,870	133,500	23,590	702	1,340	420	172,900
1955	26,160	2,420	1,540	7,300	5,800	18,630	6,400	150,100	73,280	1,420	1,000	1,500	295,600
1956	35,320	352	624	782	662	672	1,380	709	874	1,370	274	9.3	43,030
1957	0	602	991	328	547	2,400	91,880	454,800	680,900	234,400	2,010	3,190	1,472,000
1958	1,600	3,310	2,380	4,390	3,690	217,400	169,100	62,960	5,180	64,970	7,880	5,240	548,100
1959	1,200	1,950	1,070	1,450	4,070	9,550	24,790	117,000	21,060	359,800	109,700	9,210	660,800
1960	428,000	24,570	55,810	45,550	67,950	125,000	95,650	109,000	25,280	3,930	13,060	2,200	996,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,343	972,300
1951	1211	15,700	July 5, 1951	23	1,113	806,200	1,446	1,047,000
1952	1241	8,810	Nov. 12, 1951	9.0	911	661,200	564	409,300
1953	1281	7,050	May 12, 1953	3.3	182	131,800	187	135,400
1954	1341	9,340	May 3, 1954	2.4	239	172,900	272	196,900
1955	1391	8,650	May 29, 1955	4.0	408	295,600	417	301,700
1956	1441	2,570	Oct. 8, 1955	0	59.3	43,030	11.5	8,330
1957	1511	36,700	June 12, 1957	0	2,033	1,472,000	2,041	1,478,000
1958	1561	7,250	Apr. 7, 1958	18	757	548,100	753	545,000
1959	1631	22,300	July 24, 1959	11	913	660,800	1,609	1,165,000
1960	1711	16,200	Oct. 6, 1959	14	1,373	996,900	-	-

1760. Verdigris River near Claremore, Okla.

Location.--Lat 36°18'30", long 95°41'40", in SE¼SW¼ sec.10, T.21 N., R.15 E., near left bank no downstream side of pier of bridge on State Highway 20, 2.3 miles downstream from Caney River, 4½ miles west of Claremore, 12.4 miles upstream from Bird Creek, and at mile 76.0.

Drainage area.--6,534 sq mi.

Records available.--October 1935 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 538.62 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 24, 1939, wire-weight gage at same site and datum.

Average discharge.--25 years (1935-60), 3,516 cfs (2,545,000 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 182,000 cfs May 21, 1943 (gage height, 55.05 ft); no flow at times in 1936, 1939-40, 1956-57.
Maximum stage known, that of May 21, 1943.

Remarks.--Some regulation since April 1949 by Fall River Reservoir (see p. 194) and since February 1950 by Hulah Reservoir (see p. 202). Records of chemical analyses and water temperatures for water years 1948-54 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	817	164	148	162	2,348	1,452	2,039	8,319	9,830	34,050	3,124	8,118	5,919
1952	2,618	8,826	1,885	2,140	2,162	9,543	6,371	1,665	595	88.4	61.1	25.3	2,993
1953	11.4	23.8	34.4	43.8	33.6	533	1,656	2,535	332	176	20.2	274	475
1954	22.3	133	90.9	32.2	29.8	47.8	528	6,547	875	20.3	31.1	4.92	706
1955	1,720	113	37.2	535	468	1,045	296	5,151	2,711	157	16.1	22.5	1,030
1956	1,921	11.2	11.6	12.1	24.3	12.5	104	160	534	164	9.47	0	249
1957	0	4.37	22.8	18.8	131	227	6,093	21,980	32,590	5,609	135	225	5,586
1958	308	803	318	503	936	15,220	8,809	3,802	1,075	7,868	632	1,257	3,487
1959	148	502	207	270	762	1,229	2,445	5,414	911	17,070	2,919	1,286	2,797
1960	24,420	1,445	2,448	2,650	4,014	7,691	6,003	8,481	3,728	417	1,405	272	5,281

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	50,230	9,740	9,080	9,980	130,400	89,310	121,300	511,500	584,900	†2,094,000	192,100	483,000	4,286,000
1952	161,000	525,200	115,900	131,600	124,400	586,800	379,100	102,400	35,390	5,430	3,760	1,500	2,172,000
1953	699	1,420	2,110	2,700	1,870	32,780	98,570	155,900	19,740	10,840	1,240	16,310	344,200
1954	1,370	7,930	5,590	1,980	1,650	2,940	31,390	402,600	52,080	1,250	1,910	293	511,000
1955	105,800	6,730	2,290	32,900	26,010	64,230	17,630	316,700	161,300	9,660	990	1,340	745,600
1956	118,100	668	716	742	1,400	768	6,170	9,840	31,770	10,070	582	0	180,800
1957	0	260	1,400	1,160	7,260	13,950	362,600	1,352,000	1,939,000	344,900	8,330	13,390	4,044,000
1958	18,970	47,790	19,540	30,910	51,980	935,700	524,200	233,800	63,960	483,800	38,860	74,770	2,524,000
1959	9,070	29,890	12,700	16,610	42,300	75,570	145,500	332,900	54,210	1,050,000	179,500	76,510	2,025,000
1960	1,502,000	85,970	150,500	162,900	230,900	472,900	357,200	521,400	221,800	25,630	86,420	16,160	3,834,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3,504	2,537,000
1951	1211	74,900	July 6, 1951	91	5,919	4,286,000	6,932	5,019,000
1952	1241	27,600	Mar. 12, 1952	10	2,993	2,172,000	1,893	1,375,000
1953	1281	14,500	May 12, 1953	4.2	475	344,200	490	354,800
1954	1341	32,900	May 4, 1954	1.0	706	511,000	844	610,900
1955	1391	26,800	May 30, 1955	1.8	1,030	745,600	1,036	750,200
1956	1441	14,700	Oct. 4, 1955	0	249	180,800	86.8	63,000
1957	1511	68,500	June 15, 1957	0	5,586	4,044,000	5,703	4,129,000
1958	1561	30,800	Mar. 27, 1958	51	3,487	2,524,000	3,439	2,490,000
1959	1651	47,200	July 25, 1959	56	2,797	2,025,000	5,126	3,712,000
1960	1711	60,500	Oct. 5, 1959	51	5,281	3,834,000	-	-

1765. Bird Creek at Avant, Okla.

Location.--Lat 36°29', long 96°04', in NW¼ sec.7, T.23 N., R.12 E., near left bank on downstream side of pier of highway bridge at Avant, 1½ miles upstream from Candy Creek and at mile 54.2.

Drainage area.--364 sq mi.

Records available.--August 1945 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 651.28 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--15 years (1945-60), 167 cfs (120,900 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 32,400 cfs Oct. 2, 1959 (gage height, 31.40 ft); no flow at times in most years.
Maximum stage known, that of Oct. 2, 1959. Flood in May 1943 reached a stage of 29.6 ft, from floodmark.

Remarks.--Small diversions above station for municipal water supply of cities of Pawhuska and Barnsdall.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.30	0.76	2.31	7.33	111	41.9	70.2	353	869	421	27.3	374	189
1952	106	454	44.3	67.4	112	552	308	178	33.1	10.9	0	0	155
1953	0	0	0	0	2.99	73.8	111	403	30.0	9.68	0	29.5	55.6
1954	.99	5.09	3.27	.56	1.50	2.95	208	409	41.4	0	0	0	56.5
1955	26.9	1.06	.82	4.28	11.5	119	40.7	937	60.4	.53	1.41	.59	102
1956	59.5	0	0	0	.04	0	0	0	5.55	0	0	0	5.50
1957	0	0	0	0	0	10.9	713	2,266	2,648	169	100	92.5	500
1958	5.94	11.9	4.07	17.0	6.12	505	214	61.2	2.76	85.0	11.2	18.8	79.3
1959	.10	7.2	.52	.59	3.01	42.0	27.9	647	94.9	832	5.88	54.0	145
1960	1,910	39.7	265	115	212	337	307	627	95.1	5.87	23.2	1.15	331

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	203	45	142	451	6,190	2,580	4,180	21,720	51,730	25,900	1,680	22,260	137,100
1952	6,540	26,990	2,720	4,140	6,460	33,940	18,310	10,930	1,970	670	0	0	112,700
1953	0	0	0	0	166	4,540	6,630	24,760	1,780	595	0	1,760	40,230
1954	61	303	201	34	83	181	12,400	25,140	2,460	0	0	0	40,900
1955	1,660	63	51	263	640	7,330	2,420	57,630	3,600	32	87	35	73,810
1956	3,660	0	0	0	2.4	0	0	0	330	0	0	0	3,990
1957	0	0	0	0	0	672	42,430	139,400	157,600	10,410	6,160	5,500	362,200
1958	365	707	251	1,040	340	31,050	12,700	3,770	164	5,230	689	1,120	57,430
1959	6.1	429	32	36	167	2,580	1,660	39,760	5,650	51,150	361	3,210	105,000
1960	117,400	2,360	16,260	7,040	12,170	20,730	18,290	38,540	5,660	361	1,430	69	240,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	255	184,300
1951	1211	11,200	June 21, 1951	0.6	189	137,100	239	172,900
1952	1241	9,700	Nov. 12, 1951†	0	155	112,700	105	76,420
1953	1281	11,900	May 12, 1953	0	55.6	40,230	56.4	40,800
1954	1341	11,500	May 2, 1954	0	56.5	40,900	58.1	42,070
1955	1391	9,970	May 20, 1955	0	102	73,810	105	75,700
1956	1441	1,320	Oct. 5, 1955	0	5.50	3,990	.46	332
1957	1511	25,400	June 12, 1957	0	500	362,200	502	363,500
1958	1516	4,100	Mar. 23, 1958	0	79.3	57,430	78.1	56,570
1959	1631	12,800	July 15, 1959	0	145	105,000	332	240,600
1960	1711	32,400	Oct. 2, 1959	0	331	240,300	-	-

† Corrected.

1770. Hominy Creek near Skiatook, Okla.

Location.--Lat 36°21', long 96°07', in SW¼SE¼ sec.27, T.22 N., R.11 E., near left bank on downstream side of pier of bridge on State Highway 20, 1 mile upstream from Tall Chief Creek, 6 miles west of Skiatook, and at mile 16.7.

Drainage area.--340 sq mi.

Records available.--March 1944 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 619.66 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 26, 1945, chain or wire-weight gage and May 26, 1954, to Sept. 30, 1958, water-stage recorder, at site 600 ft upstream at same datum.

Average discharge.--16 years (1944-60), 167 cfs (120,900 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 35,600 cfs Oct. 3, 1959 (gage height, 38.82 ft); no flow at times in 1946, 1952-58.
Maximum stage known, that of Oct. 3, 1959. Flood in May 1943 reached a stage of 35.0 ft, from floodmark (discharge not determined).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13.2	2.05	3.33	6.51	116	22.0	31.5	238	796	553	50.5	268	174
1952	166	375	24.1	25.4	101	415	278	169	64.8	7.51	2.61	0	135
1953	.01	.20	.14	.43	10.4	108	167	253	26.4	59.3	2.87	53.3	57.0
1954	3.30	1.24	3.63	.59	1.73	5.82	89.0	436	47.1	.06	.02	.01	49.6
1955	0	.28	.23	2.75	3.00	135	22.7	524	48.6	.77	11.2	.88	63.5
1956	5.8	.02	0	0	.03	0	2.66	0	15.2	0	0	0	6.36
1957	0	0	0	0	0	6.72	971	2,087	2,022	78.7	5.07	44.6	435
1958	1.74	15.8	5.63	34.5	10.1	654	242	60.9	4.96	114	41.1	34.4	103
1959	.39	6.96	1.24	2.16	6.48	44.0	66.3	635	76.2	525	18.6	212	134
1960	2,318	37.3	147	77.2	131	228	264	936	117	75.0	25.2	2.66	367

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	809	122	205	400	6,420	1,350	1,870	14,630	47,360	33,990	3,110	15,950	126,200
1952	10,180	22,310	1,480	1,560	5,840	25,510	16,510	10,390	3,860	462	161	0	98,260
1953	.6	12	8.3	26	580	6,620	9,920	15,560	1,570	3,650	176	3,170	41,290
1954	203	74	223	36	96	358	5,290	26,830	2,800	3.6	1.0	.6	35,920
1955	0	17	14	169	166	8,310	1,350	32,240	2,890	47	690	53	45,950
1956	3,550	1.4	0	0	1.6	0	158	0	904	0	0	0	4,620
1957	0	0	0	0	0	413	57,780	128,300	120,300	4,840	312	2,650	314,600
1958	107	939	346	2,120	561	40,200	14,400	3,740	295	7,020	2,530	2,050	74,310
1959	24	414	76	133	360	2,710	3,940	39,050	4,530	32,300	1,150	12,620	97,310
1960	142,500	2,220	9,010	4,740	7,510	13,990	15,690	57,570	6,970	4,610	1,550	158	266,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	197	142,400
1951	1241	9,160	June 22, 1951	1.6	174	126,200	220	159,000
1952	1241	5,140	Nov. 12, 1951	0	135	98,260	88.6	64,310
1953	1281	5,000	May 13, 1953	0	57.0	41,290	57.7	41,770
1954	1341	5,640	May 2, 1954	0	49.6	35,920	49.0	35,450
1955	1391	4,920	May 21, 1955	0	63.5	45,950	68.3	49,470
1956	1441	1,240	Oct. 5, 1955	0	6.36	4,620	1.47	1,060
1957	1511	13,200	May 21, 1957	0	435	314,600	437	316,000
1958	1561	3,630	Mar. 24, 1958	.6	103	74,310	101	73,430
1959	1631	6,440	Sept. 30, 1959	0	134	97,310	346	250,500
1960	1711	35,600	Oct. 3, 1959	1.1	367	266,500	-	-

1775. Bird Creek near Sperry, Okla.

Location.--Lat 36°16'42", long 95°57'14", in NW¼NW¼ sec.29, T.21 N., R.13 E., on downstream side of right pier of highway bridge, 1½ miles upstream from Delaware Creek, 2.4 miles downstream from Hominy Creek, 2½ miles southeast of Sperry, and at mile 25.0.

Drainage area.--905 sq mi.

Records available.--October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 579.43 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--22 years (1938-60), 477 cfs (345,300 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 90,000 cfs Oct. 3, 1959 (gage height, 32.60 ft), from rating curve extended above 49,000 cfs by logarithmic plotting; no flow at times in 1939, 1954-57.

Maximum stage known, that of Oct. 3, 1959. Flood in 1915 reached a stage similar to flood of Oct. 31, 1941 (30.14 ft), from information by local residents.

Remarks.--Records of chemical analyses and water temperatures for the water years 1952-53 are published in reports of Geological Survey.

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

Revisions.--Revised records for the water year 1943, superseding those published in WSP 977 and 1311, are given herewith. Revised daily discharges for the period affected are available and will be published in a future water-supply paper.

Month	Mean	Acre-feet	Momentary maximum		Minimum day
			Discharge	Date	
May 1943.....	9,862	606,400	-	-	-
Water year 1942-43.....	997	721,700	72,200	May 18, 1943	2.2
Calendar year 1943.....	1,015	735,100	-	-	-

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	30.8	11.0	13.9	25.1	366	125	132	720	641	1,381	94.6	821	445
1952	429	1,092	104	115	274	1,172	747	373	115	25.1	6.03	1.18	370
1953	.59	3.14	3.06	3.42	13.1	246	449	788	71.4	124	6.05	92.6	151
1954	6.16	9.80	12.3	2.83	6.76	15.3	92.0	1,175	145	.59	0	0	124
1955	18.6	4.70	1.93	12.9	18.2	287	69.9	1,430	124	4.18	10.4	4.20	168
1956	143	.14	.16	.56	.96	1.45	11.8	2.39	19.5	.02	0	0	15.2
1957	0	0	.05	.10	1.38	7.28	2,055	5,215	5,870	286	120	158	1,142
1958	13.6	35.1	16.7	67.9	21.6	1,562	579	177	14.0	211	90.7	58.2	240
1959	2.30	17.2	4.95	6.99	24.5	126	127	1,430	217	1,569	39.9	270	324
1960	5,913	134	506	264	432	692	724	2,000	259	134	74.7	8.79	939

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,900	655	855	1,540	20,350	7,700	7,880	44,270	97,660	84,930	5,820	48,850	322,400
1952	26,380	65,000	6,390	7,070	15,760	72,050	44,460	22,910	6,830	1,550	371	70	268,800
1953	36	187	188	210	728	15,110	26,700	48,460	4,250	7,610	372	5,510	109,400
1954	379	583	757	174	376	941	5,480	72,220	8,650	36	0	0	89,600
1955	1,140	280	119	792	1,010	17,670	4,160	87,940	7,350	257	642	250	121,600
1956	8,810	8.5	9.9	35	55	89	691	147	1,160	1.0	0	0	11,010
1957	0	0	3.4	6.0	77	448	122,300	320,700	349,300	17,580	7,360	9,370	827,100
1958	837	2,090	1,030	4,170	1,200	96,020	34,440	10,880	830	12,950	5,580	3,460	173,500
1959	141	1,020	305	430	1,360	7,730	7,530	87,930	12,940	96,440	2,450	16,090	234,400
1960	363,600	7,980	31,080	16,260	24,870	42,580	43,090	123,200	15,390	8,250	4,590	523	681,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	542	392,300
1951	1211	13,400	June 23, 1951	8.6	445	322,400	576	416,800
1952	1241	8,790	Mar. 11, 1952	.3	370	268,800	236	171,500
1953	1281	9,640	May 13, 1953	.1	151	109,400	153	110,700
1954	1341	11,800	May 3, 1954	0	124	89,600	124	89,420
1955	1391	10,600	May 21, 1955	0	168	121,600	178	128,900
1956	1441	1,930	Oct. 5, 1955	0	15.2	11,010	3.00	2,180
1957	1511	31,400	June 13, 1957	0	1,142	827,100	1,148	831,100
1958	1561	7,180	Mar. 24, 1958	2.9	240	173,500	236	171,000
1959	1631	10,300	July 16, 1959	1.2	324	234,400	878	635,600
1960	1711	90,000	Oct. 3, 1959	4.8	939	681,400	-	-

1786. Verdigris River near Inola, Okla.

Location.--Lat 36°10', long 95°37', near northwest corner of sec.4, T.19 N., R.16 E., near right bank on downstream side of pier of bridge on State Highway 33, 6 miles downstream from Dog Creek, 6 miles west of Inola, and at mile 48.8.

Drainage area.--7,911 sq mi.

Records available.--September 1944 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 506.87 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1946, wire-weight gage at same site and datum.

Average discharge.--16 years (1944-60), 4,108 cfs (2,974,000 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 101,000 cfs Oct. 5, 1959; maximum gage height, 53.20 ft Oct. 5, 1959; minimum discharge, 5.9 cfs Oct. 9, 1956.
Maximum stage known, 54.93 ft May 21, 1943 (discharge, 224,000 cfs).

Remarks.--Some regulation since April 1949 by Fall River Reservoir (see p. 194) and since February 1950 by Hulah Reservoir (see p. 202). Records of chemical analyses and water temperatures for water years 1948-60 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	913	183	169	209	3,053	1,884	2,368	9,280	11,500	35,300	3,324	9,324	6,493
1952	3,322	10,540	2,240	2,476	2,690	11,330	7,769	2,182	930	146	91.5	53.6	3,640
1953	42.7	83.3	105	98.7	97.4	1,115	2,974	3,784	487	376	53.9	386	804
1954	141	214	148	52.1	55.4	88.0	450	8,008	1,090	34.0	65.1	17.0	875
1955	1,678	159	65.5	569	532	1,413	401	6,440	2,797	220	53.9	59.4	1,208
1956	2,073	36.4	33.7	27.1	59.6	38.9	140	355	575	169	21.0	11.0	297
1957	23.4	37.2	55.5	52.1	163	247	9,764	28,680	41,400	6,531	301	436	7,305
1958	339	914	387	689	1,038	17,390	9,915	4,275	1,128	8,128	842	1,366	3,897
1959	189	581	266	312	876	1,479	2,707	6,984	1,289	18,170	3,240	1,566	3,175
1960	32,020	1,971	3,287	3,258	4,817	8,949	7,388	11,430	4,576	1,174	1,443	316	6,764

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	56.12	10.91	10.39	12.84	169.5	115.8	140.9	570.6	684	2,170	204.4	554.8	4,700
1952	204.3	627	137.7	152.2	154.8	696.8	462.3	134.2	55.36	9	5.62	3.19	2,642
1953	2.62	4.95	6.46	6.07	5.41	68.56	177	232.6	29	23.12	3.31	22.98	582.1
1954	8.70	12.76	9.08	3.20	3.07	5.41	26.80	492.4	64.85	2.09	4	1.01	633.4
1955	103.2	9.48	4.03	34.99	29.54	86.90	23.87	396	166.5	13.50	3.31	3.54	874.9
1956	127.5	2.16	2.07	1.66	3.43	2.39	8.36	21.82	34.20	10.38	1.29	.656	215.9
1957	1.44	2.21	3.41	3.20	9.03	†15.18	581	1,764	2,463	401.6	18.51	25.92	5,288
1958	20.82	54.39	23.77	42.38	57.66	1,070	590	262.9	67.14	499.8	51.79	81.30	2,822
1959	11.64	34.57	16.37	19.17	48.65	90.97	161.1	429.5	76.67	1,117	199.2	93.21	2,298
1960	1,969	117.3	202.1	200.3	277.1	550.3	439.6	702.8	272.3	72.17	88.75	18.83	4,911

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	4,156	3,009,000
1951	1211	69,200	July 8, 1951	114	6,493	4,700,000	7,725	5,592,000
1952	1241	32,400	Mar. 12, 1952	35	3,640	2,642,000	2,324	1,688,000
1953	1281	23,000	Apr. 24, 1953	33	804	582,100	827	598,600
1954	1341	37,100	May 5, 1954	8.6	875	633,400	994	719,500
1955	1391	29,500	May 30, 1955	7.8	1,208	874,900	1,229	889,900
1956	1441	13,600	Oct. 6, 1955	8.6	297	215,900	126	91,250
1957	1511	85,900	June 16, 1957	6.2	7,305	5,288,000	7,432	5,380,000
1958	1561	31,200	Mar. 28, 1958	78	3,897	2,822,000	3,847	2,786,000
1959	1631	44,700	July 26, 1959	82	3,175	2,298,000	6,249	4,524,000
1960	1711	101,000	Oct. 5, 1959	93	6,764	4,911,000	-	-

1795. Neosho River at Council Grove, Kans.

Location.--Lat 38°40', long 96°30', in NW¼ sec.14, T.16 S., R.8 E., on downstream side of center pier of highway bridge at city waterplant in north part of Council Grove, 300 ft downstream from Mozler Creek, 1 mile upstream from Elm Creek, and at mile 448.0.

Drainage area.--250 sq mi.

Records available.--October 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,205.63 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 7, 1940, wire-weight gage at same site and datum.

Average discharge.--22 years (1938-60), 121 cfs (87,600 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 121,000 cfs July 11, 1951 (gage height, 35.5 ft; 36.29 ft, top of surge in gage house; 37.97 ft, floodmark at water-plant and in wire-weight gage box at upstream side of bridge), from rating curve extended above 36,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1938-41, 1947-48, 1954-57.

Maximum stage known, that of July 11, 1951. Flood in 1903 reached a stage of 37.3 ft at waterplant, from information by Corps of Engineers.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14.5	9.41	9.37	7.18	9.05	21.6	218	838	865	2,858	97.4	984	498
1952	70.2	93.7	36.0	31.1	30.3	213	323	105	24.4	617	49.7	1.85	82.1
1953	.55	1.31	3.58	4.28	3.90	18.7	7.45	17.0	3.63	295	.43	.24	5.37
1954	.20	.29	.42	.28	.34	.29	.29	.43	94.3	.16	6.37	.17	8.53
1955	.18	.05	.03	.04	7.85	.67	96.9	130	66.3	70.6	.45	.03	31.2
1956	3.83	0	0	0	0	0	3.23	1.47	.03	0	111	.003	10.1
1957	1.78	.37	0	0	0	6.42	103	406	211	41.6	.89	46.6	68.5
1958	126	91.4	21.4	32.2	101	266	62.5	67.9	156	381	68.2	201	131
1959	168	24.2	18.2	26.6	52.2	41.2	67.8	338	96.5	476	25.0	20.2	114
1960	219	25.9	21.8	88.3	141	562	199	56.1	103	76.9	14.5	83.6	133

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	893	560	576	442	502	1,330	12,990	51,540	51,490	175,700	5,990	58,560	360,600
1952	4,320	5,580	2,220	1,910	1,750	13,130	19,240	6,440	1,450	379	3,050	110	59,580
1953	34	78	220	263	217	1,150	443	1,050	216	181	26	14	3,890
1954	12	17	26	17	19	18	17	27	5,610	9.9	392	10	6,170
1955	11	3.0	2.0	2.4	436	41	5,770	7,990	3,950	4,340	28	2.0	22,580
1956	235	0	0	0	0	0	192	90	1.8	0	6,810	.2	7,330
1957	109	22	0	0	0	395	6,140	24,950	12,580	2,560	55	2,770	49,580
1958	7,740	5,440	1,320	1,980	5,580	16,390	3,720	4,170	9,260	23,400	4,190	11,960	95,150
1959	10,350	1,440	1,120	1,640	2,900	2,530	4,030	20,780	5,740	29,300	1,540	1,200	82,570
1960	13,480	1,540	1,340	5,430	8,110	34,570	11,860	3,450	6,150	4,730	891	4,980	96,530

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	113	81,800
1951	1211	121,000	July 11, 1951	3.0	498	360,600	512	370,700
1952	1241	4,850	Mar. 10, 1952	.7	82.1	59,580	65.8	47,790
1953	1281	202	May 27, 1953	.1	5.37	3,890	4.99	3,620
1954	1341	2,720	June 16, 1954	.1	8.53	6,170	8.47	6,140
1955	1391	6,480	May 26, 1955	0	31.2	22,580	31.5	22,790
1956	1441	5,250	Aug. 9, 1956	0	10.1	7,330	9.95	7,220
1957	1511	12,300	May 16, 1957	0	68.5	49,580	88.3	63,950
1958	1561	5,360	July 11, 1958	.8	131	95,150	129	93,560
1959	1631	7,250	July 14, 1959	8.8	114	82,570	119	86,020
1960	1711	7,900	Mar. 27, 1960	2.0	133	96,530	-	-

1800. Cottonwood River near Marion, Kans.

Location.--Lat 38°21', long 97°04', in SW¼ sec.36, T.19 S., R.3 E., on downstream side of left pier of county highway bridge, 1.1 miles downstream from South Cottonwood River, 2 miles west of Marion, and at mile 123.9.

Drainage area.--329 sq mi.

Records available.--October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,289.85 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 3, 1945, wire-weight gage at same site and datum.

Average discharge.--22 years (1938-60), 114 cfs (82,530 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 66,000 cfs July 11, 1951 (gage height, 28.57 ft, from floodmark in gage well), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1940, 1954-56.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	83.8	16.4	16.1	14.3	18.6	27.5	56.8	1,077	1,406	2,566	85.9	383	483
1952	123	63.5	45.7	46.1	37.1	156	310	91.8	51.8	12.2	7.43	4.40	79.0
1953	4.92	9.90	14.3	13.8	13.3	19.5	11.8	303	22.0	7.48	3.56	1.81	35.9
1954	2.35	5.08	6.56	5.56	7.68	7.05	30.1	50.3	115	8.15	1.63	.45	19.9
1955	.65	1.27	2.89	3.99	6.75	4.54	74.1	16.7	9.89	8.26	0	77.6	17.1
1956	2.43	1.56	2.50	2.44	3.71	2.81	5.13	7.20	1.31	4.40	1.69	0	2.94
1957	0	0	.13	.55	.78	6.37	53.7	627	271	26.2	3.46	4.64	83.5
1958	4.35	13.4	6.04	8.72	15.8	219	45.3	299	41.1	95.7	17.0	173	78.9
1959	30.0	20.1	17.3	20.4	28.2	29.4	23.0	458	19.5	222	11.4	26.6	76.4
1960	125	27.6	22.1	79.1	123	455	81.3	120	177	29.7	185	47.0	123

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,150	976	990	877	1,030	1,690	3,380	66,250	83,630	157,800	5,280	22,810	349,900
1952	7,590	3,780	2,810	2,830	2,130	9,560	18,430	5,640	3,080	751	457	262	57,320
1953	302	589	879	849	740	1,200	701	18,650	1,310	460	219	108	26,010
1954	144	302	404	342	426	434	1,790	3,100	6,850	501	100	27	14,420
1955	40	76	178	246	375	279	4,410	1,030	588	508	0	4,620	12,350
1956	149	93	154	150	213	173	305	443	78	270	104	0	2,130
1957	0	0	7.9	34	43	392	3,190	38,550	16,130	1,610	213	276	60,450
1958	268	795	372	536	878	13,470	2,700	18,400	2,450	5,880	1,050	10,290	57,090
1959	1,840	1,200	1,060	1,260	1,570	1,810	1,370	28,130	1,160	13,630	698	1,580	55,310
1960	7,670	1,640	1,360	4,870	7,060	27,970	4,840	7,390	10,510	1,830	11,350	2,800	89,290

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	105	75,660
1951	1211	66,000	July 11, 1951	12	483	349,900	493	356,900
1952	1241	4,150	Apr. 19, 1952	3.1	79.0	57,320	61.9	44,910
1953	1281	5,620	May 27, 1953	.8	35.9	26,010	34.6	25,090
1954	1341	3,040	June 12, 1954	0	19.9	14,420	19.1	13,860
1955	1391	2,640	Apr. 13, 1955	0	17.1	12,350	17.2	12,450
1956	1441	366	July 6, 1956	0	2.94	2,130	2.40	1,740
1957	1511	12,900	May 17, 1957	0	83.5	60,450	85.5	61,870
1958	1561	8,640	May 4, 1958	1.9	78.9	57,090	82.6	59,750
1959	1631	6,540	May 17, 1959	3.4	76.4	55,310	85.5	61,880
1960	1711	3,900	Mar. 24, 1960	10	123	89,290	-	-

1805. Cedar Creek near Cedar Point, Kans.

Location.--Lat 38°12', long 96°50', in NE¼ sec.25, T.21 S., R.5 E., on upstream end of right abutment of highway bridge, 4 miles south of Cedar Point and at mile 9.4.

Drainage area.--110 sq mi.

Records available.--October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,262.50 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 28, 1944, wire-weight gage at downstream side of present bridge at same datum.

Average discharge.--22 years (1938-60), 51.5 cfs (37,280 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 52,400 cfs June 29, 1951 (gage height, 23.70 ft), from rating curve extended above 7,500 cfs on basis of contracted-opening and flow-over-road measurement of peak discharge; no flow at times.

Maximum stage since at least 1856, that of June 29, 1951. Flood in July 1929 reached a stage of 24.63 ft, from floodmarks on house on left bank where flood in 1951 reached a stage of 25.7 ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12.5	9.85	8.19	7.87	39.2	33.0	109	2.62	590	594	66.8	167	159
1952	94.6	24.7	18.1	16.4	14.9	87.5	118	72.4	34.6	15.5	12.8	2.73	42.8
1953	1.83	3.48	6.12	4.89	3.98	18.8	8.31	36.4	4.04	.80	.02	0	7.46
1954	0	0	.28	1.03	1.34	3.66	.58	1.11	2.92	0	0	0	.91
1955	0	0	0	0	12.6	.92	3.98	.01	0	0	0	12.1	2.36
1956	23.6	0	.18	.38	2.23	.44	5.37	.66	.28	0	0	0	2.77
1957	0	0	0	0	0	8.63	51.5	254	114	16.7	5.64	8.86	38.5
1958	9.15	45.5	13.4	14.3	31.6	262	71.1	34.7	21.7	91.5	13.2	32.6	53.7
1959	10.0	15.5	8.16	8.81	14.0	17.0	37.1	286	28.4	269	38.1	17.2	63.2
1960	138	26.6	26.9	44.1	63.8	172	61.5	129	30.2	57.3	31.5	24.3	67.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	766	586	504	484	2,180	2,030	6,500	16,090	35,090	36,530	4,110	9,960	114,800
1952	5,820	1,470	1,110	1,010	857	5,380	7,000	4,450	2,060	955	785	162	31,060
1953	113	207	376	301	221	1,160	495	2,240	240	49	1.2	0	5,400
1954	0	0	17	63	75	225	35	68	174	0	0	0	657
1955	0	0	0	0	698	57	237	.4	0	0	0	718	1,710
1956	1,450	0	11	20	128	27	320	40	16	0	0	0	2,010
1957	0	0	0	0	0	530	3,060	15,600	6,780	1,030	347	527	27,870
1958	562	2,710	823	877	1,750	16,110	4,230	2,130	1,290	5,630	813	1,940	38,860
1959	616	924	502	541	778	1,050	2,210	17,560	1,690	16,520	2,340	1,020	45,750
1960	8,510	1,580	1,650	2,710	3,670	10,590	3,660	7,930	1,800	3,520	1,940	1,450	49,010

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	51.2	37,100
1951	1211	52,400	June 29, 1951	4.9	159	114,800	168	121,400
1952	1241	6,160	Oct. 6, 1951	1.3	42.8	31,060	32.2	23,360
1953	1281	2,700	May 27, 1953	0	7.46	5,400	6.52	4,720
1954	1341	290	Mar. 24, 1954	0	.91	657	.88	640
1955	1391	746	Sept.27, 1955	0	2.36	1,710	4.38	3,170
1956	1441	1,400	Oct. 2, 1955	0	2.77	2,010	.76	551
1957	1511	9,280	May 16, 1957	0	38.5	27,870	44.2	31,970
1958	1561	6,210	Mar. 29, 1958	3.4	53.7	38,860	50.9	36,810
1959	1631	11,000	July 15, 1959	6.6	63.2	45,750	76.6	55,450
1960	1711	6,540	May 4, 1960	4.6	67.5	49,010	-	-

1820. Cottonwood River at Cottonwood Falls, Kans.

Location.--Lat 38°23'06", long 96°36'20", in SW¼NE¼ sec 24, T.19 S., R.7 E., on left bank 1.2 miles downstream from Diamond Creek, 3½ miles west of Cottonwood Falls, and at mile 66.7.

Drainage area.--1,327 sq mi; at site used prior to June 28, 1960, 1,402 sq mi.

Records available.--April 1932 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,160.49 ft above mean sea level, datum of 1929. Prior to Feb. 12, 1935, chain gage at The Atchison, Topeka and Santa Fe Railway Co. bridge 11.6 miles downstream at datum 12.57 ft lower. Feb. 12, 1935, to June 27, 1960, water-stage recorder at highway bridge 13.9 miles downstream at datum 13.21 ft lower.

Average discharge.--28 years (1932-60), 498 cfs (360,500 acre-ft per year).

Extremes.--1932-60: Maximum discharge, 196,000 cfs July 11, 1951 (gage height, 36.8 ft, present site and datum), from rating curve extended above 48,000 cfs on basis of slope-area measurement of peak flow and contracted-opening measurement at gage height 4.6 ft lower; no flow at times in 1955-57.

Flood of July 11, 1951, is maximum known since the valley was first settled in 1858, from information by local residents.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	214	113	96.5	84.7	153	216	548	3,642	4,672	14,350	805	2,585	2,311
1952	719	449	267	236	168	920	1,430	632	329	103	106	38.0	450
1953	29.5	56.3	65.5	58.9	51.7	80.3	71.1	406	60.9	310	18.4	4.88	78.5
1954	1.13	10.8	17.0	16.8	20.4	27.2	12.3	114	254	9.09	7.98	.40	40.8
1955	.36	.58	.79	7.21	37.5	10.9	83.7	101	42.5	48.7	13.8	257	49.9
1956	44.7	2.74	8.01	8.10	14.7	7.07	14.6	59.2	11.8	9.22	.53	0	15.1
1957	0	0	0	0	0	11.5	271	2,510	842	159	27.0	52.6	326
1958	154	210	91.1	100	260	1,711	564	725	346	881	230	647	496
1959	188	128	104	111	167	160	302	2,846	277	2,082	180	274	575
1960	1,169	267	181	438	750	2,031	752	712	519	178	406	477	658

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13,140	6,740	5,930	5,210	8,490	13,300	32,600	223,900	278,000	882,600	49,520	153,800	1,673,000
1952	44,200	26,730	16,430	14,540	9,660	56,570	85,060	38,860	19,580	6,310	6,500	2,260	326,700
1953	1,810	3,350	4,030	3,620	2,870	4,930	4,230	24,990	3,630	1,910	1,130	290	56,790
1954	69	643	1,050	1,030	1,130	1,670	732	6,980	15,130	559	491	24	29,510
1955	22	35	48	443	2,080	672	4,980	6,180	2,530	2,990	846	15,290	36,120
1956	2,750	163	492	498	845	435	869	3,640	700	567	32	0	10,990
1957	0	0	0	0	0	708	16,100	154,300	50,100	9,760	1,660	3,130	235,800
1958	9,450	12,520	5,600	6,160	14,430	105,200	33,590	44,600	20,600	54,170	14,170	38,500	359,000
1959	11,610	7,640	6,420	6,840	9,250	9,840	17,980	175,000	16,460	128,000	11,080	16,330	416,400
1960	71,860	15,880	11,160	26,910	43,150	124,900	44,750	43,790	30,870	10,950	24,960	28,380	477,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	649	469,600
1951	1211	196,000	July 11, 1951	62	2,311	1,673,000	2,396	1,735,000
1952	1241	6,450	Mar. 10, 1952	25	450	326,700	342	248,500
1953	1281	4,210	May 29, 1953	.5	78.5	56,790	68.2	49,360
1954	1341	3,080	June 14, 1954	.1	40.8	29,510	38.5	27,850
1955	1391	3,080	Sept.29, 1955	0	49.9	36,120	54.4	39,420
1956	1441	1,140	May 8, 1956	0	15.1	10,990	10.4	7,590
1957	1511	15,600	May 17, 1957	0	326	235,800	364	263,300
1958	1561	6,080	May 6, 1958	19	496	359,000	493	357,100
1959	1631	27,200	May 18, 1959	66	575	416,400	676	489,700
1960	1711	9,370	Mar. 24, 1960	56	658	477,600	-	-

1824. Neosho River at Strawn, Kans.

Location.--Lat 38°16', long 95°52', in NE¼ sec.33, T.20 S., R.14 E., near left bank on downstream side of pier of highway bridge at Strawn, 1½ miles downstream from Eagle Creek and at mile 356.5.

Drainage area.--2,933 sq mi.

Records available.--June 1948 to September 1960. Monthly discharge only for June 1948, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,018.78 ft above mean sea level, datum of 1929, Kansas City supplementary adjustment of 1943 (levels by Corps of Engineers). Prior to Sept. 27, 1948, wire-weight gage at same site and datum.

Average discharge.--12 years (1948-60), 1,208 cfs (874,600 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 400,000 cfs July 11, 1951 (gage height, 30.54 ft), from rating curve extended above 97,000 cfs on basis of rainfall-runoff studies and flood-routing study of reach from this station to station near Iola; no flow at times in 1954-57.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	441	200	179	150	329	578	1,149	7,395	6,630	32,040	2,202	7,269	4,930
1952	1,341	979	499	498	351	2,912	3,888	1,629	605	160	206	68.3	1,096
1953	38.7	71.7	88.2	77.3	71.4	144	128	472	137	88.9	23.4	8.19	113
1954	5.01	9.58	22.5	20.8	25.4	33.6	28.3	166	631	12.7	33.7	.70	81.9
1955	12.5	1.43	1.18	5.55	60.5	23.3	188	266	269	379	66.9	355	136
1956	331	7.53	6.35	9.62	19.9	9.87	169	335	15.4	2.39	92.4	0	83.9
1957	0	0	0	0	0	12.7	1,084	5,475	2,886	690	66.6	342	885
1958	542	731	245	286	550	4,039	1,710	1,353	1,805	4,380	770	1,322	1,486
1959	553	565	227	266	483	416	1,126	4,426	813	3,720	421	381	1,126
1960	2,816	436	426	1,039	1,751	4,802	1,967	1,160	1,210	286	1,271	970	1,514

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	27.09	11.92	11.01	9.20	18.29	35.58	68.36	454.7	394.5	1,970	135.4	432.5	3,569
1952	82.46	58.23	30.7	30.62	20.16	179.1	231.4	100.1	.360	9.84	12.66	4.06	795.3
1953	2.38	4.27	5.42	4.75	3.97	8.85	7.59	29.02	8.15	5.46	1.44	.488	81.79
1954	.308	.570	1.38	1.28	1.41	2.07	1.68	10.18	37.53	.782	2.07	.042	59.30
1955	.767	.085	.073	.342	3.36	1.43	11.21	16.32	.160	23.32	4.11	21.10	98.12
1956	20.35	.448	.390	.592	1.14	.607	10.03	20.62	.918	.147	5.68	0	60.92
1957	0	0	0	0	0	.779	64.52	336.6	171.7	42.42	4.10	20.32	640.4
1958	33.35	43.49	15.05	17.61	30.53	248.4	101.7	83.18	107.4	269.3	47.32	78.64	1,076
1959	33.99	33.62	13.94	16.34	26.82	25.55	66.99	272.2	48.37	228.7	25.91	22.65	815.1
1960	173.2	25.97	26.22	63.90	100.7	295.3	177.0	71.33	72.02	17.57	78.14	57.75	1,099

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,507	1,091,000
1951	1211	400,000	July 11, 1951	100	4,930	3,569,000	5,097	3,690,000
1952	1241	14,300	Mar. 12, 1952	42	1,096	795,300	876	636,000
1953	1281	4,340	May 31, 1953	2.0	113	81,790	99.4	71,980
1954	1341	4,020	June 16, 1954	0	81.9	59,300	80.1	57,970
1955	1391	3,960	May 28, 1955	0	136	98,120	164	118,400
1956	1441	5,340	May 8, 1956	0	83.9	60,920	54.7	39,730
1957	1511	24,900	May 17, 1957	0	885	640,400	1,012	732,300
1958	1561	13,900	July 17, 1958	40	1,486	1,076,000	1,472	1,066,000
1959	1631	18,200	May 21, 1959	88	1,126	815,100	1,324	958,900
1960	1711	17,100	Mar. 26, 1960	82	1,514	1,099,000	-	-

1830. Neosho River near Iola, Kans.

Location.--Lat 37°53', long 95°26', in NE¼ sec.9, T.25 S., R.18 E., on left bank 1 mile downstream from Elm Creek, 3 miles southwest of Iola, and at mile 284.4.

Drainage area.--3,818 sq mi.

Records available.--August 1895 to December 1903 (published as "at Iola"), October 1917 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Figures of daily discharge for August 1895 to January 1898, published in previous reports, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 914.77 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1917, staff gage at tailgate of flume at milldam 4.8 miles upstream at datum 12.2 ft higher.

Average discharge.--51 years (1895-1903, 1917-60), 1,565 cfs (1,133,000 acre-ft per year).

Extremes.--1895-1903, 1917-60: Maximum discharge, 436,000 cfs July 13, 1951 (gage height, 43.0 ft, from floodmark), from rating curve extended above 84,000 cfs on basis of slope-area measurement of peak flow; no flow at times in 1936, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	473	224	196	178	344	613	1,557	8,277	8,746	43,540	3,565	11,140	6,635
1952	1,824	1,650	646	732	559	4,190	4,670	1,683	641	184	209	77.2	1,423
1953	28.0	74.4	97.9	88.6	84.5	172	398	333	271	186	13.3	8.84	146
1954	1.78	5.14	19.8	21.6	28.6	33.9	261	792	791	10.8	28.5	1.24	166
1955	132	10.9	6.91	53.1	254	344	261	827	572	358	48.3	478	278
1956	512	12.0	8.28	11.3	26.8	11.4	157	574	274	22.7	68.4	.64	141
1957	.21	.52	1.39	1.33	3.24	29.6	1,386	6,589	4,409	1,165	94.3	324	1,173
1958	567	803	327	389	647	5,705	2,393	1,590	2,785	7,565	920	2,368	2,185
1959	583	644	266	298	576	468	1,580	4,393	885	4,344	558	391	1,258
1960	4,558	511	448	1,125	2,211	6,151	3,010	1,654	1,338	262	1,748	971	2,004

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	29.11	13.30	12.02	10.94	19.09	37.70	92.67	508.9	520.4	2,677	219.2	662.9	4,803
1952	112.2	98.17	39.70	45.03	32.15	257.6	277.9	103.5	38.12	11.29	12.86	4.60	1,033
1953	1.72	4.43	6.02	5.45	4.69	10.59	23.65	20.46	16.12	11.45	.817	.526	105.9
1954	.110	.306	1.22	1.33	1.59	2.09	15.52	48.70	47.05	.664	1.75	.074	120.4
1955	8.13	.649	.425	3.26	14.09	21.16	15.50	50.88	34.03	22.00	2.97	28.46	201.6
1956	31.46	.714	.509	.697	1.54	.703	9.32	35.28	16.30	1.40	4.21	.038	102.2
1957	.013	.031	.085	.082	.180	1.82	82.47	405.2	262.4	71.64	5.80	19.28	849.0
1958	34.89	47.76	20.10	23.94	35.93	350.8	142.4	97.76	165.7	465.2	56.59	140.9	1,582
1959	35.85	38.31	16.33	18.31	31.97	28.79	94.03	270.1	52.65	267.1	34.30	23.29	911.0
1960	280.3	30.38	27.53	69.17	127.2	378.2	179.1	101.7	79.64	16.12	107.5	57.80	1,455

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	2,121	1,536,000
1951	1211	436,000	July 13, 1951	112	6,635	4,803,000	6,905	4,999,000
1952	1241	18,400	Mar. 10, 1952	34	1,423	1,033,000	1,095	795,200
1953	1281	5,590	Apr. 1, 1953	.3	146	105,900	132	95,390
1954	1341	17,600	May 2, 1954	.3	166	120,400	177	128,000
1955	1391	12,900	May 26, 1955	.5	278	201,600	311	225,000
1956	1441	7,230	May 31, 1956	0	141	102,200	95.9	69,620
1957	1511	20,500	May 19, 1957	.1	1,173	849,000	1,314	951,600
1958	1561	23,300	July 18, 1958	.65	2,185	1,582,000	2,168	1,570,000
1959	1631	15,600	May 23, 1959	103	1,258	911,000	1,601	1,159,000
1960	1711	19,700	Oct. 7, 1959	101	2,004	1,455,000	-	-

1831. Owl Creek near Piqua, Kans.

Location.--Lat 37°51'00", long 95°34'30", in NW¼ sec.29, T.25 S., R.17 E., at downstream side of left pier of highway bridge, 5.4 miles southwest of Piqua and 14 miles upstream from mouth.

Drainage area.--164 sq mi (revised).

Records available.--July 1959 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 950 ft (from topographic map).

Extremes.--1959-60: Maximum discharge, 10,100 cfs July 15, 1959 (gage height, 20.08 ft); no flow at times in 1959.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	673	15.1	7.17	-
1960	457	4.31	6.35	35.6	95.4	295	193	160	45.0	1.97	155	1.69	122

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	41,370	929	427	-
1960	28,090	256	390	2,190	5,490	18,160	11,470	9,850	2,680	121	9,500	100	88,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1959	1631	a10,100	July 15, 1959	-	-	-	-	-
1960	1711	5,440	Oct. 5, 1959	0.6	122	88,300	-	-

a Maximum during period July to September.

1835. Neosho River near Parsons, Kans.

Location.--Lat 37°20'25", long 95°06'32", on north line of sec.21, T.31 S., R.21 E., on downstream side of left pier of bridge on U. S. Highway 160, 0.4 mile upstream from Hickory Creek, 2.7 miles upstream from dam of Kansas Ordnance Plant, 8 miles east of Parsons, and at mile 204.1. Records include flow of Hickory Creek.

Drainage area.--4,905 sq mi (revised), includes that of Hickory Creek.

Records available.--October 1921 to September 1960. Monthly discharge only October 1921, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 810.25 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1929, chain gage at bridge half a mile downstream at datum 0.04 ft lower. Oct. 1, 1929, to Feb. 7, 1935, chain gage at present site and datum.

Average discharge.--39 years (1921-60), 2,367 cfs (1,714,000 acre-ft per year).

Extremes.--1921-60: Maximum discharge, 410,000 cfs July 14, 1951 (gage height, 40.20 ft, from floodmark in gage well); no flow at times in 1934, 1936, 1939, 1955-57.

Remarks.--Small diversion in vicinity.

Monthly and yearly mean discharge, in cubic feet per second, of Neosho River near Parsons, Kans.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	554	246	192	175	540	713	2,269	9,687	11,050	52,780	5,337	15,030	8,290
1952	2,072	3,337	1,081	1,354	1,742	6,156	5,438	1,928	695	202	203	74.6	2,021
1953	19.9	47.8	90.9	79.5	77.9	151	480	450	392	272	11.2	5.01	173
1954	.15	44.5	13.9	14.8	23.9	19.8	788	3,196	847	10.8	.12	209	430
1955	883	50.8	14.1	380	597	669	369	2,240	1,532	532	31.7	427	645
1956	894	6.70	4.40	7.81	25.7	9.08	146	363	592	50.8	53.8	.90	180
1957	0	0	0	0	0	8.10	1,764	8,649	8,829	1,579	119	285	1,774
1958	640	884	379	408	776	8,597	4,026	2,793	3,157	11,310	1,284	2,573	3,092
1959	622	679	286	297	770	637	2,158	4,620	972	6,843	756	522	1,609
1960	7,195	643	517	1,382	2,757	7,361	4,934	3,645	1,680	422	2,110	1,282	2,835

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	34.09	14.62	11.83	10.73	29.97	43.86	135	595.6	657.8	3,245	328.1	894.4	6,001
1952	127.4	198.6	66.46	83.23	100.2	378.5	323.6	118.5	41.34	12.44	12.46	4.44	1,467
1953	1.22	2.84	5.59	4.89	4.33	9.27	28.54	27.64	23.30	16.74	.688	.298	125.3
1954	.0089	.265	.856	.908	1.33	1.22	46.91	196.5	50.41	.664	.0075	12.44	311.5
1955	54.28	3.02	.866	23.36	33.13	41.11	21.98	137.7	91.16	32.7	1.95	25.38	466.6
1956	54.99	.398	.271	.480	1.48	.558	8.69	22.33	35.23	3.13	3.31	.054	130.9
1957	0	0	0	0	0	.498	105	531.8	525.3	97.1	7.34	16.98	1,284
1958	39.33	52.6	23.28	25.07	43.11	528.6	239.6	171.8	187.8	695.6	78.95	153.1	2,239
1959	38.23	40.38	17.56	18.27	42.75	39.17	128.4	284.1	57.85	420.8	46.46	31.09	1,165
1960	442.4	38.25	31.82	84.97	158.6	452.6	293.6	224.1	99.94	25.94	129.8	76.28	2,058

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	2,581	1,869,000
1951	1211	410,000	July 14, 1951	124	8,290	6,001,000	8,748	6,333,000
1952	1241	20,500	Mar. 12, 1952	20	2,021	1,467,000	1,494	1,084,000
1953	1281	4,110	Apr. 2, 1953	.3	173	125,300	161	116,800
1954	1341	27,900	May 4, 1954	.1	430	311,500	509	368,600
1955	1391	18,600	May 28, 1955	0	645	466,600	641	464,100
1956	1441	6,170	June 1, 1956	0	180	130,900	104	75,260
1957	1511	25,000	June 3, 1957	0	1,774	1,284,000	1,933	1,399,000
1958	1561	27,200	July 13, 1958	79	3,092	2,239,000	3,066	2,220,000
1959	1631	22,600	July 15, 1959	141	1,609	1,165,000	2,184	1,581,000
1960	1711	25,500	Oct. 6, 1959	175	2,835	2,058,000	-	-

1840. Lightning Creek near McCune, Kans.

Location.--Lat 37°16'54", long 95°01'56", on north line of sec.7, T.32 S., R.22 E., at downstream side of highway bridge, 5 miles south of McCune, 13 miles southeast of Parsons, and at mile 12.6.

Drainage area.--197 sq mi.

Records available.--October 1938 to September 1946, October 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 818.10 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 10, 1945, staff or wire-weight gage and Mar. 10, 1945, to Sept. 30, 1946, water-stage recorder, all at same site and datum. Oct. 1, 1959, to May 26, 1960, water-stage recorder 100 ft downstream at same datum.

Average discharge.--9 years (1938-46, 1959-60), 160 cfs (115,800 acre-ft per year).

Extremes.--1938-46, 1959-60: Maximum discharge, 23,000 cfs May 19, 1943 (gage height, 17.81 ft), from rating curve extended above 10,000 cfs; no flow at times in most years.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	271	21.9	15.9	38.8	60.8	175	242	207	16.4	0.83	7.31	0.12	88.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	16,650	1,300	980	2,390	3,490	10,780	14,400	12,740	977	51	449	6.9	64,210

1850. Neosho River near Commerce, Okla.

Location.--Lat 36°56', long 94°57', in SW¼SE¼ sec.5, T.28 N., R.22 E., on downstream side of left pier of highway bridge, 1¼ miles upstream from Mud Creek, 1¾ miles downstream from Four Mile Creek, 4½ miles west of Commerce, and at mile 153.4.

Drainage area.--5,876 sq mi.

Records available.--June 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 748.97 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Average discharge.--21 years (1939-60), 3,453 cfs (2,500,000 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 267,000 cfs July 15, 1951, computed by flood-routing method from hydrograph defined at Miami (mile 144.2) by several discharge measurements, gage-height record, and by comparison with computed inflow into Lake O' The Cherokees; maximum gage height, 34.03 ft July 16, 1951, from floodmark; no flow at times.

Maximum stage and discharge known, those in July 1951.

Remarks.--Records of chemical analyses and water temperatures for water years 1947-54 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	676	243	210	202	1,815	994	2,707	10,120	12,710	53,350	5,195	16,930	8,827
1952	3,043	6,251	1,430	1,917	2,343	7,281	5,943	2,181	769	215	210	76.0	2,633
1953	19.1	41.0	103	87.8	86.0	282	810	784	408	314	4.43	1.52	246
1954	1.78	3.64	11.3	17.9	24.9	24.1	812	4,362	1,049	21.1	0	83.0	539
1955	2,898	96.0	40.3	872	1,103	1,080	488	3,597	2,900	689	207	593	1,217
1956	1,990	11.8	9.77	12.1	31.6	11.9	149	395	1,063	183	29.9	2.12	326
1957	0	8.78	10.4	8.60	151	121	3,526	12,220	14,200	1,978	166	292	2,725
1958	622	968	380	415	833	11,130	5,151	3,655	3,693	16,350	1,721	3,304	4,053
1959	671	1,317	333	656	1,593	1,374	2,655	5,236	1,052	8,485	826	881	2,101
1960	10.990	941	955	1,780	3,214	8,028	6,104	5,255	2,152	413	2,371	1,481	3,653

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	41,590	14,450	12,900	12,450	100,800	61,100	161,100	622,200	756,600	3,280,000	319,400	1,008,000	6,391,000
1952	187,100	372,000	87,900	117,900	134,800	447,700	353,700	134,100	45,730	13,250	12,920	4,520	1,912,000
1953	1,180	2,440	6,340	5,400	4,770	17,360	48,200	48,210	24,280	19,330	273	90	177,900
1954	110	217	695	1,100	1,380	1,480	48,330	268,200	62,420	1,290	0	4,940	390,200
1955	178,200	5,710	2,480	53,630	61,260	66,430	29,060	221,200	172,600	42,350	12,700	35,310	880,900
1956	122,400	705	601	746	1,820	729	8,850	24,270	63,270	11,240	1,840	126	236,600
1957	0	521	642	529	8,400	7,450	209,800	751,400	845,100	121,600	10,200	17,350	1,973,000
1958	38,250	57,620	23,370	25,540	46,250	684,700	306,500	224,700	219,700	1,005,000	105,800	196,600	2,934,000
1959	41,260	78,360	20,450	40,350	88,490	84,480	158,000	322,000	62,580	521,700	50,770	52,430	1,521,000
1960	675,800	55,990	58,740	109,500	184,900	493,600	363,200	323,100	128,000	25,400	145,800	88,110	2,652,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3,233	2,340,000
1951	1211	267,000	July 15, 1951	150	8,827	6,391,000	9,626	6,969,000
1952	1241	22,400	Mar. 11, 1952	16	2,633	1,912,000	1,756	1,275,000
1953	1281	4,500	May 13, 1953	0	246	177,900	233	168,900
1954	1341	27,000	May 4, 1954	0	539	390,200	795	575,500
1955	1391	24,800	May 29, 1955	5.9	1,217	880,900	1,130	818,200
1956	1441	13,300	Oct. 5, 1955	0	326	236,600	157	114,100
1957	1511	41,000	June 16, 1957	0	2,725	1,973,000	2,888	2,091,000
1958	1561	39,000	July 14, 1958	44	4,053	2,934,000	4,082	2,919,000
1959	1631	32,200	July 17, 1959	141	2,101	1,521,000	2,999	2,171,000
1960	1711	28,000	Oct. 6, 1959	141	3,653	2,652,000	-	-

1855. Stahl Creek near Miller, Mo.

Location.--Lat 37°11'40", long 93°50'40", in SE¼ sec.26, T.29 N., R.27 W., on downstream side of left abutment of bridge on State Highway 39, 1½ miles south of Miller and 6.4 miles upstream from mouth.

Drainage area.--3.86 sq mi.

Records available.--June 1950 to September 1959, water year 1960 (annual maximum).

Gage.--Crest-stage gage. Datum of gage is 1,184.49 ft above mean sea level, datum of 1929 (State Highway Commission bench mark). Prior to Oct. 1, 1959, water-stage recorder at same site and datum.

Average discharge.--9 years (1950-59), 1.92 cfs (1,390 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 1,150 cfs Oct. 4, 1959 (gage height, 6.75 ft); no flow for many days in most years.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	-	-	0.645	10.4	3.42	-
1951	3.83	0.431	0.436	0.854	10.5	3.37	2.50	0.977	2.34	8.10	.153	.321	2.77
1952	1.62	11.9	2.04	2.59	10.8	4.07	3.20	.495	.093	.002	.150	.028	3.03
1953	0	.109	.329	.338	.473	3.30	4.32	1.35	.087	.001	0	0	.859
1954	0	0	0	0	0	0	†.50	.880	.044	0	0	1.48	.241
1955	7.51	.85	3.06	3.31	4.93	3.85	.79	.45	1.97	.16	0	0	2.23
1956	.20	0	0	0	.02	0	0	.55	5.44	1.38	.05	0	.63
1957	.65	.10	.59	.22	3.58	5.81	11.1	10.9	9.37	3.62	.02	0	3.82
1958	0	0	.21	.13	.24	9.15	4.10	4.65	.19	13.1	.77	.54	2.80
1959	.09	.12	.06	.07	4.16	3.15	1.52	1.29	.16	.07	.03	0	.872
1960													

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	-	-	40	638	203	-
1951	235	26	27	53	582	207	149	60	139	498	9.4	19	2,000
1952	100	207	125	159	619	250	190	30	5.5	.1	9.2	1.7	2,200
1953	0	6.5	20	21	26	203	257	83	5.2	.06	0	0	622
1954	0	0	0	0	0	0	30	54	2.6	0	0	88	175
1955	462	51	188	204	274	237	47	28	117	10	0	0	1,620
1956	12	0	0	0	1.0	0	0	34	324	85	3.2	0	459
1957	40	5.8	36	14	199	357	662	673	558	223	1.0	0	2,770
1958	0	0	13	7.7	13	563	244	286	11	808	48	32	2,030
1959	5.8	7.3	4.0	4.2	231	194	91	79	9.3	4.4	1.6	0	632
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	1177	-	-	-	-	-	-	-	-	-	-
1951	1211	904	July 4, 1951	0.02	2.77	0.718	9.74	2,000	3.66	12.88	2,650
1952	1241	363	Feb. 1, 1952	0	3.03	.785	10.67	2,200	1.78	6.27	1,290
1953	1281	133	Mar. 14, 1953	0	.859	.223	3.02	622	.822	2.89	595
1954	1341	250	Sept.29, 1954	0	.241	.062	.84	175	1.21	4.24	876
1955	1391	497	Oct. 25, 1954	0	2.23	.578	7.85	1,620	1.28	4.51	929
1956	1441	745	June 7, 1956	0	.63	.164	2.24	459	.728	2.58	529
1957	1511	929	July 1, 1957	0	3.82	.990	13.46	2,770	3.73	13.12	2,700
1958	1561	1,010	July 7, 1958	0	2.80	.725	9.83	2,030	2.80	9.86	2,030
1959	1631	308	Feb. 9, 1959	0	.872	.226	3.07	632	-	-	-
1960	1711	1,150	Oct. 4, 1959	-	-	-	-	-	-	-	-

1857. Spring River at Larussell, Mo.

Location.--Lat 37°09'15", long 94°03'20", on line between SE¼ sec.11 and SW¼ sec.12, T.28 N., R.29 W., on downstream handrail of Bower Mills Bridge, three-quarters of a mile north of Larussell and 2½ miles upstream from Cave Spring Branch.

Drainage area.--306 sq mi.

Records available.--April 1957 to September 1960.

Gage.--Wire-weight gage. Altitude of gage is 1,030 ft (from topographic map).

Extremes.--1957-60: Maximum discharge, 8,190 cfs June 9, 1957 (gage height, 13.50 ft); minimum, 26 cfs Sept. 12, 13, 1959 (gage height, 3.87 ft).

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	1,184	1,481	597	193	121	-
1958	81.7	85.6	126	106	78.9	444	444	404	189	423	216	111	227
1959	67.6	58.5	52.3	51.6	110	182	133	129	76.7	56.6	39.5	92.4	87.2
1960	865	331	225	200	164	231	192	267	147	83.6	76.0	37.4	236

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	72,820	88,110	36,710	11,840	7,180	-
1958	5,030	5,100	7,740	6,540	4,380	27,300	26,440	24,830	11,230	26,030	13,310	6,630	164,600
1959	4,160	3,480	3,210	3,170	6,130	11,190	7,890	7,960	4,560	3,480	2,430	5,500	63,160
1960	53,180	19,700	13,840	12,280	9,410	14,230	11,420	16,390	8,730	5,140	4,670	2,230	171,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1957	1511	8,190	June 9, 1957	-	-	-	-	-	-	-	-
1958	1561	2,220	Mar. 24, 1958	61	227	0.742	10.08	164,600	218	9.65	157,500
1959	1631	1,890	Sept. 28, 1959	26	87.2	.285	3.87	63,160	192	8.53	139,000
1960	1711	6,160	Oct. 4, 1959	34	236	.771	10.49	171,200	-	-	-

1860. Spring River near Waco, Mo.

Location.--Lat 37°14'45", long 94°33'55", on line between SE¼ sec.7 and NE¼ sec.18, T.29 N., R.33 W., on left bank on downstream side of left pier of county highway bridge, three-quarters of a mile downstream from Blackberry Creek, 1½ miles east of Waco, and 47.6 miles upstream from mouth.

Drainage area.--1,164 sq mi.

Records available.--April 1924 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 833.23 ft above mean sea level, datum of 1929. Prior to Oct. 6, 1934, chain gage and Oct. 6, 1934, to Feb. 22, 1935, wire-weight gage, at same site and datum.

Average discharge.--36 years (1924-60), 859 cfs (621,900 acre-ft per year).

Extremes.--1924-60: Maximum discharge, 103,000 cfs May 19, 1943 (gage height, 30.94 ft, from floodmark); minimum, 4.2 cfs Aug. 28, 1954; minimum gage height, 0.80 ft July 24, 1934.

Remarks.--Low flow regulated by gristmills above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	492	192	132	150	3,108	1,095	806	536	1,503	3,068	299	2,271	1,121
1952	835	3,336	726	743	2,874	1,057	766	310	175	165	243	83.4	931
1953	55.2	71.6	73.8	71.1	83.5	363	757	345	105	86.9	41.1	27.5	173
1954	28.9	30.5	37.9	30.7	32.1	33.6	47.2	279	73.4	15.2	7.71	119	61.4
1955	1,624	260	483	732	1,178	1,022	397	506	1,738	312	145	90.4	704
1956	325	60.1	41.9	38.5	51.0	33.7	38.2	156	524	249	64.7	22.0	134
1957	21.0	74.6	96.3	62.6	286	744	2,576	4,564	5,388	1,025	216	145	1,266
1958	101	98.9	163	133	122	1,724	1,137	839	388	3,490	492	364	762
1959	109	232	87.7	199	750	1,301	347	188	122	190	101	132	311
1960	3,955	902	817	547	430	1,027	550	1,400	400	120	98.1	41.0	864

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	30,220	11,440	8,130	9,220	172,600	67,340	47,950	32,940	89,450	188,600	18,400	135,200	811,500
1952	51,340	198,500	44,660	45,710	165,300	64,990	45,590	19,080	10,410	10,130	14,960	4,960	675,600
1953	3,400	4,260	4,540	4,370	4,640	22,300	45,060	21,240	6,280	5,340	2,530	1,630	125,600
1954	1,780	1,810	2,330	1,890	1,780	2,060	2,810	17,130	4,370	936	474	7,080	44,450
1955	99,850	15,450	29,680	45,020	65,440	62,860	23,640	31,110	103,400	19,190	8,940	5,380	510,000
1956	20,010	3,580	2,570	2,370	2,930	2,070	2,270	9,570	31,150	15,280	3,980	1,310	97,090
1957	1,290	4,440	5,920	3,850	15,860	45,750	153,300	280,700	320,600	63,020	13,300	8,650	916,700
1958	6,220	5,880	10,040	8,210	6,750	106,000	67,660	51,560	23,090	214,600	30,240	21,640	551,900
1959	6,710	13,830	5,390	12,260	41,640	79,980	20,640	11,560	7,260	11,660	6,200	7,880	225,000
1960	243,200	53,700	50,260	33,660	24,710	63,170	32,700	86,070	23,780	7,350	6,030	2,440	627,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,177	13.72	852,300
1951	1211	19,200	Feb. 21, 1951	85	1,121	0.963	13.07	811,500	1,459	17.02	1,056,000
1952	1241	20,700	Feb. 2, 1952	57	931	.800	10.89	675,600	542	6.33	393,300
1953	1281	3,710	Apr. 24, 1953	11	173	.149	2.02	125,600	165	1.93	119,300
1954	1341	4,160	Sept.30, 1954	4.5	61.4	.053	.73	44,450	253	2.97	183,500
1955	1391	16,000	June 28, 1955	17	704	.605	8.22	510,000	540	6.30	391,100
1956	1441	3,680	May 31, 1956	14	134	.115	1.56	97,090	114	1.33	82,580
1957	1511	34,500	June 9, 1957	8.0	1,266	1.09	14.77	916,700	1,281	14.93	927,200
1958	1561	13,800	July 12, 1958	65	762	.655	8.89	551,900	768	8.96	555,700
1959	1631	12,200	Mar. 5, 1959	21	311	.267	3.64	225,000	754	8.82	546,200
1960	1711	22,400	Oct. 3, 1959	29	864	.742	10.12	627,100	-	-	-

1870. Shoal Creek above Joplin, Mo.

Location.--Lat 37°00'45", long 94°28'45", in NE¼ sec.1, T.26 N., R.33 W., on left bank at downstream side of second pier from left end of bridge on U. S. Highway 71, 4 miles southeast of Joplin, 6 miles downstream from Baynham Branch, and 15.0 miles upstream from mouth.

Drainage area.--410 sq mi.

Records available.--October 1941 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 902.37 ft above mean sea level, datum of 1929 (levels by State Highway Commission).

Average discharge.--19 years (1941-60), 410 cfs (296,800 acre-ft per year).

Extremes.--1941-60: Maximum discharge, 62,100 cfs May 18, 1943 (gage height, 16.8 ft); minimum, 12 cfs Sept. 7, 1954; minimum gage height, 2.94 ft Aug. 30, 1942.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	476	243	185	166	1,019	640	375	338	542	1,011	266	267	457
1952	216	691	374	305	411	553	527	325	185	129	287	124	343
1953	98.9	111	101	102	98.4	333	443	287	142	108	68.5	47.0	162
1954	54.4	58.6	64.1	61.3	63.4	57.9	56.0	211	81.4	47.0	37.1	141	77.8
1955	450	165	154	283	395	672	305	249	491	342	152	97.8	313
1956	250	95.1	72.9	65.2	76.6	62.5	108	319	424	237	104	63.0	157
1957	48.3	72.8	85.4	77.0	204	420	1,604	2,755	1,969	548	250	186	686
1958	141	129	137	115	104	539	550	577	350	858	364	193	340
1959	146	123	107	101	140	279	212	288	226	168	85.6	190	172
1960	1,709	435	233	250	221	280	278	501	279	181	134	91.1	385

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	29,280	14,490	11,380	10,190	56,620	39,320	22,300	20,780	32,240	62,160	16,330	15,870	331,000
1952	13,260	41,110	23,030	18,780	23,630	34,030	31,360	19,980	11,040	7,930	17,670	7,400	249,200
1953	6,080	6,590	6,210	6,290	5,460	20,470	26,360	17,650	8,420	6,620	4,210	2,790	117,200
1954	3,340	3,480	3,940	3,770	3,520	3,560	3,330	12,960	4,840	2,890	2,280	8,410	56,320
1955	27,670	9,810	9,440	17,400	21,940	41,300	18,150	15,280	29,230	21,010	9,340	5,820	226,400
1956	15,360	5,660	4,480	4,010	4,410	3,840	6,400	19,640	25,240	14,540	6,420	3,750	113,800
1957	2,970	4,330	5,250	4,740	11,340	25,830	95,440	169,400	117,200	33,720	15,370	11,060	496,600
1958	8,650	7,700	8,410	7,040	5,760	33,170	32,700	35,500	20,840	52,760	22,370	11,480	246,400
1959	8,970	7,340	6,570	6,210	7,800	17,140	12,630	17,700	13,430	10,310	5,270	11,340	124,700
1960	105,100	25,880	14,350	15,390	12,690	17,220	16,530	30,820	16,620	11,130	8,270	5,420	279,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	710	23.49	513,900
1951	1211	10,900	June 30, 1951	110	457	1.11	15.14	331,000	488	16.16	353,200
1952	1241	3,110	Aug. 22, 1952	100	343	.837	11.39	249,200	263	8.71	190,700
1953	1281	1,300	Mar. 15, 1953	39	162	.395	5.37	117,200	151	5.00	109,000
1954	1341	4,150	Sept.30, 1954	15	77.8	.190	2.55	56,320	128	4.21	92,480
1955	1391	7,740	Mar. 21, 1955	55	313	.763	10.37	226,400	283	9.39	205,000
1956	1441	7,740	May 16, 1956	40	157	.383	5.20	113,800	139	4.61	100,800
1957	1511	16,100	June 10, 1957	38	686	1.67	22.72	496,600	703	23.27	508,900
1958	1561	8,100	July 26, 1958	94	340	.829	11.25	246,400	338	11.17	244,500
1959	1631	4,710	Sept.29, 1959	58	172	.420	5.70	124,700	341	11.30	247,200
1960	1711	26,500	Oct. 2, 1959	84	385	.939	12.79	279,400	-	-	-

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1880. Spring River near Quapaw, Okla.

Location.--Lat 36°56', long 94°45', in center of SW¼ sec.5, T.28 N., R.24 E., near center of span on downstream side of pier of highway bridge, an eighth of a mile upstream from Rock Creek, 3 miles southeast of Quapaw, and at mile 13.9. Records include flow of Rock Creek.

Drainage area.--2,510 sq mi, includes that of Rock Creek.

Records available.--July 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 746.25 ft above mean sea level, datum of 1929. Flood in May 1943 damaged gage structure; staff gage on right bank at same datum was used May 20 to Nov. 16, 1943.

Average discharge.--21 years (1939-60), 2,017 cfs (1,460,000 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 190,000 cfs May 19, 1943 (gage height, 43.4 ft, from floodmark), from rating curve extended above 54,000 cfs on basis of slope-area measurement of peak flow; minimum daily, 5.8 cfs July 8, 1954.

Flood in December 1895 reached a stage similar to that of May 19, 1943, from information by local residents.

Remarks.--Low and medium flow regulated by Riverton hydroelectric plant, 15 miles above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,691	584	419	440	6,010	2,375	1,660	1,485	3,630	7,048	806	4,242	2,504
1952	1,781	6,824	1,695	1,636	5,231	2,748	1,765	902	477	377	655	238	2,003
1953	170	221	217	200	234	913	1,864	911	264	233	98.6	76.0	450
1954	96.5	111	130	126	129	123	169	894	233	34.3	29.3	215	191
1955	3,885	649	943	1,621	2,194	2,330	977	1,387	3,415	1,022	678	376	1,621
1956	1,055	213	178	155	184	125	241	507	1,867	962	212	86.7	482
1957	75.8	208	244	186	865	1,716	7,297	11,370	12,140	1,861	521	399	3,070
1958	304	325	400	341	318	3,686	2,513	1,850	1,116	8,028	1,191	920	1,767
1959	341	779	287	538	1,542	2,623	910	727	481	909	265	793	845
1960	11,000	2,070	1,716	1,355	1,025	2,081	1,367	3,216	1,017	388	387	176	2,167

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	104,000	34,770	25,780	27,030	333,800	146,100	98,800	91,320	216,000	433,400	49,550	252,400	1,813,000
1952	109,500	406,100	104,200	100,600	300,900	169,000	105,000	55,470	28,390	20,750	40,300	14,150	1,454,000
1953	10,460	13,180	13,320	12,300	12,990	56,130	110,900	55,990	15,730	14,330	6,060	4,520	325,900
1954	5,930	6,610	8,020	7,770	7,160	7,570	10,040	54,950	13,870	2,110	1,800	12,790	138,600
1955	238,900	38,590	58,000	99,700	121,900	143,300	58,120	85,270	203,200	62,860	41,710	22,360	†1,174,000
1956	64,900	12,660	10,960	9,530	10,580	7,660	14,350	31,150	111,100	59,130	13,050	5,160	350,200
1957	4,660	12,390	15,020	11,440	48,050	105,500	434,200	598,900	722,500	114,400	32,020	23,730	2,223,000
1958	18,700	19,350	24,590	20,940	17,640	226,600	149,600	113,800	66,430	493,600	73,260	54,740	1,279,000
1959	21,000	46,330	17,640	33,090	85,640	161,300	54,150	44,730	28,650	55,910	16,290	47,200	611,900
1960	676,300	123,200	105,500	83,290	58,990	127,900	81,370	197,800	60,490	23,870	23,790	10,450	1,573,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,862	15.48	2,072,000
1951	1211	33,800	Feb. 21, 1951	248	2,504	0.998	13.54	1,813,000	3,133	16.94	2,268,000
1952	1241	28,900	Feb. 3, 1952	140	2,003	.798	10.86	1,454,000	1,201	6.51	871,500
1953	1281	11,500	Apr. 24, 1953	42	450	.179	2.45	325,900	428	2.32	309,500
1954	1341	9,400	Sept.30, 1954	5.8	191	.076	1.04	138,600	626	3.39	453,600
1955	1391	29,800	June 28, 1955	116	1,621	.646	8.76	†1,174,000	1,280	6.91	926,900
1956	1441	12,700	July 24, 1956	36	482	.192	2.61	350,200	405	2.19	293,800
1957	1511	56,000	June 11, 1957	36	3,070	1.22	16.59	2,223,000	3,113	16.82	2,253,000
1958	1561	36,000	July 25, 1958	193	1,767	.704	9.56	1,279,000	1,798	9.74	1,302,000
1959	1631	20,200	Mar. 5, 1959	104	845	.337	4.56	611,900	1,978	10.68	1,432,000
1960	1711	49,600	Oct. 3, 1959	130	2,167	.863	11.76	1,573,000	-	-	-

† Corrected.

1885. Lost Creek at Seneca, Mo.

Location.--Lat 36°50'28", long 94°36'30", in SE¼SE¼ sec.35, T.25 N., R.34 W., on left bank on downstream side of Seneca Street Bridge in Secenca, half a mile upstream from Little Lost Creek and 9½ miles upstream from mouth.

Drainage area.--42 sq mi.

Records available.--October 1948 to September 1959. Annual maximum and occasional low-flow measurements, water year 1960.

Gage.--Crest-stage gage. Datum of gage is 839.96 ft above mean sea level, datum of 1959. Prior to Oct. 1, 1959, water-stage recorder at same datum.

Average discharge.--11 years (1948-59), 28.1 cfs (20,340 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 20,000 cfs Oct. 2, 1959 (gage height, 12.98 ft), result of field estimate.
1948-59: Minimum discharge, 0.1 cfs Sept. 5, 1954.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	53.2	17.5	11.6	11.3	90.3	53.1	33.7	34.5	104	94.7	17.5	20.7	44.8
1952	18.5	69.6	31.1	21.9	30.1	51.2	34.5	35.9	15.6	9.07	9.67	6.00	27.7
1953	5.15	6.52	5.87	5.03	5.05	22.0	45.1	27.4	11.0	6.92	4.02	3.48	12.3
1954	3.68	5.22	4.29	3.78	4.12	4.43	3.65	11.3	5.98	1.55	1.16	4.66	4.48
1955	25.4	11.5	7.96	17.4	20.8	40.7	23.5	15.1	32.9	32.2	6.72	5.60	20.0
1956	13.1	5.62	5.29	4.53	4.61	3.15	5.13	7.40	8.85	6.20	2.50	1.02	5.62
1957	1.27	3.06	3.55	3.01	9.44	30.2	151	300	195	33.5	13.0	8.68	62.7
1958	7.62	7.99	10.1	8.65	8.56	71.0	51.5	33.6	25.8	94.0	35.9	15.5	31.1
1959	10.0	8.88	6.82	6.51	14.5	50.4	33.6	35.9	18.9	25.0	10.2	26.8	20.7
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,270	1,040	716	697	5,020	3,260	2,010	2,120	6,180	5,820	1,070	1,230	32,430
1952	1,140	4,140	1,910	1,350	1,730	3,150	2,050	2,210	928	558	595	357	20,120
1953	316	388	361	309	280	1,350	2,680	1,680	656	425	247	207	8,900
1954	227	311	264	233	229	272	217	692	356	95	71	277	3,240
1955	1,560	686	490	1,070	1,160	2,500	1,400	926	1,950	1,980	413	333	14,470
1956	803	335	325	279	265	193	305	455	527	381	154	61	4,080
1957	78	182	219	185	524	1,850	8,980	18,440	11,590	2,060	798	517	45,420
1958	468	475	619	532	476	4,360	3,060	2,070	1,530	5,780	2,210	922	22,500
1959	615	529	420	400	807	3,100	2,000	2,210	1,130	1,540	626	1,600	14,980
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	48.0	15.50	34,750
1951	1211	4,600	June 30, 1951	9.2	44.8	1.07	14.49	32,430	47.8	15.46	34,600
1952	1241	472	May 23, 1952	4.6	27.7	.660	8.98	20,120	21.8	6.24	13,990
1953	1281	107	Apr. 24, 1953	2.8	12.3	.292	3.97	8,900	11.9	3.86	8,640
1954	1341	274	Sept.30, 1954	.3	4.48	.107	1.44	3,240	7.16	2.31	5,180
1955	1391	296	Oct. 26, 1954	3.9	20.0	.476	6.48	14,470	18.2	5.91	13,200
1956	1441	132	May 31, 1956	.6	5.62	.134	1.84	4,080	4.27	1.39	3,100
1957	1511	5,760	May 25, 1957	.6	62.7	1.49	20.28	45,420	64.2	20.77	46,510
1958	1561	1,420	July 25, 1958	6.3	31.1	.740	10.04	22,500	31.1	10.04	22,500
1959	1631	555	Sept.30, 1959	5.1	20.7	.493	6.68	14,980	-	-	-
1960	-	‡20,000	Oct. 2, 1959	-	-	-	-	-	-	-	-

‡ Not previously published.

1890. Elk River near Tiff City, Mo.

Location.--Lat 36°38', long 94°35', in NE¼ sec.22, T.22 N., R.34 W., on right bank 100 ft downstream from bridge on State Highway 43, three-quarters of a mile downstream from Blackfoot Branch, 2¾ miles upstream from Buffalo Creek, 3 miles southeast of Tiff City, and at mile 15.8.

Drainage area.--872 sq mi.

Records available.--October 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 750.61 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Sept. 6, 1960, water-stage recorder at site 100 ft upstream at same datum.

Average discharge.--21 years (1939-60), 820 cfs (593,700 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 137,000 cfs Apr. 19, 1941 (gage height, 28.4 ft, from floodmark), from rating curve extended above 60,000 cfs on basis of slope-area measurement of peak flow; minimum daily, 5.1 cfs Sept. 5, 6, 1954.
Maximum stage known, that of Apr. 19, 1941.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	670	243	179	262	2,971	1,510	931	625	858	1,245	234	419	831
1952	484	1,826	744	649	1,110	1,526	1,388	440	195	104	744	167	778
1953	86.1	120	140	143	164	1,310	1,270	685	166	88.9	46.8	30.9	356
1954	45.8	57.3	65.5	63.9	70.7	91.9	156	906	78.6	14.3	12.0	44.2	135
1955	211	117	267	417	1,160	1,242	536	862	1,400	544	109	52.8	572
1956	193	71.3	64.5	58.1	107	75.7	145	2,280	383	286	81.4	50.0	319
1957	25.7	106	285	233	753	1,060	4,039	6,428	3,742	742	178	128	1,477
1958	97.0	184	168	166	214	1,834	1,131	2,478	483	1,785	606	198	786
1959	128	163	136	136	243	766	813	1,377	441	258	128	130	395
1960	1,181	640	319	479	497	821	1,036	2,543	873	531	239	90.8	773

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	41,180	14,460	10,980	16,090	165,000	92,850	55,420	38,410	51,060	76,560	14,400	24,950	601,400
1952	29,750	108,600	45,720	39,900	63,870	93,800	82,580	27,030	11,590	6,380	45,740	9,940	564,900
1953	5,290	7,130	8,630	8,770	9,080	80,640	75,630	42,130	9,890	5,470	2,880	1,840	257,400
1954	2,810	3,410	4,030	3,930	3,930	5,650	9,250	55,690	4,680	882	736	2,630	97,630
1955	12,980	6,970	16,420	25,630	64,420	†76,340	31,860	52,990	83,320	33,430	6,720	3,140	414,200
1956	11,870	4,240	3,970	3,570	6,140	4,650	8,650	140,200	22,810	17,570	5,010	2,970	231,600
1957	1,580	6,290	17,510	14,330	41,840	65,190	240,400	395,200	222,600	45,600	10,940	7,610	1,069,000
1958	5,960	10,940	10,350	10,190	11,880	112,800	67,310	152,400	28,720	109,800	37,230	11,770	569,400
1959	7,880	9,700	8,350	8,340	13,520	47,090	48,400	84,690	26,220	15,870	7,870	7,750	285,700
1960	72,600	38,110	19,600	29,480	28,580	50,450	61,640	156,400	51,960	32,630	14,680	5,400	561,500

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,451	22.59	1,050,000
1951	1211	22,000	Feb. 19, 1951	131	831	0.953	12.96	601,400	993	15.48	718,800
1952	1241	10,300	Aug. 22, 1952	66	778	.892	12.15	564,900	554	8.64	401,900
1953	1281	7,270	Mar. 15, 1953	20	356	.408	5.54	257,400	341	5.31	246,600
1954	1341	9,030	May 3, 1954	5.1	135	.155	2.10	97,630	171	2.66	123,700
1955	1391	16,100	Feb. 20, 1955	26	572	.656	8.91	414,200	550	8.57	337,900
1956	1441	49,900	May 15, 1956	24	319	.366	4.99	231,600	326	5.10	237,000
1957	1511	70,800	May 21, 1957	18	1,477	1.69	23.00	1,069,000	1,479	23.04	1,071,000
1958	1561	26,000	July 26, 1958	88	786	.901	12.26	569,400	785	12.23	568,000
1959	1631	8,320	May 18, 1959	47	395	.453	6.14	285,700	539	8.38	390,100
1960	1711	10,900	May 21, 1960	75	773	.886	12.07	561,500	-	-	-

1900. Lake O' The Cherokees at Langley, Okla.

Location.--Lat 36°28', long 95°02', in SW¼ sec.14, T.23 N., R.21 E., on upstream side of pier at intake structure near right end of Pensacola Dam on Neosho River at Langley, 5 miles east of Pensacola, 9.9 miles upstream from Big Cabin Creek, and at mile 77.0.

Drainage area.--10,298 sq mi.

Records available.--March 1940 to September 1960. Prior to October 1941, published as Grand Lake at Langley.

Gage.--Water-stage recorder. Datum of gage is 1.10 ft above mean sea level, datum of 1929, (Corps of Engineers bench mark). Prior to Nov. 14, 1941, staff or wire-weight gage on handrail at same site and datum.

Extremes.--1940-60: Maximum contents, 2,213,000 acre-ft May 25, 1957 (gage height, 755.27 ft); minimum observed since power-pool stage was first reached, 642,900 acre-ft Sept. 28, 1954 (gage height, 713.41 ft).

Remarks.--Reservoir is formed by multiple-arch concrete dam, with top of taintor-type spillway gates at gage height 755.0 ft. Storage began Mar. 21, 1940; power-pool stage was first reached Apr. 19, 1941. Capacity between gage heights 682.0 (sill of powerhouse penstock) and 745.0 ft (maximum power pool) is 1,492,000 acre-ft. Capacity between gage heights 745.0 and 755.0 ft is 525,000 acre-ft and is reserved for flood control. Dead storage below gage height 682.0 ft is 180,200 acre-ft. Reservoir is utilized for power development and flood control. Figures given herein represent total contents.

Contents, in thousands of acre-feet, on last day of month, of Lake O' The Cherokees at Langley, Okla.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	1,551	1,427	1,318	1,220	1,679	1,633	1,654	1,676	2,008	1,678	1,670	1,686
1952	1,680	1,676	1,584	1,559	1,626	1,664	1,675	1,604	1,428	1,285	1,291	1,178
1953	1,046	975.0	910.5	850.7	809.3	909.4	987.0	925.1	823.2	789.0	754.6	747.8
1954	763.9	760.0	718.2	728.3	713.9	693.8	730.5	933.1	822.4	704.6	660.7	647.0
1955	1,053	1,009	1,009	1,001	1,159	1,362	1,324	1,575	1,726	1,517	1,438	1,326
1956	1,348	1,268	1,138	1,118	1,112	1,086	1,090	1,185	1,260	1,226	1,138	1,086
1957	1,082	1,094	1,087	1,079	1,093	1,193	1,727	1,895	1,875	1,513	1,411	1,311
1958	1,288	1,290	1,250	1,249	1,234	1,679	1,568	1,577	1,633	1,690	1,416	1,298
1959	1,261	1,246	1,214	1,238	1,245	1,311	1,528	1,631	1,635	1,642	1,409	1,371
1960	1,659	1,351	1,288	1,258	1,253	1,527	1,599	1,652	1,610	1,561	1,426	1,298

1905. Neosho River near Langley, Okla.
(Below Spring River, known locally as Grand River)

Location.--Lat 36°26', long 95°03', in SW¼NW¼ sec.27, T.23 N., R.21 E., near left bank on downstream side of pier of bridge on State Highway 82, 1½ miles southwest of Langley, 4.1 miles downstream from Pensacola Dam, 5.8 miles upstream from Big Cabin Creek, and at mile 72.9.

Drainage area.--10,335 sq mi.

Records available.--October 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 607.65 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Feb. 16, 1940, staff gage at site 0.6 mile upstream at same datum. Feb. 16, 1940, to Feb. 9, 1954, water-stage recorder at site 0.5 mile upstream at same datum.

Average discharge.--21 years (1939-60), 6,966 cfs (5,043,000 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 300,000 cfs May 20, 1943 (gage height, 45.5 ft, site then in use, from floodmark), from computation of outflow from Lake O' The Cherokees; minimum daily, 9 cfs Mar. 25, 1940 (caused by closure of Pensacola Dam).
Maximum stage known, that of May 20, 1943.

Remarks.--Flow regulated since 1940 by Lake O' The Cherokees (see preceding station). Records of chemical analyses and water temperatures for the period May 1956 to September 1959 are published in reports of Geological Survey.

Corrections.--In WSP 1311, the monthly runoff for May 1943 and July 1947 are listed in error; they should be 4,778,000 and 287,800 acre-ft, respectively.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,345	3,059	2,466	2,699	5,423	6,502	5,239	11,740	14,090	67,920	5,930	21,320	12,720
1952	5,951	16,120	5,740	5,000	8,549	11,640	9,458	5,088	3,930	1,654	1,654	2,019	6,449
1953	2,031	1,533	1,439	1,402	1,297	1,682	4,238	4,082	2,340	1,171	523	771	1,820
1954	812	159	843	144	559	594	799	3,870	3,351	1,756	568	118	1,074
1955	811	1,691	1,482	3,339	2,064	2,542	2,897	2,148	5,481	5,539	2,097	2,905	2,750
1956	3,127	1,566	2,429	584	567	585	628	2,176	2,104	1,761	1,433	630	1,473
1957	580	630	739	586	1,805	2,006	10,490	33,720	32,490	10,060	2,425	2,522	8,096
1958	1,283	1,491	1,822	1,143	1,771	11,940	11,610	8,577	4,498	29,490	8,270	6,329	7,413
1959	1,637	2,518	1,256	1,098	3,734	5,130	1,207	7,006	2,063	10,460	4,694	3,500	3,706
1960	24,360	9,484	4,971	4,815	5,290	7,265	8,555	12,760	5,251	2,674	5,037	3,625	7,867

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	328.7	182.0	151.6	166.0	301.2	399.8	311.7	721.7	838.4	4,176	364.6	1,268	9,210
1952	365.9	959.0	352.9	307.4	491.7	716.0	562.8	312.9	233.9	157.0	101.7	120.1	4,681
1953	124.9	91.24	88.49	86.22	72.05	103.4	252.2	251.0	139.2	72.03	32.13	4.59	1,317
1954	4.99	9.47	51.86	8.87	31.02	36.51	47.57	238.0	199.4	108.0	34.9	7.04	777.6
1955	49.84	100.6	91.15	205.3	114.6	156.3	172.4	132.1	326.1	340.6	128.9	172.9	1,991
1956	192.3	93.18	149.3	34.91	32.62	35.94	37.39	133.8	125.2	108.3	88.14	37.48	1,070
1957	3.62	3.75	45.46	36.03	100.3	123.3	624.5	2,073	1,933	618.6	149.1	150.1	5,861
1958	78.91	88.72	112.0	70.28	98.36	733.9	691.0	527.4	267.7	1,813	508.4	376.6	5,366
1959	100.7	149.8	77.41	67.52	207.2	315.4	71.83	430.8	122.7	643.0	288.6	208.3	2,683
1960	1,498	564.4	305.7	296.0	304.3	446.7	509.1	784.4	312.5	164.4	309.7	215.7	5,711

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	8,490	6,146,000
1951	1211	158,000	July 18, 1951	349	12,720	9,210,000	14,120	10,230,000
1952	1241	58,700	Nov. 13, 1951	112	6,449	4,681,000	4,557	3,308,000
1953	1281	10,200	Apr. 22, 1953	60	1,820	1,317,000	1,491	1,079,000
1954	1341	10,700	July 7, 1954	50	1,074	777,600	1,316	952,900
1955	1391	33,900	June 30, 1955	50	2,750	1,991,000	3,017	2,184,000
1956	1441	10,700	Dec. 7, 1955	61	1,473	1,070,000	947	687,600
1957	1511	180,000	May 25, 1957	54	8,096	5,861,000	8,409	6,088,000
1958	1561	62,800	July 13, 1958	60	7,413	5,366,000	7,479	5,415,000
1959	1631	35,000	July 19, 1959	95	3,706	2,683,000	6,524	4,723,000
1960	1711	54,400	Oct. 14, 1959	103	7,867	5,711,000	-	-

1910. Big Cabin Creek near Big Cabin, Okla.

Location.--Lat 36°31', long 95°08', in NW¼SE¼ sec.35, T.24 N., R.20 E., on downstream side of right pier of highway bridge, 2 1/3 miles upstream from Mustang Creek, 5 miles southeast of Big Cabin, and 8.5 miles upstream from mouth.

Drainage area.--466 sq mi.

Records available.--October 1947 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 622.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--13 years (1947-60), 309 cfs (223,700 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 52,000 cfs Oct. 3, 1959 (gage height, 34.55 ft); minimum, 0.1 cfs Oct. 4, 5, 1954, Sept. 12-17, 26-28, Oct. 4-9, 1956.
Maximum stage known, 34.96 ft May 18, 1943 (discharge, 63,000 cfs, by slope-area measurement of peak flow).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	398	11.8	8.20	23.8	978	325	153	206	1,140	1,330	7.36	306	403
1952	340	964	108	152	261	559	270	198	15.0	1.81	43.8	1.48	242
1953	.79	2.38	1.61	2.17	1.66	111	690	259	4.94	21.3	1.80	.99	91.3
1954	6.34	1.11	2.39	1.29	1.50	8.59	30.0	339	154	.53	.41	.22	45.9
1955	98.2	6.22	21.7	29.5	96.5	323	46.0	145	126	14.2	65.0	35.0	84.0
1956	162	.89	1.52	1.40	1.83	1.37	128	63.9	72.1	18.7	1.09	.62	37.9
1957	.22	5.43	7.72	3.16	64.4	145	1,731	3,477	2,387	63.2	2.81	3.56	658
1958	1.27	7.69	7.99	25.1	10.9	1,281	216	173	64.6	1,947	25.3	68.5	324
1959	2.25	33.0	4.73	45.2	255	572	94.3	362	17.4	1,254	12.8	878	295
1960	4,250	306	568	336	196	509	257	890	135	17.7	61.5	2.54	635

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24,480	703	504	1,460	54,320	19,960	9,100	12,640	67,830	81,780	452	18,210	291,400
1952	20,880	57,350	6,610	9,370	15,000	34,370	16,070	12,190	895	111	2,690	88	175,600
1953	49	142	99	133	92	6,840	41,050	15,950	294	1,310	111	59	66,130
1954	390	66	147	79	83	528	1,780	20,870	9,190	33	25	13	33,200
1955	6,040	370	1,330	1,820	5,360	19,840	2,740	8,920	7,480	871	3,990	2,090	60,850
1956	9,970	53	93	86	105	84	7,630	3,930	4,290	1,150	67	37	27,500
1957	13	323	475	194	3,580	8,890	103,000	213,800	142,000	3,890	173	212	476,600
1958	78	458	492	1,540	608	78,760	12,830	10,660	3,840	119,700	1,560	4,070	234,600
1959	139	1,970	291	2,780	14,140	35,170	5,610	22,250	1,040	77,080	787	52,230	213,500
1960	261,400	18,210	34,920	20,630	11,300	31,330	15,290	54,750	8,020	1,090	3,780	151	460,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	388	11.31	281,200
1951	1211	40,700	June 30, 1951	2.2	403	0.865	11.73	291,400	484	14.12	350,600
1952	1241	6,920	Mar. 11, 1952	.8	242	.519	7.08	175,600	125	3.67	91,070
1953	1281	9,670	Apr. 24, 1953	.6	91.3	.196	2.66	66,130	91.8	2.67	66,440
1954	1341	3,930	May 1, 1954	.2	45.9	.098	1.34	33,200	55.7	1.61	40,340
1955	1391	7,880	Mar. 21, 1955	.1	84.0	.180	2.44	60,850	87.3	2.55	63,230
1956	1441	4,350	Apr. 15, 1956	.1	37.9	.081	1.11	27,500	25.1	.73	18,190
1957	1511	25,500	May 25, 1957	.1	658	1.41	19.16	476,600	659	19.18	476,800
1958	1561	33,900	July 13, 1958	1.0	324	.695	9.43	234,600	326	9.49	236,000
1959	1631	17,800	Sept.30, 1959	.8	295	.633	8.60	213,500	726	21.15	525,600
1960	1711	52,000	Oct. 3, 1959	.9	635	1.36	18.53	460,900	-	-	-

1912. Spavinaw Creek near Row, Okla.

Location.--Lat 36°19'50", long 94°32'30", in NW¼ sec.3, T.21 N., R.25 E., on downstream side of right bank pier of county highway bridge, 2¾ miles upstream from Cherokee Creek, 5 miles northeast of Row, 6 miles northeast of Colcord, and at mile 36.0.

Drainage area.--128 sq mi (revised).

Records available.--March 1959 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 880 ft (from topographic map).

Extremes.--1959-60: Maximum discharge, 7,530 cfs (revised) May 6, 1960 (gage height, 8.33 ft), from rating curve extended above 4,000 cfs; no flow at times in each year.

Monthly and yearly mean discharge, in cubic feet per second, of Spavinaw Creek near Row, Okla.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	71.3	120	82.4	6.18	18.6	0.84	0	-
1960	138	81.9	6.27	25.9	21.1	93.2	156	457	45.7	42.3	9.25	0	90.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	4,380	7,160	5,070	368	1,140	52	0	-
1960	8,470	4,870	386	1,600	1,220	5,730	9,270	28,110	2,720	2,600	569	0	65,540

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1959	1631	690	Apr. 1, 1959	-	-	-	-	-		-	-	-
1960	1711	*7,530	May 8, 1960	0	90.3	0.711	9.68	65,540		-	-	-

* Revised.

1920. Pryor Creek near Pryor, Okla.

Location.--Lat 36°17', long 95°20', in SW¼ sec.19, T.21 N., R.19 E., on right bank at downstream side of bridge on U. S. Highway 69, 1¾ miles south of Pryor, 2 miles downstream from Seminole Creek, and 10.5 miles upstream from mouth.

Drainage area.--229 sq mi.

Records available.--October 1947 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 578.06 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--13 years (1947-60), 122 cfs (88,320 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 32,000 cfs Oct. 3, 1959 (gage height, 23.10 ft), from rating curve extended above 12,000 cfs on basis of conveyance study; no flow at times in most years.

Maximum stage known, that of Oct. 3, 1959. Flood of May 10, 1943, reached a stage of 20.4 ft, from information by Corps of Engineers.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	47.3	2.18	2.91	8.16	299	135	58.1	18.5	162	254	3.01	69.0	86.7
1952	207	336	43.7	71.1	125	272	188	36.8	2.30	0	17.9	.04	108
1953	0	0	.003	.62	.48	69.2	361	148	2.81	3.15	1.13	.59	48.8
1954	22.1	5.77	4.14	.13	.60	.37	9.93	87.4	16.5	0	1.32	0	12.5
1955	.06	.03	1.25	.83	5.96	65.6	17.3	43.5	15.7	.48	8.19	64.2	18.6
1956	105	0	0	.06	.20	0	12.3	115	46.0	1.57	0	0	23.5
1957	0	0	0	.006	5.74	34.1	797	2,068	1,280	23.1	3.29	4.61	352
1958	.10	1.49	3.04	8.23	4.85	531	110	52.2	1.97	33.7	5.66	6.77	64.1
1959	.03	1.07	.23	.97	16.8	112	13.7	21.0	3.89	72.5	.90	200	36.9
1960	2,172	116	197	160	112	234	228	601	114	133	41.1	.70	346

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,910	130	179	502	16,620	8,280	3,460	1,140	9,660	15,610	185	4,110	62,790
1952	12,730	19,970	2,690	4,370	7,170	16,710	11,220	2,260	137	0	1,100	2.6	78,360
1953	0	0	.2	38	27	4,250	21,450	9,090	167	194	69	35	35,320
1954	1,360	343	254	7.7	34	23	591	5,370	979	0	81	0	9,040
1955	3.6	1.8	77	51	331	4,040	1,030	2,670	932	30	503	3,820	13,490
1956	6,430	0	0	3.8	11	0	733	7,070	2,740	97	0	0	17,100
1957	0	0	0	.4	319	2,090	47,420	127,000	76,140	1,420	202	274	255,000
1958	6.1	89	187	506	270	32,630	6,540	3,210	117	2,070	348	403	46,380
1959	1.8	64	14	60	935	6,900	813	1,290	231	4,450	55	11,920	26,730
1960	133,500	6,930	11,940	9,830	6,460	14,380	13,590	36,960	6,780	8,170	2,530	42	251,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		119	7.03	85,840
1951	1211	3,890	July 2, 1951	0	86.7	0.379	5.14	62,790		131	7.77	94,960
1952	1241	2,610	Mar. 11, 1952	0	108	.472	6.42	78,360		59.2	-	42,970
1953	1281	4,400	Apr. 24, 1953	0	48.8	-	-	35,320		51.5	-	37,280
1954	1341	1,000	May 1, 1954	0	12.5	-	-	9,040		9.91	-	7,170
1955	1391	2,120	Sept.30, 1955	0	18.6	-	-	13,490		27.4	-	19,840
1956	1441	2,580	May 15, 1956	0	23.5	-	-	17,100		14.7	-	10,650
1957	1511	15,700	May 25, 1957	0	352	-	-	255,000		353	-	255,200
1958	1561	2,100	Mar. 24, 1958	0	64.1	-	-	46,380		63.8	-	46,170
1959	1631	3,950	Sept.30, 1959	0	36.9	-	-	26,730		247	-	179,000
1960	1711	32,000	Oct. 3, 1959	0	346	-	-	251,100		-	-	-

1930. Fort Gibson Reservoir near Fort Gibson, Okla.

Location.--Lat 35°52', long 95°14', in NW¼NW¼ sec.18, T.16 N., R.20 E., in control tower near left end of Fort Gibson Dam on Neosho River, 4 miles north of Fort Gibson and 7.7 miles upstream from mouth.

Drainage area.--12,492 sq mi.

Records available.--October 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929. Prior to Jan. 13, 1950, staff gage at same site and datum.

Extremes.--1949-60: Maximum contents, 1,268,000 acre-ft June 17, 1957 (elevation, 581.68 ft); minimum since minimum power pool use was first reached, 303,800 acre-ft May 26, 1955 (elevation, 550.56 ft).

Remarks.--Reservoir is formed by a concrete-gravity and earthfill dam. Regulated storage began Sept. 5, 1949. Capacity, 1,284,000 acre-ft at elevation 582.0 ft (flood-control pool), 365,200 acre-ft at elevation 554.0 ft (maximum power pool), and 311,300 acre-ft at elevation 551.0 ft (minimum power pool). Reservoir was designed for flood control and power development. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Corrections.--In WSP 1311, the maximum contents for the period 1949-50 was listed in error; it should be 328,500 acre-ft May 11, 1950 (elevation, 552.00 ft).

Contents, in thousands of acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	54.08	50.85	50.75	56.28	240.6	59.36	49.0	102.3	315.9	246.0	56.6	92.75
1952	64.05	235.9	44.95	55.72	68.35	114.9	120.2	59.3	57.65	82.15	78.37	77.81
1953	152.0	220.8	264.8	315.2	346.7	359.1	364.6	352.3	410.7	419.3	379.3	329.2
1954	317.8	307.7	340.7	316.7	337.5	341.1	333.9	320.6	335.9	313.5	326.9	315.2
1955	330.3	328.9	329.4	316.2	318.1	320.5	339.7	309.1	380.9	337.7	332.6	349.4
1956	324.9	331.7	340.7	325.3	331.2	319.5	332.5	345.1	355.1	340.4	332.5	346.7
1957	338.2	323.7	339.7	347.6	332.6	358.2	687.3	1,146.4	1,023.7	354.4	354.9	338.4
1958	345.1	344.7	356.3	354.2	342.9	383.1	366.9	361.6	371.1	365.0	365.6	353.8
1959	349.0	350.1	344.5	354.0	359.3	344.2	324.7	352.1	335.0	355.3	325.3	377.7
1960	359.7	360.4	367.7	346.5	318.1	355.7	344.7	367.9	346.1	359.3	339.7	345.2

1935. Neosho River below Fort Gibson Reservoir, near Fort Gibson, Okla.

Location.--Lat 35°51'15", long 95°13'45", in SE¼NW¼ sec.19, T.16 N., R.19 E., on left bank 1.1 miles downstream from Fort Gibson Dam, 4.5 miles north of Fort Gibson, and at mile 6.6.

Drainage area.--12,495 sq mi.

Records available.--May 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 483.75 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). May 11, 1950, to Aug. 20, 1951, wire-weight gage and Aug. 21, 1951, to June 11, 1952, water-stage recorder, at site 4.4 miles downstream at datum 8.00 ft lower.

Average discharge.--10 years (1950-60), 6,385 cfs (4,623,000 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 223,000 cfs May 26, 1957 (gage height, 37.60 ft); minimum, 12 cfs Oct. 10, 1957.
Maximum stage known, 43.0 ft in May 1943, from high-water profile by Corps of Engineers.

Remarks.--Flow completely regulated by Lake O' The Cherokees and Fort Gibson Reservoir (see elsewhere in this report). Records of chemical analyses and water temperatures for water years 1952-60 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	14,770	16,000	18,520	21,750	20,550	-
1951	7,635	3,293	2,584	2,710	7,764	12,180	6,315	10,450	12,250	73,850	9,129	19,920	14,100
1952	6,608	15,510	9,672	5,662	9,924	13,000	11,850	7,013	4,510	2,418	2,037	1,947	7,489
1953	727	555	767	712	755	2,629	7,055	5,733	1,251	1,091	1,067	738	1,928
1954	340	298	269	612	211	557	1,063	5,399	2,835	1,809	185	218	1,158
1955	†578	1,465	1,592	3,527	2,345	3,453	2,998	3,005	4,116	6,758	2,119	2,655	2,890
1956	3,698	1,230	2,096	824	481	786	554	2,861	2,403	1,871	1,457	173	1,547
1957	128	310	513	487	2,344	2,120	13,490	42,130	48,180	22,640	2,460	2,883	11,500
1958	1,104	1,676	1,756	1,380	2,531	16,350	14,420	10,680	4,638	33,450	8,363	6,157	8,611
1959	1,818	2,557	1,324	946	3,940	6,891	2,190	7,511	2,492	12,290	5,423	3,735	4,279
1960	34,180	12,050	6,377	6,779	6,481	8,877	11,790	18,030	6,231	4,133	5,462	3,297	10,350

† Corrected.

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	-	-	-	-	-	-	-	908.0	952.2	1,139	1,337	1,223	-
1951	469.4	195.9	158.9	166.6	431.2	749.0	375.8	642.5	729.1	4,541	561.3	1,185	10,210
1952	406.3	922.9	594.7	348.1	570.8	799.1	705.2	431.2	268.3	148.7	125.2	115.9	5,436
1953	44.73	33.02	47.15	43.76	41.95	161.6	419.8	352.5	74.43	67.06	65.60	43.89	1,395
1954	20.92	17.72	16.54	37.61	11.72	34.27	63.23	332.0	168.7	111.3	11.36	12.98	838.4
1955	35.56	87.19	97.87	216.9	130.2	212.3	178.4	184.8	244.9	415.5	130.3	158.0	2,092
1956	227.4	73.17	128.9	50.65	27.69	48.31	32.95	175.9	143.0	115.1	89.57	10.31	1,123
1957	7.89	18.46	31.57	29.96	130.2	130.3	802.9	2,590	2,867	1,392	151.3	171.6	8,323
1958	67.91	99.75	108.0	84.83	140.6	1,005	858.2	656.5	276.6	2,057	514.2	366.4	6,234
1959	111.8	152.2	81.42	58.18	218.8	423.7	130.3	461.8	148.3	755.8	333.4	222.3	3,098
1960	2,102	717.0	392.1	416.8	372.8	545.8	701.7	†1,109	370.8	254.1	335.8	196.2	7,514

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	1241	-	-	-	-	-	-	-
1951	1241	133,000	July 20, 1951	35	14,100	10,210,000	15,620	11,310,000
1952	1241	46,800	Nov. 17, 1951	145	7,489	5,436,000	5,011	3,637,000
1953	1281	25,700	Apr. 24, 25, 1953	87	1,928	1,395,000	1,831	†1,326,000
1954	1341	12,100	May 3, 1954	90	1,158	838,400	1,386	1,004,000
1955	1391	33,500	July 1, 1955	105	2,890	2,092,000	3,178	2,301,000
1956	1441	11,600	Oct. 6, 1955	18	1,547	1,123,000	1,035	751,400
1957	1511	223,000	May 26, 1957	17	11,500	8,323,000	11,800	8,541,000
1958	1561	79,000	July 13, 1958	42	8,611	6,234,000	8,708	6,305,000
1959	1631	37,000	July 18, 1959	18	4,279	3,098,000	8,237	5,964,000
1960	1711	84,600	Oct. 19, 1959	24	10,350	7,514,000	-	-

† Corrected.

1945. Arkansas River near Muskogee, Okla.

Location.--Lat 35°46'10", long 95°17'55", in NW¼ sec.21, T.15 N., R.19 E., on downstream side of left pier of bridge on U. S. Highway 62, 1.7 miles downstream from Neosho River, 3½ miles northeast of Muskogee, and at mile 457.8.

Drainage area.--96,674 sq mi, of which 12,541 sq mi is probably noncontributing.

Records available.--October 1925 to September 1960. Published as "at Webbers Falls" October 1933 to February 1935. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 471.38 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 1, 1933, staff gage at site 1,600 ft downstream at datum 2.81 ft above mean sea level, datum of 1929. Oct. 1, 1933, to July 6, 1934, chain gage and July 7, 1934, to Feb. 28, 1935, water-stage recorder, at Webbers Falls 29 miles downstream at datum 442.21 ft above mean sea level, datum of 1929. Mar. 1 to Oct. 9, 1935, staff gage at site 1,600 ft downstream at present datum. Oct. 10, 1935, to Feb. 21, 1939, wire-weight gage at present site and datum.

Average discharge.--35 years (1925-60), 20,090 cfs (14,540,000 acre-ft per year).

Extremes.--1925-60: Maximum discharge, 700,000 cfs May 21, 1943 (gage height, 48.20 ft); minimum, 66 cfs Oct. 9, 1956.
Flood of May 21, 1943, is greatest known since June 1833 when a similar stage was probably reached.

Remarks.--Some regulation by John Martin, Great Salt Plains, Fall River, Hulah, and Fort Gibson Reservoirs, and Lake O' The Cherokees (see elsewhere in this report). Records at Webbers Falls of chemical analyses and water temperatures for water years 1957-60 are published in reports of Geological Survey.

Cooperation.--Records for 1956-60 computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13,310	6,002	5,042	5,215	15,130	17,870	12,880	61,540	61,720	166,900	20,330	45,700	36,190
1952	16,650	34,310	16,850	12,580	17,150	35,320	29,130	16,890	12,200	3,914	3,432	2,854	16,740
1953	1,232	1,328	1,905	1,995	2,100	6,412	14,270	13,140	4,217	5,614	3,264	2,226	4,823
1954	1,521	2,066	1,917	1,547	1,171	1,468	2,276	19,220	7,184	2,496	454	397	3,501
1955	2,490	1,874	1,914	4,574	3,402	5,797	4,107	23,980	20,540	11,190	3,525	3,547	7,274
1956	19,890	2,854	3,568	1,871	1,682	1,699	1,868	4,471	4,282	2,998	1,864	301	3,975
1957	286	637	829	878	3,045	3,146	39,920	130,000	153,000	58,720	6,622	10,890	34,070
1958	5,030	6,478	5,038	4,817	6,483	46,530	38,550	22,060	17,360	63,320	19,670	14,790	20,980
1959	5,667	5,361	3,868	3,493	7,571	11,640	9,825	23,760	10,340	47,770	13,450	14,670	13,200
1960	123,700	21,670	16,090	16,700	24,220	32,240	32,250	45,330	26,030	16,730	18,170	11,410	32,190

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	818.5	357.2	310.0	320.6	840.3	1,099	766.3	3,784	3,672	10,260	1,250	2,719	26,200
1952	1,024	2,042	1,036	773.8	986.4	2,172	1,733	1,038	725.9	240.7	211.0	169.8	12,150
1953	75.75	79.02	117.2	122.7	116.6	394.3	849.1	808.0	250.9	345.2	200.7	132.4	3,492
1954	93.52	122.9	117.9	95.11	65.01	90.27	135.4	1,182	427.5	153.4	27.90	23.61	2,535
1955	153.1	111.5	117.7	281.2	189	356.4	244.4	1,475	1,222	688.1	216.8	211.1	5,266
1956	1,223	169.8	219.4	115.1	96.75	104.4	111.2	274.9	254.8	184.4	114.6	17.89	2,886
1957	17.60	37.89	50.95	53.96	169.1	193.5	2,376	7,995	9,104	3,611	407.1	648.0	24,660
1958	309.3	385.5	309.8	296.2	360.1	2,861	2,294	1,356	1,033	3,893	1,209	880.3	15,190
1959	348.5	319.0	237.9	214.8	420.5	716	584.6	1,461	615.6	2,937	827.2	872.9	9,555
1960	7,606	1,289	989.2	1,027	1,393	1,983	1,919	2,787	1,549	1,029	1,117	679.2	23,370

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	24,050	17,410,000
1951	1211	242,000	July 15, 1951	3,090	36,190	26,200,000	39,800	28,810,000
1952	1241	83,000	Nov. 17, 1951	2,020	16,740	12,150,000	11,460	8,323,000
1953	1281	66,600	Apr. 25, 1953	659	4,823	3,492,000	4,909	3,554,000
1954	1341	63,000	May 3, 1954	200	3,501	2,535,000	3,567	2,582,000
1955	1391	87,200	May 29, 1955	260	7,274	5,266,000	8,972	6,496,200
1956	1441	110,000	Oct. 6, 1955	134	3,975	2,886,000	19,020	1,380,000
1957	1511	366,000	May 26, 1957	76	34,070	24,660,000	35,310	25,560,000
1958	1561	138,000	July 14, 1958	2,690	20,980	15,190,000	20,840	15,090,000
1959	1631	125,000	July 18, 1959	1,890	13,200	9,555,000	25,600	18,530,000
1960	1711	286,000	Oct. 7, 1959	3,790	32,190	23,370,000	-	-

1950. Osage Creek near Elm Springs, Ark.

Location.--Lat 36°13', long 94°17', in sec.21, T.18 N., R.31 W., on left bank 1 mile downstream from Little Osage Creek and 3¼ miles northwest of Elm Springs.

Drainage area.--129 sq mi.

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 1,052 ft (by barometer).

Average discharge.--10 years (1950-60), 99.0 cfs (71,670 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 10,800 cfs Apr. 3, 1957 (gage height, 14.36 ft); minimum, 4.7 cfs Sept. 4-6, 1954.
Maximum stage known, 16.7 ft May 10, 1950, from floodmarks.

Remarks.--Low flow slightly regulated by operation of small reservoir at Cave Springs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	‡100	‡70	58.1	57.1	457	255	141	107	287	189	75.7	68.6	‡153
1952	82.9	202	143	121	147	198	186	106	65.9	46.0	89.9	43.6	119
1953	34.9	39.0	35.6	35.0	32.1	152	134	124	52.8	43.5	30.7	25.0	61.8
1954	26.0	26.0	28.4	27.7	26.5	29.6	34.6	105	25.0	14.2	11.3	13.7	30.8
1955	53.5	25.1	61.9	53.6	172	123	67.0	57.1	67.7	47.1	24.7	29.5	64.5
1956	29.5	23.3	20.9	20.4	35.3	24.5	20.8	67.0	51.5	29.0	14.5	12.4	29.1
1957	13.2	31.6	31.2	96.6	131	119	533	665	538	141	92.8	77.9	205
1958	48.7	105	60.4	51.6	87.0	236	167	275	106	222	143	76.1	132
1959	53.1	57.4	42.1	37.3	46.8	104	93.6	98.8	120	122	45.9	43.2	72.1
1960	187	171	73.7	80.0	88.6	139	111	271	146	110	60.7	36.4	123

‡ Not previously published.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	‡6,150	‡4,170	3,570	3,510	25,410	15,690	8,380	6,580	17,070	11,610	4,660	4,080	‡110,900
1952	5,100	12,000	8,770	7,430	8,440	12,160	11,040	6,490	3,920	2,830	5,530	2,600	86,310
1953	2,150	2,320	2,190	2,150	1,790	9,350	8,000	7,630	3,140	2,680	1,890	1,490	44,780
1954	1,600	1,550	1,750	1,700	1,470	1,820	2,060	6,470	1,490	870	695	817	22,290
1955	3,290	1,490	3,810	3,300	9,540	7,550	3,990	3,510	4,030	2,900	1,520	1,760	46,690
1956	1,820	1,380	1,290	1,250	2,030	1,510	1,240	4,120	3,060	1,780	891	736	21,110
1957	810	1,880	1,920	5,940	7,270	7,290	31,710	40,890	32,010	8,700	5,700	4,630	148,800
1958	2,990	6,240	3,710	3,180	4,830	14,510	9,920	16,890	6,320	13,650	8,780	4,530	95,550
1959	3,260	3,420	2,590	2,290	2,600	6,370	5,570	6,080	7,110	7,520	2,820	2,570	52,200
1960	11,520	10,200	4,530	4,920	5,100	8,560	9,590	16,640	8,670	6,780	3,730	2,170	89,410

‡ Not previously published.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950												
1951	1211	6,770	Feb. 20, 1951	48	‡153	‡1.19	‡16.12	‡110,900		170	17.86	122,900
1952	1241	2,210	Aug. 22, 1952	36	119	.922	12.54	86,310		92.4	9.75	67,100
1953	1281	1,820	Mar. 17, 1953	22	61.8	.479	6.51	44,780		59.4	6.24	43,020
1954	1341	4,050	May 2, 1954	5.3	30.8	.239	3.23	22,290		35.9	3.78	25,980
1955	1391	5,280	Feb. 19, 1955	15	64.5	.500	6.80	46,690		58.8	6.20	42,590
1956	1441	1,160	May 15, 1956	8.9	29.1	.226	3.08	21,110		29.3	3.10	21,230
1957	1511	10,800	Apr. 3, 1957	9.4	205	1.59	21.61	148,800		217	22.83	157,100
1958	1561	2,200	July 25, 1958	41	132	1.02	13.90	95,550		127	13.36	91,880
1959	1631	5,300	July 23, 1959	26	72.1	.559	7.58	52,200		95.6	10.04	69,180
1960	1711	3,270	May 6, 1960	32	123	.953	12.98	89,410		-	-	-

‡ Not previously published.

1955. Illinois River near Watts, Okla.

Location.--Lat 36°07'48", long 94°34'12", in NE¼ sec.18, T.19 N., R.26 E., near right bank on downstream side of pier of bridge on U. S. Highway 59, 1.5 miles north of Watts, 4.5 miles downstream from Cincinnati Creek, and at mile 106.2.

Drainage area.--635 sq mi.

Records available.--August 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 893.78 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--5 years (1955-60), 619 cfs (448,100 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 68,000 cfs July 25, 1959 (gage height, 25.96 ft), from rating curve extended above 51,000 cfs by logarithmic plotting; minimum, 8.6 cfs Oct. 26, 1955, Sept. 19, Oct. 14, 1956.

Remarks.--Some regulation at low flow by Lake Francis Dam, three-quarters of a mile above station. Since July 2, 1957, small diversion above station for municipal water supply for city of Siloam Springs, Ark. Records of chemical analyses for water year 1960 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	-	-	-	-	-	-	-	-	-	-	69.5	80.2	-
1956	108	67.2	60.4	61.4	254	114	214	715	333	114	33.2	14.9	174
1957	20.9	96.8	102	453	741	596	3,347	3,936	2,021	340	329	312	1,022
1958	175	928	289	250	626	1,482	750	1,371	428	1,807	876	276	775
1959	186	293	173	155	229	828	700	836	347	567	150	116	383
1960	952	1,029	321	508	384	764	549	2,013	409	1,526	281	118	742

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	-	-	-	-	-	-	-	-	-	-	4,270	4,770	-
1956	6,650	4,000	3,720	3,780	14,620	7,040	12,700	43,950	19,800	6,980	2,040	889	126,200
1957	1,280	5,760	6,290	27,850	41,150	36,660	199,200	242,000	120,300	20,880	20,250	18,560	740,200
1958	10,740	55,210	17,790	15,370	34,760	91,140	44,650	84,280	25,460	111,100	53,890	16,440	560,800
1959	11,410	17,440	10,610	9,550	12,720	50,880	41,640	51,390	20,620	34,840	9,200	6,890	277,200
1960	58,520	61,250	19,740	31,220	22,120	47,000	32,650	123,800	24,330	93,860	17,270	7,040	538,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952											
1953											
1954											
1955	1441	-	-	-	-	-	-	-	-	-	-
1956	1441	8,650	May 15, 1956	10	174	0.274	3.74	126,200	172	3.71	125,100
1957	1511	49,000	Apr. 3, 1957	10	1,022	1.61	21.86	740,200	1,120	23.94	810,600
1958	1561	18,200	July 12, 1958	147	775	1.22	16.57	560,800	713	15.25	516,600
1959	1631	12,600	July 23, 1959	67	383	.603	8.18	277,200	521	11.14	377,200
1960	1711	68,000	July 25, 1960	39	742	1.17	15.91	538,800	-	-	-

1960. Flint Creek near Kansas, Okla.

Location.--Lat 36°11'54", long 94°42'30", in SW¼ sec.24, T.20 N., R.24 E., near left bank on downstream side of pier of bridge on State Highway 33, 6 miles southeast of Kansas, 6 miles downstream from Sager Creek, and at mile 2.8.

Drainage area.--110 sq mi.

Records available.--August 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 854.59 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--5 years (1955-60), 98.3 cfs (71,170 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 12,000 cfs July 12, 1958 (gage height, 12.55 ft); minimum daily, 0.6 cfs Oct. 11-13, 1956.

Remarks.--Small diversion above station for irrigation. Records of chemical analyses for water year 1960 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	7.5	3.9	-
1956	13.8	9.87	11.4	10.3	16.4	11.5	13.0	101	57.0	16.7	4.8	1.27	22.3
1957	.73	9.92	21.5	25.8	74.0	82.8	423	690	434	64.8	25.8	38.3	157
1958	25.2	44.8	36.6	38.0	88.8	230	134	174	55.1	262	58.1	31.7	98.6
1959	28.7	48.4	31.7	29.1	39.5	103	150	108	57.5	120	31.9	36.1	65.5
1960	230	236	60.2	86.3	56.0	161	220	483	72.9	90.8	49.3	20.7	148

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	460	230	-
1956	850	587	698	635	946	705	772	6,230	3,390	1,030	298	75	16,220
1957	45	590	1,320	1,590	4,110	5,090	25,170	42,410	25,810	3,990	1,590	2,280	114,000
1958	1,550	2,670	1,250	2,330	4,930	14,150	7,960	10,710	3,280	16,100	3,570	1,880	71,380
1959	1,770	2,880	1,950	1,790	2,190	6,340	8,940	6,640	3,420	7,380	1,960	2,150	47,410
1960	14,170	14,020	3,700	5,300	3,220	9,870	13,070	29,730	4,340	5,580	3,030	1,230	107,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1955	1441	-	-	-	-	-	-	-	-	-	-
1956	1441	1,370	May 15, 1956	0.8	22.3	0.203	2.76	16,220	22.1	2.74	16,040
1957	1511	8,780	May 25, 1957	.6	157	1.43	19.44	114,000	164	20.19	118,500
1958	1561	12,000	July 12, 1958	22	98.6	.896	12.16	71,380	98.8	12.19	71,510
1959	1631	3,530	July 23, 1959	11	65.5	.595	8.06	47,410	100	12.37	72,700
1960	1711	11,700	May 6, 1960	17	148	1.35	18.28	107,300	-	-	-

1965. Illinois River near Tahlequah, Okla.

Location.--Lat 35°55', long 94°55', in SE¼ sec.26, T.17 N., R.22 E., near center of span on downstream side of pier of bridge on U. S. Highway 62, 2¼ miles northeast of Tahlequah, 6.5 miles upstream from Barren Fork, and at mile 55.8.

Drainage area.--959 sq mi.

Records available.--October 1935 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 664.14 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Feb. 23, 1939, wire-weight gage at same site and datum.

Average discharge.--25 years (1935-60), 901 cfs (652,300 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 150,000 cfs May 10, 1950 (gage height, 27.94 ft), from rating curve extended above 77,000 cfs on basis of slope-area measurement of peak flow; minimum daily, 0.1 cfs Oct. 10-14, 1956.

Maximum stage known, that of May 10, 1950. Flood in January 1916 reached a stage of about 26 ft.

Monthly and yearly mean discharge, in cubic feet per second, of Illinois River near Tahlequah, Okla.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	545	258	215	306	4,139	1,800	877	615	1,038	1,194	277	237	936
1952	327	1,310	826	765	1,003	1,713	1,689	813	322	155	259	121	773
1953	94.1	145	151	144	142	1,399	1,941	1,525	227	204	112	62.5	514
1954	72.1	88.6	111	122	117	149	151	1,349	97.6	22.9	10.5	3.15	193
1955	274	134	342	502	1,366	1,450	713	745	926	203	84.4	45.6	558
1956	148	79.2	77.5	74.0	270	155	156	988	522	160	44.2	5.40	223
1957	7.05	112	145	461	871	859	4,756	6,222	3,403	490	380	402	1,507
1958	224	1,026	366	350	891	2,161	1,097	1,891	573	2,491	1,070	327	1,043
1959	236	361	235	198	297	1,018	1,086	1,259	641	820	235	152	547
1960	1,661	1,792	489	764	524	1,124	942	3,441	615	1,713	408	154	1,142

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	33,530	15,370	13,200	18,840	29,900	110,700	52,170	37,800	61,770	73,440	17,040	14,100	677,900
1952	20,140	77,970	50,790	47,050	57,680	105,300	100,500	49,980	19,180	9,540	15,940	7,180	561,200
1953	5,790	8,630	9,270	8,840	7,880	86,030	115,500	93,750	13,510	12,570	6,870	3,720	372,400
1954	4,430	5,270	6,800	7,490	6,480	9,140	8,980	82,940	5,810	1,410	647	188	139,600
1955	16,820	7,950	21,010	30,840	75,860	89,160	42,430	45,790	55,100	12,450	5,190	2,710	405,300
1956	9,100	4,710	4,770	4,550	15,520	9,510	9,280	60,730	31,060	9,830	2,720	322	162,100
1957	434	6,690	8,900	28,360	48,390	52,830	283,000	382,600	202,500	30,140	23,350	23,930	1,091,000
1958	13,750	61,040	22,490	21,500	49,500	132,800	65,270	116,200	34,070	153,100	65,810	19,460	755,000
1959	14,480	21,500	14,470	12,200	16,510	62,600	64,630	77,400	38,150	50,440	14,460	9,050	395,900
1960	102,100	106,600	30,100	46,960	30,120	69,110	56,060	211,600	36,620	105,300	25,060	9,170	848,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,644	23.27	1,190,000
1951	1211	38,000	Feb. 21, 1951	174	936	0.976	13.76	677,900	1,056	14.94	764,700
1952	1241	7,980	Apr. 13, 1952	92	773	.806	10.97	561,200	601	8.53	436,000
1953	1281	10,100	May 14, 1953	51	514	.536	7.26	372,400	504	7.12	365,200
1954	1311	16,000	May 3, 1954	1.1	193	.201	2.73	139,600	233	3.31	168,900
1955	1391	14,800	Mar. 22, 1955	3.6	558	.582	7.92	405,300	522	7.38	378,100
1956	1441	8,350	May 16, 1956	1.0	223	.233	3.17	162,100	220	3.11	159,500
1957	1511	55,400	Apr. 4, 1957	.1	1,507	1.57	21.33	1,091,000	1,619	22.92	1,172,000
1958	1561	25,800	July 13, 1958	182	1,043	1.09	14.77	755,000	978	13.85	708,200
1959	1631	10,600	July 24, 1959	78	547	.570	7.73	395,900	807	11.42	584,200
1960	1711	48,600	July 26, 1960	91	1,142	1.19	16.22	848,800	-	-	-

1969. Barren Fork at Dutch Mills, Ark.

Location.--Lat 35°52'40", long 94°29'10", on line between secs.21 and 22, T. 14 N., R.33 W., near right bank on downstream side of pier of bridge on State Highway 59 at Dutch Mills, 1¾ miles downstream from Fly Creek and 2¾ miles upstream from Arkansas-Oklahoma State line.

Drainage area.--43 sq mi.

Records available.--April 1958 to September 1960.

Gage.--Water-stage recorder.

Extremes.--1958-60: Maximum discharge, 14,800 cfs July 12, 1958 (gage height, 12.8 ft), from rating curve extended above 2,900 cfs on basis of contracted-opening measurement at gage height 12.12 ft; minimum, 0.1 cfs Sept. 18, 23, 1959.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	46.2	124	38.6	131	57.1	12.6	-
1959	5.36	21.0	8.35	7.96	13.4	87.7	106	87.4	11.6	40.6	3.36	2.34	33.1
1960	73.1	69.6	38.9	51.4	33.1	55.0	45.0	163	22.0	127	8.89	2.98	57.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	2,750	7,640	2,300	8,040	3,510	752	-
1959	330	1,250	513	490	741	5,390	6,320	5,370	692	2,500	207	139	23,940
1960	4,500	4,140	2,390	3,160	1,900	3,380	2,680	10,040	1,310	7,820	547	178	42,040

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	1631	14,800	July 12, 1958	-	-	-	-	-	-	-	-
1959	1631	9,750	July 23, 1959	0.2	33.1	0.770	10.41	23,940	45.4	14.32	32,880
1960	1711	12,800	May 5, 1960	1.3	57.9	1.35	18.34	42,040	-	-	-

1970. Barren Fork at Eldon, Okla.

Location.--Lat 35°55', long 94°50', in SE¼ sec.27, T.17 N., R.23 E., on downstream side of left pier of bridge on State Highway 51, three-eighths of a mile southeast of Eldon, 6 miles downstream from Tyner Creek, and 8.8 miles upstream from mouth.

Drainage area.--307 sq mi.

Records available.--October 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 701.14 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Dec. 14, 1948, wire-weight gage at same site and datum.

Average discharge.--12 years (1948-60), 299 cfs (216,500 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 37,600 cfs Apr. 3, 1957 (gage height, 20.33 ft); minimum, 1.7 cfs Oct. 25, 1956.
Maximum stage known, 23.8 ft Apr. 15, 1945, from information by local resident.

Corrections.--In WSP 1147 and 1311, the monthly figures for November 1948 and the annual figures for the 1949 water year are listed in error. The correct figures are given herewith:

Month	Mean	Per square mile	Inches	Acre-feet
November 1948	83.0	0.270	0.30	4,940
Water year 1948-49	469	1.53	20.74	339,600

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	67.3	45.4	38.0	84.2	1,441	433	290	218	157	245	41.6	32.0	249
1952	33.8	161	138	146	221	537	648	393	111	32.1	32.4	11.7	205
1953	10.5	29.6	34.5	34.5	29.5	589	602	727	62.0	68.4	21.3	10.2	186
1954	15.7	17.5	29.1	49.1	44.4	55.8	81.0	732	28.0	8.75	3.80	3.18	90.0
1955	22.9	20.7	115	135	462	720	291	328	656	60.8	20.8	17.0	235
1956	39.1	18.2	16.8	16.4	104	65.0	163	453	306	53.2	10.5	3.10	104
1957	1.96	18.4	27.8	134	359	259	2,105	2,605	1,575	127	129	165	624
1958	64.9	395	122	116	327	707	356	766	227	903	331	89.3	369
1959	56.8	111	67.4	54.6	81.9	438	592	787	158	350	70.6	33.4	235
1960	413	549	208	306	188	344	335	1,164	201	476	114	39.7	363

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,140	2,700	2,330	5,170	80,040	26,620	17,260	13,380	9,350	15,070	2,560	1,900	180,500
1952	2,080	9,560	8,470	8,960	12,740	33,000	38,540	24,140	6,600	1,980	1,990	698	148,800
1953	646	1,760	2,120	2,120	1,640	36,200	35,820	44,730	3,690	4,210	1,310	607	134,900
1954	968	1,040	1,790	3,020	2,470	3,430	4,820	45,000	1,670	538	233	189	65,170
1955	1,410	1,230	7,070	8,280	25,670	44,240	17,320	20,160	39,040	3,740	1,280	1,010	170,400
1956	2,410	1,080	1,040	1,010	5,980	4,000	9,690	27,860	18,180	3,270	646	184	75,350
1957	121	1,090	1,710	8,210	19,920	15,930	125,300	160,200	93,710	7,780	7,920	9,810	451,700
1958	3,990	23,520	7,490	7,150	18,180	43,490	21,200	47,120	13,500	55,550	20,360	5,310	266,900
1959	3,490	6,630	4,150	3,360	4,550	26,960	35,250	48,380	9,420	21,500	4,340	1,990	170,000
1960	25,420	32,660	12,800	18,830	10,790	21,130	19,930	71,600	11,930	29,240	7,000	2,360	263,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	443	19.61	320,800
1951	1211	27,800	Feb. 20, 1951	19	249	0.811	11.04	180,500	264	11.71	191,500
1952	1241	6,840	May 23, 1952	11	205	.668	9.08	148,800	183	8.13	133,200
1953	1281	9,240	May 12, 1953	7.8	186	.606	8.25	134,900	185	8.20	134,100
1954	1341	21,600	May 2, 1954	2.2	90.0	.293	3.96	65,170	98.2	4.33	71,080
1955	1391	16,200	June 15, 1955	2.6	235	.765	10.41	170,400	228	10.09	165,300
1956	1441	6,300	May 15, 1956	2.2	104	.339	4.60	75,350	102	4.50	73,740
1957	1511	37,600	Apr. 3, 1957	1.8	624	2.03	27.58	451,700	668	29.54	483,800
1958	1561	15,700	July 13, 1958	42	369	1.20	16.29	266,900	340	15.01	246,100
1959	1631	12,200	July 23, 1959	21	235	.765	10.39	170,000	313	13.85	226,600
1960	1711	24,000	May 6, 1960	31	363	1.18	16.10	263,700	-	-	-

1975. Tenkiller Ferry Reservoir near Gore, Okla.

Location.--Lat 35°35'48", long 95°02'57", in SE¼SW¼ sec.14, T.13 N., R.21 E., at gate tower on right bank, 0.6 mile upstream from Tenkiller Ferry Dam on Illinois River, 6 miles northeast of Gore, and at mile 12.8.

Drainage area.--1,610 sq mi.

Records available.--July 1952 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 5, 1953, staff gage at same site and datum.

Extremes.--1952-60: Maximum contents, 1,217,600 acre-ft June 5, 1957 (elevation, 666.36 ft); minimum since power-pool stage was first reached, 305,700 acre-ft Oct. 21, 1954 (elevation, 597.50 ft).

Remarks.--Reservoir is formed by earth dam. Spillway consists of a 590-foot concrete modified ogee weir in right abutment controlled by 10 taintor gates. Outlet works consist of a 19-foot diameter tunnel in right abutment controlled by two vertical-lift gates. A similar tunnel conducts water to two hydroelectric turbines. Closure was made for diversion in July 1950 and regulated storage began in July 1952; minimum power-pool stage was first reached Apr. 9, 1953. Capacity, 1,231,000 acre-ft at elevation 667.0 ft (flood-control pool), 731,900 acre-ft at elevation 642.0 ft (spillway crest), 628,700 acre-ft at elevation 630.0 ft (maximum power pool), and 283,100 acre-ft at elevation 594.5 ft (conservation and minimum power pool). Reservoir is used for flood control and power development. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in thousands of acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952	-	-	-	-	-	-	-	-	0.3	9.2	27.0	31.9
1953	35.3	45.8	57.9	68.4	78.3	229.5	417.6	584.4	593.5	604.5	604.5	602.6
1954	602.3	579.4	530.2	465.6	387.4	359.6	356.4	517.6	485.8	427.0	329.4	308.2
1955	318.3	322.0	347.6	388.7	504.1	613.8	614.9	637.2	626.2	611.1	568.4	542.5
1956	541.0	498.4	475.5	430.4	424.4	414.9	420.2	513.4	562.4	504.9	544.8	529.6
1957	520.6	510.9	497.1	522.0	589.1	609.0	715.5	1,119.5	1,082.6	647.7	639.2	603.9
1958	585.8	588.0	570.7	541.0	561.8	608.4	604.7	633.6	666.7	656.1	640.4	585.3
1959	565.5	570.8	531.8	501.5	483.2	532.0	537.1	631.8	615.9	642.3	595.6	587.4
1960	597.2	590.1	601.1	585.2	536.1	562.4	577.9	652.3	634.4	658.4	629.1	592.7

1980. Illinois River near Gore, Okla.

Location.--Lat 35°34'23", long 95°04'07", in NE¼SW¼ sec.27, T.13 N., R.21 E., on right bank 4.3 miles downstream from Tenkiller Ferry Dam, 4½ miles northeast of Gore, and 8.5 miles upstream from mouth.

Drainage area.--1,626 sq mi.

Records available.--March 1924 to April 1926, April 1939 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 473.00 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Mar. 25, 1924, to Apr. 1, 1926, staff gage at site 2.4 miles downstream at altitude 467 ft (from Corps of Engineers river-profile survey). Apr. 15, 1939, to May 20, 1949, water-stage recorder and May 21, 1949, to Feb. 19, 1952, staff gage, at site 1.6 miles upstream at datum 9.60 ft higher.

Average discharge.--22 years (1924-25, 1939-60), 1,603 cfs (1,161,000 acre-ft per year), adjusted for storage.

Extremes.--1924-26, 1939-60: Maximum discharge, 180,000 cfs May 11, 1950 (gage height, 30.2 ft, observed at crest, site and datum then in use; 29.6 ft, present site and datum, from floodmark in vicinity of gage), from rating curve extended above 42,000 cfs by logarithmic plotting and velocity-area studies; minimum, 2.0 cfs Sept. 16, 1959.
Maximum stage known, that of May 11, 1950.

Remarks.--Except for 16 sq mi of intervening area, flow completely regulated since July 1952 by Tenkiller Ferry Reservoir (see preceding page). Records of chemical analyses and water temperatures for water years 1954-60 are published in reports of Geological Survey.

Cooperation.--Records for 1959-60 computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	683	326	274	494	7,030	2,611	1,359	1,071	1,506	1,765	380	325	1,446
1952	387	1,597	1,129	1,078	1,458	2,888	3,286	1,549	576	56.7	38.1	50.2	1,171
1953	39.0	30.5	28.4	36.7	21.8	40.9	106	126	111	102	70.5	36.4	62.6
1954	93.3	490	979	1,288	1,679	751	564	301	630	916	1,717	308	806
1955	83.9	87.8	90.2	90.3	154	980	1,269	804	1,783	517	818	481	597
1956	145	776	456	839	600	415	277	228	194	156	278	164	376
1957	130	319	457	324	435	1,120	6,979	4,287	7,177	8,046	810	1,512	2,636
1958	583	1,628	951	1,124	1,253	2,952	2,197	3,099	489	4,068	1,758	1,377	1,798
1959	600	408	951	793	799	1,227	2,435	1,228	1,448	1,077	1,123	310	1,034
1960	2,398	2,825	736	1,742	1,869	1,404	1,476	5,075	1,387	2,276	1,093	785	1,926

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	41,990	19,420	16,850	30,360	390,400	160,500	80,890	65,850	89,610	108,600	23,340	19,320	1,047,000
1952	23,820	95,010	69,440	66,280	83,890	177,600	195,600	95,260	34,250	3,480	2,340	2,990	850,000
1953	2,400	1,810	1,750	2,260	1,210	2,510	6,290	7,740	6,600	6,280	4,340	2,170	45,360
1954	5,740	29,170	60,210	79,200	93,250	46,200	33,560	18,500	37,490	56,340	105,600	18,360	583,600
1955	5,160	5,230	5,550	5,550	8,530	60,270	75,480	49,440	106,100	31,760	50,320	28,620	432,000
1956	8,910	46,170	28,010	51,620	34,540	25,520	16,490	14,040	11,570	9,560	17,110	9,730	273,300
1957	8,010	18,990	28,110	19,940	24,170	68,900	415,300	263,600	427,100	494,800	49,820	90,000	1,909,000
1958	35,820	96,880	58,480	69,090	69,610	181,500	130,700	190,600	29,100	250,100	108,100	81,960	1,302,000
1959	36,870	24,310	58,480	48,740	44,350	75,440	144,900	75,510	86,130	66,220	69,020	18,450	748,400
1960	147,500	168,100	45,240	107,100	107,500	86,340	87,830	312,000	82,550	139,900	67,210	46,730	1,398,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,520	21.08	1,823,000
1951	1211	10,500	Feb. 22, 1951	121	1,446	0.891	12.10	1,047,000	1,598	13.38	27,200
1952	1241	10,500	Apr. 14, 1952	12	1,171	-	-	850,000	920	-	667,600
1953	1281	1,160	May 12, 1953	6.7	62.6	-	-	45,360	186	-	134,500
1954	1341	9,280	May 2, 1954	4.6	806	-	-	583,600	697	-	504,400
1955	1391	5,880	June 18, 1955	10	597	-	-	432,000	690	-	499,200
1956	1441	3,610	Aug. 14, 1956	21	376	-	-	273,300	338	-	245,300
1957	1511	18,100	June 9, 1957	20	2,636	-	-	1,909,000	2,824	-	2,045,000
1958	1561	13,700	May 4, 1958	38	1,798	-	-	1,302,000	1,700	-	1,230,000
1959	1631	4,510	May 10, 1959	2.1	1,034	-	-	748,400	1,367	-	989,600
1960	1711	12,400	Nov. 7, 1959	16	1,926	-	-	1,398,000	-	-	-

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1990. Canadian River near Hebron, N. Mex.

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

Drainage area.--229 sq mi.

Records available.--June 1946 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 6,250 ft (from topographic map). June 1, 1946, to Sept. 30, 1952, on bridge pier 150 ft upstream and Oct. 1, 1952, to July 13, 1955, on bridge pier 200 ft upstream, both at datum 1 ft higher.

Average discharge.--14 years (1946-60), 5.44 cfs (3,940 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 6,860 cfs May 19, 1955; maximum gage height, 11.6 ft Aug. 24, 1951 (backwater from temporary dam downstream); no flow at times.
Flood in 1942 reached a stage of about 26 ft, at site 150 ft upstream, datum 1 ft higher, from information by local residents.

Remarks.--Diversions above station for irrigation of a few hundred acres, part of which is below station. All or part of low flow can be diverted to left bank a few hundred yards yards above station for stock water, off-channel storage, and irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.03	0.10	0.04	0.25	0.18	0.18	0.26	2.12	0.15	6.27	5.37	0.10	1.27
1952	.22	.18	.13	.12	.18	.16	.11	.12	3.4	6.49	8.00	22.4	3.44
1953	.02	.04	.07	.08	.11	.10	.08	9.23	.68	4.10	26.5	0	3.48
1954	.29	.21	0	.02	.10	.10	.08	.15	.43	14.4	1.88	.54	1.54
1955	2.23	.1	.08	.05	.02	.06	.04	261	.66	8.92	36.8	5.54	26.8
1956	1.90	1.45	2.97	2.01	1.31	.77	.19	3.64	.15	29.8	4.63	.24	4.15
1957	.08	.09	.23	.91	.41	.36	.97	6.10	.76	4.81	8.41	.02	1.96
1958	16.8	1.50	1.05	1.14	1.09	1.25	22.7	48.2	37.5	15.6	3.48	4.31	12.9
1959	3.56	2.84	2.58	.76	.84	.73	.40	6.78	16.1	6.32	11.6	.03	4.41
1960	.30	1.06	1.08	.84	.96	18.1	4.71	.21	.24	4.04	1.61	1.46	2.90

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.0	5.8	2.4	15	9.9	11	15	130	9.1	385	330	6.0	921
1952	13	11	7.9	7.3	10	9.9	6.7	7.5	200	399	492	1,330	2,490
1953	1.2	2.6	4.6	5.2	6.3	6.1	5.0	567	40	252	1,630	0	2,520
1954	18	13	0	1.2	5.6	6.1	5.0	9.5	26	884	116	32	1,120
1955	137	6.0	5.2	3.4	1.2	4.0	2.6	16,080	39	548	2,260	330	19,420
1956	117	86	183	124	76	48	11	224	8.9	1,830	284	14	3,010
1957	5.0	5.4	14	56	23	22	58	375	45	296	517	1.4	1,420
1958	1,030	89	65	70	60	77	1,350	2,960	2,230	958	214	257	9,360
1959	219	169	159	47	46	45	24	417	959	389	714	1.8	3,190
1960	18	63	66	51	53	1,110	280	13	14	249	99	87	2,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3.82	2,760
1951	1211	1,300	Aug. 24, 1951	0	1.27	921	1.31	943
1952	1241	4,490	Sept.13, 1952	0	3.44	2,490	3.41	2,470
1953	1281	5,250	Aug. 16, 1953	0	3.48	2,520	3.51	2,540
1954	1341	1,480	July 30, 1954	0	1.54	1,120	1.70	1,230
1955	1391	6,860	May 19, 1955	0	26.8	19,420	27.1	19,650
1956	1441	5,610	July 16, 1956	0	4.15	3,010	3.64	2,640
1957	1511	1,580	Aug. 24, 1957	0	1.96	1,420	3.56	2,580
1958	1561	3,700	June 6, 1958	0	12.9	9,360	12.1	8,720
1959	1631	2,290	Aug. 15, 1959	0	4.41	3,190	3.85	2,790
1960	1711	417	July 23, 1960	0	2.90	2,100	-	-

1995. Chicorica Creek below Lake Maloya, N. Mex.

Location.--Lat 36°58'30", long 104°22'50", in SW¼ sec.27, T.32 N., R.24 E. (projected), on left bank 0.8 mile downstream from Lake Maloya, 1.5 miles upstream from Lake Alice, and 6 miles northeast of Raton.
Drainage area.--26 sq mi.
Records available.--January 1945 to July 1951.
Gage.--Water-stage recorder. Altitude of gage is 7,280 ft (from topographic map). Prior to Feb. 27, 1945, records estimated on basis of auxiliary staff gage and rectangular weir 0.75 mile upstream at different datum.
Average discharge.--5 years (1945-50), 2.95 cfs (2,140 acre-ft per year).
Extremes.--1945-51: Maximum gage height, 3.25 ft Aug. 7, 1948 (discharge not determined). No flow at times.
Remarks.--Diversion above station for municipal supply of Raton. Flow regulated by Lake Maloya (capacity, 4,000 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.85	0.38	0.2	0.1	0.2	0.46	0.48	1.44	309	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	114	23	12	6.1	11	28	28	89	184	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	0.96	698
1951	1211	a13	Nov. 2, 1950	-	-	-	-	-

a Maximum during period October 1950 to July 1951.

2000. Chicorica Creek below East Fork, near Raton, N. Mex.

Location.--Lat 36°54'05", long 104°22'40", in S½ sec.22, T.31 N., R.24 E.(projected), on right bank 1½ miles downstream from East Fork and 3½ miles east of Raton.
Drainage area.--71 sq mi.
Records available.--September 1945 to July 1951.
Average discharge.--5 years (1945-50), 5.80 cfs (4,200 acre-ft per year).
Extremes.--1945-51: Maximum gage height, 7.50 ft May 31, 1948 (discharge not determined); no flow at times.
Remarks.--Diversions above station for irrigation of about 200 acres, part of which is below station. Flow partly regulated by Lake Maloya (capacity, 4,000 acre-ft) and Lake Alice (capacity, 56 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.22	0.12	0.10	0.05	0	0.02	0.36	2.29	0.12	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13	7.1	6.0	3.0	0	1.0	21	141	7.1	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	0.33	238
1951	1211	a92	May 19, 1951	0	-	-	-	-

a Maximum during period October to July.

2020. Chicorica Creek near Hebron, N. Mex.

Location.--Lat 36°46'10", long 104°23'45", in S½ sec.4, T.29 N., R.24 E., on downstream wingwall of left abutment of highway bridge near east boundary of Maxwell Grant, 300 ft downstream from Una de Gato Creek, 4¼ miles northeast of Hebron, and 9 miles south of Raton.

Drainage area.--381 sq mi.

Records available.--January 1945 to January 1952.

Gage.--Water-stage recorder. Altitude of gage is 6,200 ft (from topographic map).

Average discharge.--6 years (1945-51), 12.6 cfs, corrected (9,120 acre-ft per year).

Extremes.--1945-1952: Maximum discharge 7,530 cfs May 31, 1948 (gage height, 13.00 ft), from rating curve extended above 600 cfs on basis of contracted-opening measurement of peak flow; no flow June 23-30, 1951.

Maximum stage known, 20 ft from well-defined floodmarks (discharge, about 15,000 cfs), date unknown.

Remarks.--Diversions for irrigation of about 1,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.15	2.17	3.34	2.95	1.95	1.29	1.50	6.37	0.23	24.5	21.3	1.49	5.76
1952	.86	1.89	1.07	-	-	-	-	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	70	129	205	181	108	79	89	392	14	1,500	1,310	89	4,170
1952	53	112	66	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	9.62	6,964
1951	1211	1,420	July 12, 1951	0	5.76	4,170	5.52	3,990
1952	1241	a42	Oct. 26, 1951	0	-	-	-	-

a Maximum during period October to January.

2030. Vermejo River near Dawson, N. Mex.

Location.--Lat 36°40'50", long 104°47'05", T.28 N., R.20 E., on left bank in Maxwell Grant, 1½ miles north of Dawson.

Drainage area.--301 sq mi.

Records available.--October 1915 to July 1918, April 1919 to May 1921, January 1927 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 6,540 ft (from topographic map). Prior to Sept. 17, 1921, staff gage and Sept. 17, 1921, to May 31, 1923, water-stage recorder, at site 1 mile upstream at different datums. Feb. 25, 1927, to Sept. 23, 1953, water-stage recorder at several sites about three-quarters of a mile upstream at datums 8 to 12 ft higher.

Average discharge.--36 years (1915-17, 1919-20, 1927-60), 19.9 cfs (14,410 acre-ft per year).

Extremes.--1927-60: Maximum discharge, about 9,000 cfs Aug. 6, 1940 (gage height, 11.88 ft, site and datum then in use, from floodmark in well), from rating curve extended above 360 cfs on basis of slope-area measurements of 3,250 and 5,000 cfs at later site; no flow at times.

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

Remarks.--Diversions for irrigation of small acreage and mountain meadows above station. Intermittent records of chemical analyses for the period August 1945 to October 1950, suspended sediment loads for the period January 1949 to September 1951, and water temperatures for the period April 1949 to September 1951 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.35	0.88	1.01	1.20	1.61	0.80	1.33	4.10	3.93	3.35	4.50	0.37	2.05
1952	.15	.04	.59	1.54	1.20	1.11	4.42	34.0	27.2	4.92	16.9	10.3	8.54
1953	1.14	1.02	1.42	2.73	2.44	2.53	2.39	16.5	14.4	27.5	19.5	2.29	7.89
1954	1.28	3.49	3.11	3.05	2.95	1.81	1.32	10.6	3.43	12.3	9.97	1.52	4.61
1955	.54	.42	.62	.97	1.99	1.52	1.21	134	50.2	41.2	147	29.1	34.4
1956	10.2	5.92	6.87	5.50	3.22	2.15	1.70	5.77	3.42	5.56	9.46	.43	5.05
1957	.15	.15	1.78	2.17	1.71	1.14	4.10	33.4	64.4	61.8	77.4	17.3	22.3
1958	17.8	12.6	11.8	8.48	8.33	9.45	69.8	173	64.4	33.8	27.4	12.9	37.6
1959	4.90	7.39	7.51	5.38	6.81	4.95	5.51	8.13	19.0	6.80	23.0	2.59	8.51
1960	4.33	3.81	3.73	3.79	4.39	6.10	7.72	7.64	12.4	31.3	8.60	3.00	8.11

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	83	53	62	74	89	49	79	252	234	206	276	22	1,480
1952	9.1	2.4	36	94	69	68	263	2,090	1,620	303	1,040	611	6,210
1953	70	60	87	168	135	156	142	1,010	855	1,690	1,200	136	5,710
1954	79	208	191	187	164	111	79	652	204	759	613	91	3,340
1955	33	25	38	60	110	94	72	8,240	2,990	2,530	9,010	1,730	24,930
1956	624	352	422	338	185	132	101	355	203	342	582	26	3,660
1957	9.5	8.7	109	133	95	70	244	2,050	3,830	3,800	4,760	1,030	16,140
1958	1,090	752	724	522	463	581	4,150	10,610	3,830	2,080	1,690	765	27,260
1959	301	440	462	331	378	304	328	500	1,130	418	1,410	154	6,160
1960	266	227	229	233	252	375	459	469	740	1,930	529	179	5,890

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	6.61	4,780
1951	1211	317	July 18, 1951	0.1	2.05	1,480	1.84	1,330
1952	1241	1,360	Aug. 4, 1952	0	8.54	6,210	8.78	6,380
1953	1281	3,160	May 27, 1953	.3	7.89	5,710	8.25	5,970
1954	1341	755	July 24, 1954	.2	4.61	3,340	4.08	2,960
1955	1391	2,540	Aug. 8, 1955	.4	34.4	24,930	36.2	26,230
1956	1441	486	Aug. 2, 1956	.2	5.05	3,660	3.29	2,390
1957	1511	5,000	Aug. 4, 1957	.1	22.3	16,140	25.7	18,580
1958	1561	1,380	May 23, 1958	3	37.6	27,260	35.8	25,890
1959	1631	920	Aug. 15, 1959	1.3	8.51	6,160	7.84	5,680
1960	1711	1,120	Aug. 3, 1960	1.1	8.11	5,890	-	-

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

Location.--Lat 36°33'10", long 105°15'55", in Maxwell Grant, inside left upstream wingwall of bridge on U. S. Highway 64, 1,000 ft west of Eagle Nest and half a mile upstream from flow line of Eagle Nest Reservoir.

Drainage area.--82 sq mi, approximately.

Records available.--April 1928 to October 1955. No winter records except 1932. Prior to October 1930 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder and concrete control at present site since Oct. 3, 1952. Datum of gage is 8,195.71 ft above mean sea level, datum of 1929. Prior to May 9, 1928, staff gage at nearby site downstream from bridge at different datum. May 9, 1928, to June 9, 1952, water-stage recorder about 75 to 100 ft downstream at different datums within 1 ft of present datum. June 9 to Oct. 2, 1952, temporary staff gage about 390 ft upstream at different datum.

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

Remarks.--Diversions for irrigation of about 1,200 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.38	0.41	0.33	-	-	1.12	0.56	2.59	0.53	0.14	0.13	0	-
1952	0	0	-	-	-	-	51.4	51.9	9.02	1.41	1.61	0.97	-
1953	.92	.72	-	-	-	-	.92	1.91	1.06	.54	.57	.07	-
1954	.04	.05	-	-	-	.17	.62	1.70	.30	.32	.21	0	-
1955	0	0	-	-	-	.12	.73	12.2	6.02	.61	5.35	2.31	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	23	24	20	-	-	69	34	159	32	8.3	7.7	0	-
1952	0	0	-	-	-	-	3,060	3,190	537	87	99	58	-
1953	57	43	-	-	-	-	55	117	63	33	35	4.4	-
1954	2.4	2.8	-	-	-	11	37	105	18	19	13	0	-
1955	0	0	0	-	-	7.5	43	751	358	37	329	137	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	a23	May 18, 1951	0	-	-	-	-
1952	1241	117	May 6, 1952	0	-	-	-	-
1953	1281	9.4	May 28, 1953	0	-	-	-	-
1954	1341	5.5	July 21, 1954	0	-	-	-	-
1955	1391	58	May 24, 1955	0	-	-	-	-

a Maximum recorded.

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

Location.--Lat 36°29'00", long 105°15'40", in Maxwell Grant, on right bank a quarter of a mile downstream from Schoolhouse Draw, about 3,500 ft upstream from high-water line of Eagle Nest Reservoir, and 6 miles south of Eagle Nest, Colfax County.

Drainage area.--56 sq mi.

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

Gage.--Water-stage recorder and concrete control. Altitude of gage is 8,190 ft (from topographic map). Prior to May 8, 1928, staff gage a quarter of a mile downstream at different datum. May 8, 1928, to Sept. 15, 1934, water-stage recorder a quarter of a mile downstream at different datum.

Extremes.--1928-55: Maximum discharge, 500 cfs Apr. 23, 1942 (estimated on basis of records for Moreno and Six Mile Creeks near Eagle Nest); maximum gage height observed, 5.30 ft about Apr. 7, 1952 (from floodmark); no flow at times.

Remarks.--Diversions for irrigation of about 1,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.05	1.35	‡1.1	‡0.6	‡1.0	1.90	8.46	8.48	0.87	0.15	0.69	0.27	‡2.16
1952	.70	1.07	1.1	-	-	-	77.3	44.5	4.11	1.35	1.65	.89	-
1953	.33	.61	-	-	-	-	8.77	11.7	2.80	.39	.30	.02	-
1954	.18	.37	-	-	-	6.17	12.8	2.49	.01	0	0	.01	-
1955	.02	.07	.1	-	-	.83	1.04	24.0	8.08	.81	4.20	.68	-

‡ Not previously published; estimated on basis of weather records and records for Six Mile and Moreno Creeks near Eagle Nest.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	65	80	‡68	‡37	‡56	117	504	521	52	8.9	42	16	‡1,570
1952	43	63	70	-	-	-	4,600	2,740	245	83	101	53	-
1953	20	36	-	-	-	-	522	720	167	24	18	1.2	-
1954	11	22	-	-	-	379	761	153	.6	0	0	.6	-
1955	1.0	4.4	6.1	-	-	51	62	1,470	481	50	258	41	-

‡ Not previously published; estimated on basis of weather records and records for Six Mile and Moreno Creeks near Eagle Nest.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	29	Apr. 21, 1951	0	‡2.16	‡1,570	‡2.11	‡1,530
1952	1241	340	(a)	-	-	-	-	-
1953	1281	29	May 27, 1953	0	-	-	-	-
1954	1341	40	Apr. 6, 1954	0	-	-	-	-
1955	1391	113	May 27, 1955	0	-	-	-	-

‡ Not previously published.
a Occurred sometime between Apr. 5 and 7, from floodmarks.

2050. Six Mile Creek near Eagle Nest, N. Mex.

Location.--Lat 36°31'10", long 105°16'15", on left upstream wingwall of concrete control, in Maxwell Grant, 600 ft downstream from highway bridge, a quarter of a mile upstream from high-water line of Eagle Nest Reservoir, and 3 miles southwest of Eagle Nest, Colfax County.

Drainage area.--11 sq mi.

Records available.--April 1928 to September 1955, July 1958 to September 1960. No winter records 1928-31, 1933-55. Prior to October 1930 monthly discharge only, published in WSP 1311. Records for December 1930 to March 1931 have been found to be unreliable and should not be used. Published as "near Therma" 1928-34.

Gage.--Water-stage recorder. Concrete control Sept. 11, 1931, to May 1933 and since Sept. 13, 1934. Datum of gage is 8,195.0 ft above mean sea level, datum of 1929. Prior to May 18, 1928, staff gage 88 ft upstream at datum 0.98 ft higher. May 18, 1928, to Sept. 11, 1938, water-stage recorder at site 88 ft upstream at datum 0.43 ft higher.

Extremes.--1930-55, 1958-60: Maximum discharge not determined, occurred Apr. 11, 1937 (discharge probably exceeded 125 cfs); maximum gage height recorded, 3.38 ft Apr. 2, 1937 (ice jam), site and datum then in use; no flow at times.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.50	0.76	-	-	-	1.22	2.51	3.25	0.55	0.17	0.44	0.16	-
1952	.20	.25	-	-	-	-	27.9	28.9	4.49	1.56	1.37	1.05	-
1953	1.75	.71	-	-	-	-	4.38	5.36	1.14	.50	.72	.69	-
1954	.39	1.33	1.58	-	-	1.37	3.53	1.05	.34	.16	.20	.07	-
1955	.11	.12	.10	-	-	-	1.58	7.65	1.70	.90	2.73	1.63	-
1956													
1957													
1958	-	-	-	-	-	-	-	-	-	-	1.52	1.51	-
1959	1.33	1.40	1.20	0.65	1.38	1.81	2.47	2.70	.95	.57	1.00	.52	1.33
1960	.38	.81	1.05	1.25	1.24	3.35	6.91	2.05	1.17	.52	1.11	.43	1.69

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	31	45	-	-	-	75	150	200	33	10	27	9.5	-
1952	12	15	-	-	-	-	1,660	1,780	267	96	84	62	-
1953	108	42	-	-	-	-	260	330	68	31	44	41	-
1954	24	79	97	-	-	84	210	65	20	10	12	4.4	-
1955	6.7	6.9	6.1	-	-	-	94	471	101	55	168	97	-
1956													
1957													
1958	-	-	-	-	-	-	-	-	-	-	94	90	-
1959	82	83	74	40	77	111	147	166	57	35	61	31	964
1960	24	48	65	77	72	206	411	126	70	32	68	25	1,220

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	9.4	Aug. 2, 1951	0	-	-	-	-
1952	1241	68	May 5, 1952	.1	-	-	-	-
1953	1281	11	May 22, 1953	.2	-	-	-	-
1954	1341	91	June 30, 1954	0	-	-	-	-
1955	1391	66	Aug. 18, 1955	0	-	-	-	-
1956								
1957								
1958	1561	a4.9	Aug. 18, 1958	b.9	-	-	-	-
1959	1631	82	July 31, 1959	.1	1.33	964	1.19	862
1960	1711	13	Apr. 17, 1960	0	1.69	1,220	-	-

a Maximum during period July 30 to Sept. 30.
b Minimum daily during period July 30 to Sept. 30.

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

Location.--Lat 36°32'05", long 105°14'00", about sec.26, T.27 N., R.16 E. (projected), in Maxwell Grant, at upstream face of Eagle Nest Dam on Cimarron Creek, 2 miles southeast of Eagle Nest and 6¼ miles west of Ute Park.

Drainage area.--167 sq mi.

Records available.--December 1927 to December 1944 (month-end contents only, published in WSP 1311), May 1950 to September 1960.

Gage.--Wire-weight gage since May 1950. Datum of gage is at mean sea level, datum of 1929. Prior to 1950, nonrecording gage (type unknown) at same site and datum.

Extremes.--1927-44, 1950-60: Maximum contents observed, 78,800 acre-ft May 31, 1942 (elevation, 8,136.9 ft); minimum observed, 635 acre-ft Dec. 14, 1954 (elevation, 8,061.33 ft).

Remarks.--Reservoir is formed by concrete dam with spillway cut in natural rock; completed June 30, 1918; storage began in June 1917. Capacity, 79,120 acre-ft between elevations 8,035.0 (sill of outlet gate) and 8,137.0 ft (crest of ungated spillway). Dead storage negligible. Records given herein represent usable contents. Water released is used for irrigation. Lake is recreational area. Diversions for irrigation of about 2,500 acres above reservoir.

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

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	8,370	8,100	8,300	8,530	8,530	8,630	8,830	8,260	5,430	2,800	2,280	1,990
1952	1,260	1,330	1,440	2,500	2,800	4,750	13,970	19,450	17,600	14,110	12,850	10,300
1953	10,360	9,800	9,930	10,500	10,960	11,850	10,100	8,370	6,200	4,270	3,460	2,420
1954	2,020	1,980	2,260	2,460	2,960	3,400	3,930	2,980	2,330	1,790	1,860	1,310
1955	1,200	680	670	825	1,010	1,430	1,400	4,400	4,150	3,040	3,200	3,500
1956	2,570	2,600	2,900	3,160	3,320	4,000	3,320	2,260	1,730	1,380	1,030	1,100
1957	1,170	970	1,070	1,350	2,050	2,060	3,280	6,650	5,340	4,350	5,730	6,190
1958	6,800	7,780	8,510	8,850	9,670	11,580	19,020	30,850	30,690	28,250	26,350	25,750
1959	24,400	24,000	24,800	25,140	25,500	25,620	24,910	24,100	22,100	20,140	19,100	17,310
1960	16,810	16,860	17,070	17,380	17,410	20,030	20,610	18,870	15,290	14,150	11,850	10,400

Note.--Month-end contents interpolated on basis of observed contents at irregular intervals.

2060. Cimarron Creek below Eagle Nest Dam, N. Mex.

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

Drainage area.--167 sq mi.

Records available.--May 1950 to September 1960. Prior to October 1952, published as Cimarron River below Eagle Nest Dam.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 8,000 ft (from topographic map). Prior to May 15, 1951, at datum 0.81 ft higher.

Average discharge.--10 years (1950-60), 12.5 cfs (9,050 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 205 cfs June 14, 1955 (gage height, 2.79 ft); no flow at times.

Remarks.--Flow regulated by Eagle Nest Reservoir (see preceding page). Diversions for irrigation of about 2,500 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	21.5	6.19	0.05	2.83	4.02	7.06	8.47	30.3	51.3	46.7	11.2	8.64	16.6
1952	12.3	1.13	.37	.65	1.04	1.32	13.7	17.5	38.6	67.9	20.3	20.7	16.4
1953	23.8	10.9	.84	.6	.5	2.12	43.3	43.2	40.3	36.6	16.4	18.1	19.8
1954	10.3	5.28	.59	1.03	1.96	1.17	4.58	21.0	8.64	11.6	.74	9.00	6.35
1955	1.95	9.79	1.09	.5	.4	.25	1.36	7.45	5.73	25.5	11.5	3.98	5.85
1956	13.5	1.61	0	0	0	3.40	18.8	20.8	7.53	7.15	6.48	.09	6.64
1957	.16	6.14	0	0	0	5.9	0	.74	63.4	24.8	7.75	4.18	9.41
1958	4.96	.19	0	0	0	.25	.92	4.78	18.2	36.7	30.7	7.26	8.76
1959	16.5	4.25	0	0	0	4.66	22.4	15.3	36.5	34.1	22.1	27.6	15.3
1960	8.90	0	0	0	0	0	31.4	42.5	62.9	25.3	41.7	25.3	19.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,320	368	3.2	174	223	434	504	1,860	3,050	2,870	689	514	12,010
1952	754	67	23	40	60	81	817	1,080	2,300	4,180	1,250	1,230	11,880
1953	1,460	647	52	37	28	131	2,570	2,660	2,400	2,250	1,010	1,080	14,320
1954	632	314	36	63	109	72	272	1,290	514	711	46	535	4,590
1955	120	583	67	33	22	15	81	458	341	1,570	708	237	4,240
1956	830	96	0	0	0	209	1,120	1,280	448	440	399	5.4	4,830
1957	9.7	365	0	0	0	363	0	46	3,770	1,530	477	249	6,810
1958	305	11	0	0	0	15	55	294	1,080	2,260	1,890	432	6,340
1959	1,020	253	0	0	0	287	1,330	943	2,170	2,090	1,360	1,640	11,090
1960	547	0	0	0	0	0	1,870	2,610	3,740	1,560	2,560	1,510	14,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	139	Sept. 3, 1951	0	16.6	12,010	15.4	11,160
1952	1241	120	July 24, 1952	.1	16.4	11,880	18.2	13,200
1953	1281	103	May 27, 1953	-	19.8	14,320	18.2	13,150
1954	1341	36	May 23, 25, 1954	0	6.35	4,590	6.06	4,380
1955	1391	205	June 14, 1955	0	5.85	4,240	6.06	4,400
1956	1441	58	May 9, 1956	0	6.64	4,830	5.88	4,280
1957	1511	125	June 19, 1957	0	9.41	6,810	9.32	6,750
1958	1561	50	Aug. 17, 1958	0	8.76	6,340	10.1	7,300
1959	1631	114	June 10, 1959	0	15.3	11,090	14.3	10,370
1960	1711	155	June 1, 1960	0	19.8	14,400	-	-

2070. Cimarron Creek near Cimarron, N. Mex.

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

Drainage area.--294 sq mi.

