

STATISTICAL SUMMARIES OF STREAMFLOW RECORDS IN OKLAHOMA AND PARTS OF ARKANSAS, MISSOURI, AND TEXAS THROUGH 1984

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**Oklahoma City, Oklahoma
1988**

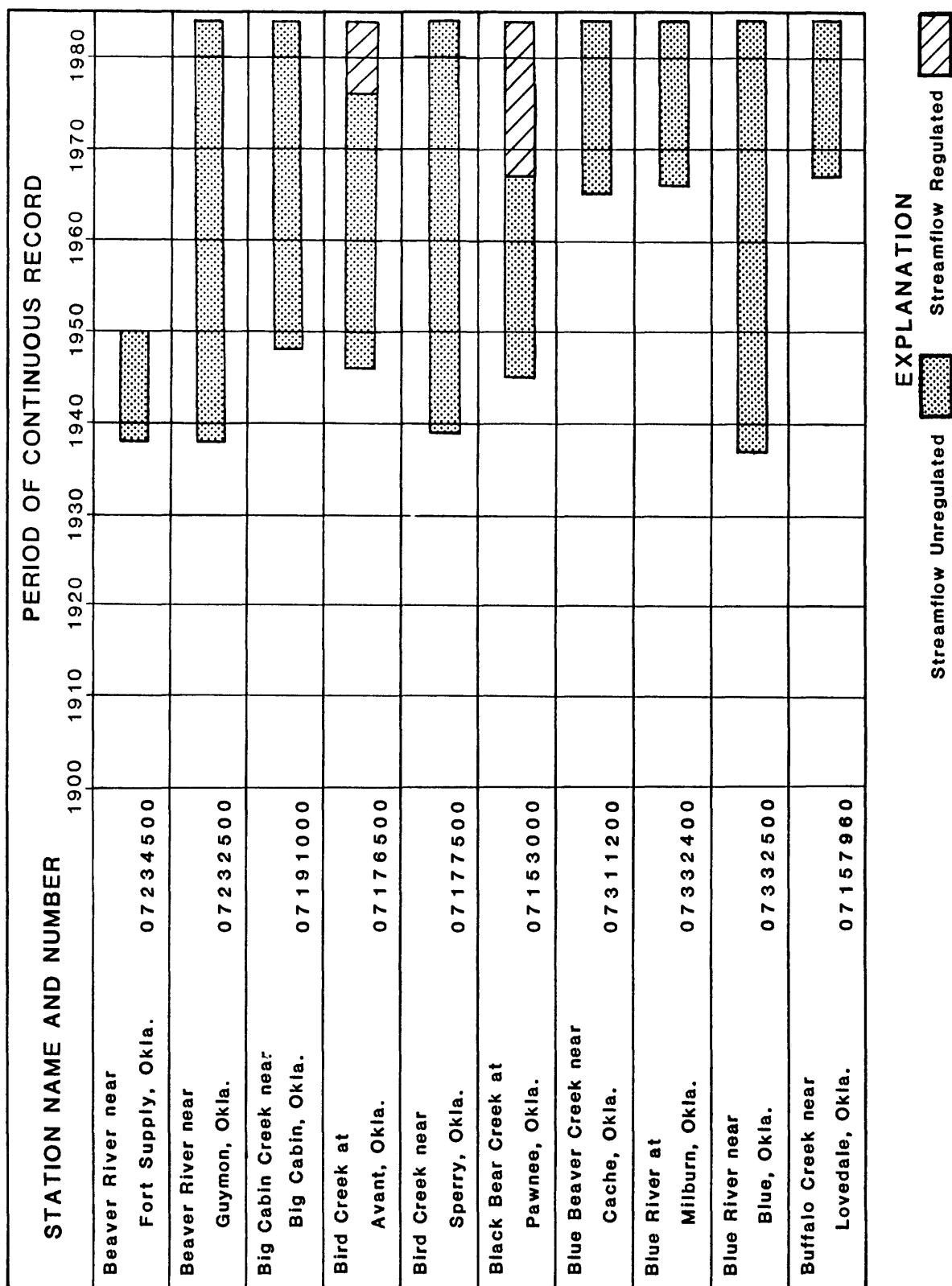


Figure 2.--Summary of streamflow records.--Continued

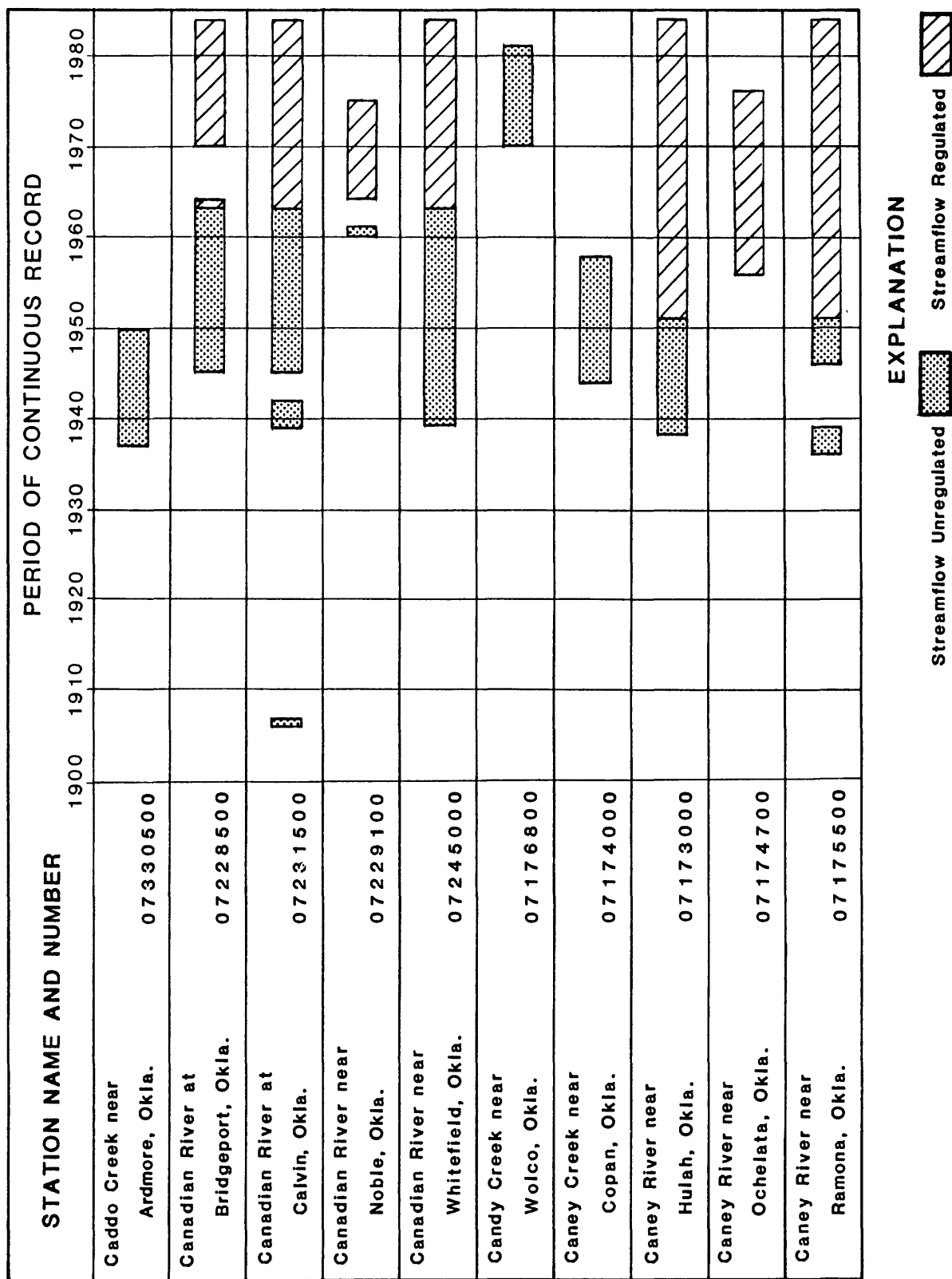


Figure 2.--Summary of streamflow records.--Continued

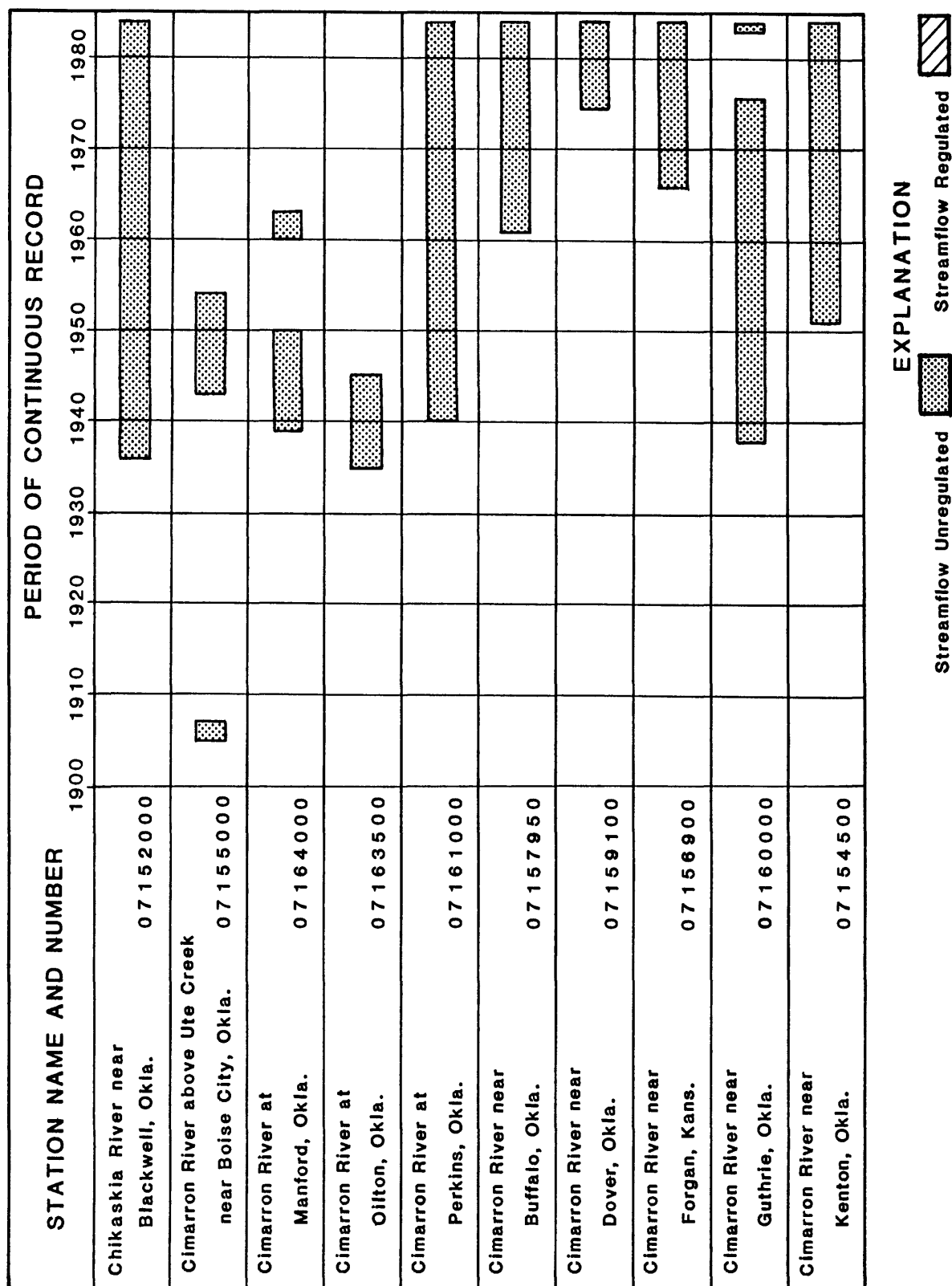
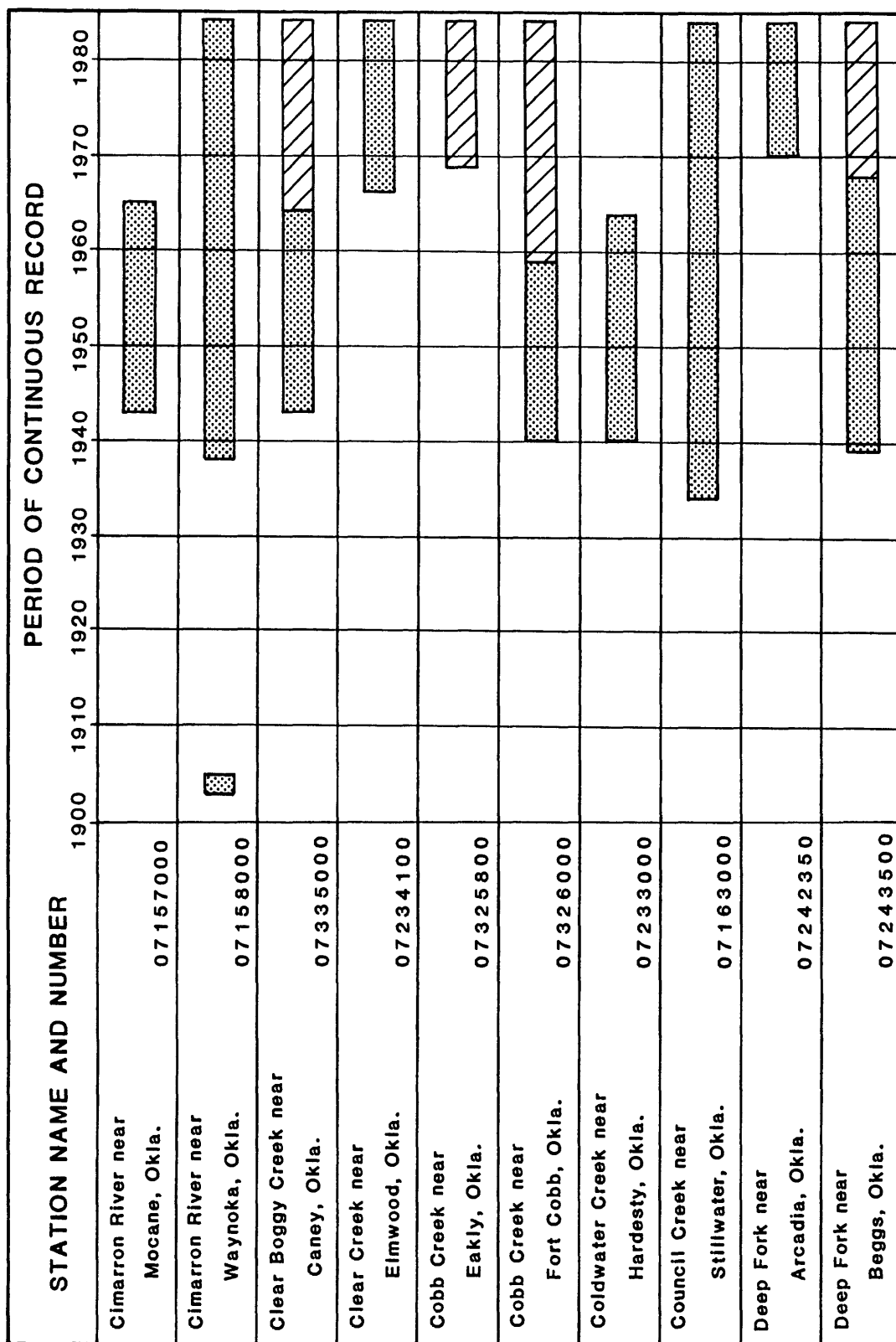


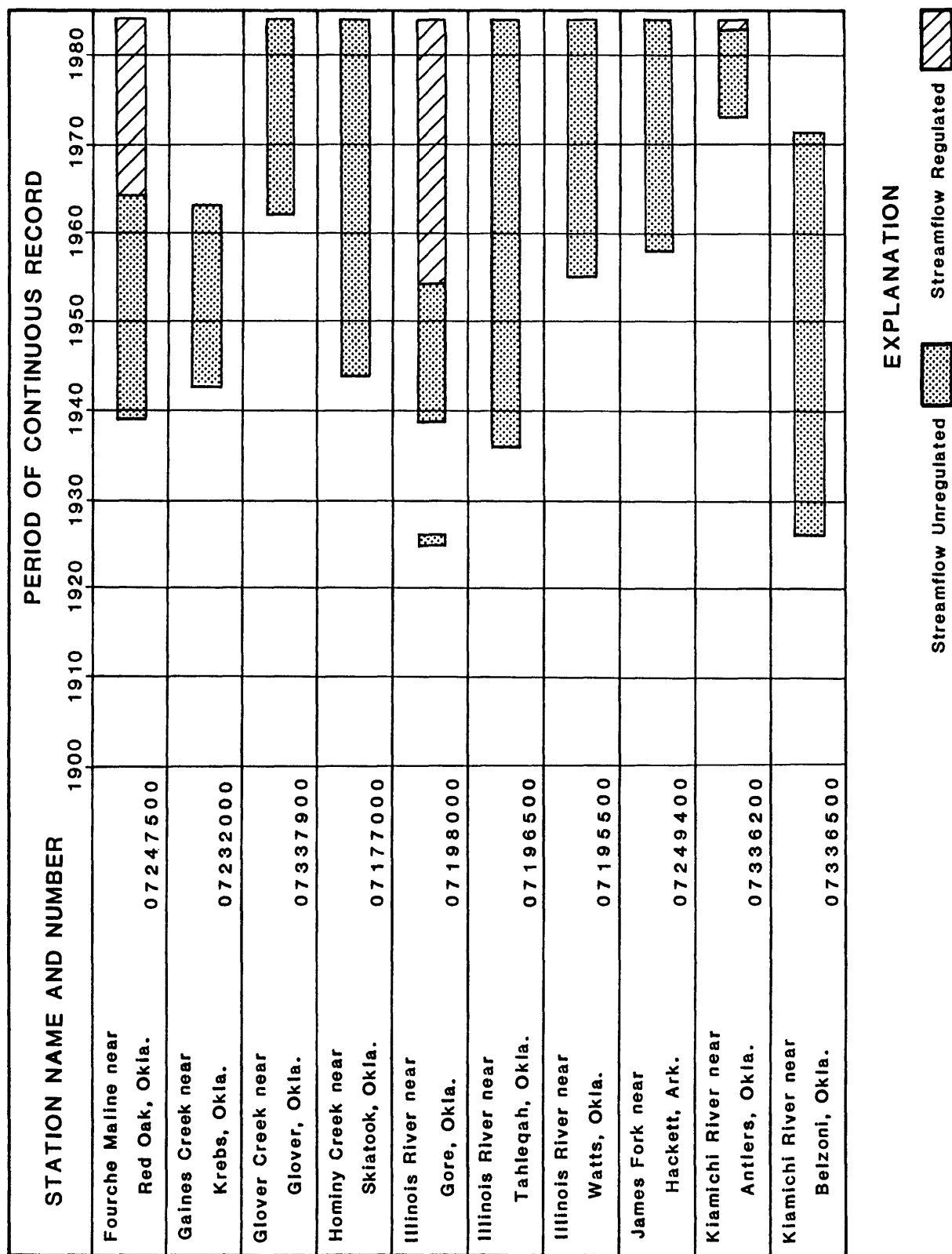
Figure 2.--Summary of streamflow records.--Continued



EXPLANATION



Figure 2.--Summary of streamflow records.--Continued



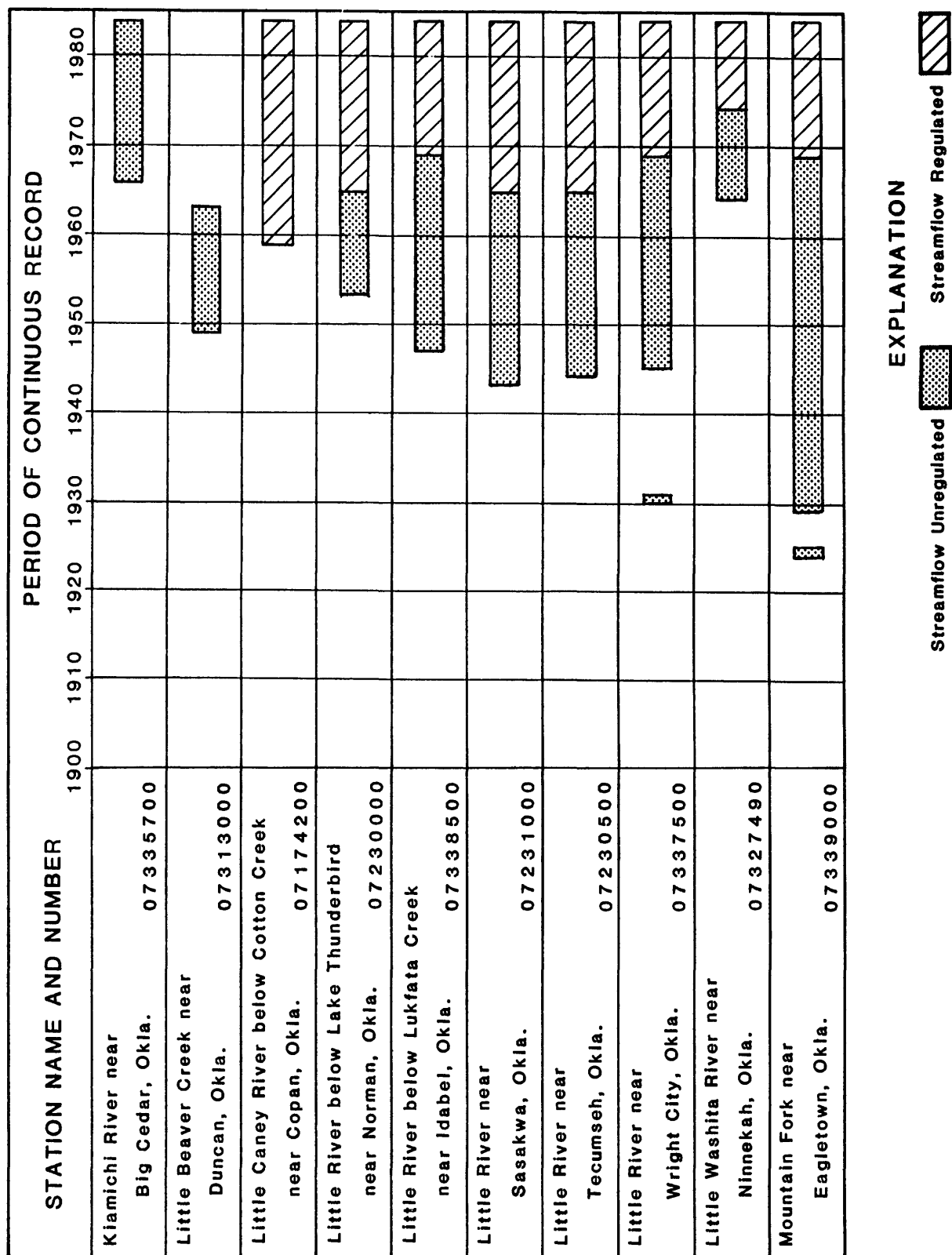
EXPLANATION

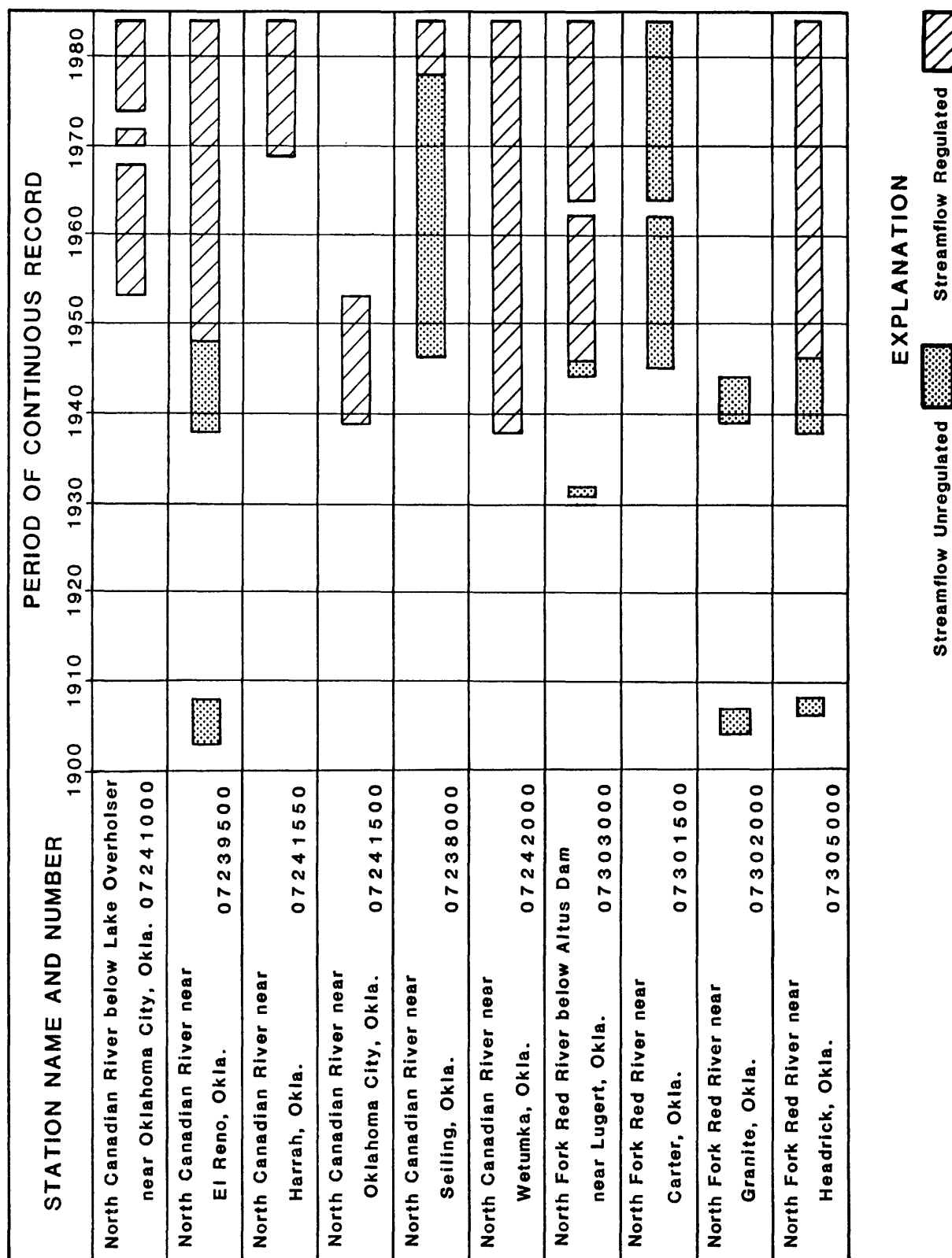


Streamflow Unregulated

Streamflow Regulated

Figure 2.--Summary of streamflow records.--Continued

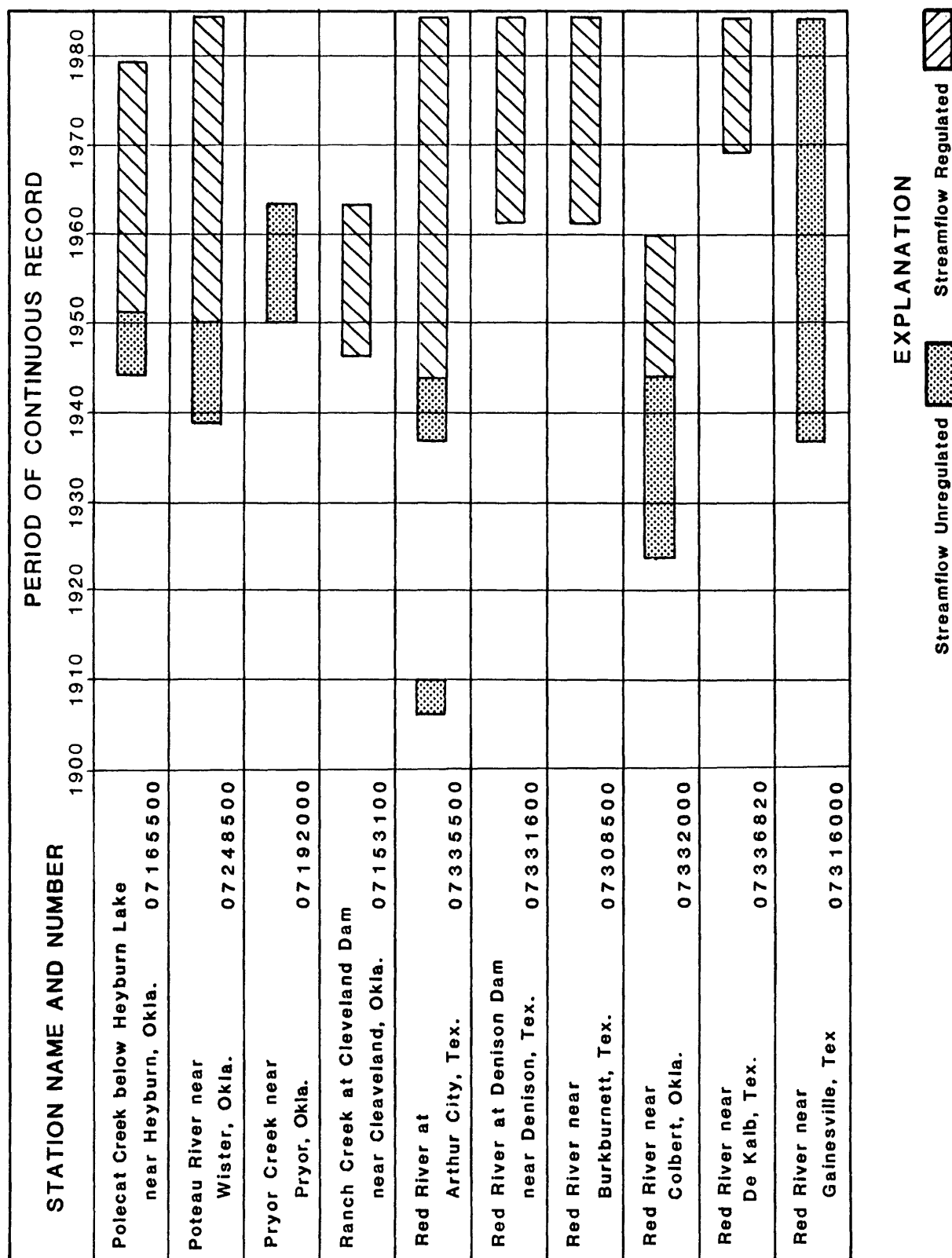




EXPLANATION



Figure 2.—Summary of streamflow records.—Continued



EXPLANATION



Streamflow Unregulated



Streamflow Regulated

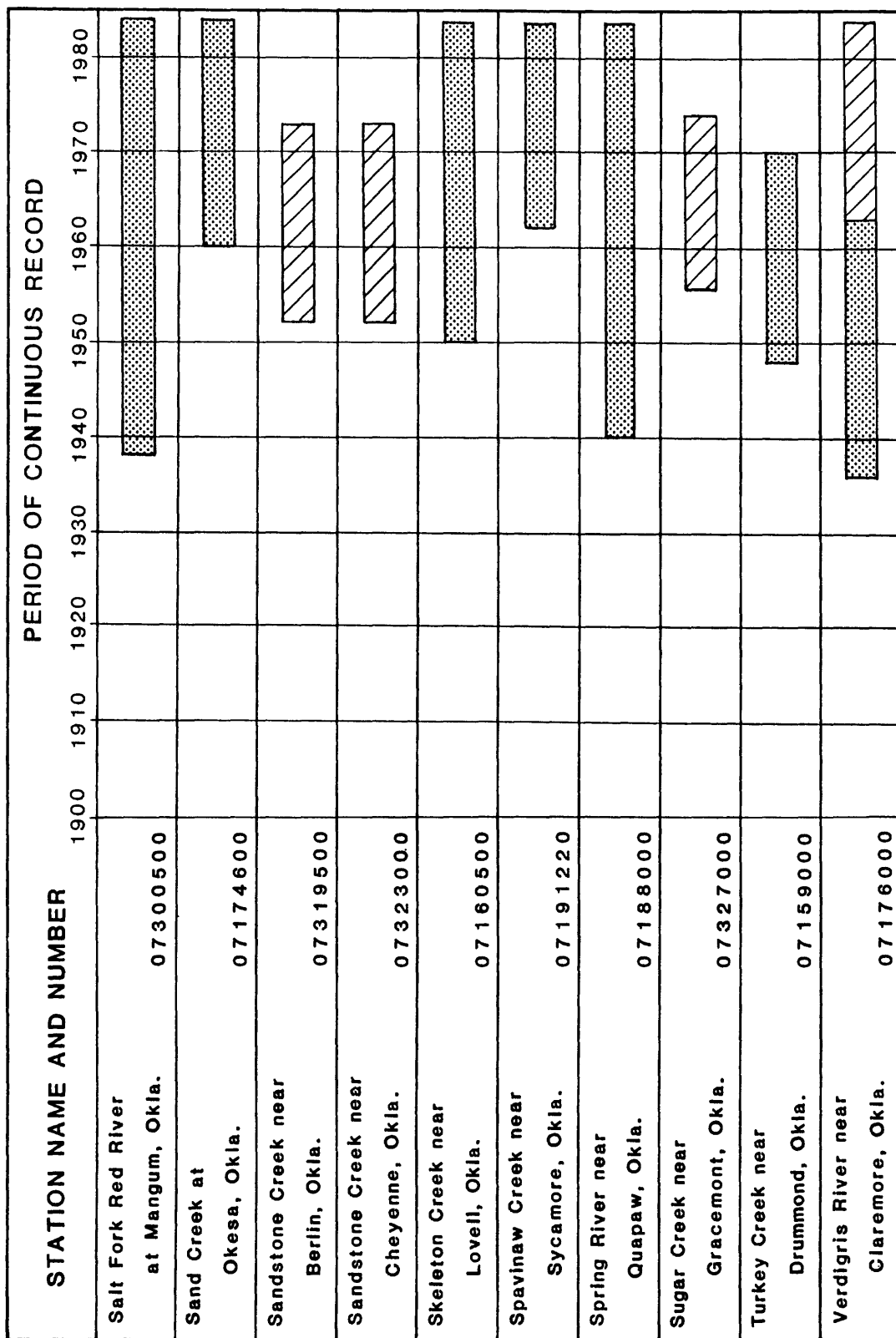
Figure 2.--Summary of streamflow records.--Continued

STATION NAME AND NUMBER	PERIOD OF CONTINUOUS RECORD										
	1900	1910	1920	1930	1940	1950	1960	1970	1980		
Red River near Terral, Okla. 07315500											
Rush Creek at Purdy, Okla. 07329000											
Rush Creek near Maysville, Okla. 07329500											
Sallisaw Creek near Sallisaw, Okla. 07245500											
Salt Creek near Okeene, Okla. 07158400											
Salt Fork Arkansas River at Tonkawa, Okla. 07151000											
Salt Fork Arkansas River near Alva, Okla. 07149400											
Salt Fork Arkansas River near Cherokee, Okla. 07149500											
Salt Fork Arkansas River near Jet, Okla. 07150500											
Salt Fork Arkansas River near Winchester, Okla. 07148350											

EXPLANATION

 Streamflow Unregulated
  Streamflow Regulated

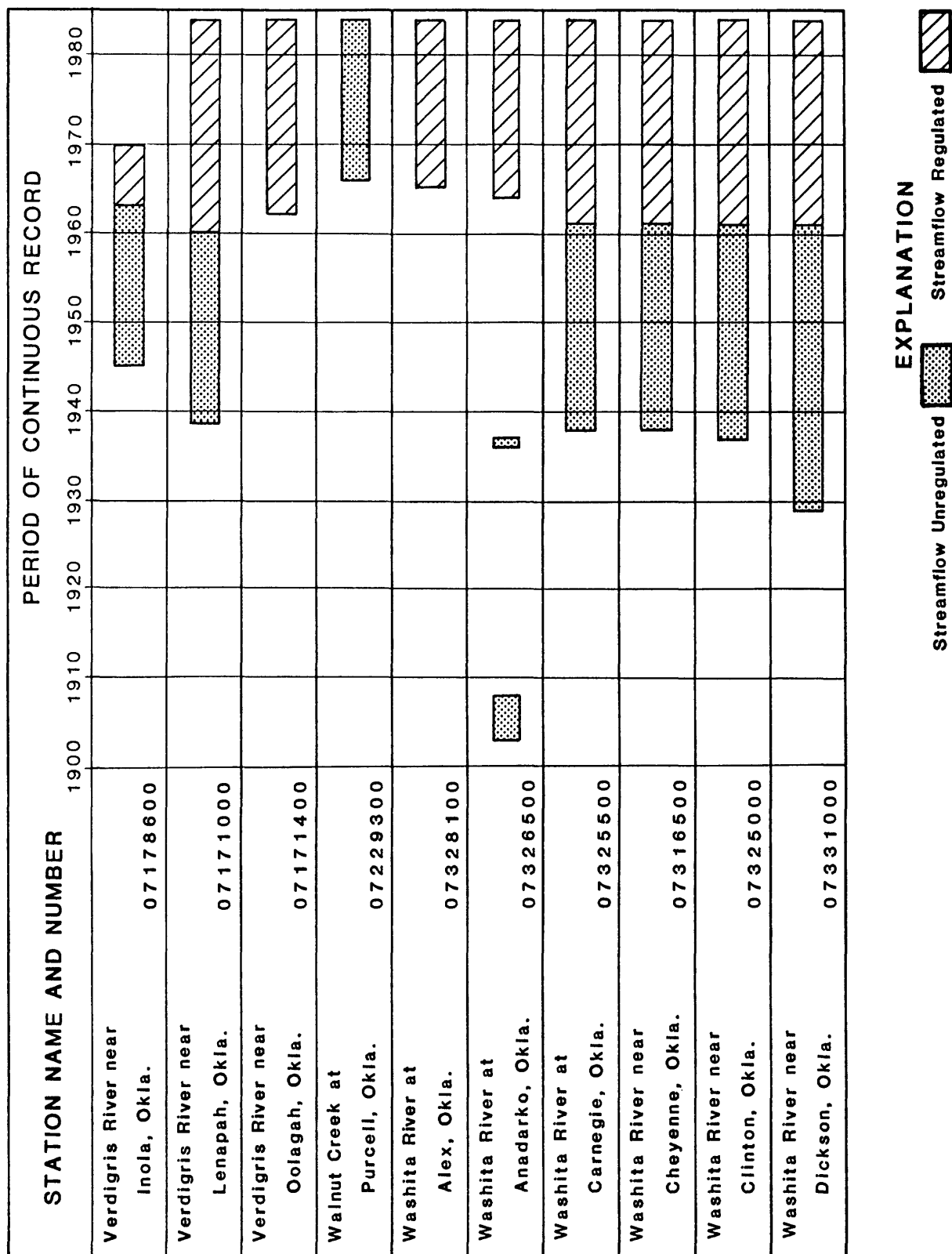
Figure 2.—Summary of streamflow records.—Continued



EXPLANATION



Figure 2.--Summary of streamflow records.--Continued



EXPLANATION



Streamflow Regulated



Streamflow Unregulated

Figure 2.--Summary of streamflow records.--Continued

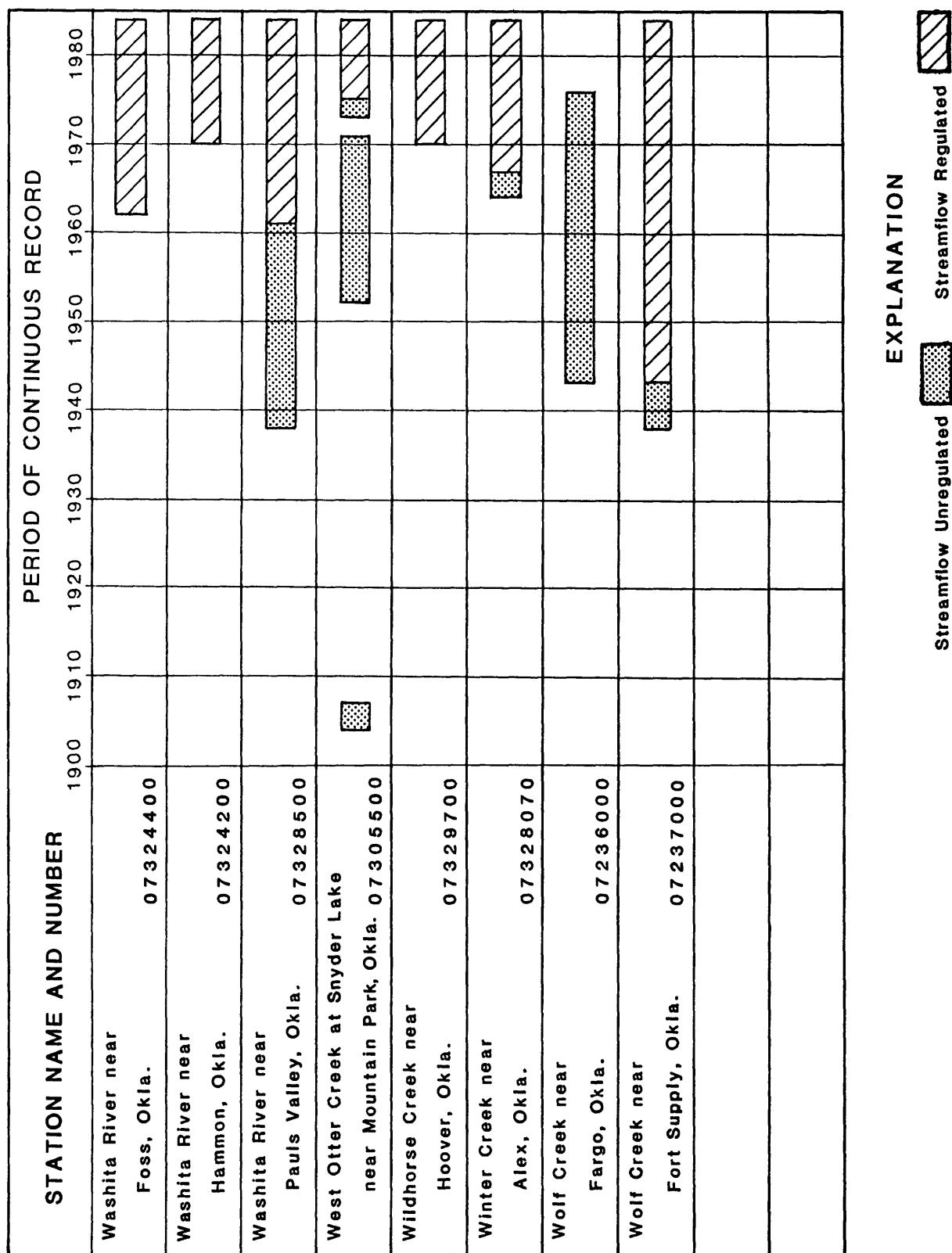


Figure 2.--Summary of streamflow records.--Continued

Monthly and annual discharges

This table lists the maximum, minimum, and mean discharges for each month, corresponding standard deviation, coefficient of variation (the standard deviation divided by the mean), and percent of annual runoff, based on the period of record. Also included in the table are the annual (water year - October 1 to September 30) values for each of the above statistical characteristics.

Low-flow frequency

A frequency curve relates magnitude of a variable (for example, low flows, high flows, instantaneous peak flows) to frequency of occurrence. The data listed in this table were produced by fitting the logarithms of annual "y"-day low flows to a Pearson Type III distribution. The frequency curve is an estimate of the cumulative distribution of a population of a variable, in this case low flow, and is prepared from a sample of data corresponding to the period of record used.

The low-flow frequency data show lowest mean discharges for consecutive periods of 1, 3, 7, 14, 30, 60, 90, 120, and 183 days and corresponding recurrence intervals of 2, 5, 10, and 20 years. Included in this table are corresponding non-exceedance probabilities of 50, 20, 10, and 5 percent, respectively.

Recurrence intervals of hydrologic events are usually stated in years and thus are reciprocals of probabilities of exceedance or non-exceedance in one year. Discharges in the low-flow table can be interpreted in the following manner: The low flow corresponding to any "x"-recurrence interval and "y"-consecutive period of days can be expected to be less on the average once every "x"-years; similarly, a low flow corresponding to any given "x"-percent non-exceedance probability and "y"-consecutive period of days will have a "x"-percent chance of being less than the indicated value in any given year.

Low flows are calculated based on a climatic year (April 1 to March 31); thus the period of record for a climatic year is one year less than for a water year (Riggs, 1972). The values listed in the table were computed from U.S. Geological Survey computer program Daily Values Statistics (Program A969) utilizing days of zero flow rather than omitting zero flow days as was done previously. Due to this updated method of computation, values in this report may differ from those in Huntzinger (1978b), because the frequency analysis for that study was determined graphically. These differences are especially significant for streams in drier regions of Oklahoma.

The low-flow frequency curves for given "y"-day periods were computed independently, and with the inclusion of zero-flow days, some frequency curves overlapped each other. This caused some low flows for higher recurrence intervals to be larger than low flows for lower recurrence intervals and low flows within the same recurrence interval to be smaller for larger periods of consecutive days than smaller periods of consecutive days. These overlaps in the data are referred to as data reversals. Tables for 25 streamflow stations had to be corrected graphically for data reversals. An average of 3 values per station were corrected in this manner.

High-flow frequency

This table lists statistical data necessary to plot high-flow frequency curves that were produced by fitting the logarithm of annual "y"-day high flow to a Pearson type III distribution. The data show the highest mean discharges for consecutive periods of 1, 3, 7, 15, 30, 60, and 90 days and corresponding recurrence intervals of 2, 5, 10, 25, 50, and 100 years. Included in this table are corresponding exceedance probabilities of 50, 20, 10, 4, 2, and 1 percent, respectively.

Discharges in the high-flow table can be interpreted in the following manner: The high-flow corresponding to any "x"-year recurrence interval and "y" consecutive period of days can be expected to be exceeded on the average once every "x" years; similarly, a high flow corresponding to any given "x"-percent non-exceedance probability and "y" consecutive period of days will have a "x"-percent chance of being exceeded in any given year.

Frequency curves for 13 streamflow stations had to be corrected graphically for data reversals. An average of 4 values per station were corrected in this manner.

Peak-flow frequency

This table lists statistical data necessary to plot peak-flow frequency curves using the log-Pearson Type III frequency distribution. The frequency distributions used to describe low flows, high flows, and instantaneous peak flows are generally nonsymmetrical, that is, they do not follow a normal distribution. For such distributions, the mean, median, and mode have different values that correspond to different probabilities on the cumulative graph. These nonsymmetrical distributions are classified as skewed (Riggs, 1968a). Skewness may be shown graphically as right or left relative to a normal distribution; or, as in this case, it is described mathematically by a number, either positive or negative. These skew values are used in the calculation of the frequency curve statistics. Skew values are commonly reported with instantaneous peak-flow statistics but not with low- or high-flow statistics.

The type of skew used, along with its value, is listed at the bottom of the peak-flow frequency table. For those unregulated streamflow stations with a drainage area of less than 2,500 square miles, the skew was determined using a generalized skew map developed for Oklahoma streams by Tortorelli and Bergman (1985) and weighted with the station skew as described in Bulletin 17B (U.S. Water Resources Council, 1981). The mean square error of the Oklahoma generalized skew map was used in this weighting process (Tortorelli and Bergman, 1985). For those unregulated streamflow stations with a drainage area of more than 2,500 square miles the generalized skew was weighted with the station skew in accordance with procedures developed by the Water Resources Council (1981). The mean square error of the Water Resources Council generalized skew map was used in this weighting process.

For streamflow stations regulated by floodwater-retarding structures with a drainage area of less than 2,500 square miles, the skew was developed by weighting the Oklahoma generalized skew with the station skew. When a station was regulated by features other than floodwater-retarding structures regardless of drainage area, only a station skew was used. No station with a drainage area of more than 2,500 square miles was regulated solely by floodwater-retarding structures.

The discharge values in the table represent peak flows for recurrence intervals of 2, 5, 10, 25, 50, and 100 years. Included are the corresponding annual exceedance probabilities of 50, 20, 10, 4, 2, and 1 percent, respectively. The peak discharge values in the table are interpreted in the same manner as the high-flow values discussed previously.

Flow duration

This table lists data to plot a flow-duration curve. The flow values are those that can be expected to be exceeded for the corresponding percent of time, based on the period of record.

Daily-flow-Duration Hydrographs

This graph shows the 20-, 50-, and 80-percent probability of exceedance daily-flow values for the specified period of unregulated or regulated record. For computational purposes the duration periods are limited to periods of 9, 19, 29, 39, and 49 water years. Therefore, the period of record used to compute the hydrographs for a given station may be less than the actual period of record available for the station. In all cases, however, the beginning year of the plotting period was adjusted so that the final year of the station record was included in the plot. The daily flow-duration hydrographs were developed using data processed by computer Program K956 (Wilson, 1981).

Data for two stations, Salt Fork Red River at Mangum, Oklahoma (station number 07300500), and North Fork Red River below Altus Dam, near Lugert, Oklahoma (station number 07303000) were not plotted because there were too many zero value days in the data for the plotting program to calculate position points.

Values for the 0, 10, 30, 70, 90, and 100 percent probability of exceedance are also available for each station included in this report and may be obtained from the U.S. Geological Survey, Water Resources Division, Oklahoma City, Oklahoma.

SELECTED REFERENCES

- Hendricks, E.L., 1964, Compilation of records of surface waters of the United States, October 1950 to September 1960, Part 7. Lower Mississippi River Basin: U.S. Geological Survey Water-Supply Paper 1731, 552 p.
- Huntzinger, T.L., 1978a, High-flow frequencies for selected streams in Oklahoma: U.S. Geological Survey Open-File Report 78-161, 30 p.
- _____, 1978b, Low-flow characteristics of Oklahoma streams: U.S. Geological Survey Open-File Report 78-166, 93 p.
- Kirby, William, 1981, Annual flood frequency analysis using U.S. Water Resources Council guidelines (Program J407), chapter I, section C, of WATSTORE user's guide: U.S. Geological Survey Open-File Report 79-1336-I, v. 4, p. C-1 to C-57.
- Meeks, W.C., 1984, Daily values statistics (Program A969) [revised by George R. Dempster, Jr.], chapter IV, section G, of WATSTORE user's guide: U.S. Geological Survey Open-File Report 75-426, v. 1, p. G-1 to G-38.
- Mize, L.D., 1975, Statistical Summaries of Streamflow Records, Oklahoma, through 1974: U.S. Geological Survey open-file report, 399 p.
- Price, W.E., Jr., and Meeks, W.C., 1977, Daily values monthly and annual statistics (Program W4422), chapter IV, section F, of WATSTORE user's guide: U.S. Geological Survey Open-File Report 75-426, v. 1, p. F-1 to F-46.
- Riggs, H.C., 1968a, Some statistical tools in hydrology: U.S. Geological Survey Techniques of Water-Resources Investigations, book 4, chap. A1, 39 p.
- _____, 1968b, Frequency curves: U.S. Geological Survey Techniques of Water-Resources Investigations, book 4, chap. A2, 15 p.
- _____, 1972, Low-flow Investigations: U.S. Geological Survey Techniques of Water-Resources Investigations, book 4, chap. B1, 18 p.
- Sauer, V.B., 1974, Flood characteristics of Oklahoma streams: U.S. Geological Survey Water-Resources Investigations Report 52-73, 301 p.
- Tortorelli, R.L., and Bergman, D.L., 1985, Techniques for estimating flood peak discharges for unregulated streams and streams regulated by small floodwater-retarding structures in Oklahoma: U.S. Geological Survey Water-Resources Investigations Report 84-4358, 85 p.
- U.S. Water Resources Council, 1981, Guidelines for determining flood flow frequency: Hydrology Committee Bulletin 17B, 28 p.

Wells, J.V.B., 1955, Compilation of records of surface waters of the United States through September 1950, Part 7. Lower Mississippi River Basin: U.S. Geological Survey Water-Supply Paper 1311, 606 p.

Wilson, T.A., 1981, Daily values duration hydrograph tables and plots (Program K956), chap. IV, section I, of WATSTORE user's guide: U.S. Geological Survey Open-File Report 75-426, v. 1, p. I-1 to I-15.

ARKANSAS RIVER BASIN

07146500 ARKANSAS RIVER AT ARKANSAS CITY, KS

LOCATION.--Lat 37°03'23", long 97°03'32", in NE 1/4 NE 1/4 NE 1/4 sec.35, T.34 S., R.3 E., Cowley County, near left bank at downstream side of bridge on U.S. Highway 166, 0.1 mi downstream from St. Louis-San Francisco Railway Co. bridge, 0.5 mi west of Arkansas City, 5.4 mi upstream from Walnut River, and at mile 701.4.

DRAINAGE AREA.--43,713 mi², of which 7,607 mi² is probably noncontributing.

PERIOD OF RECORD.--September 1902 to September 1906, September 1921 to September 1975. Published as "near Arkansas City" 1903-4. Monthly discharge only for some periods,published in Water Supply Paper (WSP) 1311.

REMARKS.--Flow moderately regulated since 1943 by John Martin Reservoir and further regulated since 1964 by Cheney Reservoir. Natural flow of stream affected by transmountain diversions, storage reservoirs, power developments, ground-water withdrawals, diversions for irrigation, and return flow from irrigated areas.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1903-05, 1922-42

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	5470	20	956	1390	1.5	5.9
NOVEMBER	2690	8.3	795	661	0.83	4.9
DECEMBER	1640	18	565	405	0.72	3.5
JANUARY	1590	84	512	372	0.73	3.2
FEBRUARY	1850	42	634	434	0.68	3.9
MARCH	2330	37	821	589	0.72	5.1
APRIL	5280	118	1380	1410	1.0	8.5
MAY	8270	448	2420	2130	0.88	14.9
JUNE	16000	279	3780	3770	1.0	23.3
JULY	11000	112	2040	2410	1.2	12.6
AUGUST	9130	65	1330	1810	1.4	8.2
SEPTEMBER	3260	153	961	899	0.94	5.9
ANNUAL	3670	366	1350	804	0.60	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1904-05, 1923-42

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	116	48	28	18
3	125	52	31	19
7	137	62	39	26
14	149	77	54	40
30	193	103	73	55
60	292	150	101	70
90	352	191	136	101
120	384	233	183	152
183	485	310	256	222

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1903-05, 1922-42

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
14900	31000	44600	65000	82200	101000

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.210

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	14600	29400	40700	55900	67700	79600
3	12300	24800	34100	46400	64600	64600
7	8900	18100	25000	34400	41600	48800
15	6220	12500	17200	23500	28300	33100
30	4490	8700	11800	15700	18600	21500
60	3200	6120	8310	11200	13500	15800
90	2540	4770	6450	8700	10500	12200

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1903-05, 1922-42

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
14200	5100	2820	1950	1530	1040	756	580	462	367	282	179	113	41	17	9.5	5.7

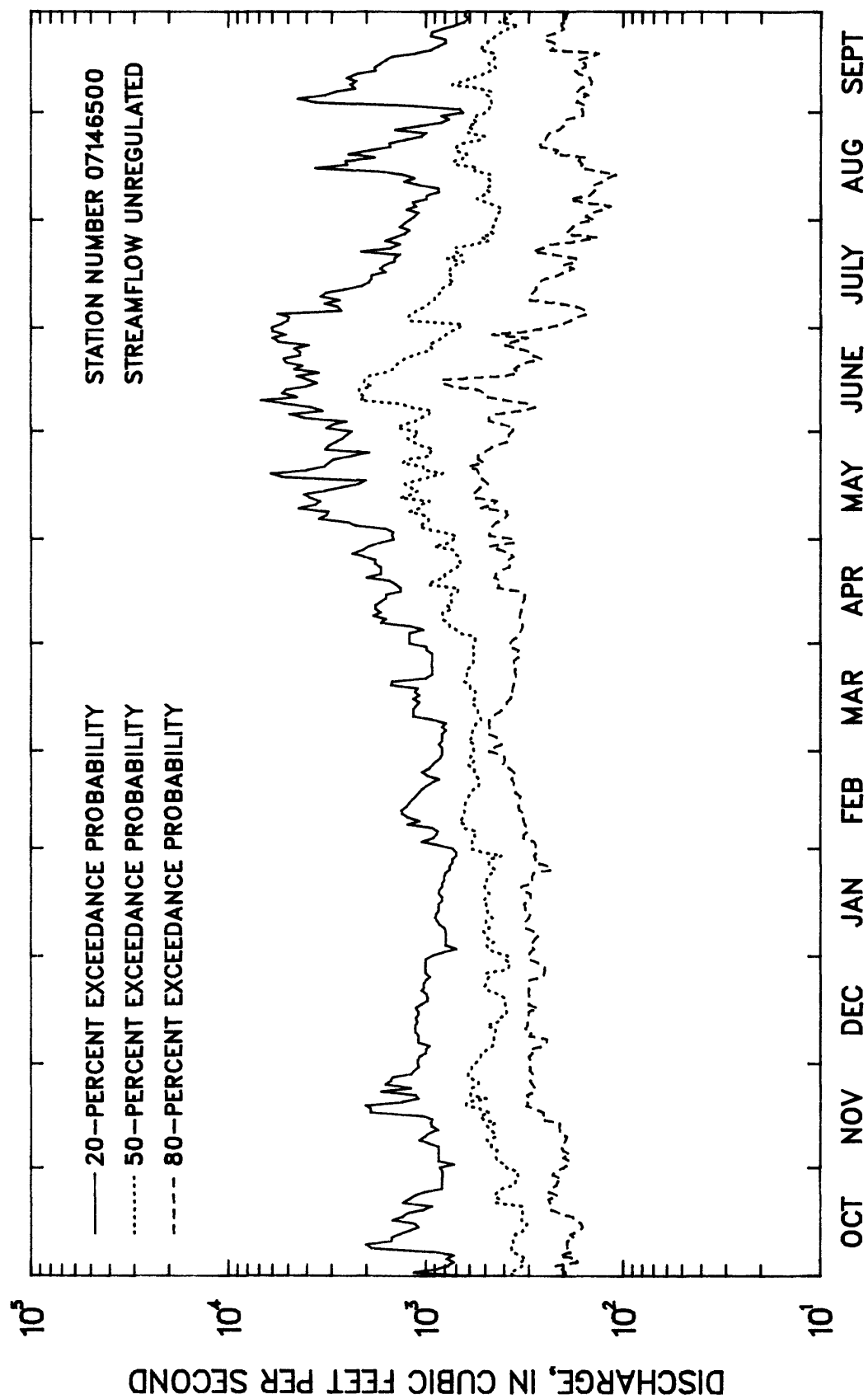


Figure 3.—Duration hydrographs of daily discharge values for Arkansas River at Arkansas City, Kansas, water years 1924–1942 (streamflow unregulated).

ARKANSAS RIVER BASIN

07146500 ARKANSAS RIVER AT ARKANSAS CITY, KS--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1943-76

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	18900	65	2240	3310	1.5	8.5
NOVEMBER	5780	129	1430	1290	0.90	5.5
DECEMBER	3910	146	1150	835	0.73	4.4
JANUARY	3670	127	1130	749	0.66	4.3
FEBRUARY	9660	231	1490	1620	1.1	5.7
MARCH	14600	377	2220	2620	1.2	8.5
APRIL	14800	439	2850	3410	1.2	10.9
MAY	15900	334	3290	3390	1.0	12.6
JUNE	13000	248	3580	3450	0.96	13.6
JULY	17200	190	3090	3910	1.3	11.8
AUGUST	13300	67	1770	2440	1.4	6.8
SEPTEMBER	7870	32	1970	1950	0.99	7.5
ANNUAL	5830	463	2190	1280	0.58	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1944-76

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	319	145	86	53
3	339	153	90	55
7	372	163	95	57
14	405	178	105	65
30	483	214	127	78
60	645	288	169	102
90	781	366	218	132
120	852	415	255	161
183	1070	507	317	205

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1943-76

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 34 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
22100	41900	57000	77600	93700	110000
STATION SKEW = -0.368					

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	21100	39800	53800	72600	87100	102000
3	17100	32300	43500	58100	69000	79800
7	12100	23100	31400	42700	51600	60800
15	8350	16300	22500	31300	38400	45900
30	6010	11800	16600	23700	29700	36300
60	4330	8570	12200	17700	22500	27900
90	3650	6910	9550	13400	16600	20100

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1943-76

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
22000	8210	4450	3110	2460	1740	1330	1070	858	666	509	343	228	117	74	45	27

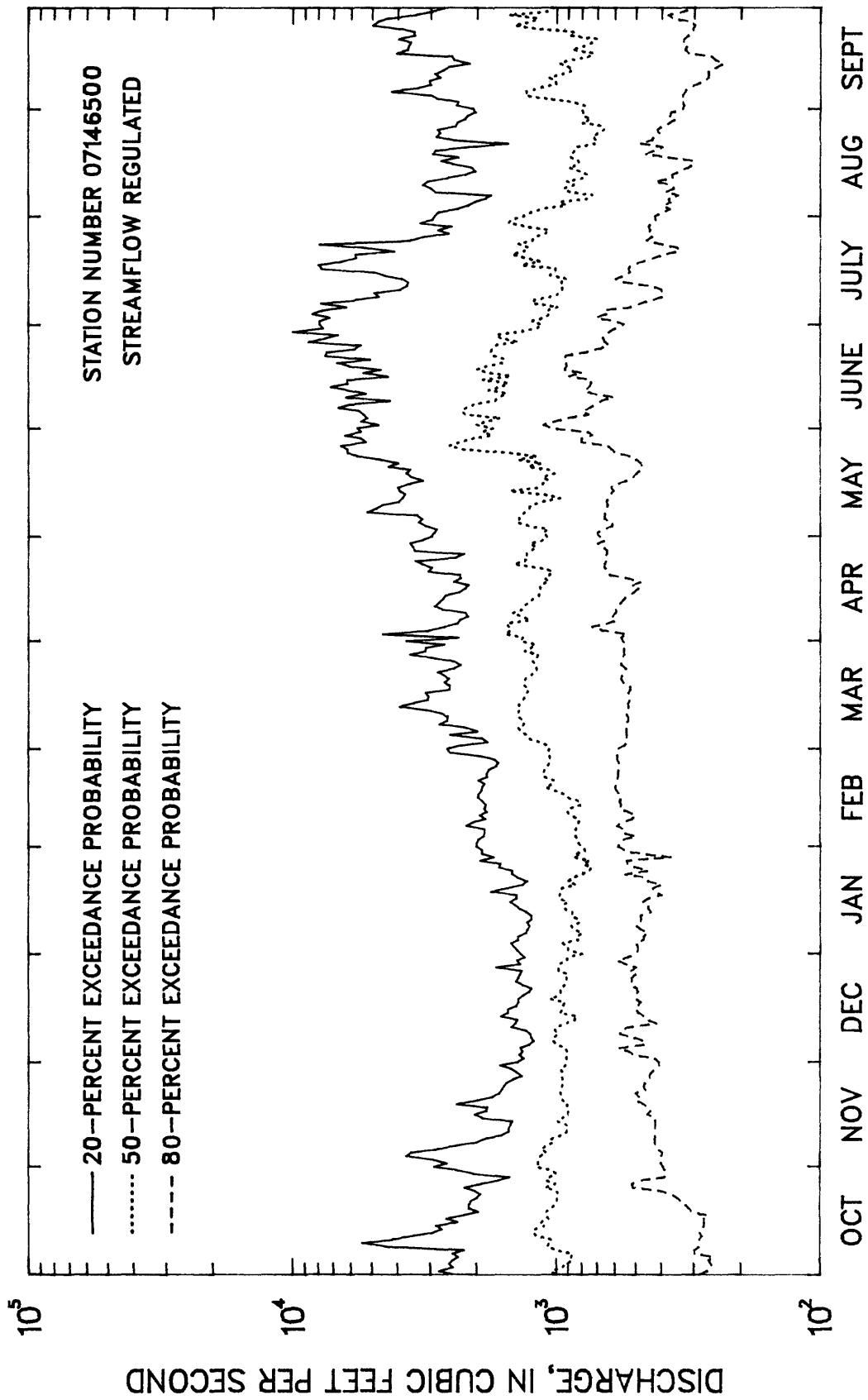


Figure 4.--Duration hydrographs of daily discharge values for Arkansas River at Arkansas City, Kansas, water years 1947-1975 (streamflow regulated).

ARKANSAS RIVER BASIN

07148350 SALT FORK ARKANSAS RIVER NEAR WINCHESTER, OK

LOCATION.--Lat 36°57'45", long 98°46'55", in NE 1/4 SE 1/4 sec.26, T.29 N., R.15 W., Woods County, Hydrologic Unit 11060002, near left bank on downstream side of pier of county road bridge, 1 mi northeast of Winchester, 2.5 mi upstream from Greenwood Creek, 4.9 mi downstream from Yellowstone Creek, 5 mi downstream from Kansas-Oklahoma State Line, 19 mi northwest of Alva, and at mile 156.2.

DRAINAGE AREA.--856 mi².

PERIOD OF RECORD.--October 1959 to current year. Monthly discharge only for some periods, published in WSP 1731.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1960-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	569	0.04	78	157	2.0	7.7
NOVEMBER	165	0.06	45	47	1.0	4.4
DECEMBER	110	0.05	34	25	0.75	3.3
JANUARY	85	1.5	36	23	0.64	3.5
FEBRUARY	208	11	52	40	0.77	5.1
MARCH	1170	10	112	228	2.0	11.0
APRIL	818	12	110	161	1.5	10.8
MAY	586	3.9	145	154	1.1	14.2
JUNE	1030	1.7	183	227	1.2	17.9
JULY	507	0.00	73	123	1.7	7.2
AUGUST	560	0.05	76	136	1.8	7.5
SEPTEMBER	547	0.02	75	139	1.9	7.3
ANNUAL	244	13	85	54	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1961-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.11	0.00	0.00	0.00
14	0.19	0.00	0.00	0.00
30	0.55	0.05	0.00	0.00
60	2.3	0.32	0.11	0.04
90	6.2	1.1	0.38	0.15
120	10	2.0	0.73	0.29
183	20	5.9	2.9	1.5

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1960-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7770	19500	30700	48900	65400	84400
OKLAHOMA WEIGHTED SKEW = -0.250					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3410	7480	10600	14741	17827	20848
3	1740	3590	4900	6600	7790	8920
7	935	1850	2530	3400	4050	4680
15	561	1050	1390	1810	2120	2404
30	360	666	881	1152	1350	1540
60	228	418	557	742	883	1030
90	180	316	412	536	628	720

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1960-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1140	250	137	97	73	50	37	27	17	7.6	1.4	0.24	0.01	0.00	0.00	0.00	0.00

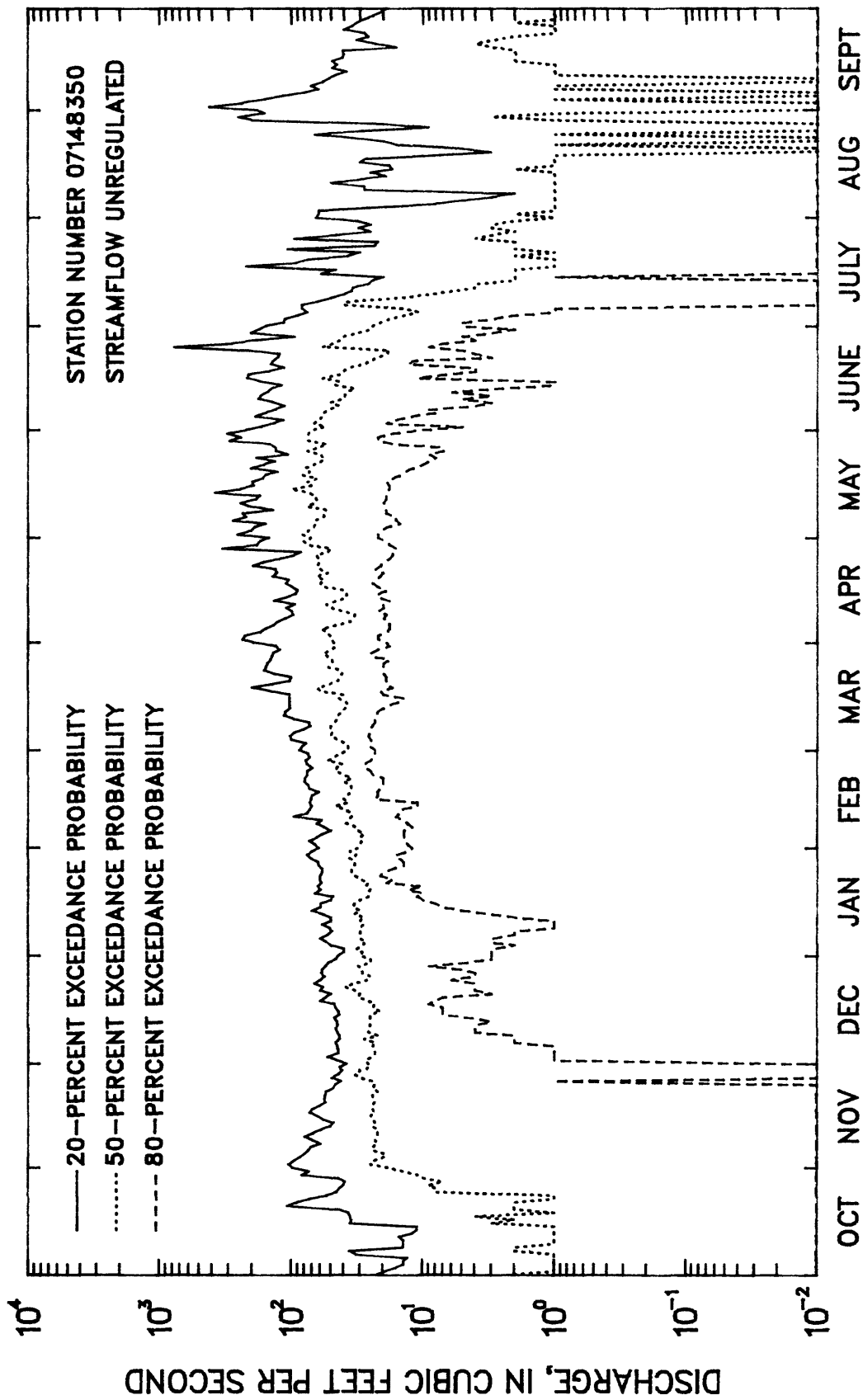


Figure 5.--Duration hydrographs of daily discharge values for Salt Fork Arkansas River near Winchester, Oklahoma, water years 1966-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07148400 SALT FORK ARKANSAS RIVER NEAR ALVA, OK

LOCATION.--Lat 36°48'45", long 98°38'50", in SW 1/4 SW 1/4 sec.18, T.27 N., R.13 W., Woods County, Hydrologic Unit 11060002, at bridge on U.S. Highway 281, 1.0 mi northeast of Alva, 19 mi upstream from Medicine Lodge River, and at mile 126.0.

DRAINAGE AREA.--1,009 mi².

PERIOD OF RECORD.--April 1904 to December 1905 (gage heights only), October 1937 to September 1951, monthly discharge only for some periods, published in WSP 1311, October 1979 to current year. Occasional low flow measurements water years 1952-54, 1977-79.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-51, 1980-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1220	0.00	137	296	2.2	8.3
NOVEMBER	211	0.00	59	68	1.2	3.6
DECEMBER	95	0.00	36	29	0.80	2.2
JANUARY	163	0.00	45	38	0.84	2.7
FEBRUARY	327	0.00	68	73	1.1	4.1
MARCH	247	0.29	86	63	0.73	5.3
APRIL	752	1.8	205	247	1.2	12.5
MAY	1750	10	323	416	1.3	19.7
JUNE	1420	35	319	397	1.2	19.4
JULY	423	4.9	149	162	1.1	9.1
AUGUST	898	2.5	110	213	1.9	6.7
SEPTEMBER	801	0.00	106	198	1.9	6.5
ANNUAL	433	28	137	102	0.74	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-51, 1981-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.23	0.00	0.00	0.00
3	0.43	0.00	0.00	0.00
7	0.63	0.00	0.00	0.00
14	0.88	0.00	0.00	0.00
30	2.7	0.00	0.00	0.00
60	9.9	0.84	0.09	0.00
90	14	1.8	0.30	0.00
120	18	4.7	1.6	0.00
183	31	10	4.5	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1939-51, 1980-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
11300	18100	22900	29400	34500	39800
OKLAHOMA WEIGHTED SKEW = -0.094					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4280	9100	13000	18400	22760	27260
3	2370	4990	7200	10480	13230	16220
7	1300	2750	4010	5975	7700	9640
15	767	1610	2370	3580	4680	5950
30	495	1020	1490	2240	2930	3740
60	356	718	1030	1490	1900	2340
90	278	539	754	1070	1340	1630

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-51, 1980-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
2160	484	229	148	107	69	48	35	23	12	3.6	0.12	0.05	0.02	0.01	0.00	0.00	0.00

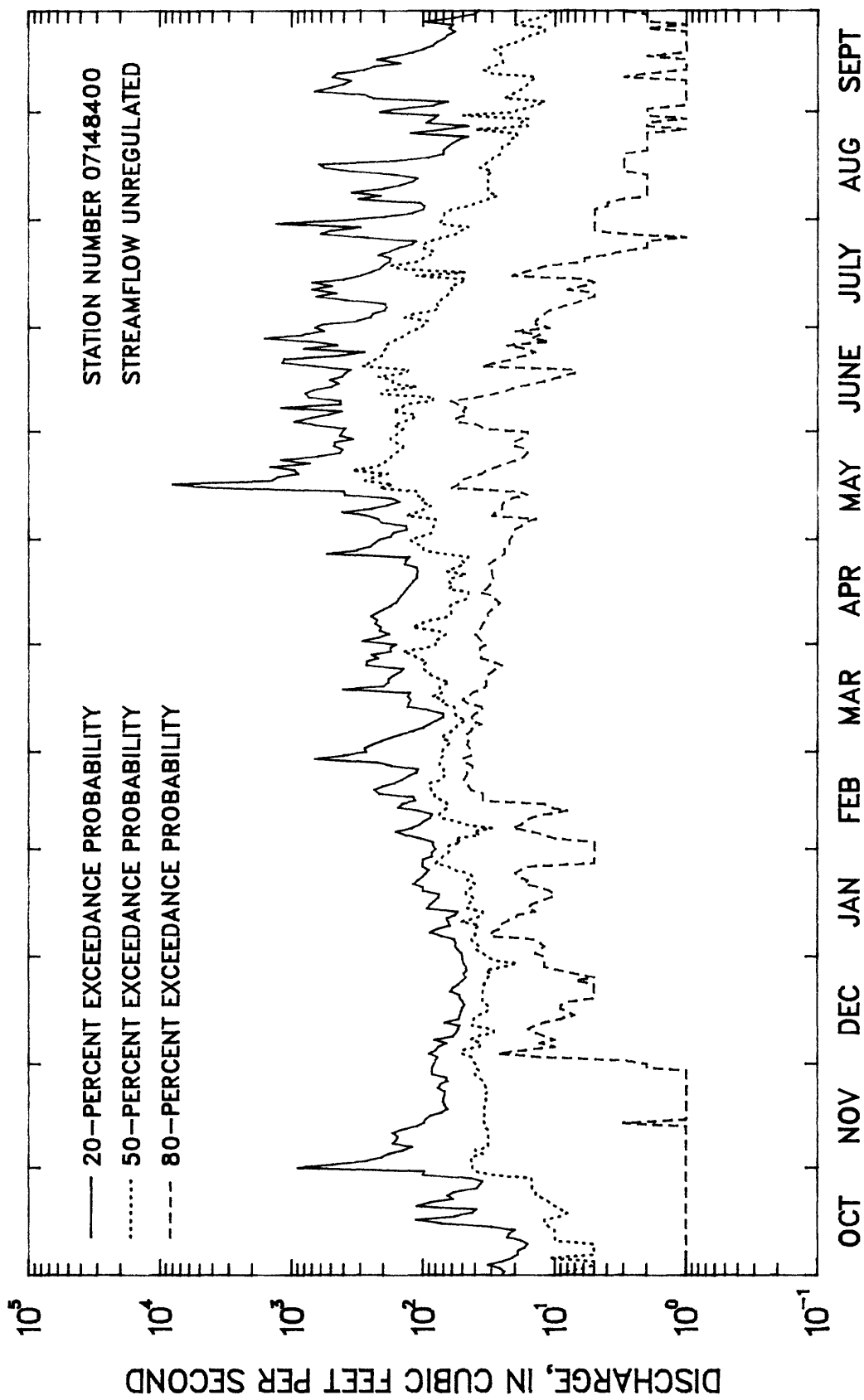


Figure 6.—Duration hydrographs of daily discharge values for Salt Fork Arkansas River near Alva, Oklahoma, water years 1948–1951 (streamflow unregulated).

ARKANSAS RIVER BASIN

07149500 SALT FORK ARKANSAS RIVER NEAR CHEROKEE, OK

LOCATION.--Lat 36°49'06", long 98°19'08", in SW 1/4 NW 1/4 sec.18, T.27 N., R.10 W., at site of abandoned Atchison, Topeka and Santa Fe Railway bridge, 0.7 mi downstream from Medicine Lodge River, 4.0 mi northeast of Cherokee, and at mile 106.3.

DRAINAGE AREA.--2,439 mi².

PERIOD OF RECORD.--October 1940 to September 1950.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1941-50

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2680	0.00	465	822	1.8	9.8
NOVEMBER	642	6.0	187	194	1.0	4.0
DECEMBER	247	50	149	80	0.54	3.1
JANUARY	550	44	173	145	0.84	3.7
FEBRUARY	2000	71	346	585	1.7	7.3
MARCH	777	100	304	221	0.73	6.4
APRIL	1590	118	690	643	0.93	14.6
MAY	3900	47	847	1150	1.4	17.9
JUNE	2770	83	603	809	1.3	12.8
JULY	774	2.1	276	274	0.99	5.8
AUGUST	1860	0.13	342	575	1.7	7.2
SEPTEMBER	1990	0.05	346	638	1.8	7.3
ANNUAL	1120	155	394	290	0.74	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1942-50

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.14	0.00	0.00	0.00
30	3.8	0.00	0.00	0.00
60	23	1.7	0.00	0.00
90	42	5.9	1.7	0.56
120	67	20	9.5	4.9
183	144	52	27	15

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1941-50

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 10 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
13600	23700	31600	42600	51500	61100
OKLAHOMA WEIGHTED SKEW = -0.092					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	9040	16760	22900	31500	38600	46100
3	6330	12000	16360	22430	27250	32300
7	3960	7380	9900	13230	15760	18300
15	2250	4120	5640	7860	9720	11760
30	1400	2650	3770	5600	7290	9300
60	990	1820	2510	3540	4430	5420
90	752	1350	1830	2560	3170	3860

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-50

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
5900	1610	753	443	320	219	165	127	95	65	32	2.4	0.06	0.02	0.01	0.01	0.00

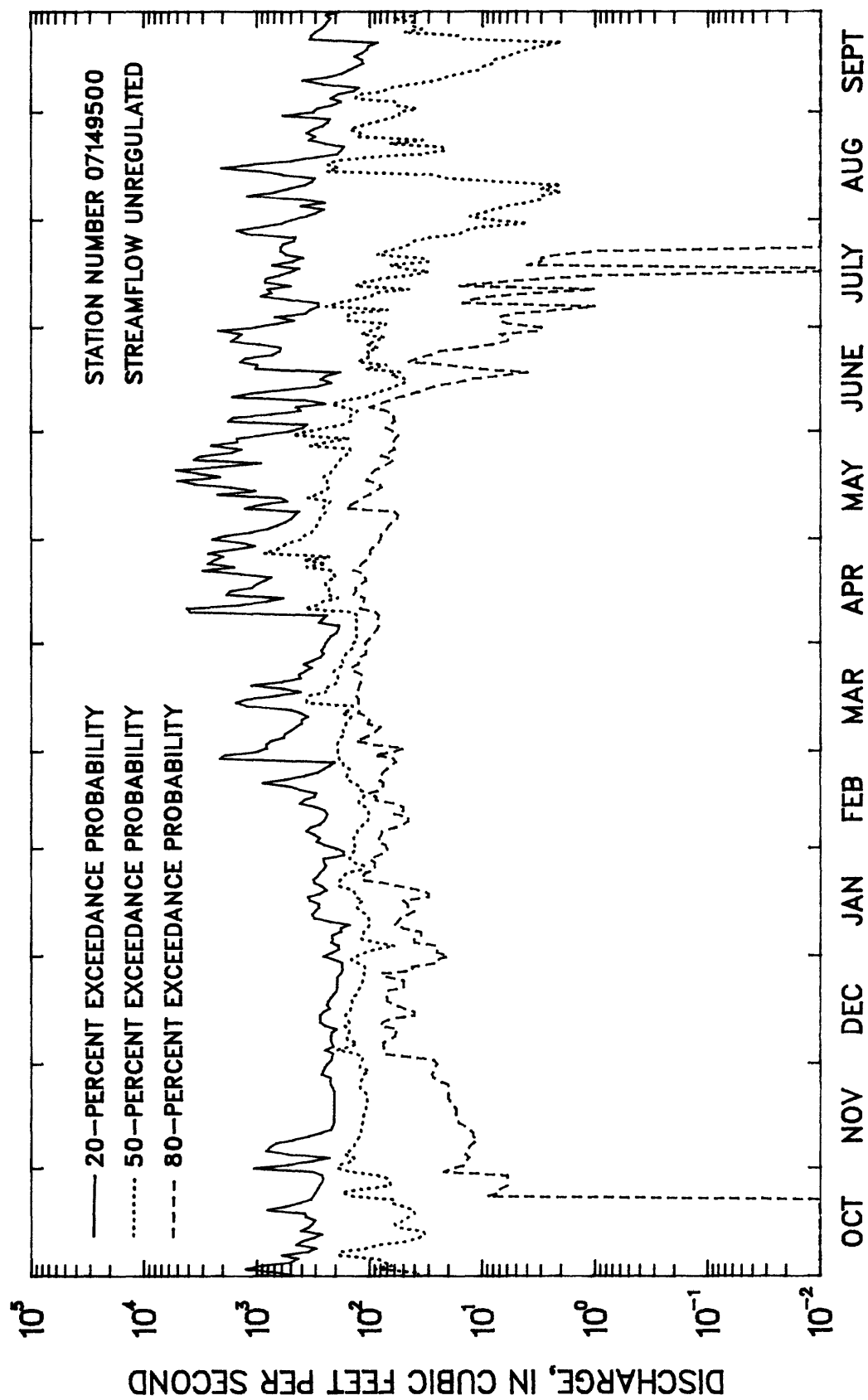


Figure 7.--Duration hydrographs of daily discharge values for Salt Fork Arkansas River near Cherokee, Oklahoma, water years 1942-1950 (streamflow unregulated).

ARKANSAS RIVER BASIN

07150500 SALT FORK ARKANSAS RIVER NEAR JET, OK

LOCATION.--Lat 36°45'11", long 98°07'44", in NE 1/4 NE 1/4 sec.11, T.26 N., R.9 W., Alfalfa County, Hydrologic Unit 11060004, near center of span on downstream side of county road bridge, 0.6 mi downstream from Great Salt Plains Dam, 4 mi upstream from Wagon Creek, 6 mi northeast of Jet, and at mile 102.7.

DRAINAGE AREA.--3,202 mi², of which 8 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1937 to current year.

REMARKS.--Flow regulated since June 1941 by Great Salt Plains Reservoir.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1941-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2950	3.1	295	594	2.0	6.7
NOVEMBER	1470	0.41	242	363	1.5	5.5
DECEMBER	485	1.2	138	125	0.91	3.1
JANUARY	582	0.94	140	127	0.91	3.2
FEBRUARY	2500	0.78	232	392	1.7	5.2
MARCH	2720	0.38	361	474	1.3	8.2
APRIL	4710	1.5	573	830	1.5	13.0
MAY	4390	5.2	790	971	1.2	17.9
JUNE	4330	3.7	772	986	1.3	17.5
JULY	4480	5.7	431	816	1.9	9.8
AUGUST	2290	5.6	197	415	2.1	4.5
SEPTEMBER	2180	2.9	242	383	1.6	5.5
ANNUAL	1430	37	368	300	0.82	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1942-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	3.3	0.68	0.19	0.00
3	4.3	0.95	0.36	0.13
7	5.1	1.4	0.64	0.34
14	6.1	1.7	0.86	0.48
30	8.7	2.6	1.4	0.83
60	21	4.9	2.2	1.1
90	32	7.0	2.9	1.3
120	44	9.8	4.0	1.8
183	81	20	8.3	3.9

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 44 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3340	6130	8130	10700	12600	14500
STATION SKEW = -0.501					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1941-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3390	6270	8110	10200	11600	12800
3	3180	5920	7690	9720	11100	12200
7	2690	5080	6670	8560	9840	11000
15	1930	3780	5120	6840	8100	9300
30	1330	2670	3690	5070	6140	7200
60	855	1830	2680	3970	5070	6300
90	658	1400	2030	3000	3820	4700

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
4750	1640	825	554	413	269	182	119	67	27	12	4.7	2.2	1.1	0.62	0.26	0.03	

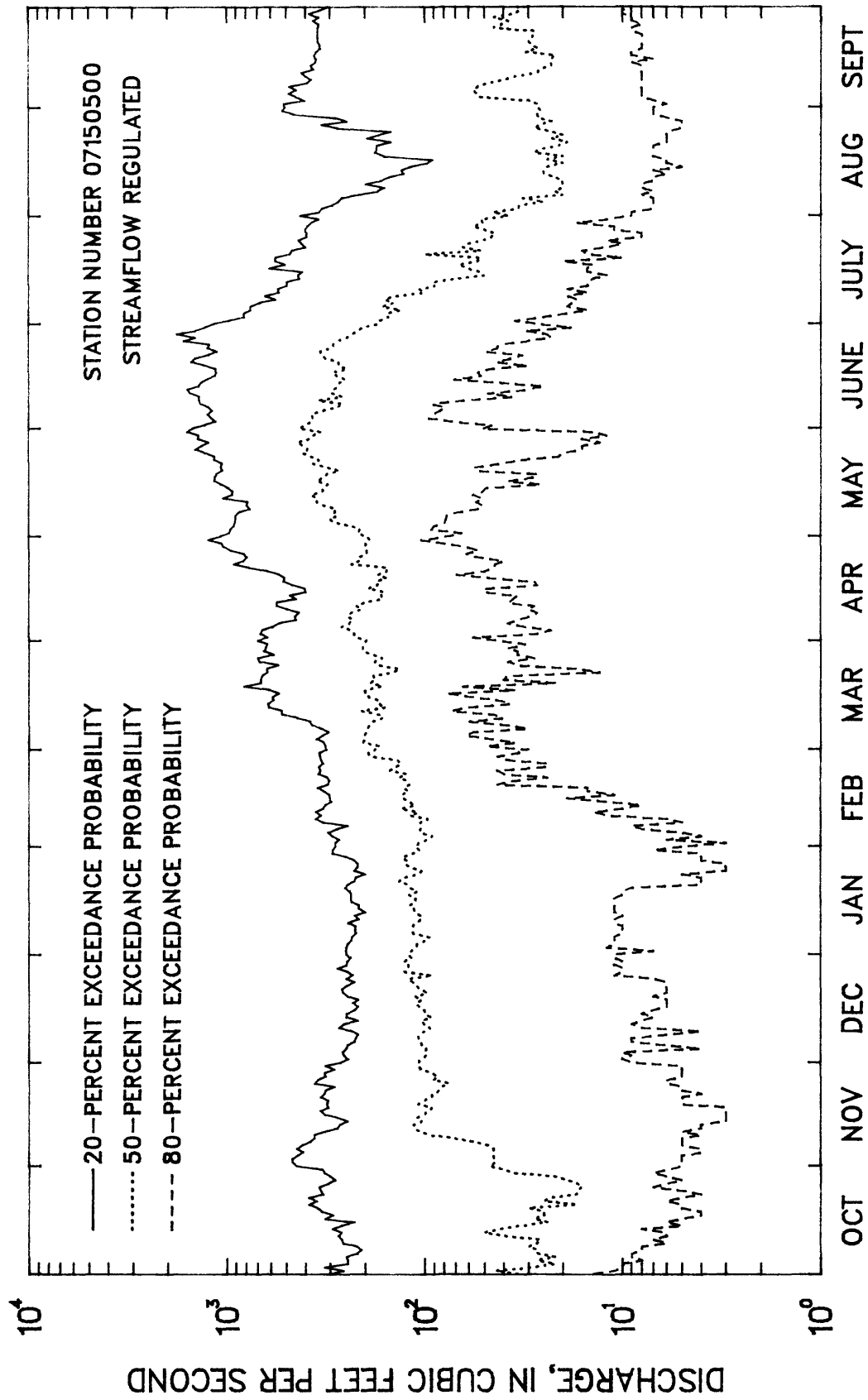


Figure 8.--Duration hydrographs of daily discharge values for Salt Fork Arkansas River near Jet, Oklahoma, water years 1946-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07151000 SALT FORK ARKANSAS RIVER AT TONKAWA, OK

LOCATION.--Lat 36°40'13", long 97°18'33", in NW 1/4 SE 1/4 sec.4, T.25 N., R.1 W., Kay County, Hydrologic Unit 11060004, near right bank on downstream side of pier of bridge on U.S. Highway 77 in Tonkawa, 4 mi downstream from Thompson Creek, 7.8 mi upstream from Chikaskia River, and at mile 33.8.

DRAINAGE AREA.--4,528 mi², of which 8 mi² is probably noncontributing.

PERIOD OF RECORD.--September 1903 to October 1905 (gage heights only), October 1935 to current year. Monthly discharge only for some periods, published as Arkansas River (Salt Fork) near Tonkawa 1903-4 and as "near Tonkawa" 1905.

REMARKS.--Flow regulated since June 1941 by Great Salt Plains Reservoir.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1941-84							MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1942-84				
MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	8690	0.64	688	1550	2.3	7.9					
NOVEMBER	4430	4.8	571	986	1.7	6.5					
DECEMBER	1810	3.6	265	331	1.2	3.0	1	32	10	4.2	1.5
JANUARY	1460	7.5	254	296	1.2	2.9	3	34	11	4.6	1.7
FEBRUARY	5170	11	424	825	1.9	4.9	7	37	12	5.3	2.1
MARCH	6190	11	762	1160	1.5	8.7	14	43	14	6.1	2.4
APRIL	7920	14	1180	1640	1.4	13.5	30	51	17	8.2	3.7
MAY	7070	8.8	1460	1640	1.1	16.7	60	102	29	11	4.1
JUNE	7540	7.9	1360	1660	1.2	15.6	90	113	35	16	8.0
JULY	8820	5.7	809	1460	1.8	9.3	120	131	44	22	12
AUGUST	3750	5.5	410	687	1.7	4.7	183	191	60	30	17
SEPTEMBER	3450	0.00	549	694	1.3	6.3					
ANNUAL	2340	96	728	571	0.78	100					

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 44 YEARS OF RECORD							MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1941-84						
DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT							PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%			2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
11300	21900	30800	44100	55500	68300		1	10600	19900	26100	33500	38500	43100
							3	8520	16500	22000	29000	34000	38800
							7	6090	11500	15200	19800	23100	26200
							15	4010	7650	10300	13800	16400	19000
							30	2640	5200	7260	10200	12600	15100
							60	1710	3520	5080	7470	9540	11900
							90	1320	2690	3870	5670	7230	8960

STATION SKEW = -0.772

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1941-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
9550	3310	1620	1000	722	434	294	194	128	79	50	26	14	5.5	2.9	0.77	0.03

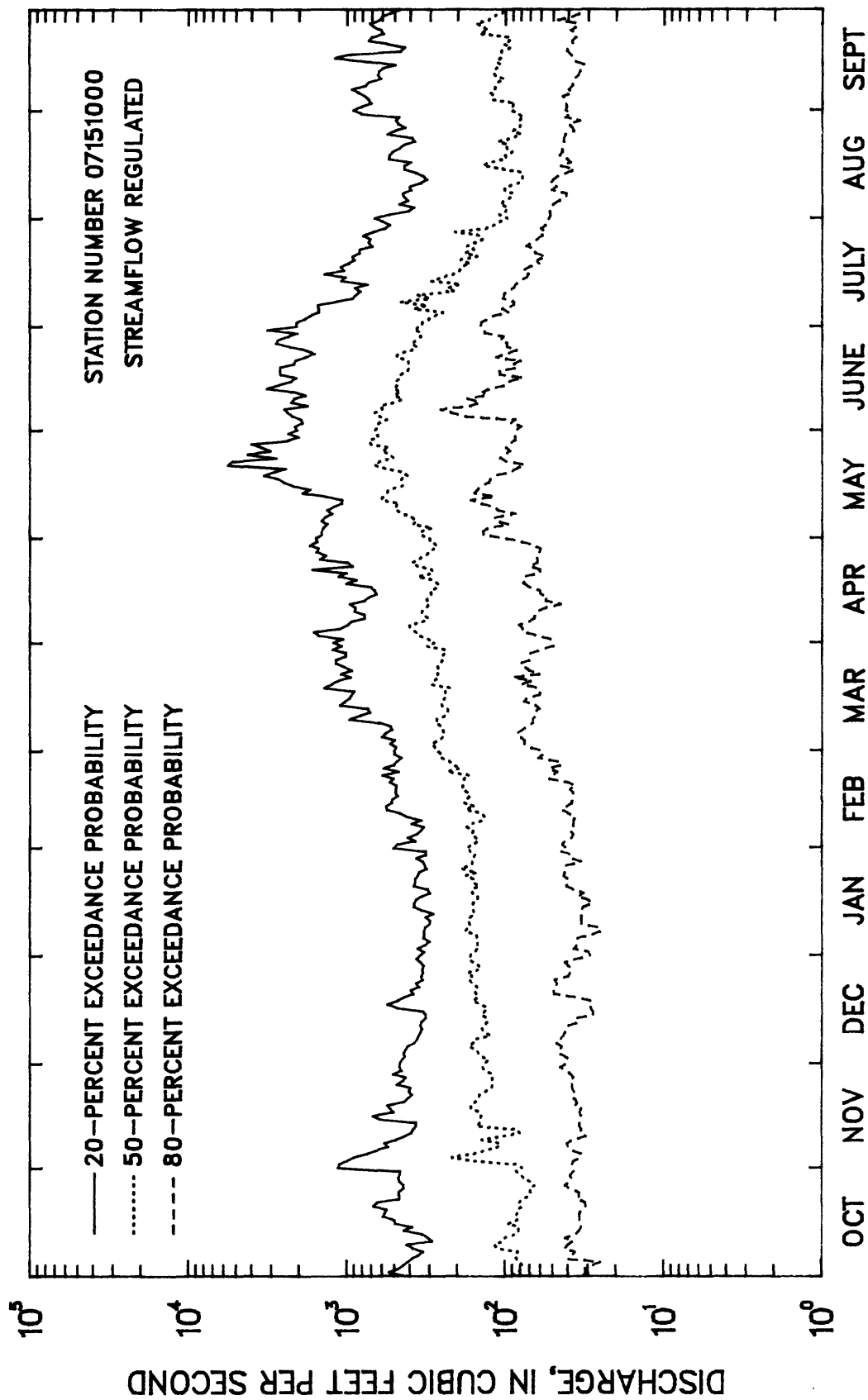


Figure 9.--Duration hydrographs of daily discharge values for Salt Fork Arkansas River at Tonkawa, Oklahoma, water years 1946-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07152000 CHIKASKIA RIVER NEAR BLACKWELL, OK

LOCATION.--Lat 36°48'41", long 97°16'41", in NE 1/4 NW 1/4 sec.23, T.27 N., R.1 W., Kay County, Hydrologic Unit 11060005, near left bank on downstream side of State Highway 11 bridge at northeast edge of Blackwell, 0.2 mi downstream from Bitter Creek, and at mile 28.2.

DRAINAGE AREA.--1,859 mi².