Records available.--May 1950 to September 1960. Prior to October 1952, published as Cimarron River near Cimarron.

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

Average discharge.--10 years (1950-60), 18.8 cfs (13,610 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 580 cfs June 6, 1958 (gage height, 3.10 ft); no flow Sept. 14-30, Oct. 1-10, 1956.

Remarks.--Flow regulated by Eagle Nest Reservoir (capacity, 79,120 acre-ft). Diversions above station for irrigation of about 3,500 acres, part of which is below station. Cimarroncito ditch (locally known as Philmont ditch) diverts from left bank 1½ miles above station, flumes under creek three-quarters of a mile above, and bypasses station for off-channel storage and irrigation below.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	20.3	11.8	2.39	2.89	7.99	10.4	10.8	31.3	49.2	45.1	14.7	9.37	18.1
1952	14.5	3.72	4.23	5.44	5.66	5.17	36.6	71.5	64.4	71.0	28.2	26.2	28.1
1953	27.4	18.1	8.29	3.84	2.07	4.35	39.5	54.0	53.9	38.5	21.4	19.7	24.3
1954	13.8	9.04	3.0	3.02	2.99	3.64	9.93	33.8	14.2	13.8	1.95	8.29	9.83
1955	2.00	13.4	3.10	1.7	1.5	1.65	2.70	47.9	38.1	27.6	22.9	6.60	14.4
1956	15.7	7.64	5.29	3.76	2.59	3.99	23.2	25.7	8.55	6.13	6.08	.12	9.09
1957	.14	4.30	1.32	1.12	1.82	6.52	7.86	23.5	82.2	35.4	26.8	11.9	16.9
1958	13.0	9.45	5.82	3.65	3.79	5.37	34.6	93.5	48.2	44.7	36.0	11.9	26.0
1959	20.2	10.2	6.66	5.41	3.82	6.37	28.9	26.3	37.1	29.5	19.5	21.2	18.0
1960	14.6	4.18	2.04	1.32	1.96	4.03	41.8	46.8	65.5	24.4	40.5	28.6	23.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,250	701	147	178	444	637	641	1,920	2,930	2,770	904	557	13,080
1952	890	222	260	334	326	318	2,180	4,400	3,830	4,370	1,730	1,560	20,420
1953	1,690	1,080	510	236	115	268	2,350	3,320	3,210	2,360	1,320	1,180	17,640
1954	846	538	184	186	166	224	591	2,080	843	848	120	493	7,120
1955	123	797	191	105	83	101	160	2,940	2,270	1,700	1,410	512	10,390
1956	966	455	325	231	149	246	1,380	1,580	509	377	374	6.9	6,600
1957	8.7	256	81	69	101	401	468	1,440	4,890	2,180	1,650	708	12,250
1958	800	562	358	224	210	330	2,060	5,750	2,870	2,750	2,210	708	18,830
1959	1,240	605	410	332	212	392	1,720	1,620	2,210	1,810	1,200	1,260	13,010
1960	898	249	125	81	113	248	2,490	2,880	3,900	1,500	2,490	1,700	16,670

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	383	July 13, 1951	1.1	18.1	13,080	17.1	12,350
1952	1241	486	Sept. 12, 1952	2	28.1	20,420	30.7	22,330
1953	1281	374	Aug. 18, 1953	1	24.3	17,640	22.0	15,930
1954	1341	524	July 29, 1954	.6	9.83	7,120	9.20	6,600
1955	1391	166	May 19, 1955	.9	14.4	10,390	15.2	11,030
1956	1441	169	July 16, 1956	0	9.09	6,600	7.16	5,200
1957	1511	325	Aug. 10, 1957	0	16.9	12,250	12.7	13,630
1958	1561	580	June 6, 1958	3	26.0	18,830	26.8	19,370
1959	1631	216	Aug. 7, 1959	2	18.0	13,010	16.6	12,030
1960	1711	194	Aug. 9, 1960	.3	23.0	16,670	-	-

2075. Ponil Creek near Cimarron, N. Mex.

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

Drainage area.--171 sq mi.

Records available.--November 1915 to June 1919, August 1919 to July 1925, September 1925, September 1927 to July 1929, May 1950 to September 1960. Prior to May 1950 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 6,670 ft (from topographic map). Prior to May 8, 1922, at site about an eighth of a mile downstream at different datum. May 8, 1922, to Aug. 8, 1929, at site about three-eighths of a mile upstream at different datum.

Average discharge.--21 years (1915-25, 1927-28, 1950-60), 12.6 cfs (9,120 acre-ft per year).

Extremes.--1915-29, 1950-60: Maximum discharge, about 5,200 cfs (estimate by State engineer) Aug. 8, 1929, when gage was washed out; no flow at times.
Flood in September 1948 reached a stage of about 7 ft, from floodmarks (discharge, about 1,900 cfs).

Remarks.--Diversions for irrigation of 200 to 300 acres above station. Diversions 1,000 ft below station for irrigation of about 300 acres (about 1,200 acres total irrigated from Ponil Creek).

Correction .--In WSP 1311, some figures for water year 1920 are listed in error; they should be as listed below.

Month	Mean	Acre-feet
October 1919.....	17.7	1,090
Calendar year 1919.....	49.9	36,150
Water year 1919-20.....	19.3	14,030

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.21	0.40	0.45	0.39	0.34	1.00	6.72	8.71	2.07	0.09	1.75	0	1.85
1952	0	0	.41	1.10	1.82	2.88	37.9	69.7	19.4	3.08	5.50	.94	11.9
1953	.49	1.29	1.02	1.10	1.22	1.74	3.57	8.30	2.34	.45	.85	0	1.87
1954	0	.08	.64	.99	1.20	1.79	5.16	4.59	.47	5.89	2.51	0	1.96
1955	0	.06	.21	.26	.44	.33	3.42	62.7	26.7	10.1	33.8	4.87	12.0
1956	1.35	1.52	1.76	1.28	1.39	2.26	2.83	2.99	1.37	.53	2.75	0	1.67
1957	0	.01	.13	.03	.14	.46	11.0	42.5	26.1	9.04	30.0	6.53	10.6
1958	5.24	6.38	3.29	2.23	2.06	4.14	71.9	145	23.0	4.40	10.7	3.32	23.6
1959	1.61	2.42	2.15	1.19	1.54	2.05	6.40	10.1	11.3	3.79	3.11	.27	3.83
1960	.89	.76	.88	1.44	1.45	4.90	17.8	10.1	2.55	4.57	4.38	1.06	4.23

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13	24	28	24	19	61	400	536	123	5.6	108	0	1,340
1952	0	0	25	68	105	177	2,260	4,290	1,150	190	338	56	8,660
1953	30	77	62	68	68	107	212	511	139	28	53	0	1,360
1954	0	5.0	39	61	67	110	307	282	28	362	154	0	1,420
1955	0	3.6	13	16	24	20	204	3,860	1,590	618	2,080	290	8,720
1956	83	90	108	79	80	139	168	184	82	32	169	0	1,210
1957	0	.6	7.7	1.8	7.9	28	653	2,610	1,550	556	1,840	389	7,640
1958	322	379	202	137	114	255	4,280	8,940	1,370	270	656	197	17,120
1959	99	144	132	73	85	126	381	619	674	233	191	16	2,770
1960	55	45	54	89	84	301	1,060	618	152	281	269	63	3,070

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	318	Aug. 24, 1951	0	1.85	1,340	1.80	1,300
1952	1241	226	Aug. 22, 1952	0	11.9	8,660	12.1	8,800
1953	1281	388	May 28, 1953	0	1.87	1,360	1.70	1,230
1954	1341	752	July 11, 1954	0	1.96	1,420	1.92	1,390
1955	1391	1,080	July 20, 1955	0	12.0	8,720	12.4	8,980
1956	1441	1,140	Aug. 19, 1956	0	1.67	1,210	1.30	941
1957	1511	1,530	Aug. 9, 1957	0	10.6	7,640	11.8	8,540
1958	1561	1,160	Aug. 16, 1958	.9	23.6	17,120	22.9	16,590
1959	1631	2,040	June 30, 1959	.1	3.83	2,770	3.53	2,550
1960	1711	418	Aug. 9, 1960	0	4.23	3,070	-	-

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

Location.--Lat 36°22', long 104°58', in sec.30, T.25 N., R.19 E. (projected), in Maxwell Grant, on left bank at Sauble Ranch, 10 miles southwest of Cimmarron and 16 miles upstream from mouth.

Drainage area.--65 sq mi.

Records available.--June to October 1908 (discharge measurements only), January 1909 to January 1910, July and August 1910, May 1911 to May 1913, July 1913 to February 1915, October 1915 to September 1918, March 1919 to September 1920, June 1923 to September 1924, March to May 1927, August 1927 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Records for April and May 1910, published in WSP 287, have been found to be unreliable and should not be used. Published as "at," "near," or "above Abreu's Ranch near Cimarron" prior to October 1925 and as Rayado River at Sauble Ranch, near Cimarron, October 1925 to September 1952.

Gage.--Water-stage recorder. Altitude of gage is 6,880 ft (from topographic map). Prior to May 4, 1911, chain or staff gage at site about 2 miles downstream at different datum, May 4, 1911, to Sept. 8, 1925, water-stage recorder about 3 miles upstream at 2 sites within 100 ft at 3 different datums. Sept. 9, 1925, to July 16, 1934, water-stage recorder at site 700 ft upstream at different datum.

Average discharge.--41 years (1911-12, 1913-14, 1915-20, 1923-24, 1927-60), 14.1 cfs (10,210 acre-ft per year).

Extremes.--1909-12, 1913-60: Maximum discharge, about 850 cfs Apr. 23, 1942 (gage height, 4.94 ft), from rating curve extended above 190 cfs by logarithmic plotting; minimum daily, 0.4 cfs Nov. 16, 1956.

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

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.23	2.54	1.94	1.61	1.95	2.98	10.4	10.4	4.01	3.06	6.04	2.52	4.15
1952	1.96	2.20	2.25	2.67	2.98	4.25	45.1	77.1	21.8	9.73	19.7	13.8	17.0
1953	4.83	4.51	3.82	4.0	4.05	5.46	10.4	26.8	16.7	6.54	6.20	3.06	8.06
1954	3.28	3.51	3.93	3.40	3.36	4.16	8.30	7.84	3.15	3.74	3.05	1.98	4.15
1955	2.62	2.57	3.29	2.95	2.81	3.31	5.28	45.6	28.4	5.87	15.3	4.21	10.3
1956	2.23	2.67	3.09	2.69	2.54	4.68	5.20	4.65	1.79	1.42	2.10	.88	2.83
1957	1.23	1.40	1.27	1.58	2.51	3.61	15.4	49.5	35.2	16.6	18.8	11.7	13.1
1958	15.8	12.6	6.74	3.94	5.94	7.19	83.8	150	47.1	11.7	8.19	5.09	30.0
1959	4.35	4.44	3.25	2.89	3.17	4.22	11.3	14.5	6.58	4.25	3.83	1.89	5.40
1960	3.10	3.08	2.55	2.75	2.97	9.83	31.0	17.1	7.91	6.51	4.44	3.17	7.86

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	137	151	119	99	108	183	616	641	239	188	371	150	3,000
1952	121	131	139	164	172	261	2,680	4,740	1,300	598	1,210	821	12,340
1953	297	269	235	246	225	336	621	1,650	995	402	381	182	5,840
1954	202	209	242	209	187	256	494	482	187	230	187	118	3,000
1955	161	153	203	181	156	204	314	2,810	1,690	361	941	251	7,420
1956	137	159	190	165	146	288	310	286	107	87	129	52	2,060
1957	78.4	83.3	78.1	97.0	140	222	915	3,040	2,090	1,020	1,150	694	9,610
1958	971	748	415	242	330	442	4,990	9,230	2,800	719	504	303	21,690
1959	268	264	200	178	176	259	673	892	392	261	235	112	3,910
1960	191	183	156	169	171	604	1,840	1,050	471	400	273	188	5,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	4.12	2,980
1951	1211	55	July 30, 1951	0.8	4.15	3,000	4.12	2,990
1952	1241	295	Sept.13, 1952	.5	17.0	12,340	17.6	12,750
1953	1281	187	May 28, 1953	2.2	8.06	5,840	7.86	5,690
1954	1341	227	July 29, 1954	1.2	4.15	3,000	3.96	2,850
1955	1391	268	May 26, 1955	1.2	10.3	7,420	10.2	7,390
1956	1441	38	Aug. 18, 1956	.6	2.83	2,060	2.49	1,810
1957	1511	171	July 13, 1957	.4	13.1	9,610	15.9	11,502
1958	1561	320	June 6, 1958	3	30.0	21,690	28.0	20,290
1959	1631	35	Aug. 13, 1959	1.5	5.40	3,910	5.12	3,710
1960	1711	86	July 4, 1960	.8	7.86	5,700	-	-

2095. Rayado Creek near Miami, N. Mex.

Location.--Lat 36°22'00", long 104°52'40", in SW¼ sec.25, T.25 N., R.19 E. (projected), on left bank 50 ft downstream from diversion dam for Valdez ditch, 5 miles west of Miami, and 16 miles west of Springer.

Drainage area.--76 sq mi.

Records available.--March 1939 to September 1955. Prior to October 1952, published as Rayado River near Miami.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 6,500 ft (from topographic map).

Average discharge.--16 years (1939-55), 4.88 cfs (3,530 acre-ft per year).

Extremes.--1939-55: Maximum discharge uncertain, occurred Apr. 23, 1942 (gage height, 3.90 ft); no flow at times.

Remarks.--Diversions above station for irrigation of about 3,000 acres (most of which is below station).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.02	0	0	0	0	0.16	3.28	2.67	0.72	0	0.25	0.39	0.62
1952	.01	0	0	0	0	0	9.04	10.7	3.98	.66	3.08	.44	2.33
1953	0	0	.13	.08	.06	1.72	4.78	6.14	1.52	1.85	.51	.45	1.45
1954	.30	.24	.16	.10	0	.03	.46	2.94	.98	.18	.80	.15	.53
1955	.15	0	0	.07	.36	.35	.34	2.13	10.2	.10	.12	0	1.14

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.4	0	0	0	0	9.7	195	164	43	0	15	23	451
1952	.8	0	0	0	0	0	538	660	237	40	189	26	1,690
1953	0	0	7.7	5.2	3.6	106	284	377	91	114	31	27	1,050
1954	19	14	10	6.1	0	1.6	27	180	59	11	49	8.9	386
1955	9.1	0	0	4.4	20	22	20	131	608	6.3	7.3	0	828

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	0.53	385
1951	1211	48	Aug. 22, 1951	0	0.62	451	.62	450
1952	1241	38	Sept.13, 1952	0	2.33	1,690	2.34	1,700
1953	1281	41	Aug. 16, 1953	0	1.45	1,050	1.49	1,080
1954	1341	36	July 29, 1954	0	.53	386	.49	352
1955	1391	38	Aug. 18, 1955	0	1.14	828	-	-

2110. Cimarron Creek at Springer, N. Mex.

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

Drainage area.--1,032 sq mi.

Records available.--August 1907 to December 1909, January 1921 to February 1922, October 1924 to January 1926, September 1926 to September 1960. Prior to October 1952, published as Cimarron River at Springer.

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

Average discharge.--36 years (1920-21, 1924-25, 1926-60), 17.7 cfs (12,810 acre-ft per year).

Extremes.--1930-60: Maximum discharge, 6,250 cfs June 6, 1958 (gage height, 10.55 ft), from rating curve extended above 1,300 cfs on basis of slope-area measurement of peak flow; no flow at times in 1954, 1956-57.

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

Remarks.--Flow partly regulated by Eagle Nest Reservoir (see p. 251). Diversions for irrigation of about 23,000 acres above station and a few hundred acres between station and mouth.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4.81	4.74	4.38	4.69	4.41	3.68	4.56	14.7	7.38	25.1	53.5	2.03	11.3
1952	3.29	4.59	4.88	3.95	3.69	3.05	4.45	5.72	2.32	4.91	5.88	20.9	5.62
1953	1.98	3.03	3.84	3.34	2.76	3.23	2.80	4.51	2.33	4.75	43.2	1.91	6.55
1954	3.28	3.07	2.72	2.75	2.09	1.51	1.28	6.14	3.60	.52	2.10	1.57	2.56
1955	11.0	1.59	1.74	1.43	1.10	.95	.88	45.3	4.04	2.43	18.5	2.18	7.71
1956	1.46	2.58	1.97	1.92	1.94	1.50	1.70	.73	1.24	1.05	3.26	.01	1.62
1957	.04	.23	.28	.33	.33	.35	.50	1.66	2.55	2.97	.97	.54	.90
1958	30.6	12.7	8.52	6.19	4.77	5.86	105	425	138	4.89	7.11	3.79	63.1
1959	1.88	3.25	3.78	4.76	3.95	2.27	2.44	4.14	5.63	3.48	6.19	1.69	3.62
1960	3.54	3.51	3.76	3.09	3.43	3.12	2.97	3.67	4.03	5.14	2.14	2.44	3.40

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	296	282	270	289	245	227	271	906	439	1,540	3,290	121	8,180
1952	203	273	300	243	212	187	265	352	138	302	362	1,240	4,080
1953	122	180	236	205	153	199	167	277	139	292	2,660	113	4,740
1954	202	182	167	169	116	93	76	378	214	32	129	93	1,850
1955	675	95	107	88	61	59	53	2,790	241	149	1,140	130	5,590
1956	90	154	121	118	112	92	101	45	74	64	201	.4	1,170
1957	2.4	14	17	20	18	22	30	102	152	183	60	32	652
1958	1,880	757	524	381	265	360	6,240	26,110	8,200	301	437	226	45,680
1959	115	193	232	293	220	140	145	255	335	214	381	101	2,620
1960	218	209	231	190	197	192	177	226	240	316	131	145	2,470

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	5.63	4,080
1951	1211	2,900	Aug. 21, 1951	1	11.3	8,180	11.2	8,100
1952	1241	1,830	Sept.13, 1952	.4	5.62	4,080	5.29	3,840
1953	1281	2,200	Aug. 19, 1953	.4	6.55	4,740	6.57	4,760
1954	1341	1,030	May 24, 1954	0	2.56	1,850	3.01	2,180
1955	1391	1,600	Aug. 15, 1955	.2	7.71	5,590	7.01	5,080
1956	1441	394	Aug. 20, 1956	0	1.62	1,170	1.16	84
1957	1511	316	July 30, 1957	0	.90	652	5.22	3,780
1958	1561	6,250	June 6, 1958	.2	63.1	45,680	59.5	43,060
1959	1631	268	June 25, 1959	1.3	3.62	2,620	3.78	2,740
1960	1711	106	June 24, 1960	1.1	3.40	2,470	-	-

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

Location.--Lat 36°17'20", long 104°29'10", in NW¼ sec.27, T.24 N., R.23 E., on left bank 1 mile upstream from Chico Creek, 2½ miles downstream from Cimarron Creek, and 2½ miles south of Taylor Springs.
Drainage area.--2,853 sq mi.
Records available.--October 1939 to September 1958, water years 1959-60 (annual maximum). Records for water year 1940 incomplete, yearly estimate published in WSP 1311.
Gage.--Crest-stage gage. Water-stage recorder prior to Oct. 1, 1958. Altitude of gage is 5,600 ft (from topographic map).
Average discharge.--19 years (1939-58), 107 cfs (77,460 acre-ft per year).
Extremes.--1940-60: Maximum discharge, 37,400 cfs Apr. 23, 1942 (gage height, 24.17 ft); no flow at times.
Maximum flood known occurred Sept. 29, 1904 (discharge published as 91,100 cfs in WSP 842, 847).
Remarks.--Diversions for irrigation of about 30,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12.4	13.6	15.5	11.1	12.7	8.60	12.0	41.1	17.3	80.6	201	7.88	36.6
1952	6.3	10.2	10.7	7.7	8.8	6.1	6.6	8.4	8.7	50.9	141	190	37.9
1953	6.1	6.0	6	10	10.8	9.3	4.1	37.4	6.7	96.4	223	4.7	35.5
1954	2.1	8.7	8.6	7.8	6.9	4.0	1.4	7.5	5.6	25.7	50.5	3.9	11.2
1955	89.3	3.1	3.3	4.3	4.9	2.9	58.5	1,485	39.0	178	206	50.2	180
1956	43.0	6.7	8.2	10.0	12.8	6.5	2.9	15.8	5.7	63.8	34.8	0	17.7
1957	0	.9	1.1	1.2	1.0	2.0	13.1	64.8	16.0	59.6	140	10.4	26.2
1958	309	29.9	17.3	16.5	14.1	19.5	152	859	295	111	108	57.0	167

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	764	809	952	684	705	529	712	2,530	1,030	4,960	12,380	469	26,520
1952	389	607	660	472	508	377	393	514	516	3,130	8,650	11,310	27,530
1953	375	359	369	615	597	573	242	2,300	399	5,930	13,690	278	25,730
1954	131	516	530	482	383	246	83	462	331	1,580	3,110	234	8,090
1955	5,490	182	200	262	274	177	3,480	91,310	2,320	10,940	12,640	2,990	130,300
1956	2,640	399	502	615	734	399	175	974	341	3,920	2,140	0	12,840
1957	0	56	66	75	58	121	781	3,990	952	3,660	8,590	621	18,970
1958	19,020	1,780	1,060	1,010	785	1,200	9,030	52,830	17,550	6,820	6,630	3,390	121,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	53.6	38,770
1951	1211	5,860	Aug. 10, 1951	1.2	36.6	26,520	35.4	25,660
1952	1241	9,950	Sept.13, 1952	0	37.9	27,530	37.1	26,970
1953	1281	8,380	Aug. 20, 1953	0	35.5	25,730	35.6	25,800
1954	1341	3,240	Aug. 7, 1954	0	11.2	8,090	17.7	12,780
1955	1391	24,500	May 19, 1955	0	180	130,300	177	127,900
1956	1441	2,100	July 17, 1956	0	17.7	12,840	13.0	9,420
1957	1511	14,000	Aug. 5, 1957	0	26.2	18,970	56.2	40,710
1958	1561	11,800	May 15, 1958	0	167	121,100	-	-
1959	-	3,580	Aug. 25, 1959	-	-	-	-	-
1960	-	5,630	Aug. 30, 1960	-	-	-	-	-

2130. Colmor intake canal near Ocate, N. Mex.

Location.--Lat 36°08'55", long 104°52'30", in SW¼ sec.12, T.22 N., R.19 E., 130 ft downstream from headgate, 5 miles southwest of Lake Charette, and 10 miles southeast of Ocate.
Records available.--May 1933 to July 1951.
Gage.--Water-stage recorder and masonry control. Altitude of gage is 6,730 ft (from topographic map).
Average discharge.--16 years (1933-44, 1945-50), 4.14 cfs (3,000 acre-ft per year).
Extremes.--1933-51: Maximum discharge, 892 cfs Apr. 23, 1942 (gage height, 5.69 ft), from rating curve extended above 130 cfs on basis of theoretical rating for the canal and verified to some extent by slope-area measurement of 760 cfs after construction of concrete control; no flow at times.
Remarks.--Canal diverts entire flow of Ocate River below about 800 cfs. Water is delivered to Lake Charette, which serves as a reservoir for Colmor irrigation district. Diversions for irrigation of a few hundred acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0.003	0	0.21	0.34	0.08	0.19	2.26	0	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0.2	0	13	19	5.2	12	139	0	-	-	-	-

Yearly discharge, in cubic feet per second of Colmor intake canal near Ocate, N. Mex.

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	0.34	248
1951	1211	a187	May 16, 1951	0	-	-	-	-

a Maximum during period October to July.

2140. Canadian River near Roy, N. Mex.

Location.--Lat 35°55'10", long 104°21'10", in E½ sec.35, T.20 N., R.24 E., on right bank 1,080 ft upstream from bridge on State Highway 120 and 9 miles west of Roy.

Drainage area.--4,066 sq mi, of which 107 sq mi is probably noncontributing.

Records available.--April 1936 to September 1960. Monthly discharge only for April 1936, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 4,892.55 ft above mean sea level (levels by Corps of Engineers). Prior to Oct. 9, 1942, Jan. 5, 1943, to Jan. 20, 1945, and Aug. 6, 1945, to Apr. 30, 1946, at site 1,080 ft downstream at datum 0.39 ft higher. Oct. 10, 1942, to Jan. 4, 1943, Jan. 21 to Aug. 5, 1945, and May 1, 1946, to Sept. 30, 1958, at present site at datum 1.00 ft higher.

Average discharge.--24 years (1936-60), 137 cfs (99,180 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 63,800 cfs Apr. 23, 1942 (gage height, 14.22 ft, site and datum then in use); no flow at times.
Maximum flood known occurred Sept. 29 or 30, 1904, when peak near Taylor Springs was computed as 91,100 cfs (see WSP 842 and 847).

Remarks.--Diversions for irrigation of about 30,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17.2	15.2	17.2	17.6	20.0	8.2	11.9	83.5	30.9	237	414	10.7	74.7
1952	3.2	8.3	9.0	9.6	11.0	6.3	5.1	4.8	2.8	38.1	621	178	75.4
1953	7.1	5.4	7.8	12.4	13.5	8.8	2.0	25.2	6.7	105	269	40.3	42.4
1954	1.6	11.6	8.9	8.2	7.1	2.8	.1	5.5	.1	28.2	58.9	4.4	11.6
1955	194	3.2	3.5	4.4	5.1	3.4	82.3	2,340	50.0	204	314	58.6	277
1956	39.1	6.4	8.1	10.5	13.0	4.8	.6	33.6	12.9	89.1	61.0	.2	23.5
1957	0	0	0	0	0	.02	19.6	67.2	41.0	124	170	31.8	38.3
1958	344	35.7	25.2	20.1	16.2	25.2	133	1,102	334	150	235	81.5	211
1959	10.8	20.3	27.6	27.9	25.5	9.05	11.6	86.7	59.3	55.7	198	10.7	45.6
1960	26.0	20.1	17.5	12.6	22.0	58.5	93.6	7.91	19.6	65.2	208	50.4	50.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,060	906	1,060	1,080	1,110	502	706	5,130	1,840	14,550	25,470	635	54,050
1952	198	496	555	593	633	389	301	298	167	2,340	38,200	10,590	54,760
1953	436	321	480	760	752	540	121	1,550	397	6,430	16,550	2,400	30,740
1954	97	690	545	504	395	171	6.0	339	7.9	1,730	3,620	264	8,370
1955	11,910	190	212	268	286	208	4,900	143,900	2,980	12,570	19,310	3,490	200,200
1956	2,400	381	500	645	750	294	34	2,070	766	5,480	3,750	14	17,080
1957	0	0	0	0	0	9.9	1,170	4,130	2,440	7,630	10,470	1,890	27,740
1958	21,120	2,130	1,550	1,240	899	1,550	7,910	67,770	19,860	9,220	14,430	4,850	152,500
1959	622	1,210	1,700	1,720	1,410	556	691	5,330	3,530	3,420	12,150	637	33,020
1960	1,600	1,190	1,070	774	1,270	3,600	5,570	486	1,160	4,010	12,800	3,000	36,530

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	97.4	70,520
1951	1211	20,900	Aug. 10, 1951	0	74.7	54,050	72.2	52,270
1952	1241	20,000	Aug. 21, 1952	0	75.4	54,760	75.4	54,750
1953	1281	11,300	Aug. 20, 1953	0	42.4	30,740	42.6	30,830
1954	1341	1,710	Aug. 8, 1954	0	11.6	8,370	26.7	19,350
1955	1391	41,000	May 19, 1955	0	277	200,200	264	191,200
1956	1441	2,660	Aug. 21, 1956	0	23.5	17,080	19.0	13,800
1957	1511	5,720	Aug. 5, 1957	0	38.3	27,740	72.6	52,540
1958	1561	14,800	May 15, 1958	0	211	152,500	181	131,300
1959	1631	7,530	Aug. 25, 1959	.3	45.6	33,020	46.0	33,300
1960	1711	3,710	Aug. 27, 1960	.3	50.3	36,530	-	-

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2145. Rio Agua Negra near Holman, N. Mex.

Location.--Lat 36°07'00", long 105°22'35", on right bank 150 ft upstream from bridge, 2½ miles south of Chacon, 4½ miles downstream from confluence of Luna and Lujan Creeks, 5.0 miles north of Holman, and 8½ miles southwest of Guadalupita, Mora County.

Drainage area.--57 sq mi.

Records available.--January 1953 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 7,876 ft (by barometer).

Average discharge.--7 years (1953-60), 11.8 cfs (8,540 acre-ft per year).

Extremes.--1953-60: Maximum discharge, 4,700 cfs July 22, 1954 (gage height, 6.10 ft), from rating curve extended above 300 cfs on basis of slope-area measurement of peak flow; minimum daily, 0.1 cfs July 18, 1954, Sept. 21, 1956.

Remarks.--Diversions for irrigation of about 1,600 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	4.00	3.33	4.08	6.55	19.6	14.5	5.96	4.02	1.17	-
1954	1.19	1.91	2.38	3.40	3.18	3.83	2.70	4.06	2.14	10.4	6.90	2.05	3.70
1955	2.71	1.61	1.37	1.20	1.00	2.19	1.89	22.4	11.8	4.86	24.4	8.97	7.09
1956	2.90	2.51	3.10	3.13	3.73	3.85	1.91	1.73	1.13	5.57	2.60	.40	2.72
1957	.32	.67	1.04	1.47	1.92	2.39	11.8	44.4	41.7	16.7	45.1	28.5	16.4
1958	17.8	20.1	10.8	11.5	8.56	10.6	97.3	172	72.8	13.4	11.9	7.15	37.9
1959	5.62	6.51	5.36	4.32	4.68	4.78	5.53	8.67	9.20	4.96	11.0	2.89	6.14
1960	3.01	4.71	4.74	3.26	3.53	10.4	36.3	13.1	10.4	7.41	6.55	2.81	8.83

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	246	185	251	390	1,200	863	366	247	69	-
1954	73	114	146	209	177	236	161	250	128	640	424	122	2,680
1955	167	95.6	84.3	73.8	55.5	134	113	1,380	702	299	1,500	534	5,140
1956	178	149	190	192	215	237	114	106	67	342	160	24	1,970
1957	20	40	64	90	107	147	703	2,730	2,480	1,030	2,770	1,700	11,880
1958	1,090	1,200	666	704	488	655	5,790	10,560	4,330	823	730	425	27,460
1959	346	387	330	266	260	294	329	533	547	305	679	172	4,450
1960	185	280	291	200	203	642	2,160	805	616	456	403	167	6,410

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953	1281	92	May 28, 1953	-	-	-	5.74	4,150
1954	1341	4,700	July 22, 1954	0.1	3.70	2,680	3.72	2,690
1955	1391	314	Aug. 8, 1955	.8	7.09	5,140	7.33	5,310
1956	1441	3,000	July 30, 1956	.1	2.72	1,970	2.18	1,580
1957	1511	2,080	July 14, 1957	.2	16.4	11,880	20.3	14,710
1958	1561	3,880	June 6, 1958	6.4	37.9	27,460	35.3	25,570
1959	1631	254	July 26, 1959	.5	6.14	4,450	5.72	4,140
1960	1711	70	Aug. 3, 1960	1.6	8.83	6,410	-	-

2146. Vigil Canyon near Holman, N. Mex.

Location.--Lat 36°02'50", long 105°24'10", in Mora Grant, on right bank 1½ miles northwest of Holman, Mora County.

Drainage area.--2.8 sq mi.

Records available.--May 1956 to September 1960.

Gage.--Water-stage recorder. Concrete control since September 1956. Altitude of gage is 7,840 ft (by barometer).

Extremes.--1956-60: Maximum discharge, 87 cfs June 6, 1958 (gage height, 3.43 ft), from rating curve extended above 13 cfs; no flow at times.

Remarks.--Large percentage of flow is transmountain diversion from Rio Pueblo. Little natural flow except during local storms or snowmelt.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	0.51	0.03	0.02	0	-
1957	0	0	0	0	0	0	0	1.82	9.58	6.39	5.58	1.00	2.04
1958	.23	.60	.50	.25	.14	.35	7.83	6.10	8.24	1.41	.20	.003	2.15
1959	.24	.08	.02	0	0	0	.07	1.16	4.70	.87	3.52	.53	.94
1960	.64	.22	.11	.10	.10	.72	3.27	6.11	9.85	3.88	1.21	.33	2.21

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	30	1.6	1.2	0	-
1957	0	0	0	0	0	0	0	112	570	393	343	60	1,480
1958	14	36	31	16	7.9	22	466	375	490	86	12	.2	1,560
1959	15	4.6	1.0	0	0	0	4.2	72	279	54	216	31	677
1960	39	13	6.7	6.1	5.8	44	195	376	586	238	74	20	1,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	6.1	July 9, 1956	0	-	-	-	-
1957	1511	68	Aug. 5, 1957	0	2.04	1,480	2.15	1,560
1958	1561	87	June 6, 1958	0	2.15	1,560	2.07	1,500
1959	1631	50	Aug. 6, 1959	0	.94	677	.99	715
1960	1711	16	June 10, 1960	.1	2.21	1,600	-	-

2147. Agua Fria Creek near Holman, N. Mex.

Location.--Lat 36°01'25", long 105°24'35", in Mora Grant, on left bank 1¾ miles southwest of Holman, Mora County.

Drainage area.--9.2 sq mi.

Records available.--May 1956 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 7,850 ft (from topographic map).

Extremes.--1956-60: Maximum discharge, 138 cfs Aug. 6, 1959; maximum gage height, 1.83 ft June 10, 1960; minimum daily discharge, 0.1 cfs at times in 1956-57, 1959-60.

Remarks.--Natural flow is supplemented by transmountain diversion which may, at times, supply entire flow. This supplementary flow not otherwise gaged.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	1.30	0.36	0.34	0.11	-
1957	0.24	0.29	0.38	0.54	0.27	0.35	0.63	4.73	25.4	9.64	21.3	9.37	6.12
1958	4.17	3.54	2.83	1.75	1.0	2.12	18.6	36.3	17.5	5.92	3.25	1.86	8.28
1959	1.23	.77	.50	.31	.33	.47	1.24	18.0	12.4	2.46	11.6	2.64	4.37
1960	1.77	1.05	.69	.45	.32	1.70	†9.78	15.4	20.1	7.89	4.06	1.69	5.41

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	78	22	21	6.3	-
1957	14	17	23	34	15	22	37	291	1,510	592	1,310	557	4,420
1958	257	210	174	108	56	130	1,110	2,230	1,040	364	200	110	5,990
1959	76	46	31	19	18	29	74	1,110	738	152	715	157	3,160
1960	109	63	42	28	19	105	582	947	1,200	485	250	101	3,930

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	6.6	May 26, 1956	-	-	-	-	-
1957	1511	64	Aug. 3, 1957	0.1	6.12	4,420	6.93	5,010
1958	1561	86	June 5, 1958	1.0	8.28	5,990	7.61	5,500
1959	1631	138	Aug. 6, 1959	.1	4.37	3,160	4.45	3,230
1960	1711	44	June 10, 1960	.1	5.41	3,930	-	-

2148. Rio de la Casa near Cleveland, N. Mex.

Location.--Lat 35°58'30", long 105°23'10", in Mora Grant, on left bank 1½ miles southwest of Cleveland.

Drainage area.--23 sq mi.

Records available.--May 1956 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 7,625 ft (by barometer).

Extremes.--1956-60: Maximum discharge, 2,260 cfs Aug. 6, 1959 (gage height, 6.0 ft), from rating curve extended above 200 cfs on basis of slope-area measurement of peak flow; minimum daily, 0.2 cfs Sept. 21, 22, 1956.

Remarks.--Diversions for irrigation of about 100 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	3.50	1.67	1.66	0.63	-
1957	0.85	0.80	0.83	1.60	1.78	2.58	9.14	25.0	70.5	26.4	40.2	14.4	16.2
1958	8.48	10.1	5.81	4.54	3.50	4.40	34.0	57.9	63.7	10.6	6.55	5.85	18.0
1959	4.72	4.31	2.66	1.85	2.00	2.33	5.95	36.1	26.8	6.24	51.3	8.98	12.9
1960	5.50	5.09	3.56	3.07	3.00	9.91	24.0	34.0	60.1	28.3	11.7	6.18	16.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	208	103	102	37	-
1957	52	48	51	98	98	159	544	1,540	4,190	1,620	2,470	859	11,730
1958	521	602	357	279	195	270	2,020	3,560	3,790	654	403	348	13,000
1959	290	257	163	114	111	143	354	2,220	1,590	384	3,150	534	9,410
1960	338	303	219	189	173	609	1,430	2,090	3,580	1,740	720	368	11,760

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	17	Aug. 18, 1956	-	-	-	-	-
1957	1511	344	Aug. 5, 1957	0.3	16.2	11,730	18.0	13,060
1958	1561	226	June 6, 1958	1.0	18.0	13,000	16.9	12,230
1959	1631	2,260	Aug. 6, 1959	1	12.9	9,410	13.1	9,460
1960	1711	322	June 10, 1960	1.9	16.2	11,760	-	-

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

Location.--Lat 35°56'20", long 105°15'05", in Mora Grant, on right bank 500 ft downstream from head and half a mile west of La Cueva, Mora County.

Records available.--June 1956 to September 1960.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 7,031 ft (by barometer).

Extremes.--1956-60: Maximum daily discharge, 32 cfs Aug. 21, 1957; no flow at times in each year.

Remarks.--Canal diverts water from left bank of Mora River for irrigation and off-channel storage below La Cueva. Published record represents flow below wasteway half a mile downstream from head of canal. Flow shown is total diversion less flow in wasteway.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	124	90	66	73	-
1957	136	173	184	252	159	224	106	477	1,020	1,060	1,700	939	6,430
1958	556	140	80	72	16	35	92	456	762	164	256	243	2,870
1959	780	544	129	83	93	181	143	364	456	328	237	13	3,350
1960	573	785	318	129	101	152	451	251	593	375	145	208	4,080

Note.--Composite (diversion less wasteway flow).

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

Location.--Lat 35°56'15", long 105°15'05", in Mora Grant, on right downstream wingwall of highway bridge at La Cueva, Mora County, a quarter of a mile downstream from Las Vegas-Mora highway bridge and half a mile downstream from La Cueva damsite.

Drainage area.--173 sq mi.

Records available.--August 1903 to April 1905 (gage heights and discharge measurements only), May 1905 to July 1911, April 1931 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Figures of daily discharge for February to April 1905 have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Altitude of gage is 7,015 ft (by barometer). Aug. 25, 1903, to Sept. 29, 1904, staff gage at different datum (destroyed by flood of Sept. 29, 1904). Feb. 22, 1905, to July 31, 1911, staff gages at different datums.

Average discharge.--33 years (1906-10, 1931-60), 28.1 cfs (20,340 acre-ft per year).

Extremes.--1931-60: Maximum discharge, 1,530 cfs Sept. 23, 1941, from rating curve extended above 400 cfs by logarithmic plotting; maximum gage height, 7.62 ft Aug. 5, 1940; no flow at times.

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

Remarks.--Diversions above station for irrigation of about 7,000 acres, part of which is below station. This record plus La Cueva Canal below La Cueva (see preceding page) equals total flow in valley cross section.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.81	0.79	0.70	0.54	0.57	1.95	2.41	3.67	4.28	5.47	19.0	6.03	4.06
1952	1.38	.94	.77	.80	.63	1.21	30.8	65.5	48.2	10.2	30.4	28.9	18.3
1953	15.6	7.30	8.02	7.15	5.51	3.22	2.60	18.8	60.9	26.1	9.80	6.26	14.3
1954	2.66	1.95	1.75	1.84	1.79	3.02	2.30	3.68	2.26	9.35	26.0	9.49	5.56
1955	10.7	.77	1.06	.77	1.09	3.01	2.4	34.6	22.8	36.8	77.5	23.3	18.1
1956	4.90	1.64	4.71	7.29	3.63	3.15	2.31	2.03	1.11	4.62	1.43	.46	3.12
1957	.64	.38	.55	.49	.52	1.05	2.98	30.6	61.6	47.2	134	62.7	28.8
1958	53.0	49.3	31.1	19.5	19.3	21.7	204	370	160	26.9	34.4	24.5	84.8
1959	5.85	15.3	12.8	9.32	9.05	6.45	5.84	13.3	37.1	14.9	67.7	15.9	17.9
1960	11.3	6.37	8.72	11.2	10.7	17.1	36.7	12.0	79.4	59.2	15.9	14.1	23.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	173	47	43	33	32	120	144	226	255	336	1,170	359	2,940
1952	85	56	48	49	36	75	1,830	4,030	2,870	627	1,870	1,720	13,300
1953	959	434	493	440	306	198	155	1,150	3,620	1,610	603	373	10,340
1954	164	116	108	113	100	186	137	226	134	575	1,600	564	4,020
1955	660	46	65	47	60	189	142	2,120	1,360	2,260	4,770	1,390	13,110
1956	301	97	290	448	209	194	137	125	66	284	88	27	2,270
1957	39	22	34	30	29	65	177	1,880	3,670	2,900	8,230	3,730	20,810
1958	3,260	2,930	1,910	1,200	1,070	1,340	12,160	22,770	9,510	1,650	2,120	1,460	61,380
1959	360	912	788	573	502	397	347	819	2,210	914	4,160	946	12,930
1960	698	379	536	689	618	1,050	2,180	740	4,720	3,640	978	837	17,060

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3.95	2,860
1951	1211	405	Aug. 1, 1951	0.1	4.06	2,940	3.95	2,860
1952	1241	685	Aug. 21, 1952	.4	18.3	13,300	20.6	14,990
1953	1281	565	July 19, 1953	1.0	14.3	10,340	12.2	8,840
1954	1341	817	Aug. 6, 1954	1.2	5.56	4,020	6.09	4,410
1955	1391	1,090	July 11, 1955	.6	18.1	13,110	18.0	13,030
1956	1441	431	July 30, 1956	.2	3.12	2,270	2.30	1,670
1957	1511	842	Aug. 16, 1957	.2	28.8	20,810	39.8	28,810
1958	1561	1,190	June 6, 1958	6.8	84.8	61,380	76.4	55,340
1959	1631	479	Aug. 7, 1959	2.6	17.9	12,930	17.2	12,480
1960	1711	386	June 11, 1960	3.1	23.5	17,060	-	-

2156. Cebolla River near Golondrinas, N. Mex.

Location.--Lat 35°53'15", long 105°13'45", in Mora Grant, on right bank about 50 ft downstream from ford on State Highway 160 and 2¼ miles west of Golondrinas, Mora County.

Drainage area.--64 sq mi.

Records available.--June 1956 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 6,690 ft (by barometer).

Extremes.--1956-60: Maximum discharge, 1,390 cfs Oct. 19, 1957, from rating curve extended above 150 cfs on basis of contracted-opening measurement at gage height 5.30 ft; maximum gage height, 5.30 ft Aug. 4, 1957; minimum daily discharge, 0.3 cfs at times in 1956, 1958.

A major flood probably occurred in August 1952; discharge, about 9,300 cfs (gage height, about 11.8 ft, from old floodmark), by slope-area measurement of June 1956.

Remarks.--Diversions for irrigation of about 3,200 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	0.58	0.92	0.70	0.46	-
1957	0.61	0.96	1.06	0.98	0.97	0.75	0.98	1.34	.66	4.98	14.3	4.01	2.66
1958	27.0	8.88	4.9	2.57	2.59	5.97	78.6	31.6	5.57	.75	1.39	1.02	14.2
1959	1.15	1.77	1.47	1.94	1.92	1.88	1.53	1.52	2.11	1.94	3.98	1.53	1.90
1960	1.74	2.56	2.00	2.04	2.10	5.24	3.23	.61	3.21	7.35	1.82	.82	2.73

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	34	57	43	27	-
1957	37	57	65	60	54	46	58	82	40	306	881	239	1,920
1958	1,660	528	300	158	144	367	4,670	1,950	331	46	85	61	10,300
1959	71	105	91	119	107	116	91	94	126	119	245	91	1,380
1960	107	152	123	125	121	322	192	37	191	452	112	49	1,980

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	a72	July 2, 1956	0.3	-	-	-	-
1957	1511	1,270	Aug. 4, 1957	.4	2.66	1,920	5.88	4,250
1958	1561	1,390	Oct. 19, 1957	.3	14.2	10.300	11.2	8,080
1959	1631	229	Aug. 9, 1959	.8	1.90	1,380	2.06	1,490
1960	1711	135	July 11, 1960	.4	2.73	1,980	-	-

a Maximum during period June to September.

2165. Mora River near Golondrinas, N. Mex.

Location.--Lat 35°53'40", long 105°09'30", in Mora Grant, at downstream end of left abutment of highway bridge, 1.2 miles upstream from Coyote Creek, 2 miles east of Golondrinas, Mora County, and 4 miles downstream from Cebolla River.

Drainage area.--267 sq mi.

Records available.--March 1915 to May 1921, October 1921 to March 1922, May, August to September 1922, July 1923 to July 1924, December 1924 to September 1960. Monthly discharge only 1915-30, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 6,730 ft (from topographic map). Mar. 10, 1915, to June 4, 1921, water-stage recorder at site 3½ miles upstream at different datum. July 6, 1921, to Jan. 5, 1929, staff gage or water-stage recorder at present site at datum 1.0 ft higher.

Average discharge.--43 years (1915-20, 1921-22, 1923-60), 35.1 cfs (25,410 acre-ft per year).

Extremes.--1915-60: Maximum discharge, 14,000 cfs Aug. 22, 1952 (gage height, 14.4 ft); no flow at times.
Floods of Sept. 29, 1904, and June 11, 1913, probably exceeded 25,000 cfs.

Remarks.--Diversions for irrigation of about 12,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.33	1.73	1.54	2.34	1.71	1.43	0.88	4.08	1.71	6.17	19.3	2.70	3.95
1952	1.64	1.77	1.87	1.45	1.57	1.03	26.4	62.8	44.2	4.16	84.9	35.6	22.4
1953	17.4	11.6	13.8	12.1	7.90	5.52	1.41	12.7	39.5	29.1	11.0	38.8	16.8
1954	3.42	4.65	4.20	4.82	3.04	1.89	1.04	1.91	.51	5.81	28.2	7.05	5.58
1955	14.5	2.02	1.96	2.50	1.91	2.14	.25	41.8	20.1	29.7	74.2	21.9	17.9
1956	5.34	2.80	6.33	7.92	4.98	2.40	.86	5.95	.76	2.46	.77	.27	3.42
1957	.21	.40	.52	.65	.55	.58	.61	25.9	57.4	50.1	143	64.9	29.0
1958	73.5	56.6	35.9	22.7	23.3	29.3	288	381	161	30.4	32.6	25.2	96.8
1959	6.15	16.0	13.8	11.9	13.1	5.95	4.05	10.1	34.9	15.5	80.3	17.6	19.2
1960	13.2	11.4	12.0	14.3	15.2	20.5	35.9	3.77	86.4	66.1	13.0	12.7	25.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	205	103	95	144	95	88	52	251	102	379	1,180	160	2,850
1952	101	106	115	89	90	63	1,570	3,860	2,630	256	5,220	2,120	16,220
1953	1,070	692	849	746	439	340	84	782	2,350	1,790	677	2,310	12,130
1954	210	276	258	296	169	116	62	118	30	357	1,730	420	4,040
1955	892	120	120	154	106	131	15	2,570	1,190	1,830	4,560	1,300	12,990
1956	328	167	389	487	287	148	51	366	45	151	47	16	2,480
1957	13	24	32	40	30	36	36	1,590	3,420	3,080	8,800	3,860	20,960
1958	4,520	3,370	2,210	1,400	1,300	1,800	17,120	23,420	9,570	1,870	2,000	1,500	70,080
1959	378	949	847	732	730	366	241	619	2,080	950	4,930	1,050	13,870
1960	813	681	741	881	873	1,260	2,140	232	5,140	4,060	800	756	18,380

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3.81	2,760
1951	1211	1,100	July 31, 1951	0.4	3.95	2,850	3.84	2,770
1952	1241	14,000	Aug. 22, 1952	.5	22.4	16,220	25.5	18,510
1953	1281	5,250	Sept. 1, 1953	.5	16.8	12,130	14.2	10,260
1954	1341	633	Aug. 6, 1954	.1	5.58	4,040	6.12	4,430
1955	1391	562	July 12, 1955	.1	17.9	12,990	17.6	12,740
1956	1441	875	May 23, 1956	0	3.42	2,480	2.30	1,670
1957	1511	707	Aug. 4, 1957	.1	29.0	20,960	42.8	30,990
1958	1561	*1,530	Oct. 19, 1957	6.7	96.8	70,080	85.8	62,150
1959	1631	582	Aug. 7, 1959	1.7	19.2	13,870	19.2	13,930
1960	1711	404	June 11, 1960	1.7	25.3	18,380	-	-

* Revised.

2170. Coyote Creek below Black Lake, N. Mex.

Location.--Lat 36°16'20", long 105°14'50", in NW¼ sec.33, T.14 N., R.16 E., on right bank 150 ft downstream from road crossing, a quarter of a mile downstream from Black Lake, 2 miles south of Black Lake Village, and 12 miles south of Agua Fria.

Drainage area.--48 sq mi.

Records available.--December 1952 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 8,450 ft (from topographic map).

Average discharge.--7 years (1953-60), 3.95 cfs (2,860 acre-ft per year).

Extremes.--1953-60: Maximum discharge, 913 cfs June 6, 1958 (gage height, 4.70 ft); no flow at times.

Remarks.--Small amount of regulation possible at open flume in outlet from Black Lake. Diversions for irrigation of several hundred acres above station. Surface waste from one small ditch may enter stream between station and Black Lake.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	1.83	1.58	2.23	1.53	3.12	0.55	0.57	1.12	0.45	-
1954	0.59	0.24	0.37	1.49	2.66	1.17	.23	.07	.06	.16	.16	.15	0.60
1955	.29	.72	.60	.47	.13	.95	.75	5.89	.98	.05	4.38	.97	1.36
1956	.23	.65	.83	1.44	1.29	2.06	.29	.1	.1	.1	.16	.1	.61
1957	.12	.19	.07	.08	1.68	1.62	2.57	11.9	5.91	.82	12.2	5.95	3.61
1958	9.55	6.51	3.46	2.32	5.39	6.40	53.2	67.7	29.2	4.98	6.93	4.47	16.7
1959	4.41	4.95	3.75	3.31	3.02	4.29	3.71	1.74	.88	.53	2.18	.37	2.76
1960	.92	2.03	2.36	1.88	1.83	5.43	4.09	1.96	.91	.59	1.17	.57	1.98

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	112	88	137	91	192	33	35	69	27	-
1954	36	14	23	91	148	72	13	4.6	3.6	10	9.7	9.1	434
1955	18	43	37	29	7.1	59	44	363	59	2.8	269	58	989
1956	14	38	51	89	74	126	17	6.1	6.0	6.1	9.7	6.0	443
1957	7.1	12	4.6	5.0	93	100	153	734	351	50	750	354	2,610
1958	588	387	213	143	300	394	3,170	4,160	1,730	306	426	266	12,080
1959	271	295	230	203	168	264	221	107	52	33	134	22	2,000
1960	56	121	145	116	105	334	244	120	54	36	72	34	1,440

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953	1281	18	Apr. 9, 1953	-	-	-	1.18	867
1954	1341	5.0	Feb. 18, 1954	0	0.60	434	63	459
1955	1391	*50	May 22, 1955	0	1.36	989	1.37	994
1956	1441	12	Mar. 5, 1956	.1	.61	443	.50	364
1957	1511	76	June 1, 1957	0	3.61	2,610	5.22	3,780
1958	1561	913	June 6, 1958	1.1	16.7	12,080	16.2	11,690
1959	1631	7.2	Oct. 29, 1958	.1	2.76	2,000	2.11	1,530
1960	1711	20	Mar. 22, 1960	0	1.98	1,440	-	-

* Revised.

2171. Coyote Creek above Guadalupita, N. Mex.

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

Drainage area.--71 sq mi.

Records available.--May 1956 to September 1960.

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

Extremes.--1956-60: Maximum discharge, 1,390 cfs June 6, 1958 (gage height, 6.08 ft), from rating curve extended above 150 cfs; minimum daily, 0.2 cfs June 19, 20, 1956.

Remarks.--Diversions for irrigation of about 2,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	0.55	0.59	0.80	0.55	-
1957	0.82	0.86	0.80	0.97	3.29	2.92	4.84	19.1	11.2	2.80	24.3	11.0	6.94
1958	23.0	18.5	7.27	4.97	6.89	10.2	101	98.8	40.6	6.06	8.40	5.86	27.7
1959	4.85	5.61	4.74	4.56	4.45	4.78	4.88	3.63	2.31	1.72	4.02	1.43	3.91
1960	2.05	2.90	2.25	2.27	2.71	9.71	7.64	4.33	2.40	2.05	2.30	1.77	3.54

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	32	36	49	33	-
1957	50	51	49	60	183	180	288	1,180	644	172	1,490	654	5,020
1958	1,420	1,100	447	305	383	625	6,010	6,070	2,420	373	516	349	20,020
1959	298	334	291	280	247	294	290	223	137	106	247	85	2,830
1960	126	172	138	139	156	597	454	266	143	126	142	106	2,560

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	11	Aug. 25, 1956	-	-	-	-	-
1957	1511	130	May 11, 1957	0.5	6.94	5,020	10.8	7,840
1958	1561	1,390	June 6, 1958	2.5	27.7	20,020	24.8	17,970
1959	1631	16	June 24, 1959	.9	3.91	2,830	3.24	2,340
1960	1711	26	Mar. 22, 1960	.6	3.54	2,560	-	-

2180. Coyote Creek near Golondrinas, N. Mex.

Location.--Lat 35°54'40", long 105°09'50", in Mora Grant, on left bank a third of a mile downstream from Coyote Creek damsite, 2 miles upstream from mouth, and 2 miles northeast of Golondrinas.

Drainage area.--215 sq mi.

Records available.--April 1928 to September 1960. Prior to October 1930 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 6,820 ft (from topographic map). Prior to Apr. 26, 1938, at site 0.4 mile downstream at different datum (staff gage prior to Apr. 20, 1929). Apr. 26, 1938, to Sept. 25, 1946, at site 139 ft downstream at same datum.

Average discharge.--32 years (1928-60), 11.7 cfs (8,470 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 3,200 cfs July 11, 1955 (gage height, 8.60 ft), from rating curve extended above 180 cfs on basis of slope-area measurements at gage heights 5.54 and 7.74 ft; maximum gage height, 10.1 ft Aug. 30, 1936 (site and datum then in use); no flow Aug. 4, 1945, Apr. 10, May 9, 10, 1956.

Remarks.--Diversions (including off-channel storage) for irrigation of about 4,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.14	2.04	2.31	2.68	1.80	2.98	3.47	5.45	1.45	10.3	10.0	1.97	3.92
1952	1.98	2.52	3.40	2.21	1.80	3.68	5.07	9.08	1.98	1.59	10.1	12.2	4.64
1953	4.82	3.92	6.84	5.85	4.23	2.55	.77	1.83	5.27	4.98	10.5	4.11	4.66
1954	2.56	3.87	4.42	5.17	4.56	2.20	1.55	.99	1.04	2.64	4.64	1.80	2.95
1955	2.65	1.84	1.59	2.0	1.12	1.75	1.06	12.5	.91	16.8	28.0	56.6	6.42
1956	2.71	3.65	4.33	3.98	4.36	2.84	.99	2.56	1.07	1.84	.78	.65	2.48
1957	.72	1.74	2.48	1.64	1.73	2.27	1.65	11.8	8.15	10.5	40.7	15.9	8.34
1958	64.5	38.8	19.4	13.7	15.4	17.9	176	145	46.0	6.69	10.1	7.59	46.8
1959	6.57	7.43	6.32	6.65	7.74	4.11	2.53	4.39	7.91	3.18	6.26	1.51	5.37
1960	2.89	5.95	3.73	4.61	5.37	8.87	3.64	1.58	4.18	6.21	1.35	1.28	4.14

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	132	122	142	165	100	183	206	335	86	631	615	117	2,830
1952	122	150	209	136	104	226	302	558	118	98	621	723	3,370
1953	297	233	420	359	235	156	46	113	313	306	648	245	3,370
1954	157	230	272	318	253	135	92	61	62	162	285	107	2,130
1955	163	109	98	123	62	107	63	770	54	1,040	1,720	337	4,650
1956	167	217	266	245	251	174	59	157	64	113	48	39	1,800
1957	44	104	152	101	96	140	98	725	485	648	2,500	948	6,040
1958	3,970	2,310	1,190	843	853	1,100	10,470	8,910	2,740	412	619	452	33,870
1959	404	442	388	409	430	253	151	270	471	196	385	90	3,890
1960	178	354	229	284	309	545	217	97	249	382	83	76	3,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3.59	2,600
1951	1211	670	July 31, 1951	0.7	3.92	2,830	4.03	2,920
1952	1241	331	Aug. 22, 1952	.6	4.64	3,370	5.28	3,840
1953	1281	2,320	Aug. 17, 1953	.1	4.66	3,370	4.26	3,080
1954	1341	516	Aug. 6, 1954	.2	2.95	2,130	2.55	1,840
1955	1391	3,200	July 11, 1955	.4	6.42	4,650	6.80	4,930
1956	1441	228	May 23, 1956	0	2.48	1,800	2.00	1,450
1957	1511	845	July 9, 1957	.4	8.34	6,040	18.2	13,240
1958	1561	1,540	Oct. 19, 1957	1.6	46.8	33,870	38.2	27,630
1959	1631	220	June 19, 1959	.7	5.37	3,890	4.72	3,420
1960	1711	325	July 11, 1960	.7	4.14	3,000	-	-

2181. Mora River near Watrous, N. Mex.

Location.--Lat 35°50'15", long 105°02'40", in Mora Grant, on right bank 4½ miles northwest of Watrous, Mora County, and 5 miles upstream from Sapello River.

Drainage area.--521 sq mi.

Records available.--August 1956 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 6,480 ft (from topographic map).

Extremes.--1956-60: Maximum discharge, 2,150 cfs Aug. 4, 1957 (gage height, 6.10 ft), from rating curve extended above 700 cfs on basis of logarithmic plotting and slope-area measurement of peak flow; no flow at times.
Floods of Sept. 29, 1904, and June 11, 1913, probably exceeded 25,000 cfs.

Remarks.--Diversions for irrigation of about 17,000 acres above station.

Corrections.--The daily discharges for Aug. 27 to Sept. 30, 1956, were inadvertently published with records for Agua Fria Creek near Holman in WSP 1511.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	-	-	-	0.07	-
1957	0.15	1.82	2.56	2.52	1.45	1.97	1.08	33.2	60.4	61.0	173	73.5	34.7
1958	111	99.7	59.6	39.9	39.6	50.4	429	418	195	34.2	44.4	36.9	130
1959	13.7	25.9	20.9	14.1	19.1	7.46	4.14	15.9	50.0	20.7	78.6	18.4	24.1
1960	18.8	20.1	14.5	22.0	23.6	33.2	36.9	2.05	76.9	71.1	13.5	13.3	28.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	-	-	-	4.0	-
1957	8.9	108	157	155	81	121	64	2,040	3,590	3,750	10,640	4,380	25,090
1958	6,840	5,930	3,670	2,450	2,200	3,100	25,540	25,720	11,600	2,100	2,730	2,200	94,080
1959	840	1,540	1,280	867	1,060	459	246	978	2,980	1,270	4,830	1,100	17,450
1960	1,160	1,200	893	1,350	1,360	2,040	2,200	126	4,580	4,370	827	789	20,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	*0.3	Aug. 30, 1956*	0	-	-	-	-
1957	1511	2,150	Aug. 4, 1957	0	34.7	25,090	57.0	41,260
1958	1561	1,300	June 6, 1958	15	130	94,080	112	81,300
1959	1631	690	Aug. 7, 1959	1.3	24.1	17,450	23.5	17,040
1960	1711	406	June 11, 1960	1.5	28.8	20,900	-	-

* Revised maximum for period Aug. 27 to Sept. 30.

2186. Sapello Canal at Sapello, N. Mex.

Location.--Lat 35°46'10", long 105°15'00", in Las Vegas Grant, on right bank 20 ft downstream from highway crossing in Sapello, San Miguel County.

Records available.--June 1956 to September 1960.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 7,010 ft (from topographic map).

Extremes.--1956-60: Maximum daily discharge, 2.8 cfs June 1, 1957; no flow for long periods in each year.

Remarks.--Canal diverts water from right bank of Sapello River for irrigation of land downstream from Sapello River gage (see p. 270).

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	10	1.4	0	0	-
1957	0	0	0	0	0	7.9	23	52	71	41	5.4	0	200
1958	0	.40	0	0	0	.20	.99	0	36	71	31	23	163
1959	26	1.2	0	0	0	0	3.8	41	43	46	47	18	226
1960	23	4.0	0	0	0	0	28	54	48	37	21	14	229

2187. Manuelitas Creek near Rociada, N. Mex.

Location.--Lat 35°49'30", long 105°23'55", in Mora Grant, on right bank about 300 ft downstream from road crossing and 1½ miles southeast of Rociada, San Miguel County.
Drainage area.--52 sq mi.
Records available.--June 1956 to September 1960.
Gage.--Water-stage recorder. Altitude of gage is 7,350 ft (from topographic map).
Extremes.--1956-60: Maximum discharge, 1,410 cfs Aug. 23, 1957 (gage height, 7.48 ft), from rating curve extended above 250 cfs on basis of slope-area measurement of peak flow; no flow at times.
Remarks.--Diversions for irrigation of about 2,300 acres above station.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	0.05	0.06	.003	0	-
1957	0	0.02	0.18	0.09	0.04	0.17	0.23	4.43	4.39	4.43	48.3	13.1	6.35
1958	16.6	19.2	10.0	6.3	4.2	11.0	114	101	21.9	1.37	6.10	4.79	26.4
1959	3.11	4.73	2.70	3.37	3.08	1.98	2.08	8.99	3.45	2.09	13.9	3.36	4.42
1960	2.78	5.24	3.29	4.23	4.31	13.2	21.5	7.42	22.6	25.2	9.06	2.69	10.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	3.0	3.6	0.2	0	-
1957	0	1.0	11	5.6	2.2	10	14	272	261	272	2,970	780	4,600
1958	1,020	1,140	615	389	232	674	6,800	6,220	1,300	84	375	285	19,130
1959	191	282	166	207	171	122	124	553	205	129	852	200	3,200
1960	171	312	202	260	248	809	1,280	456	1,350	1,550	557	160	7,360

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	22	July 31, 1956	0	-	-	-	-
1957	1511	1,410	Aug. 23, 1957	0	6.35	4,600	10.2	7,360
1958	1561	529	Apr. 18, 1958	.2	26.4	19,130	23.5	17,000
1959	1631	148	Aug. 25, 1959	.2	4.42	3,200	4.48	3,250
1960	1711	255	July 14, 1960	.5	10.1	7,360	-	-

2200. Sapello River at Sapello, N. Mex.

Location.--Lat 35°46'05", long 105°15'00", in Las Vegas Grant, on downstream end of bridge pier nearest left bank on State Highway 3, in town of Sapello, half a mile downstream from Manuelitas Creek, San Miguel County.
Drainage area.--132 sq mi.
Records available.--May to October 1915, January 1916 to November 1918, February 1919 to May 1921, July to September 1921, July 1956 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage heights and discharge measurements published under same name for August 1903 to March 1904 are for a site above Manuelitas Creek, and are not equivalent. Records for November to December 1915, December 1918, January 1919, and October 1921 to December 1928 have been found to be unreliable and should not be used.
Gage.--Water-stage recorder. Altitude of gage is 6,910 ft (by barometer). May 1915 to September 1921, staff gage at site 300 ft upstream at different datum.
Average discharge.--9 years (1915-20, 1956-60), 28.6 cfs (20,710 acre-ft per year).
Extremes.--1915-20, 1956-60: Maximum discharge determined, 6,160 cfs Aug. 4, 1957 (gage height, 7.40 ft), from rating curve extended above 1,500 cfs on basis of computation of peak flow over dam; no flow at times.
Remarks.--Diversions above station for irrigation of about 4,200 acres. Station is bypassed by Sapello Canal (see p. 269).

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	-	1.03	1.11	0.03	-
1957	0	0.04	0.05	0	0.04	0.10	0.10	1.88	1.27	10.7	128	24.9	14.1
1958	100	62.9	29.2	17.7	13.4	44.8	256	173	44.3	6.62	12.5	15.5	64.7
1959	7.18	7.18	4.36	5.53	6.98	5.05	3.65	15.5	8.56	5.13	19.6	4.75	7.82
1960	4.33	10.0	7.39	9.8	10.1	25.6	32.0	9.35	30.7	41.1	16.4	4.35	16.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	-	63	68	1.6	-
1957	0	2.6	3.2	0	2.0	6.8	6.1	116	76	655	7,850	1,480	10,200
1958	6,170	3,740	1,800	1,090	742	2,750	15,230	10,610	2,630	407	766	920	46,860
1959	442	427	268	340	388	311	217	953	509	316	1,210	283	5,660
1960	266	596	454	605	583	1,570	1,910	575	1,830	2,530	1,010	259	12,190

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	*548	Aug. 19, 1956	0	-	-	-	-
1957	1511	6,160	Aug. 4, 1957	0	14.1	10,200	30.2	21,900
1958	1561	2,100	Oct. 19, 1958	3.3	64.7	46,860	50.1	36,280
1959	1631	223	Aug. 26, 1959	.8	7.82	5,660	8.06	5,840
1960	1711	1,370	July 1, 1960	1.6	16.8	12,190	-	-

* Revised.

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

Location.--Lat 35°44'40", long 105°10'10", in Mora Grant, 1 mile northwest of the site of Los Alamos and 5 miles southeast of Sapello.

Records available.--September 1956 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 6,700 ft (from topographic map).

Extremes.--1956-60: Maximum daily discharge, 190 cfs Oct. 20, 1957; no flow at times.

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

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	0	0	0		0	0	56	50	1.6	382	5,040	1,430	6,960
1958	2,830	2,580	1,510	152	0	678	3.8	1.8	0	3.2	181	102	8,040
1959	16	133	94	79	125	153	0	565	157	3.2	813	99	2,240
1960	44	378	373	504	456	1,370	1,390	28	1,090	829	45	0	6,510

2206. Sapello River near Watrous, N. Mex.

Location.--Lat 35°46'05", long 105°02'25", on line between Mora and Las Vegas Grants, on right bank 4 miles southwest of Watrous and about 6 miles upstream from mouth.

Drainage area.--213 sq mi.

Records available.--September 1956 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 6,500 ft (from topographic map).

Extremes.--1956-60: Maximum discharge, 5,860 cfs Aug. 5, 1957 (gage height, 13.02 ft, from floodmark), from rating curve extended above 500 cfs on basis of slope-area measurement at gage height 13.02 ft; no flow at times.

A major flood occurred Sept. 29, 1904 (see WSP 131), and a discharge of about 11,400 cfs occurred June 11, 1913, at site about 6 miles upstream from Los Alamos (see WSP 357).

Remarks.--Diversions for irrigation of about 5,500 acres above station.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	-	-	-	0	-
1957	0	0	0	0	0	0	0	0.61	0.02	8.14	74.7	.33	7.11
1958	57.8	4.27	4.14	14.8	16.3	43.3	258	171	33.1	7.54	4.22	9.08	52.0
1959	6.72	6.58	4.20	2.9	.90	.47	.79	7.63	5.11	3.23	5.81	2.73	3.95
1960	3.20	3.79	1.48	1.4	1.74	2.08	4.27	6.14	5.49	15.8	10.2	2.37	4.86

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	-	-	-	-	-	0	-
1957	0	0	0	0	0	0	0	38	1.0	500	4,590	20	5,150
1958	3,550	254	255	907	904	2,660	15,350	10,520	1,970	464	259	540	37,630
1959	413	392	258	180	50	29	47	469	304	199	357	162	2,860
1960	197	226	91	87	100	128	254	377	326	969	628	141	3,520

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1511	-	-	-	-	-	-	-
1957	1511	5,860	Aug. 5, 1957	0	7.11	5,150	12.7	9,210
1958	1561	1,990	Oct. 19, 1957	0	52.0	37,630	47.8	34,640
1959	1631	180	May 23, 1959	.3	3.95	2,860	3.19	2,310
1960	1711	109	Aug. 6, 1960	1	4.86	3,520	-	-

2210. Mora River near Shoemaker, N. Mex.

Location.--Lat 35°48', long 104°47', on left bank 4½ miles east of Shoemaker, Mora County, and 23 miles upstream from mouth.

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

Records available.--October 1914 to July 1915, October 1915 to August 1918, May 1919 to July 1924, September to November 1924, March to July 1925, June 1927 to September 1960. Prior to October 1930 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 6,170 ft (from topographic map). Prior to Oct. 10, 1934, at site 2,000 ft upstream at different datum.

Average discharge.--42 years (1914-18, 1919-24, 1927-60), 60.4 cfs (43,730 acre-ft per year).

Extremes.--1914-60: Maximum discharge, 15,200 cfs June 3, 1948 (gage height, 12.79 ft), from rating curve extended above 2,800 cfs on basis of slope-area measurements at gage heights 10.09 and 12.79 ft; no flow at times.
Floods of Sept. 29, 1904, and June 11, 1913, probably exceeded 30,000 cfs.

Remarks.--Diversions for irrigation of about 26,000 acres above station.

Corrections.--In WSP 1311, some figures for 1921 and 1928 are listed in error; they should be as shown below.

Month	Mean	Acre-feet
May 1921	48.4	2,970
Water year 1920-21	-	157,500
Calendar year 1921	-	160,600
May 1928	102	6,280
Water year 1927-28	19.2	13,970
Calendar year 1928	18.1	13,210

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.79	2.10	2.19	3.36	2.90	1.80	2.07	12.6	2.00	17.2	108	0.99	13.3
1952	.85	1.64	1.87	2.35	1.92	1.95	7.80	41.5	20.5	2.32	117	74.0	22.9
1953	16.1	9.22	21.2	18.1	4.61	3.75	2.83	2.49	8.22	50.6	34.4	207	31.5
1954	3.60	5.76	11.2	13.8	4.04	1.65	2.12	1.63	.40	.99	8.07	.02	4.47
1955	17.1	1.10	2.87	3.35	2.00	.58	.34	23.8	.79	26.5	121	23.9	18.9
1956	4.74	3.70	2.87	2.15	4.71	2.35	2.61	17.1	2.79	6.11	10.3	.10	4.99
1957	0	.33	.64	.98	.75	.66	.43	5.07	27.4	40.8	243	72.4	33.1
1958	220	108	70.8	47.3	53.2	97.7	797	661	220	35.3	48.6	43.5	200
1959	12.1	24.4	26.8	25.9	30.3	8.45	1.98	9.65	33.3	8.35	66.0	10.4	21.4
1960	17.9	24.7	20.3	25.1	27.9	29.5	18.9	6.06	75.8	63.7	10.7	3.91	27.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	110	125	135	207	161	111	123	774	119	1,050	6,660	59	9,630
1952	53	98	115	145	110	120	464	2,550	1,220	143	7,170	4,400	16,590
1953	989	548	1,310	1,110	256	230	168	153	489	3,110	2,110	12,310	22,780
1954	221	343	689	849	224	101	126	100	24	61	496	1.2	3,240
1955	1,050	65	176	206	111	36	20	1,460	47.0	1,630	7,450	1,420	13,670
1956	292	220	177	132	271	144	156	1,050	166	375	632	5.8	3,620
1957	0	20	39	60	41	41	26	312	1,630	2,510	14,960	4,310	23,950
1958	13,540	6,440	4,350	2,910	2,950	6,010	47,450	40,660	13,080	2,170	2,990	2,590	145,100
1959	744	1,450	1,650	1,590	1,680	519	118	594	1,980	514	4,060	620	15,520
1960	1,100	1,470	1,250	1,540	1,600	1,810	1,130	372	4,510	3,920	660	233	19,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	9.99	7,230
1951	1211	*8,200	July 31, 1951	0.4	13.3	9,630	13.2	9,530
1952	1241	7,400	Aug. 23, 1952	.4	22.9	16,590	26.4	19,170
1953	1281	8,880	Sept. 1, 1953	.2	31.5	22,780	29.3	21,190
1954	1341	536	Aug. 7, 1954	0	4.47	3,240	4.52	3,270
1955	1391	4,410	Aug. 11, 1955	0	18.9	13,670	18.1	13,070
1956	1441	2,190	Aug. 1, 1956	0	4.99	3,620	4.12	2,990
1957	1511	5,070	Aug. 5, 1957	0	33.1	23,950	66.6	48,220
1958	1561	3,510	Oct. 20, 1957	1.8	200	145,100	172	124,700
1959	1631	562	Aug. 7, 1959	.5	21.4	15,520	21.4	15,500
1960	1711	470	June 5, 1960	1.6	27.0	19,600	-	-

* Revised.

2215. Canadian River near Sanchez, N. Mex.

Location.--Lat 35°39'15", long 104°22'30", in S½ sec.34, T.17 N., R.24 E., at downstream end of bridge pier on State Highway 65, 1 mile upstream from Lagartija Creek, 3 miles northeast of Sanchez, 10 miles downstream from Mora River, and 24 miles southwest of Mosquero.

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

Records available.--April 1912 to December 1914, October 1935 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Altitude of gage is 4,500 ft (from topographic map). Apr. 12, 1912, to Dec. 31, 1914, at two sites within 100 ft about 3 miles upstream at different datums.

Average discharge.--27 years (1912-14, 1935-60), 242 cfs (175,200 acre-ft per year).

Extremes.--1912-14, 1935-60: Maximum discharge, 87,800 cfs Sept. 2, 1942 (gage height, 19.3 ft, from floodmarks), from rating curve extended above 48,000 cfs on basis of slope-area measurement of peak flow; no flow at times.
Maximum flood known occurred Sept. 29 or 30, 1904 (discharge probably exceeded 100,000 cfs).

Remarks.--Diversions for irrigation of about 56,000 acres above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	34.7	14.1	19.7	22.1	24.4	9.0	13.1	223	32.6	354	635	13.4	118
1952	10.6	15.5	16.5	14.2	12.2	7.83	7.25	43.2	19.3	883	970	295	126
1953	26.7	19.4	39.2	37.0	26.9	14.1	1.7	27.9	47.1	400	495	353	125
1954	3.8	23.5	23.7	25.8	17.4	3.1	0	3.6	2.3	28.5	92.0	11.2	19.7
1955	417	5.6	6.9	10.7	9.3	3.4	52.3	2,576	74.4	323	589	122	355
1956	53.0	11.0	14.5	15.4	16.9	6.0	.9	54.5	16.1	164	118	1.0	39.7
1957	0	1.4	2.0	1.4	1.5	.7	34.4	99.3	84	205	561	194	99.8
1958	668	158	105	84.6	79.0	166	1,021	1,705	624	301	446	121	459
1959	29.7	43.7	55.3	53.6	56.0	21.5	12.5	108	109	169	361	24.4	87.7
1960	48.7	50.1	55.1	61.4	63.0	89.2	121	8.8	243	190	224	75.0	102

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,140	837	1,210	1,360	1,350	555	778	13,730	1,940	21,790	39,030	795	85,520
1952	653	922	1,020	875	701	481	432	2,650	1,150	5,430	59,620	17,580	91,510
1953	1,640	1,160	2,410	2,280	1,500	865	101	1,720	2,800	24,600	30,440	21,010	90,530
1954	232	1,400	1,460	1,580	966	190	0	222	135	1,760	5,650	668	14,260
1955	25,650	335	426	659	516	206	3,110	158,400	4,430	19,850	36,190	7,240	257,000
1956	3,260	657	889	946	974	367	56	3,350	956	10,070	7,250	58	28,830
1957	0	85	121	87	81	46	2,050	6,110	5,000	12,610	34,520	11,560	72,270
1958	41,060	9,430	6,450	5,200	4,390	10,230	60,730	104,800	37,120	18,510	27,390	7,220	332,500
1959	1,820	2,600	3,400	3,290	3,110	1,320	744	6,670	6,500	10,370	22,180	1,450	63,450
1960	3,000	2,980	3,390	3,770	3,620	5,490	7,190	541	14,470	11,710	13,750	4,460	74,370

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	120	87,200
1951	1211	13,000	Aug. 10, 1951	0	118	85,520	116	83,920
1952	1241	12,600	Aug. 23, 1952	.6	126	91,510	130	94,130
1953	1281	10,700	Sept. 1, 1953	0	125	90,530	122	88,410
1954	1341	1,430	Aug. 8, 1954	0	19.7	14,260	51.9	37,580
1955	1391	41,200	May 19, 1955	0	355	257,000	325	235,400
1956	1441	*2,000	Aug. 21, 1956	0	39.7	28,830	33.4	24,230
1957	1511	*5,670	Aug. 5, 1957	0	99.8	72,270	178	129,000
1958	1561	11,400	Aug. 16, 1958	7	459	332,500	392	283,400
1959	1631	8,950	June 30, 1959	1	87.7	63,450	89.8	65,000
1960	1711	5,550	June 11, 1960	2	102	74,370	-	-

* Revised.

2225. Conchas River at Variadero, N. Mex.

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

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

Records available.--October 1936 to September 1960.

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

Average discharge.--24 years (1936-60), 20.0 cfs (14,480 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 44,000 cfs Sept. 1, 1942 (gage height, 19.96 ft, present datum), from slope-area measurement of peak flow; no flow at times.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.90	0.20	0.26	0.22	0.11	0.05	0.03	15.5	8.51	72.3	20.5	0.43	10.2
1952	.63	.48	.19	.13	.04	.08	.09	.01	0	3.71	49.2	.31	4.65
1953	.05	.02	.03	.03	0	.01	.003	0	0	26.9	33.7	.02	5.16
1954	0	3.96	.22	.12	.05	.05	.65	2.35	0	3.33	15.5	18.4	3.72
1955	71.3	.12	.09	.11	.11	.03	.01	29.0	.03	71.2	92.9	3.47	22.8
1956	18.4	.15	.19	.12	.09	.05	0	9.16	.86	25.4	8.19	0	5.30
1957	0	0	0	0	.01	0	2.94	20.6	5.76	50.7	114	10.1	17.3
1958	44.4	2.63	.41	.88	.35	13.8	29.9	4.40	.25	28.0	19.4	4.68	12.6
1959	.17	.41	.33	.91	.58	.26	.12	.61	2.84	9.25	77.2	1.27	7.96
1960	1.07	.93	5.22	2.02	4.06	1.94	.96	.06	52.5	34.4	16.3	.98	10.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	117	12	16	14	6.0	3.0	2.0	956	506	4,450	1,260	26	7,370
1952	38	29	12	7.9	2.4	4.8	5.6	.6	0	228	3,030	19	3,380
1953	3.4	1.0	1.8	1.6	0	.6	.2	0	0	1,660	2,070	1.4	3,740
1954	0	236	14	7.5	3.0	3.4	39	145	0	205	950	1,090	2,690
1955	4,380	7.1	5.8	6.7	6.1	2.0	.6	1,780	2.0	4,380	5,710	206	16,490
1956	1,130	8.7	12	7.5	5.4	3.4	0	563	51	1,560	504	0	3,840
1957	0	0	0	0	.6	0	175	1,270	343	3,120	7,030	599	12,540
1958	2,730	157	25	54	19	846	1,780	270	15	1,720	1,200	279	9,100
1959	10	24	20	56	32	16	7.1	37	169	569	4,750	75	5,770
1960	66	55	321	124	233	199	57	3.6	3,120	2,120	1,000	58	7,280

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	8.55	6,190
1951	1211	8,130	July 22, 1951	0	10.2	7,370	10.1	7,300
1952	1241	2,400	Aug. 22, 1952	0	4.65	3,380	4.55	3,300
1953	1281	2,050	Aug. 11, 1953	0	5.16	3,740	5.50	3,980
1954	1341	2,170	Sept.27, 1954	0	3.72	2,690	9.45	6,840
1955	1391	4,190	Oct. 6, 1954	0	22.8	16,490	18.3	13,240
1956	1441	1,510	July 18, 1956	0	5.30	3,840	3.72	2,690
1957	1511	2,840	Aug. 5, 1957	0	17.3	12,540	21.3	15,450
1958	1561	2,240	July 17, 1958	0	12.6	9,100	8.61	6,240
1959	1631	1,840	Aug. 26, 1959	0	7.96	5,770	8.50	6,150
1960	1711	2,150	June 11, 1960	0	10.0	7,280	-	-

2230. Bell Ranch Canal near Conchas Dam, N. Mex.

Location.--Lat 35°24'00", long 104°11'05", in Pablo Montoya Grant, on left bank 1,270 ft downstream from Conchas Dam and 1¾ miles north of Conchas Dam Post Office, San Miguel County.

Records available.--October 1942 to September 1960.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 4,150 ft (from head-gate elevations).

Extremes.--1942-60: Maximum daily discharge, 21 cfs July 10-13, Sept. 7-10, 1948, June 27, Aug. 7, 1951; no flow at times in each year.

Remarks.--Canal diverts from Conchas Reservoir for irrigation of about 700 acres on Bell Ranch.

Monthly and yearly diversion, in acre-feet, of Bell Ranch Canal near Conchas Dam, N. Mex.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	367	202	54	0	2.4	159	352	255	281	260	439	302	2,670
1952	143	36	0	0	0	55	96	376	477	245	319	524	2,270
1953	89	1.6	0	0	5.6	132	274	176	336	168	52	671	1,910
1954	275	14	0	0	0	314	436	118	347	249	155	486	2,390
1955	0	0	0	153	66	179	406	196	356	91	314	491	2,250
1956	42	153	0	0	37	397	287	390	229	222	360	357	2,470
1957	318	0	0	0	0	2.8	228	150	59	312	211	413	1,690
1958	286	1.4	0	0	0	0	11	142	132	277	332	352	1,530
1959	353	6.7	0	0	0	48	417	173	93	285	204	251	1,830
1960	342	88	23	0	0	0	406	561	25	95	322	419	2,280

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

Location.--Lat 35°21'45", long 104°10'15", in S½ sec.3, T.13 N., R.26 E. (projected), on left bank about 1 mile downstream from headgates in Conchas Dam, 1 mile east of Conchas Dam Post Office (1955 location), and 22 miles north of Newkirk.
Records available.--September 1945 to June 1949, April 1954 to June 1955.
Gage.--Water-stage recorder. Datum of gage is 4,156.9 ft above mean sea level (Bureau of Reclamation elevation of concrete structure). Prior to Nov. 19, 1948, at site three-quarters of a mile upstream at different datum.
Extremes.--1945-49, 1954-55: Maximum daily discharge, 448 cfs Apr. 10, 1954; no flow during most of each winter period.
Remarks.--No diversion between gage and headgates at Conchas Dam. Water is diverted from Conchas Reservoir for irrigation of about 35,000 acres on Tucumcari Project (1960 conditions).

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1954	-	-	-	-	-	-	15,630	11,680	14,880	12,690	14,260	12	-
1955	61	0	0	0	0	0	10,660	13,830	15,130	-	-	-	-

2235. Conchas Reservoir near Conchas Dam, N. Mex.

Location.--Lat 35°24'10", long 104°11'25", in Pablo Montoya Grant, stilling well within concrete portion of Conchas Dam on Canadian River, 1¾ miles northwest of town of Conchas Dam and about 24 miles north of Newkirk.
Drainage area.--7,409 sq mi, of which 433 sq mi is probably noncontributing.
Records available.--December 1938 to September 1960.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929.
Extremes.--1938-60: Maximum contents, 479,600 acre-ft Apr. 24, 1942 (elevation, 4,208.41 ft); minimum after initial filling, 93,460 acre-ft Sept. 24, 1954 (elevation, 4,155.80 ft).
Remarks.--Reservoir is formed by dam consisting of concrete main section and earthfill wings, completed Sept. 15, 1939; storage began Dec. 29, 1938. Capacity, 370,200 acre-ft between elevations 4,073.5 and 4,201.0 ft (crest of 300-foot ungated service spillway); dead storage, 90,800 acre-ft at elevation 4,155 ft. Reservoir usually not drawn below elevation 4,157.35 ft (sill of irrigation outlet), capacity, 98,810 acre-ft, except for minor sluicing and operation of small powerplants; during 1954-55, there was some pumping into Conchas Canal. Capacity of 196,000 acre-ft between elevations 4,201.0 (crest of 300-foot ungated service spillway) and 4,218.0 ft (crest of 3,000-foot ungated emergency spillway) acts as detention storage in the control of floods. Figures given herein represent total contents. Reservoir is used for irrigation, flood control, and recreation. Diversion above station for irrigation of about 57,000 acres. Direct diversions through Conchas Dam to Conchas Canal and Bell Ranch Canal (see elsewhere in this report) irrigate about 36,000 acres near Tucumcari and on Bell Ranch.
Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1950												
1951	300,400	296,300	294,700	293,900	293,700	281,300	268,300	271,500	257,400	255,300	257,600	234,100
1952	221,700	219,500	218,300	217,400	216,400	207,500	201,100	180,000	152,300	154,700	191,800	184,300
1953	172,900	172,200	173,300	174,500	174,400	173,400	146,400	133,000	117,400	137,800	163,300	168,100
1954	165,700	167,000	167,200	167,800	167,600	165,500	146,400	136,100	116,800	103,300	94,650	98,110
1955	147,500	146,400	145,100	144,800	144,500	142,700	129,900	259,200	242,900	255,800	276,600	272,800
1956	270,300	267,200	265,800	265,000	264,000	259,900	235,400	217,500	204,000	201,900	186,200	168,000
1957	164,900	162,800	157,300	156,200	155,500	154,200	140,800	136,600	131,000	135,500	174,600	172,800
1958	221,500	228,700	233,400	237,500	240,700	252,400	309,900	376,800	368,300	368,300	372,800	364,400
1959	361,600	360,700	356,000	358,000	359,100	353,600	336,000	321,900	314,900	310,200	344,300	322,900
1960	323,600	321,900	322,900	325,600	327,000	330,600	323,900	299,500	324,500	341,700	346,800	334,400

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

Location.--Lat 35°24'30", long 104°10'10", in sec.27, T.14 N., R.26 E. (projected), in Pablo Montoya Grant, on right bank 2.4 miles north of Conchas Dam Post Office (1960 location) and 2.8 miles downstream from Conchas Dam.

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

Records available.--May 1936 to December 1938, January 1942 to September 1960.

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

Average discharge.--19 years (1941-60), 107 cfs (77,460 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 73,000 cfs June 3, 1937; maximum gage height, 20.34 ft May 30, 1938, present datum (backwater from temporary construction dam); no flow at times.

Remarks.--Flow regulated by Conchas Reservoir (see preceding station). Diversions above station for irrigation of about 90,000 acres, 36,000 of which is below station. Bell Ranch Canal (see p. 274) diverts directly from Conchas Dam and flumes from right to left bank just above River gage for irrigation of about 700 acres on Bell Ranch. Conchas Canal diverts directly from Conchas Dam and bypasses gage for irrigation of about 35,000 acres (1960 conditions) around Tucumcari (see WSP 1341 and 1391 for sample year of diversion).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9.4	11.7	11.8	9.9	8.3	8.2	7.7	8.4	8.0	10.2	8.3	9.5	9.3
1952	6.7	6.6	8.2	6.9	4.2	2.2	2.1	2.5	3.1	3.9	7.5	21.6	6.3
1953	5.3	8.2	6.7	4.1	5.4	5.0	1.2	1.3	2.9	7.3	1.9	15.0	5.3
1954	1.1	1.0	1.0	1.0	1.1	1.1	1.2	1.1	1.1	1.2	1.3	1.0	1.1
1955	1.2	.8	6.4	.9	0	0	0	12.3	.1	.3	.1	9.6	2.7
1956	.03	.03	.1	.03	.1	.1	.03	.03	.1	.2	.1	.1	.1
1957	.3	.8	.7	.2	.4	1.1	1.2	2.0	1.3	1.1	.5	.2	.8
1958	.55	.57	.71	.97	.11	.29	.17	369	449	49.5	184	50.5	92.5
1959	2.5	2.6	2.2	2.3	3.2	3.5	3.5	3.3	2.4	2.6	6.9	1.2	3.0
1960	2.1	2.5	3.5	3.1	3.0	3.0	2.9	2.6	8.0	4.4	8.0	3.2	3.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	579	694	724	607	460	502	456	518	478	625	510	563	6,720
1952	413	391	506	426	242	137	123	155	184	242	460	1,290	4,570
1953	323	490	415	252	298	305	71	77	171	446	119	893	3,860
1954	65	61	63	63	61	65	71	69	67	71	81	60	797
1955	71	48	395	54	0	0	0	756	7.9	18	6.0	571	1,930
1956	2.0	2.0	4.0	2.0	4.0	4.0	2.0	2.0	4.0	9.9	6.0	6.0	47.9
1957	16	48	46	9.9	20	67	71	125	75	67	32	9.9	587
1958	34	34	44	60	6	18	10	22,660	26,730	3,040	11,330	3,000	66,970
1959	153	155	133	139	180	218	208	202	143	159	424	71	2,190
1960	131	147	218	188	175	186	171	159	476	270	490	192	2,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	11.3	8,180
1951	1211	357	Sept.12, 1951	6	9.3	6,720	8.3	6,030
1952	1241	6,700	Sept. 3, 1952	0	6.3	4,570	6.2	4,490
1953	1281	6,030	Sept.28, 1953	0	5.3	3,860	3.9	2,820
1954	1341	28	Sept.26, 1954	0	1.1	797	1.6	1,120
1955	1391	6,790	May 24, 1955	0	2.7	1,930	2.0	1,420
1956	1441	1.2	Oct. 21, 1955	0	.1	47.9	.2	150
1957	1511	-	May 10, 1957	0	.8	587	.81	589
1958	1561	10,570	May 21, 1958	0	92.5	66,970	93.0	67,300
1959	1631	134	Aug. 24, 1959	1	3.0	2,190	3.1	2,240
1960	1711	379	Aug. 9, 1960	1	3.9	2,800	-	-

2260. Ute Creek near Bueyeros, N. Mex.

Location.--Lat 36°00'00", long 103°44'35", in NE¼ sec.3, T.20 N., R.30 E., on left bank at ford on New Mexico State Highway 57, 3½ miles northwest of Bueyeros and 19½ miles northeast of Mosquero.

Drainage area.--620 sq mi, of which 162 sq mi is probably noncontributing.

Records available.--March 1949 to September 1954.

Gage.--Water-stage recorder. Altitude of gage is 4,900 ft (from topographic map).

Average discharge.--5 years (1949-54), 16.8 cfs (12,160 acre-ft per year).

Extremes.--1949-54: Maximum discharge, 39,000 cfs Aug. 16, 1953 (gage height, 11.07 ft), from rating curve extended above 830 cfs on basis of slope-area measurement at gage height 7.90 ft and logarithmic plotting; no flow at times.

Remarks.--Diversions for irrigation of about 100 acres above station. Records of chemical analyses for the period February 1950 to September 1953 and suspended sediment loads and water temperatures for the period March 1949 to September 1954 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6.75	5.57	4.33	7.26	4.77	3.98	4.98	122	14.5	105	11.0	0.86	24.6
1952	2.90	3.69	5.36	8.58	4.45	4.74	6.07	7.22	1.86	14.2	173	3.34	19.9
1953	1.67	3.43	5.73	6.41	4.01	3.88	3.02	2.45	.22	7.93	179	10.5	19.3
1954	1.91	3.32	3.79	4.52	2.75	3.01	1.36	15.5	*2.95	*13.3	5.94	1.81	*5.06

* Revised.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	415	331	266	446	265	245	297	7,480	865	6,460	675	51	17,800
1952	179	220	330	528	256	291	361	444	111	872	10,640	199	14,430
1953	103	204	352	394	223	239	180	151	13	488	11,030	625	14,000
1954	117	198	233	278	153	185	81	950	*176	*819	365	108	*3,660

* Revised.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	15.6	11,290
1951	1211	14,300	May 15, 1951	0	24.6	17,800	24.2	17,510
1952	1241	19,900	Aug. 22, 1952	0	19.9	14,430	19.8	14,360
1953	1281	39,000	Aug. 16, 1953	0	19.3	14,000	19.2	13,890
1954	1341	710	May 16, 1954	0	*5.06	*3,660	-	-

* Revised.

Note.--Figures of daily discharge for June 19, July 27, 1954, have been revised to 34 cfs and 26 cfs, respectively.

2265. Ute Creek near Logan, N. Mex.

Location.--Lat 35°24', long 103°30', in NE¼ sec.35, T.14 N., R.32 E., on right bank a quarter of a mile downstream from Logan-Trigg Ranch road crossing, 5½ miles upstream from mouth, and 6 miles northwest of Logan.

Drainage area.--2,073 sq mi, of which 617 sq mi is probably noncontributing.

Records available.--August 1904 to June 1906 and April 1909 to May 1914 (gage heights and discharge measurements only), January 1942 to September 1960. Records of discharge for August 1904 to June 1906 and April 1909 to December 1911, published in WSP 307, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder. Datum of gage is 3,757.50 ft above mean sea level, datum of 1929. Prior to Aug. 1, 1911, staff gage at site 1½ miles downstream at different datum. Aug. 1, 1911, to May 23, 1914, water-stage recorder at site 1¾ miles downstream at different datum. January 1942 to December 1955 water-stage recorder at present site at datum 1.00 ft higher.

Average discharge.--18 years (1942-60), 32.2 cfs (23,310 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 24,500 cfs May 28, 1946, July 12, 1951 (gage height, 9.4 ft, present datum), from rating curve extended above 7,700 cfs on basis of slope-area measurements at gage heights 6.2 and 8.2 ft (present datum); no flow at times.

Flood of May 1, 1914, reached a stage of 22.95 ft, site and datum then in use. Another major flood reached a stage of 17.0 ft (present datum) sometime in 1941, from information furnished by Bureau of Reclamation (discharge, about 70,000 cfs).

Remarks.--Diversions for irrigation of a few hundred acres above station. Records of chemical analyses for water years 1951-53 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4.5	0	0	0.2	1.1	0.1	0	206	25.3	246	6.2	0	41.5
1952	0	0	.1	0	0	0	.4	.7	.8	2.0	182	.4	15.8
1953	0	0	0	0	0	0	0	0	0	11.0	101	13.1	10.6
1954	0	3.83	0	0	0	0	0	41.1	32.2	12.5	19.6	9.96	10.0
1955	139	0	0	0	0	0	6.0	351	1.0	10.1	74.1	83.6	56.2
1956	0	0	0	0	0	0	0	31.8	31.5	98.8	36.0	0	16.7
1957	0	0	0	0	0	0	29.0	14.9	5.7	141	362	37.0	49.9
1958	17.5	0	0	.2	.6	21.6	4.3	299	21.8	86.7	141	84.3	57.2
1959	0	.03	.1	.9	.1	0	0	1.6	3.7	46.5	230	4.7	24.4
1960	4.0	.6	8.1	3.9	2.3	.03	0	.2	62.8	256	140	2.8	40.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	278	0	0	14	61	4.0	0	12,650	1,510	15,130	383	0	30,030
1952	0	0	4.0	0	0	0	26	42	50	121	11,200	24	11,470
1953	0	0	0	0	0	0	0	0	0	674	6,230	780	7,680
1954	0	228	0	0	0	0	0	2,530	1,920	770	1,200	593	7,240
1955	8,530	0	0	0	0	0	359	21,570	61	621	4,560	4,970	40,670
1956	0	0	0	0	0	0	0	1,960	1,880	6,080	2,210	0	12,130
1957	0	0	0	0	0	0	1,730	916	341	8,690	22,270	2,200	36,150
1958	1,080	0	0	14	34	1,330	256	18,410	1,300	5,330	8,680	5,010	41,440
1959	0	2.0	6.0	54	4.0	0	0	101	222	2,860	14,170	280	17,700
1960	248	36	500	242	131	2.0	0	14	3,740	15,720	8,590	165	29,390

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	48.4	35,020
1951	1211	24,500	July 12, 1951	0	41.5	30,030	41.1	29,760
1952	1241	13,800	Aug. 22, 1952	0	15.8	11,470	15.8	11,460
1953	1281	10,900	Aug. 17, 1953	0	10.6	7,680	10.9	7,910
1954	1341	4,100	June 29, 1954	0	10.0	7,240	21.5	15,540
1955	1391	21,500	May 19, 1955	0	56.2	40,670	44.4	32,140
1956	1441	14,700	July 22, 1956	0	16.7	12,130	16.7	12,130
1957	1511	21,100	Aug. 5, 1957	0	49.9	36,150	51.4	37,230
1958	1561	13,900	May 15, 1958	0	57.2	41,440	55.8	40,370
1959	1631	7,380	Aug. 15, 1959	0	24.4	17,700	25.5	18,480
1960	1711	23,300	July 9, 1960	0	40.5	29,390	-	-

2270. Canadian River at Logan, N. Mex.

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

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

Records available.--June 1904 to November 1905 (gage heights and discharge measurements only), December 1908 to September 1909, February 1910, April to July 1910, August 1910 to September 1911 (gage heights and discharge measurements only), October 1911 to May 1914, January to May 1924, September 1924 to July 1925, January 1927 to April 1934, August 1934 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Records for December 1909, January 1910, and May to July 1934, published in WSP 267, 287, and 762, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder at present site since Aug. 5, 1910, at different datums prior to Oct. 21, 1928, and at datum 1.54 ft lower Oct. 21, 1928, to Sept. 30, 1934. Altitude of present gage is 3,670 ft (from river-profile study). Prior to Aug. 5, 1910, staff gages 1½ miles downstream at different datums (datum of gage, 3,651 ft above mean sea level Dec. 22, 1908, to Aug. 4, 1910).

Average discharge.--15 years (1908-9, 1911-13, 1926-38), 392 cfs (283,800 acre-ft per year), prior to completion of Conchas Dam; 22 years (1938-60), 270 cfs (195,500 acre-ft per year).

Extremes.--1909-14, 1923-60: Maximum discharge, 219,000 cfs Sept. 22, 1941 (gage height, 29.3 ft, from floodmarks), from rating curve extended above 75,000 cfs by logarithmic plotting; no flow at times.

Maximum discharge known, 278,000 cfs Sept. 30, 1904 (gage height, about 36.5 ft, site and datum used in 1909), from rating curve extended above 140,000 cfs, from Ninth Biennial Report of State engineer.

Remarks.--Flow partly regulated by Conchas Reservoir, 45 miles upstream (see p. 275). Diversions for irrigation of about 90,000 acres above station. Records of chemical analyses and water temperatures for the period July 1957 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10.1	0.4	2.1	3.8	6.8	12.4	1.1	475	137	395	23.4	13.3	91.3
1952	7.9	6.7	3.4	1.8	.2	8.9	8.3	5.7	6.5	132	361	19.2	47.6
1953	1.8	2.7	3.0	2.8	1.4	1.0	.2	3.5	.03	172	529	25.1	62.9
1954	.03	15.1	4.4	2.4	.5	0	.1	103	55.2	27.4	106	37.0	29.5
1955	684	3.5	2.2	3.5	2.1	0	24.5	495	2.3	285	193	132	155
1956	1.0	.1	1.7	3.0	4.4	0	.3	65.9	117	327	61.3	0	49.0
1957	0	0	0	.9	2.2	1.1	33.4	88.1	54.5	327	536	98.5	96.5
1958	89.9	6.80	4.23	7.26	4.18	36.3	34.3	826	741	351	585	423	261
1959	10.1	6.27	6.23	14.6	9.29	3.68	9.63	18.7	25.1	67.0	620	13.6	68.1
1960	25.2	8.1	88.0	31.2	16.1	10.7	4.9	4.2	446	1,207	373	44.9	190

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	621	26	129	234	379	764	67	29,210	8,150	24,280	1,440	791	66,090
1952	484	399	206	113	12	545	496	349	389	8,110	22,200	1,140	34,440
1953	111	163	184	171	79	63	12	212	2.0	10,550	32,510	1,490	45,550
1954	2.0	899	270	145	30	0	7.9	6,310	3,280	1,680	6,490	2,200	21,310
1955	42,060	210	135	214	117	2	1,460	30,460	135	17,550	11,870	7,830	112,000
1956	60	7.9	103	186	252	0	20	4,050	6,990	20,120	3,770	0	35,560
1957	0	0	0	54	125	65	1,990	5,420	3,240	20,120	32,970	5,860	69,840
1958	5,530	405	260	446	232	2,230	2,040	50,810	44,110	21,560	35,980	25,170	188,800
1959	621	373	383	899	516	226	573	1,150	1,490	4,120	38,120	807	49,280
1960	1,550	484	5,410	1,920	924	659	292	258	26,540	74,200	22,960	2,670	137,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	168	121,300
1951	1211	24,000	July 12, 1951	0	91.3	66,090	91.7	66,400
1952	1241	11,000	Aug. 22, 1952	0	47.6	34,440	46.6	33,810
1953	1281	17,000	Aug. 17, 1953	0	62.9	45,550	63.9	46,260
1954	1341	4,540	June 30, 1954	0	29.5	21,310	86.4	62,550
1955	1391	24,400	May 19, 1955	0	155	112,000	96.4	69,810
1956	1441	26,300	July 22, 1956	0	49.0	35,560	48.8	35,390
1957	1511	18,800	Aug. 5, 1957	0	96.5	69,840	105	76,040
1958	1561	13,800	Sept. 4, 1958	0	261	188,800	254	184,000
1959	1631	9,970	Aug. 15, 1959	0	68.1	49,280	76.4	55,340
1960	1711	24,300	July 9, 1960	1	190	137,900	-	-

2271. Revuelto Creek near Logan, N. Mex.

Location.--Lat 35°20'30", long 103°23'30", in NE¼NW¼ sec.24, T.13 N., R.33 E., on right bank a quarter of a mile upstream from bridge on State Highway 39, 2 miles upstream from mouth and 2 miles southeast of Logan.

Drainage area.--786 sq mi.

Records available.--August 1959 to September 1960. Unpublished records collected by Bureau of Reclamation for the period October 1941 to July 1947 are for a site 500 ft downstream at different datum. They are not equivalent because of major irrigation development; major peaks should be comparable.

Gage.--Water-stage recorder. Altitude of gage is 3,650 ft (from topographic map).

Extremes.--1959-60: Maximum discharge, 26,700 cfs July 9, 1960 (gage height, 14.3 ft), from rating curve extended above 13,000 cfs on basis of slope-area measurement of peak flow; no flow at times.

1941-47: Maximum discharge determined, about 13,400 cfs Sept. 18, 1946 (gage height, 9.04 ft, site and datum then in use), computed by Bureau of Reclamation.

A peak of 26,100 cfs (time and date unknown; gage height, 12.9 ft) was measured by slope-area method in May 1957.

Remarks.--Low flows supplemented by surface and ground water return from irrigation in vicinity of Tucumcari. Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	-	361	29.9	-
1960	9.7	1.5	129	19.1	33.0	4.5	7.2	18.2	492	1,203	342	169	204

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	-	22,210	1,780	-
1960	597	89	7,960	1,170	1,900	278	430	1,120	29,300	73,980	21,040	10,070	147,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1959	1711	a15,700	Aug. 22, 1959	-	-	-	-	-
1960	1711	26,700	July 9, 1960	0	204	147,900	-	-

a Maximum during period August to September.

2275. Canadian River near Amarillo, Tex.

Location.--Lat 35°28'10", long 101°52'45", near left bank on downstream side of pier of bridge on U. S. Highways 87 and 287, 1,500 ft (revised) downstream from Pitcher Creek, 1.4 miles downstream from East Amarillo Creek, 1.7 miles (revised) downstream from Panhandle and Santa Fe Railway Co. bridge, 19 miles north of Amarillo, Potter County, and at mile 537.7.

Drainage area.--19,445 sq mi, of which 4,069 sq mi is probably noncontributing.

Records available.--January 1924 to December 1925, January 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 2,989.16 ft above mean sea level, datum of 1929. Jan. 16, 1924, to Dec. 31, 1925, chain gage and Apr. 3 to June 1, 1938, wire-weight gage, at site of old bridge 20 ft upstream at same datum. June 2 to Dec. 5, 1938, wire-weight gage at present site and datum.

Average discharge.--23 years (1924-25, 1938-60), 471 cfs (341,000 acre-ft per year).

Extremes.--1924-25, 1938-60: Maximum discharge, 135,000 cfs July 25, 1941 (gage height, 15.7 ft), from rating curve extended above 100,000 cfs; no flow at times January 1924 to December 1925, Aug. 7, 8, 1940.

Flood in May 1914 reached a stage of about 24.0 ft; a higher stage probably occurred during flood in October 1904.

Remarks.--Daily discharge published only to show distribution of runoff. Extreme low flow is maintained by sewage effluent from Amarillo sewage disposal plant, which contributes to East Amarillo Creek (tributary to Canadian River). Some regulation by Conchas Reservoir in New Mexico (see p. 275). Conchas Canal and Bell Ranch Canal divert from Conchas Reservoir for irrigation. Records of chemical analyses for the period February 1950 to September 1960, suspended sediment loads for the period August 1949 to September 1952, and water temperatures for the period August 1949 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	134	14.5	16.2	23.3	47.4	28.7	14.8	1,174	223	563	74.0	30.6	198
1952	14.1	39.4	11.7	12.5	9.66	12.1	62.1	31.6	23.1	262	547	63.9	91.7
1953	10.0	11.0	13.1	16.4	10.1	10.6	10.0	9.38	9.02	504	788	31.2	121
1954	141	17.3	18.1	16.4	12.5	12.5	48.4	798	33.5	621	268	30.4	171
1955	1,056	17.9	10.7	14.8	14.0	8.94	611	1,226	316	445	393	250	367
1956	54.4	11.4	12.5	15.1	15.7	14.8	10.8	549	115	410	61.7	7.23	108
1957	7.18	8.93	10.9	9.18	11.6	16.2	122	751	662	219	1,691	216	313
1958	312	35.0	17.0	38.1	53.0	152	136	1,010	814	2,760	1,040	1,150	633
1959	36.8	25.8	33.6	32.7	37.9	9.74	14.2	86.4	296	395	1,207	59.4	188
1960	75.8	12.2	414	139	136	78.3	15.9	10.2	1,324	3,292	834	395	564

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,270	865	998	1,430	2,650	1,760	879	72,160	13,250	34,610	4,550	1,820	143,200
1952	867	2,340	718	772	556	744	3,700	1,940	1,370	16,100	33,660	3,800	66,570
1953	616	654	805	1,010	561	653	596	577	537	30,980	48,470	1,860	87,320
1954	8,680	1,030	1,110	1,010	692	768	2,880	49,040	1,990	38,170	16,460	1,810	123,600
1955	64,930	1,070	657	913	779	550	36,340	75,370	18,800	27,390	24,150	14,860	265,800
1956	3,350	681	767	928	902	912	642	33,750	6,810	25,200	3,790	430	78,160
1957	441	532	667	564	645	998	7,230	46,190	39,390	13,450	104,000	12,820	226,900
1958	19,180	2,080	1,050	2,340	2,940	9,370	8,100	62,150	48,420	169,800	64,000	68,720	458,200
1959	2,260	1,540	2,070	2,010	2,110	599	846	5,310	17,640	24,310	74,190	3,540	136,400
1960	4,660	725	25,440	8,520	7,840	4,810	946	625	78,800	202,400	51,280	23,520	409,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	528	382,500
1951	1211	27,700	May 16, 1951	4	198	143,200	189	137,000
1952	1241	13,000	Aug. 23, 1952	5.8	91.7	66,570	89.2	63,720
1953	1281	28,100	July 19, 1953	5.8	121	87,320	133	96,060
1954	1341	42,900	July 23, 1954	7.6	171	123,600	248	179,500
1955	1391	47,600	Apr. 30, 1955	4.0	367	265,800	282	204,000
1956	1441	27,400	May 24, 1956	1.9	108	78,160	103	75,000
1957	1511	66,900	May 24, 1957	1.6	313	226,900	342	247,600
1958	1561	48,600	July 6, 1958	5.2	633	458,200	610	441,700
1959	1631	25,200	July 1, 1959	7.2	188	136,400	223	161,400
1960	1711	51,000	June 7, 1960	3.5	564	409,600	-	-

2280. Canadian River near Canadian, Tex.

Location.--Lat 35°55', long 100°22', near left bank on downstream side of pier of bridge on U. S. Highways 60 and 83, 500 ft downstream from Panhandle and Santa Fe Railway Co. bridge, 1.2 miles downstream from Red Deer Creek, and 1.6 miles northeast of Canadian, Hemphill County.

Drainage area.--22,866 sq mi, of which 4,688 sq mi (revised) is probably noncontributing.

Records available.--July 1924 to August 1925 (gage heights only), January 1938 to September 1960. Prior to April 1938 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder and two wire-weight gages. Datum of gage is 2,301.50 ft above mean sea level, datum of 1929. July 1, 1924, to Aug. 31, 1925, chain gage, Apr. 21 to Dec. 15, 1938, wire-weight gage, and Dec. 16, 1938, to Sept. 30, 1953, water-stage recorder and wire-weight gages, all at site 300 ft upstream at same datum.

Average discharge.--22 years (1938-60), 619 cfs (448,100 acre-ft per year).

Extremes.--1924-25, 1938-60: Maximum discharge, 122,000 cfs Sept. 23, 1941 (gage height, 9.8 ft, from graph based on gage readings), from rating curves for two channels extended above 8,000 and 38,000 cfs; no flow at times.
Maximum stage, 20.0 ft Oct. 2, 1904. Floods of May 2, 1914, and Oct. 5, 1923, second highest known, reached stages of about 12 ft.

Remarks.--Daily discharge published only to show distribution of runoff. Extreme low flow maintained by springs which enter river about 600 ft above gage. River flows in two channels for which separate records are computed; figures given herein represent combined discharge. Some regulation by Conchas Reservoir in New Mexico (see p. 275). No large diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	73.7	18.2	121	180	384	105	35.3	3,119	1,166	764	31.7	112	504
1952	34.8	148	51.1	60.2	29.8	19.6	19.8	1.51	.35	34.1	326	37.0	63.9
1953	1.62	1.97	36.2	152	47.8	26.7	1.51	5.61	121	903	1,028	.79	197
1954	435	71.5	35.5	172	122	72.3	133	1,270	3.17	403	195	4.04	246
1955	626	4.15	5.05	39.8	35.0	2.82	4.05	2,815	991	457	250	145	453
1956	34.8	3.14	3.55	17.0	74.9	5.61	2.69	878	418	197	10.6	.35	138
1957	1.06	2.05	2.16	1.53	34.5	138	389	2,078	675	225	1,539	240	448
1958	233	105	46.5	139	106	259	176	884	979	4,358	1,112	1,147	803
1959	3.67	15.1	32.5	53.9	28.3	5.57	34.6	362	149	532	991	81.6	193
1960	40.8	24.7	694	484	380	121	17.8	2.23	2,112	3,660	1,764	481	819

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,530	1,080	7,460	11,040	15,750	6,460	2,100	191,800	69,400	46,970	1,950	6,550	365,200
1952	2,140	8,800	3,140	3,700	1,710	1,210	1,180	93	21	2,100	20,060	2,200	46,400
1953	100	117	2,220	9,360	2,650	1,640	90	345	7,220	55,500	63,220	47	142,500
1954	26,780	4,260	2,180	10,550	6,760	4,440	7,920	78,070	185	24,790	11,990	241	178,200
1955	38,470	247	311	2,450	1,940	173	241	173,100	58,960	28,110	15,400	8,640	328,000
1956	2,140	187	218	1,040	4,310	345	160	53,980	24,870	12,130	653	21	100,100
1957	65	122	133	94	1,910	8,470	23,150	127,800	40,190	13,840	94,610	14,260	324,600
1958	14,310	6,220	2,860	8,570	5,890	15,920	10,460	54,370	58,240	268,000	68,370	68,280	581,500
1959	226	898	2,000	3,310	1,570	342	2,060	22,280	8,860	32,730	60,950	4,860	140,100
1960	2,510	1,470	42,660	29,750	21,850	7,420	1,060	137	125,700	225,100	108,500	28,600	594,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	662	479,500
1951	1211	65,900	May 17, 1951	0.1	504	365,200	506	366,200
1952	1241	10,700	Aug. 26, 1952	.1	63.9	46,400	47.8	34,710
1953	1281	20,600	Aug. 19, 1953	.1	197	142,500	239	173,300
1954	1341	12,200	July 25, 1954	0	246	178,200	254	184,000
1955	1391	79,000	June 28, 1955	.5	453	328,000	403	291,600
1956	1441	21,200	May 26, 1956	.1	138	100,100	135	97,830
1957	1511	77,600	May 25, 1957	.1	448	324,600	478	346,200
1958	1561	38,100	Aug. 1, 1958	1.0	803	581,500	775	561,200
1959	1631	15,700	May 5, 1959	.1	193	140,100	254	183,600
1960	1711	34,100	Aug. 11, 1960	.1	819	594,800	-	-

2285. Canadian River at Bridgeport, Okla.

Location.--Lat 35°34'00", long 98°22'45", in SE¼NW¼ sec.28, T.13 N., R.11 W., on downstream side of left abutment of Chicago, Rock Island and Pacific Railroad Co. bridge, 1 mile north of Bridgeport, 2¾ miles upstream from Lumpmouth Creek, and at mile 267.1.

Drainage area.--25,229 sq mi, of which 4,801 sq mi is probably noncontributing.

Records available.--October 1944 to September 1960.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 1,384.25 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1947, water-stage recorder at site a quarter of a mile downstream at same datum. Oct. 1, 1947, to Sept. 30, 1948, wire-weight gage at present site and datum.

Average discharge.--16 years (1944-60), 510 cfs (369,200 acre-ft per year).

Extremes.--1944-60: Maximum discharge, about 150,000 cfs June 23, 1948 (gage height, 14.60 ft, from floodmark), from rating curve extended above 50,000 cfs by logarithmic plotting and on basis of records for nearby stations; no flow at times in 1946, 1951-56.

Flood in May 1914 reached a stage of about 19.4 ft; a higher stage probably occurred during flood in October 1904.

Remarks.--Occasional slight regulation by Conchas Reservoir in New Mexico (see p. 275). Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	136	20.2	40.5	135	295	151	23.9	4,958	1,762	225	12.4	42.8	655
1952	15.0	51.6	50.1	76.9	45.9	150	193	159	7.21	2.26	0	9.69	63.4
1953	4.45	13.3	17.7	18.4	23.3	37.1	20.3	35.6	28.3	475	580	11.9	107
1954	473	72.8	53.4	47.8	42.3	18.1	34.1	1,763	128	54.7	24.3	11.5	230
1955	216	8.84	10.1	14.6	20.4	15.0	13.9	3,122	1,200	512	270	25.6	457
1956	1,030	27.5	21.8	22.1	62.5	20.7	15.5	383	159	108	28.4	.27	159
1957	24.4	8.83	12.8	14.3	17.4	244	1,213	3,471	1,598	292	1,124	261	672
1958	162	142	34.5	80.5	141	323	392	597	1,367	3,594	1,162	1,306	780
1959	14.3	20.6	24.4	148	208	30.9	74.7	1,056	153	912	1,089	1,289	420
1960	1,397	54.9	1,639	654	1,115	526	140	177	1,993	4,391	1,193	491	1,153

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,380	1,200	2,490	8,300	16,390	9,290	1,420	304,800	104,900	13,860	760	2,550	474,300
1952	921	3,070	3,080	4,730	2,640	9,200	11,500	9,760	429	139	0	577	46,050
1953	274	794	1,090	1,130	1,290	2,280	1,210	2,190	1,690	29,210	35,680	707	77,540
1954	29,080	4,330	3,280	2,940	2,350	1,110	2,030	108,400	7,610	3,370	1,500	687	166,700
1955	13,310	526	622	898	1,130	920	828	191,900	71,400	31,460	16,590	1,520	331,100
1956	63,310	1,630	1,340	1,360	3,600	1,280	924	23,520	9,450	6,660	1,740	16	114,800
1957	1,500	526	786	881	968	15,000	72,180	213,400	95,100	1,800	69,100	15,510	486,800
1958	9,930	8,450	2,120	4,950	7,830	19,840	23,300	36,710	81,330	221,000	71,450	77,740	564,600
1959	882	1,220	1,500	9,120	11,540	1,900	4,450	64,920	9,080	56,060	66,980	76,730	304,400
1960	85,920	3,270	100,800	40,210	64,120	32,350	8,350	10,890	118,600	270,000	73,360	29,240	837,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	789	571,500
1951	1211	65,000	May 17, 1951	0	655	474,300	648	469,300
1952	1241	9,300	May 23, 1952	0	63.4	46,050	56.7	41,130
1953	1281	9,900	Aug. 22, 1953	0	107	77,540	155	112,100
1954	1341	16,100	May 24, 1954	0	230	166,700	200	144,500
1955	1391	31,200	May 22, 1955	.7	457	331,100	529	382,900
1956	1441	30,800	Oct. 4, 1955	0	159	114,800	70.7	51,360
1957	1511	40,600	May 26, 1957	0	672	486,800	697	504,400
1958	1561	31,400	July 8, 1958	8.5	780	564,600	756	547,800
1959	1631	57,100	Sept. 24, 1959	.4	420	304,400	678	490,800
1960	1711	36,200	July 13, 1960	11	1,153	837,100	-	-

2292. Canadian River at Purcell, Okla.

Location.--Lat 35°00'50", long 97°20'50", in NW¼ sec.7, T.6 N., R.1 W., near left bank on downstream side of pier of bridge on U. S. Highway 77, half a mile east of Purcell, 1 mile upstream from Walnut Creek, and at mile 184.9.

Drainage area.--25,949 sq mi (revised), of which 4,801 sq mi is probably noncontributing.

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 1,017.14 ft above mean sea level, datum of 1929.

Extremes.--1959-60: Maximum discharge, 26,000 cfs July 13, 1960 (gage height, 11.20 ft); minimum daily, 5.4 cfs Sept. 11, 12, 1960.
Flood in 1904 reached a stage of 14.18 ft and flood in 1914 reached a stage of 12.98 ft, from information by The Atchison, Topeka and Santa Fe Railway Co.

Remarks.--Occasional slight regulation by Conchas Reservoir in New Mexico (see p. 275).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	1,942	262	1,553	597	1,368	611	216	1,157	2,912	3,893	1,656	392	1,385

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	119,400	15,600	95,510	36,690	78,660	37,570	12,880	71,170	173,300	239,400	101,800	23,300	1,005,000

2295. Little River near Norman, Okla.

Location.--Lat 35°13'40", long 97°18'20", in SW¼NE¼ sec.28, T.9 N., R.1 W., at right bank on downstream side of pier of bridge on State Highway 9, 1 mile upstream from Dave Blue Creek, 3½ miles downstream from Rock Creek, 7.8 miles east of Norman, and at mile 101.5.

Drainage area.--120 sq mi.

Records available.--October 1951 to September 1955.

Gage.--Water-stage recorder. Datum of gage is 1,007.37 ft above mean sea level, datum of 1929 (State Highway Commission bench mark).

Extremes.--1951-55: Maximum discharge, 4,470 cfs May 23, 1952 (gage height, 17.82 ft); minimum daily, 0.1 cfs at times in 1952, 1954-55.

Remarks.--Records of chemical analyses and water temperatures for water years 1952-53 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1952	2.19	3.74	3.29	4.42	4.23	17.2	7.52	127	5.76	1.63	1.82	0.19	15.1
1953	.43	1.46	1.70	1.94	3.26	18.1	53.0	15.2	1.07	27.9	24.6	2.03	12.6
1954	49.9	3.70	9.86	2.78	2.96	2.99	21.7	39.2	1.42	.27	.23	.18	11.4
1955	1.12	.42	.90	1.40	1.40	2.18	4.03	139	38.4	.95	5.87	50.5	20.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1952	134	223	203	272	243	1,060	447	7,840	343	100	112	12	10,990
1953	26	87	104	119	181	1,110	3,160	936	63	1,720	1,510	121	9,140
1954	3,070	220	607	171	164	184	1,290	2,410	84	16	14	11	8,240
1955	69	25	55	86	78	134	240	8,530	2,280	58	361	3,010	14,930

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1952	1241	4,470	May 23, 1952	0.1	15.1	10,990	14.7	10,650
1953	1281	2,170	Apr. 5, 1953	.1	12.6	9,140	17.7	12,820
1954	1341	1,640	Apr. 30, 1954	.1	11.4	8,240	6.20	4,490
1955	1391	3,620	May 19, 1955	.1	20.6	14,930	-	-

2300. Little River below Hog Creek, near Norman, Okla.

Location.--Lat 35°13'14", long 97°12'43", in SW¼SW¼ sec.28, T.9 N., R.1 E., on bank underneath and near left end of bridge on county road just downstream from Hog Creek, three-quarters of a mile upstream from Prairie Creek, 13 miles east of Norman, and at mile 96.0.

Drainage area.--257 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 965.62 ft above mean sea level, datum of 1929. Prior to Nov. 28, 1956, wire-weight gage at same site and datum.

Average discharge.--8 years (1952-60), 71.7 cfs (51,910 acre-ft per year).

Extremes.--1952-60: Maximum discharge, 34,600 cfs May 25, 1957 (gage height, 28.85 ft, from high-water mark), from rating curve extended above 15,000 cfs by logarithmic plotting; no flow at times in 1954-56.

Remarks.--Occasional small diversions above station for irrigation. Records of chemical analyses and water temperatures for water years 1954-60 and suspended sediment loads for water years 1956-58 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0.70	2.50	2.80	2.77	5.79	21.1	114	50.3	2.30	53.3	28.0	3.47	24.0
1954	91.7	8.99	20.7	8.14	8.30	11.2	42.5	113	4.61	.47	.65	.16	26.1
1955	2.29	.55	1.28	2.81	3.12	6.71	9.17	272	41.7	1.52	7.65	78.4	35.9
1956	238	3.28	5.09	4.39	7.73	4.05	27.7	28.1	2.58	1.74	0	0	27.2
1957	.04	5.70	1.33	2.22	1.92	2.30	222	1,160	777	18.1	10.4	187	200
1958	17.5	50.3	18.8	27.5	21.0	89.8	77.5	76.1	337	27.2	13.9	7.52	63.4
1959	5.15	6.74	7.17	6.36	9.27	10.4	20.4	99.6	39.4	255	25.7	110	50.0
1960	286	40.1	90.6	93.1	142	52.1	131	544	61.9	267	41.2	9.36	147

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	43	149	172	170	322	1,300	6,810	3,100	137	3,280	1,720	206	17,410
1954	5,640	535	1,270	500	461	689	2,530	6,920	274	29	40	95	18,900
1955	141	33	79	173	173	412	546	16,740	2,480	93	470	4,670	26,010
1956	14,640	195	313	270	445	249	1,650	1,730	154	107	0	0	19,750
1957	2.4	339	82	136	107	141	13,190	71,300	46,470	1,110	635	11,130	144,600
1958	1,070	2,990	1,160	1,690	1,170	5,520	4,610	4,680	20,040	1,670	856	447	45,900
1959	317	401	441	391	515	637	1,220	6,120	2,340	15,660	1,580	6,570	36,190
1960	17,580	2,380	5,570	5,720	8,170	3,200	7,810	33,430	3,680	16,420	2,530	557	107,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953	1281	2,640	Apr. 5, 1953	-	24.0	17,410	33.8	24,490
1954	1341	2,610	Apr. 30, 1954	a0.1	26.1	18,900	16.2	11,710
1955	1391	6,010	May 19, 1955	0	35.9	26,010	56.5	40,900
1956	1441	5,360	Oct. 3, 1955	0	27.2	19,750	6.92	5,030
1957	1511	34,600	May 25, 1957	0	200	144,600	206	149,400
1958	1561	6,730	June 20, 1958	1.7	63.4	45,900	57.8	41,840
1959	1631	6,000	July 1, 1959	2.2	50.0	36,190	83.7	60,560
1960	1711	11,700	May 20, 1960	6.8	147	107,000	-	-

a Estimated.

2305. Little River near Tecumseh, Okla.

Location.--Lat 35°10'25", long 96°55'55", near northwest corner of sec.18, T.8 N., R.4 E., on downstream side of right pier of bridge on State Highway 18, 1½ miles downstream from Dance Creek, 5 miles south of Tecumseh, and at mile 77.2.

Drainage area.--456 sq mi.

Records available.--October 1943 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 898.52 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--17 years (1943-60), 166 cfs (120,200 acre-ft per year).

Extremes.--1943-60: Maximum discharge, 32,400 cfs May 25, 1957; maximum gage height, 19.68 ft May 18, 1949; no flow at times 1952-56.
Maximum stage known, 25.58 ft in 1932.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17.7	21.5	23.9	32.3	78.6	82.0	47.6	565	253	35.3	4.43	31.1	99.7
1952	14.0	19.5	12.3	19.8	28.1	62.7	110	262	23.5	39.6	7.49	.10	50.1
1953	.50	5.81	6.23	6.23	9.30	49.8	114	54.7	6.76	131	64.5	5.46	38.2
1954	228	55.8	58.5	16.2	19.1	44.2	147	298	12.7	.50	.82	0	74.0
1955	1.25	.89	9.03	7.33	13.1	24.5	20.9	497	49.3	3.71	27.0	96.4	63.1
1956	288	4.35	7.30	7.75	13.6	7.32	25.8	56.2	7.30	2.64	0	0	35.4
1957	0	6.89	4.59	7.63	2.86	6.30	365	1,941	1,318	33.6	24.2	473	349
1958	33.6	154	41.8	65.9	47.5	191	152	158	497	27.9	53.5	10.1	119
1959	5.02	8.02	10.9	11.3	15.5	21.5	25.5	205	76.6	318	56.5	274	86.1
1960	729	179	162	157	251	96.6	312	914	142	453	232	21.9	306

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,090	1,280	1,470	1,980	4,360	5,040	2,830	34,750	15,070	2,170	273	1,850	72,160
1952	863	1,160	756	1,220	1,620	3,850	6,550	16,080	1,400	2,430	460	6.0	36,400
1953	31	346	383	383	516	3,060	6,810	3,360	402	8,080	3,970	325	27,670
1954	14,000	3,320	3,600	995	1,060	2,720	8,730	18,350	755	31	38	0	53,600
1955	77	53	555	451	725	1,510	1,240	30,530	2,930	228	1,660	5,740	45,700
1956	17,720	259	449	477	784	450	1,540	3,450	434	162	0	0	25,720
1957	0	410	282	469	159	387	21,710	119,400	78,410	2,070	1,490	28,140	252,900
1958	2,060	9,140	2,570	4,050	2,640	11,740	9,040	9,740	29,540	1,710	3,290	600	86,120
1959	309	477	671	697	859	1,320	1,520	12,600	4,560	19,570	3,470	16,300	62,350
1960	44,800	10,630	9,950	9,630	14,420	5,940	18,550	56,190	8,470	27,880	14,260	1,300	222,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	149	107,800
1951	1211	6,370	May 1, 1951	0.8	99.7	72,160	98.2	71,100
1952	1241	6,140	May 23, 1952	0	50.1	36,400	47.4	34,380
1953	1281	6,280	July 20, 1953	0	38.2	27,670	66.1	47,830
1954	1341	6,310	Apr. 30, 1954	0	74.0	53,600	46.1	33,360
1955	1391	8,700	May 19, 1955	0	63.1	45,700	87.6	63,440
1956	1441	5,640	Oct. 5, 1955	0	35.4	25,720	11.0	7,990
1957	1511	32,400	May 25, 1957	0	349	252,900	367	266,000
1958	1561	7,220	June 21, 1958	2.2	119	86,120	102	73,810
1959	1631	5,890	Sept. 25, 1959	2.0	86.1	62,350	174	126,300
1960	1711	10,100	July 23, 1960	8.0	306	222,000	-	-

2308. Salt Creek near Dewright, Okla.

Location.--Lat 35°03', long 96°40', in SE¼ sec.27, T.7 N., R.6 E., near right bank on downstream side of pier of bridge on State Highway 99, 2½ miles south of Dewright, 6 miles upstream from mouth, 8 miles northeast of Konawa, and at mile 7.3.

Drainage area.--210 sq mi (revised).

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 800.31 ft above mean sea level, datum of 1929.

Extremes.--1959-60: Maximum discharge, 7,900 cfs May 19, 1960 (gage height, 15.38 ft); minimum, 4.1 cfs Sept. 18, 19, 1960.
Maximum stage known, 21.90 ft June 17, 1937, from floodmarks.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	635	235	166	219	136	46.8	245	608	35.6	208	74.5	9.65	220

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	39,070	13,990	10,230	13,440	7,840	2,880	14,560	37,390	2,120	12,790	4,580	574	159,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1960	1711	7,900	May 19, 1960	4.3	220	159,500	-	-

2310. Little River near Sasakwa, Okla.

Location.--Lat 34°59'02", long 96°33'01", in NE¼ sec.22, T.6 N., R.7 E., on right bank at downstream side of pier of county highway bridge, 2¾ miles northwest of Sasakwa, 8.7 miles downstream from Salt Creek, and at mile 24.1.

Drainage area.--865 sq mi.

Records available.--September 1942 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 749.21 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 11, 1946, wire-weight gage at same site and datum.

Average discharge.--18 years (1942-60), 461 cfs (333,800 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 44,600 cfs May 11, 1950 (gage height, 33.48 ft); no flow at times in 1952, 1954, 1956.

Remarks.--Occasional regulation at low flow from unknown source above station. Records of chemical analyses and water temperatures for water years 1956-60 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	56.0	50.7	47.7	70.5	292	269	112	818	708	69.7	10.4	40.3	211
1952	28.8	33.7	21.3	36.2	55.4	158	760	561	105	150	10.5	.58	160
1953	.79	18.3	14.1	13.8	18.3	89.9	411	107	27.6	1,229	169	15.5	178
1954	1,014	240	217	48.8	49.5	69.2	104	1,556	44.7	4.58	5.43	.42	283
1955	6.06	4.11	17.6	23.1	37.3	89.9	55.8	1,225	80.1	16.9	53.7	147	148
1956	295	10.2	14.5	17.7	26.1	14.3	32.8	126	50.7	10.1	.38	0	50.2
1957	1.0	18.3	52.6	25.7	17.0	76.3	1,772	4,629	3,669	152	40.1	1,115	964
1958	64.1	484	89.8	241	118	583	475	677	1,249	84.1	1,521	36.7	470
1959	16.8	19.1	21.7	25.1	28.2	45.9	106	810	381	622	88.1	736	243
1960	2,100	583	514	656	515	215	547	2,453	187	674	336	39.3	740

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,440	3,020	2,940	4,340	16,200	16,520	6,680	50,270	42,100	4,290	641	2,400	152,800
1952	1,770	2,010	1,310	2,230	3,190	9,720	45,210	34,500	6,260	9,200	643	35	116,100
1953	48	1,090	867	847	1,020	5,530	24,450	6,570	1,640	75,560	10,410	920	129,000
1954	62,330	14,290	13,320	3,000	2,750	4,250	6,210	95,690	2,660	282	334	25	205,100
1955	373	244	1,080	1,420	2,070	5,530	3,320	75,310	4,770	1,040	3,300	8,730	107,200
1956	18,130	605	891	1,090	1,500	881	1,950	7,730	3,010	621	24	0	36,430
1957	62	1,090	3,240	1,580	942	4,690	105,500	284,600	218,300	9,340	2,470	66,350	698,200
1958	3,940	28,810	5,520	14,850	6,530	35,830	28,290	41,630	74,330	5,170	93,500	2,180	340,600
1959	1,030	1,140	1,330	1,550	1,570	2,820	6,280	49,810	22,650	38,240	5,420	43,780	175,600
1960	129,100	34,660	31,580	40,360	29,650	13,220	32,540	150,800	11,120	41,470	20,670	2,340	537,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	620	448,600
1951	1211	4,770	May 20, 1951	0.7	211	152,800	205	148,500
1952	1241	8,150	Apr. 23, 1952	0	160	116,100	156	113,000
1953	1281	15,400	July 21, 1953	.1	178	129,000	300	216,900
1954	1341	12,200	May 2, 1954	0	283	205,100	161	116,900
1955	1391	10,200	May 21, 1955	0	148	107,200	173	125,100
1956	1441	2,630	Oct. 7, 1955	0	50.2	36,400	29.2	21,200
1957	1511	26,500	May 18, 1957	0	964	698,200	1,011	732,000
1958	1561	23,100	Aug. 21, 1958	19	470	340,600	422	305,800
1959	1631	9,420	May 10, 1959	7.9	243	175,600	508	367,500
1960	1711	18,600	Oct. 4, 1959	24	740	537,500	-	-

2315. Canadian River at Calvin, Okla.

Location.--Lat 34°58', long 96°14', in NE¼SW¼ sec.22, T.6 N., R.10 E., near left bank on downstream side of pier of bridge on U. S. Highway 75, half a mile northeast of Calvin, 2½ miles upstream from Shawnee Creek, 8.5 miles downstream from Little River, and at mile 93.9.

Drainage area.--27,952 sq mi, of which 4,801 sq mi is probably noncontributing.

Records available.--January 1905 to December 1908 (gage heights and discharge measurements only except for period July 1905 to December 1906), October 1938 to September 1942, July 1944 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at or in this vicinity since 1904 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 684.72 ft above mean sea level, datum of 1929. January 1905 to December 1908, chain gage at site three-quarters of a mile upstream at datum 2.00 ft higher. Oct. 1, 1938, to Aug. 12, 1944, wire-weight gage at present site and datum.

Average discharge.--21 years (1905-6, 1938-42, 1944-60), 2,028 cfs (1,468,000 acre-ft per year).

Extremes.--1905-6, 1938-42, 1944-60: Maximum discharge, 174,000 cfs May 11, 1950; maximum gage height, 21.00 ft Aug. 7, 1906, from floodmark, site and datum then in use; no flow at times in 1939, 1954, 1956.

Remarks.--Occasional slight regulation since 1938 by Conchas Reservoir in New Mexico (see p. 275).

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

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	793	135	142	354	854	970	302	8,753	4,234	461	75.3	124	1,440
1952	61.3	117	91.6	159	170	616	1,349	2,079	284	315	17.4	8.68	440
1953	1.19	58.7	46.0	37.3	43.6	477	1,685	542	64.8	3,420	832	302	632
1954	2,412	1,187	680	163	170	154	557	6,782	490	33.2	17.5	.09	1,067
1955	96.1	10.1	65.0	108	115	279	128	7,433	1,374	547	561	895	979
1956	2,912	43.3	53.7	73.7	242	58.9	45.7	720	495	18.3	16.0	0	393
1957	.10	63.6	162	95.8	176	548	6,738	16,160	10,770	562	987	2,759	3,257
1958	322	1,203	378	816	595	2,204	1,772	2,277	4,945	2,699	4,395	1,121	1,900
1959	118	75.9	112	150	242	221	477	3,329	1,346	2,379	673	3,668	1,069
1960	6,851	1,329	2,664	2,784	2,706	1,238	1,575	7,899	2,488	4,557	2,231	403	3,080

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	48,730	8,040	8,740	21,770	47,420	59,670	17,950	538,200	251,900	28,370	4,630	7,360	1,043,000
1952	3,770	6,950	5,640	9,780	9,750	37,860	80,250	127,900	16,910	19,360	1,070	517	319,800
1953	73	3,490	2,830	2,290	2,420	29,350	100,200	33,300	3,850	210,300	51,170	17,980	457,300
1954	148,300	70,650	41,840	10,040	9,450	9,490	33,170	417,000	29,140	2,040	1,070	5.6	772,200
1955	5,910	601	3,990	6,670	6,380	17,180	7,630	457,100	81,750	33,650	34,510	53,240	708,600
1956	179,100	2,580	3,300	4,530	13,900	3,620	2,720	44,300	29,430	1,120	984	0	285,600
1957	6.3	3,790	9,960	5,890	9,750	33,670	400,900	993,500	640,900	34,560	60,690	164,200	2,358,000
1958	19,780	71,560	23,260	50,150	33,060	135,500	105,400	140,000	294,300	165,900	270,200	66,680	1,376,000
1959	7,230	4,520	6,910	9,220	13,420	13,570	28,390	204,700	80,090	146,300	41,370	218,300	774,000
1960	421,300	79,100	163,800	171,200	155,700	76,100	93,730	485,700	148,100	280,200	137,200	23,990	2,236,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	2,336	1,691,000
1951	1211	80,800	May 18, 1951	8.3	1,440	1,043,000	1,373	993,600
1952	1241	26,300	May 24, 1952	.5	440	319,800	427	309,800
1953	1281	60,400	July 20, 1953	.2	632	457,300	983	711,600
1954	1341	51,600	May 2, 1954	0	1,067	772,200	721	521,900
1955	1391	102,000	May 20, 1955	3.1	979	708,600	1,220	883,100
1956	1441	51,600	Oct. 6, 1955	0	393	285,600	158	114,400
1957	1511	134,000	May 18, 1957	0	3,257	2,358,000	3,396	2,459,000
1958	1561	104,000	Aug. 21, 1958	135	1,900	1,376,000	1,768	1,280,000
1959	1631	74,400	May 10, 1959	22	1,069	774,000	1,961	1,420,000
1960	1711	87,100	May 19, 1960	42	3,080	2,236,000	-	-

2320. Gaines Creek near Krebs, Okla.

Location.--Lat 34°59', long 95°37', in SW¼NE¼ sec.21, T.6 N., R.16 E., on downstream side of right pier of abandoned bridge on county road, three-quarters of a mile upstream from Nutter Creek and 6½ miles northeast of Krebs.

Drainage area.--588 sq mi.

Records available.--October 1942 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 551.22 ft above mean sea level (levels by Corps of Engineers). Prior to Dec. 5, 1945, wire-weight gage at same site and datum. Auxiliary water-stage recorder 1½ miles upstream from base gage at same datum. Prior to Apr. 9, 1948, auxiliary wire-weight gage at same site and datum as present auxiliary gage.

Average discharge.--18 years (1942-60), 602 cfs (435,800 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 62,000 cfs May 11, 1943 (gage height, 31.7 ft, from floodmark), from rating curve extended above 19,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in most years.
Maximum stage known, 31.9 ft Feb. 18, 1938, from information by local resident.

Cooperation.--Records for 1959-60 computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	27.1	7.88	8.79	21.2	1,399	337	288	242	1,508	263	8.80	52.5	337
1952	17.6	324	80.3	40.5	126	681	1,975	221	89.6	6.51	3.74	52.4	299
1953	1.04	38.4	42.0	15.7	82.3	2,143	2,364	1,910	9.18	1,096	36.6	84.3	657
1954	98.0	60.0	145	593	158	27.1	82.4	1,236	14.8	1.02	0	0	203
1955	18.1	1.46	207	159	636	1,514	362	565	70.3	27.4	113	516	348
1956	154	1.09	1.41	4.04	456	27.3	28.2	303	31.4	4.97	.46	0	83.0
1957	0	0	1.30	119	591	1,050	4,926	3,265	2,062	39.2	29.1	845	1,072
1958	20.3	1,273	466	419	130	1,425	483	1,631	378	175	482	273	600
1959	14.0	73.6	25.8	22.3	40.2	1,275	590	1,382	29.0	1,350	36.5	197	425
1960	2,177	269	946	913	529	532	173	5,461	67.5	1,090	167	8.06	1,040

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,660	469	540	1,300	77,670	20,750	17,140	14,880	89,720	16,140	541	3,120	243,900
1952	1,080	19,270	4,930	2,490	7,270	41,850	117,500	13,620	5,330	400	230	3,120	217,100
1953	64	2,280	2,580	968	4,570	131,800	140,600	117,400	548	67,390	2,250	5,020	475,500
1954	6,020	3,570	8,920	36,440	8,750	1,670	4,900	76,000	882	63	0	0	147,200
1955	1,110	87	12,730	9,770	35,310	93,090	21,530	34,740	4,190	1,680	6,960	30,730	251,900
1956	9,440	65	87	248	26,210	1,680	1,680	18,640	1,870	306	28	0	60,250
1957	0	0	80	7,310	32,810	64,560	293,100	200,700	122,700	2,410	1,790	50,310	775,800
1958	1,250	75,720	28,680	25,750	7,200	87,610	28,760	100,300	22,470	10,760	29,630	16,250	434,400
1959	864	4,380	1,590	1,370	2,230	78,390	35,090	84,980	1,720	83,000	2,250	11,730	307,600
1960	133,900	15,980	58,180	56,160	30,410	32,720	10,270	335,800	4,020	66,990	10,280	480	755,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	961	695,700
1951	1211	9,460	June 14, 1951	1.1	337	243,900	368	266,500
1952	1241	10,200	Apr. 14, 1952	.1	299	217,100	271	196,700
1953	1281	13,400	May 14, 1953	0	657	475,500	676	489,100
1954	1341	8,110	May 4, 1954	0	203	147,200	197	142,600
1955	1391	10,800	Mar. 22, 1955	0	348	251,900	342	247,600
1956	1441	3,570	May 25, 1956	0	83.0	60,250	69.9	50,740
1957	1511	17,400	Apr. 27, 1957	0	1,072	775,800	1,221	881,300
1958	1561	12,200	May 4, 1958	3.3	600	434,400	463	335,600
1959	1631	10,900	May 12, 1959	1.5	425	307,600	703	508,800
1960	1711	36,200	May 20, 1960	1.8	1,040	755,200	-	-

2325. North Canadian River near Guymon, Okla.

Location.--Lat 36°43'20", long 101°29'30", in NW¼SW¼ sec.18, T.3 N., R.15 E., near center of span on downstream side of pier of bridge on U. S. Highway 64 at Dry Sand Draw, 1¼ miles upstream from Gulf Creek, 2½ miles north of Guymon, and at mile 650.7.

Drainage area.--2,139 sq mi (includes that of Dry Sand Draw), of which 964 sq mi is probably noncontributing.

Records available.--October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 2,970.93 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--23 years (1937-60), 32.2 cfs (23,310 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 44,000 cfs Sept. 23, 1941 (gage height, 13.82 ft, from floodmark), from rating curve extended above 26,000 cfs by logarithmic plotting; no flow at times in 1938-41, 1943-45, 1956, 1959-60.
Maximum stage known, that of Sept. 23, 1941.

Remarks.--Records of chemical analyses and water temperatures for the period November 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16.9	12.1	13.8	10.8	13.8	11.7	9.42	173	43.3	27.1	9.79	2.14	28.9
1952	2.76	7.57	7.61	8.09	7.65	9.60	14.3	5.61	1.27	30.4	6.59	1.47	8.61
1953	1.90	5.50	7.41	9.86	6.50	7.14	6.86	15.5	1.23	21.2	32.1	2.82	9.92
1954	54.5	7.94	8.06	12.3	7.36	7.01	7.61	9.72	.86	1.58	9.65	.54	10.7
1955	1.17	1.55	3.32	6.78	7.73	6.92	10.8	418	108	23.1	45.6	3.07	53.7
1956	1.82	4.84	6.91	8.88	9.23	7.36	5.94	75.1	45.0	79.1	58.3	.38	25.4
1957	1.01	1.89	5.97	6.81	7.76	18.1	20.0	34.9	99.0	26.5	138	1.05	30.3
1958	2.18	5.09	4.92	7.91	8.01	12.5	7.41	31.9	8.59	49.7	80.1	380	49.6
1959	5.87	8.61	7.11	11.7	10.5	8.79	7.56	9.27	2.02	13.5	81.3	.26	14.0
1960	6.39	7.57	9.01	8.57	13.6	11.5	7.34	3.63	6.03	1.82	.07	23.1	8.16

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,040	723	850	664	767	721	561	10,610	2,580	1,670	602	127	20,920
1952	170	451	468	497	440	590	851	345	75	1,870	405	87	6,250
1953	117	327	456	606	361	439	408	951	73	1,300	1,980	168	7,190
1954	3,350	473	496	758	409	431	453	598	51	97	593	32	7,740
1955	72	92	204	419	429	425	645	25,720	6,450	1,420	2,810	182	38,870
1956	112	288	425	546	531	453	354	4,620	2,680	4,870	3,580	23	18,480
1957	62	112	367	419	431	1,110	1,190	2,150	5,890	1,630	8,480	63	21,900
1958	134	303	303	486	445	769	441	1,960	511	3,050	4,920	22,580	35,900
1959	361	513	437	720	584	541	450	570	120	832	5,000	15	10,140
1960	393	450	554	527	784	708	437	223	359	112	4.4	1,370	5,920

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	51.6	37,390
1951	1211	9,970	May 17, 1951	1.2	28.9	20,920	26.8	19,390
1952	1241	6,930	July 16, 1952	.4	8.61	6,250	8.35	6,060
1953	1281	1,240	July 20, 1953	.4	9.92	7,190	14.7	10,600
1954	1341	4,650	Oct. 21, 1953	.1	10.7	7,740	5.24	3,790
1955	1391	25,300	May 25, 1955	.5	53.7	38,870	54.3	39,320
1956	1441	17,700	May 25, 1956	0	25.4	18,480	25.1	18,200
1957	1511	21,700	Aug. 4, 1957	.2	30.3	21,900	30.5	22,100
1958	1561	22,600	Sept. 5, 1958	.2	49.6	35,900	50.4	36,470
1959	1631	13,400	Aug. 6, 1959	0	14.0	10,140	14.1	10,230
1960	1711	1,260	Sept. 9, 1960	0	8.16	5,920	-	-

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2330. Coldwater Creek near Hardesty, Okla.

Location.--Lat 36°39', long 101°13', in NW¼NE¼ sec.15, T.2 N., R.17 E., on downstream side of piling near center of bridge on State Highway 3, 2 miles northwest of Hardesty and 5.7 miles upstream from mouth.

Drainage area.--1,967 sq mi, of which 1,200 sq mi is probably noncontributing.

Records available.--June 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,751.32 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--21 years (1939-60), 17.4 cfs (12,600 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 21,500 cfs June 25, 1947 (gage height, 9.07 ft), from rating curve extended above 1,500 cfs on basis of slope-area measurement at gage height 8.76 ft; maximum gage height, 9.12 ft July 18, 1950; no flow at times in each year.

Remarks.--Records of chemical analyses for water year 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	42.7	7.36	8.63	8.72	10.4	9.12	8.61	336	22.5	4.21	24.7	0	40.8
1952	.12	3.59	4.72	4.57	5.56	8.01	6.17	2.65	.05	11.6	1.62	0	4.06
1953	0	0	.26	4.56	3.90	3.61	2.45	1.36	.06	5.10	0	0	1.77
1954	0	0	.60	4.06	2.65	2.35	2.96	5.15	1.87	0	2.22	0	1.82
1955	0	0	0	.14	1.68	2.41	2.55	164	104	31.2	5.86	0	26.2
1956	0	.90	3.16	4.86	5.74	4.64	3.29	13.1	5.75	11.9	7.95	0	5.14
1957	0	.05	2.22	4.99	5.53	14.0	9.94	20.9	70.4	4.99	48.4	0	15.1
1958	1.41	4.18	5.02	5.53	5.28	6.71	7.48	5.54	.79	12.1	121	4.52	15.1
1959	2.04	5.20	4.72	9.82	8.52	6.34	5.99	11.6	10.7	65.2	3.66	0	11.2
1960	0	1.40	3.03	2.59	7.76	5.20	4.18	1.45	5.24	.33	.11	23.3	4.49

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,630	438	531	536	578	561	512	20,660	1,340	259	1,520	0	29,560
1952	7.3	213	290	281	320	492	367	163	2.8	711	100	0	2,950
1953	0	0	16	280	217	222	146	84	3.8	314	0	0	1,280
1954	0	0	37	250	147	145	176	316	111	0	137	0	1,320
1955	0	0	0	8.3	93	148	152	10,090	6,210	1,920	361	0	18,980
1956	0	53	194	299	330	285	196	807	342	732	489	0	3,730
1957	0	3.2	136	307	307	862	591	1,290	4,190	307	2,980	0	10,970
1958	86	249	309	340	293	412	445	341	47	741	7,410	269	10,940
1959	126	310	290	604	473	390	356	716	635	4,010	225	0	8,140
1960	0	83	186	159	446	320	249	89	312	20	6.7	1,390	3,260

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	65.1	47,110
1951	1211	7,250	May 16, 1951	0	40.8	29,560	36.6	26,480
1952	1241	837	July 17, 1952	0	4.06	2,950	3.38	2,450
1953	1281	845	July 23, 1953	0	1.77	1,280	1.80	1,300
1954	1341	95	June 15, 1954	0	1.82	1,320	1.77	1,280
1955	1391	8,670	June 18, 1955	0	26.2	18,980	26.6	19,230
1956	1441	1,460	May 2, 1956	0	5.14	3,730	4.99	3,620
1957	1511	5,860	June 23, 1957	0	15.1	10,970	15.8	11,480
1958	1561	4,810	Aug. 20, 1958	0	15.1	10,940	15.2	11,020
1959	1631	2,530	July 15, 1959	0	11.2	8,140	10.6	7,680
1960	1711	652	Sept. 25, 1960	0	4.49	3,260	-	-

2335. Palo Duro Creek near Spearman, Tex.

Location.--Lat 36°12', long 101°19', near center of span on downstream side of bridge on State Highway 282, 6 miles west of Spearman, Hansford County, and 18 miles upstream from Horse Creek.

Drainage area.--960 sq mi, of which 520 sq mi is probably noncontributing.

Records available.--July 1945 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 2,961.63 ft above mean sea level, datum of 1929.

Average discharge.--15 years (1945-1960), 20.1 cfs (14,550 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 21,200 cfs Oct. 7, 1946 (gage height, 19.87 ft); no flow at times.
Maximum stage known, about 22.5 ft Sept. 4, 1938, from floodmark (discharge, about 34,000 cfs); flood of June 4, 1936, reached a stage of about 21 ft, from floodmark (discharge, 26,100 cfs); discharges from rating curve extended above 20,000 cfs by logarithmic plotting.

Remarks.--Diversion above station for irrigation.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.42	2.42	2.52	2.50	2.63	1.97	2.13	349	9.31	2.71	1.04	0.34	32.3
1952	.31	.97	.87	.85	1.15	1.00	61.1	1.51	.30	.56	15.0	.04	6.92
1953	0	.06	.55	.42	.42	.80	.29	.27	15.0	188	5.57	.56	18.0
1954	8.38	1.19	.89	.73	.54	.49	.97	1.93	157	21.3	15.2	.42	17.3
1955	73.3	1.90	2.09	2.11	1.27	.80	106	201	5.47	24.6	37.7	.54	38.5
1956	.05	0	0	.24	.95	1.50	.18	9.95	4.37	19.0	25.9	0	5.25
1957	.07	.26	.44	.62	.46	1.42	42.6	95.6	16.9	19.6	13.7	.88	16.2
1958	.33	1.00	.72	.94	1.15	.93	3.71	.12	8.96	152	18.7	3.56	16.3
1959	.58	1.02	1.76	2.69	1.16	1.19	1.17	1.14	5.06	55.0	7.68	.95	6.71
1960	.67	.71	7.99	1.25	1.32	.85	.26	.63	21.8	15.8	2.53	188	19.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	333	144	155	154	146	121	127	21,440	554	166	64	20	23,420
1952	19	58	54	52	66	61	3,640	93	18	35	924	2.6	5,020
1953	0	3.6	34	26	23	49	17	16	893	11,570	343	33	13,010
1954	516	71	55	45	30	30	58	119	9,330	1,310	934	25	12,520
1955	4,510	113	129	130	70	49	6,300	12,370	326	1,510	2,320	32	27,860
1956	3.2	0	0	15	55	92	11	612	260	1,170	1,590	0	3,810
1957	4.4	15	27	38	25	87	2,540	5,880	1,010	1,200	844	52	11,720
1958	20	59	44	58	64	57	221	7.1	533	9,350	1,150	212	11,780
1959	36	61	108	165	64	73	70	70	301	3,380	472	57	4,860
1960	41	42	492	77	76	52	15	39	1,290	972	156	11,160	14,410

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	-	-
1951	1211	4,930	May 17, 1951	0	32.3	23,420	31.7	22,920
1952	1241	3,060	Apr. 20, 1952	0	6.92	5,020	6.79	4,930
1953	1281	8,550	July 19, 1953	0	18.0	13,010	18.8	13,610
1954	1341	6,000	June 14, 1954	0	17.3	12,520	23.0	16,630
1955	1391	6,660	Apr. 30, 1955	0	38.5	27,860	31.9	23,110
1956	1441	1,290	July 19, 1956	0	5.25	3,810	5.31	3,850
1957	1511	1,810	May 25, 1957	0	16.2	11,720	16.3	11,800
1958	1561	1,540	July 23, 1958	0	16.3	11,780	16.4	11,860
1959	1631	1,410	July 16, 1959	0	6.71	4,860	7.23	5,230
1960	1711	2,650	Sept.25, 1960	0	19.9	14,410	-	-

2340. North Canadian River at Beaver, Okla.

Location.--Lat 36°49'20", long 100°31'05", in SW¼ sec.7, T.4 N., R.24 E., near right bank on downstream side of pier of bridge on U. S. Highway 270 at Beaver, 1½ miles downstream from Home Creek, 5 miles upstream from Clear Creek, and at mile 576.0.

Drainage area.--7,955 sq mi, of which 4,270 sq mi is probably noncontributing.

Records available.--March 1904 to December 1905 (gage heights only), October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Published as Beaver Creek at Beaver 1904-5.

Gage.--Water-stage recorder. Datum of gage is 2,368.16 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Mar. 29, 1904, to Dec. 31, 1905, staff gage in same vicinity at different datum. Mar. 1, 1938, to Sept. 30, 1946, water-stage recorder at present site at datum 3.0 ft higher.

Average discharge.--23 years (1937-60), 131 cfs (94,840 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 70,000 cfs Oct. 8, 1946, by slope-area measurement of peak flow in overflow section and extension of rating curve for main channel above 42,000 cfs; maximum gage height, 14.55 ft Oct. 8, 1946; no flow at times in each year.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	123	41.9	52.1	51.0	65.7	64.2	55.5	2,924	441	53.1	46.8	0.93	331
1952	1.27	15.8	20.1	35.4	36.8	54.1	78.4	33.2	.96	32.0	4.99	0	26.1
1953	0	0	0	19.1	13.1	15.0	6.99	13.4	74.0	509	311	6.31	81.9
1954	30.2	13.9	26.0	35.5	18.2	9.13	9.90	63.2	154	48.6	16.0	0	35.4
1955	15.3	0	0	0	0	0	29.8	1,976	1,286	104	47.6	14.4	291
1956	.53	0	1.14	13.3	25.1	12.0	.19	138	30.1	138	35.3	0	33.1
1957	0	0	0	0	0	61.0	198	338	245	94.0	195	7.36	95.5
1958	0	.64	4.20	14.1	19.3	34.7	37.7	38.4	22.0	260	481	491	117
1959	6.59	20.2	28.4	50.9	38.2	28.7	28.0	196	19.8	172	22.4	0	51.4
1960	0	0	9.87	27.3	45.9	35.8	9.73	3.85	15.5	43.8	0	301	40.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,540	2,490	3,200	3,130	3,650	3,950	3,300	179,800	26,230	3,270	2,880	55	239,500
1952	78	942	1,230	2,180	2,120	3,330	4,670	2,040	57	1,970	307	0	18,920
1953	0	0	0	1,170	729	922	416	826	4,410	31,280	19,140	376	59,270
1954	1,860	825	1,600	2,190	1,010	562	589	3,890	9,140	2,990	985	0	25,640
1955	942	0	0	0	0	0	1,770	121,500	76,490	6,420	2,930	857	210,900
1956	32	0	70	821	1,440	737	11	8,500	1,790	8,470	2,170	0	24,040
1957	0	0	0	0	0	3,750	11,760	20,810	14,590	5,780	12,000	438	69,130
1958	0	38	258	866	1,070	2,130	2,240	2,360	1,310	15,990	29,570	29,190	85,020
1959	405	1,200	1,740	3,130	2,120	1,770	1,670	12,030	1,180	10,600	1,380	0	37,220
1960	0	0	607	1,680	2,640	2,200	579	237	921	2,690	0	17,920	29,470

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	357	258,500
1951	1211	32,200	May 17, 1951	0	331	239,500	316	228,500
1952	1241	1,180	July 19, 1952	0	26.1	18,920	23	16,670
1953	1281	11,800	July 23, 1953	0	81.9	59,270	87.8	63,550
1954	1341	4,100	July 23, 1954	0	35.4	25,640	30.8	22,300
1955	1391	28,100	June 17, 1955	0	291	210,900	290	210,100
1956	1441	5,700	May 26, 1956	0	33.1	24,040	33.0	23,940
1957	1511	8,810	Apr. 17, 1957	0	95.5	69,130	95.9	69,420
1958	1561	12,800	Aug. 21, 1958	0	117	85,020	122	88,070
1959	1631	5,490	May 4, 1959	0	51.4	37,220	47.6	34,490
1960	1711	5,200	Sept.24, 1960	0	40.6	29,470	-	-

2345. North Canadian River near Fort Supply, Okla.

Location.--Lat 36°35'30", long 99°35'30", in NE¼NE¼ sec.6, T.24 N., R.22 W., near left bank on downstream side of pier of bridge on State Highway 34, 1½ miles northwest of Fort Supply, 8.1 miles upstream from Wolf Creek, and at mile 495.8.

Drainage area.--9,615 sq mi, of which 4,547 sq mi is probably noncontributing.

Records available.--October 1937 to April 1951. Prior to October 1941, published as "near Supply."

Gage.--Water-stage recorder. Datum of gage is 1,975.63 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--13 years (1937-50), 189 cfs (136,800 acre-ft per year).

Extremes.--1937-51: Maximum discharge, 50,000 cfs Oct. 9, 1946 (gage height, 11.83 ft); no flow at times in 1937-49.
Maximum stage known, that of Oct. 9, 1946.

Monthly and yearly mean discharge, in cubic feet per second, of North Canadian River near Fort Supply, Okla.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	176	62.2	85.6	94.3	128	117	141	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	10,830	3,700	5,270	5,800	7,080	7,190	8,370	-	-	-	-	-	-

2360. Wolf Creek near Fargo, Okla.

Location.--Lat 36°24'00", long 99°37'25", in SE¼NE¼ sec.11, T.22 N., R.23 W., near right bank on downstream side of bridge on county road, 800 ft downstream from Boggy Creek, 1¼ miles downstream from Sixteen Mile Creek, 1½ miles north of Fargo, and at mile 18.7.

Drainage area.--1,624 sq mi, of which 238 sq mi is probably noncontributing.

Records available.--October 1942 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 2,054.35 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--18 years (1942-60), 89.2 cfs (64,580 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 81,600 cfs June 23, 1957 (gage height, 10.0 ft, from floodmarks), from rating curve extended above 7,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in most years.
Flood of June 23, 1957, highest since at least 1913, from information by local residents.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	73.4	63.6	75.1	74.7	100	69.5	69.0	1,210	505	58.3	18.6	16.6	196
1952	22.4	47.9	43.3	53.4	59.0	68.5	75.5	61.3	12.7	5.67	.32	0	37.4
1953	.17	8.26	17.5	31.0	32.6	32.3	23.3	39.3	40.3	89.6	39.9	1.73	29.8
1954	170	36.9	36.5	41.0	36.8	30.1	26.8	129	32.8	.27	0	0	45.3
1955	.87	.70	6.11	12.9	18.0	18.4	15.9	341	446	82.7	13.4	27.2	82.1
1956	8.61	9.46	17.1	20.8	26.3	24.5	18.2	24.6	9.88	24.7	40.6	0	18.8
1957	0	.20	2.66	9.16	10.8	78.7	2.32	712	1,824	277	33.7	88.1	272
1958	36.2	40.3	41.4	45.5	47.1	54.6	45.1	42.2	77.9	97.0	157	16.7	58.7
1959	6.76	18.0	21.5	28.5	35.0	34.6	45.0	53.5	41.7	50.0	8.24	1.35	28.6
1960	12.0	17.0	26.8	30.9	89.6	57.7	53.5	37.2	110	84.2	102	50.1	55.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,510	3,780	4,620	4,590	5,580	4,270	4,100	74,410	30,060	3,590	1,140	990	141,600
1952	1,380	2,850	2,660	3,280	3,390	4,210	4,490	3,770	753	348	20	0	27,150
1953	11	492	1,070	1,900	1,810	1,990	1,380	2,420	2,400	5,510	2,450	103	21,540
1954	10,420	2,190	2,240	2,520	2,040	1,850	1,600	7,940	1,950	16	0	0	32,770
1955	54	41	375	791	1,000	1,130	946	20,990	26,500	5,090	823	1,620	59,410
1956	529	563	1,050	1,280	1,520	1,510	1,080	1,510	588	1,520	2,490	0	13,640
1957	0	12	163	564	597	4,840	13,800	43,800	108,500	17,060	2,070	5,240	196,600
1958	2,220	2,400	2,540	2,800	2,620	3,360	2,680	2,600	4,630	5,970	9,680	995	42,500
1959	416	1,070	1,320	1,750	1,940	2,130	2,680	3,290	2,480	3,080	507	80	20,740
1960	740	1,010	1,650	1,900	5,160	3,550	3,180	2,290	6,550	5,180	6,290	2,980	40,480

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	243	175,800
1951	1211	23,500	May 16, 1951	3.7	196	141,600	187	135,600
1952	1241	2,910	May 24, 1952	0	37.4	27,150	30.1	21,830
1953	1281	3,660	June 7, 1953	0	29.8	21,540	48.1	34,810
1954	1341	8,950	Oct. 15, 1953	0	45.3	32,770	25.4	18,390
1955	1391	6,540	June 17, 1955	0	82.1	59,410	84.4	61,080
1956	1441	3,100	Aug. 19, 1956	0	18.8	13,640	16.1	11,670
1957	1511	81,600	June 23, 1957	0	272	196,600	281	203,600
1958	1561	6,400	Aug. 1, 1958	6	58.7	42,500	52.7	38,140
1959	1631	3,410	July 13, 1959	.3	28.6	20,740	29.5	21,340
1960	1711	3,260	Aug. 18, 1960	7.5	55.7	40,480	-	-

2365. Fort Supply Reservoir near Fort Supply, Okla.

Location.--Lat 36°33', long 99°34', in NE¼SE¼ sec.17, T.24 N., R.22 W., in control tower at left end of Fort Supply Dam on Wolf Creek, 2 miles southeast of Fort Supply and 5.5 miles upstream from mouth.

Drainage area.--1,735 sq mi, of which 241 sq mi is probably noncontributing.

Records available.--June 1942 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1942-60: Maximum contents, 97,930 acre-ft June 25, 1957 (elevation, 2,026.53 ft), from capacity table then in use; no contents at times November 1942 to January 1943.

Remarks.--Reservoir is formed by an earth dam. Natural flow diverted through conduit in 1941 during construction operations. Regulated storage began May 4, 1942; conservation pool stage was first reached June 11, 1942. Capacity, 101,800 acre-ft at elevation 2,028.0 ft (crest of spillway) and 8,120 acre-ft at elevation 2,000.0 ft (conservation pool). No storage below elevation 1,987.0 ft. Reservoir is used for flood control and conservation. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	11,020	13,560	13,650	13,420	15,090	13,440	13,580	81,440	54,220	13,400	13,160	13,330
1952	13,650	13,650	13,580	13,360	13,490	12,810	13,250	13,160	11,930	10,730	9,600	8,480
1953	7,590	7,270	7,730	8,740	10,150	11,390	11,910	12,720	12,860	13,560	13,040	a11,850
1954	11,850	13,540	13,670	13,600	13,150	13,390	12,310	11,700	9,540	8,290	7,070	6,110
1955	5,580	5,180	4,860	4,850	5,400	5,740	5,860	13,220	16,900	13,670	12,890	13,110
1956	12,360	11,850	12,290	13,110	13,240	13,670	13,340	13,320	12,800	13,150	13,320	11,800
1957	10,910	10,270	9,930	9,780	10,430	14,350	13,560	14,280	65,940	18,230	13,060	13,080
1958	13,410	13,500	13,600	13,410	13,220	13,690	13,470	13,470	13,300	13,410	13,480	b10,840
1959	10,340	10,930	11,060	11,140	11,240	11,040	11,120	10,870	11,260	10,870	10,580	9,820
1960	10,130	10,590	11,140	11,040	11,190	11,290	11,190	11,150	10,960	11,150	11,030	11,060

a Contents by capacity table used beginning Oct. 1, 1953; contents Sept. 30, 1953, by capacity table used Oct. 1, 1948, to Sept. 30, 1953, was 11,830 acre-ft.
b Contents by capacity table used beginning Oct. 1, 1958; contents Sept. 30, 1958, by capacity table used Oct. 1, 1953, to Sept. 30, 1958, was 13,080 acre-ft.

2370. Wolf Creek near Fort Supply, Okla.

Location.--Lat 36°34'00", long 99°33'05", in SE¼SE¼ sec.9, T.24 N., R.22 W., near left bank on downstream side of pier of bridge on U. S. Highway 270, 1 mile southeast of Fort Supply, 1.6 miles downstream from Fort Supply Dam, and 3.9 miles upstream from mouth.