PERIOD OF RECORD.--October 1935 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Some regulation at low flow by Lake Blackwell. Small diversion made from reservoir for municipal supply of city of Blackwell.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1937-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	5240	0.90	443	988	2.2	7.5
NOVEMBER	4490	1.1	372	751	2.0	6.3
DECEMBER	1650	1.3	195	266	1.4	3.3
JANUARY	1660	4.4	190	266	1.4	3.2
FEBRUARY	3730	10	299	555	1.9	5.0
MARCH	4560	31	550	869	1.6	9.3
APRIL	4750	29	779	1090	1.4	13.1
MAY	4910	27	952	1090	1.1	16.0
JUNE	5090	26	976	1160	1.2	16.4
JULY	5130	6.2	463	843	1.8	7.8
AUGUST	2430	0.63	301	511	1.7	5.1
SEPTEMBER	3400	0.64	424	652	1.5	7.1
ANNUAL	1450	71	495	336	0.68	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1937-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	7.1	1.5	0.56	0.12
3	8.1	1.7	0.60	0.12
7	10	2.2	0.84	0.32
14	16	3.8	1.6	0.75
30	25	6.0	2.6	1.2
60	51	13	5.2	2.2
90	80	24	11	5.0
120	101	32	15	6.9
183	150	47	22	11

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 49 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
17300	36300	53800	82400	109000	140000

OKLAHOMA WEIGHTED SKEW = 0.100

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1937-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	14500	29400	41400	58200	71700	85800
3	9260	18900	26600	37500	46200	55400
7	5460	10700	14400	19300	23000	26500
15	3180	6130	8210	10800	12700	14400
30	2010	3950	5380	7230	8600	9940
60	1290	2580	3570	4940	6010	7100
90	994	1940	2670	3670	4460	5260

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1937-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
8020	1790	753	451	342	221	161	121	90	66	41	17	5.6	1.6	0.90	0.53	0.08

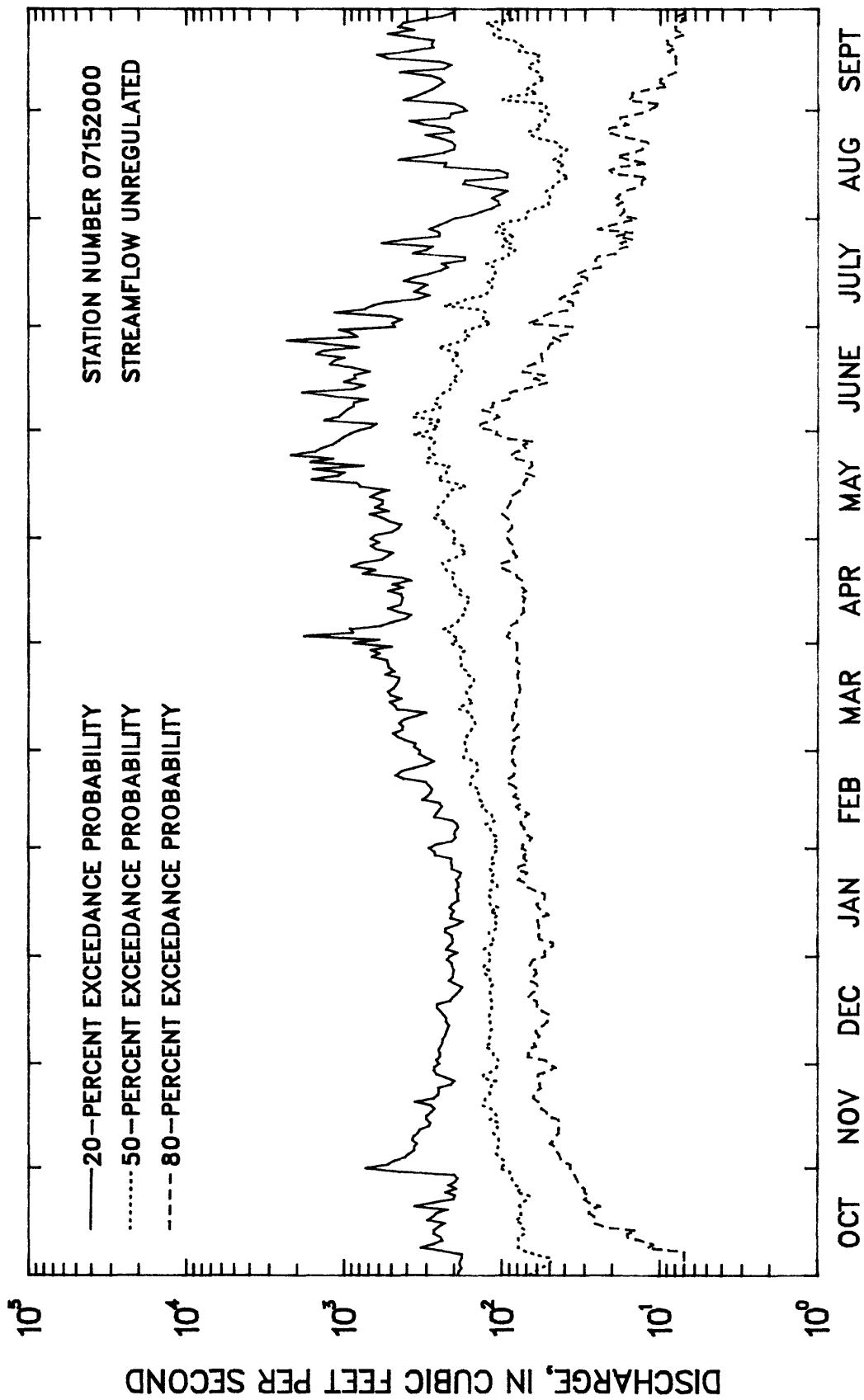


Figure 10.--Duration hydrographs of daily discharge values for Chikaskia River near Blackwell, Oklahoma, water years 1946-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07152500 ARKANSAS RIVER AT RALSTON, OK

LOCATION.--Lat 36°30'09", long 96°43'22", in NW 1/4 sec.1, T.23 N., R.5 E., Osage County, Hydrologic Unit 11060006, near left bank on downstream side of pier of bridge on State Highway 18 at Ralston, 2 mi downstream from Salt Creek, 2 mi upstream from Grayhorse Creek, and at mile 594.0.

DRAINAGE AREA.--54,465 mi², of which 7,615 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1925 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1922 are contained in reports of National Weather Service.

REMARKS.--Some regulation since 1941 by Great Salt Plains Lake; flow regulated since April 1976 by Kaw Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1926-75

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	43400	37	4830	8220	1.7	8.3
NOVEMBER	22500	123	3520	4960	1.4	6.1
DECEMBER	12900	146	2340	2400	1.0	4.0
JANUARY	11300	156	2250	2310	1.0	3.9
FEBRUARY	25000	233	2710	3870	1.4	4.7
MARCH	39800	357	4300	6340	1.5	7.4
APRIL	35000	401	6980	8940	1.3	12.1
MAY	33300	405	8490	8440	0.99	14.7
JUNE	39300	426	8830	8290	0.94	15.3
JULY	47700	218	5990	8120	1.4	10.4
AUGUST	25700	88	3630	5250	1.4	6.3
SEPTEMBER	16400	37	3990	3880	0.97	6.9
ANNUAL	12800	776	4830	3210	0.67	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1927-75

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	466	188	108	65
3	489	198	113	68
7	530	212	121	72
14	597	237	133	79
30	712	282	159	94
60	973	394	227	138
90	1180	509	304	190
120	1340	599	367	236
183	1840	776	468	299

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1926-75

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 53 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
56900	110000	152000	211000	259000	310000

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.272

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	52900	102000	139000	190000	230000	270000
3	45400	90400	125000	170000	206000	241000
7	32100	62800	86100	118000	142000	166000
15	21100	41100	56200	76800	92700	109000
30	14900	29100	40400	56300	69100	82500
60	10300	20400	28600	40600	50600	61400
90	8270	16000	22300	31300	38800	46800

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1926-75

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
52000	19400	10500	7150	5420	3590	2550	1950	1470	1070	747	470	303	177	112	70	22

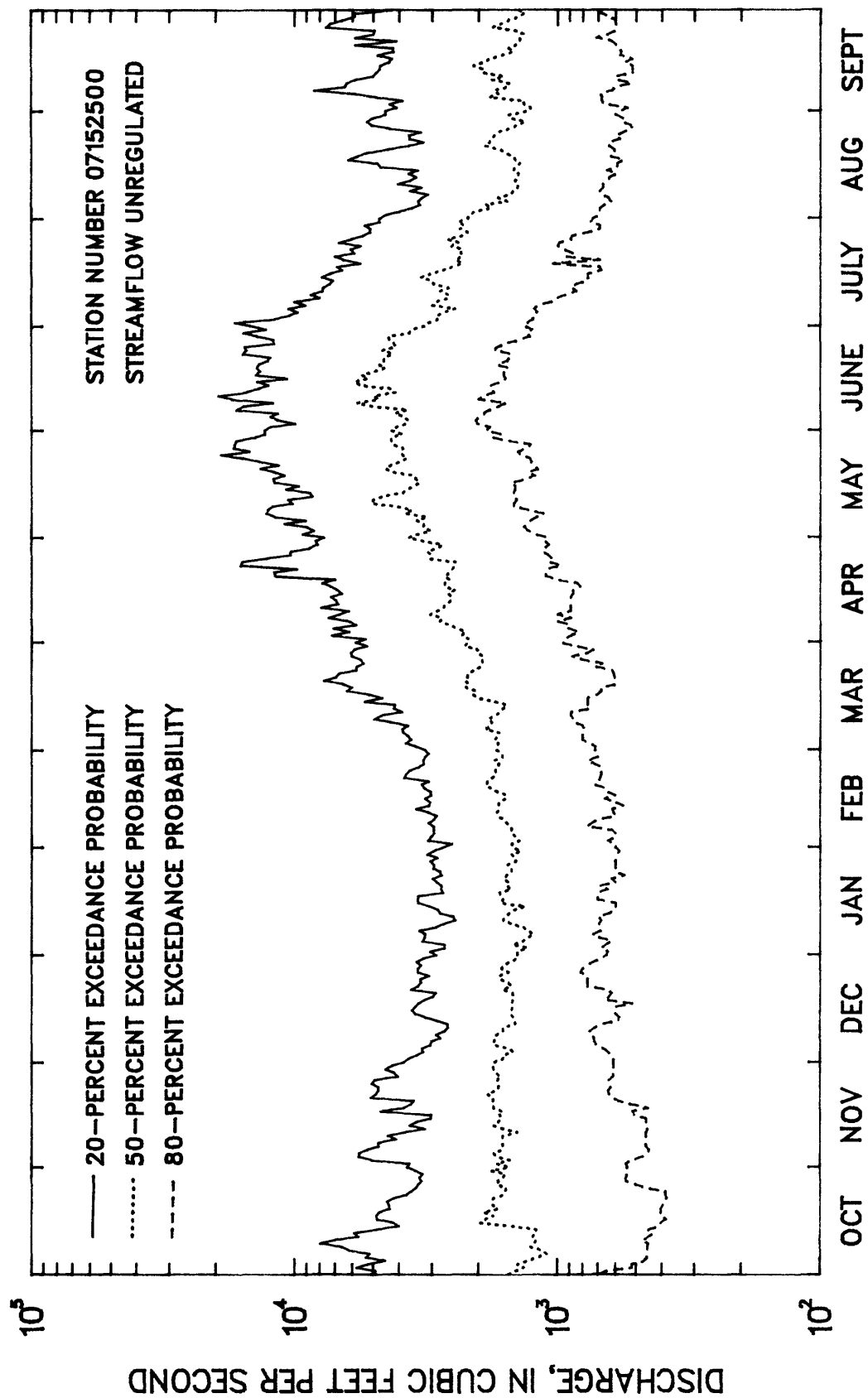


Figure 11.—Duration hydrographs of daily discharge values for Arkansas River at Ralston, Oklahoma, water years 1927-1975 (streamflow unregulated).

ARKANSAS RIVER BASIN

07153000 BLACK BEAR CREEK AT PAWNEE, OK

LOCATION.--Lat 36°20'37", long 96°47'57", on east line of SE 1/4 NE 1/4 sec.31, T.22 N., R.5 E., Pawnee County, Hydrologic Unit 11060006, 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 mi².

PERIOD OF RECORD.--July 1944 to current year.

REMARKS.--Flow regulated since 1968 by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1945-67

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2640	0.00	220	572	2.6	11.2
NOVEMBER	584	0.00	65	138	2.1	3.3
DECEMBER	523	0.02	44	112	2.5	2.3
JANUARY	174	0.37	26	45	1.7	1.3
FEBRUARY	430	1.3	49	100	2.1	2.5
MARCH	454	0.90	83	124	1.5	4.2
APRIL	1290	1.1	202	391	1.9	10.3
MAY	2140	2.3	413	569	1.4	21.1
JUNE	2180	4.7	332	476	1.4	16.9
JULY	932	0.30	261	273	1.0	13.3
AUGUST	426	0.00	73	116	1.6	3.7
SEPTEMBER	1350	0.00	191	353	1.8	9.8
ANNUAL	492	23	164	137	0.83	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1946-67

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.80	0.00	0.00	0.00
3	0.85	0.00	0.00	0.00
7	0.92	0.06	0.00	0.00
14	1.2	0.09	0.00	0.00
30	1.8	0.14	0.00	0.00
60	3.6	0.30	0.01	0.00
90	5.0	0.62	0.13	0.00
120	7.1	1.5	0.56	0.09
183	16	2.3	0.75	0.28

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1945-67

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5520	10200	14500	21400	27900	35700

OKLAHOMA WEIGHTED SKEW = 0.388

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4540	8850	13000	20400	27700	36800
3	3490	6700	9590	14200	18400	23400
7	2000	3870	5540	8220	10670	13550
15	1140	2230	3170	4610	5870	7300
30	700	1340	1880	2690	3390	4200
60	419	847	1220	1810	2320	2920
90	336	692	998	1460	1860	2300

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-67

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
3430	729	192	91	57	27	15	8.7	5.3	3.4	1.8	0.47	0.09	0.04	0.02	0.01	0.00	0.00

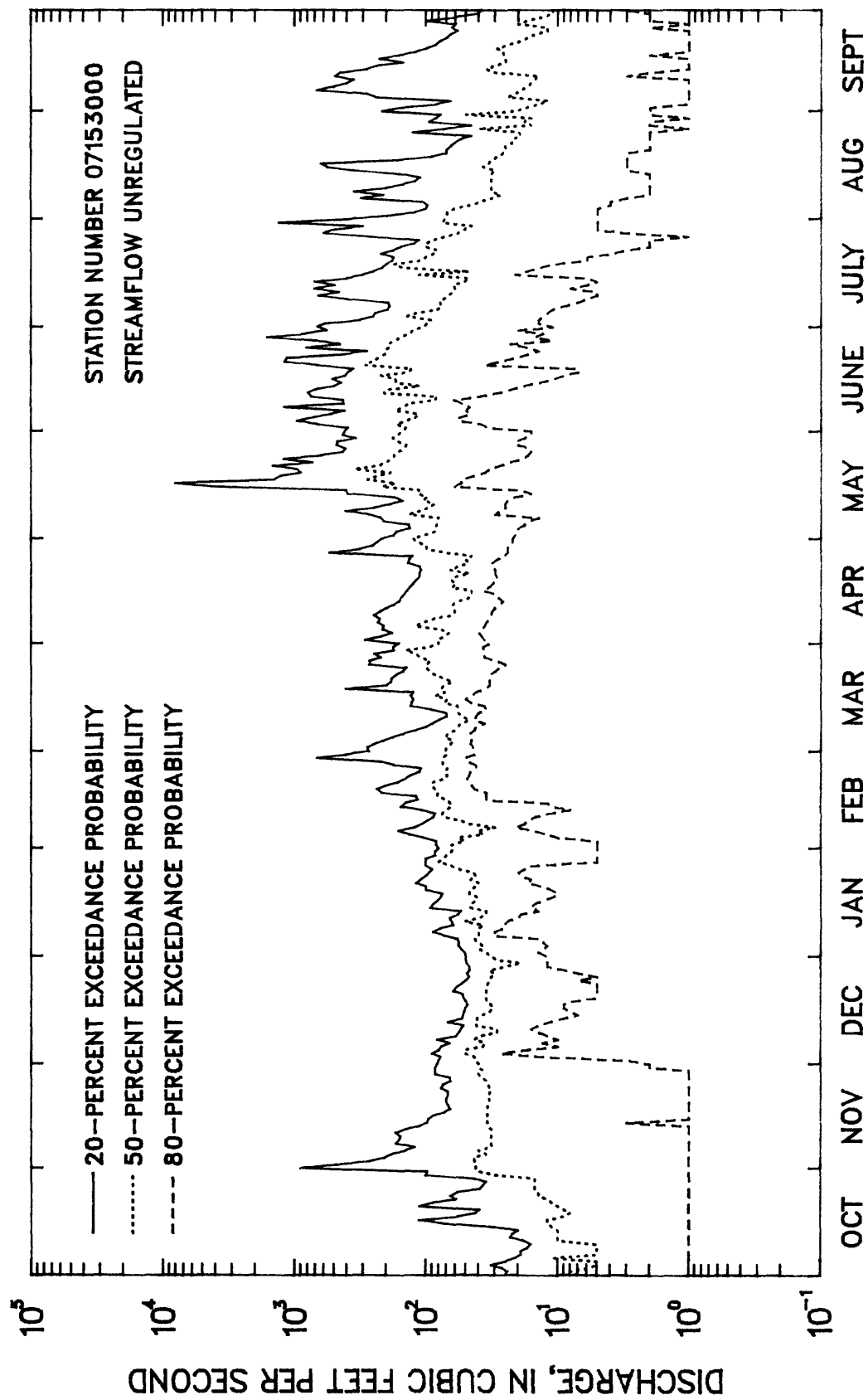


Figure 12.--Duration hydrographs of daily discharge values for Black Bear Creek at Pawnee, Oklahoma, water years 1949-1967 (streamflow unregulated).

ARKANSAS RIVER BASIN

07153100 RANCH CREEK AT CLEVELAND DAM, NEAR CLEVELAND, OK

LOCATION.--Lat 36°17'00", long 96°34'35" in SW 1/4 NE 1/4 sec.20 T.21 N., R.7 E., on intake at Cleveland Dam on Ranch Creek, 0.3 mi upstream from Carpenter Creek, 0.5 mi upstream from Turkey Creek, and 6.5 mi southwest of Cleveland.

DRAINAGE AREA.--21.9 mi².

PERIOD OF RECORD.--November 1944 to September 1963. Monthly discharge only for some periods, published in WSP 1731.

REMARKS.--Flow regulated since 1944 by Cleveland Reservoir.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1946-63

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1946-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	205	0.00	14	48	3.4	13.0					
NOVEMBER	51	0.00	3.3	12	3.6	3.1					
DECEMBER	23	0.00	2.0	5.5	2.8	1.9	1	0.00	0.00	0.00	0.00
JANUARY	9.1	0.00	1.6	2.9	1.8	1.5	3	0.00	0.00	0.00	0.00
FEBRUARY	17	0.00	3.2	5.3	1.7	3.0	7	0.00	0.00	0.00	0.00
MARCH	54	0.00	8.0	15	1.8	7.5	14	0.00	0.00	0.00	0.00
APRIL	72	0.00	9.3	18	1.9	8.7	30	0.00	0.00	0.00	0.00
MAY	215	0.00	30	52	1.7	28.6	60	0.00	0.00	0.00	0.00
JUNE	72	0.01	14	20	1.4	13.6	90	0.00	0.00	0.00	0.00
JULY	54	0.00	11	17	1.5	10.8	120	0.00	0.00	0.00	0.00
AUGUST	17	0.00	2.0	5.5	2.7	1.9	183	0.00	0.00	0.00	0.00
SEPTEMBER	82	0.00	6.9	20	2.9	6.5					
ANNUAL	32	0.08	8.9	9.6	1.1	100					

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 19 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1530	4800	8640	16000	23800	33900
STATION SKEW = -1.510					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1946-63

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	565	1450	2100	2860	3350	3770
3	236	594	871	1220	1470	1700
7	117	300	447	640	781	914
15	66	165	239	331	394	451
30	40	98	137	183	211	235
60	25	62	87	113	129	142
90	21	48	64	80	89	95

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1946-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
211	22	5.5	2.0	0.78	0.10	0.08	0.07	0.06	0.04	0.03	0.01	0.01	0.00	0.00	0.00	0.00

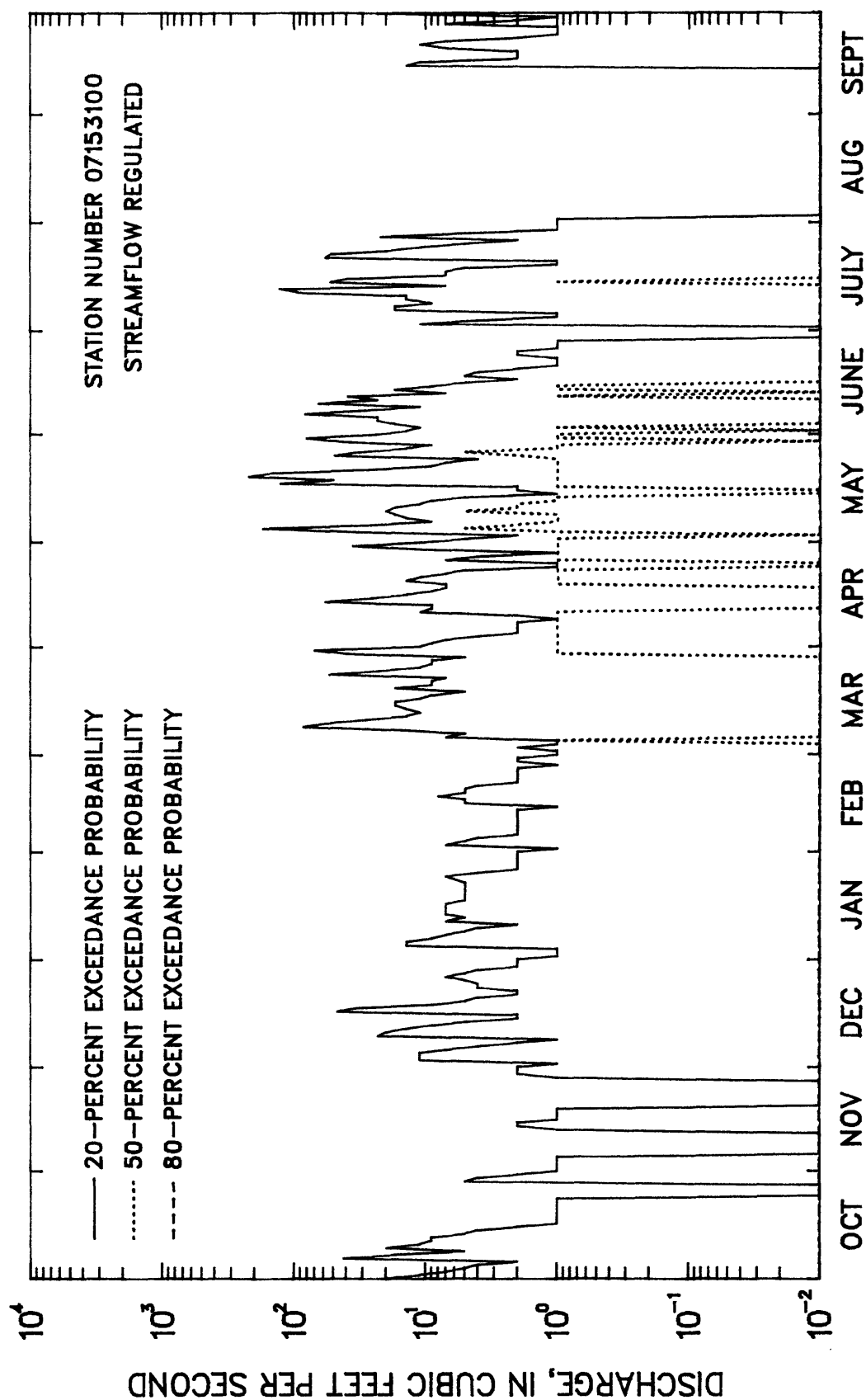


Figure 13.—Duration hydrographs of daily discharge values for Ranch Creek at Cleveland Dam near Cleveland, Oklahoma, water years 1955–1963 (streamflow regulated).

ARKANSAS RIVER BASIN

07154500 CIMARRON RIVER NEAR KENTON, OK

LOCATION.--Lat 36°55'36", long 102°57'31", in SE 1/4 sec. 4, T.5 N., R.1 E., Cimarron County, Hydrologic Unit 11040001, near right bank on downstream side of pier of county road bridge, 1.5 mi upstream from North Carrizo Creek, 1.7 mi northeast of Kenton, 2.2 mi downstream from Carrizozo Creek, and at mile 594.0.

DRAINAGE AREA.--1,106 mi², of which 68 mi² is probably noncontributing.

PERIOD OF RECORD.--April 1904 to July 1905 (gage heights only), October 1950 to current year.

REMARKS.--Extensive diversions for irrigation above station.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1951-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	334	0.00	14	59	4.2	5.6
NOVEMBER	12	0.00	2.1	2.5	1.2	0.9
DECEMBER	9.6	0.00	2.2	2.0	0.94	0.9
JANUARY	6.7	0.00	2.0	1.7	0.86	0.8
FEBRUARY	6.8	0.03	1.9	1.6	0.83	0.7
MARCH	4.4	0.01	1.6	1.1	0.68	0.6
APRIL	116	0.00	7.0	22	3.1	2.8
MAY	525	0.03	40	118	2.9	15.9
JUNE	514	0.00	42	99	2.3	16.8
JULY	204	0.34	40	47	1.2	15.8
AUGUST	406	0.00	65	93	1.4	26.0
SEPTEMBER	235	0.00	33	62	1.9	13.2
ANNUAL	95	1.3	21	22	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1952-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.01	0.00	0.00	0.00
60	0.36	0.00	0.00	0.00
90	0.61	0.08	0.00	0.00
120	0.98	0.17	0.01	0.00
183	1.2	0.30	0.13	0.06

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 34 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
50%	20%	10%	4%	2%	1%
5830	15800	25200	40000	52900	67200

OKLAHOMA WEIGHTED SKEW = -0.447

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1951-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1410	3860	6060	9320	12000	14700
3	662	1720	2600	3830	4780	5710
7	342	859	1280	1850	2270	2680
15	181	445	662	959	1190	1410
30	103	245	366	542	684	832
60	65	149	220	321	402	486
90	46	108	162	244	313	387

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1951-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
394	31	9.8	5.2	3.9	2.6	1.8	1.2	0.59	0.17	0.01	0.00	0.00	0.00	0.00	0.00	0.00

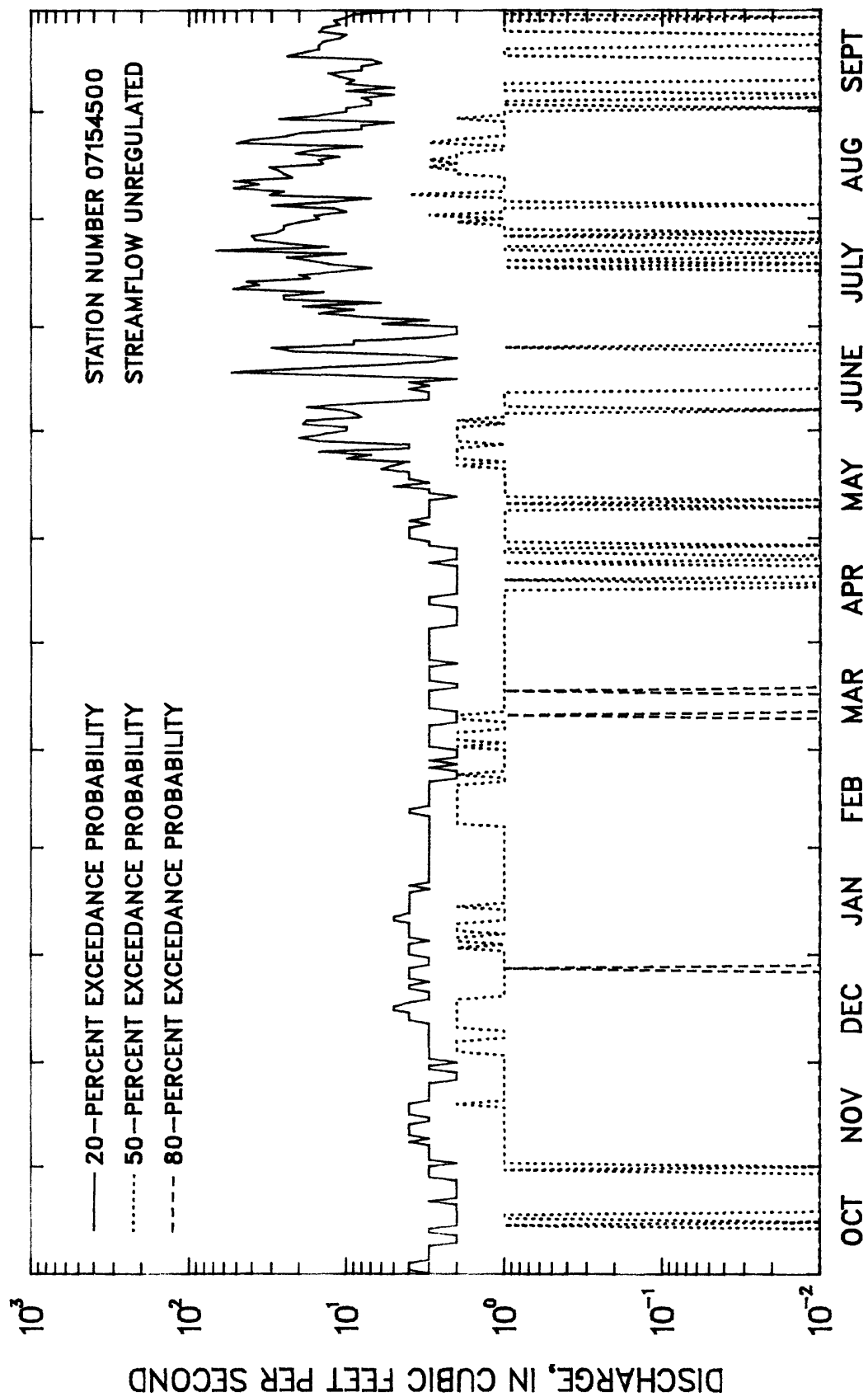


Figure 14.--Duration hydrographs of daily discharge values for Cimarron River near Kenton, Oklahoma, water years 1956-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07155000 CIMARRON RIVER ABOVE UTE CREEK NEAR BOISE CITY, OK

LOCATION.--Lat 36°55'00", Long 102°36'00", in SE 1/4 sec.10, T.5 N., R.4 E., on right bank 1,000 ft downstream from Kohler's dam, 1 mi upstream from Cold Springs Creek, 5.5 mi upstream from Ute Creek, 14 mi northwest of Boise City, and at mile 560.0.

DRAINAGE AREA.--1,955 mi², of which 76 mi² is probably noncontributing.

PERIOD OF RECORD.--May 1905 to August 1907 (published as "near Garrett"), October 1942 to September 1954.

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.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1943-54

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	114	0.00	12	33	2.7	2.5
NOVEMBER	55	0.00	9.0	16	1.7	1.9
DECEMBER	54	0.00	11	17	1.5	2.2
JANUARY	47	0.00	10	15	1.5	2.1
FEBRUARY	38	0.00	8.5	10	1.2	1.7
MARCH	37	0.00	8.7	11	1.2	1.8
APRIL	66	0.00	7.8	19	2.4	1.6
MAY	268	0.00	56	82	1.5	11.6
JUNE	247	0.00	72	86	1.2	14.8
JULY	296	8.2	91	98	1.1	18.7
AUGUST	423	5.4	169	134	0.79	34.8
SEPTEMBER	197	0.00	31	58	1.9	6.3
ANNUAL	83	11	41	19	0.48	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1944-54

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	1.6	0.00	0.00	0.00
120	1.9	0.00	0.00	0.00
183	3.2	0.07	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1943-54

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 14 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
8600	16000	21800	30100	36800	43900
OKLAHOMA WEIGHTED SKEW = -0.206					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2640	4630	6070	7940	9360	10800
3	1270	2000	2460	3010	3380	3730
7	644	1070	1390	1800	2130	2470
15	344	575	743	970	1150	1330
30	204	360	485	667	822	992
60	145	250	328	437	525	617
90	117	195	249	316	365	413

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1943-54

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	96%	99%	99.5%	99.9%
675	114	57	35	21	9.8	4.8	2.1	0.12	0.08	0.05	0.03	0.01	0.00	0.00	0.00	0.00

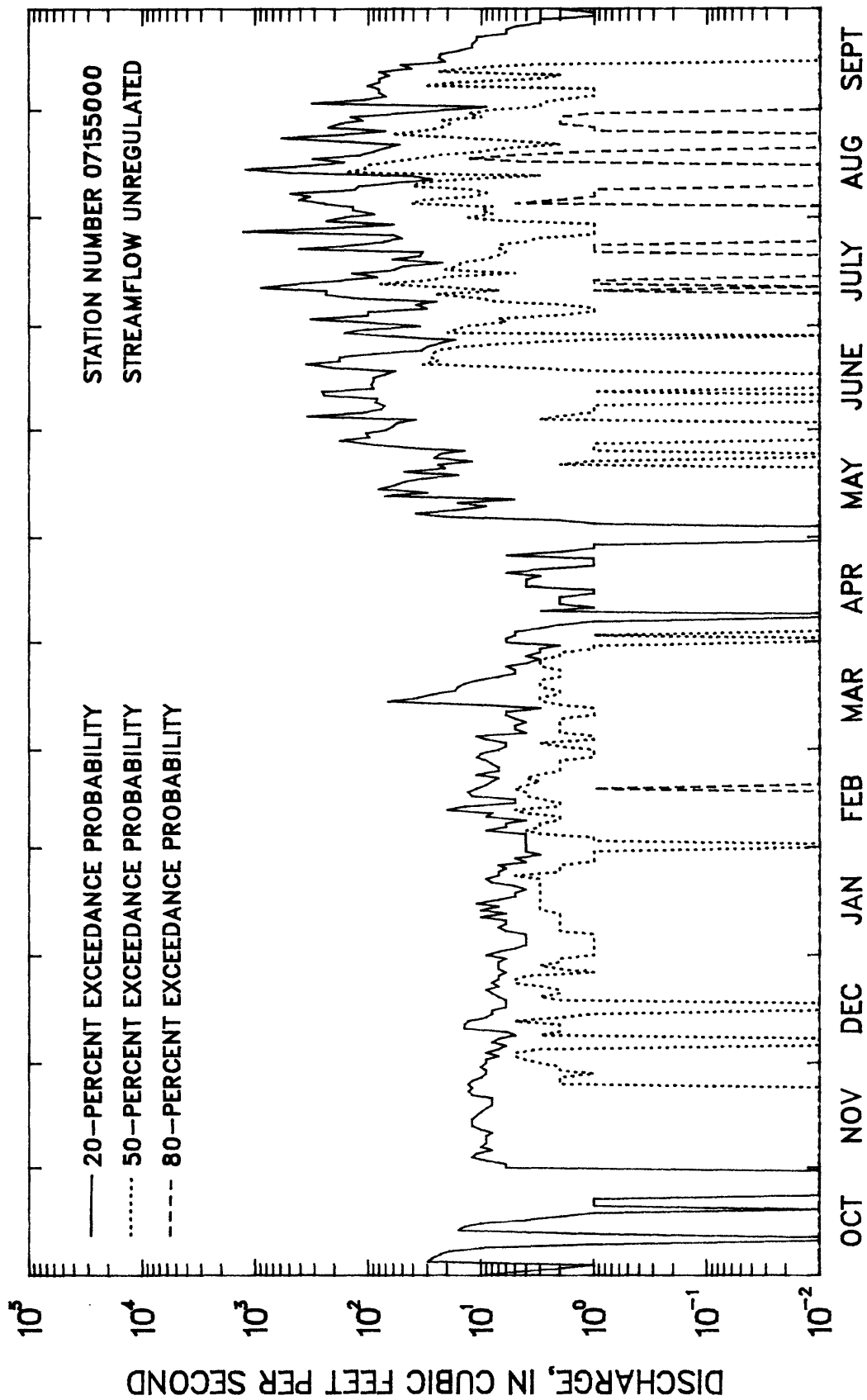


Figure 15.--Duration hydrographs of daily discharge values for Cimarron River above Ute Creek near Boise City, Oklahoma, water years 1946-1954 (streamflow unregulated).

ARKANSAS RIVER BASIN

07156900 CIMARRON RIVER NEAR FORGAN, KS

LOCATION.--Lat 37°00'45", long 100°29'30", in SE 1/4 SE 1/4 sec.8, T.35 S., R.24 E., Mead County, Kans., Hydrologic Unit 11040006, near center of span on downstream side of pier of bridge on Kansas State Highway 23, 0.8 mi north of Oklahoma-Kansas State Line, 7.8 mi north of Forgan, and at mile 35.7.

DRAINAGE AREA.--8,536 mi², of which 4,316 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1965 to current year.

REMARKS.--Extensive diversion for irrigation above station.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1966-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	751	33	94	160	1.7	10.6
NOVEMBER	114	38	65	20	0.31	7.3
DECEMBER	102	36	67	19	0.28	7.6
JANUARY	110	40	66	17	0.26	7.4
FEBRUARY	167	46	71	27	0.38	8.0
MARCH	111	49	68	14	0.21	7.7
APRIL	376	45	89	72	0.81	10.0
MAY	476	45	98	97	0.99	11.0
JUNE	364	32	81	75	0.92	9.1
JULY	211	23	60	44	0.74	6.7
AUGUST	208	19	67	48	0.71	7.5
SEPTEMBER	210	26	62	51	0.82	6.9
ANNUAL	145	40	74	26	0.36	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1967-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	24	19	18	16
3	25	20	18	17
7	28	22	20	18
14	30	24	21	19
30	36	27	23	20
60	41	31	27	23
90	45	34	29	25
120	47	36	31	27
183	53	41	36	32

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2250	6530	11600	21900	33300	48800

WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.188

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1966-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	759	2320	4290	8420	13200	19900
3	441	1300	2420	4930	8020	12700
7	272	714	1270	2460	3950	6120
15	181	415	690	1250	1900	2840
30	137	271	412	677	958	1330
60	106	186	262	396	529	699
90	96	153	205	289	369	465

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
382	120	96	87	79	70	64	58	52	47	40	33	28	23	21	19	16

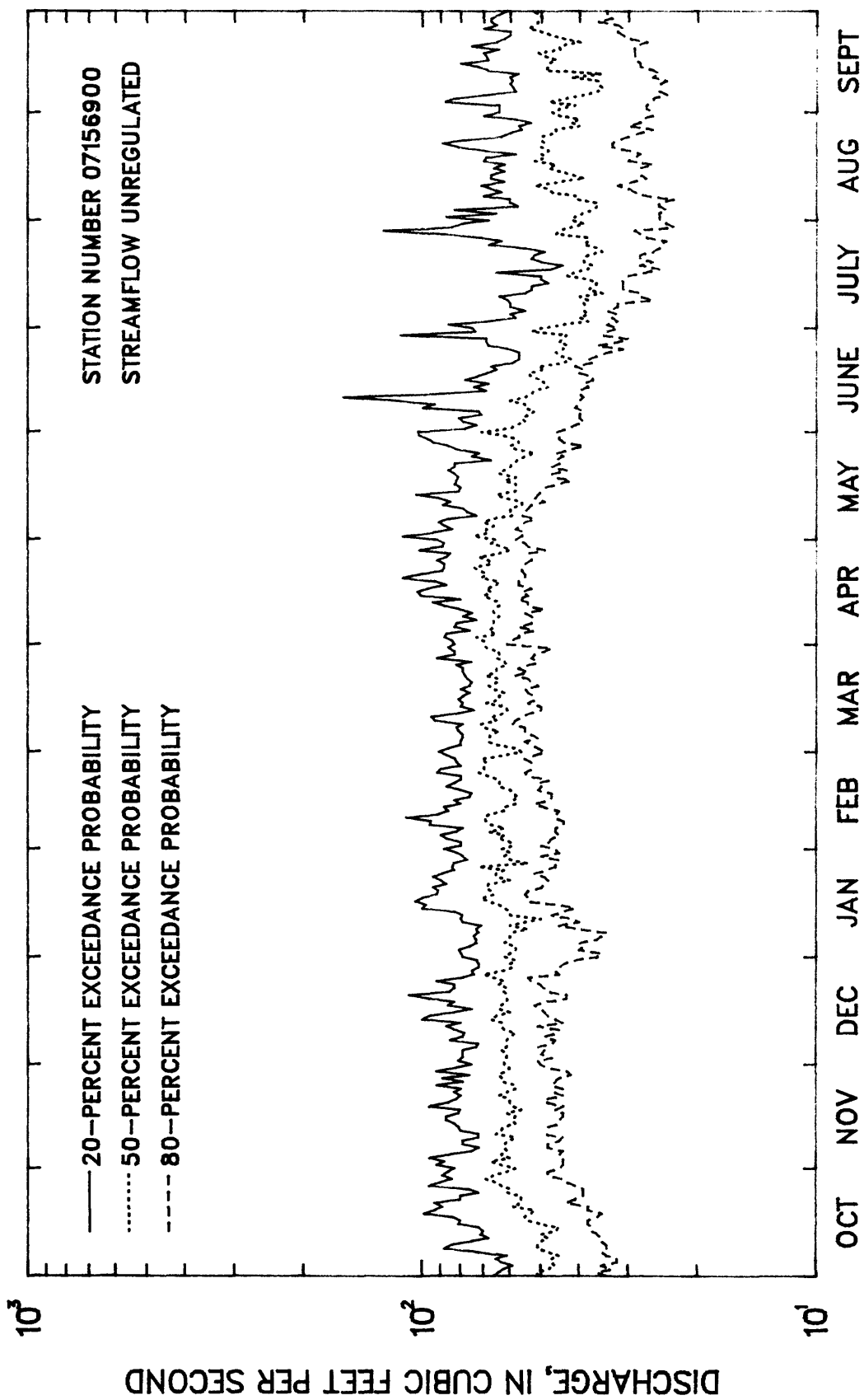


Figure 16.--Duration hydrographs of daily discharge values for Cimarron River near Forgan, Kansas, water years 1966-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07157000 CIMARRON RIVER NEAR MOCANE, OK

LOCATION.--Lat 36°59', long 100°19', in SW 1/4 NW 1/4 sec.24, T.6.N., R.25 E., near right bank on downstream side of pier of bridge on county road, 6.5 mi northeast of Mocane, 14.7 mi upstream from Crooked Creek, and at mile 364.1.

DRAINAGE AREA.--8,670 mi², of which 4.365 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1942 to September 1965 (discontinued).

REMARKS.--Extensive diversions for irrigation above station.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1943-65

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	369	35	84	70	0.84	7.0
NOVEMBER	170	48	78	31	0.40	6.4
DECEMBER	127	42	75	19	0.26	6.2
JANUARY	105	32	77	16	0.21	6.4
FEBRUARY	147	54	83	23	0.28	6.9
MARCH	114	53	77	15	0.20	6.4
APRIL	253	52	85	46	0.54	7.1
MAY	1100	39	187	290	1.5	15.5
JUNE	795	27	156	195	1.2	12.9
JULY	592	15	107	126	1.2	8.9
AUGUST	466	21	123	119	0.97	10.2
SEPTEMBER	202	15	76	57	0.75	6.3
ANNUAL	202	57	101	45	0.44	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1944-65

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	11	5.9	2.7	0.0
3	15	7.2	3.7	1.1
7	18	9.1	6.0	4.0
14	23	13	8.8	6.4
30	30	17	12	8.9
60	37	25	20	17
90	45	32	27	23
120	51	38	32	27
183	62	47	40	36

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1943-65

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5210	11800	18600	30900	43300	59200

WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.301

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1640	4560	8050	15200	23200	34200
3	904	2390	4130	7590	11400	16600
7	558	1390	2330	4160	6170	8890
15	351	808	1310	2280	3330	4750
30	243	510	786	1290	1820	2510
60	180	344	501	773	1040	1380
90	149	271	385	578	765	996

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1943-65

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
848	226	145	109	100	83	72	64	55	47	38	27	20	12	8.7	6.3	2.1

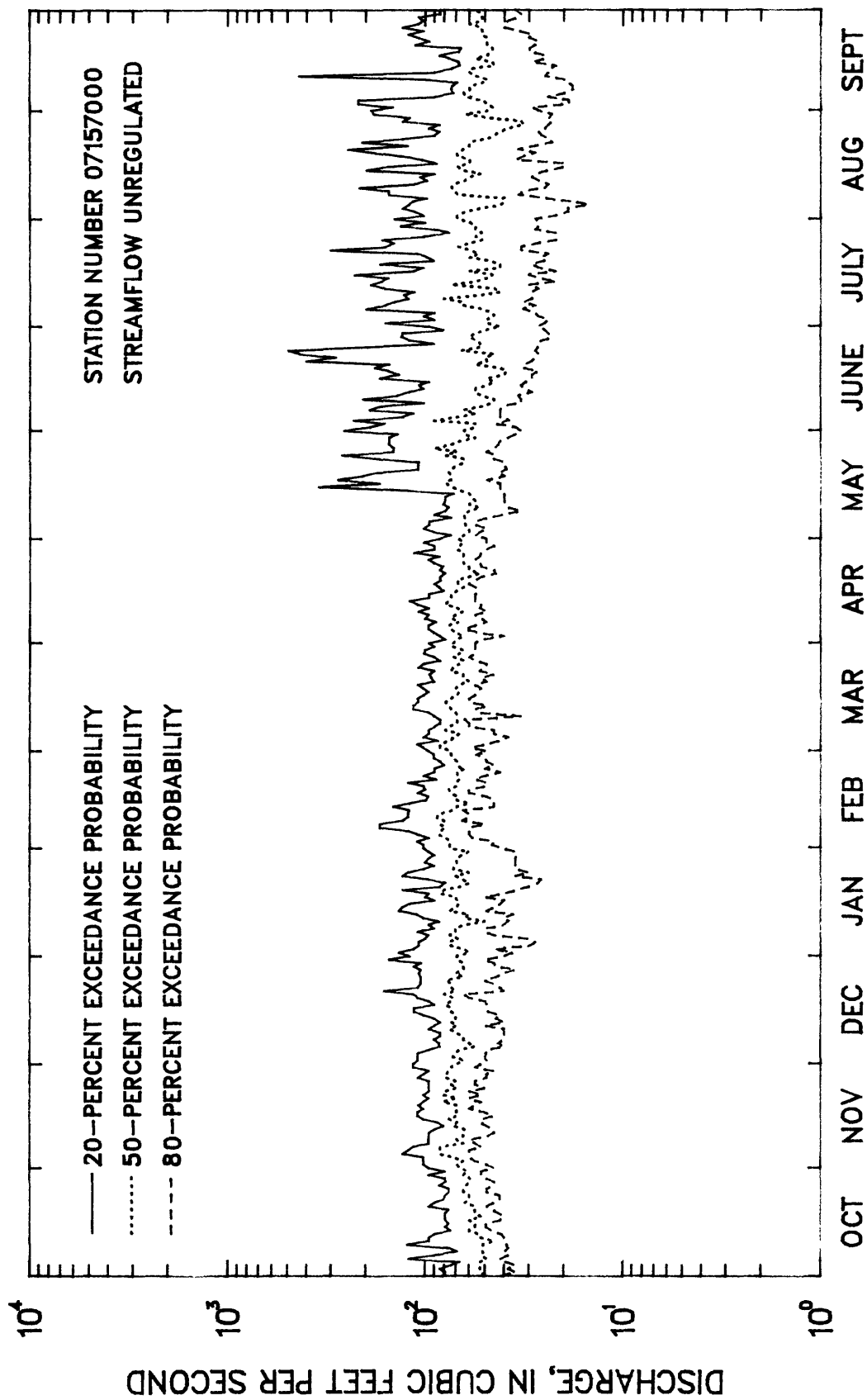


Figure 17.--Duration hydrographs of daily discharge values for Cimarron River near Mocane, Oklahoma, water years 1947-1965 (streamflow unregulated).

ARKANSAS RIVER BASIN

07157950 CIMARRON RIVER NEAR BUFFALO, OK

LOCATION.--Lat 36°51'07", long 99°18'54", in SE 1/4 NE 1/4 sec.2, T.27 N., R.20 W., Harper County, Hydrologic Unit 11050001, near left bank on downstream side of pier of U.S. Highway 64, 0.5 mi downstream from Keno Creek, 17.0 mi northeast of Buffalo, and at mile 289.1.

DRAINAGE AREA.--12,004 mi², of which 4,813 mi² is probably noncontributing.

PERIOD OF RECORD.--May 1960 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	788	0.00	103	187	1.8	6.1
NOVEMBER	482	0.47	94	98	1.0	5.6
DECEMBER	270	8.6	89	58	0.65	5.3
JANUARY	155	31	94	38	0.40	5.6
FEBRUARY	216	40	124	43	0.35	7.4
MARCH	1850	27	195	358	1.8	11.6
APRIL	1300	8.7	161	262	1.6	9.6
MAY	832	6.0	206	228	1.1	12.3
JUNE	1230	6.7	257	296	1.2	15.3
JULY	461	0.21	100	133	1.3	5.9
AUGUST	476	0.00	99	120	1.2	5.9
SEPTEMBER	1100	0.00	157	263	1.7	9.3
ANNUAL	430	41	140	81	0.58	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1962-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	1.0	0.00	0.00	0.00
60	6.3	0.69	0.14	0.01
90	21	3.2	0.93	0.28
120	27	6.2	2.4	1.0
183	54	18	8.7	4.5

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1961-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4130	9120	13400	19800	25200	31100
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.312					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2620	5300	7320	9990	12000	14000
3	1780	3490	4780	6500	7810	9130
7	1090	2140	3000	4240	5270	6380
15	688	1310	1850	2700	3470	4370
30	471	855	1200	1770	2300	2950
60	320	538	734	1060	1360	1730
90	265	430	568	777	962	1170

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
1740	459	254	195	154	116	85	61	40	22	6.9	0.01	0.00	0.00	0.00	0.00	0.00	0.00

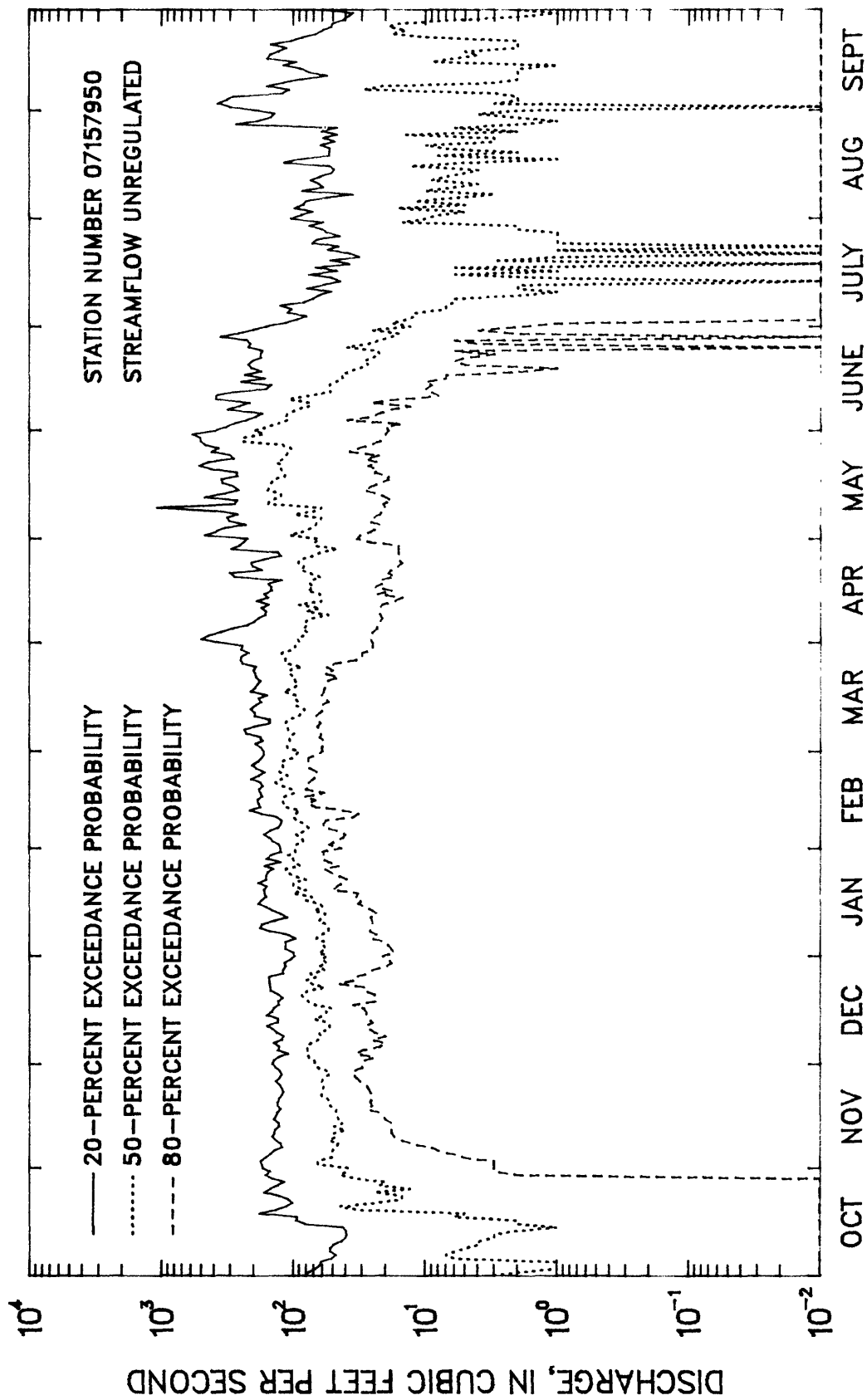


Figure 18.—Duration hydrographs of daily discharge values for Cimarron River near Buffalo, Oklahoma, water years 1966–1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07157960 BUFFALO CREEK NEAR LOVEDALE, OK

LOCATION.--Lat 36°46'08", long 99°21'58", in NW 1/4 NW 1/4 sec.4, T.26 N., R.20 W., Harper County, Hydrologic Unit 11050001, near center of channel on downstream side of pier of bridge on State Highway 34, 1.2 mi east of Lovedale, 1.3 mi upstream from Sleeping Bear Creek, and at mile 7.6.

DRAINAGE AREA.--408 mi².

PERIOD OF RECORD.--August 1966 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1967-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	81	0.00	6.9	19	2.8	6.0
NOVEMBER	21	0.00	3.8	6.0	1.6	3.3
DECEMBER	35	0.00	3.5	8.2	2.3	3.0
JANUARY	12	0.00	2.9	3.4	1.2	2.5
FEBRUARY	12	0.87	3.5	3.1	0.88	3.0
MARCH	40	0.40	10	13	1.2	8.8
APRIL	37	0.24	11	13	1.1	9.7
MAY	149	0.00	30	43	1.4	25.8
JUNE	29	0.00	8.9	8.2	0.91	7.8
JULY	90	0.00	7.1	21	2.9	6.2
AUGUST	144	0.00	17	38	2.3	14.3
SEPTEMBER	138	0.00	11	32	3.0	9.5
ANNUAL	35	0.78	9.6	8.5	0.88	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1968-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	0.22	0.00	0.00	0.00
120	0.40	0.07	0.02	0.00
183	0.89	0.18	0.06	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1967-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 19 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1010	3980	8000	16600	26500	40200
OKLAHOMA WEIGHTED SKEW = -0.106					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	339	1240	2340	4480	6710	9550
3	185	578	1010	1790	2560	3490
7	97	279	474	823	1170	1590
15	57	153	256	441	625	856
30	39	96	152	245	331	432
60	25	57	85	127	161	198
90	19	44	65	95	119	145

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
148	24	13	8.8	6.1	3.0	1.9	1.3	0.71	0.19	0.01	0.00	0.00	0.00	0.00	0.00	0.00

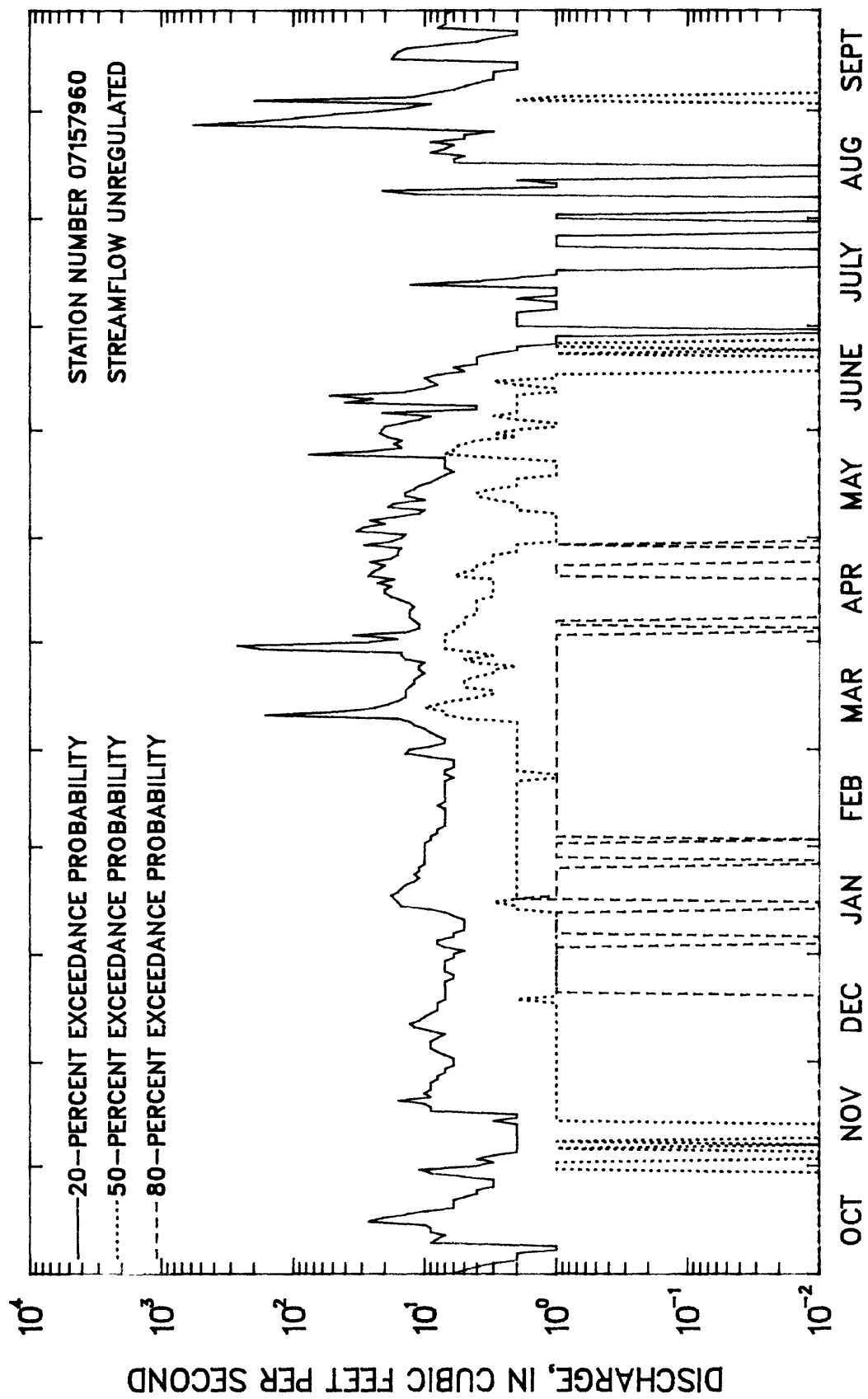


Figure 19.--Duration hydrographs of daily discharge values for Buffalo Creek near Lovedale, Oklahoma, water years 1976-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07158000 CIMARRON RIVER NEAR WAYNOKA, OK

LOCATION.--Lat 36°31'02", long 98°52'45", in NW 1/4 NE 1/4 sec.35, T.24 N., R.16 W., Woods County, Hydrologic Unit 11050001, near left bank on downstream side of bridge on U.S. State Highway 281, 4 mi south of Waynoka, and at mile 247.0.

DRAINAGE AREA.--13,334 mi², of which 4,830 mi² is probably noncontributing.

PERIOD OF RECORD.--September 1903 to December 1905 (gage heights and discharge measurements only), October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.-- Extensive diversions for irrigation above station.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2640	0.00	242	485	2.0	6.3
NOVEMBER	587	0.00	123	137	1.1	3.2
DECEMBER	493	2.0	110	89	0.81	2.8
JANUARY	290	2.7	121	71	0.59	3.1
FEBRUARY	1010	30	179	162	0.90	4.6
MARCH	2200	13	229	320	1.4	5.9
APRIL	2940	6.0	389	579	1.5	10.0
MAY	5670	11	881	1360	1.5	22.7
JUNE	3670	0.60	674	874	1.3	17.4
JULY	3830	0.01	385	659	1.7	9.9
AUGUST	2510	0.00	254	408	1.6	6.6
SEPTEMBER	1480	0.00	288	402	1.4	7.4
ANNUAL	1080	47	323	258	0.80	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1939-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.33	0.00	0.00	0.00
30	3.1	0.00	0.00	0.00
60	14	0.49	0.00	0.00
90	32	4.0	0.87	0.17
120	47	9.8	3.5	1.3
183	78	24	12	6.5

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 47 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
19000	35000	48400	68800	86600	107000

WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.083

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1938-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	9350	18500	25100	33400	39400	45100
3	5250	10800	15400	21900	27100	32700
7	2860	6100	9100	14000	18500	23800
15	1720	3630	5460	8550	11500	15100
30	1110	2330	3480	5410	7230	9440
60	718	1550	2400	3950	5530	7560
90	565	1190	1810	2890	3970	5330

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
5280	1110	525	348	254	170	121	83	54	29	9.0	0.31	0.01	0.00	0.00	0.00	0.00

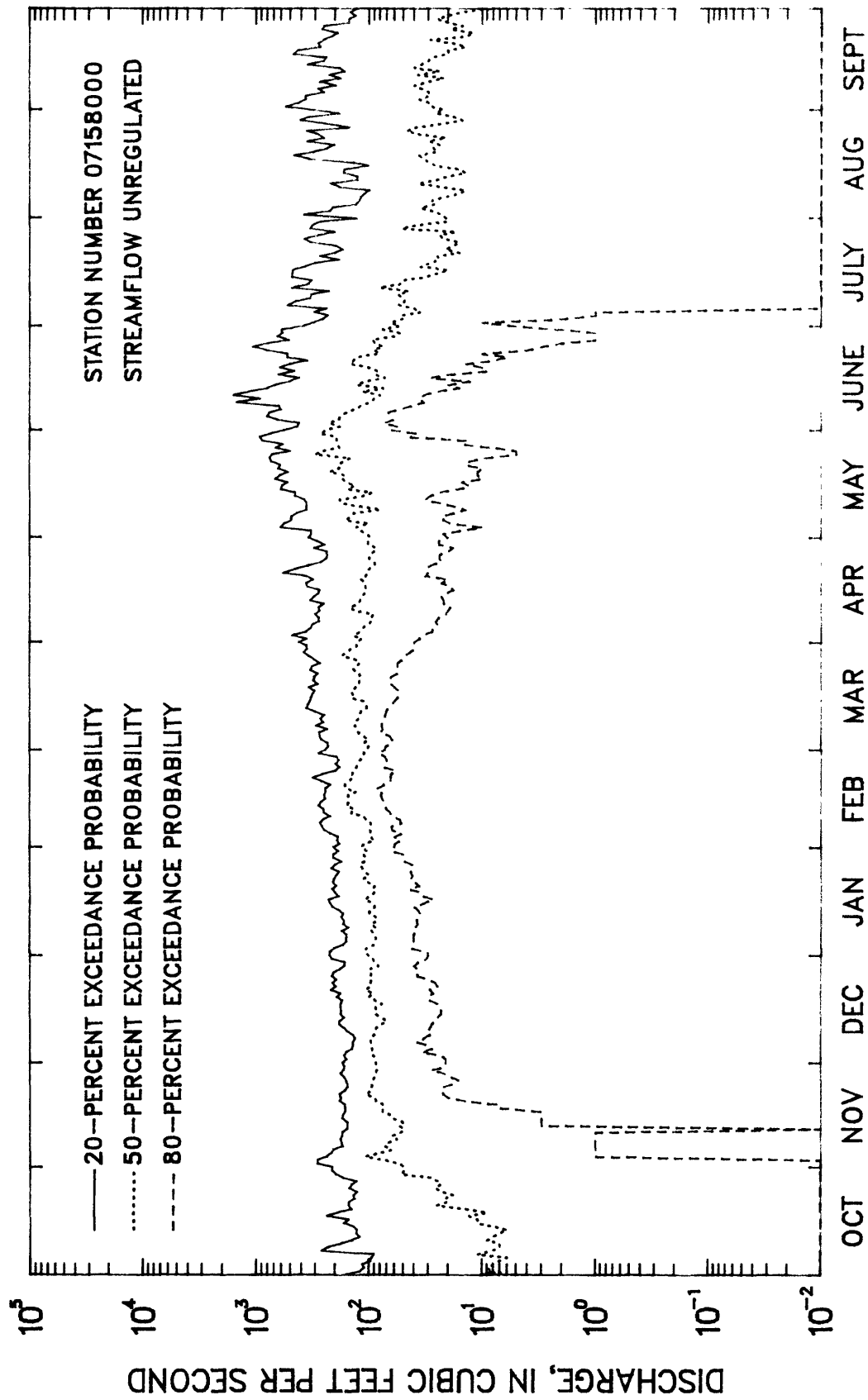


Figure 20.--Duration hydrographs of daily discharge values for Cimarron River near Waynoka, Oklahoma, water years 1946-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07158400 SALT CREEK NEAR OKEENE, OK

LOCATION.--Lat 36°06'11", long 98°11'36", in SW 1/4 sec.20, T.19 N., R.9 W., Kingfisher County, near left bank on downstream wingwall of county bridge, 2.2 mi downstream from Spring Creek, 7.0 mi east of Okeene, and at mile 2.2.

DRAINAGE AREA.--196 mi².

PERIOD OF RECORD.--June 1961 to September 1967, December 1973 to September 1979 (discontinued).

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1962-67, 1975-79

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	85	2.1	24	31	1.3	5.1
NOVEMBER	373	2.0	84	136	1.6	18.0
DECEMBER	31	3.0	13	9.6	0.75	2.7
JANUARY	41	4.8	14	13	0.96	2.9
FEBRUARY	120	2.9	20	33	1.6	4.4
MARCH	168	2.6	35	59	1.7	7.6
APRIL	75	5.6	25	21	0.85	5.4
MAY	478	3.3	109	131	1.2	23.4
JUNE	333	9.3	82	113	1.4	17.7
JULY	89	1.2	20	25	1.3	4.2
AUGUST	40	4.1	14	11	0.81	3.1
SEPTEMBER	67	3.0	26	23	0.90	5.5
ANNUAL	134	10	39	34	0.88	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1963-67, 1975-79

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.9	0.59	0.27	0.13
3	2.0	0.64	0.29	0.14
7	2.3	0.76	0.36	0.18
14	2.7	1.0	0.55	0.30
30	3.6	1.9	1.3	0.93
60	5.2	3.4	2.6	2.1
90	6.1	3.8	2.9	2.4
120	6.2	3.7	3.0	2.6
183	8.7	4.8	3.9	3.3

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 12 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4770	7690	9980	13300	16100	19100
OKLAHOMA WEIGHTED SKEW = 0.218					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-67, 1975-79

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2150	3610	4730	6320	7610	9000
3	987	1750	2400	3430	4360	5450
7	500	866	1160	1570	1920	2300
15	257	452	625	902	1160	1460
30	158	305	449	701	953	1270
60	103	193	270	388	492	611
90	77	144	201	290	367	456

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-67, 1975-79

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
758	98	41	27	20	13	10	8.1	6.8	5.5	4.3	2.7	1.8	1.2	0.76	0.41	0.15

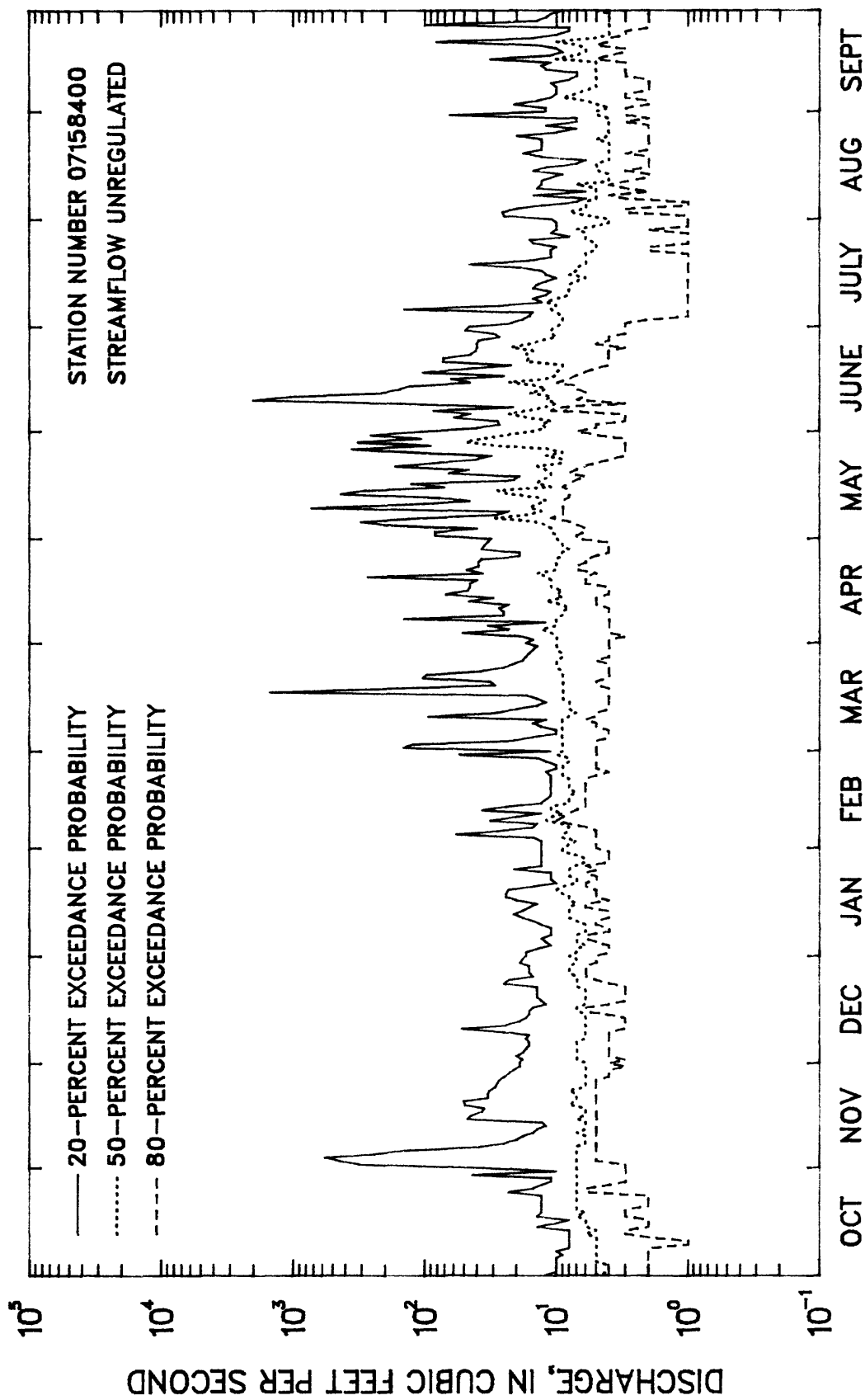


Figure 21.--Duration hydrographs of daily discharge values for Salt Creek near Okeene, Oklahoma, water years 1964-1967 1975-1979 (streamflow unregulated).

ARKANSAS RIVER BASIN

07159000 TURKEY CREEK NEAR DRUMMOND, OK

LOCATION.--Lat 36°19'05", long 98°00'03", in NE 1/4 NE 1/4 sec.12, T.21 N., R.8 W., Garfield County, near right bank on downstream side of pile bent of bridge on county road, 2.2 mi northeast of Drummond, 2.5 mi downstream from Clear Creek, and 9 mi southwest of Enid.

DRAINAGE AREA.--248 mi².

PERIOD OF RECORD.--October 1947 to September 1970.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1948-70

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	475	0.00	42	106	2.6	7.1
NOVEMBER	362	0.03	37	97	2.7	6.3
DECEMBER	32	0.10	6.4	8.0	1.3	1.1
JANUARY	113	0.14	11	25	2.3	1.9
FEBRUARY	319	0.36	22	67	3.1	3.7
MARCH	136	0.03	14	29	2.1	2.4
APRIL	252	0.09	41	71	1.7	6.9
MAY	1030	0.30	150	247	1.7	25.6
JUNE	803	1.6	133	197	1.5	22.7
JULY	415	0.00	57	113	2.0	9.7
AUGUST	401	0.00	44	97	2.2	7.6
SEPTEMBER	188	0.00	30	50	1.7	5.0
ANNUAL	179	3.9	49	51	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1949-70

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.03	0.00	0.00	0.00
30	0.20	0.00	0.00	0.00
60	0.58	0.10	0.02	0.00
90	1.4	0.26	0.04	0.00
120	2.1	0.44	0.15	0.02
183	4.1	0.86	0.35	0.16

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1948-70

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 28 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2640	7200	12200	21500	30900	43000
OKLAHOMA WEIGHTED SKEW = 0.024					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1510	3470	5180	7740	9900	12200
3	1060	2370	3420	4860	5970	7100
7	596	1480	2240	3380	4310	5300
15	328	821	1250	1880	2400	2950
30	189	494	775	1205	1570	1970
60	112	309	506	835	1140	1491
90	85	237	394	661	913	1210

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1948-70

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1360	144	33	18	12	6.2	3.6	2.0	1.2	0.55	0.22	0.01	0.00	0.00	0.00	0.00	0.00

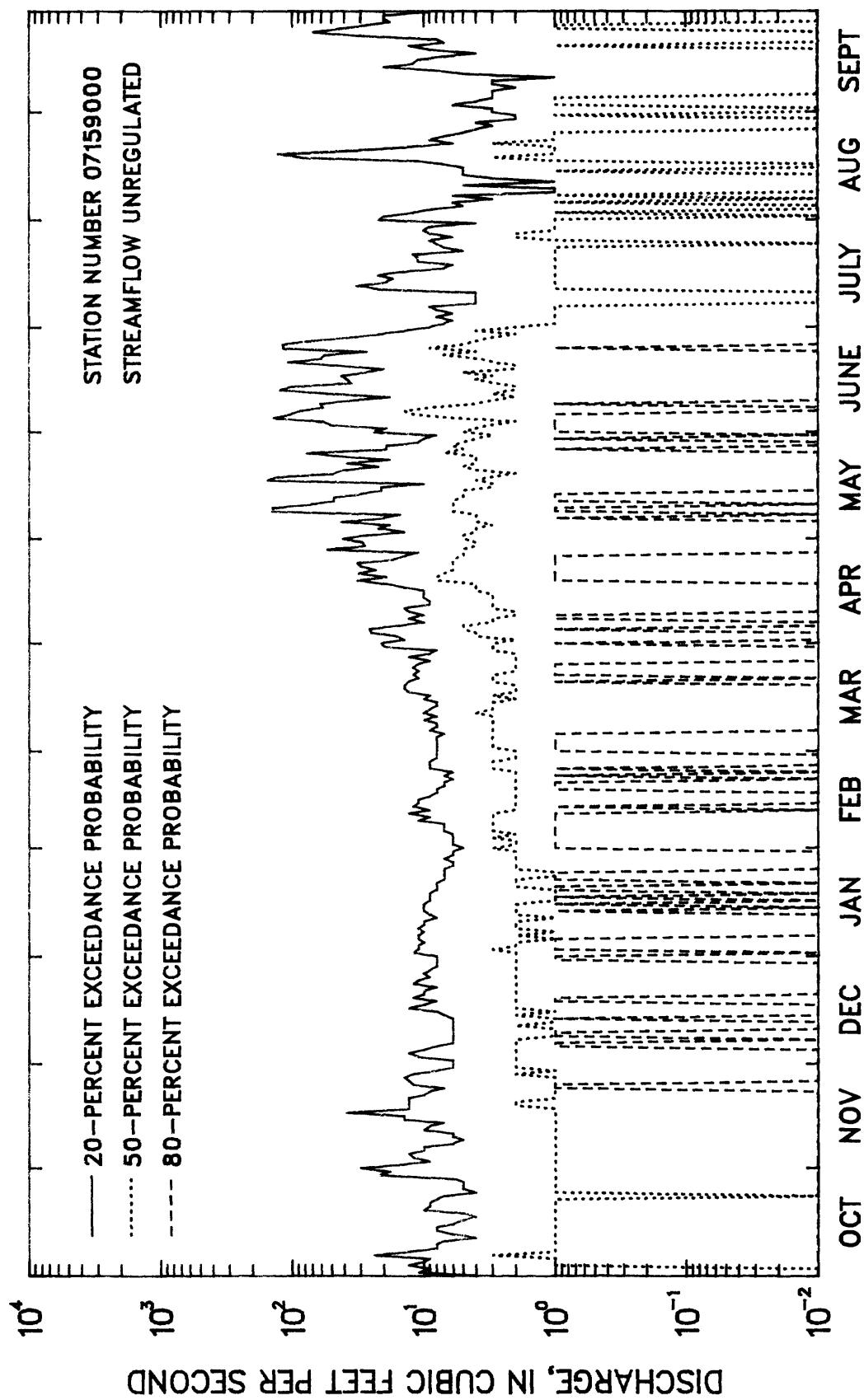


Figure 22.-- Duration hydrographs of daily discharge values for Turkey Creek near Drummond, Oklahoma, water years 1952-1970 (streamflow unregulated).

ARKANSAS RIVER BASIN

07159100 CIMARRON RIVER NEAR DOVER, OK

LOCATION.--Lat 35°57'06", long 97°54'51", in SW 1/4 NE 1/4 sec.14, T.17 N., R.7 W., Kingfisher County, Hydrologic Unit 11050002, near right bank on downstream bridge on U.S. Highway 81, 1.0 mi downstream from Turkey Creek, 2.0 mi south of Dover, 2.5 mi upstream from Kingfisher Creek, and at mile 160.6.

DRAINAGE AREA.--15,713 mi², of which 4,926 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1973 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1974-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	3100	48	509	899	1.8	5.7
NOVEMBER	3380	50	679	1060	1.5	7.6
DECEMBER	775	70	224	207	0.92	2.5
JANUARY	559	62	232	169	0.73	2.6
FEBRUARY	1310	76	386	366	0.95	4.3
MARCH	1970	77	843	757	0.90	9.5
APRIL	1710	61	702	542	0.77	7.9
MAY	5820	533	2740	1600	0.58	30.8
JUNE	3800	207	1410	1210	0.86	15.9
JULY	1390	45	427	459	1.1	4.8
AUGUST	1170	30	344	422	1.2	3.9
SEPTEMBER	2000	14	408	600	1.5	4.6
ANNUAL	1390	325	745	378	0.51	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1975-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	27	13	7.7	4.9
3	30	14	9.2	6.0
7	33	18	12	8.6
14	40	24	17	13
30	48	31	23	18
60	81	45	33	26
90	112	61	43	33
120	129	72	56	46
183	166	83	60	47

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1974-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 11 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
28200	50800	67800	91100	110000	129000
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.269					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	18400	29400	36900	46300	53200	60000
3	13000	21600	27800	35900	42300	48700
7	7770	11900	14700	18000	20300	22600
15	5230	7800	9280	10900	12000	12900
30	3440	5130	6270	7710	8780	9850
60	2230	3290	4040	5040	5820	6630
90	1690	2510	3070	3800	4350	4910

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1974-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
9900	3090	1490	938	665	422	282	203	147	101	69	49	35	20	15	12	8.0

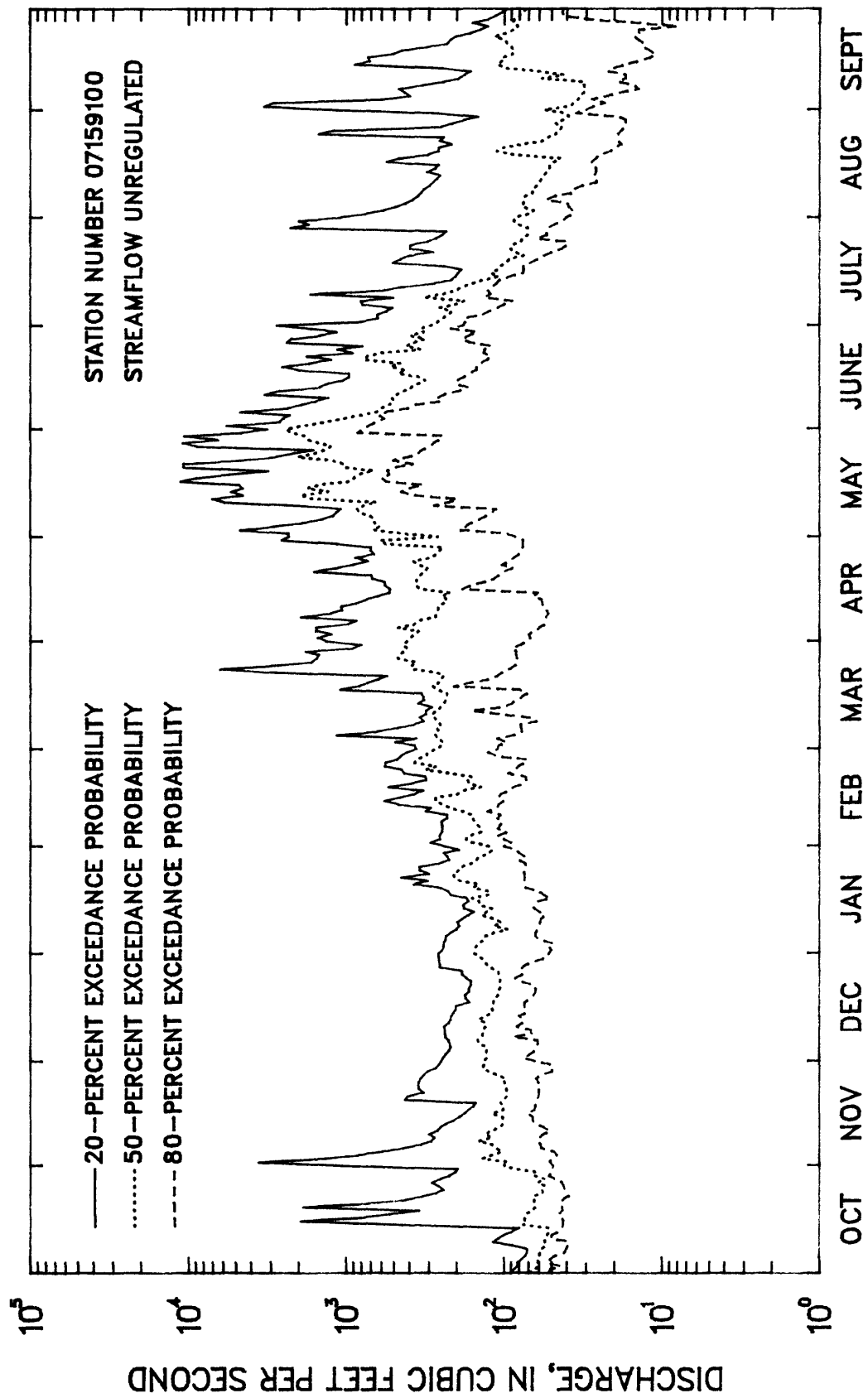


Figure 23. --Duration hydrographs of daily discharge values for Cimarron River near Dover, Oklahoma, water years 1976-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07160000 CIMARRON RIVER NEAR GUTHRIE, OK

LOCATION.--Lat 35°55'07", long 97°25'34", near center of east line of sec.29, T.17 N., R.2 W, Logan County, Hydrologic Unit 11050002, on downstream side of second pier from left bank of State Highway 77 bridge, 1.6 mi downstream from Cottonwood Creek, 2.5 mi north of Guthrie, 6.1 mi upstream from Skeleton Creek, and at mile 122.4.

DRAINAGE AREA.--16,892 mi², of which 4,926 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1937-76, October 1983 to current year. Monthly discharge only for some periods, published in WSP's 1311 and 1731.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-76, 1984

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	7030	0.79	901	1550	1.7	8.5
NOVEMBER	6150	0.70	556	1030	1.9	5.2
DECEMBER	963	1.4	292	234	0.80	2.7
JANUARY	1060	6.4	294	242	0.82	2.8
FEBRUARY	2850	22	440	571	1.3	4.1
MARCH	6320	25	686	1090	1.6	6.4
APRIL	8180	67	1250	1770	1.4	11.7
MAY	15000	63	2230	3020	1.3	20.9
JUNE	11800	59	1880	2160	1.2	17.6
JULY	4220	9.6	828	965	1.2	7.8
AUGUST	4100	26	529	760	1.4	5.0
SEPTEMBER	3150	8.0	774	833	1.1	7.3
ANNUAL	2860	192	889	621	0.70	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-76, 1984

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	26	5.1	1.8	0.71
3	28	5.5	1.9	0.75
7	32	6.2	2.2	0.85
14	41	8.1	2.8	1.1
30	70	14	5.0	1.8
60	133	30	10	3.4
90	172	47	19	7.5
120	219	68	29	12
183	299	102	51	27

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1938-76, 1984

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 41 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
29200	56000	75500	101000	120000	139000
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.516					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	21700	41500	55800	74400	88200	102000
3	15000	28800	39200	53000	63600	74300
7	8720	17200	24100	33800	41700	50100
15	5080	9940	13900	19800	24700	30000
30	3240	6300	8880	12800	16100	19800
60	2120	4230	6100	9080	11800	14900
90	1640	3210	4580	6700	8580	10700

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-76, 1984

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
13700	3320	1580	1040	751	486	344	255	189	132	86	37	13	2.8	0.91	0.63	0.45

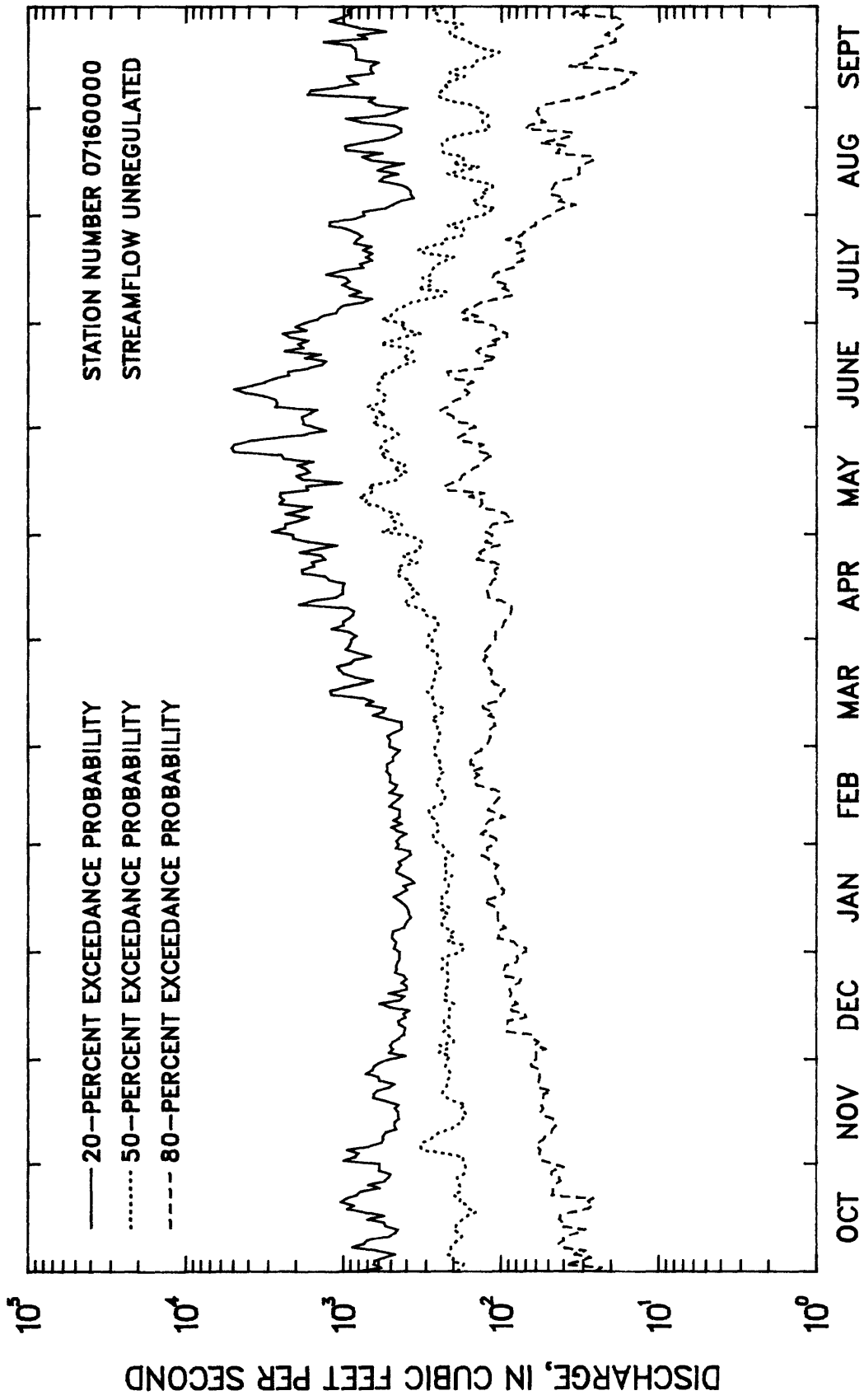


Figure 24.--Duration hydrographs of daily discharge values for Cimarron River near Guthrie, Oklahoma, water years 1939-1976, 1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07160500 SKELETON CREEK NEAR LOVELL, OK

LOCATION.--Lat 36°03'36", long 97°35'05", in NW 1/4 SW 1/4 sec.1, T.18 N., R.4 W., Logan County, Hydrologic Unit 11050002, near right bank on downstream side of pier of bridge on State Highway 74, 2 mi upstream from Otter Creek, 2.8 mi east of Lovell, and at mile 14.6.

DRAINAGE AREA.--410 mi².

PERIOD OF RECORD.--October 1949 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1950-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1470	0.40	136	307	2.3	9.7
NOVEMBER	1290	1.3	86	229	2.7	6.2
DECEMBER	142	2.1	29	35	1.2	2.1
JANUARY	289	3.2	29	57	2.0	2.0
FEBRUARY	667	3.8	60	136	2.3	4.3
MARCH	811	2.6	106	212	2.0	7.6
APRIL	490	2.8	99	136	1.4	7.0
MAY	2850	4.7	380	586	1.5	27.1
JUNE	1390	8.4	212	308	1.5	15.1
JULY	739	0.34	103	187	1.8	7.4
AUGUST	431	3.4	52	93	1.8	3.7
SEPTEMBER	1050	0.40	109	197	1.8	7.8
ANNUAL	434	17	117	111	0.94	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1951-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2.0	0.47	0.06	0.00
3	2.6	0.78	0.14	0.00
7	3.2	1.1	0.22	0.00
14	4.3	1.4	0.24	0.00
30	6.2	1.8	0.68	0.25
60	8.3	3.9	2.5	1.7
90	10	4.9	3.5	2.6
120	12	6.2	4.4	3.4
183	19	7.9	5.1	3.7

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1950-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 36 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4950	13100	22200	39700	58300	83100

OKLAHOMA WEIGHTED SKEW = 0.214

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4000	9410	14600	23400	31600	41400
3	2630	6250	9590	14900	19600	24900
7	1400	3380	5160	7890	10200	12800
15	775	1870	2830	4300	5540	6880
30	466	1090	1640	2470	3170	3920
60	291	676	1020	1540	2000	2490
90	213	489	736	1120	1450	1830

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1950-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2550	352	116	64	42	24	17	13	9.6	7.2	5.3	3.4	2.3	0.94	0.37	0.12	0.02

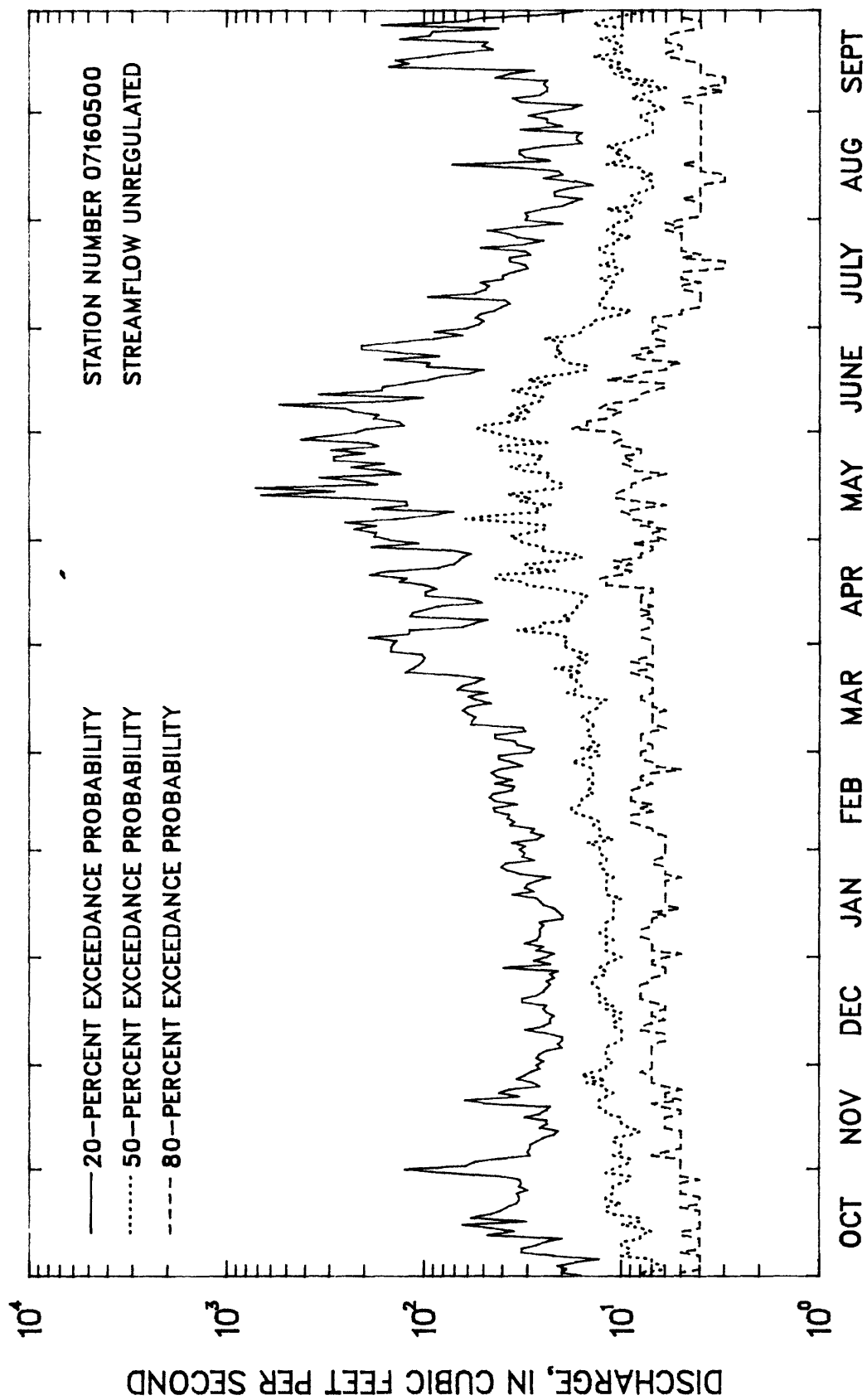


Figure 25.--Duration hydrographs of daily discharge values for Skeleton Creek near Lovell, Oklahoma, water years 1956-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07161000 CIMARRON RIVER AT PERKINS, OK

LOCATION.--Lat 35°57'32", long 97°01'49", in SW 1/4 SW 1/4 sec.7, T.17 N., R.3 E., Payne County, Hydrologic Unit 11050003, near right bank at downstream side of bridge on U.S. Highway 177, 1.0 mi south of Perkins, 1.5 mi upstream from Dugout Creek, 4.0 mi downstream from Wildhorse Creek, and at mile 87.3.

DRAINAGE AREA.--17,852 mi² of which 4,962 mi² is probably noncontributing.

PERIOD OF RECORD.--June 1939 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1927 are contained in reports of National Weather Service.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	11500	4.1	1160	2220	1.9	8.2
NOVEMBER	11200	2.2	791	1720	2.2	5.6
DECEMBER	1740	3.5	401	392	0.98	2.8
JANUARY	2040	7.9	377	373	0.99	2.6
FEBRUARY	4100	26	599	841	1.4	4.2
MARCH	6990	29	912	1350	1.5	6.4
APRIL	11200	82	1550	2240	1.5	10.9
MAY	17800	91	3310	3960	1.2	23.3
JUNE	14200	162	2480	2580	1.0	17.4
JULY	5250	22	1050	1150	1.1	7.4
AUGUST	5310	19	604	893	1.5	4.2
SEPTEMBER	4370	23	997	1160	1.2	7.0
ANNUAL	3610	235	1190	844	0.71	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1941-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	51	16	7.4	3.7
3	54	17	8.1	4.1
7	61	19	9.3	4.6
14	75	24	11	5.5
30	110	35	16	7.9
60	187	62	29	13
90	223	81	40	21
120	265	106	58	34
183	360	143	83	52

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1940-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 57 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
30700	61000	84900	118000	145000	173000

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.348

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	27400	52500	70200	92200	108000	123000
3	19700	38400	52500	71400	85900	100000
7	11700	23200	32500	45400	55900	66800
15	7000	13900	19400	27300	33700	40500
30	4530	8850	12300	17300	21400	25800
60	2970	5850	8250	11800	14800	18100
90	2270	4420	6190	8780	10900	13300

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
17500	4580	2220	1430	1010	632	439	325	244	177	124	63	28	9.3	3.6	2.5	1.3

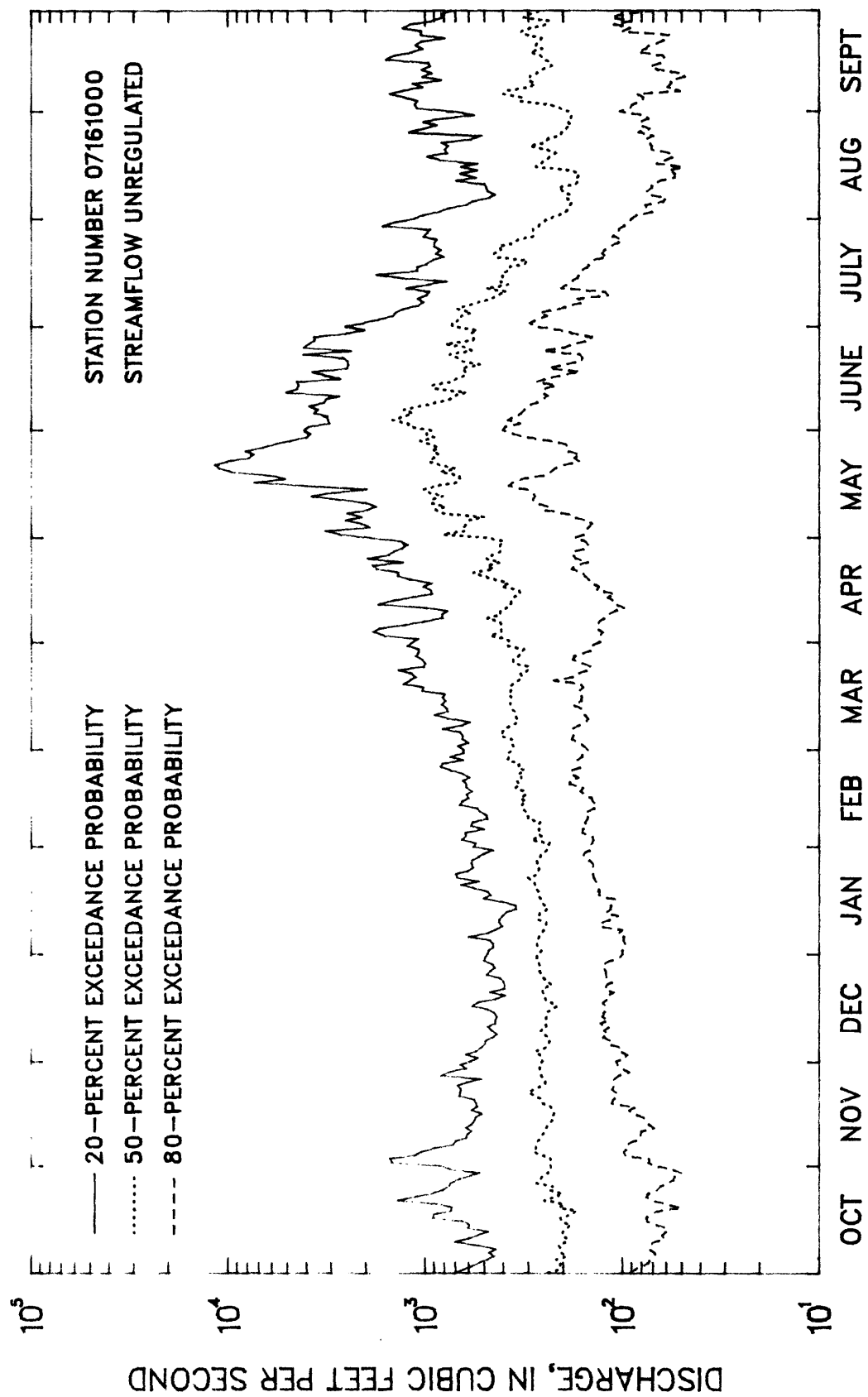


Figure 26.--Duration hydrographs of daily discharge values for Cimarron River at Perkins, Oklahoma, water years 1946-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07163000 COUNCIL CREEK NEAR STILLWATER, OK

LOCATION.--Lat 36°06'58", long 96°52'03", in NW 1/4 NE 1/4 sec.22, T.19 N., R.4 E., Payne County, Hydrologic Unit 11050003, on right bank downstream side of bridge on State Highway 51, 10.0 mi east of Stillwater, and at mile 10.0. Prior to Nov. 9, 1982, gage 200 ft upstream.

DRAINAGE AREA.--31 mi².

PERIOD OF RECORD.--March 1934 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1935-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	429	0.00	16	63	3.9	12.4
NOVEMBER	186	0.00	7.9	27	3.4	6.1
DECEMBER	18	0.00	2.8	4.6	1.6	2.2
JANUARY	35	0.00	3.7	7.2	2.0	2.8
FEBRUARY	27	0.00	4.0	5.9	1.5	3.1
MARCH	78	0.00	11	16	1.5	8.6
APRIL	158	0.00	15	25	1.7	11.3
MAY	202	0.00	26	38	1.5	19.6
JUNE	96	0.04	19	24	1.3	14.9
JULY	110	0.00	9.3	21	2.3	7.1
AUGUST	129	0.00	5.5	19	3.4	4.2
SEPTEMBER	113	0.00	10	22	2.2	7.8
ANNUAL	49	0.68	11	11	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1935-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.02	0.00	0.00	0.00
90	0.18	0.00	0.00	0.00
120	0.43	0.03	0.00	0.00
183	1.1	0.16	0.03	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 51 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1980	4460	7140	12200	17600	24800
OKLAHOMA WEIGHTED SKEW = 0.506					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1935-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	527	1240	2000	3400	4870	6770
3	233	561	912	1560	2240	3110
7	115	280	456	780	1110	1550
15	65	157	249	410	567	760
30	41	96	147	233	311	403
60	26	59	90	138	180	228
90	20	45	67	101	130	162

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1935-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
241	22	7.0	4.3	2.9	1.5	0.72	0.33	0.14	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00

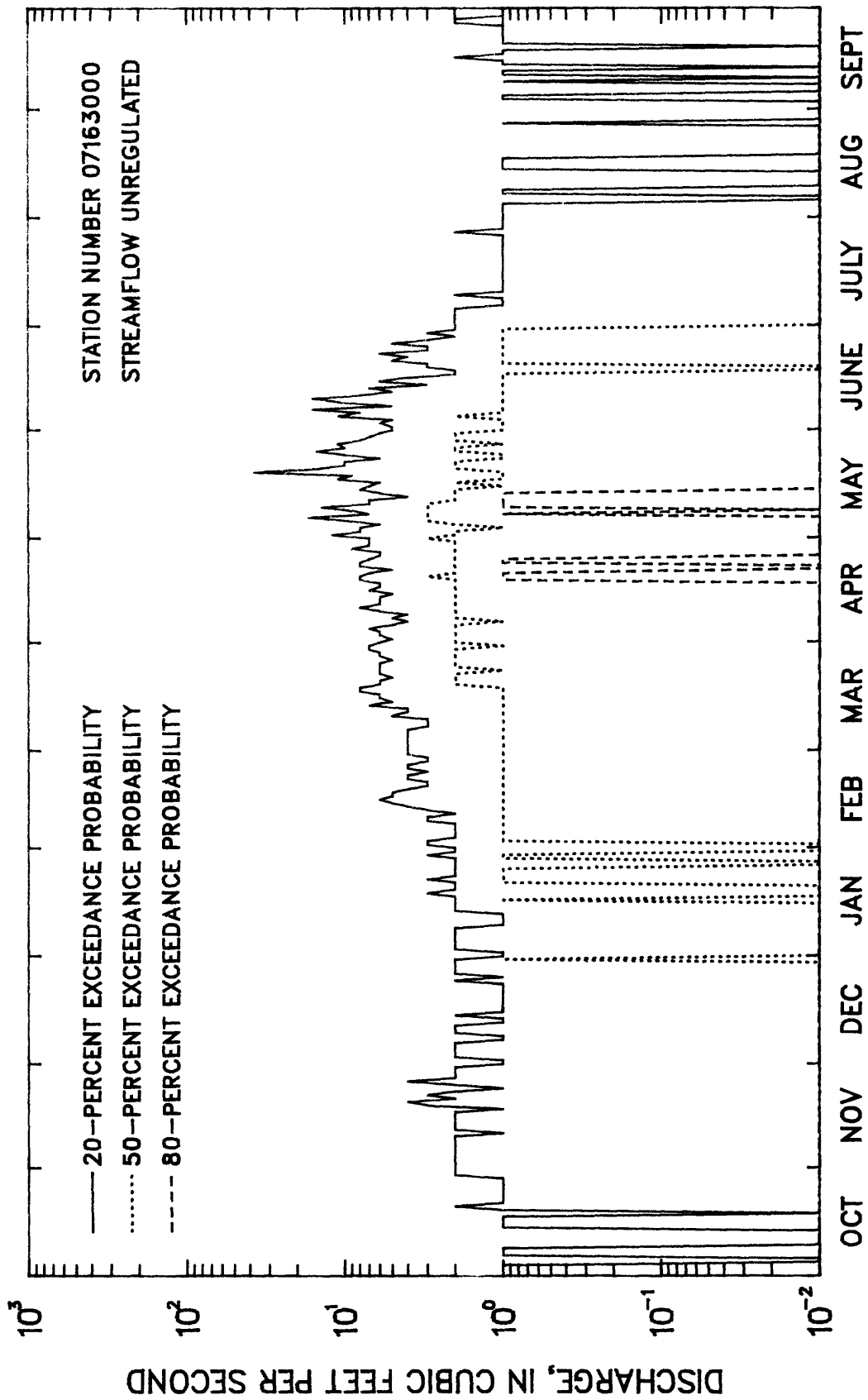


Figure 27.—Duration hydrographs of daily discharge values for Council Creek near Stillwater, Oklahoma, water years 1936-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07163500 CIMARRON RIVER AT OILTON, OK

LOCATION.--Lat 36°06'00", long 96°35'00", in SW 1/4 sec.28, T.19 N., R.7 E., at bridge on State Highway 51, 0.5 mi north of Oilton, 4.25 mi upstream from Buckeye Creek, and at mile 35.1.

DRAINAGE AREA.--18,669 mi² (revised), of which 4,926 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1934 to September 1945.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1935-45

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	9510	21	1430	2720	1.9	9.6
NOVEMBER	2150	13	560	601	1.1	3.8
DECEMBER	1450	17	429	447	1.0	2.9
JANUARY	566	16	241	172	0.71	1.6
FEBRUARY	814	77	289	211	0.73	1.9
MARCH	1690	78	650	589	0.91	4.4
APRIL	12900	97	2680	3920	1.5	18.0
MAY	9150	137	2930	2870	0.98	19.6
JUNE	6150	707	2910	1670	0.57	19.5
JULY	3100	107	976	819	0.84	6.5
AUGUST	2670	10	683	761	1.1	4.6
SEPTEMBER	3390	25	1140	963	0.84	7.6
ANNUAL	3350	367	1240	849	0.68	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1936-45

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	38	12	0.00	0.00
3	42	13	0.00	0.00
7	55	14	3.1	0.97
14	63	14	5.0	1.9
30	81	21	9.1	4.1
60	100	36	20	12
90	177	65	35	21
120	224	80	42	23
183	326	123	72	45

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1935-45

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 11 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
39300	54700	64600	76800	85700	94300

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.168

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	29000	47400	57900	69000	75900	81700
3	19900	33500	41600	50400	55900	60700
7	12300	21100	26700	33300	37800	41900
15	7470	13200	17100	21700	24900	27800
30	5060	8790	11300	14400	16600	18600
60	3340	5730	7290	9180	10500	11700
90	2690	4550	5840	7490	8700	9900

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1935-45

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
17100	5030	2600	1740	1250	678	469	325	224	156	103	58	29	13	10	3.7	0.83	

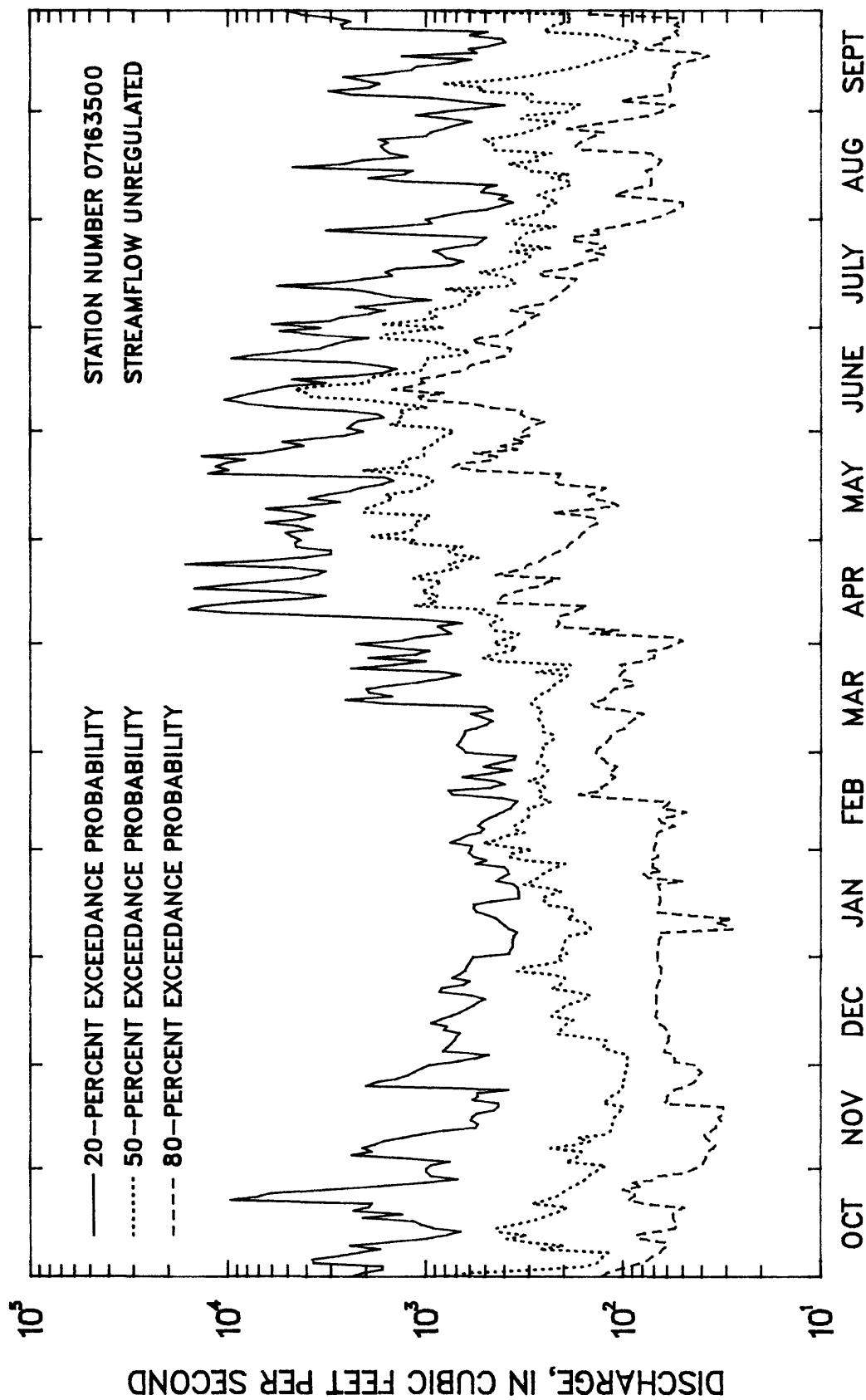


Figure 28.--Duration hydrographs of daily discharge values for Cimarron River at Oilton, Oklahoma, water years 1937-1945 (streamflow unregulated).

ARKANSAS RIVER BASIN

07164000 CIMARRON RIVER AT MANNFORD, OK

LOCATION.--Lat 36°09'40", long 96°23'10", in SW 1/4 NW 1/4 sec.5, T.19 N., R.9 E., near left bank on downstream side of pier of bridge on county road, 0.5 mi north of Mannford, 1.5 mi downstream from House Creek, and at mile 17.7.

DRAINAGE AREA.--18,849 mi², of which 4,926 mi² is probably noncontributing.

PERIOD OF RECORD--October 1938 to September 1950, October 1959 to June 1963 (discontinued). Monthly discharge only for some periods, published in WSP 1311.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-50, 1960-62

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	16900	19	2720	4750	1.7	12.7
NOVEMBER	4100	17	956	1120	1.2	4.5
DECEMBER	1560	18	639	532	0.83	3.0
JANUARY	1180	19	514	366	0.71	2.4
FEBRUARY	3960	117	872	1080	1.2	4.1
MARCH	1930	89	920	609	0.66	4.3
APRIL	13700	334	2980	3780	1.3	14.0
MAY	13300	484	3720	3910	1.0	17.4
JUNE	5870	669	3210	2110	0.66	15.0
JULY	6080	457	1950	1510	0.77	9.1
AUGUST	5850	97	1350	1620	1.2	6.3
SEPTEMBER	5610	29	1540	1570	1.0	7.2
ANNUAL	3820	432	1780	981	0.55	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1940-50, 1961-63

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	84	31	16	8.9
3	90	35	19	11
7	106	41	22	13
14	121	47	26	15
30	167	63	35	21
60	250	96	52	30
90	389	149	74	37
120	442	169	83	41
183	642	234	122	67

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1939-50, 1960-62

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 22 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
43300	79300	105000	140000	165000	191000
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.457					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	45900	69500	80600	90500	95600	99300
3	31200	51100	63700	78400	88500	97700
7	18600	32300	42300	55600	65900	76400
15	11300	19700	25600	33200	38900	44500
30	7400	12400	15600	19500	22100	24600
60	4870	7790	9480	11300	12500	13500
90	3880	5970	7130	8330	9050	9660

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-50, 1960-62

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
24000	6740	3630	2500	1890	1150	784	556	407	298	197	105	61	22	15	11	7.3	

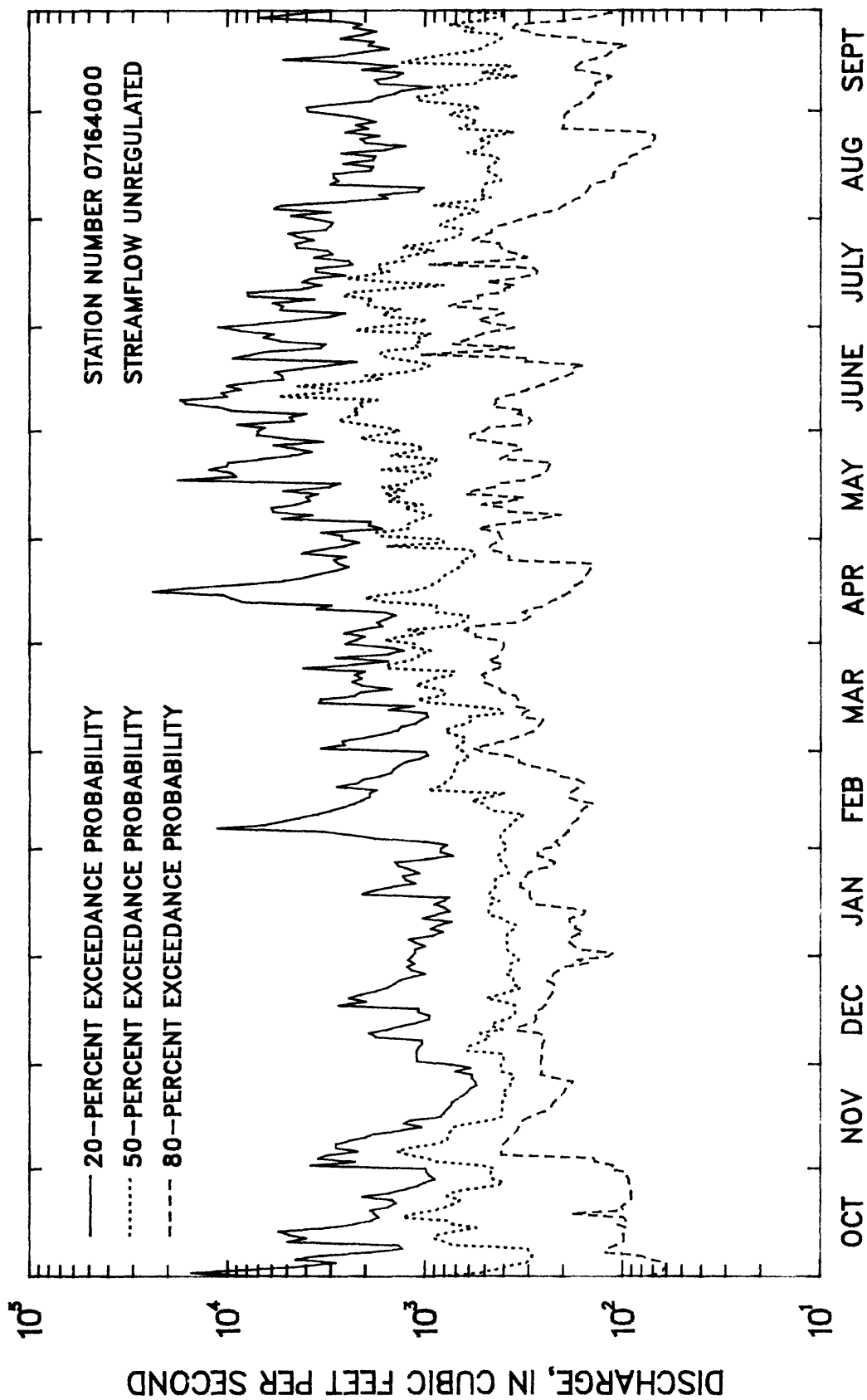


Figure 29.--Duration hydrographs of daily discharge values for Cimarron River at Manford, Oklahoma, water years 1945-1950 1960-1962 (streamflow unregulated).

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK

LOCATION.--Lat 36°08'37", long 96°00'13", in NW 1/4 sec.11, T.19 N., R.12 E., Tulsa County, Hydrologic Unit 11110101, near left bank on downstream side of pier of 11th Street bridge on U.S. Highway 66 in Tulsa, 10.1 mi upstream from Polecat Creek, 15.1 mi downstream from Keystone Dam, and at mile 523.7.

DRAINAGE AREA.--74,615 mi², of which 12,541 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1925 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1904 are published in reports of the National Weather Service.

REMARKS.--Some regulation since 1941 by Great Salt Plains Lake; flow completely regulated since September 1964 by Keystone Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1926-64

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	56700	125	6670	10800	1.6	8.5
NOVEMBER	25200	240	3710	4560	1.2	4.7
DECEMBER	15500	210	2780	2840	1.0	3.5
JANUARY	12600	211	2560	2480	0.97	3.3
FEBRUARY	29700	311	3270	4900	1.5	4.2
MARCH	14300	407	4220	3930	0.93	5.4
APRIL	40500	531	9270	11800	1.3	11.8
MAY	58100	720	13400	13700	1.0	17.1
JUNE	61100	881	12800	11800	0.93	16.2
JULY	56700	305	8990	10900	1.2	11.4
AUGUST	32900	196	5410	7300	1.3	6.9
SEPTEMBER	24800	90	5450	5230	0.96	6.9
ANNUAL	15600	1280	6550	4220	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1927-64

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	611	245	140	85
3	642	253	145	88
7	696	272	155	94
14	764	305	178	110
30	911	363	212	132
60	1230	521	317	206
90	1460	641	399	264
120	1750	785	490	323
183	2430	1020	611	390

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1926-64

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 42 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
81300	144000	190000	250000	295000	341000
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.377					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	69800	126000	167000	221000	263000	305000
3	60800	113000	153000	206000	247000	289000
7	44700	84000	114000	155000	187000	221000
15	30900	57200	76700	103000	123000	143000
30	21300	40300	55000	75000	90900	107000
60	14800	28500	39600	55400	68400	82300
90	11800	22500	31100	43400	53500	64400

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1926-64

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
72900	25700	14700	10000	7530	4860	3450	2550	1950	1370	963	619	384	212	147	107	65

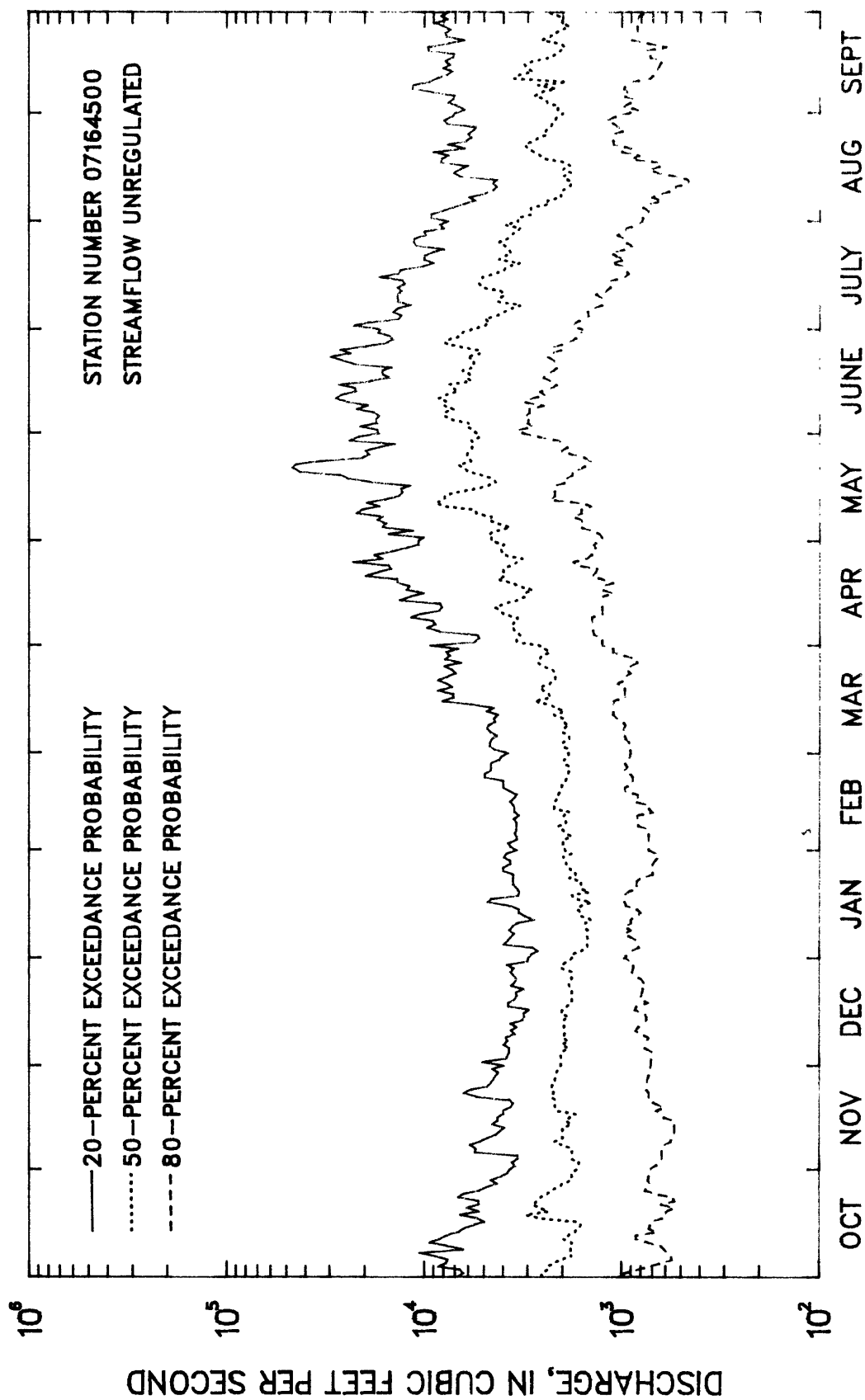


Figure 30.--Duration hydrographs of daily discharge values for Arkansas River at Tulsa, Oklahoma, water years 1926-1964 (streamflow unregulated).

ARKANSAS RIVER BASIN

07164500 ARKANSAS RIVER AT TULSA, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1965-84

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	48900	491	5080	10500	2.1	6.0					
NOVEMBER	39400	457	7020	9480	1.3	8.3					
DECEMBER	12300	582	3710	3240	0.87	4.4	1	205	98	66	47
JANUARY	12300	483	3570	3440	0.97	4.2	3	407	235	174	134
FEBRUARY	18600	494	4340	4680	1.1	5.1	7	619	400	320	266
MARCH	37400	490	8340	9470	1.1	9.9	14	768	471	371	307
APRIL	44500	557	11500	12500	1.1	13.6	30	971	568	435	352
MAY	26900	881	12000	8430	0.70	14.2	60	1470	758	534	400
JUNE	38900	2600	13100	9590	0.73	15.5	90	1840	985	702	527
JULY	16500	1740	7300	4150	0.57	8.6	120	2150	1170	834	627
AUGUST	6860	1130	3570	1850	0.52	4.2	183	2580	1380	1010	796
SEPTEMBER	18700	1220	4950	4650	0.94	5.9					
ANNUAL	15800	1860	7030	4170	0.59	100					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%		2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
37000	65600	85900	112000	131000	150000	1	34800	63700	85000	114000	135000	158000
						3	33600	61600	81900	109000	129000	149000
						7	29900	54500	72400	96100	114000	132000
						15	24400	43900	58300	77500	92400	108000
						30	19700	35300	46700	61800	73400	85100
						60	15300	26700	34700	45200	52900	60700
						90	12700	21700	27900	36000	42000	48000
STATION SKEW = -0.471												

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
47900	27400	17600	13200	10700	6950	4890	3280	2410	1680	1120	606	349	212	180	141	101

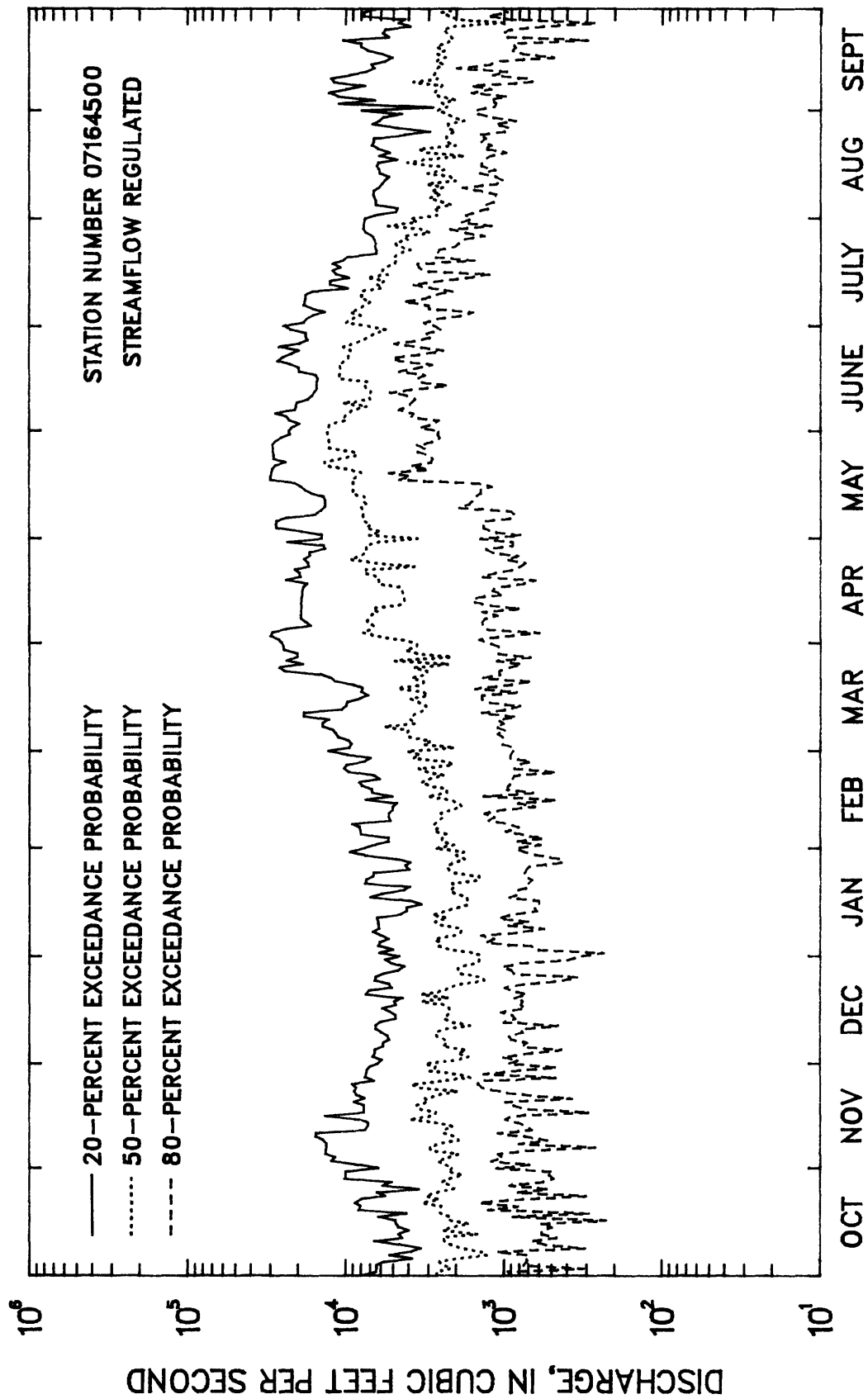


Figure 31.--Duration hydrographs of daily discharge values for Arkansas River at Tulsa, Oklahoma, water years 1966-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07165500 POLECAT CREEK BELOW HEYBURN LAKE, NEAR HEYBURN, OK

LOCATION.--Lat 35°56'42", long 96°17'39", in NW 1/4 NW 1/4 sec.19, T.17 N., R.10 E., Creek County, Hydrologic Unit 11110101, on right bank of outlet channel, 1,100 ft downstream from Heyburn Dam, 3.2 mi upstream from bridge on U.S. Highway 66, 11 mi southwest of Sapulpa, and at mile 48.4.

DRAINAGE AREA.--123 mi².

PERIOD OF RECORD.--October 1943 to September 1979 (discontinued). Prior to October 1956, published as Polecat Creek at Heyburn and October 1956 to September 1970 as Polecat Creek below Heyburn Reservoir near Heyburn.

REMARKS.--Flow regulated since September 1950 by Heyburn Lake.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1951-79

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	373	0.00	28	74	2.6	4.9
NOVEMBER	677	0.00	41	127	3.1	7.1
DECEMBER	267	0.00	20	52	2.6	3.4
JANUARY	88	0.00	13	24	1.8	2.3
FEBRUARY	238	0.00	27	49	1.8	4.6
MARCH	423	0.00	55	90	1.7	9.4
APRIL	601	0.20	91	127	1.4	15.7
MAY	678	0.08	109	142	1.3	18.7
JUNE	580	1.3	106	166	1.6	18.2
JULY	277	0.00	40	72	1.8	6.9
AUGUST	146	0.00	14	31	2.2	2.4
SEPTEMBER	419	0.00	38	85	2.2	6.5
ANNUAL	143	1.8	48	42	0.87	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1952-79

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.14	0.00	0.00	0.00
90	0.43	0.00	0.00	0.00
120	0.83	0.02	0.00	0.00
183	3.8	0.49	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1951-79

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 29 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1480	1950	2090	2170	2200	2220

STATION SKEW = -1.955

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1230	1800	2010	2160	2220	2260
3	986	1620	1940	1900	2090	2200
7	613	1160	1530	1610	1800	2150
15	360	714	977	1320	1580	1830
30	221	438	591	779	911	1040
60	141	287	391	521	613	700
90	109	220	300	390	448	504

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1951-79

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1040	224	92	50	31	14	6.2	2.0	0.48	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00

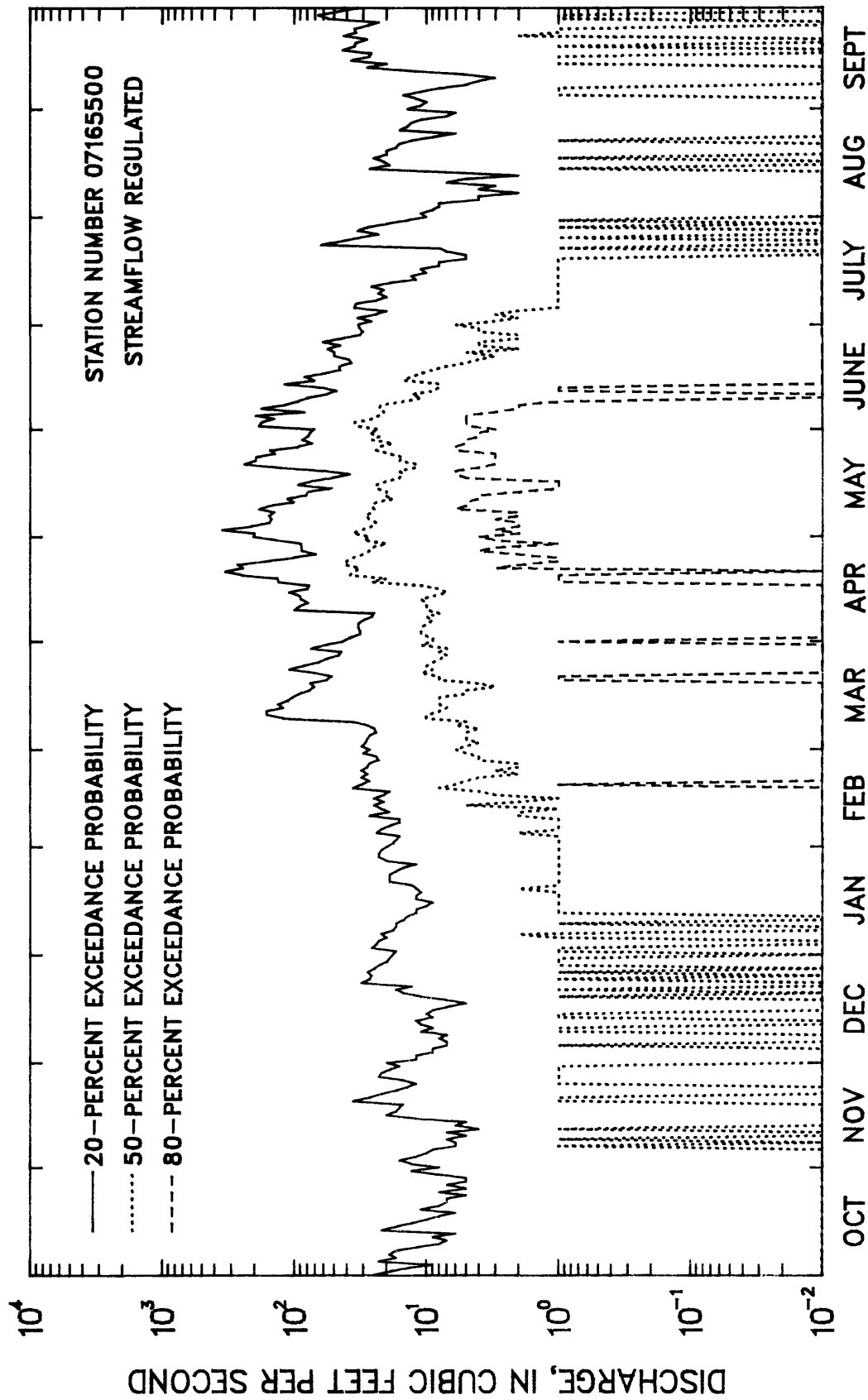


Figure 32.---Duration hydrographs of daily discharge values for Polecat Creek below Heyburn Lake near Heyburn, Oklahoma, water years 1951-1979 (streamflow regulated).

ARKANSAS RIVER BASIN

07165570 ARKANSAS RIVER NEAR HASKELL, OK

LOCATION.--Lat 35°49'23", long 95°38'39", in NE 1/4 sec.31, T.16 N., R.16 E., Muskogee County, Hydrologic Unit 11110101, near right bank on downstream side of bridge on State Highway 104, 2 mi east of Haskell, 23.5 mi upstream from Verdigris River, and at mile 483.7.

DRAINAGE AREA.--75,473 mi², of which 12,541 mi² probably is noncontributing.

PERIOD OF RECORD.--June 1972 to current year.

REMARKS.--Flow regulated since 1965 by Keystone Lake.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1973-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	49900	576	6340	13800	2.2	6.0
NOVEMBER	42200	646	8560	11800	1.4	8.1
DECEMBER	14100	802	4050	4130	1.0	3.9
JANUARY	12100	567	4440	4260	0.96	4.2
FEBRUARY	19200	549	5900	5620	0.95	5.6
MARCH	39300	722	12200	11400	0.94	11.6
APRIL	46900	638	15500	15000	0.97	14.7
MAY	29600	2470	16100	8180	0.51	15.3
JUNE	40900	6510	16300	10800	0.66	15.5
JULY	17800	2750	7850	4220	0.54	7.5
AUGUST	5840	1170	3700	1810	0.49	3.5
SEPTEMBER	13700	1110	4390	4310	0.98	4.2
ANNUAL	16900	2100	8770	4960	0.57	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1974-84

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	303	209	174	152
3	462	310	257	221
7	576	420	375	349
14	628	454	410	387
30	840	544	462	416
60	1400	739	544	428
90	1790	957	702	549
120	2200	1100	758	556
183	2770	1250	848	621

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1973-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 12 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%	
44600	74200	97300	130000	157000	187000	
STATION SKEW = 0.070						

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	41700	72700	95700	127000	151000	176000
3	40500	72000	94800	125000	147000	170000
7	37600	66100	86200	112000	131000	150000
15	32000	54700	70300	89900	104000	118000
30	26000	43800	55900	70800	81700	92100
60	20600	33500	41900	52100	59400	66300
90	17400	27400	33900	41500	46900	51900

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1973-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
58900	31900	23100	16400	13400	9400	6890	4470	2900	1840	1080	658	529	404	337	286	197

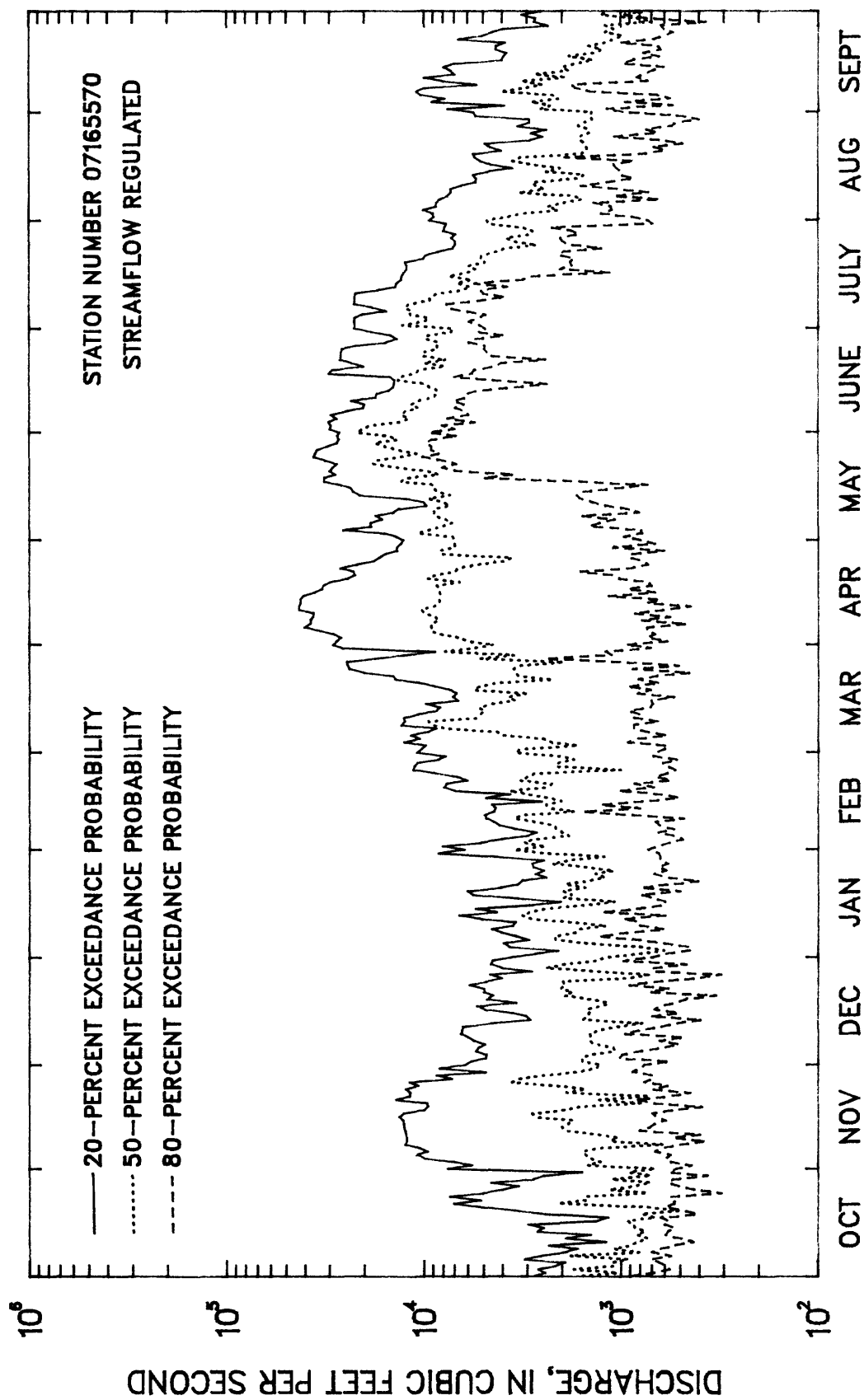


Figure 33.—Duration hydrographs of daily discharge values for Arkansas River near Haskell, Oklahoma, water years 1976–1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07171000 VERDIGRIS RIVER NEAR LENAPAH, OK

LOCATION.--Lat 36°51'05", long 95°35'06", at center of sec.3, T.27 N., R.16 E., Nowata County, Hydrologic Unit 11070103, on right bank on downstream side of county road bridge, 2.8 mi east of Lenapah, 4.5 mi upstream from Cedar Creek, and at mile 144.6.

DRAINAGE AREA.--3,639 mi².

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.-- Some regulation since April 1949 by Fall River Reservoir in Kansas. Flow regulated since 1960 by Toronto Lake in Kansas. Flow has been further regulated since 1966 by Elk Reservoir in Kansas.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-59							MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1940-59				
MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	13500	0.94	1730	3420	2.0	6.6					
NOVEMBER	5860	0.00	813	1480	1.8	3.1					
DECEMBER	4610	0.00	623	1200	1.9	2.4	1	9.6	1.1	0.00	0.00
JANUARY	5620	0.00	949	1570	1.7	3.7	3	11	1.3	0.00	0.00
FEBRUARY	8360	4.4	1070	1880	1.7	4.1	7	12	1.7	0.00	0.00
MARCH	10200	2.3	2310	2960	1.3	8.9	14	16	2.2	0.00	0.00
APRIL	19100	9.9	4490	5760	1.3	17.3	30	24	3.9	0.00	0.00
MAY	26300	60	4080	5810	1.4	15.7	60	58	7.9	1.9	0.00
JUNE	15600	84	3870	4330	1.1	14.9	90	117	15	3.3	0.00
JULY	25200	17	3730	6460	1.7	14.3	120	168	20	5.3	1.5
AUGUST	3830	2.7	675	1010	1.5	2.6	183	333	47	14	4.4
SEPTEMBER	6910	0.43	1660	2430	1.5	6.4					
ANNUAL	4360	120	2170	1390	0.64	100					

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 21 YEARS OF RECORD							MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1940-59						
DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT							PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%			2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
							1	34300	60700	77400	96400	109000	120000
							3	31800	55900	68900	81600	88700	94100
							7	23000	42200	52700	63100	68800	73300
							15	15000	28300	36000	43800	48400	52100
							30	9930	19900	26300	33300	37600	41400
							60	6710	13600	18000	22600	25400	27700
							90	4900	9970	13100	16400	18500	20100
WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.176													

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-59

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
31200	12400	5350	2710	1700	868	506	275	142	70	25	8.3	3.9	0.15	0.05	0.02	0.00

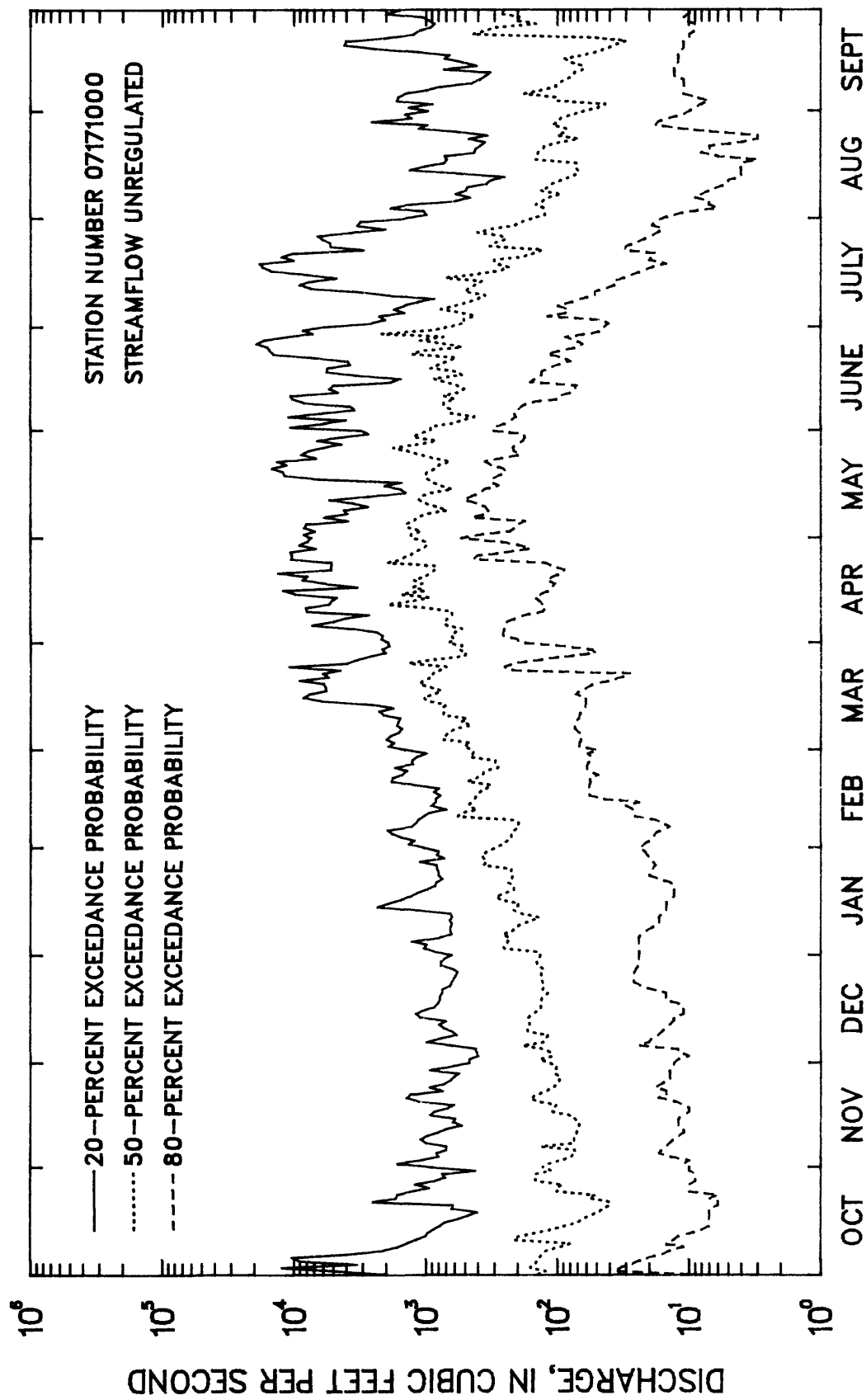


Figure 34.--Duration hydrographs of daily discharge values for Verdigris River near Lenapah, Oklahoma, water years 1941-1959 (streamflow unregulated).

ARKANSAS RIVER BASIN

07171000 VERDIGRIS RIVER NEAR LENAPAH, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1967-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	8510	16	1540	2100	1.4	5.2
NOVEMBER	15400	20	2770	4000	1.4	9.4
DECEMBER	6760	29	1520	1870	1.2	5.1
JANUARY	8000	18	1480	2080	1.4	5.0
FEBRUARY	7500	20	1920	2050	1.1	6.5
MARCH	17100	20	4060	4840	1.2	13.7
APRIL	14000	30	4020	4360	1.1	13.6
MAY	6780	397	3330	2280	0.68	11.3
JUNE	12500	84	4940	4200	0.85	16.8
JULY	13900	18	2340	3310	1.4	7.9
AUGUST	3120	16	576	810	1.4	2.0
SEPTEMBER	4130	10	1010	1320	1.3	3.4
ANNUAL	5060	329	2450	1370	0.56	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1968-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	27	14	8.9	6.0
3	28	14	9.3	6.3
7	32	16	11	7.1
14	39	20	13	9.1
30	61	27	17	12
60	125	47	27	16
90	262	75	36	19
120	476	139	63	30
183	756	194	81	36

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 18 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
29100	44100	56200	74200	89800	107000

STATION SKEW = -0.298

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1967-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	28900	44100	53600	64600	72100	79100
3	24100	37000	44500	52700	58100	62800
7	17500	26100	31200	37000	40900	44500
15	14100	20200	23100	25700	27200	28300
30	10100	15200	17800	20300	21700	22800
60	6600	10200	12200	14200	15400	16400
90	5380	8340	9960	11600	12600	13500

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
21700	11700	7760	5190	3690	1860	986	524	275	141	67	34	21	14	10	8.4	6.3

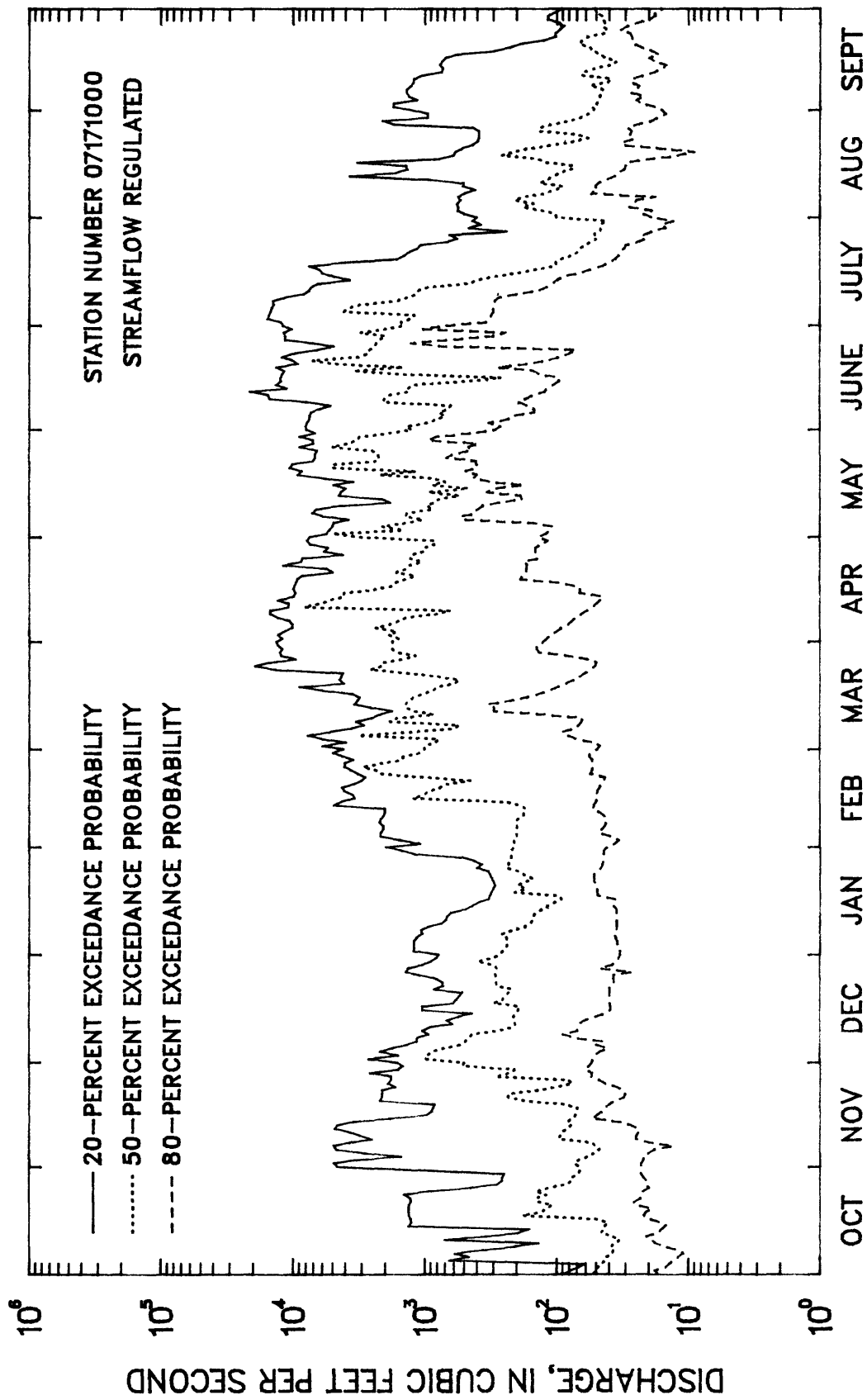


Figure 35.—Duration hydrographs of daily discharge values for Verdigris River near Lenap, Oklahoma, water years 1976–1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07171400 VERDIGRIS RIVER NEAR OOLOGAH, OK

LOCATION.--Lat 36°25'17", long 95°41'01", in NW 1/4 sec.2, T.22 N., R.15 E., Rogers County Hydrologic Unit 11070105, on right bank 0.2 mi downstream from Oologah Dam, 1.2 mi upstream from Fourmile Creek, 2 mi southeast of Oologah, and at mile 90.0.

DRAINAGE AREA.--4,339 mi².

PERIOD OF RECORD.--June 1961 to current year.

REMARKS.--Records good. Some regulation by several dams in Kansas prior to May 1963 and completely regulated thereafter by Oologah Lake.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1963-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	5530	5.4	1320	1620	1.2	4.4
NOVEMBER	14900	1.9	2780	4080	1.5	9.3
DECEMBER	7480	1.1	1730	2300	1.3	5.8
JANUARY	11100	0.76	1970	3150	1.6	6.5
FEBRUARY	6860	0.71	1730	2150	1.2	5.7
MARCH	13400	0.89	3280	3520	1.1	10.9
APRIL	14100	28	4800	4840	1.0	16.0
MAY	19400	26	3430	4410	1.3	11.4
JUNE	12800	6.3	4550	4040	0.89	15.1
JULY	16600	7.0	3050	4060	1.3	10.2
AUGUST	3290	7.2	585	796	1.4	1.9
SEPTEMBER	4040	2.6	829	1300	1.6	2.8
ANNUAL	6210	218	2500	1790	0.72	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1964-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.97	0.00	0.00	0.00
3	1.6	0.08	0.00	0.00
7	3.7	0.43	0.00	0.00
14	6.4	0.85	0.24	0.08
30	10	2.2	0.99	0.52
60	29	4.7	1.8	0.85
90	73	13	5.1	2.4
120	215	36	12	4.3
183	439	71	23	8.0

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1963-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 22 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
19600	25100	28000	31300	33300	35100
STATION SKEW = -1.497					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	19300	25600	28000	29800	30600	31100
3	18300	24600	27100	29000	29800	30400
7	16200	23100	25800	28000	28900	29600
15	12700	20800	25100	25000	27600	29550
30	9120	16000	20100	24500	27200	29500
60	5920	10900	14000	17700	20100	22200
90	5110	9220	11800	14800	16700	18500

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1963-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
22900	12900	8550	5930	4120	2010	876	392	116	50	23	5.8	1.9	0.86	0.45	0.03	0.00

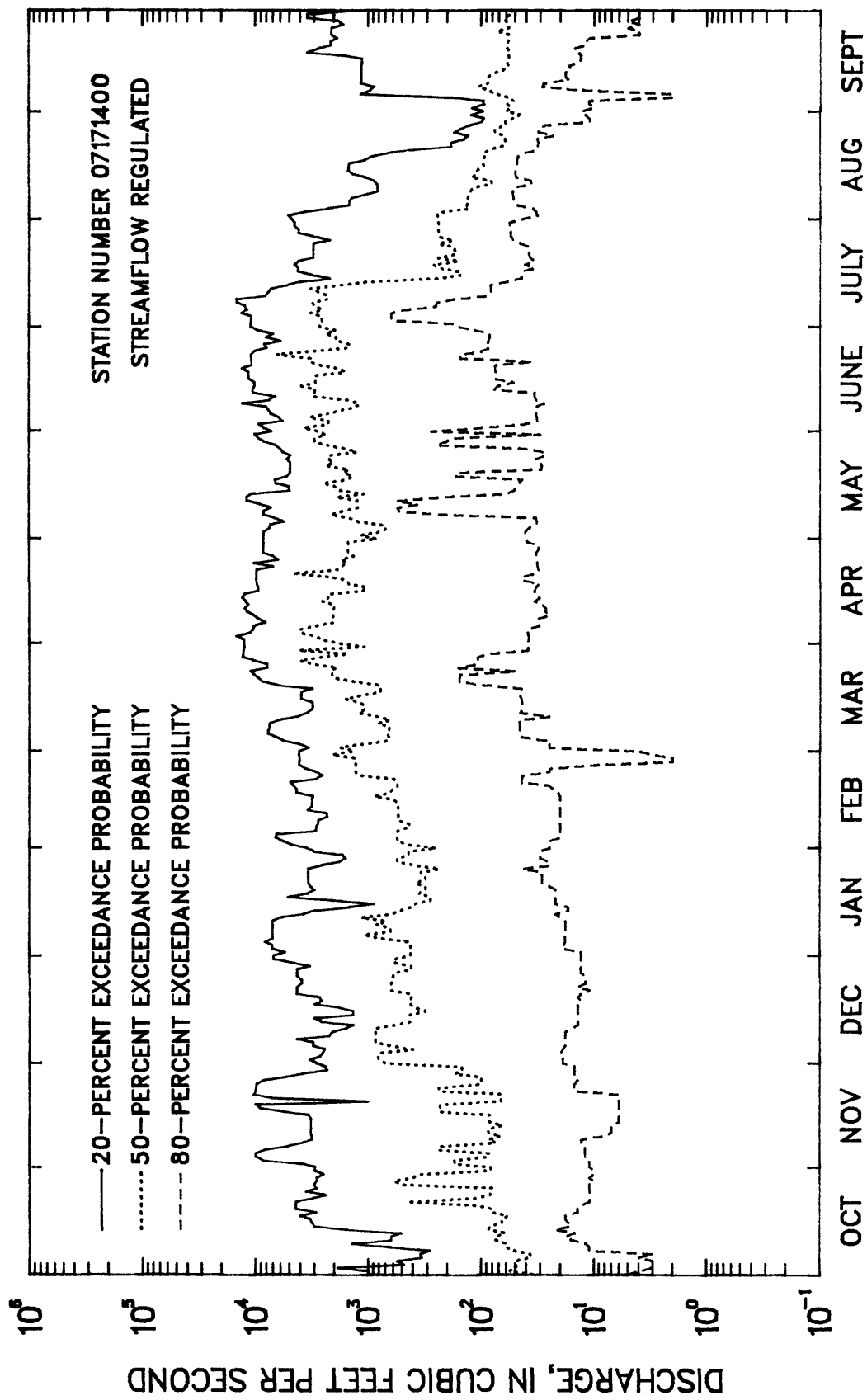


Figure 36.—Duration hydrographs of daily discharge values for Verdigris River near Oologah, Oklahoma, water years 1966–1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07173000 CANEY RIVER NEAR HULAH, OK

LOCATION.--Lat 36°55'34", long 96°05'01", in NE 1/4 NE 1/4 sec.11, T.28 N., R.11 E., Osage County, Hydrologic Unit 11070106, on left bank 1,200 ft downstream from Hulah Dam, 2.1 mi upstream from Opossum Creek, 2.5 mi west of Hulah, and at mile 95.9.

DRAINAGE AREA.--733 mi².

PERIOD OF RECORD.--October 1937 to current year.

REMARKS.--Flow completely regulated since February 1951 by Hulah Lake. About 5 to 9 ft³/s is diverted above station by city of Bartlesville for municipal water supply.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-50

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1780	0.00	331	574	1.7	6.7
NOVEMBER	720	0.00	92	193	2.1	1.8
DECEMBER	1080	0.00	158	307	2.0	3.2
JANUARY	1010	0.00	176	279	1.6	3.5
FEBRUARY	1750	0.41	255	472	1.8	5.1
MARCH	1730	0.81	375	465	1.2	7.6
APRIL	3980	73	1090	1270	1.2	22.0
MAY	3980	45	865	1070	1.2	17.4
JUNE	1250	23	567	429	0.76	11.4
JULY	2590	8.9	420	814	1.9	8.5
AUGUST	1990	0.61	234	562	2.4	4.7
SEPTEMBER	2480	0.00	401	726	1.8	8.1
ANNUAL	824	39	413	228	0.55	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1939-50

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.3	0.00	0.00	0.00
3	1.3	0.00	0.00	0.00
7	1.9	0.05	0.00	0.00
14	2.0	0.23	0.00	0.00
30	3.2	0.45	0.00	0.00
60	7.7	1.0	0.10	0.00
90	17	3.5	0.66	0.00
120	24	4.1	0.77	0.00
183	60	4.3	0.88	0.13

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1938-50

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 13 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
15700	28000	36700	47900	56300	64500
OKLAHOMA WEIGHTED SKEW = -0.463					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	15200	23600	27500	31100	33000	34300
3	10000	17200	21000	24800	26900	28600
7	5970	9890	11700	13200	13900	14400
15	3540	5810	6820	7640	8010	8260
30	2370	3910	4570	5080	5300	5450
60	1500	2450	2880	3220	3370	3480
90	1140	1800	2080	2300	2400	2460

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-50

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
7500	1820	695	420	280	149	89	51	26	11	4.4	1.5	0.09	0.04	0.02	0.01	0.00	

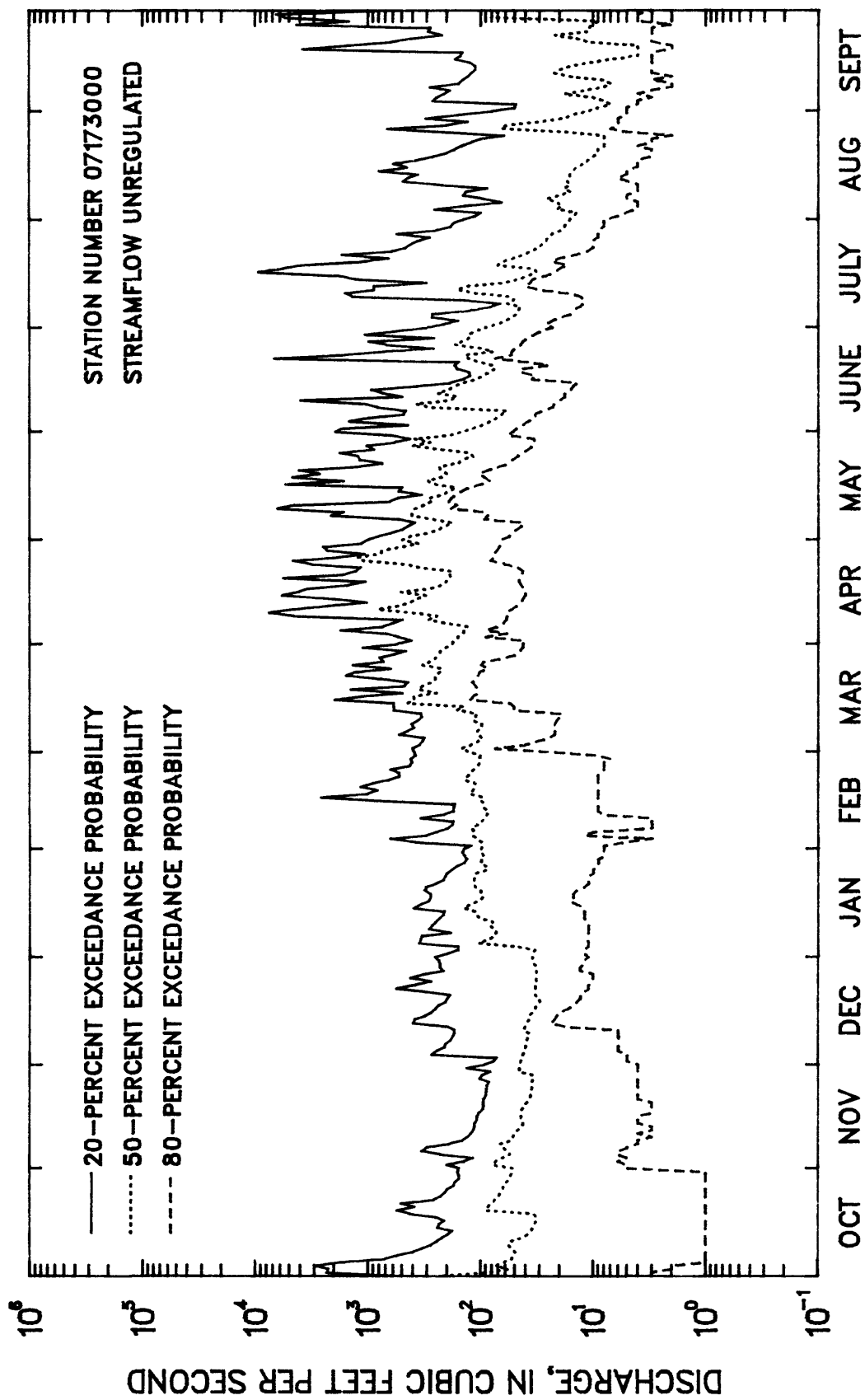


Figure 37.—Duration hydrographs of daily discharge values for Caney River near Hulah, Oklahoma, water years 1942-1950 (streamflow unregulated).

ARKANSAS RIVER BASIN

07173000 CANEY RIVER NEAR HULAH, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1951-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2780	7.0	213	530	2.5	5.4
NOVEMBER	2480	5.4	330	612	1.8	8.3
DECEMBER	1190	1.4	204	316	1.5	5.1
JANUARY	1570	0.38	165	321	2.0	4.1
FEBRUARY	1640	5.1	190	325	1.7	4.8
MARCH	2570	0.47	429	584	1.4	10.8
APRIL	2420	1.9	568	664	1.2	14.3
MAY	2870	3.3	625	713	1.1	15.8
JUNE	3240	1.1	599	826	1.4	15.1
JULY	2920	2.8	415	785	1.9	10.5
AUGUST	1380	2.6	103	260	2.5	2.6
SEPTEMBER	2050	5.3	128	362	2.8	3.2
ANNUAL	814	5.1	331	236	0.71	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1952-84

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.9	0.29	0.03	0.00
3	2.8	0.50	0.15	0.04
7	3.8	0.81	0.32	0.13
14	5.1	1.3	0.52	0.23
30	10	3.4	1.6	0.73
60	12	5.3	3.5	2.5
90	16	6.8	4.6	3.5
120	23	8.4	5.4	3.9
183	37	12	7.5	5.1

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1951-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 34 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4140	6500	7820	9200	10000	10800

STATION SKEW = -1.847

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4850	6170	6310	6350	6350	6350
3	4570	5990	6160	6200	6210	6210
7	3860	5740	6130	6150	6180	6310
15	2560	4550	5240	5650	5790	5860
30	1600	3130	3810	4330	4550	4680
60	1000	2070	2610	3080	3300	3450
90	773	1620	2070	2470	2670	2800

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1951-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
4990	2110	919	478	282	93	38	23	17	14	11	8.1	3.7	0.55	0.30	0.22	0.09	0.09

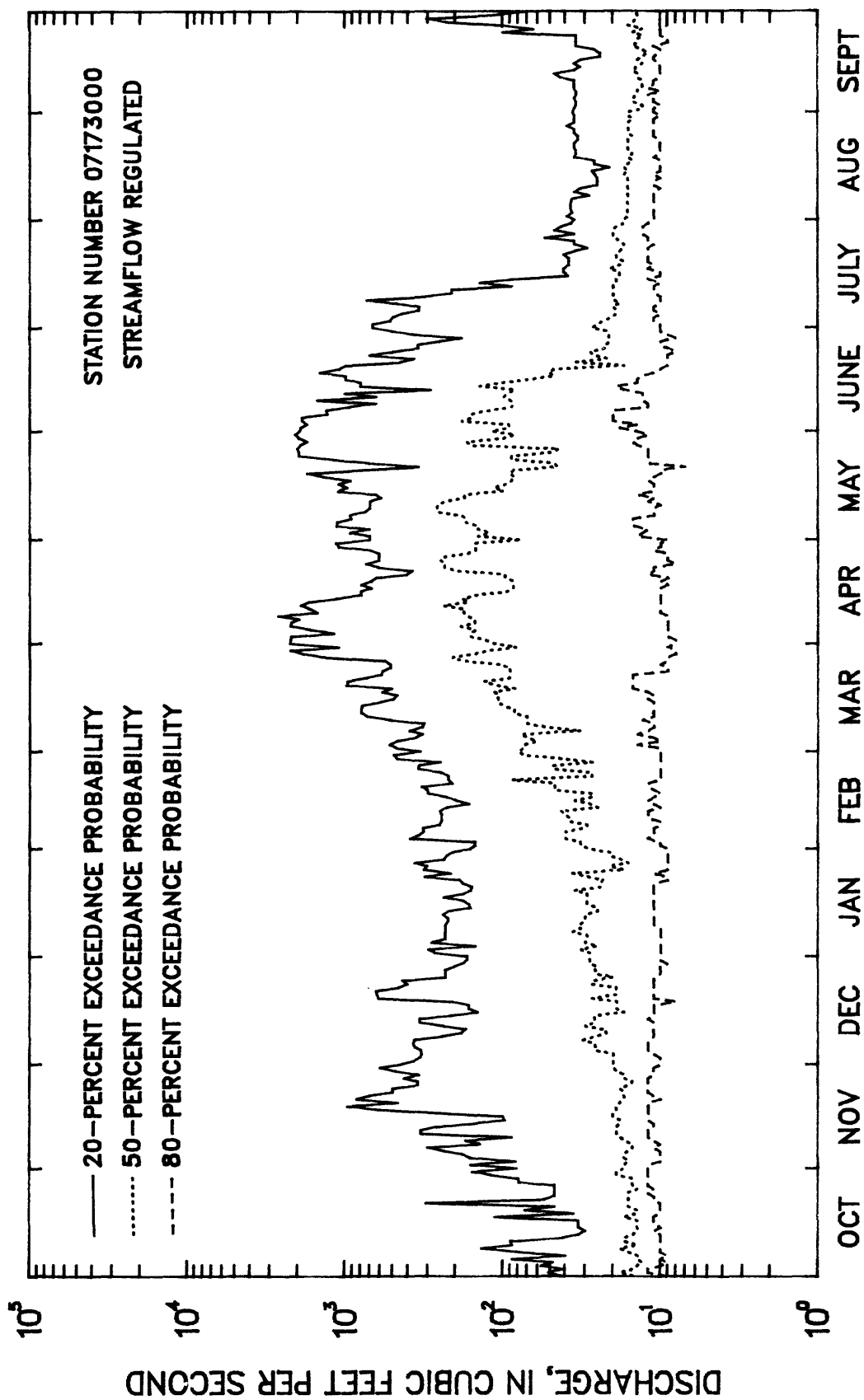


Figure 38.—Duration hydrographs of daily discharge values for Caney River near Hulah, Oklahoma, water years 1956-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07174000 CANEY CREEK NEAR COPAN, OK

LOCATION.--Lat 36°38'15", 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, 3.5 mi upstream from Cotton Creek, 5 mi north of Copan, and at mile 18.9.

DRAINAGE AREA.--424 mi².

PERIOD OF RECORD--October 1943 to September 1958.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1945-58

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	852	0.00	139	244	1.7	5.0
NOVEMBER	565	0.10	58	149	2.6	2.1
DECEMBER	554	0.08	56	149	2.7	2.0
JANUARY	806	0.03	111	232	2.1	4.0
FEBRUARY	1040	0.10	112	274	2.4	4.1
MARCH	1150	0.19	266	380	1.4	9.6
APRIL	1520	0.18	344	463	1.3	12.4
MAY	2310	0.50	483	598	1.2	17.5
JUNE	2360	0.52	487	690	1.4	17.6
JULY	1840	0.01	443	712	1.6	16.0
AUGUST	806	0.00	112	276	2.5	4.1
SEPTEMBER	1330	0.00	154	352	2.3	5.6
ANNUAL	492	14	231	150	0.65	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1945-58

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.07	0.00	0.00	0.00
7	0.10	0.00	0.00	0.00
14	0.13	0.00	0.00	0.00
30	0.24	0.00	0.00	0.00
60	0.72	0.00	0.00	0.00
90	2.5	0.05	0.00	0.00
120	4.8	0.53	0.16	0.05
183	21	1.9	0.44	0.12

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1945-58

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
10900	20100	26800	35600	42200	48800

OKLAHOMA WEIGHTED SKEW = -0.468

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	8250	13600	16400	19300	20900	22200
7	3010	5170	6570	8220	9360	10400
15	1860	3220	4050	4980	5570	6090
30	1210	2310	3050	3930	4530	5070
60	789	1570	2090	2690	3080	3430
90	588	1150	1510	1900	2150	2360

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-58

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
5080	1030	328	168	102	43	19	9.9	4.3	1.0	0.19	0.11	0.05	0.02	0.01	0.01	0.00

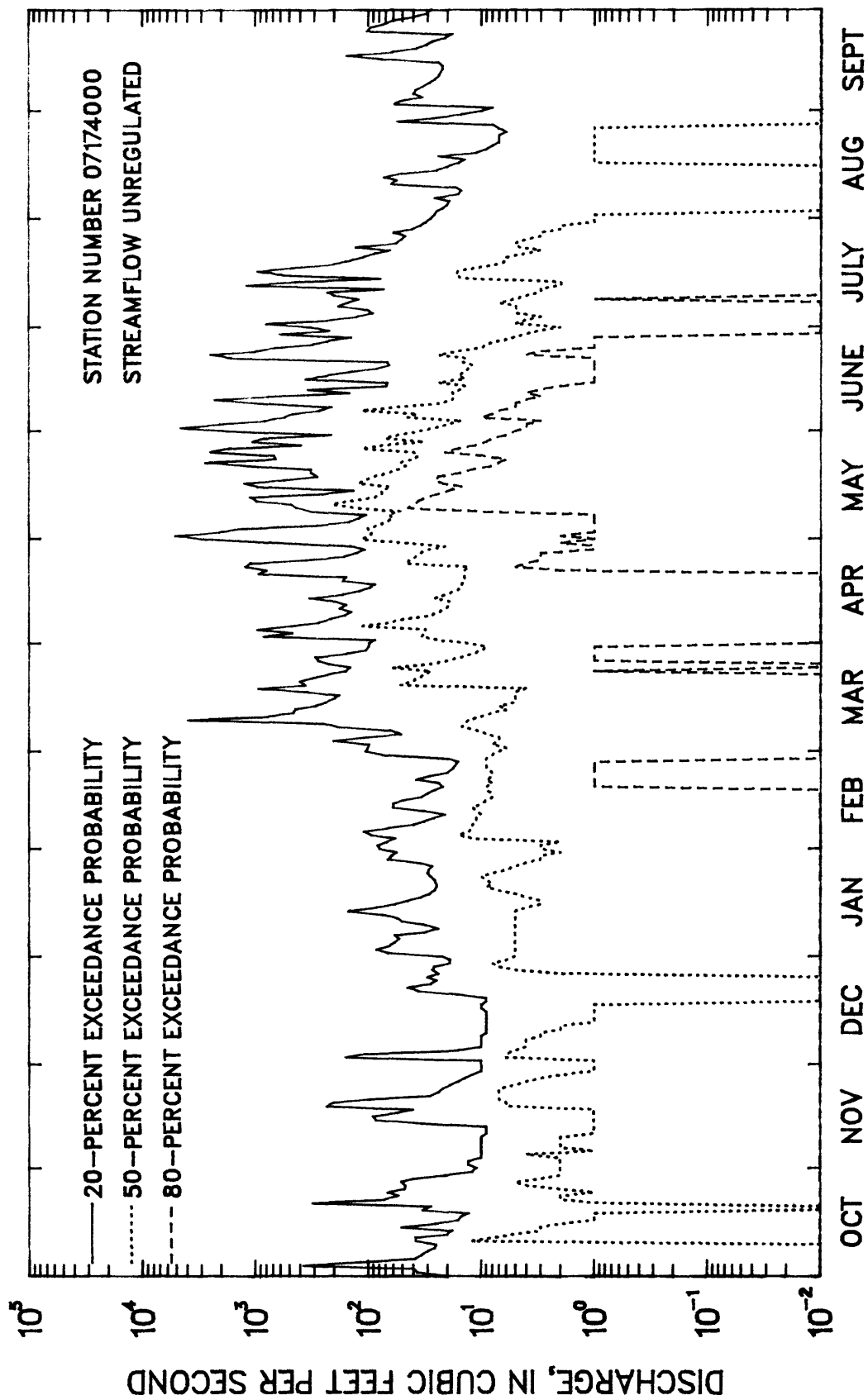


Figure 39.--Duration hydrographs of daily discharge values for Caney Creek near Copan, Oklahoma, water years 1950-1958 (streamflow unregulated).

ARKANSAS RIVER BASIN

07174200 LITTLE CANEY RIVER BELOW COTTON CREEK NEAR COPAN, OK

LOCATION.--Lat 36°53'42", long 95°58'09", in W 1/2 sec.19, T.28 N., R.13 E., Washington County, Hydrologic Unit 11070106, near right bank on downstream side of pier of bridge on State Highway 10, 2 mi west of Copan, 4.2 mi downstream from Cotton Creek, and at mile 8.8.

DRAINAGE AREA.--502 mi².

PERIOD OF RECORD.--October 1958 to September 1980. Prior to October 1962, published as Caney Creek below Cotton Creek near Copan.

REMARKS.--Flow regulated since 1969 by numerous floodwater-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1969-80

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1970-80

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	667	0.03	169	198	1.2	4.3					
NOVEMBER	2300	0.87	517	684	1.3	13.1					
DECEMBER	721	1.7	202	253	1.2	5.1	1	0.20	0.00	0.00	0.00
JANUARY	1260	5.6	230	362	1.6	5.8	3	0.25	0.00	0.00	0.00
FEBRUARY	1290	5.6	283	355	1.3	7.2	7	0.34	0.03	0.00	0.00
MARCH	2490	19	684	881	1.3	17.3	14	0.62	0.09	0.00	0.00
APRIL	1580	9.5	513	528	1.0	13.0	30	1.7	0.83	0.51	0.00
MAY	1610	18	462	472	1.0	11.7	60	6.6	1.9	0.90	0.44
JUNE	1630	2.2	553	582	1.0	14.0	90	14	4.2	2.1	1.1
JULY	1400	1.6	174	390	2.2	4.4	120	26	7.8	4.0	2.2
AUGUST	204	1.0	40	63	1.6	1.0	183	49	13	6.0	3.2
SEPTEMBER	419	0.22	121	151	1.2	3.1					
ANNUAL	658	63	328	212	0.64	100					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1969-80

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 12 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%		2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7330	13000	17400	23700	28900	34500	1	6360	11100	14700	19700	23700	27900
						3	5310	8900	11300	14100	16200	18100
						7	3630	6330	8040	10000	11300	12500
						15	2160	3750	4700	5730	6370	6920
						30	1430	2380	2880	3370	3640	3860
						60	917	1480	1790	2100	2310	2460
						90	736	1180	1420	1660	1800	1910
OKLAHOMA WEIGHTED SKEW = -0.070												

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1969-80

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4750	1690	808	471	296	140	72	34	20	11	4.8	1.8	0.58	0.03	0.02	0.01	0.00

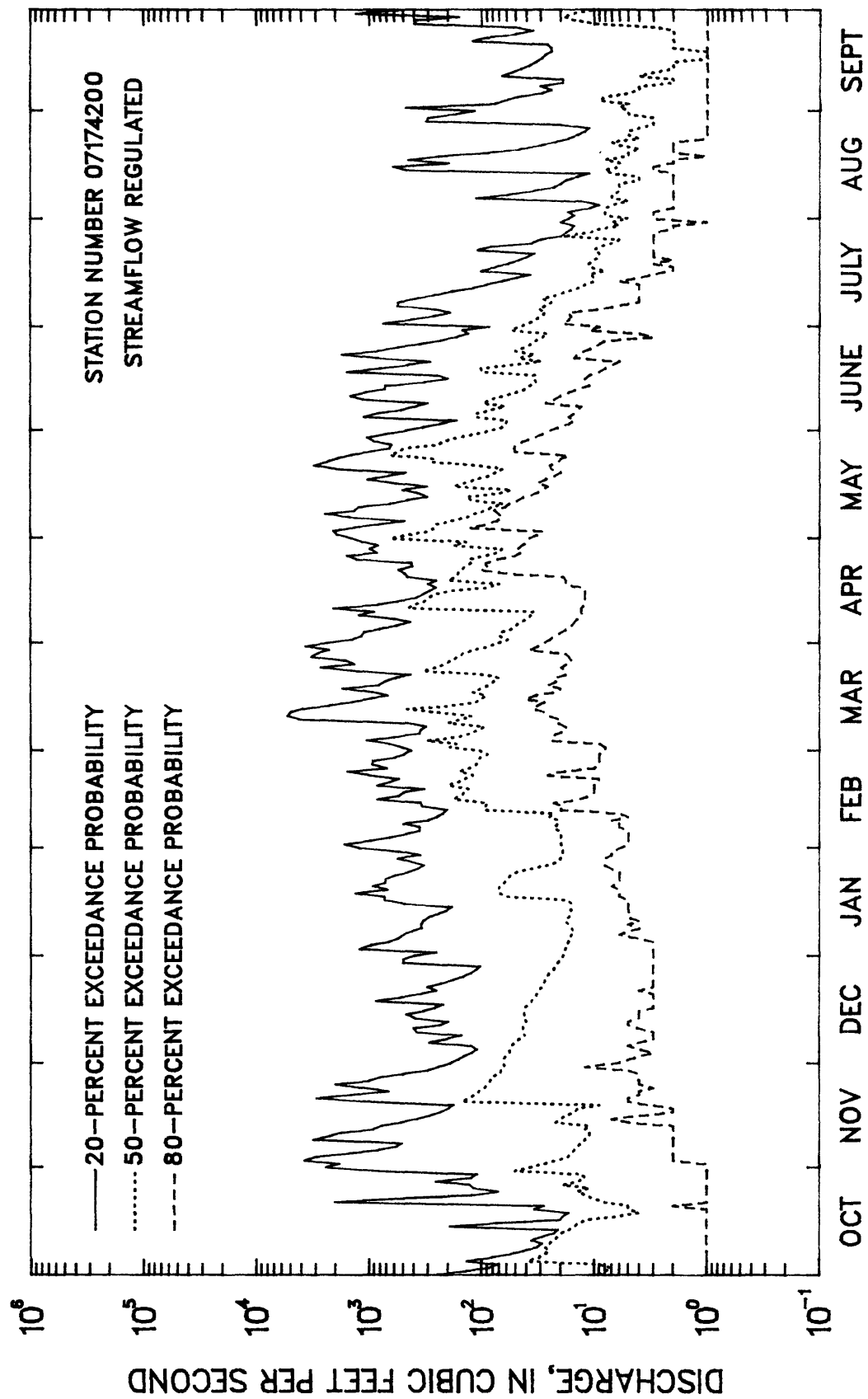


Figure 40.—Duration hydrographs of daily discharge values for Little Caney River below Cotton Creek near Copan, Oklahoma, water years 1972–1980 (streamflow regulated).

ARKANSAS RIVER BASIN

07174600 SAND CREEK AT OKESA, OK

LOCATION.--Lat 36°43'10", long 96°07'56", in NW 1/4 NW 1/4 sec.21, T.26 N., R.11 E., Osage County, Hydrologic Unit 11070106, on downstream side of left abutment of county road bridge, 0.5 mi northeast of Okesa, 9 mi southwest of Bartlesville, and at mile 17.2.

DRAINAGE AREA.--139 mi².

PERIOD OF RECORD.--October 1959 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1960-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	490	0.00	50	110	2.2	6.1
NOVEMBER	467	0.00	79	128	1.6	9.6
DECEMBER	196	0.00	40	58	1.4	4.9
JANUARY	256	0.00	44	66	1.5	5.3
FEBRUARY	228	0.00	48	59	1.2	5.9
MARCH	858	0.03	142	210	1.5	17.3
APRIL	421	0.69	118	122	1.0	14.3
MAY	611	1.8	153	166	1.1	18.5
JUNE	370	0.63	62	82	1.3	7.5
JULY	286	0.00	27	62	2.3	3.2
AUGUST	228	0.00	20	57	2.8	2.5
SEPTEMBER	478	0.00	41	98	2.4	4.9
ANNUAL	174	5.5	69	51	0.74	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1961-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.10	0.00	0.00	0.00
90	1.0	0.04	0.00	0.00
120	3.5	0.22	0.00	0.00
183	9.7	1.2	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1960-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6840	10900	13500	16500	18700	20700
OKLAHOMA WEIGHTED SKEW = -0.561					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3080	5760	7610	9890	11500	13000
3	1460	2900	4020	5550	6750	7980
7	767	1540	2130	2930	3530	4140
15	453	899	1220	1640	1950	2240
30	288	552	730	944	1090	1220
60	183	366	490	642	746	840
90	148	289	381	487	557	619

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1960-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1400	249	100	61	41	22	12	5.7	2.9	1.1	0.07	0.00	0.00	0.00	0.00	0.00	0.00

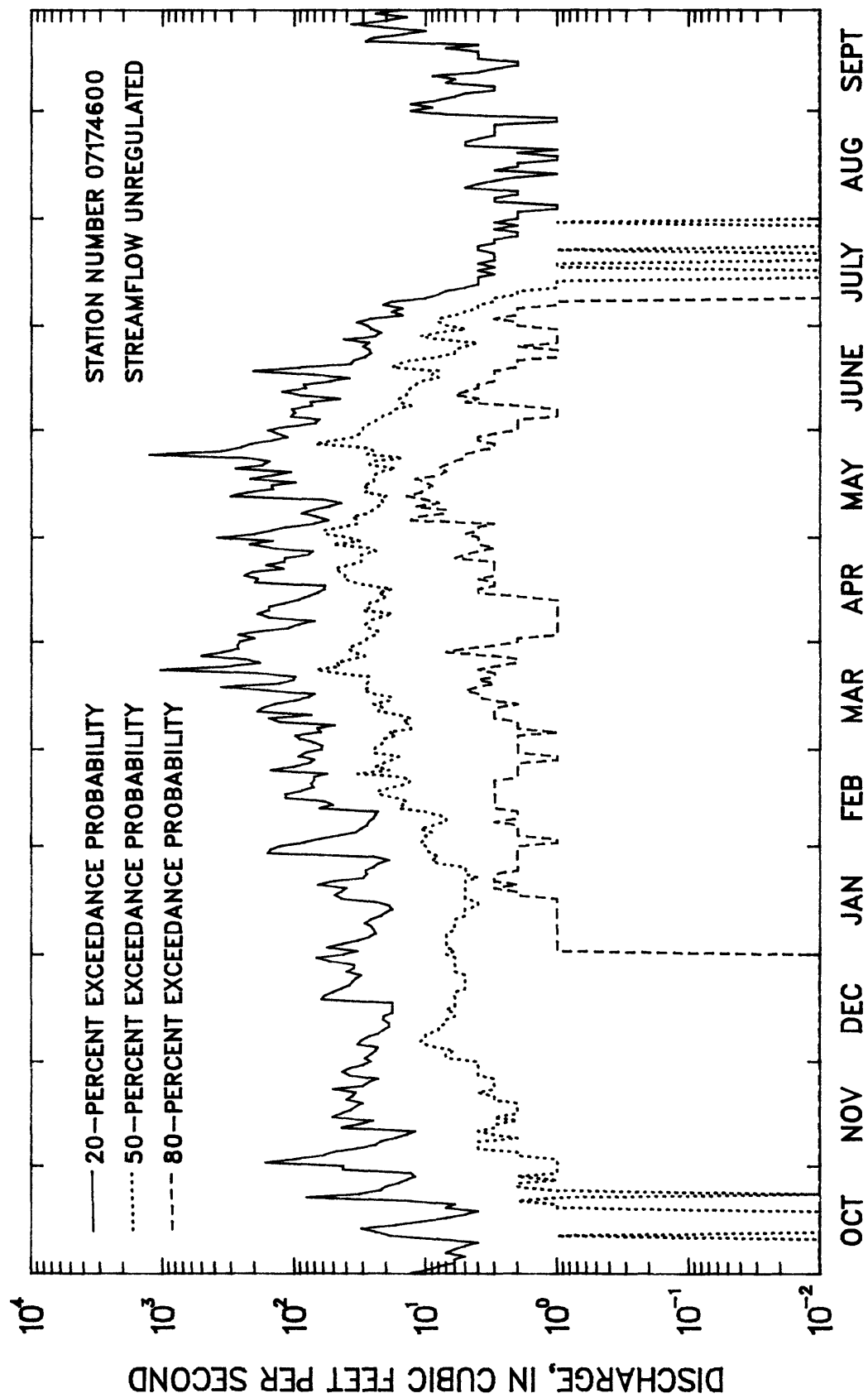


Figure 41.—Duration hydrographs of daily discharge values for Sand Creek at Okesa, Oklahoma, water years 1966–1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07174700 CANEY RIVER NEAR OCHELATA, OK

LOCATION.--Lat 36°38'26", long 95°56'02", in SW 1/4 SW 1/4 sec.16, T.25 N., R.13 E., Washington County, near right bank on downstream side of pier of bridge on U.S. Highway 75, 3.5 mi upstream from Fish Creek, 4.0 mi northeast of Ochelata, 8.0 mi southeast of Bartlesville, and at mile 53.8.

DRAINAGE AREA.--1,753 mi².

PERIOD OF RECORD.--April 1956 to September 1976 (discontinued).

REMARKS.--Flow regulated since 1951 by Hulah Lake.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1957-76

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVIA- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	6340	2.2	773	1460	1.9	6.5
NOVEMBER	6720	12	1080	1900	1.8	9.1
DECEMBER	2750	9.5	679	892	1.3	5.7
JANUARY	4060	5.5	598	956	1.6	5.1
FEBRUARY	4130	9.1	570	975	1.7	4.8
MARCH	7020	19	1450	2050	1.4	12.3
APRIL	5010	35	1530	1520	0.99	13.0
MAY	8470	50	1800	2230	1.2	15.2
JUNE	9890	30	1600	2350	1.5	13.5
JULY	5430	18	942	1520	1.6	8.0
AUGUST	1680	22	250	425	1.7	2.1
SEPTEMBER	4990	13	536	1090	2.0	4.5
ANNUAL	2240	159	985	688	0.70	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1957-76

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	16	8.5	4.6	2.4
3	17	9.0	4.9	2.6
7	19	9.6	5.3	2.8
14	21	11	6.0	3.3
30	23	9.9	6.1	3.9
60	41	14	8.0	5.1
90	74	23	12	6.8
120	96	30	15	8.8
183	154	40	19	10

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1957-76

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
14100	22500	27700	33800	37900	41700

STATION SKEW = -0.635

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	12500	20500	25800	32100	36500	40700
3	10500	17400	21800	26800	30200	33400
7	7820	12800	15700	18700	20600	22200
15	5640	9600	11900	14200	15700	16900
30	4120	7480	9500	11700	13000	14200
60	2600	5080	6760	8790	10200	11500
90	2140	4090	5410	7000	8080	9090

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1957-76

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
10600	5240	3340	2000	1210	475	219	109	63	39	27	18	13	9.6	6.5	4.7	1.0

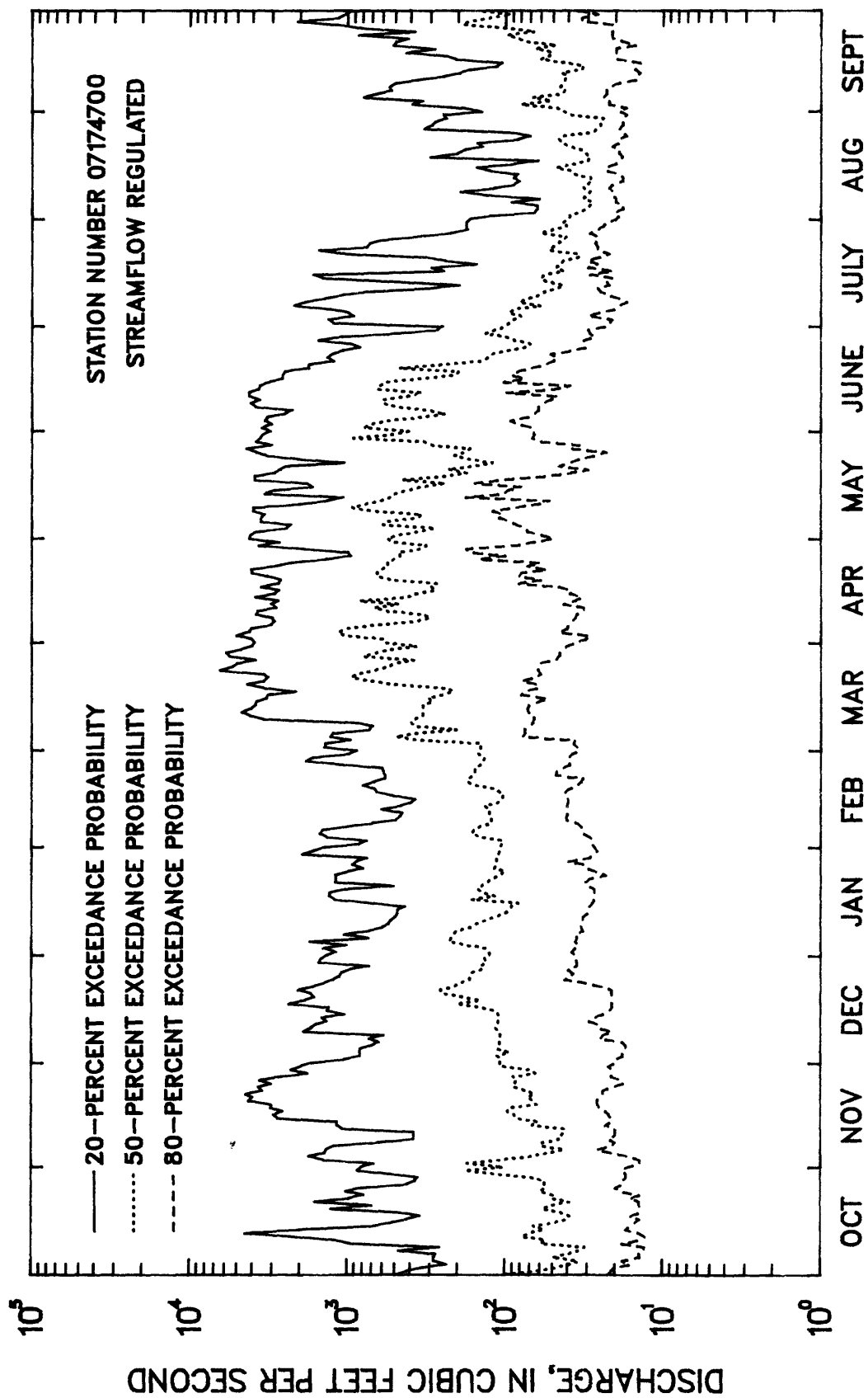


Figure 42.--Duration hydrographs of daily discharge values for Caney River near Ochelata, Oklahoma, water years 1958-1976 (streamflow regulated).

ARKANSAS RIVER BASIN

07175000 DOUBLE CREEK SUBWATERSHED NO. 5 NEAR RAMONA, OK

LOCATION.--Lat 36°30'50", long 95°56'25", in SE 1/4 SE 1/4 sec.32, T.24 N., R.13 E., Washington County, near center of upstream side of dam on Nellie Bly Creek, 1.8 mi southwest of Ramona.

DRAINAGE.--2.39 mi².

PERIOD OF RECORD.--November 1954 to September 1969 (discontinued). Monthly discharge only for some periods, published in WSP 1731.