Drainage area.--1,739 sq mi, of which 241 sq mi is probably noncontributing.

Records available.--October 1937 to September 1960. Prior to Oct. 1, 1941, published as "near Supply."

Gage.--Water-stage recorder. Datum of gage is 1,962.38 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Feb. 10, 1938, staff gage and Feb. 10, 1938, to Sept. 30, 1944, water-stage recorder, at same site at datum 6.0 ft higher. Oct. 1, 1944, to Sept. 30, 1950, water-stage recorder at same site at datum 3.0 ft higher.

Average discharge.--23 years (1937-60), 89.6 cfs (64,870 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 14,200 cfs June 24, 1939 (gage height, 11.60 ft, present datum), from rating curve extended above 8,000 cfs; no flow at times in most years.

Maximum stage known, 15.6 ft, present datum, date unknown, from information by State Highway Commission.

Remarks.--Flow completely regulated since May 4, 1942, by Fort Supply Reservoir (see preceding page).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	96.6	14.5	68.4	70.1	90.4	103	65.5	94.3	1,016	741	5.04	3.22	197
1952	8.48	44.6	43.3	59.9	59.1	83.6	85.5	48.5	4.93	1.88	3.53	2.99	37.1
1953	2.44	2.16	5.59	8.60	4.93	2.81	3.56	3.47	2.42	40.7	14.9	1.12	7.81
1954	15.8	8.32	31.9	35.2	35.3	18.6	34.5	139	58.4	3.96	.97	.53	44.0
1955	0	.11	.40	.40	.50	.40	.50	178	328	91.3	1.79	.80	50.0
1956	1.20	1.50	1.00	1.00	21.0	6.30	3.20	6.30	.50	.60	1.00	.60	3.61
1957	.50	.70	.70	.80	.80	.90	251	993	991	1,017	92.3	83.7	288
1958	52.8	47.8	38.4	54.4	58.8	76.7	64.4	46.3	107	127	143	4.72	68.7
1959	.74	1.13	26.6	31.3	43.4	35.6	43.4	61.6	34.1	30.6	.76	.74	25.8
1960	1.04	1.18	25.8	41.2	113	77.2	52.1	29.6	108	64.6	78.5	35.0	51.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,940	865	4,210	4,310	5,020	6,350	3,900	5,800	60,470	45,580	310	192	142,900
1952	521	2,650	2,660	3,680	3,400	5,140	5,090	2,980	294	115	217	178	26,920
1953	150	192	344	529	274	173	212	213	144	2,510	914	67	5,660
1954	9,740	495	1,960	2,160	1,960	1,140	2,050	8,550	3,470	244	60	31	31,860
1955	0	6.7	25	25	28	25	30	10,970	19,510	5,610	110	48	36,390
1956	74	89	61	61	1,210	387	190	387	30	37	61	36	2,620
1957	31	42	43	49	44	55	14,950	61,060	58,990	62,540	5,670	4,980	208,500
1958	3,250	2,850	2,360	3,340	3,260	4,720	3,830	2,840	6,350	7,810	8,810	281	49,700
1959	45	67	1,640	1,930	2,410	2,190	2,580	3,790	2,030	1,880	47	44	18,650
1960	64	70	1,590	2,530	6,510	4,740	3,100	1,820	6,400	3,970	4,820	2,080	37,690

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	223	161,600
1951	1211	1,230	June 13-16, 1951	1.0	197	142,900	190	137,800
1952	1241	583	Apr. 24, 1952	.2	37.1	26,920	29.9	21,720
1953	1281	798	July 26, 1953	0	7.81	5,660	23.8	17,230
1954	1341	1,470	Oct. 25, 1953	0	44.0	31,860	27.2	19,700
1955	1391	2,240	June 23, 1955	0	50.0	36,390	50.5	36,580
1956	1441	49	Feb. 20, 1956	0	3.61	2,620	3.46	2,520
1957	1511	5,020	May 19, 1957	0	288	208,500	299	216,800
1958	1561	2,080	Aug. 2, 1958	0	68.7	49,700	59.4	42,990
1959	1631	201	June 13, 1959	.3	25.8	18,650	25.7	18,620
1960	1711	770	Aug. 19, 1960	.3	51.9	37,690	-	-

2375. North Canadian River at Woodward, Okla.

Location.--Lat 36°26', long 99°17', in SE¼SE¼ sec.25, T.23 N., R.20 W., near left bank on downstream side of pier of bridge on State Highway 15, 200 ft downstream from The Atchison, Topeka and Santa Fe Railway Co. bridge, 6 miles east of Woodward, 7.2 miles upstream from Indian Creek, 27.5 miles downstream from Wolf Creek, and at mile 460.2.

Drainage area.--11,589 sq mi, of which 4,812 sq mi is probably noncontributing.

Records available.--October 1903 to September 1905 (gage heights only), October 1905 to June 1906, October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Published as Canadian River (North Fork) near Woodward 1903-6. Gage-height records collected in this vicinity since 1919 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 1,830.43 ft above mean sea level, datum of 1929. Prior to July 1906, staff or chain gage at railway bridge 200 ft upstream at different datum. Oct. 1, 1938, to Oct. 26, 1943, staff or wire-weight gage and Oct. 27, 1943, to July 12, 1951, water-stage recorder, at site 7.8 miles upstream at datum 37.01 ft higher than present datum.

Average discharge.--22 years (1938-60), 269 cfs (194,700 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 35,000 cfs (revised) May 18, 1951 (gage height, 8.70 ft, from graph based on gage readings, site and datum then in use); maximum gage height, 9.80 ft Oct. 10, 1946, site and datum then in use; no flow at times in most years.

Maximum stage known, 11.0 ft Oct. 12, 1923, site and datum then in use, from reports of U. S. Weather Bureau.

Remarks.--Some regulation since May 1942 by Fort Supply Reservoir on Wolf Creek (see p. 296).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	300	76.5	172	173	215	242	225	3,913	2,026	939	63.7	19.4	702
1952	18.6	78.3	97.3	144	144	191	265	160	28.2	.16	0	0	93.7
1953	0	.02	.66	3.45	9.60	12.6	7.51	4.50	6.32	358	246	13.4	56.1
1954	146	17.6	33.0	48.5	55.3	21.5	35.6	172	113	.68	.05	0	53.8
1955	0	0	0	.46	1.18	1.07	1.40	1,743	1,867	274	32.4	20.7	330
1956	5.89	0	.61	.82	13.0	3.96	2.03	79.1	31.3	102	.16	0	20.1
1957	0	0	0	0	0	1.63	366	1,695	2,263	1,384	215	163	509
1958	91.9	83.2	63.7	87.0	89.7	161	151	107	251	501	490	258	196
1959	14.1	11.4	39.9	96.2	120	95.8	118	211	74.8	97.9	20.5	.44	74.9
1960	5.48	8.05	28.1	82.3	251	204	115	74.3	195	92.0	87.0	147	107

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18,430	4,550	10,570	10,610	11,950	14,890	13,390	240,600	120,500	57,760	3,920	1,150	508,300
1952	1,140	4,660	5,980	8,880	8,300	11,700	15,780	9,850	1,680	9.7	0	0	68,050
1953	0	1.4	41	212	533	775	447	277	376	22,040	15,130	795	40,630
1954	9,010	1,050	2,030	2,980	3,070	1,320	2,120	10,600	6,750	42	2.8	0	38,970
1955	0	0	0	28	65	66	83	107,200	111,100	16,850	1,990	1,230	238,600
1956	362	0	37	50	747	244	121	4,860	1,860	6,300	9.9	0	14,590
1957	0	0	0	0	0	100	21,810	104,200	134,600	85,130	13,250	9,710	368,800
1958	5,650	4,950	3,920	5,350	4,980	9,920	9,010	6,560	14,950	30,830	30,150	15,380	141,600
1959	866	676	2,460	5,910	6,660	5,890	7,030	12,990	4,450	6,020	1,260	26	54,240
1960	337	479	1,730	5,060	14,420	12,550	6,840	4,570	11,580	5,660	5,350	8,750	77,330

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	804	582,000
1951	1211	*35,000	May 18, 1951	8.5	702	508,300	672	486,600
1952	1241	912	Apr. 25, 1952	0	93.7	68,050	77.6	56,310
1953	1281	4,940	July 24, 1953	0	56.1	40,630	72.7	52,680
1954	1341	1,410	Oct. 27, 1953	0	53.8	38,970	37.1	26,880
1955	1391	12,400	May 20, 1955	0	330	238,600	330	239,000
1956	1441	1,650	May 27, 1956	0	20.1	14,590	19.6	14,190
1957	1511	14,400	June 24, 1957	0	509	368,800	529	383,300
1958	1561	5,510	Aug. 22, 1958	1	196	141,600	181	131,100
1959	1631	760	July 19, 1959	0	74.9	54,240	72.9	52,780
1960	1711	2,730	June 8, 1960	.8	107	77,330	-	-

* Revised.

2380. North Canadian River near Seiling, Okla.

Location.--Lat 36°11', long 98°55', in NW¼ sec.28, T.20 N., R.16 W., near center of span on downstream side of pier of bridge on U. S. Highway 60, 2 miles upstream from Seiling Creek, 2¼ miles north of Seiling, 2¾ miles downstream from Deep Creek, and at mile 422.6.

Drainage area.--12,261 sq mi, of which 4,847 sq mi is probably noncontributing.

Records available.--July 1946 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,675.42 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1954, at same site at datum 5.00 ft higher.

Average discharge.--14 years (1946-60), 326 cfs (236,000 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 33,000 cfs (revised) May 19, 1951; maximum gage height, 16.00 ft Oct. 11, 1946, present datum; no flow at times in most years.

Remarks.--Some regulation by Fort Supply Reservoir on Wolf Creek (see p. 296).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	433	106	185	198	238	262	266	3,724	1,946	941	83.6	24.1	706
1952	19.4	75.5	101	146	154	220	313	187	32.5	0	0	0	104
1953	0	0	0	0	1.71	12.9	7.81	17.3	1.83	331	277	13.2	56.2
1954	118	26.1	31.7	44.6	51.3	25.4	91.7	243	112	.49	0	0	62.1
1955	0	0	0	0	0	0	0	1,700	2,005	358	32.0	8.35	343
1956	9.90	0	.14	1.02	6.57	5.06	2.03	62.4	21.6	42.4	15.3	0	14.0
1957	26.0	0	0	0	0	.42	461	2,120	2,572	1,738	269	164	615
1958	91.6	92.6	86.0	100	100	182	215	152	364	559	627	263	237
1959	19.7	16.7	30.5	88.5	142	122	194	352	85.6	76.8	15.9	153	108
1960	77.7	17.2	48.0	101	378	269	173	121	260	118	85.8	179	151

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	26,600	6,310	11,400	12,150	13,200	16,100	15,850	229,000	115,800	57,880	5,140	1,430	510,900
1952	1,190	4,490	6,230	8,990	8,860	13,530	18,640	11,490	1,930	0	0	0	75,350
1953	0	0	0	0	95	791	465	1,060	109	20,350	17,040	783	40,690
1954	7,230	1,550	1,950	2,740	2,850	1,560	5,460	14,950	6,660	30	0	0	44,980
1955	0	0	0	0	0	0	0	104,600	119,300	22,020	1,970	497	248,400
1956	609	0	8.7	63	378	311	121	3,840	1,290	2,610	942	0	10,170
1957	1,600	0	0	0	0	26	27,440	130,400	153,100	106,800	16,530	9,730	445,600
1958	5,630	5,510	5,290	6,180	5,570	11,160	12,780	9,340	21,660	34,390	38,540	15,640	171,700
1959	1,210	991	1,880	5,440	7,890	7,490	11,570	21,670	5,090	4,720	979	9,090	78,020
1960	4,780	1,020	2,950	6,230	21,750	16,540	10,290	7,420	15,470	7,270	5,280	10,660	109,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	827	599,000
1951	1211	*33,000	May 19, 1951	10	706	510,900	661	478,500
1952	1241	1,260	Apr. 19, 1952	0	104	75,350	87.4	63,440
1953	1281	3,840	July 25, 1953	0	56.2	40,690	71.0	51,420
1954	1341	3,720	Apr. 30, 1954	0	62.1	44,980	47.3	34,250
1955	1391	8,770	June 21, 1955	0	343	248,400	344	249,000
1956	1441	1,000	May 28, 1956	0	14.0	10,170	15.3	11,160
1957	1511	13,100	June 25, 1957	0	615	445,600	636	460,500
1958	1561	4,800	Aug. 4, 1958	2.3	237	171,700	220	159,300
1959	1631	5,070	Sept.24, 1959	0	108	78,020	114	82,690
1960	1711	2,440	June 8, 1960	2.5	151	109,700	-	-

* Revised.

2385. Canton Reservoir near Canton, Okla.

Location.--Lat 36°05', long 98°36', in SE¼NE¼ sec.32, T.19 N., R.13 W., near right end of Canton Dam on North Canadian River, 2 miles northwest of Canton and at mile 394.3.

Drainage area.--12,483 sq mi, of which 4,883 sq mi is probably noncontributing.

Records available.--April 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1948-60: Maximum contents, 258,600 acre-ft May 25, 1951 (elevation, 1,628.05 ft), from capacity table then in use; minimum since conservation pool was first reached, 867 acre-ft May 5, 1955.

Remarks.--Reservoir is formed by an earth dam. Regulated storage began Apr. 15, 1948; conservation pool stage was first reached July 4, 1948. Capacity, 386,000 acre-ft (revised) at elevation 1,638.0 ft (flood-control pool), 102,000 acre-ft (revised) at elevation 1,613.0 ft (crest of spillway), and 20,540 acre-ft (revised) at elevation 1,596.5 ft (conservation pool). Dead storage, 63 acre-ft (revised) below elevation 1,582.0 ft (invert of bypass gates). Reservoir was designed for flood control, irrigation, and conservation, but owing to lack of facilities, is not being used for irrigation at this time. Figures given herein represent total contents. Records of chemical analyses for water year 1960 are published in reports of Geological Survey.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	52,150	53,050	52,750	54,950	57,050	52,150	52,700	238,200	174,600	62,820	50,750	48,350
1952	47,400	52,150	57,160	62,440	58,860	51,650	52,250	53,650	48,250	41,750	36,280	31,100
1953	23,400	21,710	20,500	19,010	17,630	16,310	11,970	11,790	9,620	14,910	27,140	8,900
1954	13,880	15,410	16,930	18,580	20,470	9,640	12,400	13,750	7,060	5,330	3,990	2,800
1955	2,390	2,020	1,740	1,620	1,550	1,190	934	61,380	123,200	111,800	107,600	104,600
1956	102,000	98,820	97,210	96,160	96,020	93,990	91,120	91,750	87,900	58,740	54,950	50,850
1957	49,150	47,640	46,900	46,210	46,030	20,780	36,670	147,200	199,800	164,200	110,900	111,300
1958	111,400	111,500	111,400	111,600	111,800	112,400	111,200	112,700	122,100	115,400	112,500	111,500
1959	109,000	108,400	109,700	113,400	112,300	112,300	112,000	113,200	111,800	112,600	109,300	113,600
1960	108,800	108,000	109,200	110,000	109,600	109,400	109,000	111,500	108,500	109,700	109,700	111,600

Note.--New capacity table put into use Oct. 1, 1959; contents on Sept. 30, 1959, from new capacity table, 111,200 acre-ft.

2390. North Canadian River at Canton, Okla.

Location.--Lat 36°04'45", long 98°35'25", in NE¼SW¼ sec.33, T.19 N., R.13 W., on right bank 2,700 ft downstream from Canton Dam, 1½ miles northwest of Canton, 4¾ miles upstream from Minnehaha Creek, and at mile 393.8.

Drainage area.--12,484 sq mi, of which 4,883 sq mi is probably noncontributing.

Records available.--October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1914 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 1,562.50 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). October 1937 to Jan. 5, 1955, at site 2.5 miles downstream at datum 1.91 ft lower prior to Oct. 1, 1950, and at datum 6.91 ft lower Oct. 1, 1950, to Jan. 5, 1955.

Average discharge.--23 years (1937-60), 264 cfs (191,100 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 24,800 cfs Oct. 12, 1946 (gage height, 17.83 ft, site and datum then in use); no flow at times in most years.
Maximum stage known, 16.8 ft Oct. 13, 1923, at site 300 ft upstream from former site at datum 1.91 ft lower than present datum, from reports of U. S. Weather Bureau.

Remarks.--Flow partly regulated by Fort Supply Reservoir (see p. 296) for period May 1942 to April 1948 and completely regulated thereafter by Canton Reservoir (see preceding station). Records of chemical analyses and water temperatures for water years 1952-55 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,155	67.3	164	206	150	284	247	842	3,154	2,781	251	28.4	782
1952	21.5	13.7	13.0	65.0	193	337	311	148	61.8	32.9	37.1	33.2	105
1953	29.0	22.2	18.0	16.4	14.6	14.6	57.6	14.7	10.6	116	1.63	311	52.0
1954	2.26	2.02	2.18	1.33	1.66	188	32.5	308	231	2.07	.34	.34	64.7
1955	.20	.27	.31	.40	.72	.35	.59	463	752	517	7.30	5.93	146
1956	5.33	5.68	6.12	6.16	5.18	5.32	4.46	5.82	5.29	436	2.55	2.13	41.4
1957	2.42	2.55	2.91	2.99	3.02	442	116	378	1,441	1,856	1,016	171	457
1958	92.2	72.6	59.8	82.0	77.1	204	195	91.4	211	504	548	245	200
1959	6.42	5.49	5.30	13.7	139	100	154	325	55.2	23.4	13.5	188	85.2
1960	275	9.69	66.1	98.4	406	302	151	112	302	54.2	51.0	47.8	155

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	71,000	4,000	10,070	12,700	8,350	17,440	14,700	51,780	187,700	171,000	15,420	1,690	565,800
1952	1,320	813	801	4,000	11,080	20,740	18,520	9,090	3,680	2,030	2,280	1,980	76,330
1953	1,780	1,320	1,100	1,010	811	900	3,430	902	633	7,140	100	18,510	37,640
1954	139	120	134	82	92	11,530	1,940	18,910	13,750	128	21	20	46,870
1955	12	16	19	24	40	22	35	28,460	44,730	31,770	449	353	105,900
1956	328	338	376	379	298	327	266	358	315	26,790	157	127	30,060
1957	149	152	179	184	168	27,190	6,910	23,220	85,720	114,100	62,490	10,180	330,600
1958	5,670	4,320	3,680	5,040	4,280	12,550	11,600	5,620	12,540	31,010	33,720	14,550	144,600
1959	395	326	326	841	7,710	6,160	9,150	20,010	3,290	1,440	828	11,200	61,680
1960	16,930	577	4,060	6,050	23,370	18,550	8,970	6,890	17,980	3,330	3,130	2,850	112,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	710	512,800
1951	1211	3,820	June 15, 1951	6.6	782	565,800	668	483,700
1952	1241	1,060	Feb. 28, 1952	10	105	76,330	107	77,600
1953	1281	1,660	Sept. 13, 1953	.2	52.0	37,640	46.7	33,830
1954	1341	1,500	Mar. 19, 1954	0	64.7	46,870	64.2	46,520
1955	1391	2,360	June 30, 1955	0	146	105,900	148	106,900
1956	1441	1,590	July 10, 1956	1.8	41.4	30,060	40.6	29,500
1957	1511	2,420	July 1, 1957	.9	457	330,600	475	343,800
1958	1561	1,450	July 1, 1958	4.0	200	144,600	182	132,000
1959	1631	1,730	Sept. 29, 1959	3.0	85.2	61,680	114	182,200
1960	1711	1,200	Oct. 2, 1959	5.6	155	112,700	-	-

2395. North Canadian River near El Reno, Okla.

Location.--Lat 35°33'44", long 97°57'32", on east line of sec.32, T.13 N., R.7 W., near left bank on downstream side of bridge on U. S. Highway 81, 2 miles north of courthouse in El Reno, 2¼ miles downstream from Target Creek, and at mile 307.4.

Drainage area.--13,042 sq mi, of which 4,899 sq mi is probably noncontributing.

Records available.--October 1902 to April 1908, October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at site 1 mile upstream March 1914 to March 1934 and at present site thereafter are contained in reports of U. S. Weather Bureau. Published as Canadian River (North Fork) near El Reno 1902-4.

Gage.--Water-stage recorder. Datum of gage is 1,299.02 ft above mean sea level, datum of 1929 (U. S. Weather Bureau bench mark). October 1902 to April 1908 chain gage at site about 50 ft downstream at different datum.

Average discharge.--28 years (1902-7, 1937-60), 275 cfs (199,100 acre-ft per year).

Extremes.--1902-8, 1937-60: Maximum discharge, 15,000 cfs Oct. 28, 1941; maximum gage height, 16.14 ft June 24, 1948; no flow at times in most years.
Flood of Oct. 15, 1923, reached an elevation of 1,326.3 ft above mean sea level at railroad bridge 1 mile above station, from reports of U. S. Weather Bureau.

Remarks.--Some regulation by Fort Supply Reservoir (see p. 296) for period May 1942 to April 1948 and thereafter by Canton Reservoir (see p. 300). Records of chemical analyses and water temperatures for water years 1955-57 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,251	96.3	169	199	199	322	273	1,064	3,060	2,600	369	34.5	807
1952	17.2	20.9	15.9	49.1	130	370	287	219	60.7	.73	.08	0	97.5
1953	0	2.87	9.67	7.50	7.14	11.8	44.3	8.0	.17	82.0	.03	210	31.8
1954	3.65	17.2	2.91	.64	1.21	144	28.6	312	290	7.02	0	0	67.6
1955	0	0	0	0	0	0	0	549	831	525	23.1	.62	161
1956	383	20.0	12.4	9.84	16.7	8.92	5.00	9.54	3.00	336	.26	0	68.0
1957	24.8	.77	0	0	0	361	331	614	1,555	1,739	1,054	235	497
1958	78.4	73.4	74.0	92.0	83.3	214	248	111	427	527	622	252	235
1959	22.6	13.4	12.8	18.6	135	97.5	180	447	132	53.4	17.6	203	111
1960	874	51.6	140	149	551	346	224	141	443	110	53.9	13.9	257

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	76,900	5,730	10,410	12,250	11,060	19,800	16,240	65,410	182,100	159,700	22,680	2,050	584,300
1952	1,060	1,240	978	3,020	7,480	22,730	17,100	13,480	3,610	45	5.2	0	70,750
1953	0	171	595	461	396	726	2,640	492	10	5,040	1.8	12,500	23,030
1954	224	1,030	179	39	67	8,850	1,700	19,200	17,250	432	0	0	48,970
1955	0	0	0	0	0	0	0	33,740	49,430	32,280	1,420	37	116,900
1956	23,570	1,190	764	605	961	549	297	587	179	20,660	16	0	49,380
1957	1,520	46	0	0	0	22,220	19,680	37,780	92,550	106,900	64,820	14,000	359,500
1958	4,820	4,370	4,550	5,650	4,630	13,160	14,740	6,810	25,420	32,400	38,250	15,020	169,800
1959	1,390	797	789	1,140	7,480	5,990	10,720	27,510	7,850	3,280	1,080	12,100	80,130
1960	53,730	3,070	8,600	9,170	31,700	21,270	13,360	8,660	26,360	6,780	3,320	826	186,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	692	501,400
1951	1211	4,280	June 11, 1951	16.0	807	584,300	683	494,600
1952	1241	2,250	May 23, 1952	0	97.5	70,750	94	68,240
1953	1281	1,120	Sept. 13, 1953	0	31.8	23,030	32.7	23,700
1954	1341	2,200	May 25, 1954	0	67.6	48,970	65.7	47,540
1955	1391	2,970	May 27, 1955	0	161	116,900	197	142,400
1956	1441	5,240	Oct. 4, 1955	0	68.0	49,380	35.0	25,420
1957	1511	2,540	Apr. 24, 1957	0	497	359,500	513	371,700
1958	1561	3,090	June 22, 1958	7.5	235	169,800	220	159,100
1959	1631	2,470	Sept. 25, 1959	0	111	80,130	197	142,600
1960	1711	6,840	Oct. 4, 1959	2.0	257	186,800	-	-

2400. Lake Hefner Canal near Oklahona City, Okla.

Location.--Lat 35°33'11", long 97°37'11", in SW¼SW¼ sec.34, T.13 N., R.4 W., attached to left wingwall just downstream from outlet of inverted siphon, 2,600 ft upstream from Lake Hefner, 3 miles northeast of Bethany, and 7.6 miles northwest of the State Capitol in Oklahoma City.

Records available.--March 1944 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,200.96 ft above mean sea level, datum of 1929. Prior to Apr. 8, 1947, staff gage at site 2.7 miles upstream at different datum. Apr. 8, 1947, to Apr. 30, 1950, water-stage recorder at site 3.0 miles upstream at different datum. May 1, 1950, to May 19, 1954, water-stage recorder and concrete control at present site and datum. May 20, 1954, to Apr. 25, 1957, water-stage recorder and concrete control at site 2,500 ft downstream at datum 2.80 ft lower than present datum, also used as auxiliary gage.

Extremes.--1944-60: Maximum daily discharge, 1,500 cfs May 28, 1955; no flow at times in each year.

Remarks.--No diversion prior to March 1944. Canal diverts water from North Canadian River just upstream from Lake Overholser (see station below) and delivers water to Lake Hefner (capacity, 80,600 acre-ft) for municipal water supply of Oklahoma City. Subsequent to April 1950, small ground-water seepage when headgates are closed included in records.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,480	14	16	11	810	21	20	7,010	51	21	8.2	4.7	9,470
1952	3.0	14	21	32	31	39	937	7,110	23	8.9	3.4	0	8,220
1953	0	0	0	0	0	145	77	38	24	35	21	3,950	4,290
1954	992	4,910	1,360	126	316	7,020	179	14,230	13,470	45	14	15	42,680
1955	25	9.1	29	40	36	33	19	25,120	22,390	2,980	157	69	50,910
1956	1,920	0	0	700	1,200	78	0	0	0	10,090	0	0	13,990
1957	0	0	0	0	0	12,060	19,410	42	709	4,960	5,300	1,390	43,870
1958	593	5.0	13	3,010	3,210	359	779	800	2,050	2,640	0	0	13,460
1959	0	0	0	0	4,630	2,830	8,850	4,350	1,740	1,610	1,060	4,170	29,240
1960	178	419	3,360	2,960	1,840	2,410	2,960	915	1,620	2,880	1,490	630	21,660

2405. Lake Overholser near Oklahoma City, Okla.

Location.--Lat 35°29'11", long 97°39'58", on north line of SW¼ sec.30, T.12 N., R.4 W., at control tower at left end of dam on North Canadian River, 2.9 miles upstream from Mustang Creek, 9 miles west of State Capitol in Oklahoma City, and at mile 281.5.

Drainage area.--13,221 sq mi, of which 4,899 sq mi is probably noncontributing.

Records available.--October 1937 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Oklahoma City Water Department). Prior to Oct. 1, 1955, staff gage at same site at datum 1,065.77 ft higher.

Extremes.--1937-60: Maximum contents, 20,900 acre-ft June 14, 1944 (elevation, 1,242.67 ft), from capacity table then in use; minimum observed, 1,870 acre-ft May 14, 1955 (elevation, 1,230.62 ft).

Remarks.--Reservoir is formed by Ambursen-type dam flanked by long earthfill sections. Storage began in 1917. Dam was partly washed out in 1923 and rebuilt in 1924. Capacity (based on 1951 survey), 17,100 acre-ft below elevation 1,242.27 ft (top of spillway gates). Dead storage, 1,400 acre-ft below elevation 1,229.77 ft (sill of outlet works). Water used for municipal water supply by Oklahoma City. Figures given herein represent total contents.

Cooperation.--Elevation record and capacity table furnished by Oklahoma City Water Department.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	11,100	10,800	13,400	11,500	11,800	12,800	13,500	13,400	12,600	13,400	12,700	12,000
1952	9,640	8,410	7,500	8,340	13,300	14,900	14,900	13,900	13,600	10,800	7,850	5,370
1953	3,630	3,480	3,380	3,100	2,930	3,970	8,550	7,360	5,370	8,710	7,360	12,100
1954	11,800	12,300	11,500	10,400	9,850	9,850	10,400	14,000	15,100	12,200	9,170	5,930
1955	4,150	2,810	2,570	2,490	2,410	2,300	2,030	5,580	16,600	17,000	14,700	11,900
1956	15,070	13,980	14,000	14,050	13,840	13,060	11,500	10,430	9,570	14,260	11,290	8,450
1957	9,080	8,940	8,440	7,980	7,560	14,020	16,230	15,000	13,540	12,960	16,010	16,350
1958	14,540	14,660	15,170	13,580	13,640	15,780	15,490	16,060	15,750	15,890	16,070	16,010
1959	14,790	13,400	12,770	13,580	14,800	14,820	14,820	14,940	15,580	15,740	14,270	13,820
1960	14,790	14,700	15,120	15,120	15,400	15,140	15,430	15,940	15,740	16,030	14,790	11,850

2410. North Canadian River below Lake Overholser, near Oklahoma City, Okla.

Location.--Lat 35°28'44", long 97°39'47", on north line of sec.31, T.12 N., R.4 W., near left bank on downstream side of pier of bridge on State Highway 4, 0.5 mile downstream from Lake Overholser, 2.4 miles upstream from Mustang Creek, 9.1 miles southwest of the State Capitol in Oklahoma City, and at mile 281.0.

Drainage area.--13,222 sq mi, of which 4,899 sq mi is probably noncontributing.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,204.66 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1952-60), 144 cfs (104,300 acre-ft per year).

Extremes.--1952-60: Maximum discharge, 8,020 cfs Oct. 5, 1959 (gage height, 14.43 ft); no flow at times in 1952-57.
Maximum stage known, 30.9 ft in October 1923 (from information by State Highway Commission).

Remarks.--Some regulation by Canton Reservoir (see p. 300) and by Lake Overholser (see preceding page). Diversions above station into Lake Hefner Canal (see preceding page).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0.18	0.15	0.12	0.44	2.58	4.20	0.70	0.01	0.21	0	0.01	0.72
1954	.87	1.00	.17	.73	.24	0	.03	1.64	.27	.04	0	0	.42
1955	.03	0	.02	.05	.06	.07	.03	6.34	311	401	1.16	.09	60.3
1956	558	8.65	3.35	1.47	1.81	1.58	3.09	.45	.47	.68	.05	.01	49.1
1957	2.02	.01	.02	.11	.10	2.30	89.8	750	2,180	1,749	884	164	488
1958	69.6	47.0	34.1	55.1	5.38	184	271	86.6	540	431	506	195	203
1959	7.85	3.88	4.16	4.99	4.27	9.56	7.51	387	68.9	7.34	4.54	191	58.7
1960	1,432	73.5	148	160	489	341	196	214	380	45.7	12.6	9.90	292

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	11	9.3	7.1	25	159	250	43	0.8	13	0	0.8	519
1954	54	59	11	45	13	0	1.6	101	16	2.4	0	0	303
1955	1.6	0	1.2	2.8	3.4	4.2	2.0	390	18,520	24,630	71	5.2	43,630
1956	34,330	515	206	90	104	97	184	28	28	42	2.8	.4	35,630
1957	124	.4	1.0	6.7	5.8	142	5,350	46,120	129,700	107,600	54,380	9,780	353,200
1958	4,280	2,800	2,900	3,390	299	11,300	16,120	5,330	32,160	26,480	31,100	11,580	146,900
1959	483	231	256	307	237	588	447	23,780	4,100	451	279	11,350	42,510
1960	88,080	4,370	9,120	9,820	28,110	20,970	11,650	13,180	22,590	2,810	777	589	212,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953	1281	165	Apr. 5, 1953	0	0.72	519	0.86	623
1954	1341	73	May 2, 1954	0	.42	303	.25	182
1955	1391	1,860	July 6, 1955	0	60.3	43,630	109	78,680
1956	1441	5,790	Oct. 5, 1955	0	49.1	35,630	.97	702
1957	1511	3,120	June 24, 1957	0	488	353,200	500	362,300
1958	1561	4,810	June 21, 1958	.3	203	146,900	192	138,700
1959	1631	4,240	Sept. 25, 1959	.1	58.7	42,510	198	143,100
1960	1711	8,020	Oct. 5, 1959	3	292	212,100	-	-

2415. North Canadian River near Oklahoma City, Okla.

Location.--Lat 35°29'40", long 97°25'40", on north line of sec.29, T.12 N., R.2 W., near right bank on downstream side of pier of bridge on U. S. Highway 62, 4½ miles east of the State Capitol in Oklahoma City, 5 miles upstream from Crutcho Creek, and at mile 261.2.

Drainage area.--13,354 sq mi (revised), of which 4,899 sq mi is probably noncontributing.

Records available.--May to December 1899 (gage heights only), October 1938 to September 1953, October 1959 to September 1960. Published as North Fork of Canadian River at Oklahoma City in 1899.

Gage.--Water-stage recorder. Datum of gage is 1,136.79 ft above mean sea level, datum of 1929. May to December 1899, chain gage at site about 6 miles upstream at different datum. Nov. 11, 1938, to June 26, 1939, wire-weight gage at site 1,250 ft downstream at datum 3.34 ft higher. June 27, 1939, to Feb. 8, 1940, wire-weight gage and Feb. 9, 1940, to Sept. 30, 1953, water-stage recorder, at present site at datum 4.0 ft higher.

Average discharge.--16 years (1938-53, 1959-60), 381 cfs (275,800 acre-ft per year).

Extremes.--1938-53, 1959-60: Maximum discharge, 16,700 cfs Oct. 30, 1941 (gage height, 18.74 ft, present datum); minimum daily, 12 cfs Dec. 20, 1938, Oct. 18, 1940.
Maximum stage known, 25.0 ft, present datum, Oct. 16, 1923, from information by State Highway Commission and Oklahoma City Water Department.

Remarks.--Some regulation by Fort Supply Reservoir for the period May 1942 to April 1948 and thereafter by Canton Reservoir and Lake Overholser (see elsewhere in this report). Diversions above station into Lake Hefner Canal (see p. 303). Low flow sustained by sewage from Oklahoma City.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,327	113	135	236	214	335	321	1,739	3,692	2,739	439	93.1	953
1952	65.3	64.2	43.5	47.8	50.3	397	287	410	61.5	53.4	46.4	31.4	131
1953	31.4	35.8	36.2	33.5	32.3	74.3	203	46.9	36.7	54.5	56.1	30.0	56.0
1960	1,897	158	311	258	695	480	360	553	546	246	86.0	67.8	472

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	81,590	6,700	8,320	14,510	11,880	20,570	19,080	106,900	219,700	168,400	27,020	5,540	690,200
1952	4,020	3,820	2,680	2,940	2,900	24,430	17,110	25,230	3,660	3,280	2,850	1,870	94,790
1953	1,930	2,130	2,230	2,060	1,800	4,570	12,090	3,010	2,180	3,350	3,450	1,780	40,580
1960	116,700	9,380	19,090	15,840	39,990	29,510	21,430	34,000	32,510	15,160	5,290	4,030	342,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	760	550,600
1951	1211	8,700	June 11, 1951	59	953	690,200	835	604,100
1952	1241	4,700	May 23, 1952	23	131	94,790	125	90,560
1953	1281	6,410	Apr. 5, 1953	23	56.0	40,580	-	-
1960	1711	10,200	Oct. 4, 1959	37	472	342,900	-	-

2420. North Canadian River near Wetumka, Okla.

Location.--Lat 35°15'40", long 96°12'40", in center of SW¼ sec.12, T.9 N., R.10 E., near left bank on downstream side of pier of bridge on U. S. Highway 75, 2.3 miles upstream from Wewoka Creek, 2½ miles northeast of Wetumka, and at mile 84.4.

Drainage area.--14,290 sq mi, of which 4,899 sq mi is probably noncontributing.

Records available.--October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 683.28 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Jan. 19, 1939, wire-weight gage only at same site and datum.

Average discharge.--23 years (1937-60), 793 cfs (574,100 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 66,000 cfs Apr. 15, 1945 (gage height, 26.40 ft); no flow Aug. 27 to Oct. 11, 1954, Aug. 25 to Oct. 22, 1956.
Maximum stage known, 26.9 ft in October 1923, from information by Corps of Engineers.

Remarks.--Some regulation by Fort Supply Reservoir for the period May 1942 to April 1948 and thereafter by Canton Reservoir and Lake Overholser (see elsewhere in this report). Records of chemical analyses and water temperatures for water years 1954-60 are published in reports of Geological Survey.

Cooperation.--Records for 1959-60 furnished by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,722	311	239	342	556	703	528	1,872	3,800	3,230	703	376	1,203
1952	122	146	98.5	136	213	797	1,029	939	316	185	70.3	25.9	340
1953	18.4	54.0	59.8	55.2	59.4	175	924	328	73.4	487	183	51.8	206
1954	399	193	198	98.8	110	103	160	1,735	142	42.5	13.5	0	269
1955	11.3	16.7	43.8	69.6	70.7	94.8	72.8	1,507	442	484	103	132	256
1956	1,011	113	87.9	77.4	89.2	62.2	73.0	107	185	47.8	8.71	0	156
1957	4.25	42.0	58.4	82.5	56.6	58.4	1,710	6,300	6,080	1,830	1,230	880	1,533
1958	229	349	173	289	194	923	936	617	1,617	727	1,647	469	683
1959	163	110	99.0	105	106	173	187	1,059	717	965	215	699	385
1960	3,659	945	1,094	1,120	1,149	894	1,095	2,956	966	632	280	109	1,247

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	105,900	18,520	14,700	21,020	30,870	43,240	31,420	115,100	226,100	198,600	43,240	22,370	871,100
1952	7,490	8,690	6,060	8,340	12,250	48,990	61,200	57,760	18,810	11,390	4,320	1,540	246,800
1953	1,130	3,220	3,680	3,390	3,300	10,740	54,990	20,180	4,370	29,950	11,280	3,080	149,300
1954	24,520	11,460	12,150	6,080	6,080	6,350	9,500	106,700	8,460	2,610	828	0	194,700
1955	696	996	2,690	4,280	3,930	5,830	4,330	92,660	26,320	29,750	6,320	7,820	185,600
1956	62,140	6,730	5,410	4,760	5,130	3,830	4,340	6,600	10,990	2,940	536	0	113,400
1957	261	2,500	3,590	5,080	3,140	3,590	101,700	387,400	361,800	112,500	75,660	52,380	1,110,000
1958	14,070	20,780	10,610	17,780	10,780	56,740	55,700	37,920	96,220	44,720	101,300	27,900	494,500
1959	10,000	6,540	6,090	6,450	5,880	10,640	11,110	65,090	42,670	59,360	13,210	41,580	278,600
1960	225,000	56,240	67,280	68,870	66,100	54,960	65,170	181,700	57,460	38,890	17,240	6,480	905,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,369	991,300
1951	1211	9,210	June 15, 1951	-	1,203	871,100	1,042	754,200
1952	1241	8,000	Apr. 23, 1952	19	340	246,800	320	232,600
1953	1281	11,300	Apr. 24, 1953	15	206	149,300	262	189,400
1954	1341	16,900	May 2, 1954	0	269	194,700	209	151,000
1955	1391	14,500	May 20, 1955	0	256	185,600	353	255,500
1956	1441	4,970	Oct. 6, 1955	0	156	113,400	62.6	45,480
1957	1511	39,400	May 25, 1957	0	1,533	1,110,000	1,587	1,149,000
1958	1561	13,500	Aug. 22, 1958	122	683	494,500	652	471,700
1959	1631	8,300	May 11, 1959	73	385	278,600	835	604,500
1960	1711	16,400	Oct. 5, 1959	80	1,247	905,400	-	-

2421. Wewoka Creek near Wetumka, Okla.

Location.--Lat 35°13'15", long 96°13'00", in SE¼ sec.26, T.9 N., R.10 E., near left bank on downstream side of pier of county highway bridge, a quarter of a mile upstream from Greasy Creek, 1¾ miles southeast of Wetumka, and at mile 5.4.

Drainage area.--418 sq mi (revised).

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 678.87 ft above mean sea level, datum of 1929 (levels by County Engineer).

Extremes.--1959-60: Maximum discharge, 11,300 cfs May 19, 1960 (gage height, 21.28 ft); minimum daily, 0.3 cfs Sept. 20, 1960.
Flood in May 1945 may have reached a stage of 35 ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	1,298	465	638	726	272	177	367	1,211	51.3	50.2	45.1	5.21	445

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	79,800	27,660	39,220	44,650	15,640	10,870	21,810	74,460	3,050	3,090	2,780	310	323,300

2425. Bellcow Creek at Chandler, Okla.

Location.--Lat 35°42', long 96°53', in SW¼ sec.9, T.14 N., R.4 E., on right bank half a mile upstream from bridge on U. S. Highway 66, half a mile west of courthouse in Chandler, and 1.4 miles downstream from Bellcalf Creek.

Drainage area.--46 sq mi.

Records available.--July 1948 to September 1955.

Gage.--Water-stage recorder and concrete control. Datum of gage is 824.26 ft above mean sea level, datum of 1929. Prior to Oct. 6, 1950, at site 200 ft upstream at same datum.

Average discharge.--7 years (1948-55), 12.4 cfs (8,980 acre-ft per year).

Extremes.--1948-55: Maximum discharge, 2,910 cfs May 23, 1952 (gage height, 11.80 ft); no flow at times in most years.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.55	2.43	2.43	2.96	18.1	7.48	5.04	47.3	78.3	8.95	1.56	34.7	17.5
1952	8.11	6.44	2.58	3.14	7.38	43.0	16.6	59.7	4.30	40.6	2.75	.17	16.4
1953	0	1.11	1.12	1.19	2.63	35.2	16.8	17.5	4.18	25.8	5.92	.27	9.40
1954	9.41	1.18	7.29	1.06	.94	1.20	9.98	24.9	.08	.52	.29	0	4.79
1955	0	0	0	0	0	0	1.04	40.4	0	1.20	0	.77	3.68

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	157	145	150	182	1,010	460	300	2,910	4,660	550	96	2,070	12,690
1952	498	383	159	193	424	2,640	988	3,670	256	2,490	169	9.9	11,880
1953	0	66	69	73	146	2,160	998	1,080	249	1,590	364	16	6,810
1954	579	70	448	65	52	74	594	1,530	5.0	32	18	0	3,470
1955	0	0	0	0	0	0	62	2,480	0	74	0	46	2,660

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	14.1	10,200
1951	1211	2,530	June 19, 1951	0	17.5	12,690	18.3	13,280
1952	1241	2,910	May 23, 1952	0	16.4	11,880	15.1	10,970
1953	1281	1,270	July 23, 1953	0	9.40	6,810	10.7	7,770
1954	1341	1,700	May 1, 1954	0	4.79	3,470	3.27	2,370
1955	1391	2,110	May 19, 1955	0	3.68	2,660	-	-

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2430. Dry Creek near Kendrick, Okla.

Location.--Lat 35°46'55", long 96°51'20", in NW¼ sec.14, T.15 N., R.4 E., near left bank on downstream side of county road bridge, 1 mile downstream from Beaver Creek and 4½ miles west of Kendrick.

Drainage area.--69 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 825 ft (from topographic map).

Average discharge.--5 years (1955-60), 24.9 cfs (18,030 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 5,020 cfs June 25, 1958 (gage height, 13.63 ft); no flow at times in each year.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	12.9	0	0	0	0	0	3.00	48.0	0.83	0	0	0	5.49
1957	0	.54	0	.03	0	.03	52.7	246	175	11.1	1.11	36.5	43.7
1958	1.34	8.03	3.07	5.74	4.81	48.5	19.4	5.78	101	4.12	6.79	.14	17.3
1959	.04	.60	.78	.88	1.04	2.54	3.59	74.5	26.1	80.9	2.59	58.6	21.2
1960	132	26.9	20.8	30.2	31.8	37.1	69.2	60.0	8.99	23.5	2.01	.04	37.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	796	0	0	0	0	0	178	2,950	49	0	0	0	3,970
1957	0	32	0	1.8	0	2.0	3,130	15,140	10,400	685	68	2,170	31,630
1958	82	478	189	353	267	2,980	1,150	355	5,990	253	418	8.1	12,520
1959	2.6	36	48	54	58	156	213	4,580	1,550	4,980	159	3,490	15,330
1960	8,100	1,600	1,280	1,860	1,830	2,280	4,120	3,690	535	1,450	124	2.6	26,870

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	2,330	May 14, 1956	0	5.49	3,970	4.42	3,210
1957	1511	4,410	May 25, 1957	0	43.7	31,630	44.7	32,350
1958	1561	5,020	June 25, 1958	0	17.3	12,520	16.4	11,860
1959	1631	4,410	May 9, 1959	0	21.2	15,330	36.2	26,220
1960	1711	4,010	Oct. 4, 1959	0	37.0	26,870	-	-

2435. Deep Fork near Beggs, Okla.

Location.--Lat 35°41', long 96°04', on line between secs.19 and 20, T.14 N., R.12 E., near left bank on downstream side of pier of highway bridge, 3 miles upstream from Adams Creek, 4 miles south of Beggs, 8 miles downstream from Flat Rock (Checkerboard) Creek, and at mile 85.0.

Drainage area.--2,018 sq mi.

Records available.--September 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 632.55 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Aug. 29, 1939, staff gage at site 450 ft downstream at same datum. Aug. 29, 1939, to June 22, 1953, wire-weight gage at present site and datum.

Average discharge.--22 years (1938-60), 927 cfs (671,100 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 66,800 cfs May 11, 1943 (gage height, 34.55 ft); no flow at times in 1939, 1954, 1956.

Remarks.--Records of chemical analyses and water temperatures for water years 1952-60 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	148	65.9	73.2	125	857	728	244	1,102	2,660	507	107	608	597
1952	245	317	105	196	359	1,531	1,470	1,371	523	226	71.2	7.23	536
1953	.92	13.3	26.1	30.4	41.2	469	1,410	819	59.0	838	320	37.4	341
1954	267	153	213	42.1	81.6	68.1	91.0	1,903	83.2	5.67	3.31	.35	246
1955	0	0	.51	9.97	24.4	36.3	37.0	1,911	189	37.2	38.0	12.2	194
1956	642	20.5	14.8	18.7	29.5	17.7	53.2	178	333	40.3	7.64	0	114
1957	0	4.57	15.3	18.0	20.3	14.2	2,471	7,550	8,899	779	58.0	633	1,705
1958	76.6	232	76.5	213	302	1,491	1,170	439	2,934	1,718	777	214	804
1959	60.7	35.1	47.8	60.6	67.3	195	220	1,334	1,039	2,310	603	426	538
1960	4,743	1,086	1,221	1,194	1,202	859	1,804	4,664	830	812	393	67.1	1,582

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,130	3,920	4,500	7,710	47,610	44,780	14,490	67,770	158,300	31,180	6,550	36,180	432,100
1952	15,070	18,860	6,480	12,030	20,650	94,150	87,470	84,270	31,130	13,890	4,380	430	388,800
1953	56	793	1,610	1,870	2,290	28,810	83,900	50,370	3,510	51,510	19,650	2,220	246,600
1954	16,450	9,120	13,090	2,590	4,530	4,190	5,410	117,000	4,950	349	203	21	177,900
1955	0	0	31	613	1,350	2,230	2,200	117,500	11,260	2,290	2,340	727	140,500
1956	39,490	1,220	910	1,150	1,700	1,090	3,170	10,920	19,820	2,480	470	0	82,420
1957	0	272	943	1,110	1,130	876	147,000	464,200	529,500	47,920	3,570	37,670	1,234,000
1958	4,710	13,780	4,700	13,100	16,770	91,700	69,620	26,970	174,600	105,600	47,790	12,710	582,000
1959	3,730	2,090	2,940	3,730	3,740	11,990	13,070	82,050	61,820	142,000	37,060	25,340	389,600
1960	291,600	64,650	75,060	73,420	69,160	52,840	107,300	286,800	49,380	49,920	24,130	3,990	1,148,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	988	715,000
1951	1211	5,780	June 17, 1951	18	597	432,100	628	455,000
1952	1241	6,200	May 30, 1952	3.0	536	388,800	483	350,900
1953	1281	4,710	Apr. 26, 1953	.2	341	246,600	391	282,800
1954	1341	4,660	May 4, 1954	0	246	177,900	192	139,300
1955	1391	11,100	May 25, 1955	0	194	140,500	252	182,100
1956	1441	2,400	Oct. 5, 1955	0	114	82,420	57.9	42,020
1957	1511	30,300	May 26, 1957	0	1,705	1,234,000	1,735	1,256,000
1958	1561	16,600	June 27, 1958	49	804	582,000	784	567,600
1959	1631	12,100	July 28, 1959	24	538	389,600	1,122	812,100
1960	1711	15,800	Oct. 9, 1959	16	1,582	1,148,000	-	-

2450. Canadian River near Whitefield, Okla.

Location.--Lat 35°16', long 95°14', in SE¼SE¼ sec.12, T.9 N., R.19 E., near right bank on downstream side of pier of bridge on State Highway 2, three-quarters of a mile north of Whitefield, 5½ miles upstream from Snake Creek, and at mile 18.8.

Drainage area.--47,576 sq mi, of which 9,700 sq mi is probably noncontributing.

Records available.--July 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 478.16 ft above mean sea level, datum of 1929. Prior to Jan. 11, 1939, wire-weight gage and Jan. 11, 1939, to Dec. 10, 1941, June 12, 1947, to Sept. 30, 1948, water-stage recorder, all at site 2.1 miles downstream at datum 2.80 ft lower. Dec. 11, 1941, to June 11, 1947, water-stage recorder at present site and datum.

Average discharge.--22 years (1938-60), 6,323 cfs (4,578,000 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 281,000 cfs May 10, 1943 (gage height, 25.5 ft); minimum daily, 0.4 cfs Oct. 8, 1956.
Maximum stage known since 1898, that of May 10, 1943, from information by local resident.

Remarks.--Occasional slight regulation by Conchas Reservoir in New Mexico (see p. 275). Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Cooperation.--Records for 1959-60 computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,873	751	603	1,197	7,328	5,770	2,646	10,600	16,180	4,640	1,273	1,639	4,596
1952	733	1,810	613	956	1,504	5,939	11,580	4,776	2,410	798	273	154	2,620
1953	39.1	278	300	182	267	6,181	11,750	7,877	314	8,203	2,107	1,411	3,264
1954	3,511	2,690	1,987	1,594	853	625	837	21,160	1,762	151	57.5	14.9	2,972
1955	191	56.0	435	686	1,725	4,208	2,123	14,020	3,503	1,317	901	1,872	2,601
1956	4,874	246	182	199	1,227	246	227	2,656	1,658	152	45.4	2.67	980
1957	2.22	163	278	470	1,963	3,166	29,840	46,760	42,080	4,429	2,716	7,026	11,560
1958	854	4,613	1,922	2,945	2,333	10,270	8,021	9,515	12,960	7,974	9,709	2,853	6,186
1959	665	596	474	463	593	4,934	3,008	12,200	4,702	12,260	3,289	6,539	4,177
1960	27,080	6,101	9,732	9,252	7,930	5,399	5,667	32,850	5,737	9,456	3,619	702	10,370

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	176.6	44.66	37.07	73.62	407.0	354.8	157.4	651.8	962.5	285.3	78.26	97.56	3,327
1952	45.04	107.7	37.66	58.79	86.51	365.2	689.1	293.7	143.4	49.06	16.78	9.17	1,902
1953	2.40	16.51	18.45	11.19	14.81	380.1	699.0	484.3	18.69	504.4	129.5	83.98	2,363
1954	215.9	160.1	122.2	98.00	47.37	38.40	49.83	1,301	104.8	9.29	3.53	.89	2,151
1955	11.74	3.33	26.72	42.19	95.78	258.7	126.3	862.2	208.5	81.00	55.39	111.4	1,883
1956	299.7	14.64	11.21	12.23	70.60	15.11	13.49	163.3	98.67	9.34	2.79	.16	711.2
1957	.14	9.69	17.07	28.90	109.0	194.7	1,775	2,875	2,504	272.4	167.0	416.7	8,370
1958	52.5	274.5	118.2	181.1	129.6	631.8	477.3	585.1	771.5	490.3	597.0	169.8	4,479
1959	40.89	35.44	29.15	28.46	32.93	303.4	179.0	750.0	279.8	753.9	202.3	389.1	3,024
1960	1,665	363.0	598.4	568.9	456.1	332.0	337.2	2,020	341.4	581.4	222.5	41.8	7,528

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	9,995	7,236,000
1951	1211	73,900	May 19, 1951	236	4,596	3,327,000	4,501	3,259,000
1952	1241	60,400	Apr. 23, 1952	37	2,620	1,902,000	2,409	1,749,000
1953	1281	66,100	Mar. 31, 1953	22	3,264	2,363,000	3,901	2,824,000
1954	1341	165,000	May 2, 1954	10	2,972	2,151,000	2,341	1,695,000
1955	1391	97,500	May 21, 1955	13	2,601	1,883,000	2,993	2,167,000
1956	1441	41,000	Oct. 6, 1955	1.1	980	711,200	568	412,600
1957	1511	176,000	May 18, 1957	.4	11,560	8,370,000	12,140	8,788,000
1958	1561	103,000	Aug. 21, 1958	508	6,186	4,479,000	5,717	4,139,000
1959	1631	85,200	May 10, 1959	228	4,177	3,024,000	7,660	5,545,000
1960	1711	180,000	May 19, 1960	325	10,370	7,528,000	-	-

2455. Sallisaw Creek near Sallisaw, Okla.

Location.--Lat 35°28', long 94°52', in SW¼ sec.34, T.12 N., R.23 E., on downstream side of right pier of abandoned highway bridge, 400 ft downstream from water-supply dam of city of Sallisaw, 3½ miles west of Sallisaw, 5 miles upstream from Little Sallisaw Creek, and 9 miles upstream from mouth.

Drainage area.--182 sq mi.

Records available.--October 1942 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 476.78 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Prior to Aug. 20, 1953, and as supplemental gage since Feb. 21, 1958, water-stage recorder at site 400 ft upstream at datum 13.22 ft higher.

Average discharge.--18 years (1942-60), 210 cfs (152,000 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 110,000 cfs Apr. 15, 1945 (gage height, 11.25 ft, site and datum then in use), from rating curve extended above 23,000 cfs on basis of contracted-opening measurements at gage heights 7.96 and 11.25 ft; no flow at times in 1943, 1954, 1956, 1960.

Remarks.--Small diversion above station for municipal water supply of city of Sallisaw.

Cooperation.--Records for 1956-60 computed by Corps of Engineers and reviewed by Geological Survey.

Corrections.--In WSP 1177 and 1311, the mean discharge in cubic feet per second and runoff in acre-feet for May 1950 and water year 1950 are listed in error; they should be 1,058 and 238 cfs, respectively; 65,060 and 172,400 acre-ft, respectively.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12.4	5.23	5.76	31.1	719	216	154	118	381	233	17.8	18.0	155
1952	46.4	187	106	79.9	147	392	473	210	51.7	9.21	17.2	2.15	143
1953	1.07	1.82	9.64	19.0	18.0	363	485	433	15.5	7.83	2.19	.88	114
1954	.52	.54	6.53	24.5	26.2	29.7	31.2	438	6.77	1.05	.37	.003	47.7
1955	.78	2.55	178	145	398	374	162	115	64.2	7.92	9.20	1.36	120
1956	.98	.87	1.50	2.02	26.0	18.9	103	155	113	7.30	1.53	.37	35.8
1957	.03	0	5.18	23.4	231	193	1,542	1,177	777	35.3	8.79	134	342
1958	24.0	333	102	82.0	222	577	355	629	296	458	91.9	82.8	272
1959	26.4	191	46.9	33.0	68.1	369	372	622	134	125	17.5	7.43	169
1960	231	152	131	204	148	165	125	563	123	212	26.6	4.38	175

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	765	311	354	1,910	39,940	13,260	9,190	7,240	22,700	14,350	1,100	1,070	112,200
1952	2,850	11,110	6,500	4,910	8,440	24,120	28,160	12,920	3,080	566	1,060	128	103,800
1953	66	108	593	1,170	1,000	22,320	28,850	26,640	923	481	135	52	82,340
1954	32	32	402	1,500	1,450	1,820	1,860	26,930	403	64	23	.2	34,520
1955	48	152	10,970	8,900	22,130	23,000	9,630	7,080	3,820	487	567	81	86,860
1956	60	52	92	124	1,490	1,160	6,140	9,550	6,730	449	94	22	25,960
1957	2.0	0	319	1,440	12,840	11,850	91,740	72,380	46,220	2,170	541	7,980	247,500
1958	1,480	19,800	6,300	5,040	12,310	35,460	21,140	38,690	17,600	28,180	5,650	4,930	196,600
1959	1,620	11,370	2,890	2,030	3,780	22,700	22,170	38,260	7,970	7,710	1,080	442	122,000
1960	14,180	9,050	8,030	12,520	8,500	10,140	7,430	34,640	7,340	13,060	1,640	261	126,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	†231	167,300
1951	1211	14,900	June 9, 1951	1.7	155	112,200	181	131,200
1952	1241	5,360	May 23, 1952	1.6	143	103,800	116	84,150
1953	1281	7,690	May 12, 1953	.4	114	82,340	113	82,040
1954	1341	30,000	May 2, 1954	0	47.7	34,520	62.5	45,220
1955	1391	9,630	Mar. 20, 1955	0	120	86,860	105	75,900
1956	1441	3,420	Apr. 29, 1956	.1	35.8	25,960	35.9	26,080
1957	1511	38,400	Apr. 3, 1957	0	342	247,500	379	274,700
1958	1561	8,090	June 25, 1958	13	272	196,600	255	184,900
1959	1631	13,000	May 11, 1959	2.4	169	122,000	190	137,400
1960	1711	10,200	May 6, 1960	1.1	175	126,800	-	-

† Corrected.

2465. Arkansas River near Sallisaw, Okla.

Location.--Lat 35°21', long 94°46', in SW¼ sec.9, T.10 N., R.24 E., near center of span on downstream side of pier of bridge on State Highway 59, 3.9 miles downstream from San Bois Creek, 7½ miles south of Sallisaw, and at mile 395.0.

Drainage area.--147,757 sq mi, of which 22,241 sq mi is probably noncontributing.

Records available.--October 1947 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 413.42 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--13 years (1947-60), 28,180 cfs (20,400,000 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 544,000 cfs May 27, 1957 (gage height, 34.80 ft); minimum observed, 161 cfs Oct. 12, 1956.
Maximum stage known, 37.90 ft May 11, 1943.

Remarks.--Natural flow of stream affected by storage reservoirs and power development. Records of chemical analyses and water temperatures for water years 1959-60 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17,430	7,373	6,415	7,230	35,580	29,250	18,390	74,080	76,730	174,400	24,300	51,010	43,640
1952	21,510	40,770	20,540	15,580	20,690	48,790	51,940	25,480	16,850	5,312	4,099	3,260	22,860
1953	1,564	1,834	2,385	2,395	2,581	14,200	32,120	27,850	5,090	15,360	6,175	3,724	9,653
1954	4,782	5,082	4,976	4,914	4,154	3,181	3,511	45,350	10,350	3,964	2,221	830	7,836
1955	2,632	2,232	3,093	6,447	7,396	13,300	9,458	36,590	27,030	13,940	5,418	5,919	11,150
1956	24,470	3,937	4,107	3,036	4,096	2,668	2,549	8,022	6,407	3,348	2,360	628	5,500
1957	396	1,246	1,719	1,818	6,689	8,650	89,400	192,800	206,600	76,000	11,190	18,850	51,260
1958	7,269	14,800	8,880	10,000	11,850	63,210	54,760	39,590	34,810	76,860	33,210	19,060	31,350
1959	8,047	7,161	5,751	5,434	9,165	21,870	17,690	39,610	17,950	62,000	20,560	20,030	19,730
1960	157,600	33,890	29,370	31,200	35,480	39,650	40,060	90,840	37,390	35,290	22,450	14,320	47,540

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,072	438.7	394.5	444.5	1,976	1,799	1,094	455.5	4,566	10,720	1,494	3,035	31,590
1952	1,323	2,426	1,263	957.8	1,190	3,000	3,090	1,567	1,003	326.6	252.0	194.0	16,590
1953	96.18	109.1	146.7	147.3	143.3	873.2	1,911	1,713	302.9	944.5	379.7	221.6	6,988
1954	294.0	302.4	306.0	302.1	230.7	195.6	208.9	2,788	615.7	243.7	136.6	49.37	5,673
1955	161.9	132.8	190.2	396.4	410.8	817.5	562.8	2,250	1,608	857.4	333.1	352.2	8,073
1956	1,505	234.2	252.6	186.7	235.6	164.0	151.7	493.2	381.3	205.9	145.1	37.38	3,993
1957	24.33	74.14	105.7	111.8	371.5	531.9	5,320	11,800	12,290	4,673	688.1	1,122	37,110
1958	447.0	880.7	546.0	615.1	658.1	3,887	3,258	2,434	2,071	4,726	2,042	1,134	22,700
1959	494.8	426.1	353.6	334.1	509	1,345	1,053	2,436	1,068	3,812	1,264	1,192	14,290
1960	9,692	2,017	1,806	1,919	2,041	2,438	2,384	5,585	2,225	2,170	1,381	852.0	34,510

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	39,390	28,520,000
1951	1211	253,000	July 6, 1951	-	43,640	31,590,000	47,930	34,700,000
1952	1241	129,000	Apr. 23, 1952	2,690	22,860	16,590,000	16,440	11,930,000
1953	1281	112,000	Apr. 25, 1953	945	9,653	6,988,000	10,410	7,539,000
1954	1341	202,000	May 3, 1954	440	7,836	5,673,000	7,260	5,256,000
1955	1391	108,000	May 22, 1955	460	11,150	8,073,000	13,230	9,580,000
1956	1441	139,000	Oct. 7, 1955	400	5,500	3,993,000	3,036	2,204,000
1957	1511	544,000	May 27, 1957	182	51,260	37,110,000	53,560	38,780,000
1958	1561	161,000	June 26, 1958	4,450	31,350	22,700,000	30,530	22,100,000
1959	1631	161,000	July 27, 1959	2,870	19,730	14,290,000	36,640	26,530,000
1960	1711	404,000	Oct. 6, 1959	4,670	47,540	34,510,000	-	-

2470. Poteau River at Cauthron, Ark.

Location.--Lat 34°55'08", long 94°17'55", in SW¼ sec.16, T.3 N., R.31 W., on right bank at downstream side of highway bridge at Cauthron, 8 miles downstream from Jones Creek.

Drainage area.--200 sq mi.

Records available.--February 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 569.53 ft above mean sea level, datum of 1929. Prior to May 2, 1939, wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 226 cfs (163,600 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 32,200 cfs May 20, 1960 (gage height, 23.76 ft); no flow at times in most years.
Flood in June 1935 reached a stage of 27.4 ft, from information by local residents.

Remarks.--Records of chemical analyses for the period January 1956 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24.2	5.41	3.83	35.3	736	159	178	71.8	251	126	8.65	11.5	130
1952	69.3	352	214	357	109	507	1,207	86.0	6.89	1.16	.09	0	241
1953	0	460	256	269	167	856	1,009	662	4.17	4.08	.75	.003	308
1954	.08	1.98	3.61	256	172	18.0	98.3	454	3.38	.94	0	0	83.9
1955	66.1	11.5	222	120	347	736	165	25.3	6.57	1.07	.32	.02	141
1956	0	0	0	0	403	75.5	25.4	37.1	1.38	.42	0	0	43.7
1957	0	4.67	106	304	366	433	1,629	1,061	407	2.51	283	188	397
1958	12.8	387	115	266	140	720	488	923	316	143	26.0	9.27	297
1959	24.2	178	50.8	69.1	97.0	394	315	22.0	8.31	11.9	6.06	1.95	97.9
1960	139	51.8	554	407	247	301	46.1	1,480	12.7	55.3	4.31	.58	278

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,490	322	235	2,170	40,860	9,810	10,590	4,420	14,910	7,750	532	686	93,780
1952	4,260	20,920	13,140	21,970	6,270	31,150	71,830	5,290	410	71	5.8	0	175,300
1953	0	27,380	15,710	16,570	9,280	52,630	60,040	40,720	248	251	46	.2	222,900
1954	4.8	118	222	15,720	9,550	1,110	5,850	27,940	201	58	0	0	60,770
1955	4,060	686	13,640	7,350	19,280	45,260	9,790	1,560	391	66	20	1.2	102,100
1956	0	0	0	0	23,190	4,640	1,510	2,280	82	26	0	0	31,730
1957	0	278	6,490	18,660	20,330	26,650	96,950	65,240	24,210	154	17,410	11,000	287,600
1958	785	23,030	7,070	16,370	7,770	44,240	29,010	56,780	18,830	8,790	1,600	552	214,800
1959	1,490	10,620	3,120	4,250	5,390	24,230	18,720	1,350	494	735	373	116	70,890
1960	8,530	3,080	34,050	25,020	14,210	18,530	2,740	91,020	754	3,400	265	35	201,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet	
1950	-	-	-	-	-	-	-	-	379	25.71	274,200	
1951	1211	5,770	Feb. 15, 1951	1.3	130	0.650	8.78	93,780	180	12.18	130,000	
1952	1241	10,900	Apr. 22, 1952	0	241	1.20	16.44	175,300	248	16.89	180,100	
1953	1281	16,000	May 13, 1953	0	308	1.54	20.88	222,900	249	16.87	180,100	
1954	1341	13,600	May 2, 1954	0	83.9	.420	5.70	60,770	109	7.38	78,820	
1955	1391	7,830	Mar. 21, 1955	0	141	.705	9.58	102,100	116	7.86	83,720	
1956	1441	6,790	Feb. 18, 1956	0	43.7	.218	2.97	31,730	53.0	3.61	38,500	
1957	1511	10,300	May 23, 1957	0	397	1.98	26.97	287,600	431	29.22	311,700	
1958	1561	11,200	May 2, 1958	.6	297	1.48	20.14	214,800	275	18.68	199,200	
1959	1631	4,130	Mar. 26, 1959	.1	97.9	.490	6.65	70,890	140	9.50	101,300	
1960	1711	32,200	May 20, 1960	.2	278	1.39	18.90	201,600	-	-	-	

2475. Fourche Maline near Red Oak, Okla.

Location.--Lat 34°54'45", long 95°09'20", in NW¼NW¼ sec.13, T.5 N., R.20 E., on downstream side of left abutment of highway bridge, 0.1 mile downstream from Little Fourche Maline, 5 miles southwest of Red Oak, and at mile 41.2.

Drainage area.--122 sq mi.

Records available.--October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 540.80 ft above mean sea level, datum of 1929. Prior to Apr. 25, 1939, staff gage at same site and datum.

Average discharge.--22 years (1938-60), 131 cfs (94,840 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 41,500 cfs May 19, 1960 (gage height, 24.79 ft, from floodmark), from rating curve extended above 25,000 cfs by logarithmic plotting; no flow at times in most years.
Flood in June 1935 reached a stage of 25.4 ft, from floodmarks.

Cooperation.--Records for 1959-60 computed by Corps of Engineers and reviewed by Geological Survey.

Revisions.--Discharge for Apr. 29, 1940, was revised in WSP 1631; the resulting revised records as summarized herewith supersede those published in WSP 1311.

Month	Mean	Per square mile	Inches	Acre-feet
April 1940	321	2.65	2.96	19,120
Water year 1939-40	44.2	.365	4.97	32,110
Calendar year 1940	53.2	-	5.97	38,580

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8.09	1.76	2.95	28.7	542	109	114	138	387	50.5	11.9	13.6	114
1952	23.3	152	42.3	24.5	39.0	218	480	44.2	31.4	.95	.08	1.62	87.6
1953	.09	22.1	14.9	12.1	50.0	606	789	305	2.37	193	7.77	.84	167
1954	2.81	2.40	13.3	81.5	31.2	9.84	35.4	127	3.20	.55	0	0	25.7
1955	2.65	.61	61.5	51.0	171	328	162	49.4	5.43	.04	5.61	14.3	70.5
1956	21.3	.26	.41	.52	112	10	26	44.9	2.81	6.16	.14	0	18.3
1957	0	0	1.71	51.2	133	278	1,224	589	379	3.43	.03	95.8	228
1958	7.01	196	76.4	90.9	47.5	320	119	369	144	81.8	143	34.0	137
1959	3.39	56.4	14.1	18.3	24.6	343	143	371	8.34	147	11.2	21.7	97.8
1960	216	52.4	188	258	151	139	37.0	1,377	31.5	464	110	4.43	255

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	498	105	181	1,760	30,090	6,690	6,750	8,510	23,000	3,110	733	811	82,240
1952	1,430	9,040	2,600	1,510	2,250	13,420	28,590	2,720	1,870	59	5.2	96	63,590
1953	5.6	1,310	916	746	2,780	37,250	46,940	18,730	141	11,900	478	50	121,200
1954	173	143	821	5,010	1,730	605	2,110	7,810	190	34	0	0	18,630
1955	163	36	3,780	3,140	9,500	20,160	9,670	3,030	323	2.6	345	852	51,000
1956	1,310	15	25	32	6,460	618	1,540	2,760	167	379	8.5	0	13,310
1957	0	0	105	3,150	7,410	17,070	72,840	36,250	22,550	211	1.6	5,700	165,300
1958	431	11,660	4,700	5,590	2,640	19,700	7,090	22,710	8,590	5,030	8,820	2,020	98,980
1959	208	3,360	866	1,130	1,360	21,060	8,500	22,800	496	9,060	689	1,290	70,820
1960	13,260	3,120	11,580	15,850	8,660	8,560	2,200	84,640	1,870	28,550	6,770	263	185,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	218	24.22	157,600
1951	1211	5,990	Feb. 18, 1951	0.1	114	0.934	12.66	82,240	131	14.54	94,520
1952	1241	5,450	Apr. 12, 1952	0	87.6	.718	9.77	63,590	72.6	8.10	52,750
1953	1281	12,800	Apr. 24, 1953	0	167	1.37	18.62	121,200	166	18.46	120,200
1954	1341	1,460	May 2, 1954	0	25.7	.211	2.86	18,630	29.7	3.30	21,470
1955	1391	5,190	Mar. 21, 1955	0	70.5	.578	7.85	51,000	66.8	7.44	48,370
1956	1441	1,490	Feb. 17, 1956	0	18.3	.150	2.04	13,310	16.6	1.86	12,070
1957	1511	14,300	Apr. 26, 1957	0	228	1.87	25.40	165,300	251	27.96	182,000
1958	1561	8,200	May 2, 1958	1.2	137	1.12	15.22	98,980	120	13.32	86,620
1959	1631	8,950	May 11, 1959	.2	97.8	.802	10.89	70,820	130	14.51	94,340
1960	1711	41,500	May 19, 1960	.1	255	2.09	28.50	185,300	-	-	-

2480. Wister Reservoir near Wister, Okla.

Location.--Lat 34°56', long 94°43', in NE¼ sec.1, T.5 N., R.24 E., in control tower near right end of Wister Dam on Poteau River, 2 miles south of Wister, 2.7 miles upstream from Caston Creek, and at mile 60.9.

Drainage area.--993 sq mi.

Records available.--October 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1949-60: Maximum contents, 507,400 acre-ft May 27, 1957 (elevation, 505.73 ft); minimum since conservation pool was first reached, 20,850 acre-ft Nov. 16, 1952 (elevation, 469.50 ft), from capacity table then in use.

Remarks.--Reservoir is formed by an earth dam. Regulated storage began Oct. 4, 1949; conservation pool was first reached Dec. 19, 1949. Capacity, 429,600 acre-ft at elevation 502.5 ft (crest of spillway) and 29,950 acre-ft at elevation 471.6 ft (conservation pool). Reservoir is used for flood control and recreation. Figures given herein represent total contents. Records of chemical analyses for water year 1960 are published in reports of Geological Survey.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in thousands of acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	29.64	30.83	30.16	29.13	199.60	29.33	34.37	30.89	30.16	42.84	29.33	32.29
1952	50.99	39.70	30.21	30.99	29.69	33.29	115.10	31.20	29.08	26.52	24.38	23.31
1953	21.87	47.32	30.83	31.30	30.68	88.32	216.60	29.79	28.93	36.96	29.23	a26.71
1954	26.30	25.77	29.04	31.14	30.03	30.15	51.18	30.31	28.09	25.66	23.20	21.60
1955	30.42	30.03	53.91	30.07	33.03	126.30	30.31	32.23	30.62	28.84	29.44	30.86
1956	28.69	28.37	28.05	27.62	30.03	30.54	30.82	30.46	29.87	29.00	27.90	25.70
1957	24.17	29.00	29.91	46.08	33.91	52.64	401.40	473.10	435.70	70.53	30.19	50.60
1958	30.15	43.06	30.58	29.79	35.14	56.64	32.94	33.38	57.91	30.07	29.95	30.27
1959	29.99	30.70	30.66	30.07	30.38	30.46	30.46	30.11	29.75	35.23	30.54	30.27
1960	30.23	30.03	35.58	30.11	33.42	30.23	33.91	353.70	30.23	82.45	29.99	30.19

a New capacity table put into use Oct. 1, 1953. Contents Sept. 30, 1953, by new capacity table, 27,400 acre-ft.

2485. Poteau River near Wister, Okla.

Location.--Lat 34°56'15", long 94°42'50", in NW¼NW¼ sec.6, T.5 N., R.25 E., on left bank of outflow channel, 700 ft downstream from Wister Dam, 2¼ miles southeast of Wister, 2.6 miles upstream from Caston Creek, and at mile 60.5.

Drainage area.--993 sq mi.

Records available.--May 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Prior to May 21, 1951, records below about 500 cfs include flow from Caston Creek (drainage area, 70 sq mi).

Gage.--Water-stage recorder. Datum of gage is 445.43 ft above mean sea level, datum of 1929. May 11 to Dec. 31, 1938, wire-weight gage at site 0.1 mile upstream at datum 13.11 ft lower. Jan. 1, 1939, to Sept. 30, 1947, water-stage recorder at railroad bridge 1.6 miles downstream and Oct. 1, 1947, to June 28, 1953, water-stage recorder at site 1.1 miles downstream, at datum 12.41 ft lower than present datum; recording gage at railroad bridge used as auxiliary gage Oct. 1, 1947, to June 28, 1953. May 21, 1951, to June 28, 1953, supplemental staff gage at present site and datum.

Average discharge.--22 years (1938-60), 1,208 cfs (874,600 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 78,600 cfs May 16, 1945 (gage height, 37.16 ft, site and datum then in use); no flow at times in 1938-39, 1943, 1947, 1953-54.
Maximum stage known, 43.0 ft in June 1935, at site and datum used in 1938 (estimated as 38.5 ft at site and datum used in 1939-47, on basis of fall determined for flood in 1943).

Remarks.--Flow completely regulated by Wister Dam since October 1949 (see preceding page). Records of chemical analyses and water temperatures for water year 1955 are published in reports of Geological Survey.

Cooperation.--Records for 1959-60 computed by Corps of Engineers and reviewed by Geological Survey.

Corrections.--In WSP 1311, the monthly mean and runoff for September 1943 were listed in error; they should be 2.26 cfs and 135 acre-ft, respectively.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,104	6.64	37.2	319	1,393	3,476	875	545	1,587	525	269	226	861
1952	303	2,354	1,095	791	578	2,315	3,637	1,903	236	11.3	8.85	7.14	1,101
1953	4.85	531	880	675	847	3,506	4,053	5,940	11.4	969	119	9.86	1,471
1954	3.38	15.7	.17	1,636	543	93.2	693	2,072	28.3	1.33	9.08	4.26	427
1955	32.4	55.1	514	1,033	1,452	2,287	2,463	368	64.3	3.27	2.48	34.8	687
1956	42.4	1.84	.96	8.45	1,658	275	135	301	44.7	.84	6.50	.40	200
1957	4.22	.53	354	973	2,420	2,057	2,841	4,070	2,929	5,704	1,980	1,326	2,055
1958	423	2,109	735	1,199	675	2,942	2,226	4,291	1,049	967	445	119	1,438
1959	42.3	572	193	337	368	1,929	1,376	912	58.2	523	108	28.1	539
1960	994	437	1,946	1,967	1,289	1,440	228	3,300	5,524	984	1,177	20.9	1,611

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	67,890	395	2,290	19,600	77,350	213,700	52,050	33,510	94,450	32,280	16,530	13,460	623,500
1952	18,610	140,100	67,300	48,670	33,230	142,400	216,400	117,000	14,060	694	544	425	799,400
1953	299	31,580	54,110	41,530	47,050	215,600	241,200	365,200	679	59,610	7,310	587	1,065,000
1954	208	931	11	100,600	30,170	5,730	41,250	127,400	1,680	82	558	254	308,900
1955	1,990	3,280	31,620	63,500	80,640	140,600	146,600	22,640	3,820	201	153	2,070	497,100
1956	2,610	109	59	519	95,380	16,880	8,010	18,500	2,660	51	400	24	145,200
1957	259	31	21,770	59,840	134,400	126,500	169,100	250,300	174,300	350,700	121,800	78,870	1,488,000
1958	26,010	125,500	45,190	73,710	37,470	180,900	132,500	263,800	62,400	59,440	27,350	7,100	1,041,000
1959	2,600	34,010	11,870	20,750	20,340	118,600	81,900	56,050	3,470	32,180	6,630	1,670	390,100
1960	61,150	25,990	119,700	121,000	74,140	88,550	13,590	202,900	328,700	60,500	72,350	1,240	1,170,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,685	1,220,000
1951	1211	7,090	Feb. 27, 1951	0.7	861	623,500	1,076	778,900
1952	1241	9,720	Apr. 27, 1952	1.4	1,101	799,400	908	659,400
1953	1281	9,220	May 5, 1953	.2	1,471	1,065,000	1,353	979,900
1954	1341	6,740	May 13, 1954	0	427	308,900	476	344,600
1955	1391	6,360	Apr. 7, 1955	0	687	497,100	640	463,000
1956	1441	6,060	Feb. 23, 1956	.3	200	145,200	227	164,500
1957	1511	11,300	May 27, 1957	.2	2,055	1,488,000	2,296	1,663,000
1958	1561	7,140	May 23, 1958	4.8	1,438	1,041,000	1,234	893,200
1959	1631	5,910	May 14, 1959	4.7	539	390,100	757	548,400
1960	1711	7,650	July 31, 1960	1.8	1,611	1,170,000	-	-

2494. James Fork near Hackett, Ark.

Location.--Lat 35°09'45", long 94°24'25", in NW¼NW¼ sec.34, T.6 N., R.32 W., near left bank on downstream side of pier of bridge on State Highway 45, 1.7 miles south of Hackett, 2.0 miles downstream from Elder Branch, 2.0 miles upstream from small tributary, and 3.6 miles upstream from Arkansas-Oklahoma State line.

Drainage area.--148 sq mi.

Records available.--April 1958 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 459.71 ft above mean sea level, datum of 1929.

Extremes.--1958-60: Maximum discharge, 10,300 cfs May 2, 1958 (gage height, 21.40 ft); minimum, 0.8 cfs Sept. 8, 1960.

Monthly and yearly discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	311	669	272	84.9	15.9	17.9	-
1959	6.05	42.5	30.5	52.9	45.1	312	175	66.5	35.7	36.5	9.76	20.8	69.7
1960	136	263	298	230	199	213	41.6	834	21.0	99.1	9.13	4.65	197

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	-	-	-	-	18,490	41,110	16,160	5,220	979	1,060	-
1959	372	2,530	1,880	3,250	2,510	19,160	10,440	4,090	2,120	2,240	600	1,240	50,430
1960	8,350	15,660	18,300	14,160	11,470	13,110	2,480	51,300	1,250	6,090	561	277	143,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	1561	10,300	May 2, 1958	-	-	-	-	-	-	-	-
1959	1631	2,180	Mar. 21, 1959	1.8	69.7	0.471	6.40	50,430	121	11.15	87,960
1960	1711	9,700	May 19, 1960	.9	197	1.33	18.11	143,000	-	-	-

2495. Cove Creek near Lee Creek, Ark.

Location.--Lat 35°43'20", long 94°24'30", in SW¼NW¼ sec.16, T.12 N., R.32 W., near left bank on downstream side of pier of bridge, 4½ miles northwest of Lee Creek and 5¾ miles upstream from mouth.

Drainage area.--36.9 sq mi.

Records available.--May 1950 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 852 ft (by barometer).

Average discharge.--10 years (1950-60), 41.0 cfs (29,680 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 33,600 cfs May 5, 1960 (gage height, 15.60 ft), from rating curve extended above 4,800 cfs on basis of slope-area measurements at gage heights 13.50 and 15.60 ft; no flow at times in most years.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.78	2.07	1.50	15.6	216	56.3	50.2	22.8	40.1	86.1	1.66	1.03	40.2
1952	5.53	38.1	18.4	22.5	39.0	84.4	118	51.7	5.73	.58	3.00	.42	32.1
1953	.10	3.74	4.45	8.73	5.70	142	119	96.1	1.48	6.47	.68	.15	32.6
1954	.05	.10	3.56	22.2	9.32	7.86	7.82	37.2	1.11	.08	0	3.71	7.78
1955	40.7	3.48	72.9	50.6	114	98.8	57.6	68.7	85.2	1.45	.53	.25	49.1
1956	1.10	.16	.34	.53	15.8	9.64	68.3	63.3	18.9	1.11	.05	0	14.8
1957	0	.69	3.27	15.8	80.1	47.1	290	349	112	3.68	77.1	44.3	85.0
1958	5.12	118	21.9	17.2	40.2	137	48.4	113	37.9	102	45.9	15.5	58.7
1959	3.81	38.0	9.23	11.5	26.1	106	119	93.4	10.8	10.4	1.24	1.25	35.9
1960	42.3	52.6	41.7	51.9	33.9	49.9	62.6	247	8.04	52.6	3.93	.60	54.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	232	123	92	962	11,990	3,460	2,990	1,400	2,390	5,290	102	61	29,090
1952	340	2,270	1,130	1,380	2,250	5,190	7,000	3,180	341	36	185	25	23,330
1953	6.0	223	273	537	317	8,720	7,080	5,910	88	398	42	8.9	23,600
1954	3.4	6.0	219	1,360	518	483	465	2,290	66	4.8	0	221	5,640
1955	2,500	207	4,480	3,110	6,320	6,080	3,430	4,230	5,070	89	32	15	35,560
1956	67	9.5	21	33	908	592	4,060	3,890	1,120	68	3.0	0	10,770
1957	0	41	201	974	4,450	2,900	17,240	21,450	6,660	226	4,740	2,630	61,510
1958	315	7,000	1,350	1,060	2,230	8,420	2,880	6,950	2,260	6,280	2,820	924	42,490
1959	234	2,260	567	707	1,450	6,530	7,060	5,740	641	642	76	74	25,980
1960	2,600	3,130	2,570	3,190	1,950	3,070	3,730	15,160	478	3,240	241	36	39,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951	1211	5,890	July 2, 1951	0.7	40.2	1.09	14.78	29,090	44.7	16.44	32,380
1952	1241	2,250	May 23, 1952	.1	32.1	.870	11.83	23,330	27.7	10.19	20,090
1953	1281	4,640	Mar. 14, 1953	0	32.6	.883	11.98	23,600	32.2	11.84	23,330
1954	1341	1,670	May 2, 1954	0	7.78	.211	2.86	5,640	17.4	6.40	12,590
1955	1391	4,640	June 5, 1955	0	49.1	1.33	18.08	35,560	39.3	14.46	28,470
1956	1441	4,320	Apr. 28, 1956	0	14.8	.401	5.48	10,770	15.0	5.55	10,920
1957	1511	20,500	Apr. 3, 1957	0	85.0	2.30	31.25	61,510	96.6	35.53	69,940
1958	1561	16,100	July 12, 1958	1.5	58.7	1.59	21.58	42,490	50.9	18.74	36,880
1959	1631	5,300	Mar. 5, 1959	.2	35.9	.973	13.23	25,980	43.1	15.88	31,220
1960	1711	33,600	May 5, 1960	.1	54.3	1.47	19.99	39,400	-	-	-

2500. Lee Creek near Van Buren, Ark.

Location.--Lat 35°29'40", long 94°27'00", in SE¼ sec.21, T.12 N., R.27 E., Indian meridian, on right bank 300 ft west of Arkansas-Oklahoma State line, 3.2 miles downstream from Webbers Creek, 6¾ miles northwest of Van Buren, and 7.9 miles upstream from mouth.

Drainage area.--427 sq mi.

Records available.--September 1930 to June 1937, October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 408.04 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). September 1930 to June 1937 staff gage at same site and datum.

Average discharge.--16 years (1930-36, 1950-60), 496 cfs (359,800 acre-ft per year).

Extremes.--1930-37, 1950-60: Maximum discharge, 80,600 cfs May 6, 1960, (gage height, 30.30 ft); no flow at times

Revisions.--The momentary maximum discharge for the water year 1935 published in WSP 1311 has been revised to 57,700 cfs.

Remarks.--Records of chemical analyses for the period October 1953 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	34.4	11.6	10.8	71.6	2,424	611	573	309	600	862	27.7	34.7	450
1952	126	813	371	356	427	1,136	1,525	499	91.9	7.44	20.5	.813	446
1953	.12	31.3	59.6	133	140	1,777	1,726	1,234	29.2	39.5	9.21	1.36	434
1954	.36	1.18	17.6	154	117	105	94.6	594	19.0	1.25	0	0	92.5
1955	188	47.3	639	526	1,231	1,147	590	602	402	29.6	11.7	6.13	447
1956	3.82	1.85	3.56	3.31	181	88.1	462	503	253	17.8	.76	0	126
1957	0	.13	25.0	180	985	527	3,657	3,516	2,121	64.5	393	278	973
1958	51.9	928	228	223	470	1,615	737	1,413	437	1,909	583	187	736
1959	74.6	760	168	133	308	1,306	1,516	1,252	317	181	35.8	18.3	506
1960	566	567	647	743	502	571	485	2,746	207	232	47.4	6.49	614

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,110	689	666	4,410	134,600	37,590	34,080	19,000	35,700	52,970	1,700	2,060	325,600
1952	7,760	48,360	22,780	21,900	24,560	69,850	90,730	30,710	5,470	457	1,260	48	323,900
1953	7.1	1,860	3,670	8,190	7,780	109,300	102,700	75,860	1,740	2,430	566	81	314,200
1954	22	70	1,080	9,480	6,490	6,470	5,630	36,550	1,130	77	0	0	67,000
1955	11,580	2,810	39,270	32,370	68,370	70,540	35,130	37,040	23,940	1,820	722	365	324,000
1956	235	110	219	204	10,430	5,420	27,500	30,900	15,080	1,090	47	0	91,240
1957	0	7.7	1,530	11,100	54,710	32,400	217,600	216,200	126,200	3,960	24,180	16,510	704,400
1958	3,190	55,250	14,000	13,740	26,120	99,290	43,880	86,910	26,020	117,400	35,840	11,130	532,800
1959	4,590	45,250	10,330	8,200	17,100	80,280	90,230	76,990	18,890	11,130	2,200	1,090	366,300
1960	34,790	33,720	39,790	45,690	28,900	35,110	28,850	168,800	12,300	14,280	2,920	386	445,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951	1211	25,000	July 2, 1951	6.0	450	1.05	14.29	325,600	554	17.60	401,000
1952	1241	15,000	Apr. 12, 1952	.1	446	1.04	14.22	323,900	345	11.00	250,500
1953	1281	19,500	Mar. 18, 1953	0	434	1.02	13.79	314,200	428	13.61	309,800
1954	1341	15,600	May 2, 1954	0	92.5	.217	2.95	67,000	165	5.24	119,500
1955	1391	22,500	Feb. 20, 1955	0	447	1.05	14.22	324,000	374	11.90	270,900
1956	1441	13,000	Apr. 29, 1956	0	126	.295	4.02	91,240	127	4.06	92,210
1957	1511	73,200	Apr. 3, 1957	0	973	2.28	30.93	704,400	1,071	34.04	775,300
1958	1561	35,900	July 13, 1958	20	736	1.72	23.39	532,800	719	22.85	520,500
1959	1631	20,100	Mar. 5, 1959	4.9	506	1.18	16.09	366,300	572	18.21	414,400
1960	1711	80,600	May 6, 1960	2.2	614	1.44	19.58	445,500	-	-	-

2505. Arkansas River at Van Buren, Ark.

Location.--Lat 35°25'42", long 94°21'37", in NW¼ sec.36, T.9 N., R.32 W., near right bank on downstream side of pier of bridge on U. S. Highways 64 and 71 at Van Buren, 1.3 miles downstream from Lee Creek, 8.6 miles downstream from Poteau River, and at mile 353.4.

Drainage area.--150,483 sq mi (revised), of which 22,241 sq mi is probably noncontributing.

Records available.--October 1927 to September 1960. Gage-height records collected at Fort Smith (8.4 miles upstream) from 1879 to Dec. 31, 1955, are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 372.36 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1934, chain gage at same site and datum.

Average discharge.--33 years (1927-60), 31,670 cfs (22,930,000 acre-ft per year).

Extremes.--1927-60: Maximum discharge, 850,000 cfs May 12, 1943; maximum gage height, 38.10 ft Apr. 16, 1945; minimum discharge, 300 cfs Oct. 12, 1956.
Maximum stage known since at least 1833, that of Apr. 16, 1945. Flood in June 1833 reached a stage of 38 ft on Fort Smith gage, from records collected by U. S. Weather Bureau. Flood of Apr. 16, 1927, reached a stage of 35.0 ft, from information by local residents.

Remarks.--Natural flow of stream affected by storage reservoirs and power developments. Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	19,230	7,784	6,506	7,665	43,750	36,040	19,860	73,660	82,980	176,000	25,870	51,260	45,960
1952	23,710	48,980	25,010	18,000	22,660	57,390	63,550	30,660	18,500	5,495	4,277	3,384	26,750
1953	1,720	2,479	3,904	3,555	4,388	23,750	43,650	39,010	5,353	16,470	6,491	3,749	12,940
1954	4,428	5,087	5,235	7,519	5,362	3,535	4,846	47,440	10,360	4,083	2,211	869	8,474
1955	2,686	2,618	4,445	8,897	11,410	20,810	13,590	35,050	28,610	14,540	5,434	5,883	12,840
1956	24,510	4,101	3,988	3,044	6,633	3,223	3,185	8,915	7,123	3,509	2,365	742	5,965
1957	492	1,262	2,127	3,137	11,760	12,300	96,660	195,400	218,800	82,410	14,490	21,390	55,130
1958	7,850	19,510	10,040	12,030	13,360	67,860	61,310	52,020	37,890	83,540	38,080	19,700	35,450
1959	8,266	9,547	6,252	5,799	9,921	30,180	22,240	44,340	19,290	63,090	21,430	18,910	21,750
1960	164,300	37,580	34,440	38,360	39,600	42,970	40,540	100,700	46,170	38,400	23,560	15,180	52,060

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,182	463.2	400.1	471.3	2,430	2,216	1,182	4,529	4,937	10,820	1,591	3,050	33,270
1952	1,458	2,915	1,538	1,107	1,303	3,529	3,782	1,885	1,101	337.9	263.0	201.3	19,420
1953	105.7	147.5	240.0	218.6	243.7	1,460	2,597	2,399	318.5	1,013	399.1	223.1	9,365
1954	272.3	302.7	321.9	462.3	297.8	217.3	288.4	2,917	616.7	251.0	135.9	51.69	6,135
1955	165.1	155.8	273.3	547.1	633.9	1,279	808.7	2,155	1,702	893.9	334.1	350.0	9,298
1956	1,507	244.0	245.2	187.2	381.5	198.2	189.5	548.2	423.8	215.7	145.4	44.17	4,330
1957	30.24	75.09	130.8	192.9	652.9	756.2	5,811	12,010	13,020	5,067	891.2	1,273	39,910
1958	482.7	1,161	617.1	739.7	742.0	4,173	3,648	3,198	2,255	5,137	2,342	1,172	25,670
1959	508.3	568.1	384.4	356.5	551.0	1,856	1,323	2,726	1,148	3,879	1,318	1,125	15,740
1960	10,100	2,236	2,117	2,359	2,278	2,642	2,412	6,191	2,747	2,361	1,449	903.0	37,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	41,870	30,310,000
1951	1211	250,000	July 6, 1951	2,380	45,960	33,270,000	51,300	37,140,000
1952	1241	145,000	Apr. 24, 1952	2,760	26,750	19,420,000	19,290	14,000,000
1953	1281	133,000	Apr. 26, 1953	1,280	12,940	9,365,000	13,490	9,769,000
1954	1341	205,000	May 3, 1954	478	8,474	6,135,000	8,056	5,832,000
1955	1391	101,000	May 31, 1955	478	12,840	9,298,000	14,780	10,700,000
1956	1441	128,000	Oct. 7, 1955	418	5,965	4,330,000	3,540	2,570,000
1957	1511	510,000	May 28, 1957	306	55,130	39,910,000	57,930	41,940,000
1958	1561	171,000	June 26, 1958	4,740	35,450	25,670,000	34,350	24,870,000
1959	1631	158,000	July 28, 1959	2,860	21,750	15,740,000	39,690	28,740,000
1960	1711	418,000	Oct. 7, 1959	5,350	52,060	37,800,000	-	-

2510. Frog Bayou near Mountainburg, Ark.

Location.--Lat 35°39'40", long 94°09'10", in NW¼NE¼ sec.2, T.11 N., R.30 W., on left bank above concrete weir in spillway of Fort Smith Dam, three-quarters of a mile upstream from Warloop Creek, 1¼ miles upstream from Howard Fork, 2½ miles northeast of Mountainburg, and 3 miles downstream from Jones Fork.

Drainage area.--74 sq mi.

Records available.--July 1936 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 800.00 ft above mean sea level, datum of 1929 (levels by city of Fort Smith). Prior to Aug. 28, 1939, staff gage at same site and datum.

Average discharge.--24 years (1936-60), 99.3 cfs (71,890 acre-ft per year), not including diversions by city of Fort Smith.

Extremes.--1936-60: Maximum discharge, 17,300 cfs Apr. 15, 1945 (gage height, 31.06 ft); no flow at times in each year.

Remarks.--Records given herein represent spillway overflow from Lake Fort Smith and do not include diversion of about 13 cfs daily for municipal water supply of Fort Smith. Flow regulated by storage in Lake Fort Smith (capacity, 10,000 acre-ft) and since Jan. 1, 1956, by storage in Lake Sheppard Springs (capacity, 19,000 acre-ft).

Correction .--In WSP 1311, the date of the momentary maximum discharge for the water year 1938 is listed in error; it should be Feb. 18, 1938.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.93	0	0	5.19	537	139	168	75.3	81.9	197	0	0	97.2
1952	0	216	115	99.6	96.3	256	332	101	5.22	0	0	0	101
1953	0	0	0	0	0	303	364	248	.14	0	0	0	76.8
1954	0	0	0	0	0	0	0	48.9	0	0	0	0	4.15
1955	0	0	102	94.9	223	232	137	131	17.2	0	0	0	77.3
1956	0	0	0	0	0	0	0	0	11.2	0	0	0	.92
1957	0	0	0	0	138	109	596	797	333	2.12	6.26	2.21	165
1958	.15	154	40.5	32.2	58.7	284	136	206	9.00	273	95.8	3.21	108
1959	3.38	25.3	10.4	7.94	56.3	207	240	239	37.1	66.8	.92	0	74.7
1960	123	85.3	125	153	93.6	97.2	122	549	15.3	2.91	.023	.030	115

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	57	0	0	319	29,850	8,540	9,980	4,630	4,870	12,110	0	0	70,360
1952	0	12,860	7,060	6,120	5,540	15,710	19,740	6,230	311	0	0	0	73,570
1953	0	0	0	0	0	18,660	21,670	15,270	8.1	0	0	0	55,610
1954	0	0	0	0	0	0	0	3,000	0	0	0	0	3,000
1955	0	0	6,300	5,840	12,380	14,240	8,130	8,080	1,020	0	0	0	55,990
1956	0	0	0	0	0	0	0	0	669	0	0	0	669
1957	0	0	0	0	7,660	6,730	35,470	48,980	19,810	131	385	132	119,300
1958	9.5	9,140	2,490	1,980	3,260	17,460	8,080	12,650	535	16,770	5,890	191	78,460
1959	208	1,510	642	488	3,130	12,740	14,300	14,670	2,210	4,110	57	0	54,060
1960	7,570	4,080	7,680	9,400	5,390	5,980	7,280	33,780	909	179	1.4	1.8	83,250

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	123	88,920
1951	1211	7,440	July 2, 1951	0	97.2	70,360	125	90,220
1952	1241	2,310	Apr. 12, 1952	0	101	73,570	73.9	53,650
1953	1281	3,510	Apr. 29, 1953	0	76.8	55,610	76.8	55,610
1954	1341	397	May 3, 1954	0	4.15	3,000	12.8	9,300
1955	1391	4,010	Feb. 19, 1955	0	77.3	55,990	68.6	49,690
1956	1441	92	June 9,10, 1956	0	.92	669	.92	669
1957	1511	13,700	May 23, 1957	0	165	119,300	181	130,900
1958	1561	2,100	(a)	0	108	78,460	95.6	69,180
1959	1631	1,980	May 11, 1959	0	74.7	54,060	99.5	72,040
1960	1711	6,210	May 6, 1960	0	115	83,250	-	-

a Nov. 18, 1957, July 12, 1958.

2515. Frog Bayou at Rudy, Ark.

Location.--Lat 35°31'25", long 94°16'30", in SW¼ sec.23, T.10 N., R.31 W., on left bank at downstream side of highway bridge at Rudy, 0.5 mile downstream from Cedar Creek.

Drainage area.--217 sq mi.

Records available.--April 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 475.08 ft above mean sea level, datum of 1929.

Average discharge.--10 years (1950-60), 264 cfs (191,100 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 36,200 cfs May 23, 1957 (gage height, 18.04 ft); no flow at times 1952-56.
Flood of Apr. 15, 1945, reached a stage of about 18.5 ft, from information by local residents (discharge, 39,500 cfs).

Remarks.--Water diverted above station from reservoir near Mountainburg for Fort Smith municipal supply (see preceding page). Flow regulated by storage in Lake Fort Smith (capacity, 10,000 acre-ft) and since Jan. 1, 1956, by storage in Lake Sheppard Springs (capacity, 19,000 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13.9	4.83	4.78	36.7	1,466	337	442	213	197	439	13.3	6.83	256
1952	33.1	627	337	273	250	787	970	251	35.4	3.52	3.66	.007	297
1953	0	16.0	43.4	72.3	67.2	925	1,125	733	13.7	11.7	4.02	.51	252
1954	0	0	6.25	44.7	30.0	42.7	72.2	179	11.8	1.01	0	0	32.5
1955	104	28.8	403	326	756	615	342	358	117	18.6	15.7	6.16	255
1956	7.21	2.78	3.72	3.53	132	63.1	159	192	57.1	6.08	.19	0	51.8
1957	0	6.05	20.1	94.6	504	285	1,692	2,162	786	28.0	437	108	509
1958	28.1	586	135	119	200	896	436	794	143	1,031	346	23.4	397
1959	19.7	252	68.9	62.9	184	651	755	566	137	207	34.3	10.9	246
1960	339	300	436	451	282	307	285	1,544	70.2	66.7	16.3	1.83	344

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	852	287	294	2,250	81,410	20,740	26,320	13,080	11,750	27,010	817	406	185,200
1952	2,040	37,320	20,700	16,790	14,410	48,380	57,730	15,450	2,100	217	225	.4	215,400
1953	0	951	2,670	4,450	3,730	56,880	66,950	45,080	818	722	247	30	182,500
1954	0	0	385	2,750	1,660	2,620	4,300	11,030	703	62	0	0	23,510
1955	6,400	1,710	24,800	20,020	41,970	37,790	20,360	22,000	6,980	1,140	967	367	184,500
1956	444	165	228	217	7,590	3,880	9,460	11,830	3,400	374	12	0	37,600
1957	0	360	1,240	5,820	28,010	17,500	100,700	132,900	46,780	1,720	26,870	6,410	368,300
1958	1,730	34,850	8,320	7,330	11,080	55,100	25,950	48,840	8,490	63,380	21,290	1,390	287,800
1959	1,210	14,970	4,240	3,870	10,230	40,030	44,910	34,780	8,150	12,700	2,110	646	177,800
1960	20,860	17,820	26,800	27,720	16,230	18,870	16,950	94,940	4,180	4,100	1,000	109	249,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	-	-
1951	1211	14,700	July 2, 1951	2.8	256	1.18	15.98	185,200	337	21.05	243,800
1952	1241	6,690	Apr. 12, 1952	0	297	1.37	18.60	215,400	219	13.72	158,900
1953	1281	9,250	Mar. 17, 1953	0	252	1.16	15.76	182,500	248	15.48	179,300
1954	1341	1,520	May 2, 1954	0	32.5	.150	2.02	23,510	77.4	4.84	56,040
1955	1391	12,600	Feb. 19, 1955	0	255	1.18	15.94	184,500	211	13.17	152,400
1956	1441	2,710	May 15, 1956	0	51.8	.239	3.25	37,600	52.8	3.32	38,360
1957	1511	36,200	May 23, 1957	0	509	2.35	31.82	368,300	569	35.56	411,600
1958	1561	19,100	July 12, 1958	9.9	397	1.83	24.86	287,800	364	22.74	263,300
1959	1631	4,850	May 11, 1959	3.1	246	1.13	15.35	177,800	308	19.25	222,900
1960	1711	20,400	May 6, 1960	.9	344	1.59	21.55	249,600	-	-	-

2520. Mulberry River near Mulberry, Ark.

Location.--Lat 35°34', long 94°01', in NW¼ sec.6, T.10 N., R.28 W., on left bank a quarter of a mile upstream from Mill Creek, 5 miles northeast of Mulberry, and 11.3 miles upstream from mouth.

Drainage area.--372 sq mi.

Records available.--May 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 432.75 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Apr. 19, 1940, staff gage at site 500 ft downstream at same datum.

Average discharge.--22 years (1938-60), 571 cfs (413,400 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 47,800 cfs Apr. 15, 1945 (gage height, 19.70 ft); no flow at times in 1939, 1943, 1953-54, 1956.
Maximum stage known, 22.0 ft in December 1927 (discharge, about 59,000 cfs).

Remarks.--Records of chemical analyses for the period October 1953 to September 1960 and water temperatures for the period October 1955 to September 1956 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	76.6	30.7	23.0	343	2,873	535	881	509	461	629	136	59.1	529
1952	378	2,209	676	628	548	1,718	2,028	691	79.8	7.23	12.8	4.07	746
1953	.37	158	324	265	461	1,942	1,812	1,582	35.6	10.0	3.43	.12	551
1954	0	.03	18.0	288	257	216	725	661	61.1	4.26	.06	0	185
1955	83.3	41.0	530	402	1,216	1,280	824	549	187	49.7	10.4	2.56	427
1956	32.7	10.1	19.0	9.84	838	210	719	905	140	25.2	.94	.01	239
1957	0	51.8	90.5	346	1,261	773	3,172	2,857	1,313	53.0	28.4	62.6	827
1958	23.5	746	264	285	316	1,808	822	1,440	76.2	594	314	49.2	565
1959	30.8	624	223	218	458	1,086	1,140	624	496	465	84.2	42.3	456
1960	1.28	752	768	947	508	688	630	1,950	182	342	40.6	3.13	657

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,710	1,820	1,420	21,100	159,600	32,890	52,400	31,280	27,450	38,700	8,380	3,510	383,300
1952	23,250	131,500	41,590	38,620	31,520	105,700	120,700	42,470	4,750	445	787	242	541,600
1953	23	9,390	19,950	16,320	25,610	119,400	107,800	97,270	2,120	616	211	6.9	398,700
1954	0	2.0	1,110	17,730	14,280	13,280	43,160	40,660	3,640	262	3.8	0	134,100
1955	5,120	2,440	32,570	24,700	67,530	78,710	49,020	33,770	11,130	3,050	642	153	308,800
1956	2,010	600	1,170	605	48,210	12,890	42,770	55,640	8,350	1,550	58	.8	173,900
1957	0	3,080	5,560	21,280	70,030	47,530	188,700	175,700	78,120	3,260	1,740	3,720	598,700
1958	1,450	44,380	16,240	17,530	17,530	111,100	48,920	88,560	4,530	36,530	19,320	2,930	409,000
1959	1,900	37,140	13,700	13,390	25,440	66,760	67,820	38,360	29,530	28,620	5,180	2,520	330,400
1960	63,200	44,740	47,190	58,240	29,200	42,300	37,460	119,900	10,840	21,050	2,500	186	476,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	858	31.32	621,400
1951	1211	24,500	Feb. 18, 1951	19	529	1.42	19.31	383,300	790	28.81	571,600
1952	1241	15,000	Apr. 12, 1952	.5	746	2.01	27.30	541,600	516	18.88	374,600
1953	1281	26,800	Mar. 18, 1953	0	551	1.48	20.09	398,700	512	18.67	370,500
1954	1341	7,320	Apr. 16, 1954	0	185	.497	6.76	134,100	239	8.72	173,100
1955	1391	19,000	Mar. 21, 1955	0	427	1.15	15.56	308,800	376	13.73	272,500
1956	1441	15,300	May 15, 1956	0	239	.642	8.76	173,900	246	9.01	178,700
1957	1511	28,800	Apr. 3, 1957	0	827	2.22	30.19	598,700	901	32.88	652,200
1958	1561	11,000	May 9, 1958	9.2	565	1.52	20.61	409,000	552	20.14	399,700
1959	1631	5,240	Nov. 15, 1958	4.9	456	1.23	16.64	330,400	598	21.80	432,800
1960	1711	18,300	May 6, 1960	.7	657	1.77	24.04	476,800	-	-	-

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2525. Six Mile Creek subwatershed No. 6 (Six Mile Creek) near Chismville, Ark.

Location.--Lat 35°12'30", long 93°52'55", in NW¼ sec.9, T.6 N., R.27 W., in forward slope of earth dam, 3.3 miles southeast of Chismville.

Drainage area.--3.91 sq mi.

Records available.--November 1954 to September 1960.

Gage.--Water-stage recorder and concrete drop inlet. Datum of gage is 576.67 ft above mean sea level, datum of 1929 (levels by U. S. Soil Conservation Service).

Average discharge.--5 years (1955-60), 4.49 cfs (3,250 acre-ft per year).

Extremes.--1954-60: Maximum outflow, 587 cfs Apr. 27, 1957 (gage height, 29.08 ft), on basis of critical-depth measurement of peak flow; no outflow for many days in each year. Maximum inflow, 1,610 cfs (average for 10-minute interval) Mar. 20, 1955, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of monthly and yearly discharge are outflow from reservoir, determined from stage-discharge relation for outlet structures. Reservoir is formed by earthfill dam; dam completed and storage began in October 1954. Outlet structure is a 30-inch square concrete drop inlet connected to a 14-inch outlet pipe. A vertical headwall forms one side of drop inlet. Top of drop inlet is at gage height 14.73 ft, emergency spillway at gage height 27.6 ft. There is a cleanout gate valve on end of 8-inch pipe which connects to lower end of drop inlet box at gage height 0.8 ft. Reservoir capacity at top of drop inlet is 260 acre-ft. Capacity at emergency spillway level, 1,239 acre-ft. Records of suspended sediment loads and water temperatures for the period February 1957 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	-	0	0.10	3.06	9.17	13.3	8.34	3.19	0.44	0	0	0	-
1956	0	0	0	0	3.96	.83	1.87	1.34	.05	.38	.83	0	0.76
1957	.57	0	0	.14	7.69	8.49	31.1	23.2	20.5	.15	5.02	3.01	8.27
1958	.16	10.4	2.94	3.74	2.54	13.0	8.90	22.7	6.83	8.24	.91	.25	6.76
1959	0	0	.59	.53	1.25	8.91	10.0	1.60	2.60	.07	.90	1.97	2.37
1960	.09	6.95	10.0	8.63	5.08	6.30	1.15	12.4	.54	.07	0	.23	4.31

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953												
1954												
1955	35.9	35.2	281	265	278	609	262	263	260	240	232	228
1956	213	209	205	206	264	268	288	265	259	260	197	178
1957	136	146	152	274	281	291	1,234	941	267	252	226	243
1958	241	278	271	271	277	276	311	409	417	263	213	201
1959	196	251	265	264	267	277	272	262	260	261	211	98.1
1960	263	263	278	273	279	271	265	277	258	261	245	245

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953								
1954								
1955	1561	23	Mar.21,22,1955	b1,610	Mar. 20, 1955	0	-	3.09
1956	1561	20	Feb.18,19,1956	c 351	July 23, 1956	0	0.76	.81
1957	1561	587	Apr. 27, 1957	c1,320	Apr. 27, 1957	0	8.27	9.34
1958	1561	25	May 10, 1957	c1,420	Nov. 17, 1957	0	6.76	5.69
1959	1631	20	Several days.	c 274	Mar. 21, 1959	0	2.37	3.75
1960	1711	21	At times.	c1,100	Nov. 4, 1959	0	4.31	-

a Computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Average for 10-minute interval.
c Average for 5-minute interval.

2530. Six Mile Creek at Chismville, Ark.

Location.--Lat 35°13'15", long 93°56'20", in E½ sec.2, T.6 N., R.28 W., on right bank on downstream side of pier of highway bridge at Chismville, half a mile downstream from Rocky Creek.

Drainage area.--23.4 sq mi.

Records available.--June 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 478.42 ft above mean sea level, datum of 1929.

Average discharge.--6 years (1954-60), 23.3 cfs (16,870 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 2,810 cfs Mar. 20, 1955 (gage height, 10.74 ft), from rating curve extended above 460 cfs on basis of contracted-opening measurement of peak flow; no flow at times in each year.

Remarks.--Flow regulated by four detention reservoirs (total capacity, 5,086 acre-ft, revised).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	-	0	0	0	-
1955	0.56	0.06	8.85	11.3	43.9	90.3	28.9	18.9	6.04	.01	.03	0	17.3
1956	0	0	0	0	15.9	3.19	8.05	7.05	.20	0	.04	0	2.81
1957	.14	.05	.13	6.12	36.3	41.5	144	118	89.1	20.9	32.0	22.9	42.4
1958	1.11	58.8	20.4	24.3	15.1	69.3	47.4	145	45.4	45.4	2.33	3.32	40.0
1959	.85	.63	1.28	1.59	2.38	41.9	46.7	4.93	13.4	0	.24	1.81	9.64
1960	13.6	41.0	53.3	47.7	32.8	34.9	4.60	86.6	15.2	1.19	.47	.77	27.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	-	0	0	0	-
1955	35	3.8	544	697	2,440	5,550	1,720	1,160	359	.8	1.8	0	12,510
1956	0	0	0	0	914	196	479	434	12	0	2.6	0	2,040
1957	8.7	2.8	7.9	376	2,020	2,550	8,540	7,250	5,300	1,280	1,970	1,360	30,670
1958	68	3,500	1,250	1,490	838	4,260	2,820	8,910	2,700	2,790	143	198	28,970
1959	52	37	79	98	132	2,580	2,780	303	800	0	15	108	6,980
1960	839	2,400	3,280	2,930	1,890	2,150	274	5,320	906	73	29	46	20,180

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953								
1954	1391	-	-	0	-	-	-	-
1955	1391	2,810	Mar. 20, 1955	0	17.3	12,510	16.5	11,930
1956	1441	218	Feb. 17, 1956	0	2.81	2,040	2.83	2,060
1957	1511	1,850	Apr. 3, 1957	0	42.4	30,670	49.0	35,460
1958	1561	1,650	July 12, 1958	0	40.0	28,970	33.6	24,320
1959	1631	680	June 1, 1959	0	9.64	6,980	18.5	13,380
1960	1711	1,440	May 6, 1960	0	27.8	20,180	-	-

2535. Six Mile Creek near Branch, Ark.

Location.--Lat 35°15', long 93°59', in SE¼ sec.28, T.7 N., R.28 W., half a mile downstream from Rattle Snake Creek, 1 mile upstream from Prairie Creek, and 4¼ miles southwest of Branch.

Drainage area.--35.5 sq mi.

Records available.--June 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 422.77 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--6 years (1954-60), 35.6 cfs (25,770 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 4,530 cfs Mar. 20, 1955 (gage height, 11.75 ft); no flow at times in most years.

Remarks.--Flow regulated by six detention reservoirs (total capacity, 6,232 acre-ft, revised).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	0	0	0	0.08	-
1955	3.20	0.27	16.9	19.6	69.8	149	37.6	24.1	11.7	.06	.003	.40	27.5
1956	.02	0	0	0	36.7	7.13	14.2	10.5	.35	0	.10	.04	5.60
1957	.04	1.06	.32	13.4	63.6	65.5	232	180	117	21.5	51.1	38.0	64.9
1958	1.97	87.6	29.0	36.8	24.3	101	70.8	191	58.8	72.0	4.59	4.00	57.2
1959	1.17	3.48	3.37	4.33	10.1	67.2	67.8	8.95	18.0	1.13	.42	1.77	15.6
1960	24.0	72.4	74.3	68.3	50.4	53.8	8.49	136	17.2	4.71	.96	.40	42.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	0	0	0	4.6	-
1955	197	16	1,040	1,200	3,870	9,160	2,240	1,480	695	3.6	.2	24	19,930
1956	1.2	0	0	0	2,110	439	845	644	21	0	6.0	2.6	4,069
1957	2.4	63	20	825	3,530	4,030	13,780	11,090	6,950	1,320	3,140	2,260	47,010
1958	121	5,210	1,780	2,260	1,350	6,240	4,210	11,750	3,500	4,430	282	238	41,370
1959	72	207	207	266	561	4,130	4,040	550	1,070	69	26	106	11,300
1960	1,480	4,310	4,570	4,200	2,900	3,310	505	8,380	1,030	290	59	24	31,060

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953								
1954	1391	-	-	-	-	-	-	-
1955	1391	4,530	Mar. 20, 1955	0	27.5	19,930	25.8	18,670
1956	1441	609	Feb. 17, 1956	0	5.60	4,069	5.72	4,153
1957	1511	3,660	Apr. 3, 1957	0	64.9	47,010	74.7	54,040
1958	1561	4,130	July 12, 1958	.2	57.2	41,370	48.0	34,750
1959	1631	663	Mar. 25, 1959	0	15.6	11,300	29.2	21,180
1960	1711	3,520	Nov. 4, 1959	0	42.8	31,060	-	-

2540. Six Mile Creek subwatershed No. 5 (Little Caney Creek) near Chismville, Ark.

Location.--Lat 35°13'45", long 93°54'50", in NW¼ sec.6, T.6 N., R.27 W., near center and in forward slope of earth dam, 1.7 miles northeast of Chismville.

Drainage area.--1.85 sq mi.

Records available.--December 1954 to September 1960.

Gage.--Water-stage recorder and concrete drop inlet. Datum of gage is 475.83 ft above mean sea level, datum of 1929 (levels by U. S. Soil Conservation Service).

Average discharge.--5 years (1955-60), 1.81 cfs (1,310 acre-ft per year).

Extremes.--1954-60: Maximum outflow, 14 cfs at times; maximum gage height, 27.07 ft May 10, 1958; no outflow for many days in each year. Maximum inflow, 832 cfs (average for 5-minute interval) Apr. 3, 1957, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of monthly and yearly discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam completed and storage began in December 1954. Outlet structure is a 30-inch square concrete drop inlet with vertical baffle wall connected to a 12-inch concrete outlet pipe. Top of inlet is at gage height 13.29 ft, emergency spillway is at gage height 29.7 ft. There is a cleanout gate valve on end of 8-inch pipe which connects to lower end drop inlet box at gage height -12.6 ft. Reservoir capacity at top of drop inlet, 213 acre-ft. Capacity at emergency spillway level, 825 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	-	-	-	-	2.30	7.16	2.93	4.51	0.19	0	0	0	-
1956	0	0	0	0	1.85	.24	1.13	.51	0	0	.07	0	0.31
1957	0	0	0	.23	2.62	2.55	12.4	12.9	3.69	0	1.82	1.26	3.12
1958	0	4.45	1.12	1.54	1.29	6.09	4.08	11.8	1.58	2.51	.05	0	2.89
1959	0	.03	.06	.11	.32	2.43	4.23	.31	.80	.03	.16	.91	.78
1960	.09	2.15	3.87	3.45	2.36	2.75	.44	6.20	.03	.31	1.16	.34	1.94

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953												
1954												
1955	-	-	106	147	218	308	213	214	212	200	192	188
1956	179	176	173	172	214	217	224	212	211	202	185	173
1957	167	170	174	217	218	221	571	245	212	203	210	213
1958	209	214	216	216	218	217	218	213	214	212	209	204
1959	200	210	214	213	214	216	215	212	210	209	198	144
1960	212	213	216	215	219	216	215	212	208	212	135	111

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow[a]		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953								
1954								
1955	1561	14	Mar.21-23,1955	b783	Mar. 20, 1955	0	-	1.42
1956	1561	12	Feb.18,19,1956	c147	Feb. 17, 1956	0	0.31	.31
1957	1561	14	Several days.	c832	Apr. 3, 1957	0	3.12	3.58
1958	1561	14	May 3-17,1958	c705	July 12, 1958	0	2.89	2.44
1959	1631	13	Apr. 21, 1959	d75	Mar. 21, 1959	0	.78	1.28
1960	1711	13	At times.	c646	May 5, 1960	0	1.94	-

a Computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Average for 10-minute interval.
c Average for 5-minute interval.
d Average for 1-hour interval.

2545. Six Mile Creek subwatershed No. 2 (Shaver Creek) near Caulksville, Ark.

Location.--Lat 35°15'50", long 93°50'00", in NE¼ sec.23, T.7 N., R.27 W., near center and on forward slope of earth dam on Shaver Creek, 3.2 miles southeast of Caulksville.

Drainage area.--5.28 sq mi.

Records available.--October 1954 to September 1960.

Gage.--Water-stage recorder and concrete drop inlet. Datum of gage is 490.00 ft above mean sea level, datum of 1929 (levels by U. S. Soil Conservation Service).

Average discharge.--5 years (1955-60), 5.64 cfs (4,080 acre-ft per year).

Extremes.--1954-60: Maximum outflow, 38 cfs Apr. 28 to May 1, 1957; maximum gage height, 43.04 ft Apr. 29, 1957; no outflow for many days in each year. Maximum inflow, 1,790 cfs (average for 10-minute interval) Mar. 20, 1955, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of monthly and yearly outflow from reservoir determined from stage-discharge relation for outlet structures. Reservoir is formed by earthfill dam; dam completed and storage began in October 1954. Outlet structure is a 30-inch square concrete drop inlet connected to a 17-inch concrete pipe. A vertical headwall forms one side of the drop inlet. Top of drop inlet is at gage height 17.17 ft, emergency spillway at gage height 44.0 ft. There is a cleanout gate valve on end of 8-inch pipe which connects to lower end of drop inlet box at gage height -2.8 ft. Reservoir capacity at top of drop inlet, 309 acre-ft. Capacity at emergency spillway level, 1,613 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	-	2.44	6.39	7.60	14.5	19.3	10.8	5.97	0.26	0	0	0	-
1956	0	0	0	0	11.8	1.60	3.94	3.21	.35	0	.19	.26	1.73
1957	0	0	0	5.24	13.9	11.6	31.5	33.9	22.4	.02	5.51	3.13	10.5
1958	.20	11.7	3.78	5.70	3.58	17.3	12.1	30.7	1.46	1.25	.58	.19	7.43
1959	0	1.99	1.65	.99	2.67	12.5	13.5	1.57	6.11	.33	0	.34	3.46
1960	0	5.98	11.1	10.5	5.96	8.45	1.66	15.7	.59	.36	0	.24	5.07

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953												
1954												
1955	310	217	436	318	330	716	311	312	306	290	280	277
1956	266	263	260	260	315	318	359	317	310	298	275	243
1957	239	254	336	336	331	333	1,508	900	310	298	308	313
1958	310	316	317	319	324	322	386	312	312	311	302	301
1959	297	317	314	312	314	324	317	309	308	309	305	282
1960	298	310	322	316	325	317	313	313	293	309	299	307

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953								
1954								
1955	1561	34	Mar.21-23,1955	b1,790	Mar. 20, 1955	0	-	4.81
1956	1561	28	Feb.18-20,1956	c266	Feb. 17, 1956	0	1.73	1.73
1957	1561	38	(d)	b1,280	Apr. 27, 1957	0	10.5	11.8
1958	1561	37	May 10,11,1958	b1,010	May 2, 1958	0	7.43	6.43
1959	1631	30	Apr. 21, 1959	c813	June 11, 1959	0	3.46	4.59
1960	1711	30	May 21-23,1960	c755	Nov. 4, 1959	0	5.07	-

a Computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Average for 10-minute interval.
c Average for 5-minute interval.
d Apr. 28 to May 1, 1957.

2550. Six Mile Creek at Caulksville, Ark.

Location.--Lat 35°18', long 93°51', on line between secs.3 and 10, T.7 N., R.27 W., on left bank at upstream side of bridge on State Highway 22, 0.6 mile east of Caulksville and 1¼ miles downstream from Shaver Creek.

Drainage area.--102 sq mi.

Records available.--June 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 356.16 ft above mean sea level, datum of 1929. Prior to July 15, 1957, at datum 2.00 ft higher.

Average discharge.--6 years (1954-60), 105 cfs (76,020 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 9,460 cfs Apr. 3, 1957 (gage height, 17.40 ft, present datum); maximum gage height, 19.37 ft Mar. 20, 1955, present datum (prior to channel improvements); no flow at times.

Remarks.--Discharge regulated by 13 detention reservoirs (total capacity, 14,229 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	0	0	0	0.13	-
1955	48.5	5.75	87.5	67.0	221	441	85.5	76.4	21.3	.36	.20	.73	87.5
1956	.50	0	0	0	132	17.7	46.6	27.7	3.01	.05	.38	.23	18.5
1957	.006	2.44	2.75	41.3	202	165	791	507	340	24.5	117	88.6	189
1958	5.99	226	61.6	101	66.9	321	222	599	133	189	14.4	7.44	163
1959	1.70	21.4	15.6	15.2	30.2	210	200	28.0	73.4	15.4	2.20	3.16	51.3
1960	66.5	227	239	195	125	134	21.7	383	25.0	29.7	2.16	2.65	121

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	0	0	0	7.5	-
1955	2,980	342	5,380	4,120	12,260	27,130	5,090	4,700	1,270	22	12	44	63,350
1956	31	0	0	0	7,610	1,090	2,770	1,710	179	2.8	23	14	13,430
1957	.4	145	169	2,540	11,210	10,130	47,080	31,190	20,210	1,510	7,180	5,270	136,600
1958	368	13,430	3,790	6,220	3,710	19,750	13,190	36,850	7,900	11,640	886	443	118,200
1959	105	1,270	957	932	1,680	12,930	11,920	1,720	4,370	948	135	188	37,160
1960	4,090	13,500	14,700	12,010	7,210	8,240	1,290	23,530	1,490	1,820	133	157	88,170

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953								
1954	1441	-	-	0	-	-	-	-
1955	1441	8,780	Mar. 20, 1955	0	87.5	63,350	73.4	53,160
1956	1441	1,800	Feb. 17, 1956	0	18.5	13,430	18.9	13,710
1957	1511	9,460	Apr. 3, 1957	0	189	136,600	213	153,900
1958	1561	6,180	May 2, 1958	.3	163	118,200	142	102,900
1959	1631	2,380	June 1, 1959	0	51.3	37,160	92.7	67,110
1960	1711	6,380	Nov. 4, 1959	0	121	88,170	-	-

2551. Six Mile Creek subwatershed No. 23 (Kings Creek) near Branch, Ark.

Location.--Lat 35°21'15", long 93°59'00", in SE¼NW¼ sec.21, T.8 N., R.28 W., near center and in forward slope of earth dam on Kings Creek, three-quarters of a mile above mouth and 3.8 miles northwest of Branch.

Drainage area.--4.38 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder and concrete drop inlet. Datum of gage is 400.00 ft above mean sea level, datum of 1929 (levels by U. S. Soil Conservation Service).

Average discharge.--5 years (1955-60), 4.79 cfs (3,470 acre-ft per year).

Extremes.--1955-60: Maximum outflow, 48 cfs Nov. 4, 1959 (gage height, 35.16 ft); no outflow for many days in each year. Maximum inflow, 2,520 cfs (average for 5-minute interval) Nov. 4, 1959, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of monthly and yearly discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam completed and storage began in October 1955. Outlet structure is a 30-inch square concrete drop inlet connected to a 22-inch concrete outlet pipe. Top of drop inlet is at gage height 22.37 ft, emergency spillway at gage height 36.0 ft. There is a 12-inch sluice gate at bottom of drop inlet at gage height 16.8 ft. Reservoir capacity at top of drop inlet, 73 acre-ft. Capacity at emergency spillway level, 1,042 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	0	0	0	0	7.52	0.15	3.41	0.14	0	0.01	0	0	0.90
1957	0	0	0	.22	7.87	4.86	27.8	24.2	22.0	0	5.48	4.31	8.00
1958	0	11.1	1.58	3.64	4.10	15.0	7.14	14.2	3.73	14.6	.09	0	6.29
1959	0	.92	.31	.93	1.31	10.8	3.00	1.48	.72	7.00	0	.30	2.25
1960	10.6	17.6	10.0	7.14	5.57	4.83	.28	17.4	2.58	.64	0	1.10	6.50

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1956	9.2	10.6	10.5	11.0	73.3	78.7	75.0	71.8	67.1	60.0	52.5	40.6
1957	38.7	44.3	51.2	75.0	79.8	83.4	680	426	72.6	61.1	71.4	73.1
1958	69.5	73.9	74.3	75.4	83.6	77.1	78.0	70.0	73.7	73.1	65.2	62.7
1959	65.5	75.8	76.7	74.3	74.1	75.4	73.5	69.7	68.3	73.1	70.2	48.0
1960	19.6	24.9	73.1	52.7	82.3	73.3	77.6	72.6	69.7	71.2	62.7	72.2

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1956	1561	30	Feb. 18, 1956	496	Feb. 17, 1956	0	0.90	0.90
1957	1561	36	Apr. 4, 1957	1,560	Apr. 3, 1957	0	8.00	9.05
1958	1561	44	July 13, 1958	1,620	July 12, 1958	0	6.29	5.35
1959	1631	37	Mar. 21, 1959	384	Mar. 21, 1959	0	2.25	5.35
1960	1711	48	Nov. 4, 1959	2,520	Nov. 4, 1959	0	6.50	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

2555. Hurricane Creek near Branch, Ark.

Location.--Lat 35°21', long 93°56', on line between and near south edge of secs.23 and 24, T.8 N., R.28 W., at center of span on downstream side of pier of bridge on State Highway 41, 1½ miles upstream from Perry Creek and 3.2 miles northeast of Branch.

Drainage area.--17.4 sq mi.

Records available.--June 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 379.87 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--6 years (1954-60), 18.6 cfs (13,470 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 2,840 cfs Mar. 20, 1955 (gage height, 9.88 ft), from rating curve extended above 1,100 cfs on basis of indirect measurement of peak flow; no flow at times.

Remarks.--Flow regulated by four detention reservoirs (total capacity, 3,010 acre-ft).

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	-	0	0	0	-
1955	21.4	3.43	14.8	12.9	41.4	56.8	12.7	9.53	0.97	.01	0	.08	14.4
1956	0	0	0	0	33.3	4.58	18.2	2.53	.09	.29	0	0	4.77
1957	0	0	0	.51	27.7	21.1	111	84.4	87.5	3.35	30.6	13.3	31.4
1958	1.41	38.1	10.7	15.0	15.5	54.9	31.6	53.0	15.1	42.6	6.28	.27	23.8
1959	.15	11.0	7.12	6.52	7.47	38.5	18.9	9.85	6.51	44.1	2.73	.49	12.9
1960	39.1	64.8	36.2	29.7	21.0	20.9	4.05	59.8	8.56	2.87	.05	2.16	24.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	-	0	0	0	-
1955	1,320	204	910	791	2,300	3,490	756	586	58	.6	0	4.6	10,420
1956	0	0	0	0	1,920	282	1,090	156	5.6	18	0	0	3,470
1957	0	0	0	32	1,540	1,300	6,600	5,190	5,210	206	1,880	790	22,750
1958	86	2,270	657	922	862	3,380	1,880	3,260	900	2,620	386	16	17,240
1959	9.5	653	438	401	415	2,370	1,120	605	387	2,710	168	29	9,310
1960	2,410	3,850	2,230	1,820	1,210	1,280	241	3,680	509	177	3.0	129	17,540

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953								
1954	1391	-	-	0	-	-	-	-
1955	1391	2,840	Mar. 20, 1955	0	14.4	10,420	11.0	7,990
1956	1441	700	Feb. 17, 1956	0	4.77	3,470	4.77	3,470
1957	1511	1,240	Apr. 3, 1957	0	31.4	22,750	35.6	25,760
1958	1561	790	July 12, 1958	0	23.8	17,240	21.2	15,330
1959	1631	512	July 19, 1959	0	12.9	9,310	23.1	16,700
1960	1711	2,460	Nov. 4, 1959	0	24.2	17,540	-	-

2560. Hurricane Creek near Caulksville, Ark.

Location.--Lat 35°21', long 93°52', on line between and near south edge of secs.21 and 22, T.8 N., R.27 W., at bridge on State Highway 23, 1¾ miles upstream from Garner Creek and 3.2 miles north of Caulksville.

Drainage area.--52.3 sq mi.

Records available.--June 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 352.60 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark). Prior to July 1, 1957, at datum 2.00 ft higher.

Average discharge.--6 years (1954-60), 54.6 cfs (39,530 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 9,050 cfs Nov. 4, 1959 (gage height, 15.71 ft); no flow at times.

Remarks.--Flow regulated by seven detention reservoirs (total capacity, 5,004 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	-	0	0.006	0	-
1955	79.6	8.57	45.9	37.2	122	179	38.8	33.0	4.30	1.59	.21	.32	45.6
1956	.19	0	0	0	94.2	10.7	48.4	7.96	.42	.20	0	.23	13.1
1957	0	.58	.83	6.70	89.9	65.0	397	225	221	5.13	62.7	31.0	91.3
1958	3.94	103	29.9	44.2	39.7	166	102	211	47.3	105	12.6	2.02	72.6
1959	.06	26.1	16.2	15.9	18.5	120	51.2	23.3	25.3	117	5.69	.47	35.2
1960	102	201	99.1	88.3	60.0	60.3	11.8	182	22.6	7.85	.40	3.49	70.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	-	-	0	0.4	0	-
1955	4,900	510	2,820	2,280	6,780	11,030	2,310	2,030	256	98	13	19	33,050
1956	12	0	0	0	5,420	660	2,880	490	25	12	0	13	9,510
1957	0	34	51	412	4,990	3,990	23,610	13,840	13,160	315	3,860	1,840	66,100
1958	242	6,110	1,840	2,720	2,210	10,240	6,080	12,950	2,810	6,460	774	120	52,560
1959	3.8	1,560	996	978	1,030	7,360	3,050	1,430	1,510	7,170	350	28	25,470
1960	6,280	11,970	6,100	5,430	3,450	3,710	700	11,190	1,340	483	25	208	50,890

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953								
1954	1391	-	-	0	-	-	-	-
1955	1391	5,400	Mar. 20, 1955	0	45.6	33,050	34.3	24,830
1956	1441	1,980	Feb. 17, 1956	0	13.1	9,510	13.2	9,580
1957	1511	6,740	Apr. 3, 1957	0	91.3	66,100	103	74,210
1958	1561	2,660	May 9, 1958	0	72.6	52,560	64.8	46,920
1959	1631	1,680	July 22, 1959	0	35.2	25,470	65.3	47,260
1960	1711	9,050	Nov. 4, 1959	0	70.1	50,890	-	-

2565. Spadra Creek at Clarksville, Ark.

Location.--Lat 35°28', long 93°28', in NW¼ sec.4, T.9 N., R.23 W., on right bank at Clarksville, 1,000 ft downstream from bridge on U. S. Highway 64 and 4½ miles upstream from mouth.

Drainage area.--54.8 sq mi.

Records available.--August 1952 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 352.99 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1952-60), 80.4 cfs (58,210 acre-ft per year).

Extremes.--1952-60: Maximum discharge, 15,300 cfs Apr. 3, 1957 (gage height, 14.58 ft in gage well, 15.1 ft from floodmark); no flow at times in 1952-54.
Flood in December 1927 reached a stage of about 14.7 ft, from floodmarks (discharge, 14,500 cfs). Flood of Jan. 24, 1949, reached a stage of 14.5 ft, from floodmarks (discharge, 14,000 cfs). Stages for floods in 1927 and 1949 furnished by Corps of Engineers.

Remarks.--Some regulation at low flow due to operation of Clarksville water plant upstream from gage.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	-	-	-	-	-	-	-	-	-	-	-	0.007	-
1953	0	67.0	97.7	68.1	93.4	301	309	171	4.88	3.36	2.22	.16	93.2
1954	.01	.02	.29	135	127	52.2	67.1	123	16.4	1.71	.19	1.87	43.2
1955	5.40	6.54	56.7	48.9	226	241	95.4	108	8.37	24.7	1.51	.50	67.7
1956	.88	.88	1.75	1.29	229	24.1	57.6	37.8	4.24	1.81	1.79	1.04	29.2
1957	2.32	12.4	41.5	69.9	209	108	663	341	276	10.6	83.0	17.4	151
1958	8.33	136	58.1	61.6	72.9	284	146	325	11.9	20.6	44.3	3.48	98.2
1959	3.60	70.1	38.8	15.3	40.0	145	184	175	202	59.1	13.8	5.32	79.2
1960	65.9	105	165	167	62.7	90.9	44.6	213	28.0	20.2	3.76	2.36	81.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	-	-	-	-	-	-	-	-	-	-	-	0.4	-
1953	0	3,990	6,010	4,190	5,180	18,530	18,390	10,520	291	206	136	9.3	67,450
1954	.6	1.0	18	8,270	7,040	3,210	3,990	7,560	978	105	12	111	31,300
1955	332	389	3,490	3,010	12,570	14,810	5,680	6,610	498	1,520	93	30	49,030
1956	54	53	108	79	13,150	1,480	3,430	2,320	252	111	110	62	21,210
1957	143	739	2,550	4,300	11,630	6,660	39,430	20,990	16,410	654	5,100	1,030	109,600
1958	512	8,090	3,570	3,790	4,050	17,490	8,660	20,010	708	1,270	2,720	207	71,080
1959	221	4,170	2,380	942	2,220	8,910	10,960	10,740	12,000	3,630	846	316	57,340
1960	4,050	6,240	10,160	10,250	3,610	5,590	2,660	13,080	1,660	1,240	231	140	58,910

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952	1281	-	-	0	-	-	-	-	-	-	-
1953	1281	7,160	Mar. 17, 1953	0	93.2	1.70	23.06	67,450	79.4	19.66	57,470
1954	1341	7,600	Jan. 20, 1954	0	43.2	.788	10.71	31,300	49.0	12.13	35,490
1955	1391	7,130	Mar. 20, 1955	0	67.7	1.24	16.76	49,030	62.2	15.41	45,040
1956	1441	3,120	Feb. 17, 1956	.3	29.2	.533	7.27	21,210	33.7	8.36	24,430
1957	1511	15,300	Apr. 3, 1957	.4	151	2.76	37.50	109,600	163	40.50	118,400
1958	1561	6,880	May 9, 1958	2.5	98.2	1.79	24.32	71,080	90.7	22.48	65,680
1959	1631	3,570	June 12, 1959	2.0	79.2	1.45	19.64	57,340	98.1	24.31	71,010
1960	1711	4,100	May 6, 1960	1.4	81.1	1.48	20.15	58,910	-	-	-

2570. Piney Creek near Dover, Ark.

Location.--Lat 35°33'00", long 93°09'25", in NE¼NE¼ sec.6, T.10 N., R.20 W., on left bank 7¼ miles downstream from Indian Creek and 10 miles north of Dover.

Drainage area.--274 sq mi.

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 487.66 ft above mean sea level, datum of 1929.

Average discharge.--10 years (1950-60), 432 cfs (312,800 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 44,000 cfs Apr. 3, 1957 (gage height, 20.37 ft), from rating curve extended above 16,000 cfs by logarithmic plotting; no flow at times in 1952-54, 1956.
Flood of Jan. 24, 1949, reached a stage of 25.6 ft, from floodmarks.

Remarks.--Records of chemical analyses for the period October 1953 to September 1960 and water temperatures for the period October 1955 to September 1956 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	61.5	45.3	30.9	523	1,789	333	853	317	214	293	39.4	24.5	366
1952	187	1,586	486	526	389	1,562	1,817	548	56.1	13.6	15.1	1.40	597
1953	.17	337	401	380	500	1,744	1,441	1,159	21.2	3.08	1.64	.23	499
1954	0	0	22.8	411	520	286	530	792	41.3	1.12	.035	0	215
1955	48.3	23.8	322	207	1,130	1,048	975	378	127	32.1	7.14	26.1	355
1956	38.2	29.3	28.1	17.5	1,379	159	474	456	47.8	20.9	1.29	.33	216
1957	.003	27.0	79.2	242	956	492	2,937	2,028	1,156	114	135	83.9	681
1958	55.7	800	266	260	363	1,478	697	1,204	72.6	202	413	24.1	488
1959	28.6	782	201	167	330	878	1,059	356	805	150	31.5	32.6	399
1960	516	599	889	823	499	554	392	1,320	107	319	31.6	5.44	507

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,780	2,690	1,900	32,180	99,350	20,470	50,740	19,500	12,740	18,030	2,420	1,460	265,300
1952	11,490	94,350	29,880	32,350	22,370	96,050	108,100	33,700	3,340	833	930	83	433,500
1953	11	20,040	24,630	23,360	27,750	107,200	85,750	71,250	1,260	190	101	14	361,600
1954	0	0	1,400	25,300	28,900	17,580	31,560	48,700	2,460	69	22	0	156,000
1955	2,970	1,410	19,790	12,750	62,760	64,430	58,040	23,260	7,530	1,970	439	1,550	256,900
1956	2,350	1,750	1,730	1,070	79,350	9,780	28,200	28,040	2,840	1,290	80	19	156,500
1957	.2	1,600	4,870	14,890	53,090	30,280	174,700	124,700	68,810	7,040	8,310	4,990	493,300
1958	3,430	47,620	16,340	16,010	20,150	90,870	41,460	74,010	4,320	12,430	25,370	1,430	353,400
1959	1,760	46,510	12,350	10,240	18,320	54,020	62,990	21,880	47,920	9,200	1,940	1,940	289,100
1960	31,720	35,650	54,690	50,600	28,690	34,070	23,330	81,130	6,390	19,600	1,940	324	368,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951	1211	17,600	Feb. 20, 1951	5.7	366	1.34	18.14	265,300	542	26.86	392,600
1952	1241	15,800	Apr. 12, 1952	.1	597	2.18	29.67	433,500	472	23.44	342,400
1953	1281	28,500	Mar. 17, 1953	0	499	1.82	24.76	361,600	440	21.80	318,300
1954	1341	24,700	May 2, 1954	0	215	.785	10.68	156,000	247	12.23	178,700
1955	1391	28,900	Mar. 20, 1955	0	355	1.30	17.58	256,900	330	16.33	238,600
1956	1441	13,400	Feb. 1, 1956	0	216	.788	10.71	156,500	216	10.75	157,100
1957	1511	44,000	Apr. 3, 1957	0	681	2.49	33.75	493,300	766	37.92	554,200
1958	1561	14,500	Aug. 2, 1958	6.6	488	1.78	24.20	353,400	479	23.74	346,700
1959	1631	17,200	Nov. 16, 1958	5.4	399	1.46	19.78	289,100	484	23.98	350,500
1960	1711	18,100	May 6, 1960	2.7	507	1.85	25.18	368,100	-	-	-

2575. Illinois Bayou near Scottsville, Ark.

Location.--Lat 35°28', long 93°02', in SW¼ sec.32, T.10 N., R.19 W., near center of span on downstream side of pier of bridge on county road, 1¼ miles north of Scottsville and 3 miles downstream from North Fork Illinois Bayou.

Drainage area.--242 sq mi.

Records available.--October 1947 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 447.54 ft above mean sea level, datum of 1929. Prior to Mar. 25, 1948, wire-weight gage at same site and datum.

Average discharge.--13 years (1947-60), 409 cfs (296,100 acre-ft per year).

Extremes.--1947-60: Maximum discharge, 77,000 cfs Jan. 24, 1949 (gage height, 24.60 ft); no flow at times in 1953-54, 1956.
Flood of May 10, 1943, reached a stage of 24.6 ft, from floodmark set by local residents.

Remarks.--Records of chemical analyses for the period October 1953 to September 1960 and water temperatures for the period October 1955 to September 1956 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	55.5	67.5	37.5	459	1,498	334	664	305	89.2	185	62.5	17.4	306
1952	153	1,252	443	700	358	1,285	1,752	498	47.6	2.45	.56	.33	540
1953	.17	441	462	376	362	1,499	1,185	829	21.7	1.21	1.08	.06	432
1954	.003	.04	.68	234	263	162	192	788	57.5	1.65	9.06	.10	142
1955	41.6	38.0	235	156	933	1,083	740	321	97.5	34.1	4.44	13.0	304
1956	31.4	21.2	30.4	17.6	1,422	147	360	264	25.9	29.5	1.14	.15	190
1957	.06	12.0	148	406	817	337	2,116	1,627	929	158	466	43.6	584
1958	152	1,069	257	302	287	1,336	746	1,284	79.7	124	215	5.25	490
1959	6.43	551	191	171	325	984	703	240	760	302	51.2	51.7	360
1960	435	556	1,007	649	551	473	144	1,038	71.9	162	25.7	7.16	428

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,410	4,010	2,310	28,190	83,190	20,550	39,530	18,780	5,310	11,370	3,850	1,040	221,500
1952	9,420	74,500	27,250	43,050	20,620	79,030	104,300	30,610	2,830	151	34	19	391,800
1953	10	26,230	28,430	23,100	20,080	92,200	70,530	50,990	1,290	75	66	3.6	313,000
1954	.2	2.6	42	14,410	14,580	9,990	11,410	48,470	3,420	102	557	6.1	103,000
1955	2,560	2,260	14,480	9,590	51,810	66,610	44,040	19,760	5,800	2,090	273	773	220,000
1956	1,930	1,260	1,870	1,080	81,770	9,030	21,440	16,250	1,540	1,820	70	8.7	138,100
1957	3.8	717	9,080	24,970	45,390	20,720	125,900	100,100	55,260	9,700	28,670	2,600	423,100
1958	9,320	63,620	15,800	18,560	15,930	82,150	44,390	78,940	4,740	7,590	13,230	312	354,600
1959	395	32,770	11,740	10,500	18,070	60,500	41,810	14,760	45,200	18,600	3,150	3,080	260,600
1960	26,720	33,100	61,910	39,890	31,700	29,090	8,550	63,810	4,280	9,960	1,580	426	311,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	593	33.27	429,400
1951	1211	15,900	Feb. 20, 1951	6.3	306	1.26	17.16	221,500	446	25.02	323,000
1952	1241	15,600	Mar. 10, 1952	.1	540	2.23	30.35	391,800	462	25.98	335,300
1953	1281	17,800	Mar. 18, 1953	0	432	1.79	24.24	313,000	357	20.01	258,400
1954	1341	23,500	May 2, 1954	0	142	.587	7.97	103,000	169	9.47	122,200
1955	1391	17,300	Mar. 20, 1955	.1	304	1.26	17.04	220,000	284	15.93	205,800
1956	1441	11,000	Feb. 17, 1956	0	190	.785	10.70	138,100	197	11.07	142,800
1957	1511	24,600	Apr. 3, 1957	0	584	2.41	32.78	423,100	693	38.89	502,000
1958	1561	10,900	Nov. 13, 1957	3.8	490	2.02	27.47	354,600	429	24.08	310,700
1959	1631	15,300	Nov. 17, 1958	3.1	360	1.49	20.18	260,600	466	26.13	337,400
1960	1711	24,000	Nov. 4, 1959	2.4	428	1.77	24.08	311,000	-	-	-

2580. Arkansas River at Dardanelle, Ark.

Location.--Lat 35°13'34", long 93°08'58", in SW¼ sec.29, T.7 N., R.20 W., near left bank on downstream side of pier of bridge on State Highway 7 at Dardanelle, 1 mile upstream from Whig Creek, 4.7 miles downstream from Illinois Bayou, and at mile 255.8.

Drainage area.--153,707 sq mi (revised), of which 22,241 sq mi is probably noncontributing.

Records available.--July 1937 to September 1960. Gage-height records collected at same site since 1886 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 290.16 ft above mean sea level, datum of 1929. Prior to Jan. 11, 1939, wire-weight gage at same site and datum.

Average discharge.--23 years (1937-60), 37,640 cfs (27,250,000 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 683,000 cfs May 13, 14, 1943; maximum gage height, 33.60 ft in gage well, 34.1 ft from outside gage, May 25, 1943; minimum discharge, 416 cfs Oct. 16, 17, 1956.
Flood of Apr. 18, 1927, reached a stage of 33.0 ft.

Remarks.--Natural flow of stream affected by storage reservoirs and power development. Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22,360	8,248	6,900	11,090	58,500	42,070	28,090	71,980	82,150	172,900	30,290	49,590	48,670
1952	27,350	60,140	33,060	23,630	24,630	68,970	78,160	37,740	20,020	5,955	4,712	3,601	32,280
1953	2,083	4,511	7,698	6,125	8,377	37,300	56,350	53,460	6,727	15,420	7,157	4,363	17,530
1954	4,003	5,761	5,734	11,190	8,610	5,046	8,378	50,820	12,700	4,408	2,547	1,112	10,070
1955	3,108	3,734	6,139	12,180	19,360	30,190	19,730	34,580	32,210	16,410	5,685	5,611	15,720
1956	24,430	4,717	4,057	3,453	14,730	4,546	6,018	11,560	7,812	3,893	2,535	899	7,375
1957	578	1,460	2,969	5,370	19,390	16,290	114,300	200,400	233,000	89,770	20,250	21,840	60,460
1958	9,781	27,910	13,130	15,250	15,950	75,740	73,700	65,850	36,300	87,230	42,700	21,050	40,590
1959	9,541	13,200	8,237	6,962	12,110	37,440	29,510	47,850	26,240	60,040	26,220	15,860	24,570
1960	164,400	46,780	38,380	45,810	41,780	44,770	43,110	110,700	46,340	38,990	23,110	18,160	55,030

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,375	490.8	424.3	682.2	3,249	2,587	1,671	4,426	4,888	10,630	1,863	2,951	35,240
1952	1,682	3,578	2,033	1,453	1,417	4,241	4,651	2,320	1,191	366.2	289.7	214.3	23,440
1953	128.1	268.4	473.3	376.6	465.2	2,293	3,353	3,287	400.3	948.2	440.1	259.6	12,690
1954	246.1	342.8	352.5	688.0	478.2	310.3	498.5	3,125	755.9	271.0	156.6	66.17	7,291
1955	191.1	222.2	377.5	749.0	1,075	1,856	1,174	2,126	1,917	1,009	349.5	333.9	11,380
1956	1,502	280.7	249.5	212.3	847.4	279.5	358.1	710.8	464.9	239.3	155.9	53.47	5,354
1957	35.51	86.88	182.6	330.2	1,077	1,001	6,804	12,320	13,870	5,520	1,245	1,300	43,770
1958	601.4	1,661	807.3	937.5	885.9	4,657	4,385	4,049	2,160	5,363	2,626	1,253	29,390
1959	586.6	785.6	506.5	428.1	672.5	2,302	1,756	2,942	1,561	3,692	1,612	943.8	17,790
1960	10,110	2,486	2,360	2,817	2,403	2,753	2,565	2,805	2,758	2,398	1,421	1,080	39,960

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	48,590	35,180,000
1951	1211	227,000	July 20, 1951	5,850	48,670	35,240,000	55,580	40,240,000
1952	1241	145,000	Apr. 24, 1952	3,050	32,280	23,440,000	23,440	17,010,000
1953	1281	137,000	Mar. 18, 1953	1,480	17,530	12,690,000	17,630	12,760,000
1954	1341	194,000	May 4, 1954	726	10,070	7,291,000	9,863	7,140,000
1955	1391	109,000	Mar. 21, 1955	670	15,720	11,380,000	17,440	12,620,000
1956	1441	113,000	Oct. 9, 1955	596	7,375	5,354,000	4,996	3,627,000
1957	1511	471,000	May 30, 1957	423	60,460	43,770,000	64,280	46,540,000
1958	1561	156,000	June 27, 1958	5,590	40,590	29,390,000	38,940	28,200,000
1959	1631	157,000	July 29, 1959	3,560	24,570	17,790,000	42,630	30,870,000
1960	1711	390,000	Oct. 9, 1959	5,960	55,030	39,960,000	-	-

2585. Petit Jean Creek near Booneville, Ark.

Location.--Lat 35°06'25", long 93°55'25", in NW¼NW¼ sec.18, T.5 N., R.27 E., on right bank at downstream side of bridge on State Highway 116, 0.5 mile downstream from Fletcher Creek and 2½ miles south of Booneville.
Drainage area.--247 sq mi.
Records available.--November 1938 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 423.39 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 24, 1939, wire-weight gage at same site and datum.
Average discharge.--21 years (1939-60), 263 cfs (190,400 acre-ft per year).
Extremes.--1938-60: Maximum discharge, 43,200 cfs Apr. 16, 1939 (gage height, 23.42 ft), by slope-area and contracted-opening measurements of peak flow; no flow at times in most years.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13.2	11.3	4.94	68.7	1,006	179	171	75.0	189	171	76.5	18.8	159
1952	191	576	282	269	113	680	1,312	152	14.0	.55	1.01	0	298
1953	0	344	222	281	269	1,405	1,350	606	2.82	1.54	.85	.02	374
1954	0	.54	1.91	366	227	26.7	94.5	248	2.57	.13	5.21	0	80.5
1955	34.2	4.61	201	151	403	948	148	25.9	20.0	2.12	6.85	3.64	162
1956	2.79	.15	.04	0	417	72.3	43.5	33.7	1.84	1.85	.36	.07	46.2
1957	0	3.62	55.5	194	478	549	1,913	1,405	409	13.3	567	296	489
1958	21.5	669	171	291	159	766	516	1,305	460	157	11.1	2.08	379
1959	1.74	64.0	42.7	46.3	89.7	473	357	44.5	68.9	7.57	8.30	.75	100
1960	163	256	523	448	337	422	62.7	1,233	26.6	98.1	3.96	1.16	300

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	815	671	303	4,220	55,850	10,990	10,170	4,610	11,220	10,540	4,710	1,120	115,200
1952	11,740	34,260	17,310	16,570	6,480	41,840	78,100	9,340	831	34	62	0	216,600
1953	0	20,470	13,660	17,300	14,920	86,390	80,310	37,230	168	95	52	.1	270,600
1954	0	32	117	22,530	12,620	1,640	5,630	15,230	153	8.1	320	0	58,280
1955	2,100	274	12,390	9,310	22,360	58,290	8,780	1,590	1,190	130	421	217	117,100
1956	172	8.9	2.4	0	23,970	4,440	2,590	2,070	109	113	22	4.4	33,500
1957	0	216	3,420	11,940	26,550	33,740	113,800	86,429	24,350	820	34,870	17,610	353,700
1958	1,320	39,810	10,490	17,920	8,820	47,100	30,720	80,220	27,370	9,630	684	124	274,200
1959	107	3,810	2,630	2,850	4,980	29,050	21,240	2,740	4,100	466	510	44	72,530
1960	10,000	15,220	32,170	27,530	19,390	25,960	3,730	75,790	1,580	6,030	244	69	217,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	411	22.60	297,800
1951	1211	8,290	Feb. 15, 1951	2.4	159	0.644	8.73	115,200	244	13.40	176,700
1952	1241	11,500	Apr. 12, 1952	0	298	1.21	16.44	216,600	258	14.23	187,400
1953	1281	15,100	Mar. 17, 1953	0	374	1.51	20.54	270,600	327	17.97	236,600
1954	1341	5,190	May 2, 1954	0	80.5	.326	4.42	58,280	101	5.53	72,900
1955	1391	12,900	Mar. 20, 1955	0	162	.656	8.90	117,100	142	7.79	102,500
1956	1441	6,240	Feb. 17, 1956	0	46.2	.187	2.55	33,500	50.9	2.82	36,950
1957	1511	13,700	Apr. 3, 1957	0	489	1.98	26.87	353,700	555	30.51	401,700
1958	1561	15,700	May 2, 1958	.5	379	1.53	20.82	274,200	316	17.40	229,100
1959	1631	3,130	Mar. 21, 1959	0	100	.405	5.52	72,530	170	9.38	123,400
1960	1711	15,700	May 20, 1960	.1	300	1.21	16.52	217,700	-	-	-

2590. Blue Mountain Reservoir near Waveland, Ark.

Location.--Lat 35°06'06", long 93°39'02", in NE¼ sec.15, T.5 N., R.25 W., at the control tower for outlet works on Petit Jean Creek, 1.3 miles southwest of Waveland.
Drainage area.--488 sq mi.
Records available.--March 1947 to September 1960.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).
Extremes.--1947-60: Maximum contents, 298,560 acre-ft May 26, 1957 (elevation, 422.54 ft); minimum since initial filling to conservation pool level, 2,150 acre-ft Oct. 2, 3, 1959 (elevation, 370.68 ft).
Remarks.--Reservoir is formed by earthfill dam; storage began Mar. 13, 1947. Outlet works consist of a 20-foot circular tunnel controlled by three 8- by 17-foot tractor-type gates and an uncontrolled saddle spillway 150 ft long. Elevation of gate sills is 370.00 ft. Storage capacity at spillway crest (elevation, 419.0 ft), 258,000 acre-ft; at conservation pool level (elevation, 384.0 ft), 25,000 acre-ft. Dead storage (below gate sills), 1,940 acre-ft. Under normal operating conditions, reservoir surface will be maintained at approximately conservation pool level for purposes of conservation and recreation; storage above this level is used for flood control. Figures given herein represent total contents.
Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, at 12 p.m. on last day of month, of Blue Mountain Reservoir near Waveland, Ark.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	24,730	24,850	24,590	24,880	97,550	29,380	30,150	28,470	27,850	26,690	25,500	23,710
1952	41,810	41,150	24,950	25,100	24,700	33,960	123,470	34,470	27,060	25,500	23,160	21,020
1953	19,460	54,630	25,220	28,890	24,880	134,410	181,320	139,180	30,370	25,250	23,300	21,130
1954	19,980	19,820	19,760	24,950	25,040	26,200	29,750	29,540	27,460	25,160	23,960	22,390
1955	24,590	24,820	31,680	24,950	28,680	79,760	29,320	30,060	28,590	26,110	23,130	22,640
1956	21,630	21,240	20,800	20,340	27,420	29,880	31,810	29,080	28,400	25,710	24,370	14,090
1957	3,250	2,920	2,350	15,610	25,960	47,200	237,700	289,340	202,600	66,180	41,520	20,910
1958	3,350	24,060	3,280	13,480	28,710	42,250	37,890	84,490	53,720	27,090	23,600	21,300
1959	20,940	25,410	25,190	24,730	25,220	53,930	29,290	28,830	27,700	25,040	7,030	2,160
1960	2,370	2,480	17,950	3,250	26,900	29,820	29,850	107,600	29,170	26,940	23,300	21,240

2595. Petit Jean Creek near Waveland, Ark.

Location.--Lat 35°06'17", long 93°37'51", in SE¼SW¼ sec.11, T.5 N., R.25 W., on left bank 0.8 mile downstream from Rock Creek, 1.2 miles downstream from Cedar Creek, 1.3 miles south of Waveland, and 1.4 miles downstream from Blue Mountain dam.

Drainage area.--517 sq mi.

Records available.--January 1939 to September 1960. Prior to October 1943, published as "near Blue Mountain."

Gage.--Water-stage recorder. Datum of gage is 339.70 ft above mean sea level, datum of 1929. Prior to Sept. 30, 1943, at site 1¾ miles upstream at datum 9.54 ft higher.

Average discharge.--21 years (1939-60), 571 cfs (413,400 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 62,600 cfs Apr. 16, 1939 (gage height, 29.95 ft, site and datum then in use, or 34.0 ft from floodmarks, present site); no flow at times in 1943, 1946.
Maximum stage known, that of Apr. 16, 1939.

Remarks.--Flow regulated by Blue Mountain Reservoir since March 1947 (see preceding station).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	166	30.8	20.0	211	942	1,491	476	205	378	337	148	63.9	369
1952	93.5	1,315	864	836	248	1,457	1,521	1,906	148	14.0	35.5	19.9	707
1953	10.4	243	1,126	505	614	1,228	1,800	1,982	1,826	76.5	10.5	14.3	786
1954	10.2	4.67	4.34	599	385	47.2	125	756	24.9	7.67	6.87	12.3	165
1955	55.1	11.1	258	428	886	1,133	1,305	155	73.0	28.1	42.1	12.4	361
1956	6.82	4.56	4.65	6.79	1,006	168	137	161	40.5	25.5	12.3	154	140
1957	173	34.9	220	327	934	753	1,450	2,086	2,385	2,240	1,623	836	1,089
1958	341	729	712	499	101	1,677	1,357	1,821	1,442	880	68.8	44.2	811
1959	17.9	165	108	101	203	838	1,208	98.1	166	104	300	81.7	282
1960	187	371	826	1,132	277	825	125	1,238	1,415	213	54.0	36.3	561

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10,180	1,830	1,230	12,980	52,320	91,650	28,290	12,600	22,480	20,750	9,110	3,800	267,200
1952	5,750	78,260	53,120	51,380	14,280	89,570	90,480	117,200	8,790	861	2,180	1,180	513,100
1953	636	14,450	69,230	31,020	34,130	75,520	107,100	121,900	108,600	4,700	648	854	568,800
1954	630	278	267	36,850	21,380	2,900	7,430	46,470	1,480	472	422	732	119,300
1955	3,390	663	15,890	26,310	49,230	69,670	77,630	9,520	4,350	1,730	2,590	736	261,700
1956	420	272	286	418	57,840	10,360	8,140	9,900	2,410	1,570	755	9,160	101,500
1957	10,620	2,080	13,500	20,130	51,880	46,280	86,300	128,200	141,900	137,800	99,780	49,740	788,200
1958	20,990	43,410	43,790	30,690	5,610	103,100	80,770	112,000	85,790	54,100	4,230	2,630	587,100
1959	1,100	9,820	6,650	6,230	11,250	51,500	71,890	6,030	9,860	6,390	18,450	4,860	204,000
1960	11,530	22,090	50,810	69,600	15,920	50,740	7,440	76,120	84,190	13,100	3,320	2,160	407,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	914	661,800
1951	1211	2,500	Feb. 25, 1951	12	369	267,200	540	301,100
1952	1241	3,800	Apr. 22, 1952	3.7	707	513,100	634	460,200
1953	1281	6,310	Mar. 17, 1953	2.5	786	568,800	671	485,600
1954	1341	3,150	May 2, 1954	2.0	165	119,300	191	138,100
1955	1391	2,820	Feb. 24, 1955	3.3	361	261,700	335	242,700
1956	1441	2,550	Feb. 23, 1956	2.6	140	101,500	175	126,800
1957	1511	4,600	Aug. 15, 1957	6.8	1,089	788,200	1,202	870,200
1958	1561	2,650	Mar. 23, 1958	14	811	587,100	686	496,500
1959	1631	4,020	Mar. 26, 1959	3.7	282	204,000	374	270,900
1960	1711	4,600	May 20, 1960	3.4	561	407,000	-	-

2600. Dutch Creek at Waltreak, Ark.

Location.--Lat 34°59', long 93°37', in SE¼NW¼ sec.24, T.4 N., R.25 W., on left bank a quarter of a mile north of Waltreak and 20.0 miles upstream from mouth.

Drainage area.--74 sq mi.

Records available.--October 1945 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 371.48 ft above mean sea level, datum of 1929 (levels by Corps of Engineers).

Average discharge.--15 years (1945-60), 96.5 cfs (69,860 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 14,300 cfs May 20, 1960 (gage height, 19.36 ft); no flow at times in most years.
Maximum stage known, 19.5 ft in 1927, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15.8	9.19	4.83	53.9	318	73.2	59.3	38.1	52.5	35.5	2.55	5.79	53.9
1952	53.4	146	112	121	65.7	272	642	71.5	8.36	3.17	2.19	.06	124
1953	0	200	143	100	82.0	311	337	230	3.67	.55	.05	0	117
1954	0	0	0	70.5	54.8	17.6	26.1	223	6.36	.03	0	0	33.3
1955	22.3	8.44	30.0	40.2	167	275	126	85.9	21.8	1.51	0	.37	64.3
1956	.38	.15	.54	.38	224	53.5	41.8	30.1	2.11	.47	.02	.16	28.6
1957	0	0	25.4	113	159	200	839	337	93.5	2.25	126	11.6	158
1958	7.10	97.9	34.3	87.4	75.3	320	243	331	70.9	64.7	5.00	.49	112
1959	5.91	134	23.9	45.4	63.5	304	163	13.3	6.36	14.6	2.67	.51	64.6
1960	5.37	8.55	249	171	119	151	30.6	427	15.2	23.8	5.89	.70	101

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	972	547	297	3,320	17,680	4,500	3,530	2,340	3,120	2,180	157	345	38,990
1952	3,290	8,680	6,870	7,430	3,780	16,690	38,200	4,400	497	195	134	3.8	90,170
1953	0	11,880	8,820	6,160	4,560	19,090	20,040	14,120	218	34	2.8	0	84,920
1954	0	0	0	4,330	3,040	1,080	1,550	13,700	378	1.6	0	0	24,080
1955	1,370	502	1,840	2,470	9,270	16,910	7,490	5,280	1,290	93	0	22	46,540
1956	23	8.7	33	23	12,860	3,290	2,490	1,850	126	29	1.2	9.5	20,740
1957	0	0	1,560	6,920	8,840	12,270	49,950	20,750	5,560	138	7,770	689	114,400
1958	436	5,820	2,110	5,380	4,180	19,660	14,450	20,360	4,220	3,980	307	29	80,930
1959	363	7,950	1,470	2,790	3,520	18,710	9,690	816	378	898	164	30	46,780
1960	330	509	15,300	10,520	6,840	9,290	1,820	26,230	907	1,470	362	41	73,620

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	166	30.38	119,900
1951	1211	3,140	Feb. 15, 1951	0	53.9	0.728	9.88	38,990	77.4	14.18	56,010
1952	1241	11,100	Apr. 22, 1952	0	124	1.68	22.84	90,170	127	23.31	92,030
1953	1281	9,160	Nov. 25, 1952	0	117	1.58	21.52	84,920	88.7	16.28	64,220
1954	1341	9,700	May 2, 1954	0	33.3	.450	6.10	24,080	38.4	7.05	27,790
1955	1391	4,620	Mar. 21, 1955	0	64.3	.869	11.81	46,540	59.3	10.87	42,890
1956	1441	3,530	Feb. 17, 1956	0	28.6	.386	5.25	20,740	30.6	5.64	22,240
1957	1511	7,270	Apr. 3, 1957	0	158	2.14	29.01	114,400	167	30.73	121,300
1958	1561	4,890	May 2, 1958	.2	112	1.51	20.51	80,930	114	20.87	82,350
1959	1631	7,130	Mar. 26, 1959	0	64.6	.873	11.87	46,780	73.4	13.48	53,140
1960	1711	14,300	May 20, 1960	.1	101	1.36	18.64	73,620	-	-	-

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2605. Petit Jean Creek at Danville, Ark.

Location.--Lat 35°04', long 93°24', in SE¼ sec.25, T.5 N., R.23 W., on left bank at downstream side of bridge on State Highway 10 at Danville, 1,800 ft upstream from Chicago, Rock Island & Pacific Railroad Co. bridge, 0.5 mile upstream from Spring Creek, and 0.6 mile downstream from Dutch Creek.

Drainage area.--741 sq mi.

Records available.--June 1916 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 303.33 ft above mean sea level, datum of 1929. June 1, 1916, to Aug. 24, 1934, chain gage on railroad bridge 1,800 ft downstream at datum 0.25 ft higher. Aug. 25, 1934, to July 12, 1939, wire-weight gage at present site and datum. Since June 18, 1954, auxiliary water-stage recorder 2.2 miles downstream.

Average discharge.--44 years (1916-60), 847 cfs (613,200 acre-ft per year).

Extremes.--1916-60: Maximum discharge, 70,800 cfs Apr. 17, 1939 (gage height, 31.82 ft); no flow at times in 1924, 1934-36, 1943, 1956.