REMARKS.--Flow regulated since 1955 by floodwater-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1956-69

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	22	0.00	1.8	5.9	3.2	10.8
NOVEMBER	4.3	0.00	0.74	1.2	1.6	4.4
DECEMBER	3.5	0.00	0.76	1.2	1.6	4.5
JANUARY	2.1	0.00	0.76	0.90	1.2	4.5
FEBRUARY	2.1	0.00	0.56	0.68	1.2	3.3
MARCH	7.0	0.00	1.9	2.3	1.2	11.3
APRIL	9.1	0.00	2.6	2.5	0.96	15.1
MAY	12	0.00	2.2	3.5	1.6	13.0
JUNE	16	0.00	2.2	4.6	2.1	12.9
JULY	8.6	0.00	1.2	2.4	2.0	7.3
AUGUST	10	0.00	0.80	2.7	3.4	4.7
SEPTEMBER	12	0.00	1.4	3.2	2.3	8.2
ANNUAL	3.5	0.00	1.4	1.2	0.84	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1956-69

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00
183	0.00	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1956-69

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 14 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1020	2500	3580	4870	5730	6490
OKLAHOMA WEIGHTED SKEW = -0.867					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	19	41	69	136	227	375
3	17	33	49	77	105	140
7	14	25	34	46	56	66
15	9.0	17	24	33	40	48
30	5.9	12	17	26	33	42
60	3.8	8.3	12	18	24	30
90	3.1	6.5	9.6	14	19	24

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1956-69

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
19	11	3.1	1.5	1.0	0.45	0.07	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00

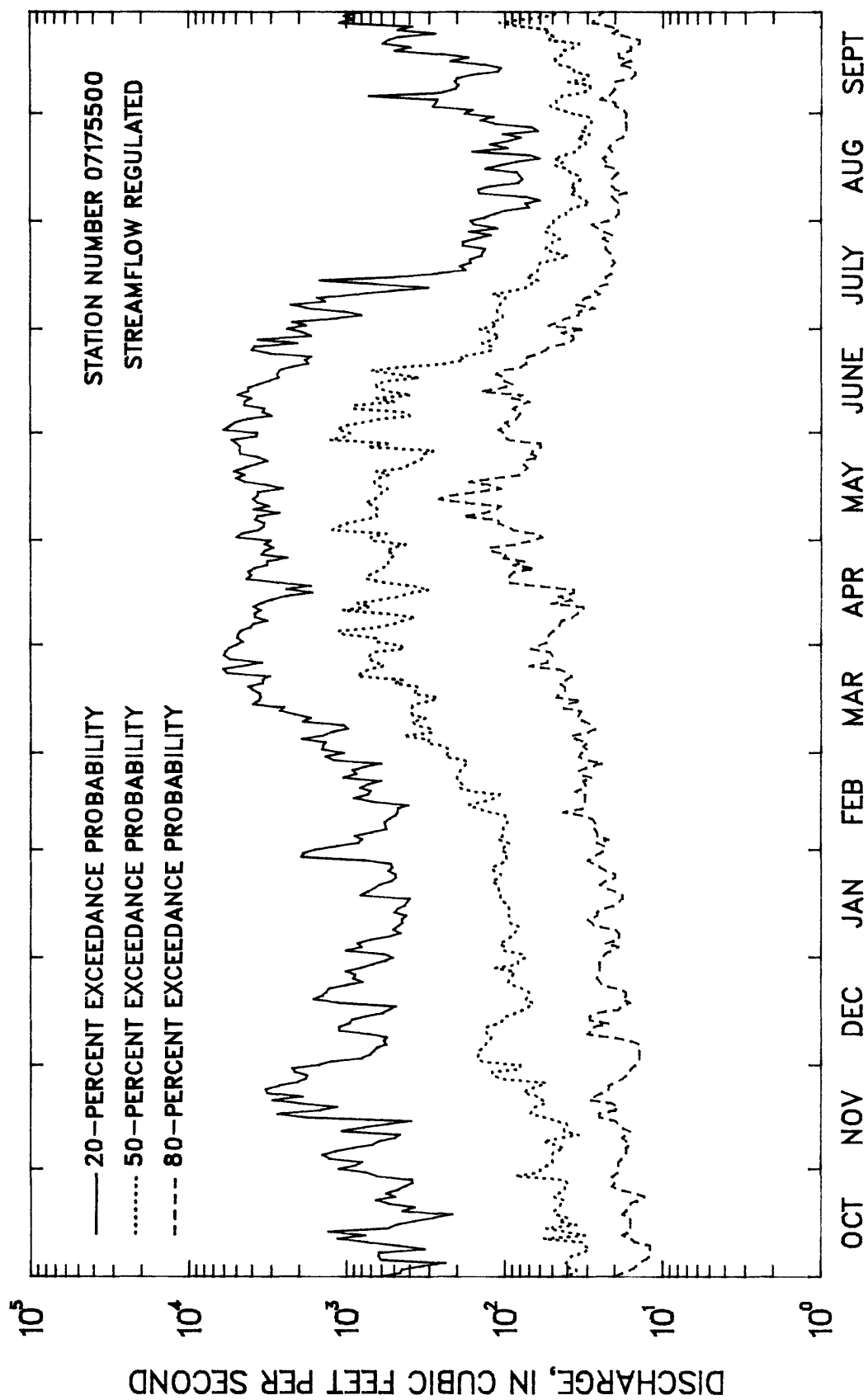


Figure 44.--Duration hydrographs of daily discharge values for Caney River near Ramona, Oklahoma, water years 1956-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07176000 VERDIGRIS RIVER NEAR CLAREMORE, OK

LOCATION.--Lat 36°18'26", long 95°41'52", SE 1/4 SW 1/4 sec.10, T.21 N., R.15 E., Rogers County, Hydrologic Unit 11070105, on left bank on downstream side of bridge on State Highway 20, 2.3 mi downstream from Caney River, 4.5 mi west of Claremore, 12.4 mi upstream from Bird Creek, and at mile 76.0.

DRAINAGE AREA.--6,534 mi².

PERIOD OF RECORD.--October 1935 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Some regulation since 1951 by Hulah Lake; flow regulated since May 1963 by Oologah Lake; and further regulated since 1981 by Copan Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1936-62

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	25800	0.00	4050	7230	1.8	9.1
NOVEMBER	17900	0.00	2340	4520	1.9	5.3
DECEMBER	7480	0.00	1320	2080	1.6	3.0
JANUARY	8760	1.6	1530	2230	1.5	3.4
FEBRUARY	13200	10	1870	2650	1.4	4.2
MARCH	15200	6.8	3510	4150	1.2	7.9
APRIL	25500	104	6350	7630	1.2	14.2
MAY	52400	160	8610	11800	1.4	19.3
JUNE	32600	332	6040	6920	1.2	13.5
JULY	34100	20	4850	8230	1.7	10.9
AUGUST	9670	0.03	1340	2230	1.7	3.0
SEPTEMBER	20500	0.00	2800	4510	1.6	6.3
ANNUAL	8380	249	3720	2300	0.62	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1937-62

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	19	2.2	0.00	0.00
3	20	2.6	0.00	0.00
7	22	2.9	0.00	0.00
14	28	3.6	0.00	0.00
30	41	6.2	0.00	0.00
60	104	11	1.4	0.00
90	217	20	3.0	0.00
120	367	35	8.0	1.2
183	666	101	31	11

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1936-62

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 28 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
43900	73900	96400	127000	152000	178000

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.117

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	41500	72300	96100	130000	157000	186000
3	39200	69500	91400	120000	142000	165000
7	32600	60300	78900	101000	117000	131000
15	23100	42700	55800	71500	82300	92300
30	16400	31200	41200	53100	61300	68800
60	11000	20800	27200	34600	39500	43900
90	8380	15800	20400	25500	28700	31500

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1936-62

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
44600	21400	10900	6250	3760	1810	1040	577	299	138	57	18	6.4	0.07	0.04	0.02	0.00

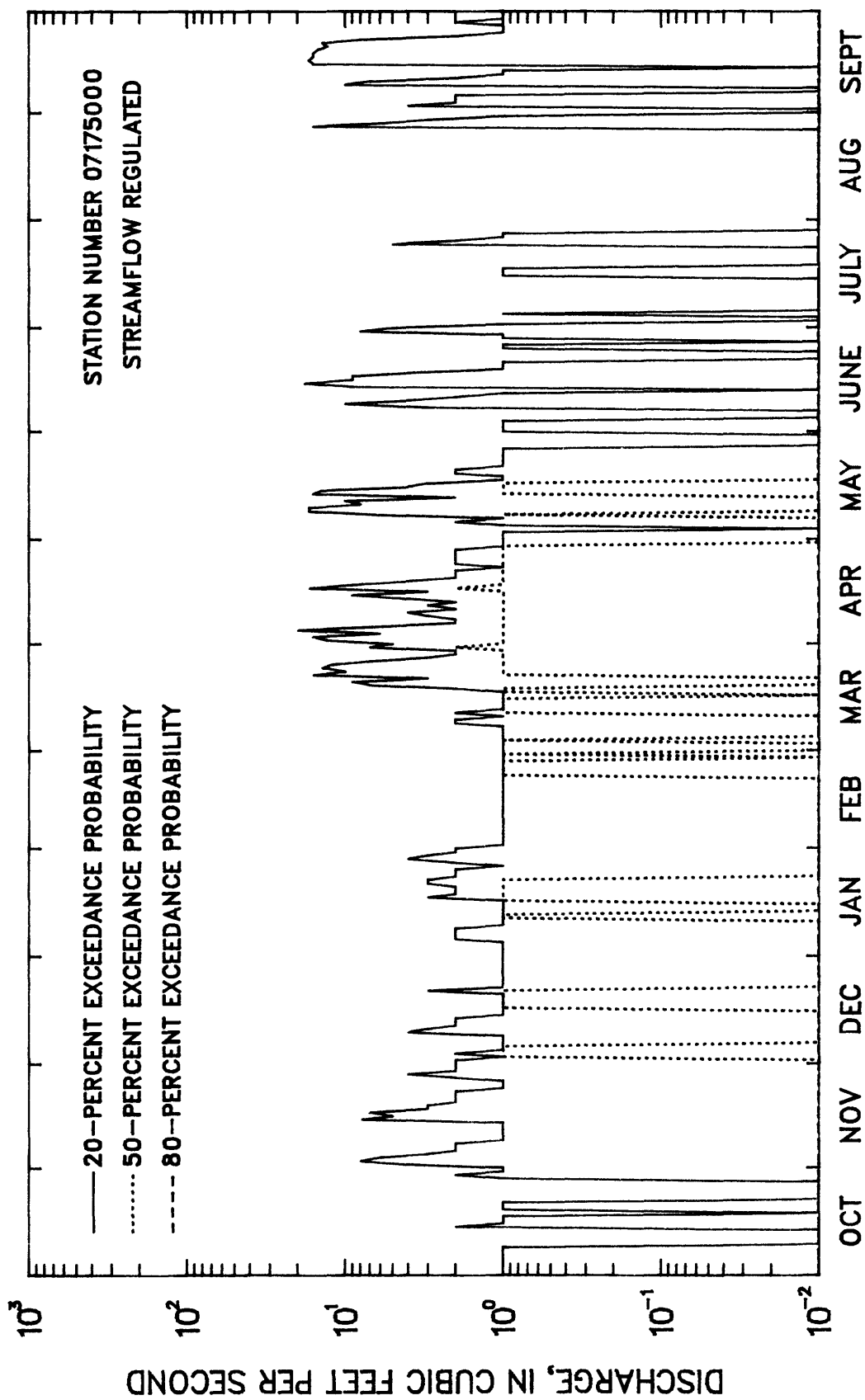


Figure 43.--Duration hydrographs of daily discharge values for Double Creek Subwatershed No. 5 near Ramona, Oklahoma, water years 1961-1969 (streamflow regulated).

ARKANSAS RIVER BASIN

07175500 CANEY RIVER NEAR RAMONA, OK

LOCATION.--Lat 36°30'31", long 95°50'36", in NE 1/4 NW 1/4 sec.5, T.23 N., R.14 E., Washington County, Hydrologic Unit 11070106, on left bank near downstream abutment of county road bridge, 1 mi upstream from Buck Creek, 2.2 mi downstream from Double Creek, 4.5 mi southeast of Ramona, and at mile 32.0.

DRAINAGE AREA.--1,955 mi².

PERIOD OF RECORD.--September 1945 to current year. Monthly discharge only for some periods, published in WSP 1311. Previous reports have included Caney River near Collinsville from Oct. 1935 to Feb. 1939; this record has been separated from Ramona.

REMARKS.--Flow regulated since February 1951 by Hulah Lake; further regulation since April 1983 by Copan Reservoir.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1951-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	6960	0.00	636	1270	2.0	5.6
NOVEMBER	7760	5.9	993	1790	1.8	8.7
DECEMBER	3030	10	535	829	1.5	4.7
JANUARY	4320	5.3	448	813	1.8	3.9
FEBRUARY	4430	9.9	569	887	1.6	5.0
MARCH	7770	11	1450	1950	1.3	12.7
APRIL	6200	23	1610	1760	1.1	14.1
MAY	8900	12	1980	2110	1.1	17.4
JUNE	11400	15	1620	2260	1.4	14.2
JULY	5850	11	869	1570	1.8	7.6
AUGUST	1780	4.5	227	423	1.9	2.0
SEPTEMBER	5780	0.16	458	1020	2.2	4.0
ANNUAL	2540	59	950	686	0.72	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1952-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	12	6.0	3.9	2.4
3	12	6.3	4.2	2.6
7	14	7.1	4.8	3.1
14	16	8.9	6.4	4.5
30	19	10	8.2	6.8
60	52	11	3.4	1.1
90	57	16	7.9	4.4
120	77	23	12	7.3
183	138	38	19	11

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1951-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 34 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
11100	18000	23100	30300	36000	42100
STATION SKEW = 0.002					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	10600	16600	20700	26000	30000	33900
3	8980	14900	19200	25000	29400	33900
7	7020	11900	15200	19300	22300	25200
15	5240	9130	11600	14500	16500	18300
30	3800	7050	9210	11800	13500	15100
60	2570	4990	6680	8750	10200	11600
90	2050	3980	5320	6960	8110	9180

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1951-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
10600	5420	3280	1870	1100	439	198	102	57	36	23	14	9.9	5.9	4.4	0.31	0.02

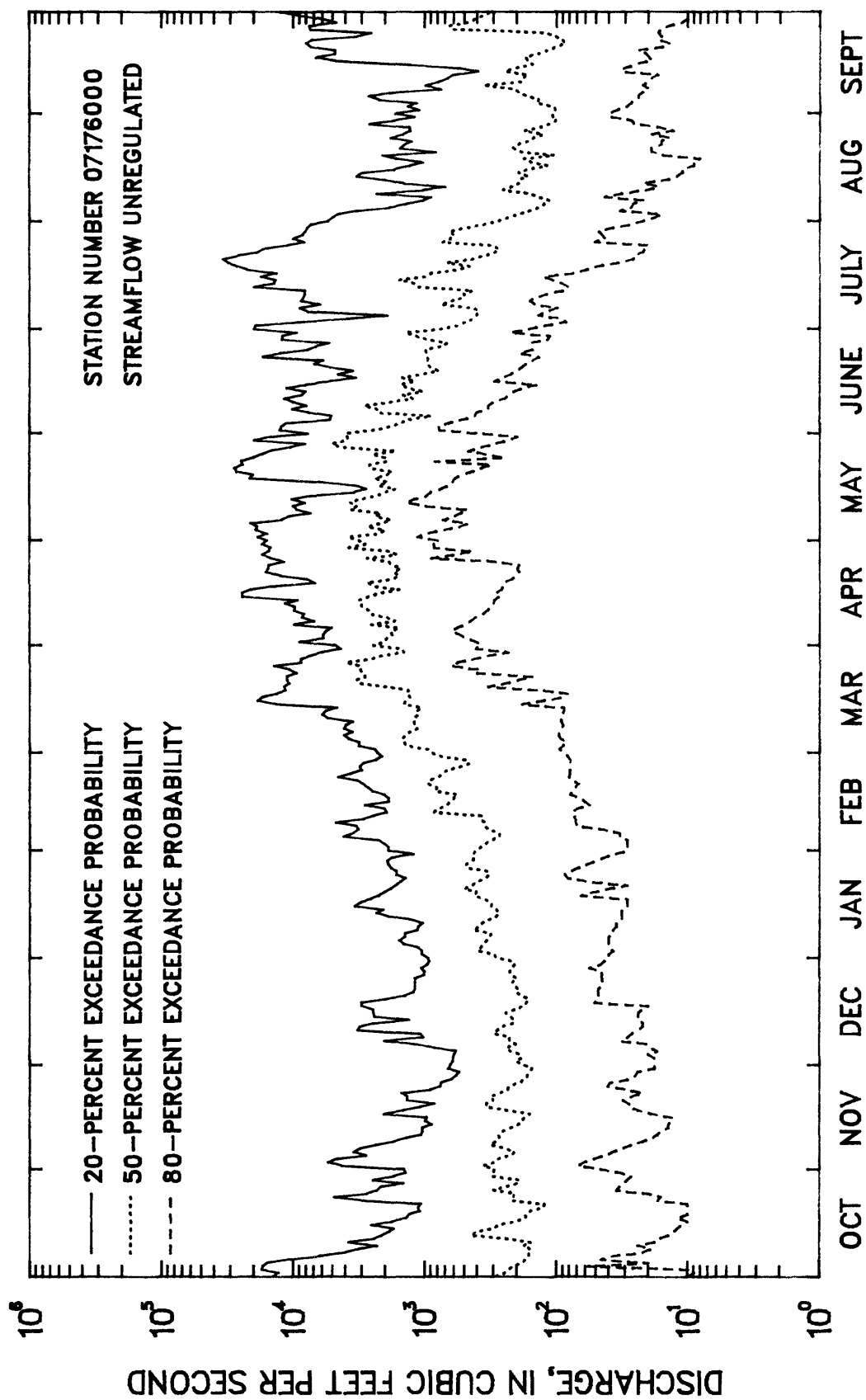


Figure 45.--Duration hydrographs of daily discharge values for Verdigris River near Claremore, Oklahoma, water years 1944-1962 (streamflow unregulated).

ARKANSAS RIVER BASIN

07176000 VERDIGRIS RIVER NEAR CLAREMORE, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1963-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	7820	17	1870	2200	1.2	4.4
NOVEMBER	23200	17	3990	6000	1.5	9.3
DECEMBER	10000	13	2460	3320	1.3	5.8
JANUARY	14300	20	2580	3990	1.5	6.0
FEBRUARY	11500	22	2580	3250	1.3	6.0
MARCH	21200	23	5190	5780	1.1	12.1
APRIL	19900	107	6910	6820	0.99	16.1
MAY	23500	87	5290	5570	1.0	12.3
JUNE	19200	51	6320	5430	0.86	14.8
JULY	20000	26	3660	4850	1.3	8.6
AUGUST	3790	27	787	975	1.2	1.8
SEPTEMBER	5120	17	1160	1650	1.4	2.7
ANNUAL	8830	365	3560	2540	0.71	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1964-84

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	29	12	6.7	4.0
3	32	13	7.4	4.4
7	39	16	9.2	5.5
14	46	23	15	10
30	61	27	18	13
60	110	38	23	15
90	225	65	34	20
120	417	114	54	28
183	690	164	70	33

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 22 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
22700	29700	33300	36900	39000	40800

STATION SKEW = -0.863

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1963-84

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	22400	29400	32700	35800	37500	38800
3	21500	28400	31300	34000	37000	38500
7	19000	27100	31200	33000	36000	38000
15	15900	25500	30900	32000	35500	37000
30	12200	21300	26800	31000	34000	36500
60	8350	15400	19900	25200	28800	32000
90	7200	13000	16600	20800	23500	25900

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1963-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
26800	17200	11800	8690	6450	3230	1370	676	282	136	75	42	24	15	12	10	4.4

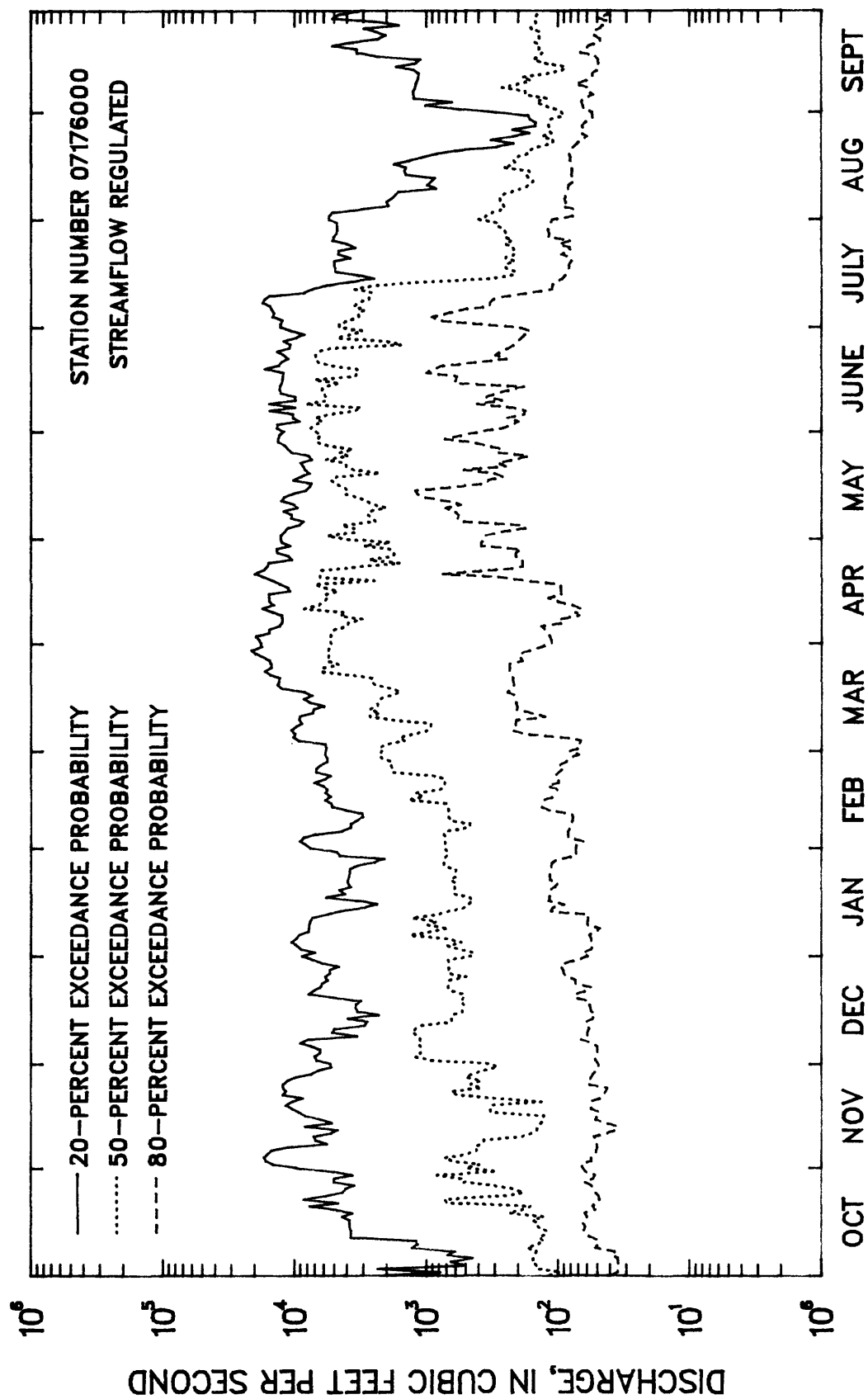


Figure 46.--Duration hydrographs of daily discharge values for Verdigris River near Claremore, Oklahoma, water years 1966-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07176500 BIRD CREEK AT AVANT, OK

LOCATION.--Lat 36°29'12", long 96°03'50", in NW 1/4 sec.7, T.23 N., R.12 E., Osage County, Hydrologic Unit 11070107, 150 ft upstream from county road bridge at Avant, 1.5 mi upstream from Candy Creek, and at mile 54.2.

DRAINAGE AREA.--364 mi².

PERIOD OF RECORD.--August 1945 to current year.

REMARKS.--Some regulation since 1958 by Bluestem Lake; flow regulated since 1977 by Birch Lake. Small diversions above station for municipal water supply of cities of Pawhuska and Barnsdall.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1946-76

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1910	0.00	178	392	2.2	7.4
NOVEMBER	1680	0.00	177	377	2.1	7.4
DECEMBER	863	0.00	108	215	2.0	4.5
JANUARY	827	0.00	99	186	1.9	4.1
FEBRUARY	761	0.00	100	166	1.7	4.2
MARCH	2060	0.00	285	505	1.8	11.9
APRIL	1240	0.00	275	295	1.1	11.5
MAY	2270	0.00	436	492	1.1	18.2
JUNE	2650	1.1	309	527	1.7	12.9
JULY	832	0.00	176	265	1.5	7.4
AUGUST	980	0.00	90	234	2.6	3.8
SEPTEMBER	1590	0.00	164	332	2.0	6.8
ANNUAL	639	5.5	200	167	0.83	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1947-76

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	1.8	0.00	0.00	0.00
90	5.1	0.07	0.00	0.00
120	8.4	0.23	0.00	0.00
183	24	3.0	0.52	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1946-76

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 31 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
12400	19900	24800	30900	35300	39500
OKLAHOMA WEIGHTED SKEW = -0.434					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	8090	14600	18800	23400	26500	29100
3	4010	7670	10300	13700	16200	18700
7	2260	4290	5730	7550	8860	10100
15	1340	2520	3290	4180	4780	5310
30	875	1650	2130	2670	3000	3290
60	569	1080	1380	1700	1880	2030
90	460	858	1080	1310	1430	1530

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1946-76

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4370	768	282	159	111	54	25	12	5.5	2.0	0.47	0.01	0.00	0.00	0.00	0.00	0.00

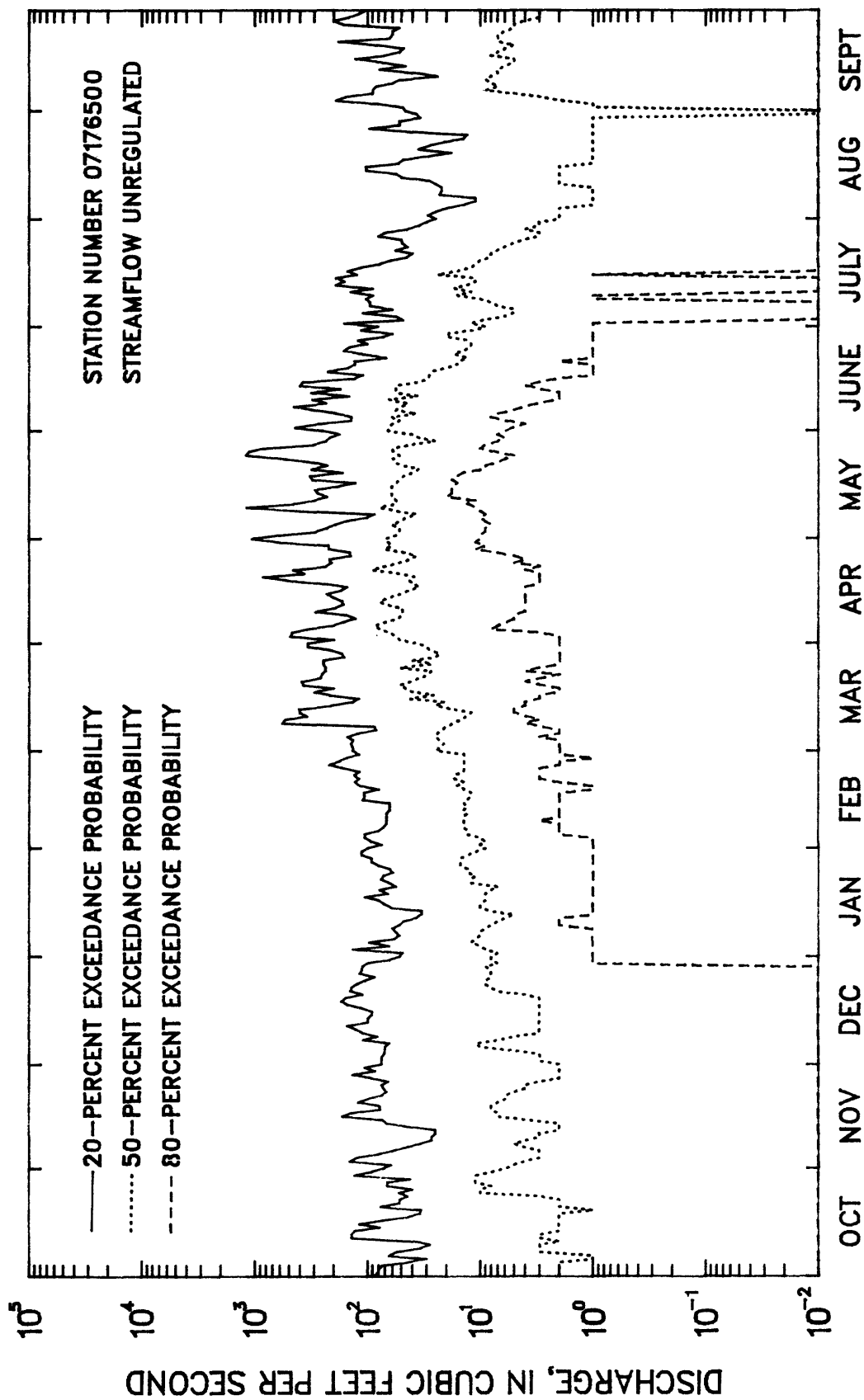


Figure 47.--Duration hydrographs of daily discharge values for Bird Creek at Avant, Oklahoma, water years 1948-1976 (streamflow unregulated).

ARKANSAS RIVER BASIN

07176800 CANDY CREEK NEAR WOLCO, OK

LOCATION.--Lat 36°32'06", long 96°02'54", in NW 1/4 NW 1/4 sec.29, T.29 N., R.12 E., Osage County, Hydrologic Unit 11070107, 1.3 mi east of Wolco, 3.3 mi northeast of Avant, and at mile 5.6.

DRAINAGE AREA.--30.6 mi².

PERIOD OF RECORD.--October 1969 to May 18, 1981 (discontinued).

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1970-80

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	142	0.00	36	49	1.4	11.4
NOVEMBER	151	0.00	40	57	1.4	12.4
DECEMBER	96	0.10	21	34	1.6	6.6
JANUARY	63	0.10	14	22	1.5	4.5
FEBRUARY	61	0.37	17	20	1.2	5.3
MARCH	195	1.3	63	68	1.1	19.8
APRIL	131	0.45	37	42	1.1	11.6
MAY	87	1.2	37	30	0.81	11.5
JUNE	70	0.00	21	23	1.1	6.5
JULY	41	0.00	6.7	14	2.1	2.1
AUGUST	77	0.00	8.9	23	2.6	2.8
SEPTEMBER	64	0.00	17	23	1.3	5.4
ANNUAL	59	8.7	27	20	0.75	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1971-81

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.05	0.00	0.00	0.00
90	0.27	0.00	0.00	0.00
120	1.4	0.00	0.00	0.00
183	3.2	0.14	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1970-80

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 12 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5220	7910	9650	11800	13300	14700
OKLAHOMA WEIGHTED SKEW = -0.397					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1180	2010	2690	3720	4630	5650
3	545	917	1240	1740	2200	2730
7	277	496	688	994	1270	1600
15	151	264	364	524	671	844
30	96	165	223	310	386	472
60	70	118	151	193	224	255
90	58	93	113	136	150	162

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1970-80

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
609	93	33	17	11	4.8	2.5	1.3	0.55	0.22	0.02	0.01	0.00	0.00	0.00	0.00	0.00

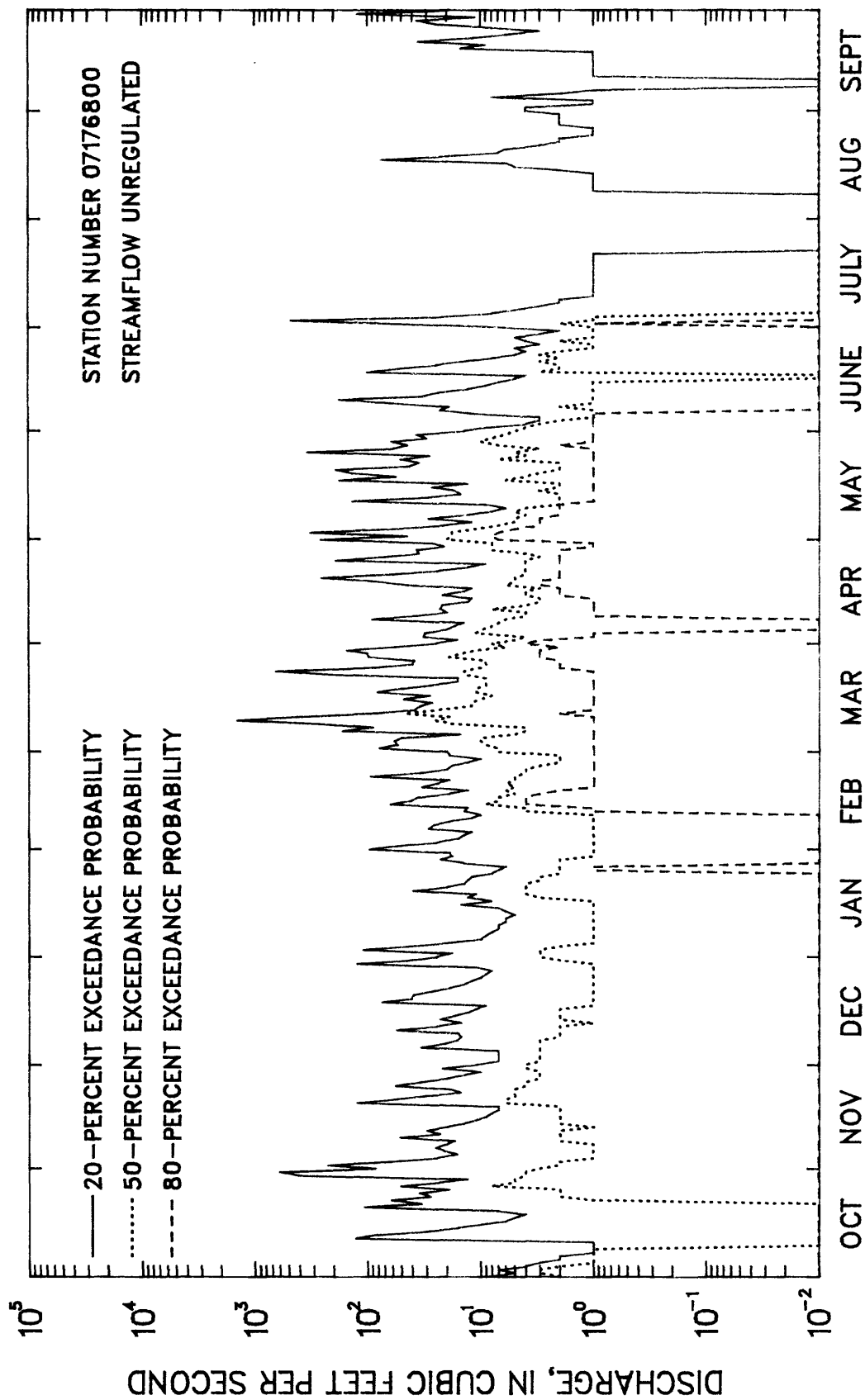


Figure 48.--Duration hydrographs of daily discharge values for Candy Creek near Wolco, Oklahoma, water years 1972-1980 (streamflow unregulated).

ARKANSAS RIVER BASIN

07177000 HOMINY CREEK NEAR SKIATOOK, OK

LOCATION.--Lat 36°20'55", long 96°06'35", in SW 1/4 SE 1/4 sec.27, T.22 N., R.11 E., Osage County, Hydrologic Unit 11070107, near left bank on downstream side of pier of bridge on Stat Highway 20, 1.0 mi upstream from Tall Chief Creek, 6.0 mi west of Skiatook, and at mile 16.7.

DRAINAGE AREA.--340 mi².

PERIOD OF RECORD.--March 1944 to September 1980 (discontinued).

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1945-80

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2320	0.00	162	419	2.6	7.4
NOVEMBER	2210	0.00	154	404	2.6	7.1
DECEMBER	797	0.00	75	159	2.1	3.4
JANUARY	651	0.00	79	147	1.9	3.6
FEBRUARY	690	0.00	82	138	1.7	3.8
MARCH	1640	0.00	248	354	1.4	11.4
APRIL	1100	2.7	259	281	1.1	11.9
MAY	2090	0.00	392	435	1.1	18.0
JUNE	2020	0.99	274	380	1.4	12.6
JULY	904	0.00	178	289	1.6	8.2
AUGUST	580	0.00	64	141	2.2	3.0
SEPTEMBER	1610	0.00	205	372	1.8	9.5
ANNUAL	609	6.4	181	137	0.75	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1945-80

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.18	0.00	0.00	0.00
3	0.21	0.00	0.00	0.00
7	0.24	0.00	0.00	0.00
14	0.30	0.00	0.00	0.00
30	0.72	0.00	0.00	0.00
60	2.3	0.28	0.00	0.00
90	5.4	0.58	0.06	0.00
120	9.0	0.88	0.08	0.00
183	24	3.0	0.72	0.14

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 38 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
8280	12800	16500	22000	26800	32300
OKLAHOMA WEIGHTED SKEW = 0.511					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1945-80

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	7190	11900	14500	17300	19000	20400
3	4290	7550	9710	12300	14100	15700
7	2240	4020	5240	6740	7800	8810
15	1270	2260	2890	3630	4130	4590
30	822	1450	1840	2270	2560	2800
60	544	945	1170	1400	1530	1640
90	444	746	901	1040	1120	1180

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-80

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3880	761	233	116	72	36	19	11	5.8	2.9	1.2	0.14	0.01	0.00	0.00	0.00	0.00

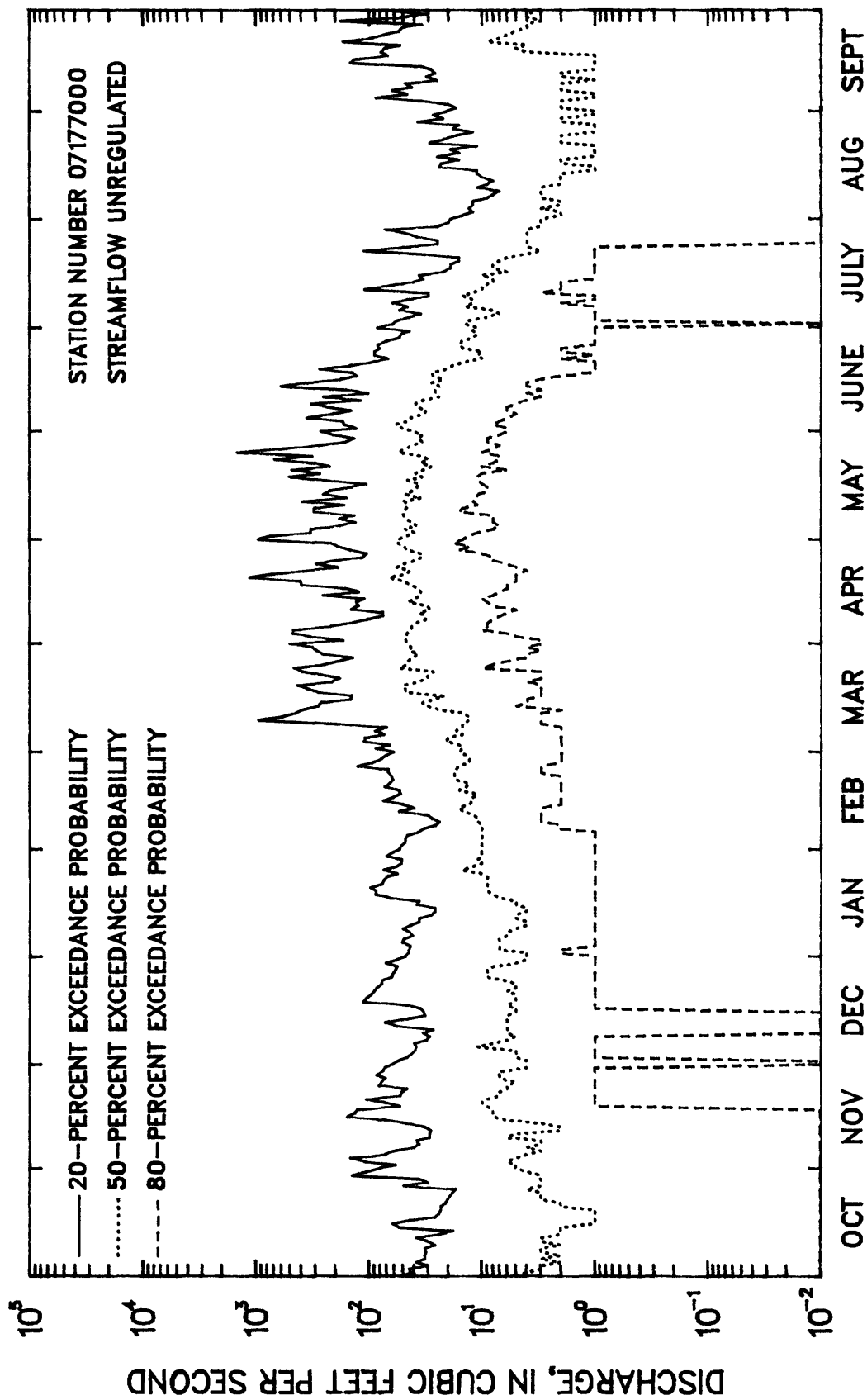


Figure 49.—Duration hydrographs of daily discharge values for Hominy Creek near Skiatook, Oklahoma, water years 1952–1980 (streamflow unregulated).

ARKANSAS RIVER BASIN

07177500 BIRD CREEK NEAR SPERRY, OK

LOCATION.--Lat 36°16'42", long 95°57'14", in NW 1/4 NW 1/4 sec.29, T.21 N., R.13 E., Tulsa County, Hydrologic Unit 11070107, on downstream side of right pier of county road bridge, 1.5 mi upstream from Delaware Creek, 2.4 mi downstream from Hominy Creek, 2.5 mi southeast of Sperry, and at mile 25.0.

DRAINAGE AREA.--905 mi².

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Some regulation since 1958 by Bluestem Lake, since 1976 by Candy Reservoir, and since 1977 by Birch Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	5910	0.00	488	1210	2.5	8.4
NOVEMBER	5420	0.00	389	911	2.3	6.7
DECEMBER	1780	0.05	197	365	1.8	3.4
JANUARY	1700	0.10	180	326	1.8	3.1
FEBRUARY	2090	0.96	248	398	1.6	4.3
MARCH	4490	1.4	645	943	1.5	11.1
APRIL	4970	12	784	969	1.2	13.5
MAY	10700	2.4	1270	1750	1.4	21.8
JUNE	5870	7.3	721	1010	1.4	12.4
JULY	1900	0.02	337	552	1.6	5.8
AUGUST	1810	0.00	152	353	2.3	2.6
SEPTEMBER	3110	0.00	403	729	1.8	6.9
ANNUAL	1480	15	485	372	0.77	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1940-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.7	0.18	0.00	0.00
3	1.9	0.23	0.00	0.00
7	2.3	0.31	0.00	0.00
14	3.2	0.62	0.00	0.00
30	6.5	0.92	0.14	0.00
60	12	2.1	0.59	0.05
90	22	3.9	1.2	0.12
120	35	5.3	1.5	0.43
183	76	14	4.8	1.6

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 46 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
14200	25500	36000	53700	70700	91900
OKLAHOMA WEIGHTED SKEW = 0.641					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1939-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	13100	23600	31800	43400	52800	62900
3	8870	16700	23300	33200	41800	51500
7	5020	9580	13300	18900	23500	28600
15	3040	5820	7990	11000	13400	15900
30	2050	3910	5250	6980	8250	9500
60	1390	2550	3300	4160	4720	5220
90	1120	2010	2520	3070	3400	3670

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
9420	2330	752	396	256	127	71	40	24	14	7.1	2.6	0.71	0.08	0.04	0.02	0.00	0.00

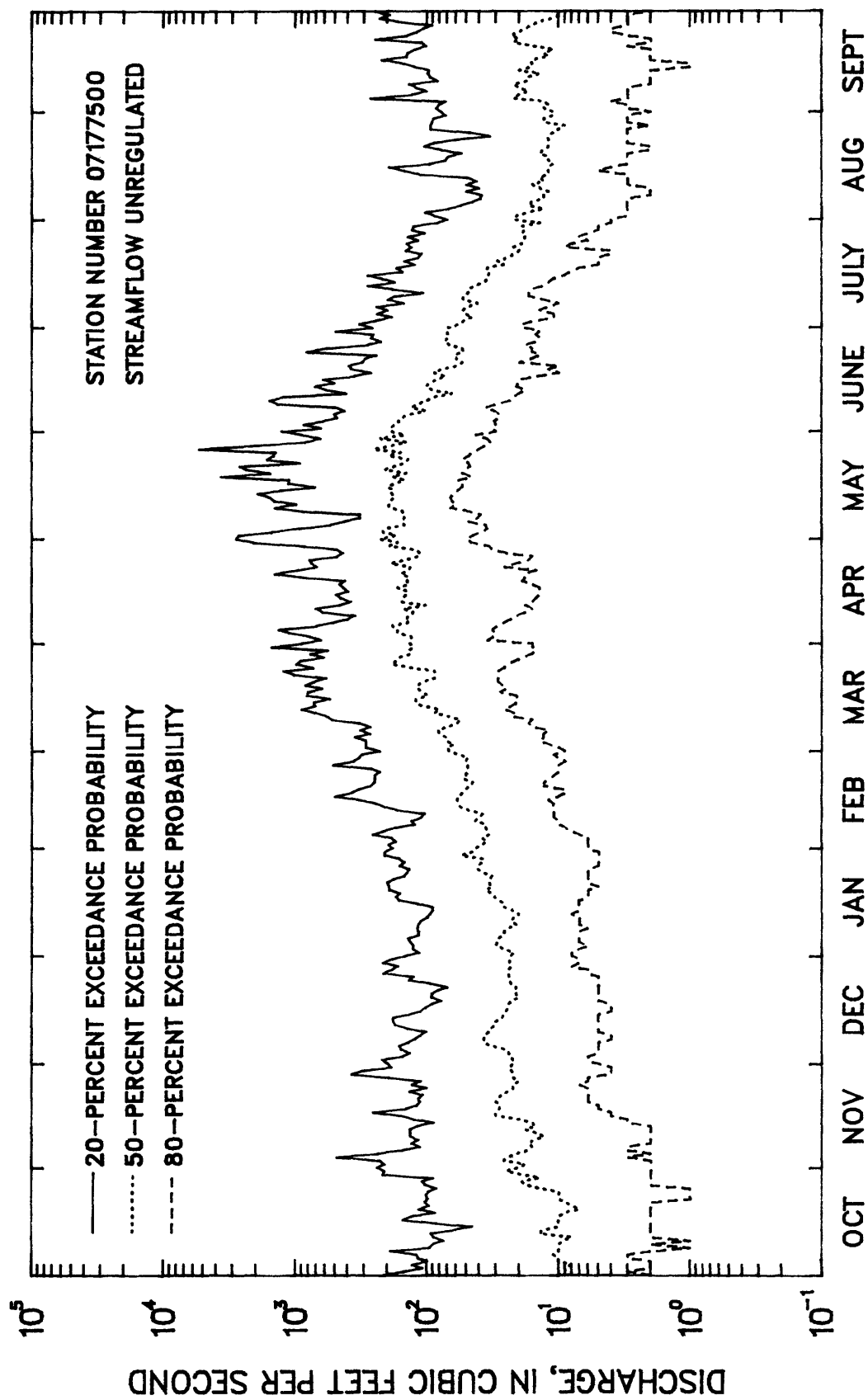


Figure 50.—Duration hydrographs of daily discharge values for Bird Creek near Sperry, Oklahoma, water years 1946-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07178600 VERDIGRIS RIVER NEAR INOLA, OK

LOCATION.--Lat 36°09'43", long 95°37'07", in northwest corner of sec. 4, T.19 N., R. 16 E., Rogers County, near right bank on downstream side of pier of bridge on State Highway 33, 1 mi upstream from Salt Creek, 6 mi west of Inola, and at mile 48.8.

DRAINAGE AREA.--7,911 mi².

PERIOD OF RECORD.--September 1944 to September 1970 (discontinued).

REMARKS.--Some regulation since 1949 by Elk River Reservoir in Kansas; further regulation since 1951 by Hulah Lake and since 1958 by Bluestem Lake. Flow regulated since 1963 by Oologah Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1945-62

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	32000	23	4660	8640	1.9	8.7
NOVEMBER	20000	36	2370	5030	2.1	4.4
DECEMBER	8730	34	1600	2730	1.7	3.0
JANUARY	9670	27	1830	2930	1.6	3.4
FEBRUARY	14900	55	2400	3590	1.5	4.5
MARCH	17400	39	4920	5340	1.1	9.2
APRIL	28800	140	6830	8030	1.2	12.7
MAY	41700	355	9530	10400	1.1	17.8
JUNE	41400	487	6630	9620	1.5	12.4
JULY	35300	34	7680	10300	1.3	14.3
AUGUST	11800	21	2020	3280	1.6	3.8
SEPTEMBER	24100	11	3180	5950	1.9	5.9
ANNUAL	9390	297	4480	2570	0.57	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1946-62

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	50	17	9.5	6.0
3	52	17	10	6.3
7	57	19	11	7.2
14	69	24	15	10
30	89	29	17	12
60	155	41	22	13
90	257	63	30	17
120	314	80	40	24
183	744	183	86	45

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 23 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
50800	89300	120000	163000	199000	237000
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.055					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1945-62

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	46700	75700	96000	123000	143000	163000
3	44200	70600	88000	110000	125000	140000
7	38500	61200	74200	88100	96800	104000
15	29400	47400	56700	65700	70800	74700
30	21600	35800	42900	49400	52800	55400
60	14300	24600	29900	34700	37200	39100
90	11000	19100	23100	26500	28300	29500

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-62

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
47400	26200	13800	8380	5150	2360	1290	677	365	194	99	49	33	18	13	10	7.4	7.4

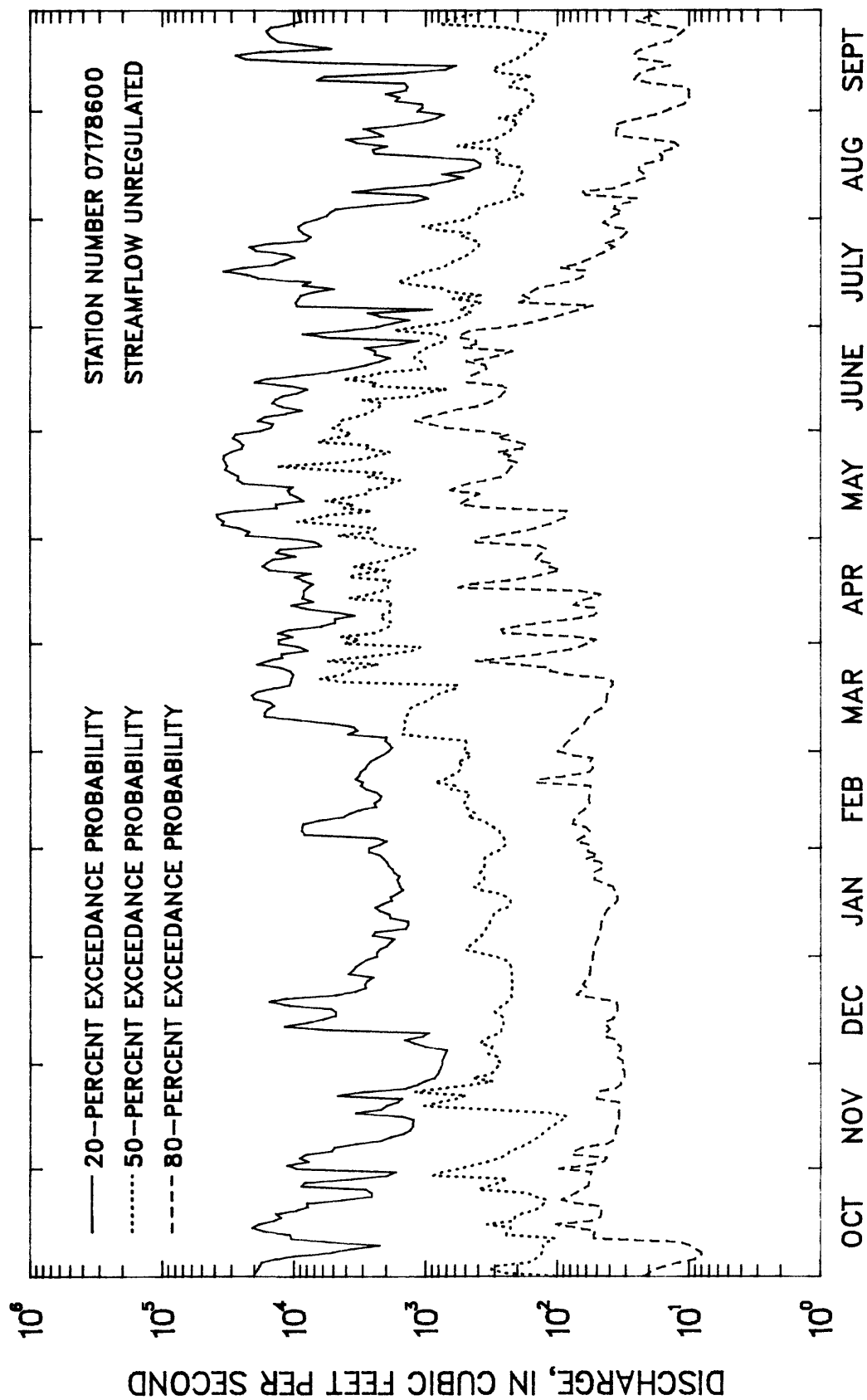


Figure 51.--Duration hydrographs of daily discharge values for Verdigris River near Inola, Oklahoma, water years 1954-1962 (streamflow unregulated).

ARKANSAS RIVER BASIN

07185000 NEOSHO RIVER NEAR COMMERCE, OK

LOCATION.--Lat 36°55'43", long 94°57'26", in SW 1/4 SE 1/4 sec.5, T.28 N., R.22 E., Ottawa County, Hydrologic Unit 11070206, on downstream side of left pier of county road bridge, 1.3 mi upstream from Mud Creek, 2.2 mi downstream from Four Mile Creek, 4.5 mi west of Commerce, and at mile 153.4.

DRAINAGE AREA.--5,876 mi².

PERIOD OF RECORD.--June 1939 to current year.

REMARKS.--Flow regulated since 1963 by John Redmond Reservoir in Kansas, 190 mi upstream.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-63						
MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	25000	0.00	3320	5450	1.6	7.8
NOVEMBER	14000	1.6	2040	3770	1.8	4.8
DECEMBER	10100	6.3	1330	2250	1.7	3.1
JANUARY	8700	8.6	1640	2270	1.4	3.8
FEBRUARY	11700	25	1910	2530	1.3	4.5
MARCH	11100	12	3520	3480	0.99	8.3
APRIL	23300	149	5350	6570	1.2	12.6
MAY	29600	395	6420	7730	1.2	15.1
JUNE	14800	408	5590	4760	0.85	13.1
JULY	53400	21	6200	11800	1.9	14.6
AUGUST	9440	0.00	1630	2220	1.4	3.8
SEPTEMBER	16900	1.5	3600	5040	1.4	8.5
ANNUAL	8830	246	3550	2310	0.65	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1941-63

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	81	7.6	0.00	0.00
3	87	8.7	0.00	0.00
7	96	11	0.00	0.00
14	118	14	0.14	0.00
30	150	18	0.58	0.00
60	287	26	0.84	0.00
90	401	52	14	3.9
120	591	93	27	8.6
183	1100	204	66	22

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
37300	69000	97100	142000	183000	232000
WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.308					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1940-63

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	36800	71700	99200	138000	168000	201000
3	35400	66800	88000	114000	132000	148000
7	29800	54800	68900	83000	91000	97400
15	20700	39800	51400	63700	71100	77200
30	13300	27300	37000	48800	56800	64300
60	9080	18400	24800	32600	37800	42600
90	7080	14200	18900	24400	28000	31200

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
36800	19800	10400	5820	3690	1980	1240	767	459	263	132	23	7.3	0.57	0.06	0.03	0.01

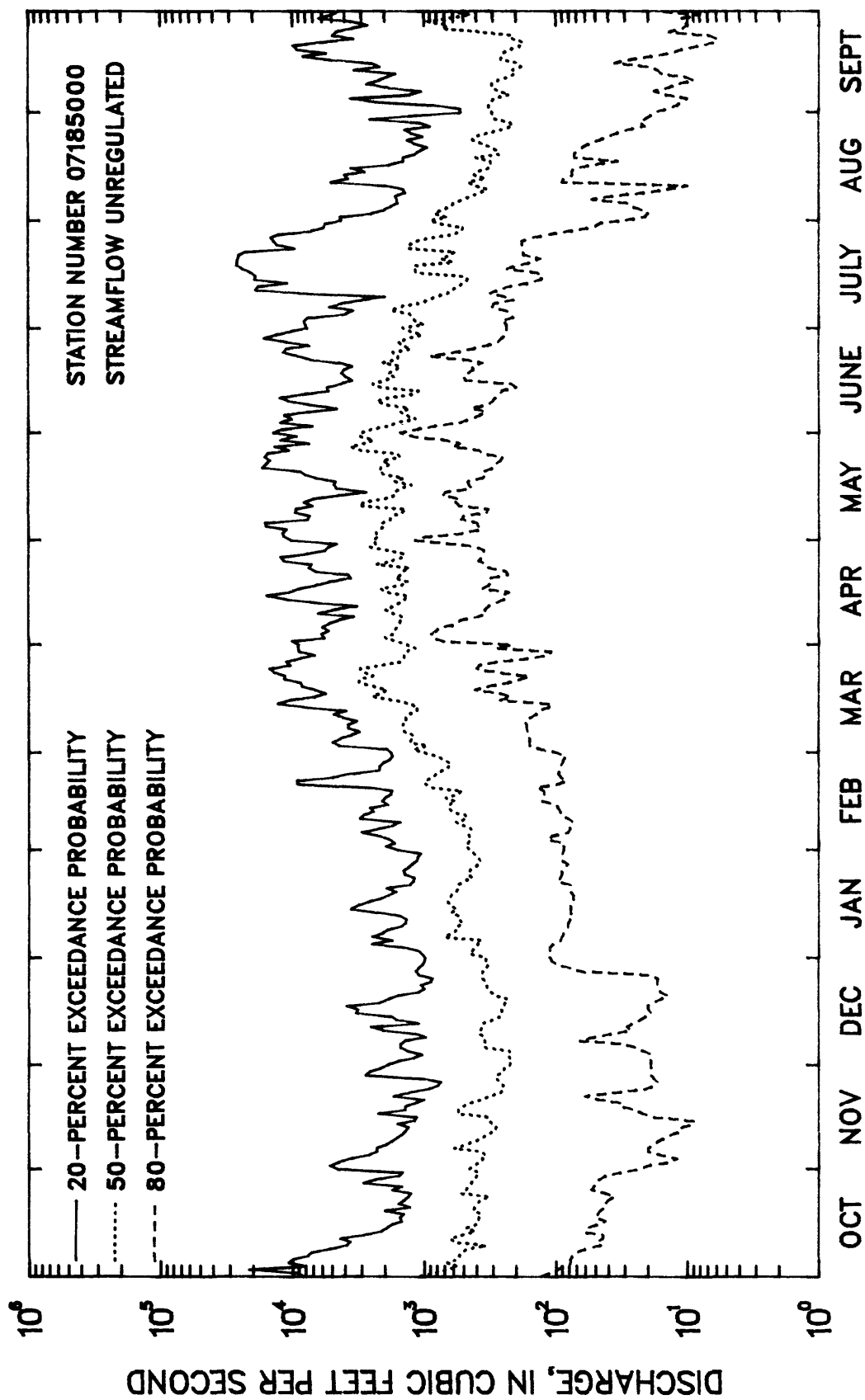


Figure 52.--Duration hydrographs of daily discharge values for Neosho River near Commerce, Oklahoma, water years 1945-1963 (streamflow unregulated).

ARKANSAS RIVER BASIN

07185000 NEOSHO RIVER NEAR COMMERCE, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1964-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	16800	15	2440	3810	1.6	5.9
NOVEMBER	15700	30	3550	4550	1.3	8.6
DECEMBER	10500	32	2020	2590	1.3	4.9
JANUARY	10100	27	1830	2540	1.4	4.5
FEBRUARY	9070	42	2460	2760	1.1	6.0
MARCH	21600	30	4650	5480	1.2	11.3
APRIL	18800	63	5650	6010	1.1	13.7
MAY	12400	760	4520	3320	0.74	11.0
JUNE	15800	290	7390	4790	0.65	18.0
JULY	10800	141	4020	3540	0.88	9.8
AUGUST	2840	91	860	840	0.98	2.1
SEPTEMBER	6640	31	1780	2250	1.3	4.3
ANNUAL	7510	857	3430	1880	0.55	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1965-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	49	22	14	9.8
3	55	24	15	11
7	61	27	17	12
14	73	31	20	14
30	116	47	29	19
60	228	80	44	26
90	403	119	59	32
120	636	174	80	39
183	1090	291	128	60

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1964-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 21 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
33900	46300	54400	64400	71800	79200
STATION SKEW = -1.038					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	33300	45700	52700	60400	65400	69800
3	31000	42900	49400	56100	60300	64000
7	22700	32000	37300	43100	46800	50200
15	17700	23000	25000	26500	27200	27600
30	13400	18000	19900	21400	22000	22500
60	9230	13600	16100	18800	20500	22000
90	7480	11100	13200	15400	16900	18100

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
29500	15600	10500	7480	5270	2950	1590	864	515	298	138	61	39	25	19	15	4.8

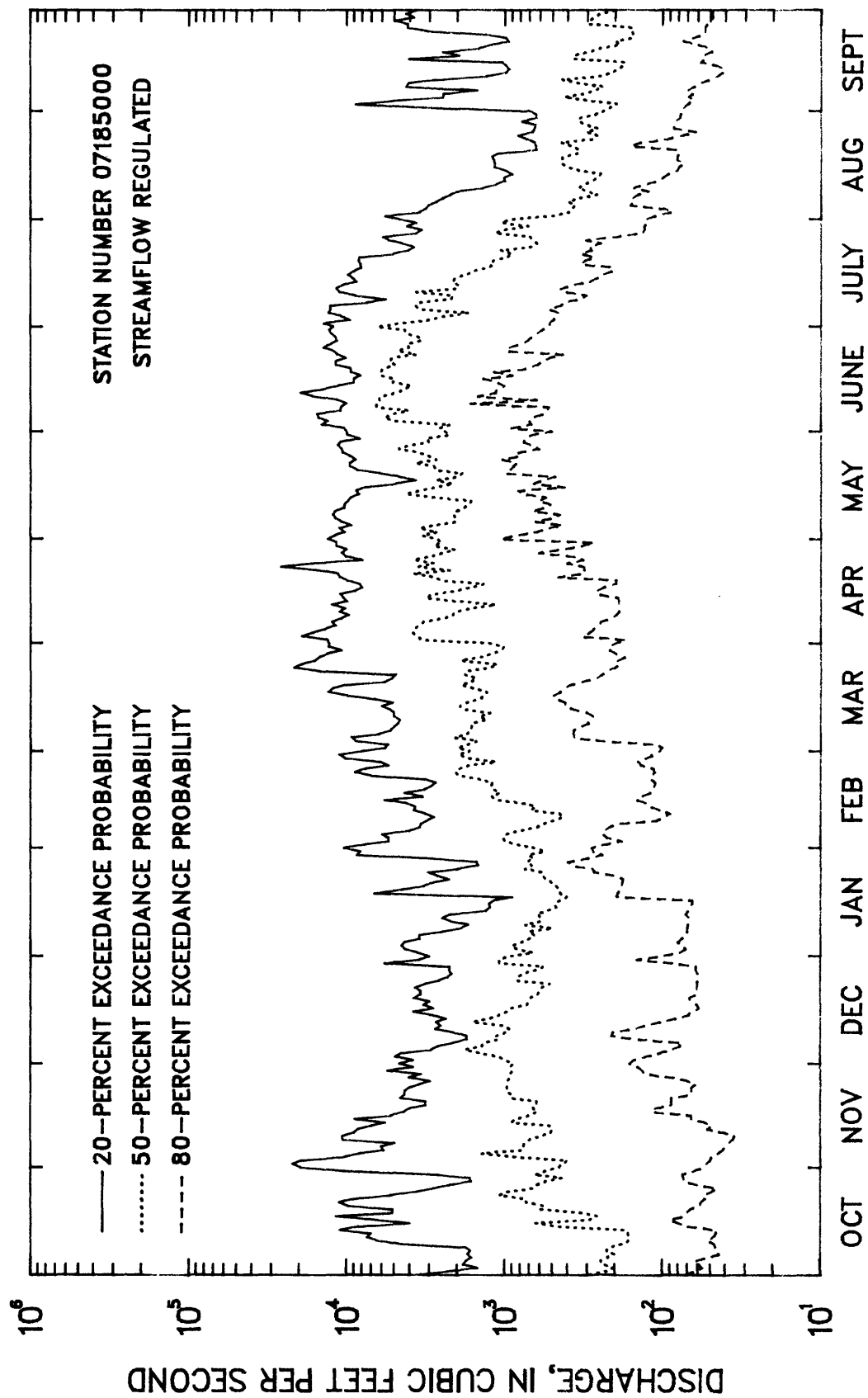


Figure 53.--Duration hydrographs of daily discharge values for Neosho River near Commerce, Oklahoma, water years 1966-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07188000 SPRING RIVER NEAR QUAPAW, OK

LOCATION.--Lat 36°56'04", long 94°44'45", in NE 1/4 SW 1/4 sec.5, T.28 N., R.24 E., Ottawa County, Hydrologic Unit 11070207, near center of span on downstream side of pier of county road bridge, 0.1 mi upstream from Rock Creek, 3.0 mi southeast of Quapaw, and at mile 13.9. Records include flow of Rock Creek.

DRAINAGE AREA.--2,510 mi², includes that of Rock Creek.

PERIOD OF RECORD.--July 1939 to current year.

REMARKS.--Occasional releases from flood gates at old Riverton Hydroelectric plant.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	14000	76	1540	2600	1.7	6.6
NOVEMBER	9860	111	1820	2510	1.4	7.7
DECEMBER	8000	116	1300	1570	1.2	5.5
JANUARY	6500	116	1290	1320	1.0	5.5
FEBRUARY	7170	129	1740	1710	0.99	7.4
MARCH	12100	123	2680	2820	1.1	11.4
APRIL	15100	169	3230	3310	1.0	13.8
MAY	26900	481	3350	4620	1.4	14.3
JUNE	12100	233	2910	2510	0.86	12.4
JULY	10100	34	1700	2230	1.3	7.3
AUGUST	8620	29	763	1260	1.7	3.2
SEPTEMBER	7300	76	1150	1410	1.2	4.9
ANNUAL	5100	191	1950	1140	0.58	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1941-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	163	79	47	29
3	199	96	56	33
7	229	113	67	40
14	252	125	75	45
30	286	137	82	50
60	329	166	110	76
90	426	204	131	89
120	486	241	165	119
183	718	341	224	157

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1940-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 45 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
32700	55400	72100	94400	112000	130000
OKLAHOMA WEIGHTED SKEW = -0.223					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	29300	53700	72200	97500	118000	138000
3	23800	45200	61100	82300	98400	115000
7	14900	28400	38600	52200	62700	73300
15	9550	17800	23700	31300	36900	42400
30	6580	11800	15400	20000	23300	26500
60	4580	8070	10500	13500	15700	17800
90	3760	6460	8230	10300	11800	13100

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
23500	7040	4040	2840	2200	1460	1030	747	541	397	288	189	137	95	70	42	9.1

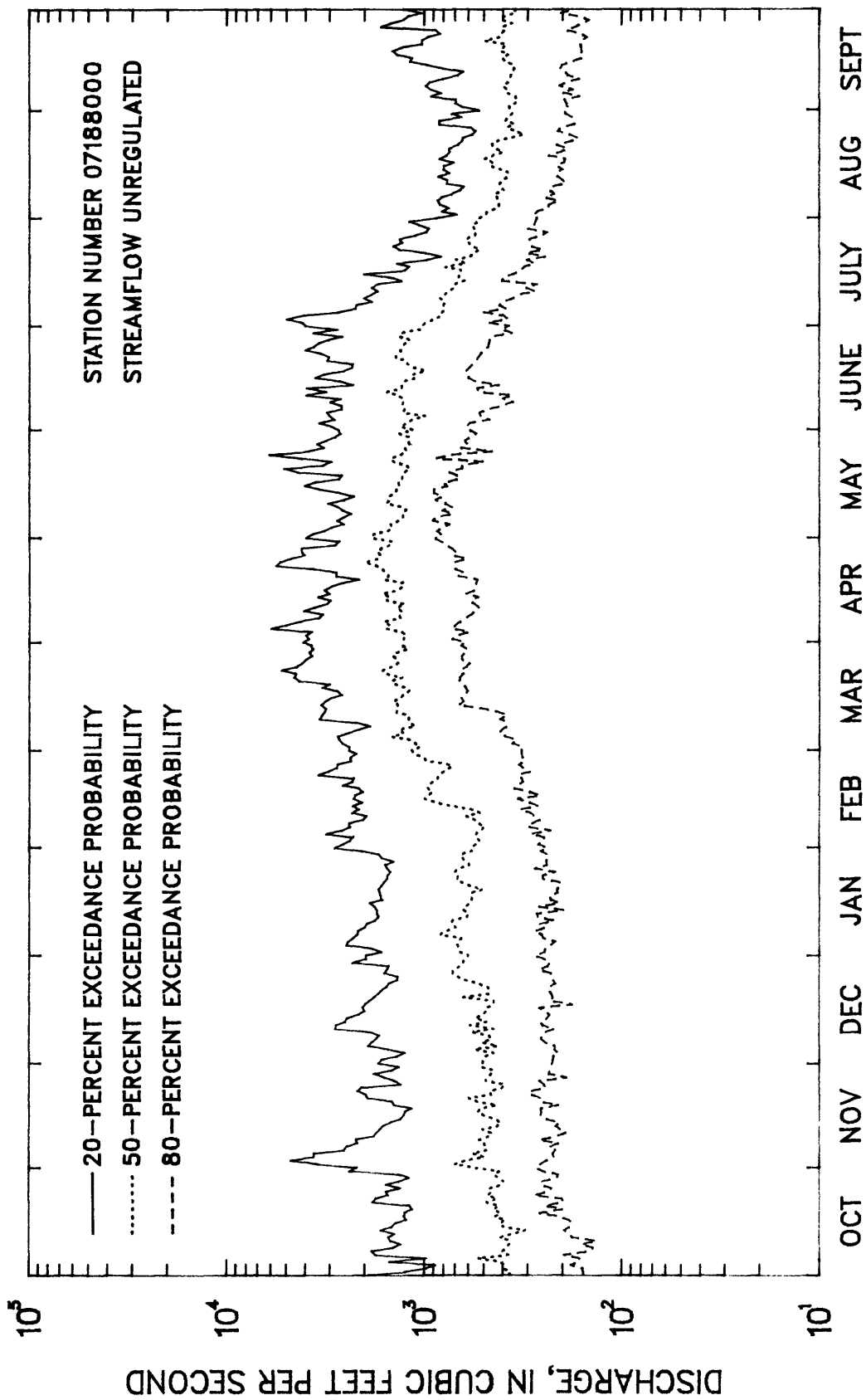


Figure 54.--Duration hydrographs of daily discharge values for Spring River near Quapaw, Oklahoma, water years 1946-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07189000 ELK RIVER NEAR TIFF CITY, MO

LOCATION.--Lat 36°37'50", long 94°35'12", in NE 1/4 sec.22, T.22 N., R.34 W., McDonald County, Hydrologic Unit 11070208, on downstream side of second pier from right bank of bridge on State Highway 43, 0.8 mi downstream from Blackfoot Branch, 2.8 mi upstream from Buffalo Creek, 3.0 mi southeast of Tiff City, and at mile 15.8.

DRAINAGE AREA.--872 mi².

PERIOD OF RECORD.--October 1939 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2940	26	394	572	1.5	4.3
NOVEMBER	4090	50	632	898	1.4	6.9
DECEMBER	3300	59	575	653	1.1	6.2
JANUARY	2490	56	550	548	1.0	6.0
FEBRUARY	2970	71	756	673	0.89	8.2
MARCH	5020	76	1200	1060	0.89	13.0
APRIL	6120	145	1590	1390	0.88	17.2
MAY	8960	227	1590	1720	1.1	17.2
JUNE	4160	79	908	881	0.97	9.9
JULY	2570	14	488	558	1.1	5.3
AUGUST	2420	12	276	402	1.5	3.0
SEPTEMBER	1850	31	268	351	1.3	2.9
ANNUAL	1780	135	767	418	0.55	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	75	40	26	18
3	78	41	27	18
7	82	44	29	20
14	86	46	31	21
30	97	52	35	24
60	119	64	44	30
90	147	78	52	36
120	172	95	68	51
183	243	126	89	67

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1940-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 45 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
18800	39200	56500	82100	104000	127000
OKLAHOMA WEIGHTED SKEW = -0.251					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	13500	27000	38000	53900	66900	80800
3	9060	17300	23700	32800	40100	47700
7	5640	10300	13900	19000	23000	27300
15	3620	6410	8590	11700	14100	16800
30	2510	4270	5610	7480	9000	10600
60	1800	2990	3850	5010	5910	6840
90	1500	2460	3150	4060	4760	5470

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
7230	2670	1630	1200	929	622	434	311	226	164	119	80	61	43	31	18	7.4

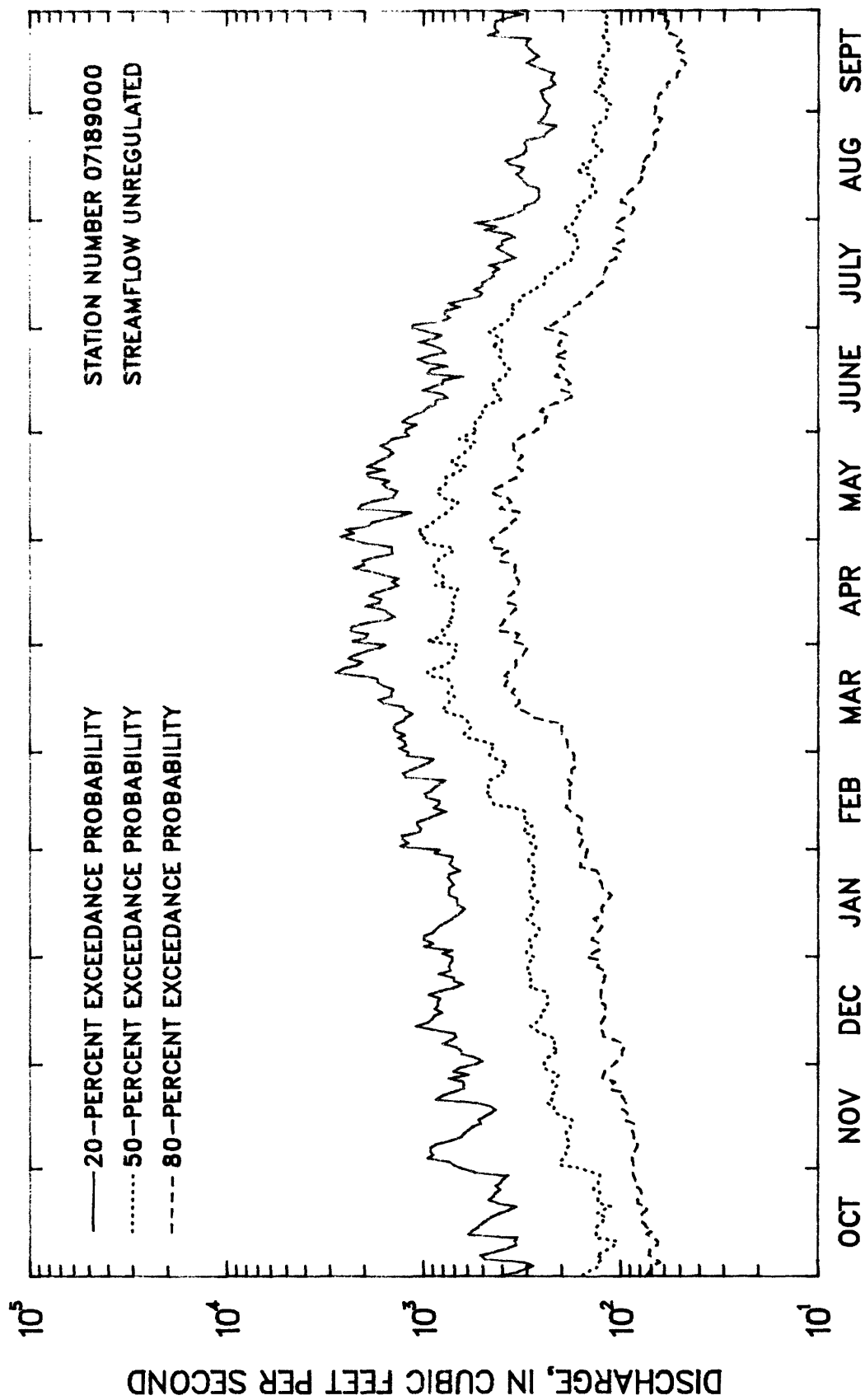


Figure 55.--Duration hydrographs of daily discharge values for Elk River near Tiff City, Missouri, water years 1946-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07189500 NEOSHO RIVER NEAR GROVE, OK

LOCATION.--Lat 36°33'25", long 94°44'45", in SE 1/4 sec.27, T.25 N., R.23 E., at bridge on State Highway 25, 3.0 mi downstream from Spring Branch, 3.5 mi northwest of Grove, 8.2 mi downstream from River, and at mile 105.4.

DRAINAGE AREA.--9,969 mi².

PERIOD OF RECORD.--October 1924 to September 1939.

REMARKS.--Some regulation at low flow by power plants above station.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1925-39

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	25000	384	4400	6790	1.5	6.0
NOVEMBER	12000	450	4370	3740	0.85	6.0
DECEMBER	7980	368	3490	2420	0.69	4.8
JANUARY	14200	355	4660	3990	0.86	6.4
FEBRUARY	11700	732	4470	3150	0.70	6.1
MARCH	12400	1010	4420	3480	0.79	6.1
APRIL	58400	1180	10900	15300	1.4	14.9
MAY	36800	1350	10500	9680	0.92	14.4
JUNE	55400	1110	15000	16600	1.1	20.6
JULY	9220	235	3480	3080	0.89	4.8
AUGUST	26600	119	3590	6800	1.9	4.9
SEPTEMBER	22700	192	3690	5500	1.5	5.1
ANNUAL	15800	1750	6070	4160	0.69	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1926-39

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	390	150	81	46
3	435	170	93	53
7	460	185	103	60
14	493	203	117	70
30	546	257	168	116
60	712	350	240	175
90	985	566	436	356
120	1280	711	529	417
183	2210	1280	981	793

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1925-39

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
62200	100000	125000	157000	180000	202000

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.413

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	59100	96400	121000	152000	173000	194000
3	49500	86100	112000	145000	170000	190000
7	37100	68100	90800	121000	144000	167000
15	25600	50700	71000	99900	124000	149000
30	19000	38300	54100	77100	96100	117000
60	13300	25400	35400	50300	62900	76850
90	10300	19500	27200	38700	48600	59600

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1925-39

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
64100	27700	14400	9030	6390	4350	3020	2250	1640	1150	848	541	376	231	151	87	45

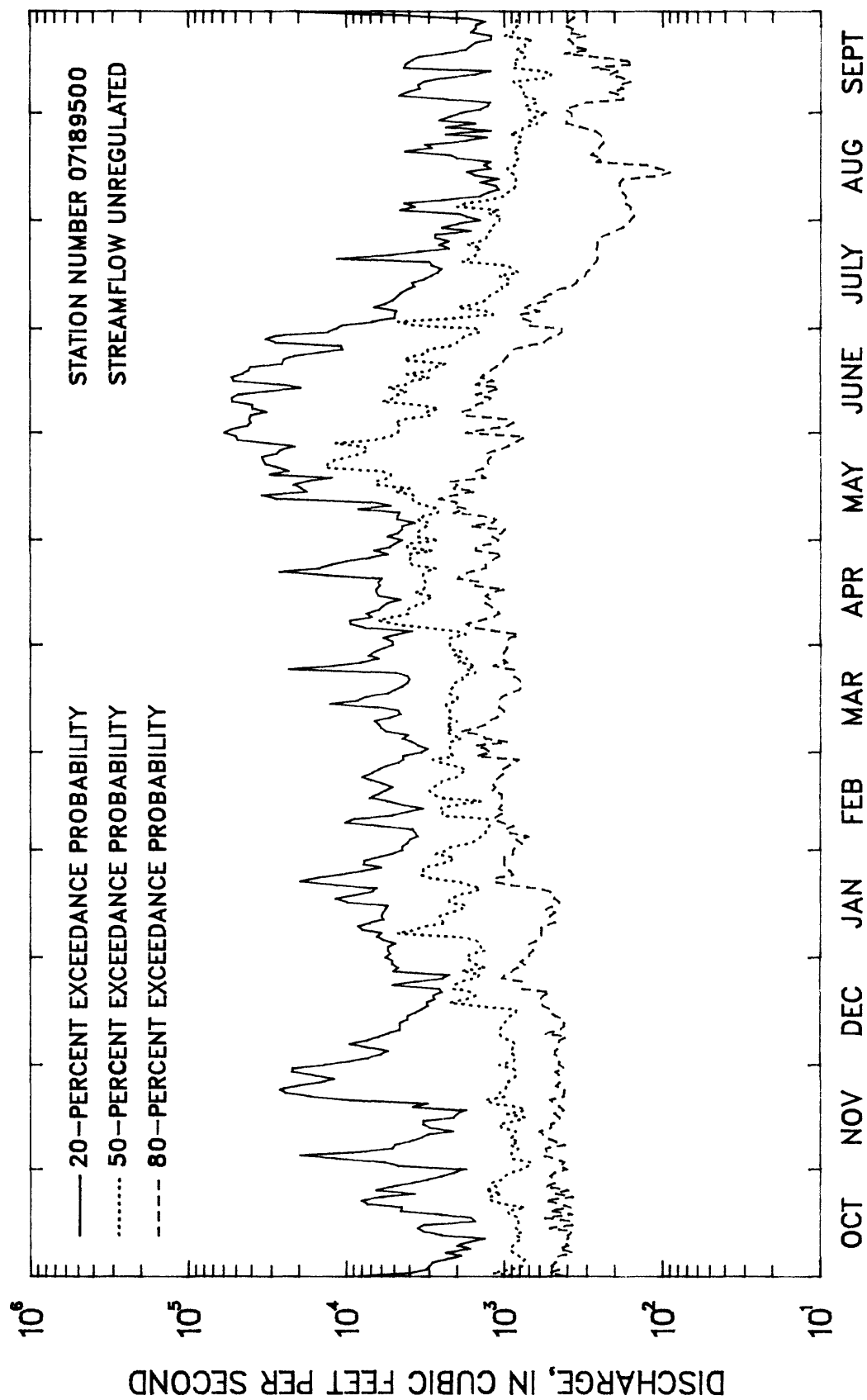


Figure 56.--Duration hydrographs of daily discharge values for Neosho River near Grove, Oklahoma, water years 1931-1939 (streamflow unregulated).

ARKANSAS RIVER BASIN

07190500 NEOSHO RIVER NEAR LANGLEY, OK

LOCATION.--Lat 36°26'15", long 95°02'44", in SE 1/4 sec.27, T.23 N., R.21 E., Mayes County, Hydrologic Unit 11070209, in concrete stilling well on left bank, 0.5 mi upstream from bridge on State Highway 82, 1.5 mi south of Langley, 3.6 mi downstream from Pensacola Dam, 6.3 mi upstream from Big Cabin Creek, and at mile 73.4.

DRAINAGE AREA.--10,335 mi².

PERIOD OF RECORD.--October 1939 to current year.

REMARKS.--Flow regulated since 1940 by Lake O' The Cherokees.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	46400	38	5600	8200	1.5	6.8
NOVEMBER	30200	63	5750	7270	1.3	7.0
DECEMBER	25200	41	4310	4700	1.1	5.2
JANUARY	18900	144	3910	3910	1.0	4.7
FEBRUARY	23500	243	5200	5100	0.98	6.3
MARCH	33300	321	7250	7420	1.0	8.8
APRIL	50800	38	10500	11300	1.1	12.7
MAY	77700	71	11200	14600	1.3	13.6
JUNE	32500	33	10600	7050	0.67	12.8
JULY	67900	27	9160	11600	1.3	11.1
AUGUST	20900	26	4130	3530	0.86	5.0
SEPTEMBER	21300	77	4940	4860	0.98	6.0
ANNUAL	15500	210	6880	3830	0.56	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1941-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	51	19	12	9.0
3	81	23	13	10
7	202	48	23	12
14	361	95	46	24
30	687	180	80	39
60	1250	395	186	92
90	1900	601	273	129
120	2410	777	358	171
183	3140	1090	537	274

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1940-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 45 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
49300	100000	143000	206000	259000	317000
STATION SKEW = -0.997					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	51100	104000	136000	170000	191000	207000
3	48100	94700	122000	149000	164000	176000
7	40200	74100	91500	107000	115000	121000
15	31100	53800	64400	73300	77500	80300
30	23400	40300	48500	55500	58900	61400
60	17300	28400	33300	37100	38900	40100
90	14400	22800	26100	28600	29700	30400

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
57700	24300	14000	12400	10800	6850	4940	3560	2520	1550	582	93	31	17	14	13	12

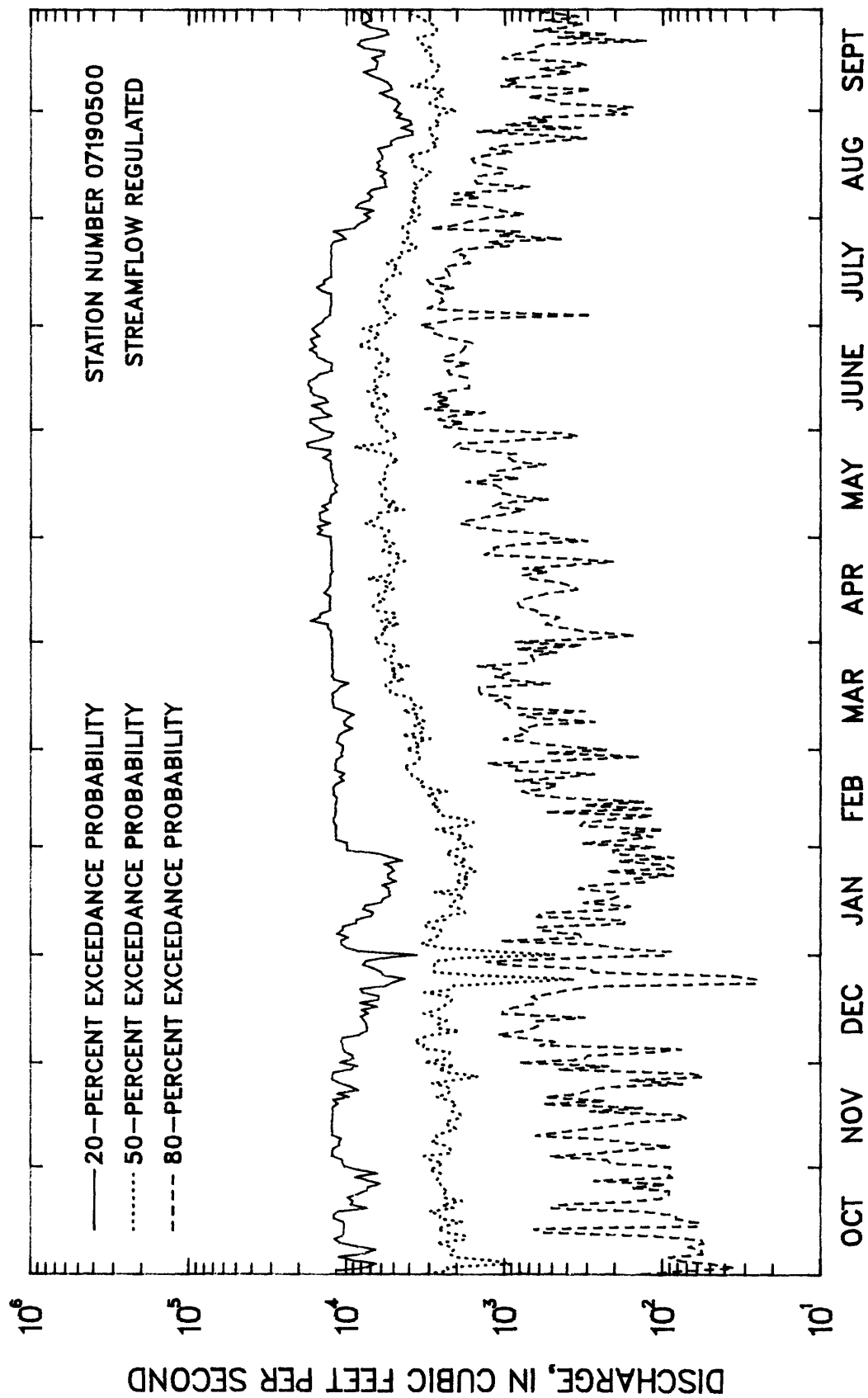


Figure 57.--Duration hydrographs of daily discharge values for Neosho River near Langley, Oklahoma, water years 1946-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07191000 BIG CABIN CREEK NEAR BIG CABIN, OK

LOCATION.--Lat 36°34'06", long 95°09'07", in NE 1/4 NE 1/4 sec.15, T.24 N., R.20 E., Craig County, Hydrologic Unit 11070209, near downstream side of right bank end of county road bridge, 4.9 mi northeast of Big Cabin, 0.9 mi downstream from White Oak Creek, 6.8 mi upstream from Mustang Creek, and at mile 13.0.

DRAINAGE AREA.--450 mi².

PERIOD OF RECORD.--October 1947 to current year.

REMARKS.-- Low flow sustained by sewage from city of Vinita.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1948-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4250	0.22	276	710	2.6	7.4
NOVEMBER	2830	0.89	302	568	1.9	8.1
DECEMBER	1390	1.5	179	307	1.7	4.8
JANUARY	1160	1.3	182	253	1.4	4.9
FEBRUARY	1060	1.5	226	261	1.2	6.1
MARCH	2550	1.4	519	561	1.1	14.0
APRIL	1930	30	447	516	1.2	12.0
MAY	3580	20	584	832	1.4	15.7
JUNE	2820	2.8	429	666	1.5	11.5
JULY	1950	0.53	257	473	1.8	6.9
AUGUST	1760	0.41	105	300	2.8	2.8
SEPTEMBER	1890	0.22	209	399	1.9	5.6
ANNUAL	883	38	310	211	0.68	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1949-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.92	0.41	0.26	0.17
3	0.97	0.44	0.28	0.19
7	1.0	0.49	0.34	0.25
14	1.2	0.59	0.43	0.34
30	1.8	0.76	0.52	0.40
60	3.8	1.2	0.66	0.43
90	8.7	2.0	0.92	0.50
120	16	4.0	2.0	1.1
183	53	12	5.2	2.4

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1948-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 44 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
14900	27000	36900	51300	63600	77000

OKLAHOMA WEIGHTED SKEW = -0.003

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	10200	19200	26700	38200	48000	59100
3	5970	11700	16700	24500	31600	39600
7	3220	6370	9180	13700	17700	22500
15	1920	3680	5110	7190	8920	10800
30	1260	2400	3280	4510	5480	6500
60	815	1530	2090	2850	3460	4090
90	645	1190	1590	2130	2550	2970

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1948-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
6380	1230	450	247	164	90	49	26	13	5.6	2.7	1.6	1.0	0.63	0.35	0.20	0.13

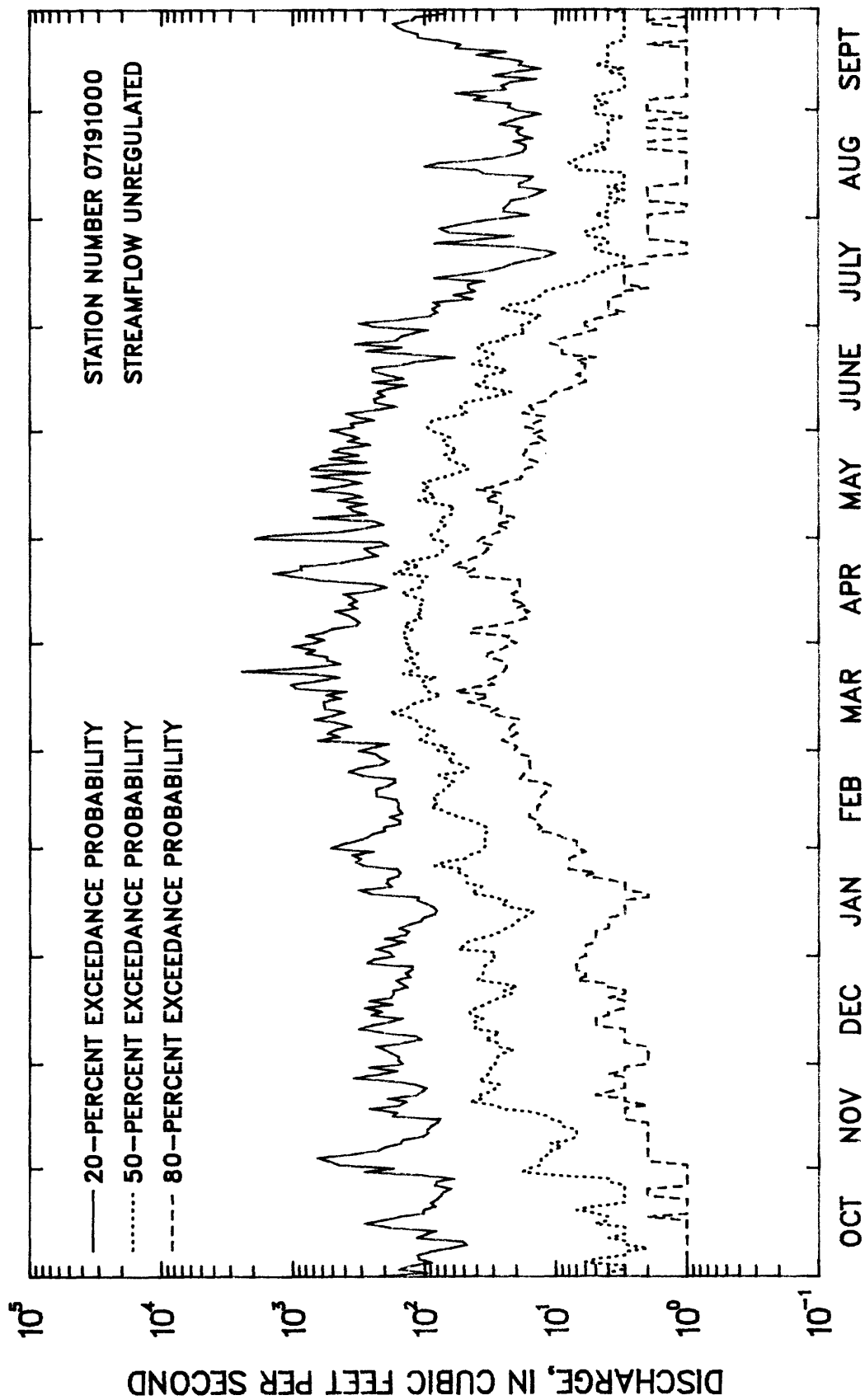


Figure 58.--Duration hydrographs of daily discharge values for Big Cabin Creek near Big Cabin, Oklahoma, water years 1956-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK

LOCATION.--Lat 36°20'07", long 94°38'24", in NE 1/4 NW 1/4 sec.4, T.21 N., R.25 E., Delaware County, Hydrologic Unit 11070209, on right bank 1.8 mi upstream from Cherokee Creek, 4.8 mi northeast of Row, 6.5 mi southeast of Sycamore, and at mile 35.0.

DRAINAGE AREA.--133 mi².

PERIOD OF RECORD.--October 1961 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1962-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVIA- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	255	4.8	52	61	1.2	4.3
NOVEMBER	683	8.6	114	185	1.6	9.4
DECEMBER	437	11	88	94	1.1	7.3
JANUARY	297	9.3	84	78	0.92	7.0
FEBRUARY	271	12	98	83	0.85	8.1
MARCH	563	13	167	154	0.92	13.8
APRIL	600	22	200	162	0.81	16.5
MAY	349	19	128	87	0.68	10.6
JUNE	880	15	134	188	1.4	11.0
JULY	483	10	69	97	1.4	5.7
AUGUST	79	6.3	30	18	0.60	2.5
SEPTEMBER	220	5.8	48	59	1.2	4.0
ANNUAL	265	18	101	71	0.70	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1963-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	12	5.6	3.6	2.4
3	12	5.8	3.7	2.5
7	13	6.2	4.1	2.8
14	13	6.7	4.5	3.2
30	14	7.8	5.7	4.4
60	18	9.9	7.2	5.5
90	22	12	8.3	6.2
120	27	14	9.7	7.2
183	35	17	11	8.3

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1962-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3050	8900	15100	25900	36300	48700
OKLAHOMA WEIGHTED SKEW = -0.259					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1500	3820	6210	10400	14600	19700
3	1000	2190	3270	5000	6580	8410
7	628	1230	1730	2480	3120	3830
15	410	752	1020	1390	1690	2000
30	287	511	673	884	1040	1200
60	205	366	479	624	731	836
90	171	299	392	518	615	714

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
842	331	205	153	120	86	63	48	36	26	19	12	8.9	6.2	5.1	4.4	2.6

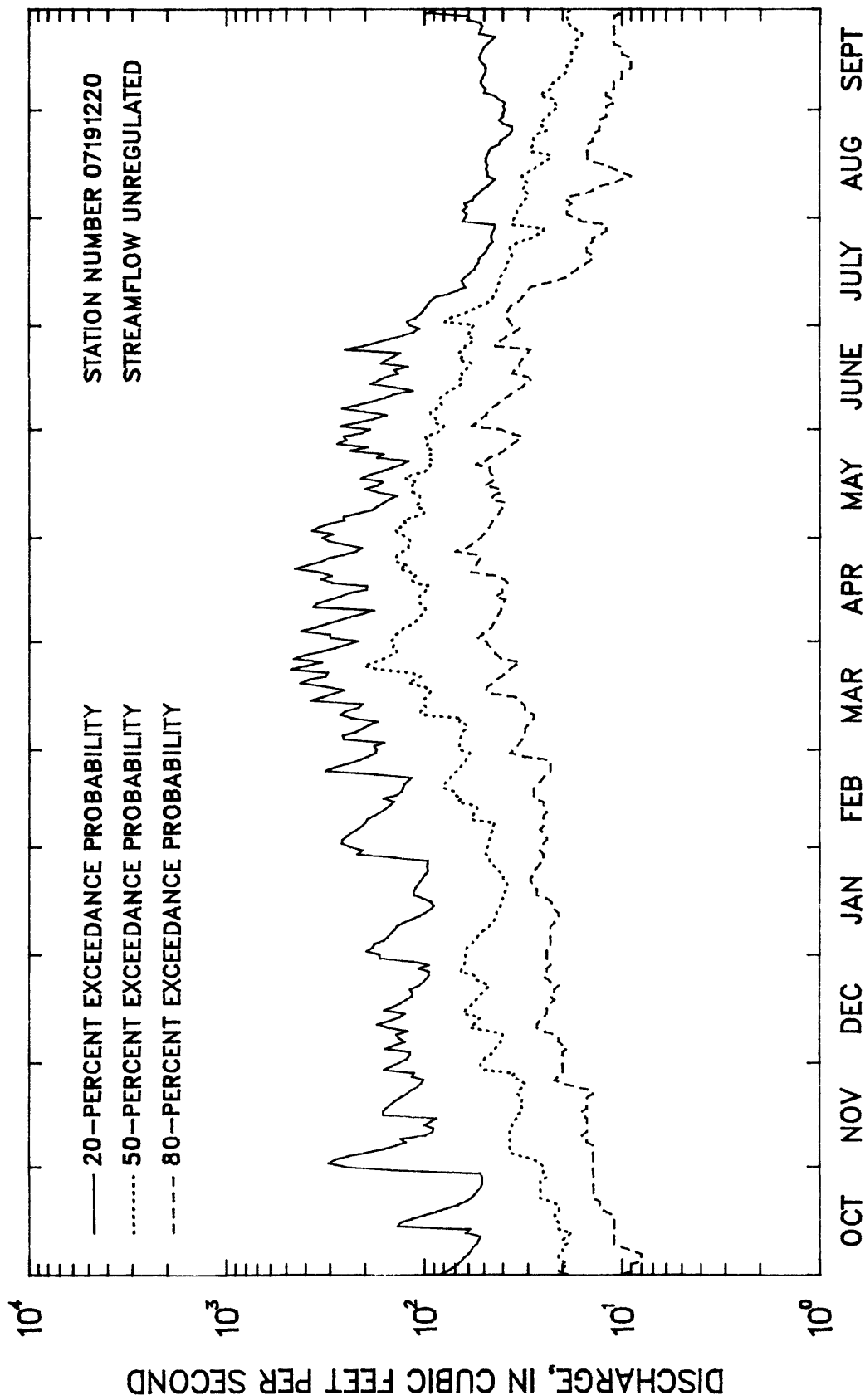


Figure 59.—Duration hydrographs of daily discharge values for Spavinaw Creek near Sycamore, Oklahoma, water years 1966–1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07191500 NEOSHO RIVER NEAR CHOUTEAU, OK

LOCATION.--Lat 36°13'45", long 95°10'59", in SE 1/4 NW 1/4 sec.9, T.20 N., R.20 E., Mayes County, Hydrologic Unit 11070209, on left bank, 300 ft downstream from Robert S. Kerr Dam, 2.2 mi northwest of Locust Grove, 10 mi northeast of Chouteau, and at mile 47.2.