Remarks.--Flow regulated by Blue Mountain Reservoir since March 1947 (see p. 337). Records of chemical analyses for the periods October 1948 to October 1952 and October 1957 to September 1960 and water temperatures for the period October 1948 to October 1952 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	331	89.8	45.5	497	1,951	1,735	679	330	446	442	181	70.1	558
1952	150	1,950	1,296	1,313	469	2,373	3,520	2,115	218	17.7	47.1	20.4	1,124
1953	11.1	800	1,644	795	881	2,345	2,805	2,600	1,904	83.1	14.6	12.4	1,158
1954	10.5	5.27	5.85	760	541	105	254	1,472	46.6	6.63	4.92	12.4	268
1955	79.5	36.7	261	582	1,321	1,916	1,746	467	123	31.2	41.0	15.7	546
1956	15.9	7.78	8.96	14.4	1,785	343	250	237	40.4	31.6	9.21	143	234
1957	172	39.6	331	658	1,478	1,361	3,821	3,115	2,801	2,268	2,101	902	1,585
1958	420	1,195	859	767	253	2,614	2,052	2,881	1,649	1,027	89.1	44.6	1,161
1959	30.2	388	200	236	404	1,701	1,781	150	199	152	285	98.5	468
1960	190	376	1,398	1,751	542	1,292	214	2,342	1,506	263	81.3	52.4	839

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	20,350	5,340	2,800	30,590	108,300	106,700	40,420	20,320	26,520	27,170	11,110	4,170	403,800
1952	9,200	116,100	79,660	80,740	27,000	145,900	209,500	130,000	12,960	1,090	2,900	1,220	816,300
1953	681	47,590	101,100	48,890	48,930	144,200	166,900	159,900	113,300	5,110	895	739	838,200
1954	644	313	360	46,710	30,070	6,440	15,090	90,480	2,770	407	302	737	194,300
1955	4,890	2,190	16,080	35,770	73,370	117,800	103,900	28,710	7,300	1,920	2,520	932	395,400
1956	977	463	551	883	102,700	21,110	14,880	14,590	2,410	1,940	566	8,540	169,600
1957	10,600	2,350	20,380	40,430	82,090	83,690	227,400	191,500	166,700	139,500	129,200	53,650	1,147,000
1958	25,840	71,080	52,810	47,140	14,070	160,700	122,100	177,200	98,110	63,130	5,480	2,650	840,300
1959	1,860	23,100	12,270	14,510	22,440	104,600	106,000	9,210	11,860	9,350	17,500	5,860	338,600
1960	11,670	22,380	85,960	107,700	31,200	79,430	12,720	144,000	89,640	16,190	5,000	3,120	609,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,468	1,063,000
1951	1211	5,730	Feb. 16, 1951	27	558	403,800	801	580,300
1952	1241	14,200	Apr. 23, 1952	3.9	1,124	816,300	1,048	760,700
1953	1281	11,100	Mar. 18, 1953	1.5	1,158	838,200	953	690,200
1954	1341	11,200	May 3, 1954	2.5	268	194,300	299	216,200
1955	1391	5,190	Mar. 22, 1955	5.1	546	395,400	517	374,200
1956	1441	5,730	Feb. 19, 1956	0	234	169,600	277	200,900
1957	1511	16,300	Apr. 4, 1957	7.6	1,585	1,147,000	1,746	1,264,000
1958	1561	11,100	May 3, 1958	12	1,161	840,300	1,005	727,800
1959	1631	5,310	Mar. 27, 1959	4.7	468	338,600	582	421,300
1960	1711	15,800	May 21, 1960	6.3	839	609,000	-	-

2610. North Fork Cadron Creek near Guy, Ark.

Location.--Lat 35°18', long 92°24', in SE¼ sec.29, T.8 N., R.13 W., on downstream side of left bank pier of bridge on U. S. Highway 65, 4 miles southwest of Guy and 10.8 miles upstream from Cove Creek.

Drainage area.--187 sq mi.

Records available.--October 1954 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 371.68 ft above mean sea level, datum of 1929.

Average discharge.--6 years (1954-60), 289 cfs (209,200 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 18,600 cfs Aug. 14, 1957 (gage height, 24.95 ft); no flow at times in 1954-56.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	0	0	6.97	21.0	169	799	389	151	155	139	6.35	2.10	153
1956	7.53	19.1	23.8	109	1,498	141	127	128	14.8	5.35	.37	.06	167
1957	.03	1.10	33.2	479	580	351	1,700	1,014	183	157	1,145	184	485
1958	195	1,318	383	425	217	880	361	972	39.5	128	23.1	31.7	413
1959	19.8	275	147	250	655	713	199	43.0	189	39.3	91.0	89.0	223
1960	43.8	81.1	662	558	425	465	81.1	468	316	333	32.1	11.7	291

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	0	0	428	1,290	9,370	49,150	23,140	9,260	9,210	8,570	391	125	110,900
1956	463	1,140	1,470	6,710	86,180	8,700	7,580	7,850	881	329	23	3.4	121,300
1957	1.6	65	2,040	29,480	32,210	21,590	101,100	62,380	10,900	9,660	70,430	10,930	350,800
1958	9,790	78,410	23,540	26,120	12,050	54,130	21,470	59,750	2,350	7,870	1,420	1,890	298,800
1959	1,220	16,340	9,050	15,400	36,380	43,830	11,840	2,650	11,260	2,420	5,600	5,300	161,300
1960	2,690	4,820	40,700	34,320	24,450	28,590	4,830	28,760	18,800	20,480	1,970	698	211,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1955	1391	6,010	Mar. 21, 1955	0	153	0.818	11.12	110,900	157	11.39	113,600
1956	1441	8,070	Feb. 18, 1956	0	167	.893	12.16	121,300	166	12.06	120,400
1957	1511	18,600	Aug. 14, 1957	0	485	2.59	35.17	350,800	636	46.16	460,400
1958	1561	10,400	May 3, 1958	.1	413	2.21	29.96	298,800	295	21.43	213,700
1959	1631	5,430	Feb. 14, 1959	3.1	223	1.19	16.17	161,300	253	18.33	182,900
1960	1711	6,640	June 27, 1960	3.6	291	1.56	21.16	211,100	-	-	-

2615. Fourche La Fave River near Gravelly, Ark.

Location.--Lat 34°52', long 93°39', in NW¼ sec.34, T.3 N., R.25 W., near left bank on downstream side of pier of bridge on State Highway 28, 1 mile downstream from Garner Creek, 1¾ miles east of Gravelly, and 6.4 miles upstream from Gaffords Creek.

Drainage area.--413 sq mi.

Records available.--February 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 410.50 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to May 11, 1939, wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 560 cfs (405,400 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 69,400 cfs May 20, 1960 (gage height, 30.30 ft); no flow at times.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	115	71.4	38.3	302	1,726	448	349	296	442	401	28.4	25.7	344
1952	212	1,133	666	794	507	1,346	3,876	480	59.0	3.24	.58	.01	752
1953	0	850	623	672	620	1,358	1,879	1,511	28.4	50.3	15.7	1.78	634
1954	.66	1.03	3.15	520	415	100	417	1,455	27.3	1.67	0	0	245
1955	364	106	350	345	909	1,233	706	347	84.5	7.94	.73	.03	368
1956	.11	1.50	2.13	47.2	1,349	332	297	282	16.0	1.21	1.42	.17	189
1957	0	0	117	619	798	1,006	4,080	1,872	1,276	29.4	136	128	833
1958	37.0	446	181	403	230	1,632	1,434	1,857	437	155	35.5	14.6	575
1959	48.3	826	165	349	417	1,256	1,028	110	85.8	29.5	19.8	2.92	360
1960	117	83.7	1,467	901	605	674	190	2,802	128	189	45.1	5.53	606

Monthly and yearly discharge, in acre-feet, of Fourche La Fave River near Gravelly, Ark.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,070	4,250	2,350	18,580	95,880	27,530	20,740	18,190	26,280	24,680	1,750	1,530	248,800
1952	13,040	67,430	40,930	48,810	29,140	82,770	230,600	29,520	3,510	199	36	.4	546,000
1953	0	50,580	38,330	41,300	34,430	83,520	111,800	92,890	1,690	3,090	968	106	458,700
1954	41	61	194	31,990	23,040	6,160	24,810	89,470	1,620	103	0	0	177,500
1955	22,380	6,300	21,530	21,200	50,470	75,810	42,010	21,360	5,030	488	45	1.8	266,600
1956	6.7	89	131	2,900	77,610	20,410	17,670	17,310	949	74	87	10	137,200
1957	0	0	7,170	38,060	44,330	61,880	242,800	115,100	75,900	1,810	8,360	7,630	603,000
1958	2,280	26,510	11,130	24,750	12,780	100,400	85,340	114,200	26,030	9,510	2,180	871	416,000
1959	2,970	49,170	10,170	21,440	23,150	77,220	61,190	6,760	5,110	1,810	1,220	174	260,400
1960	7,210	4,980	90,190	55,390	34,830	41,460	11,310	172,300	7,620	11,610	2,770	329	440,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	951	31.25	688,700
1951	1211	11,000	Feb. 15, 1951	3.2	344	0.833	11.29	248,800	492	16.18	356,600
1952	1241	37,700	Apr. 22, 1952	0	752	1.82	24.79	546,000	707	23.32	513,500
1953	1281	22,600	May 13, 1953	0	634	1.54	20.82	458,700	511	16.80	370,100
1954	1341	33,400	May 2, 1954	0	245	.593	8.06	177,500	314	10.34	227,400
1955	1391	13,900	Mar. 21, 1955	0	368	.891	12.11	266,600	299	9.83	216,600
1956	1441	12,600	Feb. 18, 1956	0	189	.458	6.23	137,200	199	6.55	144,200
1957	1511	21,800	Apr. 4, 1957	0	833	2.02	27.39	603,000	878	28.87	635,800
1958	1561	23,400	May 3, 1958	4.6	575	1.39	18.88	416,000	605	19.89	438,400
1959	1631	16,500	Nov. 17, 1958	.5	360	.872	11.82	260,400	415	13.65	300,500
1960	1711	69,400	May 20, 1960	2.1	606	1.47	19.97	440,000	-	-	-

2620. Nimrod Reservoir near Nimrod, Ark.

Location.--Lat 34°57'07", long 93°09'37", in SW¼ sec.32, T.4 N., R.20 W., at Nimrod Dam on Fourche La Fave River, 4 miles west of Nimrod and 10.2 miles upstream from South Fourche La Fave River.

Drainage area.--680 sq mi.

Records available.--May 1942 to September 1960. Prior to October 1944 month-end contents only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers).

Extremes.--1942-60: Maximum contents, 369,700 acre-ft Mar. 31, 1945 (elevation, 374.80 ft); minimum since initial filling to conservation pool level, 4,810 acre-ft Dec. 30, 1956 (elevation, 327.86 ft).

Remarks.--Reservoir is formed by concrete-gravity dam. Storage began May 18, 1942. Capacity at spillway crest (elevation, 373.0 ft), 336,000 acre-ft; at conservation pool level (elevation, 342.0 ft), 29,000 acre-ft. Dead storage below conduit invert (elevation, 314.9 ft), 900 acre-ft. Under normal operation conditions, reservoir surface will be maintained at approximately conservation pool level for the purposes of conservation and recreation; storage above this level used for flood control. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	29,510	29,440	29,010	28,900	93,700	33,960	34,590	31,600	32,940	31,460	27,520	24,880
1952	48,330	31,530	30,320	30,110	29,050	37,850	215,400	32,310	32,240	30,470	26,950	24,270
1953	23,430	72,950	28,940	36,580	28,690	41,420	86,850	32,100	31,320	30,360	27,240	24,180
1954	23,430	23,580	24,010	28,690	28,510	32,420	36,450	36,540	33,660	29,930	26,130	24,590
1955	30,110	29,650	33,580	29,220	29,260	47,790	34,720	37,850	34,680	30,540	27,630	25,320
1956	10,680	6,330	6,590	25,290	29,540	34,680	38,990	35,390	33,240	31,530	27,550	22,500
1957	9,680	6,300	5,140	40,090	30,180	36,660	238,200	316,400	276,600	32,380	28,160	28,580
1958	29,190	29,260	29,400	29,970	30,180	44,770	75,070	62,900	39,840	31,350	27,270	25,050
1959	27,410	30,000	29,050	29,080	29,470	35,310	35,610	34,460	33,910	30,710	27,380	24,500
1960	29,050	29,260	39,750	30,080	29,650	34,680	35,220	167,200	34,760	31,350	27,240	10,220

2625. Fourche La Fave River near Nimrod, Ark.

Location.--Lat 34°57'01", long 93°09'18", in SW¼ sec.32, T.4 N., R.20 W., on left bank 2,000 ft downstream from Nimrod Dam, 4½ miles southwest of Nimrod, and 9.8 miles upstream from South Fourche La Fave River.

Drainage area.--680 sq mi.

Records available.--March 1936 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 305.25 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark). Mar. 3, 1936, to Dec. 20, 1938, staff gage at site 1.1 miles downstream at datum 3.92 ft lower. Dec. 21, 1938, to Aug. 20, 1946, water-stage recorder at site 2.0 miles downstream at datum 9.72 ft lower.

Average discharge.--24 years (1936-60), 910 cfs (658,800 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 36,100 cfs Feb. 19, 1938 (gage height, 29.7 ft, site and datum then in use, and 27.6 ft, present site and datum, from floodmark); no flow at times in 1936, 1939, 1952.
Flood in June 1935 reached stage of 28.8 ft, present site and datum, from information by Corps of Engineers.

Remarks.--Flow regulated by Nimrod Dam since May 1942 (see preceding station). Records of chemical analyses for the period October 1957 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	190	144	73.5	848	1,767	1,707	539	433	518	541	134	103	576
1952	90.8	2,306	1,075	1,463	898	2,040	2,970	3,888	48.6	23.1	61.9	35.9	1,242
1953	1.44	749	1,925	996	1,210	2,139	2,335	3,288	19.8	88.7	46.9	32.7	1,071
1954	4.72	.97	.72	676	674	74.9	462	2,394	52.4	29.3	30.4	12.9	368
1955	294	139	372	501	1,246	1,851	1,237	720	187	54.8	35.0	43.5	553
1956	232	94.2	11.3	4.76	2,803	521	413	562	38.3	56.0	47.1	51.9	392
1957	208	69.1	147	345	1,363	1,634	2,706	1,872	2,433	4,201	646	143	1,313
1958	40.0	1,067	292	725	335	2,407	1,883	3,586	1,112	495	95.6	50.6	1,013
1959	3.74	976	246	526	746	1,967	1,404	141	135	98.5	66.4	51.9	527
1960	61.6	85.4	2,054	1,676	974	1,122	242	1,819	2,529	267	113	309	939

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,670	8,570	4,520	52,130	98,140	105,000	32,100	26,600	30,850	33,250	8,230	6,150	417,200
1952	5,580	137,200	66,110	89,950	51,650	125,400	176,800	239,000	2,890	1,420	3,810	2,140	902,000
1953	89	44,560	118,400	61,260	67,200	131,500	138,900	202,200	1,180	5,450	2,880	1,940	775,600
1954	290	58	44	41,580	37,410	4,610	27,470	147,200	3,120	1,800	1,870	770	266,200
1955	18,060	8,270	22,850	30,790	69,210	113,800	73,600	44,250	11,130	3,370	2,150	2,590	400,100
1956	14,250	5,600	698	293	161,200	32,020	24,570	34,550	2,280	3,440	2,900	3,090	288,300
1957	12,810	4,110	9,050	21,190	75,680	100,500	161,000	115,100	144,800	258,300	39,700	8,510	950,800
1958	2,460	63,500	17,960	44,600	18,620	148,000	112,000	220,500	66,140	30,450	5,880	3,010	733,100
1959	230	58,060	15,100	32,350	41,460	121,000	83,560	8,690	8,020	6,060	4,080	3,090	381,700
1960	3,790	5,080	126,300	103,100	56,050	68,970	14,410	111,800	150,500	16,400	6,920	18,370	681,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,558	1,128,000
1951	1211	5,830	Mar. 5, 1951	1.7	576	417,200	831	601,300
1952	1241	6,850	May 5, 6, 1952	1.6	1,242	902,000	1,179	856,100
1953	1281	6,680	May 25, 1953	0	1,071	775,600	847	612,900
1954	1341	6,000	May 11, 1954	.3	368	266,200	435	315,000
1955	1391	5,670	Mar. 27, 1955	.4	553	400,100	513	371,400
1956	1441	5,830	Feb. 13, 1956	1.6	392	288,300	400	290,300
1957	1511	5,830	July 18, 19, 1957	.3	1,313	950,800	1,393	1,009,000
1958	1561	5,930	May 26, 29, 1958	1.4	1,013	733,100	998	722,600
1959	1631	5,540	Nov. 20, 1958	1.1	527	381,700	613	443,500
1960	1711	5,540	Dec. 14, 1959	.1	939	681,700	-	-

2630. South Fourche La Fave River near Hollis, Ark.

Location.--Lat 34°55', long 93°03', in NE¼ sec.18, T.3 N., R.19 W., on left bank 0.6 mile upstream from Big Cove Creek, 4 miles northeast of Hollis, and 5.8 miles upstream from mouth.

Drainage area.--211 sq mi.

Records available.--May 1941 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 366.10 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Average discharge.--19 years (1941-60), 314 cfs (227,300 acre-ft per year).

Extremes.--1941-60: Maximum discharge, 54,400 cfs Mar. 30, 1945 (gage height, 19.47 ft), from rating curve extended above 31,000 cfs on basis of slope-area measurement of peak flow; no flow at times.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	35.0	32.8	18.3	543	920	259	207	88.2	109	148	7.03	38.9	196
1952	60.5	555	259	771	387	855	1,359	306	13.1	.84	5.03	.69	380
1953	.12	567	681	442	343	594	999	922	5.00	13.0	.32	0	381
1954	0	.26	3.66	368	240	50.8	164	786	5.45	.04	0	0	135
1955	47.8	19.8	169	103	387	911	274	268	33.6	18.5	8.74	19.2	188
1956	40.4	6.78	11.2	384	1,360	151	318	192	4.94	39.7	.19	0	204
1957	0	10.0	48.2	616	432	538	1,733	1,320	601	22.1	449	23.2	482
1958	25.8	708	203	330	103	749	762	1,158	127	82.8	17.9	19.9	359
1959	10.6	402	90.1	175	577	492	202	19.3	372	65.0	13.5	12.3	199
1960	32.2	15.1	681	480	258	481	53.6	812	104	37.5	4.10	47.2	253

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,150	1,950	1,130	33,390	51,090	15,910	12,300	5,420	6,470	9,120	432	2,320	141,700
1952	3,720	33,040	15,930	47,430	22,290	52,550	80,870	18,810	778	52	309	41	275,800
1953	7.5	33,710	41,890	27,210	19,030	36,520	59,420	56,660	298	800	19	0	275,600
1954	0	15	225	22,600	13,320	3,120	9,780	48,350	324	2.6	0	0	97,740
1955	2,940	1,180	10,380	6,360	21,500	56,020	16,320	16,490	2,000	1,140	537	1,140	136,000
1956	2,480	403	692	23,610	78,250	9,270	18,940	11,800	294	2,440	12	0	148,200
1957	0	596	2,970	37,890	24,020	33,050	103,100	81,160	35,760	1,360	27,600	1,380	348,900
1958	1,580	42,110	12,450	20,320	5,710	46,030	45,360	71,220	7,530	5,090	1,100	1,190	259,700
1959	649	23,950	5,540	10,770	32,030	30,240	12,000	1,190	22,120	3,990	829	732	144,000
1960	1,980	898	41,840	29,520	14,860	29,570	3,190	49,950	6,180	2,300	252	2,810	183,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	423	27.22	306,200
1951	1211	12,300	Feb. 15, 1951	0.2	196	0.929	12.59	141,700	261	16.82	189,100
1952	1241	18,300	Apr. 22, 1952	.1	380	1.80	24.52	275,800	412	26.55	298,700
1953	1281	28,200	Dec. 4, 1952	0	381	1.81	24.50	275,600	277	17.80	200,200
1954	1341	32,400	May 2, 1954	0	135	.640	8.69	97,740	155	9.95	112,000
1955	1391	19,100	Mar. 20, 1955	0	188	.891	12.08	136,000	173	11.12	125,100
1956	1441	17,000	Jan. 29, 1956	0	204	.967	13.17	148,200	204	13.16	148,200
1957	1511	24,000	Apr. 3, 1957	0	482	2.28	31.00	348,900	555	35.68	401,500
1958	1561	24,000	May 2, 1958	.2	359	1.70	23.09	259,700	323	20.78	233,700
1959	1631	11,800	Feb. 14, 1959	1.2	199	.943	12.82	144,000	219	14.12	158,600
1960	1711	26,300	May 20, 1960	0	253	1.20	16.29	183,400	-	-	-

2635. Arkansas River at Little Rock, Ark.

Location.--Lat 34°45'00", long 92°16'25", in sec.3, T.1 N., R.12 W., on right bank 130 ft downstream from Main Street Bridge in Little Rock and at mile 165.5.

Drainage area.--158,201 sq mi (revised), of which 22,241 sq mi is probably noncontributing.

Records available.--September 1927 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at or near same site since 1873 are contained in reports of U. S. Weather Bureau. Gage-height records collected at site three-quarters of a mile upstream since 1883 and intermittent records of discharge since 1885 are contained in reports of Mississippi River Commission.

Gage.--Water-stage recorder. Datum of gage is 223.61 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1934, staff gage at site 130 ft upstream at same datum.

Average discharge.--33 years (1927-60), 41,880 cfs (30,320,000 acre-ft per year).

Extremes.--1927-60: Maximum discharge, 536,000 cfs May 27, 1943 (gage height, 30.05 ft); minimum, 850 cfs Aug. 23, 1934.
Maximum stage known, 34.6 ft in June 1833. Flood of Apr. 20, 1927, reached a stage of 33.0 ft.

Remarks.--Natural flow of stream affected by storage reservoirs and power development. Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	25,500	10,610	8,405	20,130	66,570	52,120	32,320	72,970	81,330	177,500	34,110	48,430	52,490
1952	27,560	71,760	40,320	36,400	31,230	80,860	92,110	47,650	22,670	6,202	4,937	3,772	38,730
1953	2,386	7,629	21,620	13,240	18,460	53,400	67,560	75,950	10,710	13,900	8,526	4,948	24,940
1954	3,398	6,240	6,340	14,090	13,950	6,829	10,700	63,520	14,530	5,095	2,917	1,822	12,470
1955	3,344	4,432	5,211	16,170	24,380	44,990	29,460	35,110	36,860	18,270	6,271	5,761	19,150
1956	25,660	5,584	4,945	5,475	42,780	9,617	9,238	14,370	8,832	4,032	2,789	1,356	11,100
1957	1,168	1,760	3,891	10,060	32,160	25,690	135,200	216,600	262,400	101,800	37,850	25,520	71,120
1958	13,630	41,090	20,260	22,990	19,880	88,910	86,080	92,780	39,830	94,810	45,270	22,200	49,240
1959	11,020	18,950	11,440	10,450	22,400	48,460	39,250	46,430	33,080	56,300	32,430	15,680	28,900
1960	167,400	46,810	50,110	63,370	51,160	56,290	48,100	120,300	54,620	39,610	26,010	21,640	62,390

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,568	631.2	516.8	1,238	3,697	3,205	1,923	4,487	4,839	10,920	2,097	2,882	38,000
1952	1,695	4,270	2,479	2,238	1,796	4,972	5,481	2,930	1,349	381.3	303.6	224.4	28,120
1953	146.7	454.0	1,329	814.1	1,025	3,284	4,020	4,670	637.3	854.9	524.3	294.4	18,050
1954	208.9	371.3	389.8	866.2	774.5	419.9	636.7	3,906	864.4	313.3	179.3	96.54	9,027
1955	205.6	263.7	320.4	994.3	1,354	2,766	1,753	2,159	2,193	1,123	385.6	342.8	13,860
1956	1,578	332.3	304	336.6	2,460	591.4	549.7	883.7	525.5	247.9	171.5	80.68	8,061
1957	71.82	104.7	239.3	618.3	1,786	1,580	8,046	13,320	15,620	6,258	2,328	1,519	51,490
1958	837.9	2,445	1,246	1,414	1,104	5,467	5,122	5,705	2,370	5,829	2,784	1,321	35,640
1959	677.6	1,128	703.2	642.4	1,244	2,980	2,336	2,855	1,968	3,462	1,994	932.8	20,920
1960	10,290	2,785	3,081	3,897	2,943	3,461	2,862	7,396	3,250	2,436	1,599	1,288	45,290

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	58,000	41,990,000
1951	1211	235,000	July 8, 1951	6,430	52,490	38,000,000	60,400	43,730,000
1952	1241	167,000	Apr. 25, 1952	3,240	38,730	28,120,000	29,760	21,600,000
1953	1281	159,000	Mar. 19, 1953	1,700	24,940	18,050,000	23,610	17,090,000
1954	1341	210,000	May 5, 1954	1,220	12,470	9,027,000	12,220	8,847,000
1955	1391	130,000	Mar. 22, 1955	970	19,150	13,860,000	21,110	15,280,000
1956	1441	102,000	Oct. 10, 1955	890	11,100	8,061,000	8,628	6,263,000
1957	1511	460,000	May 31, 1957	870	71,120	51,490,000	76,800	55,600,000
1958	1561	187,000	May 11, 1958	6,760	49,240	35,640,000	46,450	33,620,000
1959	1631	151,000	July 30, 1959	5,180	28,900	20,920,000	47,750	34,570,000
1960	1711	350,000	Oct. 10, 1959	8,060	62,390	45,290,000	-	-

2640. Bayou Meto near Lonoke, Ark.

Location.--Lat 34°44'10", long 91°54'58", in SW¼ sec.6, T.1 N., R.8 W., near left bank on downstream side of bridge on State Highway 31, 3 miles upstream from Brushy Slough and 3½ miles south of Lonoke.

Drainage area.--203 sq mi.

Records available.--October 1954 to September 1960. Gage-height record and results of discharge measurements at site 4¾ miles upstream since June 1948 are contained in reports of Corps of Engineers, Vicksburg District; published as "Big Bayou Meto near Lonoke."

Gage.--Water-stage recorder and concrete control. Datum of gage is 199.11 ft above mean sea level, datum of 1929. Prior to Feb. 10, 1955, water-stage recorder at site 4¾ miles upstream at datum 6.97 ft higher. Feb. 10 to June 29, 1955, wire-weight gage at present site and datum.

Average discharge.--6 years (1954-60), 308 cfs (223,000 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 3,440 cfs May 6, 1958 (gage height, 25.13 ft); maximum gage height, 25.16 ft May 29, 1957; no flow at times in 1954-55.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	2.7	0.8	2.9	25.9	245	535	289	330	464	29.4	3.94	3.20	160
1956	4.49	1.11	6.26	50.0	1,680	327	258	235	19.0	18.8	4.14	4.19	211
1957	2.28	36.0	112	299	1,061	466	1,295	1,494	583	33.8	298	80.4	475
1958	203	1,394	451	509	172	496	547	1,415	104	90.8	30.5	89.0	460
1959	14.1	183	59.8	353	1,142	578	136	27.1	130	67.2	31.7	69.9	226
1960	73.0	69.0	850	678	465	528	64.5	322	189	482	17.2	20.5	315

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	169	50	177	1,590	13,620	32,870	17,220	20,270	27,620	1,810	242	191	115,800
1956	276	66	385	3,080	96,660	20,110	15,370	14,420	1,130	1,150	255	249	153,200
1957	140	2,140	6,900	18,380	58,920	28,670	77,070	91,860	34,710	2,080	18,330	4,790	344,000
1958	12,460	82,940	27,750	31,270	9,550	30,490	32,530	87,030	6,210	5,580	1,880	5,300	333,000
1959	865	10,910	3,680	21,710	63,440	35,530	8,080	1,670	7,730	4,130	1,950	4,160	163,900
1960	4,490	4,110	52,290	41,690	26,770	32,450	3,840	19,780	11,270	29,660	1,060	1,220	228,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1955	1391	1,920	June 1, 1955	0	160	0.788	10.72	115,800	160	10.75	116,200
1956	1441	2,120	Feb. 6, 1956	0	211	1.04	14.15	153,200	223	14.92	161,600
1957	1511	3,360	May 29, 1957	.1	475	2.34	31.77	344,000	633	42.29	458,000
1958	1561	3,440	May 6, 1958	.9	460	2.27	30.75	333,000	311	20.81	225,300
1959	1631	3,280	Feb. 19, 1959	1.7	226	1.11	15.12	163,900	289	19.31	209,300
1960	1711	1,840	Dec. 19, 1959	4.6	315	1.55	21.11	228,600	-	-	-

2645. Bayou Meto near Stuttgart, Ark.

Location.--Lat 34°27'15", long 91°37'00", in SE¼ sec.11, T.3 S., R 6 W., on downstream side of bridge on U. S. Highway 79, 5½ miles southwest of Stuttgart and 8 miles upstream from Crooked Creek.

Drainage area.--560 sq mi.

Records available.--October 1935 to September 1954.

Gage.--Wire-weight gage. Datum of gage is 169.94 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1936, staff gage at site 100 ft downstream at datum 5.00 ft higher. Oct. 1, 1936, to July 21, 1937, staff gage at site 100 ft downstream at present datum. Prior to Oct. 1, 1940, auxiliary staff gage 5.4 miles downstream from base gage.

Average discharge.--19 years (1935-54), 573 cfs (414,800 acre-ft per year).

Extremes.--1935-54: Maximum discharge observed, 6,550 cfs Jan. 26, 27, 1937 (gage height, 25.50 ft); no flow at times in each year except 1945 and 1948.

Remarks.--Diversions for irrigation of about 1,300 acres above station. During flows above 600 cfs, Bayou Meto and Crooked Creek are interconnected above station. For records on Crooked Creek, below interconnection, see following station. Records of chemical analyses and water temperatures for the period November 1949 to October 1952 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second, of Bayou Meto near Stuttgart, Ark.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	408	307	578	1,134	1,263	961	911	262	114	366	120	71.5	537
1952	17.1	87.1	1,136	1,143	912	1,281	946	335	98.6	.03	38.9	19.8	501
1953	.17	23.6	788	653	1,450	1,344	1,479	1,910	655	119	8.31	.55	698
1954	.5	0	0	682	1,092	633	218	858	72.9	.03	0	0	292

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	25,070	18,240	35,560	69,740	70,140	59,080	54,220	16,120	6,790	22,480	7,350	4,250	389,000
1952	1,050	5,180	69,850	70,300	52,470	78,760	56,290	20,590	5,870	20	2,390	1,180	363,700
1953	10	1,410	48,450	40,150	80,550	82,610	88,030	117,500	38,970	7,320	511	33	505,500
1954	28	0	0	41,930	60,660	38,900	12,960	52,740	4,340	1.6	0	0	211,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,193	864,000
1951	1211	1,770	Jan.21-23,1951	0.2	537	389,000	534	386,200
1952	1241	1,440	(a)	0	501	363,700	465	337,700
1953	1281	2,620	May 23,24,1953	0	698	505,500	629	455,700
1954	1341	1,510	Jan. 29, 1954	0	292	211,600	-	-

a Dec. 18, 20-22, 1951.

2650. Crooked Creek near Humphrey, Ark.

Location.--Lat 34°25'35", long 91°40'00", in SE¼ sec.20, T.3 S., R.6 W., near center of span on downstream side of pier of bridge on U. S. Highway 79, 100 ft upstream from St. Louis-Southwestern Railway bridge, 2 miles east of Humphrey, and 5.8 miles upstream from mouth.

Drainage area.--87 sq mi.

Records available.--October 1938 to September 1954. Prior to February 1940, high-water periods only.

Gage.--Water-stage recorder. Datum of gage is 169.94 ft above mean sea level, datum of 1929. Prior to Feb. 21, 1940, staff gage at site 100 ft downstream. Feb. 21, 1940, to June 19, 1950, wire-weight gage at present site. All gages at same datum.

Average discharge.--14 years (1940-54), 265 cfs (191,900 acre-ft per year).

Extremes.--1938-54: Maximum discharge, 2,010 cfs Jan. 19-21, Feb. 18-20, 1950; maximum gage height, 23.51 ft Feb. 18, 19, 1950; no flow at times in each year.

Remarks.--Crooked Creek and Bayou Meto are interconnected above station at high-water stages. Records of chemical analyses for the period October 1953 to June 1954 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	106	85.2	88.4	656	624	310	191	5.67	0.59	67.5	8.86	12.0	177
1952	1.82	3.58	418	395	340	681	233	21.1	.85	.22	1.34	.22	175
1953	0	.89	126	122	1,161	1,038	1,129	1,385	282	2.56	0	0	432
1954	0	0	0	381	640	208	27.8	424	3.65	0	0	0	138

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6,490	5,070	5,430	40,340	34,630	19,050	11,340	348	35	4,150	545	714	128,100
1952	112	213	25,680	24,310	19,560	41,870	13,840	1,300	51	14	82	13	127,000
1953	0	53	7,740	7,500	64,500	63,800	67,200	85,150	16,780	157	0	0	312,900
1954	0	0	0	23,430	35,520	12,780	1,650	26,040	217	0	0	0	99,640

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	592	428,500
1951	1211	1,330	Jan.19-20,1951	0	177	128,100	189	137,200
1952	1241	883	Mar.14,15,1952	0	175	127,000	150	108,800
1953	1281	1,820	May 21,22,1953	0	432	312,900	421	305,100
1954	1341	1,250	Jan. 31, 1954	0	138	99,640	-	-

2660. Cane Creek near New Albany, Miss.

Location.--Lat 34°34'15", long 88°57'25", in SW¼ sec.11, T.6 S., R.3 E., Chickasaw meridian, on right bank 150 ft downstream from Ellis Creek, 600 ft downstream from bridge on county road, 5.0 miles upstream from mouth, and 6¼ miles northeast of New Albany.

Drainage area.--22.2 sq mi.

Records available.--February 1939 to July 1941, February 1950 to September 1960.

Gage.--Water-stage recorder. Supplementary staff gage at site 600 ft upstream. Datum of gage is 356.74 ft above mean sea level, datum of 1929, supplementary adjustment of 1944. Prior to Mar. 31, 1939, staff gage, Mar. 31, 1939, to July 18, 1941, water-stage recorder and staff gage, Feb. 1 to June 14, 1950, staff gage, June 15, 1950, to Oct. 7, 1955, water-stage recorder, and Oct. 8, to Dec. 9, 1955, staff gage, all at site 600 ft upstream. Prior to Oct. 1, 1955, all gages at datum 10.00 ft higher than present datum.

Average discharge.--11 years (1939-40, 1950-60), 36.7 cfs.

Extremes.--1939-41, 1950-60: Maximum discharge, 8,680 cfs Mar. 21, 1955 (gage height, 9.08 ft, site and datum then in use), from rating curve extended above 4,200 cfs by logarithmic plotting; no flow Sept. 5-7, 1954.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9.65	31.5	61.0	135	148	141	80.7	18.0	12.2	29.2	6.05	4.57	56.0
1952	3.71	40.8	164	108	72.0	78.6	45.4	27.9	9.77	4.88	4.78	.96	46.8
1953	.99	3.88	9.72	25.8	110	106	90.0	90.1	6.57	55.8	2.37	1.26	41.5
1954	1.04	2.12	8.40	74.6	31.1	17.9	47.5	43.3	11.7	3.27	.845	.757	20.2
1955	1.24	1.36	3.79	6.27	30.8	178	85.7	15.6	36.1	27.8	4.21	1.02	32.7
1956	1.64	4.16	6.26	11.0	153	33.9	66.8	21.3	15.0	9.82	5.28	1.04	26.8
1957	1.20	1.47	17.6	101	94.0	31.5	98.1	12.6	76.9	52.4	14.8	57.9	46.1
1958	33.2	154	67.6	41.1	27.5	44.5	120	77.0	17.9	11.9	4.40	56.4	54.5
1959	7.41	18.8	14.0	37.2	50.1	27.8	34.8	18.3	21.9	13.6	4.53	5.29	20.9
1960	12.2	11.7	54.1	625	48.0	90.2	27.3	25.6	6.05	7.60	12.9	5.80	30.4

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.50	1.58	3.17	7.47	6.97	7.32	4.06	0.94	0.61	1.52	0.31	0.23	34.68
1952	.19	2.05	8.54	5.59	3.50	4.08	2.28	1.45	.49	.25	.25	.05	28.72
1953	.05	.19	.50	1.34	5.14	5.51	4.52	4.68	.33	2.90	.12	.06	25.34
1954	.05	.11	.44	3.87	1.46	.93	2.39	2.25	.59	.17	.04	.04	12.34
1955	.06	.07	.20	.33	1.44	9.25	4.31	.81	1.81	1.44	.22	.05	19.99
1956	.09	.21	.32	.57	7.45	1.76	3.36	1.11	.75	.51	.27	.05	16.45
1957	.06	.07	.92	5.24	4.41	1.64	4.93	.65	3.87	2.72	.77	2.91	28.19
1958	1.72	7.72	3.51	2.14	1.29	2.31	6.03	4.00	.90	.62	.23	2.84	33.31
1959	.38	.95	.73	1.93	2.35	1.44	1.75	.95	1.10	.71	.24	.27	12.80
1960	.63	.59	2.81	3.24	2.33	4.68	1.37	1.33	.30	.39	.67	.29	18.63

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	-	-
1951	1211	3,220	Mar. 28, 1951	1.4	56.0	2.52	34.68	65.0	40.21
1952	1241	2,700	Jan. 27, 1952	.6	46.8	2.11	28.72	30.5	18.68
1953	1281	4,720	July 21, 1953	.6	41.5	1.87	25.34	41.2	25.20
1954	1341	1,220	Jan. 22, 1954	0	20.2	.910	12.34	19.7	12.07
1955	1391	8,680	Mar. 21, 1955	.4	32.7	1.47	19.99	33.2	20.28
1956	1441	3,340	Feb. 4, 1956	1.0	26.8	1.21	16.45	27.5	16.88
1957	1511	4,780	Apr. 4, 1957	1.0	46.1	2.08	28.19	65.6	40.09
1958	1561	3,270	Nov. 13, 1957	1.3	54.5	2.45	33.31	36.6	22.42
1959	1631	1,030	July 24, 1959	1.6	20.9	.941	12.80	24.1	14.77
1960	1711	1,920	Mar. 2, 1960	1.1	30.4	1.37	18.63	-	-

2680. Tallahatchie River at Etta, Miss.

Location.--Lat 34°29'00", long 89°13'30", in SE¼SW¼ sec.8, T.7 S., R.1 E., Chickasaw meridian, on downstream side of left main pier of bridge on State Highway 30, three-quarters of a mile northeast of Etta, 3¾ miles upstream from Puskus Creek, 4 miles downstream from Locks Creek, 13 miles west of New Albany, and 55.0 miles upstream from head of Panola-Quitman Floodway.

Drainage area.--526 sq mi.

Records available.--September 1938 to September 1960. November 1936 to May 1937 (gage heights and discharge measurements only) in reports of Corps of Engineers, Vicksburg district.

Gage.--Water-stage recorder. Datum of gage is 273.48 ft above mean sea level, datum of 1929, supplementary adjustment of 1944 (levels by Corps of Engineers). Nov. 23, 1936, to May 31, 1937, staff gage at same site at datum 5.33 ft higher. Sept. 24, 1938, to Mar. 16, 1939, and Aug. 26, 1952, to June 22, 1953, wire-weight gage at same site at datum 5.00 ft higher. Sept. 24, 1938, to Sept. 30, 1952, water-stage recorder at datum 5.00 ft higher.

Average discharge.--22 years (1938-60), 779 cfs.

Extremes.--1938-60: Maximum discharge, 79,000 cfs Mar. 22, 1955 (gage height, 29.32 ft); minimum, 4.1 cfs Oct. 3, 16, 1938.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	142	881	1,068	2,538	3,350	3,214	1,302	249	167	555	77.5	36.7	1,119
1952	43.4	294	3,539	1,975	1,331	1,533	940	284	80.3	42.8	55.1	15.8	847
1953	16.8	46.9	106	329	2,859	2,289	1,456	1,704	56.8	464	32.7	19.5	769
1954	17.0	24.2	109	1,250	675	230	478	573	81.1	43.7	13.2	13.2	291
1955	16.7	19.3	174	119	584	3,546	2,084	590	484	657	55.4	17.3	697
1956	19.5	40.1	76.7	85.9	3,036	487	1,884	792	151	88.1	27.2	14.0	545
1957	17.5	18.4	201	1,707	2,757	609	1,807	166	751	615	52.5	413	743
1958	532	3,877	930	748	455	1,048	2,436	1,330	424	313	74.7	1,930	1,170
1959	103	352	167	987	1,327	489	648	234	1,294	177	66.7	95.3	487
1960	130	149	1,829	1,526	900	2,305	390	299	73.7	51.8	90.5	110	658

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.31	1.87	2.34	5.56	6.63	7.05	2.76	0.55	0.35	1.22	0.17	0.08	28.89
1952	.10	.62	7.76	4.33	2.73	3.36	1.99	.62	.17	.09	.12	.03	21.92
1953	.04	.10	.23	.72	5.66	5.02	3.09	3.74	.12	1.02	.07	.04	19.85
1954	.04	.05	.24	2.74	1.34	.50	1.01	1.26	.17	.10	.03	.03	7.51
1955	.04	.04	.38	.26	1.16	7.77	4.42	1.29	1.03	1.44	.12	.04	17.99
1956	.04	.09	.17	.19	6.23	1.07	4.00	1.74	.32	.19	.06	.03	14.13
1957	.04	.04	.44	3.74	5.46	1.34	3.83	.36	1.59	1.35	.11	.88	19.18
1958	1.17	8.22	2.04	1.64	.90	2.30	5.17	2.92	.90	.69	.16	4.09	30.20
1959	.23	.75	.37	2.16	2.63	1.07	1.37	.51	2.74	.39	.15	.20	12.57
1960	.29	.32	4.01	3.34	1.85	5.05	.83	.65	.16	.11	.20	.23	17.04

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	1,159	29.91
1951	1211	50,500	Mar. 29, 1951	18	1,119	2.13	28.89	1,273	32.85
1952	1241	19,400	Dec. 26, 1951	8.2	847	1.61	21.92	534	13.81
1953	1281	12,600	Feb. 21, 1953	9.8	769	1.46	19.85	767	19.81
1954	1341	13,900	Jan. 22, 1954	9.1	291	.553	7.51	296	7.64
1955	1391	79,000	Mar. 22, 1955	11	697	1.33	17.99	691	17.83
1956	1441	23,100	Feb. 4, 1956	9.0	545	1.04	14.13	554	14.35
1957	1511	30,600	Feb. 1, 1957	11	743	1.41	19.18	1,166	30.09
1958	1561	32,700	Nov. 14, 1957	28	1,170	2.22	30.20	779	20.12
1959	1631	14,400	June 11, 1959	22	487	.926	12.57	614	15.84
1960	1711	21,000	Mar. 3, 1960	15	658	1.25	17.04	-	-

2710. Clear Creek near Oxford, Miss.

Location.--Lat 34°21'20", long 89°39'30", in NW¼SE¼ sec.30, T.8 S., R.4 W., Chickasaw meridian, near right bank on downstream side of pier of bridge on State Highway 6, 1.0 mile upstream from Hudson Creek and 8.3 miles west of Oxford.

Drainage area.--10.3 sq mi (revised).

Records available.--January 1939 to July 1941, February 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 275.47 ft above mean sea level, datum of 1929, supplementary adjustment of 1944. Prior to Mar. 6, 1939, staff gage at present site and datum.

Average discharge.--11 years (1939-40, 1950-60), 14.2 cfs.

Extremes.--1939-41, 1950-60: Maximum discharge, 3,980 cfs Apr. 4, 1957 (gage height, 11.66 ft), from rating curve extended above 2,700 cfs by logarithmic plotting; minimum, 3.0 cfs July 19-22, 1939.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.94	15.2	14.8	36.5	29.2	28.7	20.5	9.01	10.7	10.7	7.50	7.07	16.2
1952	8.15	10.8	45.1	24.4	16.7	25.0	15.1	8.45	6.66	6.37	6.81	6.58	15.1
1953	6.35	8.45	8.74	11.5	39.8	33.2	28.6	36.2	6.92	6.15	6.12	6.22	16.4
1954	6.07	8.02	13.7	36.0	13.2	8.90	8.63	25.3	11.2	6.59	6.20	6.43	12.6
1955	6.69	6.13	9.18	6.60	11.6	56.2	47.7	14.0	7.50	16.5	8.43	11.4	16.9
1956	6.00	6.37	9.37	7.40	64.4	8.43	34.7	11.4	5.64	5.59	5.98	5.43	14.0
1957	5.11	5.01	9.31	33.7	29.8	9.33	37.6	8.57	42.8	12.5	5.39	6.92	17.0
1958	7.07	40.1	11.0	8.35	7.58	11.3	39.1	18.4	11.4	15.6	6.10	33.3	17.4
1959	6.45	13.1	6.82	13.1	23.5	10.1	8.64	13.9	8.31	13.9	6.21	8.99	11.0
1960	7.97	9.57	24.5	12.4	11.9	27.9	7.51	9.62	6.57	6.13	11.9	7.20	12.0

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.67	1.64	1.65	4.08	2.95	3.21	2.22	1.01	1.16	1.20	0.84	0.77	21.40
1952	.91	1.17	5.05	2.73	1.75	2.80	1.64	.95	.72	.71	.76	.71	19.90
1953	.71	.91	.98	1.29	4.03	3.71	3.10	4.05	.75	.69	.68	.67	21.57
1954	.68	.87	1.54	4.03	1.33	1.00	.94	2.83	1.21	.74	.69	.70	16.56
1955	.75	.66	1.03	.74	1.18	6.29	5.17	1.56	.81	1.85	.94	1.24	22.22
1956	.67	.69	1.05	.83	6.75	.94	3.76	1.27	.61	.63	.67	.59	18.46
1957	.57	.54	1.04	3.77	3.01	1.04	4.08	.96	4.64	1.40	.60	.75	22.40
1958	.79	4.35	1.23	.94	.77	1.26	4.23	2.06	1.23	1.75	.68	3.61	22.90
1959	.72	1.42	.76	1.46	2.38	1.13	.94	1.55	.90	1.56	.69	.97	14.48
1960	.89	1.04	2.75	1.39	1.25	3.13	.81	1.08	.71	.69	1.33	.78	15.85

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	-	-
1951	1211	1,940	Jan. 3, 1951	5.1	16.2	1.57	21.40	18.6	24.57
1952	1241	1,560	(a)	5.4	15.1	1.46	19.90	11.6	15.37
1953	1281	2,480	Feb. 20, 1953	5.5	16.4	1.59	21.57	16.7	22.06
1954	1341	2,960	May 27, 1954	5.2	12.6	1.22	16.56	12.1	15.91
1955	1391	3,700	Mar. 20, 1955	5.3	16.9	1.64	22.22	16.8	22.19
1956	1441	3,740	Apr. 30, 1956	5.1	14.0	1.36	18.46	13.8	18.20
1957	1511,1561	3,980	Apr. 4, 1957	4.5	17.0	1.65	22.40	19.6	25.86
1958	1561	3,660	Nov. 14, 1957	5.0	17.4	1.69	22.90	14.7	19.43
1959	1631	2,540	July 24, 1959	5.4	11.0	1.07	14.48	12.3	16.26
1960	1711	1,460	(b)	5.3	12.0	1.17	15.85	-	-

a Dec. 25, 1951, Jan. 27, 1952.
b Mar. 2, Aug. 21, 1960.

2720. Sardis Reservoir near Sardis, Miss.

Location.--Lat 34°23'57", long 89°47'10", in SW¼ sec.12, T.8 S., R.6 W., Chickasaw meridian, in gatehouse of dam on Tallahatchie River, 7½ miles southeast of Sardis and 25.7 miles upstream from head of Panola-Quitman Floodway.

Drainage area.--1,545 sq mi.

Records available.--September 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to Oct. 1, 1958, at datum 219.43 ft above mean sea level.

Extremes.--1939-60: Maximum contents, 1,308,130 acre-ft Apr. 3, 1949 (elevation, 276.71 ft); minimum since initial filling of reservoir to conservation level, 47,900 acre-ft Oct. 3, 1941 (elevation, 228.93 ft).

Remarks.--Reservoir is formed by hydraulic-fill earth dam, with concrete spillway and outlet tunnel on opposite ends of dam. Storage began Aug. 26, 1939; dam completed Aug. 1, 1940. Capacity, 1,569,900 acre-ft at elevation 281.4 ft (crest of spillway), of which about 1,478,000 acre-ft is available for flood-control storage and about 91,900 acre-ft is permanent storage which will be maintained for incidental recreational purposes at elevation 234.4 ft (15 ft above sill of outlet tunnel). Water below elevation 219.4 ft cannot be withdrawn through outlet tunnel. Figures given herein represent total contents. Reservoir used only for flood control.

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

Contents, in thousands of acre-feet, on last day of month, of Sardis Reservoir near Sardis, Miss.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	155.80	235.64	200.14	456.12	741.71	987.07	1,067.30	932.45	713.46	538.40	283.86	101.90
1952	136.08	214.58	618.58	776.54	843.78	922.00	915.90	757.73	548.78	326.75	125.07	114.87
1953	137.53	97.25	95.84	114.98	414.92	622.48	729.35	1,204.53	1,049.52	858.00	584.69	308.34
1954	124.46	94.93	97.86	263.08	267.95	215.59	215.93	274.78	265.02	210.86	168.86	130.27
1955	102.0	113.0	131.0	114.6	184.7	615.6	951.7	843.8	753.4	663.5	426.2	184.8
1956	120.3	137.1	108.7	114.4	511.1	452.8	529.6	550.0	438.0	299.8	213.6	153.7
1957	128.0	107.2	122.7	210.4	588.8	558.8	700.4	590.7	580.6	550.0	384.7	247.7
1958	118.1	553.4	583.7	498.3	330.6	305.3	469.8	707.1	624.1	546.6	325.0	443.9
1959	315.6	187.3	107.4	173.2	242.9	224.0	243.4	192.9	196.6	91.62	116.6	153.5
1960	214.6	257.3	503.5	581.5	538.4	662.5	498.1	352.3	198.4	111.4	138.6	139.8

Note.--Prior to Oct. 1, 1954, contents at 12 p.m. on last day of month, at 8 a.m. thereafter.

2725. Tallahatchie River at Sardis Dam, near Sardis, Miss.

Location.--Lat 34°23'57", long 89°47'10", in SW¼ sec.12, T.8 S., R.6 W., Chickasaw meridian, in gatehouse of Sardis Dam, 7½ miles southeast of Sardis and 25.7 miles upstream from head of Panola-Quitman Floodway.

Drainage area.--1,545 sq mi.

Records available.--January 1940 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to Jan. 1, 1948, at site 300 ft downstream at datum 194.43 ft above mean sea level. Jan. 1, 1948, to Sept. 30, 1958, at present site at datum 219.43 ft above mean sea level.

Average discharge.--20 years (1944-60), 2,272 cfs (adjusted for storage).

Extremes.--1940-60: Maximum discharge, 5,780 cfs June 24, 1946 (gage height, 15.00 ft, site and datum then in use); no flow at times in each year prior to 1959.
Revisions.--The maximum discharge for the water year 1942 has been revised to 4,580 cfs May 10, 11, June 13, 14 (gage height, 15.68 ft), superseding figure published in WSP 957 and 1311.

Remarks.--Flow completely regulated by Sardis Reservoir (see preceding station).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,513	878	3,646	2,486	2,826	2,657	2,470	3,211	4,753	4,416	4,591	3,697	3,184
1952	0	0	1,042	2,756	3,075	3,159	3,028	3,541	3,884	3,957	3,972	589	2,419
1953	0	1,337	913	752	1,660	2,574	2,478	209	2,865	4,599	4,826	5,021	2,267
1954	3,443	1,121	1,180	1,301	2,012	2,002	1,906	1,658	982	1,160	917	839	1,543
1955	770	214	288	1,080	716	644	341	2,815	2,941	3,284	4,221	4,449	1,821
1956	1,374	394	1,274	506	1,396	2,420	2,383	2,506	2,428	2,486	1,759	1,166	1,677
1957	730	687	973	1,435	1,418	2,554	2,609	2,641	2,564	2,257	3,035	3,468	2,033
1958	3,279	859	2,533	3,592	4,456	3,214	1,863	743	2,740	2,626	4,080	1,871	2,649
1959	2,685	3,332	2,307	1,827	2,343	1,955	1,642	1,742	2,556	2,450	73.3	15.0	1,907
1960	15.0	15.0	15.0	2,355	3,870	3,471	4,203	3,638	3,147	1,769	76.4	482	1,927

Monthly and yearly discharge, in inches (adjusted)

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.66	1.60	2.29	4.96	5.37	4.96	2.76	0.76	0.77	1.17	0.34	0.46	26.10
1952	.41	.95	5.68	3.97	2.96	3.31	2.11	.72	.27	.26	.52	.30	21.46
1953	.28	.48	.66	.79	4.76	4.44	3.09	5.92	.19	1.11	.28	.27	22.27
1954	.34	.45	.92	2.98	1.42	.86	1.38	1.95	.59	.21	.17	.14	11.41
1955	.23	.29	.43	.60	1.36	5.69	4.32	.79	.99	1.34	.25	.29	16.58
1956	.31	.49	.59	.46	5.77	1.08	2.86	1.93	.37	.19	.25	.15	14.45
1957	.23	.25	.90	2.59	5.13	1.51	3.57	.64	1.89	1.17	.25	.82	18.95
1958	.89	5.97	2.20	1.63	1.01	2.09	3.59	3.15	.97	1.08	.27	2.90	25.75
1959	.38	.84	.79	2.12	2.46	1.23	1.38	.73	1.83	.62	.37	.45	13.20
1960	.75	.54	3.05	2.69	2.10	4.08	1.04	.94	.39	.29	.42	.36	16.65

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Observed					Adjusted[a]			Observed	Adjusted[a]	
		Momentary maximum		Minimum day	Mean		Mean	Per square mile	Runoff in inches	Mean	Mean	Runoff in inches
		Discharge	Date									
1950	-	-	-	-	-		-	-	-	3,313	3,366	29.58
1951	1211	5,580	Aug. 3, 1951	0	3,184		2,971	1.92	26.10	2,677	3,255	28.59
1952	1241	4,470	June 23, 1952	0	2,419		2,437	1.58	21.46	2,518	1,798	15.84
1953	1281	5,280	Sept. 14, 1953	0	2,267		2,534	1.64	22.27	2,565	2,568	22.56
1954	1341	5,130	Oct. 8, 1953	0	1,543		1,297	.839	11.41	1,166	1,212	10.65
1955	1391	4,710	Sept. 26, 1955	0	1,821		1,888	1.22	16.58	1,971	1,940	17.02
1956	1441	4,310	Oct. 1, 1955	0	1,677		1,642	1.06	14.45	1,621	1,639	14.44
1957	1511	4,660	Apr. 25, 1957	0	2,033		2,157	1.40	18.95	2,396	3,032	26.63
1958	1561	4,860	Feb. 4, 1958	0	2,649		2,931	1.90	25.75	2,782	2,126	18.70
1959	1631	4,740	June 27, 1959	0	1,907		1,502	.972	13.20	1,213	1,768	15.53
1960	1711	4,900	Apr. 12, 1960	15	1,927		1,907	1.23	16.65	-	-	-

a Adjusted for change in contents in Sardis Reservoir.

2740. Yocona River near Oxford, Miss.

Location.--Lat 34°16'23", long 89°31'11", in SE¼NW¼ sec.28, T.9 S., R.3 W., Chickasaw meridian, near left bank on downstream side of pier of bridge on State Highway 7, 1½ miles downstream from Burney Branch, 6 miles south of Oxford, and at mile 42.3.

Drainage area.--262 sq mi.

Records available.--May 1946 to September 1951 in reports of Corps of Engineer, Vicksburg district. October 1951 to September 1960 in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 272.20 ft above mean sea level, datum of 1929, supplementary adjustment of 1944.

Average discharge.--14 years (1946-60), 375 cfs.

Extremes.--1946-60: Maximum discharge, 44,100 cfs Mar. 21, 1955 (gage height, 23.72 ft), from rating curve extended above 22,000 cfs by logarithmic plotting; minimum, 4.4 cfs Sept. 14, 1954; minimum gage height, -0.88 ft Nov. 13, 1958.

Cooperation.--Records for 1946-51, not previously published by Geological Survey, furnished by Corps of Engineers.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	242	260	76.8	32.9	-
1947	43.5	613	311	1,632	305	778	1,085	177	558	67.6	20.8	13.2	467
1948	13.3	110	133	184	2,151	1,438	849	75.9	40.6	62.2	53.8	24.3	420
1949	17.9	1,296	290	1,842	806	1,206	497	233	279	86.6	102	29.2	555
1950	126	108	.198	1,120	1,010	1,237	222	302	91.2	39.9	169	234	402
1951	41.2	297	344	1,062	1,386	1,402	679	102	69.6	270	31.0	29.2	471
1952	34.9	101	1,534	754	564	652	444	90.7	35.1	17.3	18.3	15.4	356
1953	13.5	31.6	52.5	129	1,134	1,000	565	699	24.1	25.2	16.6	11.9	303
1954	12.7	19.7	57.6	401	293	95.5	261	446	58.1	21.4	8.20	8.89	140
1955	13.1	14.3	146	96.4	408	1,660	1,188	472	165	216	26.9	23.7	369
1956	14.1	20.5	37.7	44.2	1,331	284	958	486	71.3	23.5	11.3	7.15	268
1957	12.0	12.8	103	694	1,294	420	768	72.2	505	407	17.3	235	371
1958	316	2,145	406	337	227	510	1,010	450	97.1	213	33.5	1,239	579
1959	65.9	166	91.3	466	612	267	405	106	633	47.0	22.7	30.4	239
1960	46.6	55.8	969	687	411	1,031	176	126	32.0	16.6	41.8	38.2	304

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	1.03	1.15	0.34	0.14	-
1947	0.19	2.61	1.37	7.18	1.21	3.43	4.62	0.78	2.37	.30	.09	.06	24.21
1948	.06	.47	.58	.81	8.85	6.33	3.61	.33	.17	.27	.24	.10	21.82
1949	.08	5.52	1.27	8.11	3.20	5.31	2.12	1.02	1.19	.38	.45	.12	28.77
1950	.55	.46	.87	4.93	4.01	5.44	.95	1.33	.39	.18	.74	1.00	20.85
1951	.18	1.26	1.52	4.67	5.51	6.17	2.89	.45	.30	1.19	.14	.12	24.40
1952	.15	.43	6.75	3.32	2.32	2.87	1.89	.40	.15	.08	.08	.07	18.51
1953	.06	.13	.23	.57	4.51	4.40	2.41	3.08	.10	.11	.07	.05	15.72
1954	.06	.08	.25	1.76	1.16	.42	1.11	1.96	.25	.09	.04	.04	7.22
1955	.06	.06	.64	.42	1.62	7.30	5.06	2.08	.70	.95	.12	.10	19.11
1956	.06	.09	.17	.19	5.48	1.25	4.08	2.14	.30	.10	.05	.03	13.94
1957	.05	.05	.45	3.06	5.14	1.85	3.27	.32	2.15	1.79	.08	1.00	19.21
1958	1.39	9.13	1.79	1.48	.90	2.25	4.30	1.98	.41	.94	.15	5.28	30.00
1959	.29	.71	.40	2.05	2.43	1.18	1.72	.47	2.70	.21	.10	.13	12.39
1960	.21	.24	4.26	3.02	1.69	4.54	.75	.56	.14	.07	.18	.16	15.82

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1946	(a)	-	-	-	-	-	-	-	-
1947	(a)	9,210	Apr. 11, 1947	10	467	1.78	24.21	408	21.15
1948	(a)	19,400	Feb. 13, 1948	10	420	1.60	21.82	531	27.58
1949	(a)	15,800	Jan. 4, 1949	17	555	2.12	28.77	459	23.78
1950	(a)	9,350	Mar. 13, 1950	20	402	1.53	20.85	423	21.93
1951	(a)	24,400	Mar. 29, 1951	12	471	1.80	24.40	555	28.77
1952	1241	8,710	Dec. 27, 1951	10	356	1.36	18.51	223	11.60
1953	1281	6,750	Feb. 21, 1953	10	303	1.16	15.72	303	15.69
1954	1341	4,250	Jan. 22, 1954	5.5	140	.534	7.22	147	7.59
1955	1391	44,100	Mar. 21, 1955	8.2	369	1.41	19.11	361	18.67
1956	1441	10,900	Feb. 4, 1956	6.1	268	1.02	13.94	273	14.17
1957	1511	11,100	Apr. 4, 1957	7.2	371	1.42	19.21	598	30.97
1958	1561	22,300	Sept. 21, 1958	14	579	2.21	30.00	368	19.09
1959	1631	6,230	June 10, 1959	9.5	239	.912	12.39	303	15.70
1960	1711	11,500	Dec. 19, 1959	12	304	1.16	15.82	-	-

a From reports of Corps of Engineers.

2745. Enid Reservoir near Enid, Miss.

Location.--Lat 34°09'29", long 89°54'14", in NE¼ sec.2, T.11 S., R.7 W., Chickasaw meridian, in gatehouse of dam on Yocona River, 0.8 mile upstream from U. S. Highway 51, 2¾ miles upstream from Illinois Central Railroad bridge, 3¼ miles northeast of Enid, and 13½ miles upstream from mouth of Yocona River.

Drainage area.--560 sq mi.

Records available.--July 1951 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to May 24, 1952, staff gage at same site. Prior to Oct. 1, 1958, at datum 200.00 ft above mean sea level.

Extremes.--1951-60: Maximum contents, 435,800 acre-ft Apr. 27, 1955 (elevation, 258.87 ft); minimum since initial filling of reservoir to conservation level, 480 acre-ft Sept. 23 to Oct. 7, 1952; minimum elevation, 207.10 ft Oct. 3-7, 1952.

Remarks.--Reservoir is formed by rolled-fill earth dam with concrete spillway and outlet tunnel. Storage began July 16, 1951. Capacity, 660,000 acre-ft at elevation 268.0 ft (crest of spillway), of which about 602,400 acre-ft is available for flood control and about 57,600 acre-ft is permanent storage which will be maintained for incidental recreational purposes at elevation 230.0 ft (25 ft above sill of outlet tunnel). Water below elevation 205.0 ft cannot be withdrawn through outlet tunnel. Figures given herein represent total contents. Reservoir used only for flood control.

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

Contents, in thousands of acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	-	-	-	-	-	-	-	-	-	0.66	0.73	0.77
1952	1.17	0.69	40.23	15.04	5.12	3.51	1.51	0.83	0.58	.53	.49	.48
1953	.52	.59	3.81	27.57	148.62	224.82	251.35	358.78	324.38	258.82	182.08	118.54
1954	68.10	65.87	59.85	105.26	89.61	61.31	77.10	122.24	114.40	98.81	79.79	65.60
1955	60.42	58.96	73.31	64.04	99.48	292.7	433.7	432.9	381.2	336.9	218.3	139.4
1956	62.96	58.39	57.82	64.38	221.6	190.4	223.6	224.8	195.3	158.8	123.4	98.14
1957	54.32	50.69	62.52	128.7	251.3	228.0	288.9	233.8	239.5	231.1	156.1	108.3
1958	55.50	294.7	280.3	230.0	161.8	143.7	216.6	290.6	266.6	245.6	169.0	293.0
1959	200.5	146.9	46.21	47.03	118.4	127.6	158.5	155.1	186.7	156.2	46.92	53.56
1960	45.05	57.33	169.8	162.5	153.1	250.4	210.6	193.9	158.2	135.2	136.5	101.2

Note.--Prior to Oct. 1, 1954, contents at 12 p.m. on last day of month, at 8 a.m. thereafter.

2750. Yocona River at Enid Dam, near Enid, Miss.

Location.--Lat 34°09'29", long 89°54'14", in NE¼ sec.2, T.11 S., R.7 W., Chickasaw meridian, in gatehouse of Enid Dam, 0.8 mile upstream from U. S. Highway 51, 2¾ miles upstream from Illinois Central Railroad bridge, 3¼ miles northeast of Enid, and 13½ miles upstream from mouth.

Drainage area.--560 sq mi.

Records available.--July 1928 to September 1960. Prior to October 1951, published as Yocona River near Enid. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey. Prior to Jan. 2, 1935, chain gage, Jan. 2, 1935, to July 13, 1939, wire-weight gage, and July 14, 1939, to Aug. 19, 1940, water-stage recorder, at site 150 ft downstream from bridge on U. S. Highway 51, 0.8 mile downstream. Aug. 20, 1940, to July 15, 1951, water-stage recorder at bridge on U. S. Highway 51. July 16, 1951, to May 23, 1952, staff gage at present site. Prior to July 16, 1951, at datum 189.42 ft above mean sea level, and July 16, 1951, to Sept. 30, 1958, at datum 200.00 ft above mean sea level.

Average discharge.--32 years (1928-60), 824 cfs (adjusted for storage in Enid Reservoir since October 1951).

Extremes.--1928-60: Maximum discharge, 36,300 cfs Feb. 14, 1948 (gage height, 21.61 ft, site and datum then in use); maximum discharge since July 1951, when regulation began, 6,060 cfs Dec. 28, 1951; no flow at times in each year July 1951 to December 1958; minimum discharge prior to construction of Enid Dam, 34 cfs Sept. 28, 1931, but may have been less during period of estimated record October to December 1931.

Remarks.--Flow completely regulated by Enid Reservoir since July 16, 1951 (see preceding station).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	143	573	723	2,672	3,302	2,974	1,742	353	179	730	116	100	1,121
1952	102	266	2,642	2,178	1,532	1,603	1,282	376	132	89.5	89.5	72.8	865
1953	71.9	123	156	0	305	1,210	1,195	2.68	537	1,184	1,250	1,104	596
1954	878	145	397	391	1,042	755	244	457	260	252	265	233	441
1955	123	104	152	441	377	378	341	761	1,319	1,443	2,070	1,693	769
1956	1,376	147	183	105	685	1,232	1,219	980	604	579	566	403	674
1957	797	92.0	172	409	822	1,295	1,170	1,316	1,291	1,120	1,230	1,530	937
1958	1,424	391	1,283	1,706	1,871	1,530	946	232	920	803	1,339	726	1,095
1959	1,790	1,496	1,913	1,018	256	552	316	303	487	658	1,778	207	906
1960	285	126	367	1,692	1,207	745	1,107	663	632	337	278	632	670

Monthly and yearly discharge, in inches a/

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.29	1.14	1.49	5.50	6.14	6.12	3.47	0.73	0.36	1.50	0.24	0.20	27.18
1952	.22	.51	6.76	3.64	2.62	3.25	2.49	.75	.26	.18	.18	.14	21.00
1953	.15	.25	.43	.79	4.62	5.04	3.27	3.60	(b)	.23	.004	.07	18.45
1954	.12	.22	.62	2.33	1.41	.61	1.01	2.45	.26	(b)	(b)	(b)	†9.03
1955	.08	.15	.81	.59	1.91	7.19	5.41	1.59	.80	1.46	.29	.77	21.05
1956	.28	.19	.36	.45	6.53	1.49	4.07	1.62	.14	(b)	(b)	(b)	15.13
1957	.12	.14	.74	3.74	4.95	1.91	4.34	.85	2.88	1.89	.04	1.42	23.02
1958	1.24	8.82	2.11	1.75	1.25	2.57	4.85	2.37	1.05	.99	.13	5.73	32.86
1959	.45	1.20	.63	2.11	2.86	1.45	1.66	.51	2.00	.31	.04	.58	13.80
1960	.37	.67	4.47	3.32	1.96	4.80	.86	.81	.06	(b)	.62	.05	17.99

† Corrected.
a Adjusted for change in contents in Enid Reservoir since October 1951.
b Evaporation and seepage exceeded inflow.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Observed				Adjusted a/				Observed	Adjusted a/	
		Momentary maximum		Minimum day	Mean	Mean	Per square mile	Runoff in inches		Mean	Mean	Runoff in inches
		Discharge	Date									
1950	-	-	-	-	-	-	-	-		-	1,061	25.73
1951	1211	21,700	Mar. 30, 1951	b0	1,121	c1,121	c2.00	c27.18		-	-	-
1952	1241	6,060	Dec. 28, 1951	62	865	865	1.54	21.00		640	590	14.34
1953	1281	1,360	July 8,9, 1953	0	596	759	1.36	18.45		686	763	18.50
1954	1341	1,100	Oct.1,2, 1953	0	441	368	.657	†9.03		352	371	9.01
1955	1391	2,190	July 20,21,1955	0	769	869	1.55	21.05		881	860	20.84
1956	1441	1,480	Oct. 1, 1955	0	674	618	1.10	15.13		619	625	15.30
1957	1511	2,240	Sept.19, 1957	0	937	949	1.69	23.02		1,109	1,410	34.19
1958	1561	3,670	Jan. 21, 1958	0	1,095	1,356	2.42	32.86		1,271	984	22.97
1959	1631	2,560	Dec. 12, 1958	0	906	569	1.02	13.80		534	702	17.03
1960	1711	2,370	Jan. 1, 1960	5	670	737	1.32	17.99		-	-	-

† Corrected.
a Adjusted for change in contents in Enid Reservoir since October 1951.
b Due to closure of Enid Dam.
c Unadjusted.

2760. Coldwater River near Lewisburg, Miss.

Location.--Lat 34°50'27", long 89°49'32", in center of sec.10, T.3 S., R.6 W., Chickasaw meridian, near left bank on upstream side of bridge on State Highway 305, 1.6 miles south of Lewisburg and 4.0 miles upstream from Pigeonroost Creek.

Drainage area.--218 sq mi. High flows intermingle above station with Pigeonroost Creek.

Records available.--October 1939 to September 1953.

Gage.--Water-stage recorder. Datum of gage is 250.52 ft above mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to Sept. 3, 1942, staff gage and Sept. 3, 1942, to Aug. 25, 1948, water-stage recorder at same site and datum; Aug. 26, 1948, to Aug. 22, 1950, staff gage at site 75 ft downstream at same datum, during reconstruction of bridge.

Average discharge.--14 years (1939-53), 354 cfs.

Extremes.--1939-53: Maximum discharge, 25,900 cfs Jan. 8, 1946 (gage height, 15.60 ft), from rating curve extended above 13,000 cfs by velocity-area studies; minimum, 16 cfs May 21-23, 1947 (affected by backwater from Pigeonroost Creek); minimum unaffected by backwater, 28 cfs Sept. 16-23, 1940, June 19-25, Sept. 21-24, 1941; minimum gage height, 2.30 ft Sept. 21-24, 1941.

Remarks.--Coldwater River and Pigeonroost Creek are interconnected through an old creek channel. For records on Pigeonroost Creek below interconnection, see elsewhere in this report.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	103	270	750	1,470	784	413	412	78.4	132	252	80.7	67.5	400
1952	68.2	335	996	980	660	906	269	107	60.0	56.2	75.2	54.6	381
1953	50.9	90.5	106	131	1,032	664	530	2,038	56.8	224	53.3	48.9	416

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	532	-
1951	1211	11,400	Jan. 3, 1951	56	400	-	-	432	-
1952	1241	11,200	Jan. 27, 1952	50	381	-	-	284	-
1953	1281	12,300	May 19, 1953	47	416	-	-	-	-

2770. Pigeonroost Creek near Lewisburg, Miss.

Location.--Lat 34°49'49", long 89°49'20", in NW¼ sec.15, T.3 S., R.6 W., Chickasaw meridian, near left bank on downstream side of bridge on State Highway 305, 1.6 miles upstream from mouth and 2.4 miles south of Lewisburg.

Drainage area.--228 sq mi. High flows intermingle above station with Coldwater River.

Records available.--October 1939 to September 1953.

Gage.--Water-stage recorder. Datum of gage is 253.14 ft above mean sea level, datum of 1929, with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to Sept. 3, 1942, staff gage at same site and datum. July 12, 1948, to Dec. 17, 1949, staff gage 100 ft downstream at same datum during reconstruction of bridge.

Average discharge.--14 years (1939-53), 253 cfs.

Extremes.--1939-53: Maximum discharge, 34,900 cfs Apr. 9, 1942, from rating curve extended above 4,500 cfs; maximum gage height, 16.74 ft May 19, 1953; minimum discharge, 30 cfs Sept. 15, 1946; minimum gage height observed, 0.87 ft Dec. 20, 21, 1939.

Remarks.--Pigeonroost Creek and Coldwater River are interconnected through an old creek channel above station. For records on Coldwater River below interconnection, see elsewhere in this report.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	64.5	264	369	704	643	284	288	63.1	140	186	51.7	54.0	257
1952	54.8	190	785	538	543	558	188	99.9	58.5	54.5	57.8	58.5	266
1953	56.3	84.5	103	125	545	466	576	1,374	59.5	100	54.9	46.9	298

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	335	-
1951	1211	5,060	Jan. 3, 1951	49	257	-	-	285	-
1952	1241	5,100	Jan. 27, 1952	49	266	-	-	199	-
1953	1281	17,200	May 19, 1953	44	298	-	-	-	-

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2780. Arkabutla Reservoir near Arkabutla, Miss.

Location.--Lat 34°45'26", long 90°07'27", in SW¼ sec.2, T.4 S., R.9 W., Chickasaw meridian, in gatehouse of dam on Coldwater River, 4 miles north of Arkabutla and 54.3 miles upstream from mouth of Coldwater River.
Drainage area.--1,000 sq mi, approximately.
Records available.--August 1941 to September 1960.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to July 1, 1942, staff gage at same site. Prior to Oct. 1, 1958, at datum 191.18 ft above mean sea level.
Extremes.--1941-60: Maximum contents, 649,940 acre-ft May 21, 1953 (elevation, 241.74 ft); minimum since initial filling of reservoir to conservation level, 30 acre-ft at times in 1942-45; minimum elevation, 192.83 ft Aug. 25, 1943.
Remarks.--Reservoir is formed by rolled-fill earth dam with concrete spillway and outlet tunnel. Storage began Aug. 14, 1941. Dam completed Aug. 31, 1945. Capacity, 525,300 acre-ft at elevation 238.3 ft (crest of spillway), of which about 493,800 acre-ft is available for flood-control storage and about 31,500 acre-ft is permanent storage which will be maintained for incidental recreational purposes at elevation 209.3 ft (18 ft above sill of outlet gates). Water below elevation 191.3 ft cannot be withdrawn through outlet tunnel. Figures given herein represent total contents. Reservoir used only for flood control.
Cooperation.--Records furnished by Corps of Engineers and reviewed by Geological Survey.

Contents, in thousands of acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	37.81	64.45	41.61	218.89	229.55	170.29	150.71	72.53	61.35	0.05	2.40	14.02
1952	25.05	54.26	175.53	252.82	232.21	241.76	147.05	88.59	57.07	51.21	47.68	43.51
1953	37.33	35.57	36.92	45.66	165.53	200.60	225.93	536.19	248.80	123.73	66.53	42.86
1954	34.34	37.39	32.19	127.94	114.02	43.77	46.96	65.28	61.58	42.92	42.50	46.70
1955	33.91	33.91	42.38	34.18	90.47	213.3	335.6	184.3	160.7	110.0	63.42	49.94
1956	34.98	52.70	34.77	92.33	304.0	164.2	117.6	96.49	86.41	58.68	45.20	40.84
1957	33.59	32.03	42.86	110.1	217.3	74.17	128.9	118.4	109.3	81.28	62.96	50.22
1958	22.88	190.7	191.8	61.12	56.46	96.07	184.4	228.6	159.1	171.4	121.5	238.5
1959	36.16	33.21	36.75	78.46	88.59	45.53	48.85	49.80	75.17	89.48	74.17	43.58
1960	46.90	62.42	125.7	46.38	56.46	110.9	56.69	90.37	99.70	87.10	92.86	61.28

Note.--Prior to Oct. 1, 1954, contents at 12 p.m. on last day of month, at 8 a.m. thereafter.

2785. Coldwater River at Arkabutla Dam, near Arkabutla, Miss.

Location.--Lat 34°45'26", long 90°07'27", in SW¼ sec.2, T.4 S., R.9 W., Chickasaw meridian, in gatehouse of Arkabutla Dam, 4 miles north of Arkabutla and 54.3 miles upstream from mouth.
Drainage area.--1,000 sq mi, approximately.
Records available.--May 1937 to September 1941, January 1942 to September 1960. Prior to October 1938 monthly discharge only, published in WSP 1311. Prior to October 1941 published as "at Pratts Bridge near Arkabutla."
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to Oct. 1, 1939, staff gage and Oct. 1, 1939, to Sept. 30, 1941, water-stage recorder at site 1.7 miles downstream at datum 187.54 ft above mean sea level. Jan. 1 to June 30, 1942, staff gage 135 ft downstream from outlet tunnel of Arkabutla Dam and July 1, 1942, to Dec. 31, 1947, water-stage recorder at site 370 ft downstream from outlet tunnel, both at datum 171.28 ft above mean sea level. Jan. 1, 1948, to Sept. 30, 1958, at present site at datum 191.18 ft above mean sea level.
Average discharge.--22 years (1937-41, 1942-60), 1,338 cfs (adjusted for storage since January 1942).
Extremes.--1937-60: Maximum discharge observed, 30,200 cfs Jan. 22, 1938 (gage height, 12.9 ft, site and datum then in use); no flow at times in each year 1942-58; minimum daily discharge prior to the effect of construction of Arkabutla Reservoir, 120 cfs Oct. 15, 1938.

A stage of 21.3 ft (from floodmarks) occurred in January 1935 at original site and datum.

Remarks.--Flow completely regulated by Arkabutla Reservoir (see preceding station) since January 1942.
Cooperation.--Records furnished by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	810	576	2,623	2,763	3,340	2,496	2,204	1,482	613	1,776	190	0	1,566
1952	0	563	2,006	2,127	3,598	3,482	2,772	1,490	602	226	225	190	1,433
1953	221	404	395	361	1,824	2,626	2,609	4,211	4,831	2,496	1,062	481	1,790
1954	273	172	615	841	2,239	1,443	486	812	507	405	193	44.1	660
1955	379	128	139	340	825	2,049	3,640	2,637	1,141	1,592	1,063	470	1,202
1956	398	291	661	178	3,683	3,176	2,035	1,398	529	521	320	179	1,104
1957	232	147	287	952	3,184	3,018	1,746	1,130	1,258	1,063	508	903	1,188
1958	710	1,599	3,059	3,097	672	1,072	1,286	2,426	1,790	827	1,058	968	1,556
1959	3,522	616	310	1,611	2,313	1,927	774	294	205	328	634	1,147	1,135
1960	128	5.0	1,574	2,942	1,362	2,178	1,311	738	524	360	309	830	1,024

Monthly and yearly discharge, in inches (adjusted), of Coldwater River at Arkabutla Dam, near Arkabutla, Miss.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.28	1.14	2.60	6.51	3.68	1.77	2.09	0.24	0.47	0.90	0.26	0.22	20.16
1952	.21	1.18	4.59	3.90	3.49	4.19	1.32	.62	.08	.15	.19	.13	20.05
1953	.14	.42	.48	.58	4.15	3.68	3.39	10.67	.001	.53	.15	.09	24.28
1954	.15	.25	.61	2.76	2.07	.35	.48	.59	.50	.12	.21	.13	8.22
1955	.19	.15	.32	.24	1.90	4.62	6.31	.29	.82	.89	.39	.26	16.38
1956	.18	.65	.43	1.64	7.50	1.08	1.64	1.01	.40	.09	.14	.09	14.85
1957	.13	.14	.53	2.83	4.81	.81	2.98	1.13	1.24	.69	.25	.73	16.27
1958	.35	4.90	3.49	1.14	.77	1.86	3.33	3.33	.73	1.20	.27	3.29	24.66
1959	.22	.66	.47	2.56	2.62	1.44	.94	.38	.69	.64	.41	.69	11.72
1960	.27	.30	2.91	2.03	1.63	3.46	.59	1.38	.77	.17	.46	.33	14.30

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Observed				Adjusted[a]			Observed	Adjusted[a]	
		Momentary maximum		Minimum day	Mean	Mean	Per square mile	Runoff in inches	Mean	Mean	Runoff in inches
		Discharge	Date								
1950	-	-	-	-	-	-	-	-	2,092	2,005	27.22
1951	1211	4,830	Dec. 16, 1950	0	1,566	1,485	1.48	20.16	1,444	1,629	22.12
1952	1241	4,100	Mar. 13, 1952	0	1,433	1,474	1.47	20.05	1,302	1,111	15.11
1953	1281	7,120	May 21, 1953	0	1,790	1,789	1.79	24.28	1,790	1,787	24.25
1954	1341	3,230	Feb. 26, 1954	0	660	665	.665	8.22	625	639	7.87
1955	1391	4,900	Apr. 22, 1955	0	1,202	1,206	1.21	16.38	1,261	1,250	16.98
1956	1441	4,580	Feb. 20, 1956	0	1,104	1,092	1.09	14.85	1,046	1,057	14.39
1957	1511	3,950	Feb.7-9, 1957	0	1,188	1,198	1.20	16.27	1,583	1,783	24.21
1958	1561	3,920	Dec. 23, 1957	0	1,556	1,818	1.82	24.66	1,480	1,273	17.27
1959	1631	3,960	Oct. 21, 1958	5	1,135	863	.863	11.72	904	1,020	13.85
1960	1711	3,870	Jan. 5, 1960	5	1,024	1,052	1.05	14.30	-	-	-

a Adjusted for change in contents in Arkabutla Reservoir.

2800. Tallahatchie River near Lambert, Miss.

Location.--Lat 34°10'50", long 90°12'55", in SW¼ sec.29, T.27 N., R.1 E., Choctaw meridian, near center of span on downstream side of highway bridge, a quarter of a mile downstream from Coldwater River, 4 miles southeast of Lambert, and 24½ miles downstream from point of diversion of Panola-Quitman Floodway.

Drainage area.--1,980 sq mi, approximately (does not include 2,600 sq mi of upper Tallahatchie and Yocona Rivers, the entire flow of which is diverted 24½ miles upstream through Panola-Quitman Floodway).

Records available.--October 1935 to September 1960. Prior to October 1938 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 123.83 ft above mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to Nov. 11, 1937, chain gage and Nov. 11, 1937, to Sept. 4, 1946, wire-weight gage, at same site and datum. Since Sept. 11, 1946, auxiliary water-stage recorder 5¾ miles downstream from base gage at datum 2.66 ft higher. Dec. 9, 1938, to Aug. 5, 1941, staff gage and Aug. 6, 1941, to Sept. 10, 1946, wire-weight gage, at same site and datum.

Average discharge.--25 years (1935-60), 2,661 cfs, unadjusted.

Extremes.--1935-60: Maximum discharge observed, 32,800 cfs Jan. 30, 1937 (gage height, 35.54 ft); minimum, 59 cfs Oct. 27-29, 1942; minimum gage height, 5.85 ft Oct. 16-21, 1938.

A stage of 36.8 ft (from floodmarks) occurred in January 1932 (probably affected by levee breaks above).

Remarks.--Daily discharge computed from 8 a.m. gage heights, using fall as a factor. Flow partly regulated by Arkabutla Reservoir on Coldwater River (see elsewhere in this report).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,071	1,092	4,258	8,109	7,210	4,172	4,261	2,361	1,119	2,383	369	205	3,032
1952	140	906	5,966	4,080	7,532	6,932	4,648	2,459	1,094	459	411	315	2,961
1953	316	498	719	650	5,108	5,713	4,961	12,970	6,636	2,809	1,405	582	3,522
1954	381	283	988	3,071	3,348	1,962	1,004	1,855	692	513	304	129	1,201
1955	407	216	297	472	2,042	5,430	9,830	3,952	2,006	2,058	1,351	770	2,397
1956	540	666	1,103	638	10,350	4,526	3,328	2,866	1,269	762	454	300	2,198
1957	255	231	448	2,166	7,992	4,306	4,606	2,167	2,599	2,209	679	1,382	2,377
1958	1,622	6,150	6,460	4,813	1,546	3,338	4,176	7,323	3,165	2,506	1,531	3,709	3,876
1959	3,874	1,694	725	4,008	5,499	3,115	1,992	903	1,266	1,195	1,046	1,796	2,239
1960	572	184	4,167	4,956	2,897	5,199	2,060	2,189	1,209	720	608	1,140	2,166

Yearly discharge, in cubic feet per second, of Tallahatchie River near Lambert, Miss.

Year	WSP	Water year ending Sept. 30							Calendar year		
		Observed				Adjusted a/			Observed	Adjusted a/	
		Momentary maximum		Minimum day	Mean	Mean	Per square mile	Runoff in inches	Mean	Mean	Runoff in inches
		Discharge	Date								
1950	-	-	-	-	-	-	-	-	4,400	4,313	29.57
1951	1211	11,900	Jan. 18, 1951	124	3,032	2,951	1.49	20.23	3,082	3,267	22.40
1952	1241	10,700	Jan. 29, 1952	119	2,961	3,002	1.52	20.64	2,498	2,307	15.86
1953	1281	15,900	May 23, 1953	297	3,522	3,521	1.78	24.14	3,532	3,525	24.17
1954	1341	7,680	Jan. 23, 1954	69	1,201	1,206	.609	8.27	1,139	1,153	7.90
1955	1391	12,900	Apr. 17, 1955	228	2,397	2,401	1.21	16.46	2,513	2,502	17.15
1956	1441	12,700	Feb. 9, 1956	90	2,198	2,186	1.10	15.03	2,083	2,094	14.40
1957	1511	12,500	Feb. 3, 1957	92	2,377	2,387	1.21	16.36	3,490	3,690	25.30
1958	1561	11,600	May 3, 1958	238	3,876	4,138	2.09	28.37	3,214	3,007	20.62
1959	1631	10,300	Feb. 16, 1959	316	2,239	1,967	.993	13.49	2,127	2,243	15.38
1960	1711	9,860	Dec. 19, 1959	113	2,166	2,194	1.11	15.08	-	-	-

a Adjusted for change in contents in Arkabutla Reservoir.

2810. Tallahatchie River at Swan Lake, Miss.

Location.--Lat 33°51'47", long 90°16'45", in SE¼ sec.10, T.23 N., R.1 W., Choctaw meridian, on downstream side of left pier of highway bridge, 1 mile southeast of Swan Lake, 3 miles downstream from Cassidy Bayou, and 18 miles downstream from point where Panola-Quitman Floodway empties into Tallahatchie River.

Drainage area.--5,130 sq mi approximately.

Records available.--November 1929 to September 1938 (except low-water periods), October 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in same vicinity since November 1904 and contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 113.38 ft above mean sea level, datum of 1929 with 1941 Alluvial Valley supplementary adjustment, U. S. Coast and Geodetic Survey. Prior to Oct. 11, 1934, chain gage at datum 2.00 ft higher, Oct. 11, 1934, to Sept. 18, 1944, wire-weight gage at present datum and Sept. 19, 1944, to Dec. 31, 1958, water-stage recorder at present datum, all at site 1.3 miles upstream. Oct. 4, 1944, to Dec. 31, 1958, auxiliary water-stage recorder at site 2.8 miles downstream from former base gage at datum 0.95 ft lower. Nov. 22, 1939, to Aug. 28, 1942, auxiliary staff gage and Aug. 29, 1942, to Oct. 3, 1944, auxiliary wire-weight gage, at site 3.8 miles downstream from former base gage at same datum.

Average discharge.--22 years (1938-60), 7,352 cfs, unadjusted.

Extremes.--1929-60: Maximum discharge observed, 49,200 cfs Apr. 9, 1933; maximum gage height, 37.0 ft, present datum, Jan. 15, 1932 (affected by break in levee); minimum daily discharge determined, 213 cfs Oct. 27, 1942; minimum gage height, 1.38 ft Oct. 26-28, 1942.

Revisions.--The maximum discharge for the water year 1932 has been revised to 44,000 cfs Jan. 25, 1932, superseding figure published in WSP 1311.

Remarks.--Flow partly regulated by Sardis Reservoir on Tallahatchie River, Arkabutla Reservoir on Coldwater River, and Enid Reservoir on Yocona River (see elsewhere in this report).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,395	2,950	9,869	17,980	19,150	12,020	13,000	7,502	6,580	8,917	5,601	4,810	9,346
1952	692	1,494	10,540	13,790	15,860	14,540	12,320	8,079	5,962	5,045	4,676	1,626	7,868
1953	627	1,974	2,275	1,774	10,120	13,520	12,140	19,200	12,000	9,275	7,170	6,583	8,036
1954	5,055	1,874	3,058	6,298	7,860	5,560	3,922	6,499	2,525	2,180	1,708	1,389	3,979
1955	1,507	801	1,001	2,355	4,362	9,555	15,730	8,743	6,690	7,178	8,204	7,571	6,139
1956	3,971	1,557	3,241	1,525	16,720	10,710	8,987	7,082	4,690	3,976	2,906	2,104	5,575
1957	1,953	1,314	1,971	5,214	13,950	9,640	11,070	7,369	7,374	7,760	5,288	6,985	6,597
1958	7,425	13,050	12,730	11,440	9,469	10,320	9,617	15,700	8,466	8,686	7,460	10,080	10,380
1959	9,191	7,615	5,710	7,409	11,720	7,170	5,094	3,766	4,949	5,062	3,382	2,338	6,076
1960	1,451	676	6,328	10,630	9,730	12,420	8,445	7,481	5,310	3,249	1,672	2,294	5,803

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Observed				Adjusted a/			Observed	Adjusted a/	
		Momentary maximum		Minimum day	Mean	Mean	Per square mile	Runoff in inches	Mean	Mean	Runoff in inches
		Discharge	Date								
1950	-	-	-	-	-	-	-	-	11,010	10,980	29.05
1951	1211	23,600	Jan. 8, 1951	1,570	9,346	9,052	1.76	23.95	8,968	9,787	25.90
1952	1241	18,600	Jan. 1, 1952	485	7,868	7,926	1.55	20.88	7,202	6,241	16.56
1953	1281	24,100	May 21, 1953	586	8,036	8,465	1.65	22.40	8,471	8,545	22.61
1954	1341	12,800	Jan. 26, 1954	785	3,979	3,665	.714	9.70	3,415	3,494	9.25
1955	1391	21,700	Mar. 26, 1955	444	6,139	6,310	1.23	16.70	6,601	6,537	17.30
1956	1441	19,100	Feb. 10, 1956	342	5,575	5,472	1.07	14.52	5,277	5,312	14.09
1957	1511	18,900	Feb. 5, 1957	397	6,597	6,743	1.31	17.84	8,940	10,080	26.67
1958	1561	28,300	May 4, 1958	2,300	10,380	11,180	2.18	29.58	9,486	8,300	21.96
1959	1631	15,800	Feb. 18, 19, 1959	980	6,076	5,062	.987	13.39	4,900	5,491	14.53
1960	1711	13,900	Mar. 6, 1960	504	5,803	5,878	1.15	15.60	-	-	-

a Adjusted for change in contents in Arkabutla, Sardis, and Enid Reservoirs.

2820. Yalobusha River at Calhoun City, Miss.

Location.--Lat 33°50'20", long 89°18'55", in SE¼SE¼ sec.23, T.23 N., R.9 E., Choctaw meridian, on left bank of Yalobusha River Canal at downstream side of bridge on State Highway 9, three-quarters of a mile upstream from Topashaw Creek, 1.2 miles south of Calhoun City, 1½ miles upstream from old channel, and 4¾ miles upstream from Topashaw Creek Canal. Records include flow in Topashaw Creek Canal and all supplemental channels.

Drainage area.--305 sq mi (combined drainage area of all channels).

Records available.--October 1950 to September 1960.

Gage.--Water-stage recorder and supplemental wire-weight gage. Datum of gage is 236.06 ft above mean sea level, datum of 1929, supplementary adjustment of 1944 (levels by Corps of Engineers). Prior to Nov. 15, 1950, wire-weight gage at site 75 ft downstream at same datum. Wire-weight and crest-stage gage on Topashaw Creek Canal 2½ miles southwest of base gage.

Average discharge.--10 years (1950-60), 321 cfs.

Extremes.--1950-60: Maximum discharge, 23,000 cfs Mar. 29, 1951; maximum gage height at river gage, 15.22 ft Mar. 29, 1951; no flow at times in 1950-57.

Remarks.--Discharge computed by combining the flow of individually rated Yalobusha River and Topashaw Creek Canal.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15.0	115	453	1,497	2,130	1,805	610	35.9	29.8	12.5	0.80	2.02	550
1952	1.55	9.06	438	266	332	648	313	64.4	6.44	2.35	4.18	0	174
1953	.213	6.71	12.5	90.0	1,118	673	434	647	5.71	34.1	4.68	.383	247
1954	.15	1.14	16.2	341	192	83.2	92.0	354	9.59	1.26	1.41	.003	90.9
1955	2.58	6.64	73.3	101	586	1,122	1,165	128	51.9	197	3.61	3.44	284
1956	.83	4.40	13.4	11.5	1,199	728	961	478	9.09	261	6.75	1.66	280
1957	1.93	3.83	226	1,010	1,226	407	569	13.6	201	159	3.61	31.5	315
1958	140	2,827	564	383	348	641	1,254	921	39.8	39.0	44.7	357	627
1959	24.2	20.2	21.1	337	1,156	413	572	101	476	39.0	18.3	14.2	259
1960	19.0	28.0	974	1,095	582	1,345	301	242	6.16	7.34	27.7	2.20	388

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.06	0.42	1.71	5.66	7.27	6.82	2.23	0.14	0.11	0.05	0.003	0.007	24.48
1952	.006	.03	1.66	1.00	1.17	2.45	1.14	.24	.02	.009	.02	0	7.74
1953	.0008	.02	.05	.34	3.82	2.54	1.59	2.45	.02	.13	.02	.001	10.98
1954	.0006	.004	.06	1.29	.66	.31	.34	1.34	.04	.005	.005	.00001	4.05
1955	.01	.02	.28	.38	2.00	4.24	4.26	.48	.19	.75	.01	.01	12.63
1956	.003	.02	.05	.04	4.24	2.75	3.52	1.81	.03	.01	.03	.006	12.51
1957	.007	.01	.85	3.82	4.19	1.54	2.08	.05	.73	.60	.01	.12	14.01
1958	.53	10.34	2.13	1.45	1.19	2.42	4.59	3.48	.15	.15	.17	1.30	27.90
1959	.09	.07	.08	1.27	3.95	1.56	2.09	.38	1.74	.15	.07	.05	11.50
1960	.07	.10	3.68	4.14	2.06	5.08	1.10	.91	.02	.03	.10	.008	17.30

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950									
1951	1241	23,000	Mar. 29, 1951	0.1	550	1.80	24.48	539	23.99
1952	1241	4,570	Dec. 21, 1951	0	174	.570	7.74	137	6.12
1953	1281	13,100	Feb. 21, 1953	0	247	.810	10.98	246	10.98
1954	1341	3,760	Jan. 16, 1954	0	90.9	.298	4.05	96.4	4.30
1955	1391	21,900	Mar. 22, 1955	0	284	.931	12.63	279	12.39
1956	1711	8,600	Feb. 4, 1956	0	280	.918	12.51	298	13.30
1957	1711	9,350	Feb. 1, 1957	0	315	1.03	14.01	587	26.14
1958	1711	17,100	Nov. 14, 1957	1.7	627	2.06	27.90	340	15.14
1959	1711	9,310	Feb. 13, 1959	1.0	259	.849	11.50	340	15.11
1960	1711	12,900	Mar. 3, 1960	.2	388	1.27	17.30	-	-

2830. Skuna River at Bruce, Miss.

Location.--Lat 33°58', long 89°21', in SW¼ sec.6, T.13 S., R.1 W., Chickasaw meridian, near left bank on downstream side of bridge on State Highway 9, 1 mile south of Bruce.
Drainage area.--254 sq mi.
Records available.--October 1947 to September 1960. Prior to March 1948 monthly discharge only, published in WSP 1311.
Gage.--Water-stage recorder. Datum of gage is 238.75 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Aug. 31, 1948, and Mar. 24, 1955, to Sept. 12, 1957, wire-weight gage at same site and datum.
Average discharge.--13 years (1947-60), 383 cfs.
Extremes.--1948-60: Maximum discharge, 61,400 cfs Mar. 21, 1955 (gage height, 24.11 ft), from rating curve extended above 19,000 cfs on basis of incomplete current-meter measurement and computation of flow over road and through bridge openings; minimum, 0.9 cfs Aug. 18, 1954.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16.5	141	449	1,416	1,739	1,583	642	74.9	95.6	143	6.68	7.65	520
1952	8.15	57.0	1,056	721	489	649	372	45.9	14.5	4.85	22.0	4.10	288
1953	4.87	17.5	30.3	135	1,234	1,070	507	721	7.85	127	4.47	3.86	317
1954	3.23	6.10	35.8	375	298	58.4	210	370	11.4	7.25	1.72	1.90	114
1955	5.40	6.71	244	134	526	2,369	993	445	147	177	39.8	3.93	425
1956	4.37	5.67	35.0	19.5	1,069	416	1,319	547	67.9	10.4	5.84	5.46	287
1957	4.12	10.6	321	931	1,084	361	895	36.2	154	255	10.3	43.3	337
1958	174	1,922	590	383	265	670	838	594	54.0	69.4	17.5	895	537
1959	45.2	130	44.7	485	894	577	460	164	711	44.4	9.12	32.9	294
1960	65.0	23.6	1,041	869	459	998	234	247	12.1	9.21	59.3	12.6	338

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.07	0.62	2.04	6.43	7.13	7.19	2.82	0.34	0.42	0.65	0.03	0.03	27.77
1952	.04	.25	4.79	3.27	2.08	2.95	1.63	.21	.06	.02	.10	.02	15.42
1953	.02	.08	.14	.61	5.06	4.86	2.23	3.27	.03	.58	.02	.02	16.92
1954	.01	.03	.16	1.70	1.22	.27	.92	1.68	.05	.03	.008	.008	6.09
1955	.02	.03	1.11	.61	2.15	10.75	4.36	2.02	.64	.80	.18	.02	22.69
1956	.02	.02	.16	.09	4.54	1.89	5.79	2.48	.30	.05	.03	.02	15.39
1957	.02	.05	1.46	4.23	4.44	1.64	3.93	.16	.68	1.16	.05	.19	18.01
1958	.79	8.44	2.68	1.74	1.09	3.04	3.68	2.70	.24	.32	.08	3.93	28.73
1959	.20	.57	.20	2.20	3.67	2.62	2.02	.74	3.12	.20	.04	.14	15.72
1960	.30	.10	4.72	3.95	1.95	4.53	1.03	1.12	.05	.04	.27	.06	18.12

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	510	27.26
1951	1211	17,800	Mar. 29, 1951	3.9	520	2.05	27.77	563	30.12
1952	1241	8,050	Dec. 26, 1951	2.6	288	1.13	15.42	197	10.58
1953	1281	9,480	Feb. 21, 1953	2.4	317	1.25	16.92	316	16.88
1954	1341	5,400	Feb. 20, 1954	1.0	114	.449	6.09	132	7.05
1955	1391	61,400	Mar. 21, 1955	2.3	425	1.67	22.69	407	21.73
1956	1441	11,600	Apr. 30, 1956	1.8	287	1.13	15.39	312	16.72
1957	1511	9,250	Feb. 1, 1957	2.8	337	1.33	18.01	531	28.39
1958	1561	10,800	Sept.20, 1958	5.4	537	2.11	28.73	333	17.79
1959	1631	11,400	June 10, 1959	3.8	294	1.16	15.72	372	19.87
1960	1711	10,600	Dec. 18, 1959	2.4	338	1.33	18.12	-	-

2845. Grenada Reservoir near Grenada, Miss.

Location.--Lat 33°48'31", long 89°46'14", in NE¼ sec.4, T.22 N., R.5 E., Choctaw meridian, at gatehouse of dam on Yalobusha River, 2½ miles upstream from Batupan Creek, 3 miles northeast of Grenada, and 63.6 miles upstream from mouth of Yalobusha River.
Drainage area.--1,320 sq mi, approximately.
Records available.--July 1953 to September 1960.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to Dec. 19, 1953, staff gage at same site. Prior to Oct. 1, 1958, at datum 160 ft above mean sea level.
Extremes.--1953-60: Maximum contents, 887,400 acre-ft Apr. 28, 1955 (elevation, 223.04 ft); minimum since initial filling of reservoir to conservation level, 74,670 acre-ft Oct. 27, 1954 (elevation, 191.83 ft).
Remarks.--Reservoir is formed by rolled-fill earth dam with concrete spillway and outlet tunnel. Storage began June 30, 1953. Capacity, 1,337,400 acre-ft at elevation 231.0 ft (crest of spillway), of which about 1,251,700 acre-ft is available for flood-control storage and about 85,700 acre-ft is permanent storage which will be maintained for incidental recreational purposes at elevation 193.0 ft (24 ft above sill of outlet gates). Water below 169.0 ft cannot be withdrawn through outlet tunnel. Figures given herein represent total contents. Reservoir used only for flood control.
Cooperation.--Records furnished by Corps of Engineers and reviewed by Geological Survey.

Contents, in thousands of acre-feet, on last day of month, of Grenada Reservoir near Grenada, Miss.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953	-	-	-	-	-	-	-	-	-	2.12	1.48	1.33
1954	1.30	1.38	2.20	93.18	162.37	93.58	125.38	269.69	124.77	90.04	81.98	75.47
1955	74.93	76.47	133.47	97.20	170.3	593.5	877.7	757.9	635.1	539.5	398.4	288.1
1956	121.9	88.83	91.36	91.05	353.8	347.5	477.8	465.0	376.9	317.2	235.7	158.5
1957	128.2	89.43	137.4	272.4	534.2	489.4	548.6	402.1	398.4	438.9	307.9	190.1
1958	85.59	713.2	660.4	481.7	325.2	305.8	431.5	727.3	621.3	465.3	265.7	396.0
1959	256.4	95.51	85.69	109.1	326.0	314.2	365.6	331.4	375.5	290.0	137.2	112.2
1960	90.75	91.56	332.7	406.5	395.8	573.8	475.2	447.7	325.2	222.9	185.0	174.2

Note.--Prior to Oct. 1, 1954, contents at 12 p.m. on last day of month, at 8 a.m. thereafter.

2850. Yalobusha River at Grenada Dam, near Grenada, Miss.

Location.--Lat 33°48'31", long 89°46'14", in NW¼ sec.4, T.22 N., R.5 E., Choctaw meridian, in gatehouse of Grenada Dam, 2¼ miles upstream from Batupan Creek, 3 miles northeast of Grenada, and 63.6 miles upstream from mouth.
Drainage area.--1,320 sq mi, approximately.
Records available.--July 1953 to September 1960.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to Dec. 19, 1953, staff gage at same site. Prior to Oct. 1, 1959, at datum 160.00 ft above mean sea level.
Average discharge.--7 years (1953-60), 1,674 cfs (adjusted for storage).
Extremes.--1953-60: Maximum discharge, 4,880 cfs Jan. 3, 1958; no flow at times prior to Jan. 1, 1959.
Remarks.--Flow completely regulated by Grenada Reservoir (see preceding station).
Cooperation.--Records furnished by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	-	-	-	-	-	-	428	84.7	43.5	-
1954	21.2	30.7	216	255	363	1,539	224	327	2,448	558	59.5	42.6	506
1955	40.3	41.4	71.5	1,676	1,298	1,225	933	2,547	2,563	2,439	2,294	2,137	1,440
1956	2,683	635	269	187	1,541	2,624	2,774	2,485	1,462	885	1,219	1,275	1,503
1957	592	818	804	1,833	2,137	2,717	2,550	2,591	1,758	1,605	2,024	2,363	1,813
1958	2,757	586	3,440	4,603	4,380	3,285	1,877	970	2,317	2,885	3,334	2,061	2,705
1959	2,674	3,341	446	1,458	1,138	2,438	1,516	1,124	1,859	2,146	2,564	895	1,804
1960	761	178	768	3,257	3,418	2,651	2,891	1,667	2,139	1,662	944	211	1,707

Monthly and yearly discharge, in inches (adjusted)

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	-	-	-	-	-	-	0.40	0.06	0.03	-
1954	0.02	0.03	0.20	1.52	1.27	0.37	0.64	2.34	0.01	(a)	(a)	(a)	†6.40
1955	.03	.05	.98	.82	2.10	7.04	4.81	.60	.35	.76	.005	.24	17.78
1956	(a)	.11	.27	.17	4.94	2.21	4.35	1.85	0	(a)	(a)	(a)	13.90
1957	.09	.15	1.36	3.99	4.98	1.76	2.92	.18	1.52	1.90	(a)	.33	†19.18
1958	.97	9.40	2.19	1.47	1.30	2.62	3.94	4.40	.44	.37	.01	3.72	30.83
1959	.26	.52	.30	1.57	3.98	1.97	2.01	.54	2.12	.65	.15	.36	14.43
1960	.36	.17	4.10	4.01	2.50	4.83	1.04	1.06	.06	.02	.29	.04	18.48

† Corrected.
a Evaporation and seepage exceeded inflow.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Observed				Adjusted			Observed	Adjusted	
		Momentary maximum		Minimum day	Mean	Mean	Per square mile	Runoff in inches	Mean	Mean	Runoff in inches
		Discharge	Date								
1950											
1951											
1952											
1953	1281	-	-	-	-	-	-	-	-	-	-
1954	1341	3,790	Mar. 9, 1954	0	506	608	0.461	†6.40	496	687	†7.21
1955	1391	3,990	Mar. 31, 1955	0	1,440	1,729	1.31	17.78	1,730	1,661	17.10
1956	1441	3,120	May 7,8, 1956	0	1,503	1,327	1.01	13.90	1,386	1,447	†15.12
1957	1511	3,020	Sept.19, 1957	0	1,813	1,855	1.41	†19.18	2,201	2,920	†30.14
1958	1561	4,880	Jan. 3, 1958	0	2,705	2,998	2.27	30.83	2,670	1,882	19.35
1959	1631	3,720	Nov. 3, 1958	0	1,804	1,406	1.07	14.43	1,409	1,751	17.98
1960	1711	3,870	Feb. 19, 1960	5	1,707	1,793	1.36	18.48	-	-	-

† Corrected.

2855. Yalobusha River at Grenada, Miss.

Location.--Lat 33°47', long 89°48', in NE¼ sec.7, T.22 N., R.5 E., Choctaw meridian, near right bank on downstream side of bridge on U. S. Highway 51 in Grenada, 0.8 mile downstream from Illinois Central Railroad bridge, 1 mile downstream from Batupan River, 6 miles downstream from Skuna River, and 60 miles upstream from confluence with Tallahatchie River.
Drainage area.--1,550 sq mi, approximately.
Records available.--June to November 1906, July 1908 to March 1912, July 1928 to June 1953.
Gage.--Water-stage recorder. Datum of gage is 152.03 ft above mean sea level, datum of 1929 with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustments, U. S. Coast and Geodetic Survey. Prior to July 23, 1934, chain gage at bridge 0.1 mile downstream at same datum. July 24, 1934, to Oct. 29, 1944, wire-weight gage at present site and datum.
Average discharge.--26 years (1908-9, 1910-11, 1928-52), 2,069 cfs.
Extremes.--1906, 1908-12, 1928-53: Maximum discharge, 78,900 cfs Feb. 14, 1948 (gage height, 30.78 ft); minimum, 35 cfs Sept. 8, 19, 20, Nov. 20, 1909 (gage height, 0.9 ft).
Cooperation.--Records furnished by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	268	826	2,684	8,836	10,460	8,139	6,012	792	401	451	118	103	3,214
1952	98.0	342	4,124	2,440	2,786	3,874	2,268	610	204	87.1	104	59.6	1,417
1953	60.1	161	238	735	6,822	6,265	1,910	5,474	151	-	-	-	-

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.20	0.59	2.00	6.57	7.03	6.05	4.33	0.59	0.29	0.34	0.09	0.07	28.15
1952	.07	.25	3.07	1.82	1.94	2.88	1.63	.45	.15	.06	.08	.04	12.44
1953	.04	.12	.18	.55	4.58	4.66	1.37	4.07	.11	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	2,603	22.79
1951	1211	56,400	Mar. 30, 1951	81	3,214	2.07	28.15	3,282	28.75
1952	1241	9,800	Dec. 21, 1951	54	1,417	.914	12.44	1,069	9.39
1953	1281	26,600	Feb. 23, 1953	-	-	-	-	-	-

2865. Thompson Creek at McCarley, Miss.

Location.--Lat 33°31'25", long 89°50'40", in SE¼ sec.11, T.19 N., R.4 E., Choctaw meridian, on left bank at downstream side of highway bridge, 0.1 mile upstream from Columbus and Greenville Railway Co. bridge, 0.4 mile upstream from mouth, and 0.6 mile west of McCarley.
Drainage area.--14.4 sq mi.
Records available.--October 1956 to September 1960.
Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 251.86 ft above mean sea level, datum of 1929.
Extremes.--1956-60: Maximum discharge, 2,580 cfs Dec. 17, 1959 (gage height, 12.48 ft); minimum, 1.0 cfs Oct. 1, 1956; minimum gage height, 2.75 ft for many days in 1960.
Flood of Apr. 12, 1955, reached a stage of 14.05 ft and flood of Mar. 27, 1951, reached a stage of 12.96 ft, from records furnished by U. S. Department of Agriculture, Soil Conservation Service.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	1.82	2.86	28.0	46.8	29.7	19.6	34.2	5.12	37.2	16.9	2.63	4.91	19.0
1958	8.20	103	20.1	17.0	25.4	31.9	50.0	42.1	20.8	7.04	9.34	33.2	30.5
1959	7.01	5.55	6.02	9.95	51.5	15.2	22.2	31.1	9.55	16.9	4.47	8.15	15.4
1960	8.44	5.11	48.6	45.6	37.0	50.5	10.6	11.3	3.94	2.65	2.48	2.38	19.1

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	0.15	0.22	2.24	3.74	2.15	1.57	2.65	0.41	2.88	1.35	0.21	0.38	17.95
1958	.66	8.01	1.61	1.36	1.84	2.55	3.87	3.37	1.61	.56	.75	2.57	28.76
1959	.56	.43	.48	.80	3.72	1.22	1.72	2.49	.74	1.35	.36	.63	14.50
1960	.68	.40	3.89	3.65	2.77	4.04	.82	.91	.31	.21	.20	.18	18.06

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1957	1511	2,420	Jan. 4, 1957	1.0	19.0	1.32	17.95	27.2	25.62
1958	1561	2,190	June 20, 1958	2.8	30.5	2.12	28.76	21.2	19.95
1959	1631	2,340	(a)	2.5	15.4	1.07	14.50	19.1	18.00
1960	1711	2,580	Dec. 17, 1959	2.0	19.1	1.33	18.06	-	-

a Feb. 12, May 30, 1959.

2870. Yazoo River at Greenwood, Miss.

Location.--Lat 33°31'17", long 90°11'03", in SW¼ sec.10, T.19 N., R.1 E., Choctaw meridian, on left bank 110 ft downstream from bridge on U. S. Highways 49E and 82 (old) in Greenwood, 0.4 mile downstream from Palusha Bayou, 3 miles downstream from confluence of Tallahatchie and Yalobusha Rivers, and at mile 169.4.

Drainage area.--7,450 sq mi, approximately.

Records available.--October 1907 to December 1912, April to June 1913, and October 1927 to September 1960 in reports of Geological Survey. Monthly discharge only for some periods published in WSP 1311. January 1909 to December 1927 (discharge measurements only) and since January 1928, in reports of Mississippi River Commission. Gage-height records collected at same site since 1904 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 92.07 ft above mean sea level, datum of 1929 with 1941 Alluvial Valley supplementary adjustment, U. S. Coast and Geodetic Survey. Prior to Oct. 1, 1940, staff, chain, and wire-weight gages on highway bridge 110 ft upstream at various datums.

Average discharge.--38 years (1907-12, 1927-60), 9,719 cfs, unadjusted.

Extremes.--1907-12, 1927-60: Maximum discharge, 72,900 cfs Jan. 19, 1932 (gage height, 40.10 ft); minimum, 536 cfs Oct. 20, 1943; minimum gage height observed, 1.0 ft Oct. 17, 1908, present datum.
Maximum stage known, 41.2 ft in 1882, caused by overflow from Mississippi River (discharge not determined), from reports of Mississippi River Commission.

Remarks.--Flow partly regulated since Aug. 26, 1939, by Sardis Reservoir on Tallahatchie River, Arkabutla Reservoir on Coldwater River, Enid Reservoir on Yocona River, and Grenada Reservoir on Yalobusha River (see elsewhere in this report).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,142	3,941	12,030	24,060	26,290	20,600	25,470	11,310	6,949	9,009	5,583	4,962	12,860
1952	1,224	2,058	11,290	17,270	18,380	17,780	16,210	9,907	6,302	5,040	4,709	2,032	9,331
1953	904	2,127	2,954	2,826	12,980	21,980	16,370	24,150	14,940	9,674	7,399	6,651	10,230
1954	5,220	2,195	3,547	7,079	9,210	7,547	4,604	9,665	5,183	3,046	2,013	1,624	5,062
1955	1,690	1,089	1,644	4,889	7,131	12,510	20,920	12,880	9,427	9,815	10,310	9,422	8,469
1956	7,160	2,493	3,694	1,809	19,500	16,650	14,220	9,795	6,485	5,244	4,402	3,632	7,874
1957	2,777	2,488	3,865	8,831	19,800	14,130	15,940	10,420	10,260	10,930	7,381	9,566	9,617
1958	10,800	16,500	18,730	16,840	15,460	14,980	12,720	21,790	12,140	13,260	12,020	15,410	15,060
1959	14,460	10,820	6,702	9,222	15,350	11,740	8,671	6,181	7,233	8,155	6,448	3,885	9,036
1960	2,896	1,353	8,741	15,790	15,810	17,910	12,390	10,090	7,292	5,072	2,907	2,745	8,573

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Observed					Adjusted a/			Observed	Adjusted a/	
		Momentary maximum		Minimum day	Mean		Mean	Per square mile	Runoff in inches	Mean	Mean	Runoff in inches
		Discharge	Date									
1950	-	-	-	-	-		-	-	-	13,770	-	25.04
1951	1211	35,200	Apr. 5, 1951	2,260	12,860		12,570	1.69	22.90	12,310	13,130	23.92
1952	1241	20,900	Jan. 4, 1952	926	9,331		9,389	1.26	17.15	8,603	7,642	13.96
1953	1281	26,800	May 22,23,1953	872	10,230		10,660	1.43	19.42	10,650	10,730	19.55
1954	1341	15,400	May 5, 1954	1,020	5,062		4,850	.651	8.84	4,510	4,780	8.71
1955	1391	23,600	Apr. 15, 1955	708	8,469		8,929	1.20	16.27	9,223	9,091	16.56
1956	1441	22,300	Feb.20-22,1956	960	7,874		7,595	1.02	13.88	7,516	7,612	13.90
1957	1511	22,000	Feb. 4, 1957	890	9,617		9,805	1.32	17.87	15,060	16,160	29.44
1958	1561	28,200	May 10, 1958	3,850	15,060		16,160	2.17	29.44	13,880	11,910	21.70
1959	1631	22,200	Oct. 1, 1958	2,000	9,036		7,624	1.02	13.89	7,449	8,382	15.27
1960	1711	19,800	Mar.16,17,1960	980	8,573		8,734	1.17	15.96	-	-	-

a Adjusted for change in contents in Arkabutla, Sardis, Enid, and Grenada Reservoirs.

2885. Sunflower River at Sunflower, Miss.

Location.--Lat 33°32'50", long 90°32'35", in NE¼ sec.6, T.19 N., R.3 W., Choctaw meridian, near right bank on downstream side of highway bridge, half a mile northwest of Sunflower, 2½ miles downstream from Jones Bayou, and 19 miles upstream from Quiver River.

Drainage area.--767 sq mi.

Records available.--October 1935 to September 1960 in reports of Geological Survey. Prior to October 1938 monthly discharge only, published in WSP 1311. February 1918 to September 1935 (gage heights only) in reports of Corps of Engineers, Vicksburg district.

Gage.--Water-stage recorder. Datum of gage is 92.95 ft above mean sea level, datum of 1929 with 1941 Alluvial Valley supplementary adjustment, U. S. Coast and Geodetic Survey (levels by Corps of Engineers). Prior to Nov. 28, 1934, staff gage on upstream side of bridge at datum 93.00 ft lower. Nov. 28, 1934, to Nov. 9, 1937, chain gage and Nov. 10, 1937, to June 30, 1947, wire-weight gage, on upstream side of bridge at present datum.

Average discharge.--25 years (1935-60), 991 cfs.

Extremes.--1935-60: Maximum discharge, 9,300 cfs May 5, 1958 (gage height, 28.31 ft); minimum, 81 cfs Aug. 16, 1954, Aug. 9, 10, 1956; minimum gage height, 0.83 ft July 19, 1956.

Remarks.--Diversion for irrigation of about 5,000 acres above station.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	226	272	1,590	3,539	3,130	1,424	1,537	604	293	593	196	184	1,122
1952	178	210	1,729	1,602	2,206	1,560	1,657	752	500	210	171	172	908
1953	163	174	238	334	2,351	2,905	1,272	4,902	1,196	458	208	160	1,193
1954	137	148	429	1,519	928	253	357	1,760	204	112	99.7	108	504
1955	121	120	116	240	978	2,026	3,763	652	215	213	132	116	719
1956	128	124	250	127	4,326	990	1,035	430	282	100	90.8	101	648
1957	93.5	99.9	263	1,092	3,402	854	1,719	631	767	699	133	466	832
1958	1,133	3,629	2,748	1,254	654	1,421	1,429	6,078	1,228	2,076	1,425	2,347	2,130
1959	1,792	866	401	1,087	2,410	735	800	273	256	415	303	276	791
1960	362	221	1,196	1,468	1,187	2,591	357	486	250	151	149	180	719

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.34	0.40	2.39	5.32	4.25	2.14	2.24	0.91	0.43	0.89	0.29	0.27	19.87
1952	.27	.30	2.60	2.41	3.10	2.35	2.41	1.13	.73	.32	.26	.25	16.13
1953	.24	.25	.36	.50	3.19	4.37	1.85	7.37	1.74	.69	.31	.23	21.10
1954	.21	.21	.65	2.28	1.26	.38	.52	2.65	.30	.17	.15	.16	8.94
1955	.18	.18	.18	.36	1.33	3.05	5.48	.98	.31	.32	.20	.17	12.74
1956	.19	.18	.38	.19	6.08	1.49	1.51	.65	.41	.15	.14	.15	11.52
1957	.14	.15	.40	1.64	4.62	1.28	2.50	.95	1.12	1.05	.20	.68	14.73
1958	1.70	5.28	4.13	1.88	.89	2.14	2.08	9.14	1.79	3.12	2.14	3.41	37.70
1959	2.69	1.26	.60	1.63	3.27	1.10	1.16	.41	.37	.62	.46	.40	13.93
1960	.54	.32	1.79	2.21	1.67	3.89	.52	.73	.36	.23	.22	.26	12.74

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	1,582	27.58
1951	1211	5,080	Jan. 8, 1951	175	1,122	1.46	19.87	1,125	19.91
1952	1241	3,450	Jan. 31, 1952	152	908	1.18	16.13	778	13.81
1953	1281	6,300	May 20,21,1953	145	1,193	1.56	21.10	1,205	21.32
1954	1341	3,370	Jan. 26, 1954	83	504	.657	8.94	474	8.41
1955	1391	5,910	Mar. 26, 1955	100	719	.937	12.74	731	12.95
1956	1441	6,460	Feb. 10, 1956	81	648	.845	11.52	645	11.46
1957	1511	6,060	Feb. 5, 1957	85	832	1.08	14.73	1,421	25.15
1958	1561	9,300	May 5, 1958	127	2,130	2.78	37.70	1,760	31.14
1959	1631	5,730	Oct. 1, 1958	145	791	1.03	13.97	684	12.07
1960	1711	3,760	Mar. 6, 1960	126	719	.937	12.74	-	-

2890. Mississippi River near Vicksburg, Miss.

Location.--Lat 32°18'45", long 90°54'25", in T.16 N., R.3 E., Washington meridian, over cavity of fourth pier from left bank at combined highway and railway bridge of Vicksburg Bridge Commission of Warren County, at southern city limits of Vicksburg, 1½ miles downstream from Yazoo diversion canal and at mile 430.4.

Drainage area.--1,144,500 sq mi, approximately.

Records available.--Discharge: January 1928 to September 1960. Prior to July 1931 monthly discharge only, published in WSP 1311.

Gage heights: April 1930 to September 1960 in reports of Geological Survey. Since December 1871, referred to canal gages (above 30.0 ft only, since December 1949) and since September 1934, referred to bridge gage, in reports of Mississippi River Commission. Since May 1873, in reports of U. S. Weather Bureau.

Extremes of stage, intermittently 1828 to 1871, and since 1871; extremes of discharge for various years 1858 to 1926 and since 1926; annual mean discharges since 1817; and records of daily discharge since 1928 are available in reports of Mississippi River Commission.

Gage.--Water-stage recorder (bridge gage) maintained by Geological Survey. Datum of gage is 46.22 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (Corps of Engineers bench mark) or 46.16 ft above mean Gulf level. Gages used by Mississippi River Commission: Dec. 10, 1871, to Sept. 30, 1929, staff gage at mouth of Yazoo diversion canal 1½ miles upstream from bridge gage; since October 1929, inclined staff gage on Yazoo diversion canal 1,600 ft upstream from mouth. Gages used by U. S. Weather Bureau: May 18, 1873, to Oct. 29, 1919, staff gage half a mile upstream from bridge gage; Oct. 30, 1919, to Nov. 30, 1922, staff gage at mouth of Yazoo Canal; Dec. 1, 1922, to Aug. 31, 1934, inclined gage on Yazoo diversion canal; since Sept. 1, 1934, wire-weight gage at bridge. All gages at same datum, but readings differ due to slope of water surface between them.

Average discharge.--32 years (1928-60), 559,500 cfs.

Extremes.--1928-60: Maximum discharge, 2,080,000 cfs Feb. 17, 1937; maximum gage height, 53.2 ft Feb. 21, 1937; minimum discharge, 99,400 cfs Nov. 1, 1939; minimum gage height, -7.02 ft Feb. 3, 1940 (ice jam above).

Maximum stage known since at least 1871, 58.4 ft (corps of Engineers gage on Yazoo diversion canal), approximately 56.0 ft on Geological Survey gage, May 4, 1927.

Remarks.--Natural flow of stream affected by many reservoirs and navigation dams.

Cooperation.--Records of daily discharge computed jointly by Corps of Engineers and Geological Survey.

Monthly and yearly mean discharge, in thousands of cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	387.7	366.4	703.0	769.3	995.7	1,241	1,143	976.7	654.6	1,010	579.8	484.3	775.4
1952	347.2	531.4	923.2	1,013	1,113	965.5	1,262	928.9	513.8	375.2	276.2	222.2	704.5
1953	153.8	153.5	293.6	351.6	561.2	837.9	816.9	856.6	578.3	359.1	278.4	188.0	451.7
1954	144.8	141.8	172.5	295.5	405.6	373.1	408.8	583.3	380.0	309.8	215.5	197.6	301.7
1955	258.4	269.5	238.7	491.2	466.3	975.9	1,010	566.5	455.5	332.0	230.3	165.5	454.7
1956	237.6	217.0	242.5	150.1	810.3	955.2	735.2	545.6	397.2	334.1	309.1	213.7	427.3
1957	158.5	159.4	285.7	388.3	982.5	644.2	908.7	891.5	1,106	736.1	374.7	273.7	572.0
1958	260.4	574.1	865.6	715.4	594.7	627.0	806.0	1,070	565.3	682.0	849.0	358.3	663.3
1959	304.0	253.0	313.2	333.3	823.0	790.5	681.0	558.3	475.6	302.5	302.6	216.0	443.4
1960	484.2	353.9	517.1	715.1	701.9	650.4	944.0	793.8	637.5	586.3	282.3	271.0	577.7

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	23,840	21,800	43,220	47,300	55,300	76,330	68,030	60,060	38,950	62,100	35,650	28,820	561,400
1952	21,350	31,620	56,760	62,270	64,040	59,370	75,100	57,110	30,580	23,070	16,980	13,220	511,500
1953	9,455	9,134	18,050	21,620	31,170	51,520	48,610	52,670	34,410	22,080	17,120	11,180	327,000
1954	8,906	8,440	10,610	18,170	22,520	22,940	24,330	35,860	22,610	19,050	13,250	11,760	218,400
1955	15,890	16,040	14,680	30,200	25,900	60,010	60,100	34,830	27,110	20,420	14,160	9,850	329,200
1956	14,610	12,910	14,910	9,227	46,610	58,730	43,750	33,550	23,640	20,540	19,010	12,710	310,200
1957	9,745	9,483	17,570	23,880	54,570	39,610	54,070	54,810	65,820	45,260	23,040	16,280	414,100
1958	16,010	32,550	53,220	43,990	33,030	38,550	47,960	65,760	33,640	41,940	52,200	21,320	480,200
1959	18,690	15,050	19,260	20,490	45,710	48,600	40,520	34,330	28,300	18,600	18,600	12,850	321,000
1960	29,770	21,060	31,800	43,970	40,380	39,990	56,170	48,810	37,940	36,050	17,360	16,120	419,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	872,100	631,300,000
1951	1211	1,356,000	Mar. 12, 1951	248,000	775,400	561,400,000	804,300	582,300,000
1952	1241	1,368,000	Apr. 10, 1952	183,000	704,500	511,500,000	603,900	438,400,000
1953	1281	983,000	May 27, 1953	132,000	451,700	327,000,000	439,700	318,300,000
1954	1341	706,000	May 8, 1954	136,000	301,700	218,400,000	327,500	237,100,000
1955	1391	1,282,000	Apr. 7, 1955	143,000	454,700	329,200,000	448,900	325,000,000
1956	1441	1,108,000	Mar. 3, 1956	128,000	427,300	310,200,000	419,500	304,600,000
1957	1511	1,312,000	June 7, 1957	133,000	572,000	414,100,000	661,800	479,100,000
1958	1561	1,191,000	May 16-18,1958	230,000	663,300	480,200,000	595,900	431,400,000
1959	1631	977,000	Mar. 1,2,1959	162,000	443,400	321,000,000	484,300	350,600,000
1960	1711	1,100,000	Apr.23-25,1960	175,000	577,700	419,400,000	-	-

2895. Big Black River at Pickens, Miss.

Location.--Lat 32°52'45", long 89°58'05", in SW¼ sec.14, T.12 N., R.3 E., Choctaw meridian, on right bank at downstream side of bridge on old U. S. Highway 51, half a mile southeast of Pickens, 6 miles downstream from Seneasha Creek, 6 miles upstream from Cypress Creek, and at mile 160.3.

Drainage area.--1,460 sq mi, approximately.

Records available.--August 1936 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 196.26 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (U. S. Department of Agriculture bench mark, levels by Corps of Engineers). Prior to Dec. 25, 1938, staff gage and Dec. 25, 1938, to Aug. 19, 1939, wire-weight gage, at present site and datum.

Average discharge.--24 years (1936-60), 3,810 cfs.

Extremes.--1936-60: Maximum discharge, 49,400 cfs Mar. 28, 1951 (gage height, 22.20 ft); minimum, 27 cfs Aug. 31, Sept. 1, 1943; minimum gage height, 1.38 ft Oct. 5, 8, 9, 1954. Maximum stage known, 23.7 ft Dec. 29, 1926; flood in May 1930 reached a stage of about 23.5 ft, and flood in 1892 reached about the same stage as the floods in 1926 and 1930, from information by local residents.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,128	1,301	1,557	5,011	9,034	8,710	7,202	1,201	628	388	126	149	2,995
1952	103	240	3,176	2,153	2,774	3,146	1,909	580	209	105	90.2	62.8	1,210
1953	50.0	113	203	1,197	3,948	3,688	1,199	5,521	212	932	179	103	1,436
1954	57.9	65.6	385	1,802	1,630	1,215	1,115	3,795	237	122	56.2	40.5	876
1955	44.5	191	243	1,315	2,539	3,248	5,819	577	328	466	214	56.3	1,239
1956	65.7	190	198	168	7,330	4,608	5,041	965	181	138	93.7	48.5	1,557
1957	202	202	2,880	2,181	6,269	2,775	2,645	239	2,000	1,659	284	433	1,783
1958	929	7,878	3,446	2,265	2,554	3,050	3,308	7,522	681	868	553	927	2,830
1959	423	598	335	1,262	4,659	2,405	3,796	969	983	902	441	561	1,418
1960	516	515	3,072	3,447	6,233	6,376	1,417	1,520	186	103	293	172	1,980

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.89	0.99	1.23	3.96	6.44	6.88	5.50	0.95	0.48	0.31	0.10	0.11	27.84
1952	.08	.18	2.51	1.70	2.05	2.48	1.46	.46	.16	.08	.07	.05	11.28
1953	.04	.09	.16	.95	2.82	2.91	.92	4.36	.16	.74	.14	.08	13.37
1954	.05	.05	.30	1.42	1.16	.96	.85	3.00	.18	.10	.04	.03	8.14
1955	.04	.15	.19	1.04	1.81	2.56	4.45	.46	.25	.37	.17	.04	11.53
1956	.05	.15	.16	.13	5.41	3.64	3.85	.76	.14	.11	.07	.04	14.51
1957	.16	.15	2.27	1.72	4.47	2.19	2.02	.19	1.53	1.31	.22	.33	16.56
1958	.73	6.02	2.72	1.79	1.82	2.41	2.53	5.94	.52	.69	.44	.71	26.32
1959	.33	.46	.26	1.00	3.32	1.90	2.90	.77	.75	.71	.35	.43	13.18
1960	.41	.39	2.43	2.72	4.60	5.03	1.08	1.20	.14	.08	.23	.13	18.44

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	2,468	22.96
1951	1211	49,400	Mar. 28, 1951	86	2,995	2.05	27.84	2,958	27.50
1952	1241	11,600	Dec. 26, 1951	36	1,210	.829	11.28	944	8.80
1953	1281	14,600	Feb. 26, 1953	43	1,436	.984	13.37	1,449	13.48
1954	1341	14,600	May 5, 1954	35	876	.600	8.14	873	8.12
1955	1391	14,600	Apr. 16, 1955	34	1,239	.849	11.53	1,237	11.51
1956	1441	12,100	Mar. 18, 1956	34	1,557	1.07	14.51	1,796	16.73
1957	1511	17,400	Feb. 3, 1957	40	1,783	1.22	16.56	2,524	23.45
1958	1561	37,800	May 2, 1958	126	2,830	1.94	26.32	1,924	17.90
1959	1631	10,600	Feb. 16, 1959	160	1,418	.971	13.18	1,651	15.36
1960	1711	14,200	Mar. 6, 1960	74	1,980	1.36	18.44	-	-

2900. Big Black River near Bovina, Miss.

Location.--Lat 32°20'51", long 90°41'48", in NW¼SE¼ sec.22, T.16 N., R.5 E., Washington meridian, on left bank at downstream side of bridge on U. S. Highway 80, 300 ft upstream from Clear Creek, 0.4 mile upstream from Illinois Central Railroad bridge, 2 miles east of Bovina, 12 miles upstream from Fourteenmile Creek, and at mile 61.7. Records include flow of Clear Creek.

Drainage area.--2,810 sq mi, approximately, includes that of Clear Creek.

Records available.--February 1936 to September 1960. Prior to October 1938 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 84.93 ft above mean sea level, datum of 1929, or 85.00 ft above mean Gulf level (levels by Corps of Engineers; Corps of Engineers bench mark). Prior to Oct. 23, 1941, wire-weight gage at same site and datum.

Average discharge.--24 years (1936-60), 3,344 cfs.

Extremes.--1936-60: Maximum discharge, 58,600 cfs Apr. 1, 1951; maximum gage height, 39.74 ft May 5, 1958; minimum discharge, 65 cfs Oct. 2, 1954 (gage height, 5.98 ft).

Floods in 1912 and January 1927 both reached an elevation of 139 ft above mean sea level at Askews Bridge, 6 miles upstream (about 3 ft higher than that of May 5, 1958, at that site).

The flood in May 1930 reached about the same elevation as the flood of Apr. 1, 1951 (138.5 ft above mean sea level) at Askews Bridge.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,526	1,866	2,912	8,061	15,680	10,230	17,570	2,484	803	739	269	206	5,110
1952	179	293	2,436	3,181	3,944	4,377	2,800	1,294	461	172	163	106	1,612
1953	82.7	150	463	2,191	4,607	8,974	2,185	15,470	424	1,110	359	161	3,026
1954	98.6	109	544	2,644	3,017	1,959	1,693	8,051	406	226	123	115	1,581
1955	78.8	291	213	2,182	4,552	3,955	12,250	1,046	537	1,189	539	152	2,218
1956	120	274	386	216	11,330	10,740	11,280	2,578	949	229	232	117	3,161
1957	286	290	4,213	3,142	8,134	5,260	6,223	602	2,917	3,889	540	746	2,983
1958	1,134	11,050	7,874	4,870	5,220	6,693	3,772	17,730	2,234	1,202	1,086	1,396	5,362
1959	956	1,219	501	2,142	7,635	4,695	4,706	3,452	1,747	1,330	713	818	2,455
1960	808	563	4,467	6,842	10,100	11,900	1,856	3,038	401	206	1,696	555	3,529

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.63	0.74	1.19	3.31	5.81	4.20	6.97	1.02	0.32	0.30	0.11	0.08	24.68
1952	.07	.12	1.00	1.31	1.51	1.80	1.11	.53	.18	.07	.07	.04	7.81
1953	.03	.06	.19	.90	1.71	3.68	.87	6.35	.17	.46	.15	.06	14.63
1954	.04	.04	.22	1.08	1.12	.80	.67	3.30	.16	.09	.05	.05	7.62
1955	.03	.12	.09	.90	1.69	1.62	4.86	.43	.21	.49	.22	.06	10.72
1956	.05	.11	.16	.09	4.35	4.41	4.48	1.06	.38	.09	.10	.05	15.33
1957	.12	.12	1.73	1.29	3.01	2.16	2.47	.25	1.16	1.60	.22	.30	14.43
1958	.47	4.39	3.23	2.00	1.93	2.75	1.50	7.27	.89	.49	.45	.55	25.92
1959	.39	.48	.21	.88	2.83	1.93	1.87	1.42	.69	.55	.29	.32	11.86
1960	.33	.22	1.83	2.81	3.88	4.88	.74	1.25	.16	.08	.70	.22	17.10

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	4,447	21.49
1951	1211	58,600	Apr. 1, 1951	156	5,110	1.82	24.68	4,826	23.31
1952	1241	6,450	Jan. 7, 1952	89	1,612	.574	7.81	1,425	6.90
1953	1281	25,500	May 7, 1953	78	3,026	1.08	14.63	3,031	14.65
1954	1341	15,200	May 13, 1954	68	1,581	.563	7.62	1,566	7.56
1955	1391	23,900	Apr. 18, 1955	67	2,218	.789	10.72	2,235	10.80
1956	1441	26,700	Apr. 10, 1956	80	3,161	1.12	15.33	3,500	16.98
1957	1511	13,300	Feb. 11,12, 1957	87	2,983	1.06	14.43	4,251	20.55
1958	1561	52,500	May 5, 1958	255	5,362	1.91	25.92	3,915	18.91
1959	1631	10,800	Feb. 20, 1959	271	2,455	.874	11.86	2,725	13.16
1960	1711	20,100	Mar. 8, 1960	147	3,529	1.26	17.10	-	-

2905. Bayou Pierre near Carpenter, Miss.

Location.--Lat 32°00', long 90°41', in NE¼ sec.22, T.12 N., R.5 E., Washington meridian, at left of span on downstream side of bridge on State Highway 18, 1¼ miles upstream from Whiteoak Creek, 2 miles south of Carpenter, 2 miles upstream from Illinois Central Railroad bridge, and 8 miles southwest of Utica.

Drainage area.--371 sq mi.

Records available.--October 1944 to September 1951, water years 1952-60 (annual maximum). Monthly discharge only for October 1944, published in WSP 1311.

Gage.--Wire-weight gage.

Average discharge.--7 years (1944-51), 573 cfs.

Extremes.--1944-60: Maximum discharge, 24,400 cfs May 3, 1953 (gage height, 25.95 ft).

1944-51: Minimum discharge, 25 cfs Sept. 18, 1947; minimum gage height, 4.86 ft Oct. 17, 1950.

A flood in June 1928, gage height 31 ft, is the highest in at least 70 years, and one in 1900 reached about the same stage. A flood in July 1940 reached a stage of 30 ft and one in 1932, 28 ft. All from information from local residents.

Monthly and yearly mean discharge, in cubic feet per second, of Bayou Pierre River near Carpenter, Miss.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	52.1	55.9	157	380	1,196	1,065	642	99.5	155	187	50.2	81.5	338

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.16	0.17	0.49	1.18	3.36	3.31	1.93	0.31	0.47	0.58	0.16	0.25	12.37

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	660	24.15
1951	1211	7,050	Mar. 28, 1951	30	338	0.911	12.37	-	-
1952	-	<12,000	(a)	-	-	-	-	-	-
1953	-	24,400	May 3, 1953	-	-	-	-	-	-
1954	-	18,300	May 1, 1954	-	-	-	-	-	-
1955	-	21,900	Apr. 13, 1955	-	-	-	-	-	-
1956	-	10,000	June 14, 1956	-	-	-	-	-	-
1957	-	19,400	(a)	-	-	-	-	-	-
1958	-	15,900	June 17, 1958	-	-	-	-	-	-
1959	-	11,600	(b)	-	-	-	-	-	-
1960	-	22,600	Dec. 17, 1959	-	-	-	-	-	-

a Date unknown.
b Occurred sometime in May 1959.

HOMOCHITTO RIVER BASIN

2910. Homochitto River at Eddiceton, Miss.

Location.--Lat 31°30', long 90°47', near center of sec.11, T.6 N., R.4 E., Washington meridian, on left bank at upstream side of Mississippi Central Railroad Co. bridge, 900 ft downstream from bridge on U. S. Highway 84, 0.4 mile upstream from McCall Creek, and three-quarters of a mile east of Eddiceton.
Drainage area.--180 sq mi, approximately.
Records available.--October 1938 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 217.22 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to May 26, 1942, wire-weight gage at site 900 ft upstream at same datum.
Average discharge.--22 years (1938-60), 245 cfs.
Extremes.--1938-60: Maximum discharge, 30,900 cfs Mar. 29, 1939; maximum gage height, 16.37 ft May 17, 1953; minimum discharge, 26 cfs Sept. 10, 1952.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	55.1	56.0	101	261	571	459	193	62.9	132	72.6	44.7	83.2	172
1952	46.0	48.3	291	160	214	214	167	164	52.2	54.5	56.0	37.3	125
1953	31.4	44.3	145	212	882	584	625	1,818	93.0	82.6	66.4	45.7	384
1954	43.6	45.6	81.4	106	70.8	162	169	232	59.2	43.8	35.3	61.9	92.8
1955	39.8	41.8	146	206	1,002	100	924	75.0	71.8	159	153	42.3	240
1956	44.9	54.5	79.5	66.6	839	447	109	52.5	69.6	43.3	54.3	33.3	155
1957	36.1	41.6	174	54.2	72.3	263	406	65.9	218	103	78.8	182	141
1958	220	742	352	363	320	719	289	135	448	125	59.5	99.9	322
1959	48.0	71.6	68.8	249	508	201	249	92.1	229	114	67.3	62.2	161
1960	109	148	789	440	521	515	111	182	48.7	54.4	292	99.4	276

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.35	0.35	0.64	1.67	3.30	2.94	1.20	0.40	0.82	0.46	0.29	0.52	12.94
1952	.29	.30	1.86	1.02	1.28	1.37	1.03	1.05	.32	.35	.36	.23	9.46
1953	.20	.27	.93	1.36	5.10	3.74	3.88	11.65	.58	.53	.43	.28	28.95
1954	.28	.28	.52	.68	.41	1.03	1.05	1.49	.37	.28	.23	.38	7.00
1955	.26	.26	.94	1.32	5.80	.64	5.73	.48	.45	1.02	.98	.26	18.14
1956	.29	.34	.51	.43	5.03	2.86	.67	.34	.43	.28	.35	.21	11.74
1957	.23	.26	1.12	.35	.42	1.68	2.52	.42	1.35	.66	.50	1.13	10.64
1958	1.41	4.60	2.25	2.33	1.85	4.60	1.79	.87	2.78	.80	.38	.62	24.28
1959	.31	.44	.44	1.60	2.94	1.29	1.54	.59	1.42	.73	.43	.39	12.12
1960	.70	.92	5.05	2.82	3.12	3.30	.69	1.17	.30	.35	1.87	.62	20.91

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	413	31.16
1951	1211	8,310	Mar. 28, 1951	36	172	0.956	12.94	186	14.05
1952	1241	4,660	Dec. 14, 1951	31	125	.694	9.46	111	8.41
1953	1281	28,100	May 17, 1953	30	384	2.13	28.95	379	28.63
1954	1341	4,960	Mar. 27, 1954	30	92.8	.516	7.00	97.7	7.38
1955	1391	23,400	Apr. 13, 1955	35	240	1.33	18.14	236	17.82
1956	1441	11,300	Mar. 15, 1956	28	155	.861	11.74	161	12.21
1957	1511	11,000	June 28, 1957	29	141	.783	10.64	229	17.29
1958	1561	15,400	June 16, 1958	36	322	1.79	24.28	228	17.21
1959	1631	8,710	June 12, 1959	41	161	.894	12.12	233	17.60
1960	1711	22,000	Dec. 17, 1959	38	276	1.53	20.91	-	-

2925. Homochitto River at Rosetta, Miss.

Location.--Lat 31°19'20", long 91°06'20", in sec.12, T.4 N., R.1 E., Washington meridian, on downstream side of bridge on State Highway 33 at Rosetta, 800 ft downstream from Illinois Central Railroad Co. bridge, 1 mile downstream from Foster Creek, and 5 miles upstream from Dry Creek.

Drainage area.--750 sq mi, approximately.

Records available.--June to November 1906 (gage heights and discharge measurements only), October 1951 to September 1960 in reports of Geological Survey. February 1949 to September 1951 (gage heights and discharge measurements only) in reports of Corps of Engineers, Vicksburg district.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 94.39 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. June 16 to Nov. 12, 1906, chain gage at railroad bridge 800 ft upstream at different datum.

Average discharge.--9 years (1951-60), 903 cfs.

Extremes.--1951-60: Maximum discharge, 70,500 cfs (revised) Apr. 13, 1955; maximum gage height, 36.03 ft May 4, 1953; minimum discharge, 129 cfs Sept. 22-25, 28-30, 1956; minimum gage height, 13.00 ft July 8, 1960.

Maximum stage since February 1949, 37.80 ft Mar. 31, 1949, from reports of Corps of Engineers, Vicksburg district.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	194	286	953	669	894	827	711	787	247	263	244	170	520
1953	141	234	651	953	3,756	2,747	2,520	7,650	508	510	385	232	1,683
1954	201	239	335	370	363	491	466	730	265	223	166	331	348
1955	196	210	426	620	*4,436	559	*4,354	408	299	514	601	230	*1,041
1956	178	258	375	283	3,695	2,656	604	296	366	236	256	158	769
1957	173	218	994	255	370	951	1,498	420	1,224	695	461	1,273	710
1958	1,379	3,010	1,641	1,632	1,168	2,174	1,239	809	1,525	870	348	843	1,385
1959	305	375	348	1,018	2,412	817	1,009	680	963	615	386	380	763
1960	361	692	2,573	1,416	1,449	1,612	516	516	242	242	875	358	906

* Revised. Revised daily discharge for the periods thus affected are available and will be published in a future water-supply paper

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	0.30	0.43	1.47	1.03	1.28	1.27	1.06	1.21	0.37	0.40	0.38	0.25	9.45
1953	.22	.35	1.00	1.47	5.22	4.22	3.75	11.76	.76	.78	.59	.35	30.47
1954	.31	.36	.52	.57	.50	.76	.69	1.12	.39	.34	.26	.49	6.31
1955	.30	.31	.65	.95	*6.16	.86	*6.48	.63	.44	.79	.92	.34	*18.83
1956	.27	.38	.58	.43	5.31	4.08	.90	.46	.54	.36	.39	.23	13.93
1957	.27	.32	1.53	.39	.51	1.46	2.23	.65	1.82	1.07	.71	1.89	12.85
1958	2.12	4.48	2.52	2.51	1.62	3.34	1.84	1.24	2.27	1.34	.54	1.25	25.07
1959	.47	.56	.53	1.56	3.35	1.26	1.50	1.04	1.43	.94	.59	.57	13.80
1960	.55	1.03	3.96	2.18	2.08	2.48	.77	.79	.36	.37	1.35	.53	16.45

* Revised. See footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950									
1951									
1952	1241	9,930	Dec. 15, 1951	135	520	0.693	9.45	486	8.82
1953	1281	59,400	May 4, 1953	132	1,683	2.24	30.47	1,661	30.09
1954	1341	9,160	May 3, 1954	140	348	.464	6.31	353	6.38
1955	1391	*70,500	Apr. 13, 1955	164	*1,041	*1.39	*18.83	*1,039	*18.80
1956	1441	47,800	Mar. 15, 1956	129	769	1.03	13.93	818	14.82
1957	1511	40,400	June 28, 1957	159	710	.947	12.85	1,097	19.85
1958	1561	27,700	Nov. 18, 1957	273	1,385	1.85	25.07	968	17.51
1959	1631	12,100	Feb. 2, 1959	228	763	1.02	13.80	983	17.78
1960	1711	65,300	Dec. 17, 1959	159	906	1.21	16.45	-	-

* Revised.

2945. Homochitto River near Doloroso, Miss.

Location.--Lat 31°19'53", long 91°21'37", in sec.10, T.4 N., R.2 W., Washington meridian, on center span at upstream side of bridge on U. S. Highway 61, about 1,200 ft downstream from Second Creek, 2.2 miles north of Doloroso, 10 miles upstream from mouth (through Armstrong Canal), 16 miles north of Woodville, and 16 miles south of Natchez.

Drainage area.--1,120 sq mi, approximately.

Records available.--October 1939 to September 1946, October 1948 to September 1951. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Wire-weight gage. Datum of gage is 42.23 ft above mean Gulf level (levels by Corps of Engineers). Jan. 31, 1940, to Sept. 30, 1946, water-stage recorder on downstream side of bridge. Prior to Oct. 1, 1944, at datum 15.00 ft higher.

Average discharge.--10 years (1939-46, 1948-51), 1,572 cfs.

Extremes.--1939-46; 1948-51: Maximum discharge, 62,300 cfs Jan. 7, 1950; maximum gage height, 36.23 ft July 4, 1940; minimum discharge, 215 cfs July 25-31, 1944; minimum gage height, 2.95 ft Dec. 24, 1948.

Flood of Apr. 7, 1938, reached a stage of 38.4 ft, from information by Corps of Engineers.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	401	376	1,002	1,764	3,412	3,275	1,521	505	1,195	557	422	517	1,232

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.41	0.37	1.03	1.82	3.17	3.37	1.52	0.52	1.19	0.57	0.43	0.52	14.92

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	2,145	26.00
1951	1211	35,300	Mar. 29, 1951	254	1,232	1.10	14.92	-	-

BUFFALO RIVER BASIN

2950. Buffalo River near Woodville, Miss.

Location.--Lat 31°13'35", long 91°17'45", in SW¼ sec.21, T.3 N., R.2 W., Washington meridian, near center of span on downstream side of bridge on U. S. Highway 61, 1½ miles downstream from Fords Creek, 2¾ miles west of Wilkinson, and 8½ miles north of Woodville.

Drainage area.--182 sq mi.

Records available.--March 1942 to September 1960. Prior to October 1950, published as Buffalo Bayou near Woodville.

Gage.--Water-stage recorder. Datum of gage is 97.52 ft above mean sea level, datum of 1929. Prior to June 1, 1942, wire-weight gage at same site and datum.

Average discharge.--18 years (1942-60), 256 cfs.

Extremes.--1942-60: Maximum discharge, 39,900 cfs Mar. 2, 1948 (gage height, 16.2 ft), from rating curve extended above 20,000 cfs on basis of velocity-area study; minimum, 16 cfs Aug. 14, 18, 19, 1954, Sept. 28, 1956; minimum gage height, 0.39 ft Dec. 19, 1946, Sept. 18, 1947.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	53.1	55.5	124	282	436	418	476	67.8	465	127	54.6	38.5	214
1952	33.5	53.9	250	129	282	159	178	197	41.8	55.6	40.7	22.9	120
1953	20.1	47.8	166	171	697	702	327	1,928	92.2	118	99.4	32.3	367
1954	26.4	39.3	108	101	70.6	170	104	134	47.5	46.1	26.9	82.4	79.9
1955	36.9	32.5	101	157	982	84.4	1,180	107	57.4	549	294	35.9	296
1956	28.3	51.5	145	63.8	682	909	168	49.7	184	48.7	55.6	28.5	200
1957	22.8	32.6	299	59.5	167	317	199	159	371	140	36.7	164	164
1958	235	794	418	447	340	375	382	155	346	244	109	697	377
1959	74.5	77.1	115	288	620	247	239	102	105	101	90.9	87.2	176
1960	64.4	106	484	265	235	200	88.5	93.6	42.8	36.9	154	42.3	151

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.34	0.34	0.78	1.79	2.50	2.65	2.92	0.43	2.85	0.81	0.35	0.24	16.00
1952	.21	.33	1.59	.82	1.67	1.00	1.09	1.25	.26	.35	.26	.14	8.97
1953	.13	.29	1.05	1.08	3.99	4.44	2.00	12.21	.57	.75	.63	.20	27.34
1954	.17	.24	.68	.64	.40	1.08	.64	.85	.29	.29	.17	.50	5.95
1955	.23	.20	.64	.99	5.62	.53	7.23	.68	.35	3.48	1.86	.22	22.03
1956	.18	.32	.92	.40	4.04	5.76	1.03	.31	1.12	.31	.35	.17	14.91
1957	.14	.20	1.89	.38	.96	2.01	1.22	1.01	2.27	.89	.23	1.00	12.20
1958	1.49	4.87	2.65	2.83	1.94	2.37	2.34	.98	2.12	1.55	.69	4.27	28.10
1959	.47	.47	.73	1.83	3.54	1.56	1.47	.65	.64	.64	.58	.53	13.11
1960	.41	.65	3.06	1.68	1.39	1.27	.54	.59	.26	.23	.98	.26	11.32

Yearly discharge, in cubic feet per second, of Buffalo River near Woodville, Miss.

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	274	20.47
1951	1211	27,700	June 17, 1951	30	214	1.18	16.00	223	16.67
1952	1241	5,460	May 19, 1952	18	120	.659	8.97	111	8.31
1953	1281	37,200	May 4, 1953	19	367	2.02	27.34	361	26.96
1954	1341	6,500	Mar. 27, 1954	16	79.9	.439	5.95	79.7	5.93
1955	1391	39,400	Apr. 13, 1955	24	296	1.63	22.03	300	22.38
1956	1441	23,700	Mar. 15, 1956	17	200	1.10	14.91	211	15.72
1957	1511	17,700	Dec. 22, 1956	18	164	.901	12.20	254	18.98
1958	1561	30,900	Sept. 22, 1958	36	377	2.07	28.10	279	20.76
1959	1631	5,980	Feb. 2, 1959	40	176	.967	13.11	209	15.56
1960	1711	22,500	Dec. 17, 1959	24	151	.830	11.32	-	-

RED RIVER BASIN

2955. Tierra Blanca Creek at reservoir, near Umbarger, Tex.

Location.--Lat 34°55', long 102°06', just upstream from dam, 2 miles south of Umbarger, Randall County, and 20 miles upstream from Palo Duro Creek.
Drainage area.--2,075 sq mi, of which 1,500 sq mi is probably noncontributing.
Records available.--June 1938 to September 1954.
Gage.--Water-stage recorder in conduit tower. Datum of gage is 3,515.6 ft above mean sea level, datum of 1929. Prior to Aug 29, 1940, staff gages located on conduit tower. Supplementary water-stage recorder and weir 9 miles upstream from dam. Prior to October 1940, weir located about 7 miles upstream from dam.
Average discharge.--14 years (1940-54), 13.7 cfs (9,920 acre-ft per year).
Extremes.--1938-54: Maximum discharge, 11,300 cfs June 6, 1941 (computed by rate of change in contents and outflow from reservoir); maximum reservoir gage height, 130.43 ft June 6, 1941; no flow at times.
Remarks.--Records represent flow into reservoir. Gage-height record at dam used in computing flow into reservoir when stage at supplementary gage is above limits of rating.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.05	2.22	2.18	2.24	2.95	1.95	1.55	191	12.6	2.52	.41	.18	19.0
1952	.43	.87	1.29	1.54	1.70	1.35	2.54	1.35	1.03	9.67	.01	0	1.82
1953	0	.37	.97	1.02	.88	.95	20.6	.42	.01	0	2.85	.56	2.36
1954	89.7	1.55	.99	1.09	1.01	.71	.75	29.6	108	5.75	.46	.01	20.1

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	311	132	134	138	164	120	92	11,730	751	155	25	11	13,760
1952	27	52	80	95	98	83	151	83	61	595	.6	0	1,330
1953	0	22	60	63	49	59	1,220	26	.4	0	175	34	1,710
1954	5,520	92	61	67	56	44	44	1,820	6,450	354	29	.8	14,540

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	9.94	7,200
1951	1341	9,760	May 17, 1951	0	19.0	13,760	18.4	13,340
1952	1341	239	July 18, 1952	0	1.82	1,330	1.72	1,250
1953	1341	764	Apr. 5, 1953	0	2.36	1,710	10.1	7,300
1954	1341	3,600	June 11, 1954	0	20.1	14,540	-	-

2960. Buffalo Lake near Umbarger, Tex.

Location.--Lat 34°55', long 102°06', just upstream from dam on Tierra Blanca Creek, 2 miles south of Umbarger, Randall County, and 20 miles upstream from Palo Duro Creek.
Drainage area.--2,075 sq mi, of which 1,500 sq mi is probably noncontributing.
Records available.--June 1938 to September 1954.
Gage.--Water-stage recorder in conduit tower. Datum of gage is 3,515.6 ft above mean sea level, datum of 1929. Prior to Aug. 29, 1940, staff gages located on conduit tower.
Extremes.--1938-54: Maximum lake gage height, 130.43 ft June 6, 1941 (contents, 25,100 acre-ft).
Remarks.--Records represent total contents at end of month. Dam completed June 15, 1938. Reservoir capacity, 18,150 acre-ft at fixed spillway crest (gage height, 127.0 ft). Lake contents, zero at 97.0 ft (elevation of control valve). The dam and outlet works were built and operated by U. S. Soil Conservation Service. According to court order dated Jan. 14, 1941, the Soil Conservation Service is required to release 3 cfs during flood periods and the natural flow of Tierra Blanca Creek when inflow is less than 3 cfs. Lake is used for recreational purposes. Capacity curve based on general development topographic map dated 7-19-37 and was developed by U. S. Soil Conservation Service.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	9,840	9,420	9,140	9,000	9,000	8,440	7,880	18,150	17,780	16,670	15,250	14,220
1952	13,560	13,230	13,060	12,900	12,440	11,820	11,500	10,740	9,840	9,280	8,160	7,180
1953	6,560	6,200	6,080	5,840	5,640	5,240	5,960	5,340	4,270	3,620	3,890	3,440
1954	8,020	7,600	7,320	7,180	6,800	6,320	5,840	7,040	14,220	13,060	12,120	11,040

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2970. Palo Duro Creek at Amarillo City Lake, near Canyon, Tex.

Location.--Lat 35°02', long 102°02', at conduit tower in Amarillo City Lake, 200 ft upstream from dam, 0.4 mile upstream from Nigger Arroyo, and 6 miles northwest of Canyon, Randall County.

Drainage area.--982 sq mi, of which about 920 sq mi is probably noncontributing.

Records available.--August 1942 to December 1954 (monthly discharge only). Formerly published as Palo Duro Creek near Canyon (gage height only August 1942 to September 1945, results of discharge measurements only October 1945 to September 1952).

Gage.--Staff gage. Datum of gage is 3,584.42 ft above mean sea level, datum of 1929.

Average discharge.--12 years (1942-54), 3.76 cfs (2,720 acre-ft per year).

Extremes.--1942-54: Maximum gage height, 53.6 ft May 17, 1951; lake dry at times.

Maximum stage known since dam completed in 1927 occurred June 5-7, 1937, when lake reached a stage of about 54.5 ft (spillway crest at that time at gage height 52.5 ft), from information by the city of Amarillo Water Department.

Remarks.--Records represent flow into lake and contents on last day of month. Discharge below gage height 50.3 ft (spillway crest) determined from daily change in contents of lake; that above gage height 50.3 ft determined by algebraic summation of flow over spillway (computed from spillway rating curve) and change in contents of lake (computed from capacity curve and reduced to equivalent cubic feet per second). No adjustment for evaporation or seepage losses. Small spring flow into lake was measured occasionally, and discharges, when inflow was less than lake losses, were estimated on basis of these measurements. Dam completed February 1927. Capacity at spillway crest, 5,120 acre-ft. No water is diverted from lake. Lower part of lake is surrounded by 10 water wells which are used to partly supply the city of Amarillo. The lake provides recharge to the sands and gravels of the underlying High Plains deposits (Ogallala formation) from which the wells draw water, in addition to the replenishment afforded by infiltration from rainfall on the surrounding area. Capacity table developed on basis of Geological Survey topographic map of Amarillo City Lake, Randall County, dated December 1952.

Cooperation.--Gage-height record furnished by city of Amarillo.

Note.--No records were published in the 1950 Compilation due to the fact that no capacity curve had been developed for the lake at that time.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941													
1942	-	-	-	-	-	-	-	-	-	-	0.87	1.34	-
1943	2.23	1.47	1.20	1.08	1.30	1.65	1.60	1.32	1.00	4.15	.84	.74	1.55
1944	1.00	1.50	1.56	1.40	1.25	1.10	.76	.52	.86	2.25	.90	.91	1.17
1945	1.30	1.39	1.50	1.56	1.36	1.10	.84	.70	.40	.10	6.77	.11	1.44
1946	.16	.20	.10	.10	.20	.30	.40	.28	.10	0	0	.14	.16
1947	43.8	1.50	1.15	.75	.80	.80	.53	2.03	0	0	0	0	4.35
1948	0	.10	.22	.39	1.14	.94	.30	.20	.20	.66	19.9	8.97	2.76
1949	.20	.30	.56	.80	.80	.90	1.68	13.3	6.84	1.78	1.55	.40	2.44
1950	.35	.94	1.38	1.13	.78	.62	.60	.65	2.00	61.0	5.11	7.39	6.92
1951	1.36	.90	.90	.90	1.00	.85	.80	170	7.37	2.25	.60	10.4	16.7
1952	.60	3.73	1.58	.90	.80	.80	.97	2.38	.29	.20	.10	.02	1.03
1953	.34	.86	.86	.50	.60	.70	.62	.48	.30	6.53	12.8	.40	2.11
1954	31.1	.87	.99	1.13	.89	.80	2.41	12.4	2.31	.29	.12	.04	4.51
1955	.09	.28	.40	-	-	-	-	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1941													
1942	-	-	-	-	-	-	-	-	-	-	53	80	-
1943	137	88	74	66	72	101	95	81	60	255	52	44	1,120
1944	61	89	96	86	72	68	45	32	51	138	55	54	847
1945	80	83	92	96	75	67	50	43	24	6.0	417	6.9	1,040
1946	10	12	6.1	6.1	11	18	24	17	6.0	0	0	8.1	118
1947	2,690	89	71	46	44	49	32	125	0	0	0	0	3,150
1948	0	6.0	12	24	66	58	18	12	12	41	1,220	534	2,000
1949	12	18	35	49	44	55	100	820	407	109	95	24	1,770
1950	22	56	85	69	43	38	36	40	119	3,750	314	440	5,010
1951	84	54	55	55	56	52	48	10,460	438	138	37	621	12,100
1952	37	222	97	55	46	49	58	147	17	12	6.1	1.0	747
1953	21	51	53	31	33	43	37	30	18	401	787	24	1,530
1954	1,910	52	61	69	49	49	143	765	138	18	7.3	2.4	3,260
1955	5.8	16	25	-	-	-	-	-	-	-	-	-	-

Contents, in acre-feet, on last day of month of Amarillo City Lake near Canyon, Tex.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1941												
1942	-	-	-	-	-	-	-	-	-	-	1,200	992
1943	808	640	500	350	240	151	95	72	26	72	19	0
1944	0	0	0	0	0	0	16	18	7	0	0	0
1945	0	0	0	0	0	0	0	0	0	0	56	14
1946	0	0	0	0	0	0	0	0	0	0	0	0
1947	1,200	660	303	89	7	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	3	345	271
1949	14	0	0	0	0	0	0	186	139	14	0	0
1950	0	0	0	0	0	0	0	0	52	2,590	1,970	1,660
1951	1,180	832	610	387	201	95	40	4,860	4,440	3,590	2,860	2,780
1952	2,350	1,950	1,720	1,450	1,200	950	808	640	387	131	18	0
1953	0	0	0	0	0	0	0	0	0	201	394	107
1954	1,720	1,080	760	500	331	171	201	724	500	171	72	18
1955	0	0	0	-	-	-	-	-	-	-	-	-

2980. North Tule Draw at reservoir, near Tulia, Tex.

Location.--Lat 34°33', long 101°42', at walkway to conduit intake valve, 250 ft to left of concrete spillway, 1 mile upstream from mouth, and 3.2 miles northeast of Tulia, Swisher County.

Drainage area.--About 189 sq mi, of which 124 sq mi is probably noncontributing.

Records available.--May 1939 to June 1940 (monthly figures only), November 1940 to September 1960. Prior to October 1950, published as North Tule Creek at reservoir, near Tulia.

Gage.--Water-stage recorder. Altitude of gage is 3,310 ft (by barometer). Prior to Sept. 29, 1939, staff gage at datum 70.5 ft higher. Sept. 29, 1939, to Nov. 26, 1940, staff gage at present datum.

Average discharge.--19 years (1941-60), 2.92 cfs (2,110 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 5,430 cfs May 15, 1951, on basis of slope-area measurement of peak flow; maximum gage height, 97.35 ft June 9, 1954; no flow at times in most years.

Remarks.--Records herein represent flow into reservoir. Discharge below gage height 91.9 ft (spillway crest) determined from daily change in contents of reservoir; that above gage height 91.9 ft determined by algebraic summation of flow over spillway (computed from spillway rating curve), computed flow through conduit, and change in contents of reservoir (computed from capacity curve and reduced to equivalent cubic feet per second). No adjustment made for evaporation or seepage losses. Dam completed Jan. 15, 1939. Reservoir capacity, 654 acre-ft. Reservoir used for recreational purposes and water is rarely released through outlet gate.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	0.03	0.04	0.14	0.01	0.05	141	0.17	0.05	0.05	0	12.0
1952	.07	.11	.10	.02	0	0	.16	.03	.01	.69	0	0	.10
1953	0	0	0	0	.01	.02	4.88	.02	.57	0	.03	0	.46
1954	1.37	0	0	0	0	0	.52	16.8	55.9	.15	.15	.06	6.21
1955	0	0	0	0	0	0	0	8.31	20.8	.12	0	.42	2.46
1956	.13	0	0	0	0	0	0	.45	.10	0	0	0	.06
1957	0	0	0	0	0	0	.26	2.72	23.3	4.09	11.3	.14	3.50
1958	.75	0	0	0	0	0	.10	.10	0	.65	1.66	.09	.28
1959	0	0	0	0	0	0	.12	.19	3.91	6.77	.06	.15	.94
1960	.98	0	1.42	.07	.08	.04	.05	.04	31.2	64.4	.19	1.80	8.41

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	2.0	2.4	7.7	0.4	2.8	8,680	10	2.8	3.0	0	8,710
1952	4.6	6.5	6.1	1.2	0	0	9.5	1.8	.4	42	0	0	72
1953	0	0	0	0	.6	1.4	290	1.4	34	0	2.0	0	329
1954	84	0	0	0	0	0	31	1,030	3,330	9.1	9.1	3.4	4,500
1955	0	0	0	0	0	0	0	511	1,240	7.3	0	25	1,780
1956	8.1	0	0	0	0	0	0	27	5.8	0	0	0	41
1957	0	0	0	0	0	0	15	167	1,390	252	700	8.9	2,530
1958	46	0	0	0	0	0	6.1	6.0	0	40	102	5.2	205
1959	0	0	0	0	0	0	7.1	12	232	416	4.0	9.1	680
1960	60	0	87	4.6	4.8	2.6	3.0	2.4	1,860	3,960	12	107	6,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	0.85	619
1951	1211	5,430	May 15, 1951	0	12.0	8,710	12.1	8,730
1952	1241	38	July 17, 1952	0	.10	72	.08	55
1953	1281	987	Apr. 5, 1953	0	.46	329	.57	413
1954	1341	4,680	June 9, 1954	0	6.21	4,500	6.10	4,410
1955	1391	1,390	May 31, 1955	0	2.46	1,780	2.47	1,790
1956	1441	54	Oct. 2, 1955	0	.06	41	.05	33
1957	1511	984	June 18, 1957	0	3.50	2,530	3.56	2,580
1958	1561	122	Aug. 1, 1958	0	.28	205	.22	159
1959	1631	363	July 10, 1959	0	.94	680	1.14	827
1960	1711	3,010	July 8, 1960	0	8.41	6,100	-	-

2985. Prairie Dog Town Fork Red River near Brice, Tex.

Location.--Lat 34°37'40", long 100°56'25", on downstream side of bridge on State Highway 70, half a mile downstream from Battle Creek, 1.5 miles upstream from Mulberry Creek, and 6 miles southwest of Brice, Hall County.

Drainage area.--6,082 sq mi, of which 4,501 sq mi is probably noncontributing; at site used 1939-44, 1949-51, 5,972 sq mi.

Records available.--December 1938 to June 1944, September 1949 to July 1951, December 1959 to September 1960. Monthly discharge only for January 1939, published in WSP 1311.

Gage.--Water-stage recorder and wire-weight gage. Dec. 14, 1938, to June 30, 1944, water-stage recorder and Aug. 10, 1949, to July 31, 1951, staff gage, at site 2 miles upstream at different datum.

Average discharge.--5 years (1939-43, 1949-50), 90.5 cfs (65,520 acre-ft per year).

Extremes.--1939-44, 1949-51, 1959-60: Maximum discharge, 49,000 cfs June 7, 1960, from rating curve extended above 7,000 cfs; no flow for many days in each year.

Maximum stage since at least 1906, 14.8 ft in summer of 1933, 14.3 ft in May 1937, from information by local resident, and 10.5 ft June 1 or 2, 1957, from levels to high-water marks; all stages at former site and datum. Flood in June 1957 reached a stage of 19.2 ft at present site and datum.

Remarks.--Several small diversions above station. Records of chemical analyses, suspended sediment loads, and water temperatures for the period August 1949 to July 1951 are published in reports of Geological Survey.