DRAINAGE AREA.--11,534 mi².

PERIOD OF RECORD.--October 1937 to September 1950, October 1963 to current year.

REMARKS.--Flow regulated since 1940 by Lake O' The Cherokees; flow completely regulated since 1963 by Lake Hudson.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-50, 1964-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	52800	101	6080	9790	1.6	6.1
NOVEMBER	38800	83	7260	9990	1.4	7.2
DECEMBER	32300	88	5480	6440	1.2	5.5
JANUARY	23400	189	5190	5120	0.99	5.2
FEBRUARY	26500	79	6710	6310	0.94	6.7
MARCH	39300	76	9510	9850	1.0	9.5
APRIL	55600	160	14700	14400	0.97	14.7
MAY	91500	122	13000	16600	1.3	12.9
JUNE	30900	354	13400	7220	0.54	13.4
JULY	33900	210	9070	8200	0.90	9.0
AUGUST	22200	146	4790	4490	0.94	4.8
SEPTEMBER	16000	532	5020	4490	0.89	5.0
ANNUAL	18900	435	8350	4530	0.54	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-50, 1965-84

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	134	65	47	38
3	172	71	48	41
7	278	105	67	47
14	435	168	104	71
30	805	299	172	106
60	1420	646	399	259
90	2380	1060	621	375
120	2970	1270	716	417
183	3860	1570	868	497

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 41 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
56900	108000	151000	217000	274000	338000
STATION SKEW = -0.313					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1940-50, 1964-84

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	58800	113000	153000	205000	244000	282000
3	55600	103000	134000	171000	196000	218000
7	48700	83000	101000	118000	127000	134000
15	40000	61200	69200	74800	77100	78400
30	30100	45700	51900	56500	58400	59600
60	22300	33500	37600	40400	41400	42000
90	18400	26600	29300	31000	31600	31900

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-50, 1964-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME															
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%
62500	31400	19900	15600	12800	8710	5840	4110	2840	1710	533	169	126	92	71	50
															31

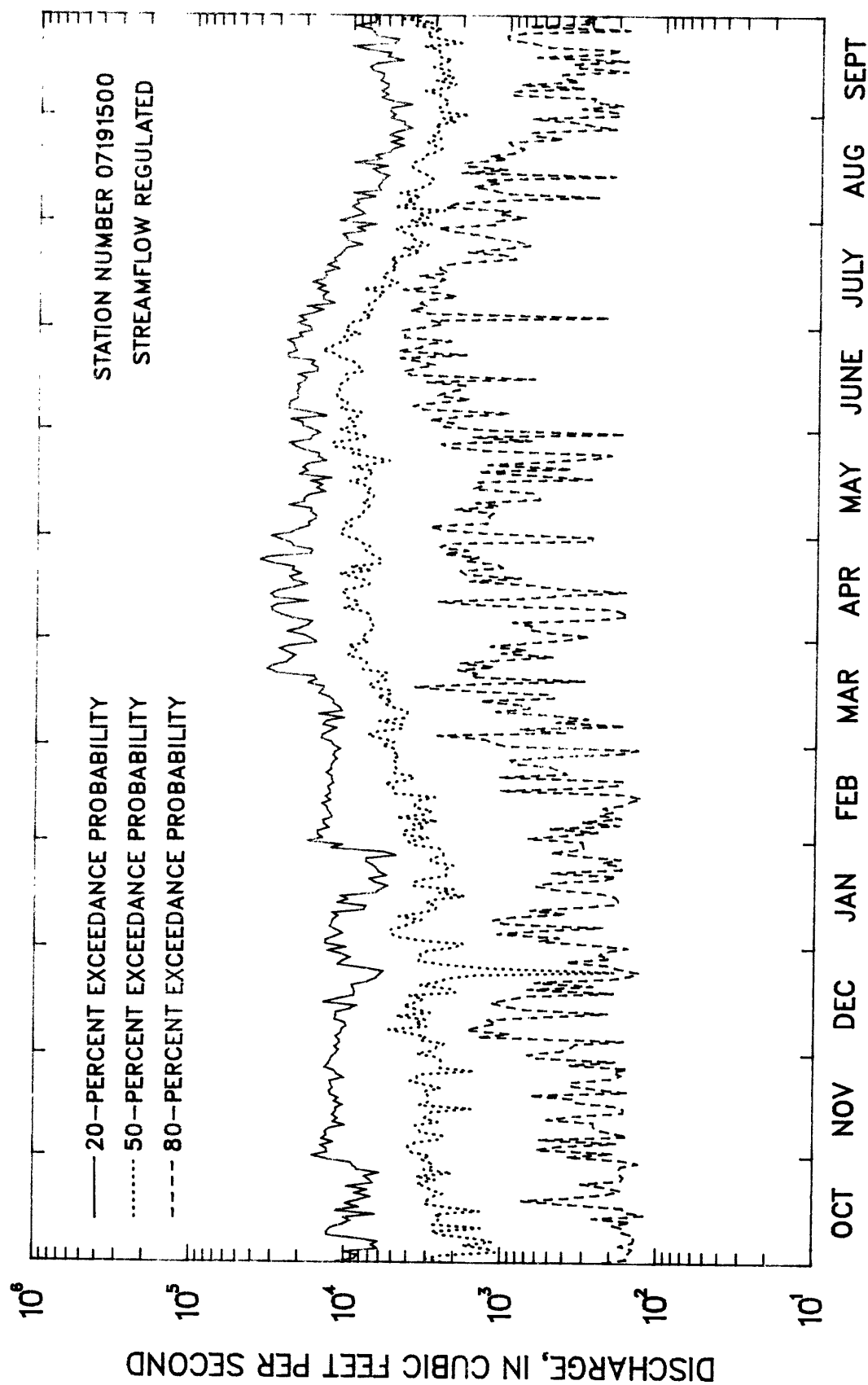


Figure 60.--Duration hydrographs of daily discharge values for Neosho River near Chouteau, Oklahoma, water years 1943-1950, 1964-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07192000 PRYOR CREEK NEAR PRYOR, OK

LOCATION.--Lat 36°16'52", long 95°19'32", in SW 1/4 sec.19, T.21 N., R.19 E., on right bank at downstream site of bridge on U.S. Highway 69, 1.8 ml south of Pryor, 2.0 ml downstream from Seminole Creek, and at mile 10.5.

DRAINAGE AREA.--229 mi².

PERIOD OF RECORD.--October 1949 to December 1963.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1948-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2170	0.00	172	537	3.1	11.0
NOVEMBER	374	0.00	54	121	2.2	3.5
DECEMBER	194	0.00	34	66	1.9	2.2
JANUARY	160	0.01	39	56	1.4	2.5
FEBRUARY	618	0.20	87	162	1.9	5.6
MARCH	531	0.00	159	141	0.89	10.2
APRIL	797	5.9	146	204	1.4	9.3
MAY	2070	11	354	544	1.5	22.6
JUNE	1280	0.78	205	387	1.9	13.1
JULY	1030	0.00	142	265	1.9	9.0
AUGUST	642	0.00	84	183	2.2	5.4
SEPTEMBER	845	0.00	89	210	2.4	5.7
ANNUAL	352	13	131	121	0.92	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1949-63

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.06	0.00	0.00	0.00
60	0.57	0.00	0.00	0.00
90	0.93	0.00	0.00	0.00
120	1.8	0.05	0.00	0.00
183	12	1.1	0.13	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1948-63

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 21 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5170	11600	18100	29200	40100	53600
OKLAHOMA WEIGHTED SKEW = 0.171					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3320	7680	12500	21700	31800	45400
3	2130	5300	8800	15500	22600	32100
7	1250	3220	5410	9580	14000	19800
15	702	1780	2930	5030	7160	9870
30	455	1160	1870	3080	4240	5620
60	277	733	1210	2060	2890	3920
90	211	545	897	1520	2150	2930

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1948-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
2530	578	173	94	61	28	11	4.8	1.8	0.56	0.11	0.05	0.03	0.01	0.00	0.00	0.00	

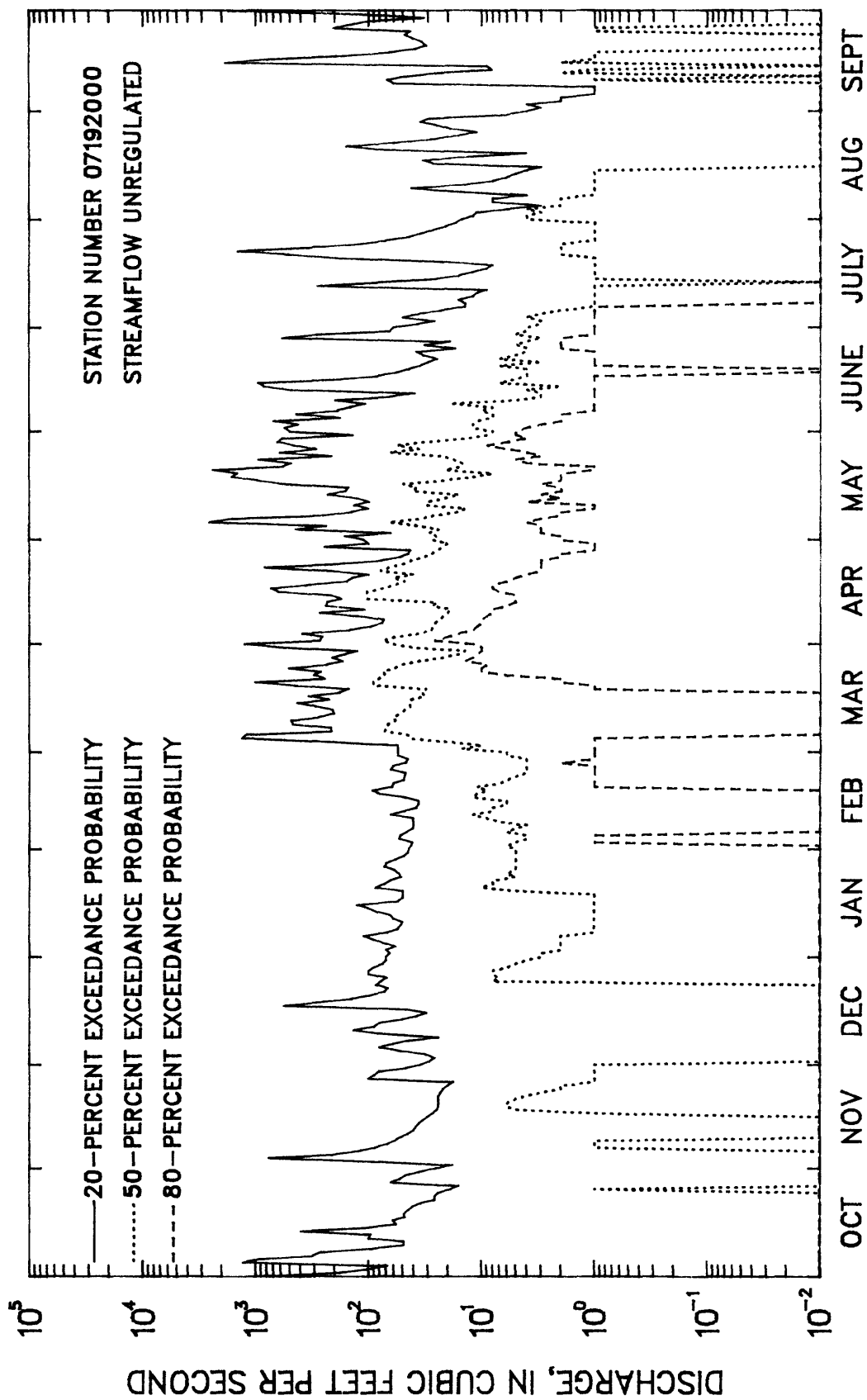


Figure 61.--Duration hydrographs of daily discharge values for Pryor Creek near Pryor, Oklahoma, water years 1955-1963 (streamflow unregulated).

ARKANSAS RIVER BASIN

07192500 NEOSHO RIVER NEAR WAGONER, OK

LOCATION.--Lat 35°56'00" long 95°20'00", on south line sec.22 T.17 N., R.19 E., at bridge on State Highway 51, 2.25 mi downstream from Nigger Creek, 5 mi southeast of Wagoner, 6 mi upstream from Fourteen Mile Creek, and at mile 13.7.

DRAINAGE AREA.--12,492 mi².

PERIOD OF RECORD.--October 1924 to September 1949.

REMARKS.--Flow regulated since 1940 by Lake 'O The Cherokees.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-49

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	56800	129	10700	17300	1.6	8.5
NOVEMBER	38300	333	7150	11400	1.6	5.7
DECEMBER	14000	363	4320	4110	0.95	3.4
JANUARY	13900	328	5430	4260	0.78	4.3
FEBRUARY	29200	500	8090	8210	1.0	6.5
MARCH	28900	550	8760	8310	0.95	7.0
APRIL	59400	1470	21600	19000	0.88	17.2
MAY	97500	824	22100	28000	1.3	17.6
JUNE	25400	674	16800	7800	0.46	13.4
JULY	35100	406	8930	9950	1.1	7.1
AUGUST	21000	245	5110	5830	1.1	4.1
SEPTEMBER	16300	660	6460	6260	0.97	5.2
ANNUAL	16900	548	10400	5080	0.49	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-49

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	773	292	149	77.8
3	901	307	151	78.0
7	1220	396	184	88.5
14	1450	475	216	101
30	2200	869	419	200
60	2460	1100	601	331
90	3400	1450	799	448
120	3820	1570	840	458
183	4900	1840	963	522

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 10 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
106000	194000	274000	405000	528000	676000

STATION SKEW = -1.106

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1940-49

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	112000	216000	270000	318000	343000	361000
3	108000	195000	231000	257000	268000	274000
7	92600	152000	169000	178000	181000	182000
15	65900	107000	119000	125000	126000	127000
30	47100	77700	87300	92500	94100	94900
60	33900	53800	59100	61700	62400	62700
90	26200	39900	43200	44700	45100	45200

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-49

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
98700	43500	26200	17300	11900	7310	5660	4420	3360	2620	1830	604	298	164	99	79	61

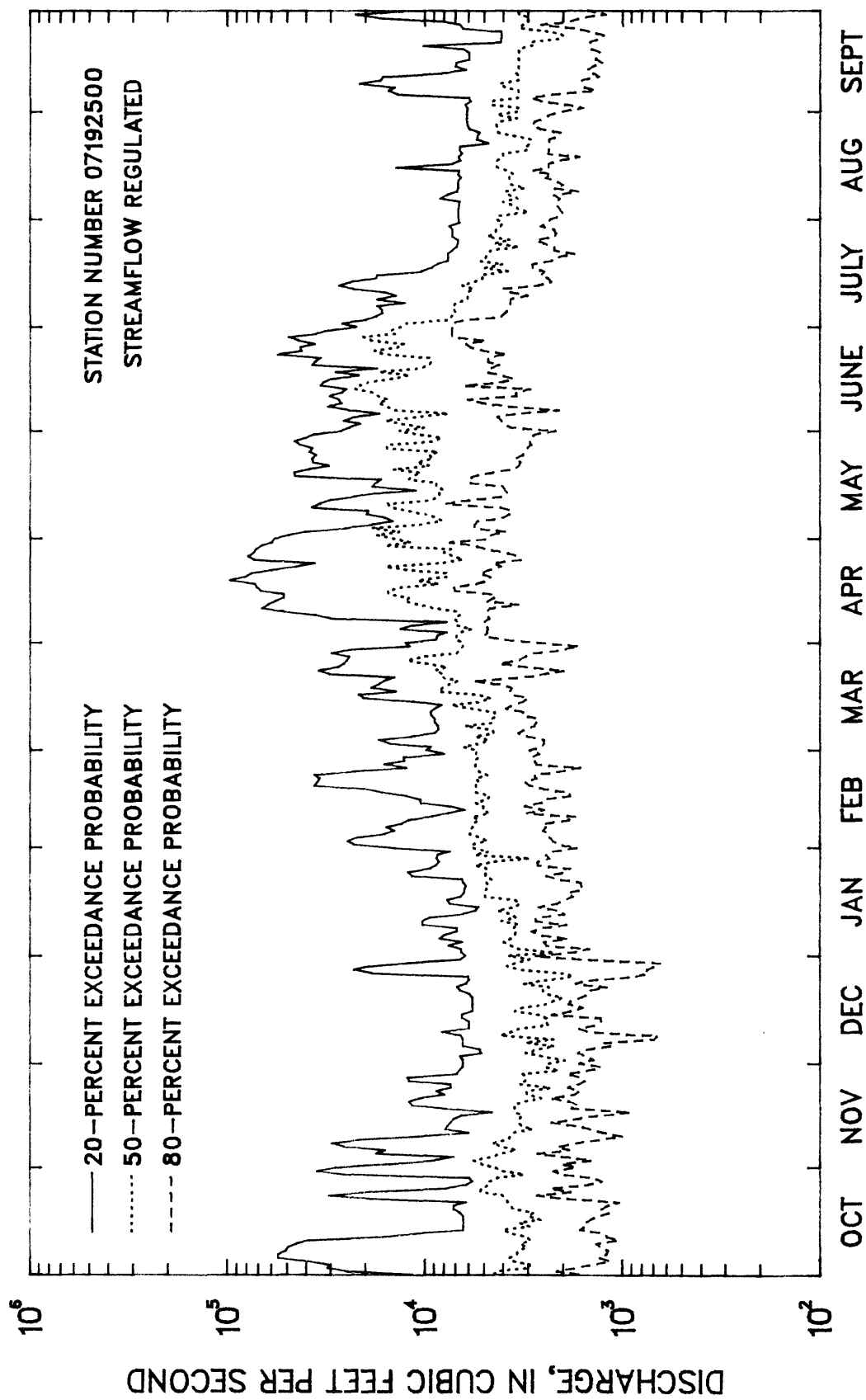


Figure 62.--Duration hydrographs of daily discharge values for Neosho River near Wagoner, Oklahoma, water years 1941-1949 (streamflow regulated).

ARKANSAS RIVER BASIN

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OK

LOCATION.--Lat 35°51'15", long 95°13'45", in SE 1/4 NW 1/4 sec.19, T.16 N., R.20 E., Cherokee County, Hydrologic Unit 11070209, on left bank 1.1 mi downstream from Fort Gibson Dam, 3.5 mi north of Fort Gibson, and at mile 6.6.

DRAINAGE AREA.--12,495 mi².

PERIOD OF RECORD.--May 1950 to current year. Prior to October 1970, published as Neosho River below Fort Gibson Reservoir near Fort Gibson.

REMARKS.--Records fair. Flow completely regulated by Fort Gibson Lake.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1954-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	34200	128	5460	7350	1.3	5.9
NOVEMBER	41500	77	7020	9360	1.3	7.6
DECEMBER	40400	58	5940	7810	1.3	6.4
JANUARY	24400	51	4760	5380	1.1	5.2
FEBRUARY	19300	127	5960	6180	1.0	6.5
MARCH	32800	176	9230	9150	0.99	10.0
APRIL	48700	347	11800	11900	1.0	12.8
MAY	64800	572	12600	14800	1.2	13.7
JUNE	48200	872	11900	10100	0.86	12.9
JULY	33500	1620	9210	7890	0.86	10.0
AUGUST	9480	185	3940	2270	0.58	4.3
SEPTEMBER	20700	173	4340	4090	0.94	4.7
ANNUAL	20400	1160	7670	4730	0.62	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1955-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	19	13	12	11
3	69	21	12	11
7	195	55	27	15
14	368	111	55	30
30	623	234	137	87
60	1200	438	237	136
90	1920	667	333	174
120	2450	852	428	224
183	3250	1230	666	378

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1954-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 31 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
43800	76000	101000	136000	165000	196000
STATION SKEW = -0.060					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	42200	74400	98300	131000	156000	181000
3	40100	70100	91400	119000	140000	160000
7	35000	60600	78400	101000	118000	134000
15	28900	50400	65400	84500	98500	112000
30	22400	38800	50300	64800	75400	85800
60	16300	27900	35900	46200	53900	61400
90	13700	23400	30100	38600	44800	50900

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1954-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
55900	28500	17800	13800	12300	9250	5650	3790	2450	1420	647	152	33	18	16	15	6.8

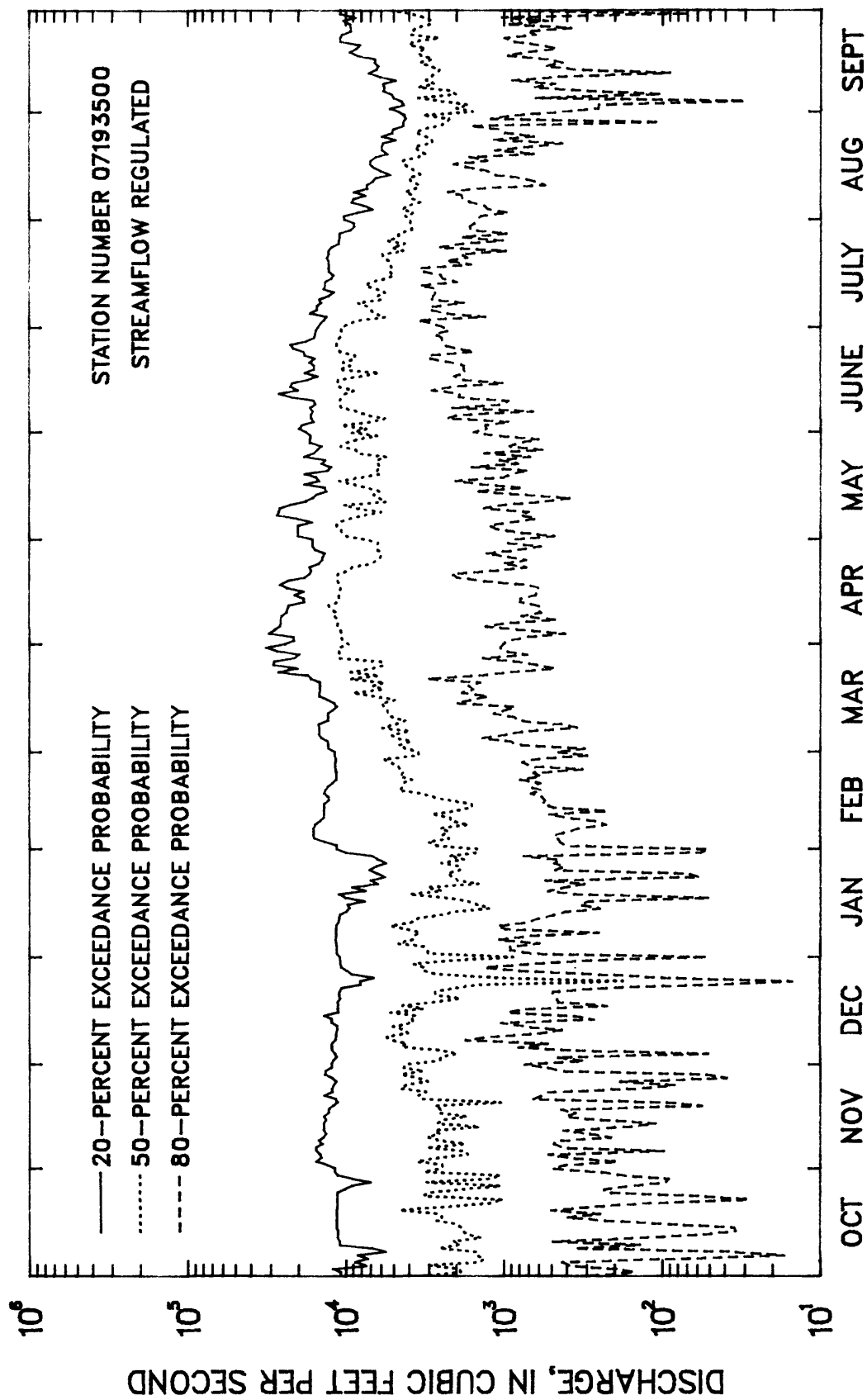


Figure 63.—Duration hydrographs of daily discharge values for Neosho River below Fort Gibson Lake near Fort Gibson, Oklahoma, water years 1956-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07194500 ARKANSAS RIVER NEAR MUSKOGEE, OK

LOCATION.--Lat 35°46'10", long 95°17'55", in NW 1/4 sec.21, T.15 N., R.19 E., on downstream side of left pier of bridge on U.S. Highway 62, 1.7 mi downstream from Neosho River, 3.5 mi northeast of Muskogee, and at mile 457.8.

DRAINAGE AREA.--96,674 mi² of which 12,541 mi² is probably noncontributing.

PERIOD OF RECORD.-- October 1925 to September 1970.

REMARKS.--Some regulation since 1940 by Grand Lake; further regulation since 1941 by Great Salt Plains Lake, and since 1951 by Hulah Lake. Flow regulated since 1953 by Fort Gibson Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1926-52

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	115000	636	19200	28400	1.5	7.4
NOVEMBER	81500	674	13600	16300	1.2	5.2
DECEMBER	30800	744	9960	7750	0.78	3.8
JANUARY	30200	618	11800	9250	0.78	4.6
FEBRUARY	77200	1180	14100	14400	1.0	5.4
MARCH	61900	1380	16600	14000	0.84	6.4
APRIL	176000	1790	38700	45500	1.2	14.9
MAY	210000	4400	42300	42800	1.0	16.3
JUNE	156000	3410	40900	32500	0.80	15.8
JULY	167000	873	23500	35400	1.5	9.1
AUGUST	77600	532	14100	19900	1.4	5.5
SEPTEMBER	45700	1060	14400	13100	0.91	5.5
ANNUAL	45900	4200	21600	11800	0.55	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1927-52

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1870	868	530	335
3	2020	905	544	340
7	2180	950	571	359
14	2350	1000	604	386
30	2800	1200	729	469
60	3400	1590	1040	713
90	4690	2280	1510	1050
120	5990	2930	1920	1320
183	8910	4260	2730	1830

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1926-52

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 27 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
168000	256000	317000	394000	452000	510000

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.204

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	167000	267000	341000	439000	517000	597000
3	154000	253000	325000	422000	498000	576000
7	130000	224000	290000	377000	442000	507000
15	101000	180000	237000	309000	363000	416000
30	73300	136000	183000	244000	291000	338000
60	53000	95100	125000	162000	190000	217000
90	41600	73400	95500	124000	144000	164000

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1926-52

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
188000	97600	55500	36000	26400	16700	11800	8690	6520	4810	3500	2240	1340	733	576	445	230	

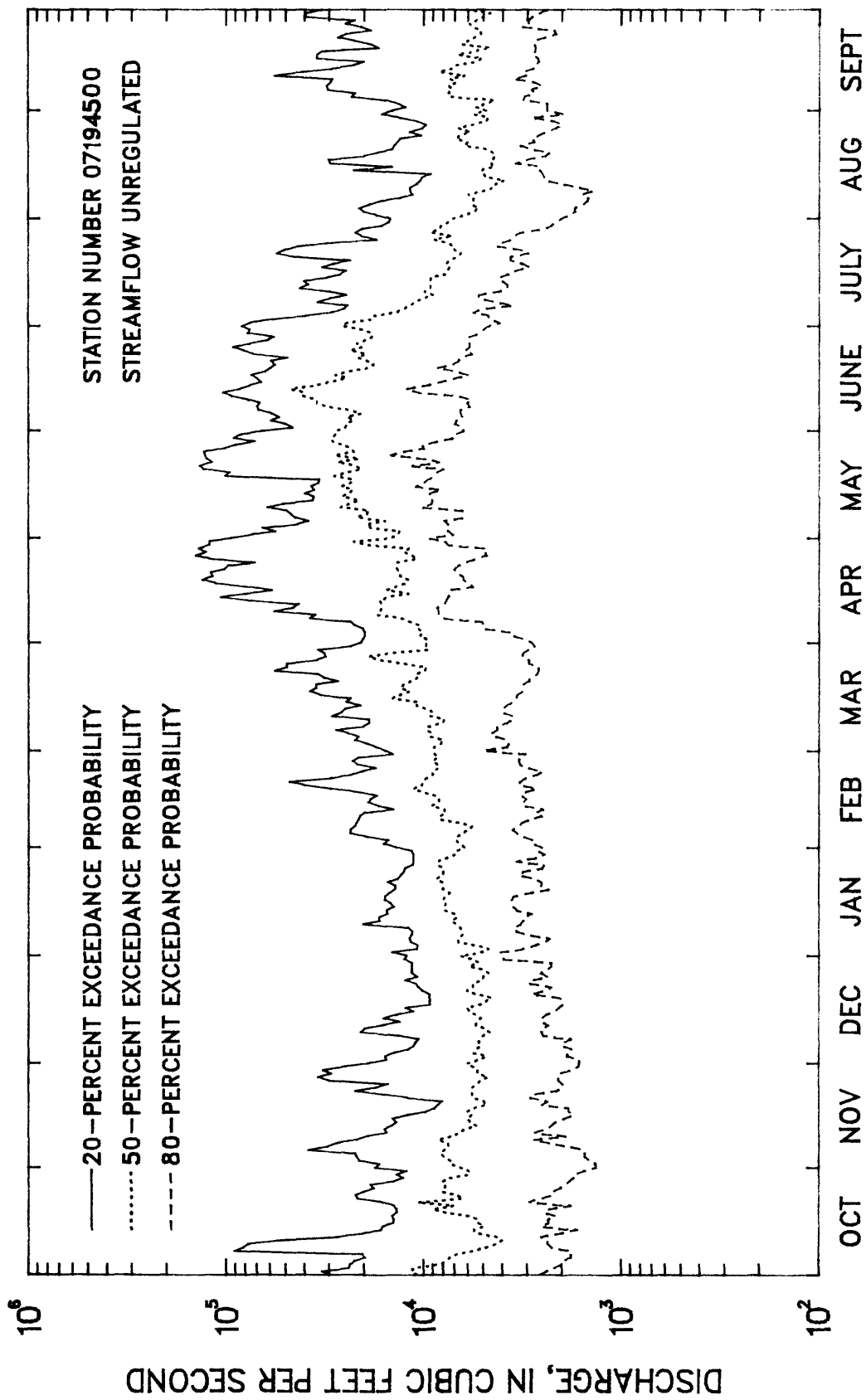


Figure 64.--Duration hydrographs of daily discharge values for Arkansas River near Muskogee, Oklahoma, water years 1934-1952 (streamflow unregulated).

ARKANSAS RIVER BASIN

07195500 ILLINOIS RIVER NEAR WATTS, OK

LOCATION.--Lat 36°07'48", long 94°34'12", in NE 1/4 sec.18, T.19 N., R.26 E., Adair County, Hydrologic Unit 11110103, near right bank on downstream side of pier of bridge on U.S. Highway 59, 1.5 mi north of Watts, 4.5 mi downstream from Cincinnati Creek, and at mile 106.2.

DRAINAGE AREA.--635 mi².

PERIOD OF RECORD.--August 1955 to current year.

REMARKS.--Some regulations at low flow by Lake Francis Dam, 0.8 mile above station. Since July 2, 1957, small diversion above station for municipal water supply for city of Siloam Springs, Arkansas.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1956-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1920	21	301	376	1.2	4.5
NOVEMBER	3090	66	559	745	1.3	8.4
DECEMBER	2020	60	495	545	1.1	7.4
JANUARY	1660	61	424	367	0.87	6.4
FEBRUARY	1820	75	570	473	0.83	8.6
MARCH	2930	114	853	689	0.81	12.8
APRIL	3350	176	964	773	0.80	14.5
MAY	4290	144	1000	959	0.96	15.1
JUNE	3230	113	620	702	1.1	9.3
JULY	1810	51	370	410	1.1	5.6
AUGUST	1170	33	236	246	1.0	3.6
SEPTEMBER	1080	15	252	264	1.0	3.8
ANNUAL	1250	151	553	312	0.56	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1957-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	64	36	25	18
3	75	41	28	20
7	91	51	35	25
14	98	54	37	27
30	106	58	40	29
60	122	67	47	34
90	145	78	55	41
120	167	95	70	55
183	222	120	87	67

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1956-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 29 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
17300	33000	44800	60800	73100	85600
OKLAHOMA WEIGHTED SKEW = -0.413					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	10600	19500	25900	34100	40200	46200
3	6250	11200	14900	19700	23400	27100
7	3740	6470	8410	10900	12800	14700
15	2380	4050	5220	6740	7880	9010
30	1670	2760	3510	4470	5180	5880
60	1160	1920	2490	3260	3860	4490
90	989	1620	2070	2670	3120	3580

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1956-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
5230	1790	1090	815	640	462	334	246	187	145	114	81	62	45	31	18	12	

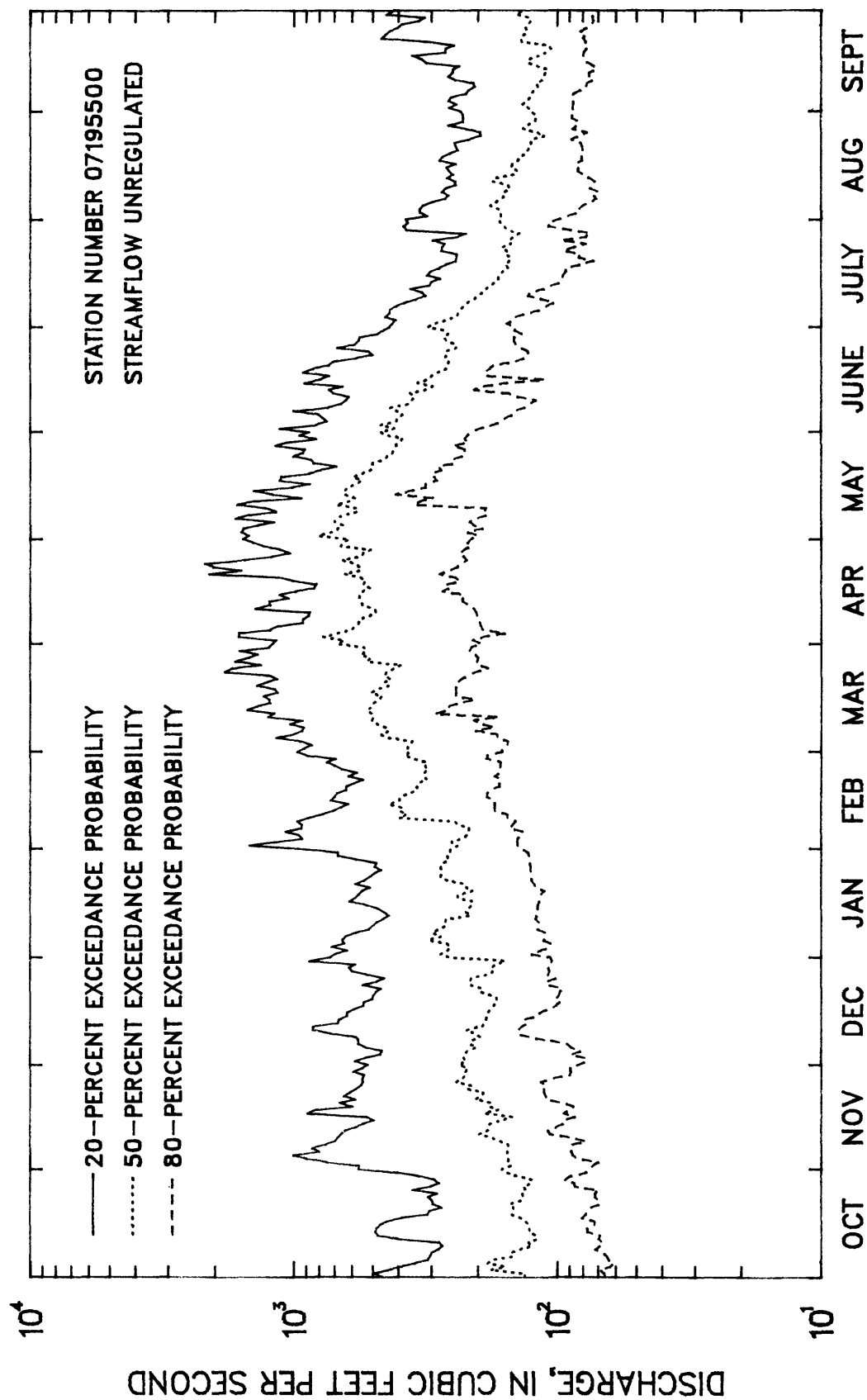


Figure 65.—Duration hydrographs of daily discharge values for Illinois River near Watts, Oklahoma, water years 1956–1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07196000 FLINT CREEK NEAR KANSAS, OK

LOCATION.--Lat 36°11'54", long 94°42'30", in SW 1/4 sec.24, T.20 N., R.24 E., Delaware County, Hydrologic Unit 11110103, at bridge on State Highway 33, 6.0 mi southeast of Kansas, 6.0 mi downstream from Sager Creek, and at mile 2.8.

DRAINAGE AREA.--110 mi².

PERIOD OF RECORD.--August 1955 to September 1976, April 1979 to current year.

REMARKS.-- Small diversion above station for irrigation.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1956-76, 1980-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	287	0.73	66	74	1.1	5.1
NOVEMBER	850	9.9	130	204	1.6	10.0
DECEMBER	393	11	91	92	1.0	7.0
JANUARY	385	10	90	92	1.0	6.9
FEBRUARY	331	16	96	86	0.90	7.4
MARCH	593	12	143	139	0.97	11.0
APRIL	577	13	184	152	0.83	14.1
MAY	783	38	184	192	1.0	14.2
JUNE	1070	25	144	217	1.5	11.1
JULY	262	12	66	60	0.90	5.1
AUGUST	369	4.8	49	70	1.4	3.8
SEPTEMBER	273	1.3	56	69	1.2	4.3
ANNUAL	296	22	108	74	0.68	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1957-76, 1980-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	17	7.5	4.2	2.3
3	17	7.7	4.3	2.4
7	18	8.0	4.4	2.5
14	19	8.6	4.8	2.7
30	22	9.6	5.3	3.0
60	27	12	6.9	3.9
90	32	14	8.2	5.0
120	35	17	12	8.2
183	41	21	15	12

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 27 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3360	9950	17500	31800	46600	65700
OKLAHOMA WEIGHTED SKEW = -0.041					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1956-76, 1980-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1680	4060	6410	10400	14100	18600
3	1040	2270	3440	5380	7200	9390
7	664	1350	1970	2960	3860	4910
15	432	838	1190	1730	2210	2763
30	296	553	767	1090	1360	1670
60	208	380	518	720	889	1070
90	173	313	425	591	732	886

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1956-76, 1980-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
989	352	221	157	122	87	65	50	38	28	22	15	12	9.0	4.1	1.5	0.66	0.66

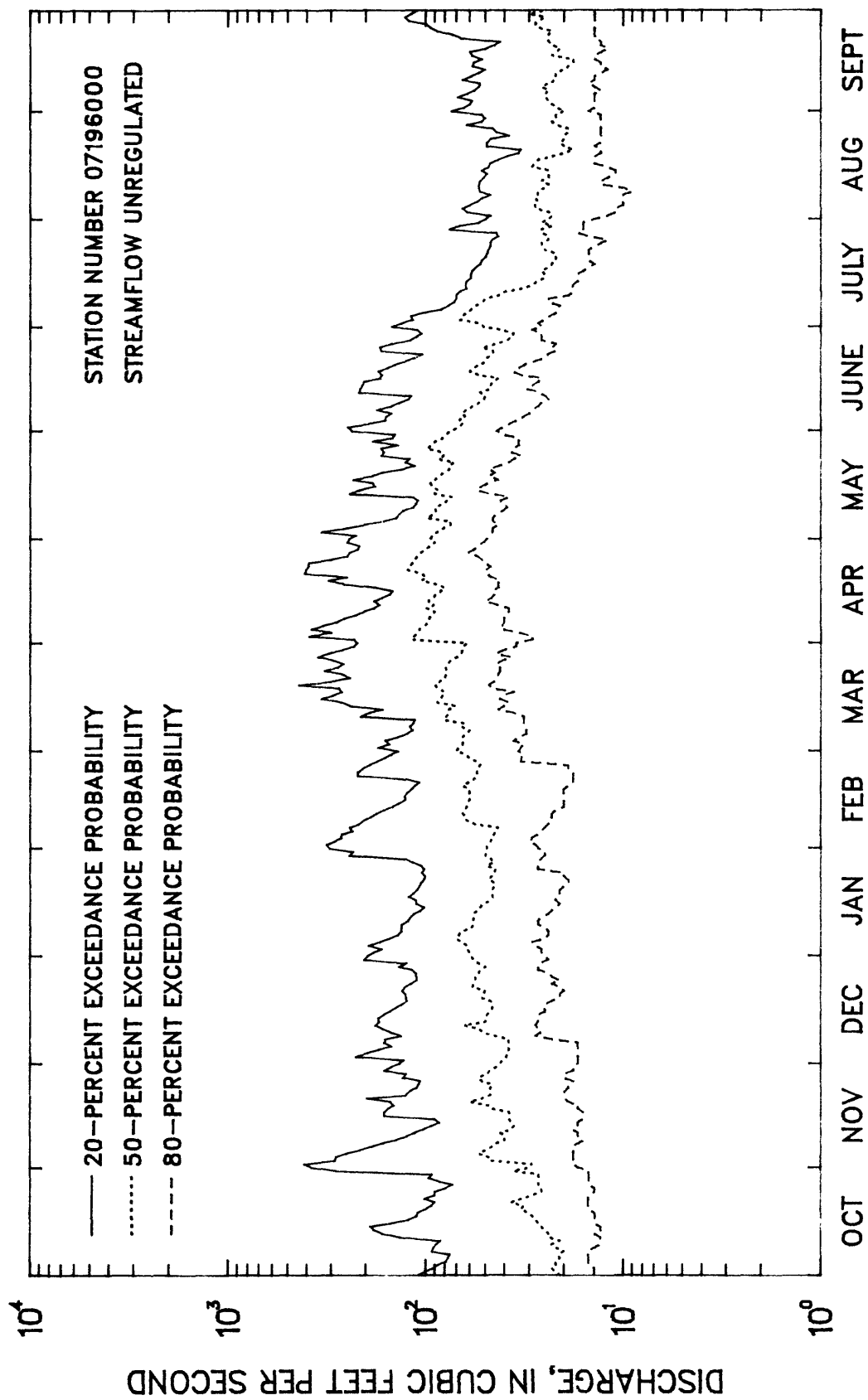


Figure 66.--Duration hydrographs of daily discharge values for Flint Creek near Kansas, Oklahoma, water years 1963-1976, 1980-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07196500 ILLINOIS RIVER NEAR TAHLEQUAH, OK

LOCATION.--Lat 35°55'17", long 94°55'15", in SE 1/4 sec.26, T.17 N., R.22 E., Cherokee County, Hydrologic Unit 11110103, near center of span on downstream side of pier of bridge, 0.2 mi downstream from U.S. Highway 62, 2.2 mi northeast of Tahlequah, 6.5 mi upstream from Baron Fork, and at mile 55.8.

DRAINAGE AREA.--959 mi².

PERIOD OF RECORD.--October 1935 to current year. Monthly discharge only for some periods, published in WSP 1311.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1936-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2810	7.1	451	582	1.3	4.4
NOVEMBER	4660	75	785	1100	1.4	7.6
DECEMBER	3120	78	681	760	1.1	6.6
JANUARY	2920	74	696	679	0.98	6.7
FEBRUARY	4660	113	1040	994	0.96	10.1
MARCH	6700	147	1320	1230	0.93	12.8
APRIL	6860	151	1520	1290	0.85	14.7
MAY	8400	189	1680	1740	1.0	16.3
JUNE	5990	80	967	1010	1.0	9.4
JULY	2490	23	494	489	0.99	4.8
AUGUST	3910	11	355	593	1.7	3.4
SEPTEMBER	1910	3.2	334	387	1.2	3.2
ANNUAL	1980	193	858	470	0.55	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1937-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	139	49	18	5.8
14	141	51	21	8.2
30	148	57	27	13
60	166	71	39	21
90	186	84	51	32
120	216	107	72	51
183	290	150	107	80

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1936-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 50 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
18200	38200	55800	83300	108000	135000
OKLAHOMA WEIGHTED SKEW = -0.079					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	13900	28700	41500	60900	77700	96500
3	9650	19500	28000	40800	52000	64400
7	6100	11500	15900	22300	27600	33300
15	3900	6920	9220	12400	14900	17600
30	2730	4630	6030	7930	9420	11000
60	1920	3200	4140	5420	6440	7490
90	1580	2590	3310	4270	5010	5770

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1936-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
8200	3030	1800	1360	1040	712	502	371	277	205	153	106	77	47	19	7.1	1.3	

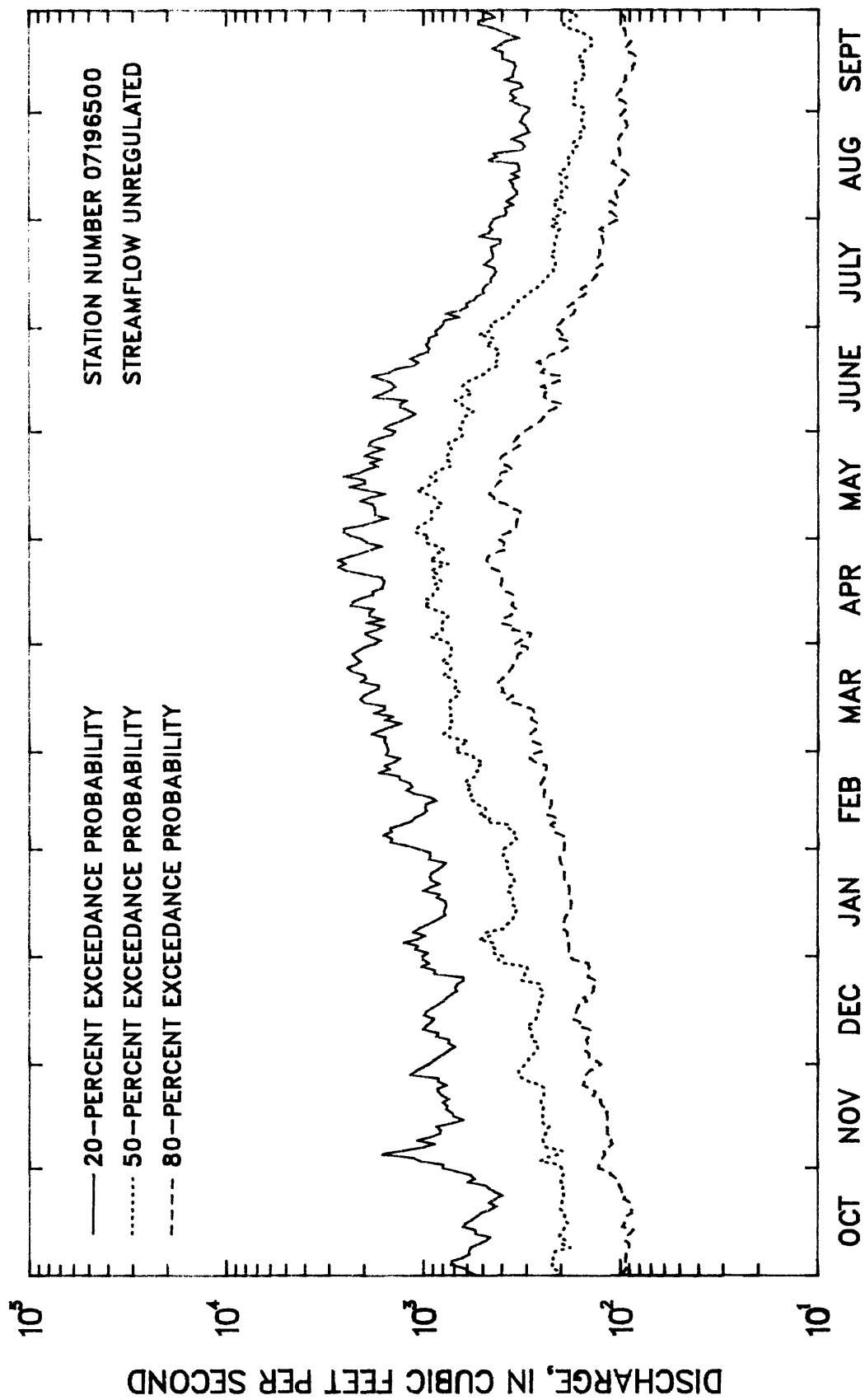


Figure 67.--Duration hydrographs of daily discharge values for Illinois River near Tahlequah, Oklahoma, water years 1936-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07197000 BARON FORK AT ELDON, OK

LOCATION.--Lat 35°55'16", long 94°50'18", in SE 1/4 sec.27, T.17 N., R.23 E., Cherokee County, Hydrologic Unit 11110103, on downstream side of second pier from left bank of bridge on State Highway 51, 0.4 mi southeast of Eldon, 6.0 mi downstream from Tyner Creek, and at mile 8.8.

DRAINAGE AREA.--307 mi².

PERIOD OF RECORD.--October 1948 to current year. Prior to October 1970 published as Barren Fork at Eldon.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1949-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1340	2.0	112	231	2.1	3.3
NOVEMBER	1500	10	227	361	1.6	6.7
DECEMBER	1030	14	206	246	1.2	6.1
JANUARY	833	15	217	222	1.0	6.4
FEBRUARY	1440	25	340	334	0.98	10.1
MARCH	1700	43	455	345	0.76	13.5
APRIL	2110	81	523	426	0.81	15.5
MAY	2610	63	654	554	0.85	19.4
JUNE	1580	25	303	344	1.1	9.0
JULY	903	8.8	158	197	1.2	4.7
AUGUST	331	3.8	66	66	1.0	2.0
SEPTEMBER	927	3.1	105	211	2.0	3.1
ANNUAL	639	56	280	151	0.54	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1950-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	16	7.2	4.5	3.0
3	16	7.4	4.6	3.1
7	17	7.7	4.9	3.2
14	19	8.3	5.2	3.4
30	21	9.3	5.7	3.7
60	27	11	6.9	4.4
90	35	14	8.6	5.6
120	46	19	12	7.8
183	66	28	18	13

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1949-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 37 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
13700	24700	32100	41100	47400	53300
OKLAHOMA WEIGHTED SKEW = -0.660					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	7180	11800	14000	16000	16900	17600
3	4250	6980	8410	9780	10500	11100
7	2540	3990	4740	5450	5840	6150
15	1590	2480	2940	3390	3640	3850
30	1090	1650	1920	2180	2310	2410
60	752	1140	1340	1540	1650	1740
90	616	932	1100	1280	1380	1470

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1949-84

DISCHARGE, IN CFS, WHICH WAS EQUALLED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3070	1030	595	428	329	218	148	99	66	47	32	18	12	6.3	3.5	2.7	2.0

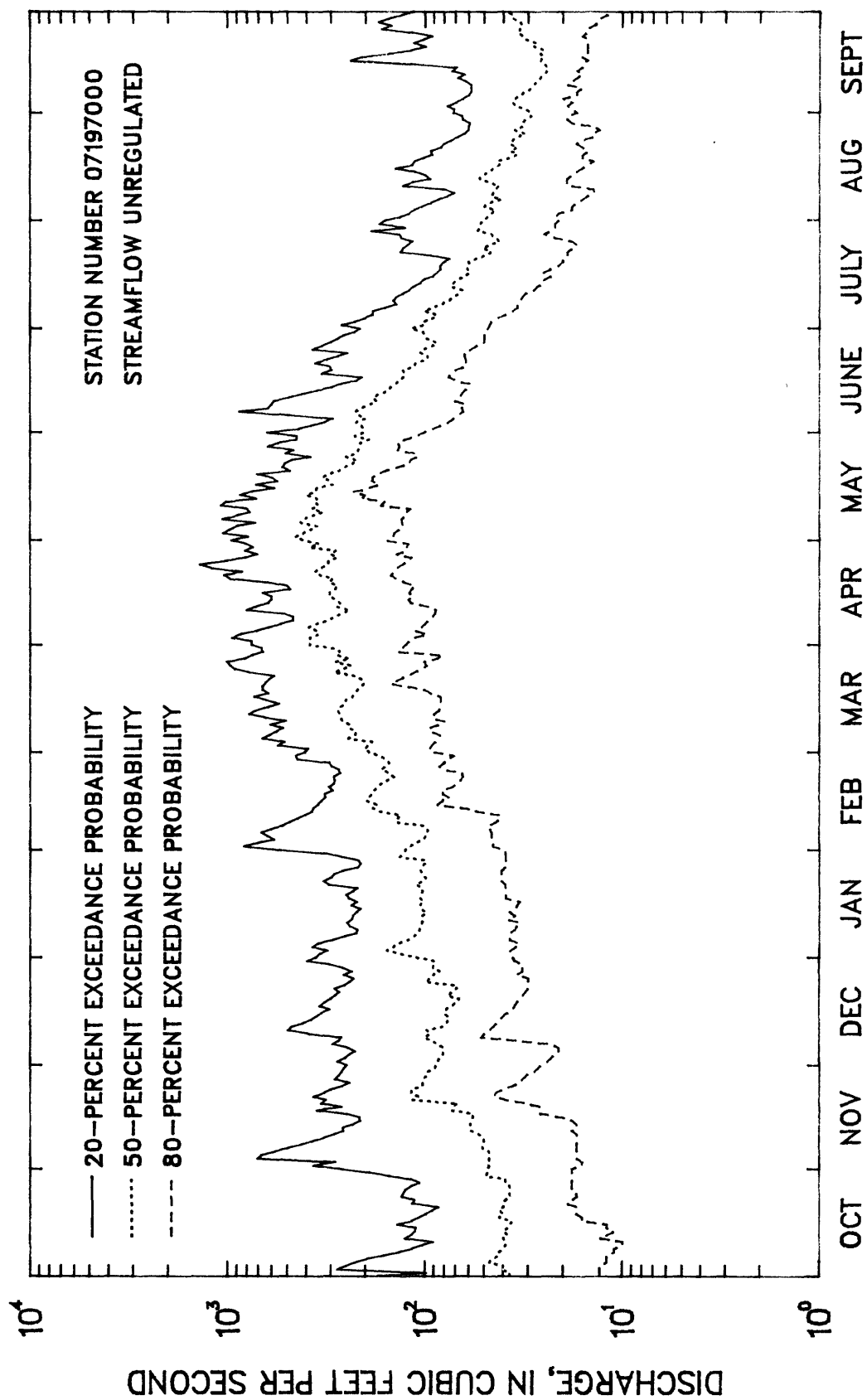


Figure 68.--Duration hydrographs of daily discharge values for Baron Fork at Eldon, Oklahoma, water years 1956-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07198000 ILLINOIS RIVER NEAR GORE, OK

LOCATION.--Lat 35°34'23", Long 95°04'07", in NE 1/4 SW 1/4 sec.27, T.13 N., R.21 E., Sequoyah County, Hydrologic Unit 11110104, on right bank 4.5 mi downstream from Tenkiller Ferry Dam, 4.5 mi northeast of Gore, and at mile 8.5.

DRAINAGE AREA.--1,626 mi².

PERIOD OF RECORD.--March 1924 to April 1926, April 1939 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Flow completely regulated since July 1952 by Tenkiller Ferry Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1925, 1940-53

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1925, 1940-53

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	3440	39	679	909	1.3	3.3					
NOVEMBER	6850	31	1370	2050	1.5	6.8					
DECEMBER	5700	28	1200	1550	1.3	5.9	1	170	71	36	18
JANUARY	3830	37	1350	1270	0.94	6.7	3	174	74	38	19
FEBRUARY	7030	22	2200	1960	0.89	10.8	7	187	82	43	23
MARCH	12100	41	2570	3140	1.2	12.7	14	200	93	51	28
APRIL	13800	106	3090	3320	1.1	15.2	30	230	110	62	34
MAY	12600	126	3790	3950	1.0	18.7	60	275	134	78	46
JUNE	5680	111	1900	1580	0.83	9.4	90	318	155	91	54
JULY	2270	57	870	716	0.82	4.3	120	396	184	105	60
AUGUST	5810	38	774	1440	1.9	3.8	183	639	256	134	71
SEPTEMBER	1490	36	483	401	0.83	2.4					
ANNUAL	3650	63	1680	929	0.55	100					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1925, 1940-53

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 14 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%		2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
31700	70500	109000	175000	239000	318000	1	29600	71000	97400	125000	140000	153000
						3	24000	53500	69000	82200	88500	92600
						7	16700	32400	38800	43000	44600	45400
						15	10200	18400	21400	23200	23800	24100
						30	6820	11700	13300	14200	14500	14700
						60	4690	7850	8910	9540	9750	9850
						90	3730	6050	6800	7240	7390	7460

OKLAHOMA WEIGHTED SKEW = 0.172

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1925, 1940-53

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
17000	6170	3660	2600	1980	1330	911	611	434	322	226	128	49	32	26	19	9.7

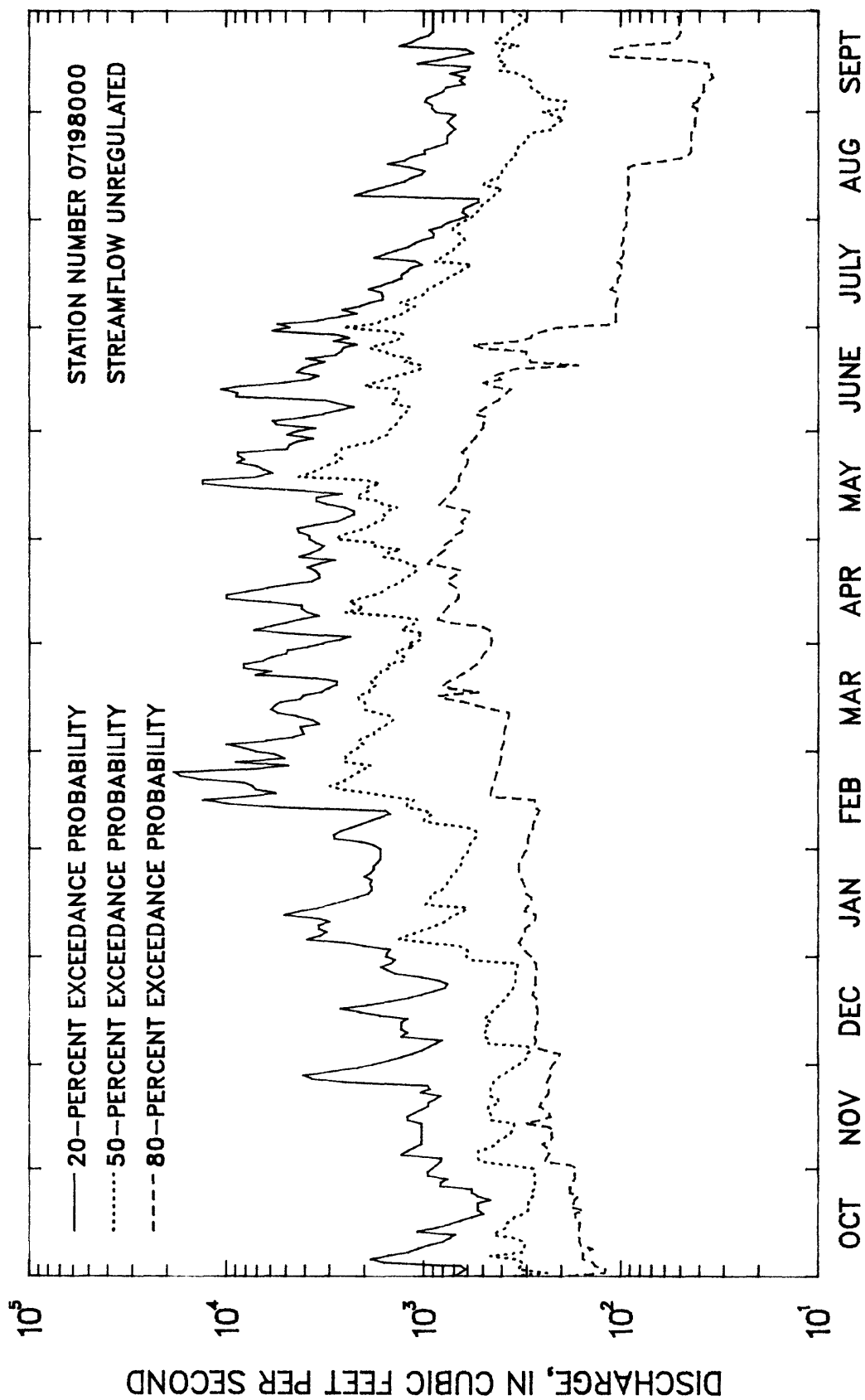


Figure 69.--Duration hydrographs of daily discharge values for Illinois River near Gore, Oklahoma, water years 1945-1953 (streamflow unregulated).

ARKANSAS RIVER BASIN

07198000 ILLINOIS RIVER NEAR GORE, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1954-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2480	74	623	633	1.0	3.9
NOVEMBER	4430	56	931	1150	1.2	5.8
DECEMBER	9650	56	1280	1820	1.4	8.0
JANUARY	3950	28	1160	935	0.81	7.3
FEBRUARY	5740	57	1460	1420	0.97	9.1
MARCH	5140	61	1510	1160	0.77	9.5
APRIL	6980	70	2190	1710	0.78	13.7
MAY	9550	105	2160	2030	0.94	13.5
JUNE	7180	141	1680	1750	1.0	10.6
JULY	8050	111	1370	1510	1.1	8.6
AUGUST	2360	81	934	457	0.49	5.8
SEPTEMBER	1570	81	660	405	0.61	4.1
ANNUAL	3110	280	1330	801	0.60	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1955-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	27	12	7.0	4.3
3	59	25	14	8.3
7	102	41	23	13
14	133	51	29	17
30	198	75	42	25
60	269	122	80	56
90	391	180	116	78
120	458	206	129	85
183	566	252	158	105

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1954-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 31 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7050	10800	13500	17100	20000	23100

STATION SKEW = 0.065

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	5980	10600	13700	17500	20200	22800
3	5730	10300	13400	17200	19800	22200
7	5140	9700	12700	16300	18600	20800
15	4240	8000	10600	13700	15800	17900
30	3320	6180	8160	10600	12400	14000
60	2520	4610	6090	7980	9370	10700
90	2190	3890	5050	6490	7530	8530

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1954-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
10600	4040	3180	2340	2030	1520	1130	805	479	247	135	76	58	44	33	19	3.8

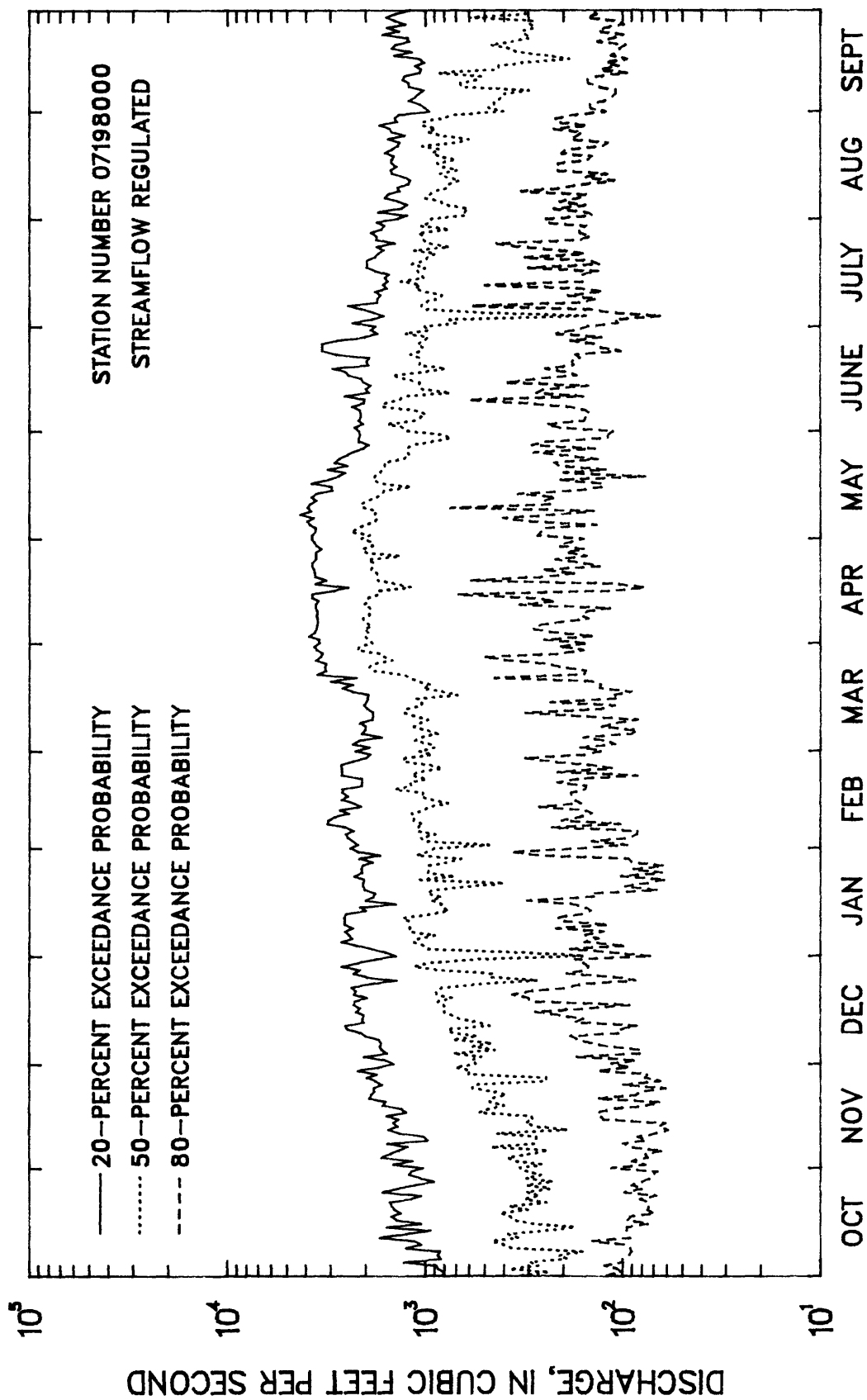


Figure 70.—Duration hydrographs of daily discharge values for Illinois River near Gore, Oklahoma, water years 1956-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07228500 CANADIAN RIVER AT BRIDGEPORT, OK

LOCATION.--Lat 35°32'37", long 98°19'03", SE 1/4 NW 1/4 sec.1, T.12 N., R.11 W., Caddo County, Hydrologic Unit 11090202, on downstream side of pier near center of bridge on U.S. Highway 281, 3.3 mi east of Bridgeport, 1.6 mi downstream from Lumpmouth Creek, and at mile 263.3.

DRAINAGE AREA.--25,276 mi², of which 4,801 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1944 to September 1964; October 1969 to current year.

REMARKS.--Flow regulated since 1964 by Lake Meredith in Texas.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1945-63

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1946-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	3760	4.4	556	967	1.7	9.5					
NOVEMBER	1030	8.8	124	237	1.9	2.1					
DECEMBER	1640	10	168	370	2.2	2.9	1	1.6	0.00	0.00	0.00
JANUARY	654	14	134	154	1.2	2.3	3	2.2	0.00	0.00	0.00
FEBRUARY	1120	17	230	326	1.4	3.9	7	3.0	0.00	0.00	0.00
MARCH	526	15	192	180	0.94	3.3	14	4.9	0.00	0.00	0.00
APRIL	1210	14	239	365	1.5	4.1	30	9.0	2.0	0.00	0.00
MAY	4960	18	1310	1760	1.3	22.6	60	22	8.1	4.5	2.7
JUNE	2920	7.2	918	881	0.96	15.7	90	36	12	7.1	4.4
JULY	4940	2.3	949	1540	1.6	16.3	120	48	17	9.5	5.9
AUGUST	2360	0.00	569	680	1.2	9.8	183	106	34	17	9.7
SEPTEMBER	1530	0.27	438	523	1.2	7.5					
ANNUAL	1150	63	488	318	0.65	100					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1945-63

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 19 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%		2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
28300	52400	72400	102000	127000	156000	1	15200	25900	32900	41300	47000	52400
						3	11000	19400	24400	29900	33300	36300
						7	6610	11800	15100	18700	21100	23200
						15	3680	6790	8870	11300	13100	14600
						30	2230	4350	5850	7740	9100	10400
						60	1410	2810	3870	5280	6350	7420
						90	1060	2110	2940	4090	5010	5970

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.006

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
8640	2260	927	488	291	145	80	49	31	21	15	7.6	2.4	0.06	0.03	0.01	0.00

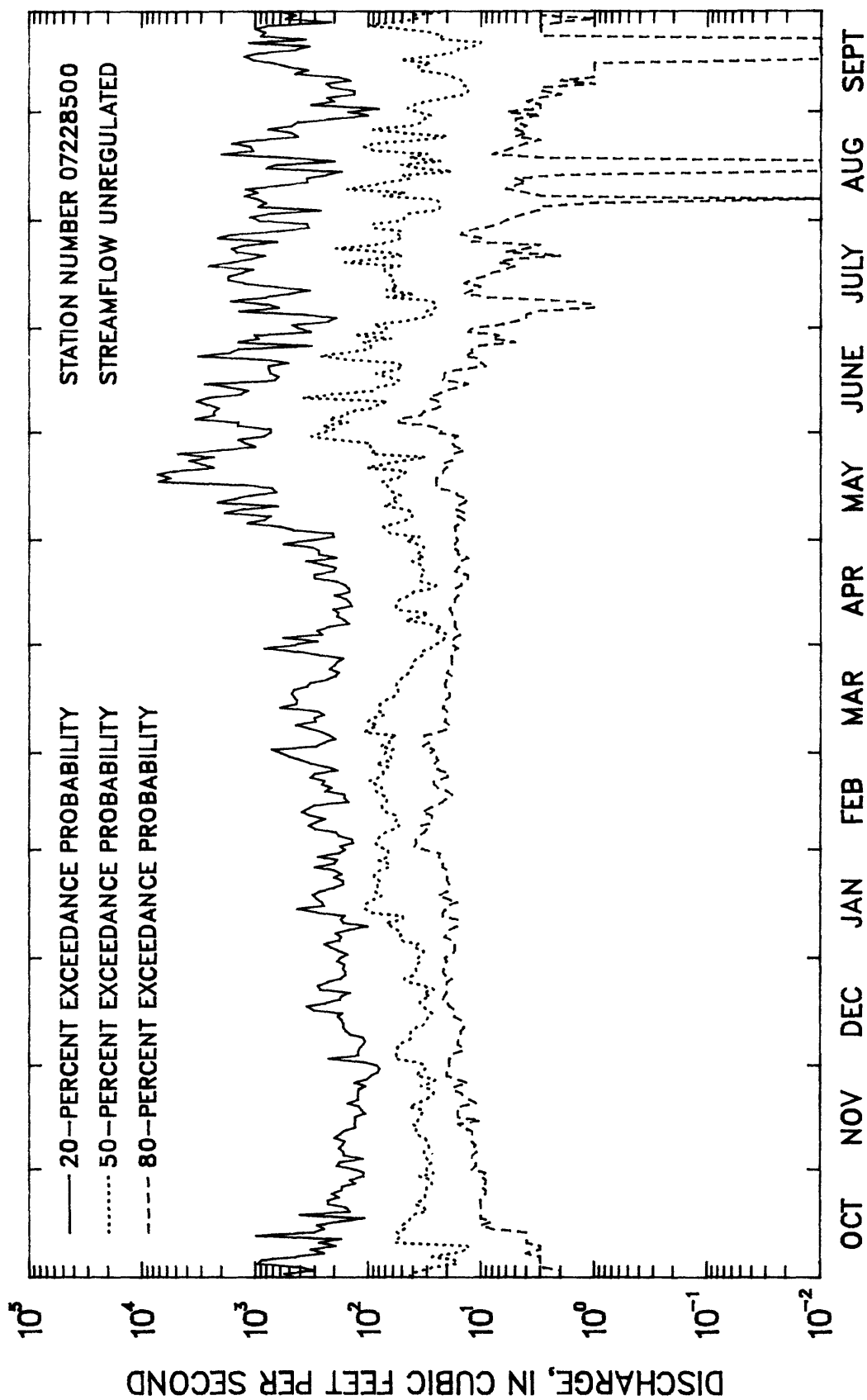


Figure 71.—Duration hydrographs of daily discharge values for Canadian River at Bridgeport, Oklahoma, water years 1945–1963 (streamflow unregulated).

ARKANSAS RIVER BASIN

07228500 CANADIAN RIVER AT BRIDGEPORT, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1964, 1970-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	403	7.0	93	139	1.5	3.3
NOVEMBER	1530	18	202	402	2.0	7.2
DECEMBER	377	16	102	96	0.94	3.6
JANUARY	353	23	132	103	0.78	4.7
FEBRUARY	475	37	222	140	0.63	7.9
MARCH	1910	51	354	454	1.3	12.6
APRIL	1010	21	295	282	0.95	10.5
MAY	2440	13	720	732	1.0	25.6
JUNE	2210	13	449	554	1.2	15.9
JULY	500	3.2	98	143	1.5	3.5
AUGUST	1040	0.14	100	253	2.5	3.6
SEPTEMBER	241	1.1	49	66	1.3	1.7
ANNUAL	509	70	235	133	0.57	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1971-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	3.9	0.00	0.00	0.00
3	4.2	0.00	0.00	0.00
7	4.7	0.00	0.00	0.00
14	6.2	0.85	0.00	0.00
30	8.8	1.3	0.32	0.08
60	15	6.0	3.3	1.9
90	22	9.3	5.1	2.9
120	33	13	8.1	5.2
183	50	22	15	10

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1964, 1970-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 16 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
15600	29300	43000	67600	92600	125000

STATION SKEW = 0.790

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	10400	17800	23800	32700	40300	48700
3	6040	10100	13200	17400	20800	24500
7	3250	5490	7210	9600	11500	13600
15	1740	3000	3970	5330	6430	7600
30	1090	1890	2500	3330	3990	4680
60	702	1200	1570	2050	2420	2800
90	539	901	1160	1500	1750	2010

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964, 1970-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
3430	732	405	296	233	150	92	59	38	24	16	7.5	3.2	0.01	0.00	0.00	0.00	

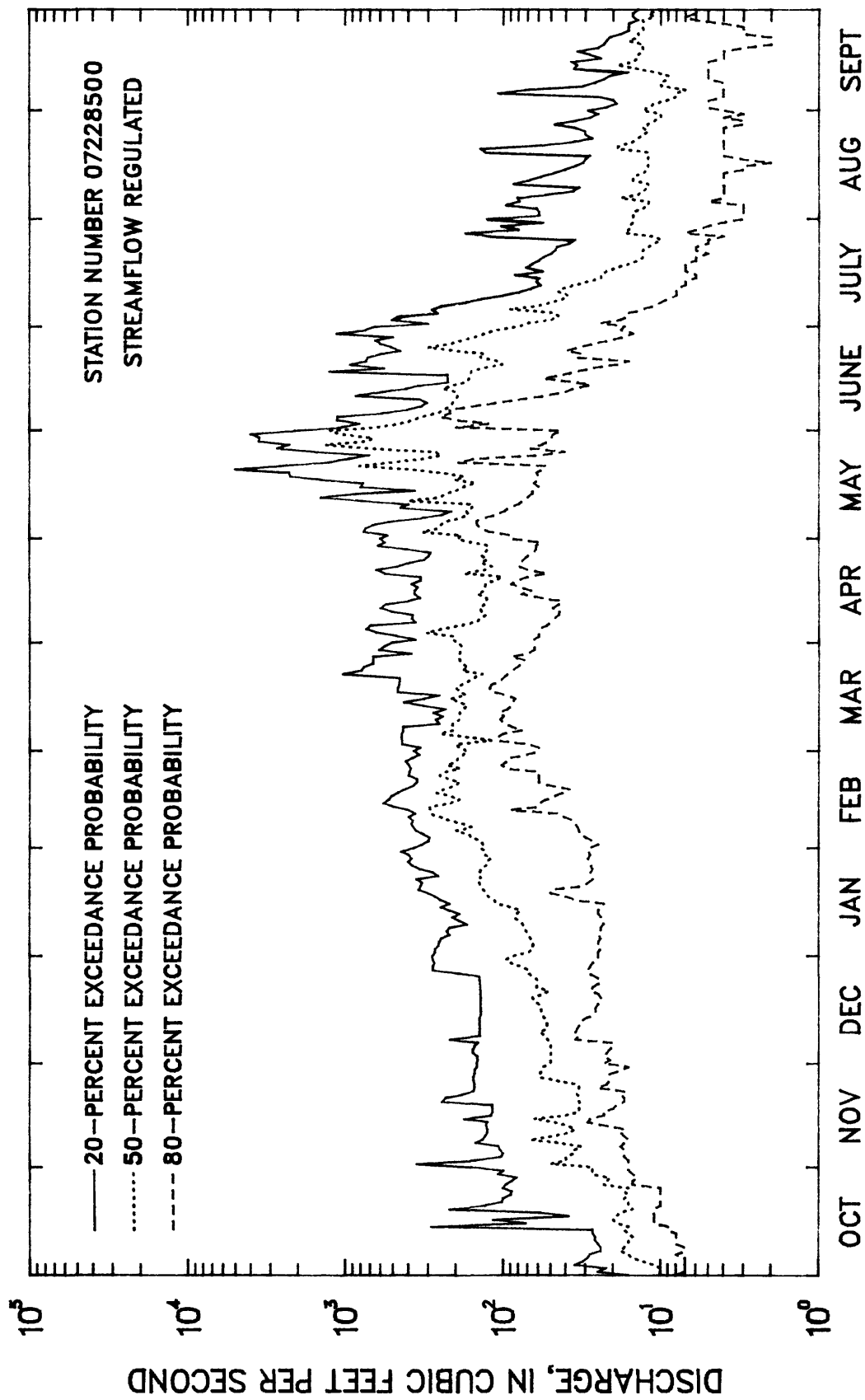


Figure 72.—Duration hydrographs of daily discharge values for Canadian River at Bridgeport, Oklahoma, water years 1976-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07229100 CANADIAN RIVER NEAR NOBLE, OK

LOCATION.--Lat 35°04'55", long 97°22'52", in N 1/2 sec.14, T.7 N., R.2 W., McClain county, on right bank 80 ft upstream from the Atchison, Topeka, and Santa Fe Railway Co. bridge, 3.6 mi upstream from Chouteau Creek, 3.8 mi south of Noble, and at mile 190.8.

DRAINAGE AREA.--25,911 mi², of which 4,801 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1959 to June 1961 (published as "at Purcell"), October 1963 to September 1975 (discontinued).

REMARKS.--Flow regulated since 1964 by Lake Meredith in Texas. Extreme low flow sustained by sewage from city of Norman.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1964-75

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	326	4.2	148	124	0.84	3.7
NOVEMBER	1820	8.8	349	516	1.5	8.6
DECEMBER	580	12	164	168	1.0	4.1
JANUARY	593	21	178	161	0.90	4.4
FEBRUARY	989	17	267	250	0.94	6.6
MARCH	2850	37	562	824	1.5	13.9
APRIL	2210	20	453	598	1.3	11.2
MAY	3000	15	723	902	1.2	17.9
JUNE	2420	25	672	713	1.1	16.7
JULY	974	2.6	136	272	2.0	3.4
AUGUST	483	9.1	114	155	1.4	2.8
SEPTEMBER	1250	9.1	271	346	1.3	6.7
ANNUAL	1030	77	336	288	0.86	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1965-75

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2.5	1.0	0.62	0.39
3	2.6	1.1	0.64	0.40
7	2.8	1.2	0.72	0.45
14	3.7	2.0	1.4	1.0
30	7.0	3.6	2.7	2.2
60	18	8.2	5.6	4.1
90	36	13	7.9	5.2
120	58	25	16	10
183	99	47	31	21

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1964-75

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 12 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
15600	23600	29800	38700	46200	54500
STATION SKEW = 0.377					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	8000	14300	19400	26700	32800	39500
3	4680	8670	12300	18100	23400	29800
7	2530	4590	6390	9220	11800	14800
15	1530	2780	3840	5450	6870	8480
30	1030	2010	2930	4490	6000	7850
60	690	1420	2120	3300	4420	5790
90	562	1130	1670	2600	3510	4630

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-75

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4880	1410	701	437	303	184	122	80	49	28	12	5.7	4.0	2.2	0.99	0.61	0.28

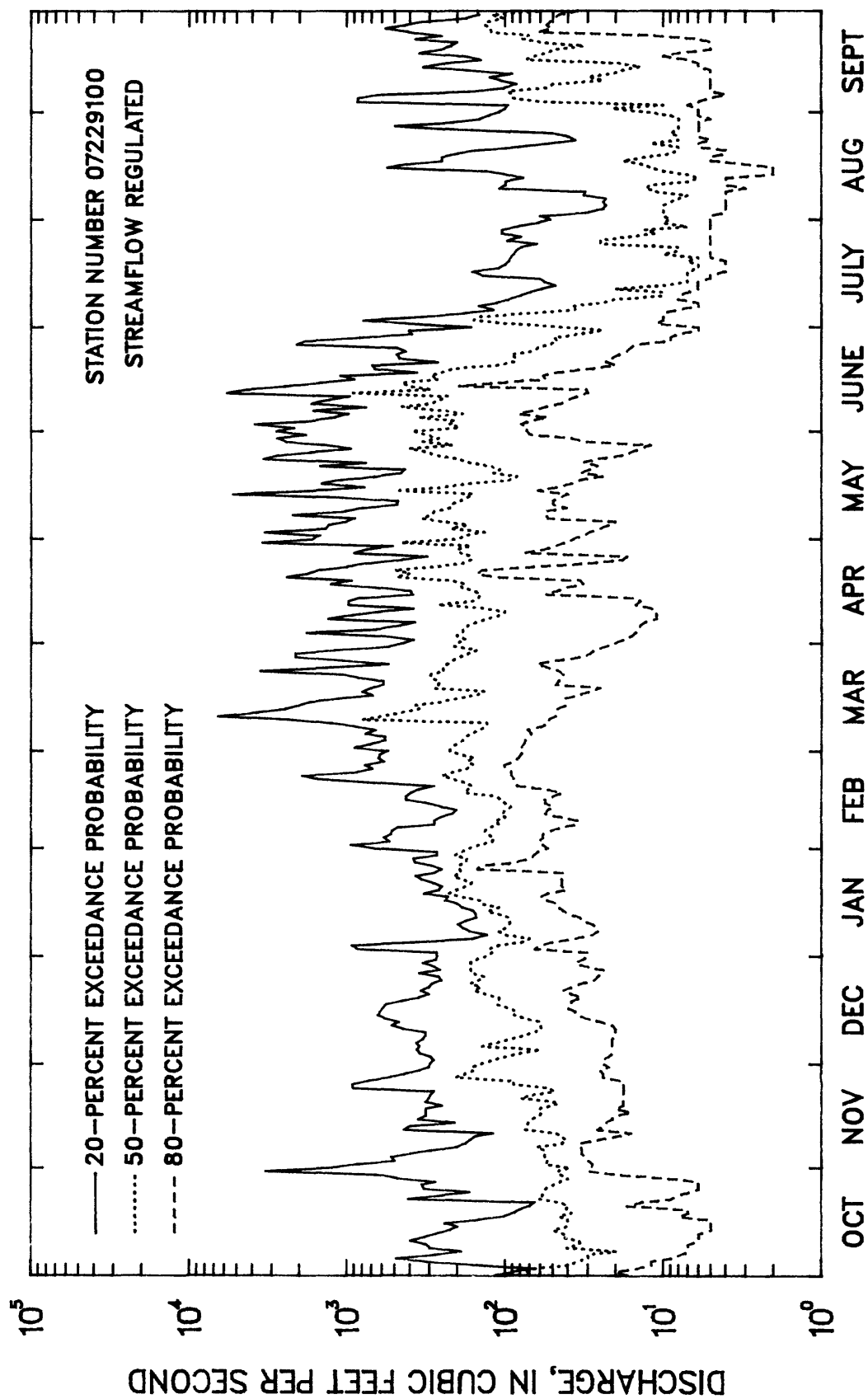


Figure 73.--Duration hydrographs of daily discharge values for Canadian River near Noble, Oklahoma, water years 1967-1975 (streamflow regulated).

ARKANSAS RIVER BASIN

07229300 WALNUT CREEK AT PURCELL, OK

LOCATION.--Lat 34°59'56", long 97°22'00", NW 1/4 NW 1/4 sec.13, T.6 N., R.2 W., McClain County, Hydrologic Unit 11090202, on downstream side of right bank pier of bridge on U.S. Highway 77, at south edge of Purcell, and at mile 1.0.

DRAINAGE AREA.--202 mi².

PERIOD OF RECORD.--Water years 1951-55, 1958-65 (occasional low-flow measurements). October 1965 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1966-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1400	0.30	105	316	3.0	16.8
NOVEMBER	187	2.8	32	43	1.4	5.1
DECEMBER	84	2.6	20	19	0.92	3.3
JANUARY	47	3.9	22	13	0.60	3.6
FEBRUARY	68	1.7	28	21	0.73	4.5
MARCH	193	3.3	45	50	1.1	7.2
APRIL	179	7.5	56	48	0.86	9.1
MAY	599	5.1	138	162	1.2	22.2
JUNE	355	5.9	89	98	1.1	14.3
JULY	276	1.0	33	64	1.9	5.4
AUGUST	61	0.24	19	20	1.1	3.0
SEPTEMBER	305	0.28	36	73	2.1	5.7
ANNUAL	153	12	52	40	0.77	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.71	0.01	0.00	0.00
3	0.75	0.09	0.00	0.00
7	0.90	0.13	0.00	0.00
14	1.0	0.25	0.12	0.06
30	2.1	0.54	0.26	0.14
60	4.1	1.2	0.57	0.31
90	7.1	2.1	1.0	0.54
120	9.7	3.0	1.5	0.78
183	14	4.9	2.8	1.7

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 19 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7260	15800	24700	40900	57600	79400
OKLAHOMA WEIGHTED SKEW = 0.454					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2280	5820	10100	18800	28800	43000
3	1030	2520	4260	7820	11900	17600
7	541	1270	2060	3580	5200	7400
15	319	718	1130	1880	2650	3630
30	190	412	636	1030	1430	1930
60	124	256	378	579	765	987
90	97	196	289	444	591	769

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
660	127	70	50	40	27	19	15	11	6.6	3.8	0.99	0.38	0.19	0.05	0.00	0.00

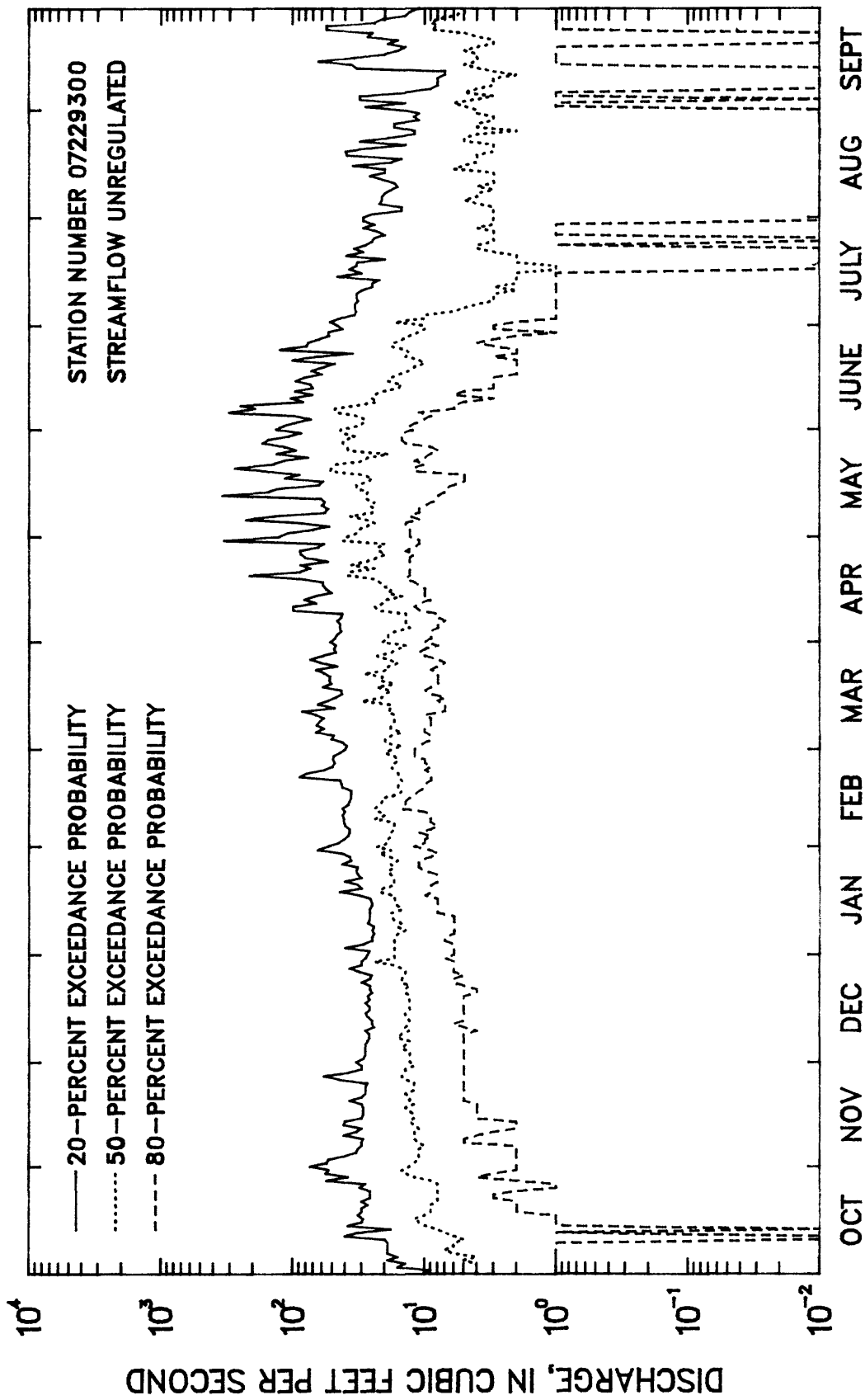


Figure 74.--Duration hydrographs of daily discharge values for Walnut Creek at Percell, Oklahoma, water years 1966-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07230000 LITTLE RIVER BELOW LAKE THUNDERBIRD NEAR NORMAN, OK

LOCATION.--Lat 35°13'18", long 97°12'49", in NE 1/4 SE 1/4 sec.29, T.9 N., R.1 E., Cleveland County, Hydrologic Unit, 11090203, at right bank of outlet channel, 170 ft upstream from State Highway 9, 1,200 ft downstream from Lake Thunderbird, 1.0 mi upstream from Prairie Creek, 13.0 mi east of Norman, and at mile 96.2.

DRAINAGE AREA.--257 mi².

PERIOD OF RECORD.--October 1952 to current year. Prior to October 1964, published as Little River below Hog Creek near Norman.

REMARKS.--Flow regulated by Lake Thunderbird since March 1965. In prior years, occasional small diversions above station for irrigation.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1953-64

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	286	0.04	60	98	1.6	8.5
NOVEMBER	112	0.55	21	33	1.5	3.0
DECEMBER	91	1.3	23	30	1.3	3.3
JANUARY	93	2.2	18	26	1.4	2.6
FEBRUARY	142	1.9	24	39	1.6	3.4
MARCH	90	2.3	27	28	1.1	3.8
APRIL	222	6.3	69	63	0.91	9.7
MAY	1160	9.5	213	333	1.6	30.2
JUNE	781	2.3	132	232	1.8	18.8
JULY	267	0.26	61	98	1.6	8.6
AUGUST	41	0.00	13	13	1.0	1.8
SEPTEMBER	187	0.00	43	62	1.4	6.1
ANNUAL	200	12	59	57	0.97	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1954-64

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.75	0.00	0.00	0.00
3	0.95	0.00	0.00	0.00
7	1.3	0.07	0.00	0.00
14	1.8	0.15	0.01	0.00
30	2.3	0.31	0.02	0.00
60	6.0	1.0	0.09	0.00
90	7.2	1.1	0.15	0.00
120	7.7	1.7	0.70	0.32
183	14	3.1	1.3	0.62

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1953-64

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 12 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5720	10600	15300	23500	31600	42000
OKLAHOMA WEIGHTED SKEW = 0.688					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2460	5110	8100	14100	20900	30400
3	1310	2620	4010	6660	9520	13400
7	631	1240	1880	3030	4240	5840
15	358	732	1130	1890	2700	3790
30	208	445	711	1240	1840	2670
60	122	265	435	793	1220	1840
90	92	204	336	615	944	1430

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1953-64

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1030	154	67	45	33	20	12	7.8	5.5	3.1	1.8	0.54	0.24	0.08	0.04	0.02	0.00

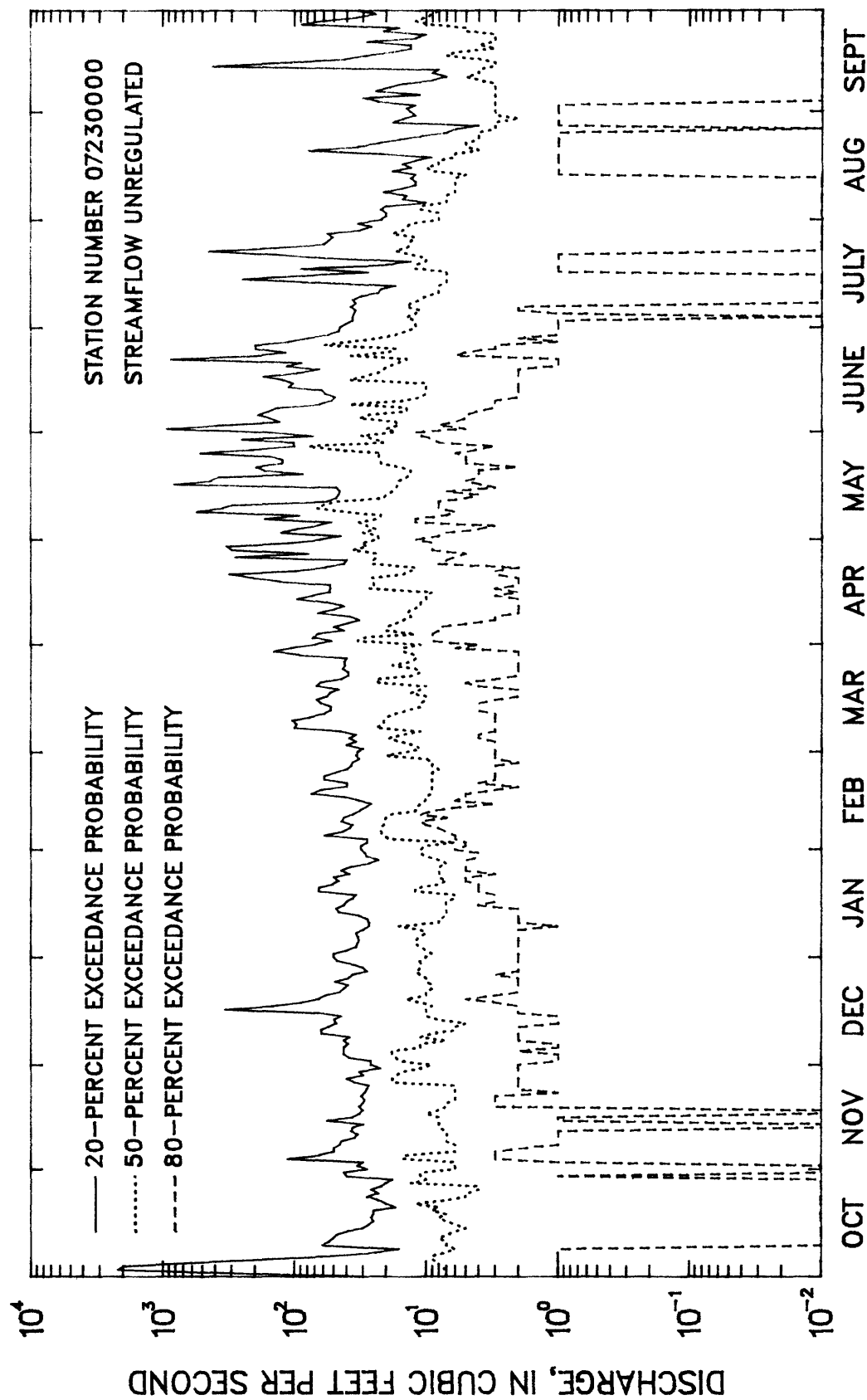


Figure 75.--Duration hydrographs of daily discharge values for Little River Below Lake Thunderbird near Norman, Oklahoma, water years 1956-1964 (streamflow unregulated).