Corrections.--In WSP 1311, the monthly mean discharge in cubic feet per second and runoff in acre-feet for January 1939 are listed in error; they should be 7.57 cfs and 466 acre-ft, respectively.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.20	0	0	.65	4.39	.45	0	1,329	242	13.9	-	-	-
1960	-	-	-	16.9	5.23	1.35	0	.41	681	670	151	31.8	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	135	0	0	40	244	28	0	81,700	14,390	854	-	-	-
1960	-	-	-	1,040	301	83	0	25	40,520	41,200	9,280	1,890	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	38.3	27,750
1951	1211	41,700	May 16, 1951	0	-	-	-	-
1960	1712	49,000	June 7, 1960	0	-	-	-	-

2990. Mulberry Creek near Brice, Tex.

Location.--Lat 34°40'30", long 100°55'00", on upstream side of bridge on State Highway 70, 1.5 miles upstream from Bitter Creek, 2.3 miles southwest of Brice, Hall County, and 3.3 miles upstream from mouth.

Drainage area.--534 sq mi, of which 238 sq mi is probably noncontributing.

Records available.--August 1949 to July 1951.

Gage.--Moveable wire-weight gage and crest-stage indicator. Datum of gage is 2,090.27 ft above mean sea level, datum of 1929.

Extremes.--1949-51: Maximum discharge, 50,700 cfs July 16, 1950 (gage height, 15.24 ft, from floodmarks), from rating curve extended above 4,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times.

Maximum stage known, 16.5 ft in 1941, from information by local resident.

Remarks.--No regulation or diversion above station. Records of chemical analyses, water temperatures, and suspended sediment loads are published in reports of Geological Survey.

Corrections.--In WSP 1311, the monthly mean discharge for July 1950 is listed in error; it should be 259 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.11	.05	.73	3.07	1.78	.20	.20	103	87.3	8.63	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	68	3.0	45	189	99	12	12	6,320	5,200	531	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	38.3	27,750
1951	1211	11,800	June 1, 1951	0	-	-	-	-

2995.7. Red River near Quanah, Tex.

Location.--Lat 34°24'45", long 99°44'00", near right bank at downstream side of bridge on State Highway 283, 8 miles north of Quanah, Hardeman County, and 30 miles upstream from mouth of Salt Fork Red River.

Drainage area.--8,321 sq mi, of which 4,769 sq mi is probably noncontributing.

Records available.--November 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,412.97 ft above mean sea level, datum of 1929, supplementary adjustment of 1937.

Extremes.--November 1959 to September 1960: Maximum discharge, 64,000 cfs June 7 (gage height, 16.00 ft); minimum, 0.8 cfs Aug. 8.
Maximum stage since at least 1891 occurred in 1896 and was about 2 ft higher than flood of June 1, 1957 (second highest) which reached a stage of 21.2 ft.

Remarks.--Several small diversions for irrigation above gage.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	183	103	65.3	40.2	3.54	48.8	2,535	666	134	55.4	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	11,240	6,320	3,750	2,470	211	3,000	150,800	40,980	8,220	3,300	-

2997.1. Lebos Creek near Eldorado, Okla.

Location.--Lat 34°28'40", long 99°40'45", in SW¼SE¼ sec.11, T.1 S., R.24 W., on upstream side of bridge on State Highway 90, 1½ miles northwest of Eldorado and at mile 11.8.

Drainage area.--280 sq mi.

Records available.--May to September 1960. Occasional low-flow measurements water years 1951-55.

Gage.--Water-stage recorder. Datum of gage is 1,408.61 ft above mean sea level (State Highway Department bench mark).

Extremes.--May to September 1960: Maximum discharge, 850 cfs June 10 (gage height, 12.47 ft); minimum daily, 1.7 cfs Aug. 6, 7.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	-	-	-	74.4	5.30	10.0	4.40	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	-	-	-	4,430	326	617	262	-

2998.5. Salt Fork Red River near Clarendon, Tex.

Location.--Lat 35°00'10", long 100°53'30", near right bank on downstream side of bridge on State Highway 70, a quarter of a mile downstream from Kelly Creek and 4 miles north of Clarendon, Donley County.

Drainage area.--457 sq mi, of which 191 sq mi is probably noncontributing.

Records available.--May to September 1960, occasional low-flow measurements 1950-60.

Gage.--Water-stage recorder and wire-weight gage.

Extremes.--May to September 1960: Maximum discharge, 28,000 cfs June 8 (gage height, 16.50 ft), from rating curve defined by current meter measurements below 3,900 cfs and slope-area measurements at gage heights 9.40 ft (flood of Oct. 15, 1960) and 15.10 ft (flood of June 2, 1961); minimum, 1.2 cfs June 30.
Maximum stage since at least 1910, 32 ft June 9, 1954; flood of May 16, 1957, reached a stage of about 29 ft, from information by local residents.

Remarks.--Records not previously published. One small diversion for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	-	-	-	173	19.8	23.5	12.4	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	-	-	-	10,290	1,210	1,450	735	-

3000. Salt Fork Red River near Wellington, Tex.

Location.--Lat 34°57'25", long 100°13'30", near center of stream on downstream side of bridge on U. S. Highway 83, 4 miles downstream from Fort Worth and Denver (Burlington) Railway Co. bridge, 4½ miles south of Lutie, and 6½ miles north of Wellington, Collingsworth County.

Drainage area.--1,222 sq mi, of which 209 sq mi is probably noncontributing.

Records available.--June 1952 to Septmmber 1960.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 1,941.41 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1952-60), 86.7 cfs (62,770 acre-ft per year).

Extremes.--1952-60: Maximum discharge, 146,000 cfs May 16, 1957 (gage height, 19.00 ft), from rating curve extended above 11,000 cfs on basis of slope-area measurement at gage height 13.90 ft; minimum, 0.1 cfs June 19, 1952.

Remarks.--Several small diversions above station for irrigation. Records of chemical analyses and water temperatures for the period June 1952 to September 1954 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	-	-	-	-	-	-	-	-	-	1.95	1.00	2.11	-
1953	4.06	19.2	10.8	9.00	15.9	19.1	27.9	8.52	1.76	482	49.5	6.29	55.3
1954	72.5	17.5	20.9	24.5	13.6	8.04	39.2	542	642	6.60	45.6	4.53	120
1955	5.19	6.04	6.50	14.1	17.4	5.27	4.18	317	528	32.6	8.63	3.64	78.9
1956	102	7.28	18.8	19.3	19.8	5.86	4.24	347	4.91	11.6	1.34	1.48	45.9
1957	25.1	2.33	3.26	5.38	12.7	40.8	412	1,181	68.6	4.12	125	14.8	160
1958	27.2	37.1	11.1	36.3	26.2	51.0	36.0	357	93.4	261	3.91	33.3	81.9
1959	5.67	9.96	23.4	29.9	19.9	5.98	16.7	274	49.6	227	2.82	45.4	59.8
1960	85.7	20.6	82.9	97.9	75.6	94.3	7.53	76.0	375	80.1	37.2	68.0	91.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	-	-	-	-	-	-	-	-	-	120	62	126	-
1953	250	1,140	666	553	883	1,180	1,660	524	105	29,660	3,040	374	40,040
1954	4,460	1,040	1,280	1,510	757	494	2,330	33,340	38,190	406	2,810	270	86,890
1955	319	359	399	867	966	324	249	19,500	31,400	2,000	531	217	57,130
1956	6,280	433	1,160	1,180	1,140	360	252	21,320	292	715	82	88	33,300
1957	1,540	138	201	331	704	2,510	24,540	72,620	4,080	253	7,720	883	115,500
1958	1,670	2,210	682	2,230	1,460	3,140	2,140	21,950	5,560	16,040	240	1,980	59,300
1959	348	592	1,440	1,840	1,100	368	992	16,840	2,950	13,970	173	2,700	43,310
1960	5,270	1,220	5,100	6,020	4,350	5,800	448	4,670	22,310	4,930	2,290	4,040	66,450

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952	1241	-	-	-	-	-	-	-
1953	1281	63,400	July 19, 1953	0.7	55.3	40,040	61.8	44,760
1954	1341	95,900	June 10, 1954	2.9	120	86,890	112	81,180
1955	1391	23,700	June 19, 1955	2.2	78.9	57,130	88.3	63,930
1956	1441	18,400	May 27, 1956	.6	45.9	33,300	37.6	27,310
1957	1511	146,000	May 16, 1957	.7	160	115,500	163	118,200
1958	1561	51,700	May 13, 1958	.5	81.9	59,300	78.9	57,120
1959	1631	10,800	May 26, 1959	.2	59.8	43,310	72.6	52,520
1960	1711	16,300	June 9, 1960	.9	91.5	66,450	-	-

3005. Salt Fork Red River at Mangum, Okla.

Location.--Lat 34°52', long 99°31', in SW¼SE¼ sec.34, T.5 N., R.22 W., near left bank on downstream side of pier of bridge on State Highway 34, half a mile south of Mangum, 13 miles downstream from Fish Creek, and at mile 35.5.

Drainage area.--1,566 sq mi, of which 209 sq mi is probably noncontributing.

Records available.--April 1905 to June 1906, October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,490.87 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation). Apr. 11, 1905, to June 30, 1906, chain gage at site a quarter of a mile upstream at different datum. Oct. 1, 1937, to Nov. 8, 1938, wire-weight gage at present site and datum.

Average discharge.--23 years (1937-60), 94.4 cfs (68,340 acre-ft per year).

Extremes.--1905-6, 1937-60: Maximum discharge, 72,000 cfs May 16, 1957; maximum gage height, 14.7 ft June 16, 1938; no flow at times in each year.
Maximum stage known, that of June 16, 1938, from information by local residents.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14.6	11.6	36.2	40.2	30.0	23.8	23.3	342	93.2	120	0	1.15	61.9
1952	17.7	11.1	14.1	32.2	24.1	23.3	71.4	15.5	0	1.31	0	0	17.5
1953	0	0	0	0	0	.17	70.0	0	51.9	575	25.6	.65	61.1
1954	122	22.1	13.1	16.5	11.7	5.19	15.2	550	607	2.69	9.34	.02	115
1955	0	0	0	2.14	5.44	1.40	0	525	732	21.9	1.61	16.7	109
1956	220	1.54	11.1	17.7	25.8	1.33	0	1,059	27.6	88.7	.01	0	123
1957	11.3	.14	0	0	5.47	26.8	455	1,389	237	3.69	87.7	7.58	187
1958	24.6	26.3	18.3	28.7	20.0	61.0	64.3	497	59.1	163	2.82	8.59	82.1
1959	.23	1.17	13.5	24.0	20.6	2.35	37.4	620	64.3	219	.23	14.8	85.9
1960	41.5	8.04	122	199	188	105	15.7	131	318	45.5	63.2	47.9	107

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	897	690	2,230	2,470	1,670	1,470	1,390	21,030	5,540	7,380	0	69	44,840
1952	1,090	661	865	1,980	1,380	1,430	4,250	954	0	81	0	0	12,690
1953	0	0	0	0	0	11	4,170	0	3,090	35,330	1,580	39	44,220
1954	7,490	1,320	805	1,010	648	319	902	33,830	36,130	160	574	1.0	83,200
1955	0	0	0	131	302	86	0	32,280	43,540	1,350	99	996	78,780
1956	13,530	92	684	1,090	1,490	82	0	65,110	1,640	5,450	.6	0	89,170
1957	697	8.5	0	0	304	1,650	27,050	85,380	14,110	227	5,400	451	135,300
1958	1,510	1,560	1,120	1,770	1,110	3,750	3,820	30,540	3,520	10,040	174	511	59,420
1959	14	69	831	1,480	1,150	144	2,220	38,110	3,830	13,440	14	884	62,190
1960	2,550	478	7,530	12,240	10,830	6,470	933	8,050	18,930	2,800	3,890	2,850	77,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	57.1	41,310
1951	1211	13,200	May 17, 1951	0	61.9	44,840	60.3	43,640
1952	1241	3,030	Apr. 21, 1952	0	17.5	12,690	13.9	10,080
1953	1281	44,800	July 19, 1953	0	61.1	44,220	74.3	53,830
1954	1341	38,100	June 10, 1954	0	115	83,200	102	73,580
1955	1391	16,600	May 19, 1955	0	109	78,780	129	93,090
1956	1441	35,900	May 27, 1956	0	123	89,170	104	75,570
1957	1511	72,000	May 16, 1957	0	187	135,300	192	138,800
1958	1561	32,500	May 13, 1958	0	82.1	59,420	77.6	56,150
1959	1631	12,300	May 26, 1959	0	85.9	62,190	99.2	71,830
1960	1711	11,900	June 9, 1960	0	107	77,550	-	-

3015. North Fork Red River near Carter, Okla.

Location.--Lat 35°10', long 99°30', in NW¼SE¼ sec.15, T.8 N., R.22 W., near left bank on downstream side of pier of bridge on State Highway 34, 3 miles south of Carter, 10.8 miles downstream from Timber Creek, and at mile 110.5.

Drainage area.--2,337 sq mi, of which 399 sq mi is probably noncontributing.

Records available.--October 1944 to September 1960.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 1,673.71 ft above mean sea level, datum of 1929.

Average discharge.--16 years (1944-60), 128 cfs (92,670 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 53,400 cfs May 26, 1959 (gage height, 13.42 ft); no flow at times in most years.

Remarks.--Records of suspended sediment loads and water temperatures for the period March 1948 to September 1954 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	68.1	51.0	91.3	92.8	122	70.1	53.3	1,639	1,246	69.0	0.11	24.6	†295
1952	1.43	19.9	32.0	57.1	54.9	48.9	126	33.8	6.25	1.86	0	0	31.6
1953	0	0	0	0	0	2.81	23.9	.27	50.4	125	56.0	.03	21.8
1954	158	9.28	1.84	9.08	6.58	4.64	194	1,053	197	0	.18	0	138
1955	0	0	0	0	0	0	2.06	547	364	21.5	.25	7.61	78.9
1956	210	.56	2.08	4.96	33.5	7.41	.16	514	37.8	0	0	0	68.4
1957	1.83	0	0	0	0	9.61	489	1,330	149	1.29	38.5	0	170
1958	8.38	10.7	3.93	22.2	41.2	85.1	80.1	179	374	239	1.15	18.5	88.7
1959	0	0	0	9.10	20.7	13.4	44.7	1,530	191	136	3.03	24.3	167
1960	80.9	23.2	271	319	365	237	73.9	82.5	200	413	106	87.2	188

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,190	3,040	5,610	5,710	6,760	4,310	3,170	100,800	74,130	4,240	6.9	1,470	†213,400
1952	88	1,180	1,970	3,510	3,160	3,010	7,480	2,080	372	114	0	0	22,960
1953	0	0	0	0	0	173	1,420	17	3,000	7,690	3,450	2.0	15,750
1954	9,720	552	113	558	365	285	11,560	64,740	11,730	0	11	0	99,630
1955	0	0	0	0	0	0	123	33,610	21,630	1,320	16	453	57,150
1956	12,900	33	128	305	1,920	456	9.3	31,620	2,250	0	0	0	49,620
1957	112	0	0	0	0	591	29,100	81,800	8,840	79	2,370	0	122,900
1958	515	635	242	1,360	2,290	5,230	4,770	11,000	22,270	14,710	71	1,100	64,190
1959	0	0	0	559	1,150	822	2,660	94,050	11,340	8,370	186	1,450	120,600
1960	4,980	1,380	16,640	19,630	21,010	14,560	4,400	5,070	11,920	25,420	6,540	5,190	136,700

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	229	166,000
1951	1211	18,300	May 18, 1951	0	†295	†213,400	282	203,800
1952	1241	2,010	Apr. 22, 1952	0	31.6	22,960	27.2	19,730
1953	1281	4,190	July 20, 1953	0	21.8	15,750	36.1	26,140
1954	1341	12,700	May 24, 1954	0	138	99,630	123	89,250
1955	1391	6,910	May 19, 1955	0	78.9	57,150	97.0	70,210
1956	1441	9,450	Oct. 4, 1955	0	68.4	49,620	50.5	36,670
1957	1511	25,300	May 17, 1957	0	170	122,900	172	124,200
1958	1561	6,660	June 21, 1958	0	88.7	64,190	86.8	62,800
1959	1631	53,400	May 26, 1959	0	167	120,600	198	143,600
1960	1711	7,800	July 22, 1960	.6	188	136,700	-	-

† Corrected.

3025. Lake Altus at Lugert, Okla.

Location.--Lat 34°54', long 99°18', in SW¼SE¼ sec.22, T.5 N., R.20 W., on upstream face of Altus Dam on North Fork Red River, 1 mile west of Lugert, 2.6 miles upstream from Elm Fork of North Fork, and at mile 73.5.

Drainage area.--2,515 sq mi, of which 399 sq mi is probably noncontributing.

Records available.--December 1943 to September 1950 (monthly records only), October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Bureau of Reclamation). Prior to Nov. 19, 1948, staff or float gage at same site and datum.

Extremes.--1944-60: Maximum contents, 167,000 acre-ft May 19, 1951 (elevation, 1,562.10 ft); minimum observed after initial storage, 4,690 acre-ft Aug. 25, 1944 (elevation, 1,520.2 ft).

Remarks.--Reservoir is formed by concrete and coursed masonry dam. Storage began in December 1943. Capacity, 142,900 acre-ft at elevation 1,559.0 ft (crest of uncontrolled spillway) and 77,390 acre-ft at elevation 1,547.0 ft (crest of controlled spillway). Dead storage, 2,300 acre-ft below elevation 1,517.5 ft (sill of headgate at irrigation canal). Reservoir is used for flood control, municipal water supply for city of Altus, and irrigation of about 48,000 acres below reservoir. Figures given herein represent total contents.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	145,700	139,500	142,200	147,000	151,200	148,700	138,500	149,000	148,800	134,800	110,700	103,900
1952	101,000	100,100	101,000	103,800	103,500	102,600	101,600	98,970	81,060	61,010	32,620	a22,580
1953	19,590	19,350	19,370	19,200	18,700	17,970	18,810	17,060	18,810	23,620	17,520	12,310
1954	20,150	20,500	19,550	19,780	19,590	17,440	14,160	83,000	85,810	62,260	36,780	24,060
1955	19,470	19,200	18,980	19,810	18,940	18,270	12,540	44,160	63,800	53,440	32,260	24,900
1956	42,840	41,450	40,230	39,940	41,580	38,040	36,380	67,470	65,510	47,440	24,420	12,580
1957	13,570	12,860	11,800	11,690	11,900	11,440	43,080	139,800	142,600	129,300	106,400	93,010
1958	91,200	90,820	89,230	89,930	91,010	95,540	99,140	106,900	120,000	135,600	109,600	102,100
1959	97,500	95,650	94,120	93,960	94,120	89,890	86,840	143,700	143,200	135,000	105,400	104,500
1960	114,400	113,700	136,300	143,500	142,800	143,600	141,000	142,300	139,100	138,700	123,800	118,600

a Contents by capacity table used beginning Oct. 1, 1952; contents Sept. 30, 1952, by capacity table used prior to Oct. 1, 1952, is 26,050 acre-ft.

Note.--Figures of total contents for 1951 are corrected; those previously published in WSP 1211 are in error. Figures of contents for the water year 1952, published in WSP 1241, are usable contents; figures of total contents are shown herein.

Monthly and yearly diversion, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,850	5,460	419	0	2,580	2,240	11,790	4,680	1,530	14,770	18,170	4,300	69,790
1952	1,840	197	0	0	2,440	3,170	10,600	3,860	14,510	17,630	26,100	5,210	85,560
1953	2,110	0	0	0	189	728	0	817	0	967	8,050	4,580	17,440
1954	0	0	761	0	0	1,290	4,660	0	2,730	19,570	21,900	11,980	62,890
1955	3,370	0	0	0	1,380	0	4,520	0	502	9,640	19,610	6,630	45,650
1956	0	0	660	0	0	2,400	362	373	1,480	17,080	21,230	9,870	53,460
1957	0	0	870	0	0	893	0	0	284	8,050	20,700	11,410	42,210
1958	1,340	0	668	202	0	0	817	1,430	1,830	6,030	22,850	5,050	40,220
1959	1,750	0	627	0	0	3,180	3,630	2,660	2,650	13,470	25,970	3,380	57,320
1960	0	0	612	0	0	0	3,110	3,040	3,500	12,190	17,800	5,710	45,960

3030. North Fork Red River below Altus Dam, near Lugert, Okla.

Location.--Lat 34°53'26", long 99°18'22", in SW¼ sec.22, T.15 N., R.20 W., on right bank 3,500 ft downstream from Altus Dam, 1.9 miles upstream from Elm Fork of North Fork, 2 miles west of Lugert, and at mile 72.8.

Drainage area.--2,515 sq mi, of which 399 sq mi is probably noncontributing.

Records available.--March 1930 to December 1932 (published as "at Lugert Dam"), October 1950 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,471.81 ft above mean sea level, datum of 1929. Mar. 19, 1930, to Dec. 31, 1932, staff gage at old Lugert Dam, 0.7 mile upstream at datum 1,504.31 ft above mean sea level, unadjusted.

Extremes.--1930-32, 1950-60: Maximum discharge, 16,100 cfs May 18, 1951 (gage height, 12.70 ft); no flow at times in each year.
Flood of May 16, 1928, reached a stage of 14.5 ft, site and datum then in use (discharge, 14,300 cfs).

Remarks.--Some regulation at low flow by Lugert Lake prior to December 1943 (capacity, 13,500 acre-ft) and completely regulated thereafter by Lake Altus (see preceding page). Diversion from Lake Altus for irrigation of about 48,000 acres below station and for municipal supply of Altus. Records for the period March 1951 to January 1953 include seepage from Altus Dam; for other periods, small amounts of seepage, when dam is not spilling, are not included.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	44.8	0	0	0	8.5	54.6	0.94	1,474	1,353	10.5	0.71	0.03	247
1952	.15	.29	.75	.92	.57	.75	.41	.72	.24	.39	.11	.06	.45
1953	.03	.79	.92	.72	0	0	0	0	0	0	0	0	.21
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	42.2	0	0	0	3.47
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	203	179	181	0	0	47.4
1960	0	0	0	117	481	291	34.1	0	211	216	0	0	111

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,760	0	0	0	470	3,360	56	90,660	80,480	648	43	2.0	178,500
1952	9.1	17	46	57	33	46	24	44	14	24	6.7	3.6	324
1953	1.6	47	56	44	0	0	0	0	0	0	0	0	149
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	2,510	0	0	0	2,510
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	12,480	10,680	11,130	0	0	34,290
1960	0	0	0	7,210	27,650	17,920	2,030	0	12,560	13,250	0	0	80,620

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	1211	16,100	May 18, 1951	0	247	178,500	243	175,800
1952	1241	24	Apr. 21, 1952	0	.45	324	.49	357
1953	1281	-	-	0	.21	149	.06	44
1954	1341	-	-	0	0	0	0	0
1955	1391	-	-	0	0	0	0	0
1956	1441	-	-	0	0	0	0	0
1957	1511	131	June 18, 1957	0	3.47	2,510	3.47	2,510
1958	1561	-	-	0	0	0	0	0
1959	1631	2,050	May 29, 1959	0	47.4	34,290	47.4	34,290
1960	1711	2,160	July 22, 1960	0	111	80,620	-	-

3034. Elm Fork of North Fork Red River near Carl, Okla.

Location.--Lat 35°00'35", long 99°54'20", in NW¼ sec.12, T.6 N., R.26 W., near left bank on downstream side of pier of bridge on State Highway 30, 4 miles northeast of Carl and at mile 54.0.

Drainage area.--416 sq mi (revised).

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,714.95 ft above mean sea level (State Highway Department bench mark).

Extremes.--1959-60: Maximum discharge, 4,230 cfs Aug. 24, 1960 (gage height, 5.74 ft), from rating curve extended above 1,600 cfs by logarithmic plotting; minimum daily, 8.9 cfs Nov. 17, 1959.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	42.5	10.4	54.9	39.4	55.8	43.0	26.3	26.6	29.6	50.2	32.6	26.7	36.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	2,620	620	3,380	2,420	3,210	2,650	1,560	1,640	1,760	3,090	2,010	1,590	26,550

3045. Elk Creek near Hobart, Okla.

Location.--Lat 34°55', long 99°07', in NE¼ sec.17, T.5 N., R.18 W., near right bank on downstream side of pier of highway bridge, 7 miles downstream from Little Elk Creek, 7½ miles south of Hobart, and 10.9 miles upstream from mouth.

Drainage area.--549 sq mi.

Records available.--September 1904 to March 1908, October 1949 to September 1960.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 1,429.4 ft above mean sea level, datum of 1929. Prior to Apr. 13, 1905, staff gage at site 3 miles southwest of Hobart at different datum. Apr. 13, 1905, to Mar. 31, 1908, chain gage at present site at datum 1,430.56 ft above mean sea level, unadjusted. June 6, 1951, to Oct. 23, 1952, and May 7, 1953, to Apr. 28, 1954, wire-weight gage at present site and datum.

Average discharge.--14 years (1904-7, 1949-60), 66.5 cfs (48,140 acre-ft per year).

Extremes.--1904-8, 1949-60: Maximum discharge, 22,400 cfs Oct. 4, 1955 (gage height, 30.75 ft, from floodmarks), from rating curve extended above 5,300 cfs on basis of field estimate of peak flow; no flow at times in many years.

Maximum stage known, that of Oct. 4, 1955. Flood of June 9, 1907, reached a stage of 28.9 ft, datum then in use. Flood in May 1949 reached a stage of 28.63 ft, from floodmark.

Remarks.--Records of chemical analyses and water temperatures for water years 1950-51 and chemical analyses, water temperatures, and suspended sediment loads for water years 1959-60 are published in reports of Geological Survey.

Corrections.--In WSP 1311, the water year mean for 1905 is listed in error; it should be 57.9 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8.15	7.88	8.83	8.98	9.75	10.5	7.54	712	457	34.6	5.68	22.4	108
1952	13.3	4.11	4.31	4.38	4.08	4.41	61.4	77.6	3.82	.38	0	0	14.8
1953	0	.22	.74	.95	.76	2.62	63.3	.03	64.7	51.9	3.5	.16	15.7
1954	77.0	9.30	21.3	.86	.74	.55	10.5	144	7.65	0	.02	0	23.0
1955	0	0	0	0	1.03	.79	.97	373	123	9.19	9.55	3.73	43.9
1956	645	5.16	5.90	5.76	6.50	3.95	3.32	72.1	2.26	35.0	0	0	66.4
1957	5.15	.36	.36	.38	.69	1.08	480	1,049	170	16.3	4.49	8.68	146
1958	25.9	5.33	5.72	6.69	5.48	13.1	8.05	3.04	133	27.0	1.75	.40	19.5
1959	.29	.61	1.99	3.26	4.70	5.74	27.8	340	40.8	380	19.7	179	84.6
1960	360	23.6	149	114	259	83.2	42.3	56.9	53.9	139	24.3	11.1	110

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	501	469	543	552	541	647	449	43,770	27,220	2,130	349	1,330	78,500
1952	817	245	265	269	235	271	3,650	4,770	227	23	0	0	10,770
1953	0	13	45	58	42	161	3,770	1.6	3,850	3,190	215	9.5	11,360
1954	4,740	554	1,310	53	41	34	625	8,840	455	0	1.4	0	16,650
1955	0	0	0	0	57	48	58	22,920	7,310	565	587	222	31,770
1956	39,630	307	363	354	374	243	197	4,430	134	2,150	0	0	48,180
1957	317	21	22	22	38	66	28,590	64,520	10,140	1,000	276	516	105,500
1958	1,590	317	351	411	304	804	479	187	7,910	1,660	108	24	14,140
1959	18	36	123	200	261	353	1,650	20,920	2,430	23,350	1,210	10,660	61,210
1960	22,110	1,400	9,190	7,000	14,930	5,110	2,520	3,500	3,210	8,560	1,490	660	79,680

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	70.7	51,150
1951	1211	6,090	May 18, 1951	1.6	108	78,500	108	78,320
1952	1241	2,040	Apr. 22, 1952	0	14.8	10,770	13.1	9,500
1953	1281	4,050	June 6, 1953	0	15.7	11,360	24.7	17,900
1954	1341	2,240	Oct. 23, 1953	0	23.0	16,650	13.9	10,050
1955	1391	3,270	May 19, 1955	0	43.9	31,770	99.5	72,070
1956	1441	22,400	Oct. 4, 1955	0	66.4	48,180	11.4	8,240
1957	1511	4,570	May 5, 1957	0	146	105,500	148	107,400
1958	1561	2,220	June 21, 1958	0	19.5	14,140	16.7	12,060
1959	1631	4,720	July 28, 1959	0	84.6	61,210	129	93,730
1960	1711	3,630	Oct. 4, 1959	7.7	110	79,680	-	-

3050. North Fork Red River near Headrick, Okla.

Location.--Lat 34°38', long 99°06', in center of N½ sec.21, T.2 N., R.18 W., near left bank on downstream side of pier of bridge on U. S. Highway 62, 2½ miles east of Headrick, 12.9 miles upstream from Otter Creek, and at mile 33.0.

Drainage area.--4,244 sq mi, of which 399 sq mi is probably noncontributing.

Records available.--April 1905 to March 1908, October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Prior to July 1905, published as "near Snyder."

Gage.--Water-stage recorder. Datum of gage is 1,299.83 ft above mean sea level, datum of 1929 (Bureau of Reclamation bench mark). Prior to July 18, 1905, chain gage at site a quarter of a mile downstream at different datum. July 18, 1905, to Mar. 30, 1908, staff gage at Navajo damsite 10.4 miles upstream at different datum.

Average discharge.--25 years (1905-7, 1937-60), 336 cfs (243,300 acre-ft per year).

Extremes.--1905-8, 1937-60: Maximum discharge, 30,700 cfs Oct. 5, 1955 (gage height, 11.50 ft); no flow at times in most years.
Maximum stage known, 16.1 ft sometime prior to 1927, from information by State Highway Department.

Remarks.--Flow regulated since December 1943 by Lake Altus, 39.5 miles above station (see p. 379). Diversions for irrigation of about 48,000 acres above station. Records of chemical analyses and water temperatures for the period November 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	†118	31.9	37.3	38.8	54.3	95.2	35.2	4,232	3,118	288	29.7	47.3	681
1952	143	28.2	21.0	29.3	25.1	25.2	294	229	13.9	9.11	0	0	68.3
1953	0	0	.43	.84	4.06	13.4	168	.31	552	433	220	2.27	117
1954	463	21.1	30.4	8.66	5.22	4.59	23.1	1,011	70.6	2.80	.36	.39	140
1955	0	.02	.20	3.13	5.99	4.27	6.20	1,349	450	102	26.8	10.8	165
1956	1,708	18.8	29.6	31.7	27.3	13.8	7.95	1,230	131	188	1.87	0	286
1957	45.0	14.7	6.20	4.34	9.02	36.9	1,410	4,368	838	109	48.3	10.1	580
1958	139	38.0	24.7	29.6	30.2	51.9	68.8	66.0	404	228	34.6	9.14	93.8
1959	1.73	4.00	12.4	15.5	15.6	8.89	117	1,445	517	1,137	63.6	381	313
1960	799	47.8	456	499	1,162	621	273	155	392	502	78.4	44.7	418

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,250	1,900	2,290	2,380	3,010	5,860	2,100	260,200	185,500	17,730	1,820	2,810	492,800
1952	8,820	1,680	1,290	1,800	1,450	1,550	17,520	14,080	824	560	0	0	49,570
1953	0	0	26	52	226	825	10,000	19	32,860	26,650	13,560	135	84,350
1954	28,790	1,250	1,870	532	290	282	1,380	62,190	4,200	172	22	23	101,000
1955	0	1.2	12	192	332	263	369	82,960	26,770	6,260	1,650	642	119,500
1956	105,000	1,120	1,820	1,950	1,570	849	473	75,600	7,800	11,550	115	0	207,800
1957	2,770	876	381	267	501	2,270	83,900	268,600	49,870	6,700	2,970	598	419,700
1958	8,570	1,260	1,520	1,820	1,680	3,190	4,090	4,060	24,070	14,000	2,130	544	67,930
1959	106	238	763	956	869	546	6,950	88,850	30,750	69,930	3,910	22,670	226,500
1960	49,110	2,840	28,060	30,670	66,850	38,180	16,270	9,510	23,330	30,850	4,820	2,660	303,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	363	263,100
1951	1211	24,900	May 19, 1951	3.3	681	492,800	681	493,200
1952	1241	4,560	Apr. 23, 1952	0	68.3	49,570	52.1	37,810
1953	1281	17,900	June 6, 1953	0	117	84,350	161	116,200
1954	1341	17,300	May 25, 1954	0	140	101,000	95.4	69,100
1955	1391	11,400	May 20, 1955	0	165	119,500	314	227,400
1956	1441	30,700	Oct. 5, 1955	0	286	207,800	143	103,900
1957	1511	20,100	May 4, 1957	0	580	419,700	591	428,000
1958	1561	5,910	June 22, 1958	.7	93.8	67,930	78.3	56,690
1959	1631	13,400	July 2, 1959	.2	313	226,500	422	305,400
1960	1711	10,100	Oct. 4, 1959	12	418	303,200	-	-

3055. West Otter Creek at Snyder Lake, near Mountain Park, Okla.
(Formerly published as Otter Creek at Snyder Lake, near Mountain Park)

Location.--Lat 34°44'04", long 98°59'14", in NE¼ sec.16, T.3 N., R.17 W., at intake tower at Snyder Dam on Otter Creek, 0.8 mile upstream from small tributary, 3 miles northwest of Mountain Park, and at mile 26.0.

Drainage area.--132 sq mi.

Records available.--April 1903 to March 1908, October 1951 to September 1960. Published as Otter Creek near Mountain Park 1903-8.

Gage.--Water-stage recorder and broad-crested masonry spillway. Datum of gage is 1,360.99 ft above mean sea level, datum of 1929. April 1903 to March 1908 staff gage at site 1.8 miles downstream at different datum.

Average discharge.--13 years (1903-7, 1951-60), 28.2 cfs, revised (20,420 acre-ft per year).

Extremes.--1903-8, 1951-60: Maximum discharge, 14,200 cfs June 6, 1953 (gage height, 19.50 ft, from floodmarks), from rating curve extended above 1,600 cfs on basis of contracted-opening and flow-over-dam measurements of peak flow; no flow at times in most years. Maximum discharge known, that of June 6, 1953.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	0	0	0	0	0	0	0	83.4	3.50	0	0	0	7.35
1953	0	0	0	0	0	0	0	0	227	1.20	0	0	18.8
1954	85.5	4.72	15.1	0	0	0	0	150	.17	0	0	0	21.7
1955	0	0	0	0	0	0	0	157	92.2	.09	0	5.15	21.4
1956	141	0	0	0	1.69	0	0	10.4	.07	0	0	0	12.9
1957	0	0	0	0	0	0	101	392	131	77.1	0	13.2	59.9
1958	0	0	0	.03	.26	3.62	10.2	.73	39.9	17.4	0	0	5.99
1959	0	0	0	0	0	0	0	*244	*27.3	*127	*1.55	*91.6	*41.4
1960	*108	*.22	*49.9	*13.6	*27.3	*6.79	*2.85	*6.29	*6.51	*1.30	0	0	*18.7

* Revised; revised daily discharge for the periods thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	0	0	0	0	0	0	0	5,130	208	0	0	0	5,340
1953	0	0	0	0	0	0	0	0	13,500	74	0	0	13,570
1954	5,260	281	927	0	0	0	0	9,250	9.9	0	0	0	15,730
1955	0	0	0	0	0	0	0	9,670	5,490	5.4	0	306	15,470
1956	8,640	0	0	0	97	0	0	637	4.4	0	0	0	9,380
1957	0	0	0	0	0	0	5,990	24,090	7,800	4,740	0	786	43,410
1958	0	0	0	2.0	14	223	610	45	2,370	1,070	0	0	4,330
1959	0	0	0	0	0	0	0	*15,030	*1,620	*7,780	*95	*5,450	*29,980
1960	*6,650	*13	*3,070	*835	*1,570	*418	*169	*387	*387	*80	0	0	*13,580

* Revised; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952	1241	2,140	May 23, 1952	0	7.35	5,340	7.35	5,340
1953	1281	14,200	June 6, 1953	0	18.8	13,570	27.7	20,040
1954	1341	2,640	Oct. 23, 1953	0	21.7	15,730	12.8	9,260
1955	1391	4,440	May 19, 1955	0	21.4	15,470	33.3	24,110
1956	1441	4,240	Oct. 4, 1955	0	12.9	9,380	1.02	738
1957	1511	5,310	July 24, 1957	0	59.9	43,410	59.9	43,410
1958	1561	741	June 21, 1958	0	5.99	4,330	5.99	4,330
1959	1631	6,580	May 26, 1959	0	*41.4	*29,980	*54.8	*39,710
1960	1711	*1,680	Dec. 17, 1959	0	*18.7	*13,580	-	-

* Revised.

3065. West Otter Creek at Mountain Park, Okla.
(Formerly published as Otter Creek at Mountain Park)

Location.--Lat 34°42', long 98°59', in NW¼NW¼ sec.34, T.3 N., R.17 W., on downstream side of left abutment of county highway bridge 500 ft upstream from Horse Creek, 1½ miles west of Mountain Park, 4.0 miles downstream from Lake Snyder, and 23.0 miles upstream from mouth. Records include flow of Horse Creek.

Drainage area.--164 sq mi, includes that of Horse Creek.

Records available.--March 1946 to September 1951. Previously published as Otter Creek at Mountain Park.

Gage.--Water-stage recorder. Datum of gage is 1,329.90 ft above mean sea level, datum of 1929. Prior to Oct. 18, 1946, wire-weight gage at same site and datum.

Average discharge.--5 years (1946-51), 29.1 cfs (21,070 acre-ft per year).

Extremes.--1946-51: Maximum discharge, 5,110 cfs May 16, 1947; maximum gage height, 18.30 ft June 3, 1949; no flow at times in each year.

Remarks.--Small diversions above station at Lake Snyder (capacity, 1,355 acre-ft) for water supply for city of Snyder.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.46	0.25	0.37	0.22	0.16	0.15	0.10	223	136	41.3	2.39	0.13	34.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	28	15	23	14	8.7	9.1	5.8	13,720	8,120	2,540	147	7.9	24,640

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	21.8	15,810
1951	1211	4,450	May 18, 1951	0	34.0	24,640	-	-

3075. Quitaque Creek near Quitaque, Tex.

Location.--Lat 34°14', long 101°07', on right bank three-quarters of a mile upstream from W. F. Saul's ranchhouse, 1 mile downstream from Wilson Creek, 1½ miles upstream from Turkey Creek, and 10 miles southwest of Quitaque, Briscoe County.

Drainage area.--293 sq mi, of which about 258 sq mi is probably noncontributing.

Records available.--August 1945 to September 1959.

Gage.--Water-stage recorder and concrete control. Datum of gage is 2,633.91 ft above mean sea level, datum of 1929.

Average discharge.--14 years (1945-59), 7.34 cfs (5,310 acre-ft per year).

Extremes.--1945-59: Maximum discharge, 6,060 cfs Aug. 4, 1957, from rating curve extended above 70 cfs on basis of slope-area measurements at gage heights 2.70, 3.00, 5.59, 6.33, and 8.62 ft; maximum gage height, 8.62 ft June 28, 1955; minimum discharge, 1.1 cfs Aug. 4, 1956.

Remarks.--No diversion above station. Base flow comes from springs which emerge at the base of the Ogallala formation.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6.39	6.48	5.94	6.02	6.09	5.99	7.21	15.5	7.68	4.47	4.71	7.14	6.98
1952	4.79	5.26	5.60	5.80	5.70	5.65	7.17	7.62	3.95	4.93	3.83	4.14	5.37
1953	4.44	5.82	5.60	5.73	5.71	5.93	6.05	6.06	3.84	5.35	6.02	3.86	5.37
1954	5.50	4.91	5.29	5.36	5.75	5.44	5.52	30.5	5.97	3.61	9.65	3.35	7.61
1955	4.56	5.26	5.27	5.25	5.44	5.12	5.04	42.5	51.2	8.17	4.61	5.15	12.3
1956	7.72	4.47	5.34	5.69	5.53	4.55	5.33	9.14	4.75	3.13	2.43	2.97	5.09
1957	3.74	4.74	5.10	4.93	5.09	5.57	11.2	26.2	93.2	3.94	17.3	3.85	15.4
1958	5.31	4.70	4.74	4.95	5.07	6.16	7.02	5.35	5.83	2.71	2.69	4.04	4.88
1959	4.43	4.76	4.71	5.70	5.05	4.45	4.57	5.98	12.3	12.1	2.44	3.21	5.81
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	393	386	365	370	338	369	429	956	457	275	290	425	5,050
1952	295	313	344	357	328	348	427	468	235	303	235	246	3,900
1953	273	346	344	352	317	365	360	373	228	329	370	229	3,890
1954	338	292	325	330	320	334	328	1,880	355	222	594	199	5,520
1955	280	313	324	323	302	315	300	2,610	3,050	503	283	306	8,910
1956	474	266	328	350	318	279	317	562	283	192	150	177	3,700
1957	230	282	313	303	283	343	669	1,610	5,550	242	1,060	229	11,110
1958	327	280	292	304	282	379	418	329	347	167	165	241	3,530
1959	272	283	290	351	280	273	272	368	734	745	150	191	4,210
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	8.68	6,290
1951	1211	780	Sept. 9, 1951	3.6	6.98	5,050	6.71	4,860
1952	1241	152	July 14, 1952	3.1	5.37	3,900	5.39	3,910
1953	1281	1,240	Aug. 15, 1953	2.8	5.37	3,890	5.36	3,880
1954	1341	970	May 10, 1954	3	7.61	5,520	7.56	5,480
1955	1391	4,470	June 28, 1955	3.6	12.3	8,910	12.5	9,060
1956	1441	700	May 27, 1956	1.1	5.09	3,700	4.76	3,450
1957	1511	6,060	Aug. 4, 1957	2.8	15.4	11,110	15.5	11,190
1958	1562	812	June 23, 1958	1.7	4.88	3,530	4.80	3,480
1959	1632	1,220	July 6, 1959	1.9	5.81	4,210	-	-
1960								

3078. Pease River near Childress, Tex.

Location.--Lat 34°13'35", long 100°04'20", near right bank on downstream side of bridge on Farm Road 104, 3 miles downstream from confluence of North and Middle Forks, 17 miles southeast of Childress, Childress County, and 19 miles northeast of Paducah, Cottle County.

Drainage area.--2,747 sq mi, of which 559 sq mi is probably noncontributing.

Records available.--December 1959 to September 1960.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 1,492.98 ft above mean sea level, datum of 1929.

Extremes.--December 1959 to September 1960: Maximum discharge, 19,000 cfs June 9 (gage height, 13.59 ft); minimum, 0.4 cfs May 22.
Maximum stage since at least 1909, 22 ft June 1, 1957; flood in May 1935 reached a stage of 18 ft and was the second highest, from information by local resident.

Remarks.--Three small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	94.0	28.1	27.0	12.2	2.87	26.5	403	177	80.6	9.21	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	5,780	1,730	1,550	748	171	1,630	23,970	10,890	4,950	548	-

3082. Pease River near Vernon, Tex.

Location.--Lat 34°10'35", long 99°16'50", near left bank on downstream side of bridge on U. S. Highway 283, 1.9 miles north of Vernon, Wilbarger County, and 10 miles upstream from mouth.

Drainage area.--3,488 sq mi, of which 559 sq mi is probably noncontributing.

Records available.--December 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,166.03 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942.

Extremes.--December 1959 to September 1960: Maximum discharge, 19,000 cfs June 9 (gage height, 13.30 ft); no flow Aug. 7-15, Sept. 19-22.
Maximum stage since at least 1890, 24 ft in 1891, present site and datum, from information by local resident. Flood in September 1936 reached a stage of 23.5 ft and flood of June 2, 1957, reached a stage of 22.0 ft, present site and datum, from information by local residents.

Remarks.--Four small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	163	44.1	50.7	21.3	5.59	34.1	562	393	68.6	13.8	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	10,000	2,710	2,920	1,310	332	2,100	33,460	24,190	4,220	824	-

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3085. Red River near Burkburnett, Tex.

Location.--Lat 34°06'30", long 98°32'00", on downstream side of bridge on U. S. Highways 277 and 281, 2 miles northeast of Burkburnett, Wichita County.

Drainage area.--20,570 sq mi, of which 5,936 sq mi is probably noncontributing.

Records available.--July 1924 to August 1925 (monthly discharge only), December 1959 to September 1960.

Gage.--Water-stage recorder and wire-weight gage. Altitude of gage is 956 ft (from topographic map). July 11, 1924, to Aug. 31, 1925, chain gage at site 1,000 ft downstream at same datum.

Extremes.--1924-25, 1960: Maximum discharge, 38,600 cfs June 10, 1960; no flow at times in 1924-25.

Maximum stage known occurred in 1891 (stage not known). Flood in June 1941 (stage not known) was second highest. Flood of May 19, 1935 (stage not known), destroyed part of highway bridge. Flood of June 3, 1957, reached a stage of 13.54 ft (from floodmarks). Flood in September 1923 reached a stage of 13 ft. Above information from local residents.

Remarks.--Several small diversions for irrigation above gage.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	795	1,555	620	288	440	4,363	1,474	355	296	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	48,900	89,450	38,140	1 ,170	27,050	259,600	90,640	21,800	17,610	-

3090. East Cache Creek near Elgin, Okla.

Location.--Lat 34°46'55", long 98°22'00", in NW¼ sec.33, T.4 N., R.11 W., near left bank on downstream side of pier of bridge on U. S. Highway 277, 1.1 miles upstream from Rock Creek and 4¼ miles west of Elgin.

Drainage area.--248 sq mi.

Records available.--September 1955 to September 1958.

Gage.--Water-stage recorder. Datum of gage is 1,148.45 ft above mean sea level, datum of 1929. Prior to Nov. 4, 1955, wire-weight gage at same site and datum.

Extremes.--1955-58: Maximum discharge, 20,400 cfs May 25, 1957 (gage height, 34.10 ft), from rating curve extended above 5,400 cfs by logarithmic plotting; no flow at times in each year.

Remarks.--Records of chemical analyses and water temperatures for water years 1956-58 and suspended sediment loads for water year 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	176	-
1956	452	1.71	4.21	4.12	5.28	2.94	6.51	50.5	8.80	5.30	0	0	45.8
1957	4.37	2.04	.30	.34	.82	16.1	177	1,027	299	9.41	.34	242	149
1958	9.60	26.6	16.3	18.2	18.9	36.0	66.2	32.5	23.8	12.2	.24	2.85	21.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	-	-	-	-	-	-	-	-	10,480	-
1956	27,810	102	259	253	304	180	387	3,110	523	326	0	0	33,250
1957	269	121	19	21	46	990	10,510	63,170	17,790	579	21	14,370	107,900
1958	590	1,590	1,000	1,120	1,050	2,210	3,940	2,000	1,420	751	15	170	15,860

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1955	1441	-	-	-	-	-	-	-
1956	1441	13,300	Oct. 4, 1955	0	45.8	33,250	7.56	5,490
1957	1511	20,400	May 25, 1957	0	149	107,900	153	110,700
1958	1561	2,120	Apr. 2, 1958	0	21.9	15,860	-	-

3110. Cache Creek near Walters, Okla.

Location.--Lat 34°20', long 98°17', in SE¼ sec.19, T.2 S., R.10 W., near center of span on downstream side of pier of bridge on State Highway 53, 1¾ miles east of Walters, 12.2 miles upstream from West Cache Creek, and at mile 19.7.

Drainage area.--675 sq mi.

Records available.--May 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 938.2 ft above mean sea level (State Highway Commission bench mark). Prior to Jan. 8, 1939, wire-weight gage at same site and datum.

Average discharge.--22 years (1938-60), 183 cfs (132,500 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 28,200 cfs May 18, 1951 (gage height, 29.72 ft); no flow at times in 1939-40.

Maximum stage known, that of May 18, 1951. Flood in 1906 reached a stage about the same as those of May 18, 1951, and May 17, 1947 (gage height, 29.62 ft), from information by local residents.

Remarks.--Flow partly regulated by Lake Lawtonka (capacity, 42,300 acre-ft prior to late 1953, and 63,000 acre-ft thereafter) on Medicine Creek, and by Lake Thomas (capacity, 8,300 acre-ft) on Little Medicine Creek. Low flow sustained by sewage from city of Lawton. Records of chemical analyses and water temperatures for water years 1952-53 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	27.1	18.2	17.2	18.9	48.5	22.0	75.1	2,577	1,440	374	56.4	24.3	394
1952	58.5	38.9	20.1	20.1	18.4	22.8	19.9	800	192	62.1	11.4	7.76	107
1953	6.51	12.0	10.1	7.98	13.1	203	70.4	36.5	308	139	28.9	6.37	70.2
1954	478	260	217	25.5	23.2	17.3	33.3	1,024	49.2	9.25	3.75	2.36	181
1955	3.48	4.45	7.97	10.6	14.6	21.1	8.97	1,227	246	20.5	8.27	354	162
1956	914	9.07	21.8	21.8	27.1	18.6	16.4	110	46.6	28.6	3.81	2.60	103
1957	72.6	30.6	15.4	10.9	12.9	45.2	694	2,480	789	77.7	18.2	†153	369
1958	63.3	148	41.0	104	55.3	142	169	247	114	37.0	16.9	20.0	96.6
1959	13.3	16.6	15.0	17.5	16.6	11.5	58.8	424	96.4	326	30.5	164	100
1960	1,043	248	435	250	338	119	78.8	143	74.0	130	24.0	16.0	243

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,660	1,080	1,060	1,160	2,690	1,350	4,470	158,500	85,700	22,970	3,470	1,440	285,600
1952	3,600	2,320	1,230	1,230	1,060	1,400	1,190	49,170	11,430	3,820	703	462	77,620
1953	400	666	623	491	730	12,470	4,190	2,250	18,310	8,550	1,770	379	50,830
1954	29,410	15,480	13,330	1,560	1,290	1,060	1,980	62,980	2,930	569	230	140	131,000
1955	214	265	490	652	810	1,300	534	75,460	14,670	1,260	508	21,040	117,200
1956	56,220	540	1,340	1,340	1,560	1,140	978	6,730	2,770	1,760	234	155	74,770
1957	4,460	1,820	946	667	715	2,780	41,300	152,600	46,950	4,780	1,120	9,120	267,300
1958	3,890	8,790	2,520	6,420	3,070	8,730	10,080	15,190	6,780	2,280	1,040	1,190	69,980
1959	819	986	920	1,080	920	705	3,500	26,060	5,730	20,020	1,870	9,780	72,390
1960	64,110	14,730	26,740	15,400	19,440	7,330	4,690	8,790	4,400	7,990	1,470	950	176,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	134	97,140
1951	1211	28,200	May 18, 1951	11	394	285,600	399	288,900
1952	1241	11,800	May 18, 1952	7.2	107	77,620	99.4	72,150
1953	1281	5,350	June 7, 1953	5.7	70.2	50,830	148	107,400
1954	1341	10,200	May 13, 1954	1.4	181	131,000	102	73,710
1955	1391	14,200	May 20, 1955	2.0	162	117,200	241	174,300
1956	1441	10,200	Oct. 6, 1955	.9	103	74,770	32.9	23,890
1957	1511	15,000	May 26, 1957	3.0	369	267,300	380	275,200
1958	1561	3,120	May 4, 1958	9.2	96.6	69,980	79.4	57,500
1959	1631	4,540	May 28, 1959	7.8	100	72,390	242	175,200
1960	1711	10,100	Oct. 5, 1959	13	243	176,000	-	-

3115. Deep Red Run near Randlett, Okla.

Location.--Lat 34°13'15", long 98°27'10", in SW¼ sec.10, T.4 S., R.12 W., near right bank on downstream side of pier of bridge on U. S. Highway 277, 2¾ miles north of Randlett and 4.8 miles upstream from mouth.

Drainage area.--617 sq mi.

Records available.--October 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 924.49 ft above mean sea level, datum of 1929 (from State Highway Commission bench mark). Prior to Nov. 10, 1949, wire-weight gage at same site and datum.

Average discharge.--11 years (1949-60), 133 cfs (96,290 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 20,300 cfs May 18, 1951 (gage height, 27.10 ft), from rating curve extended above 13,000 cfs; no flow at times in most years.
Maximum stage known occurred in 1908, somewhat exceeding 27 ft, from information by local residents.

Remarks.--Records of chemical analyses and water temperatures for water years 1950-51 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4.14	3.08	3.65	3.36	61.7	11.2	11.5	*1,974	387	70.9	9.47	4.87	*214
1952	39.0	49.4	.77	1.00	.60	18.9	17.7	851	76.2	28.8	0	0	91.3
1953	0	.03	.13	0	8.49	39.6	48.6	5.47	2.98	47.4	27.4	8.74	15.8
1954	580	107	27.8	.25	.46	.54	33.2	1,035	71.0	1.08	0	0	157
1955	0	0	0	.03	4.15	15.5	.003	997	99.6	11.3	6.85	450	133
1956	963	2.72	3.38	2.51	4.01	1.44	.39	21.6	13.7	1.92	1.05	0	86.0
1957	111	27.4	5.46	.33	1.62	49.4	799	2,344	513	24.4	1.50	1.05	326
1958	9.48	129	4.34	24.2	16.9	73.8	69.5	225	95.1	198	4.73	3.96	71.6
1959	.78	.15	.59	1.18	1.03	.50	204	317	303	70.6	18.2	40.1	79.8
1960	616	120	230	52.3	56.3	12.9	5.92	159	175	102	4.20	.51	129

* Revised; revised daily discharge for the period thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	254	183	225	207	3,430	690	684	*121,400	23,000	4,360	583	290	*155,306
1952	2,400	2,940	48	62	34	1,160	1,050	52,300	4,530	1,770	0	0	66,290
1953	0	1.8	8.1	0	472	2,430	2,890	337	178	2,920	1,680	520	11,440
1954	35,680	6,400	1,710	15	25	33	1,970	63,660	4,220	67	0	0	113,800
1955	0	0	0	1.6	230	955	.2	61,290	5,930	693	421	26,780	96,300
1956	59,240	162	208	154	230	89	23	1,330	815	118	65	0	62,430
1957	6,840	1,630	336	20	90	3,040	47,530	144,100	30,510	1,500	92	63	235,800
1958	583	7,680	267	1,490	936	4,540	4,140	13,830	5,660	12,170	291	235	51,820
1959	48	9.1	36	72	57	31	12,150	19,490	18,040	4,340	1,120	2,390	57,780
1960	37,850	7,130	14,120	3,220	3,240	796	352	9,780	10,420	6,270	258	30	93,470

* Revised. See footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	174	126,100
1951	1211	*30,000	May 18, 1951	0	*214	*155,306	*221	160,032
1952	1241	12,800	May 18, 1952	0	91.3	66,290	83.9	60,920
1953	1281	1,290	Apr. 1, 1953	0	15.8	11,440	76.3	55,220
1954	1341	7,590	May 13, 1954	0	157	113,800	96.7	69,990
1955	1391	8,190	May 20, 1955	0	133	96,300	215	155,900
1956	1441	10,800	Oct. 6, 1955	0	86.0	62,430	16.0	11,630
1957	1511	8,050	May 20, 1957	0	326	235,800	325	235,500
1958	1561	2,330	May 4, 1958	0	71.6	51,820	59.9	43,390
1959	1631	2,760	June 24, 1959	0	79.8	57,780	161	116,800
1960	1711	10,300	Oct. 5, 1959	0	129	93,470	-	-

* Revised.

3117. North Fork Wichita River near Truscott, Tex.

Location.--Lat 33°49'10", long 99°47'10", near right bank on downstream side of bridge on State Highway 183, 4½ miles north of Truscott, Knox County, and about 33 miles upstream from confluence with South Fork.
Drainage area.--937 sq mi.
Records available.--December 1959 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 1,351.78 ft above mean sea level, datum of 1929.
Extremes.--December 1959 to September 1960: Maximum discharge, 6,100 cfs July 7 (gage height, 15.88 ft); minimum, 4.1 cfs Sept. 16, but may have been less during period of ice effect.
Maximum stage since at least 1900 occurred in September 1919 and the next highest flood occurred in May 1954, from information by local resident.
Remarks.--One small diversion for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	85.7	21.3	21.0	17.5	13.2	126	216	288	31.1	13.3	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	5,270	1,310	1,210	1,080	787	7,720	12,840	17,700	1,910	789	-

3118. South Fork Wichita River near Benjamin, Tex.

Location.--Lat 33°38'35", long 99°47'55", on downstream side of bridge on State Highway 283, 2 miles downstream from Panhandle and Santa Fe Railway Co. bridge, 4 miles north of Benjamin, Knox County, and 34 miles upstream from confluence with North Fork Wichita River.
Drainage area.--584 sq mi.
Records available.--December 1959 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 1,334.23 ft above mean sea level, datum of 1929.
Extremes.--December 1959 to September 1960: Maximum discharge, 2,500 cfs July 7 (gage height, 12.27 ft); no flow at times.
Maximum stage since at least 1903 occurred in September 1919, the next highest flood occurred in 1935, from information by local residents.
Remarks.--No regulation or diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	19.4	7.19	7.74	4.60	4.40	5.07	33.6	96.3	18.5	1.56	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	1,190	442	445	283	262	312	2,000	5,920	1,130	93	-

3119. Wichita River near Seymour, Tex.

Location.--Lat 33°42'00", long 99°23'10", near left bank on downstream side of pier of bridge on Ranch Road 1919, 6 miles upstream from head of Lake Kemp, 10 miles downstream from confluence of North and South Forks, and 10½ miles northwest of Seymour, Baylor County.

Drainage area.--1,874 sq mi.

Records available.--November 1959 to September 1960.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 1,152.7 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustment of 1942 (State Highway Department bridge plans).

Extremes.--December 1959 to September 1960: Maximum discharge, 8,250 cfs July 7 (gage height, 14.10 ft); minimum, 0.1 cfs Sept. 19, 20.
Maximum stage since at least 1900 occurred in June 1915 (stage and discharge not known), from information by local residents.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	222	41.9	44.2	24.2	17.1	339	441	483	97.5	11.1	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	13,660	2,580	2,540	1,490	1,020	20,870	26,250	29,730	6,000	661	-

3120. Lake Kemp near Mabelle, Tex.

Location.--Lat 33°45', long 99°09', in outlet-gate control house at dam on Wichita River, 6.2 miles north of Mabelle, Baylor County, and 10.2 miles northeast of Seymour.

Drainage area.--2,099 sq mi.

Records available.--October 1922 to September 1960.

Gage.--Float-tape gage. Datum of gage is 2.40 ft above mean sea level, datum of 1929, Fort Worth supplementary adjustement of 1942.

Extremes.--1922-60: Maximum contents observed, 420,900 acre-ft June 30, 1941 (gage height, 1,149.6 ft); minimum observed since first appreciable storage, 26,160 acre-ft June 30, 1953 (gage height, 1,105.6 ft).

Remarks.--Lake is formed by hydraulic earthfill dam 7,500 ft long, having an uncontrolled semi-circular concrete service spillway 564 ft long with crest at gage height 1,150.6 ft. No flow has been permitted to pass over spillway. Two uncontrolled emergency spillways are located between the left end of dam and the service spillway, one 70 ft long with crest at gage height 1,159.1 ft and the other 335 ft long with crest varying from gage heights 1,159.6 to 1,162.9 ft. Storage began Oct. 1, 1922; dam completed Aug. 25, 1923. Outlet works consist of 6 conduits, 7 ft in diameter controlled by lift-type gates. Data regarding the dam is shown in the following table:

	Gage height (feet)	Lake capacity (acre-feet)
Service spillway crest.....	1,150.6	461,800
Bottom of outlet conduits..	1,067.0	0

Water is used for irrigation in Wichita River Valley, oilfield operation, and industrial consumption. Forty-two thousand acres of land are available for irrigation.

Cooperation.--Records of daily gage height furnished by Wichita County Water Improvement Districts Nos. 1 and 2.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	278,000	263,400	258,200	253,000	263,400	262,100	247,800	284,700	293,100	263,400	237,700	239,000
1952	232,700	230,300	220,700	204,100	192,800	184,200	177,200	186,200	156,800	139,900	101,600	79,050
1953	63,200	57,320	57,320	54,050	54,500	60,700	54,050	43,580	26,160	43,970	67,200	58,280
1954	137,500	143,200	142,400	138,300	133,500	119,600	129,000	290,300	338,800	301,700	271,200	246,500
1955	230,300	219,500	218,300	219,500	220,700	224,300	213,500	255,600	287,500	271,200	245,200	271,200
1956	342,000	332,400	326,100	318,400	319,900	310,700	288,900	286,100	259,500	227,900	190,600	165,800
1957	164,000	161,300	161,300	157,700	162,200	164,900	230,300	361,200	343,600	323,000	295,900	278,000
1958	293,100	321,400	319,900	319,900	321,400	324,600	283,400	291,700	273,900	279,300	256,900	249,100
1959	a243,100	234,900	229,300	222,700	216,100	198,000	195,000	203,000	233,800	239,500	210,000	195,000
1960	233,800	230,400	244,300	246,700	247,900	245,500	231,600	240,700	250,600	258,000	238,300	222,700

a Contents by capacity table used beginning Oct. 1, 1958; contents Sept. 30, 1958, by capacity table used since Oct. 1, 1958, was 253,600 acre-ft.

3121. Wichita River near Mabelle, Tex.

Location.--Lat 33°45'35", long 99°08'35", near left bank on downstream side of bridge on U. S. Highways 183 and 283, 0.3 mile downstream from Lake Kemp Dam, 6 miles north of Mabelle, and 13 miles northeast of Seymour, Baylor County.

Drainage area.--2,086 sq mi, all of which is above Lake Kemp Dam.

Records available.--October 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,062.72 ft above mean sea level, datum of 1929.

Extremes.--1959-60: Maximum discharge, 754 cfs Aug. 9 (gage height, 5.07 ft); minimum daily, 2.0 cfs Apr. 18, 20.

Remarks.--Flow completely regulated by Lake Kemp (see p. 392). Water is released from Lake Kemp to supply Lake Diversion from whence it is released for irrigation in vicinity of Wichita Falls (42,000 acres under permit).

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	228	85.1	35.6	3.10	3.13	39.8	181	111	168	301	349	250	147

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	14,020	5,060	2,190	190	180	2,450	10,760	6,820	9,980	18,490	21,430	14,890	106,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1960	1711	754	Aug. 9, 1960	2.0	147	106,500	-	-

3122. Beaver Creek near Electra, Tex.

Location.--Lat 33°54'20", long 98°54'15", near right bank on downstream side of bridge on Farm Road 2326, 6.5 miles northwest of Kamay, 8 miles upstream from Wichita River, and 9 miles south of Electra, Wichita County.

Drainage area.--652 sq mi.

Records available.--February to September 1960.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 991.3 ft above mean sea level (Texas Highway Department reference point).

Extremes.--February to September 1960: Maximum discharge, 2,940 cfs July 6 (gage height, 21.28 ft); no flow June 23-26.
Maximum stage since at least 1925, 36.0 ft in 1941 (partly caused by deliberate demolition of Santa Rosa Dam to avoid its failure), from information by local residents.

Remarks.--Some regulation by Santa Rosa Lake about 30 miles upstream. Several small diversions above station.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	4.06	2.73	86.8	131	63.5	11.8	19.8	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	-	250	162	5,340	7,810	3,910	723	1,180	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1960	1711	2,940	July 6, 1960	0	-	-	-	-

3125. Wichita River at Wichita Falls, Tex.

Location.--Lat 33°54'30", long 98°32'05", near center of stream on downstream side of bridge on Beverly Drive in Wichita Falls, Wichita County, 4 miles upstream from Fort Worth and Denver Railway Co. bridge and 8.4 miles upstream from Holliday Creek.

Drainage area.--3,140 sq mi, of which 2,086 sq mi (revised) is above Lake Kemp Dam.

Records available.--February 1900 to January 1902 (monthly discharge only in WSP 1311), October 1910 to December 1911 (gage heights only), March 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 924.26 ft above mean sea level, datum of 1929. February 1900 to February 1902 staff gage (property of U. S. Department of Agriculture) at highway bridge about 4 miles downstream at different datum. Oct. 1, 1910, to Dec. 31, 1911, chain gage at site 4 miles downstream at different datum. Prior to Dec. 2, 1959, wire-weight gage at same site and datum.

Average discharge.--23 years (1900-1901, 1938-60), 327 cfs (236,700 acre-ft per year).

Extremes.--1938-60: Maximum discharge observed, 17,800 cfs Oct. 3, 1941 (gage height, 24.0 ft); minimum observed, 6.0 cfs Feb. 21, 1939 (ice jam upstream).
Maximum discharge known, 50,000 cfs June 8, 1915, computed by Vernon L. Sullivan, engineer for Big Wichita River Irrigation Co.

Remarks.--Flow from 2,086 sq mi (revised) is regulated by Lake Kemp (capacity, 461,800 acre-ft) 71 miles upstream. Since completion of dam in 1923, no flow has been permitted to pass over spillway. Water is diverted from Diversion Reservoir (capacity, 40,000 acre-ft) 51 miles upstream for irrigation (42,000 acres under permit) in the vicinity of Wichita Falls. The city of Wichita Falls diverts water from Lake Kickapoo on the Little Wichita River for municipal use, and discharges sewage effluent into Wichita River below station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,448	203	108	73.6	80.2	100	90.2	861	207	159	245	191	317
1952	181	107	55.8	50.2	66.1	62.3	104	199	91.2	189	176	159	120
1953	83	78	58.1	38.6	35	103	54.3	98.4	109	155	168	71.4	88.3
1954	762	158	51.1	47.1	42.7	59.0	149	1,428	667	105	121	99.6	310
1955	98.5	82.9	72.2	67.2	87.8	107	66.7	860	959	192	176	967	311
1956	3,355	432	128	89.1	61.0	65.1	103	341	100	133	115	104	423
1957	225	61.6	130	33.6	106	156	468	3,589	2,203	282	173	171	636
1958	181	452	59.2	53.8	229	97.7	484	1,389	151	186	149	141	298
1959	73.8	72.3	65.5	45.0	48.2	66.2	101	182	575	259	124	141	146
1960	1,049	144	275	72.2	72.8	42.2	99.6	161	333	259	144	154	235

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	89,020	12,060	6,650	4,530	4,450	6,170	5,370	52,930	12,330	9,750	15,090	11,350	229,700
1952	11,160	6,390	3,430	3,090	3,800	3,830	6,200	12,250	5,430	11,610	10,810	9,460	87,460
1953	5,110	4,640	3,570	2,370	1,950	6,360	3,230	6,050	6,490	9,530	10,360	4,250	63,910
1954	46,850	9,370	3,140	2,890	2,370	3,630	8,890	87,820	39,710	6,470	7,460	5,930	224,500
1955	6,060	4,930	4,440	4,130	4,870	6,600	3,970	52,910	57,070	11,780	10,840	57,530	225,100
1956	206,300	25,730	7,860	5,480	3,510	4,000	6,150	20,970	5,970	8,170	7,090	6,210	307,400
1957	13,820	3,670	8,020	2,060	5,900	9,560	27,840	220,700	131,100	17,320	10,630	10,180	460,800
1958	11,150	26,910	3,640	3,310	12,740	6,010	28,800	85,270	8,990	11,450	9,190	8,380	215,800
1959	4,540	4,300	4,030	2,770	2,680	4,070	6,030	11,200	34,190	15,930	7,620	8,380	105,700
1960	64,530	8,600	16,930	4,440	4,190	2,600	5,930	9,920	19,830	15,950	8,860	9,160	170,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	847	613,200
1951	1211	6,670	May 20, 1951	49	317	229,700	197	143,000
1952	1241	1,210	May 28, 1952	15	120	87,460	110	79,800
1953	1281	2,400	July 2, 1953	23	88.3	63,910	152	110,000
1954	1341	4,710	May 13, 1954	24	310	224,500	249	180,600
1955	1391	7,200	Sept.27, 1955	23	311	225,100	621	449,600
1956	1441	9,510	Oct. 5, 1955	42	423	307,400	128	93,060
1957	1511	7,200	May 3, 1957	22	636	460,800	659	477,000
1958	1561	5,280	May 4, 1958	39	298	215,800	258	187,000
1959	1631	4,500	June 24, 1959	33	146	105,700	253	182,900
1960	1711	5,820	Oct. 4, 1959	27	235	170,900	-	-

3130. Little Beaver Creek near Duncan, Okla.

Location.--Lat 34°30', long 98°07', in NE¼ sec.11, T.1 S., R.9 W., on downstream side of right pier of bridge on county road, three-quarters of a mile downstream from Stage Stand Creek, 8¼ miles west of Duncan, and 11.9 miles upstream from mouth.

Drainage area.--158 sq mi.

Records available.--October 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,001.39 ft above mean sea level, unadjusted (Corps of Engineers bench mark). Prior to Oct. 1, 1954, at datum 2.00 ft higher.

Average discharge.--12 years (1948-60), 51.7 cfs (37,430 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 47,500 cfs May 25, 1957 (gage height, 19.74 ft), from rating curve extended above 5,000 cfs on basis of computations of overflow at gage heights 18.39 and 18.87 ft; no flow at times in each year.

Remarks.--Records of chemical analyses and water temperatures for water year 1951 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12.6	10.2	11.7	12.6	35.1	19.5	24.3	549	352	125	41.2	1.08	97.0
1952	68.9	9.52	7.25	9.22	11.1	24.1	17.6	322	69.7	43.1	.17	0	49.0
1953	0	.56	2.29	2.43	4.79	45.7	14.9	42.5	137	29.7	6.80	1.18	24.0
1954	388	52.0	26.2	11.0	10.5	9.62	16.2	471	31.2	.68	.01	0	86.0
1955	.02	0	0	.15	1.41	7.68	1.94	517	53.4	8.44	2.36	5.94	50.7
1956	29.0	1.41	3.45	4.19	4.63	2.63	4.59	7.67	23.2	3.08	0	0	7.0
1957	18.0	12.4	.55	.59	2.55	7.38	155	1,003	161	15.9	1.86	21.9	118
1958	9.91	27.7	12.8	20.3	12.1	31.9	32.2	97.4	55.7	9.50	4.79	.39	26.3
1959	0	2.33	5.23	5.86	5.90	5.09	22.6	66.1	7.70	3.81	30.9	45.7	16.8
1960	121	43.0	79.3	39.0	43.0	26.5	17.7	190	16.6	34.3	3.45	.21	51.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	775	608	714	774	1,950	1,200	1,450	33,790	20,950	7,650	253	64	70,200
1952	4,240	566	446	567	637	1,480	1,050	19,800	4,150	2,650	11	0	35,600
1953	0	34	141	150	266	2,810	885	2,620	8,150	1,820	418	70	17,360
1954	23,840	3,090	1,610	676	581	591	963	28,980	1,860	42	.6	0	62,230
1955	1.2	0	0	9.3	78	472	115	31,800	3,180	519	145	354	36,670
1956	1,780	84	212	258	266	161	273	472	1,380	190	0	0	5,080
1957	1,110	735	34	36	142	454	9,210	61,650	9,590	979	114	1,310	85,360
1958	609	1,650	789	1,250	671	1,960	1,920	5,990	3,320	584	295	23	19,060
1959	0	139	322	360	327	313	1,350	4,070	458	234	1,900	2,720	12,190
1960	7,430	2,560	4,880	2,400	2,470	1,630	1,060	11,700	989	2,110	212	13	37,450

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	71.9	52,100
1951	1211	25,200	May 17, 1951	0	97.0	70,200	101	73,390
1952	1241	15,000	May 17, 1952	0	49.0	35,600	42.0	30,520
1953	1281	10,200	June 6, 1953	0	24.0	17,360	63.2	45,730
1954	1341	32,000	May 2, 1954	0	86.0	62,230	46.5	33,690
1955	1391	39,800	May 19, 1955	0	50.7	36,670	53.5	38,750
1956	1441	2,120	June 3, 1956	0	7.0	5,080	6.72	4,880
1957	1511	47,500	May 25, 1957	0	118	85,360	120	86,530
1958	1561	3,500	May 3, 1958	0	26.3	19,060	22.7	16,470
1959	1631	1,930	Sept. 25, 1959	0	16.8	12,190	36.7	26,600
1960	1711	20,500	May 20, 1960	0	51.6	37,450	-	-

3135. Beaver Creek near Waurika, Okla.

Location.--Lat 34°13'00", long 98°02'55", on north line of NW¼NW¼ sec.16, T.4 S., R.8 W., on left bank on downstream side of bridge on State Highway 5, 4.5 miles northwest of Waurika, 6.2 miles upstream from Cow Creek, and at mile 25.8.

Drainage area.--563 sq mi.

Records available.--June 1953 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 879.17 ft above mean sea level, datum of 1929 (levels by State Highway Commission).

Average discharge.--7 years (1953-60), 149 cfs (107,900 acre-ft per year).

Extremes.--1953-60: Maximum discharge, 32,200 cfs May 20, 1955 (gage height, 22.42 ft); no flow at times in most years.

Maximum stage known, 22.7 ft May 18, 1951, from floodmark (discharge, 65,300 cfs, by contracted-opening measurement). A similar stage was reached sometime prior to 1889, from information by local resident.

Remarks.--Records of chemical analyses and water temperatures for water years 1956-60 and suspended sediment loads for water years 1957 and 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	-	-	-	-	-	304	110	13.7	6.94	-
1954	794	133	131	19.9	28.4	22.2	61.5	1,334	108	2.78	.09	0	223
1955	0	0	0	.53	3.43	22.8	1.40	1,687	256	44.9	4.81	81.2	178
1956	155	1.21	4.82	7.33	11.3	6.12	12.0	45.6	43.1	170	0	0	38.5
1957	45.2	28.5	1.75	.94	3.58	13.3	726	2,629	582	59.5	8.56	52.2	349
1958	26.7	113	22.5	53.9	32.1	87.0	87.7	273	140	32.2	14.9	6.43	74.4
1959	.48	1.17	5.97	8.75	8.54	6.89	53.5	218	20.3	56.0	70.5	90.0	45.3
1960	331	154	281	141	149	73.3	48.6	210	47.6	149	19.3	5.60	135

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	-	-	-	-	-	18,080	6,790	841	413	-
1954	48,830	7,930	8,060	1,220	1,580	1,360	3,660	82,040	6,400	171	5.8	0	161,300
1955	0	0	0	33	190	1,400	83	103,700	15,220	2,760	296	4,830	128,500
1956	9,520	72	297	451	647	376	713	2,810	2,570	10,470	0	0	27,930
1957	2,780	1,690	108	58	199	817	43,220	161,700	34,610	3,660	527	3,110	252,500
1958	1,640	6,750	1,380	3,310	1,790	5,350	5,220	16,800	8,330	1,980	915	383	53,850
1959	30	70	367	538	474	424	3,190	13,400	1,210	3,440	4,330	5,360	32,830
1960	20,370	9,140	17,250	8,650	8,550	4,510	2,890	12,940	2,830	9,170	1,190	333	97,820

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953	1281	-	-	-	-	-	-	-
1954	1341	*13,900	Oct. 24, 1953	0	223	161,300	133	96,440
1955	1391	32,200	May 20, 1955	0	178	128,500	191	138,400
1956	1441	6,870	July 4, 1956	0	38.5	27,930	31.2	22,620
1957	1511	22,500	May 26, 1957	0	349	252,500	356	257,700
1958	1561	2,560	May 5, 1958	.8	74.4	53,850	61.5	44,540
1959	1631	1,530	May 10, 1959	0	45.3	32,830	109	79,130
1960	1711	4,250	Oct. 5, 1959	0	135	97,820	-	-

* Revised.

3140. Lake Kickapoo near Archer City, Tex.

Location.--Lat 33°39'45", long 98°46'45", at intake tower near left end of dam on North Fork Little Wichita River, 8.2 miles south of Mankins and 9.2 miles northwest of Archer City, Archer County.

Drainage area.--275 sq mi.

Records available.--February 1946 to September 1960.

Gage.--Staff gage prior to Dec. 23, 1946, and since Nov. 1, 1947. Datum of gage is at mean sea level, datum of 1929. Dec. 23, 1946, to Oct. 7, 1947, water-stage recorder at same site and datum.

Extremes.--1946-60: Maximum contents, 134,300 acre-ft Aug. 2, 1950 (elevation, 1,049.2 ft); minimum observed since appreciable storage was reached in September 1946, 24,420 acre-ft Oct. 2, 1946 (elevation, 1,025.4 ft).

Remarks.--Lake is formed by an earthfill dam 6,800 ft long, containing a reinforced concrete ogee-type uncontrolled service spillway at right end of dam, 482.7 ft long. Dam completed Dec. 15, 1945, and storage began Feb. 1, 1946. Capacity, 106,000 acre-ft between elevations 1,000.92 (bottom of two 48- by 60-inch outlet conduits) and 1,045.0 ft (top of spillway). Maximum capacity, 220,000 acre-ft at elevation 1,060 ft with 2-foot freeboard. Figures given herein represent total contents. There is no dead storage. Lake contents used as municipal supply for city of Wichita Falls; records of monthly diversions for the period October 1948 to September 1960 are given in second table below.

Cooperation.--Capacity curve, record of lake elevations, and diversions for municipal use furnished by city of Wichita Falls.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	102,200	98,480	96,650	94,820	92,420	91,830	88,290	92,420	90,650	84,850	78,150	77,050
1952	74,420	71,820	69,860	68,900	66,980	64,250	62,900	63,800	58,990	55,650	51,260	46,520
1953	43,900	42,500	42,170	40,520	39,200	42,500	41,180	40,190	35,660	40,190	40,850	37,700
1954	65,600	66,050	64,700	63,800	62,000	59,420	61,140	80,350	83,710	76,500	70,820	66,980
1955	62,900	61,140	61,140	61,570	62,000	61,570	61,140	75,460	101,600	96,650	91,240	109,200
1956	103,500	100,300	97,870	96,040	94,820	91,830	87,700	90,650	84,850	79,250	72,340	67,460
1957	68,420	66,500	65,150	63,800	65,600	68,420	95,430	107,300	105,400	101,000	94,820	91,830
1958	98,480	106,600	103,500	102,200	101,600	101,600	101,600	105,400	101,000	106,600	102,800	101,600
1959	98,480	96,040	93,600	91,830	90,060	86,560	83,140	84,280	89,470	85,420	80,350	77,600
1960	88,880	85,990	87,700	87,700	87,130	84,850	82,000	82,570	79,250	75,980	70,820	67,940

Monthly and yearly diversions, in acre-feet, from Lake Kickapoo

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1946	-	-	-	-	-	-	-	-	-	-	-	-	-
1947	-	-	-	-	-	-	-	-	-	-	-	-	-
1948	624	442	459	456	477	306	625	520	659	782	910	845	7,105
1949	649	561	537	727	755	797	813	985	1,070	1,310	1,100	984	10,288
1950	912	769	749	761	533	622	632	658	822	892	773	724	8,847
1951	743	718	668	661	613	723	769	806	1,038	1,460	1,668	1,194	11,061
1952	962	773	773	766	736	812	884	1,027	1,431	1,689	1,693	1,428	12,974
1953	1,059	806	768	792	704	765	872	1,225	1,453	1,302	1,292	1,335	12,373
1954	924	726	764	770	724	750	759	677	965	1,614	1,526	1,402	11,601
1955	901	788	716	701	638	787	916	1,090	1,154	1,596	1,686	1,259	12,232
1956	1,012	888	850	818	736	945	1,161	1,248	1,513	1,580	1,561	1,506	13,818
1957	1,088	851	817	832	661	694	732	860	1,036	1,943	2,006	1,312	12,832
1958	934	953	884	818	705	830	835	1,082	1,710	1,616	2,102	1,375	13,844
1959	1,158	985	937	954	928	1,117	1,213	1,239	1,548	1,457	2,001	1,494	15,031
1960	1,095	1,039	804	1,334	961	1,061	1,152	1,341	1,820	1,920	2,020	2,011	16,558

3145. Little Wichita River near Archer City, Tex.

Location.--Lat 33°40', long 98°36', at downstream side of bridge on State Highway 79, 1.5 miles downstream from confluence of North and Middle Forks and 4.8 miles north of Archer City, Archer County.

Drainage area.--481 sq mi.

Records available.--May 1932 to January 1956.

Gage.--Staff gage. Datum of gage is 934.72 ft above mean sea level, datum of 1929. Prior to Aug. 17, 1954, water-stage recorder and concrete control at same site and datum.

Average discharge.--23 years (1932-55), 82.6 cfs (59,800 acre-ft per year).

Extremes.--1932-56: Maximum discharge, 17,900 cfs Oct. 31, 1941 (gage height, 26.18 ft); no flow at times in each year.
Flood in June 1930 reached a stage of about 28 ft, from information by State Highway Department.

Remarks.--Since the flood in 1930, an additional bridge opening has been provided. Some regulation by Lake Kickapoo on North Fork Little Wichita River (see preceding page). City of Wichita Falls diverts water from Lake Kickapoo for municipal use and returns sewage effluent and filter plant wash-water to Wichita River. Records of chemical analyses and water temperatures for the period December 1952 to December 1956 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.95	0.57	0.14	0.16	0.76	0.30	5.50	115	67.1	13.0	3.52	12.6	18.5
1952	3.45	4.36	0	.89	.57	3.50	1.56	28.2	.48	.49	6.17	8.07	4.85
1953	0	1.96	5.00	0	0	13.8	3.07	6.06	0	17.3	11.8	1.76	5.14
1954	314	6.69	.36	0	0	.10	74.5	249	65.5	.24	1.14	0	60.0
1955	6.77	1.42	4.87	7.13	17.0	9.85	24.1	83.5	110	2.54	.26	512	64.3
1956	297	0	0	-	-	-	-	-	-	-	-	-	-
1957													
1958													
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	120	34	8.7	9.7	42	19	327	7,080	3,990	801	216	747	13,390
1952	212	259	0	55	33	215	93	1,730	29	30	380	480	3,520
1953	0	117	307	0	0	851	183	372	0	1,060	723	105	3,720
1954	19,280	398	22	0	0	6.4	4,430	15,310	3,900	15	70	0	43,430
1955	416	84	300	438	943	606	1,430	5,130	6,570	156	16	30,460	46,550
1956	18,230	0	0	-	-	-	-	-	-	-	-	-	-
1957													
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	174	125,700
1951	1211	1,330	May 20, 1951	0	18.5	13,390	18.9	13,700
1952	1241	426	May 28, 1952	0	4.85	3,520	4.78	3,470
1953	1281	450	July 24, 1953	0	5.14	3,720	31.8	22,990
1954	1341	4,400	Oct. 26, 1953	0	60.0	43,430	33.9	24,530
1955	1391	9,600	Sept.26, 1955	0	64.3	46,550	88.4	63,980
1956	1391	a2,570	Oct. 4, 1955	0	-	-	-	-
1957								
1958								
1959								
1960								

a For period October to January; probably peak for the water year.

3150. Little Wichita River near Henrietta, Tex.

Location.--Lat 33°50'00", long 98°12'30", on left bank at downstream side of bridge on State Highway 148, 1.5 miles northwest of Henrietta, Clay County, 4 miles upstream from Turkey Creek, and 5 miles upstream from Dry Fork Little Wichita River.

Drainage area.--1,037 sq mi.

Records available.--January 1953 to September 1960.

Gage.--Water-stage recorder and concrete control. Datum of gage is 831.57 ft above mean sea level, datum of 1929. Prior to June 26, 1953, wire-weight gage at present site and datum.

Average discharge.--7 years (1953-60), 150 cfs (108,600 acre-ft per year).

Extremes.--1953-60: Maximum discharge, 6,390 cfs May 2, 1957 (gage height, 18.36 ft); no flow at times.
Flood in 1908 reached a stage of about 21 ft, from information by State Highway Department.

Remarks.--Some regulation by Lake Kickapoo (see p. 397). City of Wichita Falls diverts water from Lake Kickapoo for municipal use and returns sewage effluent and filter plant wash-water to Wichita River. The city of Henrietta diverts water from gage pool for municipal use. Diversion records are furnished by the cities of Wichita Falls and Henrietta, respectively. Records of chemical analyses and water temperatures for the periods January 1953 to January 1956 and March 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	0	0	35.7	0	15.5	0	42.6	16.5	0.40	-
1954	1,050	57.6	5.42	0	0	0	118	904	272	4.87	0	0	204
1955	.75	0	4.83	†6.53	28.6	15.5	49.2	273	336	†13.8	.09	656	114
1956	649	1.38	0	5.97	.26	0	0	175	48.5	0	2.13	.77	74.6
1957	77.9	33.8	28.9	.003	43.4	67.4	842	3,280	693	6.63	.04	6.83	427
1958	103	854	7.78	4.54	1.27	12.3	17.1	336	3.43	95.4	8.43	20.7	122
1959	3.95	1.14	.04	0	0	4.34	8.29	31.9	384	75.0	.04	32.8	44.8
1960	387	11.3	94.8	37.8	145	16.9	.27	6.57	21.8	10.1	0	18.8	62.7

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	0	0	2,200	0	956	0	2,620	1,010	24	-
1954	64,580	3,430	333	0	0	0	7,040	55,600	16,210	299	0	0	147,500
1955	46	0	297	402	1,590	955	2,930	16,760	19,990	849	5.4	39,020	82,840
1956	39,920	82	0	367	15	0	0	10,740	2,890	0	131	46	54,190
1957	4,790	2,010	1,780	.2	2,410	4,150	50,100	201,600	41,210	408	2.2	406	308,900
1958	6,340	50,840	478	279	70	754	1,020	20,680	204	5,860	518	1,230	88,270
1959	243	68	2.6	0	0	267	493	1,960	22,820	4,620	2.2	1,950	32,430
1960	23,800	673	5,830	2,320	8,360	1,040	16	404	1,300	620	0	1,120	45,480

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953	1281	623	July 25, 1953	0	-	-	104	75,150
1954	1341	5,890	Oct. 26, 1953	0	204	147,500	110	79,490
1955	1391	5,430	Sept.28, 1955	0	114	82,840	169	122,500
1956	1441	4,080	Oct. 1, 1955	0	74.6	54,190	31.4	22,770
1957	1511	6,390	May 2, 1957	0	427	308,900	494	357,900
1958	1561	3,390	Nov. 10, 1957	0	122	88,270	42.7	30,930
1959	1631	2,570	June 23, 1959	0	44.8	32,430	86.2	62,420
1960	1711	2,570	Oct. 8, 1959	0	62.7	45,480	-	-

3154. Little Wichita River near Ringgold, Tex.

Location.--Lat 33°53'55", long 98°04'05", on right bank at upstream side of bridge on abandoned county road, 2 miles downstream from East Fork Little Wichita River, 8 miles northwest of Ringgold, Montague County, 11.5 miles upstream from mouth, and 13 miles downstream from gaging station near Henrietta.

Drainage area.--1,350 sq mi, approximately.

Records available.--February 1959 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 791.30 ft above mean sea level, datum of 1929.

Extremes.--1959-60: Maximum discharge, 4,120 cfs June 24 (gage height, 27.53 ft); no flow for many days.
Maximum stage since 1908, about 31 ft in 1915, from information by local resident.

Remarks.--For upstream regulation and diversions, see Remarks on preceding page. Records of chemical analyses and water temperatures for the period March 1959 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	4.46	7.20	35.8	648	79.0	1.51	85.6	-
1960	633	20.6	211	89.8	228	31.5	3.09	6.85	28.3	25.6	0	19.5	108

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	274	428	2,200	38,540	4,860	93	5,090	-
1960	38,890	1,230	12,960	5,520	13,130	1,940	184	421	1,680	1,580	0	1,160	78,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1959	1631	4,120	June 24, 1959	0	-	-	-	-
1960	1711	3,960	Oct. 5, 1959	0	108	78,700	-	-

3155. Red River near Terral, Okla.

Location.--Lat 33°52'50", long 97°56'15", near left bank on downstream side of pier of bridge on U. S. Highway 81, a quarter of a mile downstream from Chicago, Rock Island and Pacific Railroad Co. bridge, 1.2 miles south of Terral, Jefferson County, 3.2 miles downstream from Little Wichita River, and at mile 872.

Drainage area.--28,723 sq mi, of which 5,936 sq mi is probably noncontributing.

Records available.--January 1938 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 770.31 ft above mean sea level, datum of 1929. Prior to Jan. 12, 1939, wire-weight gage at same site and datum.

Average discharge.--22 years (1938-60), 2,581 cfs (1,869,000 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 197,000 cfs June 8, 1941 (gage height, 28.12 ft); minimum, 43 cfs Mar. 15, 1939.

Maximum stage known, that of June 8, 1941. Flood of May 19, 1935, reached a stage of 27.2 ft; floods in 1891 and May 1, 1908, are reported to have reached about the same stage.

Remarks.--Some regulation by Lake Kemp on Wichita River in Baylor County, Tex. (see p. 392), Lake Kickapoo on North Fork Little Wichita River in Archer County, Tex. (see p. 397), Lake Altus on North Fork Red River in Kiowa County, Okla. (see p. 379), and Lake Lawtonka and Lake Thomas in Cache Creek basin in Comanche County, Okla. Principal diversions are from Wichita River for irrigation of about 20,000 acres in vicinity of Wichita Falls, Tex., and from North Fork Red River for irrigation of about 48,000 acres in vicinity of Altus, Okla. Many small diversions for irrigation above station. Amount of diversions or acreage irrigated not known.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,289	495	452	430	807	602	557	19,190	11,610	3,413	768	630	3,460
1952	614	585	244	310	273	385	1,199	5,048	1,441	663	222	192	936
1953	108	132	164	109	136	541	819	407	1,000	1,309	1,325	192	523
1954	7,994	1,918	966	300	224	188	904	14,520	3,497	291	269	142	2,632
1955	138	112	133	154	216	321	181	13,670	7,853	1,532	746	3,300	2,366
1956	15,100	1,191	494	414	465	240	237	4,100	1,448	636	184	109	2,074
1957	1,211	688	251	106	319	632	12,210	43,580	16,270	1,272	717	653	6,533
1958	1,428	3,403	424	574	713	976	1,719	5,264	1,568	2,206	562	309	1,601
1959	187	127	153	195	210	132	802	4,803	4,555	4,104	824	1,192	1,448
1960	6,301	1,154	3,516	1,807	2,761	1,132	688	1,140	4,514	2,813	629	587	2,256

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	140,700	29,480	27,800	26,460	44,820	37,010	33,130	1,180,000	691,100	209,800	47,240	37,490	2,505,000
1952	37,760	34,790	14,980	19,080	15,690	23,670	71,370	310,400	85,120	40,760	13,660	11,400	679,300
1953	6,650	7,880	10,110	6,680	7,550	33,280	48,750	25,000	59,520	80,510	81,480	11,440	378,800
1954	491,500	114,100	59,380	18,430	12,440	11,530	53,780	893,000	208,100	17,890	16,540	8,710	1,905,000
1955	8,490	6,690	8,190	9,470	12,000	19,720	10,770	840,300	467,300	94,190	39,740	196,300	1,713,000
1956	928,400	70,880	30,350	25,440	26,750	14,780	14,130	252,100	86,140	39,080	11,330	6,510	1,506,000
1957	74,460	40,930	15,410	6,500	17,700	38,880	726,400	2,679,000	968,400	78,200	44,100	38,860	4,729,000
1958	87,800	202,500	26,070	35,260	39,620	60,010	102,300	323,700	93,310	135,600	34,560	18,400	1,159,000
1959	11,500	7,540	9,390	11,970	11,650	8,100	47,690	295,400	271,100	252,300	50,680	70,920	1,048,000
1960	387,400	68,640	216,200	111,100	158,800	69,600	40,930	70,080	268,600	172,900	38,690	34,930	1,638,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3,556	2,574,000
1951	1211	164,000	May 19, 1951	243	3,460	2,505,000	3,308	2,395,000
1952	1241	30,300	May 19, 1952	130	936	679,300	849	616,400
1953	1281	13,000	Aug. 20, 1953	72	523	378,800	1,410	1,019,000
1954	1341	85,800	May 14, 1954	72	2,632	1,905,000	1,746	1,264,000
1955	1391	109,000	May 21, 1955	72	2,366	1,713,000	3,756	2,719,000
1956	1441	111,000	Oct. 7, 1955	72	2,074	1,506,000	836	607,100
1957	1511	110,000	June 4, 1957	50	6,533	4,729,000	6,789	4,914,000
1958	1561	16,700	May 4, 1958	148	1,601	1,159,000	1,203	871,200
1959	1631	35,200	June 24, 1959	100	1,448	1,048,000	2,337	1,692,000
1960	1711	47,000	Oct. 6, 1959	209	2,256	1,638,000	-	-

3160. Red River near Gainesville, Tex.

Location.--Lat 33°44', long 97°10', in SW¼ sec.36, T.9 S., R.1 E., near center of span on downstream side of bridge on U. S. Highway 77, a quarter of a mile downstream from Gulf, Colorado and Santa Fe Railway Co. bridge, 5 miles downstream from Fish Creek, 7 miles north of Gainesville, and at mile 791.5.

Drainage area.--30,782 sq mi, of which 5,936 sq mi is probably noncontributing.

Records available.--May 1936 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 627.91 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Jan. 17, 1939, wire-weight gage at same site and datum.

Average discharge.--24 years (1936-60), 3,197 cfs (2,315,000 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 168,000 cfs June 9, 1941; maximum gage height, 36.53 ft May 21, 1951; minimum discharge observed, 48 cfs Jan. 27, 1940 (result of discharge measurement during period of ice effect).

Remarks.--Flow slightly regulated by Lake Kemp, since 1943 by Lake Altus, and since 1946 by Lake Kickapoo (see elsewhere in this report). Records of chemical analyses and water temperatures for water years 1953-60 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,837	689	569	562	922	943	629	19,600	18,060	4,797	942	800	4,298
1952	618	965	315	367	340	488	1,638	6,036	2,123	656	214	164	1,164
1953	119	142	179	126	151	804	1,047	754	1,164	1,626	1,408	242	651
1954	8,037	2,462	1,105	365	263	204	1,079	17,750	4,607	379	236	196	3,090
1955	181	137	181	200	245	437	248	14,420	10,010	1,765	732	2,857	2,630
1956	15,800	1,407	621	472	544	297	256	3,297	2,147	734	185	108	2,177
1957	1,179	834	655	174	496	897	13,130	47,780	20,900	1,606	941	718	7,484
1958	1,562	4,306	577	1,051	869	1,183	2,410	6,930	1,860	2,186	678	283	1,998
1959	273	179	200	222	230	169	848	4,488	5,529	4,195	782	1,224	1,534
1960	9,181	1,598	4,904	3,029	3,192	1,418	822	1,300	5,056	3,142	646	609	2,916

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	174,500	40,990	35,010	34,550	51,190	57,980	37,440	1,205,000	1,075,000	294,900	57,950	47,610	3,112,000
1952	37,980	57,440	19,360	22,540	19,560	29,990	97,470	371,200	126,300	40,350	13,190	9,740	845,100
1953	7,310	8,430	10,980	7,730	8,370	49,460	62,290	46,390	69,250	99,960	86,550	14,420	471,100
1954	494,200	146,500	67,920	22,430	14,600	12,520	64,230	1,091,000	274,100	23,320	14,540	11,640	2,237,000
1955	11,110	8,140	11,130	12,310	13,610	26,840	14,760	886,800	595,500	108,500	45,020	170,000	1,904,000
1956	971,200	83,730	38,170	29,050	31,280	18,270	15,230	202,700	127,800	45,150	11,360	6,440	1,580,000
1957	72,510	49,600	40,300	10,700	27,540	55,150	781,600	2,938,000	1,244,000	98,750	57,860	42,730	5,419,000
1958	96,050	256,200	35,480	64,600	48,290	72,740	143,400	426,100	110,700	134,400	41,700	16,840	1,446,000
1959	16,790	10,660	12,270	13,670	12,790	10,410	50,460	275,900	329,000	257,900	48,110	72,810	1,111,000
1960	564,500	95,070	301,500	186,300	183,600	87,170	48,900	79,960	300,800	193,200	39,720	36,230	2,117,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30				Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	4,639	3,358,000
1951	1211	146,000	May 21, 1951	350	4,298	3,112,000	4,111	2,976,000
1952	1241	32,300	May 20, 1952	144	1,164	845,100	1,043	757,100
1953	1281	9,820	Aug. 22, 1953	94	651	471,100	1,593	1,153,000
1954	1341	74,200	May 15, 1954	90	3,090	2,237,000	2,153	1,559,000
1955	1391	96,900	May 22, 1955	93	2,630	1,904,000	4,098	2,966,000
1956	1441	106,000	Oct. 8, 1955	86	2,177	1,580,000	895	649,700
1957	1511	102,000	June 5, 1957	97	7,484	5,419,000	7,796	5,644,000
1958	1561	21,600	May 5, 1958	218	1,998	1,446,000	1,517	1,098,000
1959	1631	37,000	June 25, 1959	137	1,534	1,111,000	2,807	2,032,000
1960	1711	59,300	Oct. 7, 1959	264	2,916	2,117,000	-	-

3165. Washita River near Cheyenne, Okla.

Location.--Lat 35°38', long 99°40', on line between SE¼ and SW¼ sec.5, T.13 N., R.23 W., near left bank on downstream side of pier of bridge on U. S. Highway 283, half a mile downstream from Sergeant Major Creek, 1 mile north of Cheyenne, 5.2 miles upstream from Dead Indian Creek, and at mile 543.9.

Drainage area.--794 sq mi.

Records available.--October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,905.98 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). May 1938 to Nov. 16, 1946, and Oct. 1, 1947, to Jan. 11, 1948, staff or wire-weight gage at same site and datum.

Average discharge.--23 years (1937-60), 41.7 cfs (30,190 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 69,800 cfs Apr. 29, 1954 (gage height, 15.24 ft), from rating curve extended above 27,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in most years.
Flood of Apr. 3, 1934, reached a stage 1.0 ft lower than that in 1954 at site on upstream side of highway fill.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	21.2	18.8	20.2	25.8	29.5	28.3	24.2	360	462	27.3	0.48	25.1	86.9
1952	9.07	21.2	20.4	29.6	29.1	31.7	37.8	22.4	6.48	0	0	0	17.3
1953	0	0	0	0	0	3.94	6.41	11.3	64.8	2.54	.48	0	7.41
1954	14.1	0	0	.08	2.26	3.77	305	278	49.3	.08	1.03	0	54.6
1955	0	0	0	0	0	0	.24	38.6	159	11.9	10.4	2.68	18.5
1956	3.40	0	0	5.01	11.0	7.92	3.54	29.9	.22	22.6	0	0	7.00
1957	3.05	0	0	0	0	0	115	298	83.1	1.05	1.6	0	42.1
1958	7.26	0	0	0	.12	5.93	11.9	10.3	47.6	38.9	45.2	1.93	14.2
1959	0	.28	1.00	6.09	8.42	8.16	14.7	232	29.7	1.93	52.7	14.6	31.2
1960	3.75	1.29	33.1	18.1	29.6	53.5	38.4	44.8	96.8	39.2	7.75	2.85	30.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,300	1,120	1,240	1,580	1,640	1,740	1,440	22,140	27,510	1,680	30	1,490	62,910
1952	558	1,260	1,250	1,820	1,680	1,950	2,250	1,380	385	0	0	0	12,530
1953	0	0	0	0	0	242	381	697	3,860	156	29	0	5,360
1954	867	0	0	5.2	126	232	18,170	17,120	2,940	5.2	63	0	39,530
1955	0	0	0	0	0	0	14	2,370	9,490	729	637	159	13,400
1956	209	0	0	308	630	487	210	1,840	13	1,390	0	0	5,090
1957	187	0	0	0	0	0	6,850	18,330	4,940	65	101	0	30,470
1958	446	0	0	0	6.9	365	706	636	2,830	2,390	2,780	115	10,270
1959	0	17	62	375	468	502	877	14,280	1,770	119	3,240	871	22,580
1960	231	77	2,040	1,110	1,700	3,290	2,290	2,750	5,760	2,410	477	169	22,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	44.5	32,230
1951	1211	5,040	May 18, 1951	0	86.9	62,910	86.1	62,320
1952	1241	465	June 1, 1952	0	17.3	12,530	13.0	9,460
1953	1281	3,550	June 6, 1953	0	7.41	5,360	8.60	6,230
1954	1341	69,800	Apr. 29, 1954	0	54.6	39,530	53.4	38,660
1955	1391	5,830	June 17, 1955	0	18.5	13,400	18.8	13,610
1956	1441	3,890	July 10, 1956	0	7.00	5,090	6.97	5,060
1957	1511	4,210	May 17, 1957	0	42.1	30,470	42.4	30,730
1958	1561	1,750	Oct. 13, 1957	0	14.2	10,270	13.7	9,910
1959	1631	6,420	May 26, 1959	0	31.2	22,580	34.3	24,850
1960	1711	1,510	Aug. 18, 1960	0	30.7	22,300	-	-

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3175. Sandstone Creek subwatershed No. 16A near Cheyenne, Okla.

Location.--Lat 35°28'10", long 99°40'10", in SW¼SE¼ sec.31, T.12 N., R.23 W., near center of upstream side of dam on Sandstone Creek, 5¼ miles east of Grimes and 10 miles south of Cheyenne.

Drainage area.--8.78 sq mi, of which 3.62 sq mi is probably noncontributing.

Records available.--January 1952 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 2,069.14 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--8 years (1952-60), 0.43 cfs (311 acre-ft per year).

Extremes.--1952-60: Maximum outflow, 70 cfs May 26, 1959 (gage height, 81.41 ft); no outflow at times. Maximum inflow, 2,710 cfs (average for 5-minute interval) May 26, 1959, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam: dam was completed and storage began Dec. 7, 1951. Outlet structure is a drop inlet with an encasement of trashrack and retaining wall with 24-inch concrete pipe. Crest of drop inlet is at gage height 69.89 ft. Crest of emergency earthen spillway is at gage height 102.0 ft. There is an 8-inch diameter iron drain pipe with gate valve at outlet structure. Original capacity at top of emergency spillway, 2,030 acre-ft and at outlet structure, 270 acre-ft.

Storage data given herein are based on capacity curve interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1952-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	-	-	-	0.06	0.22	0	0	0	1.03	0	0	0	-
1953	0	0	0	0	0	.54	0	1.29	1.61	.09	0	0	0.29
1954	0	0	0	0	0	0	1.87	5.61	2.49	.68	0	0	.89
1955	0	0	0	0	0	0	0	0	1.16	.005	.04	.002	.10
1956	.005	0	0	.005	.01	.06	.10	.04	.03	.13	.29	.09	.06
1957	0	0	0	0	0	0	.43	2.76	.15	.01	.33	.17	.33
1958	0	0	0	0	0	0	0	0	.68	.53	0	0	.10
1959	0	0	0	0	0	0	0	7.73	.37	0	0	0	.69
1960	.61	.09	3.18	1.29	1.99	1.42	.42	.54	.55	1.86	0	0	1.00

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952	-	-	a90	105	109	130	201	208	150	135	120	108
1953	102	108	118	127	134	125	135	83.9	74.1	85.1	80.3	a70.5
1954	158	170	a176	183	186	190	276	243	107	a60.3	a53.5	46.5
1955	42.4	40.7	a45.3	54.8	63.1	67.8	78.9	162	244	228	204	194
1956	201	199	204	211	220	220	209	234	212	187	154	134
1957	128	121	119	113	130	152	298	242	234	206	172	152
1958	158	163	166	174	180	199	211	232	228	221	193	182
1959	173	174	178	186	192	197	204	246	239	232	210	232
1960	243	243	243	243	242	241	240	240	233	235	227	231

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952	-	2.7	June 16, 1952	196	Apr. 21, 1952	0	-	0.11
1953	-	2.2	June 7, 1953	856	June 6, 1953	0	0.29	.29
1954	-	66	May 23, 1954	2,110	May 23, 1954	0	.89	.89
1955	-	53	June 17, 1955	782	June 17, 1955	0	.10	.10
1956	-	.8	Several days	186	May 26, 1956	0	.06	.06
1957	-	53	May 3, 1957	552	Apr. 26, 1957	0	.33	.33
1958	-	42	June 21, 1958	465	June 21, 1958	0	.10	.10
1959	-	70	May 26, 1959	2,710	May 26, 1959	0	.69	1.02
1960	-	52	July 22, 1960	459	July 22, 1960	0	1.00	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

3180. Sandstone Creek subwatershed No. 16 near Cheyenne, Okla.

Location.--Lat 35°28'50", long 99°36'40", in SE¼SE¼ sec.27, T.12 N., R.23 W., near center of upstream side of dam on Sandstone Creek, 2.2 miles northeast of Berlin and 9 miles southeast of Cheyenne.

Drainage area.--11.47 sq mi, excludes that above subwatershed No. 16A.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,925.96 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--8 years (1952-60), 1.09 cfs (789 acre-ft per year).

Extremes.--1952-60: Maximum outflow, 168 cfs May 23, 1954 (gage height, 75.08 ft); no outflow most of time. Maximum inflow known, 18,900 cfs (average for 5-minute interval) May 23, 1954, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam was completed and storage began in August 1952. Outlet structure is a drop inlet with an encasement of trashracks and retaining wall with 34-inch concrete pipe. Crest of drop inlet is at gage height 65.59 ft. Crest of emergency earthen spillway is at gage height 81.7 ft. There is a 12-inch diameter iron drain pipe with gate valve at outlet structure. Original capacity at top of emergency spillway, 4,450 acre-ft and at outlet structure, 1,460 acre-ft.

Storage data given herein are based on capacity curve interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1953-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	.50	32.8	1.12	0	0	.13	2.93
1955	0	.21	.20	0	0	.20	.21	.03	0	0	0	0	.07
1956	0	0	0	0	0	0	.14	.05	0	0	0	.12	.03
1957	.07	0	0	0	0	0	0	17.6	2.80	.19	0	0	1.75
1958	0	0	0	0	0	0	0	0	0	2.42	0	0	.21
1959	0	0	0	0	0	0	0	17.3	6.47	0	0	0	2.00
1960	1.13	0	2.23	1.93	6.16	5.00	1.91	0	0	2.18	0	0	1.70

Contents, in acre,feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953	0	0	0	0	0	0	a13	a4	178	256	206	163
1954	a607	577	528	493	457	417	1,610	1,460	1,340	1,210	1,090	937
1955	853	775	721	702	655	581	558	846	1,250	1,160	1,030	1,020
1956	988	919	873	834	805	749	671	829	732	649	541	463
1957	a458	a423	395	369	354	360	1,060	1,300	1,100	959	824	741
1958	746	707	663	630	600	592	567	581	a784	941	866	805
1959	724	673	636	602	570	a543	523	1,520	1,040	1,080	957	1,070
1960	1,050	991	1,110	1,110	1,020	a899	824	860	913	1,060	1,000	1,010

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953	-	0	-	3,860	June 6, 1953	0	0	0
1954	-	168	May 23, 1954	18,900	May 23, 1954	0	2.93	2.96
1955	-	.3	Several days	(b)	-	0	.07	.04
1956	-	.6	Sept. 25-30, 1956	1,320	May 26, 1956	0	.03	.03
1957	-	144	May 4, 1957	(b)	-	0	1.75	1.74
1958	-	5.0	July 7-20, 1958	(b)	-	0	.21	.21
1959	-	150	May 26, 1959	5,210	May 26, 1959	0	2.00	2.29
1960	-	34	July 22, 1960	2,160	July 22, 1960	0	1.70	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.

3185. Sandstone Creek subwatershed No. 14 near Cheyenne, Okla.

Location.--Lat 35°28'40", long 99°36'10", in SW¼NE¼ sec.35, T.12 N., R.23 W., near center of upstream side of dam on unnamed tributary to Sandstone Creek, 2½ miles northeast of Berlin and 11 miles southeast of Cheyenne.

Drainage area.--1.02 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,896.32 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--8 years (1952-60), 0.01 cfs (7.2 acre-ft per year).

Extremes.--1952-60: Maximum outflow, 5.2 cfs May 4, 1957 (gage height, 89.72 ft); no outflow most of time. Maximum inflow known, 1,160 cfs (average for 5-minute interval) Apr. 18, 1957, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation from outlet structure. Reservoir is formed by earth dam; dam was completed and storage began in September 1951. Outlet structure is open end of 12-inch concrete pipe with encasement of trashracks and retaining wall with invert at gage height 88.04 ft. Crest of emergency earthen spillway is at gage height 98.0 ft. There is a 6-inch diameter iron drain pipe with gate valve in dam face. Original capacity at top of emergency spillway, 311 acre-ft and at outlet pipe, 117 acre-ft.

Storage data given herein are based on capacity curve interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1953-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	.05	0	0	0	0	.004
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	.76	.02	0	0	0	.07
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	.22	.01	0	0	0	.02
1960	0	0	0	0	0	0	0	0	0	0	0	0	0

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953	a2	a3	a1	0	0	0	a4	0	a10	a16	a9	a5.6
1954	a25.6	20.9	a15.4	11.6	a8.7	6.6	66.2	117	94.7	68.8	49.1	33.6
1955	23.2	17.0	a12.6	9.5	7.4	5.2	a5.0	23.9	59.9	49.7	34.8	31.9
1956	30.8	23.1	a18.3	14.5	12.4	a9.2	a5.5	30.3	17.2	11.1	a7.0	4.1
1957	a13	a7.8	a6.3	a5.1	a4.8	a12	63.3	112	111	90.1	57.4	49.0
1958	a41	30.6	21.8	20.7	a12	a9.4	a7.8	a9.4	a13	27.7	20.3	a14
1959	a9.6	a7.4	a6.2	a5.1	a3.8	a3.9	a1.9	108	90.7	82.8	67.7	62.6
1960	61.8	50.8	59.5	61.2	71.9	73.4	a66	59.4	53.1	62.8	a51	41.6

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953	-	0	-	(b)	-	0	0	0
1954	-	1.3	May 24, 1954	1,090	May 23, 1954	0	.004	.004
1955	-	0	-	922	June 15, 1955	0	0	0
1956	-	-	-	(b)	-	0	0	0
1957	-	c5.2	May 4, 1957	1,160	Apr. 18, 1957	0	.07	.07
1958	-	0	-	(b)	-	0	0	0
1959	-	3	May 26, 1959	590	May 26, 1959	0	.02	.02
1960	-	0	-	150	July 22, 1960	0	0	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.
c Backwater from debris.

3190. Sandstone Creek subwatershed No. 17 near Cheyenne, Okla.

Location.--Lat 35°30'30", long 99°36'40", in NE¼NE¼ sec.22, T.12 N., R.23 W., near center of upstream side of dam on Currant Creek, 4 miles northeast of Berlin and 7½ miles southeast of Cheyenne.

Drainage area.--10.13 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,888.17 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--8 years (1952-60), 1.10 cfs (796 acre-ft per year).

Extremes.--1952-60: Maximum outflow, 104 cfs May 26, 1959 (gage height, 109.42 ft); no outflow most of time. Maximum inflow known, 6,030 cfs (average 5-minute interval) Apr. 29, 1954, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam was completed and storage began in September 1951. Outlet structure is a drop-inlet with encasement of trashrack and retaining wall with 28-inch concrete pipe. Crest of drop inlet is at gage height 96.99 ft. Crest of emergency earthen spillway is at gage height 123.0 ft. There is a 12-inch diameter iron drain pipe with gate valve at outlet structure. Original capacity at top of emergency spillway, 3,620 acre-ft and at outlet structure, 477 acre-ft.

Storage data given herein are based on capacity curve interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1953-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	.43	21.7	.72	0	0	0	2.26
1955	0	0	0	0	0	0	.40	.25	10.7	4.48	.41	0	1.35
1956	0	0	0	0	0	.20	.85	.68	.16	.18	.81	0	.24
1957	0	0	0	0	0	0	3.00	9.65	.76	.13	0	0	1.14
1958	0	0	0	0	0	0	0	0	.70	5.45	0	0	.52
1959	0	0	0	0	0	0	0	16.9	.72	.24	.14	3.39	1.80
1960	2.09	.34	2.50	1.90	3.41	2.50	.89	.66	1.23	2.74	0	0	1.52

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953	0	0	a3.5	a8.0	a17	28.3	36.6	38.0	154	200	188	146
1954	349	380	394	409	410	414	736	434	387	324	279	232
1955	198	173	a161	176	192	193	179	314	396	365	263	243
1956	251	252	260	280	310	307	254	317	236	214	130	97.8
1957	91.7	87.3	74.5	63.6	84.5	129	371	352	338	269	216	181
1958	190	187	191	217	236	292	317	326	332	318	280	253
1959	219	218	232	250	269	285	308	375	304	323	286	324
1960	322	322	324	324	325	324	320	320	303	311	281	303

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953	-	0	-	1,440	June 6, 1953	0	0	0
1954	-	99	May 24, 1954	6,030	Apr. 29, 1954	0	2.26	2.26
1955	-	95	June 17, 1955	4,940	June 17, 1955	0	1.35	1.35
1956	-	2.7	Aug. 14,15, 1956	641	July 10, 1956	0	.24	.24
1957	-	81	May 3, 1957	2,300	Apr. 18, 1957	0	1.14	1.14
1958	-	87	July 5, 1958	2,800	July 5, 1958	0	.52	.52
1959	-	104	May 26, 1959	(b)	-	0	1.80	2.22
1960	-	83	July 22, 1960	1,250	July 22, 1960	0	1.52	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.

3195. Sandstone Creek near Berlin, Okla.

Location.--Lat 35°30'26", long 99°33'27", on west line of NW¼NW¼ sec.20, T.12 N., R.22 W., on left bank 50 ft downstream from bridge on county road and 5½ miles northeast of Berlin.

Drainage area.--44.9 sq mi, of which 4.0 sq mi is probably noncontributing.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder and sharp-crested weir. Datum of gage is 1,861.44 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--8 years (1952-60), 4.79 cfs (3,470 acre-ft per year).

Extremes.--1952-60: Maximum discharge, 5,710 cfs Apr. 30, 1954 (gage height, 16.17 ft), from rating curve extended above 410 cfs on basis of slope-area measurement of peak flow at gage height 13.8 ft and field estimate at 16.17 ft; no flow at times in most years.

Remarks.--Records not previously published. Flow from 38.7 sq mi regulated by 11 detention reservoirs (combined original capacity, 12,780 acre-ft). Some diversion for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	0	0	0	0	0.14	0.03	1.16	0.58	0.39	0	0.19
1954	2.53	.80	0	.08	.11	.21	21.6	70.3	5.93	.22	0	.09	8.58
1955	.33	.96	.64	.67	.99	1.20	1.48	3.88	17.6	10.3	.70	1.92	3.38
1956	2.12	1.25	1.57	1.67	1.93	1.65	2.41	3.92	.82	1.12	.03	0	1.54
1957	.30	.44	.59	.62	.74	.87	16.5	43.4	6.68	1.28	1.20	.57	6.14
1958	1.19	1.62	1.65	1.74	1.40	2.01	1.75	1.84	2.86	10.5	.81	.90	2.37
1959	.88	1.31	1.41	1.34	1.14	1.21	1.37	64.8	13.3	4.29	1.80	8.05	8.50
1960	8.89	3.82	9.35	7.83	14.4	10.5	7.00	4.90	6.09	13.3	3.16	1.80	7.59

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	0	0	0	0	8.1	2.0	69	36	24	0	139
1954	155	48	0	5.0	6.3	13	1,290	4,320	353	14	0	5.2	6,210
1955	20	57	39	41	55	74	88	239	1,050	632	43	114	2,450
1956	130	74	96	103	111	102	143	241	49	69	2.0	0	1,120
1957	18	26	36	38	41	53	980	2,670	397	79	74	34	4,450
1958	73	96	101	107	78	124	104	113	170	644	50	54	1,710
1959	54	78	87	82	63	74	82	3,980	794	264	111	479	6,150
1960	546	227	575	482	829	646	417	301	363	820	194	107	5,510

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953	-	491	June 6, 1953	0	0.19	139	0.47	342
1954	-	5,710	Apr. 30, 1954	0	8.58	6,210	8.46	6,120
1955	-	1,080	July 4, 1955	0	3.38	2,450	3.64	2,640
1956	-	316	July 10, 1956	0	1.54	1,120	1.24	900
1957	-	2,650	Apr. 18, 1957	0	6.14	4,450	6.41	4,640
1958	-	828	July 5, 1958	0	2.37	1,710	2.30	1,660
1959	-	2,730	May 26, 1959	.2	8.50	6,150	10.1	7,280
1960	-	720	July 22, 1960	1.2	7.59	5,510	-	-

3200. Sandstone Creek subwatershed No. 10A near Elk City, Okla.

Location.--Lat 35°28'00", long 99°33'20", in SW¼SW¼ sec.32, T.12 N., R.22 W., near center of upstream side of dam on unnamed tributary to Sandstone Creek, 4 miles northeast of Berlin and 8 miles northwest of Elk City.

Drainage area.--2.87 sq mi.

Records available.--October 1951 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,921.13 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--9 years (1951-60), 0.03 cfs (22 acre-ft per year).

Extremes.--1951-60: Maximum outflow, 6.3 cfs July 22, 1960 (gage height, 81.12 ft); no outflow most of time. Maximum inflow known, 1,670 cfs (average for 5-minute interval) May 26, 1959, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam was completed and storage began in April 1951. Outlet structure is a 15-inch concrete pipe with an encasement of trashracks and retaining wall with invert at gage height 79.42 ft. Crest of emergency earthen spillway is at gage height 90.0 ft. There is a 6-inch diameter iron drain pipe with gate valve in face of dam. Original capacity at top of emergency spillway, 1,048 acre-ft and at outlet structure, 445 acre-ft.

Storage data given herein are based on capacity curve interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1952-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	.23	.01	.01	0	0	.02
1960	0	0	0	0	0	1.48	.46	0	0	.72	.03	0	.23

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952	94.8	80.4	66.7	58.3	51.2	45.6	60.6	47.7	45.4	30.9	a23	a17
1953	a9	a6	a2	0	0	0	a10	a7	a17	a17	a11	a7
1954	50.4	48.7	34.2	25.8	20.1	14.4	52.4	138	108	75.6	50.4	32.9
1955	23.7	17.5	a14	11.5	9.7	7.0	11.2	101	211	188	148	124
1956	153	128	109	94.0	81.4	64.0	46.6	81.1	55.4	38.7	24.2	15.5
1957	16.7	13.7	11.5	9.7	8.5	15.5	181	303	281	231	185	147
1958	126	106	86.0	71.1	68.4	53.6	45.9	36.9	86.0	120	91.8	71.4
1959	a53.6	41.5	33.9	27.9	23.0	22.0	18.7	373	334	362	317	308
1960	311	a286	327	328	a351	a321	270	256	a242	365	327	343

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952	-	0	-	446	Oct. 5, 1951	0	0	0
1953	-	0	-	(b)	-	0	0	0
1954	-	0	-	806	May 23, 1954	0	0	0
1955	-	0	-	1,480	June 17, 1955	0	0	0
1956	-	0	-	659	May 27, 1956	0	0	0
1957	-	0	-	1,380	Apr. 18, 1957	0	0	0
1958	-	0	-	813	July 20, 1958	0	0	0
1959	-	4.2	May 26, 1959	1,670	May 26, 1959	0	.02	.02
1960	-	6.3	July 22, 1960	1,340	July 22, 1960	0	.23	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.

3205. Sandstone Creek subwatershed No. 6 near Elk City, Okla.

Location.--Lat 35°29'10", long 99°30'10", in NW¼SW¼ sec.26, T.12 N., R.22 W., near center of upstream side of dam on East Branch Sandstone Creek, 7½ miles northeast of Berlin and 8 miles northwest of Elk City.

Drainage area.--6.46 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,874.32 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--8 years (1952-60), 0.12 cfs (87 acre-ft per year).

Extremes.--1952-60: Maximum outflow, 46 cfs May 26, 1959 (gage height, 87.80 ft); no outflow most of time. Maximum inflow known, 1,870 cfs (average for 5-minute interval) May 3, 1957, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam was completed and storage began in April 1951. Outlet structure is a 21-inch concrete pipe with an encasement of trashracks and retaining wall with invert at gage height 82.98 ft. Crest of emergency earthen spillway is at gage height 100.0 ft. There is a 6-inch diameter iron drain pipe with gate valve in face of dam. Original capacity at top of emergency spillway, 2,060 acre-ft and at outlet structure, 605 acre-ft.

Storage data given herein are based on capacity curves interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1953-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	4.57	.57	0	0	0	.44
1960	0	0	.06	1.13	1.40	1.38	.73	.33	0	.74	.01	.04	.48

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953	a28	a30	a20	a9	0	a10	a19	a13	a47	a42	a29	a15
1954	a81.0	a65.8	54.5	a47.1	a40.4	a34.0	79.1	153	135	108	88.8	a72.0
1955	61.2	53.4	47.8	43.4	38.6	33.5	29.6	73.1	105	104	83.8	76.2
1956	120	105	94.2	85.8	79.1	67.0	58.7	90.8	70.8	124	99.9	81.3
1957	162	79.1	68.5	62.7	59.6	67.1	251	404	369	315	255	217
1958	199	182	166	156	147	144	135	126	140	137	114	a97
1959	a82	a71	63.7	56.9	50.9	51.3	54.3	501	430	407	362	406
1960	417	391	430	340	341	298	272	252	241	450	409	444

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953	-	0	-	(b)	-	0	0	0
1954	-	0	-	460	May 23, 1954	0	0	0
1955	-	0	-	(b)	-	0	0	0
1956	-	0	-	689	July 10, 1956	0	0	0
1957	-	0	-	1,870	May 3, 1957	0	0	0
1958	-	0	-	392	June 20, 1957	0	0	0
1959	-	46	May 26, 1959	1,800	May 25, 1959	0	.44	.44
1960	-	8.4	June 22, 1960	(b)	-	0	.48	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.

3210. Sandstone Creek subwatershed No. 5 near Elk City, Okla.

Location.--Lat 35°29'30", long 99°29'20", in SE¼NE¼ sec.26, T.12 N., R.22 W., near center of upstream side of dam on unnamed tributary of East Branch Sandstone Creek, 7 miles northwest of Elk City and 8½ miles northeast of Berlin.

Drainage area.--3.89 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,893.15 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--8 years (1952-60), 0.14 cfs (101 acre-ft per year).

Extremes.--1952-60: Maximum outflow, 13 cfs May 26, 1959 (gage height, 75.11 ft); no outflow most of time. Maximum inflow known, 1,510 cfs (average for 5-minute interval) May 26, 1959, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam was completed and storage began in March 1951. Outlet structure is an encasement of trashracks and retaining wall connected to an 18-inch concrete pipe with invert at gage height 67.91 ft. Crest of emergency earthen spillway is at gage height 84.0 ft. There is a 6-inch diameter iron drain pipe with gate valve in face of dam. Original capacity at top of emergency spillway, 1,147 acre-ft and at outlet pipe, 326 acre-ft.

Storage data given herein are based on capacity curves interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1953-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	1.35	.09	0	.15	0	.14
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	2.29	2.13	.06	0	.54	.42
1960	1.82	0	.55	.36	3.03	.34	.02	0	0	1.05	.01	0	.59

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953	0	a1	0	0	0	0	a3.0	0	a20	25.3	a11.0	a2.0
1954	36.2	22.9	a14.3	a8.4	a5.1	a1.8	43.5	205	193	147	107	73.4
1955	49.3	35.2	25.4	18.2	12.7	7.6	4.2	28.1	30.3	34.5	23.8	25.9
1956	48.0	32.7	a25.5	19.7	15.9	a11.8	a5.0	37.7	20.0	55.2	30.4	18.7
1957	23.3	18.4	a13.4	a11.6	a10.2	21.4	183	305	277	224	170	136
1958	115	93.6	72.7	56.0	a42.3	35.2	26.1	19.0	37.6	47.2	30.0	18.4
1959	a12.1	a9.1	7.0	a4.7	a2.8	15.1	23.9	404	254	259	220	339
1960	257	228	265	263	271	268	251	241	a209	264	213	221

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953	-	0	-	611	July 10, 1953	0	0	0
1954	-	0	-	1,090	May 23, 1954	0	0	0
1955	-	0	-	317	July 4, 1954	0	0	0
1956	-	0	-	(b)	-	0	0	0
1957	-	5.1	May 11, 1957	1,490	Apr. 18, 1957	0	.14	.14
1958	-	0	-	448	June 19, 1958	0	0	0
1959	-	13	May 26, 1959	1,510	May 26, 1959	0	.42	.62
1960	-	7	July 22, 1960	(b)	-	0	.59	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.

3215. Sandstone Creek subwatershed No. 3 near Elk City, Okla.

Location.--Lat 35°30'40", long 99°30'40", on south line of SW¼SE¼ sec.15, T.12 N., R.22 W., near center of upstream side of dam on unnamed tributary to East Branch Sandstone Creek, 7½ miles northeast of Berlin and 9 miles northeast of Elk City.

Drainage area.--0.62 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,828.43 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--8 years (1952-60), 0.01 cfs (7.2 acre-ft per year).

Extremes.--1952-60: Maximum outflow, 4.7 cfs May 26, 1959 (gage height, 88.76 ft); no outflow most of time. Maximum inflow known, 1,780 cfs (average for 5-minute interval) Apr. 18, 1957, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam was completed and storage began in April 1951. Outlet structure is an encasement of trashracks and retaining wall connected to a 12-inch concrete pipe with invert at gage height 82.08 ft. Crest of emergency earthen spillway is at gage height 92.0 ft. There is a 6-inch diameter iron drain pipe with control gate valve in face of dam. Original capacity at top of emergency spillway, 148.2 acre-ft and at outlet pipe, 56.3 acre-ft.

Storage data given herein are based on capacity curve interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1953-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	.53	.04	0	0	0	.05
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	.75	.10	0	0	0	.07
1960	0	0	0	0	0	0	0	0	0	0	0	0	0

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953	0	a1.0	0	0	0	0	0	0	a2.7	a3.0	a2.8	a1.4
1954	7.8	a4.8	3.0	a2.0	a1.4	a.7	34.2	48.7	36.4	18.9	8.7	4.4
1955	2.2	1.3	a.7	.4	.2	0	.1	5.8	5.4	6.7	5.3	10.4
1956	16.1	8.7	5.9	4.0	2.8	1.6	.9	9.6	4.2	5.1	2.4	1.0
1957	3.5	2.5	1.7	1.3	1.1	3.5	42.0	48.6	40.8	22.6	15.4	4.7
1958	3.3	3.9	1.4	.8	.5	.4	.5	1.8	8.1	9.2	6.5	4.4
1959	2.6	1.8	1.2	a.7	.2	a3.0	3.0	54.6	31.5	22.7	10.3	a18
1960	a14	a11	a18	a19	a36.4	a34	a26	a18	a12	a22	a11	a14

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953	-	0	-	(b)	-	0	0	0
1954	-	0	-	(b)	-	0	0	0
1955	-	0	-	323	Sept.22, 1955	0	0	0
1956	-	0	-	353	Oct. 2, 1955	0	0	0
1957	-	3.4	May 11, 1957	1,780	Apr. 18, 1957	0	.05	.05
1958	-	0	-	(b)	-	0	0	0
1959	-	4.7	May 26, 1959	620	May 25, 1959	0	.07	.07
1960	-	0	-	(b)	-	0	0	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.

3220. Sandstone Creek subwatershed No. 9 near Elk City, Okla.

Location.--Lat 35°29'40", long 99°32'00", in NW¼SW¼ sec.28, T.12 N., R.22 W., near center of upstream side of dam on unnamed tributary of East Branch Sandstone Creek, 7½ miles northeast of Berlin and 9 miles northwest of Elk City.

Drainage area.--3.50 sq mi, of which 0.37 sq mi is probably noncontributing.

Records available.--October 1951 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,864.85 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--9 years (1951-60), 0.09 cfs (65 acre-ft per year).

Extremes.--1951-60: Maximum outflow, 17 cfs May 26, 1959 (gage height, 81.30 ft); no outflow most of time. Maximum inflow known, 1,910 cfs (average for 5-minute interval) May 25, 1959, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam was completed and storage began in March 1951. Outlet structure is the open end of a 15-inch concrete pipe in an encasement of trashracks and retaining wall at gage height 71.94 ft. Crest of emergency earthen spillway is at gage height 92.0 ft. There is a 6-inch diameter iron drain pipe with gate valve in face of dam. Original capacity at top of emergency spillway, 1,250 acre-ft and at outlet pipe, 252 acre-ft.

Storage data given herein are based on capacity curves interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1952-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	.05	0	0	0	0	0	0	0	0	0	0	0	.004
1957	0	0	0	0	0	0	0	2.33	.01	0	0	0	.02
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	3.07	1.17	0	0	.07	.36
1960	.002	0	0	.20	.25	.32	.15	1.25	0	2.03	.32	.30	.41

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952	51.6	40.8	31.8	25.3	19.9	a14.2	21.9	a14.4	a13.2	a11.0	a8.5	a5.0
1953	0	0	0	0	0	a1	a9	a3	21.6	21.7	19.9	a12.2
1954	65.6	52.2	41.4	33.7	26.8	20.8	110	180	157	120	90.5	66.6
1955	47.2	37.6	31.1	26.6	23.4	18.6	15.0	89.5	162	176	139	124
1956	198	170	147	128	112	91.1	a70	108	78.4	121	86.1	69.0
1957	78.2	66.6	55.1	42.2	42.0	54.0	212	239	219	188	147	112
1958	a91	73.3	a60	a49	41.2	37.1	31.2	26.3	84	72.3	a56	47.5
1959	a38	31.8	27.8	24.4	21.3	18.6	a23	316	208	210	177	198
1960	a210	163	236	a248	a317	a332	306	202	181	190	a144	a150

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952	-	0	-	547	Oct. 5, 1951	0	0	0
1953	-	0	-	460	June 6, 1953	0	0	0
1954	-	0	-	1,440	Apr. 30, 1954	0	0	0
1955	-	0	-	711	June 8, 1955	0	0	.004
1956	-	.8	Oct. 4, 1955	711	July 10, 1956	0	.004	.004
1957	-	12	May 18, 1957	1,770	Oct. 14, 1956	0	.02	.02
1958	-	0	-	(b)	-	0	0	0
1959	-	17	May 26, 1959	1,910	May 25, 1959	0	.36	.36
1960	-	14	July 22, 1960	858	July 22, 1960	0	.41	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.

3225. East Branch Sandstone Creek near Elk City, Okla.

Location.--Lat 35°31'20", long 99°31'48", on south line of sec.9, T.12 N., R.22 W., near left bank on downstream side of pier of bridge on county road, 7½ miles northeast of Berlin and 10 miles northwest of Elk City.

Drainage area.--23.0 sq mi.

Records available.--April 1951 to September 1960.

Gage.--Water-stage recorder and sharp-crested weir. Datum of gage is 1,832.06 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--9 years (1951-60), 1.62 cfs (1,170 acre-ft per year).

Extremes.--1951-60: Maximum discharge, 1,130 cfs May 25, 1959 (gage height, 13.67 ft), from rating curve extended above 500 cfs by logarithmic plotting; no flow at times in most years.

Remarks.--Records not previously published. Flow from 18.2 sq mi regulated by seven detention reservoirs (combined original capacity, 5,760 acre-ft). Some diversion for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	0	0.83	0.48	0	0	0.47	-
1952	0.01	0	0	0	0	0.01	.25	.003	.003	0	0	0	0.02
1953	0	0	0	0	0	0	.07	.01	.66	.42	.66	0	.15
1954	1.64	.23	0	0	0	0	3.05	4.06	.49	0	0	0	.79
1955	0	0	0	0	0	0	.05	3.05	1.67	.96	.08	.45	.53
1956	2.09	0	.41	.56	.59	.56	.54	1.55	.03	1.80	0	0	.68
1957	1.36	0	0	.07	.17	.58	4.49	12.4	4.15	.52	.34	.09	2.03
1958	.51	.93	.95	1.11	.86	1.01	1.03	.51	2.12	.83	.24	.57	.89
1959	.11	.49	.55	.60	.54	1.22	.66	23.0	4.83	1.84	.69	4.80	3.31
1960	6.03	1.84	4.56	5.48	15.2	7.49	5.66	5.85	3.87	11.7	2.81	4.31	6.21

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	0	51	28	0	0	28	-
1952	0.4	0	0	0	0	0.8	15	.2	.2	0	0	0	17
1953	0	0	0	0	0	0	4.4	.4	39	26	41	0	111
1954	101	13	0	0	0	0	181	250	29	0	0	0	574
1955	0	0	0	0	0	0	3.2	188	100	59	5.2	27	382
1956	128	0	25	35	34	35	32	95	1.8	111	0	0	497
1957	84	0	0	4.6	9.3	36	267	762	247	32	21	5.2	1,470
1958	32	55	59	68	48	62	61	32	126	51	14	34	642
1959	6.9	29	34	37	30	75	39	1,420	287	113	42	286	2,400
1960	371	110	280	337	875	461	337	360	231	718	173	256	4,510

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	-	167	May 16, 1951	-	-	-	-	-
1952	-	37	Apr. 21, 1952	0	0.02	17	0.02	16
1953	-	320	Aug. 16, 1953	0	.15	111	.31	225
1954	-	690	Apr. 29, 1954	0	.79	574	.64	460
1955	-	354	May 11,16,1955	0	.53	382	.74	535
1956	-	556	July 10, 1956	0	.68	497	.59	428
1957	-	848	Apr. 18, 1957	0	2.03	1,470	2.11	1,530
1958	-	523	June 19, 1958	0	.89	642	.78	566
1959	-	1,130	May 25, 1959	0	3.31	2,400	4.26	3,090
1960	-	928	July 22, 1960	.9	6.21	4,510	-	-

3230. Sandstone Creek near Cheyenne, Okla.

Location.--Lat 35°33', long 99°32', on south line of SE¼SW¼ sec.34, T.13 N., R.22 W., near left bank on downstream side of pier of highway bridge, 4.5 miles upstream from Wildcat Creek, 6.0 miles upstream from mouth, and 9.1 miles southeast of Cheyenne.

Drainage area.--87.1 sq mi, of which 4.0 sq mi is probably noncontributing.

Records available.--April 1951 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,795.62 ft (revised) above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--9 years (1951-60), 7.53 cfs (5,450 acre-ft per year).

Extremes.--1951-60: Maximum discharge, 6,360 cfs Apr. 30, 1954 (gage height, 13.64 ft), from rating curve extended above 1,200 cfs on basis of slope-area measurement of peak flow; maximum gage height, 16.42 ft May 26, 1959; no flow at times in most years.

Remarks.--Flow from 65.6 sq mi regulated by 22 detention reservoirs (combined original capacity, about 21,100 acre-ft). Some diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	‡1.33	‡12.1	‡14.9	‡0.11	‡0.02	‡8.84	-
1952	0.04	1.94	0.07	0.03	0.74	1.36	6.67	.62	.50	0	0	0	0.99
1953	0	.05	.05	.09	.10	.17	.50	.15	3.60	1.87	1.70	0	.69
1954	6.86	1.67	.20	.22	.20	.26	42.3	91.5	7.06	.06	0	0	12.6
1955	0	.51	.65	.68	1.01	.76	1.19	8.97	25.6	16.6	.49	2.41	4.91
1956	5.32	1.41	2.22	2.23	2.63	2.68	2.35	7.98	.57	4.35	0	0	2.66
1957	2.65	.04	.30	.57	.57	2.55	29.3	55.5	11.9	1.90	.73	0	8.88
1958	2.38	3.07	3.20	2.56	2.19	3.37	2.62	2.95	8.14	13.4	1.83	2.27	4.01
1959	.79	1.79	2.60	2.75	1.85	2.31	3.46	127	17.2	9.28	2.42	16.0	15.8
1960	20.2	6.69	22.6	16.7	33.0	24.4	14.5	12.2	11.8	29.4	7.22	8.43	17.2

‡ Not previously published; computed from gage-height record, discharge measurements, and records for nearby stations.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	‡79	‡745	‡888	‡6.7	‡1.2	‡526	-
1952	2.4	116	4.4	2.0	43	84	397	38	30	0	0	0	717
1953	0	2.8	3.0	5.6	5.8	10	30	8.9	214	115	104	0	499
1954	422	99	12	13	11	16	2,520	4,630	420	4.0	0	0	9,150
1955	0	30	40	42	56	47	71	551	1,520	1,020	30	143	3,550
1956	327	84	136	137	151	165	140	491	34	268	0	0	1,930
1957	163	2.6	18	35	32	157	1,740	3,410	707	117	45	0	6,430
1958	146	182	197	157	121	207	156	181	484	824	112	135	2,900
1959	49	107	160	169	103	142	206	7,810	1,020	570	149	951	11,440
1960	1,240	398	1,390	1,030	1,900	1,500	863	750	700	1,810	444	502	12,530

‡ Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951	-	‡1,190	May 16, 1951	-	-	-	-	-
1952	1241	388	Apr. 20, 1952	0	0.99	717	0.83	600
1953	1281	1,020	June 6, 1953	0	.69	499	1.59	1,150
1954	1341	6,360	Apr. 30, 1954	0	12.6	9,150	12.0	8,680
1955	1391	2,240	July 4, 1955	0	4.91	3,550	5.56	4,030
1956	1441	1,410	July 10, 1956	0	2.66	1,930	2.16	1,570
1957	1511	3,530	Apr. 18, 1957	0	8.88	6,430	9.35	6,770
1958	1561	1,160	June 19, 1958	0	4.01	2,900	3.72	2,690
1959	1631,1711	4,720	May 26, 1959	.5	15.8	11,440	19.5	14,150
1960	1711	1,150	July 22, 1960	3.1	17.2	12,530	-	-

‡ Not previously published.

3235. Sandstone Creek subwatershed No. 22 near Cheyenne, Okla.

Location.--Lat 35°33'40", long 99°33'00", in SW¼NW¼ sec.33, T.13 N., R.22 W., near center of upstream side of dam on unnamed tributary to Sandstone Creek, 4 miles southwest of Herring and 8 miles southeast of Cheyenne.

Drainage area.--2.25 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,810.94 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--8 years (1952-60), no outflow.

Extremes.--1952-60: No outflow during period. Maximum inflow known, 3,300 cfs (average for 5-minute interval) Apr. 29, 1954, computed from change in reservoir contents, adjusted for rain on reservoir surface during time of peak inflow.

Remarks.--Reservoir is formed by earth dam; dam was completed and storage began in August 1951. Outlet structure is drop inlet with 12-inch concrete pipe through dam. Lip of drop inlet is at gage height 78.25 ft. Crest of emergency earthen spillway is at gage height 89.0 ft. There is a 6-inch diameter iron drain pipe with control gate valve in face of dam. Original capacity at top of emergency spillway, 919 acre-ft and at drop inlet, 379 acre-ft.

Storage data given herein are based on capacity curves interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1953-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952												
1953	0	a1	0	0	0	0	a5	0	a32	a43	a29	a18
1954	a68.6	62.6	48.2	a36.8	27.2	18.5	230	278	228	a181	145	116
1955	96.4	80.6	67.3	56.8	47.5	36.1	a26.8	45.3	83.5	77.0	a57.4	47.5
1956	a38.0	30.2	a24.8	16.8	12.8	7.9	2.5	15.1	8.3	26.7	a14.2	7.7
1957	6.3	a5.4	2.8	1.9	a1.9	a4.3	104	119	97.5	74.0	61.8	33.3
1958	a35	a20	a13	a9.8	a7.0	a10	a3.5	a9.0	a31	a24	a20	a15
1959	a9.5	a6.6	a5.6	a4.7	a3.3	a2.0	a1.4	178	127	110	89.5	87.6
1960	a79	64.8	a65	a57	a57	56.6	50.1	a48	a47	44.8	a35	a30

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953	-	0	-	(b)	-	0	0	0
1954	-	0	-	3,300	Apr. 29, 1954	0	0	0
1955	-	0	-	(b)	-	0	0	0
1956	-	0	-	(b)	-	0	0	0
1957	-	0	-	(b)	-	0	0	0
1958	-	0	-	(b)	-	0	0	0
1959	-	0	-	1,710	May 26, 1959	0	0	0
1960	-	0	-	(b)	-	0	0	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.

3240. Sandstone Creek subwatershed No. 1 near Cheyenne, Okla.

Location.--Lat 35°34'00", long 99°30'10", on east line of NE¼NE¼ sec.35, T.13 N., R.22 W., near center of upstream side of dam on Wildcat Creek, 3 miles southeast of Herring and 9½ miles southeast of Cheyenne.

Drainage area.--5.33 sq mi.

Records available.--October 1951 to September 1960.

Gage.--Water-stage recorder and staff gage. Datum of gage is 1,774.59 ft above mean sea level, datum of 1929 (U. S. Soil Conservation Service bench mark).

Average discharge.--9 years (1951-60), 0.14 cfs (101 acre-ft per year).

Extremes.--1951-60: Maximum outflow, 12 cfs May 26, 1959 (gage height, 81.00 ft); no outflow most of time. Maximum inflow known, 4,280 cfs (average for 5-minute interval) Apr. 18, 1957, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam; dam was completed and storage began in May 1951. Outlet structure is an encasement of trashracks and retaining wall connected to an 18-inch concrete pipe with invert at gage height 78.38 ft. Crest of emergency earthen spillway is at gage height 87.0 ft. There is a 6-inch diameter iron drain pipe with control gate valve in face of dam. Original capacity at top of emergency spillway, 1,557 acre-ft and at outlet pipe, 730 acre-ft.

Storage data given herein are based on capacity curves interpolated successively for each period of storm runoff.

Records of month-end contents and of maximum outflow and inflow for the water years 1952-56 are published in Oklahoma Water Resources Board Bulletin 17; other records not previously published.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	0	0	0	0	0	0	0	0	0	0	0	0	0
1953	0	0	0	0	0	0	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0	0	0	0	0	0
1955	0	0	0	0	0	0	0	0	0	0	0	0	0
1956	0	0	0	0	0	0	0	0	0	0	0	0	0
1957	0	0	0	0	0	0	0	0	.63	.74	0	0	.11
1958	0	0	0	0	0	0	0	0	0	0	0	0	0
1959	0	0	0	0	0	0	0	.72	1.21	.33	0	0	.19
1960	2.39	.49	0	0	1.22	1.85	2.50	1.81	.79	.44	0	0	.96

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952	39.1	51.0	35.8	27.0	21.4	27.4	70.0	45.8	33.7	23.8	a13.6	a9
1953	a7	a7	a4	0	0	a9	a11	a4	61.4	76.6	51.2	33.2
1954	105	77.8	61.4	49.5	39.9	32.6	465	621	568	456	a366	295
1955	245	209	179	161	142	117	96.1	139	142	176	141	116
1956	135	103	89.0	80.5	74.0	a64	47.6	a75	a64	109	a70	a47
1957	71.7	57.3	48.4	40.1	35.5	45.2	385	530	457	351	277	225
1958	a200	a149	a119	a95	a75	a87	94.3	85.5	207	245	212	225
1959	188	164	144	128	113	104	89.9	714	486	428	435	551
1960	475	413	492	496	508	415	267	191	192	209	184	228

a Estimated.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow a/		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952	-	0	-	207	Apr. 20, 1952	0	0	0
1953	-	0	-	2,870	June 6, 1953	0	0	0
1954	-	0	-	(b)	-	0	0	0
1955	-	0	-	(b)	-	0	0	0
1956	-	0	-	(b)	-	0	0	0
1957	-	2.0	(c)	4,280	Apr. 18, 1957	0	.11	.11
1958	-	0	-	(b)	-	0	0	0
1959	-	12	May 26, 1959	2,020	May 26, 1959	0	.19	.43
1960	-	3.4	Oct. 6, 1959	828	Sept.23, 1960	0	.96	-

a Average for 5-minute interval; computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
b Not determined, no gage-height record.
c June 20 to July 14, 1957.

3244. Washita River near Foss, Okla.

Location.--Lat 35°32'20", long 99°10'10", in SW¼SW¼ sec.1, T.12 N., R.19 W., in left bank on downstream side of pile bent of county highway bridge, 0.4 mile downstream from Oak Creek, 2½ miles west of Stafford, 6 miles north of Foss, and at mile 473.5.

Drainage area.--1,551 sq mi.

Records available.--March 1956 to April 1957, February to December 1958.

Gage.--Water-stage recorder. Altitude of gage is 1,560 ft (from preliminary survey by Topographic Division).

Extremes.--1956-58: Maximum discharge, 14,000 cfs Apr. 19, 1957 (gage height, 20.40 ft), from rating curve extended above 3,600 cfs on basis of velocity-area study; no flow at times in 1956.

Flood in May 1959 reached a stage of 23.4 ft, from floodmark (discharge not determined).

Remarks.--Records of chemical analyses and water temperatures for water years 1947-48 and suspended sediment loads and water temperatures for the period March 1956 to April 1957 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	3.18	0.42	82.3	19.6	35.8	0.80	0.02	-
1957	80.9	2.46	0.76	1.29	1.41	5.90	-	-	-	-	-	-	-
1958	-	-	-	-	6.71	9.86	21.9	12.6	158	135	72.0	5.28	-
1959	1.42	2.71	-	-	-	-	-	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	196	25	5,060	1,160	2,200	49	1.2	-
1957	4,980	146	47	79	78	363	-	-	-	-	-	-	-
1958	-	-	-	-	372	607	1,300	774	9,420	8,310	4,430	314	-
1959	87	161	-	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	-	-	-	-	-	-	-
1957	1511	14,000	Apr. 19, 1957	-	-	-	-	-
1958	1561	3,660	June 20, 1958	-	-	-	-	-
1959	1631	-	-	-	-	-	-	-

3245. Barnitz Creek near Arapaho, Okla.

Location.--Lat 35°34'50", long 99°02'35", in NE¼NE¼ sec.30, T.13 N., R.17 W., on right bank on downstream side of pier of county road bridge, half a mile downstream from confluence of East and West Barnitz Creeks, 4½ miles west of Arapaho, and 6 miles upstream from mouth.

Drainage area.--243 sq mi.

Records available.--September 1945 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,529.12 ft above mean sea level, unadjusted (Bureau of Reclamation bench mark).

Average discharge.--15 years (1945-60), 14.2 cfs (10,280 acre-ft per year).

Extremes.--1945-60: Maximum discharge, 7,700 cfs May 16, 1951, from rating curve extended above 2,000 cfs; maximum gage height, 20.8 ft Apr. 8, 1947, from floodmark; no flow at times in most years.

Remarks.--Flow from about 75 percent of the drainage area is regulated by numerous flood detention reservoirs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.82	0	0.1	0.10	4.59	2.92	0.63	137	40.7	3.69	0	8.87	16.7
1952	4.21	2.91	.19	.37	.33	1.28	6.70	.68	0	0	0	0	1.38
1953	0	0	0	0	0	0	.05	3.87	4.85	6.15	4.25	0	1.61
1954	11.8	2.13	0	0	0	0	32.7	97.3	9.22	0	0	0	12.9
1955	0	0	0	0	0	0	0	37.4	22.8	7.54	7.42	.007	6.32
1956	13.4	0	0	0	0	0	0	3.18	.01	.79	0	0	1.47
1957	2.56	0	0	0	0	0	32.9	115	25.4	0	0	0	14.8
1958	.87	0	0	0	0	0	5.16	0	63.3	6.35	1.93	1.30	6.51
1959	0	.10	0	0	0	0	1.85	143	32.0	21.6	16.2	60.5	23.1
1960	128	8.87	40.8	21.1	33.9	31.4	20.1	22.3	26.5	11.5	5.80	4.60	29.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	50	0	4.0	6.0	255	180	37	8,410	2,420	227	0	528	12,120
1952	259	173	12	23	19	79	398	42	0	0	0	0	1,000
1953	0	0	0	0	0	0	3.2	238	288	378	261	0	1,170
1954	725	127	0	0	0	0	1,950	5,980	548	0	0	0	9,330
1955	0	0	0	0	0	0	0	2,300	1,360	463	456	.4	4,580
1956	822	0	0	0	0	0	0	195	.6	49	0	0	1,070
1957	157	0	0	0	0	0	1,960	7,070	1,510	0	0	0	10,700
1958	54	0	0	0	0	0	307	0	3,770	390	119	77	4,720
1959	0	6.0	0	0	0	0	110	8,760	1,910	1,330	994	3,600	16,710
1960	7,860	528	2,510	1,290	1,950	1,930	1,190	1,370	1,580	708	356	274	21,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	17.7	12,780
1951	1211	7,700	May 16, 1951	0	16.7	12,120	17.3	12,510
1952	1241	168	Apr. 22, 1952	0	1.38	1,000	.77	561
1953	1281	252	Aug. 18, 1953	0	1.61	1,170	2.79	2,020
1954	1341	1,880	Apr. 30, 1954	0	12.9	9,330	11.7	8,480
1955	1391	1,020	June 8, 1955	0	6.32	4,580	7.45	5,400
1956	1441	1,050	Oct. 4, 1955	0	1.47	1,070	.55	402
1957	1511	1,160	May 1, 1957	0	14.8	10,700	14.6	10,590
1958	1561	1,290	June 20, 1958	0	6.51	4,720	6.45	4,670
1959	1631	3,250	May 26, 1959	0	23.1	16,710	38.1	27,600
1960	1711	1,820	Oct. 2, 1959	.9	29.7	21,550	-	-

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3250. Washita River near Clinton, Okla.

Location.--Lat 35°31'50", long 98°58'00", in SW¼NE¼ sec.11, T.12 N., R.17 W., near right bank on downstream side of pier of bridge on U. S. Highway 183, half a mile north of Clinton, three-quarters of a mile upstream from Beaver Creek, 4.8 miles downstream from Barnitz Creek, and at mile 447.4.

Drainage area.--1,977 sq mi.

Records available.--October 1935 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,467.60 ft above mean sea level, datum of 1929. Prior to Feb. 7, 1939, wire-weight gage and Feb. 7, 1939, to Mar. 25, 1940, water-stage recorder, at same site and datum. Mar. 26 to May 13, 1940, staff gage at site 75 ft upstream at same datum. May 14, 1940, to Mar. 18, 1941, wire-weight gage at railway bridge 1 mile downstream at datum 4.55 ft lower.

Average discharge.--25 years (1935-60), 146 cfs (105,700 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 66,800 cfs May 16, 1951 (gage height, 31.09 ft), from rating curve extended above 7,900 cfs by contracted-opening measurement of peak flow; no flow at times in 1952-56.
Maximum stage known, 33.9 ft Apr. 3, 4, 1934, from floodmarks.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	41.5	31.5	38.2	44.6	62.3	55.5	45.7	1,701	708	88.5	10.8	138	249
1952	15.5	31.1	28.9	39.4	35.0	46.1	103	72.0	18.7	.37	0	0	32.5
1953	.07	.21	1.49	2.39	2.07	6.08	6.21	25.6	99.3	110	14.8	0	22.5
1954	96.1	20.8	3.81	3.37	2.15	1.74	74.5	1,123	293	18.6	7.91	.79	139
1955	.28	1.61	2.62	3.54	3.11	1.55	4.60	210	330	96.0	70.5	10.5	61.3
1956	302	9.69	6.71	5.18	10.1	6.98	2.70	103	24.8	34.6	.91	0	42.7
1957	73.2	5.54	1.53	.56	23.5	7.19	751	1,118	285	41.5	7.79	13.1	193
1958	29.4	11.0	10.5	12.7	12.3	15.1	35.5	16.8	248	132	68.2	18.3	50.8
1959	2.89	4.13	5.48	7.67	11.8	10.6	44.0	1,144	233	327	107	165	174
1960	411	49.7	250	164	340	252	154	160	226	218	66.7	31.6	194

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,550	1,870	2,350	2,740	3,460	3,420	2,720	104,600	42,140	5,440	663	8,180	180,100
1952	953	1,850	1,780	2,420	2,010	2,840	6,150	4,430	1,110	23	0	0	23,570
1953	4.6	13	86	147	115	374	369	1,570	5,910	6,770	910	0	16,270
1954	5,910	1,240	234	207	119	107	4,430	69,050	17,410	1,150	487	47	100,400
1955	17	96	161	218	173	96	274	12,890	19,620	5,900	4,330	624	44,400
1956	18,540	576	413	319	581	429	161	6,310	1,470	2,130	56	0	30,980
1957	4,500	330	94	35	131	442	44,710	68,760	16,950	2,550	479	778	139,800
1958	1,810	657	644	781	682	928	2,110	1,030	14,760	8,120	4,190	1,090	36,800
1959	178	246	337	472	657	649	2,620	70,370	13,840	20,080	6,580	9,810	125,800
1960	25,300	2,960	15,350	10,080	19,530	15,510	9,160	9,830	13,430	13,400	4,100	1,880	140,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	124	89,440
1951	1211	66,800	May 16, 1951	4.2	249	180,100	246	177,900
1952	1241	1,260	Apr. 22, 1952	0	32.5	23,570	26.3	19,090
1953	1281	2,470	June 8, 1953	0	22.5	16,270	32.5	23,550
1954	1341	13,100	May 1, 1954	0	139	100,400	129	93,280
1955	1391	6,270	June 8, 1955	0	61.3	44,400	87.9	63,650
1956	1441	7,550	Oct. 4, 1955	0	42.7	30,980	22.6	16,380
1957	1511	4,900	Apr. 23, 1957	0	193	139,800	191	137,900
1958	1561	4,100	June 20, 1958	.8	50.8	36,800	45.6	34,450
1959	1631	22,200	May 26, 1959	1.3	174	125,800	233	168,700
1960	1711	6,140	Oct. 2, 1959	14	194	140,500	-	-

3255. Washita River at Carnegie, Okla.

Location.--Lat 35°07', long 98°34', near center of north line of sec.3, T.7 N., R.13 W., on downstream side of right pier of bridge on State Highway 9, 1,300 ft upstream from Running Creek, 2.7 miles east of Carnegie, and at mile 353.9.

Drainage area.--3,129 sq mi, includes that of Running Creek.

Records available.--October 1937 to September 1960 (after September 1942, flow of Running Creek included).

Gage.--Water-stage recorder. Datum of gage is 1,249.23 ft above mean sea level, datum of 1929. Prior to October 1942, water-stage recorder at site 8 miles upstream at datum 24.57 ft higher.

Average discharge.--23 years (1937-60), 314 cfs (227,300 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 50,000 cfs May 18, 1949 (gage height, 26.21 ft), from rating curve extended above 35,500 cfs on basis of contracted-opening measurement of peak flow; no flow for part of Sept. 28, 29, 1956.

Maximum stage known, about 29 ft May 23, 1903, at former site and datum, from information by local resident (flood of May 18, 1949, reached a stage of 20.9 ft, from flood-mark, at that site and datum).

Remarks.--Some diversion above station for irrigation. Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	81.5	60.7	67.5	79.4	103	93.2	76.9	2,267	1,372	190	56.6	175	387
1952	46.3	59.9	55.1	72.5	59.7	73.8	187	375	66.2	38.9	7.75	4.37	87.5
1953	4.12	10.8	19.3	17.0	13.4	30.6	139	42.0	220	502	153	9.68	97.4
1954	396	58.0	97.2	26.9	25.1	25.8	93.8	1,532	457	58.4	28.7	15.2	237
1955	8.77	12.9	16.5	21.5	24.9	19.6	29.2	972	754	255	192	195	210
1956	1,580	81.0	62.8	56.8	90.9	50.1	43.1	317	102	112	3.87	1.42	211
1957	156	30.0	19.0	15.5	22.1	28.2	1,969	3,359	1,431	147	47.9	144	616
1958	71.6	56.5	52.2	57.4	54.5	75.4	134	45.8	456	177	123	47.3	112
1959	27.9	39.2	41.2	39.7	39.8	36.8	79.8	1,575	472	1,231	270	474	364
1960	1,509	149	636	385	913	438	325	271	308	261	131	68.3	449

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,010	3,610	4,150	4,880	5,710	5,730	4,580	139,400	81,620	11,660	3,480	10,430	280,300
1952	2,850	3,560	3,390	4,460	3,430	4,540	11,150	23,050	3,940	2,390	477	260	63,500
1953	253	645	1,180	1,040	744	1,880	8,260	2,580	13,110	30,840	9,410	576	70,520
1954	24,350	3,450	5,980	1,650	1,390	1,590	5,580	94,220	27,170	3,590	1,770	906	171,600
1955	539	766	1,020	1,320	1,380	1,210	1,740	59,780	44,880	15,670	11,780	11,600	151,700
1956	97,320	4,820	3,860	3,490	5,230	3,080	2,560	19,480	6,050	6,860	238	85	153,100
1957	9,620	1,790	1,170	952	1,230	1,730	117,200	206,600	85,140	9,050	2,940	8,580	446,000
1958	4,400	3,360	3,210	3,530	3,030	4,640	7,960	2,810	27,120	10,910	7,560	2,820	81,350
1959	1,720	2,330	2,530	2,440	2,210	2,260	4,750	96,850	28,060	75,700	16,630	28,230	263,700
1960	92,760	8,880	39,080	23,670	52,520	26,940	19,370	16,630	18,310	16,030	8,050	4,070	326,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	282	204,200
1951	1211	40,900	May 18, 1951	31	387	280,300	383	277,500
1952	1241	3,120	May 25, 1952	3.9	87.5	63,500	76.8	55,780
1953	1281	8,550	July 19, 1953	3.1	97.4	70,520	141	102,200
1954	1341	6,720	May 27, 1954	3.4	237	171,600	194	140,200
1955	1391	4,880	June 8, 1955	7.0	210	151,700	353	255,400
1956	1441	23,900	Oct. 5, 1955	.1	211	153,100	82.2	59,650
1957	1511	12,600	Apr. 24, 1957	.5	616	446,000	614	444,400
1958	1561	3,580	June 23, 1958	6.8	112	81,350	106	76,960
1959	1631	10,700	July 29, 1959	24	364	263,700	550	397,800
1960	1711	11,000	Oct. 5, 1959	39	449	326,300	-	-

3259. Fort Cobb Reservoir near Fort Cobb, Okla.

Location.--Lat 35°09'30", long 98°27'40", in SE¼ sec.21, T.8 N., R.12 W., in control house at right center of dam on Pond (Cobb) Creek, 4 miles northwest of Fort Cobb and 7.5 miles upstream from mouth.

Drainage area.--304 sq mi.

Records available.--March 1959 to September 1960.

Gage.--Mercury manometer gage (nonrecording). Datum of gage is at mean sea level, datum of 1929 (levels by Bureau of Reclamation).

Extremes.--1959-60: Maximum contents observed, 41,170 acre-ft May 31, June 1, 1960 (elevation, 1,330.55 ft); minimum observed, 17,390 acre-ft Oct. 1 (elevation, 1,318.60 ft).

Remarks.--Reservoir is formed by an earth dam. Storage began Mar. 30, 1959. Capacity, 142,600 acre-ft at elevation 1,354.8 ft (crest of glory hole spillway inlet), 79,300 acre-ft at elevation 1,342.0 ft (conservation pool), and 1,660 acre-ft at elevation 1,300.0 ft (crest of gated outlet). Figures given herein represent total contents. Reservoir is used for flood control, municipal and industrial water supply, and irrigation. No diversion during water year.

Cooperation.--Records furnished by Bureau of Reclamation.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1959	-	-	-	-	-	0	995	6,070	7,270	12,200	11,850	17,390
1960	24,950	25,790	29,970	32,750	36,770	39,480	39,940	41,170	40,370	40,800	39,880	39,440

3260. Pond Creek near Fort Cobb, Okla.
(Known locally as Cobb Creek)

Location.--Lat 35°08'15", long 98°25'45", in NW¼SE¼ sec.26, T.8 N., R.12 W., on left bank 100 ft downstream from highway bridge, 2.0 miles downstream from Fort Cobb Dam, 2.7 miles north of Fort Cobb, and 5.0 miles upstream from mouth.

Drainage area.--319 sq mi.

Records available.--October 1939 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,252.57 ft above mean sea level, datum of 1929 (levels by Bureau of Reclamation). Prior to Aug. 30, 1940, wire-weight gage at bridge 100 ft upstream at same datum.

Average discharge.--21 years (1939-60), 46.0 cfs (33,300 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 35,000 cfs May 17, 1949 (gage height, 18.72 ft, from high-water mark in gage well), from rating curve extended above 4,300 cfs on basis of contracted-opening measurements at gage heights 16.62, 17.58, and 18.72 ft; minimum daily, 0.2 cfs Sept. 20, 24-28, 1956.

Flood of June 15, 1937, reached a stage of 19.3 ft, from information by local resident.

Remarks.--Flow regulated since March 1959 by Fort Cobb Reservoir (see preceding station).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	23.5	29.1	32.9	37.0	53.0	41.6	33.0	161	152	17.2	8.83	14.7	50.2
1952	12.1	21.5	25.1	31.5	34.4	37.2	47.9	114	23.8	20.4	8.13	4.83	31.8
1953	8.06	13.8	19.1	21.8	23.1	40.2	56.3	20.1	8.04	137	14.4	9.75	31.1
1954	53.5	23.9	28.7	27.4	26.6	33.6	28.1	98.1	20.4	5.56	2.94	2.38	29.4
1955	5.36	9.47	12.3	15.9	20.4	19.1	29.1	255	111	17.3	68.4	20.0	49.0
1956	136	25.7	27.7	28.2	42.4	31.6	25.9	37.5	15.5	6.28	1.18	.52	31.6
1957	5.67	9.18	12.5	14.3	18.4	24.1	114	110	98.5	14.5	4.67	10.9	36.3
1958	11.9	15.6	19.1	24.9	25.3	37.3	40.6	15.0	105	14.1	3.96	4.61	26.3
1959	5.88	11.4	15.5	20.9	21.6	21.9	1.97	4.09	1.49	2.63	2.50	1.14	9.21
1960	2.88	2.19	3.05	2.02	3.94	4.18	3.72	3.55	2.42	2.10	2.69	2.50	2.93

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,450	1,730	2,030	2,280	2,950	2,560	1,960	9,900	9,030	1,060	543	873	36,370
1952	742	1,280	1,540	1,940	1,980	2,290	2,850	7,000	1,420	1,260	500	288	23,090
1953	495	819	1,170	1,340	1,280	2,470	3,350	1,240	479	8,430	887	580	22,540
1954	3,290	1,420	1,770	1,680	1,480	2,070	1,670	6,030	1,210	342	180	142	21,280
1955	330	564	758	980	1,130	1,170	1,730	15,690	6,620	1,060	4,210	1,190	35,430
1956	8,350	1,530	1,710	1,740	2,440	1,940	1,540	2,300	922	386	73	31	22,960
1957	349	546	768	881	1,020	1,480	6,810	6,740	5,860	890	287	651	26,280
1958	732	928	1,170	1,530	1,400	2,290	2,410	925	6,270	866	243	274	19,040
1959	362	681	956	1,280	1,200	1,340	117	252	89	162	154	68	6,660
1960	177	131	188	124	227	257	222	219	144	129	166	149	2,130

Yearly discharge, in cubic feet per second, of Pond Creek near Fort Cobb, Okla.

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	58.4	42,250
1951	1211	4,540	May 20, 1951	5.8	50.2	36,370	47.9	34,720
1952	1241	4,900	May 24, 1952	4.1	31.8	23,090	30.3	22,010
1953	1281	5,400	July 19, 1953	3.8	31.1	22,540	36.7	26,540
1954	1341	1,620	May 24, 1954	1.4	29.4	21,280	22.7	16,460
1955	1391	7,950	May 19, 1955	3.6	49.0	35,430	62.7	45,370
1956	1441	3,350	Oct. 5, 1955	.2	31.6	22,960	18	13,040
1957	1511	1,550	Apr. 21, 1957	.9	36.3	26,280	37.9	27,450
1958	1561	1,760	June 20, 1958	1.9	26.3	19,040	25.2	18,210
1959	1631	358	May 26, 1959	.6	9.21	6,660	7.13	5,160
1960	1711	93	Oct. 4, 1959	1.1	2.93	2,130	-	-

3270. Sugar Creek near Gracemont, Okla.

Location.--Lat 35°11'25", long 98°16'00", in NW¼NW¼ sec.9, T.8 N., R.10 W., on downstream side of county bridge, 0.3 mile west of Gracemont, 1.0 mile downstream from Yellow Creek, 2.2 miles upstream from bridge on U. S. Highway 281, and 11.0 miles upstream from mouth.

Drainage area.--203 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,210.00 ft (corrected) above mean sea level, datum of 1929. Prior to Oct. 1, 1959, at site 2.2 miles downstream at datum 6.28 ft lower.

Average discharge.--5 years (1955-60), 13.5 cfs (9,770 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 1,260 cfs (revised) Oct. 4, 1959 (gage height, 7.41 ft); no flow at times in each year.
Maximum stage known, 10.8 ft (at former site and datum), May 17, 1949, from flood-marks (discharge, 32,000 cfs on basis of slope-area measurement of peak flow).

Remarks.--Some small diversions for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	31.2	6.0	5.0	6.0	20.8	9.80	8.94	16.7	3.26	0	0	0	8.96
1957	0	0	0	0	.84	4.31	30.2	48.5	49.7	.65	0	1.25	11.3
1958	0	.66	1.74	4.79	5.54	15.5	24.3	5.50	43.9	8.67	.15	.06	9.18
1959	0	.11	2.58	3.60	3.23	3.35	5.35	55.6	11.6	11.5	2.76	47.5	12.3
1960	105	13.3	33.6	26.9	27.6	22.3	25.8	18.1	28.0	6.68	.88	.15	25.8

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	1,920	357	307	369	1,200	602	532	1,030	194	0	0	0	6,510
1957	0	0	0	0	47	265	1,800	2,980	2,960	40	0	74	8,170
1958	0	39	107	295	307	951	1,450	338	2,610	533	8.9	3.4	6,640
1959	0	6.5	159	221	180	206	319	3,420	693	710	170	2,830	8,910
1960	6,460	789	2,060	1,650	1,590	1,370	1,540	1,110	1,670	411	54	8.9	18,710

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1441	905	Oct. 4, 1955	0	8.96	6,510	5.40	3,930
1957	1511	620	June 2, 1957	0	11.3	8,170	11.5	8,310
1958	1561	867	June 21, 1958	0	9.18	6,640	9.21	6,660
1959	1631	1,060	May 26, 1959	0	12.3	8,910	24.9	18,060
1960	1711	*1,260	Oct. 4, 1959	0	25.8	18,710	-	-

* Revised.

3275. Little Washita River at Ninnekah, Okla.

Location.--Lat 34°57'24", long 97°55'34", at center of north line of sec.34, T.6 N., R.7 W., at center of span on downstream side of pier of Chicago, Rock Island and Pacific Railroad Co. bridge, half a mile north of Ninnekah, 1.2 miles downstream from Rock Creek, and 6.2 miles upstream from mouth.

Drainage area.--227 sq mi.

Records available.--October 1951 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 1,058.52 ft above mean sea level, datum of 1929.

Average discharge.--9 years (1951-60), 45.2 cfs (32,720 acre-ft per year).

Extremes.--1951-60: Maximum discharge, 25,200 cfs May 24, 1957 (gage height, 22.20 ft), from rating curve extended above 5,500 cfs on basis of contracted-opening measurement of peak flow; no flow at times in 1952-56.

Remarks.--Small diversions above station for irrigation. Records of chemical analyses and water temperatures for water year 1952 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	9.70	21.3	23.5	28.4	31.0	38.6	46.5	177	115	28.9	3.26	0.16	43.6
1953	2.25	9.72	13.9	13.8	20.4	56.0	42.9	20.8	23.0	29.6	4.3	13.1	20.8
1954	90.9	37.9	41.3	18.8	21.8	19.9	36.3	157	14.9	1.05	.90	.12	37.0
1955	2.65	3.07	8.04	11.7	12.8	16.1	15.1	193	43.7	4.76	14.5	58.5	32.2
1956	119	13.4	14.4	15.0	19.9	14.8	16.1	49.7	10.8	1.79	0	0	23.1
1957	14.5	9.49	7.20	9.76	11.1	13.2	99.3	686	167	29.5	11.5	143	101
1958	32.0	38.9	30.8	35.7	34.4	42.2	46.3	74.2	41.0	29.3	13.1	14.2	36.0
1959	9.42	15.6	21.8	23.0	21.4	18.6	36.2	170	21.1	24.9	7.50	85.6	38.0
1960	288	67.9	89.5	65.9	78.2	55.6	67.5	85.1	51.7	32.1	12.4	6.29	75.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952	596	1,270	1,440	1,750	1,780	2,380	2,770	10,860	6,280	1,780	200	9.3	31,660
1953	139	579	854	849	1,130	3,440	2,550	1,280	1,370	1,820	264	781	15,060
1954	5,590	2,260	2,540	1,150	1,210	1,230	2,160	9,670	886	64	55	7.0	26,820
1955	163	183	494	720	711	987	896	11,880	2,600	293	890	3,480	23,300
1956	7,310	795	887	920	1,140	910	960	3,060	641	110	0	0	16,730
1957	890	565	443	600	618	811	5,910	42,170	9,940	1,810	704	8,500	72,960
1958	1,970	2,310	1,890	2,200	1,910	2,590	2,750	4,560	2,440	1,800	805	844	26,070
1959	579	930	1,340	1,420	1,190	1,140	2,160	10,450	1,250	1,530	461	5,090	27,540
1960	17,720	4,040	5,500	4,050	4,500	3,420	4,020	5,230	3,070	1,980	764	374	54,670

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952	1241	3,950	June 1, 1952	0.1	43.6	31,660	41.2	29,920
1953	1281	1,590	(a)	0	20.8	15,060	33.0	23,870
1954	1341	2,730	May 10, 1954	0	37.0	26,820	23.9	17,270
1955	1391	4,860	May 19, 1955	0	32.2	23,300	43.4	31,450
1956	1441	3,480	Oct. 3, 1955	0	23.1	16,730	13.3	9,640
1957	1511	25,200	May 24, 1957	0	101	72,960	107	77,230
1958	1561	910	July 21, 1958	6.4	36.0	26,070	31.4	22,750
1959	1631	7,050	May 26, 1959	3.9	38.0	27,540	71.8	51,950
1960	1711	9,140	Oct. 1, 1959	3.9	75.3	54,670	-	-

a Mar. 1, Sept. 3, 1953.

3280. Washita River near Tabler, Okla.

Location.--Lat 34°58', long 97°51', in SW¼SW¼ sec.21, T.6 N., R.6 W., near center of span on downstream side of pier of abandoned county highway bridge, 1 mile downstream from Little Washita River, 5 miles south of Tabler, 7½ miles upstream from Winter Creek, and at mile 243.0.

Drainage area.--4,706 sq mi.

Records available.--October 1939 to September 1952. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 1,022.38 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to June 7, 1940, wire-weight gage at same site and datum.

Average discharge.--13 years (1939-52), 670 cfs (485,100 acre-ft per year).

Extremes.--1939-52: Maximum discharge, 50,000 cfs May 20, 1949 (gage height, 29.72 ft); no flow at times in September 1952 (result of closure of temporary dam half a mile downstream); minimum daily prior to water year 1952, 26 cfs at times in October and November 1940.

Maximum stage known, 29.9 ft Apr. 7, 1927 (from relation of 1927 and 1949 floodmarks set by observer), partly caused by release of ponded water as result of failure of railroad embankment on Little Washita River.

Remarks.--Low flow regulated by powerplant at Chickasha, 8 miles above station. Records of chemical analyses and water temperatures for the period September 1946 to September 1952 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	239	197	230	250	310	277	225	4,352	2,550	543	190	296	809
1952	107	141	146	189	194	240	343	876	409	128	33.3	5.52	235

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14,680	11,700	14,140	15,390	17,200	17,020	13,400	267,600	151,700	33,420	11,700	17,640	585,600
1952	6,600	8,410	8,970	11,600	11,150	14,780	20,380	53,850	24,370	7,880	2,050	328	170,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean[1]	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	571	413,200
1951	1211	24,800	May 18, 1951	50	809	585,600	786	569,000
1952	1241	4,900	June 1, 1952	0	235	170,400	-	-

3285. Washita River near Pauls Valley, Okla.

Location.--Lat 34°45', long 97°15', in SE¼ sec.1, T.3 N., R.1 W., on downstream side of right pier of bridge on U. S. Highway 77, 2 miles northwest of Pauls Valley, 6 miles downstream from Owl Creek, 7 miles upstream from Washington Creek, and at mile 146.5.

Drainage area.--5,330 sq mi.

Records available.--May to December 1899 (gage heights only), October 1937 to September 1960, October 1937 to March 1938 monthly discharge only, published in WSP 1311. Published as "at Pauls Valley, Indian Territory" 1899.

Gage.--Water-stage recorder. Datum of gage is 854.61 ft above mean sea level, datum of 1929. During 1899, chain gage at site 9 miles downstream at different datum. Mar. 29, 1938, to Jan. 25, 1939, wire-weight gage and Jan. 26, 1939, to Oct. 6, 1948, water-stage recorder, at site 0.7 mile upstream at datum 1.53 ft higher.

Average discharge.--23 years (1937-60), 828 cfs (599,400 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 35,800 cfs May 18, 1957 (gage height, 27.34 ft); maximum gage height, 29.88 ft May 11, 1950; no flow Aug. 30 to Oct. 14, 1956.
Maximum stage known, that of May 11, 1950. Stream is reported to have receded to no flow in 1882 (unverified) and in 1897.

Remarks.--Some diversion for irrigation above station. Prior to 1958, some regulation at low flow by powerplant at Chickasha, 104 miles upstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	466	276	296	327	464	419	314	4,971	3,448	854	261	347	1,041
1952	159	203	205	238	242	338	471	1,979	579	330	62.1	16.5	404
1953	10.1	65.0	94.6	97.8	133	375	599	219	257	893	254	90.1	258
1954	1,306	451	413	153	173	158	240	2,539	728	101	22.8	16.1	530
1955	89.8	28.1	73.1	96.8	115	153	146	2,532	1,363	324	436	593	499
1956	2,273	258	211	195	255	158	172	347	504	101	11.8	0	376
1957	106	145	62.2	82.5	80.5	117	2,661	9,532	4,403	666	210	1,181	1,611
1958	281	408	254	272	284	383	544	673	1,266	492	308	150	443
1959	86.0	102	136	145	137	135	277	1,741	1,219	983	781	1,226	583
1960	3,263	766	1,203	969	1,578	820	620	1,630	662	507	422	135	1,051

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	28,620	16,430	18,190	20,090	25,750	25,780	18,660	305,600	205,200	52,530	16,020	20,660	753,500
1952	9,760	12,070	12,580	14,610	13,910	20,770	28,050	121,700	34,480	20,290	3,820	983	293,000
1953	621	3,870	5,820	6,020	7,400	23,050	35,660	13,470	15,290	54,900	15,640	5,360	187,100
1954	80,320	26,820	25,400	9,380	9,600	9,700	14,280	156,100	43,350	6,190	1,400	956	383,500
1955	5,520	1,670	4,490	5,950	6,390	9,410	8,680	155,700	81,090	19,950	26,800	35,280	360,900
1956	139,800	15,330	12,950	12,010	14,660	9,730	10,230	21,360	30,000	6,190	727	0	273,000
1957	6,540	8,640	3,820	5,070	4,470	7,180	158,300	586,100	262,000	40,980	12,880	70,270	1,166,000
1958	17,260	24,300	15,630	16,710	15,740	23,560	32,360	41,360	75,340	30,260	18,910	8,920	320,400
1959	5,290	6,080	8,340	8,920	7,600	8,330	16,470	107,000	72,520	60,450	48,050	72,940	422,000
1960	200,600	45,590	73,970	59,610	90,740	50,450	36,870	100,200	39,420	31,150	25,940	8,030	762,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	962	696,400
1951	1211	20,100	May 23, 1951	112	1,041	753,500	1,001	724,700
1952	1241	15,100	May 18, 1952	9.3	404	293,000	370	268,900
1953	1281	3,830	July 23, 1953	1.4	258	187,100	427	309,300
1954	1341	17,400	Oct. 23, 1953	.8	530	383,500	363	262,600
1955	1391	14,500	May 21, 1955	17	499	360,900	715	517,300
1956	1441	13,000	Oct. 5, 1955	0	376	273,000	171	123,900
1957	1511	35,800	May 18, 1957	0	1,611	1,166,000	1,664	1,204,000
1958	1561	8,890	June 21, 1958	68	443	320,400	391	282,900
1959	1631	15,900	Sept. 25, 1959	76	583	422,000	998	722,400
1960	1711	18,000	Oct. 3, 1959	80	1,051	762,600	-	-

3290. Rush Creek at Purdy, Okla.

Location.--Lat 34°42', long 97°35', in center of NE¼ sec.26, T.3 N., R.4 W., on right bank 20 ft downstream from low-water bridge on State Highway 76, three-quarters of a mile south of Purdy, 8½ miles south of Lindsay, and at mile 26.1.

Drainage area.--145 sq mi.

Records available.--October 1939 to December 1953. Prior to May 1940 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 989.7 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1942, wire-weight gage at same site at datum 5.00 ft higher. Oct. 1, 1942, to Aug. 22, 1943, wire-weight gage, Aug. 23, 1943, to May 10, 1950, water-stage recorder, and May 11, 1950, to Sept. 18, 1952, staff gage, all at present site and datum.

Average discharge.--14 years (1939-53), 72.0 cfs (52,130 acre-ft per year).

Extremes.--1939-53: Maximum discharge not determined, occurred May 10, 1950; no flow at times in 1939-40, 1953.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	28.5	21.0	22.0	23.7	34.5	27.4	56.4	529	354	97.7	15.1	7.08	102
1952	53.3	18.0	15.7	16.2	18.2	25.1	30.2	323	57.8	33.4	1.91	.68	49.9
1953	2.14	7.18	8.00	8.11	9.95	66.4	34.1	37.7	23.9	69.4	7.48	.50	23.1
1954	292	61.1	24.6	-	-	-	-	-	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,760	1,250	1,350	1,460	1,920	1,680	3,350	32,500	21,060	6,010	926	421	73,690
1952	3,280	1,070	968	996	1,050	1,540	1,800	19,880	3,440	2,050	117	40	36,230
1953	132	427	492	498	553	4,080	2,030	2,320	1,420	4,270	460	30	16,710
1954	17,980	3,630	1,510	-	-	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	180	16.81	130,000
1951	1211	-	May 1, 1951	2	102	0.703	9.52	73,690	103	9.65	74,640
1952	1241	11,200	May 17, 1952	-	49.9	.344	4.70	36,230	44.0	4.14	31,960
1953	1281	6,110	July 20, 1953	0	23.1	.159	2.15	16,710	53.6	-	38,780

3295. Rush Creek near Maysville, Okla.

Location.--Lat 34°44', long 97°24', in SW¼SW¼ sec.10, T.3 N., R.2 W., near right bank on downstream side of pier of bridge on State Highway 74, 2¾ miles downstream from Panther Creek, 5.3 miles south of Maysville, and at mile 14.2.

Drainage area.--206 sq mi.

Records available.--December 1953 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 903.04 ft above mean sea level, datum of 1929 (levels by State Highway Commission).

Average discharge.--6 years (1954-60), 74.8 cfs (54,150 acre-ft per year).

Extremes.--1953-60: Maximum discharge, 38,500 cfs May 18, 1957 (gage height, 23.62 ft), from rating curve extended above 5,300 cfs on basis of contracted-opening measurement of peak flow; no flow at times in 1954-56, 1959.

Remarks.--Records of chemical analyses and water temperatures for water year 1955 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	26.4	15.7	11.5	13.0	34.5	464	65.2	2.99	1.29	0.07	-
1955	6.54	2.18	11.6	11.9	14.3	32.7	51.5	367	132	3.24	26.3	74.9	61.5
1956	75.2	7.94	9.23	10.7	15.3	8.81	8.48	20.0	14.9	0	0	0	14.3
1957	5.27	18.6	6.18	10.5	8.28	23.2	328	1,353	506	83.5	13.5	100	206
1958	33.4	70.0	27.5	27.2	36.0	45.9	59.0	158	89.7	30.7	47.8	8.18	52.9
1959	6.76	12.5	13.2	19.5	12.6	15.8	72.0	136	41.3	9.47	.38	172	42.5
1960	116	41.0	38.2	36.8	41.3	40.3	41.2	355	76.1	39.8	25.1	6.80	71.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	1,620	968	636	798	2,050	28,540	3,880	184	62	4.0	-
1955	402	130	716	731	796	2,010	3,060	22,540	7,850	199	1,620	4,450	44,500
1956	4,620	472	567	660	879	541	505	1,230	887	0	0	0	10,360
1957	324	1,110	380	647	460	1,420	19,530	83,180	30,110	5,140	830	5,970	149,100
1958	2,050	4,170	1,690	1,670	2,000	2,820	3,510	9,730	5,340	1,890	2,940	487	38,300
1959	416	742	810	1,200	699	972	4,280	8,390	2,460	582	23	10,220	30,790
1960	7,120	2,440	2,350	2,260	2,370	2,480	2,450	21,810	4,530	2,450	1,540	405	52,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953								
1954	1341	12,400	May 1, 1954	0	-	-	53.0	38,370
1955	1391	13,700	May 19, 1955	0	61.5	44,500	67.6	48,920
1956	1441	2,790	Oct. 5, 1955	0	14.3	10,360	8.98	6,520
1957	1511	38,500	May 18, 1957	0	206	149,100	214	155,200
1958	1561	5,060	May 3, 1958	4.8	52.9	38,300	44.7	32,360
1959	1631	14,500	Sept. 25, 1959	0	42.5	30,790	56.3	40,740
1960	1711	16,800	May 20, 1960	1.7	71.9	52,200	-	-

3299. Rock Creek at Dougherty, Okla.

Location.--Lat 34°23'50", long 97°02'10", in NW¼SW¼ sec.7, T.2 S., R.3 E., on downstream side of bridge on State Highway 7-C, 1 mile east of Dougherty and 1 mile upstream from mouth.

Drainage area.--138 sq mi.

Records available.--March 1956 to September 1960. Prior to October 1958, published as "near Dougherty."

Gage.--Water-stage recorder. Datum of gage is 743.87 ft above mean sea level, datum of 1929. Prior to May 15, 1956, wire-weight gage at same site and datum.

Extremes.--1956-60: Maximum discharge, 25,600 cfs May 17, 1957 (gage height, 13.76 ft); maximum gage height, 16.80 ft May 18, 1957 (backwater from Washita River); no flow July 28, 29, Aug. 11-18, 26-28, 1956.

Remarks.--Records of chemical analyses and water temperatures for water years 1957-59 and suspended sediment loads for water year 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	5.26	5.38	25.3	3.92	1.38	0.27	0.50	-
1957	3.13	21.6	34.4	9.67	48.9	53.3	497	1,291	291	34.7	18.2	348	222
1958	30.8	158	59.0	152	72.2	184	102	169	42.6	28.8	15.6	12.2	85.6
1959	10.0	12.2	11.7	11.1	8.59	12.0	10.2	32.1	5.09	5.61	3.22	5.27	10.6
1960	182	48.1	49.3	158	123	97.8	72.1	338	40.8	29.0	14.6	29.3	99.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	323	320	1,560	233	85	17	30	-
1957	192	1,280	2,110	595	2,720	3,270	29,600	79,370	17,320	2,140	1,120	20,730	160,400
1958	1,890	9,370	3,630	9,350	4,010	11,310	6,040	10,400	2,530	1,770	960	724	61,980
1959	615	726	722	684	477	740	608	1,970	303	345	198	313	7,700
1960	11,200	2,860	3,030	9,720	7,100	6,010	4,290	20,760	2,430	1,780	898	1,740	71,820

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1956	1511	2,260	May 25, 1956	0	-	-	-	-
1957	1511	25,600	May 17, 1957	0.3	222	160,400	237	171,800
1958	1561	6,030	Mar. 29, 1958	8.7	85.6	61,980	67.9	49,160
1959	1631	1,350	May 10, 1959	.9	10.6	7,700	31.4	22,730
1960	1711	15,200	May 6, 1960	7.2	99.0	71,820	-	-

3310. Washita River near Durwood, Okla.

Location.--Lat 34°14', long 96°58', in SE¼ sec.3, T.4 S., R.3 E., near left bank on downstream side of pier of bridge on State Highway 18, 1.3 miles downstream from Caddo Creek, 4 miles north of Durwood, and at mile 63.4.

Drainage area.--7,202 sq mi.

Records available.--August 1928 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 650.57 ft above mean sea level (levels by Corps of Engineers). Prior to Feb. 16, 1939, chain or wire-weight gage at same site and datum. Dec. 15, 1950, to Feb. 19, 1952, wire-weight gage at site 500 ft upstream at same datum.

Average discharge.--32 years (1928-60), 1,544 cfs (1,118,000 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 98,000 cfs May 19, 1957; maximum gage height, 44.37 ft Oct. 31, 1941; no flow Aug. 28, Sept. 14 to Oct. 1, Oct. 7-12, 1956.
Maximum discharge known, that of May 19, 1957.

Remarks.--Some diversion above station for irrigation. Prior to 1958, some regulation at low flow by powerplant at Chickasha, 188 miles upstream. Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	968	398	412	498	963	1,002	558	7,334	7,151	1,456	355	397	1,794
1952	301	338	239	276	303	586	1,116	2,933	806	507	83.6	25.8	629
1953	12.7	74.5	124	124	146	590	1,168	1,060	671	1,727	362	123	518
1954	3,077	936	848	265	269	216	841	6,651	1,612	149	40.6	48.7	1,258
1955	342	47.2	130	237	322	478	308	3,751	2,139	401	484	1,871	878
1956	2,486	299	255	232	341	207	194	488	643	97.5	15.8	.11	440
1957	109	265	399	115	416	464	7,639	20,920	7,935	1,060	302	2,051	3,487
1958	520	1,350	457	1,199	591	1,251	1,137	1,800	1,447	650	609	177	934
1959	119	135	179	182	181	177	473	1,900	1,311	867	833	1,305	640
1960	4,051	1,046	1,312	1,955	1,976	1,407	919	3,942	870	663	546	353	1,594

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	59,520	23,690	25,350	30,590	53,480	61,630	33,230	451,000	425,500	89,550	21,850	23,630	1,299,000
1952	18,480	20,110	14,700	16,960	17,450	36,060	66,420	180,400	47,930	31,200	5,140	1,530	456,400
1953	779	4,440	7,640	7,640	8,100	36,300	69,480	65,170	39,930	106,200	22,250	7,340	375,300
1954	189,200	55,710	52,130	16,290	14,920	13,290	50,070	409,000	95,910	9,190	2,500	2,900	911,100
1955	21,030	2,810	7,990	14,580	17,870	29,410	18,340	230,700	127,300	24,630	29,760	111,400	635,800
1956	152,900	17,790	15,690	14,270	19,590	12,720	11,560	30,000	38,290	6,000	973	63	319,800
1957	6,680	15,790	24,540	7,050	23,080	28,510	454,500	1,286,000	472,200	65,170	18,580	122,000	2,524,000
1958	31,990	80,350	28,110	73,740	32,800	76,920	67,670	110,700	86,120	39,960	37,470	10,510	676,300
1959	7,340	8,050	11,000	11,180	10,050	10,900	28,170	116,800	78,020	53,280	51,240	77,630	463,700
1960	249,100	62,250	80,660	120,200	113,700	86,540	54,710	242,400	51,750	40,760	33,540	21,010	1,157,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,978	1,432,000
1951	1211	28,700	June 12, 1951	166	1,794	1,299,000	1,718	1,244,000
1952	1241	18,500	May 18, 1952	17	629	456,400	573	415,900
1953	1281	20,000	July 20, 1953	9.8	518	375,300	911	659,400
1954	1341	31,500	May 13, 1954	6.1	1,258	911,100	892	645,900
1955	1391	31,100	Sept. 27, 1955	38	878	635,800	1,091	790,400
1956	1441	13,500	Oct. 6, 1955	0	440	319,800	249	180,400
1957	1511	98,000	May 19, 1957	0	3,487	2,524,000	3,616	2,618,000
1958	1561	11,900	May 3, 1958	89	934	676,300	777	562,300
1959	1631	17,700	Sept. 26, 1959	95	640	463,700	1,145	829,300
1960	1711	34,000	Oct. 4, 1959	120	1,594	1,157,000	-	-

3315. Lake Texoma near Denison, Tex.

Location.--Lat 33°49'05", long 96°34'20", in NE¼ sec.33, T.8 S., R.7 E., Indian meridian, in control tower of Denison Dam on Red River, 1¼ miles upstream from Shawnee Creek, 1¾ miles upstream from Sand Creek, 4 miles northwest of Denison, and at mile 725.9.

Drainage area.--39,719 sq mi, of which 5,936 sq mi is probably noncontributing.

Records available.--July 1942 to September 1960. Month-end contents only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 30, 1944, staff or wire-weight gage at same site and datum. Prior to Oct. 1, 1948, auxiliary staff gage in Cumberland pool at same datum.

Extremes.--1942-60: Maximum contents, 5,991,300 acre-ft June 5, 1957 (elevation, 643.18 ft); minimum since power-pool stage was first reached, 1,607,400 acre-ft Mar. 1, 2, 1957 (elevation, 599.96 ft).

Remarks.--Reservoir is formed by a rolled-fill earth dam. Flow was diverted through conduits July 27, 1942; regulated storage began Oct. 31, 1943; maximum power-pool stage was first reached Mar. 15, 1945. Capacity, 5,530,300 acre-ft at elevation 640.0 ft (crest of spillway) and 2,836,300 acre-ft at elevation 617.0 ft (maximum power pool). Dead and sediment storage, 1,106,000 acre-ft at elevation 590.0 ft in Denison pool. When contents are below 2,250,100 acre-ft, the reservoir is divided into 2 pools by protective levees around the Cumberland oil field on Washita River arm with bottom of outlet channel for the upper pool (known as Cumberland pool) at elevation 610 ft. At higher elevations the 2 pools are considered as being at a common level, contents being computed from the gage in the Denison pool. Reservoir is used principally for flood control and power development. Figures given herein represent total contents of both pools except for 22,800 acre-ft dead and sediment storage in Cumberland pool.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in thousands of acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	2,886.8	2,742.3	2,608.8	2,503.9	2,460.4	2,455.6	2,399.2	3,138.0	3,350.0	2,885.0	2,720.3	2,611.3
1952	2,563.4	2,529.3	2,436.8	2,308.4	2,249.4	2,223.5	2,354.4	2,752.9	2,737.9	2,609.6	2,378.4	2,252.9
1953	2,066.2	1,993.8	1,934.4	1,858.7	1,805.1	1,890.0	2,004.3	2,073.5	2,022.8	2,110.0	2,024.1	1,882.0
1954	2,360.8	2,542.4	2,527.6	2,465.3	2,357.6	2,212.3	2,170.9	3,071.8	2,883.2	2,570.1	2,342.2	a2,078.1
1955	2,060.8	1,937.8	1,849.0	1,867.9	1,867.9	1,904.4	1,907.0	2,861.1	2,845.3	2,739.1	2,564.7	2,694.9
1956	2,789.5	2,560.5	2,343.1	2,151.2	1,992.7	1,878.0	1,826.2	1,921.4	1,966.3	1,879.9	1,759.0	1,636.4
1957	1,676.9	1,721.3	1,736.2	1,626.7	1,608.5	1,642.7	3,167.4	5,678.0	3,559.4	2,937.4	2,827.3	2,886.2
1958	2,661.0	2,689.7	2,462.1	2,633.2	2,500.1	2,641.0	2,765.2	2,829.1	2,903.0	2,891.8	2,794.9	2,701.9
1959	2,579.9	2,469.4	2,390.8	2,273.7	2,250.1	2,135.4	2,137.5	2,517.7	2,845.3	2,936.4	2,747.2	2,703.6
1960	2,739.1	2,723.8	2,746.3	2,654.9	2,621.9	2,626.2	2,575.7	2,773.3	2,892.7	2,889.9	2,803.0	2,731.9

a Contents by capacity table used beginning Oct. 1, 1954; contents Sept. 30, 1954, by capacity table used prior to Oct. 1, 1954, is 2,179,900 acre-ft.

3320. Red River near Colbert, Okla.

Location.--Lat 33°49'06", long 96°31'23", in NE¼ sec.36, T.8 S., R.7 E., near center of span on downstream side of pier of highway bridge, 1.1 miles downstream from Sand Creek, 2½ miles south of Colbert, 2.9 miles downstream from Denison Dam, and at mile 723.0.

Drainage area.--39,777 sq mi, of which 5,936 sq mi is probably noncontributing.

Records available.--October 1923 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1934, published as "near Denison, Tex." Gage-height records collected at various sites in this vicinity 1892-93, 1906-28, 1931-49 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 497.36 ft above mean sea level, datum of 1929. Oct. 9, 1923, to Sept. 30, 1931, chain gage at present site at datum 9.49 ft higher and Oct. 1, 1931, to Sept. 24, 1934, at datum 9.71 ft higher than present datum. Sept. 25, 1934, to July 28, 1942, water-stage recorder at site 0.6 mile upstream at datum 10.00 ft higher than present datum.

Average discharge.--37 years (1923-60), 5,243 cfs (3,796,000 acre-ft per year).

Extremes.--1923-60: Maximum discharge, 201,000 cfs May 21, 1935; maximum gage height, 32.0 ft Apr. 25, 1942 (present site and datum); minimum daily discharge, 12 cfs Jan. 10, 1944.

Maximum stage known, 45.5 ft May 26, 1908, present site and datum, from records of U. S. Weather Bureau.

Remarks.--Flow regulated since Oct. 31, 1943, by Lake Texoma (see preceding page). Records of chemical analyses and water temperatures, published as "at Denison Dam, near Denison, Tex.," are published in reports of Geological Survey.

Cooperation.--Records for water years 1959-60 computed by Corps of Engineers and reviewed by Geological Survey.

Corrections.--In WSP 1311, the monthly runoff for June 1941 was listed in error; it should be 3,093,000 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,029	2,931	2,996	2,890	3,304	2,335	2,090	13,890	25,960	13,620	3,120	2,563	6,992
1952	1,841	1,660	1,815	2,654	1,837	1,895	3,031	2,461	2,844	2,709	3,140	1,692	2,301
1953	2,394	1,516	1,355	1,503	1,268	711	1,748	1,477	2,108	2,517	2,932	2,674	1,853
1954	2,196	1,816	2,221	2,010	2,196	2,493	2,716	12,400	9,555	4,608	3,187	2,462	3,950
1955	1,109	1,970	2,078	325	1,016	821	1,174	3,203	11,640	3,568	3,600	2,688	2,762
1956	14,760	4,773	4,052	3,627	4,016	2,250	1,089	2,057	1,449	1,580	1,381	1,423	3,550
1957	667	796	677	2,115	1,513	1,481	3,201	34,710	66,960	12,610	2,453	4,872	10,890
1958	5,720	9,243	5,260	1,669	4,397	1,610	3,095	11,520	2,344	2,856	2,485	1,614	4,320
1959	1,823	1,912	1,483	2,268	772	2,432	2,263	712	2,117	3,952	4,623	3,074	2,298
1960	15,990	2,600	6,739	7,904	7,468	4,149	3,216	2,703	3,575	3,785	2,217	†1,930	5,203

† Corrected.

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	493.7	174.4	184.2	177.7	183.5	143.5	124.4	853.9	1,545	837.4	191.8	152.5	5,062
1952	113.2	98.77	111.6	163.2	105.7	116.5	180.3	151.3	169.2	166.5	193.1	100.7	1,670
1953	147.2	90.23	83.33	92.44	70.41	43.70	104.0	90.79	125.4	154.8	180.3	159.1	1,342
1954	135.0	70.56	136.6	123.6	121.9	153.3	161.6	762.4	568.5	283.4	196.0	146.5	2,859
1955	68.21	117.2	127.8	20.0	56.40	50.51	69.88	196.9	692.4	219.4	221.3	160.0	2,000
1956	907.5	284.0	249.2	223.0	231.0	138.3	64.81	126.5	86.2	97.17	84.89	84.69	2,577
1957	4.10	4.74	41.61	130.0	84.02	91.08	190.5	2,134	3,984	775.3	150.8	289.9	7,880
1958	351.7	550.0	323.4	102	244.2	98.99	184.2	708.5	139.5	175.6	152.8	96.02	3,128
1959	112.1	113.8	91.21	139.4	42.89	149.5	134.7	43.78	126.0	243.0	284.2	182.9	†1,663
1960	983.2	154.7	414.3	486.0	429.5	255.1	191.3	166.2	212.7	232.7	136.3	114.9	3,777

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	7,499	5,429,000
1951	1211	48,300	May 26, 1951	110	6,992	5,062,000	6,262	4,533,000
1952	1241	10,400	Apr. 22, 1952	226	2,301	1,670,000	2,297	1,667,000
1953	1281	9,650	Aug. 10, 1953	141	1,853	1,342,000	1,883	1,363,000
1954	1341	37,700	May 16, 1954	149	3,950	2,859,000	3,910	2,830,000
1955	1391	42,300	June 23, 1955	63	2,762	2,000,000	4,320	3,127,000
1956	1441	41,400	Oct. 8, 1955	70	3,550	2,577,000	1,635	1,187,000
1957	1511	102,000	June 5, 1957	45	10,890	7,880,000	12,510	9,055,000
1958	1561	44,100	May 9, 1958	120	4,320	3,128,000	3,066	2,220,000
1959	1631	10,500	July 23, 1959	86	2,298	†1,663,000	4,004	2,899,000
1960	1711	48,600	Oct. 13, 1959	74	5,203	3,777,000	-	-

† Corrected.

3325. Blue River near Blue, Okla.

Location.--Lat 33°59'49", long 96°14'27", on line between secs. 27 and 34, T.6 S., R.10 E., near left bank on downstream side of pier of bridge on U. S. Highway 70, 1 mile west of Blue, 7 miles east of Durant, 7.7 miles upstream from Caddo Creek, and at mile 38.8.

Drainage area.--476 sq mi.

Records available.--June 1936 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 503.36 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 13, 1945, wire-weight gage and Mar. 13, 1945, to Feb. 2, 1960, water-stage recorder at site 1.2 miles downstream at datum 5.00 ft lower.

Average discharge.--24 years (1936-60), 304 cfs (220,100 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 34,400 cfs Feb. 17, 1938 (gage height, 31.81 ft, site and datum then in use); no flow (estimated) Aug. 3, 4, 1936, result of regulation at fish hatchery, and no flow Sept. 19 to Oct. 16, 1956.

Remarks.--Some regulation at low flow by State Fish Hatchery, 16 miles above station. Small diversion above station for municipal supply of city of Durant. Records of chemical analyses and water temperatures for the period November 1959 to September 1960 are published in reports of Geological Survey.

Cooperation.--Records for 1954-60 computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	‡122	‡114	‡106	‡101	‡306	‡190	‡114	‡92.3	1,016	‡119	‡418	‡44.1	‡195
1952	‡70.8	‡113	‡59.0	‡54.8	‡59.2	‡164	‡897	‡145	‡48.4	‡31.0	‡20.7	‡19.4	‡139
1953	‡19.2	‡43.8	‡33.2	‡28.2	‡33.4	‡180	‡521	‡343	‡95.5	‡758	‡132	‡134	‡195
1954	65.0	82.0	114	126	60.6	43.3	151	1,189	160	36.8	24.6	26.7	175
1955	230	33.9	165	134	217	233	147	291	45.1	148	21.5	140	151
1956	29.4	25.3	26.4	26.2	69.9	32.1	51.5	64.8	39.6	5.23	.94	.42	30.8
1957	4.63	15.9	37.3	27.4	114	238	2,374	2,200	1,449	140	70.8	1,501	679
1958	131	1,186	262	517	214	588	379	1,285	121	71.3	43.5	38.2	404
1959	30.3	35.7	35.7	34.9	35.4	98.2	221	118	88.7	176	37.3	89.3	83.5
1960	479	75.3	316	422	372	377	126	432	107	133	70.4	60.8	248

‡ Not previously published; computed by Geological Survey on basis of gage height record and previous rating curve.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	‡7,510	‡6,760	‡6,510	‡6,210	‡16,970	‡11,710	‡6,770	‡5,670	‡60,470	‡7,320	‡2,570	‡2,620	‡141,100
1952	‡4,360	‡6,720	‡3,630	‡3,370	‡3,410	‡10,110	‡53,400	‡8,930	‡2,880	‡1,910	‡1,270	‡1,150	‡101,100
1953	‡1,180	‡2,600	‡2,040	‡1,730	‡1,860	‡11,040	‡31,010	‡21,080	‡5,680	‡46,600	‡8,100	‡8,000	‡140,900
1954	4,000	4,880	6,990	7,760	3,370	2,660	9,010	73,110	9,520	2,260	1,510	1,590	126,700
1955	14,130	2,020	10,150	8,210	12,040	14,340	8,720	17,910	2,690	9,100	1,320	8,360	109,000
1956	1,800	1,500	1,620	1,610	4,020	1,980	3,070	3,990	2,360	322	58	25	22,360
1957	284	946	2,290	1,680	6,320	14,650	141,200	135,300	86,220	8,610	4,360	89,340	491,200
1958	8,080	70,570	16,090	31,820	11,910	36,160	22,530	79,030	7,210	4,390	2,680	2,280	292,800
1959	1,860	2,130	2,200	2,140	1,960	6,040	13,160	7,250	5,280	10,830	2,290	5,310	60,450
1960	29,460	4,480	19,410	25,930	21,370	23,190	7,470	26,580	6,360	8,170	4,330	3,620	180,400

‡ Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	‡441	‡12.54	‡320,200
1951	-	‡5,270	June 13, 1951	‡27	‡195	‡0.408	‡5.53	‡141,100	‡186	‡5.29	‡135,000
1952	-	‡8,530	Apr. 23, 1952	‡15	‡139	‡.291	‡3.95	‡101,100	‡127	‡3.61	‡92,250
1953	-	‡8,090	July 20, 1953	‡13	‡195	‡.408	‡5.53	‡140,900	‡209	‡5.92	‡151,000
1954	1341	7,260	May 12, 1954	12	175	.366	4.95	126,700	189	5.36	137,100
1955	1391	4,350	May 21, 1955	12	151	.316	4.27	109,000	121	3.43	87,610
1956	1441	978	June 1, 1956	0	30.8	.064	.87	22,360	28.8	.82	20,960
1957	1511	19,900	Sept.22, 1957	0	679	1.42	19.27	491,200	805	22.85	582,400
1958	1561	26,000	May 2, 1958	27	404	.845	11.48	292,800	282	8.00	204,200
1959	1631	3,100	July 27, 1959	11	83.5	.175	2.37	60,450	149	4.23	107,600
1960	1711	4,210	Oct. 14, 1959	34	248	.521	7.09	180,400	-	-	-

‡ Not previously published.

3330. North Boggy Creek near Stringtown, Okla.

Location.--Lat 34°31'08", long 96°03'38", in NE¼NE¼ sec.32, T.1 N., R.12 E., near right bank on downstream side of bridge on State Highway 43, 2.2 miles upstream from unnamed tributary, 2.8 miles upstream from Mill Creek, 3.6 miles north of Stringtown, and at mile 17.3.

Drainage area.--136 sq mi (revised).

Records available.--October 1955 to June 1959.

Gage.--Water-stage recorder. Datum of gage is 553.65 ft above mean sea level, datum of 1929.

Extremes.--1955-59: Maximum discharge, 7,600 cfs Apr. 3, 1957 (gage height, 17.87 ft); no flow at times in 1956-57.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	18.3	0.01	0	0.14	79.5	2.30	11.9	96.6	57.0	0	0	0	21.9
1957	0	6.22	19.0	17.6	142	206	1,141	849	427	3.74	.88	457	271
1958	3.14	290	103	120	20.0	300	134	178	55.3	85.8	31.9	53.9	115
1959	6.41	24.5	.87	.42	.69	199	138	98.7	-	-	-	-	-

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	1,130	0.4	0	8.5	4,570	141	710	5,940	3,390	0	0	0	15,890
1957	0	370	1,170	1,080	7,900	12,640	67,870	52,170	25,420	230	54	27,210	196,100
1958	193	17,260	6,350	7,360	1,130	18,440	7,980	10,940	3,290	5,280	1,960	3,210	83,370
1959	394	1,460	53	26	38	12,210	8,210	6,070	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1956	1441	2,160	June 1, 1956	0	21.9	0.157	2.15	15,890		22.5	2.21	16,300
1957	1511	7,600	Apr. 3, 1957	0	271	1.95	26.47	196,100		302	29.48	218,400
1958	1561	5,040	Nov. 8, 1957	.1	115	.827	11.25	83,370		84.9	8.29	61,500
1959	1631	a3,280	Mar. 5, 1959	-	-	-	-	-		-	-	-

a Maximum for period October to June.

3335. Chickasaw Creek near Stringtown, Okla.

Location.--Lat 34°27'41", long 96°01'36", in NE¼NE¼ sec.22, T.1 S., R.12 E., near right bank of span on upstream side of bridge on county road, 1.5 miles east of Stringtown, 2.2 miles upstream from Little Chickasaw Creek, 3.6 miles downstream from Breadtown Creek, and at mile 5.0.

Drainage area.--32.7 sq mi (revised).

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 540.26 ft above mean sea level, datum of 1929. Prior to Sept. 10, 1958, wire-weight gage and crest-stage gage at same site and datum.

Average discharge.--5 years (1955-60), 34.3 cfs (24,830 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 12,300 cfs Apr. 26, 1957 (gage height, 20.18 ft), from rating curve extended above 4,300 cfs on basis of conveyance study; no flow at times in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	0.70	0.05	0.09	0.03	5.24	0.86	0.60	45.8	4.46	0	0	0	4.85
1957	0	0	0	5.86	43.3	54.5	385	203	114	.16	.01	86.2	73.8
1958	2.51	90.6	24.1	24.8	5.14	87.4	36.6	87.1	3.51	3.01	1.19	.02	30.7
1959	0	0	0	0	0	38.3	50.4	18.0	1.57	147	2.87	1.57	21.9
1960	96.0	1.64	40.9	46.4	23.0	28.3	5.95	201	.81	26.6	6.83	.11	40.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	43	2.8	5.4	2.0	301	53	36	2,810	265	0	0	0	3,520
1957	0	0	0	360	2,410	3,350	22,890	12,510	6,780	9.9	.8	5,130	53,440
1958	154	5,390	1,480	1,530	286	5,380	2,180	5,360	209	185	73	1.0	22,230
1959	0	0	0	0	0	2,350	3,000	1,110	93	9,060	176	94	15,880
1960	5,900	97	2,510	2,850	1,320	1,740	354	12,370	48	1,640	420	6.3	29,260

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1956	1441	1,620	May 24, 1956	0	4.85	0.149	2.02	3,520		4.78	1.99	3,470
1957	1511	12,300	Apr. 26, 1957	0	73.8	2.27	30.84	53,440		83.5	34.90	60,460
1958	1561	4,720	May 9, 1958	0	30.7	.945	12.82	22,230		21.0	8.76	15,200
1959	1631	9,530	July 26, 1959	0	21.9	.674	9.16	15,880		33.7	14.07	24,390
1960	1711	6,060	May 20, 1960	0	40.3	1.24	17.12	29,260		-	-	-

3338. McGee Creek near Stringtown, Okla.

Location.--Lat 34°26'33", long 95°52'10", in NE¼ sec.30, T.1 S., R.14 E., on right bank 10.6 miles east of Stringtown, 17.5 miles upstream from Potapo Creek and at mile 22.7 (revised).

Drainage area.--86.6 sq mi (revised).

Records available.--April 1956 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 622.93 ft above mean sea level, datum of 1929.

Extremes.--1956-60: Maximum discharge, 10,200 cfs Apr. 26, 1957 (gage height, 16.79 ft); no flow at times in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	3.54	62.9	20.4	0	0	0	-
1957	0	3.65	2.64	25.5	139	156	913	608	259	1.73	6.27	293	199
1958	3.19	260	86.5	72.5	16.0	203	90.3	219	18.2	39.1	63.5	7.82	90.5
1959	2.99	2.20	2.89	1.86	3.06	201	139	140	6.78	568	9.47	23.8	93.0
1960	254	6.09	177	179	84.5	80.0	15.6	494	2.90	69.3	45.3	1.04	119

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	-	-	211	3,870	1,210	0	0	0	-
1957	0	217	162	1,570	7,730	9,600	54,340	37,360	15,410	106	386	17,430	144,300
1958	196	15,460	5,320	4,450	887	12,490	5,370	13,470	1,080	2,400	3,900	465	65,490
1959	184	131	178	114	170	12,340	8,260	8,610	404	34,960	582	1,410	67,340
1960	15,630	362	10,860	11,000	4,860	4,920	928	30,370	173	4,260	2,780	62	86,210

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	1,620	May 25, 1956	0	-	-	-	-	-	-	-
1957	1511	10,200	Apr. 26, 1957	0	199	2.36	32.03	144,300	228	36.59	164,900
1958	1561	6,020	Nov. 7, 1957	0	90.5	1.07	14.54	65,490	62.2	9.99	45,000
1959	1631	8,300	July 16, 1959	0	93.0	1.10	14.95	67,340	129	20.79	93,700
1960	1711	8,400	May 19, 1960	0	119	1.41	19.13	86,210	-	-	-

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3340. Muddy Boggy Creek near Farris, Okla.

Location.--34°16'17", long 95°54'43", in NE¼NW¼ sec.26, T.3 S., R.13 E., on downstream side of right pier of main span of bridge on State Highway 3, 1.3 miles downstream from McGee Creek, 2¾ miles northwest of Farris, and at mile 57.7.

Drainage area.--1,087 sq mi.

Records available.--October 1937 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 446.58 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 13, 1945, wire-weight gage at same site and datum.

Average discharge.--23 years (1937-60), 957 cfs (692,800 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 61,900 cfs June 17, 1945 (gage height, 44.94 ft), from rating curve extended above 37,000 cfs; no flow at times in 1939-40, 1943, 1949, 1952, 1954, 1956.

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

Corrections.--In WSP 1311, the monthly runoff for July 1950 was listed in error; it should be 189,500 acre-ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	49.1	30.5	24.8	33.9	1,252	617	599	146	4,690	432	3.17	44.8	648
1952	205	479	69.0	25.1	173	734	2,778	277	160	.23	1.33	.13	405
1953	0	39.4	55.1	7.49	80.4	1,411	3,770	2,698	46.2	3,374	91.5	184	987
1954	119	98.5	277	667	147	27.6	783	5,044	76.6	2.65	.40	3.1	612
1955	389	17.0	511	276	976	1,704	367	509	98.8	3.02	63.3	1,384	522
1956	157	.79	1.74	2.76	426	23.7	110	614	382	.15	0	0	142
1957	8.67	33.5	85.7	103	1,156	1,363	8,362	6,618	3,610	76.5	66.6	3,762	2,091
1958	63.4	2,545	798	974	255	2,058	1,036	2,404	481	311	1,034	209	1,020
1959	25.7	114	21.7	15.3	20.5	1,323	974	1,293	267	1,719	57.5	227	510
1960	2,387	328	1,301	1,342	707	734	160	5,607	94.8	802	125	33.4	1,097

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,020	1,820	1,530	2,080	69,530	37,930	35,620	8,970	279,100	26,580	195	2,660	469,000
1952	12,610	28,490	4,240	1,540	9,950	45,150	165,300	17,060	9,550	14	82	7.7	294,000
1953	0	2,350	3,390	461	4,470	86,750	224,300	165,900	2,750	207,500	5,630	10,960	714,500
1954	7,330	5,860	17,030	40,980	8,140	1,700	46,600	310,200	4,560	163	25	186	442,800
1955	23,930	1,010	31,450	16,990	54,200	104,800	21,830	31,270	5,880	186	3,890	82,330	377,800
1956	9,640	47	107	170	24,490	1,460	6,520	37,760	22,710	8.9	0	0	102,900
1957	533	1,990	5,270	6,310	64,190	83,800	497,500	407,000	214,800	4,700	4,100	223,800	1,514,000
1958	3,900	151,400	49,040	59,870	14,160	126,500	61,630	147,800	28,600	19,100	63,610	12,450	738,100
1959	1,580	6,760	1,330	938	1,140	81,360	57,940	79,500	15,890	105,700	3,540	13,510	369,200
1960	146,800	19,540	79,990	82,540	40,640	45,120	9,500	307,900	5,640	49,300	7,700	1,990	796,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,365	17.04	988,300
1951	1211	38,800	June 12, 1951		648	0.596	8.08	469,000	702	8.75	508,000
1952	1241	13,000	Apr. 13, 1952	0	405	.373	5.06	294,000	350	4.38	254,400
1953	1281	27,000	July 21, 1953	0	987	.908	12.34	714,500	1,021	12.76	738,900
1954	1341	19,600	May 10, 1954	0	612	.563	7.64	442,800	648	8.09	468,900
1955	1391	12,200	Mar. 22, 1955	.4	522	.480	6.51	377,800	457	5.72	331,200
1956	1441	5,240	May 25, 1956	0	142	.130	1.78	102,900	139	1.73	100,900
1957	1511	28,200	Sept. 22, 1957	0	2,091	1.92	26.11	1,514,000	2,363	29.51	1,711,000
1958	1561	25,100	May 2, 1958	14	1,020	.938	12.72	738,100	751	9.36	543,400
1959	1631	16,000	July 27, 1959	2.4	510	.469	6.36	369,200	837	10.44	605,800
1960	1711	21,900	May 20, 1960	1.7	1,097	1.01	13.73	796,700	-	-	-

3342. Byrds' Mill Spring near Fittstown, Okla.

Location.--Lat 34°35'45", long 96°39'55", in SW¼SW¼ sec.34, T.2 N., R.6 E., upstream from weir outlet of spring, half a mile upstream from Big Spring Creek, 2 miles west of Fittstown, and 12 miles south of Ada.

Records available.--April 1959 to September 1960.

Gage.--Water-stage recorder and V-notch sharp-crested weir. Altitude of gage is 1,022 ft (from ground-water survey).

Extremes.--1959-60: Maximum discharge, 30 cfs May 30, 1960; no flow Apr. 18-22, 1959.

Remarks.--Records do not include diversion of about 6 cfs by city of Ada for municipal water supply.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	0.84	3.38	2.65	2.83	2.85	1.84	-
1960	5.92	7.85	8.41	13.0	16.7	16.1	15.6	17.7	17.6	11.7	9.72	8.24	12.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	50	208	158	174	175	110	-
1960	364	467	517	799	958	988	928	1,090	1,050	722	598	491	8,970

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1959	1631	-	-	-	-	-	-	-
1960	1711	30	May 30, 1960	2.1	12.4	8,970	-	-

3350. Clear Boggy Creek near Caney, Okla.

Location.--Lat 34°15', long 96°12', in NW¼SE¼ sec.36, T.3 S., R.10 E., on downstream side of left pier of bridge on old U. S. Highways 69 and 75, half a mile downstream from Caney Creek, 1.5 miles north of Caney, and at mile 24.1.

Drainage area.--720 sq mi.

Records available.--October 1942 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 485.05 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 13, 1945, wire-weight gage at same site and datum.

Average discharge.--18 years (1942-60), 516 cfs (373,600 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 52,800 cfs Dec. 11, 1946 (gage height, 26.77 ft); no flow Sept. 3-29, 1954, July 10 to Nov. 5, Nov. 22 to Dec. 18, 1956.
Maximum stage known, 26.9 ft in February 1938, from information by local resident.

Remarks.--Records of chemical analyses and water temperatures for water years 1956-59 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	67.5	50.4	48.5	50.0	539	407	196	84.4	1,776	139	17.0	18.9	278
1952	100	136	32.8	28.0	52.5	271	1,468	183	83.8	14.0	5.45	1.19	196
1953	1.70	15.2	14.5	11.6	14.6	446	1,397	1,061	112	1,324	117	102	388
1954	78.9	106	198	162	71.3	35.0	195	2,524	197	11.0	3.62	1.77	302
1955	153	11.3	128	123	310	612	181	486	42.2	7.72	19.4	406	206
1956	99.5	10.1	11.0	10.7	186	22.7	33.8	168	117	.05	0	0	54.4
1957	0	7.43	43.7	12.0	337	564	4,390	3,760	2,613	86.4	32.5	2,490	1,189
1958	91.4	1,346	295	687	206	990	658	1,404	135	67.7	114	68.8	507
1959	25.1	41.7	19.6	18.6	18.2	394	348	403	420	475	37.2	26.3	187
1960	892	278	613	867	551	542	162	1,940	93.5	209	50.5	50.3	525

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,150	3,000	2,980	3,080	29,950	25,000	11,640	5,190	105,700	8,560	1,040	1,120	201,400
1952	6,150	8,080	2,020	1,720	3,020	16,680	87,350	11,230	4,980	861	335	71	142,500
1953	104	902	895	712	813	27,450	83,150	65,210	6,660	81,390	7,200	6,080	280,600
1954	4,850	6,330	12,200	9,970	3,960	2,150	11,580	155,200	11,700	674	223	106	218,900
1955	9,420	674	7,880	7,560	17,220	37,640	10,770	29,910	2,510	474	1,190	24,190	149,400
1956	6,120	603	674	659	10,720	1,400	2,010	10,360	6,930	3.0	0	0	39,480
1957	0	442	2,690	739	18,730	34,660	261,200	231,200	155,500	5,310	2,000	148,200	860,700
1958	5,620	80,060	18,160	42,270	11,430	60,880	39,180	86,330	8,050	4,160	7,030	4,090	367,300
1959	1,540	2,480	1,210	1,140	1,010	24,210	20,680	24,780	25,000	29,200	2,290	1,560	135,100
1960	†54,820	16,540	37,670	53,300	31,690	33,340	9,640	119,300	5,570	12,870	3,110	2,990	380,800

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	776	14.63	561,700
1951	1211	12,800	June 12, 1951	6.6	278	0.386	5.25	201,400	287	5.40	207,500
1952	1241	10,000	Apr. 22, 1952	.4	196	.272	3.69	142,500	177	3.31	128,100
1953	1281	8,050	July 21, 1953	.4	388	.539	7.30	280,600	417	7.87	302,000
1954	1341	11,000	May 3, 1954	0	302	.419	5.70	218,900	295	5.57	213,500
1955	1391	6,220	Mar. 22, 1955	.8	206	.286	3.91	149,400	192	3.63	138,900
1956	1441	2,540	Feb. 18, 1956	0	54.4	.076	1.04	39,480	48.5	.92	35,210
1957	1511	21,700	Sept. 23, 1957	0	1,189	1.65	22.41	860,700	1,328	25.03	961,400
1958	1561	10,200	May 2, 1958	14	507	.704	9.57	367,300	371	7.00	268,600
1959	1631	4,800	June 30, 1959	5.9	187	.260	3.52	135,100	330	6.23	238,900
1960	1711	14,000	May 22, 1960	13	525	.729	9.93	380,800	-	-	-

3355. Red River at Arthur City, Tex.

Location.--Lat 33°52'30", long 95°30'10", in NW¼ sec.11, T.8 S., R.17 E., near right bank on downstream side of pier of bridge on U. S. Highway 271 at Arthur City, Lamar County, 10.6 miles downstream from Muddy Boggy River, 26.0 miles upstream from Kiamichi River, and at mile 633.1.

Drainage area.--44,531 sq mi, of which 5,936 sq mi is probably noncontributing.

Records available.--January to September 1905 (gage heights and discharge measurements only), October 1905 to December 1911, July 1936 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1891 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 380.07 ft above mean sea level, datum of 1929. During 1905-11, staff gage at St. Louis-San Francisco Railway Co. bridge 200 ft upstream at same datum. July 1, 1936, to Mar. 24, 1940, wire-weight gage at present site and datum.

Average discharge.--30 years (1905-11, 1936-60), 8,778 cfs (6,355,000 acre-ft per year).

Extremes.--1905-11, 1936-60: Maximum discharge, about 400,000 cfs May 28, 1908 (gage height, 43.2 ft), from rating curve extended above 41,000 cfs on basis of records for later years; minimum, 130 cfs Dec. 11, 12, 1956 (gage height, 4.49 ft).
Maximum stage known, that of May 28, 1908.

Remarks.--Some regulation since Oct. 31, 1943, by Lake Texoma, 92.8 miles above station (see p. 431).

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,059	3,396	3,475	3,289	9,828	4,166	3,807	13,170	41,740	16,850	3,284	3,080	9,557
1952	2,231	2,879	2,165	2,699	2,327	4,198	17,120	5,428	3,566	2,641	3,183	1,907	4,182
1953	2,281	2,066	1,692	1,704	1,671	3,897	11,420	12,790	2,642	8,135	3,917	3,132	4,634
1954	2,642	1,837	3,216	4,875	3,076	2,607	3,999	27,810	11,380	5,046	3,416	2,438	6,065
1955	7,028	2,267	3,254	1,923	4,774	6,205	3,918	5,354	11,830	4,980	3,712	5,376	5,045
1956	15,530	5,180	4,392	4,036	6,811	2,961	1,344	3,755	2,074	1,586	1,409	1,459	4,216
1957	263	242	894	2,178	3,789	4,598	27,090	63,180	83,820	15,830	2,783	13,760	18,180
1958	7,205	22,180	8,426	7,372	6,405	9,127	7,784	26,460	4,054	3,401	3,849	2,098	9,052
1959	1,903	2,351	1,670	2,154	1,138	4,423	4,093	2,978	2,793	9,799	5,380	3,377	3,528
1960	20,920	4,637	10,720	13,550	11,200	7,670	4,339	10,590	4,590	5,487	2,834	2,723	8,302

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	557.0	202.1	213.7	202.3	545.8	256.2	226.5	809.8	2,484	1,036	201.9	183.3	6,919
1952	137.2	171.3	133.1	166.0	133.8	258.1	1,019	333.8	212.2	162.4	195.7	113.5	3,036
1953	140.3	122.9	104.0	104.8	92.83	239.6	679.3	786.8	157.2	500.2	240.8	186.4	3,355
1954	162.4	109.3	197.7	299.8	170.8	160.3	238.0	1,710	677.0	310.3	210.0	145.1	4,391
1955	432.1	134.9	200.1	118.2	265.2	381.5	233.1	329.2	703.9	306.2	228.2	319.9	3,652
1956	955.2	308.3	270.1	248.2	391.8	182.1	79.94	230.9	123.4	97.54	86.63	86.79	3,061
1957	16.19	14.40	54.97	133.9	210.4	282.7	1,612	3,885	4,988	973.2	171.1	818.6	13,160
1958	443.0	1,320	518.1	453.3	355.7	561.2	463.2	1,627	241.2	209.1	236.6	124.9	6,553
1959	117.0	139.9	102.7	132.4	63.19	271.9	243.6	183.1	166.2	602.5	330.8	201.0	2,554
1960	1,286	275.9	659.0	833.1	644.3	471.6	258.2	651.3	273.1	337.4	174.2	162.0	6,026

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	13,410	9,705,000
1951	1211	74,500	June 17, 1951	1,300	9,557	6,919,000	8,823	6,387,000
1952	1241	93,400	Apr. 23, 1952	865	4,182	3,036,000	4,080	2,962,000
1953	1281	53,800	Apr. 30, 1953	695	4,634	3,355,000	4,775	3,457,000
1954	1341	57,000	May 17, 1954	700	6,065	4,391,000	6,476	4,688,000
1955	1391	42,200	June 24, 1955	580	5,045	3,652,000	6,104	4,419,000
1956	1441	40,400	Oct. 9, 1955	259	4,216	3,061,000	2,222	1,613,000
1957	1511	136,000	June 6, 1957	134	18,180	13,160,000	21,210	15,360,000
1958	1561	120,000	May 3, 1958	654	9,052	6,553,000	6,398	4,632,000
1959	1631	34,700	July 27, 1959	546	3,528	2,554,000	6,100	4,416,000
1960	1711	56,800	Oct. 14, 1959	550	8,302	6,026,000	-	-

3360. Tenmile Creek near Miller, Okla.

Location.--Lat 34°17'55", long 95°44'40", in NW¼ sec.16, T.3 S., R.15 E., near center of span on downstream side of pier of county highway bridge, 1¼ miles south of Miller, 4.7 miles upstream from Rock Creek, and at mile 11.6.

Drainage area.--68 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 475.89 ft above mean sea level, datum of 1929.

Average discharge.--5 years (1955-60), 82.7 cfs (59,870 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 5,930 cfs May 2, 1958 (gage height, 20.69 ft); no flow at times in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	7.04	0.13	0.45	0.79	82.2	10.1	47.3	79.6	14.2	0.29	0	0	19.9
1957	0	2.08	8.48	34.0	151	115	723	535	321	2.84	0	270	179
1958	2.78	308	111	59.5	29.5	167	79.1	†271	6.15	23.4	11.3	0	89.5
1959	0	1.40	2.62	.89	2.66	53.2	57.2	78.0	10.5	192	20.2	38.4	38.5
1960	216	4.67	178	121	86.1	72.9	9.11	230	3.41	89.1	8.47	11.6	86.8

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	433	7.7	28	48	4,730	623	2,810	4,900	843	18	0	0	14,440
1957	0	124	521	2,090	8,380	7,050	43,030	32,920	19,120	175	0	16,050	129,500
1958	171	18,330	6,840	3,660	1,640	10,260	4,700	16,680	366	1,440	696	0	64,780
1959	0	84	161	55	148	3,270	3,400	4,790	626	11,790	1,240	2,280	27,840
1960	13,310	278	10,940	7,430	4,950	4,480	542	14,170	203	5,480	521	687	62,990

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	1,620	Apr. 29, 1956	0	19.9	0.291	3.96	14,440	20.1	4.00	14,620
1957	1511	4,950	Sept. 22, 1957	0	179	2.62	35.53	129,500	213	42.35	154,200
1958	1561	5,930	May 2, 1958	0	89.5	1.31	17.78	64,780	54.8	10.88	39,690
1959	1631	2,660	July 26, 1959	0	38.5	.566	7.67	27,840	72.0	14.38	52,130
1960	1711	3,400	May 20, 1960	0	86.8	1.28	17.39	62,990	-	-	-

3365. Kiamichi River near Belzoni, Okla.

Location.--Lat 34°12', long 95°29', in SE¼ sec.14, T.4 S., R.17 E., near left bank on downstream side of pier of bridge on State Highway 7, 1¾ miles northwest of Belzoni, 6.5 miles downstream from Cedar Creek, 10 miles upstream from Possum Creek, and at mile 47.7.

Drainage area.--1,423 sq mi.

Records available.--October 1925 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 389.91 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Aug. 14, 1940, chain or wire-weight gage at same site and datum.

Average discharge.--35 years (1925-60), 1,770 cfs (1,281,000 acre-ft per year).

Extremes.--1925-60: Maximum discharge, 71,400 cfs Feb. 18, 1938 (gage height, 44.0 ft); no flow at times in many years.
Maximum stage known, 44.2 ft in October 1915, from information by local residents.

Remarks.--Small diversion above station for municipal supply of city of Antlers. Records of chemical analyses and water temperatures for water years 1947-54 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	188	81.3	61.9	597	6,717	1,768	2,113	949	6,679	2,277	96.7	147	1,761
1952	506	2,532	841	561	782	2,751	7,723	718	266	17.7	2.91	23.5	1,383
1953	5.47	389	563	354	1,281	3,739	8,558	4,610	71.2	3,899	162	35.4	1,977
1954	10.7	32.7	330	3,465	703	176	1,292	3,754	124	3.59	.05	2.4	830
1955	1,675	264	1,513	1,225	3,249	4,276	1,237	1,224	136	7.55	145	3,023	1,487
1956	279	20.2	24.2	32.5	2,687	545	612	1,805	255	13.3	.10	0	514
1957	0	118	430	1,322	3,459	3,235	12,920	9,082	4,879	70.5	29.2	4,603	3,320
1958	146	5,076	1,685	1,776	1,187	4,300	2,366	6,261	515	655	454	135	2,054
1959	35.6	439	200	278	467	1,950	1,766	1,548	357	2,969	313	422	901
1960	2,450	540	3,544	2,914	2,023	1,699	431	8,733	331	2,036	458	168	2,130

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,590	4,840	3,800	36,700	373,000	108,700	125,700	58,350	397,400	140,000	5,950	8,740	1,275,000
1952	31,090	150,600	51,720	34,510	44,980	169,100	459,500	44,150	15,850	1,090	179	1,400	1,004,000
1953	336	23,170	34,590	21,770	71,160	229,900	511,000	283,500	4,240	239,700	9,940	2,110	1,431,000
1954	655	1,950	20,290	213,000	39,030	10,810	76,900	230,800	7,380	221	34	143	601,200
1955	103,000	15,720	93,060	75,330	180,400	262,900	73,600	75,230	8,120	464	8,930	179,900	1,077,000
1956	17,160	1,200	1,490	2,000	154,500	33,530	36,430	111,000	15,190	821	6.0	0	373,300
1957	0	7,010	26,430	81,290	192,100	198,900	769,100	558,400	290,300	4,340	1,800	273,900	2,404,000
1958	8,960	302,000	103,600	109,200	65,920	264,400	140,800	385,000	30,660	40,250	27,910	8,040	1,487,000
1959	2,190	26,150	12,310	17,100	25,940	119,900	105,100	95,160	21,230	182,600	19,260	25,090	652,000
1960	150,600	32,160	217,900	179,200	116,400	104,500	25,670	537,000	19,710	125,200	28,140	10,010	1,546,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,873	27.38	2,080,000
1951	1211	49,400	June 12, 1951	13	1,761	1.24	16.80	1,275,000	2,056	19.61	1,488,000
1952	1241	27,800	Apr. 23, 1952	0	1,383	.972	13.21	1,004,000	1,142	10.92	828,900
1953	1281	37,200	Apr. 24, 1953	1.0	1,977	1.39	18.88	1,431,000	1,929	18.40	1,396,000
1954	1341	18,700	May 10, 1954	0	830	.583	7.92	601,200	1,091	10.42	790,100
1955	1391	27,600	Sept. 26, 1955	3.8	1,487	1.04	14.20	1,077,000	1,222	11.67	884,700
1956	1441	12,000	Feb. 18, 1956	0	514	.361	4.93	373,300	533	5.10	386,900
1957	1511	42,300	Sept. 22, 1957	0	3,320	2.33	31.67	2,404,000	3,847	36.70	2,785,000
1958	1561	55,200	May 3, 1958	28	2,054	1.44	19.59	1,487,000	1,537	14.65	1,113,000
1959	1631	21,300	July 27, 1959	12	901	.633	8.58	652,000	1,398	13.32	1,012,000
1960	1711	61,600	May 22, 1960	27	2,130	1.50	20.37	1,546,000	-	-	-

3370. Red River at Index, Ark.

Location.--Lat 33°33'05", long 94°02'25", in SW¼ sec.7, T.14 S., R.28 W., near right bank on downstream side of pier of bridge on U. S. Highway 71 at Index, 2¼ miles south of Ogden, 20.6 miles upstream from Little River, and at mile 485.3.

Drainage area.--48,030 sq mi, of which 5,936 is probably noncontributing.

Records available.--July 1936 to September 1960. Gage-height records collected at same site since 1917 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 246.87 ft above mean sea level, datum of 1929. Prior to Dec. 12, 1939, wire-weight gage at same site and datum.

Average discharge.--24 years (1936-60), 12,860 cfs (9,310,000 acre-ft per year).

Extremes.--1936-60: Maximum discharge, 297,000 cfs Feb. 23, 1938 (gage height, 34.25 ft); minimum, 378 cfs Nov. 28, 1956.

Remarks.--Some regulation by Lake Texoma (see p. 431) 241 miles upstream.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11,720	4,171	3,555	5,104	21,210	7,922	7,984	12,960	54,380	23,300	3,975	3,930	13,240
1952	2,730	5,926	4,435	5,166	4,223	9,140	34,720	7,722	4,874	2,982	3,227	2,336	7,256
1953	2,115	3,208	4,784	3,333	4,147	10,980	19,510	33,890	3,384	10,830	5,284	3,349	8,787
1954	2,984	2,391	3,889	9,257	6,216	3,360	6,116	36,350	14,220	5,160	3,726	2,574	8,054
1955	11,010	4,091	3,881	5,755	9,072	12,950	7,532	7,445	11,980	5,965	4,275	8,865	7,720
1956	18,020	5,285	4,668	4,162	14,250	4,564	2,096	7,618	3,179	1,730	1,643	1,485	5,708
1957	716	642	1,206	3,368	9,171	10,620	47,810	87,510	94,400	21,600	3,326	17,740	24,800
1958	11,390	33,480	14,200	14,860	8,842	17,550	14,970	45,260	5,502	6,841	4,797	3,374	15,150
1959	2,589	4,245	2,735	2,857	4,392	7,594	8,198	5,668	3,401	12,510	7,086	4,436	5,489
1960	23,150	6,033	16,890	20,360	14,610	11,020	6,127	20,130	6,098	7,860	4,822	3,598	11,780

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	720.8	248.2	218.6	313.8	1,178	487.1	475.1	796.7	3,236	1,433	244.4	233.9	9,586
1952	167.9	352.6	272.7	317.6	242.9	562.0	2,066	474.8	290.0	183.4	198.4	139.0	5,267
1953	130.0	190.9	294.1	205.0	230.3	675.4	1,161	2,084	201.4	665.8	324.9	199.3	6,362
1954	183.5	142.3	239.1	569.2	345.2	206.6	363.9	2,235	846.0	317.3	229.1	153.2	5,830
1955	677.1	243.4	238.6	353.9	503.8	796.3	448.2	457.8	712.9	366.8	262.9	527.5	5,589
1956	1,108	314.5	287.0	255.9	819.9	280.6	124.7	468.4	189.2	106.4	101.0	88.34	4,144
1957	44.05	38.22	74.15	207.1	509.4	653.0	2,845	5,381	5,617	1,328	204.5	1,056	17,960
1958	700.1	1,992	873.2	913.5	491.0	1,079	890.6	2,783	327.4	420.7	295.0	200.8	10,970
1959	159.2	252.6	168.2	175.7	243.9	466.9	487.8	348.5	202.4	768.9	435.7	264.0	3,974
1960	1,423	359.0	1,038	1,252	840.2	677.7	364.6	1,238	362.8	483.3	296.5	214.1	8,549

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	19,370	14,030,000
1951	1211	102,000	June 18, 1951	2,380	13,240	9,586,000	12,700	9,191,000
1952	1241	112,000	Apr. 25, 1952	1,370	7,256	5,267,000	7,010	5,089,000
1953	1281	91,700	May 2, 1953	1,060	8,787	6,362,000	8,718	6,312,000
1954	1341	76,200	May 13, 1954	1,560	8,054	5,830,000	8,875	6,425,000
1955	1391	56,500	Mar. 23, 1955	1,440	7,720	5,589,000	8,474	6,135,000
1956	1441	41,800	Feb. 20, 1956	564	5,708	4,144,000	3,569	2,591,000
1957	1511	154,000	June 8, 1957	384	24,800	17,960,000	29,510	21,370,000
1958	1561	145,000	May 6, 1958	2,120	15,150	10,970,000	11,020	7,981,000
1959	1631	48,400	July 29, 1959	1,420	5,489	3,974,000	8,584	6,214,000
1960	1711	61,000	Oct. 16, 1959	2,120	11,780	8,549,000	-	-

3375. Little River near Wright City, Okla.

Location.--Lat 34°04', long 95°03', on north edge of NW¼ sec.6, T.6 S., R.22 E., on left bank on downstream side of bridge on State Highway 98, 1¾ miles upstream from White Oak Creek and 2 miles west of Wright City.

Drainage area.--645 sq mi.

Records available.--October 1929 to September 1931, October 1944 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 346.76 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Oct. 12, 1929, to Sept. 30, 1931, chain gage at railroad bridge 1 mile downstream at datum 4.15 ft higher. Dec. 6, 1944, to July 30, 1951, wire-weight gage at present site and datum.

Average discharge.--18 years (1929-31, 1944-60), 997 cfs (721,800 acre-ft per year).

Extremes.--1929-31, 1944-60: Maximum discharge, 75,400 cfs Sept. 16, 1950 (gage height, 45.77 ft); no flow at times in 1930, 1954, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	159	94.4	58.5	541	3,448	694	997	627	3,476	1,618	30.6	23.9	958
1952	232	1,265	653	490	563	1,604	4,328	583	171	23.7	7.79	4.22	822
1953	.48	117	303	337	684	2,108	4,032	2,513	44.0	2,183	97.4	24.3	1,040
1954	2.72	6.46	231	1,836	431	104	680	2,257	196	3.60	.26	85.0	489
1955	2,117	310	763	757	1,206	1,658	702	421	64.9	2.75	51.4	986	752
1956	445	22.4	41.4	42.0	2,049	486	273	958	106	3.69	.03	0	363
1957	0	170	342	1,021	1,805	1,906	5,427	4,118	1,491	37.4	31.7	1,592	1,485
1958	103	2,635	760	1,354	649	2,082	1,471	2,847	114	246	84.5	287	1,055
1959	91.7	465	228	276	450	1,035	708	391	137	1,143	147	60.9	428
1960	444	478	1,782	1,576	926	841	338	3,506	203	873	278	38.9	948

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,790	5,620	3,590	33,250	191,500	42,680	59,310	38,560	206,900	99,470	1,880	1,420	694,000
1952	14,240	75,280	40,140	30,120	32,370	98,610	257,500	35,830	10,190	1,460	479	251	596,500
1953	29	6,950	18,610	20,750	38,000	129,600	239,900	154,500	2,620	134,200	5,990	1,450	752,600
1954	167	385	14,210	112,900	23,950	6,400	40,450	138,800	11,650	222	16	5,060	354,200
1955	130,200	18,470	46,920	46,540	67,000	102,000	41,760	25,900	3,860	169	3,160	58,680	544,700
1956	27,350	1,330	2,550	2,580	117,900	29,880	16,260	58,930	6,320	227	1.6	0	263,300
1957	0	10,110	21,010	62,760	100,300	117,200	322,900	253,200	88,750	2,300	1,950	94,740	1,075,000
1958	6,340	156,800	46,730	83,270	36,060	128,000	87,550	175,100	6,800	15,130	5,190	17,100	764,100
1959	5,640	27,690	14,050	16,980	24,970	63,620	42,100	24,070	8,160	70,270	9,030	3,620	310,200
1960	27,330	28,440	109,600	96,910	53,270	51,690	20,090	215,600	12,100	53,650	17,070	2,310	688,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,675	35.24	1,213,000
1951	1211	43,200	June 12, 1951	2.3	958	1.49	20.15	694,000	1,111	23.38	804,600
1952	1241	32,300	Apr. 22, 1952	1.2	822	1.27	17.35	596,500	678	14.32	492,400
1953	1281	55,800	July 20, 1953	.2	1,040	1.61	21.86	752,600	1,025	21.54	741,800
1954	1341	21,400	May 29, 1954	0	489	.758	10.30	354,200	739	15.56	535,000
1955	1391	18,000	Oct. 1, 1954	.6	752	1.17	15.82	544,700	525	11.04	380,300
1956	1441	15,200	Feb. 18, 1956	0	363	.563	7.66	263,300	363	7.65	263,200
1957	1511	35,200	Sept.22, 1957	0	1,485	2.30	31.25	1,075,000	1,732	36.45	1,254,000
1958	1561	44,600	May 2, 1958	16	1,055	1.64	22.22	764,100	831	17.49	601,600
1959	1631	8,840	July 27, 1959	18	428	.664	9.01	310,200	591	12.45	428,200
1960	1711	69,100	May 20, 1960	19	948	1.47	20.01	688,100	-	-	-

3385. Little River below Lukfata Creek, near Idabel, Okla.

Location.--Lat 33°56', long 94°45', in SE¼ sec.14, T.7 S., R.24 E., on left bank at downstream side of bridge on U. S. Highway 70 just downstream from Lukfata Creek, 5 miles northeast of Idabel.

Drainage area.--1,226 sq mi.

Records available.--October 1946 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 312.08 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Oct. 1, 1946, to Oct. 26, 1950, and for stages below 9 ft Oct. 26, 1950, to Oct. 10, 1951, wire-weight gage at same site and datum.

Average discharge.--14 years (1946-60), 1,770 cfs (1,281,000 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 76,000 cfs Jan. 26, 1949 (gage height, 39.22 ft); minimum, 0.4 cfs Sept. 15, 16, Sept. 21 to Oct. 1, 1956.
Maximum stage known, 39.7 ft in February 1938, from information by local residents (discharge, 86,000 cfs).

Remarks.--Records of chemical analyses and water temperatures for the period October 1948 to September 1954 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	364	213	131	866	5,742	1,242	1,540	1,081	5,714	3,854	88.3	105	1,711
1952	241	2,229	1,339	1,252	1,154	2,708	8,703	1,024	294	45.9	23.0	13.7	1,575
1953	7.71	552	816	869	1,301	3,758	6,261	6,497	111	3,472	177	53.7	1,998
1954	16.1	27.7	437	2,802	1,184	225	1,298	3,777	679	19.1	6.12	7.27	875
1955	4,354	700	1,048	1,403	2,158	3,084	1,659	1,095	211	43.0	60.1	1,446	1,437
1956	792	50.8	87.3	112	3,921	880	381	1,731	164	16.4	2.05	.57	666
1957	.81	258	567	1,816	3,154	3,701	9,983	8,851	3,108	92.2	91.5	2,208	2,805
1958	248	4,290	1,383	2,575	1,024	4,085	2,928	5,091	194	395	157	674	1,927
1959	436	1,409	489	575	1,099	1,815	1,251	781	365	2,221	314	164	910
1960	988	826	3,718	2,975	1,628	1,555	628	5,632	523	1,222	761	100	1,727

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22,390	12,650	8,080	53,230	318,900	76,380	91,650	66,450	340,000	237,000	5,430	6,230	1,238,000
1952	14,810	132,600	82,350	76,990	66,380	166,500	517,900	62,940	17,500	2,820	1,410	815	1,143,000
1953	474	32,840	50,160	53,420	72,270	231,100	372,500	399,500	6,590	213,500	10,900	3,190	1,446,000
1954	990	1,650	26,870	172,300	65,760	13,860	77,230	232,300	40,400	1,180	376	432	633,300
1955	267,700	41,640	64,420	86,240	119,900	189,600	98,700	67,340	12,530	2,650	3,690	86,060	1,040,000
1956	48,730	3,020	5,370	6,920	225,600	54,130	22,670	106,400	9,730	1,010	126	34	483,700
1957	50	15,380	34,890	111,600	175,200	227,500	594,000	544,200	184,900	5,670	5,630	131,400	2,030,000
1958	15,240	255,300	85,030	158,300	56,890	251,200	174,200	313,000	11,530	24,300	9,620	40,130	1,395,000
1959	26,820	83,850	30,070	35,350	61,030	111,600	74,450	48,050	21,750	136,500	19,300	9,750	658,500
1960	60,750	49,160	228,600	182,900	93,640	95,640	37,390	346,300	31,130	75,160	46,810	5,950	1,253,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	3,266	36.16	2,365,000
1951	1211	34,000	July 3, 1951	19	1,711	1.40	18.93	1,238,000	1,968	21.80	1,425,000
1952	1241	40,800	Apr. 23, 1952	8.0	1,575	1.28	17.49	1,143,000	1,373	15.25	996,700
1953	1281	34,000	July 22, 1953	4.2	1,998	1.63	22.13	1,446,000	1,923	21.31	1,392,000
1954	1341	10,100	May 31, 1954	2.3	875	.714	9.69	633,300	1,350	14.95	977,600
1955	1391	14,900	Mar. 23, 1955	13	1,437	1.17	15.92	1,040,000	1,000	11.08	723,800
1956	1441	12,600	Feb. 20, 1956	.4	666	.543	7.42	483,700	657	7.31	476,900
1957	1511	29,100	Apr. 26, 1957	.5	2,805	2.29	31.07	2,030,000	3,226	35.73	2,336,000
1958	1561	40,700	May 4, 1958	43	1,927	1.57	21.32	1,395,000	1,630	18.02	1,180,000
1959	1631	8,940	July 28, 1959	42	910	.742	10.07	658,500	1,183	13.10	856,300
1960	1711	57,900	May 21, 1960	42	1,727	1.41	19.18	1,253,000	-	-	-

3390. Mountain Fork River near Eagletown, Okla.

Location.--Lat 34°33', long 94°37', in SE¼ sec.7, T.6 S., R.26 E., near center of span on downstream side of pier of bridge on U. S. Highway 70, 2 miles west of Eagletown and 8.9 miles upstream from mouth.

Drainage area.--787 sq mi.

Records available.--March 1924 to December 1925 (published as "near Broken Bow"), October 1929 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 333.87 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Mar. 30, 1924, to Dec. 31, 1925, chain gage at bridge 300 ft downstream at datum 0.70 ft higher. Oct. 9, 1929, to Aug. 2, 1940, chain or wire-weight gage and Aug. 3, 1940, to Jan. 30, 1950, water-stage recorder, at bridge 300 ft downstream at present datum. Jan. 31 to July 22, 1950, wire-weight gage at present site and datum.

Average discharge.--32 years (1924-25, 1929-60), 1,337 cfs (967,900 acre-ft per year).

Extremes.--1924-25, 1929-60: Maximum discharge, 101,000 cfs May 20, 1960 (gage height, 26.73 ft), from rating curve extended above 65,000 cfs; no flow at times.
Maximum stage known, that of May 20, 1960. Flood of Aug. 18-19, 1915, reached a stage of 26.4 ft, from information by local residents (discharge, 92,500 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	280	161	85.6	586	4,241	1,278	1,141	698	2,208	2,462	96.5	176	1,094
1952	355	2,164	1,531	1,670	1,240	1,988	7,320	780	115	13.1	2.23	.02	1,422
1953	0	1,167	1,290	1,357	1,787	3,399	5,369	4,168	77.4	2,456	135	18.2	1,770
1954	1.65	17.9	341	2,423	1,663	311	1,223	2,383	78.1	5.09	.03	117	710
1955	2,791	466	935	1,003	2,107	2,489	1,838	1,087	200	84.2	92.5	279	1,111
1956	464	39.8	84.7	278	3,691	825	496	1,106	54.4	8.79	3.12	4.33	576
1957	.08	271	714	2,016	2,065	2,881	8,196	4,918	2,327	86.9	43.3	580	1,999
1958	170	1,969	944	1,591	607	3,496	2,560	3,639	930	230	233	271	1,393
1959	352	2,640	437	507	1,155	2,137	1,353	695	296	885	161	172	895
1960	1,424	501	3,430	2,388	1,622	1,365	709	5,068	717	1,513	619	84.8	1,632

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17,220	9,610	5,260	36,050	235,500	78,600	67,900	42,890	131,400	151,400	5,930	10,460	792,200
1952	21,850	128,700	94,120	102,700	71,340	122,200	435,600	47,960	6,850	808	137	1.0	1,032,000
1953	0	69,420	79,300	83,460	99,250	209,000	319,500	256,300	4,600	151,000	8,310	1,090	1,281,000
1954	101	1,070	20,960	149,000	92,350	19,100	72,800	146,600	4,650	313	1.6	6,980	513,900
1955	171,600	27,720	57,510	61,690	117,000	153,000	109,400	66,830	11,920	5,170	5,690	16,590	804,100
1956	28,560	2,370	5,210	17,070	212,300	50,760	29,490	68,000	3,240	540	192	257	418,000
1957	4.8	16,150	43,880	124,000	114,700	177,100	487,700	302,400	138,500	5,350	2,660	34,520	1,447,000
1958	10,440	117,200	58,060	97,800	33,710	214,900	152,300	223,800	55,320	14,160	14,350	16,100	1,008,000
1959	21,650	157,100	26,880	31,150	64,150	131,400	80,490	42,700	17,610	54,410	9,910	10,220	647,700
1960	87,530	29,820	210,900	146,800	93,320	83,960	42,210	311,600	42,670	93,000	38,040	5,050	1,185,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	2,338	40.32	1,693,000
1951	1211	26,400	Feb. 16, 1951	8.6	1,094	1.39	18.88	792,200	1,388	23.94	1,005,000
1952	1241	57,400	Apr. 22, 1952	0	1,422	1.81	24.59	1,032,000	1,290	22.30	936,300
1953	1281	51,500	Apr. 29, 1953	0	1,770	2.25	30.53	1,281,000	1,595	27.52	1,155,000
1954	1341	34,100	May 3, 1954	0	710	.902	12.25	513,900	1,034	17.84	748,600
1955	1391	24,100	Oct. 1, 1954	8.4	1,111	1.41	19.17	804,100	806	13.91	583,400
1956	1441	23,800	Feb. 18, 1956	.1	576	.732	9.96	418,000	609	10.53	441,900
1957	1511	36,000	Apr. 25, 1957	0	1,999	2.54	34.46	1,447,000	2,172	37.45	1,573,000
1958	1561	41,300	May 3, 1958	25	1,393	1.77	24.01	1,008,000	1,420	24.49	1,028,000
1959	1631	34,100	Nov. 17, 1958	29	895	1.14	15.44	647,700	1,064	18.36	770,300
1960	1711	101,000	May 20, 1960	27	1,632	2.07	28.22	1,185,000	-	-	-

3395. Rolling Fork near De Queen, Ark.

Location.--Lat 34°03', long 94°25', in SW¼ sec.21, T.8 S., R.32 W., near center of span on downstream side of pier of bridge on U. S. Highway 70, 4 miles west of De Queen, 6 miles upstream from Rock Creek, and 17 miles upstream from mouth.

Drainage area.--181 sq mi.

Records available.--October 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 318.24 ft above mean sea level, datum of 1929. Prior to Dec. 16, 1948, wire-weight gage at same site and datum.

Average discharge.--12 years (1948-60), 304 cfs (220,100 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 34,000 cfs May 11, 1953 (gage height, 21.96 ft); no flow at times in 1948, 1954, 1956.
Maximum stage known, 25.6 ft, from floodmarks, Aug. 27, 1947 (discharge, 110,000 cfs, from contracted-opening measurement of peak flow).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	72.5	41.1	20.4	358	925	79.2	284	189	309	549	29.0	19.4	235
1952	31.0	238	343	496	434	648	1,601	167	18.4	1.94	.64	.43	330
1953	.17	390	399	341	383	661	1,098	1,164	12.2	369	9.26	1.94	403
1954	.82	.57	66.5	401	202	39.9	387	412	14.2	1.69	.45	.74	127
1955	672	144	222	217	344	667	563	504	54.6	20.8	8.70	49.1	289
1956	114	12.1	41.1	60.8	935	165	103	195	4.29	1.35	.45	.11	133
1957	.01	6.10	90.2	428	445	690	1,979	1,412	400	29.2	19.3	176	471
1958	111	650	273	349	129	684	517	954	33.8	45.6	84.1	217	340
1959	112	785	105	82.4	443	485	386	263	126	85.3	32.4	51.4	244
1960	130	119	803	563	357	293	124	438	60.0	47.6	36.5	10.2	250

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,450	2,450	1,250	22,040	51,390	4,870	16,910	11,590	18,400	33,770	1,790	1,150	170,100
1952	1,910	14,160	21,080	30,490	24,940	39,840	95,270	10,300	1,100	119	39	26	239,300
1953	10	23,180	24,560	20,970	21,260	40,620	65,360	71,540	726	22,690	569	115	291,600
1954	50	34	4,090	24,680	11,240	2,450	23,000	25,320	845	104	28	44	91,880
1955	41,320	8,580	13,630	13,320	19,120	41,000	33,490	30,980	3,250	1,280	535	2,920	209,400
1956	7,030	717	2,530	3,740	53,770	10,160	6,130	12,010	255	83	28	6.7	96,460
1957	.8	363	5,540	26,290	24,710	42,430	117,800	86,810	23,770	1,800	1,190	10,470	341,200
1958	6,830	38,660	16,770	21,480	7,140	42,050	30,790	58,650	2,010	2,800	5,170	12,900	245,200
1959	6,880	46,730	6,480	5,070	24,600	29,850	22,950	16,180	7,490	5,250	1,990	3,060	176,500
1960	7,970	7,070	49,390	34,620	20,550	17,990	7,370	26,960	3,570	2,930	2,240	610	181,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	495	37.14	358,600
1951	1211	7,320	July 2, 1951	2.3	235	1.30	17.61	170,100	275	20.62	199,100
1952	1241	14,000	Apr.12,22,1952	.2	330	1.82	24.79	239,300	344	25.88	249,900
1953	1281	34,000	May 11, 1953	.1	403	2.23	30.20	291,600	343	25.69	248,000
1954	1341	7,040	Apr. 16, 1954	0	127	.702	9.51	91,880	209	15.66	151,200
1955	1391	14,000	May 27, 1955	1.5	289	1.60	21.70	209,400	216	16.18	156,200
1956	1441	8,800	Feb. 18, 1956	0	133	.735	9.99	96,460	127	9.54	92,090
1957	1511	12,600	Apr. 27, 1957	0	471	2.60	35.33	341,200	549	41.17	397,500
1958	1561	13,700	May 2, 1958	2.7	340	1.87	25.43	245,200	337	25.27	243,800
1959	1631	25,000	Nov. 17, 1958	7.7	244	1.35	18.29	176,500	250	18.75	180,900
1960	1711	7,600	Dec. 16, 1959	3.3	250	1.38	18.77	181,300	-	-	-

3400. Little River near Horatio, Ark.

Location.--Lat 33°55'10", long 94°23'15", in NE¼ sec.10, T.10 S., R.32 W., on left bank on downstream side of pier of bridge on State Highway 41, 0.9 mile downstream from Rolling Fork, 2 miles southwest of Horatio, and 28.5 miles upstream from Cossatot River.

Drainage area.--2,674 sq mi.

Records available.--October 1930 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 272.89 ft above mean sea level, datum of 1929. Prior to Feb. 5, 1935, chain gage at same site and datum.

Average discharge.--30 years (1930-60), 3,901 cfs (2,824,000 acre-ft per year).

Extremes.--1930-60: Maximum discharge, 120,000 cfs Mar. 30, 1945 (gage height, 37.70 ft), from rating curve extended above 93,000 cfs; minimum, 1 cfs Aug. 18 to Sept. 1, 1934; minimum gage height, 3.09 ft Aug. 25-27, 1934.
Maximum stage known, 38 ft sometime in August 1915 (discharge, 124,000 cfs).

Remarks.--Records of chemical analyses and water temperatures for the period October 1953 to September 1959 are published in reports of Geological Survey.

Corrections.--Monthly figures of discharge for February 1932 were corrected in WSP 1561; the resulting corrected records as summarized herewith supersede those published in WSP 1311.

Month	Mean	Per square mile	Inches	Acre-feet
February 1932	11,650	-	-	670,100
Water year 1931-32	4,768	1.78	24.26	3,461,000
Calendar year 1932	4,382	1.64	22.30	3,181,000

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,025	515	314	2,740	12,790	2,875	3,475	2,535	9,303	8,479	301	364	3,656
1952	547	4,794	3,789	4,293	3,679	6,681	22,050	2,424	560	84.0	38.3	19.4	4,052
1953	10.9	2,232	3,298	3,119	4,185	8,822	12,960	17,330	286	6,230	414	101	4,932
1954	31.0	55.1	892	5,733	3,351	678	3,443	7,415	1,107	43.2	11.9	5.37	1,893
1955	8,620	1,771	2,282	3,149	4,938	7,450	4,729	3,501	691	267	171	1,845	3,282
1956	1,526	118	249	392	9,749	2,185	1,079	3,927	279	35.0	11.1	6.86	1,599
1957	2.89	512	1,343	4,030	6,205	8,175	22,990	19,470	7,128	251	190	2,971	6,080
1958	743	7,947	3,176	5,386	1,974	9,353	6,952	12,410	1,115	770	537	1,535	4,344
1959	1,163	5,830	1,304	1,332	3,722	5,010	3,643	2,075	1,236	3,461	792	683	2,507
1960	2,534	1,670	9,313	6,860	4,182	3,836	1,537	11,210	1,491	2,785	1,512	274	3,962

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	63,030	30,640	19,320	168,500	710,500	176,700	206,800	155,900	553,600	521,400	18,500	21,650	2,647,000
1952	33,610	285,300	233,000	263,900	211,600	410,800	1,312,000	149,100	33,340	5,170	2,350	1,150	2,941,000
1953	670	132,800	202,800	191,800	232,400	542,400	771,100	1,065,000	17,030	383,100	25,470	6,000	3,571,000
1954	1,910	3,280	54,840	352,500	186,100	41,700	204,900	455,900	65,900	2,660	730	320	1,371,000
1955	530,000	105,400	140,300	193,600	274,200	458,100	281,400	215,300	41,140	16,440	10,520	109,800	2,376,000
1956	93,820	7,030	15,310	24,080	560,800	134,300	64,210	241,500	16,590	2,150	684	408	1,161,000
1957	178	30,450	82,580	247,800	344,600	502,700	1,368,000	1,197,000	424,100	15,420	11,710	176,800	4,401,000
1958	45,670	472,900	195,300	331,200	109,600	575,100	413,700	763,200	66,360	47,350	33,020	91,340	3,145,000
1959	71,500	346,900	80,180	81,920	206,700	308,000	216,800	127,600	73,540	212,800	48,700	40,640	1,815,000
1960	155,800	99,390	572,600	421,800	240,600	235,900	91,480	689,200	88,720	171,300	92,980	16,300	2,876,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	6,957	35.32	5,037,000
1951	1211	47,500	July 4, 1951	52	3,656	1.37	18.55	2,647,000	4,262	21.63	3,085,000
1952	1241	83,900	Apr. 23, 1952	13	4,052	1.52	20.63	2,941,000	3,755	19.11	2,726,000
1953	1281	59,000	May 12, 1953	6.8	4,932	1.84	25.03	3,571,000	4,551	23.09	3,294,000
1954	1341	29,800	May 4, 1954	2.5	1,893	.708	9.61	1,371,000	2,882	14.64	2,086,000
1955	1391	37,200	Mar. 22, 1955	44	3,282	1.23	16.66	2,376,000	2,371	12.04	1,717,000
1956	1441	28,500	Feb. 19, 1956	2.5	1,599	.598	8.15	1,161,000	1,595	8.12	1,158,000
1957	1511	68,300	Apr. 28, 1957	2.2	6,080	2.27	30.85	4,401,000	6,909	35.07	5,002,000
1958	1561	63,600	May 3,4, 1958	109	4,344	1.62	22.05	3,145,000	4,046	20.53	2,929,000
1959	1631	41,600	Nov. 18, 1958	127	2,507	.938	12.71	1,815,000	2,962	15.03	2,144,000
1960	1711	55,500	May 22, 1960	114	3,962	1.48	20.16	2,876,000	-	-	-

3405. Cossatot River near De Queen, Ark.

Location.--Lat 34°03', long 94°13', on south edge of SE¼ sec.20, T.8 S., R.30 W., on downstream side of pier of bridge on U. S. Highway 71 just downstream from Hale Creek, 7 miles east of De Queen.

Drainage area.--361 sq mi.

Records available.--January 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 335.48 ft above mean sea level, datum of 1929. Prior to Nov. 9, 1938, wire-weight gage at same site and datum.

Average discharge.--22 years (1938-60), 617 cfs (446,700 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 46,900 cfs Aug. 28, 1947 (gage height, 20.47 ft); minimum, 1.2 cfs Aug. 30 to Sept. 1, 1943 (gage height, 1.70 ft).

Remarks.--Records of chemical analyses and water temperatures for the period October 1958 to September 1959 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	134	101	50.2	759	1,805	257	735	460	296	982	49.3	102	469
1952	140	742	880	1,049	999	1,490	3,107	355	64.9	16.5	17.0	11.6	735
1953	8.59	848	976	805	908	1,287	2,148	2,329	38.3	701	41.7	18.4	843
1954	9.84	26.3	118	721	437	113	594	889	27.8	9.04	3.38	17.9	247
1955	1,336	284	518	424	659	1,421	941	527	127	159	33.6	133	548
1956	195	33.4	78.4	158	1,961	302	287	434	20.1	16.4	14.5	11.2	286
1957	4.61	47.7	227	971	871	1,231	3,460	2,058	874	56.5	166	363	857
1958	245	1,576	601	700	244	1,439	1,116	1,956	241	159	77.7	261	721
1959	226	1,223	240	211	1,032	1,193	855	312	124	150	77.6	117	474
1960	216	262	1,704	1,151	793	669	251	1,266	326	339	63.1	30.3	592

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,240	6,000	3,090	46,680	100,300	15,780	43,760	28,290	17,640	60,350	3,030	6,070	339,200
1952	8,610	44,140	54,080	64,490	57,440	91,650	184,900	21,840	3,860	1,020	1,050	689	533,800
1953	528	50,490	60,000	49,530	50,430	79,160	127,800	143,200	2,280	43,130	2,570	1,100	610,200
1954	605	1,560	7,270	44,350	24,260	6,960	35,320	54,690	1,650	556	208	1,060	178,500
1955	82,150	16,920	31,830	26,080	36,580	87,390	56,000	32,410	7,580	9,770	2,060	7,900	396,700
1956	11,960	1,990	4,690	9,720	112,800	18,600	17,090	26,670	1,200	1,010	892	665	207,300
1957	283	2,840	13,950	59,710	48,380	75,710	205,900	126,600	51,990	3,480	10,230	21,590	620,700
1958	15,080	93,780	36,930	43,030	13,580	88,500	66,410	120,300	14,320	9,780	4,780	15,500	522,000
1959	13,880	72,780	14,760	13,000	57,300	73,380	50,850	19,170	7,390	9,240	4,770	6,980	343,500
1960	13,310	15,600	104,800	70,780	45,610	41,130	14,910	77,850	19,400	20,830	3,880	1,800	429,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,010	37.96	730,900
1951	1211	15,600	July 3, 1951	9.6	469	1.40	17.62	339,200	592	22.27	428,700
1952	1241	24,200	Apr. 22, 1952	7.3	735	2.04	27.71	533,800	741	27.93	538,000
1953	1281	33,100	May 12, 1953	7.3	843	2.34	31.70	610,200	703	26.42	508,600
1954	1341	16,100	May 2, 1954	1.5	247	.684	9.27	178,500	414	15.58	300,000
1955	1391	19,200	Mar. 21, 1955	5.5	548	1.52	20.60	396,700	393	14.76	284,400
1956	1441	14,400	Feb. 18, 1956	2.0	286	.792	10.76	207,300	283	10.68	205,700
1957	1511	22,800	Apr. 27, 1957	1.7	857	2.37	32.21	620,700	1,035	38.90	749,400
1958	1561	28,900	May 3, 1958	19	721	2.00	27.12	522,000	660	24.82	477,600
1959	1631	30,100	Nov. 17, 1958	18	474	1.31	17.85	343,500	519	19.52	375,800
1960	1711	32,600	May 20, 1960	13	592	1.64	22.32	429,900	-	-	-

3410. Saline River near Dierks, Ark.

Location.--Lat 34°06', long 94°05', in W½ sec.3, T.8 S., R.29 W., near left bank on downstream side of pier of bridge on U. S. Highway 70, 3½ miles upstream from Holly Creek and 4 miles southwest of Dierks.

Drainage area.--124 sq mi.

Records available.--May 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 353.09 ft above mean sea level, datum of 1929. May 13, 1938, to Aug. 9, 1940, wire-weight gage and Aug. 10, 1940, to Aug. 30, 1951, water-stage recorder, at site 100 ft upstream at same datum.

Average discharge.--22 years (1938-60), 194 cfs (140,500 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 31,200 cfs Mar. 30, 1945 (gage height, 19.93 ft), from rating curve extended above 16,000 cfs by velocity-area studies; no flow at times in 1943, 1946-47, 1952-54, 1956, 1960.
Maximum stage known, 21.9 ft sometime in 1920, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	37.1	30.4	13.3	255	520	81.2	190	105	101	356	8.37	22.1	141
1952	24.8	148	257	326	276	474	1,088	62.7	30.4	1.22	2.36	1.77	223
1953	.05	213	438	333	304	435	769	987	7.24	206	5.97	3:29	309
1954	.10	1.48	10.2	135	73.6	23.9	173	249	4.49	.17	.01	48.9	59.9
1955	531	119	182	168	232	503	313	147	40.2	83.8	12.0	230	214
1956	90.3	11.7	26.7	35.0	618	81.5	220	249	6.49	.25	.11	0	109
1957	.08	11.6	16.3	246	291	435	924	736	350	10.3	25.7	42.6	256
1958	124	626	259	274	90.1	423	391	662	41.9	70.4	6.37	109	258
1959	68.1	230	63.1	44.0	473	403	207	81.6	53.7	44.0	27.1	39.2	142
1960	82.0	97.0	598	368	225	227	45.2	185	82.8	21.7	11.4	6.28	163

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,280	1,810	816	15,670	28,890	4,990	11,280	6,470	6,030	21,870	515	1,310	101,900
1952	1,520	8,790	15,820	20,050	15,900	29,150	64,720	3,860	1,810	75	145	106	161,900
1953	32	12,670	26,950	20,490	16,880	26,780	45,730	60,710	431	12,660	367	196	223,900
1954	63	88	629	8,280	4,090	1,470	10,320	15,340	267	10	.8	2,910	43,410
1955	32,640	7,060	11,200	10,300	12,900	30,930	18,620	9,040	2,390	5,150	737	13,690	154,700
1956	5,550	696	1,640	2,150	35,560	5,010	13,120	15,300	386	15	6.7	0	79,430
1957	5.2	690	1,000	15,130	16,170	26,750	54,950	45,240	20,850	631	1,580	2,540	185,500
1958	7,630	37,280	15,920	16,820	5,010	25,990	23,470	40,730	2,490	4,330	392	6,520	186,600
1959	4,180	13,660	3,880	2,710	26,260	24,780	12,340	5,020	3,190	2,700	1,670	2,330	102,700
1960	5,040	5,770	36,760	22,650	12,960	13,960	2,690	11,370	4,930	1,340	699	373	118,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	273	29.94	198,000
1951	1211	5,630	Jan. 14, 1951	0.4	141	1.14	15.42	101,900	170	18.64	123,200
1952	1241	11,000	Apr. 22, 1952	0	223	1.80	24.48	161,900	242	26.53	175,400
1953	1281	16,500	May 11, 1953	0	309	2.49	33.86	223,900	255	27.97	185,000
1954	1341	3,640	May 2, 1954	0	59.9	.483	6.56	43,410	129	14.15	93,590
1955	1391	12,600	Sept.23, 1955	1.1	214	1.73	23.40	154,700	154	16.90	111,600
1956	1441	14,000	Apr. 30, 1956	0	109	.879	12.02	79,430	101	11.07	73,240
1957	1511	6,490	Mar. 17, 1957	0	256	2.06	28.04	185,500	338	36.99	244,700
1958	1561	9,140	Nov. 13, 1957	1.1	258	2.08	28.22	186,600	204	22.30	147,500
1959	1631	7,770	Feb. 14, 1959	2.1	142	1.15	15.53	102,700	178	19.44	128,600
1960	1711	6,740	Dec. 16, 1959	.2	163	1.31	17.92	118,500	-	-	-

3415. Red River at Fulton, Ark.

Location.--Lat 33°37', long 93°49', in NE¼ sec.20, T.13 S., R.26 W., near left bank on downstream side of bridge on U. S. Highway 67 at Fulton, 0.3 mile downstream from Missouri Pacific Railroad Co. bridge, 2½ miles downstream from Little River, and at mile 463.0.

Drainage area.--52,380 sq mi, of which 5,936 sq mi is probably noncontributing.

Records available.--October 1927 to September 1960. January 1932 to May 1934 monthly discharge only, published in WSP 1311. Prior to October 1949, published as "at Garland." Gage height records collected in the present vicinity since October 1885 are contained in reports of U. S. Weather Bureau.

Gage.--Wire-weight gage. Datum of gage is 224.94 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1934, chain gage and Oct. 1, 1934, to Sept. 30, 1949, water-stage recorder, at Garland 39 miles downstream at different datum.

Average discharge.--33 years (1927-60), 18,510 cfs (13,400,000 acre-ft per year).

Extremes.--1927-60: Maximum discharge, 338,000 cfs Feb. 24, 1938 (gage height, 36.45 ft, present site and datum); maximum gage height, 37.4 ft Apr. 2, 1945, present site and datum; minimum discharge, 390 cfs Oct. 26, 1956.

Remarks.--Some regulation by Lake Texoma (see p. 431) 261 miles upstream. Records of chemical analyses and water temperatures for the period October 1952 to September 1960 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	14,640	4,911	4,307	11,370	37,490	13,790	12,440	16,920	66,180	37,520	4,431	4,367	18,850
1952	3,316	12,450	10,230	12,770	10,360	19,470	63,390	17,270	6,005	3,549	3,378	2,544	13,660
1953	2,448	5,481	13,450	9,438	11,990	23,160	33,700	67,790	3,865	18,590	6,896	3,421	16,780
1954	3,227	2,697	4,962	15,810	10,830	4,153	10,920	47,690	16,050	5,982	4,074	3,059	10,820
1955	19,480	8,506	7,062	10,640	15,960	25,740	17,560	13,040	13,700	6,394	4,800	10,050	12,720
1956	20,850	5,265	5,274	4,556	29,770	7,628	3,402	14,440	3,476	1,826	1,841	1,498	8,252
1957	793	1,239	2,567	7,433	17,000	20,200	71,430	127,700	128,000	24,350	5,308	21,340	35,550
1958	13,650	48,320	18,080	24,850	11,230	31,400	24,130	72,890	8,072	8,126	6,375	5,982	22,860
1959	4,281	11,830	4,464	3,854	10,810	14,750	13,790	8,000	5,841	15,490	9,425	5,446	9,066
1960	25,560	8,555	29,750	33,870	22,110	16,690	7,638	30,250	9,150	10,300	6,406	3,718	17,080

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	900	292.2	264.8	699.2	2,082	847.9	740.1	1,040	3,938	2,307	272.4	259.9	13,640
1952	203.9	740.7	629.3	784.9	595.8	1,197	3,772	1,062	357.3	218.2	207.7	151.4	9,920
1953	150.5	326.1	827.0	580.3	666.0	1,424	2,005	4,169	230.0	1,143	424.1	203.5	12,150
1954	198.4	160.5	305.1	972.0	601.5	255.4	649.8	2,932	955.0	367.8	250.5	182.0	7,830
1955	1,198	506.2	434.3	654.5	886.3	1,582	1,045	801.5	815.1	393.1	295.1	597.8	9,209
1956	1,282	313.3	324.3	280.2	1,714	469.0	202.4	885.3	206.8	112.3	113.2	89.14	5,991
1957	48.74	73.74	157.8	457.0	943.9	1,242	4,250	7,855	7,614	1,497	326.4	1,270	25,740
1958	839.0	2,875	1,112	1,528	623.5	1,931	1,436	4,482	480.3	499.6	392.0	356.0	16,550
1959	263.2	704.2	274.5	236.9	600.5	907.1	820.4	553.3	347.5	952.6	579.5	324.1	6,564
1960	1,572	509.0	1,830	2,082	1,272	1,026	454.5	1,860	544.5	633.3	393.9	221.2	12,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	30,690	22,220,000
1951	1211	123,000	June 19, 1951	2,950	18,850	13,640,000	19,010	13,760,000
1952	1241	150,000	Apr. 26, 1952	1,600	13,660	9,920,000	13,290	9,650,000
1953	1281	127,000	May 17, 1953	1,300	16,780	12,150,000	15,900	11,510,000
1954	1341	86,000	May 14, 1954	2,180	10,820	7,830,000	12,850	9,304,000
1955	1391	83,100	Mar. 24, 1955	2,300	12,720	9,209,000	12,420	8,990,000
1956	1441	59,500	Feb. 21, 1956	912	8,252	5,991,000	5,994	4,352,000
1957	1511	228,000	June 9, 1957	409	35,550	25,740,000	41,830	30,280,000
1958	1561	214,000	May 6, 1958	2,900	22,860	16,550,000	17,910	12,970,000
1959	1631	54,900	July 30, 1959	2,200	9,066	6,564,000	12,750	9,233,000
1960	1711	78,600	May 27, 1960	2,100	17,080	12,400,000	-	-

3425. South Sulphur River near Cooper, Tex.

Location.--Lat 33°21', long 95°36', on left bank of cut channel at downstream side of pile bent of bridge on State Highway 154, 0.6 mile downstream from Big Creek, 1.0 mile upstream from Brushy Creek, 3.5 miles downstream from Doctors Creek, and 5.7 miles southeast of Cooper, Delta County.

Drainage area.--527 sq mi.

Records available.--May 1942 to September 1960. Monthly discharge only for June to December 1942, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 374.91 ft above mean sea level, datum of 1929. May 9, 1942, to Nov. 8, 1949, staff gage and Nov. 9, 1949, to May 13, 1955, water-stage recorder, at site 700 ft to right of present gage at same datum.

Average discharge.--18 years (1942-60), 382 cfs (276,600 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 23,800 cfs Apr. 29, 1953 (gage height, 23.00 ft); no flow at times.

Remarks.--Small diversions above station. Records of chemical analyses and water temperatures for the period October 1958 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.55	0.47	0.81	14.0	816	10.5	5.25	71.3	2,052	164	0.02	0.07	254
1952	12.7	20.5	5.23	64.3	32.9	83.6	1,775	548	100	.02	0	0	218
1953	0	261	363	193	20.8	459	1,751	903	.47	194	8.96	.41	347
1954	2.30	144	479	705	120	2.13	202	716	65.8	0	0	0	205
1955	825	203	9.35	21.5	413	377	303	144	1.09	40.7	53.5	14.2	199
1956	25.3	0	0	.23	376	.54	6.94	387	24.7	0	0	0	67.4
1957	0	42.4	33.4	109	285	827	4,357	3,376	1,171	6.63	69.2	513	897
1958	490	2,499	179	560	15.3	883	1,594	2,308	495	260	1.28	55.1	781
1959	9.49	14.3	12.0	18.0	229	131	113	36.7	153	341	25.6	23.7	91.2
1960	344	307	1,098	807	287	176	37.6	259	384	190	26.6	133	339

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	157	28	50	861	45,340	645	312	4,380	122,100	10,090	1.2	4	184,000
1952	783	1,220	322	3,950	1,890	5,140	105,600	33,710	5,960	12	0	0	158,600
1953	0	15,550	22,330	11,900	1,160	28,200	104,200	55,540	28	11,910	551	24	251,400
1954	142	8,560	29,450	43,330	6,680	131	12,010	44,040	3,910	0	0	0	148,300
1955	50,710	12,090	575	1,320	22,920	23,150	18,000	8,840	65	2,510	3,290	845	144,300
1956	1,560	0	0	14	21,620	33	413	23,790	1,470	0	0	0	48,900
1957	0	2,520	2,050	6,720	15,800	50,850	259,200	207,600	69,690	407	4,260	30,500	649,600
1958	30,130	148,700	11,010	34,460	849	54,300	94,870	141,900	29,480	15,970	79	3,280	565,000
1959	584	852	741	1,100	12,730	8,040	6,730	2,250	9,080	20,960	1,570	1,410	66,050
1960	21,150	18,290	67,490	49,620	16,490	10,820	2,240	15,940	22,850	11,680	1,640	7,920	246,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	599	15.42	433,600
1951	1211	10,300	June 13, 1951	0	254	0.482	6.55	184,000	257	6.62	186,100
1952	1241	13,300	Apr. 23, 1952	0	218	.414	5.64	158,600	267	6.90	194,100
1953	1281	23,800	Apr. 29, 1953	0	347	.659	8.93	251,400	348	8.95	251,700
1954	1341	6,100	May 13, 1954	0	205	.389	5.28	148,300	240	6.18	173,500
1955	1391	10,000	Oct. 25, 1954	0	199	.378	5.13	144,300	114	2.94	82,500
1956	1441	3,700	May 3, 1956	0	67.4	.128	1.74	48,900	71.5	1.84	51,910
1957	1511	23,200	Apr. 27, 1957	0	897	1.70	23.12	649,600	1,153	29.71	834,900
1958	1561	23,200	Nov. 6, 1957	0	781	1.48	20.11	565,000	521	13.44	377,400
1959	1631	3,310	July 28, 1958	0	91.2	.173	2.36	66,050	236	6.08	170,800
1960	1711	13,600	Dec. 16, 1959	0	339	.643	8.76	246,100	-	-	-

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3430. North Sulphur River near Cooper, Tex.

Location.--Lat 33°28', long 95°35', near center of span at downstream side of bridge on State Highway 24, 4.9 miles upstream from Auds Creek, 7.3 miles upstream from Click Creek, and 8.6 miles northeast of Cooper, Delta County.

Drainage area.--276 sq mi.

Records available.--October 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 377.42 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Nov. 8, 1949, wire-weight gage and Nov. 8, 1949, to May 21, 1960, water-stage recorder and wire-weight gage, at site 50 ft upstream at datum 4.00 ft higher.

Average discharge.--11 years (1949-60), 238 cfs (172,300 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 42,800 cfs Apr. 29, 1953 (gage height, 29.86 ft, present site and datum); no flow at times.
Maximum stage since at least 1915, 30.6 ft May 2, 1944, present site and datum; flood in 1932 reached about same stage, from information by Corps of Engineers and local residents.

Remarks.--In 1928-29, the channel was rectified for a distance of 28 miles upstream and 18 miles downstream from the station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.55	1.66	2.63	4.68	564	13.3	40.9	119	1,724	33.1	0.56	5.99	204
1952	54.7	9.87	1.15	3.99	4.18	151	1,197	193	61.0	.48	0	0	139
1953	0	173	69.5	54.0	10.4	266	1,123	367	.68	162	23.5	8.93	188
1954	8.48	75.0	202	307	179	4.43	129	852	70.2	0	0	.14	153
1955	564	52.9	8.95	23.8	117	348	285	83.7	11.5	118	29.2	12.0	138
1956	29.3	0	0	5.27	680	10.1	43.9	261	7.74	0	0	0	84.1
1957	.39	36.3	6.08	17.0	45.9	329	2,424	2,381	854	7.92	62.6	323	541
1958	88.8	1,406	131	336	27.2	556	951	1,139	564	32.9	1.25	7.45	437
1959	.87	5.44	5.54	4.07	31.7	40.8	3.64	5.84	446	557	66.7	66.1	105
1960	175	78.4	664	434	254	227	37.2	117	298	94.2	90.2	188	222

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	341	99	162	288	31,320	819	2,430	7,310	102,600	2,030	35	357	147,800
1952	3,360	588	70	245	240	9,280	71,230	11,860	3,630	29	0	0	100,500
1953	0	10,310	4,280	3,320	575	16,370	66,840	22,590	40	9,960	1,440	531	136,300
1954	521	4,460	12,440	18,870	9,950	273	7,670	52,380	4,180	0	0	8.3	110,800
1955	34,670	3,150	550	1,460	6,520	21,410	16,940	5,150	684	7,240	1,080	712	100,300
1956	1,800	0	0	324	39,140	624	2,610	16,060	461	0	0	0	61,020
1957	24	2,160	374	1,040	2,550	20,230	144,200	146,400	50,810	487	3,850	19,200	391,300
1958	5,460	83,650	8,050	20,640	1,510	34,190	56,570	70,020	33,540	2,020	77	443	316,200
1959	53	324	340	251	1,760	2,510	217	359	26,530	35,490	4,100	3,930	75,860
1960	10,770	4,660	40,820	26,660	14,630	13,930	2,220	7,200	17,760	5,790	5,550	11,190	161,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	392	19.29	284,100
1951	1211	33,400	June 12, 1951	0	204	.739	10.05	147,800	209	10.29	151,200
1952	1241	30,800	Apr. 22, 1952	0	139	.504	6.85	100,500	153	7.56	111,100
1953	1281	42,800	Apr. 29, 1953	0	188	.681	9.26	136,300	192	9.46	139,100
1954	1341	28,000	May 12, 1954	0	153	.554	7.53	110,800	182	8.94	131,700
1955	1391	31,000	Mar. 20, 1955	0	138	.500	6.80	100,300	88.0	4.32	63,720
1956	1441	32,300	Feb. 17, 1956	0	84.1	.305	4.14	61,020	85.1	4.20	61,780
1957	1511	41,000	May 23, 1957	0	541	1.96	26.56	391,300	671	32.98	485,900
1958	1561	39,500	May 2, 1958	0	437	1.58	21.48	316,200	304	14.92	219,700
1959	1631	35,700	June 23, 1959	0	105	.380	5.14	75,860	182	8.92	131,400
1960	1711	25,500	Dec. 15, 1959	0	222	.804	10.95	161,200	-	-	-

3432. Sulphur River near Talco, Tex.

Location.--Lat 33°23'20", long 95°07'50", on right bank at downstream side of pier of bridge on U. S. Highway 271, about 150 ft downstream from Paris and Mount Pleasant Railroad bridge, 2.4 miles northwest of Talco, Titus County, 3.0 miles downstream from Mustang Creek, and at mile 162.

Drainage area.--1,365 sq mi.

Records available.--October 1956 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 290.82 ft above mean sea level, datum of 1929.

Extremes.--1956-60: Maximum discharge, 50,600 cfs May 3, 1958 (gage height, 25.69 ft); no flow Oct. 1 to Nov. 2, 1956.

Maximum stage since at least 1908, about 27½ ft in 1908 and 1914, from information by local resident. Flood in 1945 reached a stage of about 26½ ft, from information by local resident.

Remarks.--At end of water year 1960, flow from 6.72 sq mi above this station was partly controlled by 6 floodwater-detention reservoirs with a total combined capacity of 2,660 acre-ft below the flood spillway crests, of which 2,260 acre-ft is floodwater-detention capacity and 408 acre-ft is sediment-storage capacity. The capacity in these reservoirs allocated to sediment storage will be used for conservation storage until eliminated by sedimentation. The first floodwater-detention reservoirs in this basin was completed in July 1960. Small diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	0	184	55.0	299	877	2,181	10,390	11,690	5,669	13.8	102	930	2,697
1958	1,071	6,676	567	1,799	59.4	2,193	3,162	7,833	1,215	810	18.7	285	2,150
1959	40.4	399	57.6	114	1,097	461	522	97.3	1,714	1,870	228	185	559
1960	912	781	4,103	2,542	765	636	581	581	1,035	1,163	234	1,297	1,182

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	0	10,970	3,380	18,400	48,700	134,100	618,500	718,500	337,300	848	6,280	55,330	1,952,000
1958	65,850	397,200	34,850	110,600	3,300	134,900	188,100	481,600	72,270	49,830	1,150	16,960	1,557,000
1959	2,480	23,740	3,540	6,980	60,920	28,330	31,080	5,980	102,000	115,000	14,020	10,990	405,100
1960	56,060	46,480	252,300	156,300	44,030	39,110	3,460	35,740	61,580	71,540	14,390	77,200	858,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1957	1511	32,900	Apr. 27, 1957	0	2,697	1.98	26.82	1,952,000	3,365	33.46	2,436,000
1958	1561	50,600	May 3, 1958	.5	2,150	1.58	21.38	1,557,000	1,504	14.95	1,088,000
1959	1631	21,900	June 24, 1959	1.1	559	.410	5.57	405,100	1,008	10.04	730,100
1960	1711	31,600	Dec. 17, 1959	1.4	1,182	.866	11.80	858,200	-	-	-

3435. Whiteoak Creek near Talco, Tex.

Location.--Lat 33°19', long 95°05', near center of main channel on downstream side of bridge on U. S. Highway 271, 2 miles upstream from Ripley Creek, 2.7 miles south of Talco, Titus County, and 2.8 miles downstream from Lick Creek.

Drainage area.--494 sq mi.

Records available.--December 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 286.45 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).

Average discharge.--10 years (1950-60), 405 cfs (293,200 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 26,600 cfs Apr. 28, 1958 (gage height, 19.52 ft); no flow Aug. 8 to Sept. 11, 1954, Aug. 8-16, 27-31, 1956.
Maximum stage known since at least 1870, 22.9 ft Mar. 31, 1945, from levels to floodmarks, from information by local residents.

Remarks.--Small diversions above station for municipal water supply.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	11.1	6.24	7.38	102	1,307	47.7	24.5	109	445	189	1.57	19.0	181
1952	19.4	66.9	158	432	174	238	2,817	632	48.3	59.1	1.38	.59	385
1953	.68	469	1,040	389	212	465	1,158	2,002	5.48	313	16.1	97.1	517
1954	13.3	73.2	494	1,032	567	36.7	74.4	804	9.22	.69	.03	.14	259
1955	511	308	32.7	71.8	221	198	597	29.2	5.06	14.4	23.2	23.2	169
1956	29.0	1.08	1.47	3.84	496	11.8	4.97	290	2.78	.35	.24	.41	68.6
1957	.48	222	1.85	131	315	1,052	5,784	2,801	1,118	13.5	18.8	311	812
1958	614	2,649	240	1,151	45.0	842	2,678	2,687	675	643	26.6	222	1,042
1959	26.4	167	63.4	19.4	1,010	673	469	32.5	123	180	54.2	10.5	230
1960	250	231	1,625	1,333	393	395	26.8	34.8	114	121	11.6	125	391

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	680	371	454	6,260	72,600	2,930	1,460	6,680	26,510	11,620	97	1,130	130,800
1952	1,190	3,980	9,730	26,590	9,980	14,660	167,600	38,840	2,880	3,630	85	35	279,200
1953	42	27,920	63,940	23,940	11,770	28,570	68,930	123,100	326	19,270	990	5,780	374,600
1954	818	4,360	30,350	63,460	31,470	2,260	4,430	49,460	548	43	1.6	8.3	187,200
1955	31,430	18,320	2,010	4,420	12,300	12,190	35,540	1,800	301	887	1,430	1,380	122,000
1956	1,790	64	91	236	28,550	726	296	17,820	165	22	15	24	49,800
1957	29	13,230	114	8,050	17,470	64,660	225,200	172,200	66,510	832	1,160	18,500	588,000
1958	37,740	157,600	14,760	70,750	2,500	51,790	159,400	165,200	40,150	39,520	1,640	13,190	754,200
1959	1,620	9,960	3,900	1,200	56,090	41,400	27,900	2,000	7,340	11,050	3,330	623	166,400
1960	15,340	13,750	99,930	81,980	22,630	24,260	1,600	2,140	6,770	7,420	714	7,440	284,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-		-	-	-	-	-	733	20.12	530,500
1951	1211	5,250	Feb. 20, 1951	0.3	181	0.366	4.97	130,800	199	5.48	144,200
1952	1241	19,700	Apr. 23, 1952	.2	385	.779	10.60	279,200	491	13.53	356,200
1953	1281	15,800	Apr. 30, 1953	.3	517	1.05	14.22	374,600	440	12.08	318,200
1954	1341	5,000	Jan. 17, 1954	0	259	.524	7.11	187,200	281	7.73	203,400
1955	1391	4,040	Oct. 27, 1954	.4	169	.342	4.63	122,000	99.7	2.74	72,190
1956	1441	1,660	May 4, 1956	0	68.6	.139	1.89	49,800	84.3	2.32	61,230
1957	1511	15,900	May 15, 1957	.1	812	1.64	22.30	588,000	1,084	29.76	784,700
1958	1561	26,600	Apr. 28, 1958	.8	1,042	2.11	28.62	754,200	773	21.24	559,600
1959	1631	10,100	Feb. 16, 1959	.6	230	.466	6.33	166,400	387	10.63	280,000
1960	1711	18,200	Dec. 17, 1959	.6	391	.791	10.78	284,000	-	-	-

3440. Sulphur River near Darden, Tex.

Location.--Lat 33°15', long 94°37', near left bank on upstream side of bridge on U. S. Highway 67, 0.6 mile upstream from St. Louis Southwestern Railway bridge and 1 mile southwest of Darden, Bowie County.

Drainage area.--2,774 sq mi.

Records available.--October 1923 to December 1956. Gage-height records collected in this vicinity since 1909 are contained in reports of U. S. Weather Bureau (published as "near Naples").

Gage.--Wire-weight gage. Corps of Engineers maintains a crest-stage gage. Datum of gage is 220.61 ft above mean sea level, datum of 1929. Prior to Oct. 26, 1934, staff gage at St. Louis Southwestern Railway bridge 0.6 mile downstream at same datum. Oct. 26, 1934, to Feb. 12, 1942, water-stage recorder at site 780 ft downstream at same datum.

Average discharge.--33 years (1923-56), 2,308 cfs (1,671,000 acre-ft per year).

Extremes.--1923-56: Maximum discharge, 157,000 cfs Apr. 1, 1945 (gage height, 37.56 ft); no flow at times.
Maximum stage since at least 1909, that of Apr. 1, 1945.

Remarks.--Small diversions above station.

Corrections.--Monthly figures of discharge for June 1936 were listed in error in WSP 807 and 1311; corrected figures are given herewith:

Month	Mean	Per square mile	Inches	Acre-feet
June 1936.....	151	-	-	7,930
Water year 1935-36.	565	0.204	2.78	408,900
Calendar year 1936.	567	-	2.79	410,800

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	214	34.6	24.1	556	7,632	844	362	801	5,832	741	45.1	121	1,381
1952	171	310	636	2,031	925	1,583	13,610	3,600	1,069	150	36.7	.60	1,997
1953	.39	761	4,392	1,841	2,530	2,615	2,934	14,120	77.8	698	87.0	146	2,534
1954	12.7	329	1,662	3,968	2,229	227	997	7,663	535	5.47	.48	0	1,474
1955	1,176	1,986	169	253	1,457	2,561	3,516	579	88.1	573	256	390	1,076
1956	935	10.5	17.9	28.9	4,816	126	70.9	2,024	84.1	30.1	18.8	15.4	666
1957	15.0	319	64.5	-	-	-	-	-	-	-	-	-	-
1958													
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13,150	2,060	1,480	35,160	423,900	51,920	21,560	49,250	347,000	45,580	2,770	7,200	1,000,000
1952	10,520	18,450	39,110	124,900	53,220	97,310	809,700	221,400	63,620	9,210	2,250	36	1,450,000
1953	24	45,300	270,000	113,200	140,500	160,800	174,600	868,400	4,630	42,920	5,350	8,690	1,834,000
1954	784	19,560	102,200	244,000	123,800	13,930	59,350	471,200	31,850	336	30	0	1,067,000
1955	72,330	118,200	10,380	15,550	80,910	157,500	209,200	35,580	5,240	35,240	15,750	23,220	779,100
1956	57,490	625	1,100	1,780	277,000	7,740	4,220	124,500	5,010	1,850	1,160	918	483,400
1957	924	19,010	3,960	-	-	-	-	-	-	-	-	-	-
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	4,119	20.30	2,982,000
1951	1211	21,800	June 19, 1951	5.5	1,381	0.499	6.77	1,000,000	1,452	7.11	1,051,000
1952	1241	54,400	Apr. 25, 1952	.1	1,997	.720	9.79	1,450,000	2,338	11.48	1,697,000
1953	1281	47,000	May 2, 1953	.1	2,534	.914	12.42	1,834,000	2,268	11.10	1,642,000
1954	1341	36,000	May 15, 1954	0	1,474	.531	7.22	1,067,000	1,582	7.75	1,145,000
1955	1511	16,000	Mar. 25, 1955	0	1,076	.388	5.28	779,100	880	4.32	637,400
1956	1511	15,600	Feb. 22, 1956	10	666	.240	3.26	483,400	617	3.02	448,100
1957	1511	-	-	-	-	-	-	-	-	-	-
1958											
1959											
1960											

3442. Texarkana Reservoir near Texarkana, Tex.

Location.--Lat 33°18'16", long 94°09'38", in intake structure of Texarkana Dam on the Sulphur River on U. S. Highway 59, 10 miles southwest of Texarkana, Bowie County.
Drainage area.--3,443 sq mi.
Records available.--July 1953 to September 1960.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1941, levels by Corps of Engineers. July 19 to Dec. 31, 1953, staff gage about 125 ft upstream at datum 200 ft higher.
Extremes.--1953-60: Maximum contents, 1,700,000 acre-ft June 12, 1957 (elevation, 250.36 ft); minimum observed since first appreciable storage, 2,580 acre-ft Sept. 21-30, 1954.
Remarks.--Reservoir is formed by 18,500-foot earthfill dam, a 200-foot uncontrolled concrete spillway, and a mile-long dike. Flood-control outlet works consist of two 20-foot diameter conduits controlled by four 10- by 20-foot electrically driven broome-type gates, invert elevation, 200.0 ft msl. Flow over spillway is discharged into an outlet channel and thence to the Sulphur River. Sulphur River was blocked and storage began July 2, 1953; first passage of water through conduits began July 18, 1953; gates closed and impoundment of water began June 27, 1956. Dam completed in December 1957. Figures given herein represent total contents at 7 a.m. Reservoir built for flood control and conservation. Storage capacity by monthly allocation is reserved for the cities of Texarkana, Texas and Arkansas, and varies from 200 acre-ft in February to a maximum of 13,400 acre-ft in April. Data regarding dam are shown in following table:

	Elevation (feet)	Capacity (acre-feet)
Top of dam	286.0	-
Spillway crest	259.5	2,654,300
Top of conservation pool	220.0	145,300
Streambed	180.0	0

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

Contents, in thousands of acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1953	-	-	-	-	-	-	-	-	-	16.0	3.9	3.0
1954	2.8	6.0	6.6	87.10	43.27	9.76	8.51	162.2	3.27	2.82	2.64	2.58
1955	11.37	3.81	4.90	4.45	13.55	78.42	62.75	8.15	3.43	7.73	3.31	8.74
1956	3.34	3.00	3.15	3.98	83.19	4.55	3.67	3.58	4.76	6.85	6.05	5.20
1957	4.99	28.16	31.66	54.88	155.2	337.8	681.1	1,306	1,213	436.1	209.2	199.1
1958	189.3	691.6	196.7	294.0	153.6	203.0	470.5	1,332	886.7	469.3	211.4	185.2
1959	205.0	287.1	326.5	156.7	183.1	172.6	227.3	257.4	248.4	229.7	205.3	189.6
1960	173.8	162.0	351.3	331.0	174.4	192.0	193.5	246.7	245.8	222.8	206.5	195.2

3444. Red River near Hosston, La.

Location.--Lat 32°53'35", long 93°49'20", in SW¼ sec.16, T.22 N., R.14 W., in second pier from right abutment of bridge on State Highway 2, 1.8 miles downstream from Dry Bayou and 3.2 miles east of Hosston.
Drainage area.--57,041 sq mi, of which 5,936 sq mi above Denison Dam is noncontributing.
Records available.--October 1957 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 161.56 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers).
Extremes.--1957-60: Maximum discharge, 214,000 cfs May 7, 1958 (gage height, 27.89 ft); minimum daily, 3,000 cfs Sept. 20-21, 1960.
Remarks.--Regulation by Lake Texoma and Texarkana Reservoir (see elsewhere in this report). Records of chemical analyses are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	17,940	51,890	27,730	34,760	20,140	36,450	30,520	93,750	19,600	18,420	12,310	8,620	31,140
1959	5,269	11,650	6,108	7,719	17,400	20,420	18,230	9,383	7,978	15,060	12,670	6,478	11,490
1960	25,320	10,300	28,750	46,000	31,440	24,510	9,110	30,500	13,350	14,120	8,800	4,745	20,640

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	1,103	3,088	1,705	2,137	1,118	2,241	1,816	5,765	1,166	1,132	756.7	512.9	22,540
1959	324	693	375.6	474.6	966.4	1,255	1,085	577	474.7	926.2	778.8	385.4	8,316
1960	1,557	613.1	1,768	2,828	1,809	1,507	542.1	1,875	794.3	868.2	541.1	282.3	14,990

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1958	1561	214,000	May 7, 1958	4,000	31,140	22,540,000	24,920	18,040,000
1959	1631	47,000	July 31, 1959	3,200	11,490	8,316,000	15,000	10,860,000
1960	1711	75,000	Dec. 20, 1959	3,000	20,640	14,990,000	-	-

3445. Cypress Creek near Pittsburg, Tex.

Location.--Lat 33°01'10", long 94°52'40", near center of stream at downstream side of pile bent of bridge on State Highway 11, 1,800 ft upstream from Louisiana & Arkansas Railway Co. bridge and 5.2 miles east of Pittsburg, Camp County.

Drainage area.--366 sq mi.

Records available.--March 1943 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 247.49 ft above mean sea level, datum of 1929. Prior to Nov. 12, 1954, water-stage recorder at site 1,300 ft downstream at same datum.

Average discharge.--17 years (1943-60), 362 cfs (262,100 acre-ft per year).

Extremes.--1943-60: Maximum discharge, 58,500 cfs Mar. 30, 1945 (gage height, 28.32 ft, from floodmark, adjusted to present site on basis of record for flood of Apr. 27, 1958), from rating curve extended above 20,000 cfs by logarithmic plotting; no flow Aug. 20, to Oct. 3, 1954, July 19 to Nov. 4, 1956.

Maximum stage since at least 1895, that of Mar. 30, 1945; flood in January 1938 reached a stage of about 25 ft at present site, adjusted as above, from information by local resident.

Remarks.--Small diversions upstream for municipal water supply.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	54.3	41.0	49.2	270	1,031	212	146	141	91.9	84.5	4.03	20.1	173
1952	15.4	35.7	50.9	249	109	331	1,786	543	145	17.7	3.28	.84	272
1953	1.85	65.5	358	204	303	228	328	1,512	16.7	112	20.6	73.8	270
1954	14.3	43.1	276	564	186	71.7	67.0	570	127	2.30	.35	0	161
1955	22.1	25.8	71.3	64.6	158	338	360	28.3	13.4	1.95	26.9	14.6	93.2
1956	67.6	6.75	23.0	23.1	485	50.9	27.8	140	2.01	0.15	0	0	67.3
1957	0	3.35	7.34	13.1	66.0	328	1,587	853	733	16.8	8.29	79.4	307
1958	225	1,407	243	740	103	518	2,558	1,394	413	256	59.7	129	670
1959	42.6	371	160	59.7	408	505	517	133	63.7	91.1	28.8	24.6	198
1960	22.4	49.5	572	1,044	440	417	72.0	56.4	141	204	9.50	94.5	261

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,340	2,440	3,020	16,590	57,250	13,050	8,660	8,640	5,470	5,190	248	1,190	125,100
1952	949	2,120	3,130	15,320	6,280	20,370	106,200	33,360	8,640	1,090	202	50	197,700
1953	114	3,900	21,990	12,560	16,850	13,990	19,540	92,980	992	6,860	1,270	4,390	195,400
1954	880	2,560	16,970	34,650	10,300	4,410	3,990	35,050	7,560	141	21	0	116,500
1955	1,360	1,540	4,380	3,970	8,770	20,790	21,440	1,780	798	120	1,660	867	67,480
1956	4,150	402	1,410	1,420	27,910	3,130	1,650	8,620	119	9.3	0	0	48,820
1957	0	199	451	804	3,670	20,200	94,450	52,470	43,610	1,040	510	4,720	222,100
1958	13,800	83,700	14,920	45,510	5,740	31,870	152,200	85,710	24,540	15,740	3,670	7,690	485,200
1959	2,620	22,070	9,850	3,670	22,650	31,060	30,770	8,190	3,790	5,600	1,770	1,460	143,500
1960	1,380	2,940	35,150	64,190	25,330	25,610	4,280	3,470	8,400	12,560	584	5,620	189,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		648	24.00	469,000
1951	1211	4,280	Feb. 19, 1951	0.9	173	0.473	6.39	125,100		169	6.27	122,500
1952	1241	16,600	Apr. 23, 1952	.4	272	.743	10.12	197,700		300	11.14	217,500
1953	1281	13,700	May 16, 1953	1.0	270	.738	10.01	195,400		262	9.72	189,800
1954	1341	3,140	Jan. 16, 1954	0	161	.440	5.99	116,500		143	5.31	103,400
1955	1391	2,550	Mar. 22, 1955	0	93.2	.225	3.44	67,480		91.4	3.37	66,160
1956	1441	1,110	Feb. 4, 1956	0	67.3	.184	2.49	48,820		60.1	2.22	43,510
1957	1511	9,220	Apr. 27, 1957	0	307	.839	11.37	222,100		461	17.10	333,900
1958	1561	35,700	Apr. 27, 1958	6.9	670	1.83	24.85	485,200		563	20.85	407,300
1959	1631	3,260	Nov. 18, 1958	6.7	198	.541	7.34	143,500		205	7.60	148,400
1960	1711	3,670	Dec. 18, 1959	1.6	261	.713	9.71	189,500		-	-	-

3450. Boggy Creek near Daingerfield, Tex.

Location.--Lat 33°02'05", long 94°47'10", on right bank at downstream side of bridge on State Highway 11, a quarter of a mile upstream from Louisiana & Arkansas Railway Co. bridge, 3.8 miles west of Daingerfield, Morris County, and 9 miles upstream from mouth.

Drainage area.--72 sq mi.

Records available.--March 1943 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 258.41 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1954, at site 1,700 ft downstream at same datum.

Average discharge.--17 years (1943-60), 94.2 cfs (68,200 acre-ft per year).

Extremes.--1943-60: Maximum discharge, 28,900 cfs Apr. 27, 1958 (gage height, 17.80 ft), from rating curve extended above 13,000 cfs by logarithmic plotting; no flow at times.
Maximum stage known since 1900, that of Apr. 27, 1958; flood in January 1938 reached a stage of about 17½ ft (adjusted to present site), from information by local residents.

Remarks.--No diversion above station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	18.0	12.2	13.5	50.9	288	60.7	38.2	27.7	15.4	11.0	0.01	2.33	43.1
1952	.45	5.09	10.4	28.7	24.1	66.1	421	107	15.1	1.09	0	0	56.1
1953	0	11.5	101	61.2	91.9	78.9	105	394	2.31	10.3	.35	1.50	71.8
1954	.006	5.45	35.6	98.2	36.1	15.8	8.99	213	51.5	.12	0	0	38.9
1955	.07	.38	6.77	11.9	35.5	100	107	9.46	1.39	.06	1.09	.53	22.7
1956	.65	0	.21	2.63	87.9	17.0	5.55	14.7	0	0	0	0	10.4
1957	0	0	0	.006	11.0	34.2	381	134	166	7.32	3.23	15.1	62.2
1958	57.6	495	78.9	205	56.0	127	1,157	275	49.1	87.5	3.72	6.08	215
1959	5.01	14.4	14.8	12.1	100	131	122	62.4	26.5	8.01	2.71	1.30	41.2
1960	.97	6.25	60.5	202	101	104	19.8	18.0	25.5	44.1	1.92	16.5	50.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,110	726	829	3,130	16,000	3,730	2,270	1,700	916	674	0.4	139	31,220
1952	28	303	638	1,760	1,380	4,060	25,050	6,550	899	67	0	0	40,740
1953	0	683	6,190	3,760	5,100	4,850	6,260	24,210	138	634	21	89	51,940
1954	.4	324	2,190	6,040	2,000	972	535	13,070	3,060	7.1	0	0	28,200
1955	4.4	23	416	730	1,970	6,150	6,360	582	83	4.0	67	32	16,420
1956	40	0	13	162	5,060	1,050	330	902	0	0	0	0	7,560
1957	0	0	0	.4	610	2,100	22,650	8,230	9,900	450	199	901	45,040
1958	3,540	29,450	4,850	12,630	3,110	7,790	68,820	16,910	2,920	5,380	229	362	156,000
1959	308	854	912	743	5,570	8,040	7,280	3,840	1,580	493	167	77	29,860
1960	60	372	3,720	12,400	5,800	6,360	1,180	1,100	1,510	2,710	118	985	36,320

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	204	35.13	147,600
1951	1211	1,210	Feb. 19, 1951	0	43.1	0.599	8.15	31,220	40.8	7.71	29,530
1952	1241	4,610	Apr. 13, 1952	0	56.1	.780	10.63	40,740	64.3	12.16	46,640
1953	1281	4,290	May 16, 1953	0	71.8	.998	13.53	51,940	65.7	12.39	47,580
1954	1341	3,100	May 30, 1954	0	38.9	.541	7.34	28,200	36.1	6.81	26,130
1955	1391	1,500	Mar. 22, 1955	0	22.7	.316	4.28	16,420	22.1	4.17	16,030
1956	1441	350	Feb. 17, 1956	0	10.4	.145	1.96	7,560	10.3	1.95	7,500
1957	1511	2,600	Apr. 27, 1957	0	62.2	.865	11.74	45,040	114	21.60	82,880
1958	1561	28,900	Apr. 27, 1958	1.6	215	2.99	40.64	156,000	166	31.32	120,200
1959	1631	1,030	Mar. 6, 1959	0	41.2	.573	7.78	29,860	44.1	8.32	31,940
1960	1711	2,160	Jan. 14, 1960	0	50.0	.695	9.47	36,320	-	-	-

3455. Ellison Creek Reservoir near Daingerfield, Tex.

Location.--Lat 32°55'05", long 94°43'35", at pumphouse, 1,700 ft upstream from dam of Lone Star Steel Co., on Ellison Creek, half a mile upstream from Cypress Creek, and 7.6 miles south of Daingerfield, Morris County.
Drainage area.--37 sq mi.
Records available.--January 1943 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 200.14 ft above mean sea level, datum of 1929. Prior to Sept. 22, 1943, staff gage at site just upstream from dam at datum 200 ft lower.
Extremes.--1943-60: Maximum contents, 31,240 acre-ft Apr. 26, 1958 (gage height, 71.97 ft); minimum, after filling of reservoir in May 1944, 16,640 acre-ft Jan. 3, 1957 (gage height, 61.93 ft).
Remarks.--Reservoir is formed by rolled earthfill type dam. Storage began Jan. 14, 1943. Dam completed in April 1943. At times water is diverted from Cypress Creek into reservoir by pumping from pool formed by small diversion dam just downstream from Ellison Creek. Capacity of pumps, 40 cfs. Figures given herein represent total contents at 12 p.m. Water used by Lone Star Steel Co.'s iron smelter. Data regarding dam and reservoir are given in the following table:

	Gage height (feet)	Capacity (acre-feet)
Design water surface	75.0	-
Spillway crest	68.0	24,700
Dead storage (top conduit discharge box)	35.0	196

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	24,840	24,690	24,540	25,000	25,000	25,000	25,000	24,540	24,540	23,930	22,150	23,780
1952	23,480	24,080	24,540	24,690	24,840	25,160	24,840	25,000	23,630	22,580	21,180	19,900
1953	18,790	20,660	25,000	25,000	24,840	24,840	25,160	24,690	23,330	24,690	24,080	23,180
1954	22,010	22,290	24,230	24,840	24,690	24,690	24,840	25,160	23,780	21,730	20,150	18,670
1955	19,280	20,020	21,050	22,290	24,840	25,000	24,690	24,540	24,080	24,540	24,230	23,180
1956	22,290	21,590	21,450	22,730	24,690	24,690	24,840	24,230	22,880	20,920	19,520	18,310
1957	16,990	16,870	16,750	17,470	20,150	23,180	25,290	24,800	24,670	24,690	24,080	24,540
1958	24,690	24,840	24,840	24,840	24,840	25,000	26,560	24,540	24,690	24,540	23,630	23,930
1959	24,540	24,690	24,380	24,080	24,840	24,840	25,000	24,690	24,380	24,540	23,780	23,630
1960	23,780	23,630	25,000	25,000	25,000	24,840	24,380	24,840	24,690	24,380	23,630	24,540

3459. Lake O' the Pines near Jefferson, Tex.

Location.--Lat 32°45', long 94°30", in control structure of Ferrell's Bridge Dam on Cypress Creek on State Route 726, 9.0 miles west of Jefferson, Marion County.
Drainage area.--850 sq mi.
Records available.--August 1957 to September 1960.
Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, supplementary adjustement of 1941. Prior to Nov. 12, 1957, staff gage at same site and datum.
Extremes.--1957-60: Maximum contents, 515,800 acre-ft May 7, 1958 (elevation, 239.71 ft); minimum observed since conservation pool first filled in April 1958, 4,890 acre-ft Sept. 24, 25, Oct. 3, 1959.
Remarks.--Reservoir is formed by a 10,600-foot rolled earthfill dam and a 200-foot concrete spillway. Flood-control outlet works consist of two 10-foot diameter conduits controlled by two 8.0- by 12.5-foot electrically driven broome-type gates; invert elevation, 200.0 ft. Low-flow outlet works consist of one 14-inch pipe and valve, invert elevation, 202.5 ft. Flow over spillway is discharged into a 2,000-foot channel and thence into Cypress Creek. Cofferdam closure was made Aug. 21, 1957; water began flowing through conduits Sept. 25, 1957. Dam completed in December 1957. Figures given herein represent total contents. Reservoir built for flood control, conservation, and water supply. A total of 250,000 acre-ft of storage capacity is allocated to the Northeast Texas Municipal Water District for domestic and industrial use. Data regarding dam is shown in the following table:

	Elevation (feet)	Capacity (acre-feet)
Spillway crest	249.5	842,100
Top of conservation pool	228.5	254,900
Flood control outlet works (inverts at intake)	200.0	2,860

Cooperation.--Records furnished by Corps of Engineers and reviewed by Geological Survey. Capacity curve based on 1950 survey.

Contents, in acre-feet, on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1957	-	-	-	-	-	-	-	-	-	-	150	5,610
1958	18,810	82,580	23,240	54,060	16,080	25,430	324,800	404,700	279,000	147,600	20,380	12,440
1959	7,110	15,140	8,830	8,150	33,370	24,700	47,050	20,720	8,700	11,380	5,310	4,940
1960	5,240	5,960	29,010	58,890	94,260	179,000	191,400	202,700	210,300	233,600	230,500	239,700

3460. Cypress Creek near Jefferson, Tex.

Location.--Lat 32°45', long 94°29', on downstream side of bridge on Farm Road 726, 1,500 ft downstream from Ferrell's Bridge Dam, 8 miles west of Jefferson, Marion County, and 14 miles upstream from Black Cypress Creek.

Drainage area.--850 sq mi.

Records available.--July 1924 to September 1959. Records for 1960 water year withheld from publication in WSP 1711 pending further study.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Nov. 2, 1933, staff gage and Nov. 2, 1933, to Dec. 8, 1955, water-stage recorder, at site 1,500 ft upstream at datum 183.7 ft above mean sea level.

Average discharge.--35 years (1924-59), 693 cfs (501,700 acre-ft per year).

Extremes.--1924-59: Maximum discharge, 57,100 cfs Apr. 1, 1945 (gage height, 28.78 ft, from floodmark in gage well, at site and datum then in use), from rating curve extended above 29,000 cfs; no flow at times.

Maximum stage known since at least 1853, that of Apr. 1, 1945; flood of May 20, 1930, reached a stage of 25.37 ft and floods in May 1884 and July 1904 reached stages of about 24 and 25 ft, respectively, at former site and datum, from information by local residents.

Remarks.--Prior to Aug. 21, 1957, flow slightly regulated by Ellison Creek Reservoir. Up to 40 cfs occasionally diverted from Cypress Creek into Ellison Creek Reservoir by pumping. Beginning Aug. 21, 1957, flow regulated by Lake O' the Pines, 1,500 ft upstream.

Cooperation.--Beginning Nov. 1, 1954, records furnished by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	227	147	157	541	2,094	956	685	587	241	122	13.3	64.5	475
1952	39.4	101	189	398	445	786	3,053	633	776	35.1	14.1	5.51	534
1953	5.58	64.6	664	595	673	826	635	4,228	78.7	219	55.0	127	686
1954	20.6	98.8	447	860	529	224	260	846	537	10.9	6.21	6.28	320
1955	36.3	126	172	217	646	936	1,241	137	44.5	24.1	66.6	24.7	303
1956	103	25.4	67.5	75.6	812	261	135	415	11.6	6.70	5.50	3.04	158
1957	3.97	8.46	5.36	18.0	188	375	3,117	2,477	2,266	186	20.6	5.34	720
1958	505	2,690	1,946	1,384	1,352	1,013	1,306	2,979	3,209	3,057	2,549	482	1,859
1959	308	213	478	273	811	1,467	1,500	1,171	654	199	229	56.0	612
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13,940	8,740	9,670	33,280	116,300	58,780	40,760	36,080	14,350	7,510	820	3,840	344,100
1952	2,420	6,000	10,400	24,480	25,600	48,360	181,700	38,900	46,190	2,160	864	328	387,400
1953	343	3,840	40,810	36,570	37,370	50,790	37,790	260,000	4,680	13,450	3,380	7,540	496,600
1954	1,270	5,880	27,460	52,850	29,380	13,760	15,480	52,000	31,980	670	382	373	231,500
1955	2,230	7,480	10,580	13,330	35,900	57,540	73,820	8,450	2,650	1,480	4,090	1,470	219,000
1956	6,300	1,510	4,150	4,650	46,700	16,050	8,020	25,710	692	412	338	181	114,700
1957	244	504	330	1,100	10,450	23,090	185,500	152,300	134,900	11,420	1,270	318	521,400
1958	31,080	160,100	119,700	85,110	75,100	62,300	77,690	183,200	190,900	188,000	144,400	28,670	1,346,000
1959	18,930	12,650	29,370	16,780	45,050	90,230	89,270	71,990	38,890	12,210	14,070	3,330	442,800
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,463	23.40	1,059,000
1951	1211	5,570	Feb. 24, 1951	7.0	475	0.559	7.60	344,100	457	7.30	330,500
1952	1241	9,860	Apr. 27, 1952	4.7	534	.628	8.55	387,400	570	9.12	413,600
1953	1281	17,500	May 19, 1953	4.5	686	.807	10.94	496,600	672	10.72	486,200
1954	1341	2,090	Jan. 24, 1954	4.5	320	.376	5.12	231,500	300	4.79	217,200
1955	1441	2,530	Mar. 28, 1955	7.7	303	.356	4.82	219,000	291	4.64	210,700
1956	1441	1,220	May 4, 1956	.5	158	.186	2.53	114,700	143	-	103,600
1957	1511	16,000	Apr. 27, 1957	0	720	-	-	521,400	1,148	-	831,200
1958	1561	5,190	Apr. 29, 1958	46	1,859	-	-	1,346,000	1,514	-	1,096,000
1959	1631	2,430	Apr.27-29, 1959	35	612	-	-	442,800	-	-	-
1960											

3470. Kelly Bayou near Hosston, La.

Location.--Lat 32°51'25", long 93°52'20", in SW¼NE¼ sec.36, T.22 N., R.15 W., near center of span on downstream side of bridge on U. S. Highway 71, 0.4 mile downstream from Willow Lake lateral, 2.0 miles south of Hosston, and 2.7 miles upstream from mouth.

Drainage area.--116 sq mi.

Records available.--September 1944 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 165.53 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Feb. 2, 1953, wire-weight gage at same site and datum. Auxiliary water-stage recorder on Black Bayou 4.2 miles downstream from base gage.

Average discharge.--16 years (1944-60), 104 cfs (75,290 acre-ft per year).

Extremes.--1944-60: Maximum discharge, 4,460 cfs Apr. 28, 1958; maximum gage height, 22.72 ft Apr. 29, 1958; no flow May 23, 24, 1948, due to severe backwater conditions; minimum discharge unaffected by backwater, 1.2 cfs Sept. 24, 1956 (gage height, 0.94 ft).

Corrections.--In WSP 1311, the momentary maximum discharge for the water year 1945 is listed in error; it should be 1,800 cfs Mar. 3, 1945.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	12.5	16.3	17.4	135	214	106	72.1	49.6	21.7	7.70	4.56	10.5	54.6
1952	5.19	16.1	35.7	60.6	208	128	205	64.2	14.6	6.43	22.1	3.71	63.4
1953	3.28	22.6	57.6	107	127	228	197	464	5.11	23.2	7.66	8.57	105
1954	3.80	5.07	25.6	131	59.4	27.9	38.7	137	12.4	4.07	2.66	2.22	37.5
1955	2.63	9.57	9.53	21.3	115	144	106	173	23.0	5.58	16.8	3.33	52.2
1956	6.19	5.18	10.2	12.5	183	49.4	25.5	81.5	7.81	3.16	2.18	1.75	31.8
1957	2.88	9.52	5.80	9.72	99.2	68.2	432	169	185	7.37	6.37	5.25	82.4
1958	56.0	367	139	239	85.3	106	649	655	90.9	97.6	20.6	47.6	213
1959	14.3	18.0	21.1	27.2	172	94.1	167	93.5	74.8	21.1	9.58	6.81	59.0
1960	10.7	12.9	138	184	186	225	35.0	21.6	14.6	5.62	4.94	6.60	70.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	767	968	1,070	8,310	11,890	6,520	4,290	3,050	1,290	474	280	624	39,530
1952	319	958	2,200	3,730	11,990	7,850	12,220	3,950	867	395	1,360	221	46,060
1953	202	1,340	3,540	6,580	7,030	14,040	11,710	28,510	304	1,420	471	510	75,660
1954	234	301	1,570	8,030	3,300	1,710	2,300	8,450	735	250	164	132	27,180
1955	161	569	586	1,310	6,390	8,850	6,330	10,650	1,370	343	1,030	198	37,790
1956	381	308	627	770	10,540	3,040	1,520	5,010	465	194	134	104	23,090
1957	177	566	357	597	5,510	4,190	25,690	10,400	11,010	453	392	313	59,660
1958	3,440	21,860	8,560	14,670	4,740	6,520	38,610	40,290	5,410	6,000	1,260	2,830	154,200
1959	881	1,070	1,300	1,670	9,550	5,790	9,950	5,750	4,450	1,300	589	405	42,700
1960	661	770	8,480	11,300	10,680	13,800	2,080	1,330	870	348	304	393	51,010

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	108	78,390
1951	1211	513	Jan. 14, 1951	3.3	54.6	39,530	55.5	40,200
1952	1241	994	Apr. 13, 1952	2.5	63.4	46,060	65.7	47,660
1953	1281	1,520	Mar. 12, 1953	2.2	105	75,660	100	72,680
1954	1341	1,040	Jan. 15, 1954	2.0	37.5	27,180	36.5	26,390
1955	1391	1,520	May 24, 1955	1.7	52.2	37,790	52.2	37,790
1956	1441	1,200	Feb. 2, 1956	1.3	31.8	23,090	31.5	22,880
1957	1511	1,720	Apr. 29, 1957	1.8	82.4	59,660	128	92,420
1958	1561	4,460	Apr. 28, 1958	2.6	213	154,200	171	123,600
1959	1631	1,070	Feb. 14, 1959	5.2	59.0	42,700	68.2	49,360
1960	1711	1,560	Mar. 2, 1960	3.0	70.3	51,010	-	-

3475. Black Bayou near Gilliam, La.

Location.--Lat 32°48'55", long 93°52'15", in SE¼NW¼ sec.13, T.21 N., R.15 W., near left bank on downstream side of bridge on State Highway 170, 0.2 mile downstream from Red Bayou and 2 miles southwest of Gilliam.

Drainage area.--364 sq mi.

Records available.--August 1942 to September 1959.

Gage.--Water-stage recorder. Datum of gage is 155.59 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Dec. 13, 1948, wire-weight gage at same site and datum. Auxiliary water-stage recorder 5.5 miles downstream from base gage. Datum of auxiliary gage is 155.89 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Auxiliary wire-weight gage at same site and datum Jan. 26, 1945, to Oct. 25, 1949.

Average discharge.--17 years (1942-59), 380 cfs (275,100 acre-ft per year).

Extremes.--1942-59: Maximum discharge, 17,700 cfs Apr. 29, 1958; maximum gage height, 27.51 ft Apr. 29, 1958; minimum discharge, 1.6 cfs July 26, 1943; minimum gage height, 2.54 ft July 24-29, Aug. 7-11, 14, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	150	80.2	96.4	446	905	443	336	288	70.7	15.1	8.55	17.8	234
1952	5.90	46.2	144	227	772	576	867	252	122	9.35	38.4	5.32	252
1953	4.84	26.6	241	424	566	786	592	1,690	115	56.5	14.0	7.92	377
1954	7.76	9.66	158	486	272	118	148	460	99.6	8.70	5.82	3.96	148
1955	6.22	15.8	33.1	82.6	180	480	459	432	61.2	8.33	34.1	6.83	150
1956	9.81	9.39	15.8	29.3	573	172	125	321	8.25	5.78	4.10	4.07	105
1957	4.65	15.9	7.26	27.7	362	271	1,858	746	914	39.9	16.0	7.36	352
1958	361	1,504	674	967	395	469	2,347	2,421	410	429	70.5	248	859
1959	66.8	78.3	96.2	163	853	524	879	403	397	85.7	29.0	11.2	294
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,200	4,770	5,920	27,450	50,280	27,240	20,010	17,720	4,210	930	525	1,060	169,300
1952	363	2,750	8,860	13,930	44,430	35,410	51,570	15,480	7,250	575	2,360	317	183,300
1953	298	1,580	14,790	26,040	31,430	48,300	35,210	103,900	6,870	3,480	862	471	273,200
1954	477	575	9,740	30,020	15,110	7,260	8,790	28,250	5,930	535	358	236	107,300
1955	383	943	2,040	5,080	9,980	29,540	27,330	26,560	3,640	512	2,100	408	108,510
1956	603	559	972	1,800	32,940	10,590	7,420	19,740	491	355	252	242	75,960
1957	286	945	447	1,700	20,100	16,640	110,500	45,890	54,400	2,460	987	438	254,800
1958	22,200	89,510	41,450	59,480	21,920	28,830	139,700	148,800	24,370	26,360	4,330	14,770	621,700
1959	4,110	4,660	5,920	10,040	47,360	32,230	52,320	24,760	23,600	5,270	1,780	669	212,700
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	504	18.80	364,800
1951	1211	1,560	Feb. 20, 1951	5.8	234	0.643	8.72	169,300	223	8.31	161,400
1952	1241	2,240	Mar. 10, 1952	-	252	.692	9.45	183,300	259	9.69	188,000
1953	1281	4,090	May 17, 1953	4.4	377	1.04	14.06	273,200	369	13.75	267,400
1954	1341	1,760	Jan. 16, 1954	3.4	148	.407	5.53	107,300	138	5.15	99,860
1955	1391	3,150	May 24, 1955	4.0	150	.412	5.59	108,500	148	5.53	107,300
1956	1441	1,650	Feb. 3, 1956	3.8	105	.288	3.92	75,960	104	3.90	75,510
1957	1511	8,200	Apr. 29, 1957	3.7	352	.967	13.13	254,800	561	20.92	406,300
1958	1561	17,700	Apr. 29, 1958	6.0	859	2.36	32.05	621,700	668	24.92	483,200
1959	1631	2,500	Feb. 15, 1959	8.4	294	.808	10.95	212,700	-	-	-
1960											

3480. Twelvemile Bayou near Dixie, La.

Location.--Lat 32°38'45", long 93°52'40", in NW¼NW¼ sec.14, T.19 N., R.15 W., near right bank on downstream side of pier of bridge on State Highway 173, 0.1 mile downstream from Cottonwood Bayou, 4.2 miles southwest of Dixie, 5.5 miles downstream from Caddo Lake, and 17.3 miles upstream from mouth.

Drainage area.--3,137 sq mi.

Records available.--August 1942 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 143.88 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Sept. 5, 1947, wire-weight gage and Sept. 5, 1947, to Sept. 30, 1950, water-stage recorder, at same site at datum 2.0 ft higher. Water-stage recorder or once-daily gage readings for station on Red River at Shreveport used as auxiliary gage for this station.

Average discharge.--18 years (1942-60), 2,776 cfs (2,010,000 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 38,400 cfs May 5, 1958; maximum gage height, 35.65 ft Apr. 5, 1945, and May 5, 1958; minimum discharge, 3.2 cfs Oct. 17, 1954, affected by backwater; minimum unaffected by backwater, 4.1 cfs Oct. 19, 1956; minimum gage height, 0.38 ft Sept. 22, 1960.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,036	637	612	2,274	5,206	4,397	2,541	2,488	677	174	21.4	87.1	1,828
1952	49.9	292	1,007	1,396	3,089	3,383	5,910	3,791	1,814	30.5	43.1	8.87	1,724
1953	6.76	37.3	976	2,362	3,507	4,422	2,877	11,790	5,157	290	254	25.2	2,477
1954	11.1	17.5	1,104	2,467	2,316	1,020	1,093	2,981	1,858	22.5	7.69	6.70	1,069
1955	12.0	30.1	248	915	2,783	3,508	5,055	2,485	529	37.6	357	33.8	1,320
1956	117	25.2	69.3	303	3,069	1,287	636	1,934	43.6	13.6	10.6	6.60	618
1957	6.25	28.9	16.7	32.4	752	1,729	6,104	14,920	6,799	901	66.6	8.38	2,623
1958	1,748	9,613	6,821	5,997	4,621	3,515	5,245	23,500	5,153	5,019	2,532	1,485	6,295
1959	936	546	1,189	979	3,580	4,668	5,526	4,048	2,507	800	609	93.7	2,111
1960	187	421	2,590	6,218	4,871	5,095	1,045	670	466	103	20.9	130	1,816

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	186,700	37,920	37,620	139,800	289,200	270,300	151,200	153,000	40,290	10,700	1,310	5,180	1,323,000
1952	3,070	17,380	61,940	85,820	177,700	208,000	351,700	233,100	107,900	1,880	2,650	528	1,252,000
1953	416	2,220	60,000	145,200	194,800	271,900	171,200	724,800	187,900	17,830	15,610	1,500	1,793,000
1954	684	1,040	67,860	151,700	128,600	62,700	65,040	183,300	110,500	1,380	473	399	773,700
1955	737	1,790	15,250	56,240	154,500	215,700	300,800	152,800	31,450	2,320	21,980	2,010	955,600
1956	7,180	1,500	4,260	18,610	176,500	79,120	37,830	118,900	2,590	839	655	393	448,400
1957	384	1,720	1,030	1,990	41,780	106,300	363,200	917,700	404,600	55,400	4,090	499	1,899,000
1958	107,500	572,000	419,400	368,700	256,700	216,100	312,100	1,445,000	306,600	308,600	155,700	88,390	4,557,000
1959	57,560	32,500	73,100	60,180	198,800	287,000	328,800	248,900	149,200	49,190	37,450	5,580	1,528,000
1960	11,490	25,040	159,300	382,300	280,200	313,200	62,170	41,200	27,750	6,360	1,280	7,710	1,318,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	4,357	18.85	3,154,000
1951	1211	11,200	Oct. 1, 1951	12	1,828	0.583	7.91	1,323,000	1,579	6.83	1,143,000
1952	1241	9,790	Apr. 26, 27, 1952	7.0	1,724	.550	7.47	1,252,000	1,697	7.36	1,232,000
1953	1281	19,800	May 24, 1953	6.0	2,477	.790	10.71	1,793,000	2,487	10.76	1,800,000
1954	1341	4,270	May 13, 1954	5.4	1,069	.341	4.63	773,700	997	4.32	721,900
1955	1391	8,490	May 25, 1955	3.2	1,320	.421	5.70	955,600	1,313	5.67	950,700
1956	1441	4,580	Feb. 9, 1956	5.1	618	.197	2.67	448,400	604	2.62	438,600
1957	1511	26,100	May 4, 1957	4.4	2,623	.836	11.36	1,899,000	4,136	17.89	2,995,000
1958	1561	38,400	May 5, 1958	5.0	6,295	2.01	27.20	4,557,000	5,002	21.62	3,621,000
1959	1631	8,200	Apr. 22-24, 1959	80	2,111	.673	9.12	1,528,000	2,156	9.32	1,561,000
1960	1711	8,870	Mar. 5, 1960	11	1,816	.579	7.88	1,318,000	-	-	-

3482. Paw Paw Bayou near Greenwood, La.

Location.--Lat 32°31'00", long 93°58'20", in SE¼ sec.26, T.18 N., R.16 W., near center of span on downstream side of bridge on State Highway 169, 1 mile upstream from Cross Lake, 5.1 miles north of Greenwood, and 11 miles west of Shreveport.

Drainage area.--78 sq mi.

Records available.--October 1955 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 170.35 ft above mean sea level (Louisiana Geodetic Survey bench mark).

Average discharge.--5 years (1955-60), 64.3 cfs (46,550 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 7,310 cfs Apr. 27, 1958 (gage height, 13.84 ft), from rating curve extended above 2,200 cfs; no flow at times in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	0.77	0.06	2.61	5.60	201	41.1	20.9	116	0.28	0	0	0	31.7
1957	.14	4.73	.92	8.94	102	122	417	135	87.2	6.10	.05	.007	72.9
1958	18.1	250	62.6	205	87.5	79.2	316	212	139	3.50	.06	32.9	117
1959	1.70	3.75	3.11	3.50	129	138	120	41.4	27.8	30.2	.74	.07	40.9
1960	.33	1.29	59.3	114	246	184	7.91	4.16	2.97	.10	24.2	71.4	59.0

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	48	3.6	160	345	11,560	2,530	1,240	7,120	17	0	0	0	23,020
1957	8.5	282	57	550	5,690	7,480	24,830	8,280	5,190	375	3.4	.4	52,750
1958	105	223	191	215	7,180	8,510	7,110	2,550	1,650	1,860	45	4.2	84,460
1959	1,110	14,870	3,850	12,620	4,860	4,870	18,790	13,040	8,270	215	3.6	1,960	29,640
1960	20	77	3,650	6,990	14,160	11,300	471	256	177	6.1	1,490	4,250	42,850

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	2,820	May 2, 1956	0	31.7	0.406	5.53	23,020	31.9	5.57	23,160
1957	1511	3,750	Apr. 28, 1957	0	72.9	.935	12.67	52,750	99.8	17.37	72,230
1958	1631	7,310	Apr. 27, 1958	0	117	1.50	20.33	84,460	90.0	15.68	65,150
1959	1631	2,740	Mar. 11, 1959	0	40.9	.524	7.13	29,640	45.4	7.91	32,870
1960	1711	2,680	Mar. 3, 1960	0	59.0	.756	10.30	42,850	-	-	-

3485. Red River at Shreveport, La.

Location.--Lat 32°30'55", long 93°44'25", in SE¼SE¼ sec.30, T.18 N., R.13 W., on second pier from east bank at Illinois Central Railroad bridge at Shreveport, half a mile downstream from Cross Bayou.

Drainage area.--60,613 sq mi, of which 5,936 sq mi above Denison Dam is noncontributing.

Records available.--August 1928 to September 1960. Daily gage heights since May 1873 and discharge intermittently 1872 to 1905 in reports of Mississippi River Commission.

Gage.--Surface-follower gage with telemark attachment. Datum of gage is 131.48 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to June 1, 1918, staff gage at same site at datum 10 ft higher. June 1, 1918, to Mar. 20, 1921, staff gage, Mar. 21, 1921, to Dec. 10, 1934, chain gage, Dec. 11, 1934, to Sept. 28, 1939, wire-weight gage, and Sept. 29, 1939, to Feb. 12, 1958 water-stage recorder, all at present site and datum.

Average discharge.--32 years (1928-60), 25,400 cfs (18,390,000 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 303,000 cfs Apr. 5, 1945 (discharge measurement); maximum gage height, 37.9 ft in gage well, 38.4 ft from outside gage, Apr. 7, 1945; minimum discharge, 690 cfs Oct. 30, 1956; minimum gage height, 0.24 ft Nov. 9, 1939.
Maximum stage known, 45.9 ft, present datum, in August 1849.