ARKANSAS RIVER BASIN

07230000 LITTLE RIVER BELOW LAKE THUNDERBIRD NEAR NORMAN, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1965-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	251	0.16	19	60	3.2	7.2
NOVEMBER	626	0.18	43	141	3.3	16.5
DECEMBER	62	0.13	4.7	14	3.1	1.8
JANUARY	50	0.17	3.0	11	3.8	1.2
FEBRUARY	95	0.18	13	31	2.4	5.0
MARCH	147	0.18	24	46	1.9	9.5
APRIL	162	0.18	27	54	2.0	10.3
MAY	267	0.16	37	72	1.9	14.3
JUNE	512	0.15	72	138	1.9	28.0
JULY	109	0.12	13	30	2.3	5.0
AUGUST	37	0.19	2.3	8.3	3.5	0.9
SEPTEMBER	4.7	0.20	0.71	0.95	1.3	0.3
ANNUAL	96	0.22	21	32	1.5	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-84

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.36	0.23	0.16	0.12
3	0.37	0.23	0.16	0.12
7	0.37	0.24	0.17	0.13
14	0.37	0.24	0.18	0.14
30	0.39	0.26	0.20	0.15
60	0.40	0.26	0.21	0.16
90	0.42	0.27	0.22	0.17
120	0.43	0.28	0.23	0.18
183	0.44	0.29	0.24	0.19

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 19 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
205	782	1360	2200	2860	3510
STATION SKEW = -0.930					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-84

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	24	354	1420	6180	15800	36700
3	20	319	1380	6000	15700	35000
7	16	267	1200	5100	14000	32300
15	12	198	870	4320	12300	32000
30	9.2	133	559	2680	7510	19200
60	6.8	84	327	1460	3920	9670
90	5.6	63	236	1010	2660	6450

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
527	164	1.0	0.83	0.72	0.63	0.55	0.50	0.45	0.41	0.33	0.21	0.18	0.12	0.11	0.10	0.10

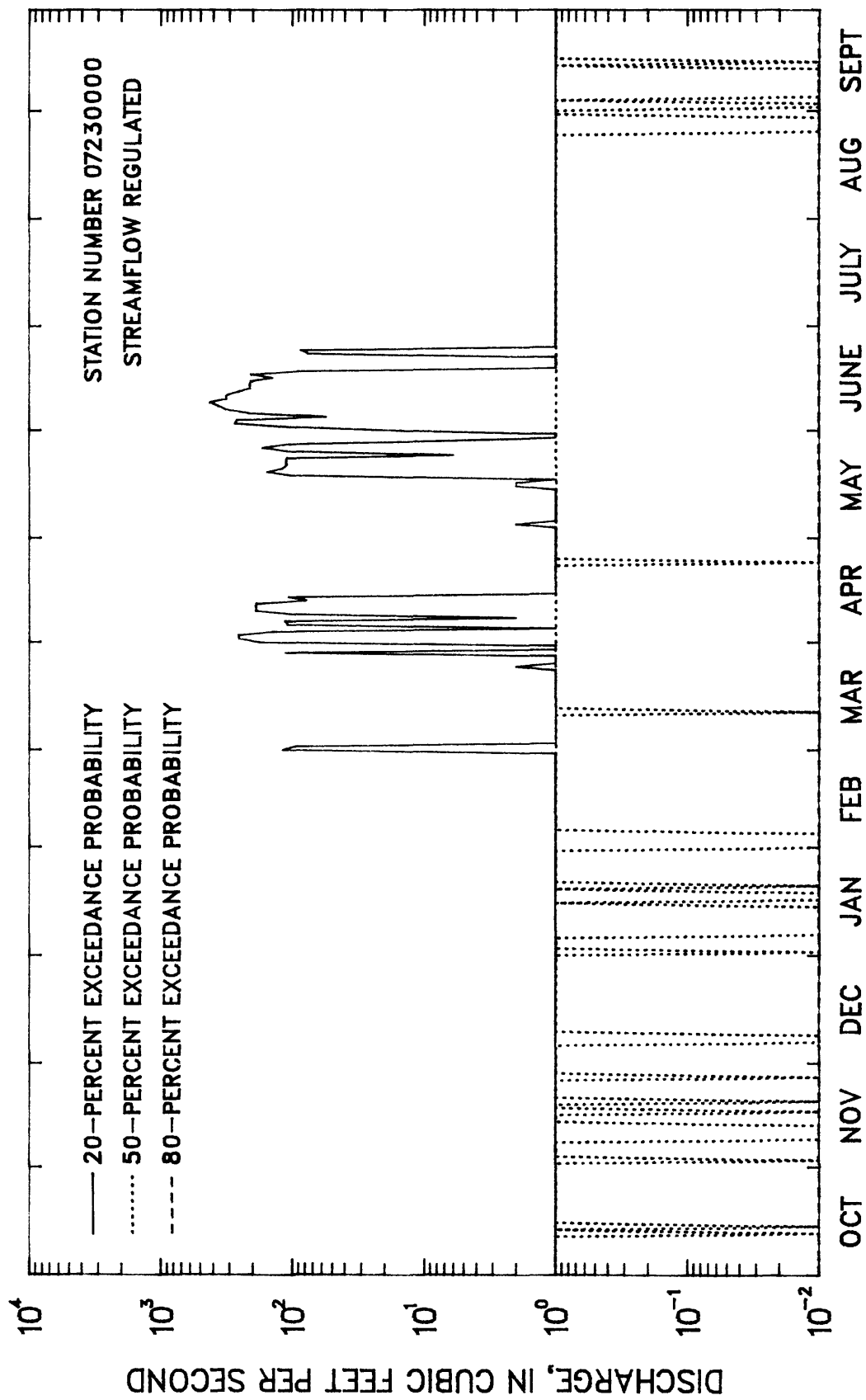


Figure 76.—Duration hydrographs of daily discharge values for Little River Below Lake Thunderbird near Norman, Oklahoma, water years 1966–1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07230500 LITTLE RIVER NEAR TECUMSEH, OK

LOCATION.--Lat 35°10'25", long 96°55'50", near northwest corner sec.18, T.8 N., R.4 E., Pottawatomie County, Hydrologic Unit 11090203, on downstream side of center pier of bridge on U.S. Highway 177, 1.5 mi downstream from Dance Creek, 5.0 mi south of Tecumseh, and at mile 77.2.

DRAINAGE AREA.--456 mi².

PERIOD OF RECORD.--October 1943 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.-- Flow regulated or diverted since 1965 by Lake Thunderbird, 19.2 mi upstream.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1944-64							MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1945-64				
MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	729	0.00	96	178	1.8	5.4					
NOVEMBER	179	0.89	44	54	1.2	2.5					
DECEMBER	189	3.5	51	57	1.1	2.9	1	2.2	0.00	0.00	0.00
JANUARY	243	4.3	44	57	1.3	2.5	3	2.5	0.00	0.00	0.00
FEBRUARY	380	2.9	77	103	1.3	4.3	7	2.8	0.00	0.00	0.00
MARCH	913	6.3	130	201	1.5	7.3	14	3.8	0.00	0.00	0.00
APRIL	1300	21	214	309	1.4	12.0	30	5.8	0.64	0.00	0.00
MAY	1940	26	505	494	0.98	28.4	60	11	1.2	0.18	0.00
JUNE	1320	6.8	334	396	1.2	18.8	90	14	2.1	0.45	0.00
JULY	589	0.19	140	178	1.3	7.9	120	18	4.0	1.6	0.70
AUGUST	232	0.00	37	50	1.3	2.1	183	29	7.4	3.2	1.5
SEPTEMBER	880	0.00	108	211	2.0	6.1					
ANNUAL	449	29	149	116	0.78	100					

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 21 YEARS OF RECORD							MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1944-64						
DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT							PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%			2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
9080	16600	24100	37300	50700	67900		1	5600	10900	16100	25000	33700	44500
							3	3190	6250	8970	13300	17200	21800
							7	1660	3130	4380	6260	7880	9700
							15	950	1760	2420	3400	4230	5140
							30	576	1110	1580	2300	2940	3660
							60	363	717	1040	1560	2040	2620
							90	289	577	833	1240	1600	2020
OKLAHOMA WEIGHTED SKEW = 0.808													

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1944-64

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2970	463	205	123	83	50	34	23	16	9.8	5.4	2.0	0.10	0.04	0.02	0.01	0.00

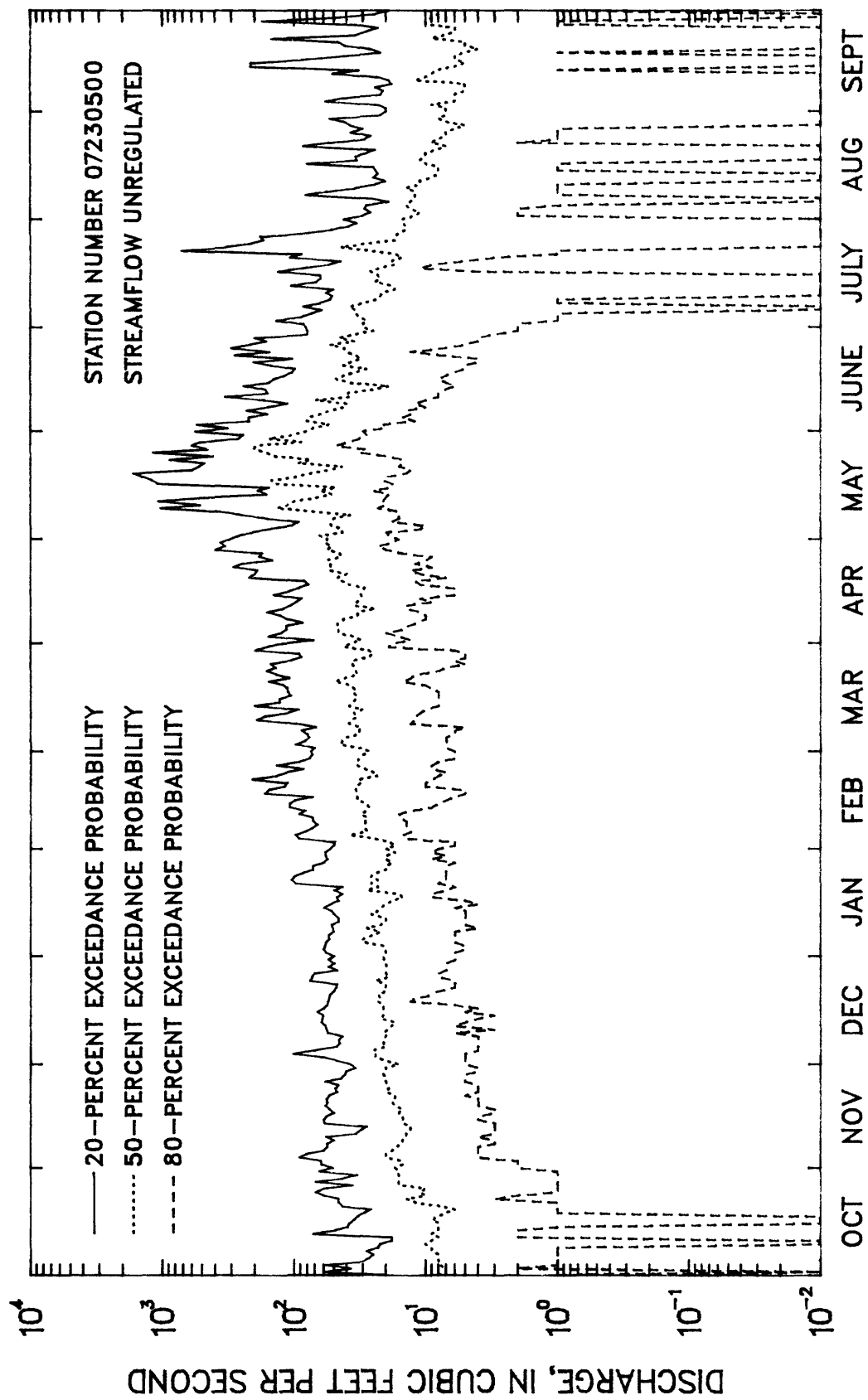


Figure 77.--Duration hydrographs of daily discharge values for Little River near Tecumseh, Oklahoma, water years 1946-1964 (streamflow unregulated).

ARKANSAS RIVER BASIN

07230500 LITTLE RIVER NEAR TECUMSEH, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1965-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	898	0.01	109	221	2.0	11.2
NOVEMBER	628	2.3	97	164	1.7	10.0
DECEMBER	113	2.1	23	29	1.3	2.3
JANUARY	134	2.7	33	35	1.1	3.3
FEBRUARY	183	2.4	45	56	1.3	4.6
MARCH	494	4.5	81	118	1.5	8.3
APRIL	629	5.6	120	133	1.1	12.3
MAY	587	9.3	198	190	0.96	20.3
JUNE	635	5.5	177	225	1.3	18.2
JULY	160	1.4	32	44	1.4	3.3
AUGUST	116	0.00	18	29	1.6	1.8
SEPTEMBER	477	0.22	44	107	2.4	4.5
ANNUAL	253	9.3	81	64	0.78	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.16	0.00	0.00	0.00
30	0.93	0.07	0.00	0.00
60	2.9	0.71	0.30	0.14
90	5.3	1.2	0.44	0.18
120	7.3	2.3	1.2	0.65
183	13	4.2	2.3	1.4

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5030	7050	8480	10400	11900	13400
STATION SKEW = -1.273					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3320	4980	5650	6160	6390	6530
3	1700	2850	3470	4090	4450	4740
7	925	1530	1840	2130	2280	2390
15	548	939	1170	1420	1570	1700
30	356	663	880	1150	1340	1530
60	223	442	610	840	1020	1200
90	167	339	470	666	818	975

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
1250	416	191	87	48	23	15	9.8	6.2	3.7	2.2	0.42	0.01	0.00	0.00	0.00	0.00	0.00

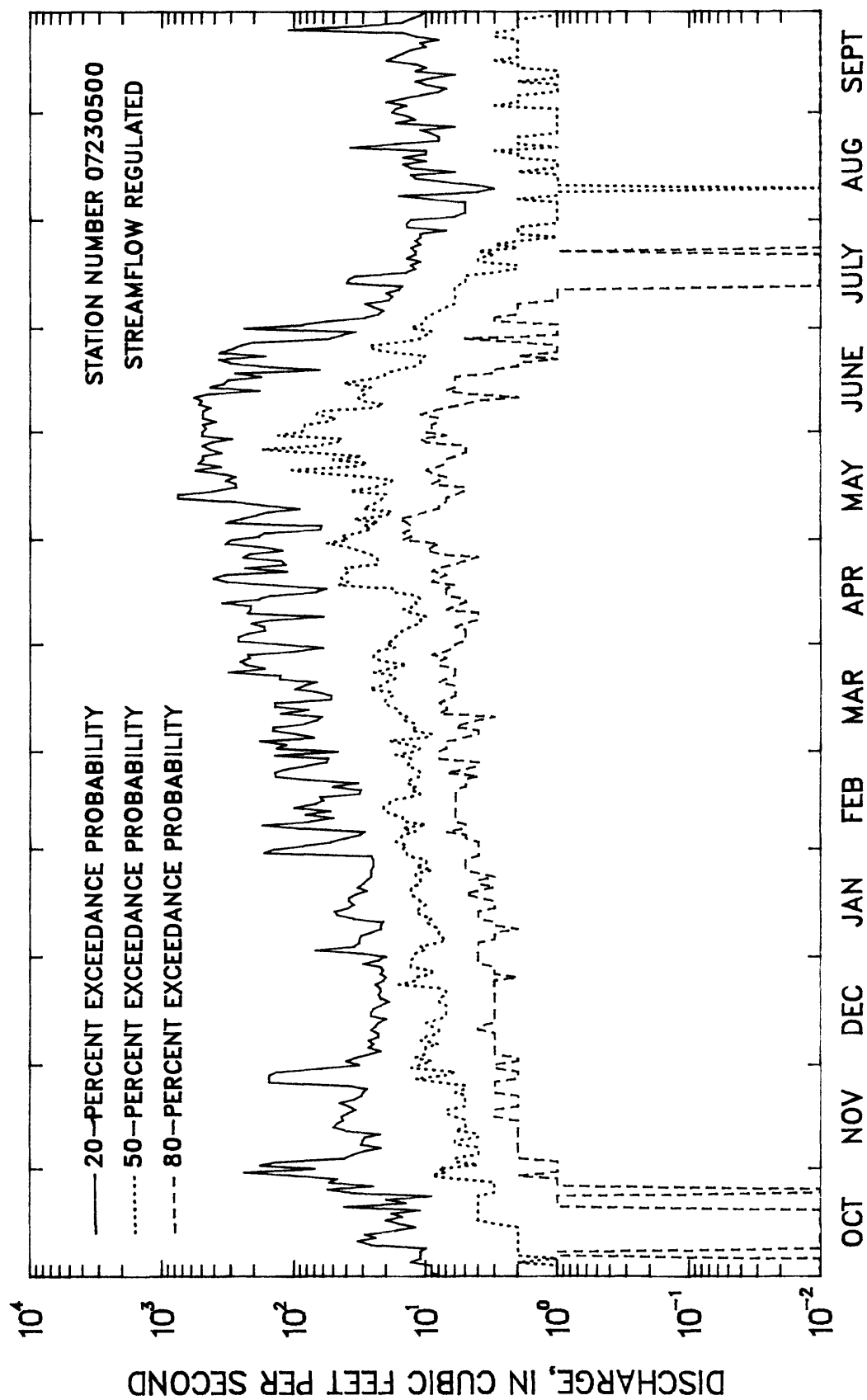


Figure 78.--Duration hydrographs of daily discharge values for Little River near Tecumseh, Oklahoma, water years 1966-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07231000 LITTLE RIVER NEAR SASAKWA, OK

LOCATION.--Lat 34°59'02", long 96°33'01", NE 1/4 sec.22, T.6 N., R.7 E., Seminole County, Hydrologic Unit 11090203, near left abutment on downstream side of county road bridge, 2.8 mi northwest of Sasakwa, 8.7 mi downstream from Salt Creek, and at mile 24.1.

DRAINAGE AREA.--865 mi².

PERIOD OF RECORD.--September 1942 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Flow regulated by Lake Thunderbird 72.3 mi upstream since March 1965.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1943-64

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2100	0.00	283	539	1.9	5.8
NOVEMBER	735	3.3	150	208	1.4	3.1
DECEMBER	938	1.9	162	226	1.4	3.3
JANUARY	725	2.3	124	191	1.5	2.5
FEBRUARY	1240	9.7	199	296	1.5	4.1
MARCH	3080	14	375	651	1.7	7.6
APRIL	3360	33	577	810	1.4	11.8
MAY	4630	97	1390	1290	0.93	28.3
JUNE	3670	16	848	1110	1.3	17.3
JULY	2300	2.7	420	590	1.4	8.6
AUGUST	1520	0.38	160	329	2.1	3.3
SEPTEMBER	1120	0.00	218	349	1.6	4.4
ANNUAL	1110	50	410	293	0.72	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1944-64

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2.9	0.04	0.00	0.00
3	3.4	0.15	0.00	0.00
7	4.1	0.43	0.00	0.00
14	6.2	0.63	0.00	0.00
30	11	1.6	0.06	0.00
60	25	4.3	0.20	0.00
90	34	4.6	0.90	0.01
120	41	8.4	3.1	1.3
183	67	16	7.0	3.3

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1943-64

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 22 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
13000	25200	35700	51800	65900	81800
OKLAHOMA WEIGHTED SKEW = 0.020					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	11500	21400	28600	38300	45600	53100
3	8900	16400	22100	30000	36200	42800
7	5000	9060	12200	16500	19900	23500
15	2750	5030	6850	9460	11600	13900
30	1660	3150	4350	6090	7550	9130
60	1060	2030	2820	3960	4900	5930
90	834	1620	2240	3120	3840	4590

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1943-64

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
6860	1900	697	382	248	131	83	56	38	25	13	5.2	1.3	0.07	0.04	0.02	0.00	

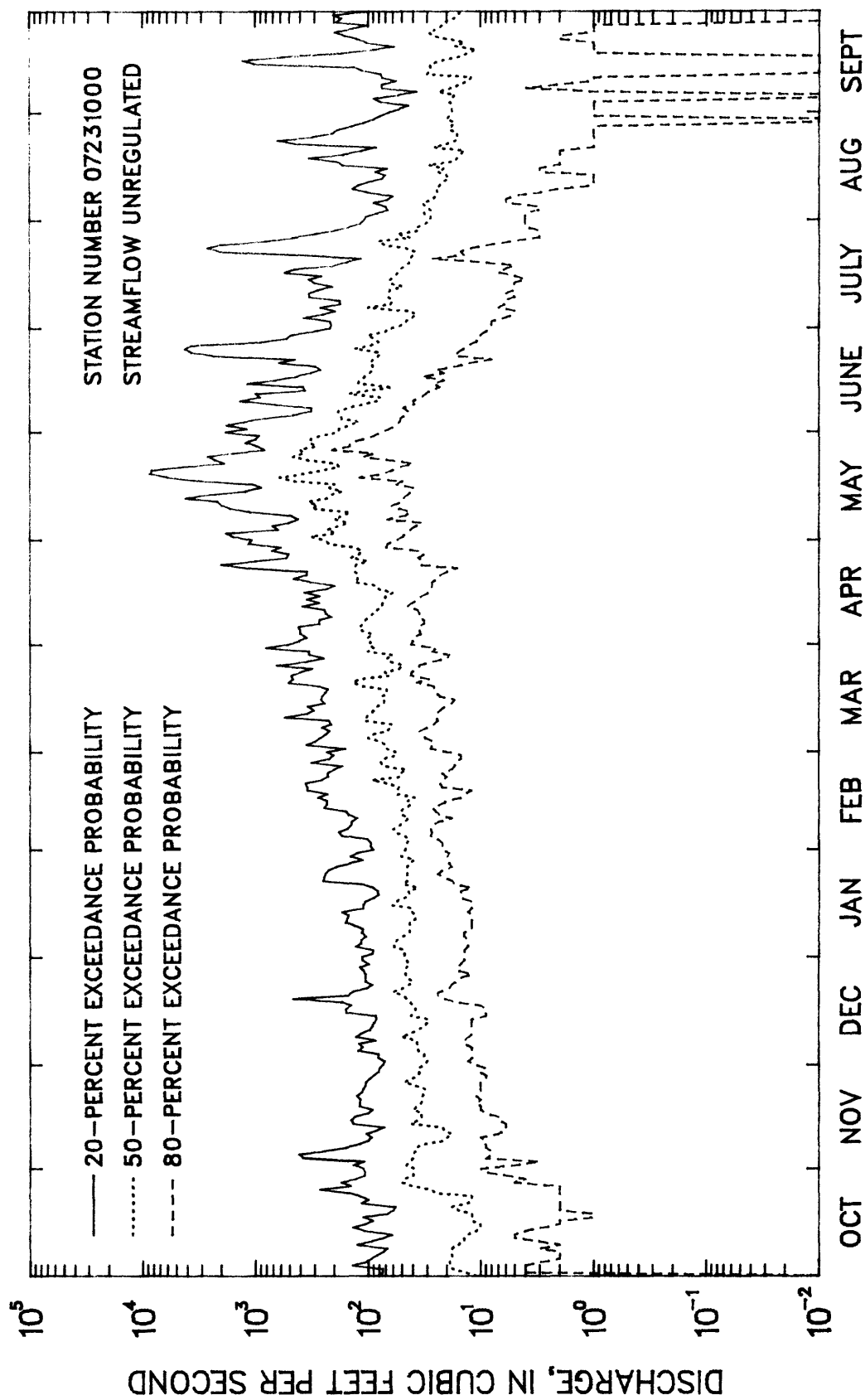


Figure 79.--Duration hydrographs of daily discharge values for Little River near Sasakwa, Oklahoma, water years 1946-1964 (streamflow unregulated).

ARKANSAS RIVER BASIN

07231000 LITTLE RIVER NEAR SASAKWA, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1965-84

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	2520	0.00	289	609	2.1	10.1					
NOVEMBER	1530	0.01	293	435	1.5	10.2					
DECEMBER	579	0.30	87	153	1.8	3.0	1	0.00	0.00	0.00	0.00
JANUARY	398	1.7	86	106	1.2	3.0	3	0.00	0.00	0.00	0.00
FEBRUARY	895	1.8	185	273	1.5	6.4	7	0.03	0.00	0.00	0.00
MARCH	1300	7.4	257	334	1.3	9.0	14	0.16	0.00	0.00	0.00
APRIL	1590	17	357	352	0.99	12.4	30	0.51	0.03	0.00	0.00
MAY	2260	31	631	640	1.0	22.0	60	2.9	0.34	0.00	0.00
JUNE	1810	11	496	601	1.2	17.2	90	5.0	0.44	0.08	0.00
JULY	350	2.0	76	94	1.2	2.6	120	11	1.6	0.42	0.00
AUGUST	130	0.00	23	36	1.5	0.8	183	34	6.0	2.3	0.96
SEPTEMBER	753	0.01	94	192	2.1	3.3					
ANNUAL	629	19	239	163	0.68	100					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%		2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
						1	5670	9350	11200	12900	13900	14600
						3	4510	7460	8880	10100	10800	11200
						7	3130	4740	5290	5630	5760	5820
						15	1970	2820	3070	3200	3250	3270
						30	1250	1980	2300	2560	2680	2760
						60	785	1320	1590	1840	1980	2080
						90	590	1020	1250	1470	1600	1700
STATION SKFW - -1.135												

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
3740	1150	598	356	217	96	50	30	18	6.8	2.2	0.30	0.01	0.00	0.00	0.00	0.00	0.00

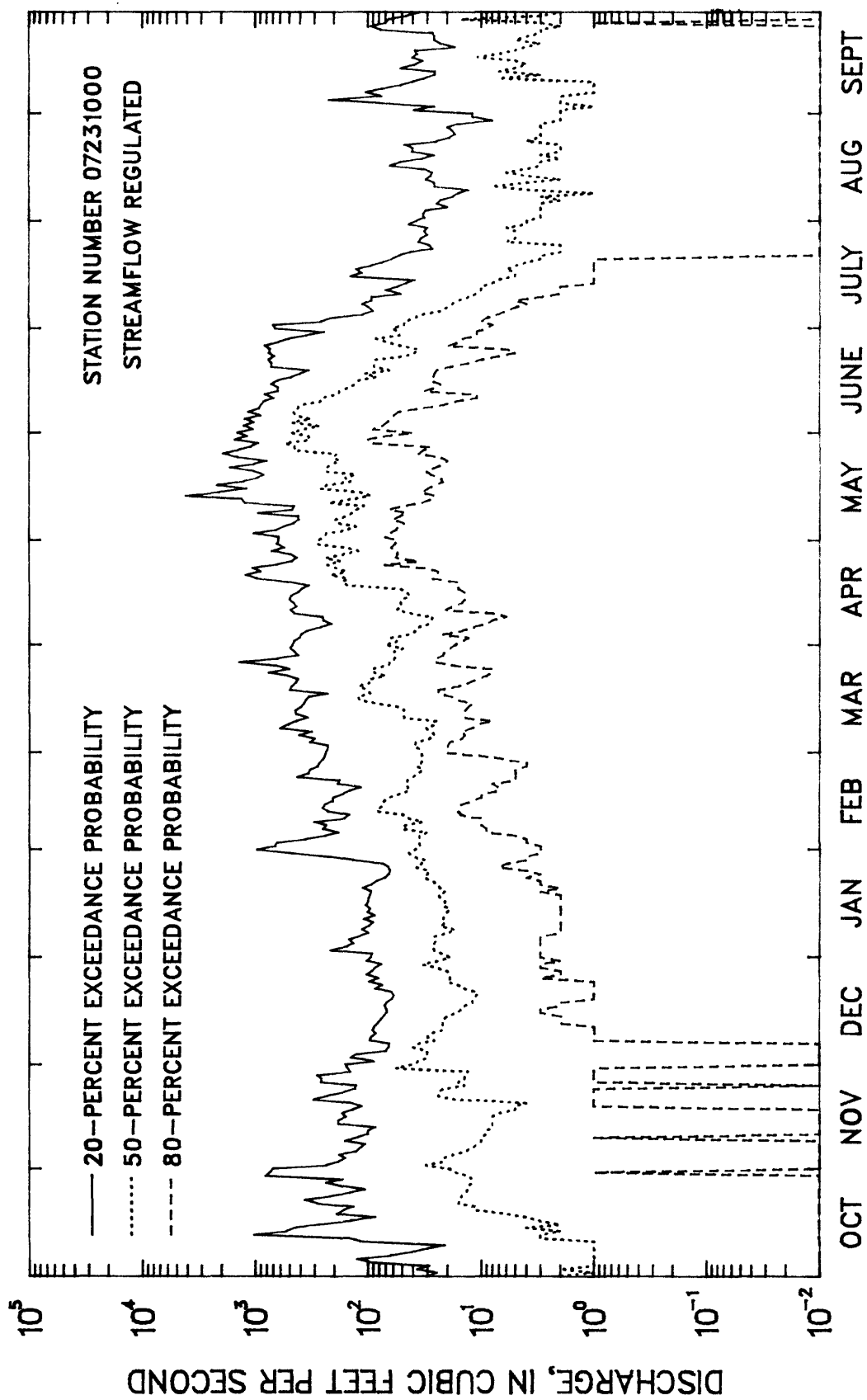


Figure 80.--Duration hydrographs of daily discharge values for Little River near Sasakwa, Oklahoma, water years 1966-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07231500 CANADIAN RIVER AT CALVIN, OK

LOCATION.--Lat 34°58'32", long 96°14'24", in NE 1/4 SW 1/4 sec.22, T.6 N., R.10 E., Hughes County, Hydrologic Unit 11090202, near left bank on downstream side of pier of bridge on old U.S. Highway 75, 0.5 mi northeast of Calvin, 2.4 mi upstream from Shawnee Creek, 8.5 mi downstream from Little River, and at mile 93.9.

DRAINAGE AREA.--27,952 mi², of which 4,801 mi² is probably noncontributing.

PERIOD OF RECORD.--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 current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1904 are contained in reports of National Weather Service.

REMARKS.--Flow regulated since 1964 by Lake Meredith in Texas.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1906, 1939-42, 1945-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	21500	0.10	2120	4460	2.1	9.3
NOVEMBER	5320	10	799	1190	1.5	3.5
DECEMBER	3730	21	747	955	1.3	3.3
JANUARY	2780	16	585	690	1.2	2.6
FEBRUARY	4420	44	862	1040	1.2	3.8
MARCH	8000	59	1170	1680	1.4	5.1
APRIL	14800	46	2400	3370	1.4	10.5
MAY	16200	376	4940	4740	0.96	21.6
JUNE	15400	65	4000	3990	1.0	17.5
JULY	9670	18	2260	2290	1.0	9.9
AUGUST	8400	16	1360	1900	1.4	5.9
SEPTEMBER	6470	0.00	1670	2120	1.3	7.3
ANNUAL	5510	393	1910	1310	0.68	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1940-42, 1946-63

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	17	1.2	0.00	0.00
3	19	1.5	0.00	0.00
7	23	2.0	0.00	0.00
14	31	2.9	0.00	0.00
30	53	3.3	0.34	0.00
60	112	19	5.5	0.20
90	167	29	9.0	3.1
120	230	53	22	10
183	419	108	49	25

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 29 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
68800	112000	143000	186000	220000	255000
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.081					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1906, 1939-42, 1945-63

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	44100	71200	89900	114000	131900	149800
3	29700	46900	58600	73400	84300	95000
7	18300	30200	38800	50000	58600	67400
15	11100	18700	24300	32100	38200	44700
30	7070	12700	17300	24000	29600	35700
60	4640	8550	11800	16700	20800	25500
90	3690	6780	9250	12800	15800	19000

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1906, 1939-42, 1945-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
27500	9610	4460	2690	1830	916	543	344	225	138	71	25	8.9	0.75	0.07	0.03	0.01	0.01

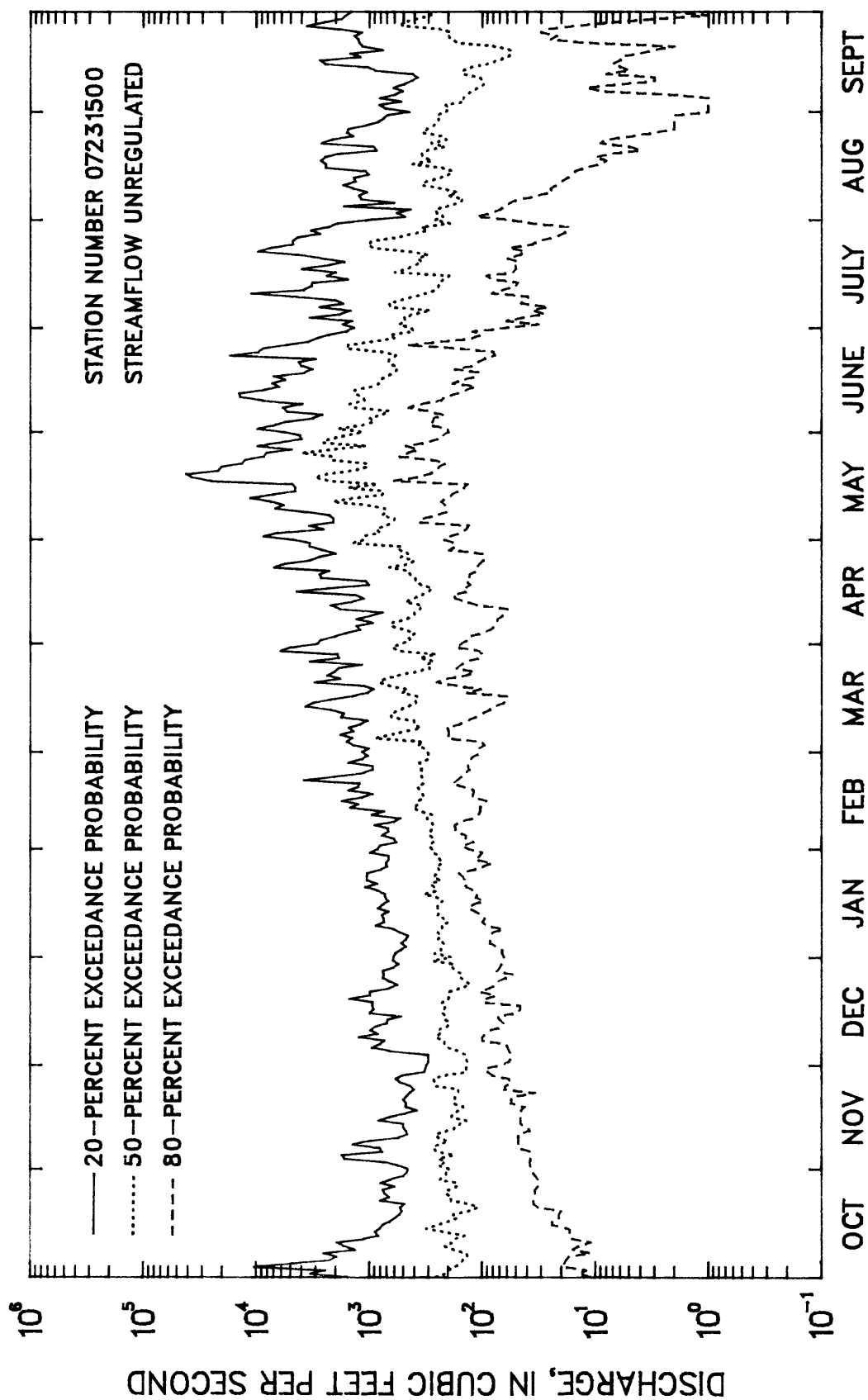


Figure 81.--Duration hydrographs of daily discharge values for Canadian River at Calvin, Oklahoma, water years 1945-1963 (streamflow unregulated).

ARKANSAS RIVER BASIN

07231500 CANADIAN RIVER AT CALVIN, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1964-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	7910	0.80	1170	2140	1.8	9.4
NOVEMBER	5160	3.8	1040	1460	1.4	8.3
DECEMBER	2240	7.8	426	555	1.3	3.4
JANUARY	1770	17	457	424	0.93	3.6
FEBRUARY	3320	23	816	941	1.2	6.5
MARCH	6130	21	1190	1420	1.2	9.5
APRIL	6520	111	1480	1480	1.0	11.8
MAY	9560	195	2830	2450	0.86	22.6
JUNE	6070	34	2040	1740	0.86	16.3
JULY	2290	11	444	575	1.3	3.5
AUGUST	782	0.07	169	186	1.1	1.4
SEPTEMBER	2360	0.60	456	661	1.5	3.6
ANNUAL	2560	184	1040	671	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1965-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2.1	0.00	0.00	0.00
3	2.9	0.00	0.00	0.00
7	5.1	0.48	0.00	0.00
14	9.2	1.6	0.46	0.00
30	20	4.1	1.3	0.00
60	60	9.1	2.3	0.62
90	86	19	7.3	2.9
120	134	32	13	5.8
183	258	75	37	20

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 21 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
41400	70200	92300	123000	149000	176000
STATION SKEW = -1.016					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1964-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	27200	47500	59600	72700	80800	87800
3	18800	30500	36400	42100	45200	47600
7	11800	17800	20600	23100	24300	25200
15	7170	10900	12500	14000	14700	15200
30	4650	7440	8850	10200	10900	11400
60	3090	5080	6150	7220	7830	8320
90	2340	3880	4770	5730	6330	6830

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-84

DISCHARGE, IN CFS, WHICH WAS EQUALLED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
14100	4590	2440	1560	1060	582	367	244	153	82	36	12	3.8	0.42	0.04	0.02	0.00

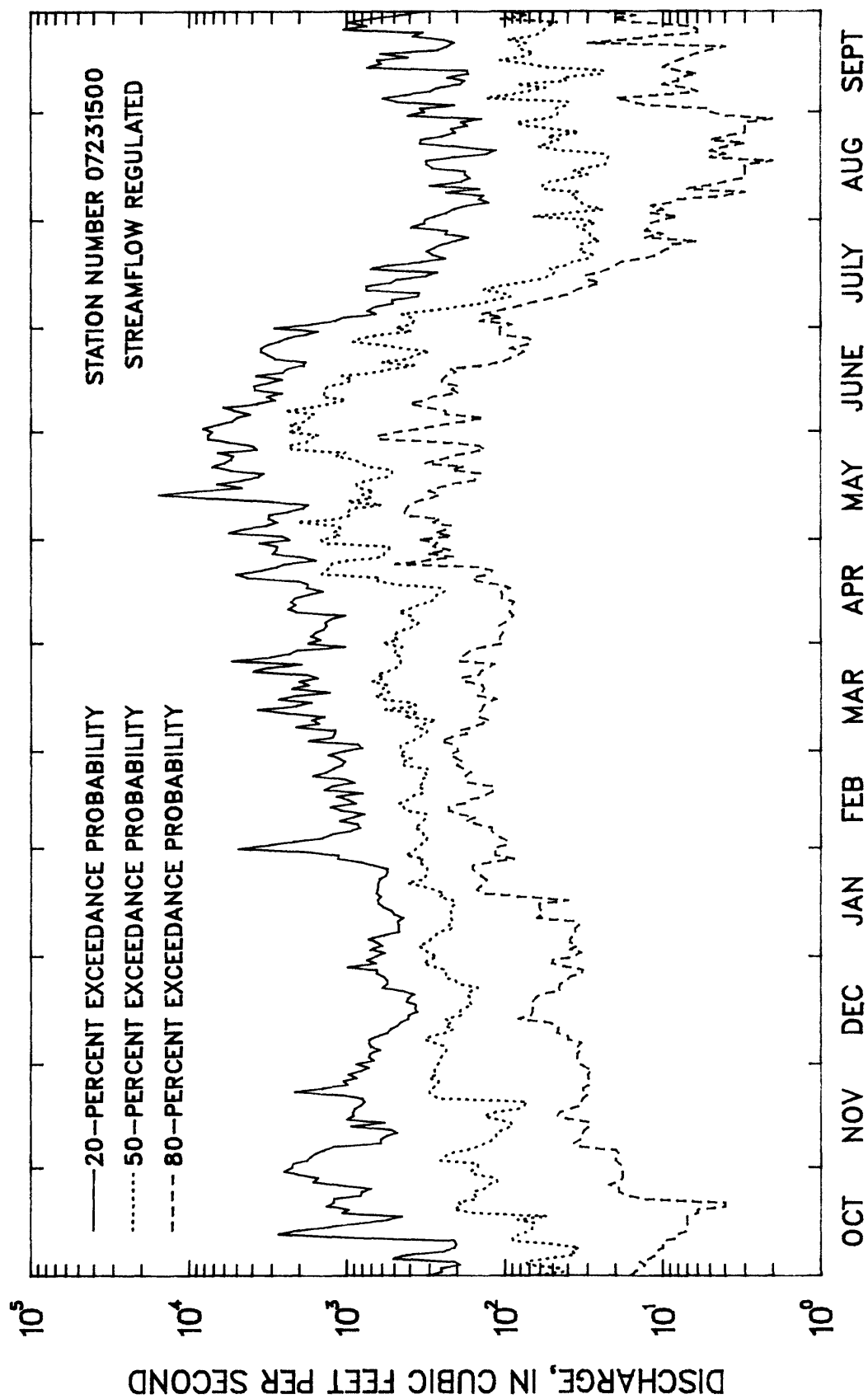


Figure 82.--Duration hydrographs of daily discharge values for Canadian River at Calvin, Oklahoma, water years 1966-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07232000 GAINES CREEK NEAR KREBS, OK

LOCATION.-- Lat 34°58'46", long 95°37'18", in SW 1/4 NE 1/4 sec.21, T.6 N., R.16 E., on downstream side of right pier of abandoned county road bridge, 0.8 mi upstream from Nutler Creek and 6.5 mi northeast of Krebs.

DRAINAGE AREA.--588 mi².

PERIOD OF RECORD.--October 1942 to September 1963.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1943-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2180	0.00	195	481	2.5	2.9
NOVEMBER	2200	0.00	309	601	1.9	4.6
DECEMBER	2780	1.3	403	688	1.7	5.9
JANUARY	1440	4.0	337	383	1.1	5.0
FEBRUARY	2670	19	746	791	1.1	11.0
MARCH	4560	27	911	1010	1.1	13.4
APRIL	4930	28	999	1200	1.2	14.7
MAY	5460	98	1470	1470	1.0	21.6
JUNE	4100	3.1	608	974	1.6	9.0
JULY	3160	0.65	415	755	1.8	6.1
AUGUST	709	0.00	100	187	1.9	1.5
SEPTEMBER	2890	0.00	295	643	2.2	4.4
ANNUAL	1430	83	564	347	0.61	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1944-63

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.10	0.00	0.00	0.00
14	0.36	0.00	0.00	0.00
30	1.5	0.00	0.00	0.00
60	6.2	0.22	0.00	0.00
90	10	0.58	0.00	0.00
120	24	3.2	0.80	0.00
183	75	15	5.5	2.2

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1943-63

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 21 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
12200	23300	33700	51200	68100	88900
OKLAHOMA WEIGHTED SKEW = 0.472					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	10700	19300	27300	41000	54200	70500
3	9040	16100	22200	31800	40300	50300
7	6040	10400	13600	17900	21300	24900
15	3540	5800	7330	9230	10610	11950
30	2260	3820	4910	6290	7320	8320
60	1550	2660	3420	4350	5020	5660
90	1250	2160	2770	3510	4030	4520

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1943-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
9160	3240	1360	619	342	155	84	44	23	11	3.0	0.49	0.08	0.03	0.02	0.01	0.00

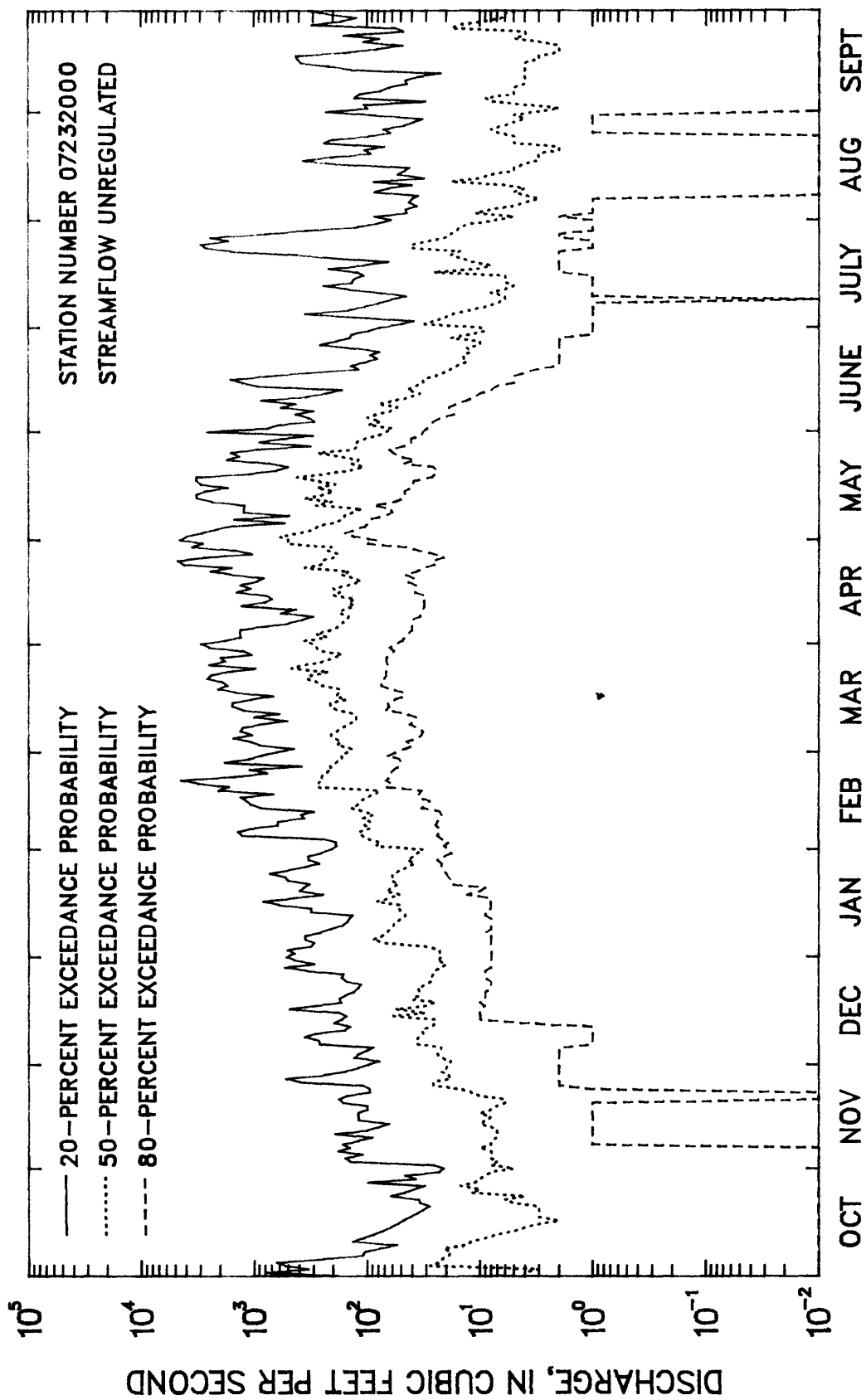


Figure 83.--Duration hydrographs of daily discharge values for Gaines Creek near Krebs, Oklahoma, water years 1945-1963 (streamflow unregulated).

ARKANSAS RIVER BASIN

07232500 BEAVER RIVER NEAR GUYMON, OK
(Headwater of the North Canadian River)

LOCATION.--Lat 36°43'24", long 101°29'30", NW 1/4 SW 1/4 sec.18, T.3 N., R.15 E., Texas County, Hydrologic Unit 11100101, near center of span on downstream side of pier of bridge on U.S. Highway 64 at Dry Sand Draw, 1.2 mi upstream from Goff Creek, 2.5 mi north of Guymon, and at mile 650.7.

DRAINAGE AREA.--2,139 mi², which includes that of Dry Sand Draw and of which 964 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1970, published as North Canadian River near Guymon.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	226	0.00	14	40	3.0	5.0
NOVEMBER	89	0.00	6.9	13	1.9	2.6
DECEMBER	14	0.00	6.2	3.4	0.56	2.3
JANUARY	13	0.00	7.0	3.3	0.47	2.6
FEBRUARY	15	0.00	8.0	3.6	0.45	3.0
MARCH	26	0.75	8.5	4.4	0.51	3.2
APRIL	330	0.17	18	49	2.8	6.6
MAY	418	0.50	44	81	1.9	16.4
JUNE	370	0.00	48	78	1.6	18.0
JULY	270	0.00	37	63	1.7	13.7
AUGUST	296	0.00	33	55	1.7	12.3
SEPTEMBER	826	0.00	39	136	3.5	14.4
ANNUAL	138	0.51	22	24	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1939-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.05	0.00	0.00	0.00
30	0.24	0.00	0.00	0.00
60	0.81	0.00	0.00	0.00
90	1.6	0.18	0.00	0.00
120	2.6	0.52	0.00	0.00
183	4.4	1.4	0.61	0.14

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1938-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 48 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5230	16500	28200	47600	65100	84800

OKLAHOMA WEIGHTED SKEW = -0.491

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1170	3680	5970	9220	11700	14200
3	520	1600	2640	4230	5540	6920
7	255	768	1280	2090	2790	3564
15	134	394	657	1090	1490	1940
30	79	221	363	601	819	1072
60	49	130	213	356	491	653
90	37	97	158	264	367	491

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
312	27	16	12	10	7.5	6.1	4.6	3.1	1.5	0.53	0.01	0.00	0.00	0.00	0.00	0.00

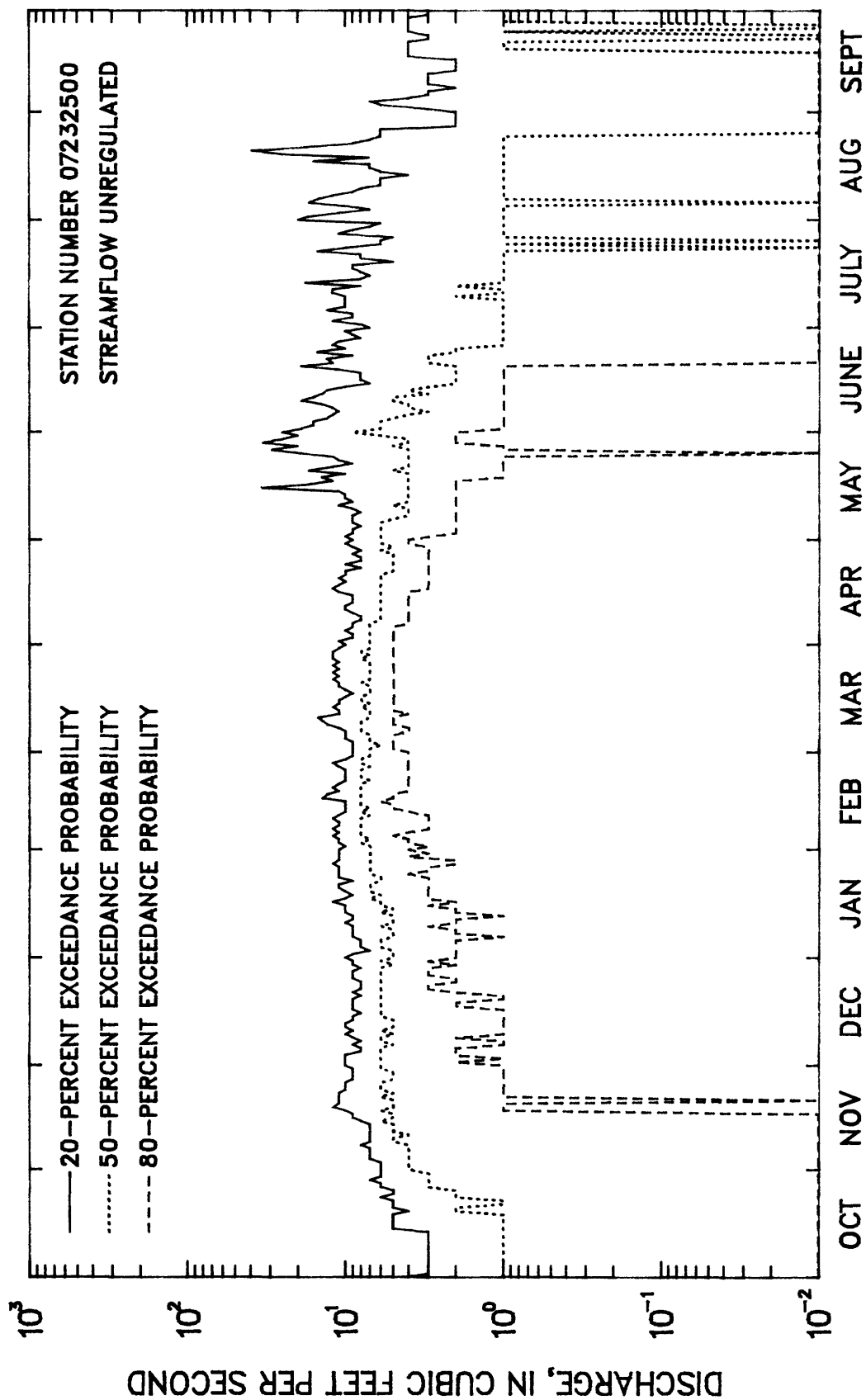


Figure 84.--Duration hydrographs of daily discharge values for Beaver River near Guymon, Oklahoma, water years 1946-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07233000 COLDWATER CREEK NEAR HARDESTY, OK

LOCATION.--Lat 36°38'38", long 101°12'38", in NW 1/4 NE 1/4 sec.15, T.2 N., R.17 E., on downstream side of piling near center of bridge on State Highway 3, 2.0 mi northwest of Hardesty and at mile 5.7.

DRAINAGE AREA.--1,967 mi², of which 1,200 mi² is probably noncontributing.

PERIOD OF RECORD.--June 1939 to September 1964.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-64

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	625	0.00	30	125	4.2	16.2
NOVEMBER	22	0.00	3.3	4.5	1.4	1.8
DECEMBER	9.4	0.00	3.7	2.5	0.69	2.0
JANUARY	11	0.00	4.8	2.7	0.57	2.6
FEBRUARY	10	1.6	5.6	2.4	0.42	3.1
MARCH	14	2.1	6.2	3.2	0.51	3.4
APRIL	22	1.9	6.0	4.1	0.67	3.2
MAY	336	0.83	36	76	2.1	19.2
JUNE	380	0.00	32	77	2.4	17.4
JULY	353	0.00	32	70	2.2	17.0
AUGUST	121	0.00	15	32	2.2	8.0
SEPTEMBER	226	0.00	11	45	3.9	6.2
ANNUAL	95	1.4	16	21	1.4	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-64

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	0.24	0.00	0.00	0.00
120	1.34	0.08	0.00	0.00
183	2.5	0.98	0.52	0.19

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1940-64

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 26 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2530	7990	13800	23500	32400	42800
OKLAHOMA WEIGHTED SKEW = -0.442					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	650	2200	4032	7512	11100	15600
3	299	999	1820	3370	4950	6940
7	141	484	905	1730	2610	3760
15	72	249	478	960	1510	2270
30	41	137	260	523	828	1258
60	27	82	154	308	490	751
90	20	60	109	215	339	517

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-64

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
175	22	12	8.7	7.1	5.4	4.1	2.8	1.5	0.09	0.06	0.03	0.02	0.01	0.00	0.00	0.00

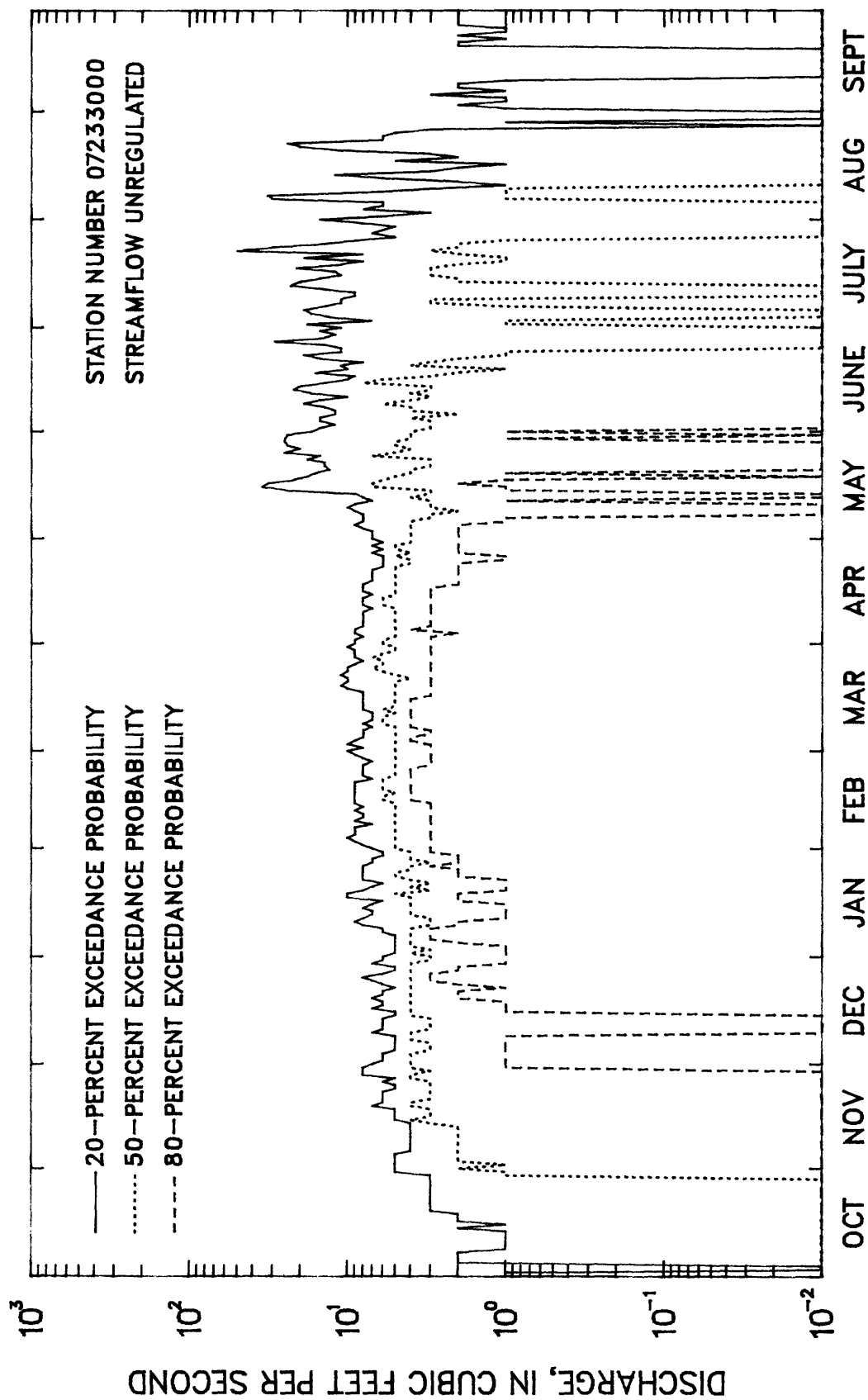


Figure 85.--Duration hydrographs of daily discharge values for Coldwater Creek near Hardesty, Oklahoma, water years 1946-1964 (streamflow unregulated).

ARKANSAS RIVER BASIN

07234000 BEAVER RIVER AT BEAVER, OK
(Headwater of the North Canadian River)

LOCATION.--Lat 36°49'20", long 100°31'05", SW 1/4 sec.7, T.4 N., R.24 E., Beaver County, Hydrologic Unit 11100201, near right bank on downstream side of pier of bridge on U.S. Highway 270 at Beaver, 1.5 mi downstream from Home Creek, 5 mi upstream from Clear Creek, and at mile 576.0.

DRAINAGE AREA.--7,955 mi², of which 4,270 mi² is probably noncontributing.

PERIOD OF RECORD.--March 1904 to December 1905 (gage heights only), October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Published as Beaver Creek at Beaver 1904-5, and October 1937 to September 1970 as North Canadian River at Beaver.

REMARKS.--Flow regulated since 1978 by Optima Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-77

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2850	0.00	127	463	3.7	10.1
NOVEMBER	618	0.00	33	104	3.1	2.7
DECEMBER	80	0.00	18	21	1.1	1.5
JANUARY	96	0.00	25	20	0.79	2.0
FEBRUARY	81	0.00	29	19	0.65	2.3
MARCH	361	0.00	40	58	1.5	3.2
APRIL	615	0.00	64	115	1.8	5.1
MAY	2920	0.52	259	558	2.2	20.7
JUNE	2230	0.96	292	427	1.5	23.3
JULY	1920	0.00	155	318	2.1	12.4
AUGUST	1060	0.00	99	190	1.9	7.9
SEPTEMBER	993	0.00	109	260	2.4	8.7
ANNUAL	361	7.2	105	100	0.96	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1939-77

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.14	0.00	0.00	0.00
90	2.0	0.00	0.00	0.00
120	4.9	0.00	0.00	0.00
183	15	2.2	0.24	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1938-77

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 40 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7640	17700	26900	41000	53400	67300
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.263					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3770	9350	14100	20900	26300	31800
3	2130	5320	8250	12800	16800	21200
7	1120	2820	4560	7590	10500	14200
15	658	1630	2640	4450	6250	8510
30	402	994	1610	2700	3790	5160
60	251	619	1010	1720	2440	3360
90	189	455	735	1240	1760	2430

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-77

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
2020	289	116	73	51	31	20	12	4.2	0.23	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00

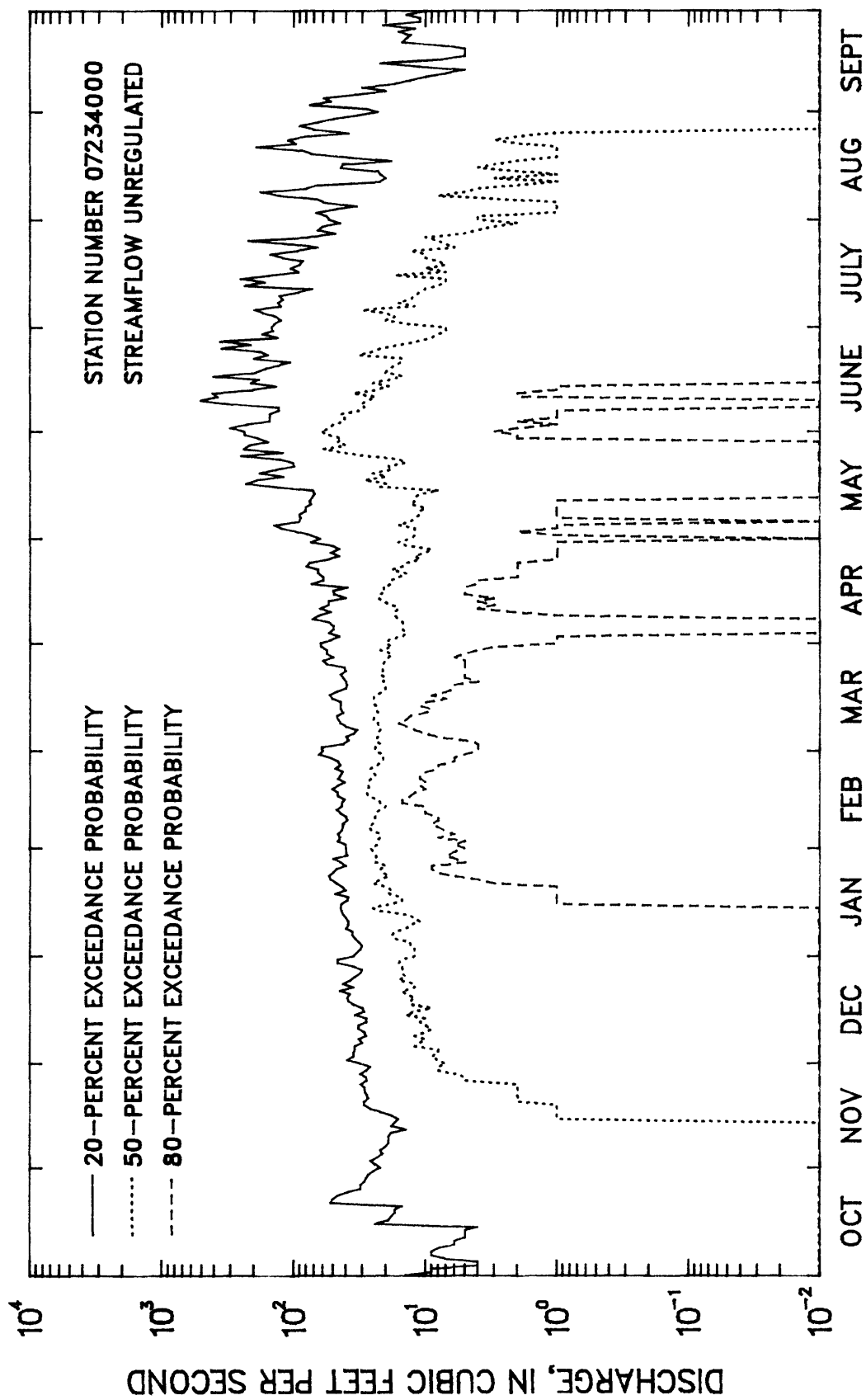


Figure 86.--Duration hydrographs of daily discharge values for Beaver River at Beaver, Oklahoma, water years 1939-1977 (streamflow unregulated).

ARKANSAS RIVER BASIN

07234100 CLEAR CREEK NEAR ELMWOOD, OK

LOCATION.--Lat 36°38'42", long 100°30'07", SW 1/4 SW 1/4 sec.8, T.2 N., R.24 E., Beaver County, Hydrologic Unit 11100201, on downstream side of right pile bent of county road bridge, 1,000 ft downstream from small irrigation dam, 2.8 mi northeast of Elmwood, and at mile 16.9.

DRAINAGE AREA.--170 mi².

PERIOD OF RECORD.--October 1965 to current year.

REMARKS.--Small diversions for irrigation above station.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1966-84							MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1967-84				
MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	193	1.2	12	44	3.7	15.2					
NOVEMBER	78	1.6	6.5	17	2.7	8.2					
DECEMBER	3.7	1.7	2.7	0.59	0.22	3.3	1	0.47	0.09	0.00	0.00
JANUARY	3.3	1.5	2.6	0.54	0.21	3.3	3	0.60	0.16	0.00	0.00
FEBRUARY	3.4	1.7	2.6	0.47	0.18	3.3	7	0.67	0.23	0.09	0.00
MARCH	22	1.7	3.7	4.5	1.2	4.7	14	0.78	0.35	0.20	0.12
APRIL	17	1.5	3.4	3.6	1.1	4.3	30	0.96	0.64	0.50	0.41
MAY	8.7	1.2	3.9	2.4	0.62	4.9	60	1.2	0.85	0.71	0.61
JUNE	123	0.92	14	30	2.1	18.2	90	1.4	0.96	0.79	0.68
JULY	62	0.91	8.0	17	2.2	10.1	120	1.7	1.2	0.98	0.85
AUGUST	79	0.62	14	24	1.7	17.6	183	1.7	1.4	1.4	1.4
SEPTEMBER	34	0.31	5.5	9.2	1.7	7.0					
ANNUAL	26	1.7	6.6	6.5	0.99	100					

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 19 YEARS OF RECORD							MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1966-84						
DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT							PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%			2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
888	5780	14000	33400	56500	88400		1	215	1100	2460	5520	9115	14100
							3	104	455	929	1910	2980	4390
							7	50	198	396	814	1282	1920
							15	28	102	200	415	666	1020
							30	17	55	105	212	337	516
							60	11	31	56	109	171	259
							90	8.9	24	41	78	120	180
OKLAHOMA WEIGHTED SKEW = -0.446													

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
34	5.1	3.7	3.5	3.3	2.9	2.5	2.3	2.1	1.8	1.5	1.1	0.77	0.44	0.18	0.10	0.01

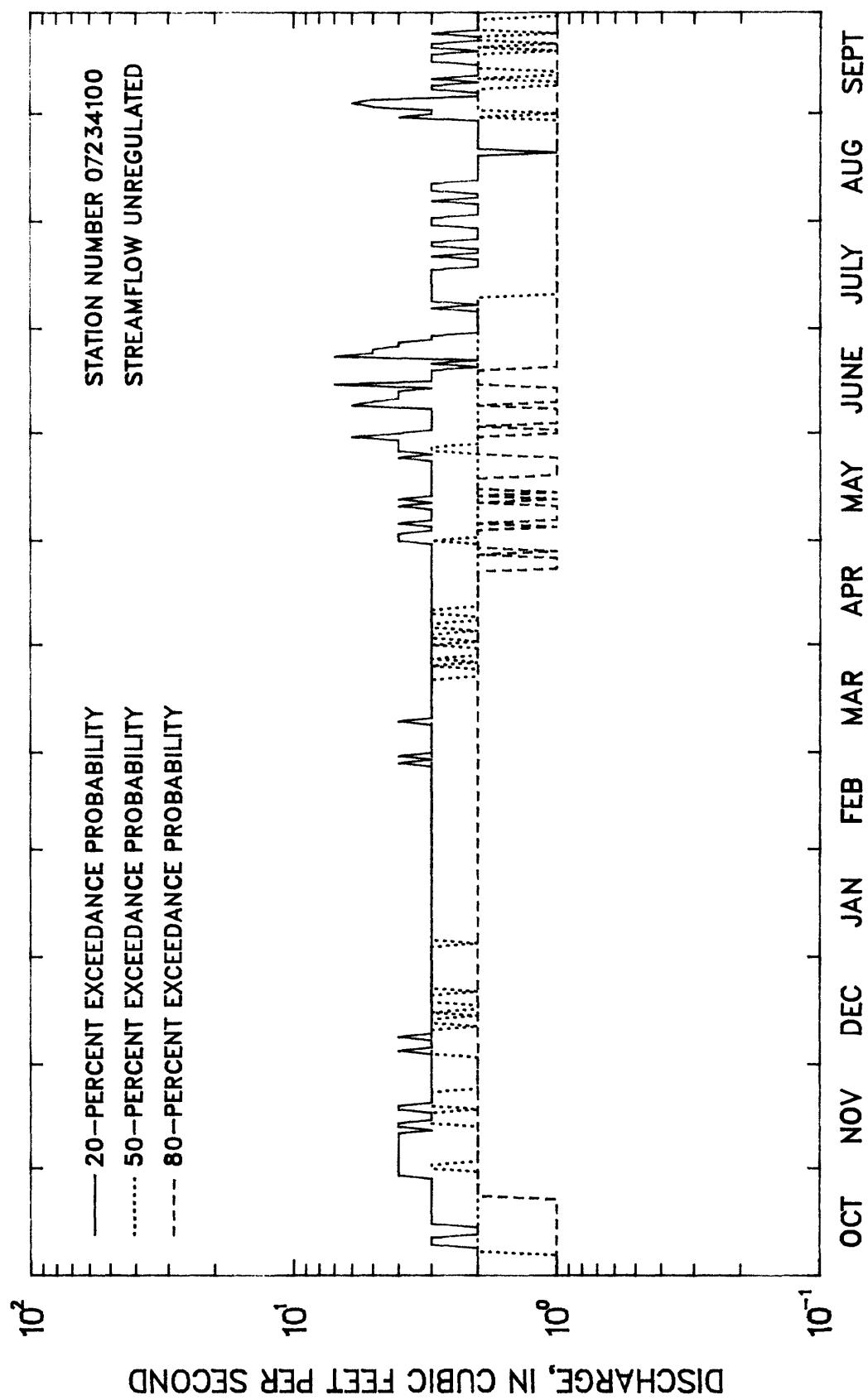


Figure 87.--Duration hydrographs of daily discharge values for Clear Creek near Elmwood, Oklahoma, water years 1966--1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07234500 BEAVER RIVER NEAR FORT SUPPLY, OK
(Headwater of the North Canadian River)

LOCATION.--Lat 36°35'30", long 99°35'30", in NE 1/4 NE 1/4 sec.6, T.24 N., R.22 E., at bridge on State Highway 35, 1.5 mi northwest of Fort Supply, 8.1 mi upstream from Wolf Creek, and at mile 495.8.

DRAINAGE AREA.--9,615 mi², of which 4,547 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1937 to September 1950.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-50

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1950	0.00	278	606	2.2	12.3
NOVEMBER	367	0.00	60	116	2.0	2.6
DECEMBER	136	0.00	37	49	1.3	1.6
JANUARY	131	0.00	41	42	1.0	1.8
FEBRUARY	186	0.00	54	50	0.93	2.4
MARCH	212	0.00	71	65	0.91	3.2
APRIL	664	0.00	168	206	1.2	7.4
MAY	1390	12	358	443	1.2	15.8
JUNE	931	14	378	289	0.77	16.7
JULY	3200	0.29	405	867	2.1	17.9
AUGUST	1850	0.00	211	499	2.4	9.3
SEPTEMBER	1010	0.00	203	351	1.7	9.0
ANNUAL	562	25	189	156	0.83	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-51

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	2.6	0.00	0.00	0.00
90	5.9	0.00	0.00	0.00
120	6.8	0.25	0.00	0.00
183	21	1.5	0.09	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1938-50

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 14 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
9630	19400	27800	40500	51400	63600
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.106					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	6040	13100	19000	27600	34700	42300
3	3690	8110	11800	17300	21800	26700
7	2080	4740	7080	10600	13700	17000
15	1250	2920	4540	7260	9830	12900
30	789	1780	2690	4170	5510	7070
60	501	1120	1670	2510	3250	4080
90	387	859	1270	1890	2420	3010

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-50

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3670	652	298	190	135	78	47	26	12	4.4	0.09	0.04	0.02	0.01	0.00	0.00	0.00

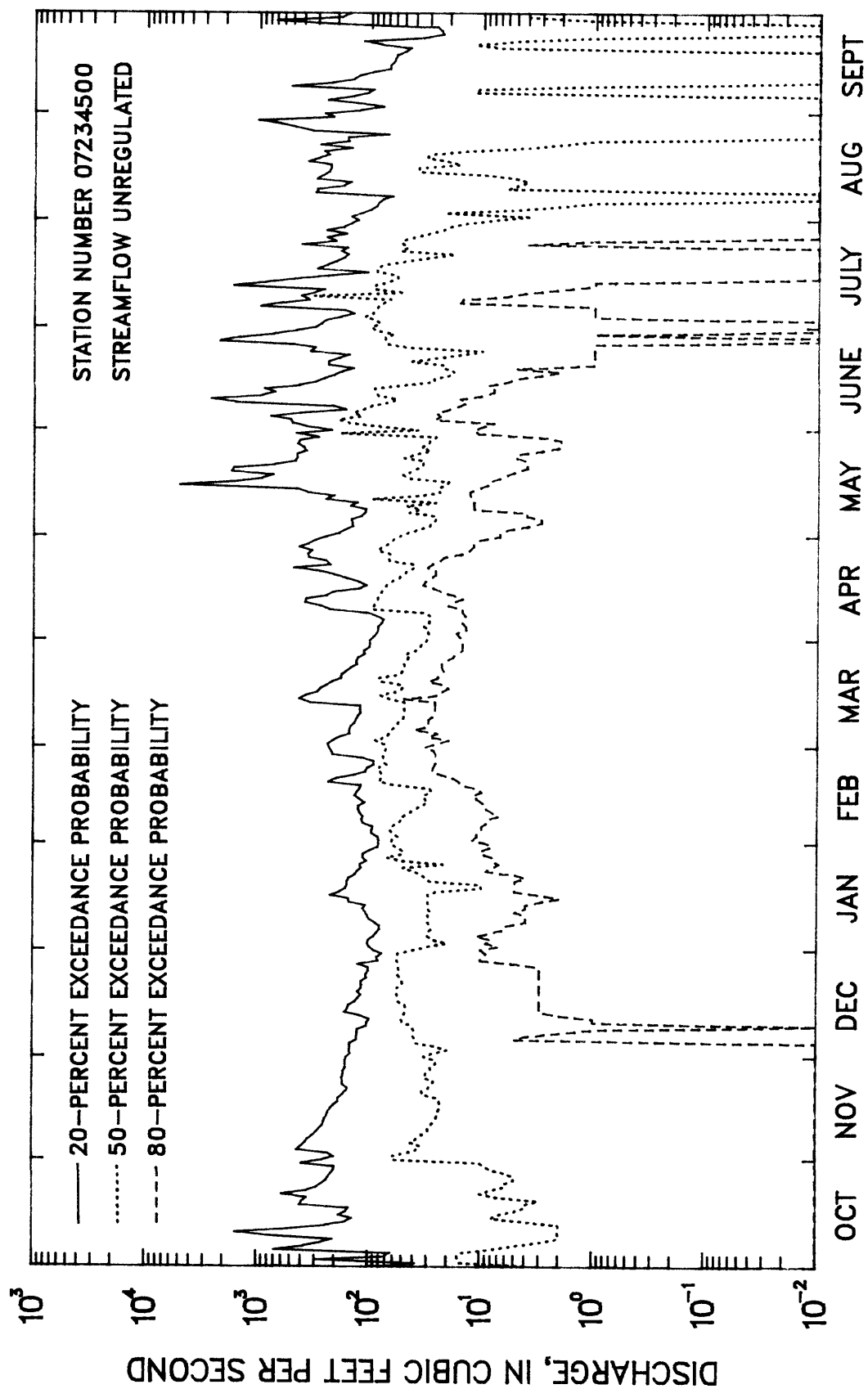


Figure 88.--Duration hydrographs of daily discharge values for Beaver River near Fort Supply, Oklahoma, water years 1942-1950 (streamflow unregulated).

ARKANSAS RIVER BASIN

07236000 WOLF CREEK NEAR FARGO, OK

LOCATION.--Lat 36°23'57", long 99°37'22", in SE 1/4 NE 1/4 sec.11, T.22 N., R.23 W., Ellis County, near right bank on downstream side of pier of county road bridge, 800 ft downstream from Boggy Creek, 1.2 mi downstream from Sixteen Mile Creek, 1.5 mi north of Fargo, and at mile 18.7.

DRAINAGE AREA.--1,624 mi², of which 258 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1942 to September 1976 (discontinued). Monthly discharge only for some periods, published in WSP 1311.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1943-76

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	265	0.00	42	62	1.5	5.4
NOVEMBER	160	0.20	32	28	0.89	4.0
DECEMBER	75	2.7	33	16	0.48	4.2
JANUARY	75	9.2	36	13	0.36	4.6
FEBRUARY	101	11	45	19	0.43	5.7
MARCH	86	18	49	19	0.38	6.3
APRIL	280	16	64	58	0.91	8.2
MAY	1210	19	158	274	1.7	20.2
JUNE	1820	3.7	159	325	2.0	20.4
JULY	1230	0.27	80	211	2.6	10.2
AUGUST	633	0.00	48	109	2.2	6.2
SEPTEMBER	299	0.00	35	59	1.7	4.5
ANNUAL	272	18	65	61	0.93	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1944-76

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.82	0.00	0.00	0.00
3	0.98	0.00	0.00	0.00
7	1.2	0.00	0.00	0.00
14	1.6	0.00	0.00	0.00
30	2.9	0.00	0.00	0.00
60	9.5	1.3	0.05	0.00
90	15	3.2	0.73	0.00
120	17	5.0	2.0	0.84
183	24	11	6.1	3.6

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1943-76

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 34 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3470	9290	15400	26400	37200	50500
OKLAHOMA WEIGHTED SKEW = -0.069					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1340	3840	6840	12900	19700	29100
3	701	2010	3750	7700	12600	20100
7	374	1040	1930	4000	6700	10800
15	217	587	1090	2290	3880	6410
30	143	372	677	1380	2290	3720
60	99	245	437	881	1450	2360
90	83	192	330	638	1020	1620

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1943-76

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
718	146	79	64	52	44	36	31	25	18	11	2.3	0.11	0.04	0.02	0.01	0.00

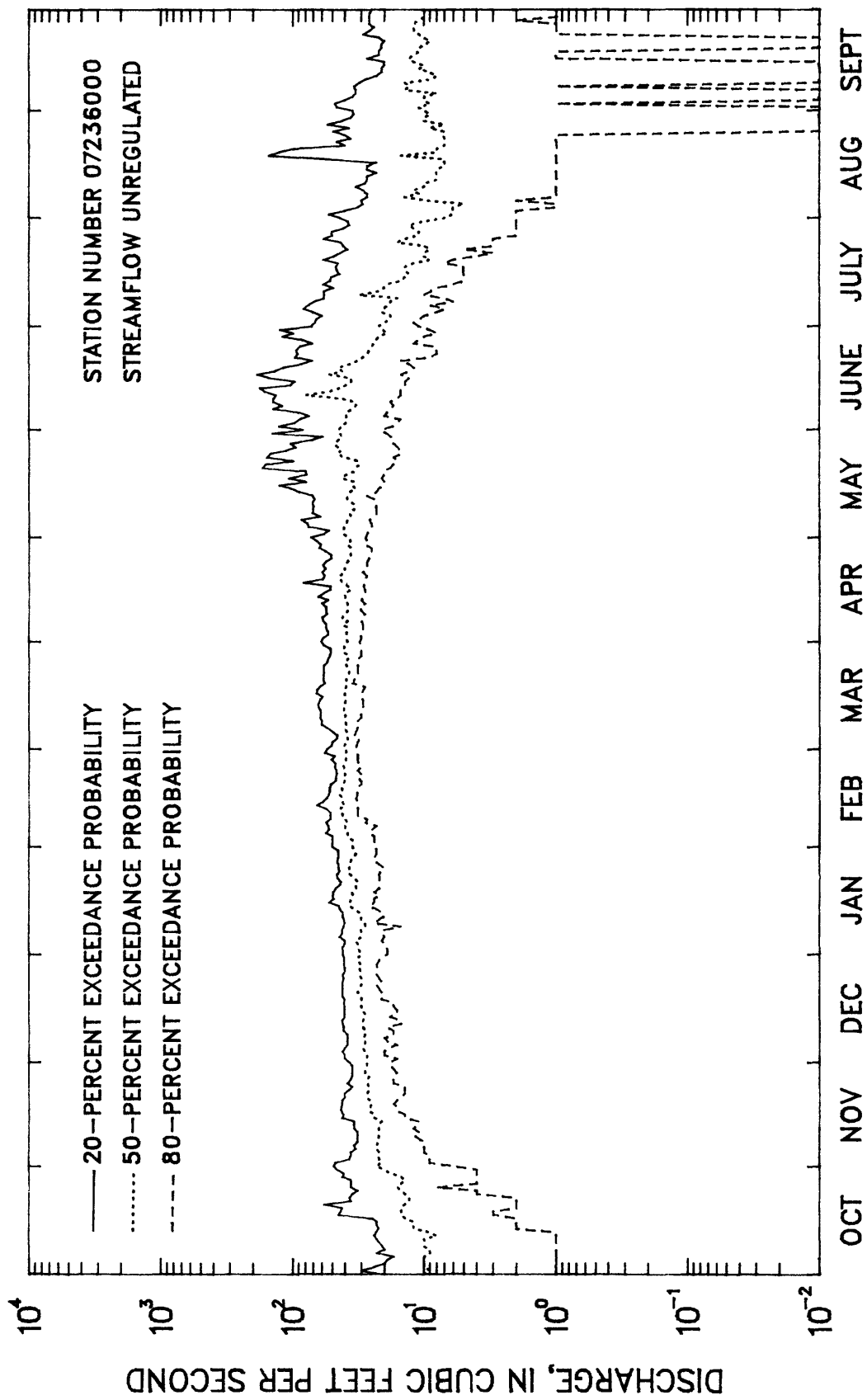


Figure 89.--Duration hydrographs of daily discharge values for Wolf Creek near Fargo, Oklahoma, water years 1948-1976 (streamflow unregulated).

ARKANSAS RIVER BASIN

07237000 WOLF CREEK NEAR FORT SUPPLY, OK

LOCATION.--Lat 36°34'00", long 99°33'05", SE 1/4 SE 1/4 sec.9, T.24 N., R.22 W., Woodward County, Hydrologic Unit 11100203, near left bank on downstream side of pier of bridge on U.S. Highway 270, 1.0 mi southeast of Fort Supply, 1.6 mi downstream from Fort Supply Dam, and at mile 3.9.

DRAINAGE AREA.--1,739 mi², of which 241 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1937 to current year. Prior to October 1, 1941, published as "Near Supply".

REMARKS.--Flow completely regulated since May 1942 by Fort Supply Lake.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1943-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	272	0.00	35	67	1.9	5.3
NOVEMBER	160	0.07	20	30	1.5	3.0
DECEMBER	80	0.35	25	23	0.92	3.7
JANUARY	97	0.20	31	23	0.75	4.6
FEBRUARY	152	0.10	41	31	0.75	6.2
MARCH	103	0.00	40	28	0.71	6.0
APRIL	251	0.50	56	60	1.1	8.5
MAY	993	2.0	134	224	1.7	20.3
JUNE	1020	0.50	133	250	1.9	20.1
JULY	1020	0.39	77	194	2.5	11.7
AUGUST	718	0.00	35	113	3.3	5.2
SEPTEMBER	1060	0.00	35	162	4.7	5.2
ANNUAL	288	3.6	55	61	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1944-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.29	0.00	0.00	0.00
3	0.36	0.00	0.00	0.00
7	0.44	0.00	0.00	0.00
14	0.50	0.13	0.00	0.00
30	0.60	0.33	0.14	0.00
60	1.2	0.39	0.22	0.14
90	2.3	0.67	0.36	0.22
120	3.4	0.91	0.46	0.27
183	6.3	1.5	0.72	0.37

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1943-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 42 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
720	1820	2810	4340	5650	7070

STATION SKEW = -0.427

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	672	1740	2700	4160	5390	6710
3	571	1460	2290	3580	4710	5970
7	389	988	1590	2620	3590	4760
15	247	633	1050	1810	2590	3590
30	160	402	681	1240	1870	2730
60	110	271	458	837	1260	1860
90	87	209	348	623	928	1350

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1943-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
1070	206	98	62	50	31	17	4.1	2.1	1.4	0.99	0.60	0.34	0.03	0.01	0.01	0.01	0.00

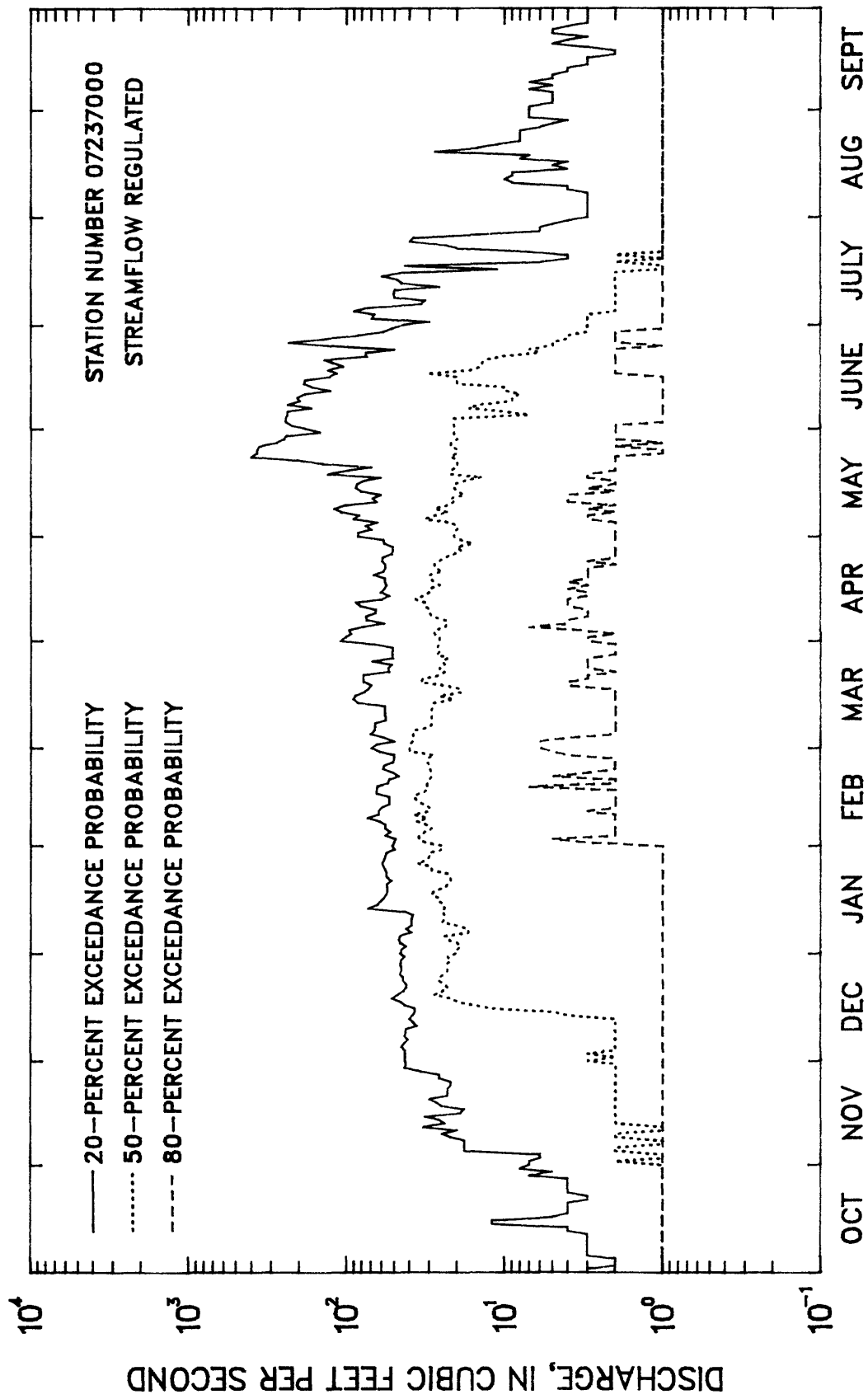


Figure 90.--Duration hydrographs of daily discharge values for Wolf Creek near Fort Supply, Oklahoma, water years 1946-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07237500 NORTH CANADIAN RIVER AT WOODWARD, OK

LOCATION.--Lat 36°26'18", long 99°16'40", SE 1/4 SE 1/4 sec.25, T.23 N., R.20 W., Woodward County, Hydrologic Unit 11100301, near right 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, 6.0 mi east of Woodward, 7.2 mi upstream from Indian Creek, 27.5 mi downstream from Wolf Creek, and at mile 460.2.

DRAINAGE AREA.--11,589 mi², of which 4,812 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1903 to September 1905 (gage heights only), October 1905 to June 1906, October 1938 to current year. 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 National Weather Service.

REMARKS.--Some regulation since May 1942 by Fort Supply Lake, and since 1978 by Optima Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-77

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2720	0.00	209	555	2.7	8.9
NOVEMBER	656	0.00	72	146	2.1	3.0
DECEMBER	277	0.00	56	67	1.2	2.4
JANUARY	200	0.00	66	56	0.85	2.8
FEBRUARY	366	0.00	89	74	0.83	3.8
MARCH	576	1.1	115	114	0.99	4.9
APRIL	1030	1.4	186	256	1.4	7.9
MAY	3910	4.5	455	798	1.8	19.3
JUNE	2350	6.3	517	661	1.3	22.0
JULY	3290	0.16	307	587	1.9	13.0
AUGUST	2650	0.00	162	428	2.6	6.9
SEPTEMBER	2240	0.00	122	363	3.0	5.2
ANNUAL	790	20	197	199	1.0	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1906, 1940-77

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.01	0.00	0.00	0.00
30	0.60	0.00	0.00	0.00
60	3.8	0.09	0.00	0.00
90	9.8	0.67	0.00	0.00
120	15	1.5	0.00	0.00
183	31	3.3	0.63	0.09

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1939-77

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 40 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4460	11000	17600	29200	40400	54200

WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.009

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2960	7890	13300	23600	34400	48300
3	2120	5480	9190	16200	23700	33500
7	1350	3400	5700	10200	15100	21700
15	861	2180	3690	6680	9980	14500
30	577	1450	2440	4380	6500	9370
60	381	972	1670	3080	4690	6940
90	301	756	1280	2330	3510	5130

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-77

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3290	788	341	219	158	100	65	40	19	7.6	1.9	0.01	0.00	0.00	0.00	0.00	0.00

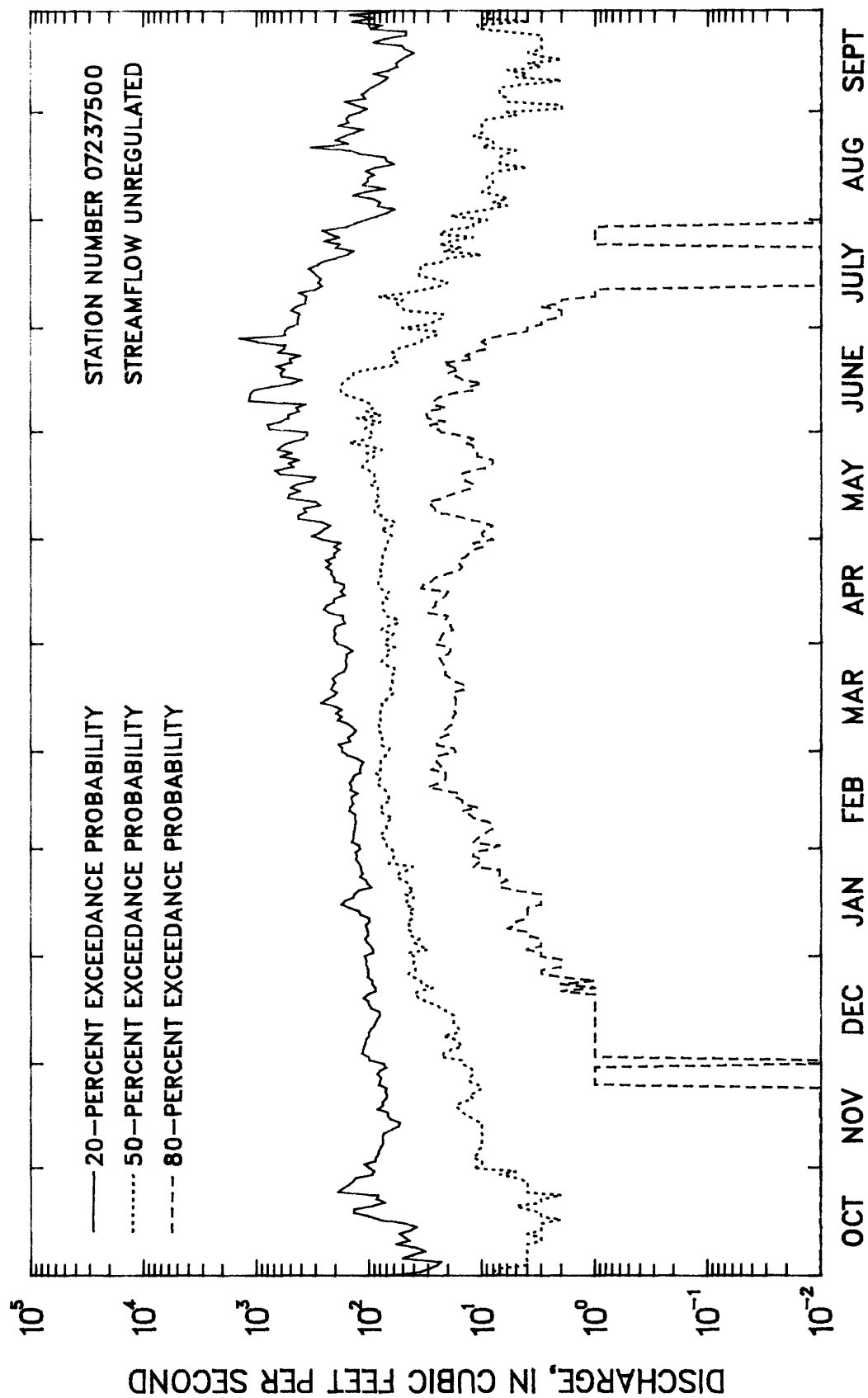


Figure 91.--Duration hydrographs of daily discharge values for North Canadian River at Woodward, Oklahoma, water years 1939-1977 (streamflow unregulated).

ARKANSAS RIVER BASIN

07238000 NORTH CANADIAN RIVER NEAR SELLING, OK

LOCATION.--Lat 36°11'06", long 98°55'15", in NW 1/4 sec.28, T.20 N., R.16 W., Major County, Hydrologic Unit 11100301, near center of span on downstream side of pier of bridge on U.S. Highway 60, 2.0 mi upstream from Selling Creek, 2.2 mi north of Selling, 2.8 mi downstream from Deep Creek, and at mile 422.6.

DRAINAGE AREA.--12,261 mi², of which 4,847 mi² is probably noncontributing.

PERIOD OF RECORD.--July 1946 to current year.