Remarks.--Regulation by Lake Texoma and Texarkana Reservoir (see elsewhere in this report). Records of chemical analyses for the water years 1956-58 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	26,250	7,245	5,680	15,040	45,730	30,310	17,230	21,060	66,670	44,670	5,903	5,419	24,090
1952	3,961	12,540	13,080	17,660	16,560	27,440	75,710	39,440	13,080	4,523	4,574	3,405	19,270
1953	2,604	5,276	21,940	17,070	22,240	34,390	41,720	112,900	14,130	16,160	11,960	5,213	25,590
1954	4,285	3,936	8,108	10,090	20,220	8,035	13,610	54,570	26,720	6,152	4,221	3,170	14,320
1955	18,810	13,010	7,310	13,270	21,150	29,950	31,260	18,090	15,990	7,062	5,962	8,308	15,790
1956	22,470	5,272	5,699	4,915	35,090	13,020	5,555	19,330	5,247	2,225	1,780	1,493	10,130
1957	1,113	1,355	2,566	6,692	21,680	21,070	79,340	154,800	139,400	40,770	10,780	17,470	41,390
1958	21,280	67,490	39,320	42,160	23,980	38,330	35,820	118,300	23,260	23,880	14,530	10,190	38,370
1959	5,689	12,590	7,433	8,312	19,840	25,690	23,730	14,090	11,320	15,640	15,130	6,785	13,810
1960	26,070	10,690	32,750	51,920	38,180	29,990	11,450	28,200	13,440	13,130	8,663	4,818	22,490

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,614	431.1	349.2	924.5	2,540	1,863	1,025	1,295	3,697	2,747	363	322.4	17,440
1952	243.6	746.3	804.5	1,086	952.3	1,687	4,505	2,425	778.3	278.1	281.2	202.6	13,990
1953	160.1	313.9	1,349	1,049	1,235	2,115	2,483	6,939	840.7	993.6	735.1	310.2	18,520
1954	263.5	234.2	498.5	1,174	1,123	494.1	810.1	3,355	1,590	378.2	259.5	188.6	10,370
1955	1,156	774.4	449.4	815.7	1,175	1,841	1,860	1,112	951.5	434.2	366.6	494.3	11,430
1956	1,382	313.7	350.4	302.2	2,018	800.3	330.5	1,189	312.2	136.8	109.4	88.86	7,333
1957	68.42	80.61	157.8	411.5	1,204	1,296	4,721	9,520	8,296	2,507	663.1	1,039	29,960
1958	1,309	4,016	2,418	2,592	1,332	2,357	2,131	7,275	1,384	1,468	893.2	606.3	27,780
1959	349.8	749.2	457	511.1	1,102	1,580	1,412	866.6	673.4	961.8	930.6	403.7	9,997
1960	1,603	636.1	2,014	3,192	2,196	1,844	681.3	1,734	799.8	807.3	532.7	286.7	16,330

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	42,470	30,740,000
1951	1211	111,000	June 20, 1951	3,800	24,090	17,440,000	23,260	16,840,000
1952	1241	154,000	Apr. 28, 1952	2,650	19,270	13,990,000	19,310	14,020,000
1953	1281	173,000	May 20, 1953	1,680	25,590	18,520,000	24,440	17,700,000
1954	1341	94,700	May 16, 1954	2,280	14,320	10,370,000	16,230	11,750,000
1955	1391	92,400	Mar. 26, 1955	2,600	15,790	11,430,000	15,330	11,100,000
1956	1441	62,200	Feb. 22, 1956	1,150	10,130	7,333,000	7,706	5,594,000
1957	1511	230,000	May 3, 1957	706	41,390	29,960,000	51,700	37,400,000
1958	1561	249,000	May 8, 1958	4,700	38,370	27,780,000	29,830	21,590,000
1959	1631	61,200	Aug. 1, 1959	3,150	13,810	9,997,000	17,530	12,690,000
1960	1711	124,000	Dec. 15, 1959	2,280	22,490	16,330,000	-	-

3487. Bayou Dorcheat near Springhill, La.

Location.--Lat 32°59'40", long 93°23'45", in NE¼NE¼ sec.16, T.23 N., R.10 W., near left bank on downstream side of bridge on State Highway 157, 0.4 mile downstream from Crooked Creek, 1.7 miles downstream from Arkansas-Louisiana State line, and 4 miles southeast of Springhill.
Drainage area.--605 sq mi.
Records available.--October 1957 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 173.91 ft above mean sea level, datum of 1929, supplementary adjustment of 1941.
Extremes.--1957-60: Maximum discharge, 36,400 cfs Apr. 28, 1958 (gage height, 22.79 ft); no flow Oct. 10-14, 1957.
Remarks.--Records of chemical analyses for the water year 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	60.7	1,163	979	1,438	525	766	4,326	3,557	423	407	90.1	118	1,156
1959	43.1	47.9	79.5	112	1,216	632	897	190	353	248	92.1	22.8	321
1960	27.8	33.5	429	1,115	1,331	1,696	284	160	17.1	5.97	8.62	8.60	425

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	3,730	69,220	60,180	88,440	29,170	47,090	257,400	218,700	25,180	25,030	5,540	7,030	836,700
1959	2,650	2,850	4,890	6,870	67,550	38,890	53,390	11,680	21,020	15,260	5,660	1,350	232,100
1960	1,710	1,990	26,400	68,560	76,580	104,300	16,890	9,870	1,020	367	530	512	308,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	1561	36,400	Apr. 28, 1958	0	1,156	1.91	25.94	836,700	986	22.13	714,000
1959	1631	3,800	Feb. 17, 1959	2.4	321	.531	7.18	232,100	348	7.79	251,800
1960	1711	3,520	Mar. 6, 1960	.3	425	.702	9.56	308,700	-	-	-

3488. Flat Lick Bayou near Leton, La.

Location.--Lat 32°46'10", long 93°16'00", in NW¼ sec.35, T.21 N., R.9 W., near left bank on downstream side of bridge on State Highway 159, 0.5 mile downstream from Cypress Creek, 6 miles upstream from mouth, and 6½ miles south of Leton.
Drainage area.--66.9 sq mi.
Records available.--Annual maximums, water years 1954-56 and occasional low-flow measurements, water years 1955-56. October 1956 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 182.79 ft (corrected) above mean sea level, datum of 1929, supplementary adjustment of 1941. Nov. 9, 1953, to Sept. 13, 1956, crest-stage gage at same site and datum.
Extremes.--1953-60: Maximum discharge, 10,200 cfs Apr. 26, 1958 (gage height, 12.95 ft), from rating curve extended above 3,300 cfs by velocity-area studies; no flow at times.
Remarks.--Records of chemical analyses for the water year 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	0	0.88	0.57	13.3	93.8	70.0	320	210	138	4.09	0.24	0.21	70.2
1958	20.7	394	124	148	76.8	93.5	604	314	69.5	30.0	2.59	47.9	160
1959	13.8	38.4	18.2	21.1	197	116	91.2	32.7	100	37.4	3.34	2.20	54.8
1960	2.17	5.22	27.7	66.3	105	167	25.1	67.2	6.84	5.40	7.54	.76	40.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	0	52	35	817	5,210	4,300	19,020	12,910	8,210	252	14	13	50,830
1958	1,270	23,420	7,640	9,100	4,270	5,750	35,960	19,320	4,140	1,840	159	2,850	115,700
1959	849	2,290	1,120	1,300	10,920	7,150	5,420	2,010	5,950	2,330	205	131	39,640
1960	133	310	1,700	4,080	6,040	10,260	1,490	4,130	407	332	464	45	29,390

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1954	1341	722	May 1, 1954	-	-	-	-	-	-	-	-
1955	1391	6,190	May 24, 1955	-	-	-	-	-	-	-	-
1956	1441	1,120	Feb. 8, 1956	-	-	-	-	-	-	-	-
1957	1511	2,340	Apr. 27, 1957	0	70.2	1.05	14.25	50,830	115	23.29	83,080
1958	1561	10,200	Apr. 26, 1958	0	160	2.39	32.43	115,700	121	24.56	87,650
1959	1631	1,960	Feb. 14, 1959	.6	54.8	.819	11.10	39,640	51.8	10.52	37,530
1960	1711	1,520	Mar. 2, 1960	0	40.5	.605	8.24	29,390	-	-	-

3490. Bayou Dorcheat near Minden, La.

Location.--Lat 32°35'55", long 93°20'00", in NW¼ sec.31, T.19 N., R.9 W., on left bank 500 ft upstream from bridge on U. S. Highway 80, three-quarters of a mile upstream from Louisiana & Arkansas Railway Co. bridge, 3 miles west of Minden, and 28 miles upstream from Bistineau Dam.

Drainage area.--1,097 sq mi.

Records available.--July 1928 to September 1931, October 1936 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 133.75 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Mar. 1, 1940, staff gage at same site and datum. Since July 29, 1953, low-stage water-stage recorder 4.6 miles upstream at different datum.

Average discharge.--27 years (1928-31, 1936-60), 1,179 cfs (853,600 acre-ft per year).

Extremes.--1928-31, 1936-60: Maximum discharge, 44,800 cfs May 1, 1958; practically no flow during October, November, and part of December 1936; no flow Aug. 12 to Nov. 3, 1954, and Aug. 12 to Nov. 6, 1956.

Remarks.--Records of chemical analyses for water years 1956-57 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	581	206	316	1,209	3,314	1,553	1,321	820	429	279	45.0	6.27	823
1952	9.8	78.0	1,289	1,390	4,191	2,852	2,777	727	270	8.0	30.0	.50	1,122
1953	.26	5.58	231	425	2,113	3,365	1,566	8,891	314	47.8	48.1	4.35	1,422
1954	.50	3.90	71.0	486	679	272	494	1,864	87.5	1.43	.05	0	329
1955	0	.86	9.16	137	610	1,752	1,818	1,131	594	109	52.8	4.34	517
1956	7.13	8.88	37.8	54.9	1,891	1,082	994	599	17.3	16.6	.91	0	386
1957	0	8.00	34.6	135	1,511	1,335	4,417	5,290	1,228	376	14.3	2.36	1,191
1958	147	3,201	2,090	2,597	1,429	1,108	4,533	9,675	726	1,147	130	378	2,271
1959	224	146	189	231	2,215	1,460	1,529	577	926	263	247	22.3	656
1960	31.4	41.8	552	1,692	1,811	3,899	510	470	40.7	11.1	15.5	15.7	758

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	35,700	12,240	19,460	74,310	184,100	95,460	78,580	50,440	25,560	17,160	2,770	373	596,200
1952	605	4,640	79,280	85,490	241,100	175,300	165,300	44,670	16,070	492	1,840	30	814,800
1953	16	332	14,180	26,100	117,400	206,900	93,200	546,700	18,660	2,940	2,960	259	1,030,000
1954	31	232	4,360	29,870	37,690	16,700	29,370	114,600	5,210	88	3.0	0	238,200
1955	0	51	563	8,420	33,890	107,700	108,200	69,520	35,360	6,730	3,240	258	373,900
1956	438	528	2,330	3,380	108,800	66,560	59,120	36,580	1,030	1,020	56	0	280,100
1957	0	476	2,130	8,300	83,920	82,070	262,800	325,300	73,100	23,120	879	140	862,200
1958	9,070	190,500	126,500	159,700	79,380	68,150	269,800	594,900	43,190	70,500	7,980	22,480	1,644,000
1959	13,770	8,670	11,620	14,220	123,000	89,750	90,990	35,500	55,090	16,150	15,190	1,330	475,300
1960	1,930	2,490	33,930	104,000	104,200	239,700	39,340	28,880	2,420	683	951	936	550,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,587	19.65	1,149,000
1951	1211	4,120	Feb. 22-24, 1951	0.4	823	0.750	10.19	596,200	847	10.49	613,300
1952	1241	5,700	Jan. 30, 1952	-	1,122	1.02	13.92	814,800	1,026	12.71	744,800
1953	1281	16,900	May 18, 1953	-	1,422	.130	17.60	1,030,000	1,408	17.43	1,020,000
1954	1341	3,020	May 17, 1954	0	329	.300	4.07	238,200	323	4.00	234,100
1955	1391	5,940	Mar. 25, 1955	0	517	.471	6.38	373,900	520	6.43	376,600
1956	1441	2,810	Feb. 16, 1956	0	386	.352	4.80	280,100	385	4.79	279,400
1957	1511	23,100	May 2, 1957	0	1,191	1.09	14.77	862,200	1,641	20.33	1,188,000
1958	1561	44,800	May 1, 1958	1.9	2,271	2.07	28.10	1,644,000	1,865	23.08	1,350,000
1959	1631	5,470	Feb. 21, 1959	11	656	.598	8.13	475,300	662	8.19	479,600
1960	1711	7,220	Mar. 7, 1960	-	758	.691	9.41	550,500	-	-	-

3490.5. Bodcau Creek at Stamps, Ark.

Location.--Lat 33°22'00", long 93°31'20", in NW¼ sec.7, T.16 S., R.23 W., near center of span on downstream side of pier of bridge on U. S. Highway 82, 0.1 mile upstream from Tatum Branch and 1 mile west of Stamps.

Drainage area.--234 sq mi.

Records available.--October 1958 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 234.36 ft above mean sea level, datum of 1929. Prior to June 3, 1959, wire-weight gage at same site and datum.

Extremes.--1958-60: Maximum discharge, 1,800 cfs Feb. 18, 1959 (gage height, 9.78 ft); no flow at times.

Maximum stage known since at least 1890, 18.9 ft in March 1945, from information by local resident. Flood in 1927 reached a stage of 17.5 ft at railroad bridge 1 mile downstream, from information by local resident. Flood in 1930 reached a stage of 17.3 ft, from information by State Highway Department.

Monthly and yearly mean discharge, in cubic feet per second, of Bodcau Creek at Stamps, Ark.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	8.60	18.2	35.4	45.5	423	317	371	69.9	279	71.1	5.91	7.84	135
1960	10.2	19.4	376	603	609	626	115	83.9	14.4	2.17	.44	.89	205

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	529	1,090	2,170	2,800	23,490	19,520	22,090	4,300	16,600	4,370	363	467	97,790
1960	628	1,150	23,150	37,080	35,030	38,500	6,870	5,160	854	134	27	53	148,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1959	1631	1,800	Feb. 18, 1959	0	135	0.577	7.82	97,790	164	9.51	118,900
1960	1711	1,760	Dec. 20, 1959	0	205	.876	11.90	148,600	-	-	-

3495. Bodcau Bayou near Sarepta, La.

Location.--Lat 32°54'15", long 93°28'55", in NW¼ sec.15, T.22 N., R.11 W., on left bank on downstream side of bridge on State Highway 2, 2 miles west of Sarepta and 9.5 miles upstream from Caney Creek.

Drainage area.--546 sq mi.

Records available.--October 1938 to September 1960. Prior to October 1958, published as Bayou Bodcau near Sarepta.

Gage.--Water-stage recorder. Datum of gage is 173.91 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers).

Average discharge.--22 years (1938-60), 617 cfs (446,700 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 18,600 cfs May 2, 1958 (gage height, 25.14 ft); minimum, 0.1 cfs at times; minimum gage height, 1.43 ft Aug. 14-19, 1954.

Flood of May 22, 23, 1930, exceeded 25 ft, and flood in 1905 may have reached a stage of 27 ft, from information by local residents.

Remarks.--Water used by paper mill at Springhill is pumped from wells and discharged later as waste into bayou approximately 8 miles above station. This discharge is not continuous but is stored in a reservoir and is released whenever flow of bayou is sufficient to dilute effluent from mill. Some diversion and regulation by Lake Erling (usable capacity, 79,000 acre-ft), 15 miles upstream. Records of chemical analyses for the water years 1954-55 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	309	44.7	81.7	646	1,672	719	763	406	269	179	24.0	7.89	418
1952	6.47	46.5	429	475	1,410	1,410	1,236	299	119	.47	6.59	.33	451
1953	1.92	23.0	477	569	1,314	1,322	1,042	3,195	111	15.5	13.4	.63	673
1954	.57	1.12	29.0	611	573	157	112	740	132	.98	.40	.20	195
1955	.70	1.88	10.2	134	746	743	1,192	459	304	6.42	3.65	.60	295
1956	9.48	2.32	59.6	84.6	1,174	491	655	28.4	5.38	2.19	.82	8.30	157
1957	2.89	197	373	287	613	124	2,667	2,279	940	68.6	16.3	8.33	628
1958	162	1,934	1,379	1,083	980	292	1,787	4,458	245	278	80.9	180	1,073
1959	23.8	465	494	479	821	173	392	89.2	255	60.0	34.1	8.66	270
1960	21.6	379	586	1,010	1,123	1,533	114	41.9	6.54	10.8	7.17	15.1	403

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	19,030	2,660	5,030	39,730	92,840	44,230	45,390	24,940	16,000	11,000	1,480	469	302,800
1952	398	2,770	26,370	29,220	81,120	87,960	73,540	18,400	7,070	29	405	19	327,300
1953	118	1,370	29,350	34,970	72,970	81,270	61,980	196,400	6,600	950	826	37	486,800
1954	35	67	1,780	37,550	31,800	9,660	6,650	45,500	7,830	60	25	12	141,000
1955	43	112	626	8,240	41,440	45,110	70,900	28,250	18,090	395	224	36	213,500
1956	583	138	3,660	5,200	67,560	30,190	3,960	1,750	320	134	50	494	114,000
1957	178	11,720	22,900	17,640	34,050	7,640	158,700	140,100	55,950	4,220	1,000	496	454,600
1958	9,930	115,100	84,780	66,580	54,410	17,950	106,300	274,100	14,560	17,110	4,970	10,710	776,500
1959	1,460	27,670	30,380	29,420	45,590	10,660	23,350	5,480	15,150	3,690	2,100	515	195,500
1960	1,330	22,560	36,030	62,110	64,600	94,290	6,760	2,580	389	665	441	898	292,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	947	685,500
1951	1211	2,480	Feb. 20, 1951	0.2	418	302,800	422	305,600
1952	1241	3,730	Mar. 14, 1952	.1	451	327,300	453	328,600
1953	1281	6,020	Apr. 30, 1953	.4	673	486,800	633	457,900
1954	1341	1,540	May 16, 1954	.1	195	141,000	193	139,900
1955	1391	2,340	Apr. 21, 1955	.2	295	213,500	300	217,100
1956	1441	1,750	Feb. 11, 1956	.6	157	114,000	199	144,500
1957	1511	8,890	Apr. 28, 1957	1.6	628	454,600	870	629,600
1958	1561	18,600	May 2, 1958	5.0	1,073	776,500	865	626,200
1959	1631	2,040	Feb. 16, 1959	2.7	270	195,500	271	195,900
1960	1711	3,170	Mar. 5, 1960	.7	403	292,700	-	-

3498. Cypress Bayou near Benton, La.

Location.--Lat 32°42'20", long 93°41'15", in NW¼SW¼ sec.23, T.20 N., R.13 W., near right bank on downstream side of bridge on State Highway 162, 2 miles upstream from Little Caney Bayou and 3 miles east of Benton.
Drainage area.--133 sq mi.
Records available.--October 1955 to September 1960. Occasional low-flow measurements water years 1948, 1954-55. Nov. 8, 1938, to Nov. 30, 1946, and Jan. 29, 1948, to Oct. 31, 1952, daily gage heights and occasional discharge measurements in files of Corps of Engineers, New Orleans district.
Gage.--Water-stage recorder. Datum of gage is 165.98 ft above mean sea level, datum of 1929 (authority, Corps of Engineers).
Average discharge.--5 years (1955-60), 106 cfs (76,700 acre-ft per year).
Extremes.--1955-60: Maximum discharges, 8,350 cfs Apr. 27, 1958 (gage height, 15.18 ft); no flow for long periods in most years.
Remarks.--Records of chemical analyses for water year 1956 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	0.50	2.0	6.85	5.86	147	67.3	26.4	55.5	0.42	0.65	0	0	25.6
1957	0	2.03	5.81	13.0	165	168	855	505	276	4.04	.25	.01	165
1958	6.85	277	143	279	118	131	767	694	62.6	59.3	†.38	25.9	214
1959	16.3	9.07	13.0	21.8	159	131	221	55.1	45.0	1.94	.51	.08	55.1
1960	2.41	3.64	71.5	118	268	342	17.9	33.7	2.08	.14	.08	0	71.3

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	31	119	421	361	8,480	4,140	1,570	3,410	25	40	0	0	18,600
1957	0	121	357	798	9,160	10,310	50,880	31,050	16,430	248	16	.6	119,400
1958	421	16,470	8,770	17,150	6,570	8,070	45,650	42,650	3,730	3,650	23	1,540	154,700
1959	1,000	540	802	1,340	8,830	8,030	13,140	3,390	2,680	119	31	5.0	39,910
1960	148	217	4,400	7,260	15,420	21,020	1,060	2,070	124	8.7	4.8	0	51,730

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	396	Feb. 11, 1956	0	25.6	0.192	2.61	18,600	25.5	2.60	18,500
1957	1511	8,130	Apr. 28, 1957	0	165	1.24	12.83	119,400	200	20.38	144,600
1958	1561	8,350	Apr. 27, 1958	0	214	1.61	21.82	154,700	181	18.53	131,400
1959	1631	1,240	Apr. 21, 1959	0	55.1	.414	5.63	39,910	58.5	5.97	42,330
1960	1711	1,720	Mar. 4, 1960	0	71.3	.536	7.28	51,730	-	-	-

3498.7. Red Chute Bayou tributary at Skannel Pond, near Sligo, La.

Location.--Lat 32°25'30", long 93°33'05", in S½ sec.25, T.17 N., R.12 W., on A. C. Skannel's plantation, 2½ miles southeast of Sligo and 5½ miles east of Curtis, Bossier Parish.
Drainage area.--0.47 sq mi; prior to December 1958, 0.42 sq mi.
Records available.--February 1956 to September 1960.
Gage.--Duplex water-stage recorder (rain gage and water stage combination).
Extremes.--1956-60: Maximum outflow, 80 cfs Apr. 5, 1956 (gage height, 5.20 ft); no outflow at times in each year. Maximum inflow, 316 cfs (average for 2½-minute interval) Apr. 5, 1956, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
Remarks.--Records of discharge are outlfow from reservoir, determined from state-discharge relation of outlet structure. Pond is formed by earth dam; spillway is uncontrolled sodded clay channel 50 ft wide at its crest and 102 ft wide at the top. Capacity below 0.0 ft gage height not determined and not included in capacity figures. Dam built by Soil Conservation Service of U. S. Department of Agriculture for flood control, conservation of stock water, and recreation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	0	5.03	1.04	0.25	0	0	0	0	-
1957	0	0	0	0	0	0	.78	.20	.21	0	0	0	0.10
1958	0	2.03	.19	.69	0	.01	.43	.03	.78	.36	0	.80	.44
1959	0	0	0	0	.34	.37	.19	0	.33	0	0	0	.10
1960	0	0	0	.12	.71	.34	0	0	0	0	0	0	.10

Contents, in acre-feet, on last day of month in reservoir

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1956	-	-	-	-	50.0	58.1	50.9	-	-	-	17.4	7.5
1957	2.5	0	0	6.2	24.0	51.1	76.1	53.7	56.7	41.2	26.5	21.5
1958	40.3	64.8	65.8	63.2	60.7	65.2	68.9	61.1	71.0	60.5	-	65.8
1959	50.8	49.3	40.0	31.4	64.4	63.4	57.3	55.4	57.3	45.1	33.9	20.4
1960	13.7	16.0	33.4	72.1	69.3	58.5	47.2	38.0	35.5	20.8	12.4	1.7

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1956	1711	80	Apr. 5, 1956	316	Apr. 5, 1956	0	-	-
1957	1711	12	Apr. 28, 1957	138	Apr. 28, 1957	0	0.10	-
1958	1711	30	Nov. 13, 1957	303	Apr. 29, 1958	0	.44	0.28
1959	1711	7.1	Mar. 11, 1959	83	Feb. 14, 1959	0	.10	.26
1960	1711	11	Mar. 2, 1960	132	Nov. 4, 1959	0	.10	.10

a Period February to September.

3500. Loggy Bayou near Ninock, La.

Location.--Lat 32°14'10", long 93°25'35", in SE¼SE¼ sec.31, T.15 N., R.10 W., near center of span on downstream side of bridge on U. S. Highway 71, a quarter of a mile downstream from Flat River, 2 miles southeast of Ninock, and 6 miles downstream from Lake Bistineau Dam.

Drainage area.--2,628 sq mi.

Records available.--October 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 100.26 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to Mar. 29, 1949, staff gage, Mar. 29, 1949, to June 29, 1951, water-stage recorder, and June 30 to Sept. 24, 1951, staff gage, at same site and datum. Auxiliary water-stage recorder 6 miles downstream. Datum of gage is 100.21 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to Sept. 14, 1955, wire-weight or staff gage at same site and datum. Prior to Sept. 23, 1953, at datum 9.79 ft higher.

Average discharge.--12 years (1948-60), 2,290 cfs (1,658,000 acre-ft per year).

Extremes.--1948-60: Maximum daily discharge, 32,600 cfs May 4, 1958; maximum gage height, 47.83 ft May 8, 1958; no flow at times due to severe backwater conditions.

Remarks.--Some regulation by Lake Bistineau (usable capacity, 88,000 acre-ft) and of floodflows by Bodcau Bayou Reservoir. Records of chemical analyses for water years 1955-57 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,861	571	199	1,497	6,064	4,647	3,252	1,836	455	698	121	45.7	1,743
1952	31.6	30.7	2,270	2,519	8,174	6,331	5,271	3,126	952	70.0	32.3	21.7	2,380
1953	17.0	36.8	435	974	3,661	5,677	3,833	16,830	3,772	981	671	385	3,114
1954	21.8	22.5	103	444	2,002	969	834	2,831	885	37.4	6.8	4.17	672
1955	2.0	10.0	40.3	369	1,482	3,187	4,257	3,493	3,101	813	967	35.0	1,476
1956	20.0	63.3	46.8	241	3,507	2,940	3,176	1,408	91.3	15.0	9.0	10.0	948
1957	7.9	12.7	273	642	2,944	2,673	7,212	10,950	7,481	2,100	181	50.0	2,868
1958	745	6,953	5,385	5,489	3,939	2,487	3,213	18,600	4,626	4,057	438	1,351	4,789
1959	771	512	929	978	3,680	3,558	2,586	1,760	1,979	538	540	43.7	1,474
1960	152	408	1,278	3,576	4,267	7,510	1,823	903	133	116	898	638	1,807

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	114,400	33,990	12,230	92,040	336,800	285,800	193,500	112,900	27,070	42,920	7,460	2,720	1,262,000
1952	1,940	1,820	139,600	154,900	470,200	389,300	313,600	192,200	56,670	4,300	1,980	1,290	†1,728,000
1953	1,050	2,190	26,780	59,900	203,300	349,100	228,100	1,035,000	224,400	60,310	41,240	22,890	2,254,000
1954	1,340	1,340	6,330	27,300	111,200	59,590	49,640	174,000	52,640	2,300	419	248	486,300
1955	123	595	2,480	22,700	82,330	196,000	253,300	214,800	184,500	49,970	59,450	2,080	1,068,000
1956	1,230	3,770	2,880	14,800	201,700	180,800	189,000	86,590	5,430	922	553	595	688,300
1957	486	754	16,790	39,500	163,500	164,300	429,100	673,500	445,200	129,100	11,140	2,980	2,076,000
1958	45,830	413,800	331,100	337,500	218,800	152,900	191,200	1,144,000	275,300	249,400	26,910	80,360	3,467,000
1959	47,430	30,490	57,100	60,140	204,400	218,800	153,900	108,200	117,800	33,070	33,200	2,600	1,067,000
1960	9,320	24,300	78,570	219,900	245,500	461,800	108,500	55,500	7,930	7,140	55,230	37,960	1,312,000

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3,813	2,760,000
1951	1211	a7,250	Feb. 21, 1951	0	1,743	1,262,000	1,719	†1,245,000
1952	1241	10,100	Feb. 14, 1952	0	2,380	†1,728,000	2,224	1,614,000
1953	1281	a20.000	May 21, 22, 1953	-	3,114	2,254,000	3,085	2,233,000
1954	1341	5,850	May 12, 1954	-	672	486,300	664	480,500
1955	1391	9,700	May 27, 1955	-	1,476	1,068,000	1,482	1,073,000
1956	1441	10,100	Apr. 7, 1956	-	948	688,300	962	698,400
1957	1511	17,000	May 15, 1957	-	2,868	2,076,000	3,935	2,849,000
1958	1561	a32,600	May 4, 1958	-	4,789	3,467,000	3,883	2,811,000
1959	1631	6,730	Mar. 12, 1959	-	1,474	1,067,000	1,442	1,044,000
1960	1711	10,400	Mar. 8, 1960	-	1,807	1,312,000	-	-

† Corrected.
a Maximum daily.

3505. Red River at Coushatta, La.

Location.--Lat 32°00'45", long 93°21'10", in lot 23, T.12 N., R.10 W., near center of span on downstream side of bridge on U. S. Highway 84 at Coushatta, 11 miles downstream from Coushatta Bayou and 242.4 miles upstream from mouth.
Drainage area.--63,362 sq mi, of which 5,936 sq mi above Denison Dam is noncontributing.
Records available.--October 1938 to September 1952. Discharge measurements for August and November 1893 in reports of Mississippi River Commission. Gage heights for August 1890 to June 1894, and gage heights and discharge measurements since April 1937 in reports of Corps of Engineers.
Gage.--Wire-weight gage. Datum of gage is 95.78 ft above mean sea level, datum of 1929, supplementary adjustments of 1941 (levels by Corps of Engineers).
Average discharge.--14 years (1938-52), 31,140 cfs (22,540,000 acre-ft per year).
Extremes.--1937-52: Maximum discharge, 275,000 cfs (including overflow through Bayou Pierre) Apr. 7, 1945, computed on basis of records for station at Shreveport and two discharge measurements at Grand Ecore; maximum gage height, 39.9 ft (affected by levee crevasse upstream) Apr. 7, 1945; minimum discharge, 880 cfs Nov. 10, 11, 1939 (gage height, 1.25 ft).
Flood of June 5, 1892, reached a stage of 39.2 ft.
Remarks.--Some regulation by Lake Texoma (see p. 431).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	30,970	8,008	6,110	17,840	50,120	38,280	21,740	24,370	63,010	45,070	6,573	5,499	26,290
1952	4,041	11,890	14,630	19,690	23,970	32,460	71,360	43,100	14,530	4,600	4,515	3,346	20,610

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,904	476.5	375.7	1,097	2,784	2,354	1,294	1,498	3,750	2,771	404.2	327.2	19,040
1952	248.5	707.4	899.5	1,211	1,379	1,996	4,246	2,650	864.5	282.9	277.6	199.1	14,960

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	45,610	33,020,000
1951	1211	112,000	Feb. 25, 1951	3,980	26,290	19,040,000	25,050	18,130,000
1952	1241	149,000	Apr. 28, 1952	2,670	20,610	14,960,000	-	-

3510. Boggy Bayou near Keithville, La.

Location.--Lat 32°22'35", long 93°49'20", in NW¼SE¼ sec.17, T.16 N., R.14 W., near right bank on downstream side of bridge on U. S. Highway 171, 0.4 mile downstream from Gilmer Bayou, 3 miles north of Keithville, and 5 miles upstream from mouth.
Drainage area.--79 sq mi.
Records available.--December 1938 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 145.13 ft above mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Aug. 31, 1949, wire-weight gage and Jan. 19 to Apr. 7, 1954, staff gage, at same site and datum.
Average discharge.--21 years (1939-60), 81.8 cfs (59,220 acre-ft per year).
Extremes.--1938-60: Maximum discharge, 14,800 cfs Jan. 5, 1946 (gage height, 20.2 ft, from graph based on gage readings), from rating curve extended above 5,200 cfs by velocity-area studies; no flow for long periods in most years.
Maximum stage known, 26.7 ft in 1933, from floodmark.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.98	5.71	4.72	35.7	189	85.3	29.9	5.23	8.39	0.57	0.05	0.60	29.6
1952	.15	1.12	67.5	145	378	123	156	49.8	3.87	.43	.42	0	75.9
1953	0	.27	7.29	22.2	68.6	126	271	393	.75	.47	.12	0	74.3
1954	0	1.14	4.55	12.7	10.1	3.99	6.66	136	1.29	.08	0	0	14.9
1955	0	.98	4.55	19.3	85.8	75.1	160	203	23.7	6.17	243	.89	68.7
1956	.97	.11	1.19	2.73	86.4	66.2	98.5	125	3.59	.12	0	0	31.9
1957	0	0	.15	2.44	25.5	86.8	449	89.5	117	.06	0	0	63.7
1958	8.55	282	84.6	161	52.4	53.0	105	175	99.5	33.3	.79	10.4	88.7
1959	1.09	4.00	4.03	3.44	101	96.2	81.6	13.8	6.70	3.79	1.42	.58	25.9
1960	.71	3.48	77.5	157	277	199	8.05	2.60	1.58	1.89	2.98	23.2	62.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	245	340	290	2,200	10,480	5,240	1,780	321	499	35	3.0	36	21,470
1952	9.3	66	4,150	8,890	21,770	7,560	9,290	3,060	230	26	26	0	55,080
1953	0	16	448	1,370	3,810	7,760	16,120	24,160	45	29	7.1	0	53,770
1954	0	68	280	783	560	245	396	8,350	77	4.8	0	0	10,760
1955	0	58	280	1,190	4,770	4,620	9,550	12,470	1,410	379	14,960	53	49,740
1956	60	6.5	73	168	4,970	4,070	5,860	7,700	214	7.5	0	0	23,130
1957	0	0	9.1	150	1,420	5,340	26,720	5,510	6,970	3.8	0	0	46,120
1958	526	16,770	5,200	9,920	2,910	3,260	6,220	10,770	5,920	2,050	49	619	64,210
1959	67	238	248	212	5,630	5,910	4,850	851	399	233	87	35	18,760
1960	43	207	4,760	9,650	15,950	12,240	479	160	94	116	183	1,380	45,260

Yearly discharge, in cubic feet per second, of Boggy Bayou near Keithville, La.

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	95.2	16.36	68,900
1951	1211	845	Mar. 29, 1951	0	29.6	0.375	5.10	21,470	34.3	5.90	24,820
1952	1241	6,930	Feb. 12, 1952	0	75.9	.961	13.08	55,080	70.7	12.19	51,320
1953	1281	7,320	Apr. 29, 1953	0	74.3	.941	12.75	53,770	74.1	12.73	53,650
1954	1341	2,780	May 12, 1954	0	14.9	.189	2.56	10,760	14.9	2.55	10,750
1955	1391	6,840	Aug. 4, 1955	0	68.7	.870	11.80	49,740	68.4	11.75	49,540
1956	1441	2,830	May 2, 1956	0	31.9	.404	5.49	23,130	31.7	5.46	23,000
1957	1511	4,070	Apr. 28, 1957	0	63.7	.806	10.94	46,120	94.8	16.27	68,610
1958	1561	1,730	Jan. 21, 1958	0	88.7	1.12	15.24	64,210	58.4	10.05	42,270
1959	1631	1,190	Mar. 12, 1959	0	25.9	.328	4.46	18,760	32.1	5.51	23,220
1960	1711	2,650	Mar. 3, 1960	0	62.3	.789	10.74	45,260	-	-	-

3515. Cypress Bayou near Keithville, La.

Location.--Lat 32°18'00", long 93°49'40", in SW¼ sec.8, T.15 N., R.14 W., near center of span on downstream side of bridge on U. S. Highway 171, immediately downstream from The Texas and Pacific Railway Co. bridge, 2 miles south of Keithville and 6 miles upstream from mouth of Boggy Bayou.

Drainage area.--66 sq mi.

Records available.--November 1938 to September 1957, water years 1958-60 (annual maximum).

Gage.--Crest-stage gage since April 1958. Datum of gage is 162.13 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to Dec. 28, 1939, staff gage and Dec. 28, 1939, to Sept. 30, 1957, water-stage recorder at same site and datum.

Average discharge.--18 years (1939-57), 74.8 cfs (54,150 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 23,700 cfs Aug. 3, 1955 (gage height, 13.62 ft), from rating curve extended above 7,500 cfs by logarithmic plotting and velocity-area studies; no flow for long periods.
Maximum stage known, 18.0 ft in 1933, from floodmark.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5.04	5.84	4.46	34.6	150	111	21.7	5.48	1.97	0.72	0.05	1.33	27.7
1952	.20	1.81	126	65.5	223	124	112	62.7	2.41	.98	2.66	0	59.6
1953	0	.39	12.0	36.0	157	234	292	517	.53	.45	.07	0	104
1954	0	.10	4.67	47.6	15.9	5.06	53.0	196	.72	0	0	0	27.1
1955	0	.02	2.60	15.6	78.9	81.6	162	140	3.56	17.1	454	.18	80.0
1956	.14	.17	1.13	3.26	63.8	70.5	238	127	2.54	.19	0	0	41.9
1957	0	0	0	3.54	36.0	83.3	300	98.4	40.3	.10	0	0	46.5
1958													
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	310	348	274	2,130	8,330	6,820	1,290	337	117	44	2.8	79	20,080
1952	12	108	7,770	4,030	12,820	7,620	6,660	3,860	143	60	164	0	43,250
1953	0	23	735	2,220	8,700	14,370	17,380	31,780	31	27	4.6	0	75,270
1954	0	6.1	287	2,930	882	311	3,150	12,040	43	0	0	0	19,650
1955	0	1.4	160	958	4,380	5,020	9,620	8,580	212	1,050	27,900	11	57,890
1956	8.5	9.9	70	201	3,670	4,340	14,140	7,840	151	12	0	0	30,440
1957	0	0	0	218	2,000	5,120	17,850	6,050	2,400	6.1	0	0	33,640
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	72.5	14.92	52,460
1951	1211	1,130	Mar. 28, 1951	0	27.7	0.420	5.71	20,080	37.4	7.68	27,040
1952	1241	3,700	Feb. 12, 1952	0	59.6	.903	12.29	43,250	49.7	10.27	36,120
1953	1281	13,900	Apr. 29, 1953	0	104	1.58	21.38	75,270	103	21.25	74,810
1954	1341	7,450	May 12, 1954	0	27.1	.411	5.58	19,650	27.0	5.55	19,520
1955	1391	23,700	Aug. 3, 1955	0	80.0	1.21	16.45	57,890	79.9	16.43	57,820
1956	1441	12,500	Apr. 6, 1956	0	41.9	.635	8.65	30,440	41.8	8.62	30,350
1957	1511	2,020	May 1, 1957	0	46.5	.705	9.56	33,640	-	-	-
1958	-	3,680	May 4, 1958	-	-	-	-	-	-	-	-
1959	-	2,530	Mar. 12, 1959	-	-	-	-	-	-	-	-
1960	-	4,040	Mar. 4, 1960	-	-	-	-	-	-	-	-

3517. Bayou Na Bonchasse near Mansfield, La.

Location.--Lat 32°06'05", long 93°41'45", in SE¼ sec.21, T.13 N., R.13 W., near center of span on downstream side of bridge on State Highway 175, 2.5 miles upstream from Little Bayou Na Bonchasse and 4.2 miles north of Mansfield.

Drainage area.--19.5 sq mi.

Records available.--November 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 165.78 ft above mean sea level, datum of 1929, supplementary adjustment of 1941.

Extremes.--1957-60: Maximum daily discharge, 2,000 cfs Sept. 21, 1958; maximum gage height, 15.75 ft Sept. 21, 1958 (from floodmarks, discharge not determined); minimum discharge, 0.2 cfs Aug. 31, 1958; minimum gage height, 1.98 ft Aug. 17, 1958.

Remarks.--Records of chemical analyses for water year 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	58.9	16.3	45.8	10.4	19.2	8.99	37.8	13.3	1.47	8.13	1.63	-
1959	2.43	2.59	2.13	2.81	8.97	4.86	34.5	8.17	12.2	3.73	1.13	1.13	6.98
1960	2.95	17.0	24.2	20.5	52.3	36.7	7.70	2.79	2.80	3.86	2.62	2.88	14.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	3,500	1,000	2,810	576	1,180	535	2,320	790	90	500	9,700	-
1959	150	154	131	173	498	299	2,050	502	726	229	70	67	5,050
1960	182	1,010	1,490	1,260	3,010	2,260	458	172	167	237	161	171	10,580

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	1631	a2,000	Sept.21, 1958	-	-	-	-	-	26.2	18.24	18,940
1959	1631	1,050	Apr. 19, 1959	0.6	6.98	0.358	4.87	5,050	10.1	7.02	7,300
1960	1711	1,420	Feb. 24, 1960	.7	14.6	.749	10.15	10,580	-	-	-

a Maximum daily.

3517.8. Bayou Dupont subwatershed No. 2 (Bayou Dupont) near Marthaville, La.

Location.--Lat 31°41'50", long 93°25'50", in NW¼NE¼ sec.7, T.8 N., R.10 W., near center of dam on Bayou Dupont, 3.6 miles southwest of Marthaville and 9.1 miles northeast of Many.

Drainage area.--5.29 sq mi.

Records available.--February to September 1960.

Gage.--Duplex water-stage recorder (rain gage and water stage combination). Datum of gage is 218.22 ft above mean sea level (U. S. Soil Conservation Service bench mark).

Extremes.--February to September 1960: Maximum outflow, 20 cfs Feb. 24-29, 1960; maximum gage height, 11.35 ft Feb. 24, 1960; no flow at times. Maximum inflow, 520 cfs (average for 10-minute interval) Feb. 24, 1960, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam. Outlet structure is a 2.5-foot square concrete drop inlet connected to a 17-inch corrugated metal outlet pipe.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1960	-	-	-	-	7.84	6.75	0	0	0	0	0	0	-

Contents, in acre-feet, on last day of month in reservoir

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1960	-	-	-	-	443	192	123	99.0	118	97.6	97.3	118

3518.8. Bayou Dupont subwatershed No. 8 (Brushy Creek) near Marthaville, La.

Location.--Lat 31°43'30", long 93°21'40", in NW¼NE¼ sec.35, T.9 N., R.10 W., near left end of dam on Brushy Creek, 2.1 miles southeast of Marthaville and 2.5 miles upstream from mouth.

Drainage area.--3.49 sq mi.

Records available.--November 1958 to September 1960.

Gage.--Duplex water-stage recorder (rain gage and water stage combination). Datum of gage is 164.01 ft above mean sea level (U. S. Soil Conservation Service bench mark).

Extremes.--1958-60: Maximum outflow, 19 cfs Feb. 25, 1960 (gage height, 10.67 ft); no flow for many days in each year. Maximum inflow, 630 cfs (average for 2½-minute interval) Mar. 20, 1959, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation for outlet structure. Reservoir is formed by earth dam. Outlet structure is a 2.5-foot square concrete drop inlet connected to a 17-inch corrugated metal outlet pipe.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	0	0	0	4.04	0	3.21	3.37	7.64	0.16	0.45	0.26	-
1960	0.15	.07	4.60	11.8	14.5	11.5	0	0	0	0	0	0	3.54

Contents, in acre-feet, on last day of month in reservoir

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1959	-	105	105	138	153	147	248	317	-	241	231	228
1960	229	227	315	414	638	170	198	200	201	182	198	210

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Maximum outflow		Maximum inflow		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1959	1711	13	June 12, 1959	630	Mar. 20, 1959	0	-	1.97
1960	1711	19	Feb. 25, 1960	a200	Jan. 5, 1960	0	3.54	-

a Maximum recorded; discharge may have been exceeded in February 1960.

3519. Bayou Dupont near Robeline, La.

Location.--Lat 31°42'15", long 93°19'38", in sec.6, T.8 N., R.9 W., near left bank on south side of left overflow bridge on State Highway 120, three-quarters of a mile downstream from Bayou Adois and 1.9 miles north of Robeline.

Drainage area.--35.1 sq mi.

Records available.--February 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 123.51 ft above mean sea level (levels by U. S. Soil Conservation Service).

Extremes.--1957-60: Maximum discharge, 2,800 cfs Jan. 21, 1958 (gage height, 9.42 ft); no flow for many days in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	28.0	43.0	130	53.7	28.2	0.72	0.003	0.11	-
1958	0.50	151	30.9	90.5	58.6	73.6	13.9	9.30	30.4	.88	6.71	112	47.8
1959	15.2	4.47	1.38	2.03	40.2	32.7	56.5	52.8	32.6	1.78	1.31	.33	19.9
1960	.17	.12	12.0	28.5	110	41.9	6.08	2.72	.57	.01	.36	.98	16.6

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	1,550	2,640	7,740	3,300	1,680	44	0.2	6.7	-
1958	31	9,010	1,900	5,560	3,260	4,520	828	572	1,810	54	413	6,670	34,630
1959	936	266	85	125	2,230	2,010	3,360	3,250	1,940	109	80	20	14,410
1960	11	6.9	736	1,760	6,320	2,580	362	167	34	.8	22	58	12,060

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1957	1511	a892	Apr. 28, 1957	-	-	-	-	-	-	-	-
1958	1561	2,800	Jan. 21, 1958	0	47.8	1.36	18.50	34,630	34.5	13.34	24,970
1959	1711	710	Apr. 18, 1959	0	19.9	.567	7.70	14,410	19.2	7.42	13,880
1960	1711	800	Feb. 25, 1960	0	16.6	.473	6.43	12,060	-	-	-

a Maximum for the period February to September.

3520. Saline Bayou near Lucky, La.

Location.--Lat 32°15'00", long 92°58'35", in SW¼SW¼ sec.27, T.15 N., R.6 W., near center of span on downstream side of bridge on State Highway 4, 0.7 mile downstream from Six-mile Creek and 1.0 mile east of Lucky.

Drainage area.--154 sq mi.

Records available.--June 1940 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 152.65 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Feb. 28, 1949, wire-weight gage at same site and datum.

Average discharge.--20 years (1940-60), 179 cfs (129,600 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 13,500 cfs Jan. 1, 1945 (gage height, 12.9 ft), from rating curve extended above 6,400 cfs on basis of records for Black Lake Bayou near Castor and Dugdemona River near Jonesboro; minimum, 2.4 cfs Aug. 14, 1954 (gage height, 1.71 ft).

Remarks.--Record of chemical analyses for water year 1956 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	85.1	76.3	111	495	309	240	220	121	71.4	26.2	14.2	33.3	149
1952	16.9	38.4	207	183	318	295	281	62.0	18.9	14.6	13.7	9.36	121
1953	9.25	33.8	48.3	84.1	363	558	261	1,122	27.8	30.0	16.8	15.7	214
1954	15.0	37.6	90.0	131	119	72.2	170	264	26.9	8.03	4.76	5.00	78.4
1955	9.19	18.9	25.1	44.5	103	259	234	485	193	252	177	27.4	153
1956	26.6	42.9	55.9	54.0	420	275	270	130	26.9	23.4	20.2	9.16	128
1957	10.3	24.6	36.2	91.2	260	142	337	395	196	81.6	18.8	36.7	135
1958	92.5	713	242	311	172	233	152	650	134	245	39.9	280	273
1959	51.5	103	81.4	98.1	282	280	279	94.5	652	44.9	27.2	21.8	166
1960	28.6	107	169	236	383	323	78.2	60.9	29.1	14.6	31.2	19.6	123

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,230	4,540	6,850	30,450	17,170	14,750	13,080	7,420	4,250	1,610	872	1,980	108,200
1952	1,040	2,280	12,730	11,220	18,320	18,150	16,720	3,810	1,130	900	841	557	87,700
1953	569	2,010	2,970	5,170	20,140	34,310	15,560	69,000	1,650	1,850	1,030	936	155,200
1954	924	2,240	5,530	8,040	6,600	4,440	10,100	16,220	1,600	494	293	297	56,780
1955	565	1,120	1,540	2,740	5,700	15,920	13,920	29,840	11,510	15,520	10,870	1,630	110,900
1956	1,640	2,550	3,440	3,320	24,130	16,890	27,960	7,980	1,600	1,440	1,240	545	92,740
1957	636	1,460	2,220	5,610	14,420	8,700	20,060	24,270	11,650	5,020	1,160	2,190	97,400
1958	5,690	42,430	14,870	19,140	9,530	14,350	9,070	39,980	8,000	15,090	2,450	16,670	197,300
1959	3,160	6,110	5,000	6,030	15,650	17,210	16,580	5,810	38,780	2,760	1,670	1,300	120,100
1960	1,760	6,360	10,380	14,500	22,060	19,870	4,660	3,750	1,730	897	1,920	1,170	89,060

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	216	19.02	156,400
1951	1211	2,510	Jan. 16, 1951	9.5	149	0.968	13.18	108,200	149	13.12	107,600
1952	1241	1,290	Apr. 15, 1952	7.0	121	.786	10.69	87,700	106	9.40	77,200
1953	1281	8,830	May 17, 1953	7.9	214	1.39	18.88	155,200	219	19.26	158,300
1954	1341	1,270	May 14, 1954	2.6	78.4	.509	6.91	56,780	70.9	6.26	51,310
1955	1391	3,410	May 25, 1955	6.4	153	.994	13.50	110,900	159	14.03	115,300
1956	1441	4,880	Apr. 7, 1956	6.7	128	.831	11.28	92,740	123	10.85	89,420
1957	1511	1,110	Apr. 6, 1957	7.8	135	.877	11.85	97,400	216	18.99	156,100
1958	1561	2,890	May 1, 1958	16	273	1.77	24.02	197,300	205	18.09	148,600
1959	1631	12,000	June 9, 1959	16	166	1.08	14.63	120,100	172	15.13	124,300
1960	1711	991	Feb. 27, 1960	10	123	.799	10.84	89,060	-	-	-

3525. Black Lake Bayou near Castor, La.

Location.--Lat 32°15'40", long 93°12'50", in NW¼ sec.29, T.15 N., R.8 W., near center of span on downstream side of bridge on State Highway 4, 2.8 miles downstream from Four Mile Bayou, 2.8 miles northwest of Castor, and 6.0 miles southeast of Ringgold.
Drainage area.--423 sq mi.
Records available.--May 1940 to September 1957, water year 1958-60 (annual maximum).
Gage.--Crest stage gage since Oct. 1, 1957. Altitude of gage is 135 ft (from topographic map). Prior to Sept. 19, 1946, wire-weight gage, Apr. 8 to May 13, 1952, staff gage, and May 14, 1952, to Sept. 30, 1957, water-stage recorder, at same site and datum.
Average discharge.--17 years (1940-57), 544 cfs (393,800 acre-ft per year).
Extremes.--1940-60: Maximum discharge, 14,100 cfs Aug. 3, 1945 (gage height, 13.2 ft, from floodmark).
1940-57: Minimum discharge, 5.6 cfs Aug. 29 to Sept. 1, 1943; minimum gage height, 1.66 ft Sept. 1, 1957.
Remarks.--Records of chemical analyses for water year 1956-57 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	401	243	234	1,111	1,237	705	682	251	150	41.6	17.5	39.1	421
1952	25.1	54.0	582	513	1,514	1,026	934	209	64.4	32.9	19.2	14.8	411
1953	11.8	29.7	59.3	172	1,018	1,597	818	3,879	73.5	42.0	21.2	20.4	647
1954	15.5	40.6	199	399	375	154	469	945	46.1	14.5	8.70	7.49	222
1955	12.7	20.7	29.1	96.3	310	690	723	1,065	717	760	285	31.7	396
1956	24.2	39.7	77.0	95.7	1,124	835	1,272	376	41.8	45.9	15.7	13.0	326
1957	11.0	29.6	56.5	213	1,024	606	1,197	1,516	583	176	41.0	41.7	453

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24,660	14,480	14,390	68,310	68,730	43,350	40,570	15,430	8,900	2,560	1,080	2,320	304,800
1952	1,550	3,210	35,770	31,510	87,090	63,090	55,570	12,870	3,830	2,030	1,180	882	298,600
1953	726	1,770	3,650	10,580	56,560	98,200	48,660	238,500	4,380	2,580	1,300	1,210	468,100
1954	956	2,410	12,260	24,510	20,840	9,460	27,900	58,080	2,740	890	535	446	161,000
1955	784	1,230	1,790	5,920	17,200	42,400	43,030	65,490	42,640	46,750	17,550	1,890	286,700
1956	1,490	2,360	4,730	5,880	64,650	51,360	75,710	23,140	2,490	2,820	966	774	236,400
1957	674	1,760	3,470	13,120	56,860	37,240	71,230	93,210	34,660	10,840	2,520	2,480	328,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	757	24.29	548,000
1951	1211	2,010	Apr. 2, 1951	12	421	0.995	13.50	304,800	403	12.93	291,800
1952	1241	3,990	Feb. 16, 1952	9.7	411	.972	13.24	298,600	364	11.71	264,200
1953	1281	11,500	May 1, 1953	8.4	647	1.53	20.74	468,100	660	21.16	477,600
1954	1341	2,780	May 16, 1954	5.7	222	.525	7.13	161,000	206	6.60	149,200
1955	1391	5,000	May 27, 1955	8.1	396	.936	12.69	286,700	403	12.91	291,400
1956	1441	6,380	Apr. 9, 1956	8.2	326	.771	10.49	236,400	322	10.37	233,700
1957	1511	5,430	May 1, 1957	7.9	453	1.07	14.54	328,100	-	-	-
1958	-	9,480	Sept. 20, 1958	-	-	-	-	-	-	-	-
1959	-	4,230	June 9, 1959	-	-	-	-	-	-	-	-
1960	-	2,160	Mar. 4, 1960	-	-	-	-	-	-	-	-

3528. Grand Bayou near Coushatta, La.

Location.--Lat 32°02'55", long 93°18'10", in SW¼SW¼ sec.4, T.12 N., R.9 W., near right bank on downstream side of bridge on State Highway 155, half a mile upstream from Carrol Creek and 3.3 miles north of Coushatta.
Drainage area.--93.9 sq mi.
Records available.--Occasional low-flow measurements, water years 1954-55, October 1956 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 136.26 ft above mean sea level.
Extremes.--1956-60: Maximum discharge, 7,920 cfs Sept. 21, 1958 (gage height, 11.47 ft), from rating curve extended above 3,000 cfs on basis of velocity-area studies; no flow at times in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	0.006	0.09	0.07	26.5	245	138	342	202	183	6.81	1.49	0.46	93.8
1958	23.9	513	116	219	83.3	180	67.4	161	38.8	69.7	7.44	485	163
1959	14.3	21.7	11.1	19.9	130	155	188	60.5	78.9	4.06	.49	.06	56.3
1960	2.19	32.8	134	174	347	196	8.83	2.54	19.9	1.71	1.59	.12	75.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	0.4	5.6	4.6	1,630	13,590	8,460	20,330	12,400	10,910	419	91	27	67,870
1958	1,470	30,510	7,150	13,500	4,630	11,070	4,010	9,910	2,310	4,280	457	28,840	118,100
1959	878	1,290	682	1,220	7,220	9,560	11,180	3,720	4,700	250	30	3.4	40,730
1960	135	1,950	8,240	10,680	19,960	12,050	525	156	1,190	105	98	6.9	55,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1957	1511	2,280	June 6, 1957	0	93.8	0.999	13.58	67,870	148	21.39	107,000
1958	1561	7,920	Sept 21, 1958	0	163	1.74	23.58	118,100	113	16.35	81,860
1959	1631	1,450	Apr. 21, 1959	0	56.3	.600	8.14	40,730	66.6	9.63	48,210
1960	1711	1,200	Feb. 26, 1960	0	75.9	.808	11.01	55,100	-	-	-

3530. Saline Bayou near Clarence, La.

Location.--Lat 31°49'05", long 92°56'55", in SE¼ sec.26, T.10 N., R.6 W., near center of span on downstream side of bridge on U. S. Highway 84, 1.8 miles downstream from Bayou Bourbeaux, 4.0 miles downstream from Saline Lake conservation dam, 4.6 miles east of Clarence, and 6.7 miles upstream from mouth.

Drainage area.--1,386 sq mi (revised).

Records available.--October 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 72.75 ft above mean sea level (levels by Louisiana Department of Public Works). Prior to Nov. 2, 1954, wire-weight gage at same site and datum. Auxiliary water-stage recorder 5.3 miles downstream from base gage. Datum of auxiliary gage is 72.97 ft above mean sea level. Prior to Nov. 3, 1954, wire-weight gage at same site and datum.

Average discharge.--11 years (1949-60), 1,409 cfs (1,020,000 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 14,200 cfs May 19, 1953; maximum daily reverse flow, 6,570 cfs May 11, 1958 (backwater from Red River); maximum gage height, 40.46 ft May 21, 1953; minimum discharge (unaffected by backwater), 2.7 cfs Dec. 10, 11, 1956; Sept. 18-21, 25-29, 1959; minimum gage height, 1.62 ft Dec. 10, 11, 1956.
Flood in April 1945 reached a stage of 43.6 ft, from information by local resident.

Remarks.--Some regulation by Saline Lake-Black Lake (combined usable capacity, 161,000 acre-ft). Records of chemical analyses and water temperatures for the water year 1953 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	708	821	823	3,519	2,981	2,238	2,392	1,348	327	183	89.0	44.1	1,280
1952	19.0	20.5	822	1,192	2,902	2,640	2,074	2,134	378	12.6	27.2	6.04	1,013
1953	1.25	8.51	72.2	102	1,892	5,445	1,896	8,981	5,356	290	124	31.8	2,020
1954	111.4	34.1	1,103	1,041	936	512	1,158	3,011	443	26.5	19.2	8.12	693
1955	5.35	2.0	1.50	22.8	872	1,162	2,760	1,897	2,683	1,663	2,682	215	1,163
1956	102	55.0	206	297	3,159	1,862	3,425	1,345	284	93.1	44.1	39.1	896
1957	30.3	11.1	41.8	475	2,736	2,264	2,812	1,531	2,776	3,604	373	138	1,388
1958	488	4,400	4,698	2,535	2,363	2,408	1,361	2,373	3,673	1,705	395	2,024	2,363
1959	2,375	601	619	580	1,628	2,008	23,677	1,452	3,437	393	615	9.26	1,378
1960	68.5	236	1,076	1,676	2,781	3,604	776	364	64.0	80.6	184	4.90	906

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	43,560	48,880	50,580	216,400	165,600	137,600	142,400	82,890	19,450	11,270	5,470	2,630	926,700
1952	1,170	1,220	50,520	73,300	166,900	162,300	123,400	131,200	22,480	776	1,670	359	735,300
1953	77	507	4,440	62,500	105,100	334,800	112,800	552,200	318,700	17,810	7,650	1,890	1,462,000
1954	699	2,030	67,820	64,030	51,980	31,500	68,920	185,100	26,390	1,630	1,180	483	501,800
1955	329	119	92	1,400	48,430	71,430	164,300	116,600	159,700	102,200	164,900	12,800	842,300
1956	6,290	3,270	12,640	18,260	181,700	114,500	203,800	82,720	16,920	5,720	2,720	2,330	650,900
1957	1,860	659	2,570	29,200	152,000	139,200	167,300	94,160	165,200	221,600	22,960	8,200	1,005,000
1958	30,000	261,800	288,900	155,900	131,200	148,100	80,960	145,900	218,600	104,900	24,280	120,400	1,711,000
1959	146,800	35,760	38,080	35,690	90,410	123,500	140,800	89,290	204,500	24,180	37,840	551	997,400
1960	4,210	14,060	66,140	103,000	159,900	221,600	46,200	22,400	3,810	4,960	11,340	292	657,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	2,372	1,717,000
1951	1211	4,700	Jan. 21, 1951	22	1,280	926,700	1,155	836,600
1952	1241	4,120	Apr. 24, 1952	a0	1,013	735,300	947	687,400
1953	1281	14,200	May 19, 1953	a0	2,020	1,462,000	2,110	1,528,000
1954	1341	b4,230	May 25, 1954	4.8	693	501,800	596	431,800
1955	1391	6,340	May 29, 1955	-	1,163	842,300	1,193	864,000
1956	1441	5,860	Apr. 13, 1956	-	896	650,900	873	633,700
1957	1511	6,980	June 29, 1957	2.9	1,388	1,005,000	2,183	1,581,000
1958	1561	8,880	May 26, 1958	a78	2,363	1,711,000	1,907	1,381,000
1959	1631	6,270	June 14, 1959	2.7	1,378	997,400	1,148	831,200
1960	1711	5,600	Mar. 3, 1960	-	906	657,900	-	-

a Affected by backwater.
b Mean daily.

3535. Nantachie Creek near Montgomery, La.

Location.--Lat 31°41'15", long 92°52'40", in SE¼NE¼ sec.9, T.8 N., R.5 W., near center of span on upstream side of bridge on State Highway 34, 1.4 miles downstream from Kadesh Branch and 1.5 miles northeast of Montgomery.
Drainage area.--47 sq mi.
Records available.--August 1942 to September 1960. Prior to October 1949, published as Nantaches Creek near Montgomery.
Gage.--Water-stage recorder. Datum of gage is 107.43 ft above mean sea level, datum of 1929 (Louisiana Geodetic Survey bench mark). Prior to July 25, 1945, wire-weight gage at same site and datum.
Average discharge.--18 years (1942-60), 53.7 cfs (38,880 acre-ft per year).
Extremes.--1942-60: Maximum discharge, 10,500 cfs May 17, 1953 (gage height, 14.63 ft); no flow for many days in most years.
Revisions.--The momentary maximum discharges for the water year 1945 published in WSP 1311 has been revised to 6,620 cfs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2.98	3.01	5.20	72.6	57.8	89.1	38.3	20.6	1.52	1.78	0.27	0.65	24.4
1952	.13	.93	5.97	14.1	27.6	36.1	88.8	54.4	13.9	1.08	.40	0	20.2
1953	0	.90	2.05	13.2	65.9	211	336	839	21.7	4.76	.75	.08	125
1954	.05	.97	9.48	9.77	7.30	7.85	14.0	61.5	.44	0	0	0	9.35
1955	.91	.14	.70	4.69	42.8	3.79	42.3	.28	1.85	3.01	27.8	.26	10.4
1956	0	.19	.85	2.13	44.7	21.5	13.6	1.14	.13	0	0	0	6.86
1957	0	†.81	12.9	24.7	46.1	91.3	153	128	81.0	19.2	.11	10.2	47.1
1958	10.4	434	92.2	96.0	93.6	153	98.1	106	145	87.6	14.9	199	127
1959	34.7	9.92	6.10	10.6	62.3	28.1	59.8	6.56	23.8	1.23	.52	.51	20.0
1960	.86	.70	5.17	8.83	84.1	77.7	15.8	13.0	.48	.01	1.68	.39	17.2

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	183	179	320	4,460	3,210	5,480	2,280	1,270	91	110	17	38	17,640
1952	7.7	55	367	868	1,590	2,220	5,290	3,350	829	66	25	0	14,670
1953	0	53	126	810	3,660	12,990	19,970	51,560	1,290	293	46	4.6	90,800
1954	3.2	58	583	601	405	483	832	3,780	26	0	0	0	6,770
1955	56	8.1	43	288	2,370	233	2,510	17	110	185	1,710	15	7,550
1956	0	12	52	131	2,570	1,320	808	70	7.9	0	0	0	4,970
1957	0	48	795	1,520	2,560	5,610	9,110	7,840	4,820	1,180	6.7	609	34,100
1958	638	25,850	5,670	5,900	5,200	9,390	5,840	6,530	8,650	5,390	914	11,850	91,800
1959	2,130	590	375	649	3,460	1,730	3,560	403	1,420	75	32	30	14,450
1960	53	41	318	543	4,830	4,780	940	800	28	.6	103	23	12,460

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	96.6	27.89	69,950
1951	1211	1,200	Mar. 28, 1951	0	24.4	0.519	7.04	17,640	24.0	6.94	17,390
1952	1241	560	Apr. 24, 1952	0	20.2	.430	5.86	14,670	19.8	5.76	14,420
1953	1281	10,500	May 17, 1953	0	125	2.66	36.22	90,800	126	36.40	91,270
1954	1341	321	May 1, 1954	0	9.35	.199	2.69	6,770	8.61	2.48	6,230
1955	1391	395	Aug. 3, 1955	0	10.4	.221	3.01	7,550	10.4	2.99	7,500
1956	1441	196	Feb. 9, 1956	0	6.86	.146	1.99	4,970	7.93	2.30	5,750
1957	1511	1,050	Apr. 29, 1957	0	47.1	1.00	13.60	34,100	90.4	26.08	65,410
1958	1561	3,150	Sept.21, 1958	.4	127	2.70	36.63	91,800	86.7	25.03	62,760
1959	1631	560	Apr. 20, 1959	0	20.0	.426	5.77	14,450	16.2	4.70	11,770
1960	1711	425	Feb. 25, 1960	0	17.2	.366	4.98	12,460	-	-	-

3538. Youngs Bayou at Natchitoches, La.

Location.--Lat 31°45'00", long 93°06'40", T.9 N., R.7 W., near center of span on downstream side of bridge on State Highway 6 at city limits of Natchitoches, 3 miles downstream from Gumroot Branch.
Drainage area.--40.1 sq mi.
Records available.--Occasional low-flow measurements, water years 1955-57, December 1957 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 92.70 ft above mean sea level (Louisiana Geodetic Survey bench mark).
Extremes.--1957-60. Maximum discharge, 1,890 cfs Sept. 22, 1958 (gage height, 14.89 ft); no flow at times in 1958-60.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	51.4	67.8	62.8	77.3	22.5	17.6	21.0	1.51	1.36	212	-
1959	15.1	1.15	1.37	2.68	45.5	25.4	55.5	39.4	13.6	3.86	.57	.007	16.8
1960	.34	.38	19.6	38.6	133	55.7	10.4	6.96	.05	.03	3.83	.76	22.1

Monthly and yearly discharge, in acre-feet, of Youngs Bayou at Natchitoches, La.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	-	-	3,160	4,170	3,480	4,750	1,340	1,080	1,250	93	84	12,630	-
1959	931	68	84	165	2,520	1,560	3,300	2,420	811	237	35	.4	12,130
1960	21	23	1,200	2,370	7,650	3,430	621	428	3.2	1.8	235	45	16,030

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	-	-	-	-	-	-	-	-	41.4	14.01	29,960
1959	1631	350	Apr. 19, 1959	0	16.8	0.419	5.67	12,130	17.0	5.75	12,290
1960	1711	440	Feb. 25, 1960	0	22.1	.551	7.49	16,030	-	-	-

3540. Little Sandy Creek at Kisatchie, La.

Location.--Lat 31°24'30", long 93°10'15", in SE¼ sec 15, T.5 N., R.8 W., on right bank at downstream side of bridge on State Highway 117, 0.5 mile south of Kisatchie and 2 miles upstream from mouth.

Drainage area.--21.4 sq mi.

Records available.--September 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 204.44 ft above mean sea level, datum of 1929.

Average discharge.--11 years (1950-60), 27.2 cfs (19,690 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 5,880 cfs Apr 29, 1953 (gage height, 15.36 ft); minimum, 0.2 cfs Sept. 19, 21-22, 27, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.18	53.9	16.9	104	38.8	43.5	16.8	56.6	6.50	3.47	1.27	2.48	28.9
1952	1.44	2.95	6.95	14.7	30.6	18.3	64.6	35.3	4.68	15.3	2.70	1.08	16.5
1953	.88	1.89	15.2	12.6	43.6	93.5	131	222	9.80	20.2	11.4	3.19	47.2
1954	2.01	3.57	59.3	24.4	7.80	5.95	39.5	44.1	4.81	3.51	1.03	1.06	16.5
1955	5.31	3.50	4.45	18.3	68.0	8.15	42.9	5.84	5.45	31.4	87.3	4.97	23.5
1956	1.40	1.83	5.62	9.39	44.1	11.8	15.6	3.67	2.56	1.38	.72	.39	8.04
1957	1.23	9.99	27.0	15.1	28.7	56.3	61.6	18.8	38.4	8.82	.64	2.29	22.3
1958	17.0	113	44.2	47.2	34.4	33.4	54.0	23.3	40.5	12.5	47.9	72.0	44.7
1959	16.5	24.1	6.53	7.36	64.0	27.5	42.8	10.6	11.6	8.53	3.35	1.80	18.3
1960	2.46	2.62	19.4	20.3	52.0	40.0	13.9	6.05	19.0	6.94	4.35	10.6	16.3

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	196	3,210	1,040	6,360	2,160	2,670	997	3,480	387	214	78	147	20,940
1952	88	176	428	907	1,760	1,130	3,840	2,170	278	944	166	64	11,950
1953	54	112	935	777	2,420	5,750	7,780	13,660	583	1,240	698	190	34,200
1954	124	212	3,650	1,500	433	366	2,350	2,710	286	216	63	63	11,970
1955	327	208	274	1,120	3,780	501	2,550	359	324	1,930	5,370	296	17,040
1956	86	109	346	577	2,530	729	927	226	152	85	44	23	5,830
1957	76	594	1,660	928	1,590	3,460	3,670	1,160	2,280	542	39	136	16,140
1958	1,050	6,700	2,720	2,900	1,910	2,050	3,210	1,430	2,410	767	2,950	4,280	32,380
1959	1,010	1,430	401	453	3,550	1,690	2,550	655	692	524	206	107	13,270
1960	151	156	1,200	1,250	2,990	2,460	828	372	1,130	427	267	628	11,860

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff		
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	55.9	35.45	40,450
1951	1211	3,040	Jan. 2, 1951	0.9	28.9	1.35	18.35	20,940	23.7	15.06	17,180
1952	1241	2,820	Apr. 23, 1952	.9	16.5	.771	10.47	11,950	17.0	10.84	12,360
1953	1281	5,880	Apr. 29, 1953	.8	47.2	2.21	29.98	34,200	51.2	32.51	37,080
1954	1341	2,060	Dec. 3, 1953	.5	16.5	.771	10.50	11,970	12.2	7.71	8,800
1955	1391	4,430	Aug. 3, 1955	.4	23.5	1.10	14.92	17,040	23.2	14.69	16,770
1956	1441	726	Feb. 8, 1956	.2	8.04	.376	5.12	5,830	10.5	6.68	7,620
1957	1511	1,590	Mar. 24, 1957	.4	22.3	1.04	14.13	16,140	33.5	21.29	24,280
1958	1561	2,450	Sept. 21, 1958	.5	44.7	2.09	28.41	32,380	34.2	21.71	24,750
1959	1631	1,060	(a)	1.0	18.3	.855	11.63	13,270	16.5	10.45	11,900
1960	1711	629	Feb. 24, 1960	1.0	16.3	.762	10.38	11,860	-	-	-

a Nov. 18 or 19, 1958.

3545. Horsepen Creek near Provencal, La.

Location.--Lat 31°36'05", long 93°12'05", in SW¼ sec.9, T.7 N., R.8 W., at bridge on State Highway 117, 3½ miles south of Provencal and 3¾ miles upstream from Sulphur Branch.

Drainage area.--5.27 sq mi.

Records available.--September 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 149.06 ft above mean sea level, datum of 1929 (Louisiana Geodetic Survey bench mark).

Average discharge.--11 years (1949-60), 4.68 cfs (3,390 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 1,910 cfs May 18, 1953 (gage height, 11.88 ft); no flow in 1956 (revised) caused by temporary storage behind dam built to obtain water for bridge construction.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	2.38	1.00	13.7	26.2	25.5	17.2	5.55	39.1	27.2	3.05	1.36	1.84	13.6
1951	1.58	2.24	1.96	12.6	6.94	9.05	3.41	4.24	1.05	.65	.27	.87	3.73
1952	.39	.69	4.64	4.25	7.43	6.40	8.26	1.65	.45	.73	.35	.18	2.93
1953	.15	.43	1.15	1.77	7.37	16.6	26.9	57.3	3.47	1.70	.54	.42	9.85
1954	.57	1.39	6.06	4.37	2.01	1.86	4.11	7.31	.32	*.23	*.29	*.24	*2.41
1955	.43	.77	1.05	2.16	7.84	1.02	7.15	.57	.20	.40	5.62	.35	2.25
1956	.24	.39	.58	.90	6.21	2.37	2.06	.53	.37	.16	.15	.05	1.15
1957	.59	1.72	2.31	2.25	3.48	4.60	11.2	3.79	7.69	1.73	.92	.60	3.39
1958	.63	26.3	3.44	8.95	8.58	10.4	13.1	2.89	1.38	.82	3.52	9.95	7.43
1959	.61	.89	.91	1.11	4.66	2.44	8.66	2.07	.57	.46	.26	.54	1.90
1960	.88	.51	2.64	3.03	13.3	5.90	1.17	1.52	.63	1.54	1.52	2.18	2.87

* Revised. Revised daily discharge for the period thus affected are available and will be published in a future water-supply paper.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1950	146	60	843	1,610	1,420	1,060	330	2,400	1,620	187	84	109	9,870
1951	97	133	121	775	386	557	203	261	62	40	17	52	2,700
1952	24	41	285	261	428	394	492	102	27	45	21	11	2,130
1953	9.5	25	71	109	409	1,020	1,600	3,520	206	105	33	25	7,130
1954	35	83	373	269	112	114	245	450	19	*14	*18	*14	*1,750
1955	27	46	64	133	435	63	425	35	12	25	345	21	1,630
1956	15	23	36	55	357	146	123	33	22	10	9.5	3.0	832
1957	36	102	142	138	193	283	669	233	458	107	57	36	2,450
1958	39	1,570	212	550	476	637	782	178	82	50	216	592	5,380
1959	38	53	56	68	259	150	515	128	34	29	16	32	1,380
1960	54	30	162	186	767	363	70	93	37	94	94	130	2,080

* Revised. See footnote to preceding table.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	1711	1,730	May 1, 1950	0.4	13.6	2.58	35.10	9,870	12.7	32.62	9,170
1951	1711	390	Jan. 2, 1951	.2	3.73	.708	9.62	2,700	3.73	9.62	2,700
1952	1711	205	Apr. 23, 1952	.1	2.93	.556	7.58	2,130	2.60	6.70	1,890
1953	1711	1,910	May 18, 1953	.1	9.85	1.87	25.42	7,130	10.4	26.79	7,520
1954	1711	166	Apr. 30, 1954	*.1	*2.41	*.457	*6.21	*1,750	*1.92	*4.95	*1,390
1955	1711	352	Aug. 3, 1955	.2	2.25	.427	5.79	1,630	2.17	5.57	1,570
1956	1711	116	Feb. 3, 1956	a0	1.15	.218	2.96	832	1.43	3.69	1,040
1957	1711	450	June 27, 1957	a0	3.39	.643	8.73	2,450	5.51	14.20	4,000
1958	1711	862	Apr. 27, 1958	.2	7.43	1.41	19.15	5,380	5.12	13.21	3,710
1959	1711	192	Apr. 18, 1959	.2	1.90	.361	4.88	1,380	2.04	5.24	1,480
1960	1711	223	Feb. 24, 1960	.1	2.87	.545	7.39	2,080	-	-	-

* Revised.
a Temporary storage behind dam built to obtain water for bridge construction.

3550. Hemphill Creek near Hot Wells, La.

Location.--Lat 31°17'50", long 92°44'10", in SE¼NW¼ sec.25, T.4 N., R.4 W., near left bank on downstream side of bridge on State Highway 1200, a quarter of a mile upstream from Dyer Creek and 3¼ miles southwest of Hot Wells.

Drainage area.--18.0 sq mi.

Records available.--October 1948 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 87.78 ft above mean sea level, datum of 1929, supplementary adjustment of 1941.

Average discharge.--12 years (1948-60), 28.0 cfs (20,270 acre-ft per year).

Extremes.--1948-60: Maximum discharge, 8,320 cfs Apr. 29, 1953 (gage height, 15.51 ft); minimum daily, 5.5 cfs Oct. 11-16, 1956; minimum gage height recorded, 1.44 ft Aug. 11, 12, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13.9	16.7	16.8	71.1	28.0	40.0	24.2	20.3	17.7	18.2	8.73	10.8	23.9
1952	8.66	9.92	23.0	14.5	51.5	29.2	84.9	27.9	9.52	8.49	7.77	6.15	23.3
1953	5.64	8.08	24.8	18.9	58.6	53.7	139	235	17.3	13.5	10.9	10.0	49.6
1954	9.58	8.36	33.4	23.5	9.44	10.5	26.0	57.2	10.8	7.37	6.13	6.02	17.5
1955	8.94	6.92	7.07	26.1	93.0	12.2	69.4	8.74	6.39	20.9	34.4	12.3	25.0
1956	8.53	7.26	11.6	22.8	65.1	33.7	10.8	8.42	7.52	6.74	6.48	6.52	16.1
1957	6.29	6.77	44.1	11.2	21.0	59.0	20.8	13.5	36.0	8.39	6.66	7.23	20.1
1958	12.9	101	32.9	33.7	22.2	47.3	43.5	16.8	13.4	11.1	40.2	26.8	33.5
1959	14.8	12.4	10.3	27.2	74.6	18.5	45.8	15.4	19.3	9.31	9.87	9.09	21.8
1960	8.38	8.93	19.9	42.5	54.8	34.4	12.4	11.1	8.25	9.60	46.2	17.1	22.7

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	853	992	1,040	4,370	1,550	2,460	1,440	1,250	1,050	1,120	537	641	17,200
1952	533	590	1,410	895	2,960	1,800	5,050	1,720	566	522	478	366	16,890
1953	347	481	1,530	1,160	3,250	3,300	8,260	14,480	1,030	831	667	597	35,930
1954	589	497	2,060	1,450	524	643	1,550	3,520	642	453	377	358	12,660
1955	550	412	435	1,600	5,160	753	4,130	537	380	1,290	2,110	729	18,090
1956	524	432	714	1,400	3,750	2,070	644	517	447	414	398	388	11,700
1957	387	403	2,710	690	1,170	3,620	1,240	831	2,140	516	409	430	14,550
1958	792	6,020	2,020	2,070	1,230	2,910	2,590	1,030	795	683	2,470	1,590	24,200
1959	910	736	634	1,670	4,140	1,140	2,730	946	1,150	572	607	541	15,780
1960	516	531	1,230	2,610	3,150	2,120	738	684	491	590	2,840	1,020	16,520

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	41.9	30,360
1951	1211	1,480	Jan. 3, 1951	8.2	23.9	17,200	23.4	16,950
1952	1241	3,710	Apr. 23, 1952	5.6	23.3	16,890	23.0	16,720
1953	1281	8,320	Apr. 29, 1953	5.5	49.6	35,930	50.7	36,720
1954	1341	1,530	May 1, 1954	5.8	17.5	12,660	15.1	10,910
1955	1391	2,760	Apr. 13, 1955	5.6	25.0	18,090	25.4	18,360
1956	1441	1,470	Feb. 9, 1956	6.1	16.1	11,700	18.7	13,530
1957	1511	922	June 28, 1957	5.5	20.1	14,550	27.5	19,880
1958	1561	1,580	Aug. 24, 1958	6.8	33.5	24,200	24.4	17,650
1959	1631	1,310	Feb. 2, 1959	7.1	21.8	15,780	21.8	15,770
1960	1711	1,230	Aug. 30, 1960	7.1	22.7	16,520	-	-

3555. Red River at Alexandria, La.

Location.--Lat 31°18'46", long 92°26'34", in SE¼ sec.10, T.4 N., R.1 W., near center of span on downstream side of old bridge on U. S. Highway 165 between Alexandria and Pineville, 1.7 miles downstream from Bayou Rigolette.

Drainage area.--67,500 sq mi, of which 5,936 sq mi above Denison Dam is noncontributing.

Records available.--October 1928 to September 1960. Since January 1928, in reports of Mississippi River Commission. Discharge measurements in 1858 and intermittently 1879 to 1927 and gage heights since 1872 in reports of Mississippi River Commission.

Gage.--Wire-weight gage. Datum of gage is 44.26 ft above mean sea level, datum of 1929, supplementary adjustment of 1941, or 44.18 ft above mean Gulf level, datum of Mississippi River Commission (levels by Corps of Engineers). Prior to May 12, 1932, staff gage and May 12, 1932, to July 14, 1934, chain gage, at same site and datum.

Average discharge.--32 years (1928-60), 32,390 cfs (23,450,000 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 233,000 cfs Apr. 17, 1945 (gage height, 45.23 ft); minimum, 873 cfs Oct. 30, 1956 (gage height, -3.01 ft).
A discharge of 210,000 cfs was measured July 2, 1908 (gage height, 41.6 ft).

Remarks.--Regulation by Lake Texoma and Texarkana Reservoir (see elsewhere in this report). Records of chemical analyses for the water years 1953-60 are published in reports of Geological Survey.

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

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	38,500	10,610	8,855	25,190	52,740	46,040	27,970	27,690	67,980	49,880	7,635	6,277	30,550
1952	4,748	12,520	16,060	21,170	31,350	37,250	69,440	54,510	17,020	5,385	4,914	3,828	23,110
1953	3,005	3,500	20,980	17,530	31,810	53,950	44,280	152,200	45,920	15,330	18,410	5,823	34,520
1954	4,213	3,799	10,170	19,320	24,780	11,320	16,160	59,470	30,420	7,305	4,560	3,295	16,190
1955	16,850	15,840	7,539	13,980	25,104	33,400	45,750	24,130	23,290	13,840	16,540	6,199	20,140
1956	24,580	6,223	7,116	6,227	47,370	20,660	15,870	22,330	6,462	3,041	2,335	1,855	13,550
1957	1,598	1,624	3,285	6,495	30,140	27,430	81,120	162,500	151,600	57,300	13,960	15,110	45,970
1958	29,960	89,810	54,390	56,990	38,230	47,290	41,880	137,300	36,100	33,060	18,830	21,840	50,610
1959	13,030	13,440	10,210	10,160	26,880	34,370	34,260	20,210	20,570	14,740	20,020	7,502	18,720
1960	27,130	12,490	34,560	59,750	50,320	47,170	15,850	27,300	17,760	12,200	10,760	6,172	26,810

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,367	631.1	544.5	1,549	2,929	2,831	1,605	1,703	4,045	3,067	469.4	373.5	22,110
1952	292.0	744.8	987.3	1,302	1,803	2,291	4,132	3,352	1,013	331.1	302.1	227.8	16,780
1953	184.8	208.3	1,290	1,078	1,767	3,317	2,635	9,358	2,732	942.5	1,132	346.5	24,990
1954	259.0	226.0	625.1	1,188	1,376	695.9	961.4	3,657	1,810	449.2	280.4	196.1	11,720
1955	1,036	942.6	463.5	859.3	1,396	2,054	2,722	1,483	1,386	851.2	1,017	368.8	14,580
1956	1,512	370.3	436.5	382.9	2,725	1,270	944.5	1,373	384.5	187.0	143.6	110.4	9,840
1957	98.24	96.62	202	399.3	1,674	1,687	4,827	9,995	9,021	3,523	858.6	898.8	33,280
1958	1,842	5,344	3,344	3,504	2,123	2,908	2,492	8,444	2,148	2,033	1,158	1,300	36,640
1959	801.2	799.6	627.5	625.0	1,493	2,113	2,039	1,243	1,224	906.5	1,231	446.4	13,550
1960	1,668	743.2	2,125	3,674	2,894	2,900	943.2	1,679	1,057	750.1	661.6	367.3	19,480

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	54,440	39,410,000
1951	1211	115,000	Feb. 26, 27, 1951	4,700	30,550	22,110,000	28,450	20,600,000
1952	1241	138,000	Apr. 30, 1952	3,240	23,110	16,780,000	22,640	16,440,000
1953	1281	193,000	May 19, 1953	2,440	34,520	24,990,000	33,730	24,420,000
1954	1341	95,100	May 17, 1954	2,550	16,190	11,720,000	18,030	13,060,000
1955	1391	89,800	Mar. 28, 1955	4,000	20,140	14,580,000	19,970	14,460,000
1956	1441	71,300	Feb. 23, 24, 1956	1,510	13,550	9,840,000	10,910	7,918,000
1957	1511	197,000	May 7, 1957	894	45,970	33,280,000	59,970	43,410,000
1958	1561	200,000	May 12, 1958	7,700	50,610	36,640,000	39,140	28,340,000
1959	1631	56,100	Mar. 13, 1959	3,990	18,720	13,550,000	21,900	15,860,000
1960	1711	87,400	Dec. 23, 1959	2,980	26,810	19,460,000	-	-

3560. Ouachita River near Mount Ida, Ark.

Location.--Lat 34°36'40", long 93°41'45", in sec.32, T.1 S., R.25 W., on right bank 350 ft upstream from bridge on U. S. Highway 270, 4½ miles upstream from Fiddler's Creek, and 5½ miles northwest of Mount Ida.

Drainage area.--410 sq mi.

Records available.--October 1941 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 655.14 ft above mean sea level, datum of 1929. Prior to Dec. 3, 1941, tape gage; Dec. 3, 1941, to Feb. 21, 1945, water-stage recorder; Mar. 1, 1945, to Apr. 1, 1946, staff gage; and Apr. 2, 1946, to Nov. 2, 1949, water-stage recorder; all at site 350 ft downstream at same datum.

Average discharge.--19 years (1941-60), 767 cfs (555,300 acre-ft per year).

Extremes.--1941-60: Maximum discharge, 57,300 cfs May 21, 1960 (gage height, 32.18 ft); minimum, 2.3 cfs Aug. 25, 1954 (gage height, 1.03 ft).

Remarks.--Records of chemical analyses and water temperatures for the period October 1949 to September 1952 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	224	144	89.8	787	1,978	684	493	409	533	1,130	44.8	123	544
1952	222	1,307	812	1,125	879	1,593	4,072	420	106	37.2	33.6	44.0	882
1953	26.2	1,138	912	871	940	1,438	1,783	1,965	58.9	800	101	28.4	839
1954	23.9	50.7	106	870	689	199	476	1,427	47.5	13.9	6.33	5.45	325
1955	878	209	398	402	917	1,197	789	630	164	89.2	57.5	29.3	478
1956	62.9	34.1	47.0	249	2,383	415	322	509	44.2	58.4	16.4	12.1	338
1957	7.24	64.8	308	1,222	1,030	1,393	4,230	1,760	1,201	63.7	128	262	967
1958	115	1,103	417	643	295	1,696	1,529	2,054	597	381	65.9	62.5	749
1959	309	1,836	317	371	879	1,492	981	275	113	285	98.4	37.6	579
1960	194	182	1,509	1,198	731	736	280	3,329	574	965	131	41.4	829

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	13,750	8,570	5,520	48,370	109,900	42,050	29,320	25,150	31,740	69,480	2,750	7,340	393,900
1952	13,640	77,780	49,950	69,150	50,570	97,960	242,300	25,840	6,280	2,280	2,070	2,620	640,400
1953	1,610	67,720	56,110	53,580	52,220	88,430	106,100	120,800	3,500	49,190	6,200	1,690	607,200
1954	1,470	3,020	6,540	53,480	38,280	12,250	28,320	87,730	2,830	854	389	324	235,500
1955	53,960	12,460	24,480	24,710	50,930	73,620	46,960	38,730	9,730	5,490	3,530	1,740	346,300
1956	3,870	2,030	2,890	15,290	137,000	25,500	19,170	31,270	2,630	3,590	1,010	723	245,000
1957	445	3,850	18,940	75,120	57,220	85,670	251,700	108,200	71,490	3,920	7,860	15,620	700,000
1958	7,050	65,640	25,620	39,550	16,400	104,300	91,000	126,300	35,520	23,450	4,050	3,720	542,600
1959	19,010	109,300	19,500	22,830	48,800	91,710	58,350	16,920	6,730	17,500	6,050	2,240	418,900
1960	11,920	10,840	92,770	73,640	42,050	45,270	16,650	204,700	34,130	59,340	8,030	2,460	601,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	1,073	35.51	776,600
1951	1211	24,400	July 3, 1951	17	544	1.33	18.01	393,900	701	23.20	507,500
1952	1241	30,200	Apr. 23, 1952	23	882	2.15	29.27	640,400	860	28.55	624,500
1953	1281	23,600	Nov. 26, 1952	16	839	2.05	27.76	607,200	681	22.53	492,700
1954	1341	28,400	May 3, 1954	2.5	325	.793	10.78	235,500	436	14.43	315,400
1955	1391	10,500	Mar. 21, 1955	11	478	1.17	15.85	346,300	365	12.09	264,200
1956	1441	15,800	Feb. 18, 1956	2.7	338	.824	11.21	245,000	357	11.88	259,400
1957	1511	22,500	Apr. 4, 1957	3.2	967	2.36	32.03	700,000	1,071	35.45	775,100
1958	1561	25,100	May 3, 1958	26	749	1.83	24.81	542,600	818	27.08	592,100
1959	1631	27,300	Nov. 17, 1958	21	579	1.41	19.15	418,900	534	17.68	386,700
1960	1711	57,300	May 21, 1960	23	829	2.02	27.52	601,800	-	-	-

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3565. South Fork Ouachita River at Mount Ida, Ark.

Location.--Lat 34°34', long 93°38', in NW¼ sec.24, T.2 S., R.25 W., near right bank on downstream side of pier of bridge on U. S. Highway 270 at Mount Ida, 2¾ miles upstream from Williams Creek and 22.5 miles upstream from mouth.

Drainage area.--64 sq mi.

Records available.--June 1949 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 612.05 ft above mean sea level, datum of 1929.

Average discharge.--11 years (1949-60), 97.7 cfs (70,730 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 17,900 cfs May 20, 1960 (gage height, 13.69 ft); no flow Aug. 19 to Sept. 5, 1954.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	25.9	21.2	14.1	119	315	93.3	102	32.2	43.2	131	6.09	62.6	78.8
1952	72.7	207	110	203	116	363	535	66.8	12.9	6.97	6.94	10.5	142
1953	5.52	205	153	176	147	222	256	284	8.68	107	9.29	4.96	132
1954	5.30	9.71	13.7	62.7	54.2	19.8	39.6	178	6.23	1.78	.35	1.56	32.8
1955	105	26.7	94.4	54.5	114	155	82.2	99.3	13.9	36.6	11.4	31.0	68.6
1956	52.6	8.73	12.4	117	386	62.0	54.2	54.9	6.11	3.21	3.30	1.86	62.3
1957	1.48	12.7	32.0	224	139	221	426	333	112	11.4	17.7	35.1	130
1958	39.5	258	60.1	104	41.4	218	195	292	68.1	26.3	8.82	8.36	110
1959	35.6	170	41.4	40.5	172	218	88.3	27.3	27.9	72.4	15.9	11.2	76.0
1960	25.7	29.0	233	141	87.3	109	39.3	390	60.8	70.5	8.55	6.93	101

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,590	1,260	867	7,340	17,510	5,740	6,040	1,980	2,570	8,040	374	3,720	57,030
1952	4,470	12,320	6,770	12,460	6,680	22,300	31,820	4,110	768	429	426	623	103,200
1953	339	12,230	9,430	10,810	8,180	13,670	15,240	17,440	516	6,590	571	295	95,310
1954	326	578	842	3,850	3,010	1,220	2,360	10,940	371	109	22	93	23,720
1955	6,450	1,590	5,810	3,350	6,340	9,520	4,890	6,110	828	2,250	702	1,850	49,690
1956	3,230	519	761	7,170	22,230	3,810	3,220	3,380	364	198	203	110	45,200
1957	91	758	1,970	13,800	7,720	13,620	25,350	20,450	6,670	702	1,090	2,090	94,310
1958	2,430	15,340	3,690	6,410	2,300	13,390	11,610	17,970	4,050	1,610	542	498	79,840
1959	2,190	10,090	2,550	2,490	9,580	13,420	5,250	1,680	1,660	4,450	977	664	55,000
1960	1,580	1,730	14,320	8,650	5,020	6,730	2,340	23,970	3,620	4,340	526	413	73,240

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	129	27.30	93,230
1951	1211	5,200	July 2, 1951	2.4	78.8	1.23	16.70	57,030	106	22.51	76,870
1952	1241	10,500	Apr. 1, 1952	3.8	142	2.22	30.22	103,200	140	29.76	101,600
1953	1281	10,800	Nov. 25, 1952	3.0	132	2.06	27.92	95,310	104	22.00	75,060
1954	1341	6,320	May 2, 1954	0	32.8	.512	6.97	23,720	49.5	10.51	35,820
1955	1391	2,920	Mar. 20, 1955	2.1	68.6	1.07	14.56	49,690	55.7	11.82	40,350
1956	1441	5,640	Feb. 2, 1956	.1	62.3	.973	13.24	45,200	59.9	12.75	43,500
1957	1511	5,870	Apr. 3, 1957	.1	130	2.03	27.63	94,310	156	33.08	113,000
1958	1561	5,970	May 2, 1958	3.2	110	1.72	23.38	79,840	101	21.45	73,210
1959	1631	5,000	Nov. 15, 1958	3.6	76.0	1.19	16.12	55,000	79.8	16.94	57,800
1960	1711	17,900	May 20, 1960	2.5	101	1.58	21.45	73,240	-	-	-

3575. Lake Ouachita near Hot Springs, Ark.

Location.--Lat 34°34'20", long 93°11'50", in NE¼ sec.12, T.2 S., R.21 W., at Blakely Mountain Dam on Ouachita River, 3.0 miles upstream from Glazypeau Creek, 3.8 miles downstream from Mill Creek, and 10 miles northwest of Hot Springs.

Drainage area.--1,105 sq mi.

Records available.--July 1952 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). July 7, 1952, to June 15, 1953, staff gage and June 16 to July 6, 1953, wire-weight gage, at same site and datum.

Extremes.--1952-60: Maximum contents, 2,402,100 acre-ft May 1, 1957 (elevation, 584.01 ft); minimum since top of conservation pool was first reached, 883,000 acre-ft Jan. 9, 1954 (elevation, 535.86 ft).

Remarks.--Reservoir is formed by rolled-fill earth dam. Storage began July 7, 1952. Reservoir is used for the dual purpose of flood control and power generation. The spillway is a 200-foot wide uncontrolled channel located in natural saddle of ridge west of dam. Flood-control flow is regulated by three 8- by 15-foot gates. Capacity of reservoir, 2,768,000 acre-ft at elevation 592.0 ft (spillway crest), of which 617,000 acre-ft is for flood-control storage, 1,286,000 acre-ft for power storage, and 865,000 acre-ft for permanent storage. Water below elevation 480.0 ft cannot be released. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in thousands of acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951												
1952	-	-	-	-	-	-	-	-	-	1.11	1.12	1.20
1953	1.23	161.8	217.6	304.4	440.4	663.1	926.9	1,013.1	980.7	1,017.3	984.8	959.0
1954	923.9	903.1	889.0	989.2	1,042.4	1,039.1	1,079.3	1,291.2	1,263.9	1,224.8	1,184.9	1,152.5
1955	1,255.7	1,252.4	1,311.0	1,351.7	1,470.4	1,678.7	1,767.6	1,866.4	1,857.7	1,845.5	1,816.8	1,802.1
1956	1,712.8	1,636.0	1,611.4	1,698.2	2,004.5	1,972.8	1,989.7	2,053.2	2,031.9	2,004.5	1,963.1	1,873.9
1957	1,783.2	1,713.1	1,728.1	1,886.1	1,931.2	2,102.7	2,400.8	2,330.8	2,076.8	2,003.4	1,921.9	1,879.6
1958	1,789.2	1,894.2	1,826.4	1,779.4	1,725.0	1,962.7	2,149.1	2,147.1	2,172.0	2,085.4	1,960.8	1,837.4
1959	1,765.9	1,885.8	1,758.6	1,716.8	1,809.4	1,939.3	1,948.2	1,944.1	1,961.9	1,988.6	1,885.1	1,792.7
1960	1,724.0	1,694.2	1,885.0	1,932.3	1,894.5	1,911.3	1,924.1	2,193.9	2,120.4	2,081.5	1,945.2	1,847.7

3585. Lake Hamilton near Hot Springs, Ark.

Location.--Lat 34°26'30", long 93°01'30", in sec.27, T.3 S., R.19 W., at Carpenter Dam on Ouachita River, 1½ miles downstream from Hot Springs Creek and 4½ miles southeast of Hot Springs.

Drainage area.--1,441 sq mi.

Records available.--December 1930 to September 1960. Month-end contents prior to October 1950, published in WSP 1311.

Gage.--Automatic Selsyn repeater gage. Datum of gage is at mean sea level.

Extremes.--1930-60: Maximum contents 208,060 acre-ft (revised) Mar. 31, 1945 (elevation, 402.28 ft); minimum since top of gate was first reached, 70,590 acre-ft Feb. 13, 14, 16, 1936 (elevation, 375.01 ft).

Remarks.--Reservoir is formed by concrete-gravity dam. Storage began Dec. 17, 1930. Capacity at top of tainter gates, 190,100 acre-ft (elevation, 400 ft); at spillway crest, 70,560 acre-ft (elevation, 375 ft). Contents below spillway crest represents dead storage. Reservoir used for power development. Figures given herein represent total contents.

Cooperation.--Records for 1951-60, not previously published by Geological Survey, furnished by Arkansas Power & Light Co.

Contents, in acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	172,780	171,630	158,090	166,570	164,680	176,110	176,500	171,440	180,190	179,790	159,520	170,220
1952	173,300	180,780	167,830	146,300	174,450	187,200	174,380	188,100	176,500	168,960	163,050	160,880
1953	156,820	185,940	180,060	178,870	177,810	178,080	185,250	188,800	188,450	187,680	188,660	185,940
1954	187,130	185,040	180,850	178,670	174,450	175,280	179,660	165,180	165,370	164,800	166,950	170,930
1955	169,530	161,380	163,180	159,640	159,150	167,200	159,330	186,710	188,800	186,430	186,150	180,230
1956	155,320	159,830	159,150	170,540	161,630	160,760	179,070	178,280	177,220	184,130	183,720	182,630
1957	167,580	158,030	156,760	160,020	158,840	159,890	160,450	167,640	181,380	182,900	182,240	129,370
1958	130,190	157,780	159,460	157,540	156,520	156,880	165,810	176,050	183,860	183,860	182,960	183,860
1959	159,640	158,030	158,280	140,320	157,300	157,660	158,400	157,910	183,720	185,670	183,930	184,060
1960	183,790	157,720	158,280	157,970	157,780	157,420	157,910	174,700	184,550	183,090	184,200	184,270

3590. Lake Catherine at Jones Mills, Ark.

Location.--Lat 34°25'35", long 92°53'40", in SW¼NW¼ sec.36, T.3 S., R.18 W., at Remmel Dam on Ouachita River at Jones Mills.

Drainage area.--1,516 sq mi.

Records available.--October 1924 to September 1960. Month-end contents prior to October 1950, published in WSP 1311.

Gage.--Meriam remote indicator gage. Datum of gage is at mean sea level. Prior to Jan. 10, 1956, staff gage at same site and datum.

Extremes.--1924-60: Maximum contents, 59,060 acre-ft Apr. 21, 1927 (elevation, 315.75 ft); minimum since top of gates was first reached, 16,370 acre-ft Feb. 7, 1925 (elevation, 292.34 ft).

Remarks.--Reservoir is formed by concrete-gravity dam. Storage began Oct. 11, 1924. Capacity at top of tainter gates (elevation, 305 ft), 35,250 acre-ft; at spillway crest (elevation, 290 ft), 13,950 acre-ft. Contents below spillway crest represents dead storage. Reservoir is used for power development. Figures given herein represent total contents.

Cooperation.--Records for 1951-60, not previously published by Geological Survey, furnished by Arkansas Power & Light Co.

Contents, in acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	34,870	34,890	34,100	35,680	38,910	34,520	36,140	35,940	34,680	34,490	34,600	34,660
1952	35,310	38,380	38,020	36,790	36,510	37,330	35,740	34,720	34,120	34,200	34,100	34,030
1953	31,730	34,920	36,610	36,240	34,520	34,640	36,220	38,190	34,300	34,540	33,860	35,140
1954	34,160	35,060	33,680	35,430	34,300	34,580	34,390	34,870	34,180	34,620	34,370	34,540
1955	33,860	34,430	34,980	34,010	34,490	33,720	34,140	34,370	34,050	33,740	34,730	33,680
1956	33,530	34,370	33,050	34,770	35,680	34,070	35,250	33,880	33,910	34,200	34,870	34,580
1957	33,720	34,010	33,720	36,260	34,450	34,300	34,620	34,730	34,980	35,160	34,940	35,390
1958	33,070	35,940	35,550	35,060	34,490	34,220	34,500	34,410	34,490	34,580	33,990	34,960
1959	35,020	33,880	34,260	33,280	33,820	34,450	33,880	34,050	34,310	34,720	33,910	33,720
1960	33,880	33,890	35,060	34,810	35,780	34,010	34,200	35,410	34,770	33,160	34,390	35,210

3595. Ouachita River near Malvern, Ark.

Location.--Lat 34°23'10", long 92°50'20", in NW¼ sec.16, T.4 S., R.17 W., near right bank on downstream side of pier of bridge on State Highway 84, 2 miles northwest of Malvern and 5.8 miles downstream from Remmel Dam.

Drainage area.--1,562 sq mi.

Records available.--March 1903 to April 1905, June 1922 to September 1925 (fragmentary), October 1925 to April 1927, January 1928 to September 1960. Published at "at Remmel Dam, near Malvern" January 1925 to March 1937.

Gage.--Water-stage recorder. Datum of gage is 228.05 ft above mean sea level, datum of 1929. March 1903 to April 1905 staff gage at same site at datum 2.0 ft higher. June 1922 to September 1924 chain gage at present site and datum. January 1925 to March 1937 water-stage recorder at Remmel Dam 5.8 miles upstream at datum 20.11 ft higher.

Average discharge.--33 years (1925-26, 1928-60), 2,373 cfs (1,723,000 acre-ft per year).

Extremes.--1903-5, 1922-60: Maximum discharge, 140,000 cfs May 15, 1923 (gage height, 30.3 ft); minimum, 35 cfs Sept. 18, 1955; minimum daily observed, 40 cfs Dec. 18-20, 1904.

Remarks.--Flow regulated by Lake Catherine (see preceding station) since 1925, by Lake Hamilton (see p. 485) since 1932, and by Lake Ouachita (see p. 485) since July 1952. Records of chemical analyses and water temperatures for the period October 1946 to October 1952 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	837	637	605	3,465	7,121	1,906	2,241	1,415	1,042	3,458	497	290	1,927
1952	521	3,897	3,251	5,111	3,022	5,228	13,620	1,439	490	221	215	205	3,087
1953	141	808	4,647	2,730	1,593	2,456	2,536	7,479	564	1,079	545	442	2,100
1954	517	517	658	1,184	838	572	605	2,359	449	415	371	440	746
1955	834	762	997	782	1,237	2,388	625	1,027	450	491	592	651	903
1956	2,222	1,262	633	287	5,904	2,138	1,477	865	270	449	480	1,265	1,417
1957	1,933	1,675	431	1,832	3,330	2,342	10,330	10,240	7,128	1,293	1,973	2,778	3,718
1958	2,359	2,869	3,337	3,822	1,945	1,454	2,405	8,911	1,059	2,297	2,123	2,761	2,961
1959	2,436	2,714	3,135	2,308	3,680	2,529	2,283	622	748	686	1,746	1,882	2,053
1960	1,436	1,450	3,044	3,729	3,543	3,141	590	3,479	2,512	1,895	2,169	2,448	2,455

Monthly and yearly discharge, in acre-feet, of Ouachita River near Malvern, Ark.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	51,480	37,890	37,220	213,100	395,500	117,200	133,300	87,010	61,980	212,600	30,550	17,260	1,395,000
1952	32,040	231,900	199,900	314,300	173,800	321,400	810,700	88,460	29,170	13,560	13,220	12,230	2,241,000
1953	8,700	48,060	285,700	167,900	88,480	151,000	150,900	459,900	33,580	66,350	33,520	26,320	1,520,000
1954	31,800	30,790	40,470	72,810	46,540	35,190	36,030	145,100	26,720	25,530	22,810	26,210	540,000
1955	51,290	45,320	61,310	48,110	68,720	146,800	37,170	63,160	26,760	30,210	36,390	38,730	654,000
1956	136,600	75,110	38,900	17,670	339,600	131,400	87,900	53,180	16,070	27,600	29,490	75,280	1,029,000
1957	118,800	99,700	26,470	112,700	185,000	144,000	614,600	629,700	424,200	79,520	121,300	135,600	2,692,000
1958	145,100	170,700	205,200	235,000	108,000	89,380	143,100	547,900	63,010	141,200	130,600	164,300	2,143,000
1959	149,800	161,500	192,800	141,900	204,400	155,500	135,800	38,220	44,530	42,170	107,400	112,000	1,486,000
1960	88,270	86,290	187,200	229,300	203,800	193,100	35,120	213,900	149,500	116,500	133,400	145,700	1,782,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	3,661	2,650,000
1951	1211	49,800	July 3, 1951	176	1,927	1,395,000	2,393	1,732,000
1952	1241	38,600	Apr. 23, 1952	82	3,087	2,241,000	2,919	2,119,000
1953	1281	54,400	Dec. 4, 1952	93	2,100	1,520,000	1,769	1,281,000
1954	1341	31,400	May 2, 1954	185	746	540,000	822	594,900
1955	1391	20,000	May 27, 1955	114	903	654,000	1,031	746,700
1956	1441	15,500	Feb. 18, 1956	180	1,417	1,029,000	1,410	1,023,000
1957	1511	27,400	Apr. 4, 1957	208	3,718	2,692,000	4,099	2,968,000
1958	1561	55,200	May 2, 1958	172	2,961	2,143,000	2,937	2,127,000
1959	1631	23,500	Feb. 14, 1959	78	2,053	1,486,000	1,856	1,344,000
1960	1711	16,000	June 27, 1960	244	2,455	1,782,000	-	-

3605. Lake Greeson near Murfreesboro, Ark.

Location.--Lat 34°08'55", long 93°42'55", in NW¼ sec.18, T.7 S., R.25 W., at Narrows Dam on Little Missouri River, 6.5 miles northwest of Murfreesboro and 9.7 miles upstream from Muddy Fork.

Drainage area.--237 sq mi.

Records available.--November 1949 to September 1960. Prior to October 1951, published as Narrows Reservoir near Murfreesboro.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (levels by Corps of Engineers). Prior to Jan. 15, 1950, staff gage at site 700 ft upstream at same datum. Jan. 15 to July 10, 1950, wire-weight gage and July 11 to Oct. 2, 1950, automatic Selsyn Repeater gage, at present site and datum.

Extremes.--1949-60: Maximum contents, 359,330 acre-ft May 21, 1953 (elevation, 557.84 ft); minimum, since top of power pool was first reached, 166,400 acre-ft Sept. 30, 1960 (elevation, 528.98 ft).

Remarks.--Reservoir is formed by a dam of concrete gravity construction comprised of two nonoverflow abutment sections, a flood control section containing two regulated outlets, an uncontrolled overflow spillway section and stilling basin, and a power intake section containing three 10-foot diameter penstocks. Storage began Nov. 30, 1949; power pool stage was first reached Feb. 1, 1950. Capacity, 408,000 acre-ft at elevation 563.0 ft (crest of spillway) of which 202,000 acre-ft is available for power storage, 128,000 acre-ft available for flood control storage, and 78,000 acre-ft is permanent storage for incidental recreational purposes at elevation 504.0 ft. Water below elevation 436.9 ft cannot be withdrawn through outlet tunnel. Reservoir is used for the dual purpose of flood control and electric generation. Power generation began May 27, 1950. Figures given herein represent total contents.

Cooperation.--Records furnished by Corps of Engineers.

Contents, in thousands of acre-feet, at 12 p.m. on last day of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1951	266.3	255.4	242.2	267.8	282.6	268.9	275.3	271.6	267.6	265.4	233.4	220.0
1952	218.4	228.5	243.2	259.3	265.7	273.2	302.2	275.9	257.5	247.0	222.9	201.3
1953	194.7	224.5	257.2	264.8	257.6	269.6	294.1	299.7	261.9	264.0	218.2	182.0
1954	173.6	171.3	171.1	195.4	200.7	202.0	220.9	256.4	237.4	213.7	182.6	176.1
1955	225.9	214.8	227.6	234.9	247.4	278.7	263.6	279.7	260.2	240.6	202.4	181.5
1956	181.6	171.0	171.9	178.3	246.3	246.6	263.6	270.4	256.4	230.2	199.5	182.3
1957	177.5	175.3	178.6	209.4	231.5	267.6	324.8	306.9	267.8	240.9	223.1	203.8
1958	193.2	212.0	181.6	204.1	203.0	251.9	280.5	271.6	262.8	234.5	204.8	191.2
1959	188.0	204.0	188.2	183.8	235.9	256.2	263.0	264.2	255.1	240.9	218.9	197.6
1960	194.8	192.6	237.5	234.0	240.8	249.7	247.0	266.0	266.4	237.8	198.5	166.4

3610. Little Missouri River near Murfreesboro, Ark.

Location.--Lat 34°03', long 93°43', in SE¼ sec.13, T.8 S., R.26 W., near right bank on downstream side of pier of bridge on State Highway 27, 1.9 miles downstream from Muddy Fork, 2 miles southwest of Murfreesboro, 4.6 miles upstream from Prairie Creek, and 11.4 miles downstream from Lake Greeson.

Drainage area.--380 sq mi.

Records available.--October and November 1927 and January 1928 (fragmentary), February 1928 to September 1931, July 1937 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 324.28 ft above mean sea level, datum of 1929. Prior to Sept. 30, 1931, chain gage at site 100 ft upstream at same datum. July 10, 1937, to Nov. 10, 1938, wire-weight gage at present site and datum.

Average discharge.--26 years (1928-31, 1937-60), 630 cfs (456,100 acre-ft per year).

Extremes.--1927-31, 1937-60: Maximum discharge, 120,000 cfs Mar. 30, 1945 (gage height, 19.84 ft), on basis of contracted-opening measurement of peak flow; minimum, 2.9 cfs Sept. 1, 1943.

Maximum stage known, about 21 ft in April 1927, from information by State Highway Department.

Remarks.--Flow regulated by Lake Greeson (see preceding page) since November 1949. Records of chemical analyses for the period October 1958 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	395	248	240	620	1,502	483	732	385	383	1,146	562	396	585
1952	140	295	442	750	625	922	2,648	665	335	178	400	352	643
1953	79.1	205	1,013	907	1,066	1,085	1,811	3,119	651	650	754	632	999
1954	139	56.5	72.0	113	109	58.6	188	373	320	375	496	139	204
1955	441	449	415	347	533	1,281	1,190	476	467	560	656	556	614
1956	154	185	64.0	72.4	938	236	275	681	235	416	534	284	337
1957	65.3	86.3	25.6	130	353	927	2,150	2,590	1,438	447	480	655	779
1958	812	1,728	1,414	545	233	537	924	3,256	557	662	517	502	981
1959	196	375	437	231	610	811	491	164	448	449	435	434	422
1960	338	198	1,103	1,351	649	659	202	311	483	523	667	601	592

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24,270	14,730	14,780	38,150	83,420	29,670	43,570	23,660	22,790	70,440	34,540	23,580	423,600
1952	8,610	17,530	27,160	46,130	35,960	56,700	157,600	40,890	19,910	10,970	24,610	20,930	467,000
1953	4,860	12,200	62,290	55,750	59,210	66,720	107,800	191,800	38,730	39,970	46,380	37,590	723,300
1954	8,580	3,360	4,430	6,950	6,060	3,600	11,160	22,920	19,060	23,040	30,510	8,290	148,000
1955	27,120	26,730	25,500	21,310	29,620	78,790	70,880	29,240	27,760	34,440	40,360	33,070	444,800
1956	9,480	11,010	3,940	4,450	53,940	14,520	16,380	41,860	13,990	25,600	32,840	16,890	244,900
1957	4,020	5,140	1,570	7,970	19,600	57,000	127,900	159,300	85,580	27,490	29,500	38,980	564,000
1958	49,940	102,800	86,940	33,480	12,940	33,000	55,000	200,200	33,140	40,700	31,820	29,880	709,800
1959	12,060	22,310	26,900	14,180	33,870	49,880	29,230	10,070	26,660	27,620	26,770	25,810	305,400
1960	20,770	11,790	67,850	83,100	37,330	40,510	12,030	19,110	28,710	32,130	41,000	35,780	430,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	577	418,000
1951	1211	9,220	July 2, 1951	20	585	423,600	584	423,100
1952	1241	17,600	Apr. 22, 1952	12	643	467,000	679	493,000
1953	1281	25,800	May 11, 1953	6.5	999	723,300	912	660,300
1954	1341	6,080	May 2, 1954	9.0	204	148,000	291	210,900
1955	1391	13,300	Mar. 21, 1955	20	614	444,800	539	389,900
1956	1441	8,180	Apr. 30, 1956	10	337	244,900	318	231,200
1957	1511	9,020	Apr. 3, 1957	7.6	779	564,000	1,095	793,000
1958	1561	30,300	May 2, 1958	32	981	709,800	734	531,400
1959	1631	9,450	Feb. 14, 1959	17	422	305,400	476	344,500
1960	1711	9,270	Dec. 16, 1959	19	592	430,100	-	-

3615. Antoine River at Antoine, Ark.

Location.--Lat 34°02'20", long 93°25'05", in NW¼ sec.24, T.8 S., R.23 W., near right bank on downstream side of pier of bridge on State Highway 26 at Antoine, 1.6 miles downstream from Brushey Creek, 1.9 miles downstream from Suck Creek, and 8.5 miles upstream from mouth.

Drainage area.--181 sq mi.

Records available.--October 1954 to September 1960. Gage-height records collected in this vicinity since November 1950 (published as "Antoine Creek") are contained in reports of Corps of Engineers, Vicksburg district.

Gage.--Water-stage recorder. Datum of gage is 229.33 ft above mean sea level, datum of 1929. Prior to Oct. 22, 1954, at site 75 ft upstream at same datum.

Average discharge.--6 years (1954-60), 264 cfs (191,100 acre-ft per year).

Extremes.--1954-60: Maximum discharge, 35,500 cfs May 2, 1958 (gage height, 28.75 ft); no flow Aug. 4-30, Sept. 4 to Nov. 14, 1956.
Maximum stage known, 29.7 ft in 1905, from information by State Highway Department (discharge, 40,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	249	113	243	221	428	829	334	366	81.5	45.6	3.26	11.1	243
1956	31.0	4.72	17.7	41.3	971	116	337	371	5.04	.87	.01	.02	154
1957	0	.37	2.83	98.3	358	536	1,438	1,024	289	17.8	9.41	31.4	315
1958	141	787	340	478	105	526	707	1,943	123	264	8.86	241	475
1959	68.5	355	111	88.7	684	377	270	25.5	122	12.2	3.23	3.78	173
1960	15.1	28.5	656	697	388	463	56.0	135	174	36.6	1.73	8.83	222

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	15,290	6,710	14,920	13,610	23,790	50,990	19,890	22,530	4,850	2,800	200	662	176,200
1956	1,900	281	1,090	2,540	55,830	7,150	20,040	22,830	300	53	.8	12	112,000
1957	0	22	174	6,050	19,870	32,980	85,590	62,990	17,190	1,100	579	1,870	228,400
1958	8,640	46,840	20,900	29,380	5,810	32,330	42,060	119,400	7,320	16,240	545	14,370	343,800
1959	4,210	21,150	6,830	5,450	38,000	23,200	16,050	1,570	7,270	751	199	225	124,900
1960	929	1,700	40,360	42,830	22,340	28,450	3,330	8,300	10,350	2,250	106	525	161,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952											
1953											
1954											
1955	1391	14,900	Mar. 21, 1955	0.1	243	1.34	18.25	176,200	197	14.76	142,600
1956	1441	8,320	Apr. 30, 1956	0	154	.851	11.60	112,000	150	11.28	108,900
1957	1511	16,600	Apr. 3, 1957	0	315	1.74	23.67	228,400	421	31.56	304,600
1958	1561	35,500	May 2, 1958	1.2	475	2.62	35.62	343,800	414	31.05	299,600
1959	1631	10,100	Feb. 14, 1959	.5	173	.956	12.94	124,900	187	14.06	135,700
1960	1711	8,580	Dec. 16, 1959	.1	222	1.23	16.72	161,500	-	-	-

3620. Ouachita River at Camden, Ark.

Location.--Lat 33°35'49", long 92°49'12", in SE¼ sec.14, T.13 S., R.17 W., at bridge on U. S. Highway 79 at Camden, 3½ miles downstream from Encore Fabre Bayou and 7½ miles upstream from Two Bayou Creek.

Drainage area.--5,391 sq mi.

Records available.--September 1928 to September 1960. Records for October 1929 to September 1930 published only in WSP 1311. Gage-height records collected in this vicinity since 1885 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 71.69 ft above mean sea level, datum of 1929, alluvial valley adjustment of 1941. Aug. 8, 1928, to July 10, 1935, chain gage and July 11, 1935, to Jan. 4, 1945, wire-weight gage, at same site and datum. Jan. 5, 1945, to Oct. 27, 1947, staff gage at site 0.4 mile downstream at same datum. Aug. 10, 1928, to May 31, 1949, supplementary staff gage, 4½ miles upstream. Since Jan. 1, 1957, auxiliary water-stage recorder 3.2 miles downstream.

Average discharge.--32 years (1928-60), 7,527 cfs (5,449,000 acre-ft per year).

Extremes.--1928-60: Maximum discharge, 243,000 cfs Apr. 3, 1945 (gage height, 44.82 ft); minimum, 125 cfs Sept. 16, 24-26, 1943.

Remarks.--Flow regulated by Lake Catherine since 1925, by Lake Hamilton since 1932, by Lake Greeson since 1949, and by Lake Ouachita since 1952 (see elsewhere in this report). Records of chemical analyses and water temperatures for the period October 1946 to October 1952 are published in reports of Geological Survey.

Cooperation.--Records for 1951-60, not previously published by Geological Survey, furnished by Corps of Engineers.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3,116	1,910	1,995	14,450	21,730	6,765	10,340	4,523	3,658	10,140	1,416	1,128	6,668
1952	943	5,723	7,498	11,780	10,950	13,990	31,800	7,631	1,893	632	709	646	7,809
1953	349	2,008	10,270	9,378	11,090	13,790	14,460	45,760	3,016	3,254	1,175	1,206	9,734
1954	878	708	1,099	4,790	3,976	1,742	2,662	9,060	1,230	1,008	896	666	2,390
1955	2,491	2,147	2,826	3,697	6,955	13,690	9,284	4,230	2,964	1,742	1,295	1,481	4,384
1956	2,620	1,591	1,263	839	19,140	4,719	3,775	7,209	1,143	920	924	1,377	3,729
1957	1,672	1,747	855	2,593	12,630	9,140	32,550	32,970	16,840	2,185	2,817	3,275	9,880
1958	5,947	18,960	10,170	11,770	4,681	8,678	11,180	50,000	3,834	4,565	3,279	4,840	11,570
1959	3,390	5,939	5,843	4,705	14,970	9,141	7,453	1,945	8,122	1,974	2,532	2,713	5,605
1960	2,521	2,446	13,630	16,140	12,220	13,770	2,735	6,046	4,197	3,921	2,933	3,273	7,000

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	191.6	113.6	122.7	888.4	1,207	416.0	615.3	278.1	217.7	623.4	87.05	67.12	4,828
1952	58.00	340.5	461.1	724.6	629.6	860.3	1,892	469.2	112.7	38.85	43.62	38.42	5,669
1953	21.48	119.5	631.6	576.6	615.8	847.7	860.6	2,814	179.5	200.1	109.1	71.74	7,048
1954	53.99	42.16	67.56	294.5	220.8	107.1	158.4	557.1	71.56	61.99	55.09	39.61	1,729
1955	153.1	127.8	173.8	227.3	386.2	841.6	552.4	260.1	176.4	107.1	79.64	88.15	3,174
1956	161.1	94.65	77.67	51.57	1,101	290.2	224.6	443.3	68.03	56.56	56.80	81.94	2,707
1957	102.8	104.0	54.39	159.5	701.6	562.0	1,937	2,028	1,002	134.3	173.2	194.9	7,154
1958	365.7	1,128	625.3	723.5	260.0	535.6	665.4	3,074	228.2	280.7	201.6	288.0	8,376
1959	208.4	353.4	328.5	289.3	831.4	562.1	443.5	119.6	483.3	121.4	155.7	161.4	4,058
1960	155.0	145.6	838.3	992.4	703.1	846.9	162.7	371.8	249.7	241.1	180.4	194.8	5,082

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	(a)	-	-	-	-	-	11,660	8,443,000
1951	(a)	53,400	Jan. 20, 1951	280	6,668	4,828,000	7,265	5,260,000
1952	(a)	58,400	Apr. 18, 1952	256	7,809	5,669,000	7,689	5,582,000
1953	(a)	126,000	May 16, 1953	210	9,734	7,048,000	8,893	6,439,000
1954	(a)	32,900	May 9, 1954	486	2,390	1,729,000	2,791	2,020,000
1955	(a)	58,200	Mar. 25, 1955	790	4,384	3,174,000	4,216	3,052,000
1956	(a)	32,000	Feb. 21, 1956	507	3,729	2,707,000	3,630	2,635,000
1957	(a)	98,900	May 1, 1957	495	9,880	7,154,000	12,450	9,012,000
1958	(a)	181,000	May 5, 1958	1,110	11,570	8,376,000	9,870	7,147,000
1959	(a)	51,600	Feb. 19, 1959	910	5,605	4,058,000	5,949	4,307,000
1960	(a)	47,400	Dec. 22, 1959	1,160	7,000	5,082,000	-	-

a From reports of Corps of Engineers.

3625. Moro Creek near Fordyce, Ark.

Location.--Lat 33°47', long 92°20', in NW¼ sec.3, T.11 S., R.12 W., on downstream side of bridge on State Highway 8, 1,100 ft upstream from Caney Creek, 4 miles southeast of Fordyce, and 12 miles upstream from White Water Creek.

Drainage area.--216 sq mi.

Records available.--August 1951 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 160.63 ft above mean sea level, datum of 1929.

Average discharge.--9 years (1951-60), 227 cfs (164,300 acre-ft per year).

Extremes.--1951-60: Maximum discharge, 26,800 cfs May 2, 1958 (gage height, 16.47 ft); no flow at times in each year.
Flood in January 1938 reached a stage of 15.1 ft, from information by State Highway Department (discharge, 15,800 cfs).

Remarks.--Records of chemical analyses for the period October 1957 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	-	0.81	-
1952	0.01	3.15	98.4	318	580	765	814	82.4	10.4	0.007	0	.53	221
1953	0	20.2	34.7	220	461	1,045	704	1,859	4.26	6.29	.02	0	364
1954	0	0	1.04	122	75.9	19.1	87.2	391	1.83	.06	0	0	58.4
1955	0	.007	10.6	25.2	250	686	606	24.5	29.8	.24	.14	0	135
1956	.09	.16	.70	1.34	504	166	127	146	31.3	.60	0	0	79.6
1957	0	.69	1.33	36.6	1,188	450	1,935	515	149	5.59	.51	8.83	349
1958	80.5	768	585	531	116	444	1,012	2,336	105	23.7	8.03	53.8	509
1959	18.7	22.8	18.4	111	561	361	301	16.1	66.2	5.35	.03	5.37	121
1960	4.77	2.01	233	526	563	862	44.8	107	30.7	37.0	26.3	1.49	203

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	-	-	-	-	-	-	-	-	-	-	-	48	-
1952	0.6	187	6,050	19,560	33,340	47,040	48,430	5,070	621	0.4	0	32	160,300
1953	0	1,200	2,130	13,550	25,590	64,220	41,920	114,300	253	387	1.2	0	263,600
1954	0	0	64	7,520	4,210	1,170	5,190	24,050	109	3.8	0	0	42,320
1955	0	.4	654	1,550	13,860	42,150	36,040	1,510	1,770	14	8.5	0	97,560
1956	5.8	9.3	43	82	29,020	10,180	7,560	9,010	1,860	37	0	0	57,810
1957	0	41	82	2,250	65,980	27,690	115,100	31,650	8,850	344	31	526	252,500
1958	4,950	45,720	35,950	32,670	6,430	27,300	60,240	143,600	6,270	1,460	493	3,200	368,300
1959	1,150	1,360	1,130	6,850	31,140	22,200	17,910	991	3,940	329	18	320	87,340
1960	294	120	14,330	32,330	32,370	53,020	2,670	6,610	1,830	2,280	1,620	†88	147,600

† Corrected.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951	1241	-	-	0	-	-	-	-	-	-	-
1952	1241	3,290	Apr. 15, 1952	0	221	1.02	13.91	160,300	217	13.65	157,400
1953	1281	5,340	May 14, 1953	0	364	1.69	22.88	263,600	360	22.60	260,300
1954	1341	1,760	May 4,5, 1954	0	58.4	.270	3.68	42,320	59.3	3.73	42,910
1955	1391	4,360	Mar. 23, 1955	0	135	.625	8.46	97,560	134	8.41	96,960
1956	1441	1,060	Feb. 22, 1956	0	79.6	.369	5.02	57,810	79.7	5.02	57,870
1957	1511	11,100	Apr. 5, 1957	0	349	1.62	21.93	252,500	468	29.44	339,000
1958	1561	26,800	May 2, 1958	0	509	2.36	31.98	368,300	394	24.78	285,300
1959	1631	2,710	Feb. 17, 1959	0	121	.560	7.58	87,340	136	8.54	98,440
1960	1711	1,650	Mar. 18, 1960	0	203	.940	12.81	147,600	-	-	-

3630. Saline River at Benton, Ark.

Location.--Lat 34°34'05", long 92°36'40", in NE¼ sec.9, T.2 S., R.15 W., on left bank three-quarters of a mile west of Benton and 3 miles downstream from confluence of North Fork and Alum Fork.

Drainage area.--569 sq mi.

Records available.--October 1950 to September 1960. Gage-height records collected at site 0.4 mile downstream since July 1938 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder and concrete control. Datum of gage is 260.91 ft above mean sea level, datum of 1929. July 6, 1938, to July 29, 1948, and Feb. 14 to Mar. 24, 1950, wire-weight gage; July 30, 1948, to Feb. 13, 1950, and Mar. 25, 1950, to June 13, 1951, water-stage recorder; all at site 0.4 mile downstream at datum 3.00 ft lower.

Average discharge.--10 years (1950-60), 802 cfs (580,600 acre-ft per year).

Extremes.--1950-60: Maximum discharge, 49,500 cfs Dec. 4, 1952 (gage height, 25.28 ft); no flow July 23-25, 27-30, Aug. 11-13, 1954.
Flood in April 1927 reached a stage of about 32.0 ft, former site and datum (from information by State Highway Department), or about 30.5 ft, present site and datum.

Remarks.--City of Little Rock diverts about 30 cfs from Lake Winona, on Alum Fork, for municipal use and discharges effluent into Arkansas River. Town of Benton diverts water for municipal use just above station and returns effluent below station. Records of chemical analyses and water temperatures for the period October 1949 to September 1953 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	178	284	282	1,458	2,227	450	1,159	608	318	888	84.5	81.5	658
1952	50.1	993	1,105	1,411	1,396	1,444	2,959	521	86.1	26.3	36.3	47.8	835
1953	22.4	918	1,941	1,538	1,411	2,166	2,325	3,041	84.4	136	26.7	16.1	1,136
1954	19.4	49.1	92.0	1,003	621	215	413	2,530	33.4	3.22	3.59	1.28	417
1955	115	88.1	406	295	973	1,563	357	1,365	230	146	52.7	55.7	470
1956	240	71.6	139	1,297	4,935	481	715	797	52.5	102	14.6	8.15	721
1957	16.0	109	160	1,619	1,615	1,245	4,444	3,124	1,134	107	930	104	1,212
1958	336	2,086	864	1,230	294	1,645	1,851	3,058	966	205	94.7	389	1,089
1959	123	865	317	634	2,800	1,206	607	114	1,273	289	67.4	248	694
1960	192	240	2,529	1,651	1,039	1,287	228	1,685	311	108	37.6	85.9	788

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	10,970	16,880	17,330	89,650	123,700	27,650	68,950	37,390	18,940	54,590	5,190	4,850	476,100
1952	3,080	59,070	67,960	86,770	80,320	88,810	176,100	32,030	5,130	1,620	2,230	2,850	606,000
1953	1,370	54,600	119,300	94,590	78,370	133,200	138,300	187,000	5,020	8,350	1,640	956	822,700
1954	1,190	2,920	5,660	61,700	34,500	13,250	24,600	155,500	1,990	198	221	76	301,800
1955	7,070	5,240	24,970	18,170	54,060	96,110	21,250	83,900	13,660	8,960	3,240	3,310	339,900
1956	14,750	4,260	8,570	79,740	283,900	29,570	42,540	49,030	3,130	6,280	896	485	523,200
1957	982	6,510	9,860	99,550	89,680	76,550	264,400	192,100	67,470	6,590	57,210	6,170	877,100
1958	20,680	124,100	53,140	75,650	16,300	101,200	110,200	188,000	57,500	12,580	5,830	23,170	788,400
1959	7,560	51,470	19,490	39,000	155,500	74,170	36,110	7,030	75,750	17,770	4,140	14,730	502,700
1960	11,820	14,280	155,500	101,500	59,780	79,160	13,560	103,600	18,500	6,670	2,310	5,110	571,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951	1211	21,500	Feb. 21, 1951	20	658	1.16	15.68	476,100	775	18.48	561,000
1952	1241	20,500	Apr. 13, 1952	12	835	1.47	19.97	606,000	897	21.46	651,100
1953	1281	49,500	Dec. 4, 1952	10	1,136	2.00	27.12	822,700	908	21.67	657,200
1954	1341	48,000	May 2, 1954	0	417	.733	9.97	301,800	455	10.86	329,300
1955	1391	38,800	May 27, 1955	5.1	470	.826	11.20	339,900	456	10.89	330,200
1956	1441	33,200	Jan. 30, 1956	1.6	721	1.27	17.24	523,200	707	16.90	512,900
1957	1511	35,200	Apr. 4, 1957	11	1,212	2.13	28.90	877,100	1,461	34.85	1,058,000
1958	1561	28,400	May 3, 1958	26	1,089	1.91	25.96	788,400	924	22.03	669,000
1959	1631	41,100	Feb. 14, 1959	30	694	1.22	16.57	502,700	837	19.96	605,800
1960	1711	22,000	May 21, 1960	22	788	1.38	18.85	571,800	-	-	-

3635. Saline River near Rye, Ark.

Location.--Lat 33°42', long 92°02', on line between secs.3 and 4, T.12 S., R.9 W., near left bank on downstream side of pier of bridge on State Highway 15, 4 miles southwest of Rye and 5 miles upstream from Hudgin Creek.

Drainage area.--2,062 sq mi.

Records available.--August 1937 to September 1960.

Gage.--Water-stage recorder. Altitude of gage is 95 ft (by barometer). Prior to May 30, 1939, wire-weight gage at same site and datum.

Average discharge.--23 years (1937-60), 2,712 cfs (1,963,000 acre-ft per year).

Extremes.--1937-60: Maximum discharge, 70,500 cfs May 3, 1958 (gage height, 30.31 ft); minimum, 3.5 cfs Sept. 27, 28, 1954 (gage height, 3.84 ft).
Maximum stage known, 30.5 ft in April 1927 (about 73,000 cfs).

Remarks.--Records of chemical analyses for the periods October 1948 to September 1955 and October 1957 to September 1960, and water temperatures for the periods October 1948 to September 1955 and October 1958 to September 1959 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	763	516	671	6,617	5,308	3,557	3,962	1,927	522	1,749	290	140	2,152
1952	90.7	669	3,002	4,221	4,950	6,237	7,351	2,063	388	69.3	71.2	86.6	2,423
1953	42.5	235	2,910	2,127	6,434	8,526	5,957	15,400	335	192	74.2	33.2	3,519
1954	24.2	55.8	146	1,479	1,821	855	1,035	4,703	147	32.5	10.6	4.95	858
1955	53.8	171	239	643	1,855	4,633	4,925	657	2,372	266	143	41.1	1,323
1956	305	99.9	211	143	11,060	2,781	2,280	2,849	200	180	47.9	25.6	1,642
1957	19.4	144	230	737	9,147	3,913	12,280	10,360	5,279	237	839	307	3,569
1958	1,236	9,690	5,058	4,550	2,420	4,058	5,460	21,470	1,322	1,069	907	1,875	4,950
1959	729	1,534	966	2,348	6,914	5,037	3,220	444	1,632	517	240	224	1,947
1960	433	366	4,260	6,114	4,398	6,937	910	2,507	925	3,141	126	80.7	2,527

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	46,900	30,670	41,290	406,900	294,800	218,700	235,700	118,500	31,040	107,600	17,830	8,330	1,558,000
1952	5,580	39,810	184,600	259,500	284,700	383,500	437,400	126,900	23,120	4,260	4,380	5,150	1,759,000
1953	2,610	14,000	178,900	130,800	357,300	524,200	354,400	947,000	19,960	11,830	4,560	1,980	2,548,000
1954	1,490	3,320	8,990	90,940	101,100	52,570	61,590	289,200	8,720	2,000	649	294	620,900
1955	3,310	10,190	14,670	39,530	103,000	284,900	293,100	40,380	141,200	16,340	8,760	2,450	957,800
1956	18,780	5,940	13,000	8,770	636,400	171,000	135,700	175,200	11,890	11,060	2,950	1,530	1,192,000
1957	1,190	8,540	14,130	45,320	508,000	240,600	730,600	636,800	314,200	14,550	51,610	18,260	2,584,000
1958	75,980	576,600	311,000	279,700	134,400	249,500	324,900	1,320,000	78,640	65,740	55,780	111,600	3,584,000
1959	44,820	91,270	59,370	144,400	384,000	309,700	191,600	27,300	97,120	31,770	14,740	13,340	1,409,000
1960	26,630	21,790	261,900	375,900	253,000	426,500	54,170	154,100	55,060	193,100	7,770	4,800	1,835,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	4,638	30.53	3,357,000
1951	1211	21,000	Jan. 21, 1951	63	2,152	1.04	14.18	1,558,000	2,306	15.18	1,669,000
1952	1241	14,800	Apr. 21, 1952	28	2,423	1.18	16.00	1,759,000	2,375	15.69	1,724,000
1953	1281	36,100	May 19, 1953	22	3,519	1.71	23.17	2,548,000	3,268	21.51	2,366,000
1954	1341	14,600	May 11, 1954	3.8	858	.416	5.65	620,900	877	5.78	635,200
1955	1391	17,600	Mar. 29, 1955	5.0	1,323	.642	8.71	957,800	1,336	8.80	967,400
1956	1441	21,300	Feb. 24, 1956	13	1,642	.796	10.84	1,192,000	1,623	10.72	1,178,000
1957	1511	37,000	May 3, 1957	10	3,569	1.73	23.50	2,584,000	4,867	32.04	3,524,000
1958	1561	70,500	May 3, 1958	103	4,950	2.40	32.58	3,584,000	3,889	25.60	2,816,000
1959	1631	24,000	Feb. 21, 1959	94	1,947	.944	12.81	1,409,000	2,106	13.85	1,524,000
1960	1711	14,800	July 4, 1960	61	2,527	1.23	16.68	1,835,000	-	-	-

3641.5. Bayou Bartholomew near McGehee, Ark.

Location.--Lat 33°37'40", long 91°26'45", in W½ sec.30, T.12 S., R.3 W., near center of stream on downstream side of pier of bridge on State Highway 4, 2.7 miles west of McGehee and 17.5 miles downstream from Ables Creek.

Drainage area.--592 sq mi.

Records available.--October 1956 to September 1960. Gage-height records collected and occasional discharge measurements made by Corps of Engineers at this site since August 1938. Daily stages 1940-41, and 1944 to date and results of discharge measurements 1938, and 1947 to date are published in reports of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is 121.48 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Sept. 7, 1949, staff gage at same site and datum.

Extremes.--1956-60: Maximum discharge, 6,870 cfs May 11, 1958 (gage height, 24.49 ft); minimum, 15 cfs Oct. 12-19, 1956.

Maximum stage known since at least 1930, that of May 11, 1958. Flood in 1932 reached a stage of 22.4 ft, from floodmarks. Flood of May 25, 1953, reached a stage of 22.5 ft.

Remarks.--Records of chemical analyses and water temperatures for the period October 1959 to September 1960 are published in reports of Geological Survey.

Cooperation.--Gage-height record furnished by Corps of Engineers.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	17.1	49.5	57.2	363	2,575	1,722	2,240	1,643	617	108	54.1	153	786
1958	319	2,240	1,912	1,128	843	808	923	5,972	1,429	496	228	1,300	1,472
1959	1,216	490	375	594	1,552	1,162	736	372	215	131	96.3	144	585
1960	160	100	415	875	1,065	1,857	490	335	191	129	33.8	100	479

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	1,050	2,950	3,520	22,340	143,000	105,900	133,300	101,000	36,700	6,630	3,320	9,090	568,800
1958	19,610	133,300	117,600	69,360	46,800	49,700	54,940	367,200	85,060	30,480	14,020	77,370	1,065,000
1959	74,780	29,140	23,070	36,520	86,210	71,450	43,800	22,880	12,820	8,030	5,920	8,560	423,200
1960	9,870	5,950	25,540	53,790	61,270	114,200	29,130	20,630	11,380	7,950	2,080	5,970	347,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1957	1561	3,070	Feb. 14, 1957	15	786	1.33	18.01	568,800	1,149	26.34	831,800
1958	1561	6,870	May 11, 1958	56	1,472	2.49	33.73	1,065,000	1,273	29.19	921,900
1959	1631	a2,360	Feb. 22, 1959	51	585	.988	13.40	423,200	466	10.69	337,600
1960	1711	2,290	Mar.20,21, 1960	16	479	.809	11.01	347,800	-	-	-

a A higher discharge occurred at 12:01 a.m. Oct. 1, 1958 (3,460 cfs, 17.80 ft), stage falling from peak of Sept. 27, 1958.

3642. Bayou Bartholomew near Jones, La.

Location.--Lat 32°59'25", long 91°39'20", in SE¼SW¼ sec.9, T.23 N., R.8 E., on downstream side of right pier of bridge on State Highway 834, 1 mile downstream from Arkansas-Louisiana State line and 1.6 miles northwest of Jones.

Drainage area.--1,187 sq mi.

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 79.21 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Auxiliary staff gage at site 4.1 miles downstream at different datum. Prior to Oct. 1, 1959, auxiliary water-stage recorder at site 15.3 miles upstream at datum 85.17 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers).

Extremes.--1957-60: Maximum daily discharge, 6,100 cfs May 5, 6, 1958; maximum gage height, 28.24 ft May 21, 22, 1958; minimum not determined.

Remarks.--Small diversions above station for irrigation. In extreme floods, considerable flow bypasses station. Most of flow is into the Bayou LaFourche-Boeuf River basins via interconnecting system of bayous and drainage ditches and passes the two stations Bayou LaFourche near Crew Lake and Boeuf River at Girard (see elsewhere in this report). Other flow bypasses station and reenters the basin 5 miles downstream via Overflow Creek. Records of chemical analyses for the water year 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	426	2,856	4,636	2,781	2,245	1,897	1,839	5,337	4,463	1,871	485	1,653	2,541
1959	3,940	704	1,148	770	2,865	3,053	1,888	1,134	367	365	268	261	1,392
1960	240	200	320	1,150	1,720	3,180	1,750	700	409	206	159	169	849

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	26,190	170,000	285,100	171,000	124,700	116,600	109,400	328,200	265,600	115,100	29,830	98,340	1,840,000
1959	242,300	41,880	70,610	47,360	159,100	187,700	112,400	69,750	21,860	22,430	16,470	15,560	1,007,000
1960	14,730	11,900	19,680	70,970	99,090	195,800	104,100	43,060	24,250	12,680	9,750	10,070	616,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1958	1631	6,100	May 5, 6, 1958	260	2,541	-	1,840,000	2,367	1,714,000
1959	1631	5,350	Oct.4, 5, 1958	165	1,392	-	1,007,000	965	698,900
1960	1711	3,860	Mar. 24, 1960	-	849	-	616,100	-	-

3643. Chemin-a-Haut Bayou near Beekman, La.

Location.--Lat 32°58'55", long 91°48'20", in SE¼ sec.13, T.23 N., R.6 E., near center of span on downstream side of bridge on parish road, 1½ miles downstream from Arkansas-Louisiana State line and 6 miles northeast of Beekman.
Drainage area.--271 sq mi.
Records available.--October 1955 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 85.58 ft above mean sea level. Prior to Jan. 28, 1956, staff gage at same site and datum. Bayou Bartholomew near Beekman used as auxiliary gage; datum of gage is 70.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers).
Average discharge.--5 years (1955-60), 338 cfs (244,700 acre-ft per year).
Extremes.--1955-60: Maximum discharge, 29,500 cfs Apr. 26, 1958; maximum gage height, 18.71 ft Apr. 27, 1958; no flow June 6-13, Oct. 18-25, 29, 1956.
Remarks.--Some regulation by rice farmers above gage. Records of chemical analyses for the water year 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	1.29	1.19	23.6	4.82	661	411	620	18.3	6.04	6.35	3.69	8.91	144
1957	1.27	29.9	27.6	191	672	430	820	420	607	100	7.94	48.3	275
1958	62.4	1,611	613	701	203	721	2,619	2,905	471	153	68.7	1,411	962
1959	190	25.2	13.6	116	835	544	315	13.5	64.3	81.7	23.4	40.4	184
1960	5.69	11.0	52.9	178	363	651	43.5	116	2.94	3.22	60.0	17.5	125

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	79	71	1,450	296	38,010	25,280	36,880	1,120	359	390	227	530	104,700
1957	78	1,780	1,700	11,760	37,320	26,430	48,780	25,800	36,100	6,170	488	2,870	199,300
1958	3,830	95,850	37,660	43,120	11,280	44,320	155,900	178,600	28,010	9,420	4,230	83,940	696,200
1959	11,690	1,500	836	7,160	46,350	33,450	18,770	830	3,830	5,020	1,440	2,400	133,300
1960	350	653	3,250	10,970	20,890	40,050	2,590	7,160	175	198	3,690	1,040	91,020

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	3,890	Apr. 7, 1956	0	144	0.531	7.25	104,700	147	7.38	106,600
1957	1511	3,630	Apr. 6, 1957	0	275	1.01	13.80	199,300	460	23.06	333,100
1958	1561	29,500	Apr. 26, 1958	.6	962	3.55	48.17	696,200	791	39.63	572,800
1959	1631	4,320	Feb. 15, 1959	.8	184	.679	9.23	133,300	171	8.56	123,500
1960	1711	1,400	Mar. 4, 1960	.4	125	.461	6.35	91,020	-	-	-

3645. Bayou Bartholomew near Beekman, La.

Location.--Lat 32°52'20", long 91°52'04", in NW¼NW¼ sec.28, T.22 N., R.6 E., near center of span on downstream side of bridge on State Highway 139, 0.8 mile downstream from Bayou De Glaize, 4 miles south of Beekman, and 7 miles north of Bastrop.
Drainage area.--1,645 sq mi.
Records available.--August 1928 to September 1931, October 1938 to September 1959, monthly discharge only for some periods, published in WSP 1311. Water year 1960 (annual maximum). Gage-height record for October 1959 to September 1960 available in files of district office. Gage heights as follows: August 1928 to October 1931 (fragmentary) in files of Corps of Engineers, Vicksburg district; since August 1932, in reports of Corps of Engineers, Vicksburg district.
Gage.--Water-stage recorder. Datum of gage is 70.60 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to Feb. 3, 1939, chain gage and Feb. 3, 1949, to Aug. 17, 1955, wire-weight gage, at same site and datum.
Average discharge.--24 years (1928-31, 1938-59), 1,795 cfs (1,300,000 acre-ft per year).
Extremes.--1928-31, 1938-60: Maximum discharge, 14,700 cfs May 2, 1958 (gage height, 28.30 ft).
1928-31, 1938-59: Minimum discharge, 38 cfs July 30, 1956; minimum gage height, 0.71 ft Aug. 30, 1954.
A stage of 26.75 ft (from floodmark) occurred Apr. 17, 1927 (affected by overflow from Mississippi River). A discharge of 12,400 cfs (gage height, 25.78 ft) was measured by Corps of Engineers Jan. 12, 1932.
Remarks.--Small diversions above station for irrigation. In extreme floods, considerable flow bypasses station. Most of flow is into the Bayou LaFourche-Boeuf River basins via interconnecting system of bayous and drainage ditches and passes the two stations Bayou LaFourche near Crew Lake and Boeuf River at Girard (see elsewhere in this report).

Monthly and yearly mean discharge, in cubic feet per second, of Bayou Bartholomew near Beekman, La.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,093	281	946	4,579	5,792	3,674	2,957	1,559	565	1,120	479	250	1,920
1952	240	221	1,335	2,012	4,546	3,608	3,510	1,577	373	196	147	157	1,482
1953	171	142	456	364	1,816	4,067	3,693	7,055	5,875	756	228	160	2,063
1954	139	127	382	961	1,997	718	881	3,735	671	110	62.8	76.6	816
1955	115	117	94.7	319	1,160	3,227	5,320	2,475	914	318	119	96.8	1,185
1956	108	96.6	176	70.4	4,060	4,411	3,071	608	162	81.2	52.5	72.5	1,067
1957	73.4	134	257	1,101	4,386	4,507	4,766	3,991	2,450	887	224	216	1,896
1958	535	4,450	6,388	4,132	3,010	2,788	3,722	10,490	6,915	2,804	679	3,625	4,132
1959	4,767	904	1,330	931	3,840	4,323	2,524	1,390	524	523	361	332	1,804
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	67,210	16,700	58,140	281,600	321,700	225,900	176,000	95,880	33,620	68,890	29,470	14,850	1,390,000
1952	14,770	13,180	82,100	123,700	261,500	221,800	208,900	96,990	22,220	12,070	9,040	9,320	1,076,000
1953	10,490	8,460	28,040	22,390	100,900	250,100	219,700	433,800	349,600	46,470	14,040	9,500	1,493,000
1954	8,570	7,530	23,490	59,110	110,900	44,120	52,420	229,600	39,940	6,770	3,860	4,560	590,900
1955	7,040	6,960	5,820	19,630	64,420	198,400	316,600	152,200	54,360	19,540	7,320	5,760	858,000
1956	6,620	5,750	10,850	4,330	233,500	271,200	182,700	37,380	9,640	4,990	3,230	4,310	774,500
1957	4,510	7,960	15,780	67,730	243,600	277,100	283,600	245,400	145,800	54,530	13,740	12,860	1,373,000
1958	32,910	264,800	392,800	254,100	167,200	171,400	221,500	645,100	411,500	172,400	41,750	215,700	2,991,000
1959	293,100	53,780	81,760	57,230	213,300	265,800	150,200	85,460	31,180	32,140	22,180	19,750	1,306,000
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	3,370	27.83	2,440,000
1951	1211	6,560	Feb. 11, 12, 1951	212	1,920	1.17	15.86	1,390,000	1,876	15.50	1,358,000
1952	1241	4,760	Feb. 2, 1952	119	1,482	.901	12.27	1,076,000	1,395	11.55	1,013,000
1953	1281	8,540	May 20, 1953	125	2,063	1.25	17.02	1,493,000	2,053	16.94	1,486,000
1954	1341	5,680	May 6, 1954	46	816	.496	6.74	590,900	789	6.51	571,100
1955	1391	7,510	Mar. 24, 1955	79	1,185	.720	9.77	858,000	1,190	9.81	861,400
1956	1441	5,030	Apr. 9, 1956	40	1,067	.649	8.84	774,500	1,074	8.89	779,500
1957	1511	6,480	Apr. 7, 1957	68	1,896	1.15	15.66	1,373,000	2,810	23.21	2,035,000
1958	1561	14,700	May 2, 1958	342	4,132	2.51	34.10	2,991,000	3,770	31.10	2,729,000
1959	1631	6,300	Feb. 18, 1959	232	1,804	1.10	14.88	1,306,000	-	-	-
1960	-	4,900	Mar. 20, 1960	-	-	-	-	-	-	-	-

3647. Bayou de Loutre near Laran, La.

Location.--Lat 32°57'20", long 92°30'00", in NW¼ sec.29, T.23 N., R.1 W., near center of span on downstream side of bridge on parish road, 1½ miles southwest of Laran, 1½ miles downstream from Lion Creek, and 3 miles upstream from bridge on State Highway 550.
Drainage area.--141 sq mi.
Records available.--October 1955 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 112.34 ft above mean sea level, datum of 1929. Prior to Jan. 31, 1956, wire-weight gage at same site and datum.
Average discharge.--5 years (1955-60), 206 cfs (149,100 acre-ft per year).
Extremes.--1955-60: Maximum discharge, 22,600 cfs Apr. 27, 1958 (gage height, 20.29 ft, from floodmark); minimum daily, 5.1 cfs Oct. 25, 1955.
Remarks.--Records of chemical analyses for the water year 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	16.9	37.3	56.7	61.7	387	211	181	71.5	28.5	39.9	11.7	11.5	91.6
1957	11.3	54.6	45.9	173	379	164	649	345	139	23.5	14.2	50.1	169
1958	184	961	265	419	180	258	1,844	843	161	99.1	55.7	203	455
1959	37.1	156	88.4	118	373	332	334	69.5	501	142	29.2	88.8	187
1960	56.4	78.6	189	194	299	410	66.7	98.8	27.1	15.7	45.2	24.0	125

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	1,040	2,220	3,480	3,790	22,230	12,980	10,780	4,400	1,690	2,450	717	685	66,460
1957	692	3,250	2,820	10,650	21,070	10,080	38,610	21,240	8,280	1,450	873	2,980	122,000
1958	11,300	57,170	16,280	25,770	9,980	15,890	109,700	51,810	9,580	6,090	3,420	12,080	329,100
1959	2,280	9,260	5,430	7,230	20,690	20,390	19,900	4,270	29,790	8,720	1,790	5,280	135,000
1960	3,470	4,680	11,620	11,910	17,210	25,230	3,970	6,070	1,610	965	2,780	1,430	90,940

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	1,760	Feb. 5, 1956	5.1	91.6	0.650	8.84	66,460	91.6	8.85	66,480
1957	1511	2,700	Apr. 30, 1957	7.6	169	1.20	16.24	122,000	276	26.59	200,000
1958	1561	22,600	Apr. 27, 1958	18	455	3.23	43.76	329,100	361	34.75	261,300
1959	1631	5,000	June 10, 1959	16	187	1.33	17.95	135,000	190	18.32	137,800
1960	1711	1,800	Mar. 5, 1960	7.6	125	.887	12.08	90,940	-	-	-

3648.6. Sugar Creek tributary at Lake Foursome, near Arcadia, La.

Location.--Lat 32°38'10", long 92°52'20", in SW¼ sec.14, T.19 N., R.5 W., Louisiana meridian, on north side of Lake Foursome, 600 ft above spillway, 1,500 ft upstream from Sugar Creek, 7.1 miles northeast of Arcadia, and 8.1 miles northwest of Simsboro.

Drainage area.--0.93 sq mi.

Records available.--April 1954 to September 1960.

Gage.--Duplex water-stage recorder (rain gage and water stage combination).

Average discharge.--6 years (1954-60), 1.00 cfs (724 acre-ft per year).

Extremes.--1954-60: Maximum outflow, 189 cfs June 8, 1959 (gage height, 6.50 ft); no flow at times in each year. Maximum inflow not determined.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation of outlet structures. Pond is formed by earth dam; spillway is a 100-foot wide uncontrolled sodded clay channel located at right end of dam. Outlet pipe is 12 inches in diameter, 55 ft long and set horizontal in dam approximately 30 ft left of spillway. Capacity below 1.0 ft gage height not determined and not included in capacity figures. Dam built by U. S. Soil Conservation Service for recreational purposes.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	0.89	0.02	0	0	0	-
1955	0	0	0	0	0	0.03	0.16	.57	.67	.48	.24	.01	0.18
1956	.02	0	0	.01	.54	.49	5.83	.46	0	0	0	0	.60
1957	0	0	.04	.27	1.71	.82	3.65	3.67	2.36	.33	0	0	1.06
1958	.50	4.90	1.96	2.76	1.43	1.96	2.88	4.86	1.29	1.09	.42	2.76	2.23
1959	.46	.72	.65	.66	1.69	2.51	2.64	1.03	5.83	1.48	.65	.11	1.53
1960	.01	.21	.48	.91	1.70	1.36	.18	.05	.05	.02	0	0	.41

Contents, in acre-feet, on last day of month in reservoir

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1954	-	-	-	-	-	-	216	221	191	156	118	85.7
1955	78.3	79.9	81.4	-	138	-	207	222	223	225	203	210
1956	196	194	201	217	216	226	209	187	181	186	-	136
1957	134	145	-	216	209	217	223	212	218	196	169	170
1958	199	-	-	207	210	209	237	203	204	198	184	-
1959	184	199	193	196	202	205	207	200	196	204	189	171
1960	169	178	195	199	209	203	186	174	190	164	167	144

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1954a/	1711	5.9	May 12, 1954	134	May 2, 1954	0	-	-
1955	1711	5.6	May 24, 1955	198	June 27, 1955	0	0.18	0.18
1956	1711	142	Apr. 5, 1956	507	Apr. 15, 1956	0	.60	.61
1957	1711	89	May 14, 1957	541	May 14, 1957	0	1.06	1.67
1958	1711	29	May19,20, 1958	169	July 23, 1958	0	2.23	1.78
1959	1711	189	June 8, 1959	-	-	0	1.53	1.43
1960	1711	9.0	Feb. 25, 1960	338	June 7, 1960	0	.41	-

a Period April to September.

3650. Bayou D'Arbonne near Dubach, La.

Location.--Lat 32°40'50", long 92°39'10", in SW¼NW¼ sec.35, T.20 N., R.3 W., near left bank on downstream side of bridge on U. S. Highway 167, 1½ miles south of Dubach and 8 miles upstream from Middle Fork Bayou D'Arbonne.

Drainage area.--355 sq mi.

Records available.--June 1940 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 83.25 ft above mean sea level, datum of 1929 (levels by Louisiana Department of Public Works). June 4, 1940, to May 6, 1952, wire-weight gage at site 1,000 ft upstream at same datum. May 7 to Dec. 3, 1952, wire-weight gage at present site and datum.

Average discharge.--20 years (1940-60), 464 cfs (335,900 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 26,400 cfs June 9, 1959; no flow for many days in most years.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	359	203	245	1,129	1,194	615	488	220	111	60.5	3.31	18.2	383
1952	5.95	34.6	688	655	1,435	818	897	144	27.8	1.82	.41	.07	388
1953	0	.77	11.5	89.0	845	1,242	566	2,774	44.6	25.5	5.99	2.00	468
1954	0	5.47	108	308	202	106	325	947	32.7	1.04	0	0	170
1955	.10	.97	3.51	48.0	234	744	515	582	329	457	156	18.5	258
1956	14.8	14.6	68.6	75.6	1,055	584	980	222	7.37	20.0	19.8	.64	251
1957	.139	7.03	32.1	244	922	455	1,524	1,907	700	179	10.7	45.8	498
1958	219	2,256	721	965	518	581	1,575	2,218	401	403	53.5	679	882
1959	152	227	159	164	871	903	674	2822	2,064	277	89.5	25.8	485
1960	22.3	93.2	293	478	821	891	217	208	41.8	9.15	19.5	2.90	257

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	22,050	12,080	15,070	69,430	66,310	37,840	29,010	13,520	6,610	3,720	204	1,080	276,900
1952	366	2,060	42,320	40,270	82,520	50,280	53,370	8,830	1,660	112	25	4.2	281,800
1953	0	46	707	5,470	46,940	76,370	33,670	170,600	2,650	1,570	369	119	338,500
1954	0	326	6,640	18,920	11,250	6,540	19,350	58,240	1,950	64	0	0	123,300
1955	6.0	58	216	2,950	12,990	45,770	30,650	35,760	19,570	28,100	9,620	1,100	186,800
1956	909	869	4,220	4,650	60,660	35,880	58,340	13,650	439	1,230	1,220	38	182,100
1957	8.5	418	1,980	15,010	51,200	27,950	90,710	117,300	41,670	10,980	659	2,720	360,600
1958	13,440	134,200	44,320	59,330	28,740	35,740	93,700	136,400	23,870	24,810	3,290	40,400	638,200
1959	9,320	13,530	9,760	10,100	48,360	55,530	40,120	17,340	122,800	17,010	5,500	1,540	350,900
1960	1,370	5,540	17,990	29,400	47,250	54,810	12,900	12,820	2,480	563	1,200	173	186,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	--	-	-	-	-	708	27.06	512,200
1951	1211	2,900	Jan. 16, 1951	0.1	383	1.08	14.63	276,900	376	14.40	272,500
1952	1241	4,970	Feb. 14, 1952	0	388	1.09	14.91	281,800	328	12.58	237,800
1953	1281	9,410	May 1, 1953	0	468	1.32	17.88	338,500	476	18.21	344,700
1954	1341	3,520	May 14, 1954	0	170	.479	6.51	123,300	161	6.16	116,600
1955	1391	5,660	May 26, 1955	0	258	.727	9.87	186,800	266	10.18	192,500
1956	1441	7,800	Apr. 7, 1956	0	251	.707	9.61	182,100	246	9.41	178,500
1957	1511	10,200	May 15, 1957	0	498	1.40	19.05	360,600	760	29.07	550,200
1958	1561	13,400	Apr. 28, 1958	7.7	882	2.48	33.70	638,200	661	25.28	478,900
1959	1631	26,400	June 9, 1959	10	485	1.37	18.53	350,900	474	18.12	342,200
1960	1711	2,300	Mar. 5, 1960	1.0	257	.724	9.84	186,500	-	-	-

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3655. Middle Fork Bayou D'Arbonne near Bernice, La.

Location.--Lat 32°45'50", long 92°39'30", in NE¼SE¼ sec.34, T.21 N., R.3 W., near center of channel on downstream side of bridge on U. S. Highway 167, 4 miles south of Bernice and 8 miles upstream from mouth.

Drainage area.--178 sq mi.

Records available.--June 1940 to September 1957, water years 1958-60 (annual maximum).

Gage.--Crest-stage gage. Datum of gage is 97.08 ft above mean sea level, datum of 1929 (levels by Louisiana Department of Public Works). Prior to July 8, 1947, wire-weight gage, Jan. 23, 1951, to July 7, 1952, staff gage, and July 8, 1952, to Sept. 30, 1957, water-stage recorder, all at same site and datum.

Average discharge.--17 years (1940-57), 223 cfs (161,400 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 28,000 cfs Apr. 27, 1958 (gage height, 13.86 ft), from rating curve extended above 12,000 cfs by logarithmic plotting; no flow for many days in most years.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	134	84.7	117	545	705	338	253	99.5	78.4	102	4.46	16.3	203
1952	4.97	28.8	425	482	840	393	435	65.6	11.6	1.18	.45	0	222
1953	0	.75	6.34	60.8	592	723	280	1,387	16.3	17.1	2.13	.77	256
1954	0	1.37	34.0	117	120	63.5	141	504	12.2	.22	0	0	82.9
1955	0	.81	1.00	24.0	102	484	233	320	53.2	50.2	26.2	.81	108
1956	.94	4.06	20.1	29.8	519	280	357	99.5	2.97	.95	.35	.27	108
1957	0	2.74	9.15	61.7	395	204	872	676	298	34.1	2.52	7.49	211
1958													
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,230	5,040	7,190	33,520	39,130	20,780	15,030	6,120	4,670	6,270	275	972	147,200
1952	305	1,710	26,150	29,630	48,310	24,170	25,880	4,030	691	73	28	0	161,000
1953	0	45	390	3,740	32,880	44,430	16,690	85,270	973	1,050	131	46	185,600
1954	0	82	2,090	7,210	6,640	3,900	8,380	31,000	724	14	0	0	60,040
1955	0	48	62	1,470	5,660	29,770	13,870	19,710	3,170	3,090	1,610	48	78,510
1956	58	242	1,240	1,830	29,870	17,210	21,250	6,120	177	59	22	16	78,090
1957	0	163	563	3,790	21,920	12,560	51,920	41,550	17,700	2,100	155	446	152,900
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	341	25.98	246,600
1951	1211	1,380	Feb. 9, 10, 1951	0.5	203	1.14	15.50	147,200	214	16.30	154,900
1952	1241	3,950	Jan. 29, 1952	0	222	1.25	16.95	161,000	184	14.04	133,200
1953	1281	4,170	May 1, 1953	0	256	1.44	19.54	185,600	259	19.72	187,400
1954	1341	1,560	May 14, 1954	0	82.9	.466	6.32	60,040	80.1	6.10	57,980
1955	1391	3,510	Mar. 24, 1955	0	108	.607	8.29	78,510	110	8.44	79,940
1956	1441	1,720	Apr. 7, 1956	0	108	.607	8.23	78,090	106	8.14	77,280
1957	1511	6,360	Apr. 29, 1957	0	211	1.19	16.12	152,900	-	-	-
1958	1561	28,000	Apr. 27, 1958	-	-	-	-	-	-	-	-
1959	1531	5,540	June 9, 1959	-	-	-	-	-	-	-	-
1960	1711	1,160	Mar. 5, 1960	-	-	-	-	-	-	-	-

3658. Cornie Bayou near Three Creeks, Ark.

Location.--Lat 33°02', long 92°56', in NW¼ sec.36, T.19 S., R.18 W., on left bank at downstream side of bridge on State Highway 15, 4½ miles downstream from Pidgeon Roost Creek and 6 miles southwest of town of Three Creeks.
Drainage area.--180 sq mi.
Records available.--February 1956 to September 1960.
Gage.--Water-stage recorder. Prior to Oct. 29, 1959, wire-weight gage at same site and datum.
Extremes.--1956-60: Maximum discharge, 35,800 cfs Apr. 27, 1958 (gage height, 15.50 ft), from rating curve extended above 11,000 cfs on basis of contracted-opening measurement of peak flow; no flow at times in 1956.
Maximum stage known since at least 1880, that of Apr. 27, 1958.
Remarks.--Records of chemical analyses and water temperatures for the periods May 1950 to September 1955 and February 1956 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	371	180	130	63.8	4.02	2.15	0.54	0.65	-
1957	0.17	27.0	18.9	62.9	379	210	921	351	157	20.0	3.64	8.82	177
1958	108	751	317	479	179	265	2,059	766	348	70.4	10.7	38.0	448
1959	8.90	25.7	25.5	37.1	351	185	336	44.0	111	102	9.11	6.17	101
1960	11.8	12.8	129	238	299	526	73.3	39.1	6.33	2.40	5.43	4.29	112

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	21,330	11,060	7,740	3,920	239	132	33	39	-
1957	11	1,610	1,160	3,870	21,070	12,890	54,810	21,610	9,330	1,230	224	525	128,300
1958	6,630	44,700	19,520	29,460	9,930	16,280	122,500	47,120	20,710	4,330	660	2,260	324,100
1959	547	1,530	1,570	2,280	19,470	11,390	20,010	2,710	6,590	6,300	560	367	73,320
1960	726	764	7,950	14,620	17,180	32,360	4,360	2,400	376	148	334	255	81,470

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	804	Feb. 6, 1956	0	-	-	-	-	-	-	-
1957	1511	6,440	Apr. 28, 1957	0	177	0.983	13.35	128,300	271	20.44	196,400
1958	1561	35,800	Apr. 27, 1958	1.3	448	2.49	33.77	324,100	355	26.77	256,900
1959	1631	1,880	Feb. 17, 1959	2.0	101	.561	7.65	73,320	109	8.26	79,120
1960	1711	2,960	Mar. 4, 1960	.2	112	.622	8.49	81,470	-	-	-

3659. Three Creek near Three Creeks, Ark.

Location.--Lat 33°04', long 92°53', in SE¼ sec.17, T.19 S., R.17 W., near right bank on downstream side of piling of bridge on State Highway 15, 2¼ miles southwest of town of Three Creeks and 2¼ miles upstream from small tributary.
Drainage area.--46 sq mi.
Records available.--February 1956 to September 1960.
Gage.--Water-stage recorder. Prior to June 14, 1960, staff gage at same site and datum.
Extremes.--1956-60: Maximum discharge, 11,300 cfs Apr. 26, 1958 (gage height, 9.35 ft), from rating curve extended above 2,300 cfs on basis of contracted-opening measurement of peak flow; minimum, 0.4 cfs Aug. 26, Dec. 5, 1956.
Maximum stage known since at least 1880, that of Apr. 26, 1958.
Remarks.--Records of chemical analyses and water temperatures for the periods May 1950 to September 1955 and February 1956 to September 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	126	56.5	35.9	11.0	3.11	1.39	1.77	1.52	-
1957	1.35	4.32	3.20	22.4	118	43.3	329	62.2	40.5	2.99	1.64	2.03	51.5
1958	14.2	182	89.6	131	59.6	94.3	680	201	107	9.52	9.39	15.7	132
1959	2.80	8.51	7.04	10.1	116	68.3	107	11.7	59.9	50.6	5.63	4.76	37.0
1960	4.39	4.45	45.7	45.5	97.4	181	12.0	10.2	3.25	2.33	3.71	2.75	34.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	-	7,220	3,470	2,130	678	185	85	109	91	-
1957	83	257	197	1,380	6,530	2,660	19,560	3,820	2,410	184	101	121	37,300
1958	875	10,810	5,510	8,060	3,310	5,800	40,490	12,380	6,350	585	578	934	95,680
1959	172	506	433	619	6,440	4,200	6,390	720	3,560	3,110	346	283	26,780
1960	270	265	2,810	2,800	5,600	11,160	714	630	194	143	228	163	24,980

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	432	Feb. 4, 1956	-	-	-	-	-	-	-	-
1957	1511	1,450	Apr. 27, 1957	0.6	51.5	1.12	15.20	37,300	74.5	22.01	53,960
1958	1561	11,300	Apr. 26, 1958	.6	132	2.87	39.01	95,680	110	32.45	79,600
1959	1631	785	Feb. 16, 1959	1.4	37.0	.804	10.92	26,780	40.1	11.82	29,010
1960	1711	1,470	Mar. 3, 1960	1.2	34.4	.748	10.18	24,980	-	-	-

3660. Corney Bayou near Lillie, La.

Location.--Lat 32°53'15", long 92°39'25", in NE¼NE¼ sec.22, T.22 N., R.3 W., near left bank on downstream side of bridge on U. S. Highway 167, 2 miles upstream from Little Corney Bayou and 3 miles south of Lillie.

Drainage area.--462 sq mi.

Records available.--June 1940 to September 1957, water years 1958-60 (annual maximum). Formerly published as Cornie Bayou near Lillie.

Gage.--Crest-stage gage. Datum of gage is 84.08 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Aug. 31, 1949, wire-weight gage, Oct. 2, 1951, to Aug. 4, 1952, staff gage, and Aug. 5, 1952, to Sept. 30, 1957, water-stage recorder, all at same site and datum.

Average discharge.--17 years (1940-57), 472 cfs (341,700 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 46,300 cfs Apr. 27, 1958 (gage height, 25.20 ft). 1940-57: No flow at times in 1954, 1956-57.