REMARKS.--Some regulation since 1942 by Fort Supply Lake; flow regulated since 1978 by Optima Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1947-77

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2120	0.00	143	395	2.8	5.5
NOVEMBER	569	0.00	80	140	1.7	3.1
DECEMBER	245	0.00	64	64	1.0	2.5
JANUARY	238	0.00	77	62	0.81	2.9
FEBRUARY	455	0.00	118	103	0.87	4.5
MARCH	718	0.00	153	150	0.98	5.9
APRIL	1170	0.00	190	232	1.2	7.3
MAY	3720	14	552	868	1.6	21.2
JUNE	2570	1.8	548	730	1.3	21.1
JULY	3050	0.00	341	630	1.8	13.1
AUGUST	2650	0.00	195	486	2.5	7.5
SEPTEMBER	2310	0.00	142	410	2.9	5.5
ANNUAL	801	14	218	216	0.99	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1948-77

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.49	0.00	0.00	0.00
60	4.6	0.00	0.00	0.00
90	9.3	0.00	0.00	0.00
120	17	0.12	0.00	0.00
183	33	4.0	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1947-77

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 31 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4520	9310	13900	21700	29300	38500

WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.290

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2810	6360	10300	18100	26700	38500
3	1970	4610	7660	13800	20800	30700
7	1310	3080	5120	9230	13900	20400
15	889	2130	3540	6350	9470	13800
30	611	1470	2420	4240	6180	8780
60	428	1080	1800	3210	4740	6790
90	337	836	1390	2470	3630	5180

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1947-77

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
3250	946	405	260	190	122	88	55	32	16	2.0	0.01	0.00	0.00	0.00	0.00	0.00	0.00

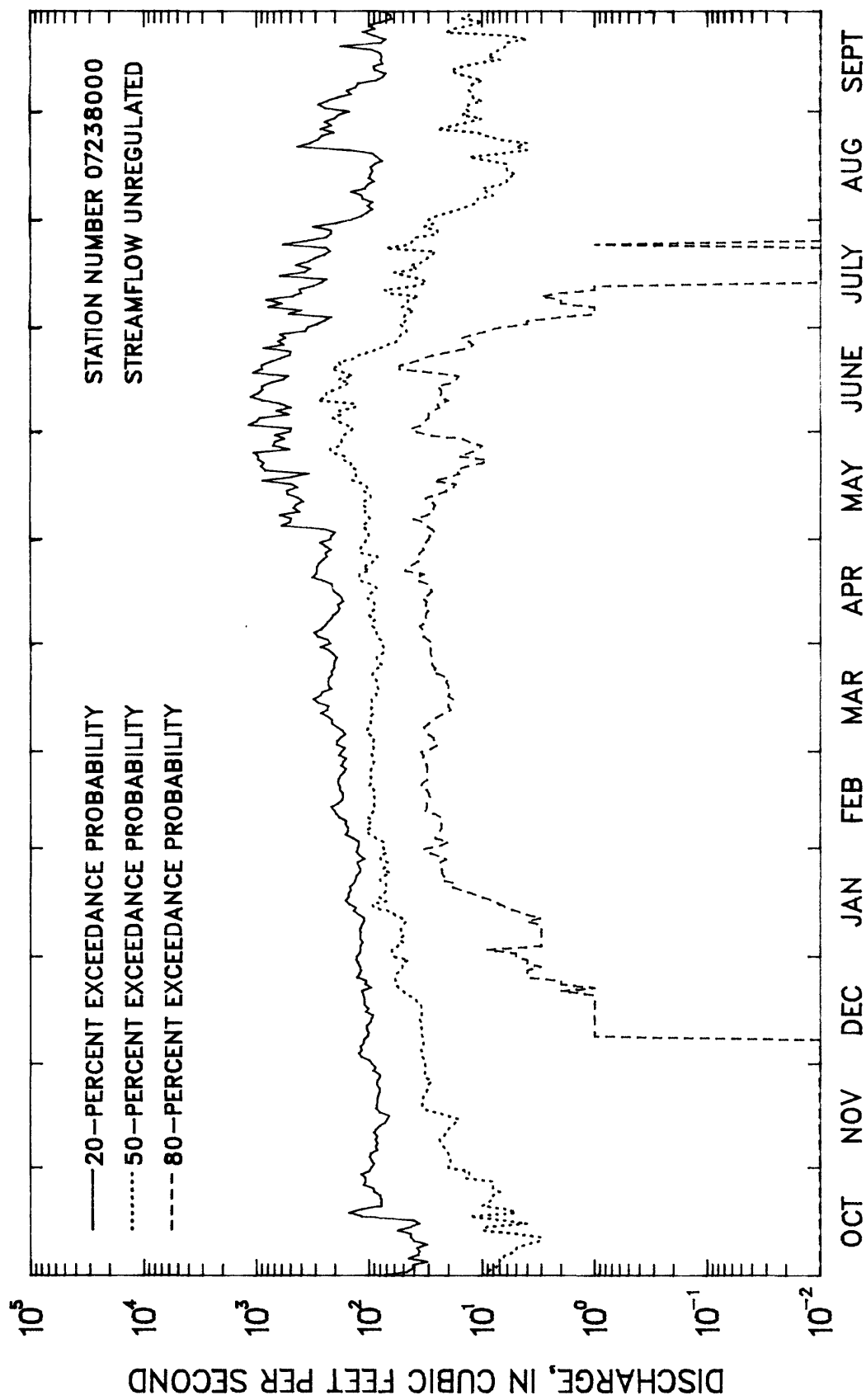


Figure 92.—Duration hydrographs of daily discharge values for North Canadian River near Seiling, Oklahoma, water years 1949-1977 (streamflow unregulated).

ARKANSAS RIVER BASIN

07239000 NORTH CANADIAN RIVER AT CANTON, OK

LOCATION.--Lat 36°04'45", long 98°35'25", in NE 1/4 SW 1/4 sec.33, T.19 N., R.13 W., Blaine County, Hydrologic Unit 11100301, on right bank 2,700 ft downstream from Canton Dam, 1.5 mi northwest of Canton, 4.8 mi upstream from Minnehaha Creek, and at mile 393.8.

DRAINAGE AREA.--12,484 mi², of which 4,883 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected in this vicinity since 1914 are contained in reports of National Weather Service.

REMARKS.--Flow partly regulated by Fort Supply Lake for period May 1942 to April 1948 and completely regulated thereafter by Canton Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-47

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2740	0.00	597	979	1.6	18.3
NOVEMBER	658	0.00	152	248	1.6	4.7
DECEMBER	394	0.00	96	135	1.4	3.0
JANUARY	270	0.00	95	96	1.0	2.9
FEBRUARY	232	0.00	92	66	0.71	2.8
MARCH	428	0.00	133	120	0.90	4.1
APRIL	1050	0.00	430	372	0.86	13.2
MAY	1820	17	626	709	1.1	19.2
JUNE	1660	37	590	495	0.84	18.1
JULY	743	6.4	231	265	1.2	7.1
AUGUST	315	0.00	80	116	1.5	2.4
SEPTEMBER	561	0.00	142	209	1.5	4.3
ANNUAL	595	53	273	199	0.73	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-47

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	2.8	0.20	0.00	0.00
90	11	0.41	0.00	0.00
120	19	1.8	0.00	0.00
183	36	6.3	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1938-47

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 10 YEARS OF RECORD*

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7990	13800	18700	25900	32100	39100

WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.182

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	5550	12500	18400	26900	33800	41100
3	3610	7850	11600	17500	22700	28500
7	2410	5080	7480	11300	14700	18700
15	1590	3220	4560	6480	8060	9740
30	1090	2160	2950	3970	4740	5490
60	692	1370	1870	2510	2970	3420
90	581	1100	1450	1850	2110	2350

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-47

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4040	1090	609	376	274	173	103	61	33	9.9	0.18	0.09	0.05	0.02	0.01	0.00	0.00

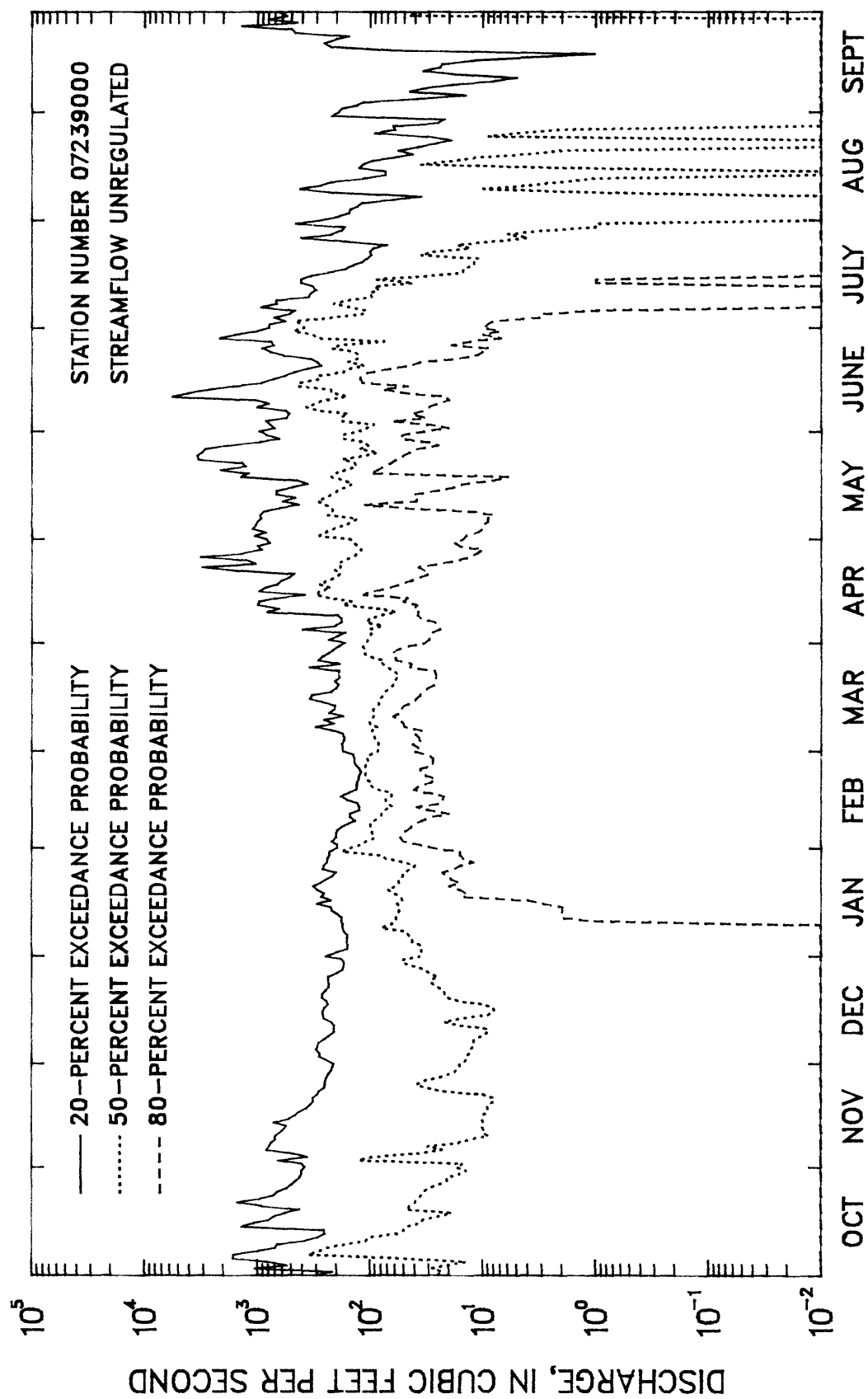


Figure 93.--Duration hydrographs of daily discharge values for North Canadian River at Canton, Oklahoma, water years 1939-1947 (streamflow unregulated).

ARKANSAS RIVER BASIN

07239000 NORTH CANADIAN RIVER AT CANTON, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1948-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVIA- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1160	0.00	100	217	2.2	5.4
NOVEMBER	558	0.00	70	148	2.1	3.7
DECEMBER	566	0.00	57	111	1.9	3.1
JANUARY	284	0.00	48	69	1.4	2.6
FEBRUARY	406	0.72	73	92	1.2	3.9
MARCH	442	0.35	114	126	1.1	6.1
APRIL	683	0.59	151	173	1.1	8.1
MAY	1190	2.5	198	276	1.4	10.6
JUNE	3260	5.3	406	742	1.8	21.7
JULY	2780	2.1	275	547	2.0	14.7
AUGUST	2710	0.34	188	483	2.6	10.1
SEPTEMBER	2880	0.34	187	488	2.6	10.0
ANNUAL	782	40	156	168	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1949-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2.4	0.97	0.48	0.00
3	2.7	1.2	0.52	0.00
7	2.9	1.3	0.56	0.00
14	3.6	1.3	0.64	0.19
30	3.9	1.5	0.72	0.32
60	5.0	1.9	1.2	0.86
90	7.2	2.4	1.4	0.90
120	11	3.2	1.7	0.99
183	23	5.7	2.5	1.3

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 32 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1280	1870	2410	3310	4170	5240

STATION SKEW = 1.375

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1948-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1150	1670	2150	2970	3750	4720
3	1110	1630	2110	2930	3730	4700
7	1020	1500	1980	2830	3690	4600
15	800	1280	1770	2670	3600	4400
30	511	928	1400	2380	3510	4200
60	326	659	1070	1990	3130	4000
90	256	520	848	1580	2490	3890

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1948-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
2630	916	458	209	131	44	18	9.0	6.1	4.7	3.3	2.5	1.4	0.24	0.07	0.03	0.01	0.01

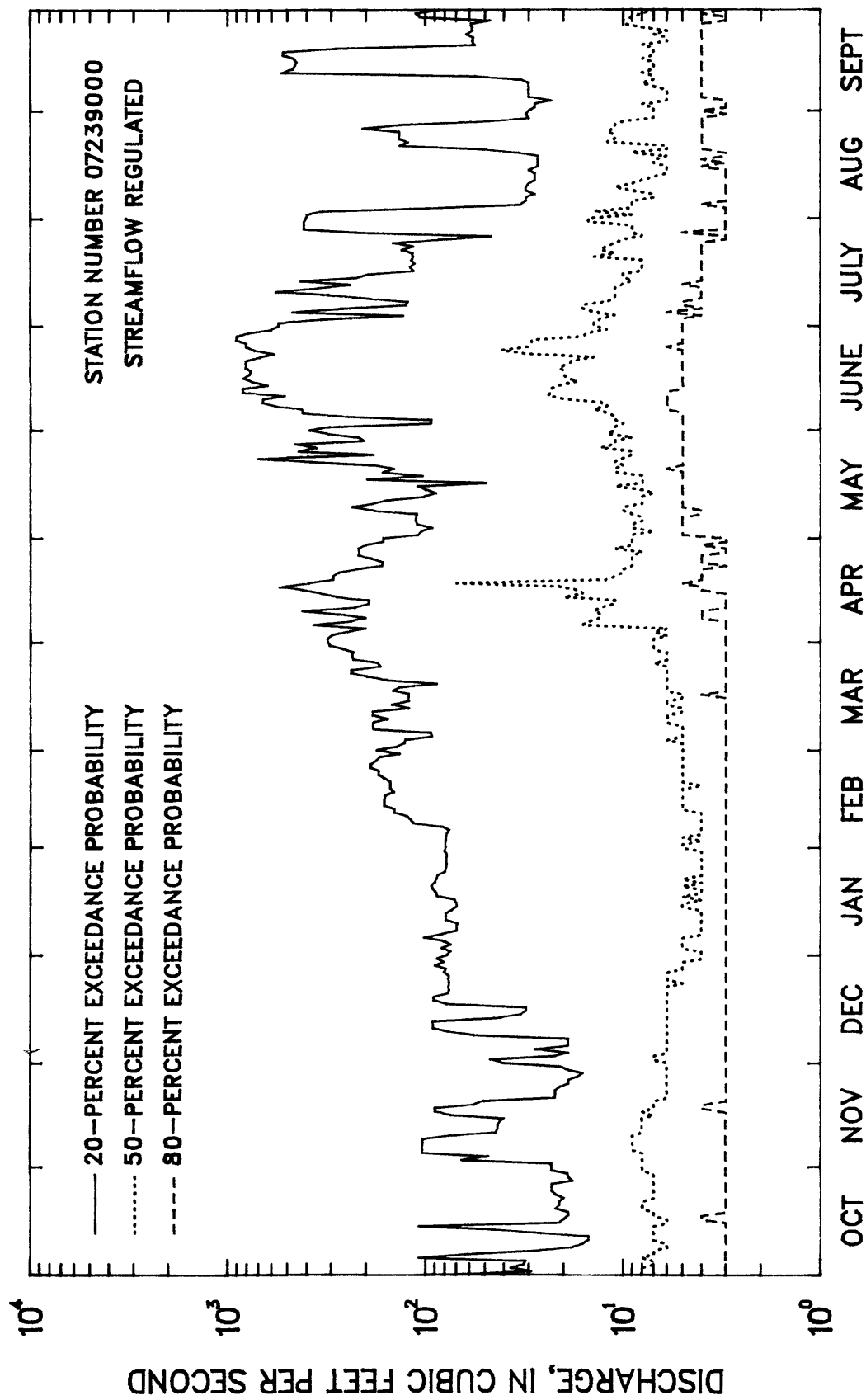


Figure 94.--Duration hydrographs of daily discharge values for North Canadian River at Canton, Oklahoma, water years 1956-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07239500 NORTH CANADIAN RIVER NEAR EL RENO, OK

LOCATION.--Lat 35°33'44", long 97°57'32", on east line of sec.32, T.13 N., R.7 W., Canadian County, Hydrologic Unit 11100301, near left bank on downstream side of pier of bridge on old U.S. Highway 81, 2.0 mi north of courthouse in El Reno, 2.2 mi downstream from Target Creek, and at mile 307.4.

DRAINAGE AREA.--13,042 mi² of which 4,899 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1902 to April 1908, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at site 1.0 mi upstream March 1914 to March 1934 and at present site thereafter are contained in reports of National Weather Service. Published as Canadian River (North Fork) near El Reno 1902-4.

REMARKS.--Some regulation by Fort Supply Lake for period May 1942 to April 1948 and regulated by Canton Lake thereafter.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1903-07, 1938-47

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1904-07, 1939-47

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	2460	0.00	357	666	1.9	10.9					
NOVEMBER	815	0.00	155	248	1.6	4.8					
DECEMBER	642	0.00	130	181	1.4	4.0	1	0.00	0.00	0.00	0.00
JANUARY	541	0.00	121	142	1.2	3.7	3	0.00	0.00	0.00	0.00
FEBRUARY	484	0.00	131	122	0.93	4.0	7	0.00	0.00	0.00	0.00
MARCH	480	0.00	184	157	0.85	5.6	14	0.32	0.00	0.00	0.00
APRIL	1450	24	417	392	0.94	12.7	30	2.6	0.00	0.00	0.00
MAY	1970	21	650	631	0.97	19.9	60	11	0.00	0.00	0.00
JUNE	1650	80	524	394	0.75	16.0	90	19	1.3	0.10	0.00
JULY	1420	18	332	376	1.1	10.2	120	35	2.8	0.19	0.00
AUGUST	599	0.14	144	178	1.2	4.4	183	49	8.5	1.9	0.00
SEPTEMBER	420	0.00	125	158	1.3	3.8					
ANNUAL	631	62	273	163	0.59	100					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1903-07, 1938-47

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4770	7200	9050	11700	13800	16200

WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.299

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3670	6230	8290	11300	13900	16800
3	2560	4710	6460	9010	11200	13800
7	1880	3550	4960	7120	9000	11100
15	1330	2450	3380	4770	5965	7300
30	1020	1770	2330	3060	3630	4210
60	715	1220	1560	1960	2240	2510
90	620	1000	1210	1420	1550	1650

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1903-07, 1938-47

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3220	1050	625	465	359	234	149	104	61	32	9.8	0.08	0.04	0.02	0.01	0.00	0.00

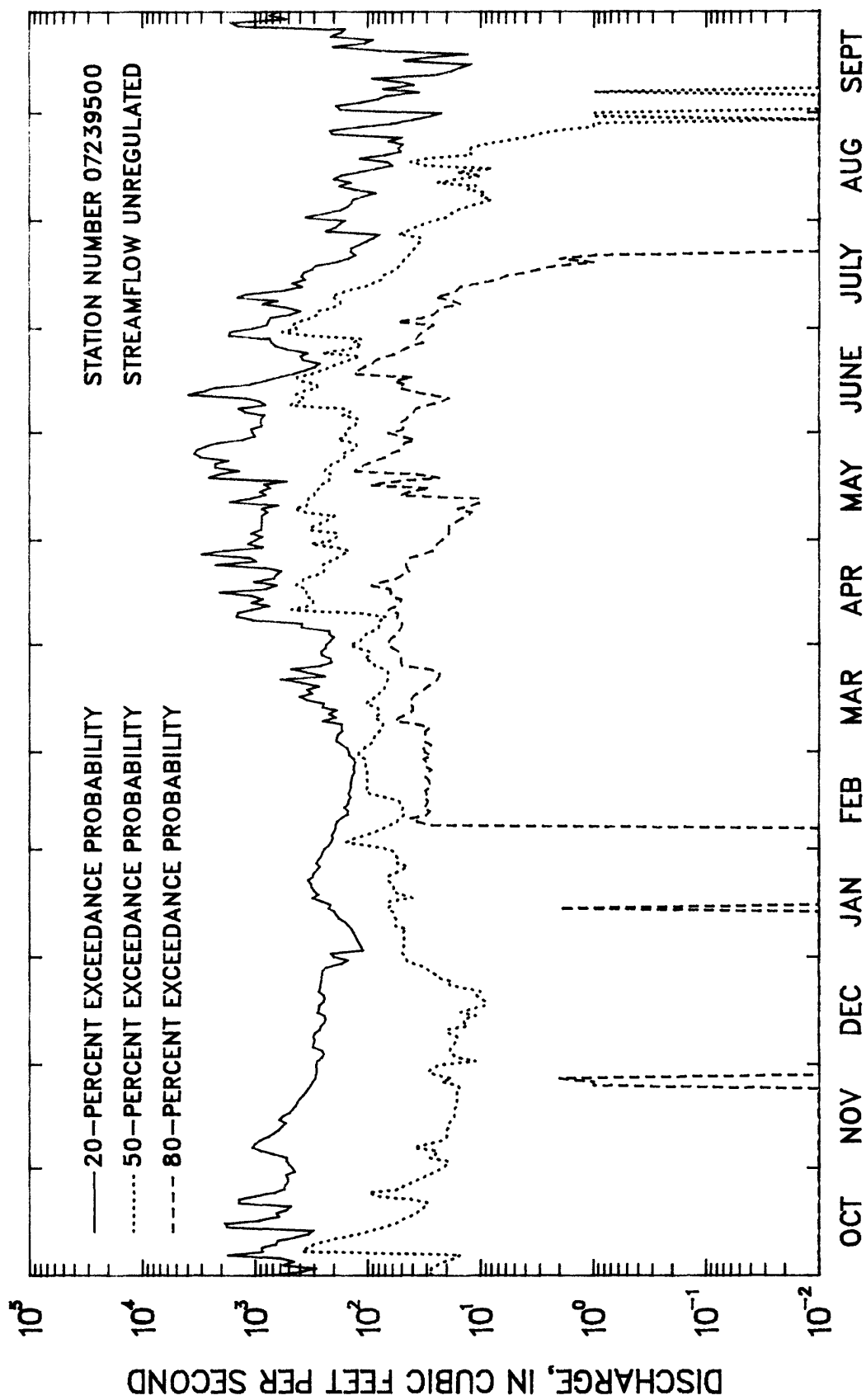


Figure 95.--Duration hydrographs of daily discharge values for North Canadian River near El Reno, Oklahoma, water years 1939-1947 (streamflow unregulated).

ARKANSAS RIVER BASIN

07239500 NORTH CANADIAN RIVER NEAR EL RENO, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1948-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1250	0.00	149	265	1.8	6.5
NOVEMBER	884	0.00	98	180	1.8	4.3
DECEMBER	489	0.00	66	95	1.4	2.9
JANUARY	336	0.00	62	77	1.2	2.7
FEBRUARY	551	0.00	88	109	1.2	3.9
MARCH	420	0.00	142	131	0.92	6.2
APRIL	756	0.00	184	178	0.97	8.1
MAY	1620	7.8	349	374	1.1	15.3
JUNE	3120	0.17	482	706	1.5	21.2
JULY	2600	0.73	283	503	1.8	12.4
AUGUST	2460	0.00	182	440	2.4	8.0
SEPTEMBER	2790	0.00	193	470	2.4	8.5
ANNUAL	807	32	190	169	0.89	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1949-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.42	0.00	0.00	0.00
14	0.88	0.00	0.00	0.00
30	3.3	0.00	0.00	0.00
60	11	1.6	0.19	0.00
90	19	2.5	0.40	0.00
120	27	4.7	1.2	0.21
183	54	15	5.9	2.1

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1948-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 37 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2930	5180	7040	9820	12200	14900

STATION SKEW = 0.121

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2290	4000	5370	7380	9060	10900
3	1690	2820	3720	5040	6160	7400
7	1200	1860	2420	3270	4030	4900
15	873	1440	1940	2760	3520	4440
30	576	1080	1580	2460	3350	4150
60	376	797	1260	2160	3160	3800
90	302	643	1020	1760	2580	3710

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1948-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
2690	956	526	305	193	105	61	35	22	13	6.2	0.29	0.01	0.00	0.00	0.00	0.00	

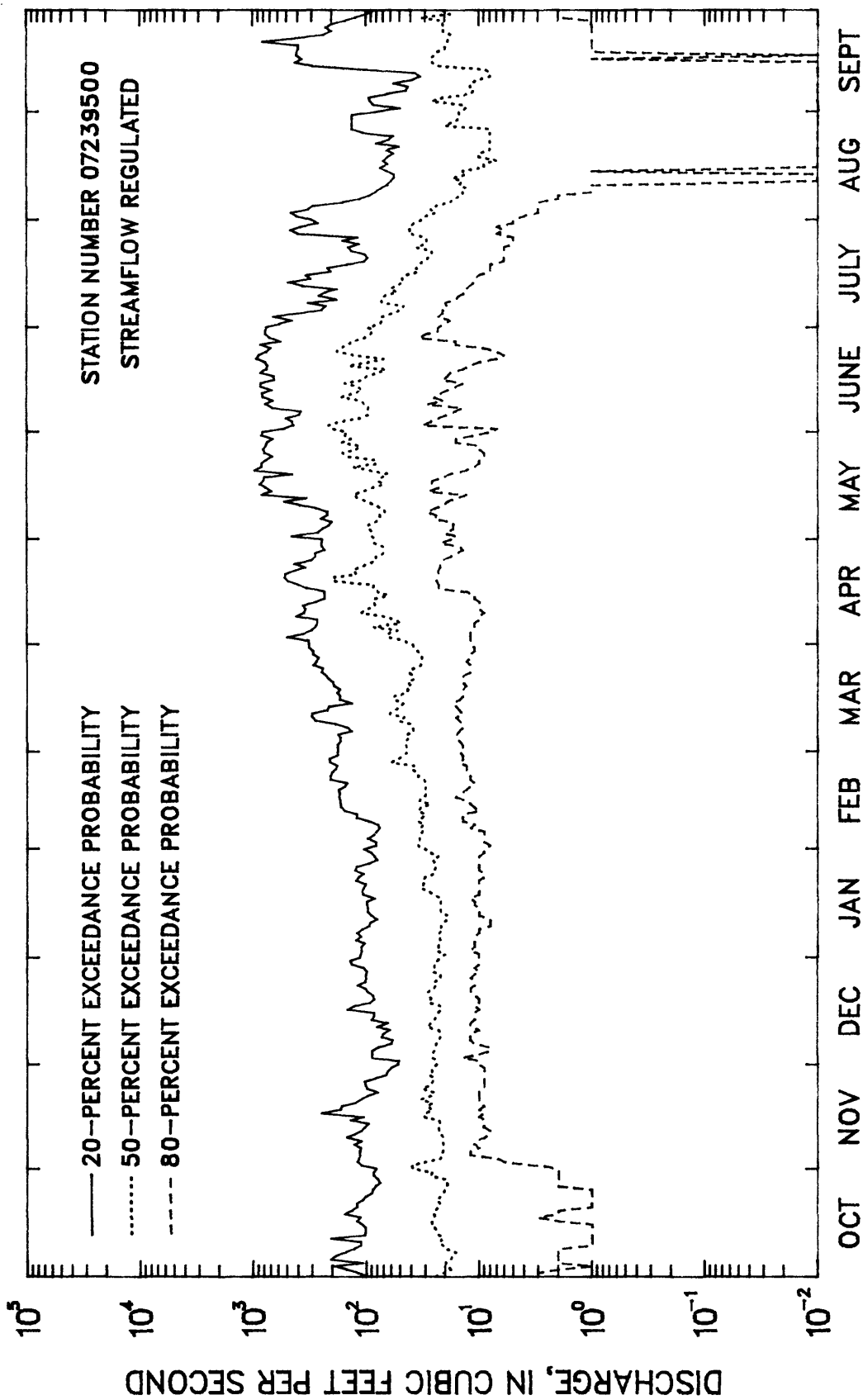


Figure 96.—Duration hydrographs of daily discharge values for North Canadian River near El Reno, Oklahoma, water years 1956-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07241000 NORTH CANADIAN RIVER BELOW LAKE OVERHOLSER NEAR OKLAHOMA CITY, OK

LOCATION.--Lat 35°28'46", long 97°39'47", in southeast corner of SW 1/4 sec.30, T.12 N., R.4 W., Oklahoma County, Hydrologic Unit 11100301, on left bank 200 ft upstream from bridge on State Highway 4, 0.5 mi downstream from Lake Overholser, 2.4 mi upstream from Mustang Creek, 9.1 mi southwest of State Capitol in Oklahoma City, and at mile 281.0.

DRAINAGE AREA.--13,222 mi² of which 4,899 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1952 to September 1968, October 1969 to September 1972, October 1973 to current year.

REMARKS.--Flow regulated since 1919 by Lake Overholser. Diversions above station into Lake Overholser and Lake Hefner Canal.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1953-68, 1970-72, 1974-84

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1954-68, 1971-72, 1975-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	1430	0.00	125	285	2.3	10.2					
NOVEMBER	1490	0.00	87	275	3.2	7.1					
DECEMBER	148	0.02	29	45	1.6	2.3	1	0.59	0.07	0.00	0.00
JANUARY	259	0.05	31	55	1.8	2.5	3	0.71	0.14	0.00	0.00
FEBRUARY	489	0.06	56	114	2.0	4.6	7	0.91	0.20	0.00	0.00
MARCH	341	0.00	64	99	1.5	5.2	14	1.2	0.25	0.00	0.00
APRIL	278	0.03	67	94	1.4	5.5	30	1.5	0.54	0.00	0.00
MAY	1150	0.45	194	301	1.5	15.8	60	2.6	0.87	0.00	0.00
JUNE	2180	0.01	296	442	1.5	24.1	90	4.6	0.96	0.10	0.01
JULY	1750	0.04	138	338	2.4	11.2	120	5.4	1.2	0.22	0.04
AUGUST	884	0.00	68	185	2.7	5.5	183	12	2.0	0.61	0.12
SEPTEMBER	568	0.00	73	135	1.8	5.9					
ANNUAL	488	0.42	102	122	1.2	100					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1953-68, 1970-72, 1974-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 32 YEARS OF RECORD						DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						
DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						PERIOD (CON- SEC- TIVE DAYS)						
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%		2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2280	6470	11100	19800	28800	40200	1	1290	4090	6730	10600	13800	16900
						3	917	3300	5680	9290	12200	15200
						7	598	2220	3810	6140	7960	9750
						15	384	1480	2590	4260	5600	6950
						30	254	1010	1780	2960	3900	4840
						60	163	644	1150	1940	2580	3250
						90	123	485	865	1450	1940	2440
STATION SKEW = -0.926												

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1953-68, 1970-72, 1974-84

DISCHARGE, IN CFS, WHICH WAS EQUALLED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1700	537	247	139	80	23	7.9	4.6	3.1	2.1	1.3	0.12	0.03	0.01	0.01	0.00	0.00

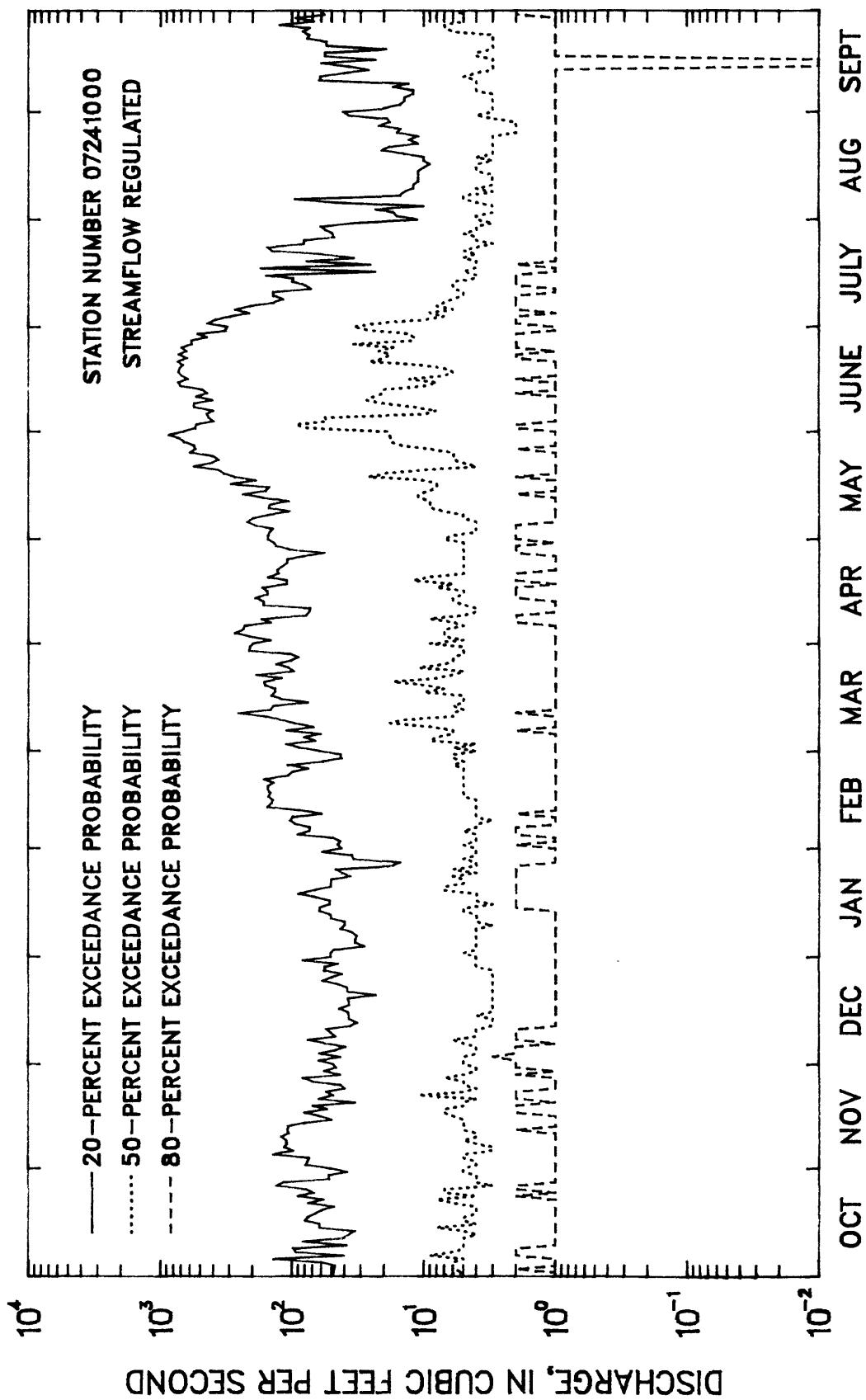


Figure 97.--Duration hydrographs of daily discharge values for North Canadian River below Lake Overholser near Oklahoma City, Oklahoma, water years 1954-1968, 1970-1972, 1974-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07241500 NORTH CANADIAN RIVER NEAR OKLAHOMA CITY, OK

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, 4.5 mi east of State Capitol in Oklahoma City, 5.0 mi upstream from Crutcho Creek, and at mile 261.2.

DRAINAGE AREA.--13,354 mi².

PERIOD OF RECORD.--October 1938 to September 1953, October 1959 to June 1961.

REMARKS.--Flow regulated since 1919 by Lake Overholser.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-53, 1960

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2660	24	554	825	1.5	11.8
NOVEMBER	1110	23	191	310	1.6	4.1
DECEMBER	454	21	141	137	0.97	3.0
JANUARY	305	21	126	105	0.83	2.7
FEBRUARY	695	30	155	171	1.1	3.3
MARCH	480	19	214	150	0.70	4.6
APRIL	1840	44	494	558	1.1	10.5
MAY	2470	37	824	796	0.97	17.5
JUNE	3690	37	943	1180	1.2	20.1
JULY	2740	49	480	682	1.4	10.2
AUGUST	2530	35	280	634	2.3	6.0
SEPTEMBER	2880	30	297	724	2.4	6.3
ANNUAL	953	56	392	285	0.73	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1940-53, 1961

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	27	20	16	14
3	28	22	19	17
7	30	23	20	18
14	33	25	22	19
30	37	26	23	20
60	45	29	24	21
90	53	30	24	21
120	60	33	25	22
183	80	37	23	23

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5990	10000	15800	30100	49800	83400

STATION SKEW = 0.151

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1940-53, 1960

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4920	7670	9750	12700	15000	17600
3	3800	6680	8760	11500	13600	15700
7	2720	5190	6950	9180	10800	12300
15	1910	3790	5140	6880	8140	9360
30	1360	2840	4000	5570	6780	8020
60	915	2110	3150	4740	6080	7550
90	744	1670	2450	3580	4510	5490

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-53, 1960

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4280	2310	951	572	411	230	131	73	54	43	36	28	24	21	19	18	16

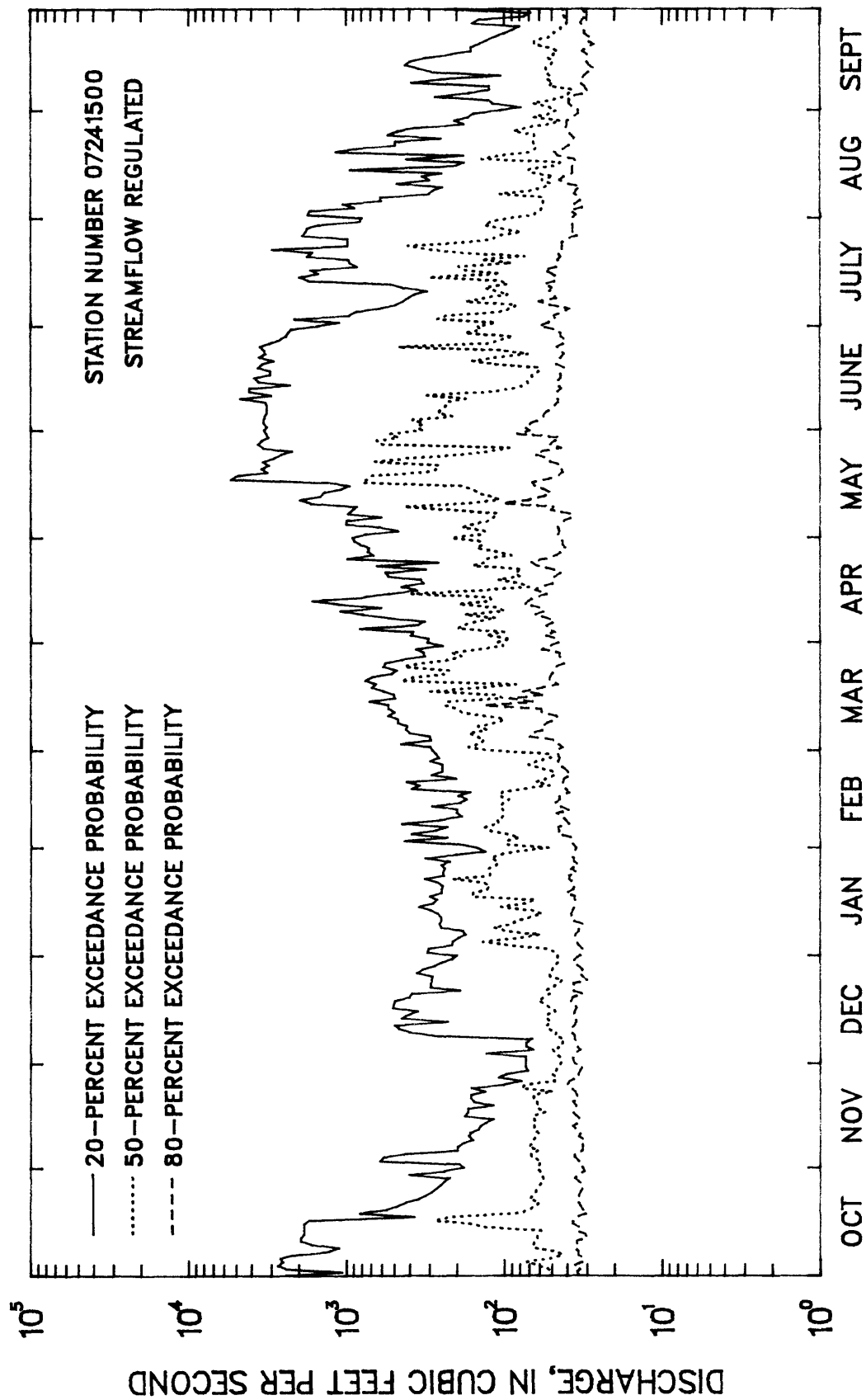


Figure 98.--Duration hydrographs of daily discharge values for North Canadian River near Oklahoma City, Oklahoma, water years 1946-1953,1960 (streamflow regulated).

ARKANSAS RIVER BASIN

07241550 NORTH CANADIAN RIVER NEAR HARRAH, OK

LOCATION.--Lat 35°30'08", long 97°10'52", in SW 1/4 NE 1/4 sec.22, T.12 N., R.1 E., Oklahoma County, Hydrologic Unit 11100302, on upstream left end of bridge on access road to O.G.& E. power plant, 1.8 mi northwest of Harrah, 4.6 mi downstream from Choctaw Creek, and at mile 229.2.

DRAINAGE AREA.--13,501 mi², of which 4,899 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Flow regulated since 1919 by Lake Overholser. Low flow sustained in part by sewage effluent from Oklahoma City.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1969-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1750	71	287	416	1.5	8.0
NOVEMBER	1630	57	288	388	1.3	8.0
DECEMBER	323	68	147	75	0.51	4.1
JANUARY	433	58	155	98	0.63	4.3
FEBRUARY	580	61	188	129	0.68	5.2
MARCH	875	76	272	217	0.80	7.6
APRIL	1350	77	312	320	1.0	8.7
MAY	2310	80	740	609	0.82	20.6
JUNE	1280	76	630	432	0.68	17.5
JULY	835	88	265	220	0.83	7.4
AUGUST	497	55	143	115	0.80	4.0
SEPTEMBER	399	64	174	111	0.64	4.8
ANNUAL	644	93	300	168	0.56	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1970-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	45	36	32	30
3	48	38	34	31
7	52	42	38	36
14	59	47	42	38
30	68	55	50	47
60	84	66	59	53
90	100	72	61	53
120	110	79	67	59
183	124	83	71	64

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 16 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4200	7040	9550	13600	17300	21800

STATION SKEW = 0.077

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1969-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3800	6410	8210	10500	12200	13800
3	3030	5460	7090	9070	10500	11700
7	1950	3830	5240	7110	8520	9940
15	1320	2570	3490	4680	5570	6450
30	921	1770	2400	3220	3840	4450
60	679	1270	1690	2220	2620	3000
90	547	1010	1350	1800	2140	2480

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1969-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2950	1120	689	459	329	217	159	126	104	86	73	62	56	49	45	41	32

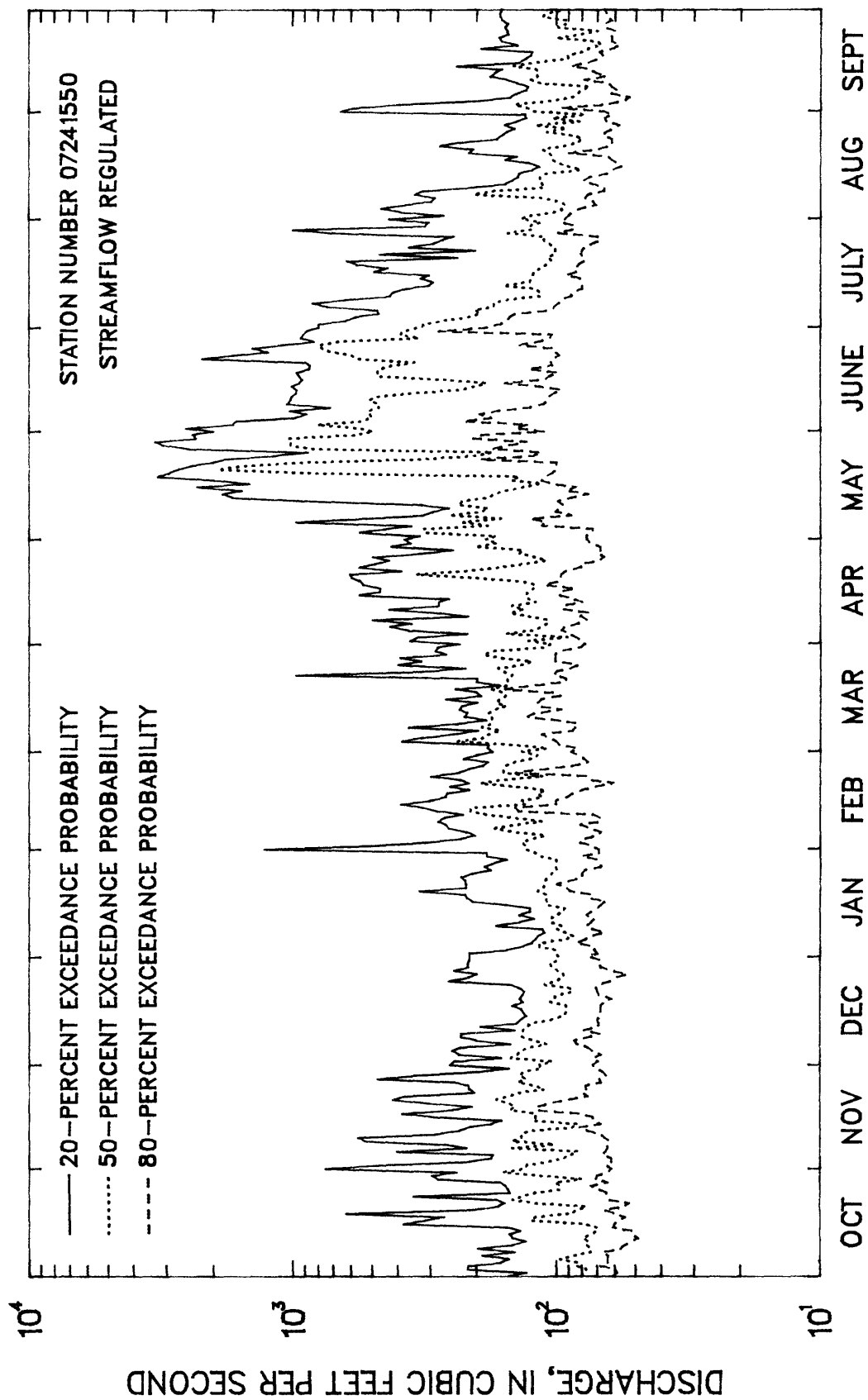


Figure 99.—Duration hydrographs of daily discharge values for North Canadian River near Harrah, Oklahoma, water years 1976–1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07242000 NORTH CANADIAN RIVER NEAR WETUMKA, OK

LOCATION.--Lat 35°15'47", Long 96°12'25", in center of SW 1/4 sec.12, T.9 N., R.10 E., Hughes County, Hydrologic Unit 11100302, on right downstream abutment of bridge on U.S. Highway 75, 2.3 mi upstream from Wewoka Creek, 2.5 mi northeast of Wetumka, and at mile 84.4.

DRAINAGE AREA.--14,290 mi² of which 4,899 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Flow regulated since 1919 by Lake Overholser.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4380	4.3	620	1020	1.7	7.9
NOVEMBER	4580	17	509	841	1.7	6.5
DECEMBER	1100	44	291	299	1.0	3.7
JANUARY	1120	44	270	245	0.91	3.4
FEBRUARY	1580	57	396	408	1.0	5.0
MARCH	3270	44	546	617	1.1	6.9
APRIL	6640	73	925	1160	1.2	11.7
MAY	6300	85	1560	1400	0.89	19.8
JUNE	6080	73	1420	1450	1.0	18.0
JULY	3230	43	642	621	0.97	8.1
AUGUST	2670	8.7	319	465	1.5	4.0
SEPTEMBER	3890	0.00	384	605	1.6	4.9
ANNUAL	1810	156	658	443	0.67	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	53	24	13	4.6
3	57	26	15	5.7
7	60	28	16	6.2
14	67	33	20	8.0
30	82	40	25	11
60	108	48	29	14
90	142	57	31	17
120	159	69	42	26
183	201	87	55	38

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1938-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 47 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
11000	19100	26300	37900	48500	61100

STATION SKEW = 0.471

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	9130	16400	22700	32800	41900	52500
3	6980	13100	18400	26800	34200	42800
7	4720	8980	12500	17800	22300	27300
15	3100	5830	8020	11200	13800	16700
30	2130	3970	5480	7700	9560	11600
60	1480	2770	3840	5410	6740	8210
90	1200	2220	3060	4280	5320	6450

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
7310	2820	1500	1010	726	461	307	217	160	117	88	60	42	23	14	0.08	0.02

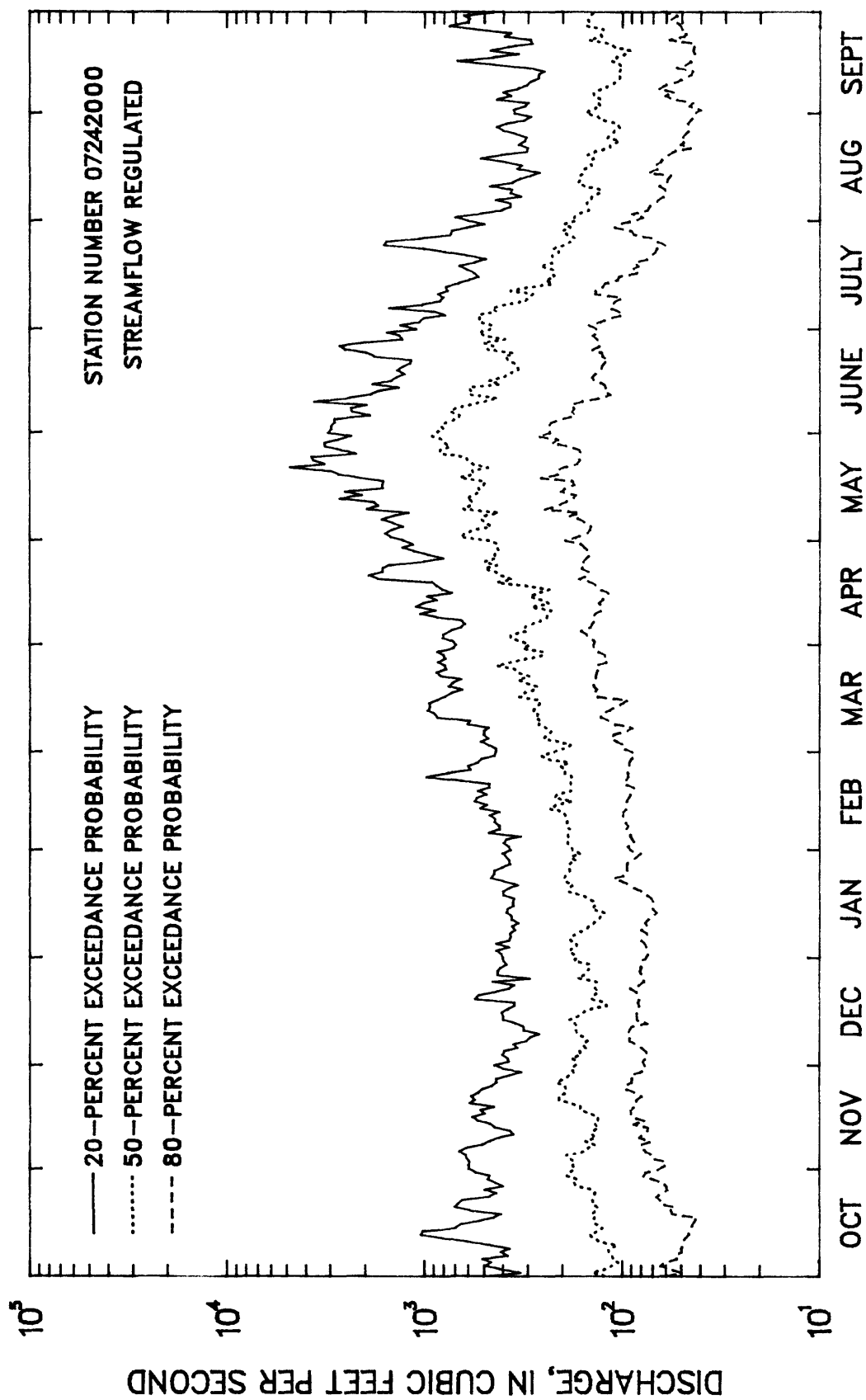


Figure 100.—Duration hydrographs of daily discharge values for North Canadian River near Wetumka, Oklahoma, water years 1946–1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07242350 DEEP FORK NEAR ARCADIA, OK

LOCATION.--Lat 35°38'58", long 97°21'12", on east line of NE 1/4 sec.36, T.14 N., R.2 W., Oklahoma County, Hydrologic Unit 11100303, on left bank at upstream side of county road bridge, 1.9 mi southwest of Arcadia, 2.0 mi upstream from Coffee Creek, and at mile 213.1.

DRAINAGE AREA.--105 mi².

PERIOD OF RECORD.--October 1969 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1970-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	399	12	70	97	1.4	8.8
NOVEMBER	299	19	56	71	1.3	7.1
DECEMBER	50	14	32	10	0.32	4.0
JANUARY	183	19	49	45	0.92	6.1
FEBRUARY	119	14	45	26	0.57	5.7
MARCH	205	26	58	46	0.80	7.3
APRIL	105	27	59	26	0.44	7.4
MAY	578	16	172	153	0.89	21.5
JUNE	237	28	112	70	0.63	14.1
JULY	124	9.5	53	33	0.63	6.7
AUGUST	83	11	39	21	0.53	4.9
SEPTEMBER	200	3.7	52	52	1.0	6.5
ANNUAL	126	36	67	27	0.41	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1971-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	16	5.7	1.7	0.00
3	17	7.0	2.5	0.79
7	18	8.9	4.6	2.2
14	20	12	9.0	6.6
30	22	16	12	9.6
60	25	19	16	13
90	27	21	18	16
120	30	22	19	17
183	37	27	24	21

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1970-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6330	10600	13900	18700	22600	26900
OKLAHOMA WEIGHTED SKEW = 0.077					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2650	5050	6620	8450	9670	10800
3	1220	2210	2850	3580	4080	4520
7	611	1080	1380	1740	2000	2220
15	360	620	793	1000	1150	1300
30	227	380	483	613	707	799
60	153	238	296	370	425	480
90	126	185	222	264	294	321

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1970-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
822	168	91	66	52	41	34	30	27	24	21	16	11	7.3	5.5	3.2	1.3

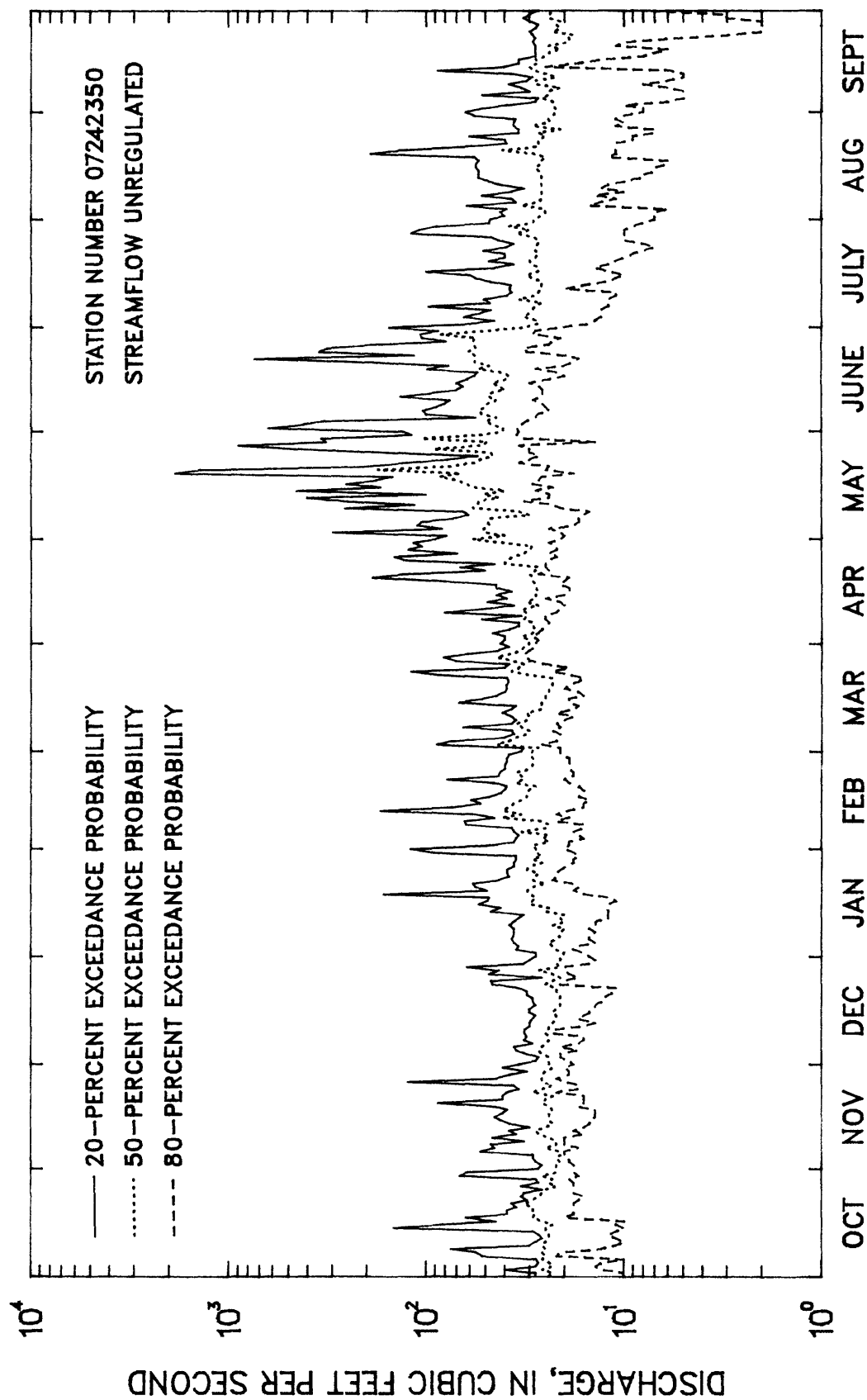


Figure 101.—Duration hydrographs of daily discharge values for Deep Fork near Arcadia, Oklahoma, water years 1976-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07243000 DRY CREEK NEAR KENDRICK, OK

LOCATION.--Lat 35°46'55", long 96°51'20", in NW 1/4 NW 1/4 sec.14, T.15 N., R.4 E., Lincoln County, Hydrologic Unit 11100303, near left bank on downstream side of county road bridge, 1.0 mi downstream from Beaver Creek and 4.5 mi west of Kendrick.

DRAINAGE AREA.--69.0 mi².

PERIOD OF RECORD.--October 1955 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1956-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	132	0.00	15	31	2.2	5.8
NOVEMBER	247	0.00	18	47	2.6	7.3
DECEMBER	35	0.00	7.3	11	1.5	2.9
JANUARY	46	0.00	8.9	13	1.5	3.5
FEBRUARY	44	0.00	10	13	1.3	4.1
MARCH	140	0.00	23	35	1.5	9.2
APRIL	90	0.83	26	26	1.0	10.3
MAY	301	0.57	60	76	1.3	23.9
JUNE	225	0.54	49	63	1.3	19.6
JULY	81	0.00	13	21	1.6	5.2
AUGUST	23	0.00	3.3	5.4	1.6	1.3
SEPTEMBER	104	0.00	18	27	1.5	7.0
ANNUAL	88	2.0	21	20	0.94	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1957-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.23	0.00	0.00	0.00
90	0.68	0.04	0.00	0.00
120	1.5	0.15	0.00	0.00
183	2.4	0.32	0.10	0.03

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1956-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 29 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3440	6370	9090	13600	17900	23100
OKLAHOMA WEIGHTED SKEW = 0.478					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1080	2050	2840	3990	4950	5990
3	471	893	1260	1820	2320	2880
7	234	459	661	983	1280	1620
15	126	254	368	551	717	912
30	82	161	230	335	428	534
60	50	101	147	217	279	349
90	39	79	112	163	208	258

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1956-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
420	55	22	14	9.3	5.0	2.9	1.7	0.85	0.33	0.01	0.00	0.00	0.00	0.00	0.00	0.00

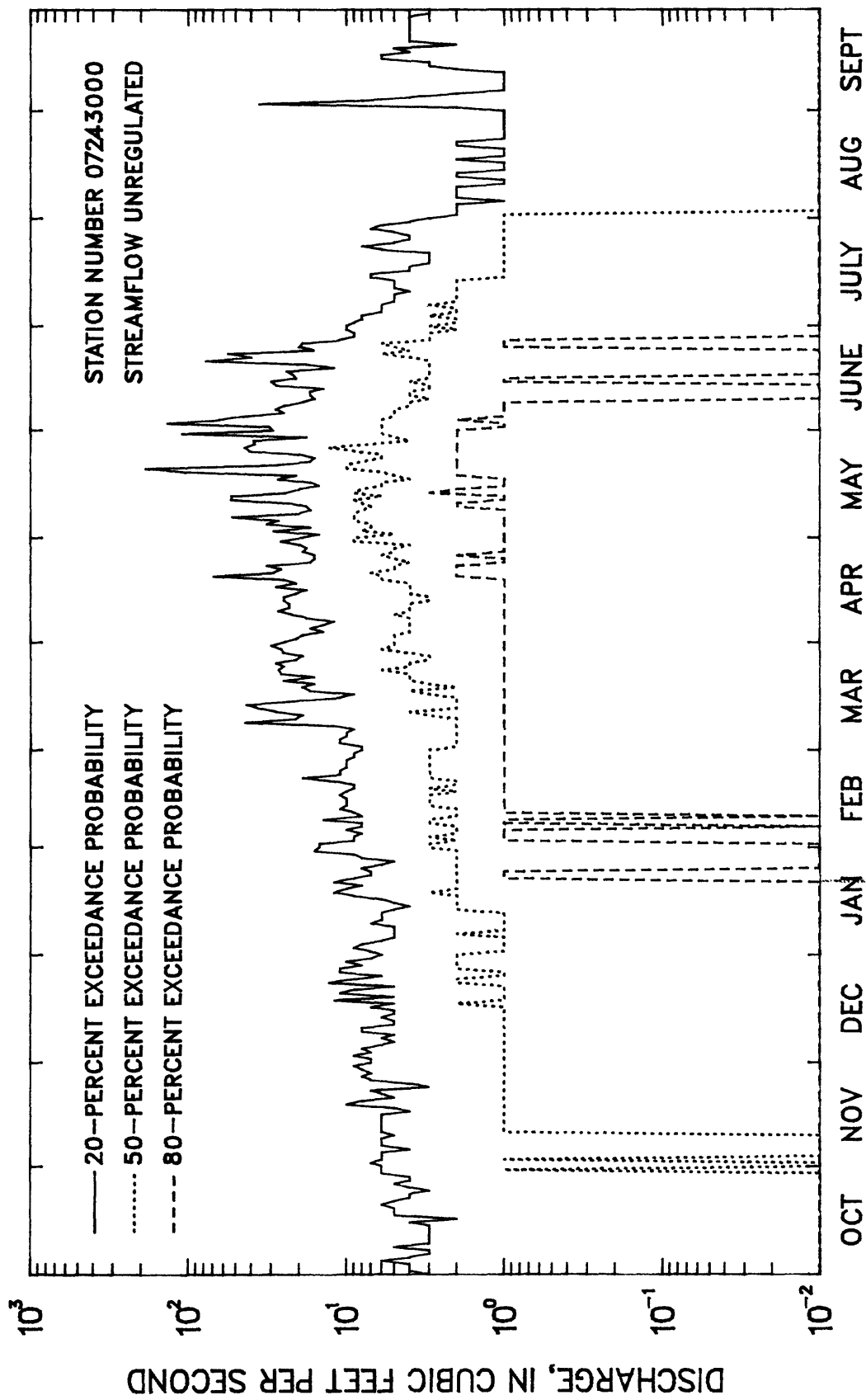


Figure 102.--Duration hydrographs of daily discharge values for Dry Creek near Kendrick, Oklahoma, water years 1956-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK

LOCATION.--Lat 35°40'31", long 96°03'55", NW 1/4 SW 1/4 sec.20, T.14 N., R.12 E., Okmulgee County, Hydrologic Unit 11100303, on right bank 1,000 ft downstream from county road bridge, 2.8 mi upstream from Adams Creek, 4.0 mi south of Beggs, 8.2 mi downstream from Flat Rock (Checkerboard) Creek, and at mile 84.8.

DRAINAGE AREA.--2,018 mi².

PERIOD OF RECORD.--September 1938 to current year.

REMARKS.--Flow regulated since 1968 by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-67

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	5460	0.00	613	1390	2.3	6.3
NOVEMBER	5980	0.00	477	1140	2.4	4.9
DECEMBER	1220	0.51	252	343	1.4	2.6
JANUARY	1190	7.7	206	286	1.4	2.1
FEBRUARY	1850	20	309	411	1.3	3.2
MARCH	4490	9.6	584	890	1.5	6.0
APRIL	9520	37	1570	2160	1.4	16.3
MAY	12500	178	2350	2850	1.2	24.4
JUNE	8900	59	1820	2340	1.3	18.9
JULY	3950	5.7	830	975	1.2	8.6
AUGUST	1770	3.3	276	393	1.4	2.9
SEPTEMBER	1300	0.00	364	423	1.2	3.8
ANNUAL	2450	114	806	602	0.75	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1940-67

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	7.9	1.2	0.00	0.00
3	8.8	1.4	0.00	0.00
7	10	1.6	0.00	0.00
14	14	2.0	0.30	0.00
30	22	4.3	1.0	0.00
60	44	11	3.0	0.00
90	72	15	4.8	0.96
120	107	19	5.4	1.6
183	142	34	14	6.3

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1939-67

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 29 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
9440	22600	36900	63700	91900	129000
OKLAHOMA WEIGHTED SKEW = 0.335					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	9070	21400	34100	57000	80200	110000
3	8330	18800	29200	47200	64800	86600
7	6970	15100	22700	35400	47300	61400
15	4730	9850	14500	22000	28900	36900
30	2990	6370	9480	14500	19100	24500
60	2010	4200	6150	9190	11900	15000
90	1640	3340	4740	6780	8460	10300

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-67

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
11900	3790	2180	1260	702	333	194	124	81	51	28	13	5.1	0.20	0.05	0.03	0.00

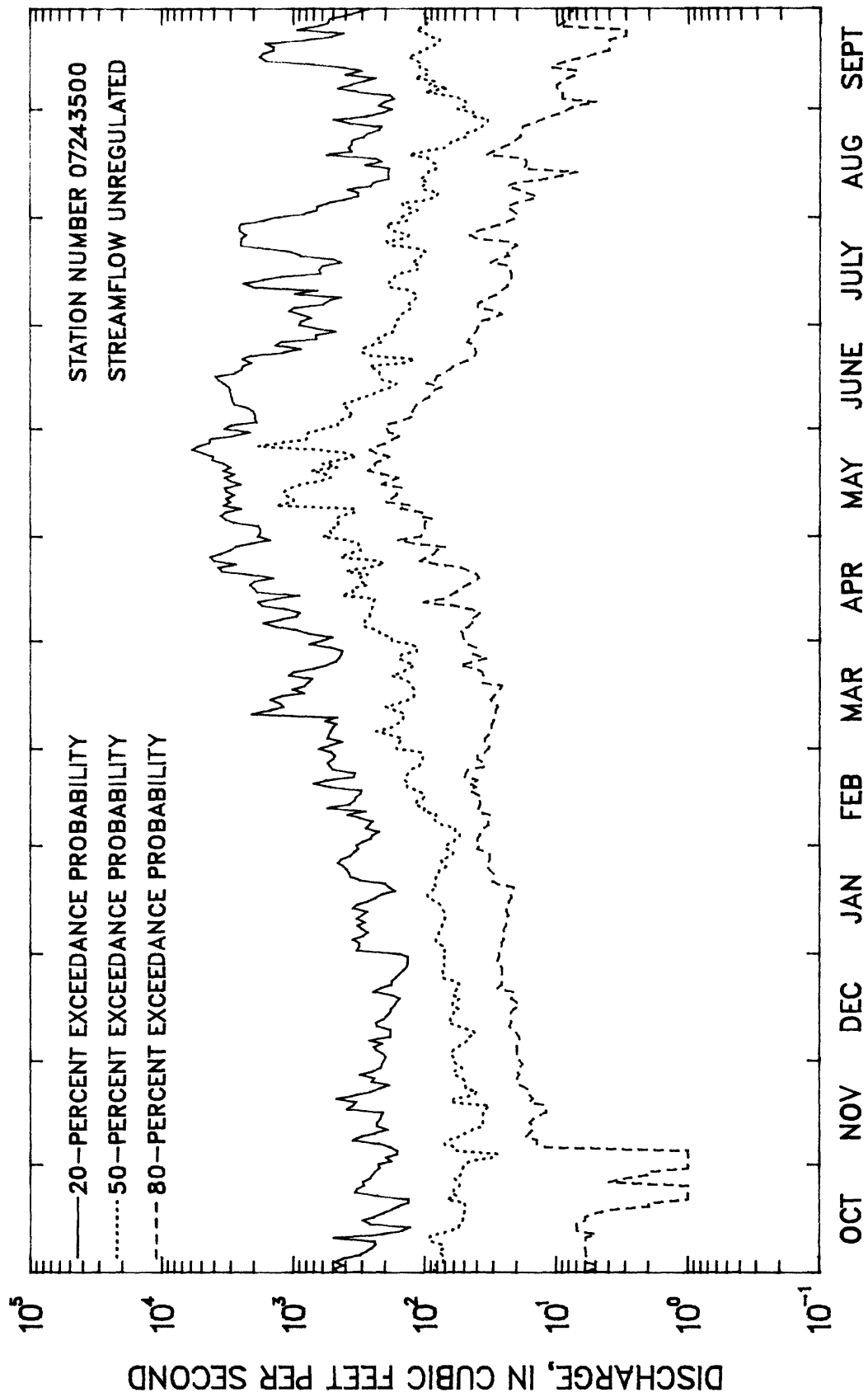


Figure 103.--Duration hydrographs of daily discharge values for Deep Fork near Beggs, Oklahoma, water years 1949-1967 (streamflow unregulated).

ARKANSAS RIVER BASIN

07243500 DEEP FORK NEAR BEGGS, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1968-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4780	18	661	1230	1.9	7.2
NOVEMBER	8390	20	907	2010	2.2	9.9
DECEMBER	2590	33	406	651	1.6	4.4
JANUARY	1300	34	281	328	1.2	3.1
FEBRUARY	2550	40	684	764	1.1	7.5
MARCH	4390	63	895	1120	1.2	9.8
APRIL	4660	64	995	1190	1.2	10.9
MAY	5090	133	1710	1440	0.84	18.7
JUNE	8990	73	1960	2200	1.1	21.4
JULY	893	77	234	227	0.97	2.6
AUGUST	794	11	122	190	1.6	1.3
SEPTEMBER	1600	7.1	294	458	1.6	3.2
ANNUAL	2240	157	760	575	0.76	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1969-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	11	4.1	2.2	1.3
3	12	4.6	2.6	1.6
7	13	5.3	3.1	1.9
14	16	6.7	4.1	2.7
30	22	9.3	5.9	4.0
60	34	16	11	8.2
90	49	20	13	9.3
120	87	36	23	16
183	168	57	33	21

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1968-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 17 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7600	14500	20900	31600	41800	54300
OKLAHOMA WEIGHTED SKEW = 0.430					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	7250	14000	20600	32000	43300	57400
3	6900	13400	19600	30200	40500	53200
7	5820	11500	16900	25900	34600	45300
15	4080	7930	11400	17100	22400	28600
30	2940	5340	7350	10400	13000	16000
60	2070	3580	4700	6210	7400	8620
90	1590	2710	3520	4570	5360	6160

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1968-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
7990	3720	2180	1380	878	420	236	151	99	63	40	23	15	8.2	5.2	3.7	2.1

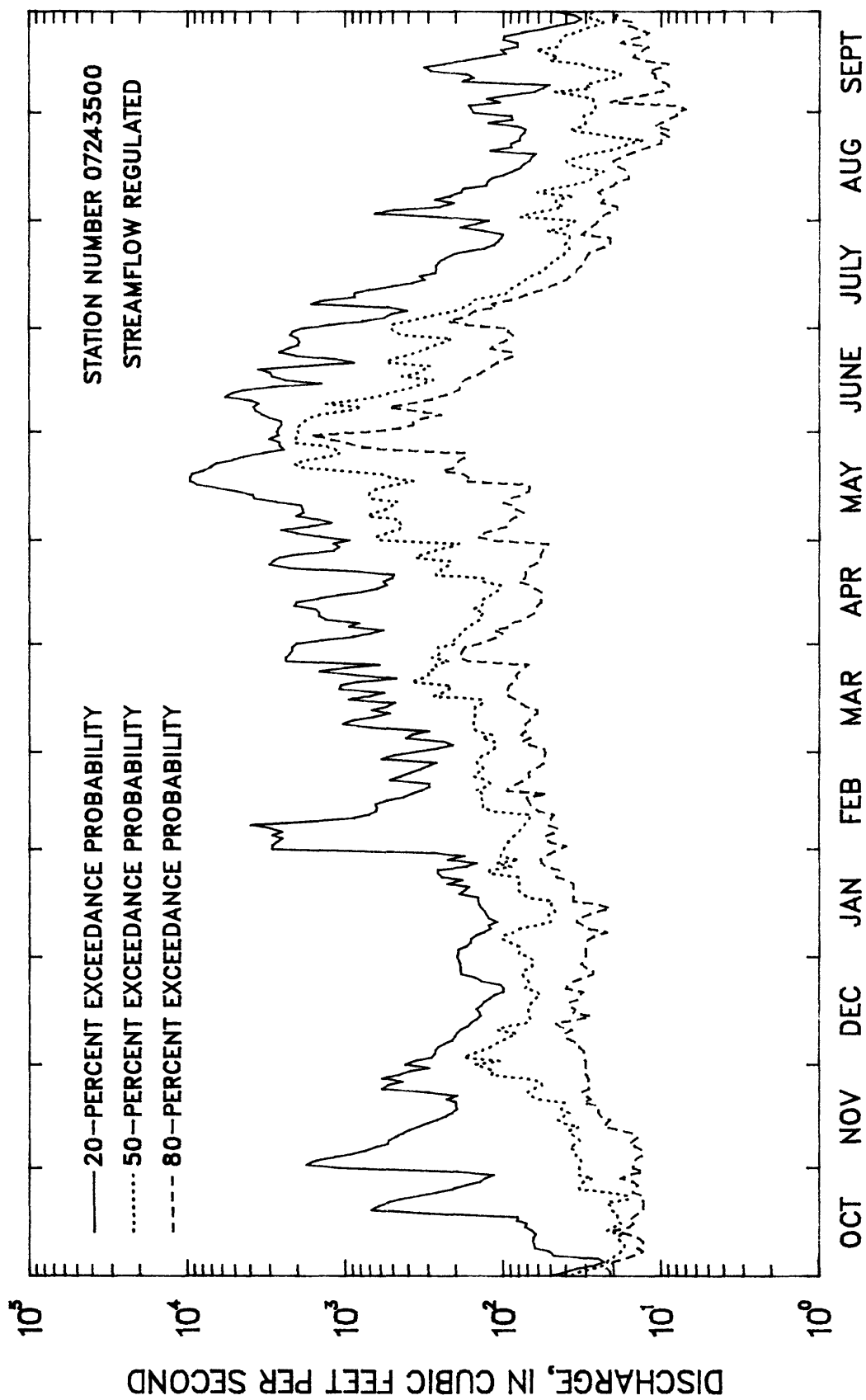


Figure 104.--Duration hydrographs of daily discharge values for Deep Fork near Beggs, Oklahoma, water years 1976-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07244000 DEEP FORK NEAR DEWAR, OK

LOCATION.--Lat 35°28'50", long 95°52'50", in SE 1/4 sec.25, T.12 N., R.13 E., at bridge on U.S. Highway 266, 3.2 mi upstream from Wolf Creek, 3.5 mi east of Dewar, and at mile 43.9.

DRAINAGE AREA.--2,307 mi².

PERIOD OF RECORD.--October 1937 to September 1950.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-50

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	6910	7.9	978	2010	2.1	6.1
NOVEMBER	7250	17	902	1990	2.2	5.6
DECEMBER	1710	9.6	413	545	1.3	2.6
JANUARY	1260	12	274	322	1.2	1.7
FEBRUARY	3200	42	743	969	1.3	4.6
MARCH	5580	15	1060	1500	1.4	6.6
APRIL	11800	75	2730	3440	1.3	17.0
MAY	13200	327	3870	3810	0.99	24.1
JUNE	7950	124	2850	2600	0.91	17.8
JULY	5030	75	1310	1640	1.2	8.2
AUGUST	1850	25	419	637	1.5	2.6
SEPTEMBER	1670	15	500	605	1.2	3.1
ANNUAL	2870	125	1340	745	0.56	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1939-50

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	12	5.0	3.2	2.2
3	12	5.6	3.8	2.8
7	14	6.6	4.6	3.4
14	16	8.6	6.6	5.4
30	28	13	9.1	6.6
60	51	22	14	10
90	90	29	16	9.3
120	129	40	20	11
183	196	55	28	16

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1938-50

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 18 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
11200	23700	35500	55400	74200	96800
OKLAHOMA WEIGHTED SKEW = 0.165					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	16700	34000	46700	62800	74500	85700
3	15500	30900	42000	56100	66300	76000
7	13500	25700	33800	43400	50000	55900
15	9580	17600	22800	28700	32700	36200
30	6300	11700	15100	18800	21200	23300
60	4360	7630	9430	11200	12200	13000
90	3640	5800	6720	7440	7760	7960

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-50

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
17400	6350	3880	2570	1600	579	293	179	111	73	42	21	12	7.7	6.1	5.1	2.8

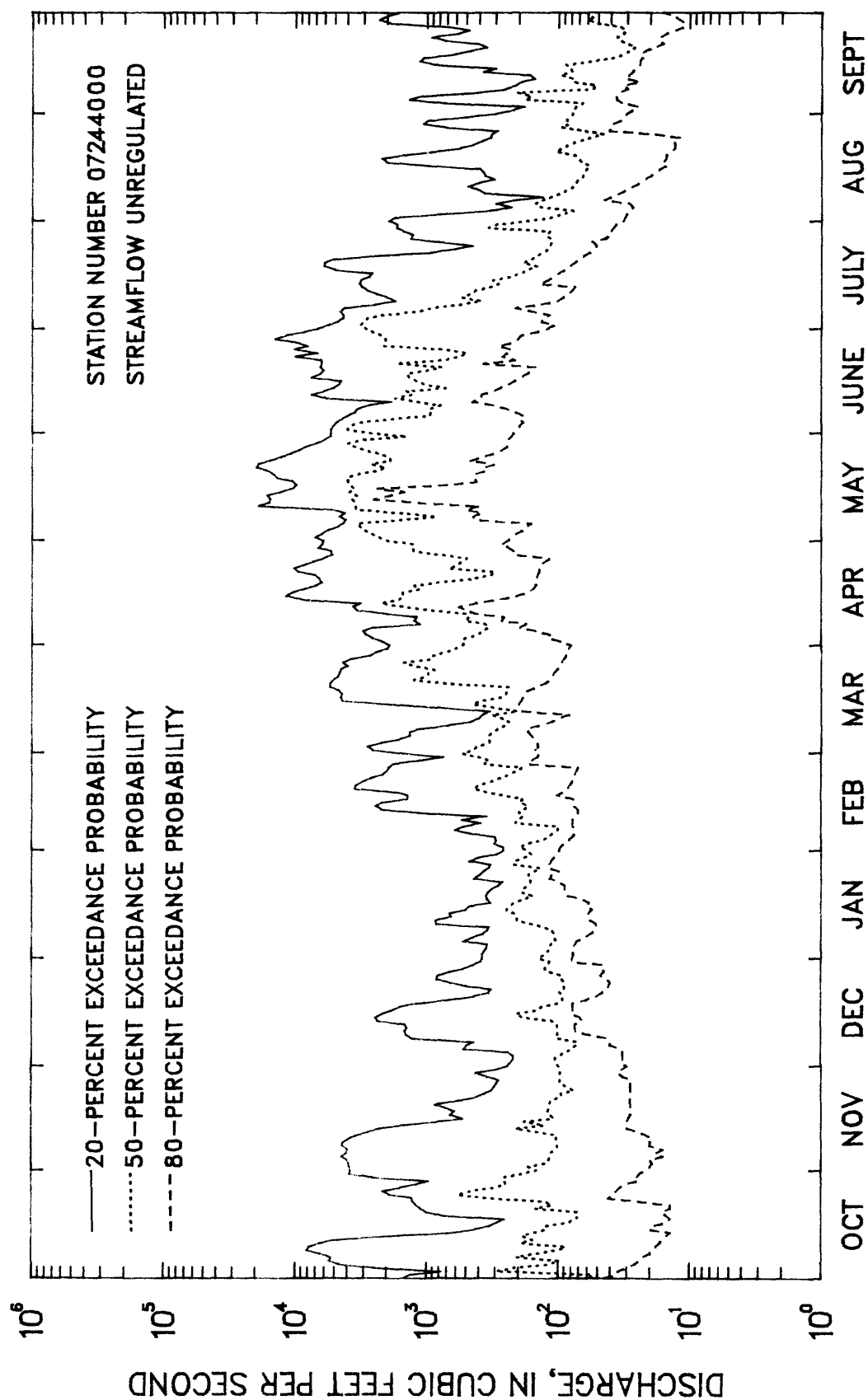


Figure 105.--Duration hydrographs of daily discharge values for Deep Fork near Dewar, Oklahoma, water years 1942-1950 (streamflow unregulated).

ARKANSAS RIVER BASIN

07245000 CANADIAN RIVER NEAR WHITEFIELD, OK

LOCATION.--Lat 35°15'50", long 95°14'21", in SE 1/4 SE 1/4 sec.12, T.9 N., R.19 E., Haskell County, Hydrologic Unit 11090204, on left downstream bank at end of bridge on State Highway 2, 0.8 mi north of Whitefield, 5.5 mi upstream from Taleka (Snake) Creek, 8.2 mi downstream from Eufaula Dam, and at mile 18.8.

DRAINAGE AREA.--47,576 mi², of which 9,700 mi² is probably noncontributing.

PERIOD OF RECORD.--July 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Flow regulated since 1964 by Eufaula Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	41200	2.2	4930	9460	1.9	6.9
NOVEMBER	28600	56	3300	5920	1.8	4.6
DECEMBER	19600	118	2890	4290	1.5	4.0
JANUARY	9250	109	2290	2380	1.0	3.2
FEBRUARY	14700	262	3850	3780	0.98	5.4
MARCH	36700	152	5590	7160	1.3	7.8
APRIL	46300	227	9700	11900	1.2	13.5
MAY	48200	1870	16400	14000	0.86	22.7
JUNE	42100	314	11100	11200	1.0	15.4
JULY	30400	151	6230	6400	1.0	8.7
AUGUST	12700	45	2450	2930	1.2	3.4
SEPTEMBER	20000	2.7	3290	4360	1.3	4.6
ANNUAL	14200	980	6000	3750	0.62	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1940-63

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	238	58	18	5.5
3	243	61	20	6.6
7	261	68	24	8.0
14	293	73	26	9.0
30	424	93	31	11
60	675	143	48	17
90	876	216	86	36
120	1070	313	145	72
183	1600	485	236	124

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1939-63

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
104000	183000	244000	329000	399000	472000

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.139

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	78400	145000	200000	283000	356000	437000
3	64100	119000	166000	236000	298000	368000
7	45000	83300	115000	161000	201000	244000
15	29700	55200	75700	105000	129000	156000
30	20100	37800	51900	72100	88700	106000
60	14100	26500	36200	49800	60700	72300
90	11800	21400	28200	37100	43800	50400

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
69500	27500	14900	10000	7130	4000	2510	1610	1050	677	398	192	105	38	14	3.6	1.2

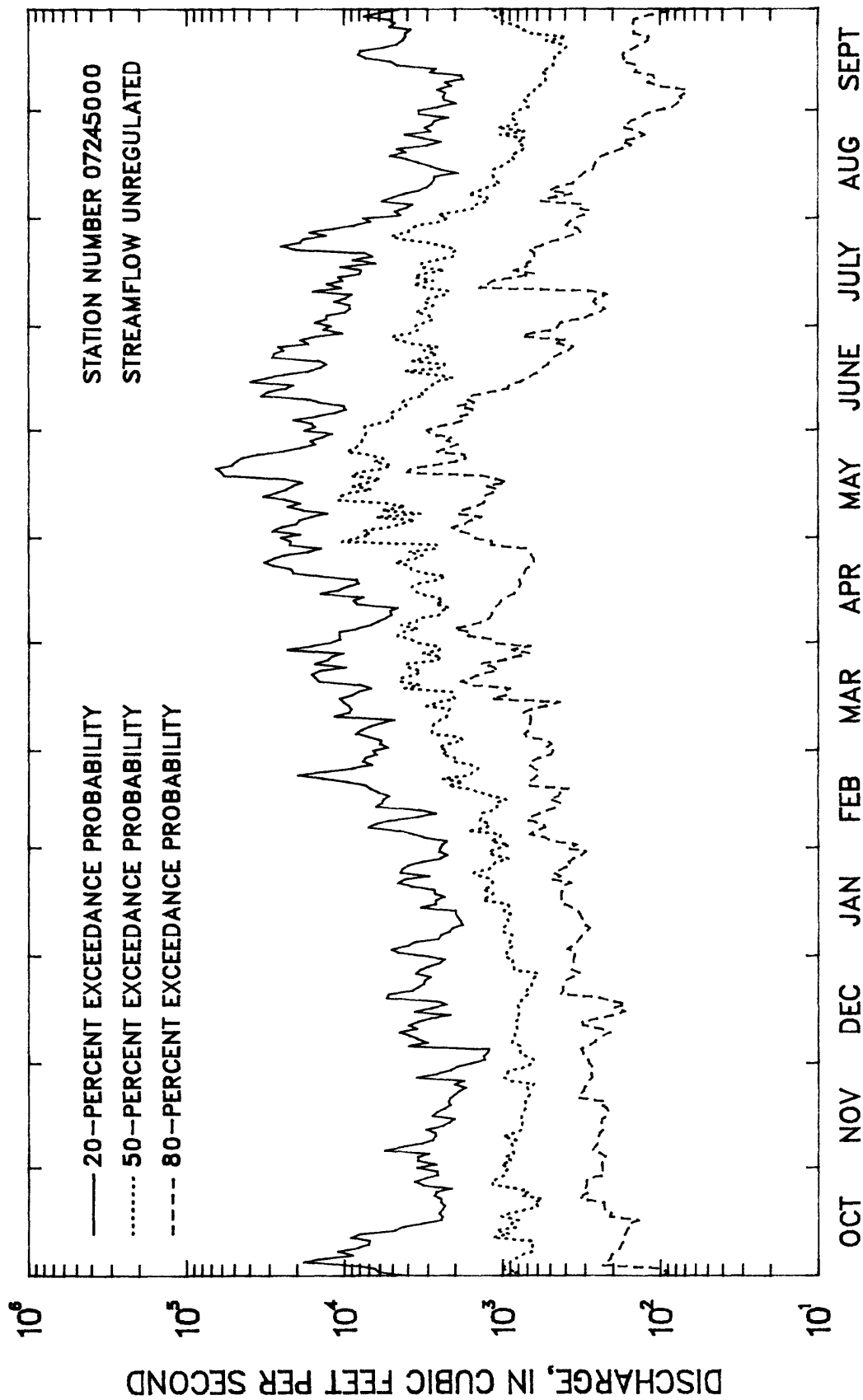


Figure 106.--Duration hydrographs of daily discharge values for Canadian River near Whitefield, Oklahoma, water years 1945-1963 (streamflow unregulated).

ARKANSAS RIVER BASIN

07245000 CANADIAN RIVER NEAR WHITEFIELD, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1964-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	11200	33	2100	2370	1.1	4.1
NOVEMBER	21900	53	4400	5540	1.3	8.6
DECEMBER	21900	166	3880	5180	1.3	7.6
JANUARY	8620	119	2820	2550	0.90	5.5
FEBRUARY	13700	127	3760	4120	1.1	7.3
MARCH	17800	20	4310	5350	1.2	8.4
APRIL	21600	31	4650	5560	1.2	9.1
MAY	25700	83	8330	7630	0.92	16.2
JUNE	35600	3.8	8180	8670	1.1	16.0
JULY	10400	149	3960	2580	0.65	7.7
AUGUST	5550	93	3140	1400	0.45	6.1
SEPTEMBER	3490	252	1720	876	0.51	3.4
ANNUAL	10600	98	4270	3010	0.71	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1965-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	60	28	13	6.0
3	85	33	15	6.6
7	201	61	24	9.0
14	280	76	30	13
30	477	119	43	16
60	739	203	79	31
90	908	326	167	89
120	1150	457	251	144
183	1800	691	375	213

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 21 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
24400	38700	48900	62400	72800	83500
STATION SKEW = -0.154					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1964-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	23000	39700	48300	56200	60400	63500
3	22400	39200	46700	52800	55600	57500
7	19600	35900	43500	49800	52700	54600
15	17800	30500	35100	38000	39100	39600
30	14100	23100	26100	27800	28400	28600
60	10600	16900	18800	19800	20100	20300
90	8800	14300	16200	17200	17600	17700

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
33700	17100	11200	8430	6760	4720	3300	2000	1020	551	204	85	55	24	8.6	4.6	1.5

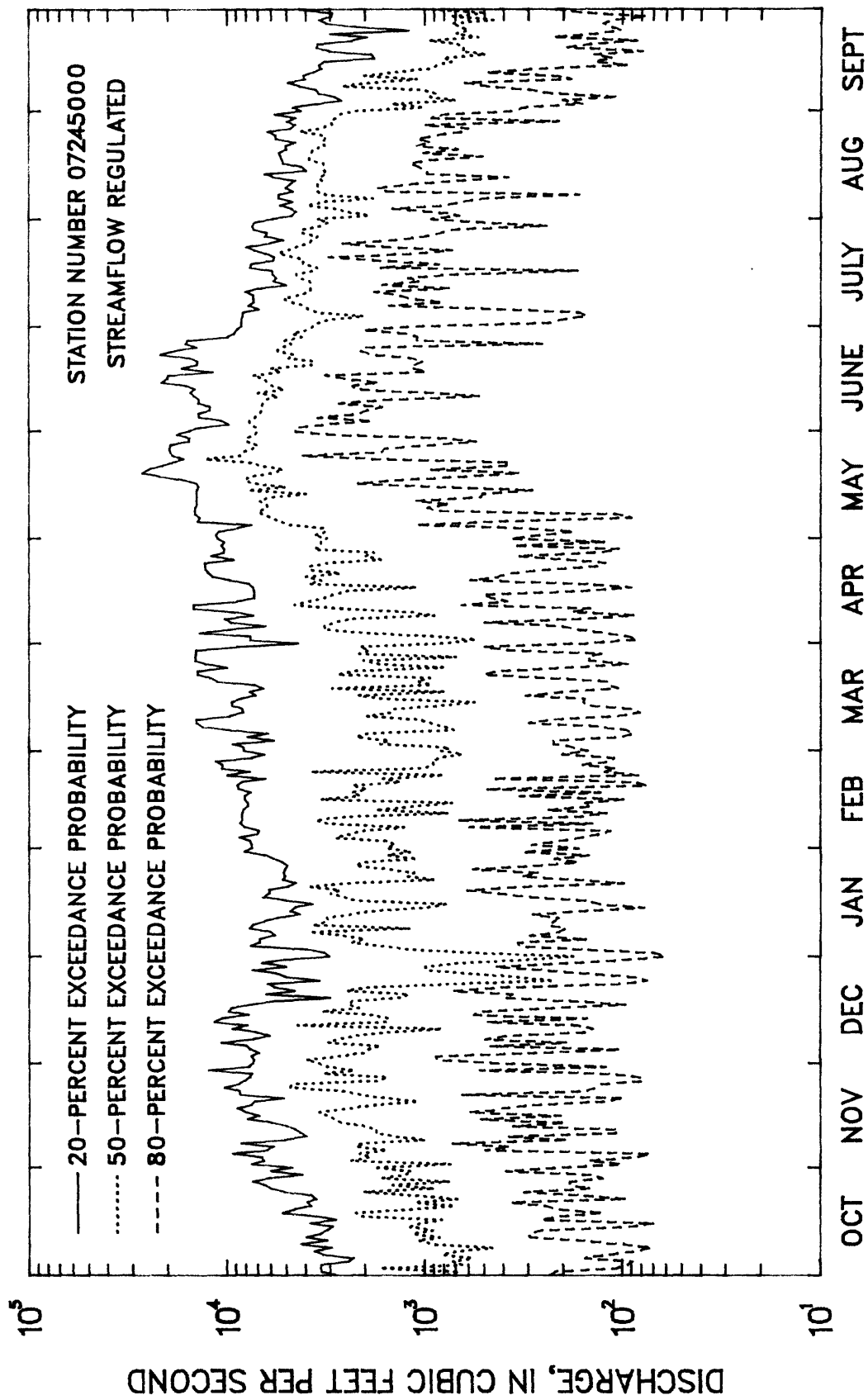


Figure 107.--Duration hydrographs of daily discharge values for Canadian River near Whitefield, Oklahoma, water years 1966-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07245500 SALLISAW CREEK NEAR SALLISAW, OK

LOCATION.--Lat 35°27'52", long 94°51'43", in SW 1/4 sec.34, T.12 N., R.23 E., Sequoyah County, on downstream side of right pier of abandoned county road bridge, 300 ft upstream from U.S. Highway 64, 400 ft downstream from water-supply dam of city of Sallisaw, 3.5 mi west of Sallisaw, 5 mi upstream from Little Sallisaw Creek, and at mile 9.0.

DRAINAGE AREA.--182 mi².

PERIOD OF RECORD.--October 1942 to September 1976 (discontinued).

REMARKS.--Flow regulated since 1964 by numerous floodwater-retarding structures. Small diversion above station for municipal water supply of city of Sallisaw.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1943-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	231	0.03	40	58	1.5	1.7
NOVEMBER	758	0.00	118	190	1.6	4.9
DECEMBER	856	1.5	139	217	1.6	5.8
JANUARY	583	2.0	130	155	1.2	5.5
FEBRUARY	719	14	243	226	0.93	10.2
MARCH	1710	19	346	360	1.0	14.6
APRIL	1980	31	405	470	1.2	17.0
MAY	1510	67	509	383	0.75	21.4
JUNE	1530	6.8	269	355	1.3	11.3
JULY	458	0.23	107	133	1.2	4.5
AUGUST	314	0.20	35	69	2.0	1.5
SEPTEMBER	231	0.00	37	60	1.6	1.6
ANNUAL	565	36	198	118	0.59	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1944-63

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.7	0.43	0.00	0.00
3	1.9	0.44	0.00	0.00
7	2.4	0.45	0.00	0.00
14	2.9	0.45	0.00	0.00
30	3.9	0.64	0.00	0.00
60	5.9	0.84	0.18	0.00
90	8.7	1.5	0.52	0.19
120	14	3.0	1.1	0.46
183	31	7.6	3.2	1.5

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1943-63

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 22 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
12700	28500	43900	70200	95300	126000
OKLAHOMA WEIGHTED SKEW = 0.106					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	5400	10500	15300	23400	31200	40700
3	3000	5630	8040	12000	15800	20300
7	1720	2950	3990	5560	6940	8520
15	1020	1660	2160	2850	3410	4020
30	723	1190	1540	2020	2400	2800
60	526	881	1140	1480	1750	2020
90	435	729	930	1180	1370	1550

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1943-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2690	774	397	267	196	117	72	42	25	15	7.0	2.1	0.60	0.16	0.06	0.03	0.01

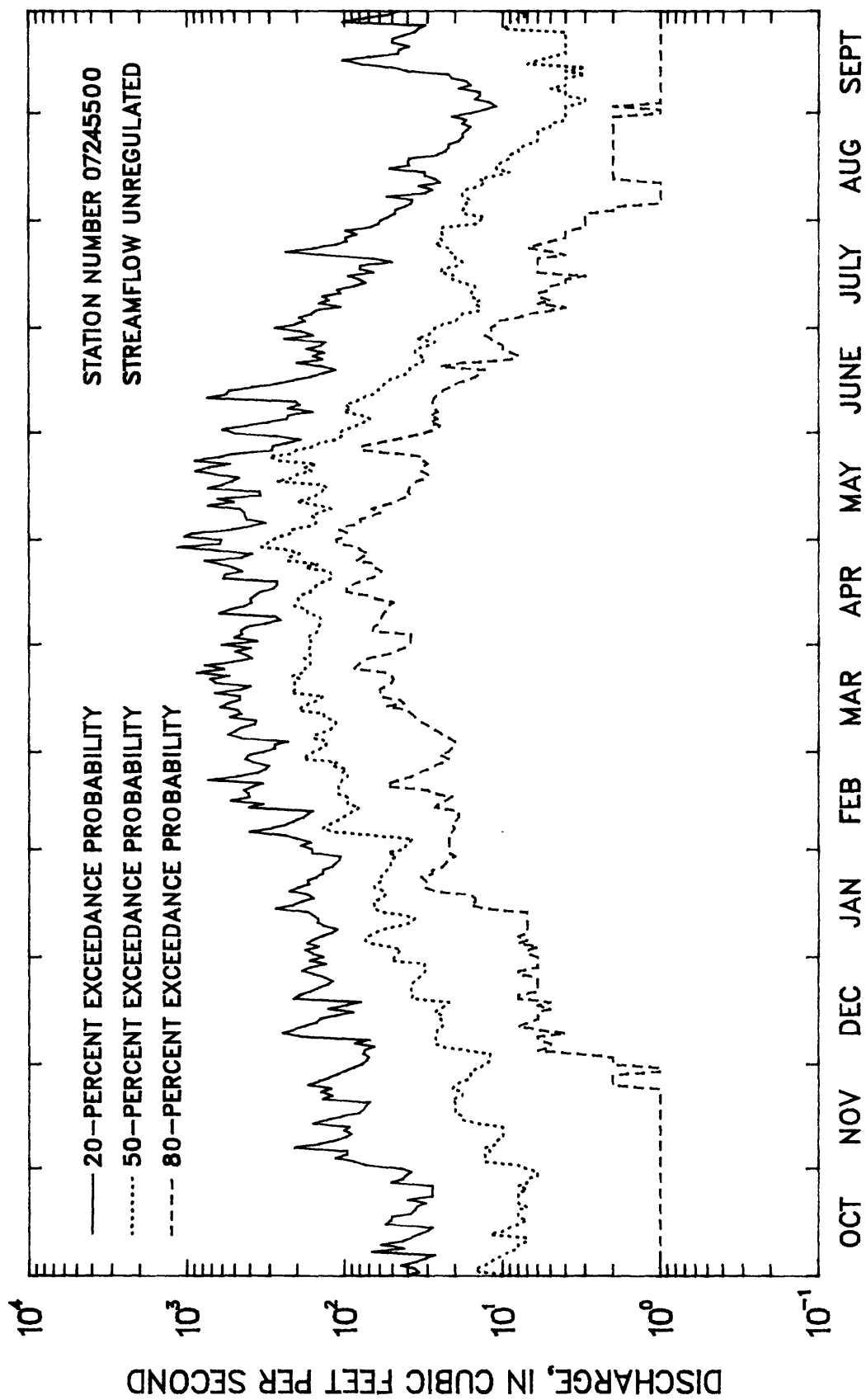


Figure 108.--Duration hydrographs of daily discharge values for Sallisaw River near Sallisaw Creek, Oklahoma, water years 1945-1963 (streamflow unregulated).