Remarks.--Some regulation by Corney Lake (capacity, 8,000 acre-ft), about 6 miles above station. Storage began in 1935. Records of chemical analyses for the water years 1955-57 and 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	129	89.9	113	649	1,384	515	536	345	231	321	53.8	35.9	360
1952	21.5	49.0	603	808	2,134	1,063	1,154	137	64.7	27.9	16.0	8.10	500
1953	5.69	7.48	15.9	78.0	762	1,553	603	3,806	48.5	23.4	29.8	8.08	581
1954	.65	1.67	43.5	161	225	101	198	767	53.6	20.8	4.13	.	131
1955	0	.21	.43	39.3	151	749	407	339	141	59.5	27.6	18.7	161
1956	11.3	7.65	10.1	29.0	1,045	461	495	165	11.8	7.09	3.48	.36	183
1957	0	2.10	9.00	103	862	455	2,092	1,476	415	148	14.9	9.24	460

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,920	5,350	6,950	39,900	76,840	31,650	31,920	21,190	13,740	19,760	3,310	2,140	260,700
1952	1,320	2,920	37,050	49,700	122,700	65,360	68,670	8,420	3,850	1,720	982	482	363,200
1953	350	445	981	4,800	42,310	95,480	35,860	234,000	2,880	1,440	1,830	481	420,900
1954	40	99	2,670	9,900	12,480	6,230	11,810	47,170	3,190	1,280	254	28	95,150
1955	0	12	26	2,420	8,360	46,080	24,190	20,830	8,390	3,660	1,700	1,110	116,800
1956	696	455	620	1,780	60,130	28,320	29,450	10,150	701	436	214	21	133,000
1957	0	125	554	6,340	47,880	27,950	124,500	90,750	24,700	9,070	919	550	333,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	623	451,000
1951	1211	2,520	Feb. 11, 1951	13	360	260,700	389	281,700
1952	1241	5,470	Feb. 15, 1952	5.4	500	363,200	446	323,700
1953	1281	9,890	May 16, 1953	2.1	581	420,900	583	421,900
1954	1341	1,700	May 6, 1954	0	131	95,150	128	92,380
1955	1391	3,540	Mar. 25, 1955	0	161	116,800	164	118,500
1956	1441	2,320	Feb. 9, 1956	0	183	133,000	182	131,900
1957	1511	11,500	Apr. 39, 1957	0	460	333,300	-	-
1958	1541	46,300	Apr. 27, 1958	-	-	-	-	-
1959	1631	4,400	June 9, 1959	-	-	-	-	-
1960	1711	4,380	Mar. 5, 1960	-	-	-	-	-

3662. Little Corney Bayou near Lillie, La.

Location.--Lat 32°55'40", long 92°37'55", in NW¼ sec.1, T.22 N., R.3 W., near center of span on downstream side of bridge on State Highway 15, 1.4 miles east of Lillie and 2½ miles upstream from mouth.

Drainage area.--208 sq mi.

Records available.--Occasional low-flow measurements, water years 1948-49, 1954-55, October 1955 to September 1960. Prior to October 1957, published as Little Cornie Bayou near Lillie.

Gage.--Water-stage recorder. Datum of gage is 91.48 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Jan. 27, 1956, wire-weight gage at same site and datum.

Average discharge.--5 years (1955-60), 214 cfs (154,900 acre-ft per year).

Extremes.--1955-60: Maximum discharge, 21,400 cfs Apr. 28, 1958 (gage height, 16.52 ft, from floodmark); no flow Aug. 18-20, Sept. 21 to Oct. 1, Oct. 3-5, 1956.

Remarks.--Records of chemical analyses for the water year 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	8.53	18.7	41.4	53.3	503	232	176	76.3	12.9	11.4	1.49	1.07	92.9
1957	1.43	17.4	20.7	122	356	187	813	298	162	19.7	4.68	19.5	166
1958	119	977	323	493	220	320	2,202	771	349	99.8	31.1	146	502
1959	36.3	127	67.6	98.1	473	372	357	49.7	429	146	23.5	44.4	182
1960	23.8	39.2	184	200	338	513	64.4	90.5	13.1	4.94	47.9	7.19	127

Monthly and yearly discharge, in acre-feet, of Little Corney Bayou near Lillie, La.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	525	1,110	2,540	3,280	28,920	14,240	10,470	4,690	766	699	92	64	67,400
1957	88	1,040	1,280	7,530	19,790	11,490	48,370	18,300	9,610	1,210	288	1,160	120,200
1958	7,330	58,140	19,880	30,290	12,200	19,670	131,000	47,390	20,750	6,140	1,910	8,700	363,400
1959	2,230	7,560	4,160	6,030	26,250	22,890	21,260	3,060	25,530	8,980	1,450	2,640	132,000
1960	1,470	2,330	11,300	12,310	19,430	31,550	3,830	5,570	778	303	2,940	428	92,240

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1956	1441	1,900	Feb. 6, 1956	0	92.9	0.447	6.07	67,400	90.4	5.91	65,630
1957	1511	4,660	Apr. 29, 1957	0	166	.798	10.86	120,200	281	18.33	203,100
1958	1561	21,400	Apr. 28, 1958	7.4	502	2.41	32.74	363,400	403	26.30	292,000
1959	1631	3,910	June 9, 1959	11	182	.875	11.90	132,000	184	12.01	133,200
1960	1711	2,150	Mar. 5, 1960	1.4	127	.611	8.32	92,240	-	-	-

3663.8 South Choudrant Creek tributary at Townsend Pond, near Ruston, La.

Location.--Lat 32°27'30", long 92°34'40", in SW¼ sec.16, T.17 N., R.2 W., 6 miles southeast of Ruston.

Drainage area.--0.36 sq mi.

Records available.--December 1954 to September 1960.

Gage.--Duplex water-stage recorder (rain gage and water stage combination).

Average discharge.--5 years (1955-60), 0.20 cfs (145 acre-ft per year).

Extremes.--1954-60: Maximum outflow, 27 cfs July 22, 1958 (gage height, 5.49 ft); no flow at times in each year. Maximum inflow, 46 cfs (average for 2½-minute interval) July 22, 1958, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation of outlet structure. Pond is formed by earth dam; spillway is a 46-foot wide uncontrolled channel located at right end of dam. Spillway face is a 4-inch concrete retaining wall, back fill 20 ft wide, and back slope is rip-rap. Outlet pipe is 6 inches in diameter and valve controlled, set horizontal in dam approximately 30 ft left of spillway. Pipe flow not included in outflow discharge. Capacity below 2.0 ft gage height not determined and not included in capacity figures. Dam built by U. S. Soil Conservation Service for recreational purposes.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1955	-	-	-	0	0.11	0.20	0.42	0.52	0.06	0.15	0.02	0	-
1956	0	0.02	0.15	.18	.79	.26	.41	.06	0	0	0	.05	0.16
1957	.003	.26	.20	.30	.68	1.43	.26	.14	.21	0	0	.13	.30
1958	.14	.95	.24	.19	0	0	.25	.55	.11	.25	0	.17	.24
1959	.01	.27	.21	.26	.22	.11	.11	0	.18	0	0	0	.11
1960	0	.33	.47	.46	.37	.25	.16	.19	.03	0	0	0	.19

Contents, in acre-feet, at end of month

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1955	-	-	6.2	19.0	23.7	23.6	22.7	23.8	22.6	25.0	21.0	13.6
1956	15.4	24.4	23.7	25.4	23.5	-	-	18.7	23.2	24.5	24.7	24.7
1957	26.2	18.5	26.6	26.7	27.0	27.6	26.3	25.9	26.1	-	22.9	22.5
1958	24.2	26.3	26.1	-	23.0	24.5	26.8	25.9	25.8	25.6	22.6	26.8
1959	25.9	26.6	26.6	26.5	26.2	26.1	25.6	25.0	23.7	19.4	14.8	12.1
1960	17.4	26.8	26.9	26.7	26.5	26.3	26.5	25.7	25.6	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1955a/	1711	16	May 20, 1955	36	Mar. 21, 1955	0	-	0.14
1956	1711	16	Apr. 5, 1956	32	Apr. 5, 1956	0	0.16	.18
1957	1711	12	May 14, 1957	22	May 14, 1957	0	.30	.37
1958	1711	27	July 22, 1958	46	July 22, 1958	0	.24	.17
1959	1711	3.5	Unknown	16	Sept. 6, 1959	0	.11	.14
1960	1711	7.6	May 5, 1960	37	Nov. 4, 1959	0	.19	-

a Period December 1954 to September 1955.

3670. Ouachita River at Monroe, La.

Location.--Lat 32°30'19", long 92°07'32", in lot 50, T.18 N., R.3 E., near center of span on downstream side of bridge on U. S. Highway 80 at Monroe, 0.4 mile upstream from Illinois Central Railroad bridge and 5½ miles upstream from lock and dam No. 4.

Drainage area.--15,298 sq mi.

Records available.--January 1932 to September 1960. Monthly discharge only for some periods, published in WSP 1311. 1884 to 1891 (gage heights), 1892 to 1927 (gage heights and discharge measurements), and since January 1928 (daily discharges) in reports of Mississippi River Commission. Discharge measurements 1929-38 in reports of Corps of Engineers. Daily gage heights since June 1884 in reports of U. S. Weather Bureau.

Gage.--Wire-weight gage. Datum of gage is 31.40 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to Jan. 6, 1937, staff, chain, or wire-weight gages at several sites within half a mile of present site at same datum. Since Jan. 1, 1954, supplemental staff gage 2.2 miles downstream from lock and dam No. 4 at datum 30.10 ft above mean sea level.

Average discharge.--28 years (1932-60), 18,200 cfs (13,176,000 acre-ft per year).

Extremes.--1932-60: Maximum discharge, 101,000 cfs Feb. 2, 3, 1932; maximum gage height, 50.45 ft May 23, 1958; minimum discharge not determined (pool stage); minimum gage height observed, 12.1 ft Jan. 3, 1944.

Remarks.--Flow regulated by Lake Greeson since November 1949, by Lake Catherine since 1925 (usable capacity, 21,300 acre-ft), by Lake Hamilton since 1932 (usable capacity, 119,560 acre-ft), by Lake Ouachita since July 1952, and by a series of locks and dams. Records of chemical analyses for the water years 1954-60 and water temperatures for the water years 1954-58 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16,900	5,500	7,300	26,000	37,920	37,570	30,390	22,300	8,200	17,100	3,600	1,800	17,800
1952	1,600	6,500	17,200	21,680	31,590	35,160	35,630	36,920	10,200	1,100	1,200	1,100	16,610
1953	700	1,400	12,900	9,406	24,550	34,260	37,590	54,760	55,540	26,050	3,235	1,617	21,790
1954	1,000	1,163	3,465	11,000	14,640	5,855	8,802	29,890	5,719	1,305	777	756	7,000
1955	2,493	3,127	3,491	6,279	13,330	16,510	36,890	21,109	11,181	5,005	2,584	2,184	10,290
1956	2,879	2,057	2,829	1,660	28,210	35,830	25,400	12,840	1,920	1,680	1,310	1,540	9,770
1957	2,010	2,400	1,840	5,516	29,250	28,140	40,500	56,180	47,780	29,340	4,903	5,247	20,990
1958	8,997	31,100	44,560	38,010	34,350	23,540	26,740	82,450	60,410	42,540	11,410	14,250	34,890
1959	17,220	10,050	9,845	10,270	22,210	37,480	28,670	13,020	17,260	6,029	5,032	4,203	15,050
1960	3,677	3,987	11,340	27,510	30,920	36,650	24,870	11,190	5,623	7,042	4,010	3,553	14,160

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,038	329.7	449.0	1,599	2,106	2,310	1,808	1,371	487.9	1,051	214	107.1	12,870
1952	98.38	386.8	1,058	1,333	1,817	2,162	2,120	2,270	606.9	67.64	73.79	65.45	12,060
1953	43.04	83.31	793.2	578.4	1,363	2,107	2,237	3,367	3,305	1,602	198.9	96.20	15,770
1954	61.49	69.22	213.0	676.6	812.8	360.0	523.8	1,838	340.3	80.23	47.75	44.97	5,068
1955	153.3	186.0	214.7	386.1	740.3	1,015	2,195	1,298	665.3	307.7	158.9	130.0	7,450
1956	177.0	122.4	173.9	102.1	1,623	2,203	1,514	789.6	114.0	103.1	80.73	91.83	7,095
1957	123.4	142.6	112.9	339.2	1,624	1,730	2,410	3,454	2,843	1,804	301.5	312.2	15,200
1958	553.2	1,851	2,740	2,337	1,908	1,448	1,591	5,070	3,595	2,616	701.4	847.9	25,260
1959	1,059	598.0	605.4	631.7	1,234	2,304	1,706	800.3	1,027	370.7	309.4	250.1	10,900
1960	226.1	237.2	697.4	1,692	1,779	2,254	1,480	687.9	334.6	433.0	246.5	211.4	10,280

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	31,480	27.90	22,790,000
1951	1211	41,900	Mar. 11, 1951	-	17,800	1.16	15.77	12,870,000	17,410	15.44	12,600,000
1952	1241	42,200	May 6, 1952	-	16,610	1.09	14.77	12,060,000	15,750	14.00	11,440,000
1953	1281	68,700	(a)	-	21,790	1.42	19.32	15,770,000	20,990	18.62	15,200,000
1954	1341	36,000	May 20, 21, 1954	-	7,000	.458	6.22	5,068,000	7,290	6.48	5,278,000
1955	1391	38,800	Apr. 21, 1955	-	10,290	.673	9.13	7,450,000	10,180	9.03	7,370,000
1956	1441	38,600	Mar. 7, 8, 1956	-	9,770	.639	8.71	7,095,000	9,640	8.60	7,000,000
1957	1511	59,500	May 19, 1957	900	20,990	1.37	18.62	15,200,000	27,570	24.46	19,960,000
1958	1561	b97,200	May 22, 1958	3,700	34,890	2.28	30.96	25,260,000	30,910	27.42	22,380,000
1959	1631	b39,900	Mar. 16, 1959	2,200	15,050	.984	13.34	10,900,000	13,530	11.99	9,794,000
1960	1711	b39,700	Mar. 23, 1960	1,600	14,160	.926	12.58	10,280,000	-	-	-

a May 31 to June 1, 1953.
b Daily discharge.

3677. Boeuf River near Arkansas-Louisiana State line

Location.--Lat 32°58'35", long 91°26'20", in SW¼SW¼ sec.15, T.23 N., R.10 E., on left bank 2 miles downstream from Arkansas-Louisiana State line and 8 miles west of Kilbourne, West Carroll Parish.

Drainage area.--785 sq mi (see Remarks).

Records available.--October 1957 to September 1960. Gage-height record and occasional discharge measurements since May 1946 in files of Corps of Engineers, Vicksburg district.

Gage.--Water-stage recorder. Datum of gage is 74.11 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to Dec. 31, 1957, staff gage at same site and datum. Since May 4, 1959, auxiliary staff gage 1.7 miles downstream. Datum of auxiliary gage is 74.35 ft above mean sea level, datum of 1929, supplementary adjustment of 1941.

Extremes.--1958-60: Maximum discharge, 14,700 cfs May 6, 1958 (gage height, 22.56 ft); minimum daily discharge, 30 cfs Aug. 8, 1960 (gage height, 1.35 ft).
Maximum stage since at least 1946, 22.8 ft Feb. 15, 1948.

Remarks.--Interconnecting system of bayous and drainage ditches produces an interchange of flow under varying conditions; hence, the drainage limits were more or less arbitrarily determined. In extreme floods, considerable flow bypasses station. Flow reenters and passes the two stations Bayou LaFourche near Crew Lake and Boeuf River at Girard (see elsewhere in this report). Records of chemical analyses for the water year 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	607	5,773	1,790	2,228	630	2,051	2,819	9,565	1,710	971	355	5,427	2,833
1959	967	718	157	755	2,594	1,419	1,059	220	286	506	189	227	745
1960	148	115	666	1,405	1,620	2,431	273	508	173	74.9	226	160	650

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	37,310	343,500	110,100	137,000	35,020	126,100	167,800	588,100	101,700	59,730	21,820	322,900	2,051,000
1959	59,440	42,750	9,660	46,390	144,000	87,230	63,000	13,550	17,040	31,080	11,590	13,530	539,300
1960	9,110	6,870	40,920	86,370	93,210	149,500	16,230	31,250	10,280	4,600	13,880	9,520	471,700

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1958	1631	14,700	May 6, 1958	55	2,833	2,051,000	2,310	1,672,000
1959	1631	7,840	Feb. 15, 1959	82	745	539,300	669	484,300
1960	1711	7,630	Mar. 3, 1960	30	650	471,700	-	-

3680. Boeuf River near Girard, La.

Location.--Lat 32°28'50", long 91°47'55", on line between sec.1, T.17 N., R.6 E., and sec. 6, T.17 N., R.7 E., on upstream side of pier on Illinois Central Railroad bridge, 0.5 mile east of Girard.

Drainage area.--1,226 sq mi (see Remarks).

Records available.--October 1938 to September 1960. Daily gage heights as follows: 1886-94 in reports of U. S. Weather Bureau; September 1925 to December 1931 in files of Corps of Engineers, Vicksburg district; since January 1932 in reports of Corps of Engineers, Vicksburg district.

Gage.--Water-stage recorder. Datum of gage is 51.62 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to July 11, 1944, staff gage at same site and datum. July 11, 1944, to Nov. 2, 1955, wire-weight gage on highway bridge 200 ft upstream at same datum. Auxiliary staff gage 8.1 miles downstream at different datum. Feb. 15, 1945, to Dec. 8, 1952, auxiliary staff gage 6.4 miles downstream at different datum.

Average discharge.--22 years (1938-60), 554 cfs (401,100 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 3,070 cfs May 2, 1958; maximum gage height, 19.31 ft May 6, 1958; minimum discharge, 21 cfs July 24, 1960; minimum gage height, 0.72 ft Aug. 21, 23, 1953.

Maximum stage known, 29.5 ft May 7, 1927 (affected by overflow from Mississippi River).

Remarks.--Small diversions above station for irrigation. Interconnecting system of bayous and drainage ditches produces an interchange of flow under varying conditions; hence, the drainage limits were more or less arbitrarily determined. Boeuf River and Bayou LaFourche basins are connected by canal upstream. In extreme floods, considerable flow from Bayou Bartholomew basin passes this station. Records of chemical analyses for the water years 1955-57 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	265	205	720	1,994	1,548	1,019	994	634	360	564	167	134	713
1952	116	120	974	944	1,547	1,019	1,100	522	141	108	91.6	71.7	560
1953	56.8	71.5	100	316	1,219	1,697	639	1,676	432	128	73.7	69.4	537
1954	59.8	59.8	111	225	234	129	122	616	134	70.0	50.4	63.1	156
1955	124	106	71.3	117	335	574	485	171	133	238	117	77.6	212
1956	83.9	92.0	118	79.7	791	383	326	103	90.7	66.2	62.4	58.8	185
1957	55.1	90.9	284	330	704	311	519	173	198	142	89.4	211	255
1958	164	1,027	336	398	198	423	376	1,905	257	193	110	887	524
1959	276	116	83.1	123	419	227	281	88.9	126	143	123	158	178
1960	105	109	191	236	309	421	106	101	76.3	33.3	71.5	58.3	151

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	16,300	12,210	44,290	122,600	85,960	62,650	59,140	38,990	21,450	34,680	10,250	7,980	516,500
1952	7,130	7,120	59,880	58,050	89,000	62,630	65,470	32,130	8,370	6,610	5,630	4,270	406,300
1953	3,490	4,250	6,150	19,460	67,720	104,400	38,020	103,000	25,720	7,870	4,530	4,130	388,700
1954	3,680	3,560	6,820	13,860	13,010	7,950	7,240	37,860	7,950	4,310	3,100	3,760	113,100
1955	7,640	6,310	4,380	7,180	18,620	35,280	28,880	10,520	7,890	14,640	7,190	4,620	153,200
1956	5,160	5,470	7,260	4,900	45,500	23,580	19,420	6,320	5,400	4,070	3,830	3,500	134,400
1957	3,390	5,410	17,440	20,300	39,110	19,150	30,880	10,610	11,770	8,760	5,490	12,570	184,900
1958	10,060	61,100	20,680	24,480	10,980	26,010	22,370	117,100	15,260	11,870	6,780	52,780	379,400
1959	16,980	6,880	5,110	7,550	23,270	13,970	16,730	5,470	7,490	8,780	7,590	9,390	129,200
1960	6,460	6,470	11,740	14,540	17,760	25,900	6,340	6,210	4,540	2,050	4,400	3,470	109,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	960	695,300
1951	1211	2,340	Jan. 5, 1951	111	713	516,500	715	517,800
1952	1241	2,050	Feb. 5, 1952	60	560	406,300	477	346,000
1953	1281	2,370	May 18, 1953	51	537	388,700	537	388,900
1954	1341	1,220	May 13,14, 1954	40	156	113,100	162	117,400
1955	1391	1,910	Mar. 25, 1955	58	212	153,200	211	152,700
1956	1441	1,650	Feb. 6, 1956	49	185	134,400	197	142,800
1957	1511	1,650	Feb. 3, 1957	46	255	184,900	346	250,500
1958	1561	3,070	May 2, 1958	78	524	379,400	437	316,600
1959	1631	1,430	Oct. 1, 1958	72	178	129,200	173	124,900
1960	1711	995	Mar. 5, 1960	22	151	109,900	-	-

3685. Big Colewa Bayou near Oak Grove, La.

Location.--Lat 32°47'55", long 91°30'05", in NE¼ sec.24, T.21 N., R.9 E., on downstream side near center of bridge on State Highway 2, 0.1 mile downstream from Little Colewa Bayou and 8 miles southwest of Oak Grove.

Drainage area.--42 sq mi (see Remarks).

Records available.--October 1949 to September 1960. Daily elevations since October 1940 in reports of Corps of Engineers, Vicksburg district.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, with 1941 Alluvial Valley and 1944 Birmingham-Corinth supplementary adjustment (levels by Corps of Engineers). Prior to Oct. 20, 1949, staff gage, Oct. 20, 1949, to July 1952, water-stage recorder, and July 1952 to Jan. 27, 1953, staff gage, at same site at datum 87.29 ft higher. Jan. 28, 1953, to Jan. 20, 1954, staff gage at same site at present datum. Auxiliary water-stage recorder 5.7 miles downstream from and at same datum as base gage. Auxiliary wire-weight gage at same site and datum Jan. 1 to Oct. 7, 1954.

Average discharge.--11 years (1949-60), 49.7 cfs (35,980 acre-ft per year).

Extremes.--1949-60: Maximum discharge, 2,050 cfs Mar. 22, 1955; maximum elevation, 95.22 ft Jan. 4, 1951; no flow at times.
Maximum elevation known since 1940, 95.5 ft Apr. 12, 1947 (present datum), from records of Corps of Engineers.

Remarks.--Interconnecting system of bayous and drainage ditches produces an interchange of flow under varying conditions; hence, the drainage limits were more or less arbitrarily determined. Records of chemical analyses for the water year 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.18	5.95	98.5	230	119	55.7	28.9	31.4	0.64	19.0	0.40	0.02	49.0
1952	0	0	198	88.5	97.9	45.1	83.3	1.56	0	0	0	0	42.8
1953	0	0	4.14	17.9	245	95.4	66.6	277	1.75	2.90	0	0	58.1
1954	0	0	8.02	35.8	8.41	1.73	12.8	199	0	0	.07	.19	22.5
1955	.80	6.26	2.98	29.1	110	257	60.3	1.40	.33	66.9	41.8	0	48.0
1956	0	1.53	5.07	1.44	266	167	101	1.26	2.79	.15	.49	0	44.6
1957	0	14.2	75.9	112	161	27.7	135	2.89	54.2	7.16	1.10	11.6	49.3
1958	7.08	292	37.7	95.5	68.4	122	143	268	8.52	43.2	3.66	417	125
1959	13.3	.65	.05	2.67	38.5	58.4	52.3	.19	5.72	4.16	.20	15.2	15.7
1960	3.41	17.1	59.0	69.3	84.7	119	3.80	6.13	.45	.90	51.8	2.05	34.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	72	354	6,050	14,120	6,590	3,430	1,720	1,930	38	1,170	25	1.4	35,500
1952	0	0	12,160	5,440	5,630	2,770	4,960	96	0	0	0	0	31,060
1953	0	0	255	1,100	13,600	5,860	3,970	17,010	104	178	0	0	42,080
1954	0	0	493	2,200	467	106	764	12,250	0	0	4.6	11	16,300
1955	49	373	183	1,790	6,130	15,820	3,590	86	20	4,110	2,570	0	37,720
1956	0	91	312	89	15,320	10,250	6,010	78	166	9.1	30	0	32,360
1957	0	844	4,670	6,890	8,960	1,700	8,040	178	3,230	440	68	693	35,710
1958	435	17,380	2,320	5,870	3,800	7,510	8,500	16,500	507	2,660	225	24,840	90,550
1959	815	38	2.8	164	2,140	3,590	3,110	12	341	256	12	904	11,380
1960	209	1,020	3,630	4,260	4,870	7,320	226	377	27	55	3,190	122	25,310

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	65.5	47,440
1951	1211	972	Jan. 4, 1951	0	49.0	35,500	57.0	41,180
1952	1241	811	Dec. 21, 1951	0	42.8	31,060	26.4	19,150
1953	1281	1,600	Feb. 21, 1953	0	58.1	42,080	58.5	42,320
1954	1341	a1,060	May 2, 1954	0	22.5	16,300	22.7	16,410
1955	1391	2,050	Mar. 22, 1955	0	48.0	37,720	47.7	34,520
1956	1441	1,360	Feb. 4, 1956	0	44.6	32,360	51.6	37,470
1957	1511	944	Jan. 31, 1957	0	49.3	35,710	69.5	50,330
1958	1561	a1,600	Sept.22,23, 1958	0	125	90,550	98.4	71,270
1959	1631	592	Mar. 11, 1959	0	15.7	11,380	21.3	15,390
1960	1711	696	Mar. 2, 1960	0	34.9	25,310	-	-

a Daily discharge.

3690. Bayou LaFourche near Crew Lake, La.

Location.--Lat 32°29'55", long 91°55'05", in SW¼ sec.36, T.18 N., R.5 E., near center of span on downstream side of bridge on U. S. Highway 80, 1.1 miles upstream from Illinois Central Railroad bridge and 2.5 miles west of town of Crew Lake.

Drainage area.--361 sq mi (see Remarks).

Records available.--October 1938 to September 1960. Prior to December 1938 monthly discharge only, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 37.08 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to Aug. 10, 1944, staff gage, Aug. 11, 1944, to June 5, 1952, water-stage recorder, and June 6 to Sept. 30, 1952, staff gage, all at same site at datum 19.00 ft higher. Since Oct. 1, 1957, auxiliary water-stage recorder 9.5 miles downstream. Datum of gage is at mean sea level.

Average discharge.--22 years (1938-60), 1,383 cfs (1,001,000 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 26,800 cfs May 2, 1958; maximum gage height, 27.50 ft May 6, 1958; no flow at times in August, September, and October 1952, result of temporary storage due to excavation of channel upstream.
A discharge of 17,000 cfs was measured Dec. 24, 1931 (from reports of Corps of Engineers, Vicksburg district).

Remarks.--Small diversions above station for irrigation. Interconnecting system of bayous and drainage ditches produces an interchange of flow; hence, the drainage limits are more or less arbitrarily determined. Boeuf River and Bayou LaFourche basins are connected by canal upstream. In extreme floods, considerable flow from Bayou Bartholomew basin passes this station. Records of chemical analyses for the water years 1954-55 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	161	187	754	5,576	2,864	1,358	1,180	482	137	373	53.4	73.9	1,093
1952	58.8	13.7	1,844	1,495	3,363	1,407	2,107	551	45.6	30	10	0	901
1953	2.00	6.65	97.6	224	2,747	3,468	1,338	7,672	1,480	63.4	26.2	28.2	1,426
1954	14.3	27.6	327	1,923	1,266	209	290	5,810	279	4.02	1.74	1.0	850
1955	2.7	14.8	6.11	401	2,604	5,446	3,721	866	123	1,040	198	20.3	1,195
1956	10.4	15.1	101	66.6	8,262	3,819	2,968	75.9	31.3	8.86	8.70	3.43	1,249
1957	13.1	288	1,567	2,694	5,843	2,194	5,213	1,500	1,640	540	111	472	1,810
1958	592	11,290	2,499	3,652	1,493	2,835	3,465	15,910	2,845	1,380	495	8,511	4,584
1959	1,554	694	241	829	3,920	2,376	2,250	353	535	786	206	359	1,155
1960	171	312	1,764	2,548	3,050	3,900	442	551	192	136	476	201	1,144

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	9,930	11,150	46,350	342,900	159,100	83,500	70,230	29,650	8,150	22,960	3,280	4,400	791,600
1952	3,610	816	113,400	91,930	193,500	86,540	125,400	33,900	2,720	1,840	615	0	654,300
1953	123	396	6,000	13,770	152,600	213,200	79,650	471,700	88,070	3,900	1,610	1,680	1,033,000
1954	881	1,640	20,100	118,300	70,310	12,820	17,230	357,200	16,590	247	107	60	615,500
1955	165	883	376	24,650	144,600	334,900	221,400	53,250	7,320	63,960	12,190	1,210	864,900
1956	637	896	6,190	4,100	475,200	234,800	176,600	4,670	1,860	545	535	204	906,200
1957	806	17,150	96,360	165,600	324,500	134,900	310,200	92,230	97,590	33,180	6,830	28,100	1,307,000
1958	36,420	671,800	153,700	224,600	82,900	174,300	206,200	978,000	169,300	84,880	30,420	506,400	3,319,000
1959	95,560	41,310	14,840	50,990	217,700	146,100	133,900	21,680	31,810	48,320	12,640	21,370	836,200
1960	10,510	18,570	108,500	156,700	175,400	239,800	26,300	33,890	11,430	8,370	29,290	11,990	830,800

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,651	1,196,000
1951	1211	10,400	Jan. 6, 1951	28	1,093	791,600	1,163	842,000
1952	1241	8,200	Apr. 25, 1952	a0	901	654,300	748	543,000
1953	1281	12,000	May 18, 1953	a0	1,426	1,033,000	1,449	1,049,000
1954	1341	13,800	May 13, 1954	-	850	615,500	821	594,300
1955	1391	20,800	Mar. 25, 1955	-	1,195	864,900	1,203	871,200
1956	1441	20,600	Feb. 6, 1956	2.6	1,249	906,200	1,395	1,013,000
1957	1511	b17,000	Apr. 5, 1957	2.8	1,810	1,307,000	2,838	2,055,000
1958	1561	26,800	May 2, 1958	25	4,584	3,319,000	3,603	2,609,000
1959	1631	11,300	Feb. 15, 1959	87	1,155	836,200	1,136	822,100
1960	1711	10,600	Mar. 3, 1960	37	1,144	830,800	-	-

a Result of temporary regulation.
b Mean daily.

3692.5 Turkey Creek tributary at Potato Research Pond, at Chase, La.

Location.--Lat 32°05'55", long 91°42'30", in NW¼ sec.24, T.13 N., R.7 E., on left bank 180 ft upstream from spillway on Louisiana State University experimental farm and half a mile west of Chase.

Drainage area.--0.35 sq mi.

Records available.--December 1954 to September 1960.

Gage.--Duplex water-stage recorder (rain gage and water stage combination).

Extremes.--1955-60: Maximum outflow, 66 cfs June 8, 1959 (gage height, 7.52 ft); no outflow at times in each year. Maximum inflow, 221 cfs (average for 2½-minute interval) Aug. 10, 1960, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation of outlet structure. Pond is formed by earth dam; spillway is a 54-foot wide uncontrolled sodded clay channel located at left end of dam. There is an artificial control located in bed of spillway 60 ft below head. The control is 54 ft long and 40 inches wide. Capacity below 1.0 ft gage height not determined and not included in capacity figures. Dam built by U. S. Soil Conservation Service for flood control, conservation of stock water, and recreation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954													
1955	-	-	0	0	0.56	0.13	0.35	0.52	0.07	0.13	0.04	0	-
1956	0	0	.01	0	.78	.08	.16	0	0	0	0	0	.08
1957	0	0	.25	.26	.26	.48	1.19	.12	.04	0	0	.02	.22
1958	0	.48	.17	.28	.10	.27	.38	.25	.02	0	.20	.25	.20
1959	.02	.26	0	.05	.48	.43	2.51	0	1.75	.09	.01	.14	.47
1960	0	0	.32	.29	.45	1.06	0	.04	0	0	.90	.07	.26

Contents, in acre-feet on last day of month in reservoir

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1955	-	-	-	14.0	-	17.1	15.8	17.4	18.8	19.1	14.7	14.2
1956	7.9	8.5	14.9	15.6	16.4	16.0	6.9	10.6	11.7	12.8	9.2	5.6
1957	3.8	2.8	17.8	19.2	20.1	21.8	16.0	15.8	18.4	12.4	7.7	16.6
1958	15.4	19.4	19.0	18.8	19.9	19.6	26.9	13.0	16.5	12.7	18.1	-
1959	13.6	17.4	15.2	17.6	17.6	17.2	17.1	18.0	16.2	19.0	17.8	-
1960	-	15.0	-	18.4	17.8	16.9	13.7	14.2	9.7	8.7	18.6	13.8

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1955a/	1631	22	May 23, 1955	122	May 23, 1955	0	-	0.15
1956	1631	17	Feb. 3, 1956	62	Feb. 8, 1956	0	0.08	.10
1957	1631	23	Mar. 31, 1957	54	Sept.16, 1957	0	.22	.25
1958	1631	24	Aug. 23, 1958	63	Aug. 23, 1958	0	.20	.17
1959	1631	66	June 8, 1959	190	June 8, 1959	0	.47	.48
1960	1711	49	Aug. 10, 1960	221	Aug. 10, 1960	0	.26	-

a Period December to September.

3695. Tensas River at Tendal, La.

Location.--Lat 32°25'55", long 91°22'00", in NW¼ sec. 29, T.17 N., R.11 E., near left bank on upstream side of bridge on U. S. Highway 80 at Tendal, 200 ft upstream from Illinois Central Railroad bridge and 3 miles east of Waverly.

Drainage area.--309 sq mi (see Remarks).

Records available.--December 1935 to September 1960. Monthly discharge only for some periods, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 50.07 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to July 11, 1944, staff gage at site 1,000 ft upstream at same datum. July 11, 1944, to Sept. 14, 1954, wire-weight or staff gage at same site and datum. Auxiliary staff gage 8.5 miles downstream. Datum of gage is 50.07 ft above mean sea level. Nov. 28, 1951, to Sept. 30, 1957, at datum 0.31 ft lower. Feb. 19, 1945, to Nov. 27, 1951, auxiliary staff gage 9.5 miles downstream at different datum.

Average discharge.--24 years (1936-60), 325 cfs (235,300 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 4,610 cfs Nov. 19, 1948; maximum gage height, 24.78 ft Nov. 20, 1948; minimum daily discharge, 2.8 cfs Dec. 8, 1954, but may have been less during period of indefinite stage-discharge relation in October 1954.
Maximum stage known, 34.02 ft May 15, 1927 (affected by overflow from Mississippi River).

Remarks.--Small diversions above station for irrigation. Interconnecting system of bayous and drainage ditches produces an interchange of flow; hence, the drainage limits were more or less arbitrarily determined. Records of chemical analyses for the water years 1956-57 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	76.7	224	293	1,175	954	755	809	70.3	70.6	121	22.4	20.7	379
1952	12.8	13.9	191	178	433	454	382	119	71.2	20.1	18.5	13.8	158
1953	6.96	8.75	11.4	112	491	651	143	1,627	161	70	27.4	10.4	277
1954	8.4	8.0	39.5	67.7	142	51.0	44.3	688	13.4	7.2	8.7	10.1	91.0
1955	7.17	7.29	8.12	111	516	253	516	33.0	22.2	268	52.3	13.1	148
1956	8.18	7.69	23.8	13.5	1,313	770	686	69.0	28.8	26.0	29.6	13.4	244
1957	4.46	16.0	523	339	816	241	605	66.0	327	304	31.4	198	285
1958	208	1,826	716	602	340	806	405	1,579	443	149	70.2	758	659
1959	404	39.1	24.3	32.1	268	240	565	68.1	424	54.0	41.9	41.0	182
1960	17.3	27.3	202	250	555	669	48.0	93.6	21.9	17.0	115	54.9	172

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,720	13,320	17,990	72,260	52,960	46,440	48,120	4,320	4,200	7,420	1,380	1,230	274,400
1952	787	825	11,720	10,970	24,880	27,900	22,720	7,310	4,240	1,230	1,140	822	114,500
1953	428	521	700	6,880	27,260	40,030	8,530	100,100	9,580	4,300	1,690	619	200,600
1954	516	478	2,430	4,160	7,880	3,140	2,640	42,300	797	444	534	603	65,920
1955	441	434	499	6,840	28,680	15,550	30,730	2,030	1,320	16,460	3,220	780	107,000
1956	503	457	1,470	830	75,540	47,360	40,820	4,240	1,710	1,600	1,820	799	117,100
1957	274	952	32,170	20,830	45,290	14,840	36,010	4,060	19,470	18,700	1,930	11,770	206,300
1958	12,810	108,600	44,030	37,040	18,890	49,570	24,090	97,090	26,370	9,150	4,320	45,100	477,100
1959	24,810	2,330	1,490	1,970	14,890	14,770	33,600	4,190	25,240	3,320	2,580	2,440	131,600
1960	1,060	1,620	12,440	15,400	31,950	41,140	2,860	5,750	1,300	1,040	7,070	3,270	124,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	458	331,700
1951	1211	4,020	Mar. 29, 1951	17	379	274,400	348	251,700
1952	1241	1,940	Apr. 25, 1952	7.8	158	114,500	142	102,900
1953	1281	2,910	May 18, 1953	5.8	277	200,600	280	202,400
1954	1341	1,400	May 14,15, 1954	6	91.0	65,920	88.2	63,870
1955	1391	1,780	Apr. 14, 1955	2.8	148	107,000	149	108,000
1956	1441	3,210	Feb. 5, 1956	3.0	244	177,100	287	208,100
1957	1511	2,220	Feb. 2, 1957	3.6	285	206,300	467	338,300
1958	1561	3,900	May 1, 1958	11	659	477,100	470	340,200
1959	1631	2,390	Apr. 20, 1959	15	182	131,600	163	118,100
1960	1711	2,830	Mar. 3, 1960	3.4	172	124,900	-	-

3697. Bayou Macon near Kilbourne, La.

Location.--Lat 32°59'35", long 91°15'45", in SW¼SE¼ sec.8, T.23 N., R.12 E., near center of channel on downstream side of bridge on State Highway 585, three-quarters of a mile south of Arkansas-Louisiana State line and 3 miles east of Kilbourne.
Drainage area.--504 sq mi (see Remarks).
Records available.--October 1957 to September 1960.
Gage.--Water-stage recorder. Datum of gage is 77.41 ft above mean sea level (Corps of Engineers bench mark).
Extremes.--1957-60: Maximum discharge, 4,740 cfs May 5, 1958 (gage height, 24.35 ft); minimum, 27 cfs July 15, 1960 (gage height, 0.59 ft).
Remarks.--Interconnecting system of bayous and drainage ditches produces an interchange of flow under varying conditions; hence, the drainage limits are more or less arbitrarily determined. Records of chemical analyses for the water year 1958 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	294	1,789	1,476	1,035	746	994	1,079	4,137	1,785	909	397	1,414	1,341
1959	1,232	435	362	390	1,184	891	637	253	154	195	117	153	496
1960	143	178	243	541	831	1,278	345	235	135	56.7	113	115	350

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	18,080	106,500	90,730	63,640	41,450	61,120	64,190	254,400	106,200	55,900	24,430	84,140	970,800
1959	75,770	25,890	22,280	24,000	65,730	54,770	37,890	15,570	9,150	12,010	7,190	9,110	359,400
1960	8,760	10,560	14,960	33,240	47,810	78,580	20,540	14,430	8,030	3,480	6,930	6,860	254,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1958	1561	4,740	May 5, 1958	90	1,341	970,800	1,215	879,400
1959	1631	2,710	Oct. 1, 1958	60	496	359,400	373	269,700
1960	1711	1,780	Mar. 3, 1960	29	350	254,200	-	-

3699.5. Buck Bayou tributary at Murphy Pond, near Epps, La.

Location.--Lat 32°34'55", long 91°27'15", in NW¼ sec.4, T.18 N., R.10 E., 275 ft upstream from left end of earthfill dam, 2 miles southeast of Epps and 8½ miles north of Delhi.
Drainage area.--0.60 sq mi.
Records available.--January 1956 to September 1960.
Gage.--Duplex water-stage recorder (rain gage and water stage combination).
Extremes.--1956-60: Maximum outflow, 13 cfs May 1, 1958 (gage height, 10.79 ft); no flow at times in each year. Maximum inflow, 256 cfs (average for 2½-minute interval) Aug. 22, 1960, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.
Remarks.--Records of discharge are outflow from reservoir, determined from stage-discharge relation of outlet structure. Pond is formed by earth dam; spillway is a 50-foot wide uncontrolled sodded clay channel located at right end of dam. Capacity below 0.5 ft gage height not determined and not included in capacity figures. Dam built by U. S. Soil Conservation Service for flood control, conservation of stock water, and recreation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1956	-	-	-	0	0	0	0	0	0	0	0	0	-
1957	0	0	0	0	0	0	0	0	0	0	0	0	0
1958	0	0	0	0	0	.19	.12	1.56	0	0	0	0	.16
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	0	0	0	0	0	0	0	0	0	0

Contents, in acre-feet, on last day of month in reservoir

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1956	-	-	-	5.1	96.1	135	128	65.4	30.9	13.2	3.8	-
1957	-	2.0	50.1	123	153	122	125	88.0	112	69.1	36.6	41.6
1958	39.0	248	231	249	97.6	267	326	227	198	159	118	203
1959	155	115	87.4	72.2	91.7	111	160	125	125	97.6	91.4	94.8
1960	82.6	72.2	108	117	169	211	160	115	91.1	62.2	136	105

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1956	1631	0	-	24	Feb. 2, 1956	0	0	0
1957	1631	0	-	62	Apr. 7, 1957	0	0	0
1958	1631	13	May 1, 1958	206	Apr. 30, 1958	0	.16	.16
1959	1631	0	-	60	Apr. 19, 1959	0	0	0
1960	1711	0	-	256	Aug. 22, 1960	0	0	0

3700. Bayou Macon near Delhi, La.

Location.--Lat 32°27'20", long 91°28'30", in SE¼ sec.18, T.17 N., R.10 E., near right bank on downstream side of pier of bridge on U. S. Highway 80, 150 ft upstream from Illinois Central Railroad bridge and 1 mile east of Delhi.

Drainage area.--782 sq mi (see Remarks).

Records available.--October 1935 to September 1960. Monthly discharge only for some periods, published in WSP 1311. Daily gage heights as follows: 1885-99 in reports of U. S. Weather Bureau; September 1925 to December 1931 in files of Corps of Engineers, Vicksburg district; since January 1932 in reports of Corps of Engineers, Vicksburg district.

Gage.--Water-stage recorder. Datum of gage is 50.05 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers). Prior to July 12, 1944, staff gage at railroad bridge 150 ft downstream at same datum. July 12, 1944, to Mar. 14, 1949, wire-weight gage at same site and datum. Since Feb. 16, 1945, auxiliary staff gage 7.5 miles downstream at different datum.

Average discharge.--25 years (1935-60), 963 cfs (697,200 acre-ft per year).

Extremes.--1935-60: Maximum discharge, 5,460 cfs Apr. 14, 1947; maximum gage height, 26.00 ft May 6, 7, 1958; minimum daily discharge, 10 cfs Aug. 1, 1954, result of temporary backwater condition; minimum recorded discharge unaffected by backwater, 30 cfs Aug.17, 21, 1954.

Maximum stage known, 37.5 ft in March 1882, from records of U. S. Weather Bureau (affected by overflow from Mississippi River).

Remarks.--Small diversions above station for irrigation. Interconnecting system of bayous and drainage ditches produces an interchange of flow under varying conditions; hence, the drainage limits were more or less arbitrarily determined. Records of chemical analyses for the water years 1953-54 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	688	397	890	3,137	2,821	1,982	1,675	968	571	650	335	237	1,188
1952	181	146	1,154	1,252	2,291	1,919	1,788	881	405	173	132	113	865
1953	102	103	195	477	1,537	2,282	1,446	3,228	1,990	479	238	181	1,018
1954	132	112	339	677	1,108	563	397	2,080	478	85.1	49.0	81.4	506
1955	128	129	97.3	343	1,249	1,848	2,559	1,014	445	454	207	136	712
1956	178	114	149	112	2,965	2,649	1,554	233	100	94.1	101	99.1	686
1957	99.3	122	812	646	2,578	1,298	2,100	736	578	658	276	492	853
1958	454	2,767	2,513	1,760	1,292	1,957	1,438	4,080	2,816	1,321	539	1,645	1,883
1959	2,217	514	521	469	1,678	1,481	1,414	424	576	221	186	218	821
1960	168	208	573	908	1,520	2,038	516	336	164	75.0	247	172	575

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	42,320	23,640	54,700	192,900	156,700	121,900	99,690	59,520	34,000	39,940	20,620	14,090	860,000
1952	11,520	8,680	70,930	77,000	131,800	118,000	106,400	54,160	24,110	10,610	8,140	6,740	628,100
1953	6,300	6,130	11,980	29,360	85,350	140,300	86,060	198,500	118,400	29,470	14,650	10,780	737,300
1954	8,140	6,660	20,830	41,640	61,560	34,630	23,640	127,900	28,470	5,230	3,010	4,840	366,600
1955	7,860	7,650	5,980	21,080	69,390	113,600	152,300	62,360	26,460	27,930	12,740	8,090	515,400
1956	10,960	6,760	9,140	6,890	170,500	162,900	92,460	14,320	5,950	5,780	6,210	5,890	497,800
1957	6,110	7,260	49,910	39,700	143,100	79,840	124,900	45,250	34,420	40,480	16,970	29,250	617,200
1958	27,910	164,600	154,500	108,200	71,740	120,300	85,560	250,900	167,500	81,240	33,170	97,890	1,364,000
1959	136,300	30,560	32,050	28,840	93,200	91,050	84,110	26,040	34,260	13,580	11,460	13,000	594,500
1960	10,330	12,360	35,230	55,810	87,450	125,300	30,710	20,630	9,790	4,610	15,180	10,230	417,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,582	1,145,000
1951	1211	4,230	Jan. 7, 1951	181	1,188	860,000	1,147	830,500
1952	1241	3,290	Jan. 30, 1952	104	865	628,100	773	561,400
1953	1231	4,060	May 17, 1953	97	1,018	737,300	1,034	748,500
1954	1341	3,490	May 14, 1954	a10	506	366,600	487	352,400
1955	1391	4,360	Mar. 24, 1955	84	712	515,400	719	520,800
1956	1441	3,910	Mar. 16, 1956	42	686	497,800	736	534,200
1957	1511	3,860	Feb. 2, 1957	50	853	617,200	1,245	900,900
1958	1561	4,760	May 1, 1958	69	1,883	1,364,000	1,679	1,215,000
1959	1631	4,490	Oct. 1, 1958	58	821	594,500	626	453,500
1960	1711	3,300	Mar. 3, 1960	34	575	417,600	-	-

a Affected by backwater.

3705. Castor Creek near Grayson, La.

Location.--Lat 32°04'55", long 92°12'25", in SW¼NW¼ sec.30, T.13 N., R.3 E., near center of span on downstream side of bridge on State Highway 126, 6 miles upstream from Bayou Beaucoup and 6½ miles northwest of Grayson.

Drainage area.--271 sq mi.

Records available.--May 1940 to September 1960. Prior to October 1957, published as Bayou Castor near Grayson.

Gage.--Water-stage recorder. Datum of gage is 89.89 ft above mean sea level. Prior to July 15, 1947, wire-weight gage at same site and datum.

Average discharge.--20 years (1940-60), 266 cfs (192,600 acre-ft per year).

Extremes.--1940-60: Maximum discharge, 21,200 cfs Apr. 11, 1947 (gage height, 16.25 ft, from floodmark), from rating extended above 11,000 cfs by velocity-area studies; no flow for many days in most years.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15.8	24.3	53.2	810	460	419	266	50.2	8.85	16.6	1.24	7.63	177
1952	2.16	8.40	122	85.6	389	262	590	82.7	6.53	1.09	†.77	0	128
1953	0	0	10.4	63.7	624	1,000	135	2,605	4.94	2.80	3.28	.01	372
1954	0	.16	115	162	99.2	44.8	73.8	722	43.4	.19	.003	0	106
1955	0	0	1.80	35.4	203	393	428	197	146	389	38.7	1.96	152
1956	2.06	5.48	28.4	34.4	870	430	492	50.8	3.25	5.72	.23	.003	157
1957	0	0	99.8	155	635	308	732	364	500	2.93	20.5	111	264
1958	105	1,717	313	471	254	681	309	1,135	192	401	49.5	632	522
1959	56.8	31.7	31.3	57.7	137	327	457	58.5	91.8	46.8	19.3	16.9	110
1960	22.7	31.8	118	162	533	521	49.7	121	8.34	3.23	11.6	3.91	132

† Corrected.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	971	1,450	3,270	49,780	25,560	25,780	15,810	3,090	527	1,020	76	454	127,800
1952	133	500	7,520	5,260	22,380	16,120	35,090	5,090	389	67	48	0	92,600
1953	0	0	640	3,920	34,640	61,480	8,040	160,200	294	172	202	.4	269,600
1954	0	9.7	7,080	9,950	5,510	2,760	4,390	44,370	2,580	12	.2	0	76,660
1955	0	0	111	2,180	11,260	24,160	25,460	12,090	8,670	23,940	2,380	116	110,400
1956	127	326	1,740	2,120	50,040	26,410	29,250	3,130	193	352	14	.2	113,700
1957	0	0	6,140	9,540	35,260	18,920	43,560	22,380	29,730	18,030	1,260	6,630	191,400
1958	6,450	102,200	19,220	28,970	14,120	41,840	18,390	69,780	11,420	24,680	3,040	37,600	377,700
1959	3,490	1,890	1,930	3,550	7,590	20,100	27,220	3,600	5,460	2,880	1,190	1,010	79,910
1960	1,400	1,890	7,260	9,950	30,650	32,020	2,960	7,450	496	199	716	233	95,220

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-		340	17.03	246,000
1951	1211	4,450	Jan. 5, 1951	0	177	0.653	8.84	127,800		180	8.99	130,200
1952	1241	3,240	Apr. 24, 1952	0	128	.472	6.41	92,600		117	5.89	85,080
1953	1281	18,000	May 17, 1953	0	372	1.37	18.64	269,600		381	19.09	276,000
1954	1341	2,830	May 5, 1954	0	106	.391	5.30	76,660		96.2	4.82	69,680
1955	1391	4,450	Mar. 24, 1955	0	152	.561	7.64	110,400		155	7.78	112,400
1956	1441	2,690	Apr. 8, 1956	0	157	.579	7.86	113,700		162	8.13	117,600
1957	1511	4,120	June 30, 1957	0	264	.974	13.24	191,400		433	21.67	313,200
1958	1561	6,370	May 3, 1958	6.2	522	1.93	26.14	377,700		355	17.79	257,200
1959	1631	1,540	Apr. 23, 1959	4.1	110	.406	5.52	79,910		115	5.75	83,150
1960	1711	1,680	Mar. 2, 1960	0	132	.487	6.59	95,220		-	-	-

3710. Garrett Creek at Jonesboro, La.

Location.--Lat 32°13'55", long 92°43'35", in NE¼NE¼ sec.1, T.14 N., R.4 W., near right bank on downstream side of bridge on State Highway 4, 0.3 mile southwest of Jonesboro town limits and 0.9 mile upstream from Little Dugdemona River.

Drainage area.--2.14 sq mi.

Records available.--October 1952 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 171.86 ft above mean sea level, datum of 1929, supplementary adjustment of 1941.

Average discharge.--8 years (1952-60), 2.85 cfs (2,060 acre-ft per year).

Extremes.--1952-60: Maximum discharge, 1,670 cfs Apr. 29, 1953 (gage height, 9.87 ft), from rating curve extended above 1,000 cfs; practically no flow at times in 1954, 1957-59.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0.01	0.05	3.37	8.08	6.80	12.2	14.7	0	0.003	0.12	0.003	3.75
1954	.034	.132	4.60	3.10	1.15	.165	2.70	5.20	.038	.026	.039	.040	1.44
1955	.163	.082	.131	.297	3.22	8.95	6.79	9.15	4.89	9.20	1.27	.038	3.69
1956	.043	.048	.055	.303	9.44	2.95	4 68	.704	.048	.038	.053	.063	1.50
1957	.046	.085	.223	3.91	2.88	2.30	8.46	4.34	4.00	.622	.235	3.28	2.51
1958	3.30	16.2	1.80	3.05	2.49	5.74	3.47	7.08	1.18	12.1	3.24	15.8	6.29
1959	.104	.253	.27	.54	1.68	5.78	4.56	.95	9.71	.596	.105	.049	2.04
1960	.263	.822	2.51	4.18	7.57	3.09	.136	.134	.108	.102	.069	.066	1.57

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	0	0.6	3.4	207	449	418	724	904	0	0.2	7.1	0.2	2,710
1954	2.1	7.9	283	190	64	10	161	320	2.3	1.6	2.4	2.4	1,050
1955	10	4.9	8.1	18	179	551	404	563	291	566	78	2.3	2,680
1956	2.6	2.8	3.4	19	543	181	279	43	2.9	2.3	3.3	3.8	1,090
1957	2.9	5.0	14	240	160	142	504	267	238	38	14	195	1,820
1958	203	964	111	188	138	353	207	435	70	743	199	940	4,550
1959	6.4	15	17	33	93	355	272	58	578	37	6.5	2.9	1,470
1960	16	49	155	257	436	190	8.1	8.3	6.4	6.3	4.3	3.9	1,140

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950											
1951											
1952											
1953	1281	1,670	Apr. 29, 1953	0	3.75	1.75	23.77	2,710	4.15	26.30	3,000
1954	1341	496	Dec. 3, 1953	.02	1.44	.673	9.17	1,050	1.07	6.80	777
1955	1391	1,120	Mar. 21, 1955	-	3.69	1.72	23.43	2,680	3.67	23.30	2,660
1956	1441	492	Apr. 5, 1956	-	1.50	.701	9.51	1,090	1.51	9.63	1,100
1957	1511	536	May 23, 1957	.02	2.51	1.17	15.97	1,820	4.25	26.97	3,080
1958	1561	1,510	July 22, 1958	.03	6.29	2.94	39.86	4,550	4.57	29.01	3,310
1959	1631	960	June 8, 1959	.02	2.04	.953	12.92	1,470	2.29	14.50	1,660
1960	1711	197	Feb. 24, 1960	.03	1.57	.734	9.99	1,140	-	-	-

3715. Dugdemona River near Jonesboro, La.

Location.--Lat 32°12'25", long 92°48'05", in SW¼ sec.8, T.14 N., R.4 W., on left bank just downstream from bridge on State Highway 4, 200 ft upstream from Brush Creek, 1.5 miles downstream from McDonald Creek, and 6 miles southwest of Jonesboro.

Drainage area.--347 sq mi.

Records available.--October 1938 to September 1957, water years 1958-60 (annual maximum). Gage-height record for October 1957 to September 1960 available in files of district office.

Gage.--Water-stage recorder. Datum of gage is 116.53 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Nov. 29, 1938, staff gage at same site and datum.

Average discharge.--19 years (1938-57), 431 cfs (312,000 acre-ft per year).

Extremes.--1938-60: Maximum discharge, 30,600 cfs Jan. 1, 1945 (gage height, 19.87 ft). 1938-57: Minimum discharge observed, 0.4 cfs Aug. 31, 1954 (discharge measurement), but may have been less in September 1954; minimum gage height, 2.67 ft Sept. 26, 1955.

Remarks.--Water used by paper mill at Hodge is pumped from wells and discharged into stream about 7 miles above station. Part of effluent is discharged continually whenever mill is operating, but that containing waste material is stored in a reservoir and released whenever river flow is sufficient to materially dilute it.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	68.9	84.9	222	1,301	803	647	479	149	20.5	21.6	12.0	24.6	318
1952	12.8	15.8	347	366	909	709	925	86.2	17.8	7.25	9.44	7.84	282
1953	8.40	8.62	18.0	69.4	900	1,616	914	3,347	19.5	6.0	6.8	4.3	578
1954	3.00	27.8	194	394	370	124	364	89.7	22.2	21	.74	.52	200
1955	2.01	2.3	2.8	20.0	176	777	769	1,067	597	734	188	21.4	365
1956	6.10	12.4	44.7	53.1	1,479	723	1,148	234	8.23	10.0	3.16	3.0	304
1957	2	4	23.7	91.3	942	419	1,234	1,245	735	257	34.8	180	425
1958													
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	4,230	5,050	13,670	80,020	44,590	39,800	28,490	9,170	1,820	1,330	736	1,460	230,400
1952	789	940	21,370	22,480	53,300	43,590	55,060	5,300	1,060	446	581	467	204,400
1953	517	513	1,110	4,270	49,960	99,390	54,370	205,800	1,160	367	417	258	418,100
1954	184	1,650	11,900	24,210	20,540	7,600	21,630	55,180	1,320	127	46	31	144,400
1955	124	139	232	1,230	9,800	47,810	45,770	65,630	35,530	45,130	11,570	1,280	264,200
1956	375	736	2,750	3,260	85,050	44,440	68,310	14,370	490	613	194	179	220,800
1957	123	238	1,460	5,610	52,290	25,790	73,400	76,550	43,710	15,830	2,140	10,720	307,900
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	600	434,400
1951	1211	4,080	Jan. 5, 1951	2.9	318	230,400	318	230,500
1952	1241	3,310	Jan. 31, 1952	1.2	282	204,400	253	183,400
1953	1281	23,500	May 17, 1953	2.0	578	418,100	594	429,700
1954	1341	2,420	May 15, 1954	-	200	144,400	181	131,200
1955	1391	7,100	May 26, 1955	-	365	264,200	370	267,600
1956	1441	11,000	Apr. 7, 1956	-	304	220,800	301	218,700
1957	1511	4,630	Apr. 30, 1957	-	425	307,900	-	-
1958	-	11,400	May 2, 1958	-	-	-	-	-
1959	-	18,800	June 10, 1959	-	-	-	-	-
1960	-	2,780	Feb. 27, 1960	-	-	-	-	-

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3720. Dugdemona River near Winnfield, La.

Location.--Lat 31°58'30", long 92°39'10", on line between secs.34 and 35, T.12 N., R.3 W., on right bank just downstream from bridge on U. S. Highway 167, 300 ft upstream from Chicago, Rock Island & Pacific Railroad Co. bridge, 2.4 miles downstream from Kylaies Creek, and 3.5 miles north of Winnfield.

Drainage area.--654 sq mi.

Records available.--April 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 81.14 ft above mean sea level (Louisiana Geodetic Survey bench mark). Prior to Dec. 19, 1950, wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 797 cfs (577,000 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 27,100 cfs May 19, 1953 (gage height, 23.78 ft); no flow at times in 1947, 1954, 1956-57 (result of temporary regulation).

Remarks.--Water used by paper mill at Hodge is pumped from wells and discharged into stream about 30 miles above station. Part of effluent is discharged continually whenever mill is operating, but that containing waste material is stored in a reservoir and released whenever river flow is sufficient to materially dilute it.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	94.2	118	291	2,183	1,357	925	1,082	277	77.0	35.6	13.0	23.1	535
1952	14.7	20.9	282	317	1,365	1,122	1,307	297	33.2	7.03	12.6	5.39	394
1953	5.22	7.56	25.2	101	1,128	3,110	1,142	7,899	51.7	9.00	6.81	2.71	1,133
1954	.57	11.4	248	506	416	155	408	1,631	33.8	7.41	.30	.02	285
1955	0	1.39	3.41	40.4	259	766	1,373	1,459	927	1,390	552	19.6	568
1956	6.08	14.8	62.0	70.3	2,402	1,026	1,802	338	18.3	14.1	5.09	1.00	470
1957	.287	3.08	51.1	197	1,425	868	1,666	2,126	1,436	649	38.2	416	732
1958	388	5,594	1,264	1,105	879	1,657	695	3,566	619	2,156	464	2,906	1,774
1959	381	160	134	187	737	1,236	1,726	340	2,129	78.5	23.6	27.4	591
1960	64.5	102	392	786	1,596	1,797	204	214	22.6	32.9	24.8	19.2	435

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	5,790	7,010	17,910	134,200	75,380	56,870	64,410	17,020	4,580	2,190	800	1,380	387,500
1952	906	1,240	17,320	19,470	78,530	68,960	77,750	18,250	1,980	432	777	321	285,900
1953	321	450	1,550	6,220	62,670	191,200	67,950	485,700	3,080	553	419	161	820,300
1954	35	679	14,740	31,110	23,120	9,530	24,250	100,300	2,010	456	18	1.2	206,200
1955	0	83	210	2,480	14,370	47,120	81,690	89,690	55,180	85,440	33,950	1,170	411,400
1956	374	880	3,810	4,320	138,100	63,090	107,200	20,810	1,090	869	313	60	340,900
1957	18	183	3,140	12,130	79,150	53,360	99,130	130,700	85,440	39,880	2,350	24,730	530,200
1958	23,880	332,900	77,710	67,950	48,820	101,900	41,350	219,300	36,840	132,600	28,530	172,900	1,285,000
1959	23,420	9,500	8,240	11,520	40,920	76,030	102,700	20,890	126,700	4,830	1,450	1,630	427,800
1960	3,960	6,090	24,080	48,350	91,790	110,500	12,150	13,180	1,340	2,020	1,520	1,140	316,100

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,115	806,800
1951	1211	4,790	Jan. 8, 1951	6.0	535	387,500	520	376,300
1952	1241	2,720	Feb. 5, 1952	1.2	394	285,900	370	268,800
1953	1281	27,100	May 19, 1953	.6	1,133	820,300	1,151	833,400
1954	1341	2,630	May 14,15, 1954	0	285	206,200	264	191,100
1955	1391	9,280	May 28, 1955	0	568	411,400	575	416,200
1956	1441	10,800	Apr. 9, 1956	0.2	470	340,900	467	339,200
1957	1511	7,350	May 2, 1957	0	732	530,200	1,328	961,400
1958	1561	17,400	Sept.22, 1958	17	1,774	1,285,000	1,231	891,400
1959	1631	16,400	June 12, 1959	11	591	427,800	581	420,800
1960	1711	4,370	Mar. 2, 1960	2.0	435	316,100	-	-

3722. Little River near Rochelle, La.

Location.--Lat 31°45'15", long 92°20'40" in SW¼SW¼ sec.14, T.9 N., R.1 E., near right bank on downstream side of pier of bridge on State Highway 500, 700 ft upstream from Louisiana Midland Railroad Co. bridge, 1.1 miles northeast of Zenoria, and 3 miles southeast of Rochelle.

Drainage area.--1,880 sq mi.

Records available.--October 1957 to September 1960.

Gage.--Water-stage recorder and wire-weight gage. Datum of gage is 24.79 ft above mean sea level (Corps of Engineers bench mark). Auxiliary water-stage recorder 5 miles upstream from base gage at same datum. Prior to May 9, 1960 auxiliary wire-weight gage 500 ft upstream at same datum.

Extremes.--1957-60: Maximum discharge, 31,900 cfs Sept. 24, 1958 (gage height, 37.32 ft); minimum daily, 24 cfs Sept. 22, 23, 1960 (gage height, 5.35 ft).

Remarks.--Records of chemical analyses for the water year 1959 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	601	11,350	4,238	3,735	2,927	4,669	2,289	9,224	1,853	4,161	2,188	6,242	4,458
1959	1,821	298	254	436	1,976	3,014	4,812	1,345	2,287	527	157	173	1,415
1960	187	237	1,180	1,965	4,513	6,482	661	867	84.2	105	160	72.5	1,371

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1958	36,930	675,300	260,600	229,600	162,600	287,100	136,200	567,100	110,200	255,800	134,500	371,400	3,227,000
1959	112,000	17,730	15,600	26,810	109,700	185,400	286,300	82,670	136,100	32,390	9,640	10,290	1,025,000
1960	11,510	14,100	72,540	120,900	259,600	398,600	39,330	53,280	5,010	6,440	9,840	4,310	995,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1958	1561	31,900	Sept.24, 1958	78	4,458	2.37	32.18	3,227,000	3,315	23.94	2,400,000
1959	1631	13,100	Apr. 23, 1959	45	1,415	.753	10.23	1,025,000	1,350	9.74	977,400
1960	1711	13,500	Mar. 2, 1960	24	1,371	.729	9.92	995,500	-	-	-

3725. Bayou Funny Louis near Trout, La.

Location.--Lat 31°43'00", long 92°13'20", in SE¼NW¼ sec.36, T.9 N., R.2 E., near left bank on downstream side of bridge on U. S. Highway 84, 0.4 mile downstream from Jumping Gulley Creek, 3 miles northwest of Trout, and 12 miles upstream from mouth.

Drainage area.--92 sq mi.

Records available.--April 1939 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 81.51 ft above mean sea level, datum of 1929. Prior to Aug. 4, 1945, wire-weight gage at same site and datum.

Average discharge.--21 years (1939-60), 129 cfs (93,390 acre-ft per year).

Extremes.--1939-60: Maximum discharge, 32,700 cfs May 17, 1953 (gage height, 23.36 ft), from rating curve extended above 14,000 cfs by logarithmic plotting; no flow at times in 1943, 1952, 1954, 1956.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.78	3.16	7.21	237	279	573	114	23.8	36.1	37.4	0.50	1.84	109
1952	.24	.91	18.7	43.9	203	235	348	191	8.20	3.45	3.03	.20	87.4
1953	.05	.84	13.3	57.1	317	538	459	1,828	4.93	4.58	2.25	.65	270
1954	.32	.37	27.9	35.4	11.2	50.2	36.0	750	6.14	.56	.02	.64	77.8
1955	.88	.37	.44	8.14	299	42.6	408	70.5	5.34	99.2	76.5	3.25	82.6
1956	2.40	.58	2.33	2.45	312	142	35.0	1.83	1.16	1.05	.72	.10	40.7
1957	.83	12.7	252	108	178	283	496	121	191	57.4	5.17	17.2	143
1958	16.9	454	173	246	221	403	198	104	55.1	156	104	158	190
1959	15.6	7.27	4.40	13.4	221	131	290	10.9	6.23	7.09	2.88	5.43	58.1
1960	1.82	3.32	78.5	128	315	331	28.7	100	1.13	1.14	11.2	.73	82.9

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	110	188	444	14,550	15,480	35,220	6,800	1,460	2,150	2,300	31	109	78,840
1952	15	54	1,150	2,700	11,700	14,470	20,710	11,760	488	212	186	12	63,460
1953	3.4	50	819	3,510	17,610	33,070	27,330	112,400	294	282	138	39	195,500
1954	20	22	11,720	2,180	623	3,090	2,140	46,100	365	34	1.2	38	56,330
1955	54	22	27	500	16,600	2,620	24,300	4,330	318	6,100	4,700	193	59,760
1956	148	34	143	151	17,940	8,750	2,090	112	69	64	44	6.1	29,550
1957	51	753	15,470	6,650	9,900	17,420	29,500	7,450	11,350	3,530	318	1,020	103,400
1958	1,040	26,990	10,610	15,100	12,280	24,760	11,750	6,390	3,280	9,570	6,380	9,400	137,600
1959	956	433	271	824	12,280	8,050	17,240	673	371	436	177	323	42,030
1960	112	198	4,830	7,880	18,090	20,360	1,710	6,150	67	70	690	43	60,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	163	24.04	117,900
1951	1211	9,190	Mar. 28, 1951	0.1	109	1.18	16.08	78,840	110	16.17	79,320
1952	1241	3,250	Apr. 23, 1952	.1	87.4	.950	12.92	63,460	86.9	12.86	63,110
1953	1281	32,700	May 17, 1953	0	270	2.93	39.87	195,500	271	40.05	196,400
1954	1341	5,170	May 1, 1954	0	77.8	.846	11.47	56,330	75.5	11.13	54,670
1955	1391	3,650	Apr. 13, 1955	0	82.6	.898	12.16	59,760	82.9	12.21	59,990
1956	1441	1,360	Feb. 9, 1956	0	40.7	.442	6.01	29,550	62.7	9.25	45,500
1957	1511	2,110	Dec. 23, 1956	.1	143	1.55	21.06	103,400	174	25.63	125,800
1958	1561	a2,730	November 1957	-	190	2.07	28.06	137,600	139	20.51	100,600
1959	1631	2,210	Apr. 21, 1959	.4	58.1	.632	8.57	42,030	62.9	9.28	45,510
1960	1711	2,040	Mar. 3, 1960	.1	82.9	.901	12.26	60,200	-	-	-

a Recorded.

3730. Big Creek at Pollock, La.

Location.--Lat 31°32'10", long 92°24'30", in SW¼SE¼ sec.31, T.7 N., R.1 E., near right bank on downstream side of bridge on U. S. Highway 165, 0.5 mile upstream from Sugar Branch, 0.7 mile upstream from Missouri Pacific Railroad Co. bridge and water-supply diversion dam, 0.8 mile north of Pollock, and 1.3 miles downstream from Dyson Creek.

Drainage area.--51 sq mi.

Records available.--January 1942 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 76.69 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Feb. 25, 1942, staff gage and Feb. 25, 1942, to June 21, 1955, water-stage recorder, at site 0.3 mile downstream at same datum.

Average discharge.--18 years (1942-60), 62.8 cfs (45,460 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 23,500 cfs Apr. 29, 1953 (gage height, 16.90 ft); minimum, 3.7 cfs Sept. 29, 1956; minimum gage height, 1.05 ft Aug. 23, 1943, Sept. 14, 1954.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	34.0	39.6	37.4	155	108	149	81.5	68.2	35.3	28.7	17.5	26.2	64.9
1952	17.5	20.0	34.6	34.1	87.4	60.3	167	80.7	23.6	20.8	15.9	11.8	47.5
1953	10.7	16.4	27.0	26.7	83.0	144	376	698	42.6	47.9	27.3	19.3	127
1954	15.9	20.0	60.8	42.4	27.8	27.8	34.6	122	21.8	19.5	10.6	10.3	34.7
1955	11.8	13.1	15.7	34.9	88.0	23.5	129	17.9	14.8	50.2	24.1	19.0	36.3
1956	12.9	13.5	18.2	19.4	97.4	41.6	21.5	15.4	13.0	9.22	8.44	5.82	22.7
1957	8.55	12.8	54.4	27.5	46.4	83.5	97.7	40.9	59.4	28.4	13.5	47.5	43.2
1958	36.3	214	60.0	64.1	68.5	92.5	281	86.4	48.1	33.3	64.7	76.2	93.2
1959	43.6	32.0	25.3	33.5	108	48.8	84.4	27.2	23.8	24.7	18.5	14.4	39.8
1960	22.5	24.7	45.9	57.8	111	92.9	33.9	33.4	17.3	13.1	20.7	13.5	40.4

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,090	2,350	2,300	9,540	5,990	9,150	4,850	4,190	2,100	1,760	1,070	1,560	46,950
1952	1,080	1,190	2,130	2,100	5,030	3,710	9,920	4,960	1,400	1,280	980	702	34,480
1953	660	974	1,660	1,640	4,610	8,820	22,370	42,930	2,540	2,940	1,680	1,150	91,970
1954	978	1,190	3,740	2,610	1,550	1,710	2,060	7,530	1,300	1,200	653	613	25,130
1955	723	781	964	2,150	4,890	1,450	7,670	1,100	881	3,090	1,480	1,130	26,310
1956	793	805	1,120	1,190	5,600	2,560	1,280	948	777	567	519	346	16,500
1957	525	764	3,340	1,690	2,580	5,140	5,810	2,520	3,530	1,740	828	2,820	31,290
1958	2,230	12,710	3,690	3,940	3,800	5,690	16,700	5,310	2,860	2,050	3,980	4,530	67,490
1959	2,680	1,910	1,550	2,060	6,000	3,000	5,020	1,670	1,410	1,520	1,130	859	28,810
1960	1,390	1,470	2,820	3,550	6,400	5,710	2,020	2,050	1,030	804	1,270	805	29,320

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	114	30.35	82,520
1951	1211	3,820	Mar. 28, 1951	14	64.9	1.27	17.26	46,950	61.6	16.39	44,610
1952	1241	5,940	Apr. 23, 1952	11	47.5	.931	12.68	34,480	46.0	12.27	33,380
1953	1281	23,500	Apr. 29, 1953	10	127	2.49	33.79	91,970	131	34.75	94,490
1954	1341	1,320	May 1, 1954	6.3	34.7	.680	9.25	25,130	30.0	7.99	21,690
1955	1391	3,310	Apr. 12, 1955	8.8	36.3	.712	9.66	26,310	36.7	9.75	26,560
1956	1441	712	Feb. 9, 1956	3.9	22.7	.445	6.08	16,500	25.4	6.78	18,420
1957	1511	915	Apr. 1, 1957	6.6	43.2	.847	11.51	31,290	62.6	16.68	45,290
1958	1561	10,200	Apr. 26, 1958	-	93.2	1.83	24.83	67,490	76.0	20.22	55,000
1959	1631	504	Apr. 21, 1959	12	39.8	.780	10.62	28,810	39.2	10.45	28,350
1960	1711	650	Mar. 2, 1960	8.6	40.4	.792	10.79	29,320	-	-	-

3750. Tchefuncta River near Folsom, La.

Location.--Lat 30°36'55", long 90°14'55", on line between SE¼NE¼ and SW¼NE¼ sec.13, T.5 S., R.9 E., St. Helena meridian, near center of span on downstream side of bridge on State Highway 40, 1.2 miles upstream from Bull Branch and 3.6 miles southwest of Folsom.

Drainage area.--95.5 sq mi.

Records available.--October 1943 to September 1960. Prior to January 1944 monthly discharge only, published in WSP 1311. Prior to October 1954, published as Chefuncte River near Folsom.

Gage.--Water-stage recorder. Datum of gage is 62.11 ft above mean sea level (Louisiana Geodetic Survey bench mark). Prior to June 9, 1944, wire-weight gage at same site and datum.

Average discharge.--17 years (1943-60), 163 cfs.

Extremes.--1943-60: Maximum discharge, 18,300 cfs May 3, 1953 (gage height, 22.26 ft), from rating curve extended above 4,200 cfs by velocity-area study; minimum, 33 cfs Aug. 29, 1957; minimum gage height, 4.92 ft Oct. 27, 1955.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	65.3	58.1	133	164	395	376	218	64.5	70.8	65.8	52.5	72.3	143
1952	47.5	53.7	83.2	63.6	220	106	157	74.4	49.2	54.4	51.7	46.0	83.2
1953	37.1	41.9	75.5	192	291	232	144	853	69.1	192	146	50.2	194
1954	44.1	87.0	*866	190	97.8	81.9	153	60.1	54.2	74.5	51.5	44.6	*152
1955	55.8	53.7	73.9	185	209	53.6	201	65.3	40.3	44.3	71.5	39.2	90.1
1956	36.6	48.8	73.9	58.0	537	264	61.8	48.5	90.2	133	49.6	49.4	119
1957	49.6	44.4	128	57.7	100	93.2	371	49.5	58.8	46.1	53.4	176	102
1958	89.5	401	160	194	220	359	155	229	63.0	111	84.6	76.8	178
1959	47.7	52.9	54.1	77.5	424	110	86.1	126	373	123	144	60.9	138
1960	99.8	99.0	101	146	249	104	156	74.8	48.0	46.9	144	67.1	111

* Revised.

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.79	0.68	1.61	1.98	4.31	4.54	2.55	0.78	0.83	0.79	0.63	0.84	20.33
1952	.57	.63	1.00	.77	2.49	1.28	1.83	.90	.57	.66	.62	.54	11.86
1953	.45	.49	.91	2.31	3.17	2.80	1.69	10.30	.81	2.32	1.76	.59	27.60
1954	.53	1.02	*10.45	2.29	1.06	.99	1.79	.72	.63	.90	.62	.52	*21.52
1955	.67	.63	.89	2.23	2.28	.65	2.34	.79	.47	.54	.86	.46	12.81
1956	.44	.57	.89	.70	6.06	3.19	.72	.59	1.05	1.61	.60	.58	17.00
1957	.60	.52	1.55	.70	1.09	1.13	4.34	.60	.69	.56	.64	2.05	14.47
1958	1.08	4.69	1.94	2.34	2.40	4.34	1.81	2.77	.74	1.34	1.02	.90	25.37
1959	.58	.62	.65	.94	4.62	1.33	1.01	1.52	4.36	1.49	1.74	.71	19.57
1960	1.21	1.16	1.22	1.76	2.82	1.24	1.82	.90	.56	.57	1.74	.78	15.78

* Revised.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	165	23.51
1951	1211	3,710	Mar. 29, 1951	45	143	1.50	20.33	137	19.45
1952	1241	536	Feb. 16, 1952	38	83.2	.871	11.86	81.0	11.51
1953	1281	18,300	May 3, 1953	36	194	2.03	27.60	*266	*37.75
1954	1341	6,630	Dec. 4, 1953	40	*152	*1.59	*21.52	82.5	11.71
1955	1391	1,220	Feb. 7, 1955	36	90.1	.943	12.81	88.1	12.52
1956	1441	4,980	Feb. 5, 1956	36	119	1.25	17.00	125	17.77
1957	1511	2,840	Apr. 5, 1957	33	102	1.07	14.47	137	19.51
1958	1561	3,220	Nov. 15, 1957	50	178	1.86	25.37	137	19.51
1959	1631	2,440	June 2, 1959	43	138	1.44	19.57	150	21.31
1960	1711	1,320	Aug. 24, 1960	41	111	1.16	15.78	-	-

* Revised.

3755. Tangipahoa River at Robert, La.

Location.--Lat 30°30'23", long 90°21'42", in lot 39, T.6 S., R.8 E., St. Helena meridian, on right bank just downstream from bridge on U. S. Highway 190, 1 mile west of Robert, 2 miles downstream from Chappepeela Creek, and 6 miles east of Hammond.

Drainage area.--646 sq mi.

Records available.--October 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 6.87 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Nov. 25, 1939, wire-weight gage at same site and datum.

Average discharge.--22 years, 1,085 cfs.

Extremes.--1938-60: Maximum discharge, 50,500 cfs May 3, 1953; maximum gage height, 23.13 ft May 3, 1953; minimum discharge, 264 cfs for several days in October 1939; minimum gage height, 2.95 ft Oct. 25, 1939.
Maximum stage known, 27.1 ft in 1921, from floodmark.

Remarks.--Records of chemical analyses for the water year 1955 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	638	469	843	1,128	2,402	2,336	2,023	624	632	650	476	492	1,050
1952	376	407	654	496	1,295	758	1,042	678	429	420	373	359	604
1953	304	362	565	1,113	2,094	1,559	950	4,689	878	1,108	973	475	1,255
1954	365	665	3,691	1,262	751	717	880	630	451	494	367	507	902
1955	533	485	564	1,449	2,236	551	2,234	653	376	565	1,117	422	922
1956	371	460	769	504	3,100	2,211	653	537	763	752	467	439	910
1957	398	363	657	487	809	931	1,994	539	561	460	422	1,381	746
1958	682	2,381	1,173	1,194	1,481	2,359	1,268	1,315	768	950	646	587	1,231
1959	452	478	480	636	2,507	950	1,000	1,038	2,616	936	948	542	1,035
1960	759	876	1,052	1,184	1,715	976	1,254	885	421	441	934	502	914

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.14	0.81	1.50	2.01	3.87	4.17	3.49	1.11	1.09	1.16	0.85	0.85	22.05
1952	.67	.70	1.17	.89	2.16	1.35	1.80	1.21	.74	.75	.67	.62	12.73
1953	.54	.63	1.01	1.99	3.38	2.78	1.64	8.37	1.52	1.98	1.74	.82	26.40
1954	.65	1.15	6.59	2.25	1.21	1.28	1.52	1.12	.78	.88	.65	.88	18.96
1955	.95	.84	1.01	2.59	3.60	.98	3.86	1.16	.65	1.01	1.99	.73	19.37
1956	.66	.79	1.37	.90	5.17	3.95	1.13	.96	1.32	1.34	.83	.76	19.18
1957	.71	.63	1.17	.87	1.30	1.66	3.44	.96	.97	.82	.75	2.39	15.67
1958	1.22	4.12	2.10	2.13	2.38	4.21	2.19	2.35	1.33	1.69	1.15	1.01	25.88
1959	.81	.83	.86	1.13	4.04	1.70	1.73	1.86	4.51	1.67	1.70	.94	21.78
1960	1.35	1.52	1.88	2.11	2.86	1.74	2.16	1.58	.73	.79	1.67	.87	19.26

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	1,209	25.38
1951	1211	11,500	Mar. 31, 1951	393	1,050	1.63	22.05	1,007	21.14
1952	1241	2,800	Apr. 5, 1952	303	604	.935	12.73	587	12.37
1953	1281	50,500	May 3, 1953	293	1,255	1.94	26.40	1,551	32.61
1954	1341	12,400	Dec. 4, 1953	291	902	1.40	18.96	636	13.37
1955	1391	13,200	Apr. 16, 1955	340	922	1.43	19.37	923	19.39
1956	1441	11,900	Feb. 5, 1956	351	910	1.41	19.18	895	18.87
1957	1511	7,690	Sept. 19, 1957	270	746	1.15	15.67	980	20.60
1958	1561	9,540	Nov. 16, 1957	373	1,231	1.91	25.88	997	20.94
1959	1631	11,500	June 2, 1959	373	1,035	1.60	21.78	1,143	24.03
1960	1711	5,770	Apr. 4, 1960	332	914	1.41	19.26	-	-

3760. Tickfaw River at Holden, La.

Location.--Lat 30°30'13", long 90°40'38", in sec.26, T.6 S., R.5 E., St. Helena meridian, near left bank on downstream side of bridge on U. S. Highway 190, half a mile west of Holden and 5.1 miles upstream from Big Branch.

Drainage area.--247 sq mi (revised).

Records available.--October 1940 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 19.15 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Sept. 13, 1944, and June 15 to Dec. 9, 1949, wire-weight gage at same site and datum.

Average discharge.--20 years (1940-60), 360 cfs.

Extremes.--1940-60: Maximum discharge, 9,680 cfs Mar. 22, 1943 (gage height, 19.75 ft, from graph based on gage readings), from rating curve extended above 6,500 cfs; minimum, 75 cfs Aug. 30, 1957 (gage height, 2.46 ft).

Remarks.--Records of chemical analyses for the water year 1956 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	155	129	279	448	928	790	684	158	157	170	122	121	341
1952	95.7	104	148	127	382	209	358	246	135	119	107	101	177
1953	81.1	87.5	150	349	754	742	372	1,960	185	371	245	132	453
1954	96.1	147	1,145	467	219	186	239	296	111	111	88.6	172	275
1955	117	110	140	508	903	138	860	183	115	262	840	116	354
1956	95.8	110	291	163	1,126	904	207	135	136	114	103	89.3	287
1957	87.0	86.8	125	98.1	261	349	436	142	116	116	98.7	452	196
1958	183	947	371	385	569	770	389	528	193	287	187	165	413
1959	110	98.9	103	142	997	287	280	279	927	272	309	121	321
1960	248	202	418	464	706	252	281	179	104	102	167	105	268

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.72	0.58	1.30	2.09	3.92	3.69	3.09	0.74	0.71	0.79	0.57	0.55	18.75
1952	.45	.47	.69	.59	1.67	.98	1.62	1.15	.61	.56	.50	.46	9.75
1953	.38	.40	.70	1.63	3.18	3.46	1.68	9.15	.84	1.73	1.14	.60	24.89
1954	.45	.66	5.35	2.18	.92	.87	1.08	1.38	.50	.52	.41	.78	15.10
1955	.55	.50	.65	2.38	3.81	.64	3.88	.85	.52	1.22	3.92	.52	19.44
1956	.45	.50	1.36	.76	4.92	4.22	.94	.63	.61	.53	.48	.40	15.80
1957	.41	.39	.58	.46	1.10	1.63	1.98	.66	.52	.54	.46	2.04	10.77
1958	.85	4.27	1.73	1.80	2.40	3.60	1.75	2.47	.87	1.34	.87	.75	22.70
1959	.51	.45	.48	.66	4.21	1.34	1.26	1.30	4.18	1.27	1.44	.55	17.65
1960	1.15	.91	1.95	2.17	3.08	1.18	1.27	.84	.47	.48	.78	.47	14.75

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	426	23.43
1951	1211	4,770	Mar. 31, 1951	89	341	1.38	18.75	323	17.76
1952	1241	1,450	Apr. 7, 1952	86	177	.717	9.75	164	9.62
1953	1281	8,400	May 20, 1953	78	453	1.83	24.89	543	29.87
1954	1341	3,200	Dec. 6, 1953	78	275	1.11	15.10	188	10.34
1955	1391	5,180	Aug. 4, 1955	89	354	1.43	19.44	365	20.05
1956	1441	4,610	Mar. 14, 1956	78	287	1.16	15.80	270	14.87
1957	1511	2,520	Sept. 21, 1957	75	196	.794	10.77	296	16.24
1958	1561	4,170	Nov. 16, 1957	100	413	1.67	22.70	314	17.29
1959	1631	4,750	June 4, 1959	92	321	1.30	17.65	368	20.22
1960	1711	2,200	Feb. 7, 1960	86	268	1.08	14.75	-	-

3765. Natalbany River at Baptist, La.

Location.--Lat 30°30'15", long 90°32'45", in NE¼NW¼ sec.30, T.6 S., R.7 E., St. Helena meridian, near right bank on downstream side of bridge on U. S. Highway 190, 0.7 mile downstream from Still Branch and 0.7 mile west of Baptist.

Drainage area.--79.5 sq mi.

Records available.--August 1943 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 11.28 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to June 4, 1948, wire-weight gage and June 4, 1948, to Apr. 13, 1950, water-stage recorder, at old highway bridge 100 ft upstream at same datum.

Average discharge.--17 years (1943-60), 114 cfs.

Extremes.--1943-60: Maximum discharge, 9,550 cfs May 3, 1953 (gage height, 19.75 ft); minimum, 2.4 cfs Oct. 22, 1952; minimum gage height, 3.76 ft Oct. 25, 1943.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	24.9	9.49	75.1	130	240	374	90.7	16.6	13.6	33.4	15.2	17.3	86.0
1952	7.04	6.51	11.4	13.2	181	50.8	144	52.8	13.0	14.2	9.05	9.97	42.0
1953	3.38	8.90	73.7	171	366	206	168	791	156	127	52.4	11.4	177
1954	7.34	178	710	139	76.7	33.3	120	51.5	10.4	30.9	6.12	12.6	115
1955	43.2	37.5	26.6	164	265	15.2	230	32.1	5.88	77.7	296	12.4	99.4
1956	7.78	32.0	23.9	34.3	418	231	45.0	44.6	77.0	26.5	15.5	9.50	79.0
1957	8.27	4.84	61.4	9.48	82.9	88.3	224	17.2	27.2	8.16	23.3	54.4	50.2
1958	16.7	301	105	137	222	327	143	195	28.0	116	29.2	36.7	137
1959	8.78	6.81	6.97	47.2	368	57.2	37.2	81.6	341	121	125	38.3	101
1960	133	37.0	95.6	98.2	241	62.3	138	58.7	9.20	17.5	64.9	13.9	80.3

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.36	0.13	1.09	1.89	3.14	5.42	1.27	0.24	0.19	0.48	0.22	0.24	14.67
1952	.10	.09	.17	.19	2.46	.74	2.01	.77	.18	.21	.13	.14	7.19
1953	.05	.12	1.07	2.48	4.79	2.99	2.36	11.47	2.18	1.84	.76	.16	30.27
1954	.11	2.50	10.30	2.01	1.00	.48	1.68	.75	.15	.45	.09	.18	19.70
1955	.63	.53	.39	2.38	3.47	.22	3.22	.46	.08	1.13	4.29	.17	16.97
1956	.11	.45	.35	.50	5.67	3.35	.63	.65	1.08	.38	.22	.13	13.52
1957	.12	.07	.89	.14	1.09	1.28	3.14	.25	.38	.12	.34	.76	8.58
1958	.24	4.23	1.52	1.98	2.90	4.74	2.01	2.82	.39	1.68	.42	.52	23.45
1959	.13	.10	.10	.68	4.82	.83	.52	1.19	4.79	1.75	1.81	.54	17.26
1960	1.92	.52	1.38	1.43	3.27	.90	1.94	.85	.13	.25	.94	.20	13.73

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	131	22.32
1951	1211	3,810	Mar. 18, 1951	8.7	86.0	1.08	14.67	78.8	13.45
1952	1241	1,630	Feb. 15, 1952	4.1	42.0	.528	7.19	47.1	8.07
1953	1281	9,550	May 3, 1953	2.4	177	2.23	30.27	246	41.94
1954	1341	2,810	Dec. 9, 1953	3.4	115	1.45	19.70	48.7	8.34
1955	1391	2,370	Feb. 6, 1955	3.2	99.4	1.25	16.97	95.7	16.33
1956	1441	2,510	Feb. 4, 1956	5.0	79.0	.994	13.52	80.0	13.69
1957	1511	2,700	Apr. 4, 1957	3.6	50.2	.631	8.58	79.0	13.49
1958	1561	1,980	Mar. 7, 1958	8.3	137	1.72	23.45	104	17.79
1959	1631	4,220	May 31, 1959	5.0	101	1.27	17.26	122	20.75
1960	1711	1,980	Feb. 4, 1960	5.1	80.3	1.01	13.73	-	-

3770. Amite River near Darlington, La.

Location.--Lat 30°53'20", long 90°50'40", in lot 72, T.2 S., R.4 E., St. Helena meridian, on left bank just downstream from bridge on State Highway 10, 1.5 miles upstream from Collins Creek and 3.9 miles west of Darlington.

Drainage area.--580 sq mi.

Records available.--Water year 1950 (annual maximum), October 1950 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 148.80 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Sept. 30, 1950, crest-stage gage and Oct. 1, 1950, to Jan. 11, 1951, staff gage, at same site and datum.

Average discharge.--10 years (1950-60), 798 cfs.

Extremes.--1949-60: Maximum discharge, 55,700 cfs Apr. 13, 1955 (gage height, 18.18 ft); 1950-60: Minimum discharge, 188 cfs Oct. 18, 1956; minimum gage height, 1.28 ft Sept. 29, 1956 (caused by storage behind temporary dam upstream), July 9, 10, 1960.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	554	354	957	1,241	1,760	2,586	1,975	455	811	515	334	303	982
1952	267	306	846	428	758	626	707	618	309	332	297	238	477
1953	234	270	428	805	2,502	1,689	795	4,275	418	599	625	307	1,074
1954	251	286	828	830	506	506	451	501	279	307	218	448	451
1955	304	246	496	963	3,333	413	3,491	364	286	516	808	277	937
1956	234	266	944	350	3,272	3,255	429	288	464	307	270	261	854
1957	209	229	521	339	626	1,100	1,356	835	1,438	643	289	983	712
1958	718	2,528	1,095	1,091	992	1,191	922	754	1,144	568	369	1,437	1,063
1959	333	325	355	621	2,150	758	1,023	1,081	1,005	687	596	405	768
1960	381	570	1,498	1,054	1,369	710	445	652	299	261	480	268	665

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1.10	0.68	1.90	2.47	3.16	5.14	3.80	0.90	1.56	1.02	0.66	0.58	22.97
1952	.53	.59	1.68	.85	1.41	1.24	1.36	1.23	.60	.66	.59	.46	11.20
1953	.47	.52	.85	1.60	4.49	3.36	1.53	8.50	.80	1.19	1.24	.59	25.14
1954	.50	.55	1.65	1.65	.91	1.01	.87	1.00	.54	.61	.43	.86	10.58
1955	.60	.47	.99	1.91	5.98	.82	6.71	.72	.55	1.03	1.61	.53	21.92
1956	.46	.51	1.88	.70	6.08	6.47	.82	.57	.89	.61	.54	.50	20.03
1957	.41	.44	1.04	.67	1.12	2.19	2.61	1.66	2.77	1.28	.57	1.89	16.65
1958	1.43	4.86	2.18	2.17	1.78	2.36	1.77	1.50	2.20	1.13	.73	2.77	24.88
1959	.66	.62	.71	1.23	3.86	1.51	1.96	2.08	1.93	1.36	1.19	.78	17.89
1960	.76	1.10	2.97	2.10	2.54	1.41	.86	1.29	.58	.52	.95	.52	15.60

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	‡43,400	Jan. 7, 1950	-	-	-	-	-	-
1951	1211	31,600	Mar. 30, 1951	271	982	1.69	22.97	944	22.09
1952	1241	3,180	Dec. 21, 1951	217	477	.822	11.20	436	10.24
1953	1281	18,900	May 20, 1953	228	1,074	1.85	25.14	1,111	26.00
1954	1341	3,280	Jan. 16, 1954	200	451	.778	10.58	424	9.94
1955	1391	55,700	Apr. 13, 1955	222	937	1.62	21.92	971	22.71
1956	1441	20,400	Mar. 12, 1956	215	854	1.47	20.03	813	19.07
1957	1511	20,200	June 29, 1957	188	712	1.23	16.65	992	23.23
1958	1561	22,400	Sept.23, 1958	261	1,063	1.83	24.88	787	18.40
1959	1631	6,900	Feb. 3, 1959	268	768	1.32	17.89	889	20.73
1960	1711	9,800	Dec. 19, 1959	205	665	1.15	15.60	-	-

‡ Not previously published.

3775. Comite River near Olive Branch, La.

Location.--Lat 30°45'35", long 91°02'50", between lots 41 and 42, T.3 S., R.2 E., St. Helena meridian, near center of span on downstream side of bridge on State Highway 67, 500 ft downstream from Knighton Bayou and 1.8 miles northeast of Olive Branch.

Drainage area.--149 sq mi.

Records available.--August 1942 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 115.65 ft above mean sea level (Louisiana Geodetic Survey bench mark). Prior to Aug. 25, 1944, staff gage and Aug. 25, 1944, to Oct. 29, 1949, wire-weight gage, at same site and datum.

Average discharge.--18 years (1942-60), 232 cfs.

Extremes.--1942-60: Maximum discharge, 14,400 cfs Apr. 13, 1955; maximum gage height, 20.6 ft Feb. 6, 1943, from graph based on gage readings; minimum discharge, 34 cfs Aug. 30, 1957; minimum gage height, 3.10 ft Sept. 15, Oct. 19-24, 1942.

Monthly and yearly mean discharge, in cubic feet per sedond

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	58.2	60.2	216	360	437	770	201	78.6	153	165	65.9	50.0	217
1952	45.8	56.5	175	76.1	285	124	243	134	60.7	61.1	54.6	46.4	113
1953	38.8	57.3	142	234	632	541	261	1,232	106	180	97.1	53.2	297
1954	46.2	56.9	277	248	154	122	97.2	199	50.3	97.8	45.6	63.9	122
1955	70.9	51.2	141	259	811	77.2	845	129	101	280	412	59.1	265
1956	50.0	61.7	554	93.9	898	808	98.2	55.4	82.3	49.3	52.7	39.7	235
1957	38.5	42.4	79.5	62.8	168	341	306	123	368	89.6	42.5	95.3	146
1958	178	525	236	354	275	340	195	104	148	79.3	134	315	239
1959	63.6	60.7	62.2	186	724	186	222	124	185	149	152	96.4	180
1960	110	167	458	360	290	119	99.9	134	66.7	63.5	218	77.7	180

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.45	0.45	1.67	2.79	3.05	5.96	1.51	0.61	1.14	1.27	0.51	0.37	19.78
1952	.35	.42	1.35	.59	2.06	.96	1.82	1.03	.45	.47	.42	.35	10.27
1953	.30	.43	1.10	1.81	4.42	4.19	1.95	9.53	.79	1.39	.75	.40	27.06
1954	.36	.43	2.14	1.92	1.08	.94	.73	1.54	.38	.76	.35	.48	11.11
1955	.55	.38	1.09	2.01	5.67	.60	6.33	.99	.76	2.17	3.19	.44	24.18
1956	.39	.46	4.29	.73	6.50	6.25	.74	.43	.62	.38	.41	.30	21.50
1957	.30	.32	.62	.49	1.17	2.64	2.29	.95	2.76	.69	.33	.71	13.27
1958	1.37	3.93	1.82	2.74	1.93	2.63	1.46	.80	1.11	.61	1.04	2.35	21.79
1959	.49	.45	.48	1.44	5.06	1.44	1.66	.96	1.38	1.15	1.18	.72	16.41
1960	.85	1.25	3.54	2.79	2.10	.92	.75	1.04	.50	.49	1.68	.58	16.49

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	231	21.02
1951	1211	9,900	Mar. 29, 1951	42	217	1.46	19.78	212	19.33
1952	1241	1,530	Apr. 4, 1952	41	113	.758	10.27	109	9.98
1953	1281	13,300	May 18, 1953	37	297	1.99	27.06	309	28.16
1954	1341	1,780	Dec. 9, 1953	37	122	.819	11.11	112	10.20
1955	1391	14,400	Apr. 13, 1955	39	265	1.78	24.18	300	27.30
1956	1441	8,140	Mar. 12, 1956	35	235	1.58	21.50	192	17.60
1957	1511	4,270	June 29, 1957	35	146	.980	13.27	210	19.15
1958	1561	3,510	Sept.24, 1958	48	239	1.60	21.79	177	16.09
1959	1631	3,100	Feb. 2, 1959	50	180	1.21	16.41	226	20.63
1960	1711	4,450	Dec. 18, 1959	46	180	1.21	16.49	-	-

3776.5 Little Redwood Creek tributary at Joe Howell Pond, near Wilson, La.

Location.--Lat 30°53'40", long 91°07'00", sec.70, T.2 S., R.1 E., St. Helena meridian, 1,000 ft east of State Highway 19 and 1.7 miles south of Wilson.

Drainage area.--0.73 sq mi.

Records available.--April 1954 to September 1960.

Gage.--Duplex water-stage recorder (rain gage and water stage combination). Altitude of gage is 230 ft (from topographic map).

Extremes.--1954-60: Maximum outflow, 291 cfs Apr. 12, 1955 (gage height, 9.36 ft); no flow for many days in each year. Maximum inflow, 1,520 cfs (average for 2½ minute interval) Apr. 12, 1955, computed from outflow and change in reservoir contents, adjusted for rainfall on reservoir surface during time of peak inflow.

Remarks.--Records of discharge are outflow from reservoir determined from stage-discharge relation of spillway. Pond is formed by earth dam; spillway is an 80-foot wide concrete-lined channel located at right end of dam.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	-	0.20	0	0.006	0	0	-
1955	0	0	0	0	1.96	0	3.81	0	0	.01	1.79	0	0.62
1956	0	0	1.14	0	3.20	3.35	0	0	0	0	0	0	.63
1957	0	0	0	0	0	0	0	.44	.87	.22	0	0	.13
1958	.31	2.93	-	-	-	-	1.21	.28	.14	0	.13	3.51	-
1959	.08	0	0	0	0	0	.50	-	.93	0	-	-	-
1960	0	0	.69	.79	1.17	.21	.01	0	0	0	0	0	-

Contents, in acre-feet, on last day of month in reservoir

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1954	-	-	-	-	-	-	108	123	76.0	0	81.3	-
1955	33.6	22.2	-	86.6	137	112	112	90.9	134	148	118	94.6
1956	72.3	55.3	-	128	-	138	118	80.5	115	72.9	48.3	16.7
1957	-	-	-	-	14.9	107	152	157	179	148	112	122
1958	167	175	-	176	-	178	176	161	161	136	163	174.2
1959	134	105	87.2	-	-	157	-	-	137	133	-	94.9
1960	98.2	82.3	150	-	154	135	115	85.2	78.9	68.9	83.1	51.9

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year
		Maximum outflow		Maximum inflow		Minimum daily outflow	Mean outflow	Mean outflow
		Discharge	Date	Discharge	Date			
1950								
1951								
1952								
1953								
1954	1341	3.9	May 3, 1954	1,320	July 17, 1954	0	-	-
1955	1391	291	Apr. 12, 1955	1,520	Apr. 12, 1955	0	0.62	0.71
1956	1441	151	Mar. 11, 1956	400	Mar. 11, 1956	0	.63	.54
1957	1511	37	June 28, 1957	302	Mar. 21, 1957	0	.13	-
1958	1561	33	Sept.25, 1958	339	Aug. 24, 1958	0	-	-
1959	1631	34	June 9, 1959	212	Apr. 17, 1959	0	-	-
1960	1711	13	Dec. 17, 1959	250	Dec. 16, 1959	0	‡.24	-

‡ Not previously published.

3780. Comite River near Comite, La.

Location.--Lat 30°30'45", long 91°04'25", in NW¼ sec.24, T.6 S., R.1 E., St. Helena meridian, near left bank on downstream side of bridge on State Highway 946, half a mile downstream from Blackwater Bayou and 2.6 miles west of Comite.

Drainage area.--332 sq mi.

Records available.--March 1944 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 28.85 ft above mean sea level (Louisiana Geodetic Survey bench mark; levels by Louisiana Department of Public Works). Prior to Apr. 22, 1946, wire-weight gage at same site and datum.

Average discharge.--16 years (1944-60), 467 cfs.

Extremes.--1944-60: Maximum discharge, 20,500 cfs May 19, 1953 (gage height, 25.64 ft); minimum, 37 cfs Sept. 5, 1954; minimum gage height, 4.29 ft July 31, 1944.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	72.4	71.3	413	659	1,184	1,629	420	105	167	189	88.0	80.2	420
1952	53.7	65.9	269	103	633	192	633	427	90.7	98.5	87.7	52.0	223
1953	41.9	57.3	248	516	1,472	1,166	726	3,261	200	251	262	66.6	687
1954	51.3	82.2	1,328	633	267	175	178	499	81.5	155	53.8	58.1	299
1955	105	68.5	222	603	1,678	109	1,577	313	126	375	627	102	483
1956	70.8	117	666	139	1,763	1,230	290	78.1	122	115	90.3	62.0	391
1957	48.1	45.9	88.2	79.0	336	640	729	231	406	210	103	189	257
1958	323	885	448	826	634	1,086	511	205	187	162	180	449	490
1959	83.2	70.1	73.5	285	1,730	313	343	416	515	366	420	131	386
1960	183	303	817	696	556	195	184	241	73.9	88.9	335	90.4	314

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.25	0.24	1.44	2.29	3.72	5.66	1.41	0.37	0.56	0.65	0.31	0.27	17.17
1952	.19	.22	.94	.36	2.06	.67	2.13	1.48	.30	.34	.30	.17	9.16
1953	.15	.19	.86	1.79	4.61	4.05	2.44	11.32	.67	.87	.91	.22	28.08
1954	.18	.28	4.61	2.20	.84	.61	.60	1.73	.27	.54	.19	.20	12.25
1955	.36	.23	.77	2.09	5.26	.38	5.30	1.08	.42	1.30	2.18	.34	19.71
1956	.25	.39	2.31	.48	5.73	4.27	.97	.27	.41	.40	.31	.21	16.00
1957	.17	.15	.31	.27	1.05	2.22	2.45	.80	1.36	.73	.36	.63	10.50
1958	1.12	2.98	1.56	2.87	1.99	3.77	1.72	.71	.63	.56	.63	1.51	20.05
1959	.29	.24	.26	.99	5.42	1.09	1.15	1.44	1.73	1.27	1.46	.44	15.78
1960	.64	1.02	2.84	2.42	1.80	.68	.62	.84	.25	.31	1.16	.30	12.88

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	497	20.34
1951	1211	11,500	Mar. 30, 1951	54	420	1.27	17.17	405	16.59
1952	1241	3,630	Apr. 5, 1952	45	223	.672	9.16	220	9.01
1953	1281	20,500	May 19, 1953	40	687	2.07	28.08	782	31.95
1954	1341	7,150	Dec. 10, 1953	38	299	.901	12.25	209	8.54
1955	1391	10,900	Apr. 15, 1955	43	483	1.45	19.71	521	21.30
1956	1441	9,540	Mar. 13, 1956	39	391	1.18	16.00	334	13.68
1957	1511	4,320	Apr. 5, 1957	39	257	.774	10.50	380	15.53
1958	1561	5,000	Mar. 24, 1958	58	490	1.48	20.05	371	15.18
1959	1631	6,360	Feb. 3, 1959	65	386	1.16	15.78	477	19.49
1960	1711	6,950	Dec. 18, 1959	50	314	.946	12.88	-	-

3785. Amite River near Denham Springs, La.

Location.--Lat 30°27'50", long 90°59'25", in lot 2, T.7 S., R.2 E., St. Helena meridian, on left bank just downstream from bridge on U. S. Highway 190, 1,000 ft downstream from Comite River, 3 miles southwest of town of Denham Springs, and 15 miles east of Baton Rouge.

Drainage area.--1,330 sq mi.

Records available.--September 1938 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 3.87 ft above mean sea level, datum of 1929, supplementary adjustment of 1941. Prior to Aug. 8, 1939, wire-weight gage at same site and datum. Auxiliary water-stage recorder 3 miles downstream. Datum of auxiliary gage is 3.12 ft above mean sea level (Corps of Engineers bench mark). Oct. 1, 1945, to Dec. 23, 1952, auxiliary staff gage at same site and datum.

Average discharge.--22 years (1938-60), 1,903 cfs.

Extremes.--1938-60: Maximum discharge, 67,000 cfs May 20, 1953; maximum gage height, 32.46 ft May 20, 1953; minimum daily discharge, 271 cfs Oct. 17, 18, 1956; minimum gage height, 4.56 ft Nov. 18, 1938.
Maximum stage known, 35.4 ft Mar. 15, 1921, from floodmark.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	874	507	1,666	2,103	4,657	4,614	4,086	837	1,102	954	596	529	1,858
1952	425	467	1,210	620	1,918	1,022	2,018	1,595	556	518	496	359	929
1953	307	383	834	1,877	5,153	4,680	2,299	13,590	1,050	1,457	1,230	515	2,781
1954	367	495	4,297	2,358	1,077	948	1,175	1,619	454	481	386	581	1,202
1955	563	405	778	2,573	5,760	850	6,708	937	540	1,127	2,182	537	1,880
1956	363	512	2,011	650	6,391	4,975	1,107	535	752	670	442	366	1,548
1957	310	334	621	515	1,326	2,260	2,725	1,208	1,146	1,642	550	1,152	1,146
1958	1,303	4,733	2,088	2,913	2,679	3,683	2,230	1,610	1,645	1,052	830	1,955	2,218
1959	638	518	526	941	6,591	1,721	1,869	2,248	3,048	1,391	1,818	649	1,794
1960	733	1,069	3,238	2,618	2,943	1,362	1,065	1,153	500	466	1,120	621	1,405

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.76	0.43	1.44	1.82	3.65	4.00	3.43	0.73	0.92	0.83	0.52	0.44	18.97
1952	.37	.39	1.05	.54	1.56	.89	1.69	1.38	.47	.45	.43	.30	9.52
1953	.27	.32	.72	1.63	4.03	4.06	1.93	11.78	.88	1.26	1.07	.43	28.38
1954	.32	.42	3.72	2.04	.84	.82	.99	1.40	.38	.50	.33	.49	12.25
1955	.49	.34	.67	2.23	4.51	.74	5.63	.81	.45	.98	1.89	.45	19.19
1956	.31	.43	1.74	.56	5.18	4.31	.93	.46	.63	.58	.38	.31	15.82
1957	.27	.28	.54	.45	1.04	1.96	2.29	1.05	.96	1.42	.48	.97	11.71
1958	1.13	3.97	1.81	2.52	2.09	3.19	1.87	1.40	1.38	.91	.72	1.64	22.63
1959	.55	.43	.46	.82	5.16	1.49	1.57	1.95	2.56	1.21	1.58	.54	18.32
1960	.64	.90	2.80	2.27	2.38	1.18	.89	1.00	.42	.40	.97	.52	14.37

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	2,205	22.51
1951	1211	36,900	Apr. 1, 1951	439	1,858	1.40	18.97	1,778	18.15
1952	1241	8,230	Apr. 6, 1952	330	929	.698	9.52	880	9.02
1953	1281	67,000	May 20, 1953	291	2,781	2.09	28.38	3,089	31.53
1954	1341	15,200	Dec. 11, 1953	304	1,202	.904	12.25	912	9.29
1955	1391	54,300	Apr. 15, 1955	343	1,880	1.41	19.19	1,977	20.17
1956	1441	23,400	Mar. 14, 1956	305	1,548	1.16	15.82	1,411	14.43
1957	1511	12,300	July 1, 1957	271	1,146	.862	11.71	1,716	17.53
1958	1561	14,700	Nov. 17, 1957	492	2,218	1.67	22.63	1,683	17.16
1959	1631	19,100	Feb. 4, 1959	480	1,794	1.35	18.32	2,078	21.22
1960	1711	18,800	Dec. 19, 1959	390	1,405	1.06	14.37	-	-

3790. Ward Creek at Capitol Heights Avenue, at Baton Rouge, La.

Location.--Lat 30°26'30", long 91°08'35", in lot 81, T.7 S., R.1 E., St. Helena meridian, on downstream side of bridge pier at Capitol Heights Avenue in Baton Rouge and 6½ miles upstream from Dawson Creek.

Drainage area.--4.10 sq mi; at site used prior to Apr. 7, 1960, 4.04 sq mi.

Records available.--March 1954 to September 1960. Prior to October 1959 published as Ward Creek at Government Street, at Baton Rouge.

Gage.--Water-stage recorder. Datum of gage is 32.82 ft above mean sea level, datum of 1929 (Louisiana Geodetic Survey bench mark). Prior to Apr. 8, 1860, at site 800 ft upstream at datum 4.12 ft higher.

Average discharge.--6 years (1954-60), 8.97 cfs.

Extremes.--1954-60: Maximum discharge, 1,590 cfs Sept. 26, 1957; maximum gage height, 9.50 ft, May 3, 1954, site and datum then in use; minimum discharge, 0.2 cfs June 6, 1954, Oct. 31, 1955, May 8, 12, 15, 1960.

Remarks.--Low flow maintained by sewage effluent from Baton Rouge suburbs.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	3.04	15.1	1.15	7.99	1.70	2.74	-
1955	4.67	3.13	4.48	13.0	23.0	0.73	28.0	8.47	5.44	4.47	6.42	.68	8.41
1956	2.25	5.99	5.60	2.65	19.9	9.14	4.17	2.95	3.43	7.76	6.57	2.24	6.00
1957	1.05	.97	8.79	2.64	7.13	11.0	11.8	5.18	9.78	7.06	4.35	8.78	6.52
1958	4.69	17.2	9.21	19.3	17.2	19.8	11.2	5.16	10.9	17.9	8.41	12.5	12.7
1959	1.75	1.48	3.45	10.2	34.7	4.79	5.08	25.6	5.96	27.0	26.6	6.34	12.7
1960	4.95	4.98	20.2	12.6	14.5	2.29	3.86	3.53	1.38	5.97	11.9	3.70	7.49

Monthly and yearly discharge, in inches

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953													
1954	-	-	-	-	-	-	0.84	4.31	0.32	2.28	0.49	0.76	-
1955	1.34	0.86	1.28	3.71	5.92	0.21	7.73	2.42	1.51	1.28	1.83	0.19	28.28
1956	.64	1.65	1.60	.76	5.32	2.61	1.15	.84	.95	2.21	1.87	.62	20.22
1957	.30	.27	2.51	.75	1.83	3.14	3.26	1.48	2.70	2.02	1.24	2.42	21.93
1958	1.34	4.75	2.63	5.51	4.44	5.65	3.09	1.48	3.01	5.11	2.40	3.45	42.86
1959	.50	.41	.98	2.90	8.94	1.37	1.41	7.31	1.65	7.70	7.59	1.75	42.51
1960	1.42	1.37	5.76	3.60	3.87	.65	1.05	.99	.38	1.68	3.34	1.01	25.14

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950									
1951									
1952									
1953									
1954									
1955	1391	1,150	Feb. 5, 1955	0.3	8.41	2.08	28.28	8.53	28.69
1956	1441	777	Aug. 20, 1956	.2	6.00	1.49	20.22	5.76	19.41
1957	1511	1,590	Sept. 26, 1957	.4	6.52	1.61	21.93	8.20	27.56
1958	1561	1,290	Jan. 12, 1958	.8	12.7	3.14	42.86	10.7	36.03
1959	1631	1,400	Aug. 1, 1959	.4	12.7	3.14	42.51	14.6	49.17
1960	1711	1,150	Dec. 18, 1959	.2	7.49	1.84	25.14	-	-

3800. Ward Creek at Siegen Lane, near Baton Rouge, La.

Location.--Lat 30°22'30", long 91°04'10", in lot 54, T.8 S., R.1 E., St. Helena meridian, near left bank on downstream side of bridge on Siegen Lane, half a mile downstream from Dawson Creek and 8 miles southeast of Baton Rouge.

Drainage area.--40.0 sq mi.

Records available.--December 1946 to March 1954, water years 1954-60 (annual maximum).

Gage.--Crest-stage gage. Datum of gage is at mean sea level (Louisiana Geodetic Survey bench mark; levels by Louisiana Department of Public Works). Prior to April 1954, water-stage recorder at same site and datum.

Average discharge.--6 years (1947-53), 61.2 cfs.

Extremes.--1946-60: Maximum discharge, 6,400 cfs Mar. 31, 1959; maximum gage height, 24.70 ft May 3, 1953.
1946-54: Minimum discharge, 0.9 cfs Nov. 5, 6, 1952; minimum gage height, 8.30 ft Mar. 30, 1950.

Remarks.--Low flow maintained by sewage effluent from Baton Rouge suburbs. Small occasional diversion above station for oilfield operation. Therefore, runoff in inches is not computed or published for this station.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	3.20	3.41	29.6	51.3	46.8	99.1	23.2	6.65	3.54	15.5	8.32	31.0	26.8
1952	9.16	5.58	21.7	7.37	77.7	14.5	111	55.7	7.33	34.6	41.7	4.63	32.4
1953	2.93	7.18	44.9	59.0	132	152	79.0	479	29.1	24.7	71.2	5.26	90.9
1954	3.11	22.8	162	88.1	45.3	-	-	-	-	-	-	-	-

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30						Calendar year	
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff in inches	Mean	Runoff in inches
		Discharge	Date						
1950	-	-	-	-	-	-	-	63.3	-
1951	1211	723	Mar. 29, 1951	1.1	26.8	-	-	26.8	-
1952	1241	600	Apr. 5, 1952	1.2	32.4	-	-	33.9	11.55
1953	1281	3,840	May 3, 1953	.9	90.9	2.27	30.85	102	34.68
1954	1341	660	Dec. 10, 1953	-	-	-	-	-	-
1955	-	3,770	Apr. 13, 1955	-	-	-	-	-	-
1956	-	2,680	Feb. 6, 1956	-	-	-	-	-	-
1957	-	4,750	Sept. 27, 1957	-	-	-	-	-	-
1958	-	2,970	Jan. 1, 1958	-	-	-	-	-	-
1959	-	6,400	May 31, 1959	-	-	-	-	-	-
1960	-	2,150	Feb. 9, 1960	-	-	-	-	-	-

3804. Bayou Lafourche at Donaldsonville, La.

Location.--Lat 30°06'00", long 90°58'40", T.11 S., R 2 E., on left bank 40 ft upstream from culvert on State Highway 18 in Donaldsonville and 1,500 ft downstream from Donaldsonville Pumping Plant, Ascension Parish.

Records available.--August 1957 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of Engineers bench mark, levels by Louisiana Department of Highways).

Extremes.--1957-60: Maximum daily discharge, 429 cfs June 4, 5, 1960; no flow June 11, 14, 1959.

Remarks.--Pumping plant at Donaldsonville pumps total flow of Bayou Lafourche from Mississippi River except for small amounts of storm drainage during freshets. Records of chemical analyses for water year 1959 and suspended sediment loads for water years 1959-60 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	-	184	-
1958	193	288	204	176	150	186	255	284	266	275	258	226	230
1959	273	321	350	318	229	211	257	240	137	187	207	200	244
1960	239	323	272	183	202	234	229	241	264	245	215	212	238

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1957	-	-	-	-	-	-	-	-	-	-	-	10,960	-
1958	11,860	17,140	12,510	10,820	8,350	11,450	15,190	17,460	15,810	16,910	15,850	13,470	166,800
1959	16,790	19,080	21,500	19,560	12,700	12,950	15,270	14,740	8,140	11,480	12,720	11,890	176,800
1960	14,700	19,220	16,720	11,250	11,620	14,390	13,630	14,820	15,710	15,060	13,220	12,620	173,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Maximum day		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1957	1561	-	-	-	-	-	-	-
1958	1561	398	July 14, 1958	110	230	166,800	252	182,700
1959	1631	418	Jan. 30, 1959	0	244	176,800	235	170,100
1960	1711	429	June 4,5, 1960	132	238	173,000	-	-

3815. Atchafalaya River at Krotz Springs, La.

Location.--Lat 30°32'48", long 91°45'04", in sec.7, T.6 S., R.7 E., Louisiana meridian, in first pier from west bank on bridge on U. S. Highway 190, half a mile north of town of Krotz Springs, 0.6 mile upstream from New Orleans, Texas & Mexico Railway bridge, 10 miles upstream from Bayou Courtableau, and 42 miles downstream from confluence of Red River and Old River (head of Atchafalaya River).

Records available.--October 1934 to September 1960. Gage-height records collected since 1932 at railroad bridge 0.6 mile downstream are contained in reports of Mississippi River Commission; records prior to that date on file in office of Missouri Pacific Railroad Co.

Gage.--Water-stage recorder. Datum of gage is at mean Gulf level, (datum of Corps of Engineers), and 0.03 ft below mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Corps of Engineers).

Average discharge.--26 years (1934-60), 169,700 cfs (122,900,000 acre-ft per year).

Extremes.--1934-60: Maximum discharge, 624,000 cfs Mar. 6, 1950; maximum gage height recorded, 37.8 ft in gage well Feb. 28, 1937; minimum discharge, 17,400 cfs Nov. 4, 1939; minimum gage height, 2.28 ft Nov. 5, 1939.

Flood in May 1927 reached a stage of about 39 ft on the outside gage, from information by State Department of Highways.

Remarks.--Flow is distributary of the Mississippi River through Old River. Flow in Old River can be in either direction. Records of water temperatures for the water years 1952-55, are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	137,800	98,660	194,000	222,800	308,800	387,900	360,900	327,500	216,600	104,500	199,400	133,200	240,900
1952	97,920	135,600	247,300	295,700	332,700	310,200	398,000	345,900	175,800	109,400	81,650	65,130	215,900
1953	43,070	41,110	90,320	99,370	174,900	273,000	280,100	351,500	271,900	134,500	90,080	54,530	158,500
1954	40,510	39,930	48,880	79,100	124,600	105,600	114,000	202,500	122,200	81,890	57,050	53,290	88,910
1955	65,480	75,930	58,870	127,600	130,100	270,500	365,100	194,000	141,600	103,900	76,570	50,830	138,200
1956	72,340	57,890	69,350	42,160	235,000	321,500	252,400	178,600	118,500	92,110	84,290	60,450	131,600
1957	47,480	45,570	77,290	112,800	290,600	238,400	295,800	348,800	431,700	312,100	134,900	90,520	201,300
1958	95,030	185,500	303,100	266,800	221,600	214,400	273,600	393,100	265,000	244,500	290,600	130,700	240,800
1959	120,800	80,340	104,600	94,130	251,900	268,400	234,100	188,000	169,200	101,300	108,000	69,880	148,500
1960	142,700	111,400	155,700	239,300	241,000	237,300	287,000	255,600	207,500	181,900	97,950	86,110	186,800

Monthly and yearly discharge, in thousands of acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	8,475	5,871	11,930	13,700	17,150	23,850	21,480	20,130	12,890	18,720	12,260	7,928	174,400
1952	6,021	8,071	15,210	18,180	19,140	19,080	23,680	21,270	10,460	6,728	5,020	3,876	156,700
1953	2,649	2,446	5,554	6,110	9,715	16,790	16,670	21,620	16,180	8,271	5,539	3,245	114,800
1954	2,491	2,376	3,005	4,863	6,919	6,495	6,781	12,450	7,271	5,035	3,508	3,171	64,360
1955	4,026	4,518	3,620	7,844	7,225	16,630	21,730	11,930	8,424	6,389	4,708	3,025	100,100
1956	4,448	3,445	4,264	2,592	13,520	19,770	15,020	10,980	7,054	5,664	5,183	3,597	95,530
1957	2,919	2,711	4,753	6,935	16,140	14,660	17,600	21,450	25,690	19,190	8,293	5,387	145,700
1958	5,843	11,040	18,630	16,400	12,310	13,180	16,280	24,170	15,770	15,030	17,870	7,779	174,300
1959	7,427	4,781	6,431	5,788	13,990	16,500	13,930	11,560	10,070	6,228	6,639	4,158	107,500
1960	8,774	6,629	9,574	14,710	13,860	14,590	17,080	15,720	12,350	11,180	6,023	5,124	135,600

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	288,200	208,600,000
1951	1211	405,000	Mar. 19, 1951	74,600	240,900	174,400,000	245,100	177,400,000
1952	1241	413,000	Apr. 19, 1952	51,000	215,900	156,700,000	190,200	138,100,000
1953	1281	405,000	(a)	38,600	158,500	114,800,000	154,700	112,000,000
1954	1341	230,000	May 17, 1954	37,300	88,910	64,360,000	94,840	68,660,000
1955	1391	423,000	Apr. 15, 1955	43,300	138,200	100,100,000	138,200	100,000,000
1956	1441	347,000	Mar. 4-6, 1956	39,300	131,600	95,530,000	129,000	93,760,000
1957	1511	467,000	June 13, 1957	41,800	201,300	145,700,000	236,000	170,900,000
1958	1561	446,000	May 23, 1958	80,000	240,800	174,300,000	217,500	157,400,000
1959	1631	305,000	Mar. 3, 1959	52,500	148,500	107,500,000	157,200	113,800,000
1960	1711	329,000	Apr. 26, 1960	53,300	186,800	135,600,000	-	-

a May 29, 30, 31, 1953.

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3820. Bayou Cocodrie near Clearwater, La.

Location.--Lat 31°00'00", long 92°22'46", in NW¼SW¼ sec.4, T.1 S., R.1 E., Louisiana meridian, on left bank just downstream from bridge on U. S. Highway 167, 1,000 ft downstream from Bayou Cocodrie Dam, seven-eighths of a mile downstream from Chicago, Rock Island and Pacific Railroad Co. bridge, 1½ miles east of Clearwater, 4 miles south of Meeker, and 5 miles downstream from Hurricane Creek.

Drainage area.--240 sq mi.

Records available.--May 1922 to January 1925 (published as "near Meeker"), October 1937 to September 1960. Monthly discharge only for October 1937, published in WSP 1311.

Gage.--Water-stage recorder. Datum of gage is 40.00 ft above mean Gulf level (datum of Corps of Engineers). May 1922 to January 1925 staff gage at site 500 ft downstream at datum about 1½ ft lower. October to December 1937 staff gage at same site at datum 40.00 ft lower. Jan. 1, 1938, to Mar. 28, 1940, staff gage at same site and datum. Since Jan. 23, 1945, auxiliary staff gage 6.6 miles downstream. Datum of auxiliary gage is 35.10 ft above mean sea level (Louisiana Geodetic Survey bench mark).

Average discharge.--25 years (1922-24, 1937-60), 416 cfs (301,200 acre-ft per year).

Extremes.--1922-25, 1937-60: Maximum discharge, 28,200 cfs May 18, 1953 (gage height, 26.72 ft); reverse flow Nov. 13-15, 1922, probably caused by heavy rains in basin below station; minimum discharge unaffected by backwater or temporary diversion upstream, 50 cfs June 18, 1960.

Remarks.--Slight regulation at low flow by Lake Cocodrie (capacity, 9,000 acre-ft). Storage began Jan. 23, 1959. Records of chemical analyses, suspended sediment loads, and water temperatures for the water years 1953-54 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	121	137	145	453	553	253	381	104	74.7	91.5	70.1	74.6	202
1952	68.8	79.2	325	156	469	349	685	534	227	89.0	71.9	58.1	258
1953	53.6	62.8	225	295	474	882	513	4,052	1,053	427	235	137	705
1954	90.1	158	283	379	160	165	310	1,106	388	80.5	75.8	58.9	273
1955	115	95.0	86.0	362	1,021	614	456	447	364	248	433	143	361
1956	86.1	82.9	391	279	956	763	559	159	90.9	74.6	77.5	74.7	297
1957	64.4	76.1	561	611	270	633	902	441	267	676	227	140	407
1958	407	1,129	992	707	551	474	603	498	261	129	178	410	527
1959	385	191	112	159	881	639	551	232	184	128	145	130	307
1960	93.8	107	341	511	460	436	202	145	57.4	63.1	105	79.1	217

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	7,420	8,150	8,910	27,850	30,690	15,540	22,680	6,400	4,440	5,630	4,310	4,440	146,500
1952	4,230	4,710	20,010	9,600	26,980	21,450	40,750	32,850	13,530	5,470	4,420	3,460	187,500
1953	3,300	3,740	13,810	18,120	26,320	54,260	30,520	249,100	62,680	26,260	14,450	8,150	510,700
1954	5,540	9,420	17,400	23,320	8,870	10,140	18,460	68,000	23,120	4,940	4,660	3,500	197,400
1955	7,080	5,650	5,290	22,230	56,690	37,760	27,120	27,510	21,650	15,280	26,600	8,510	261,400
1956	5,290	4,930	24,040	17,130	55,000	46,940	33,290	9,760	5,410	4,590	4,760	4,440	215,600
1957	3,960	4,530	34,520	37,560	14,990	38,920	53,680	27,100	15,900	41,540	13,960	8,300	295,000
1958	25,000	67,200	60,980	43,500	30,580	29,130	35,860	30,620	15,530	7,920	10,960	24,390	381,700
1959	23,670	11,360	6,890	9,780	48,930	39,290	32,790	14,260	10,950	7,870	8,920	7,740	222,400
1960	5,770	6,370	20,970	31,420	26,460	26,810	12,020	8,920	3,420	3,880	6,460	4,710	157,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30								Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff			Mean	Runoff	
		Discharge	Date				Inches	Acre-feet			Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	-	467	26.43	338,200
1951	1211	633	Feb. 9, 1951	62	202	0.842	11.46	146,500		208	11.80	151,000
1952	1241	816	Apr. 26, 1952	56	258	1.08	14.66	187,500		247	14.03	179,400
1953	1281	28,200	May 18, 1953	52	705	2.94	39.91	510,700		721	40.81	522,200
1954	1341	1,540	May 5, 1954	58	273	1.14	15.41	197,400		253	14.28	183,000
1955	1391	1,430	Feb. 8, 1955	59	361	1.50	20.41	261,400		383	21.69	277,600
1956	1441	1,150	Feb. 11, 1956	60	297	1.24	16.85	215,600		309	17.53	224,300
1957	1511	1,160	Dec. 25, 1956	60	407	1.70	23.04	295,000		560	31.64	405,100
1958	1561	1,470	Nov. 16, 1957	83	527	2.20	29.82	381,700		373	21.13	270,400
1959	1631	986	Feb.5-6, 1959	28	307	1.28	17.37	222,400		295	16.69	213,600
1960	1711	686	Dec. 19, 1959	50	217	.904	12.30	157,200		-	-	-

3825. Bayou Courtableau at Washington, La.

Location.--Lat 30°37'05", long 92°03'20", in lot 81, T.5 S., R.4 E., Louisiana meridian, near center of span on downstream side of bridge on State Highway 10 at Washington, a quarter of a mile upstream from Texas and New Orleans Railroad bridge, 1¼ miles upstream from Bayou Carron, 3½ miles downstream from confluence of Bayou Cocodrie and Bayou Boeuf, and 6 miles north of Opelousas.

Drainage area.--715 sq mi (see Remarks).

Records available.--July 1946 to September 1960.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (Louisiana Geodetic Survey bench mark). Prior to Aug. 23, 1948, wire-weight gage at same site and datum. Auxiliary water-stage recorder 3¼ miles upstream. Datum of auxiliary gage is at mean Gulf level (Corps of Engineers bench mark). Feb. 25, 1947, to Feb. 28, 1949, auxiliary staff gage 3½ miles upstream.

Average discharge.--14 years, 1,006 cfs (728,300 acre-ft per year).

Extremes.--1946-60: Maximum discharge, 9,490 cfs May 21, 1953; maximum elevation, 35.29 ft May 22, 1953; minimum discharge, 73 cfs Aug. 15, 1956; minimum elevation, 10.72 ft Oct. 18, 1956.

Remarks.--Some flow diverted from Bayou Boeuf into Chatlin Lake Canal through Bayou Lamourie. Since April 1952, floodflow is diverted from 76.1 sq mi in Bayou Rapides basin into Bayou Boeuf when stages of Red River make it necessary to close gates at mouth of Bayou Rapides. In extreme floods, considerable flow bypasses the station. Records of chemical analyses for the water year 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	251	303	374	1,081	1,721	791	1,042	273	153	228	151	193	539
1952	162	172	949	320	1,566	793	2,213	1,457	401	322	251	206	730
1953	110	126	704	691	1,800	2,694	1,076	6,788	4,828	616	469	276	1,682
1954	214	309	688	992	357	397	583	3,329	501	187	141	134	658
1955	448	174	263	1,099	4,278	886	2,067	1,315	523	755	844	460	1,070
1956	175	143	674	561	3,067	2,068	939	340	190	119	132	138	703
1957	100	167	1,663	841	610	1,798	2,252	721	973	1,504	388	454	959
1958	1,055	3,599	2,681	1,831	1,420	1,448	1,395	1,186	434	411	575	1,536	1,461
1959	867	306	307	657	3,550	1,439	1,948	461	770	358	307	358	924
1960	278	427	1,477	1,530	1,370	1,089	423	474	182	118	297	260	660

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	15,460	18,040	23,000	66,500	95,580	48,620	62,030	16,780	9,100	14,040	9,270	11,490	389,900
1952	9,960	10,240	58,350	19,680	90,080	48,790	131,700	89,600	23,870	19,790	15,400	12,280	529,700
1953	6,760	7,510	43,300	42,490	99,950	165,600	64,030	417,400	287,300	37,870	28,840	16,440	1,217,000
1954	13,190	18,370	42,300	60,970	19,840	24,390	34,680	204,700	29,810	11,480	8,680	7,940	476,400
1955	27,520	10,330	16,190	67,580	237,600	54,470	123,000	80,830	31,120	46,420	51,900	27,390	774,400
1956	10,790	8,520	41,460	34,520	176,400	127,100	55,850	20,880	11,290	7,340	8,110	8,190	510,400
1957	6,170	9,920	102,200	51,730	33,870	110,500	134,000	44,330	57,910	92,460	23,830	27,010	693,900
1958	64,900	214,100	164,800	112,600	78,860	89,010	83,000	72,910	25,810	25,240	35,340	91,410	1,058,000
1959	53,310	18,210	18,800	40,400	197,200	88,480	115,900	28,350	45,820	22,010	18,880	21,300	668,700
1960	17,090	25,410	90,820	94,080	78,800	66,960	25,170	29,140	10,830	7,260	18,260	15,470	479,300

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	1,196	865,700
1951	1211	3,260	Apr. 1, 1951	106	539	389,900	569	412,000
1952	1241	3,510	Apr. 27, 1952	112	730	529,700	701	508,800
1953	1281	9,490	May 21, 1953	94	1,682	1,217,000	1,704	1,234,000
1954	1341	5,570	May 8, 1954	85	658	476,400	631	456,500
1955	1391	6,330	Feb. 12, 1955	125	1,070	774,400	1,079	781,100
1956	1441	4,590	Feb. 8, 1956	76	703	510,400	783	568,000
1957	1511	4,800	Dec. 24, 1956	92	959	693,900	1,408	1,019,000
1958	1561	4,960	Nov. 28, 1957	136	1,461	1,058,000	973	704,600
1959	1631	4,710	Feb. 7, 1959	154	924	668,700	983	711,700
1960	1711	4,130	Dec. 20, 1959	-	660	479,300	-	-

3830. Chatlin Lake Canal near Lecompte, La.

Location.--Lat 31°07'10", long 92°20'40", in NW¼ sec.26, T.2 N., R.1 E., near center of span on downstream side of bridge on State Highway 457, 1.2 miles downstream from Indian Bayou, and 3.7 miles northeast of Lecompte.

Drainage area.--75.9 sq mi. Flow includes diversion from Bayou Boeuf through Bayou Lamourie which is a considerable portion of the low-water flow.

Records available.--August 1942 to September 1953.

Gage.--Wire-weight gage. Datum of gage is 39.96 ft above mean sea level (Louisiana Geodetic Survey bench mark). Prior to Sept. 3, 1953, at datum 3.00 ft higher. Since Nov. 10, 1944, auxiliary staff gage 1 mile upstream.

Average discharge.--11 years (1942-53), 234 cfs (169,400 acre-ft per year).

Extremes.--1942-53: Maximum discharge, 2,600 cfs May 18, 1953 (gage height, 19.51 ft; datum then in use); minimum, 0.1 cfs July 25, 1947.

Remarks.--Entire flow of Bayou Lamourie, which formerly entered Bayou Boeuf is diverted by canal into Bayou du Lac and thence in Bayou des Glaises. Some flow is now diverted from Bayou Boeuf into canal through Bayou Lamourie. Some natural diversion at extremely high stages through Bayou Wilson 0.2 mile upstream. Diversions above and below station for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	17.3	33.7	47.0	233	228	163	120	18.3	11.9	31.1	2.48	4 83	74.1
1952	1.35	4.01	148	33.5	261	138	303	129	16.9	14.8	9.11	1.29	87.5
1953	1.18	9.65	76.8	70.0	419	343	169	1,185	80.6	16.1	11.2	7.54	199

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	1,060	2,010	2,890	13,690	12,650	10,040	7,120	1,130	708	1,910	152	287	53,650
1952	83	239	9,090	2,060	14,990	8,490	18,040	7,950	1,010	910	560	77	63,500
1953	72	574	4,720	4,300	23,250	21,100	10,070	72,870	4,800	992	688	449	143,900

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	252	182,200
1951	1211	1,560	Mar. 28, 1951	0.6	74.1	53,650	78.9	57,100
1952	1241	1,520	Feb. 2, 1952	.8	87.5	63,500	81.9	59,450
1953	1281	2,600	May 18, 1953	.8	199	143,900	-	-

3835. Bayou des Glaises diversion channel at Moreauville, La.

Location.--Lat 31°01'59", long 91°58'57", in NE¼ sec.29, T.1 N., R.5 E., near right bank on downstream side of bridge on State Highway 1 at Moreauville, 150 ft downstream from point of diversion from Bayou des Glaises.

Drainage area.--270 sq mi (see Remarks).

Records available.--July 1943 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 28.30 ft above mean sea level, datum of 1929, supplementary adjustment of 1941 (levels by Louisiana Department of Public Works). Prior to Oct. 31, 1950, wire-weight gage at same site and datum.

Average discharge.--17 years (1943-60), 458 cfs (331,600 acre-ft per year).

Extremes.--1943-60: Maximum discharge, 6,340 cfs May 18, 1953 (gage height, 17.84 ft); minimum, 3.8 cfs Sept. 27, 1956.

Remarks.--Diversion channel carries natural flow of Bayou des Glaises except when operation of floodgates, 12 miles downstream from point of diversion, regulates flow into or out of bayou depending on stage in Red River and Old River overflow area. Flow includes diversion from Bayou Boeuf into Chatlin Lake Canal and is occasionally affected by diversion into or out of Red River and Old River overflow area. Channel discharges into West Protection Levee borrow pit channel, 6 miles downstream. Records of chemical analyses for the water year 1960 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	40.2	61.8	98.4	518	680	216	396	54.6	24.1	106	37.3	28.5	185
1952	9.81	21.7	264	72.0	583	324	877	460	87.6	23.3	22.5	8.44	227
1953	5.72	13.2	158	274	766	1,205	277	3,614	1,506	82.4	32.8	22.1	664
1954	15.9	38.2	142	311	88.6	116	270	1,466	24.1	13.4	11.2	6.24	211
1955	32.3	17.9	34.3	245	1,291	190	954	355	64.4	161	417	73.4	312
1956	33.2	17.2	354	184	1,341	678	220	25.2	36.9	32.5	32.7	19.7	244
1957	7.95	22.9	627	236	188	618	871	160	304	339	39.1	64.8	290
1958	194	1,709	843	644	376	504	496	637	135	91.8	205	547	531
1959	394	74.7	101	210	1,289	427	662	154	208	43.5	67.9	50.8	299
1960	37.4	65.1	418	629	608	482	60.4	71.4	18.2	28.1	63.2	27.1	209

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,470	3,680	6,050	31,830	37,790	13,310	23,570	3,360	1,430	6,550	2,290	1,700	134,000
1952	603	1,290	16,250	4,430	33,530	19,920	52,170	28,290	5,210	1,430	1,380	502	165,000
1953	352	782	9,690	16,820	42,560	74,060	16,460	222,200	89,640	5,070	2,020	1,320	481,000
1954	980	2,270	8,730	19,100	4,920	7,160	16,070	90,150	1,430	821	688	372	152,700
1955	1,990	1,060	2,110	15,080	71,720	11,660	56,770	21,850	3,830	9,870	25,660	4,370	226,000
1956	2,040	1,020	21,750	11,310	77,140	41,690	13,100	1,550	2,190	2,000	2,010	1,170	177,000
1957	489	1,360	38,560	14,520	10,430	38,030	51,800	9,810	18,120	20,820	2,400	3,860	210,200
1958	11,940	101,700	51,860	39,610	20,860	30,990	29,510	39,140	8,010	5,640	12,630	32,570	384,500
1959	24,230	4,440	6,210	12,910	71,590	26,260	39,390	9,470	12,380	2,670	4,180	3,020	216,800
1960	2,300	3,870	25,700	38,680	34,970	29,640	3,590	4,390	1,080	1,730	3,890	1,610	151,400

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	626	453,500
1951	1211	1,110	Mar. 28, 1951	6.0	185	134,000	193	139,900
1952	1241	1,300	Apr. 4, 1952	5.5	227	165,000	217	157,700
1953	1281	6,340	May 18, 1953	5.2	664	481,000	666	482,100
1954	1341	4,140	May 3, 1954	4.8	211	152,700	201	145,500
1955	1391	4,860	Apr. 13, 1955	7.2	312	226,000	399	245,600
1956	1441	2,620	Feb. 4, 1956	4.1	244	177,000	265	192,600
1957	1511	3,030	June 28, 1957	5.5	290	210,200	463	335,300
1958	1561	4,250	Nov. 14, 1957	23	531	384,500	351	253,800
1959	1631	2,390	Feb. 2, 1959	17	299	216,800	295	213,700
1960	1711	2,670	Dec. 17, 1959	10	209	151,400	-	-

3840. West Protection Levee borrow pit channel near Plaucheville, La.

Location.--Lat 30°57'10", long 91°54'55", in SW¼SE¼ sec.24, T.1 S., R.5 E., Louisiana meridian, near center of span on downstream side of bridge on State Highway 1181, 50 ft downstream from Bayou Choupique and 4.1 miles east of Plaucheville.

Drainage area.--321 sq mi (see Remarks).

Records available.--October 1944 to September 1957.

Gage.--Water-stage recorder. Datum of gage is 18.54 ft above mean Gulf level (Corps of Engineers bench mark). Prior to Sept. 12, 1949, wire-weight gage at same site and datum. Water-stage recorder for station on Bayou des Glaises diversion channel at Moreauville, six miles upstream, used as an auxiliary gage for this station.

Average discharge.--13 years (1944-57), 529 cfs (383,000 acre-ft per year).

Extremes.--1944-57: Maximum discharge, 6,130 cfs May 18, 1953; maximum gage height, 22.90 ft May 19, 1953; minimum daily discharge, 4.4 cfs Sept. 29, 30, 1956; minimum gage height, 1.93 ft Aug. 25, 1956.

Remarks.--Flow at this site is principally from Bayou des Glaises diversion channel. Flow includes diversion from Bayou Boeuf into Chatlin Lake Canal and is occasionally affected by diversion into or out of Red River and Old River overflow area.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	47.8	72.0	121	594	792	298	440	59.8	27.6	112	56.7	43.7	218
1952	17.8	29.5	368	85.5	781	399	975	538	94.9	33.5	37.5	20.8	279
1953	9.91	16.1	179	323	880	1,344	365	3,978	1,588	102	71.4	28.5	742
1954	20.6	44.9	152	342	935	133	305	1,677	31.2	16.4	13.6	8.49	239
1955	32.6	20.1	41.0	314	1,560	227	1,144	392	70.2	222	447	70.9	369
1956	33.2	16.9	361	184	1,466	811	262	26.9	38.6	32.6	35.3	23.1	270
1957	9.98	27.2	695	246	243	791	1,121	214	430	417	39.6	88.7	360
1958													
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	2,940	4,280	7,410	36,520	43,980	18,300	26,170	3,680	1,640	6,870	3,490	2,600	157,900
1952	1,100	1,750	22,650	5,250	44,900	24,510	57,990	33,050	5,650	2,060	2,310	1,240	202,500
1953	610	959	10,990	19,870	48,860	82,630	21,740	244,600	94,480	6,280	4,390	1,700	537,100
1954	1,270	2,670	9,360	21,020	5,190	8,190	18,150	103,100	1,860	1,010	834	505	173,200
1955	2,000	1,200	2,520	19,310	86,620	13,930	68,060	24,080	4,180	13,660	27,480	4,220	267,300
1956	2,040	1,010	22,200	11,310	84,320	49,890	15,570	1,660	2,290	2,000	2,170	1,380	195,800
1957	614	1,620	42,720	15,110	13,510	48,620	66,710	13,150	25,560	25,660	2,400	5,280	261,000
1958													
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	656	475,100
1951	1211	1,760	Mar. 28, 1951	9.8	218	157,900	233	168,800
1952	1241	1,850	Apr. 4, 1952	12	279	202,500	261	189,600
1953	1281	6,130	May 18, 1953	7.8	742	537,100	743	537,800
1954	1341	4,390	May 3, 1954	7.6	239	173,200	229	165,600
1955	1391	5,010	Apr. 13, 1955	9.7	369	267,300	396	286,800
1956	1441	3,210	Feb. 4, 1956	4.4	270	195,800	297	215,500
1957	1511	†3,550	June 28, 1957	7.0	360	261,000	-	-
1958								
1959								
1960								

† Corrected.

3845. Big Darbonne Bayou at culvert, near Krotz Springs, La.

Location.--Lat 30°33'00", long 91°51'50", in NW¼NE¼ sec.9, T.6 S., R.6 E., Louisiana meridian, on west end of south wingwall of culvert, 250 ft east from West Protection Levee borrow pit channel, 0.2 mile north of bridge on U. S. Highway 190, and 6.3 miles west of Krotz Springs.

Records available.--February 1953 to September 1958. Intermittent gage-height records collected in this vicinity since October 1932 are contained in reports of Corps of Engineers.

Gage.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929 (Corps of Engineers bench mark). Auxiliary water-stage recorder 280 ft east.

Remarks.--Flow completely regulated by operation of gate in accordance with prescribed schedule of Corps of Engineers. Gate operated either fully opened or completely closed. Daily discharge computed from relation between discharge and head. Flow represents discharge lost to the Courtableau-Teche basin for flood control except for flow in the east-west direction which is added for irrigation.

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1953a/	-	-	-	-	20,900	21,210	12,720	42,700	28,260	0	2,210	1,210	c129,200
1953b/	-	-	-	-	0	458	1,290	0	0	0	224	692	c2,660
1954a/	2,290	1,440	18,840	29,460	2,130	1,370	0	32,650	317	2,310	3,920	4,540	99,900
1954b/	1,140	1,580	0	0	0	2,590	0	0	857	1,970	1,140	730	10,010
1955a/	11,370	1,290	6,850	29,840	28,830	10,170	12,330	11,290	962	0	0	1,670	114,600
1955b/	0	585	0	0	0	3,000	6,530	7,980	79	0	0	0	18,170
1956a/	1,690	1,370	26,550	11,570	33,510	19,090	2,020	0	502	1,240	1,010	714	99,270
1956b/	159	1,190	0	1,310	0	4,820	2,760	3,530	1,310	2,300	3,110	476	20,960
1957a/	1,370	1,930	23,850	4,180	4,810	10,800	4,540	0	0	0	111	1,350	52,940
1957b/	0	480	0	516	1,050	516	1,190	0	1,530	0	2,640	212	8,130
1958a/	0	5,550	1,530	1,560	1,240	1,790	881	0	0	0	0	3,600	16,150
1958b/	0	0	651	401	2,030	2,480	8,380	0	0	0	0	222	14,160

a Runoff in acre-feet from west to east.
b Runoff in acre-feet from east to west.
c For period February to September.

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1953	1281	-	-	-	-	c129,200	-	-
1953	1281	-	-	-	-	c2,660	-	-
1954	1341	-	-	-	-	a99,900	-	a96,210
1954	1341	-	-	-	-	b10,010	-	b7,870
1955	1391	-	-	-	-	a114,600	-	a124,700
1955	1391	-	-	-	-	b18,170	-	b18,940
1956	1441	-	-	-	-	a99,270	-	a96,810
1956	1441	-	-	-	-	b20,960	-	b20,100
1957	1511	-	-	-	-	a52,940	-	a32,870
1957	1511	-	-	-	-	b8,130	-	b8,300
1958	1561	-	-	-	-	a16,150	-	-
1958	1561	-	-	-	-	b14,160	-	-

a Runoff in acre-feet from west to east.
b Runoff in acre-feet from east to west.
c For period February to September.

3850. Bayou Courtableau at weirs, near Krotz Springs, La.

Location.--Lat 30°32'20", long 91°52'05", in NW¼NE¼ sec.39, T.6 S., R.6 E., Louisiana meridian, on right bank 160 ft upstream from west weir, 0.7 mile downstream from bridge on U. S. Highway 190, 0.8 mile downstream from Big Darbonne Bayou, and 7 miles west of Krotz Springs.

Records available.--February 1953 to September 1958. Intermittent gage-height records collected in this vicinity since April 1949 are contained in reports of Corps of Engineers.

Gage.--Water-stage recorder and concrete control. Datum of gage is at mean sea level, datum of 1929 (Corps of Engineers bench mark).

Extremes.--1953-58: Maximum discharge, 24,800 cfs May 25, 1953 (elevation, 24.11 ft); no flow for many days in each year.

Remarks.--Below 18.0 ft, all flow from the Courtableau-Teche system is gaged at Bayou Teche at Arnaudville. Above 18.0 ft, this stream is a distributary of this system, with some flow bypassed through Bayou Courtableau Drainage Structure. Flow represents discharge lost to Courtableau-Teche basin from flood control except flow from east to west through Bayou Courtableau Drainage Structure below 18.0 ft.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	-	2,605	4,069	1,141	15,340	7,335	34.7	88.3	0	-
1954	0	0	0	294	0	53.6	88.8	4,433	0	0	0	0	413
1955	33.8	0	1.4	604	8,539	432	4,378	1,157	5.6	503	989	0	1,331
1956	0	0	120	0	4,753	3,784	523	0	0	0	0	0	750
1957	0	0	630	0	0	279	1,412	287	702	1.074	0	.05	367
1958	223	1,628	1,908	1,204	455	386	370	363	333	0	53.0	161	566
1959													
1960													

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951													
1952													
1953	-	-	-	-	144,700	250,200	67,870	943,500	436,500	2,130	5,430	0	-
1954	0	0	0	18,100	0	3,300	5,290	272,600	0	0	0	0	299,300
1955	2,080	0	83	37,170	474,200	26,570	260,500	71,160	333	30,930	60,840	0	963,900
1956	0	0	7,360	0	273,400	232,700	31,110	0	0	0	0	0	544,600
1957	0	0	38,710	0	0	17,170	84,000	17,640	41,760	66,070	0	30	265,400
1958	13,700	96,880	117,300	74,060	25,280	23,760	22,010	22,290	1,980	0	3,260	9,580	410,100
1959													
1960													

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950								
1951								
1952								
1953	1281	a24,800	May 25, 1953	0	-	-	-	-
1954	1341	10,200	May 4, 1954	0	413	299,300	416	301,500
1955	1391	16,000	Feb. 8, 1955	0	1,331	963,900	1,339	969,100
1956	1441	11,400	Mar. 16, 1956	0	750	544,600	793	575,900
1957	1511	8,000	June 28, 1957	0	367	265,400	628	454,500
1958	1561	5,130	Mar. 24, 1958	0	566	410,100	-	-
1959								
1960								

a Maximum for the period February to September.

3855. Bayou Teche at Arnaudville, La.

Location.--Lat 30°23'50", long 91°55'50", in lot 63, T.7 S., R.5 E., Louisiana meridian, near center of span on upstream side of bridge on State Highway 31 at Arnaudville, 300 ft upstream from Bayou Fusilier.
Drainage area.--1,531 sq mi (see Remarks).
Records available.--April 1949 to September 1960.
Gage.--Water-stage recorder. Datum of gage is at mean sea level (Louisiana Geodetic Survey bench mark). Prior to May 11, 1949, staff gage at same site and datum. Auxiliary water-stage recorder 3.7 miles upstream from base gage at same datum.
Average discharge.--11 years (1949-60), 799 cfs (578,500 acre-ft per year).
Extremes.--1949-60: Maximum discharge, 4,630 cfs May 24, 1953; maximum elevation, 24.27 ft May 23, 1953; minimum discharge, 61 cfs Sept. 29, 1956; minimum elevation, 6.78 ft Oct. 28, 1956.
Remarks.--Bayou Teche heads in Bayou Courtableau at Port Barre. At high stages, considerable flow bypasses station via Bayou Courtableau at weirs near Krotz Springs. There is controlled diversion to or from Red River and Old River overflow area through Bayou des Glaises floodgates and to or from west Atchafalaya floodway through Big Darbonne Bayou culvert and since April 1956 through Bayou Courtableau Drainage Structure. Since April 1952, floodflow is diverted from Bayou Rapides (drainage area, 76.1 sq mi) into Bayou Boeuf when stages of Red River make it necessary to close gates at mouth of Bayou Rapides. Records of chemical analyses for the water years 1959-60 are published in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	318	378	623	1,018	1,153	951	1,011	570	226	358	304	351	602
1952	288	245	840	617	1,176	1,038	1,369	1,236	838	668	459	215	748
1953	158	186	954	981	1,211	1,396	1,078	2,921	1,839	896	712	422	1,062
1954	216	340	792	1,126	650	539	1,004	1,522	684	263	287	145	632
1955	559	278	270	993	1,775	959	1,312	1,031	708	924	977	601	860
1956	234	216	917	659	1,410	1,327	1,033	694	424	180	154	157	614
1957	112	244	807	592	716	1,088	1,215	1,035	1,067	1,157	695	648	782
1958	867	1,303	1,265	1,163	1,097	1,060	1,058	1,040	904	850	947	1,012	1,047
1959	912	381	419	769	1,380	1,111	1,101	892	970	727	684	529	819
1960	463	544	884	1,013	1,029	980	859	884	685	539	611	391	740

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	19,580	22,520	38,310	62,570	64,040	58,470	60,160	35,020	13,430	22,020	18,660	20,910	435,700
1952	17,680	14,570	51,630	37,940	67,630	63,820	81,470	75,980	49,890	41,100	28,220	12,780	542,700
1953	8,510	11,080	58,660	60,330	67,250	85,840	64,140	179,600	109,400	55,080	43,800	25,090	768,800
1954	13,260	20,260	48,680	69,260	36,130	33,120	59,730	93,600	40,690	16,180	17,670	8,630	457,200
1955	34,380	16,540	16,630	61,030	98,570	58,940	78,080	63,410	42,130	56,790	60,090	35,760	622,400
1956	14,370	12,870	56,400	40,530	81,080	81,580	61,490	42,700	25,210	11,080	9,450	9,330	446,100
1957	6,890	14,510	49,620	36,410	39,740	66,880	72,320	63,650	63,470	71,130	42,710	38,550	565,900
1958	53,320	77,530	77,810	71,480	60,910	65,170	62,950	63,970	53,770	52,280	58,250	60,220	757,700
1959	56,080	22,670	25,760	47,280	76,640	68,310	65,510	54,850	57,720	44,700	42,060	31,480	591,100
1960	28,470	32,370	54,360	62,290	59,190	60,260	51,110	54,360	40,760	33,140	37,570	23,270	537,200

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1950	-	-	-	-	-	-	858	621,100
1951	1211	2,440	Mar. 28, 1951	175	602	435,700	607	439,200
1952	1241	2,020	Apr. 12, 1952	129	748	542,700	740	537,100
1953	1281	4,630	May 24, 1953	107	1,062	768,800	1,067	772,700
1954	1341	2,180	May 3, 1954	100	632	457,200	611	442,600
1955	1391	2,970	Feb. 6, 1955	146	860	622,400	882	638,400
1956	1441	1,960	Feb. 19, 1956	65	614	446,100	597	433,500
1957	1511	2,330	June 28, 1957	69	782	565,900	972	703,500
1958	1561	1,630	Nov. 24, 1957	387	1,047	757,700	903	653,500
1959	1631	2,110	Feb. 14, 1959	289	819	591,100	834	603,800
1960	1711	2,470	Dec. 17, 1959	212	740	537,200	-	-

3857. Bayou Teche at Keystone Lock, near St. Martinville, La.

Location.--Lat 31°04'15", long 91°49'45", on line between lots 8 and 17, T.11 S., R.6 E., on right bank of concrete lock and dam, 3½ miles south of St. Martinville and 11 miles upstream from Loreauville canal.
Drainage area.--Indeterminate.
Records available.--August 1959 to September 1960. Daily gage heights since July 1913 in reports of Corps of Engineers, New Orleans district.
Gage.--Water-stage recorder. Datum of gage is at mean Gulf level, datum of 1929 (Corps of Engineers bench mark).
Extremes.--1959-60: Maximum discharge, 1,880 cfs Dec. 16, 1959 (gage height, 11.63 ft); minimum daily, 30 cfs Aug. 12, 1959 (gage height, 9.67 ft).
Remarks.--Bayou Teche heads in Bayou Courtableau at Port Barre. At high stages, considerable flow bypasses station via Bayou Courtableau at weirs near Krotz Springs. There is controlled diversion to or from Red River and Old River overflow area through Bayou des Glaises floodgates and to or from West Atchafalaya floodway through Big Darbonne Bayou and Bayou Courtableau culverts. Since April 1952, floodflow is diverted from Bayou Rapides (drainage area, 76.1 sq mi) into Bayou Boeuf when stages of Red River make it necessary to close gates at mouth of Bayou Rapides. Dependent upon its gradient Bayou Fusilier interchanges flow between Bayou Teche and Bayou Vermilion. Water for irrigation is diverted through Ruth Canal (see p. 542) into Bayou Vermilion. Records of chemical analyses for the water year 1960 are given in reports of Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second, of Bayou Teche at Keystone Lock near St. Martinville, La.

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	-	199	182	-
1960	242	437	722	590	430	371	265	203	114	98.5	237	198	326

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	-	12,240	10,830	-
1960	14,880	26,000	44,390	36,280	24,730	22,810	15,770	12,480	6,780	6,060	14,570	11,780	236,500

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1959	-	-	-	-	-	-	-	-
1960	1711	1,880	Dec. 16, 1959	54	326	236,500	-	-

3860. Bayou Carencro near Sunset, La.

Location.--Lat 30°22'35", long 92°02'35", in lot 71, T.8 S., R.4 E., Louisiana meridian, near center of span on downstream side of bridge on U. S. Highway 167, 1½ miles downstream from Texas and New Orleans Railroad bridge, 2¾ miles southeast of Sunset, and 4¾ miles upstream from mouth.

Drainage area.--37.1 sq mi.

Records available.--October 1943 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 12.77 ft above mean sea level (Louisiana Geodetic Survey bench mark; levels by Louisiana Department of Public Works). Prior to Nov. 2, 1950, staff or wire-weight gage at same site and datum. Auxiliary water-stage recorder on Vermilion River 600 ft downstream from mouth of Bayou Carencro. Datum of auxiliary gage is at mean sea level (Louisiana Geodetic Survey bench mark). Prior to Oct. 1, 1948, staff gage for station on Bayou Teche at Arnaudville used as auxiliary gage. Oct. 2, 1948, to Aug. 25, 1959, auxiliary wire-weight gage at same site and datum.

Average discharge.--17 years (1943-60), 53.5 cfs (38,730 acre-ft per year).

Extremes.--1943-60: Maximum discharge, 4,220 cfs Mar. 13, 1947 (gage height, 17.10 ft); no flow for many days in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0.10	0.53	89.2	71.0	84.7	106	22.1	0.22	6.25	11.0	0.13	28.2	34.8
1952	.23	1.30	39.9	1.49	110	4.19	180	51.3	.96	25.4	1.02	.05	34.1
1953	0	4.00	49.0	21.9	158	48.3	137	317	2.49	32.4	94.9	9.75	72.6
1954	.70	2.86	108	73.1	2.23	.68	2.89	12.9	.03	47.3	5.80	.18	21.8
1955	10.6	2.75	1.22	55.6	339	.13	123	46.9	11.6	81.0	28.7	8.12	57.0
1956	2.43	16.3	87.5	8.50	93.5	17.8	1.66	30.7	18.3	3.45	1.09	.07	23.2
1957	.76	7.71	104	4.38	40.0	45.9	44.1	9.34	115	22.7	1.46	55.4	37.4
1958	65.5	76.7	59.3	61.0	36.3	37.1	23.9	7.00	3.90	73.7	27.9	67.2	45.0
1959	25.6	1.03	5.40	160	346	42.1	21.5	53.6	42.4	87.2	76.7	8.36	70.9
1960	11.9	17.8	183	75.7	57.6	22.4	34.0	11.7	.07	.38	6.26	.02	35.2

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	6.0	32	5,480	4,370	4,710	6,520	1,320	14	372	677	7.7	1,680	25,190
1952	14	77	2,460	91	6,340	258	10,700	3,150	57	1,560	62	3.0	24,770
1953	0	238	3,010	1,340	8,790	2,970	8,160	19,510	148	1,990	5,830	580	52,570
1954	43	170	6,670	4,500	124	42	172	759	1.6	2,910	357	11	15,800
1955	651	164	75	3,420	18,810	7.9	7,320	2,880	690	4,980	,770	483	41,250
1956	149	971	5,380	522	5,380	1,090	99	1,890	1,090	212	67	4.2	16,850
1957	47	459	6,370	269	2,220	2,820	2,620	574	6,870	1,400	90	3,290	27,030
1958	4,030	4,570	3,640	3,750	2,010	2,280	1,420	430	232	4,530	1,710	4,000	32,600
1959	1,570	61	332	9,840	19,220	2,590	1,280	3,300	2,520	5,360	4,720	497	51,290
1960	732	1,060	11,250	4,650	3,310	1,380	2,020	719	4.2	23	385	1.2	25,530

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	72.9	26.67	52,780
1951	1211	1,990	Mar. 27, 1951	0	34.8	0.938	12.73	25,190	30.7	11.23	22,220
1952	1241	1,790	Apr. 4, 1952	0	34.1	.919	12.53	24,770	35.1	12.88	25,470
1953	1281	2,660	May 18, 1953	0	72.6	1.96	26.56	52,570	77.6	28.40	56,200
1954	1341	1,520	Dec. 9, 1953	0	21.8	.588	7.98	15,800	13.5	4.95	9,800
1955	1391	3,720	Feb. 5, 1955	0	57.0	1.54	20.84	41,250	64.7	23.68	46,860
1956	1441	1,580	Dec. 2, 1955	0	23.2	.625	8.52	16,850	23.7	8.70	17,230
1957	1511	2,130	June 28, 1957	0	37.4	1.01	13.67	27,030	44.8	16.39	32,390
1958	1561	1,210	Oct. 16, 1957	0	45.0	1.21	16.50	32,600	30.9	11.31	22,320
1959	1631	3,010	Jan. 30, 1959	0.2	70.9	1.91	25.92	51,290	86.2	31.51	62,370
1960	1711	3,310	Dec. 17, 1959	0	35.2	.949	12.89	25,530	-	-	-

3865. Bayou Bourbeau at Shuteston, La.

Location.--Lat 30°25'40", long 92°05'30", in lot 174, T.7 S., R.4 E., Louisiana meridian, near center of span on downstream side of bridge on State Highway 178, three-quarters of a mile east of Shuteston, 1¾ miles northwest of Sunset, and 2 miles upstream from Bayou Sylvain and Texas and New Orleans Railroad Co. bridge.

Drainage area.--19.0 sq mi.

Records available.--October 1942 to September 1960.

Gage.--Water-stage recorder. Datum of gage is 27.14 ft above mean sea level (Louisiana Geodetic Survey bench mark; levels by Louisiana Department of Public Works). Prior to Dec. 8, 1948, staff gage at same site and datum.

Average discharge.--18 years (1942-60), 26.2 cfs (18,970 acre-ft per year).

Extremes.--1942-60: Maximum discharge, 2,840 cfs Jan. 13, 1947 (gage height, 10.8 ft, from graph based on gage readings), from rating curve extended above 1,400 cfs; no flow for many days in each year.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	33.0	46.4	68.4	54.9	0.44	0.10	4.32	34.9	0.36	37.0	23.1
1952	.28	2.40	23.8	1.85	39.0	3.98	114	37.0	2.08	9.16	1.47	0	19.4
1953	0	3.87	29.5	15.6	55.5	48.1	64.9	188	.03	23.3	19.3	2.74	37.7
1954	0	2.84	35.8	31.0	1.82	.29	.30	16.9	.003	11.6	2.54	0	8.74
1955	11.9	1.66	3.07	25.8	170	.17	49.1	20.9	1.27	20.0	14.9	1.49	25.7
1956	.40	5.24	46.1	2.65	47.8	9.77	5.58	23.3	6.78	3.63	4.31	1.93	13.0
1957	.05	6.76	61.4	.15	13.9	24.3	33.5	3.05	73.4	4.79	1.68	38.0	21.6
1958	29.5	50.1	45.2	38.5	17.3	23.3	8.08	10.3	11.4	21.5	10.3	21.8	24.0
1959	7.91	.32	2.90	66.1	109	15.5	16.8	32.1	35.3	48.1	26.4	2.31	29.7
1960	2.98	7.66	75.7	30.8	26.4	6.36	7.78	8.55	1.20	1.70	3.72	1.11	14.5

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1951	0	0	2,030	2,850	3,800	3,370	26	6.3	257	2,140	22	2,200	16,700
1952	17	143	1,460	114	2,240	245	6,790	2,270	124	564	91	0	14,060
1953	0	230	1,810	956	3,080	2,960	3,860	11,580	2.0	1,430	1,190	163	27,260
1954	0	169	2,200	1,910	101	18	18	1,040	.2	716	156	0	6,330
1955	731	99	189	1,580	9,460	11	2,920	1,290	76	1,230	916	88	18,590
1956	25	312	2,840	163	2,750	601	332	1,430	404	223	265	115	9,460
1957	3.2	402	3,780	9.1	771	1,490	1,990	188	4,370	294	103	2,260	15,660
1958	1,820	2,980	2,780	2,370	958	1,430	481	632	677	1,320	632	1,290	17,370
1959	486	19	178	4,060	6,050	953	1,000	1,970	2,100	2,960	1,620	137	21,500
1960	183	456	4,650	1,890	1,520	391	463	526	71.4	105	229	66.0	10,550

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30							Calendar year		
		Momentary maximum		Minimum day	Mean	Per square mile	Runoff		Mean	Runoff	
		Discharge	Date				Inches	Acre-feet		Inches	Acre-feet
1950	-	-	-	-	-	-	-	-	37.1	26.50	26,850
1951	1211	919	Mar. 27, 1951	0	23.1	1.22	16.50	16,700	22.5	16.10	16,290
1952	1241	919	Apr. 4, 1952	0	19.4	1.02	13.87	14,060	19.9	15.29	14,480
1953	1281	1,310	May 18, 1953	0	37.7	1.98	26.87	27,260	38.1	27.19	27,590
1954	1341	323	May 3, 1954	0	8.74	.460	6.25	6,330	6.87	4.92	4,980
1955	1391	2,000	Feb. 5, 1955	0	25.7	1.35	18.33	18,590	28.7	20.45	20,750
1956	1441	1,070	Dec. 2, 1955	0	13.0	.684	9.33	9,460	14.4	10.33	10,450
1957	1511	1,390	June 28, 1957	0	21.6	1.14	15.46	15,660	26.3	18.80	19,060
1958	1561	625	Oct. 16, 1957	0	24.0	1.26	17.12	17,370	14.5	10.33	10,500
1959	1631	1,580	Jan. 30, 1959	0	29.7	1.56	21.29	21,500	36.1	25.83	26,140
1960	1711	1,830	Dec. 16, 1959	0	14.5	.763	10.42	10,550	-	-	-

3867. Ruth Canal near Ruth, La.

Location.--Lat 30°14'35", long 91°53'05", in NE¼NW¼ sec.95, T.9 S., R.6 E., near center of span on downstream side of bridge on State Highway 31, 1,500 ft downstream from point of diversion from Bayou Teche, 0.4 mile northwest of Ruth, and 2.2 miles south of Breaux Bridge.

Drainage area.--Indeterminate.

Records available.--August 1959 to September 1960. Gage heights only May 1945 to June 1946 (fragmentary) and January 1947 to September 1960 in reports of Corps of Engineers, New Orleans district.

Gage.--Water-stage recorder. Datum of gage is at mean sea level (Corps of Engineers bench mark). Auxiliary water-stage recorder 150 ft below control structure at same datum.

Extremes.--1959-60: Maximum daily discharge during water year, 573 cfs May 10, 1960; minimum daily, 19 cfs Sept. 27, 1960.

Remarks.--Total flow through control structure diverted from Bayou Teche. Diversions are for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	-	-	232	-
1960	138	23.5	26.8	185	336	347	361	425	365	294	270	191	247

Monthly and yearly discharge, in acre-feet

Water year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	The year
1959	-	-	-	-	-	-	-	-	-	-	-	13,800	-
1960	8,480	1,400	1,650	11,380	19,330	21,340	21,480	26,130	21,720	18,080	16,600	11,360	179,000

Yearly discharge, in cubic feet per second

Year	WSP	Water year ending Sept. 30					Calendar year	
		Momentary maximum		Minimum day	Mean	Acre-feet	Mean	Acre-feet
		Discharge	Date					
1959	-	-	-	-	-	-	-	-
1960	1711	573	May 10, 1960	19	247	179,000	-	-

REVISIONS AND CORRECTIONS TO RECORDS PUBLISHED IN WSP 1311 FOR STATIONS DISCONTINUED PRIOR TO SEPTEMBER 30, 1950

3380. Little River near Idabel, Okla.

Corrections.--In WSP 1311, the monthly runoffs for March and April 1935 are listed in error; they should be 340,000 and 215,000 acre-ft, respectively.

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U.S. GOVERNMENT PRINTING OFFICE: 1964 O - 729-808