ARKANSAS RIVER BASIN

07246500 ARKANSAS RIVER NEAR SALLISAW, OK

LOCATION.--Lat 35°20'58" long 94°46'16", in SE 1/4 SW 1/4 sec.9, T.10 N., R.24 E., Le Flore County, at downstream right abutment of bridge on U.S. Highway 59, 0.4 mi downstream from Robert S. Kerr Lock and Dam, 7.5 mi south of Sallisaw, and at mile 394.9.

DRAINAGE AREA.--147,757 mi², of which 22,241 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1947 to September 1970.

REMARKS.--Flow regulated since 1954 by Fort Gibson Lake; further regulation since 1963 by Oolagah Reservoir, and since 1964 by Keystone Lake.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1954-64

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	158000	396	27000	45600	1.7	9.3
NOVEMBER	75800	1250	16200	22000	1.3	5.6
DECEMBER	43300	1700	12200	13300	1.1	4.2
JANUARY	31200	1590	9680	9230	0.95	3.3
FEBRUARY	35500	2250	12000	11100	0.93	4.1
MARCH	63200	2320	20100	18500	0.92	6.9
APRIL	89400	2550	28300	26700	0.94	9.7
MAY	192000	7460	57900	63200	1.1	19.9
JUNE	207000	6410	41900	56400	1.3	14.4
JULY	76900	3350	33000	29200	0.88	11.3
AUGUST	33200	2220	13900	11100	0.80	4.8
SEPTEMBER	75300	628	18700	20900	1.1	6.4
ANNUAL	51300	5500	24300	17300	0.71	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1955-64

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2240	788	402	215
3	2570	870	439	234
7	2990	998	499	264
14	3340	1110	560	299
30	3980	1300	666	366
60	5240	1690	873	490
90	5970	2080	1150	687
120	6410	2270	1290	803
183	8620	3190	1830	1140

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1954-64

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 11 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
170000	297000	406000	574000	724000	896000
STATION SKEW = 0.289					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	163000	287000	396000	566000	719000	899000
3	150000	266000	369000	534000	685000	864000
7	119000	220000	311000	458000	594000	757000
15	90100	174000	249000	371000	485000	619000
30	64600	131000	195000	304000	408000	536000
60	44500	92200	138000	218000	295000	391000
90	37100	77200	116000	180000	242000	317000

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1954-64

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
215000	103000	58400	42600	33100	20700	14300	9970	6980	5110	3540	2070	1450	707	492	406	253

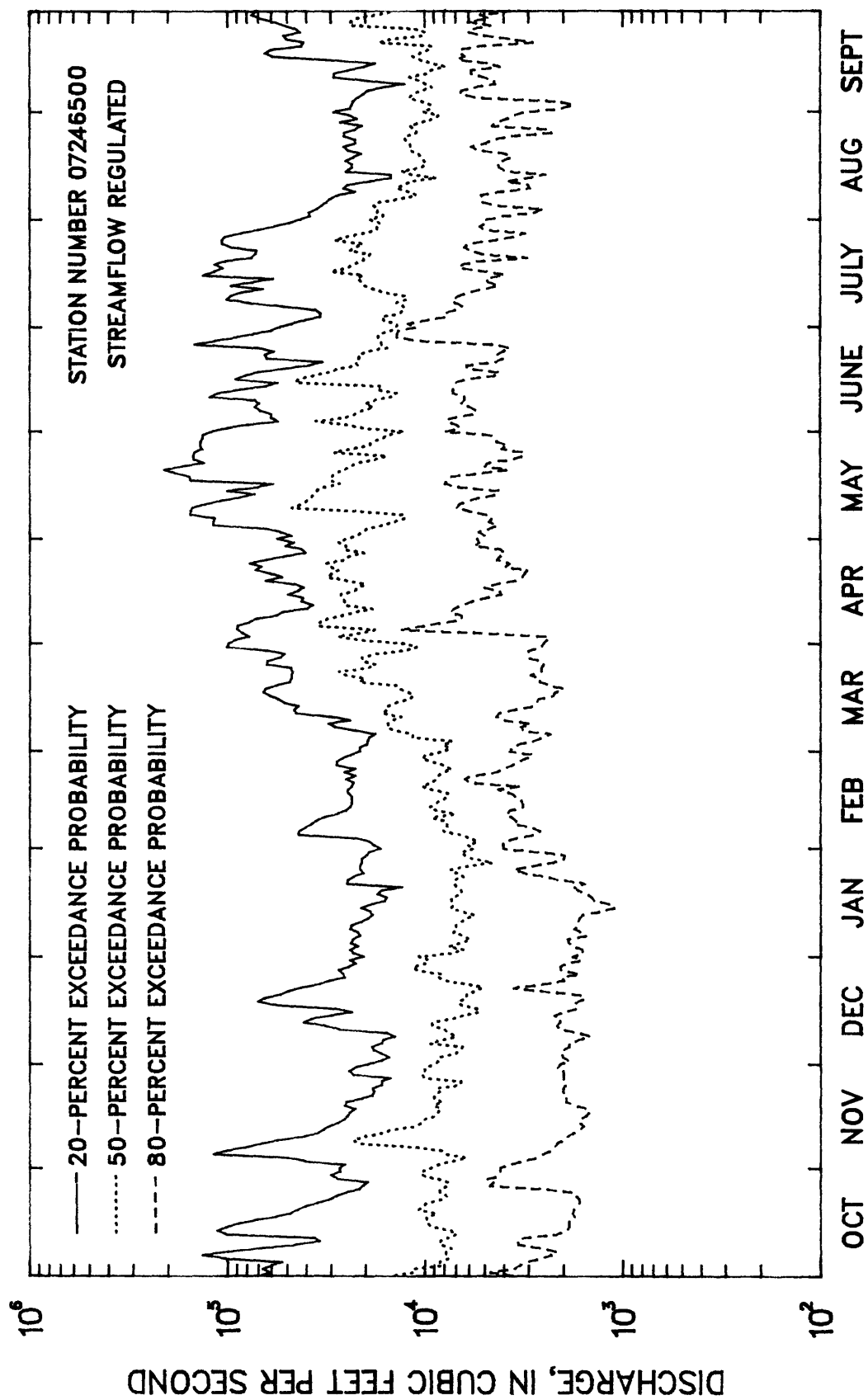


Figure 109.--Duration hydrographs of daily discharge values for Arkansas River near Sallisaw, Oklahoma, water years 1955-1964 (streamflow regulated).

ARKANSAS RIVER BASIN

07247500 FOURCHE MALINE NEAR RED OAK, OK

LOCATION.--Lat 34°54'45", long 95°09'20", in NW 1/4 NW 1/4 sec.13, T.5 N., R.20 E., Latimer County, Hydrologic Unit 11110105, on downstream side of left abutment of county road bridge, 0.1 mi downstream from Little Fourche Maline, 5.0 mi southwest of Red Oak, and at mile 41.2.

DRAINAGE AREA.--122 mi².

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Flow regulated since 1964 by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	391	0.00	44	92	2.1	2.9
NOVEMBER	352	0.00	68	103	1.5	4.5
DECEMBER	584	0.41	92	144	1.6	6.1
JANUARY	314	0.52	90	88	0.98	6.0
FEBRUARY	715	7.6	202	197	0.97	13.4
MARCH	1100	5.9	204	236	1.2	13.5
APRIL	1220	19	288	297	1.0	19.0
MAY	1380	24	279	308	1.1	18.4
JUNE	695	0.91	96	163	1.7	6.3
JULY	847	0.04	94	187	2.0	6.2
AUGUST	143	0.00	18	38	2.1	1.2
SEPTEMBER	547	0.00	38	110	2.9	2.5
ANNUAL	317	18	126	74	0.59	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1940-63

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.14	0.00	0.00	0.00
60	1.11	0.00	0.00	0.00
90	2.2	0.21	0.02	0.00
120	5.4	0.76	0.19	0.02
183	17	3.6	1.4	0.60

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1939-63

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6560	14100	21200	32900	43800	56900
OKLAHOMA WEIGHTED SKEW = 0.094					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4060	7880	11200	16500	21300	26800
3	2440	4250	5680	7760	9500	11400
7	1370	2220	2810	3570	4140	4710
15	777	1270	1620	2080	2430	2780
30	514	848	1080	1370	1580	1790
60	356	595	750	938	1070	1190
90	287	486	622	792	916	1040

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
2200	499	224	132	84	41	23	13	6.7	2.8	0.73	0.09	0.05	0.02	0.01	0.00	0.00	

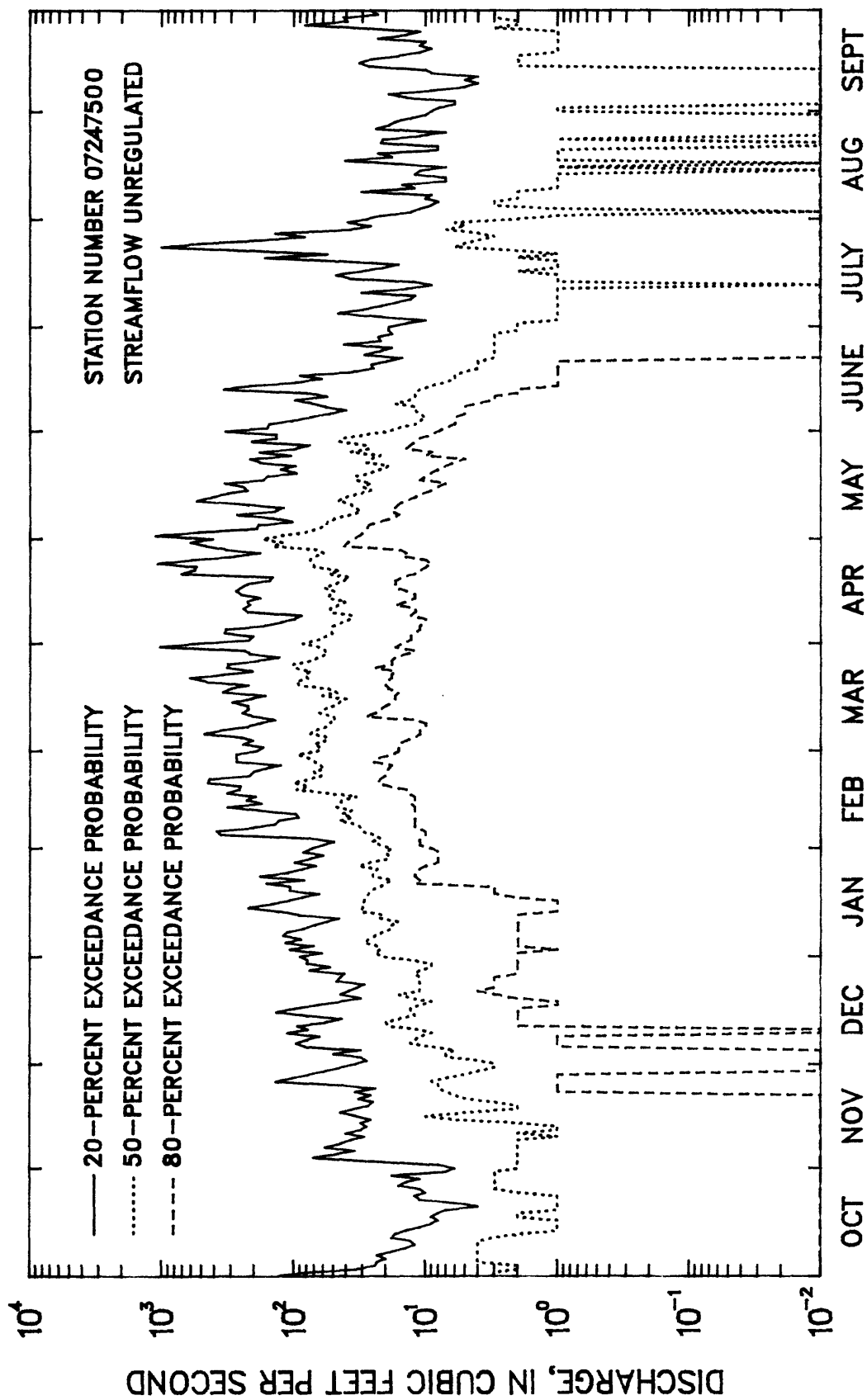


Figure 110.--Duration hydrographs of daily discharge values for Fourche Maline near Red Oak, Oklahoma, water years 1945-1963 (streamflow unregulated).

ARKANSAS RIVER BASIN

07247500 FOURCHE MALINE RIVER NEAR RED OAK, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1966-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	675	0.03	97	187	1.9	6.2
NOVEMBER	777	0.51	138	223	1.6	8.8
DECEMBER	726	1.3	144	200	1.4	9.2
JANUARY	229	1.4	82	77	0.94	5.2
FEBRUARY	525	1.8	159	156	0.98	10.2
MARCH	662	2.4	249	200	0.80	15.9
APRIL	746	22	239	197	0.82	15.3
MAY	572	14	251	161	0.64	16.0
JUNE	480	0.99	130	134	1.0	8.3
JULY	103	0.98	25	30	1.2	1.6
AUGUST	28	0.00	6.6	8.4	1.3	0.4
SEPTEMBER	363	0.00	45	89	2.0	2.9
ANNUAL	243	31	130	67	0.51	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1967-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.10	0.00	0.00	0.00
3	0.13	0.00	0.00	0.00
7	0.23	0.00	0.00	0.00
14	0.37	0.00	0.00	0.00
30	0.84	0.00	0.00	0.00
60	1.4	0.22	0.07	0.02
90	3.4	0.83	0.39	0.21
120	7.7	1.8	0.79	0.38
183	24	7.3	3.7	2.1

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1966-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 19 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3800	6580	8900	12400	15500	19000

OKLAHOMA WEIGHTED SKEW = 0.253

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2840	4230	5220	6540	7580	8660
3	1970	2880	3540	4440	5170	5940
7	1310	1850	2190	2610	2910	3200
15	897	1280	1500	1760	1930	2090
30	593	806	927	1060	1140	1220
60	387	530	611	699	756	808
90	311	437	508	586	636	680

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1780	762	343	170	112	59	33	20	10	5.2	2.2	0.62	0.10	0.01	0.00	0.00	0.00

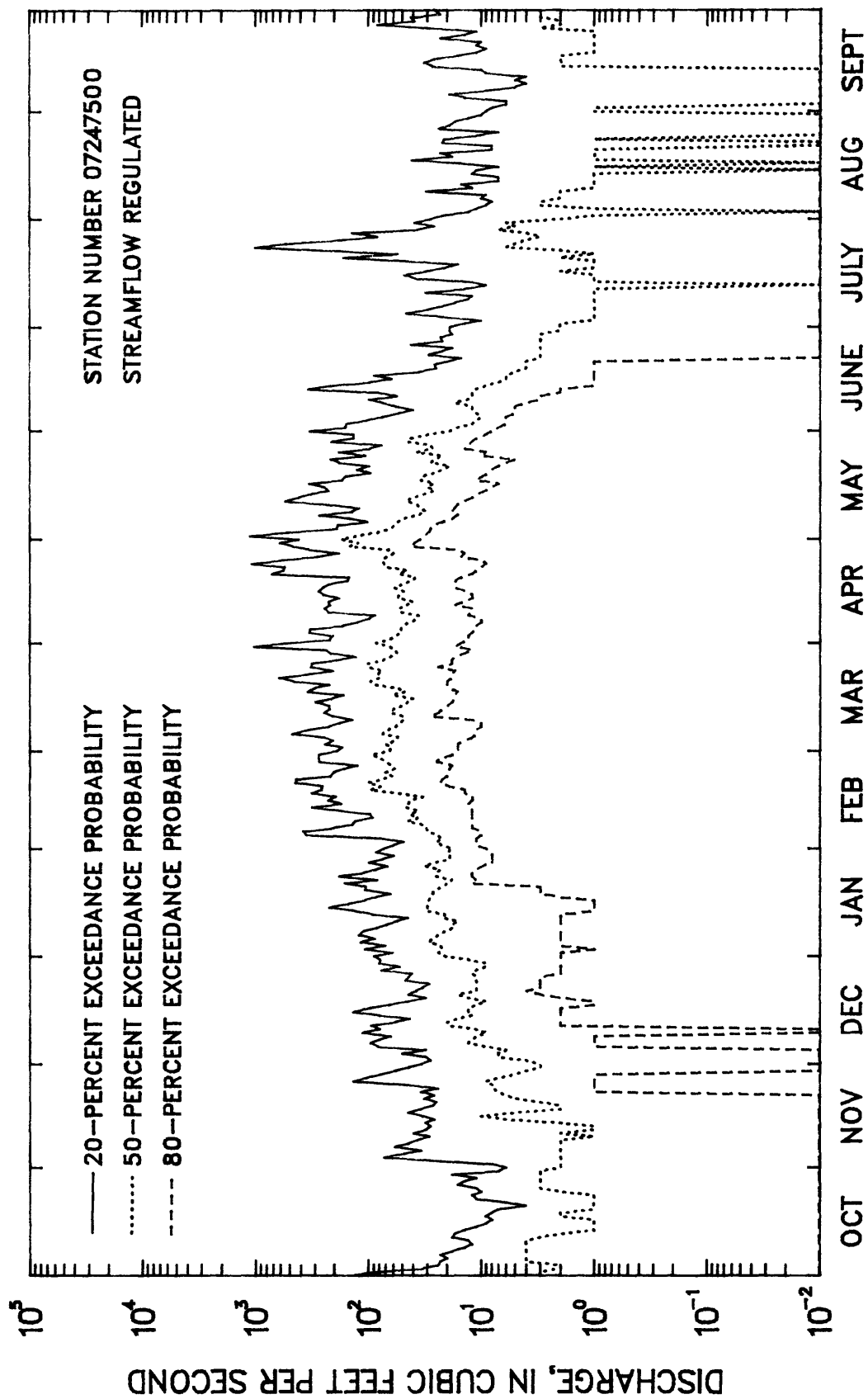


Figure 111.--Duration hydrographs of daily discharge values for Fourche Maline near Red Oak, Oklahoma, water years 1966-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07248500 POTEAU RIVER NEAR WISTER, OK

LOCATION.--Lat 34°56'15", long 94°42'54", in NW 1/4 NW 1/4 sec.6, T.5 N., R.25 E., LeFlore County, Hydrologic Unit 11110105, on left bank of outflow channel 700 ft downstream from Wister Dam, 2.2 mi southeast of Wister, 2.6 mi upstream from Caston Creek, and at mile 60.8.

DRAINAGE AREA.--993 mi².

PERIOD OF RECORD.--May 1938 to current year, Monthly discharge only for some periods, published in WSP 1311. Prior to May 21, 1951, records below about 500 ft³/s include flow from Caston Creek, drainage area, 70 mi².

REMARKS.--Flow completely regulated since October 1949 by Wister Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-48

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1460	0.00	312	581	1.9	2.0
NOVEMBER	4520	14	840	1430	1.7	5.3
DECEMBER	5690	30	1260	1700	1.3	7.9
JANUARY	2880	35	1040	998	0.96	6.6
FEBRUARY	6660	146	2420	2020	0.83	15.3
MARCH	10900	114	2270	3200	1.4	14.3
APRIL	6620	1070	2870	1770	0.62	18.1
MAY	6830	385	2960	2470	0.83	18.7
JUNE	7120	86	1320	2130	1.6	8.3
JULY	790	17	169	234	1.4	1.1
AUGUST	317	1.0	119	115	0.96	0.8
SEPTEMBER	1650	0.34	249	508	2.0	1.6
ANNUAL	3170	269	1310	763	0.58	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1939-48

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.09	0.00	0.00	0.00
14	0.30	0.00	0.00	0.00
30	1.5	0.00	0.00	0.00
60	7.9	1.6	0.74	0.39
90	31	11	7.0	4.7
120	62	24	15	11
183	177	59	32	19

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 10 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
29400	60100	87000	129000	166000	209000

OKLAHOMA WEIGHTED SKEW = -0.030

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1939-48

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	28300	53800	73200	99400	120000	141000
3	21900	37800	48300	61100	70000	78400
7	12900	20800	26000	32400	37000	41300
15	8060	12900	16100	20000	22800	25300
30	5390	8290	10200	12600	14300	15900
60	3780	5990	7450	9240	10500	11800
90	3110	4920	6070	7430	8370	9250

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-48

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
18400	6310	3090	1650	1140	645	376	217	131	64	27	4.9	0.60	0.07	0.03	0.02	0.00	0.00

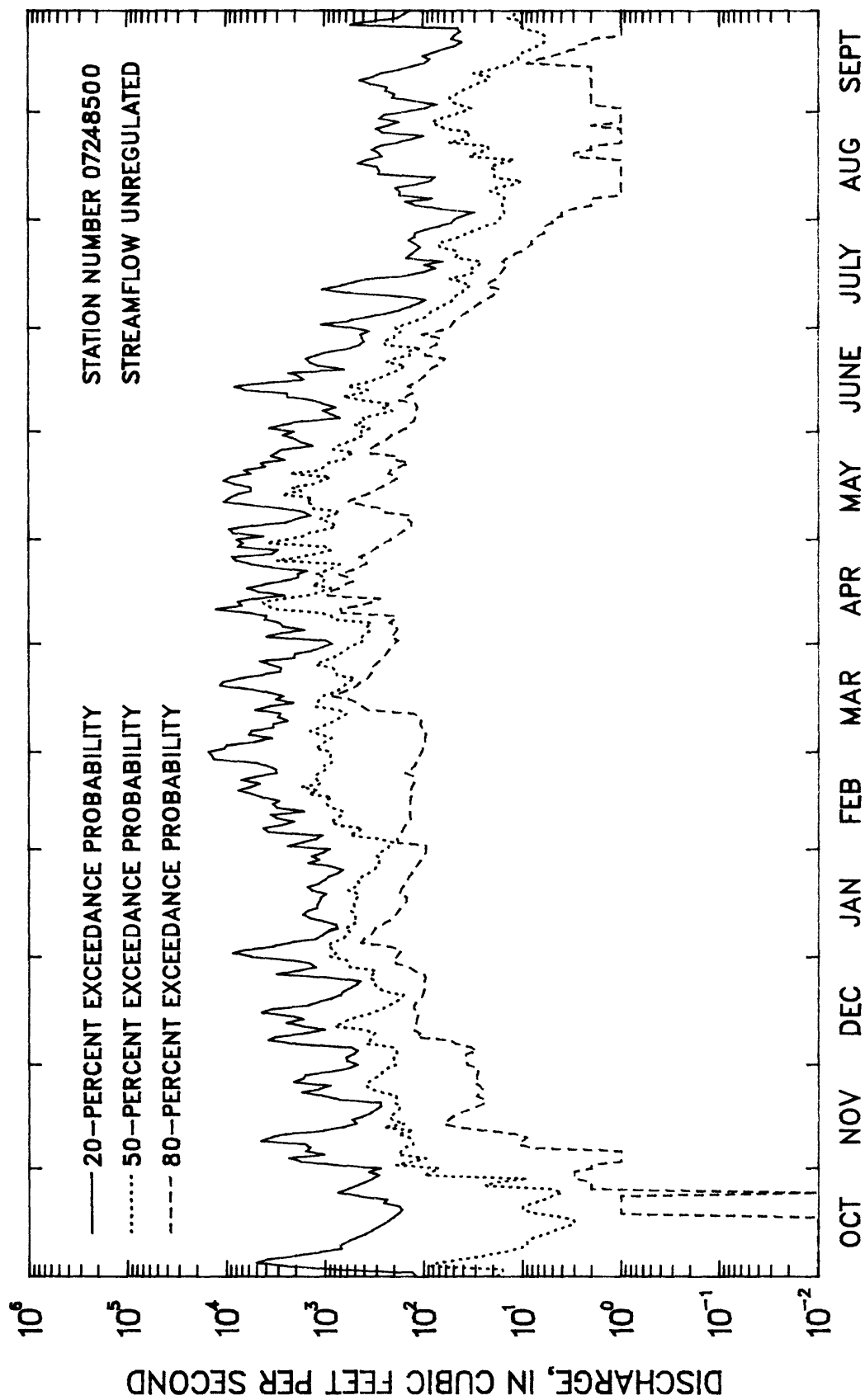


Figure 112.--Duration hydrographs of daily discharge values for Poteau River near Wister, Oklahoma, water years 1940-1948 (streamflow unregulated).

ARKANSAS RIVER BASIN

07248500 POTEAU RIVER NEAR WISTER, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1950-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVIA- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1870	3.4	295	452	1.5	2.3
NOVEMBER	3690	0.53	679	973	1.4	5.4
DECEMBER	4240	0.17	1170	1220	1.0	9.3
JANUARY	4750	0.14	1120	1100	0.98	8.9
FEBRUARY	4880	10	1350	1190	0.88	10.7
MARCH	4330	53	1700	1080	0.64	13.4
APRIL	4350	135	1650	1230	0.75	13.1
MAY	5940	93	2210	1530	0.69	17.5
JUNE	5790	11	1400	1820	1.3	11.1
JULY	5700	0.84	523	995	1.9	4.1
AUGUST	3650	2.5	289	701	2.4	2.3
SEPTEMBER	1710	0.40	238	430	1.8	1.9
ANNUAL	2090	200	1050	549	0.52	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1951-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2.8	0.51	0.06	0.00
3	4.1	0.87	0.11	0.00
7	4.8	1.05	0.22	0.04
14	6.8	1.4	0.42	0.09
30	9.8	2.3	0.85	0.33
60	16	3.7	1.7	0.83
90	32	6.7	2.8	1.3
120	55	11	4.6	2.1
183	189	41	16	6.6

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 35 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6560	7750	8500	9400	10100	10800

STATION SKEW = -0.160

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1950-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	6370	8000	9140	10700	11900	13200
3	6200	7810	8910	10300	11400	12600
7	5960	7560	8470	9490	10200	10800
15	5160	6880	7720	8520	8980	9350
30	3900	5520	6430	7420	8050	8610
60	2830	4080	4810	5610	6140	6610
90	2310	3440	4130	4930	5480	5990

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1950-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
6730	5590	4110	2710	1750	760	362	162	66	21	12	6.3	1.6	0.50	0.23	0.11	0.03

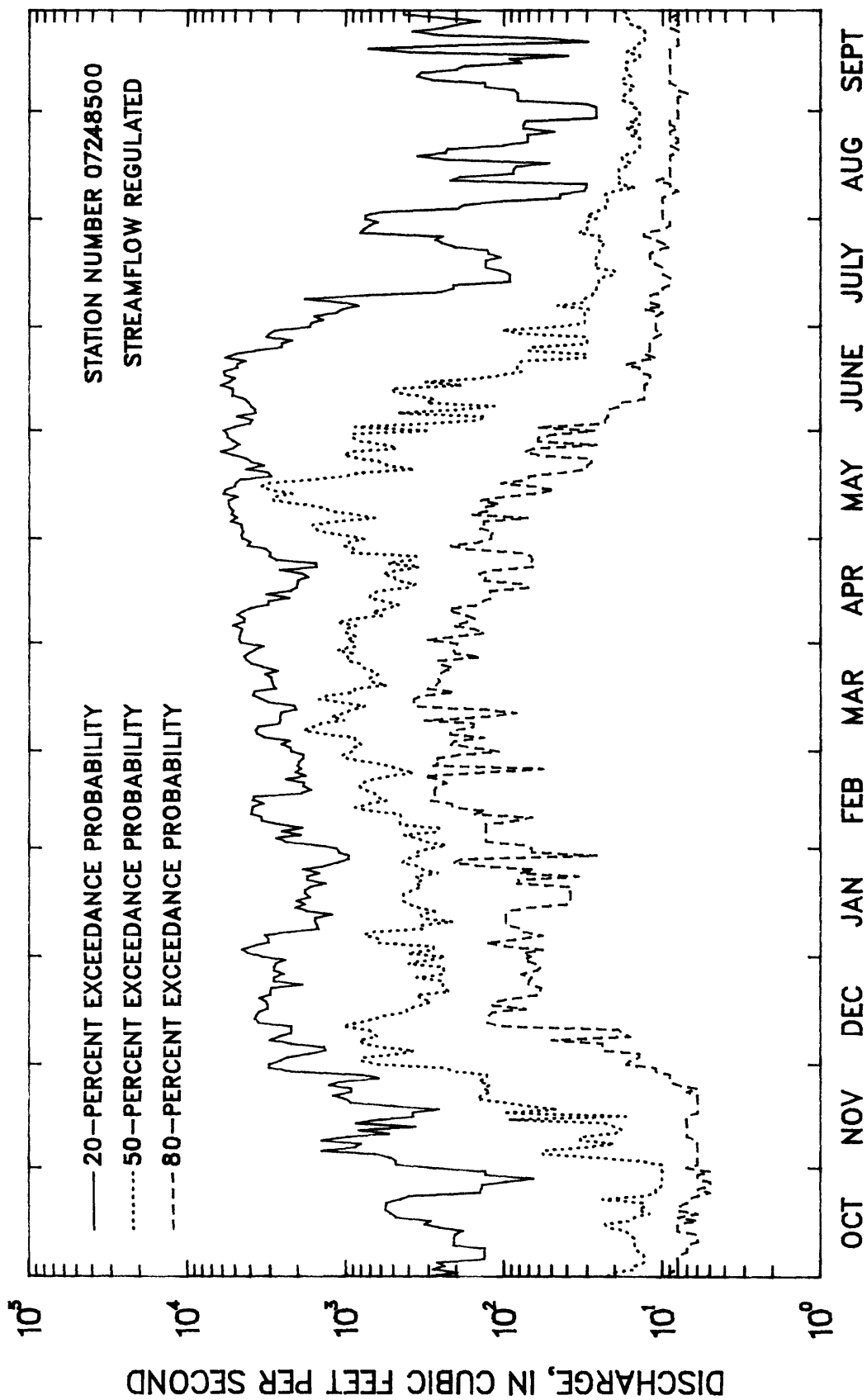


Figure 113.—Duration hydrographs of daily discharge values for Poteau River near Wister, Oklahoma, water years 1956-1984 (streamflow regulated).

ARKANSAS RIVER BASIN

07249400 JAMES FORK NEAR HACKETT, AR

LOCATION.--Lat 35°09'45", long 94°24'25", in NW 1/4 NW 1/4 sec. 34, T.6 N., R.32 W., Sebastian County, Hydrologic Unit 11110105, near left bank of downstream side of bridge on State Highway 45, 1.7 mi south of Hackett 2.0 mi downstream from Elder Branch, 2.0 mi upstream from small tributary, and 3.6 mi upstream from Arkansas-Oklahoma State Line.

DRAINAGE AREA.--147 mi².

PERIOD OF RECORD.--April 1958 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1959-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	376	0.00	56	99	1.8	3.6
NOVEMBER	578	0.00	119	157	1.3	7.7
DECEMBER	760	0.40	177	229	1.3	11.5
JANUARY	324	0.50	111	95	0.85	7.2
FEBRUARY	512	1.1	167	147	0.88	10.8
MARCH	915	0.92	266	227	0.85	17.2
APRIL	1050	31	209	222	1.1	13.5
MAY	1010	22	288	268	0.93	18.6
JUNE	295	3.1	83	105	1.3	5.4
JULY	430	1.7	40	86	2.2	2.6
AUGUST	82	0.01	12	19	1.5	0.8
SEPTEMBER	84	0.00	19	25	1.3	1.2
ANNUAL	308	30	129	77	0.60	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1959-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.34	0.04	0.00	0.00
3	0.41	0.05	0.00	0.00
7	0.51	0.06	0.00	0.00
14	0.70	0.18	0.00	0.00
30	1.3	0.29	0.08	0.00
60	2.6	0.64	0.20	0.00
90	4.5	1.2	0.49	0.14
120	8.1	2.5	1.1	0.36
183	22	5.6	2.3	1.0

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1959-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 27 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5880	11000	15500	22700	29400	37100
OKLAHOMA WEIGHTED SKEW = 0.271					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3730	7000	9800	14100	17900	22200
3	2130	3830	5200	7210	8900	10700
7	1160	2000	2650	3570	4320	5120
15	717	1180	1500	1920	2240	2560
30	513	759	901	1060	1150	1240
60	340	532	669	851	992	1140
90	273	433	550	709	834	967

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1959-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2010	499	249	167	120	74	47	29	16	7.4	3.0	0.87	0.31	0.01	0.00	0.00	0.00

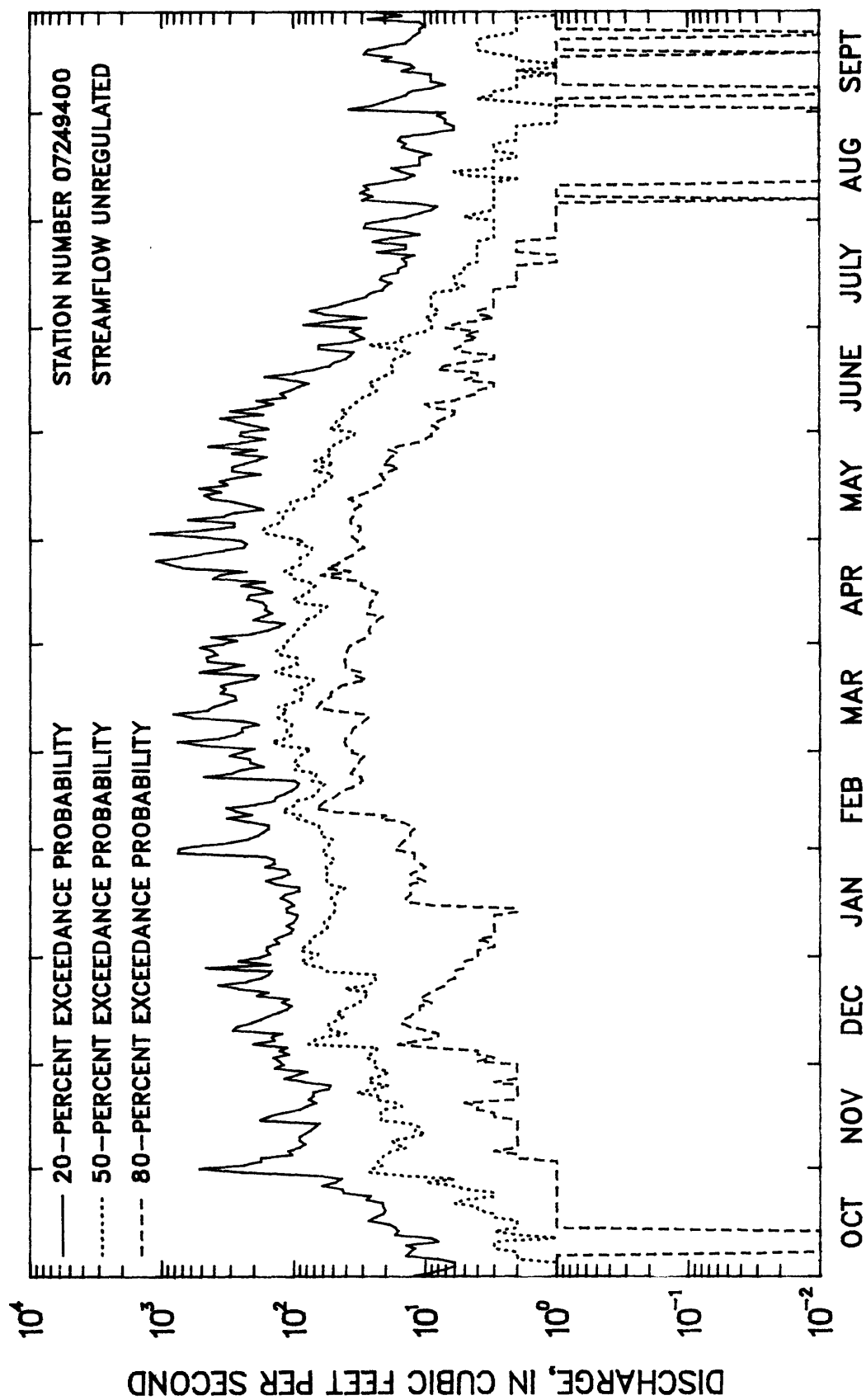


Figure 114.--Duration hydrographs of daily discharge values for James Fork near Hackett, Arkansas, water years 1966-1984 (streamflow unregulated).

ARKANSAS RIVER BASIN

07250550 ARKANSAS RIVER AT DAM NO. 13, NEAR VAN BUREN, AR

LOCATION.--Lat 35°20'56", long 94°17'54", in sec.28, T.8 N., R.31 W., Sebastian County, Hydrologic Unit 11110104, in Dam No. 13 control house on right bank and at mile 308.9.

DRAINAGE AREA.--150,547 mi², of which 22,241 mi² is probably non-contributing.

PERIOD OF RECORD.--October 1927 to current year. Prior to October 1969, published as "07250500 Arkansas River at Van Buren." Gage-height records collected from 1879 to December 1955 at Fort Smith, 16.3 mi upstream, are contained in reports of National Weather Service.

REMARKS.--Flow regulated since 1964 by Lake Eufaula. Flow has been further regulated by Keystone Lake and Robert S. Kerr Reservoir. Beginning Apr. 26, 1970, daily discharge computed from relation between discharge, head and gate openings.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1928-63

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1929-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	164000	492	25200	37900	1.5	6.7					
NOVEMBER	146000	1260	20300	27200	1.3	5.4					
DECEMBER	56200	1420	17300	14400	0.83	4.6	1	2500	1160	731	484
JANUARY	90700	1190	19800	18200	0.92	5.2	3	2690	1240	778	513
FEBRUARY	112000	2330	25100	23100	0.92	6.6	7	2940	1340	836	551
MARCH	142000	2400	29800	26800	0.90	7.9	14	3220	1430	893	589
APRIL	219000	3190	47600	46100	0.97	12.6	30	3840	1650	1020	675
MAY	302000	7450	69700	62200	0.89	18.4	60	5040	2230	1410	945
JUNE	231000	5350	55200	51900	0.94	14.6	90	6780	3130	2030	1400
JULY	176000	1590	34300	37300	1.1	9.0	120	8340	3910	2540	1750
AUGUST	97400	818	16100	19000	1.2	4.3	183	12200	5710	3640	2440
SEPTEMBER	71400	742	18500	18300	0.99	4.9					
ANNUAL	65300	5970	31600	16600	0.53	100					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1928-63

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 36 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%		2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
223000	371000	481000	633000	755000	883000	1	214000	360000	472000	630000	758000	896000
						3	200000	340000	446000	593000	711000	837000
						7	168000	290000	381000	505000	602000	703000
						15	128000	226000	300000	400000	478000	559000
						30	95300	171000	228000	305000	366000	429000
						60	71100	126000	166000	219000	260000	301000
						90	58800	102000	133000	172000	201000	230000

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.075

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1928-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
245000	132000	81800	56800	43600	27200	18700	13400	9770	7080	4970	3030	1950	1160	811	573	419

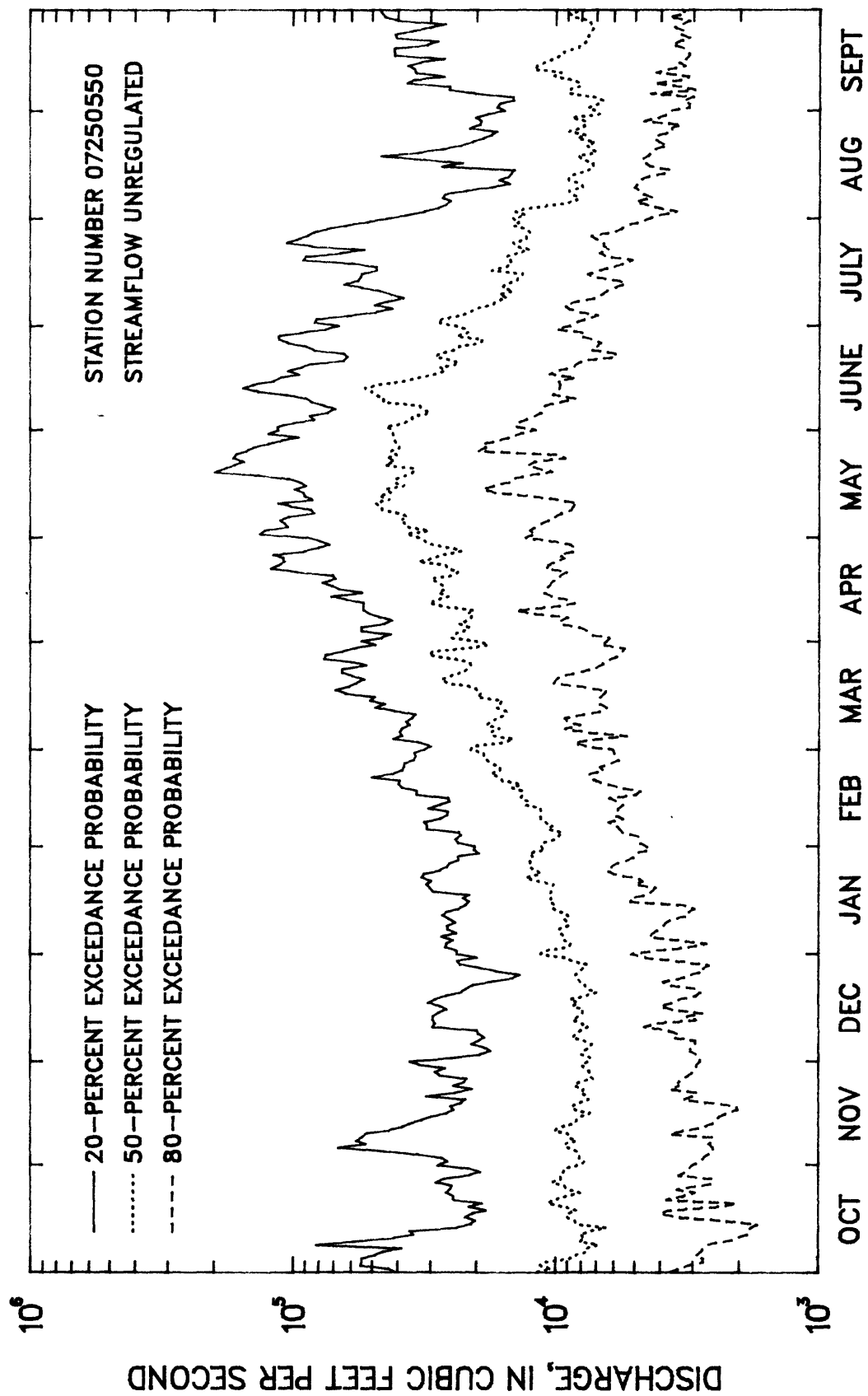


Figure 115.--Duration hydrographs of daily discharge values for Arkansas River at Dam #13 near Van Buren, Arkansas, water years 1935-1963 (streamflow unregulated).

ARKANSAS RIVER BASIN

07250550 ARKANSAS RIVER AT DAM NO. 13 NEAR VAN BUREN, AR--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1964-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	84800	1450	16500	18900	1.2	4.6
NOVEMBER	161000	1330	29200	37000	1.3	8.2
DECEMBER	112000	1780	24000	28200	1.2	6.8
JANUARY	74300	696	19700	19100	0.97	5.5
FEBRUARY	84300	2420	26100	24100	0.92	7.4
MARCH	138000	2510	39400	37600	0.96	11.1
APRIL	164000	2910	48200	40100	0.83	13.6
MAY	146000	12200	49800	34600	0.69	14.1
JUNE	132000	6660	49300	33800	0.69	13.9
JULY	62700	7300	26100	15100	0.58	7.4
AUGUST	22700	5890	12400	4510	0.36	3.5
SEPTEMBER	42800	3340	13600	10300	0.76	3.8
ANNUAL	70600	7740	29500	18100	0.61	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1965-84

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	221	46	21	11
3	817	166	64	27
7	2280	1120	760	547
14	3180	1500	967	657
30	4260	2030	1320	900
60	6400	3360	2310	1660
90	8410	4470	3080	2210
120	10400	5370	3580	2480
183	12600	6610	4640	3430

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1964-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
143000	189000	219000	255000	282000	308000
STATION SKEW = -0.746					

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	121000	168000	197000	232000	257000	282000
3	111000	156000	184000	218000	242000	266000
7	102000	144000	167000	191000	207000	221000
15	90200	132000	157000	185000	204000	217000
30	73900	115000	142000	175000	200000	210000
60	57600	92600	117000	150000	175000	200000
90	51100	82200	104000	132000	153000	197000

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
158000	109000	75700	58100	47600	33400	22800	16600	12400	9030	5720	2610	1390	179	79	47	18	

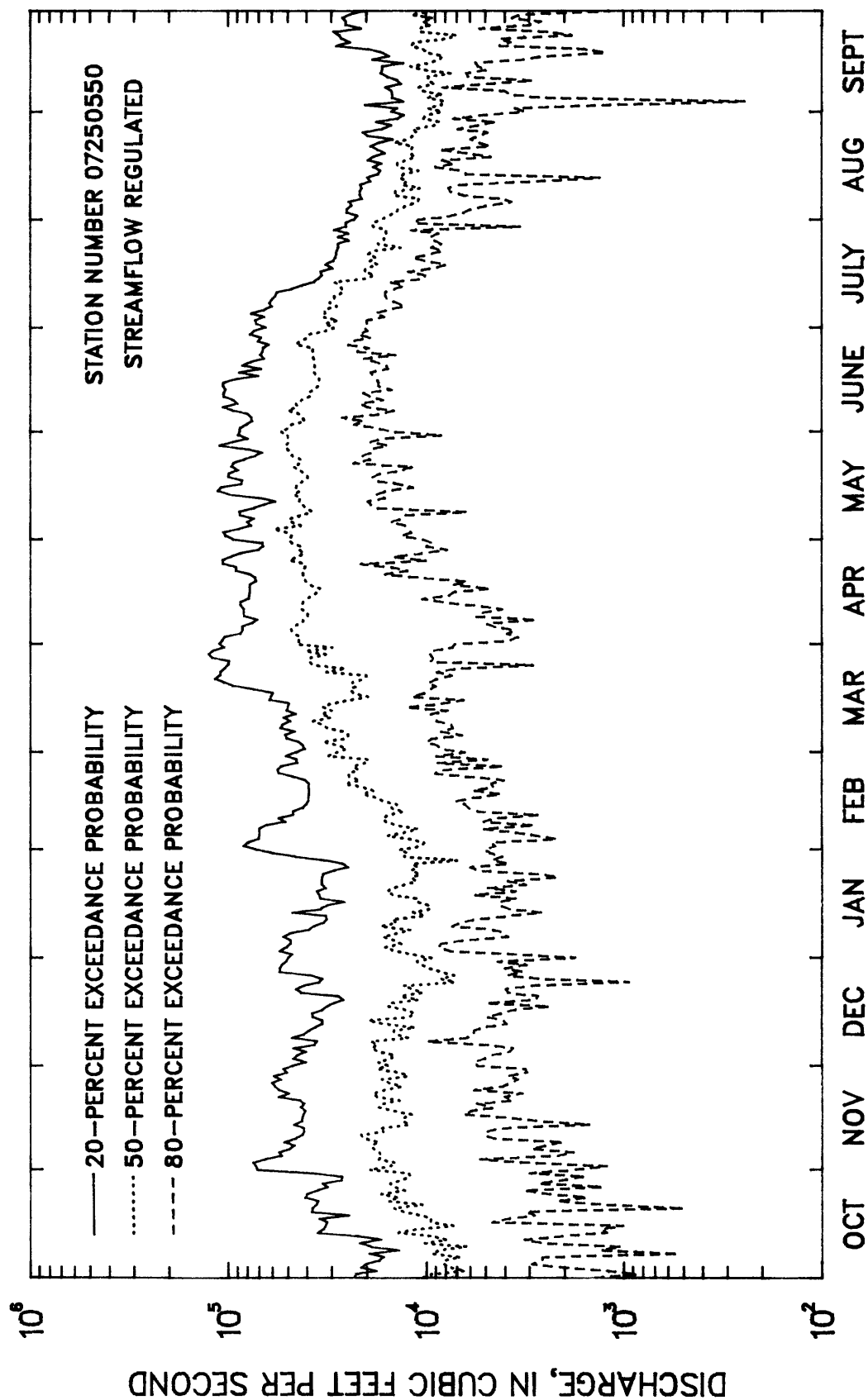


Figure 116.--Duration hydrographs of daily discharge values for Arkansas River at Dam #13 near Van Buren, Arkansas, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07300500 SALT FORK RED RIVER AT MANGUM, OK

LOCATION.--Lat 34°51'32", long 99°30'28", in SW 1/4 SE 1/4 sec.34. T.5 N, R.22 W., Greer County, Hydrologic Unit 11120202, near left bank on downstream side of pier of bridge on State Highway 34, 0.5 mi south of Mangum, 13.0 mi downstream from Fish Creek, and at mile 35.5.

DRAINAGE AREA.--1,566 mi² of which 209 mi² is probably noncontributing.

PERIOD OF RECORD.--April 1905 to June 1906, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-85

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	919	0.00	73	162	2.2	7.3
NOVEMBER	153	0.00	22	30	1.3	2.2
DECEMBER	124	0.00	29	30	1.0	2.9
JANUARY	199	0.00	41	39	0.97	4.0
FEBRUARY	196	0.00	48	46	0.97	4.7
MARCH	183	0.12	44	44	1.0	4.3
APRIL	490	0.00	88	113	1.3	8.7
MAY	1390	0.00	291	376	1.3	28.9
JUNE	1600	0.00	237	306	1.3	23.6
JULY	575	0.00	61	99	1.6	6.1
AUGUST	301	0.00	33	61	1.9	3.3
SEPTEMBER	202	0.00	40	56	1.4	3.9
ANNUAL	277	12	84	54	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-85

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.94	0.00	0.00	0.00
90	5.6	0.00	0.00	0.00
120	10	1.6	0.00	0.00
183	22	4.3	1.0	0.20

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1938-85MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 47 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
14100	27400	38400	54500	68200	83100
OKLAHOMA WEIGHTED SKEW = -0.138					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4400	8990	13000	19000	24200	30100
3	2290	4510	6280	8790	10800	13000
7	1180	2350	3280	4600	5660	6770
15	658	1310	1820	2520	3070	3640
30	405	813	1140	1600	1960	2350
60	244	496	705	1010	1270	1540
90	187	364	505	706	870	1040

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-85

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1500	238	105	66	49	31	20	13	5.6	0.62	0.01	0.00	0.00	0.00	0.00	0.00	0.00

RED RIVER BASIN

07301500 NORTH FORK RED RIVER NEAR CARTER, OK

LOCATION.--Lat 35°10'05", long 99°30'25", in NW 1/4 SE 1/4 sec.15, T.8 N., R.22 W., Beckham County, Hydrologic Unit 11120302, near left bank on downstream side of pier of bridge on State Highway 34, 3.0 mi south of Carter, 10.8 mi downstream from Timber Creek, and at mile 110.5.

DRAINAGE AREA.--2,337 mi², of which 399 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1944 to September 1962. Annual maximum and occasional low-flow measurements, water years 1963-64. August 1964 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1945-62, 1965-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	609	0.00	76	145	1.9	5.5
NOVEMBER	206	0.00	41	51	1.2	3.0
DECEMBER	271	0.00	47	55	1.2	3.4
JANUARY	319	0.00	61	61	1.0	4.4
FEBRUARY	365	0.00	84	82	0.97	6.1
MARCH	277	0.00	82	76	0.93	5.9
APRIL	683	0.08	121	140	1.2	8.7
MAY	2710	0.00	449	598	1.3	32.3
JUNE	1250	0.60	274	293	1.1	19.7
JULY	828	0.00	76	150	2.0	5.4
AUGUST	431	0.00	39	76	1.9	2.8
SEPTEMBER	368	0.00	40	79	2.0	2.9
ANNUAL	298	13	116	77	0.66	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1946-62, 1966-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.35	0.00	0.00	0.00
90	4.1	0.00	0.00	0.00
120	8.5	0.36	0.00	0.00
183	25	4.4	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 40 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6390	13400	20000	31000	41500	54000
OKLAHOMA WEIGHTED SKEW = 0.178					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1945-62, 1965-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3820	8260	12000	17500	22000	26800
3	2100	4620	6860	10300	13400	16800
7	1160	2600	3930	6060	7980	10200
15	686	1550	2350	3640	4820	6170
30	468	1060	1600	2450	3220	4100
60	306	652	959	1440	1860	2340
90	238	479	684	992	1260	1550

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1945-62, 1965-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1770	387	196	131	102	62	41	24	12	1.7	0.01	0.00	0.00	0.00	0.00	0.00	0.00

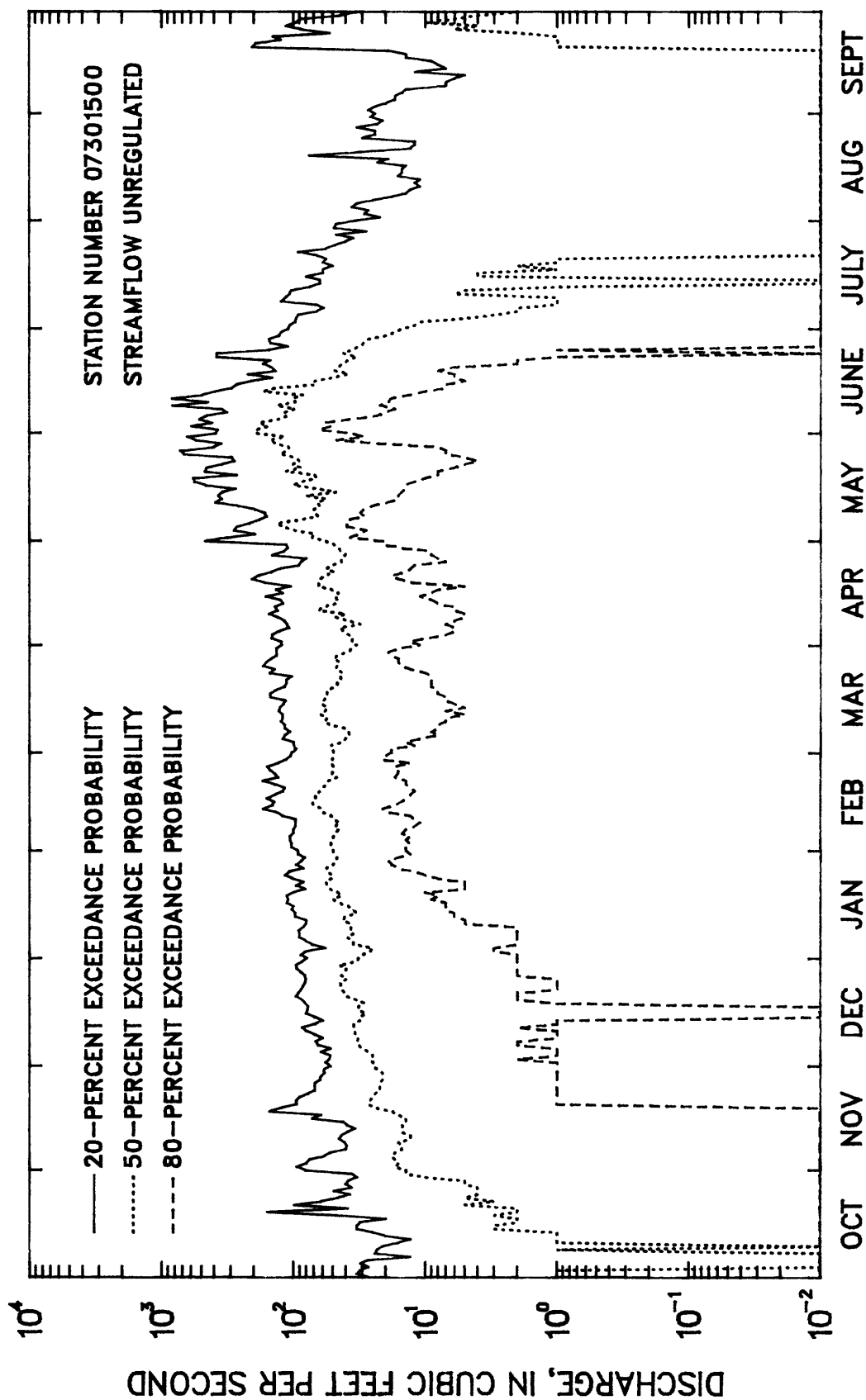


Figure 117.--Duration hydrographs of daily discharge values for North Fork Red River near Carter, Oklahoma, water years 1954-1962, 1962, 1965-1984 (streamflow unregulated).

RED RIVER BASIN

07302000 NORTH FORK RED RIVER NEAR GRANITE, OK

LOCATION.--Lat 34°58'24", long 99°20'00", on south line sec.20, T.6 N., R.20 W., at bridge on State Highway 9, 2.5 mi east of Granite, 6.4 mi upstream from Lugert Dam, and at mile 80.0.

DRAINAGE AREA.--2,494 mi², of which 399 mi² is probably noncontributing.

PERIOD OF RECORD.--July 1903 to March 1908, October 1938 to September 1944.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1904-07, 1938-44

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	796	0.00	184	320	1.7	8.6
NOVEMBER	382	0.00	97	137	1.4	4.6
DECEMBER	468	0.00	96	153	1.6	4.5
JANUARY	313	0.00	88	102	1.2	4.1
FEBRUARY	268	0.00	83	86	1.0	3.9
MARCH	309	0.00	82	92	1.1	3.9
APRIL	1030	0.00	235	298	1.3	11.0
MAY	1370	1.6	388	415	1.1	18.2
JUNE	1290	1.2	532	439	0.83	25.0
JULY	350	10	120	106	0.89	5.6
AUGUST	417	0.00	134	149	1.1	6.3
SEPTEMBER	497	0.00	91	150	1.7	4.3
ANNUAL	355	6.3	178	110	0.62	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1905-08, 1939-44

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	2.3	0.00	0.00	0.00
120	13	0.00	0.00	0.00
183	24	2.3	0.59	0.18

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 14 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
9910	16500	21300	27700	32600	37700
OKLAHOMA WEIGHTED SKEW = -0.204					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1904-07, 1938-44

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	6100	9090	10300	11300	11800	12100
3	3690	5730	6520	7070	7290	7420
7	2260	3370	3710	3890	3940	3970
15	1400	1950	2060	2110	2120	2120
30	913	1350	1450	1500	1510	1510
60	636	948	1020	1050	1050	1050
90	501	748	812	843	851	855

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1904-07, 1938-44

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
3110	673	337	210	161	96	53	25	7.0	0.25	0.07	0.03	0.02	0.01	0.00	0.00	0.00	

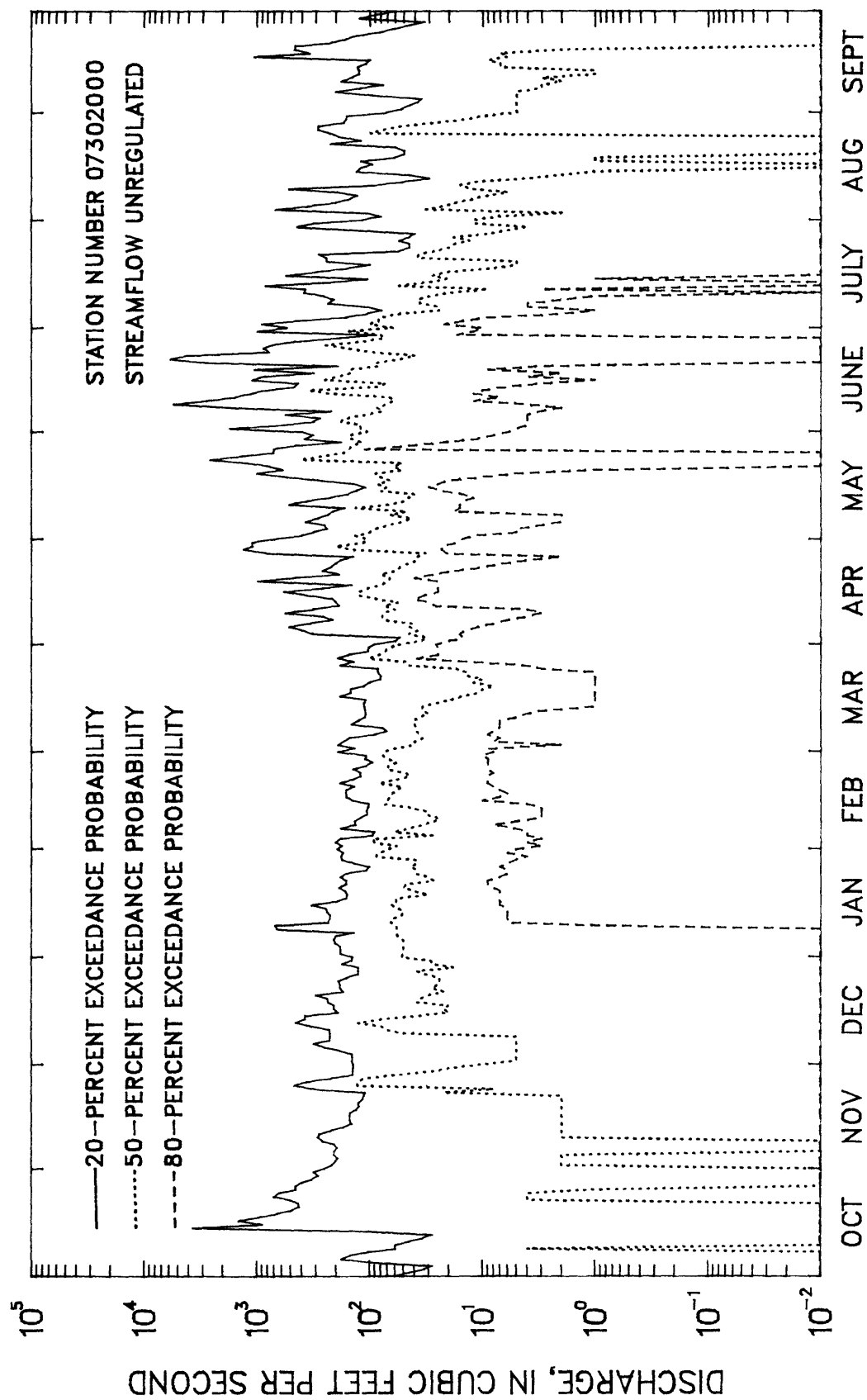


Figure 118.--Duration hydrographs of daily discharge values for North Fork Red River near Granite, Oklahoma, water years 1905-1907, 1939-1944 (streamflow unregulated).

RED RIVER BASIN

07303000 NORTH FORK RED RIVER BELOW ALTUS DAM, NEAR LUGERT, OK

LOCATION.--Lat 34°53'26", long 99°18'22", in SW 1/4 sec.22, T.5 N., R.20 W., Greer County, Hydrologic Unit 11120303, on right bank at State Highway 44A bridge, 3,500 ft downstream from Altus Dam, 1.9 mi upstream from Elm Fork of North Fork, 2.0 mi west of Lugert, and at mile 72.8.

DRAINAGE AREA.--2,515 mi², of which 399 mi² is probably noncontributing.

PERIOD OF RECORD.--March 1930 to December 1932 (published as "at Lugert Dam"), December 1943 to September 1950 (published as spill from Lake Altus), October 1950 to September 1962, August 1964 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Some regulation at low flow by Lugert Lake prior to December 1943, and completely regulated thereafter by Lake Altus. Diversions at Lake Altus bypass most of streamflow. Seepage from Altus Dam not included for period February 1953 to September 1977.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1951-62, 1965-69, 1976-84

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1952-62, 1966-69, 1979-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
								2 50%	5 20%	10 10%	20 5%
OCTOBER	504	0.00	21	99	4.7	4.4					
NOVEMBER	83	0.00	3.4	16	4.8	0.7					
DECEMBER	205	0.00	8.2	40	4.9	1.7	1	0.00	0.00	0.00	0.00
JANUARY	126	0.00	9.7	33	3.4	2.0	3	0.00	0.00	0.00	0.00
FEBRUARY	481	0.00	28	102	3.7	5.7	7	0.00	0.00	0.00	0.00
MARCH	291	0.00	21	68	3.2	4.4	14	0.00	0.00	0.00	0.00
APRIL	127	0.00	6.4	25	4.0	1.3	30	0.00	0.00	0.00	0.00
MAY	2230	0.00	193	516	2.7	40.0	60	0.00	0.00	0.00	0.00
JUNE	1350	0.00	175	368	2.1	36.3	90	0.00	0.00	0.00	0.00
JULY	216	0.00	16	54	3.3	3.4	120	0.00	0.00	0.00	0.00
AUGUST	1.4	0.00	0.10	0.31	3.0	0.0	183	0.00	0.00	0.00	0.00
SEPTEMBER	0.93	0.00	0.05	0.19	3.7	0.0					
ANNUAL	247	0.00	40	75	1.9	100					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON
PERIOD OF RECORD 1951-62, 1965-69, 1976, 1978-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 31 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT						PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%		2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
						1	130	2140	8860	38900	99200	228000
						3	94	1630	7070	33000	88300	213000
						7	65	1060	4450	20200	53000	125000
						15	44	711	2940	13100	33900	79100
						30	30	455	1820	7810	19700	44800
						60	19	270	1010	3940	9310	19900
						90	15	193	692	2570	5830	12000
STATION SKEW = -1.318												

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1951-62, 1965-69, 1976, 1978-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
6710	1130	98	4.9	4.6	4.1	3.5	2.9	2.3	1.7	1.2	0.58	0.29	0.12	0.06	0.03	0.01

RED RIVER BASIN

07303400 ELM FORK OF NORTH FORK RED RIVER NEAR CARL, OK

LOCATION.--LAT 35°00'42", Long 99°54'12", In SW 1/4 NW 1/4 sec.12, T.6 N., R.26 W., Harmon County, Hydrologic Unit 11120304, near left bank on downstream side of pier of bridge on State Highway 30, 4.0 mi northeast of Carl, and at mile 54.0.

DRAINAGE AREA.--416 mi².

PERIOD OF RECORD.--October 1959 to 1979.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1960-79

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	208	2.6	38	50	1.3	7.5
NOVEMBER	91	6.0	26	22	0.82	5.3
DECEMBER	55	7.9	20	12	0.60	4.1
JANUARY	39	10	19	7.7	0.41	3.8
FEBRUARY	56	9.0	22	10	0.47	4.4
MARCH	79	7.3	28	21	0.73	5.6
APRIL	247	5.8	55	60	1.1	11.0
MAY	662	7.4	94	148	1.6	18.7
JUNE	302	4.1	84	71	0.84	16.9
JULY	133	0.30	28	36	1.3	5.6
AUGUST	121	0.48	35	38	1.1	6.9
SEPTEMBER	125	0.98	51	40	0.79	10.2
ANNUAL	79	11	42	15	0.37	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1961-79

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.1	0.20	0.06	0.02
3	1.2	0.20	0.07	0.02
7	1.6	0.28	0.09	0.04
14	2.6	0.50	0.17	0.06
30	4.4	1.5	0.74	0.40
60	8.3	3.0	1.5	0.77
90	12	6.1	3.8	2.4
120	16	8.6	5.1	3.0
183	21	12	7.7	5.1

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1960-79

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5590	10100	13900	19500	24300	29800
OKLAHOMA WEIGHTED SKEW = 0.084					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2000	3510	4220	4810	5100	5290
3	1010	1610	1840	2010	2070	2110
7	522	830	963	1070	1110	1140
15	276	483	609	746	834	909
30	166	282	357	447	508	565
60	108	176	221	275	313	350
90	88	135	164	196	218	238

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1960-79

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
630	100	53	39	31	23	19	16	14	12	8.5	4.4	1.9	0.36	0.22	0.11	0.03

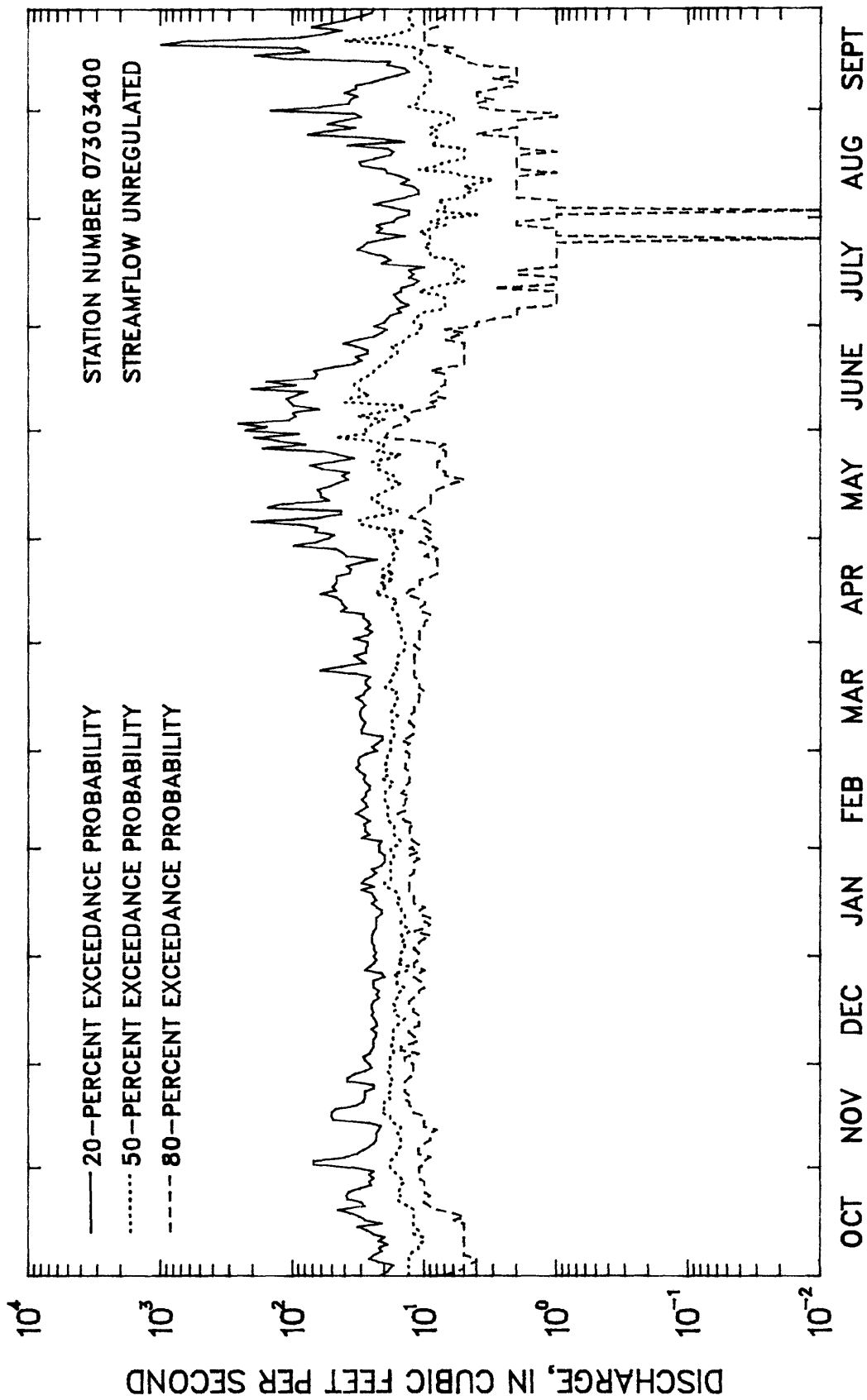


Figure 119.—Duration hydrographs of daily discharge values for Elm Fork of North Fork Red River near Carl, Oklahoma, water years 1961-1979 (streamflow unregulated).

RED RIVER BASIN

07303500 ELM FORK OF NORTH FORK RED RIVER NEAR MANGUM, OK

LOCATION.--Lat 34°55'36", long 99°30'00", on east line sec.10, T.5 N., R.22 W., Greer County, at bridge on U.S. Highway 283, 3.0 mi north of Mangum, 5.0 mi downstream from Haystack Creek, and at mile 17.8.

DRAINAGE AREA.--838 mi².

PERIOD OF RECORD.--April 1905 to March 1908 (published as Elm Fork of Red River), March 1930 to September 1931, October 1937 to September 1947, April 1965 to September 1967, August 1968 to 1976 (discontinued). Monthly discharge for some periods, published in WSP 1311. Occasional low-flow measurements, water years 1954, 1958-60, 1962-64, April to September 1965.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1906-07, 1931
1938-47, 1966-67, 1969-76

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	481	0.16	102	127	1.2	8.6
NOVEMBER	254	3.7	59	67	1.1	5.0
DECEMBER	366	6.0	43	73	1.7	3.6
JANUARY	388	6.8	48	80	1.7	4.0
FEBRUARY	173	7.5	33	37	1.1	2.8
MARCH	184	3.6	50	47	0.95	4.2
APRIL	688	3.4	132	157	1.2	11.1
MAY	1120	4.7	253	312	1.2	21.2
JUNE	1140	5.1	227	265	1.2	19.1
JULY	308	0.08	77	86	1.1	6.5
AUGUST	344	1.3	72	94	1.3	6.0
SEPTEMBER	321	0.01	95	95	1.0	8.0
ANNUAL	259	15	100	63	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED
ON PERIOD OF RECORD 1907-08, 1931, 1939-47,
1966-67, 1970-76

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.3	0.00	0.00	0.00
3	1.5	0.00	0.00	0.00
7	2.0	0.00	0.00	0.00
14	2.3	0.16	0.00	0.00
30	5.0	0.60	0.12	0.00
60	14	3.7	1.5	0.66
90	17	7.4	4.8	3.5
120	23	11	7.0	5.1
183	39	16	9.7	6.4

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 29 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
8170	16000	22200	31100	38400	46100
OKLAHOMA WEIGHTED SKEW = -0.258					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1906-07, 1931, 1938-47,
1966-67, 1969-76

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3750	6870	9040	11700	13700	15600
3	1990	3470	4420	5540	6290	6990
7	1070	1870	2390	3000	3410	3780
15	618	1090	1380	1720	1930	2120
30	412	747	955	1190	1340	1470
60	264	484	633	812	936	1050
90	204	371	488	636	743	850

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1906-07, 1931, 1938-47, 1966-67, 1969-76

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
1700	341	145	90	68	43	30	22	18	12	7.2	3.3	1.1	0.01	0.00	0.00	0.00	0.00

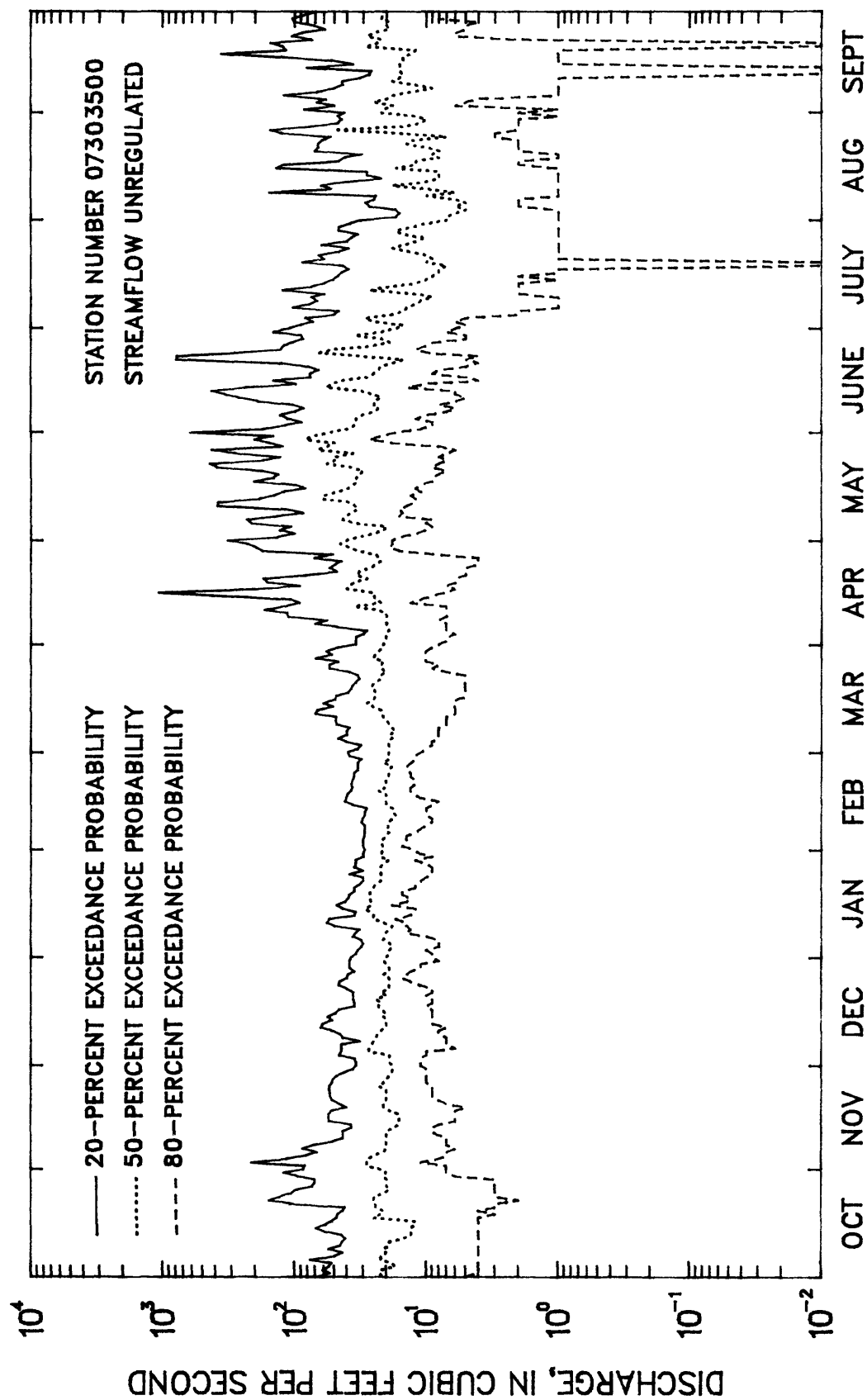


Figure 120.--Duration hydrographs of daily discharge values for Elm Fork of North Fork Red River near Mangum, Oklahoma, water years 1939-1947 1966-1967 1969-1976 (streamflow unregulated).

RED RIVER BASIN

07304500 ELK CREEK NEAR HOBART, OK

LOCATION.--Lat 34°54'51", long 99°06'49", in NE 1/4 NE 1/4 sec.17, T.5 N., R.18 W., Kiowa County, Hydrologic Unit 11120303, near right bank on downstream side of pier of county road bridge, 7.0 mi downstream from Little Elk Creek, 7.5 mi south of Hobart, and at mile 10.9.

DRAINAGE AREA.--549 mi².

PERIOD OF RECORD.--September 1904 to March 1908, October 1949 to current year.

REMARKS.--Part of high flows are diverted into West Otter Creek above station. Some regulation by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1905-07, 1950-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1130	0.00	119	228	1.9	13.4
NOVEMBER	390	0.00	36	69	1.9	4.0
DECEMBER	149	0.00	23	30	1.3	2.6
JANUARY	165	0.00	23	32	1.4	2.6
FEBRUARY	259	0.69	31	51	1.7	3.5
MARCH	322	0.55	34	56	1.7	3.8
APRIL	480	0.51	57	101	1.8	6.5
MAY	1450	0.03	247	353	1.4	27.9
JUNE	662	2.3	143	166	1.2	16.2
JULY	813	0.00	70	155	2.2	7.9
AUGUST	199	0.00	29	46	1.6	3.3
SEPTEMBER	607	0.00	74	145	2.0	8.3
ANNUAL	172	14	74	51	0.69	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1906-08, 1951-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.91	0.00	0.00	0.00
3	1.04	0.00	0.00	0.00
7	1.2	0.00	0.00	0.00
14	1.2	0.00	0.00	0.00
30	1.9	0.12	0.00	0.00
60	4.6	0.95	0.20	0.00
90	7.1	1.7	0.61	0.00
120	11	2.3	0.64	0.14
183	19	4.3	1.6	0.50

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1905-07, 1950-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 38 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4650	8890	12700	18800	24300	30900
OKLAHOMA WEIGHTED SKEW = 0.233					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3260	6010	8390	12100	15400	19200
3	2070	4020	5640	8010	10000	12200
7	1090	2180	3080	4400	5520	6730
15	603	1230	1750	2490	3100	3760
30	366	761	1080	1540	1920	2310
60	213	423	598	856	1070	1310
90	158	309	431	607	751	905

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1905-07, 1950-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
1540	207	88	55	40	26	18	12	8.0	5.0	2.4	0.45	0.01	0.00	0.00	0.00	0.00	0.00

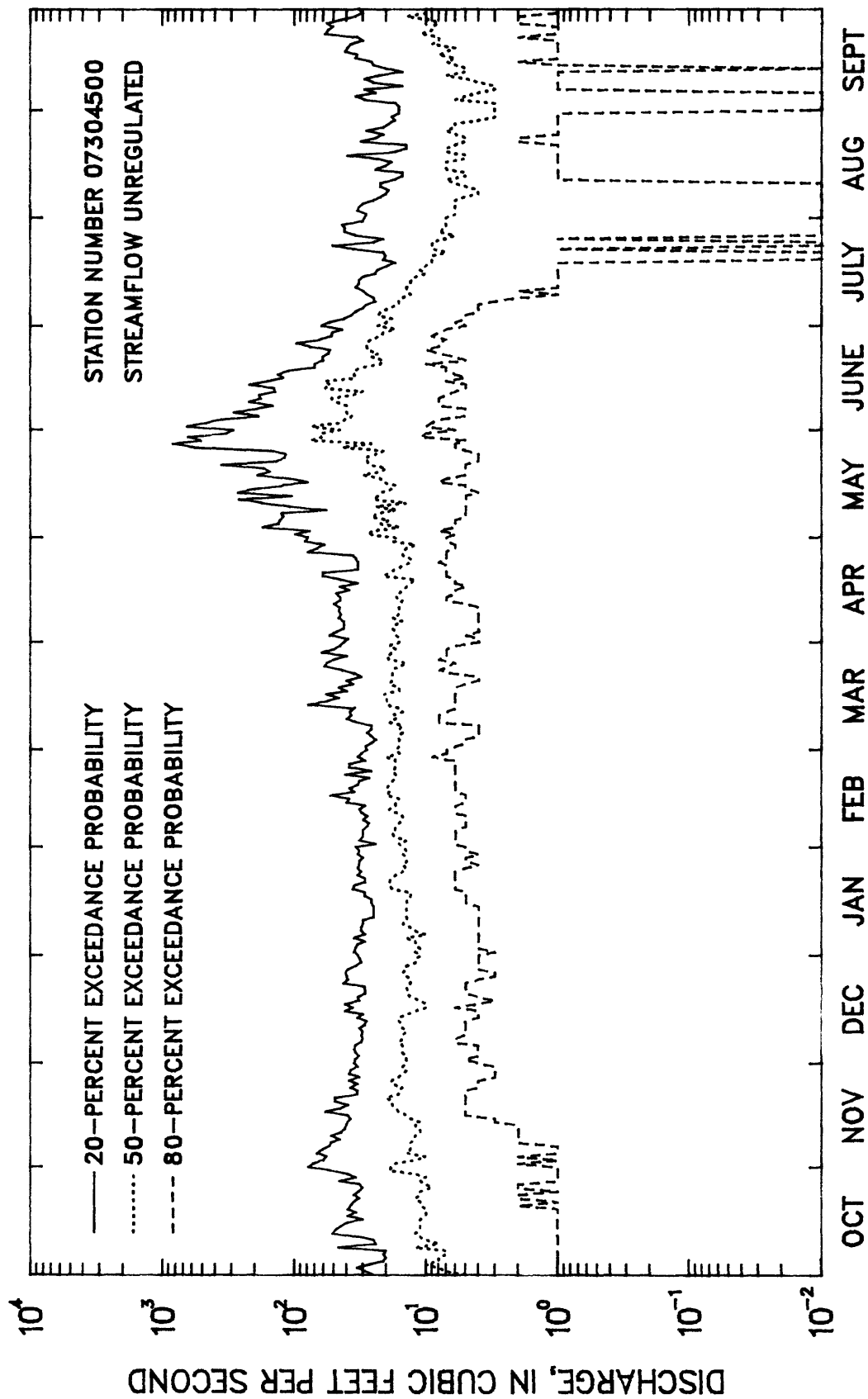


Figure 121.—Duration hydrographs of daily discharge values for Elk Creek near Hobart, Oklahoma, water years 1956-1984 (streamflow unregulated).

RED RIVER BASIN

07305000 NORTH FORK RED RIVER NEAR HEADRICK, OK

LOCATION.--Lat 34°38'04", long 99°05'47", in NW 1/4 NE 1/4 sec.21, T.2 N., R.18 W., Tillman County, Hydrologic Unit 11120303, near left bank on downstream side of pier of bridge on old U.S. Highway 62, 2.5 mi east of Headrick, 12.9 mi upstream from Otter Creek, and at mile 33.0.

DRAINAGE AREA.--4,244 mi², of which 399 mi² is probably noncontributing.

PERIOD OF RECORD.--April 1905 to March 1908, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to July 1905, published as "near Snyder".

REMARKS.--Flow regulated since December 1943 by Lake Altus. Diversions for irrigation of about 48,000 acres above station; some return flow may re-enter at Stinking Creek, 16 mi below station.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1946-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2310	0.00	304	535	1.8	9.8
NOVEMBER	648	0.00	94	136	1.5	3.0
DECEMBER	456	0.20	66	94	1.4	2.1
JANUARY	499	0.84	63	92	1.5	2.0
FEBRUARY	1160	4.1	107	198	1.9	3.4
MARCH	674	4.3	104	148	1.4	3.3
APRIL	1450	0.64	185	312	1.7	6.0
MAY	6100	0.31	996	1420	1.4	32.1
JUNE	3120	10	646	677	1.0	20.8
JULY	2020	0.25	239	420	1.8	7.7
AUGUST	706	0.00	100	157	1.6	3.2
SEPTEMBER	1680	0.00	200	330	1.7	6.5
ANNUAL	681	50	260	174	0.67	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1947-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.8	0.00	0.00	0.00
3	1.9	0.00	0.00	0.00
7	2.4	0.00	0.00	0.00
14	3.5	0.00	0.00	0.00
30	6.4	0.39	0.02	0.00
60	17	2.6	0.49	0.00
90	35	7.4	1.8	0.32
120	46	12	3.5	0.74
183	74	18	6.1	2.1

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1946-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 39 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
12000	20400	26200	33700	39200	44600
STATION SKEW = -0.651					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	9020	16000	20900	27100	31600	36000
3	6110	11300	15000	20000	23700	27300
7	3380	6490	8880	12100	14700	17300
15	1980	4070	5810	8380	10500	12900
30	1220	2600	3820	5700	7360	9230
60	751	1520	2190	3250	4190	5260
90	562	1110	1580	2290	2900	3590

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1946-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4980	941	361	211	142	86	62	45	32	23	12	3.7	0.29	0.01	0.00	0.00	0.00

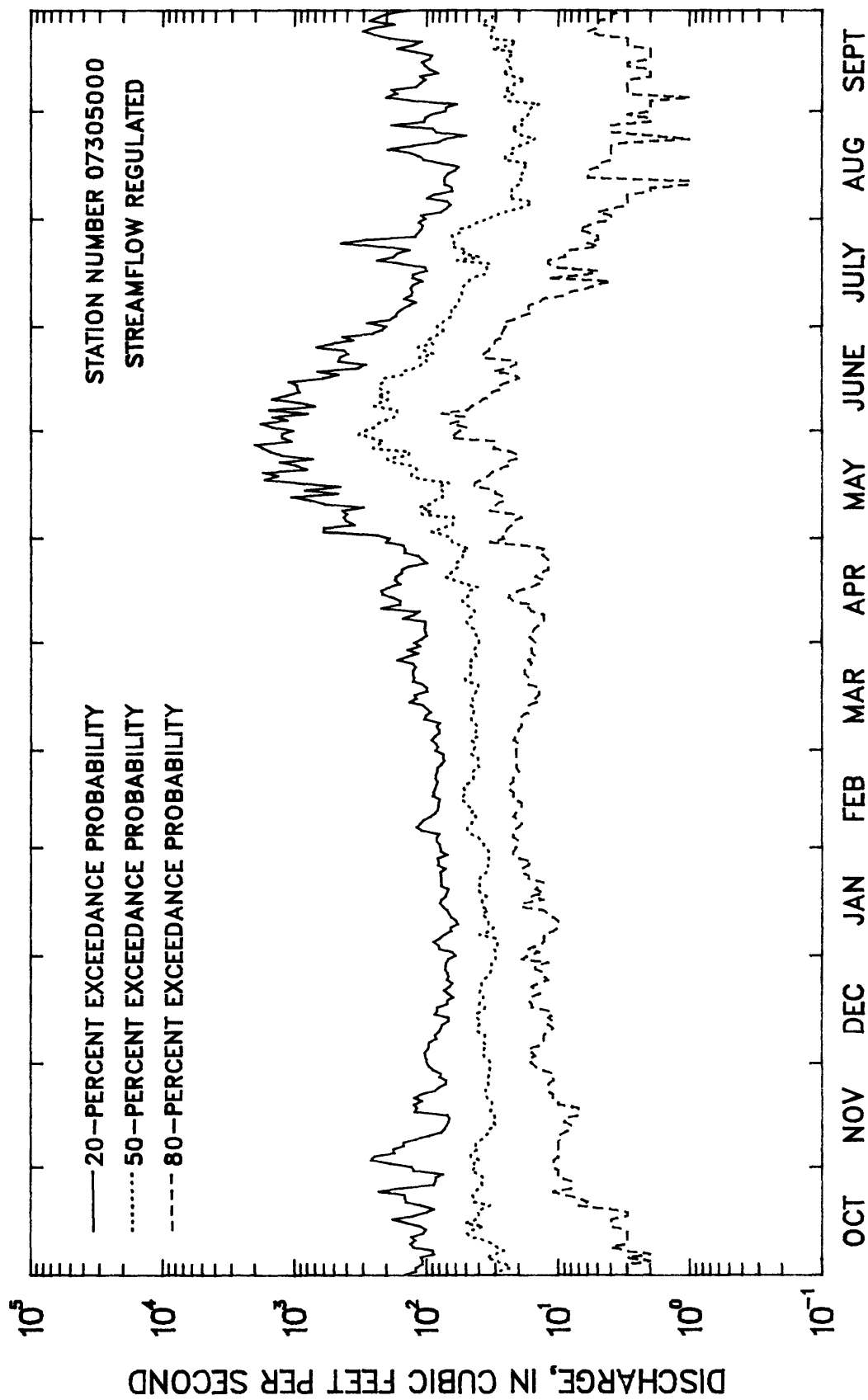


Figure 122.--Duration hydrographs of daily discharge values for North Fork Red River near Headrick, Oklahoma, water years 1946-1984 (streamflow regulated).

RED RIVER BASIN

07305500 WEST OTTER CREEK AT SNYDER LAKE, NEAR MOUNTAIN PARK, OK

LOCATION.--Lat 34°44'02", long 98°59'10", in SE 1/4 NE 1/4 sec.16, T.3 N., R.17 W., Kiowa County, Hydrologic Unit 11120303, near east end of Snyder Dam, 0.8 mi upstream from small tributary, 3 mi northwest of Mountain Park, and at mile 26.0.

DRAINAGE AREA.--132 mi².

PERIOD OF RECORD.--April 1903 to March 1908, October 1951 to September 1971, July 1972 to current year. Published as Otter Creek near Mountain Park 1903-8 and as Otter Creek at Snyder Lake, near Mountain Park 1951-60. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--The city of Snyder diverted about 130 acre-ft annually prior to October 1958 and none thereafter. Flow completely regulated since June 1975 by Tom Steed Reservoir.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1952-71, 1973-74

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	190	0.00	31	55	1.8	13.0
NOVEMBER	131	0.00	8.3	28	3.4	3.5
DECEMBER	71	0.00	6.4	18	2.8	2.7
JANUARY	40	0.00	2.7	8.8	3.2	1.1
FEBRUARY	27	0.00	2.0	5.9	3.0	0.8
MARCH	123	0.00	6.3	26	4.2	2.6
APRIL	129	0.00	14	34	2.4	5.9
MAY	392	0.00	62	99	1.6	26.1
JUNE	227	0.00	51	68	1.3	21.3
JULY	127	0.00	17	39	2.3	7.0
AUGUST	32	0.00	2.5	7.1	2.9	1.0
SEPTEMBER	197	0.00	36	63	1.8	14.9
ANNUAL	60	0.00	20	15	0.77	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1953-71, 1974

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00
183	0.73	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1952-71, 1973-74

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 22 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2410	5200	7650	11400	14600	18300
OKLAHOMA WEIGHTED SKEW = -0.187					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1610	3110	3820	4400	4660	4830
3	860	1480	1700	1850	1900	1930
7	470	810	930	1000	1030	1040
15	250	440	510	550	560	570
30	150	250	290	310	320	330
60	84	149	175	193	204	207
90	62	110	130	143	150	152

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1952-71, 1973-74

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
555	36	8.0	3.1	0.79	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

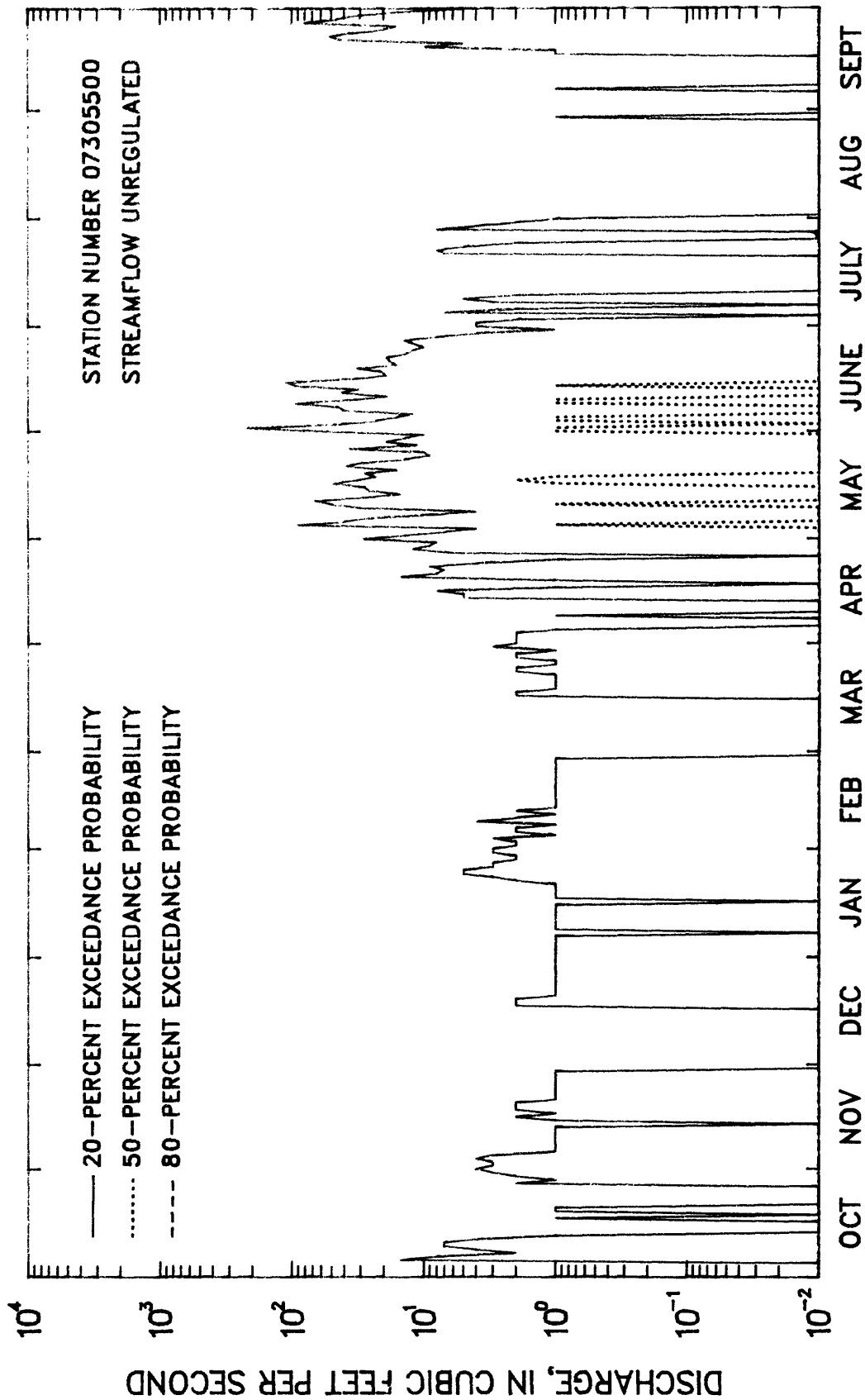


Figure 123.--Duration hydrographs of daily discharge values for West Otter Creek at Snyder Lake near mountain park, Oklahoma, water years 1954-1971, 1973-1974 (streamflow unregulated).

RED RIVER BASIN

07305500 WEST OTTER CREEK AT SNYDER LAKE NEAR MOUNTAIN PARK, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1975-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	31	0.00	6.1	11	1.7	8.3
NOVEMBER	102	0.00	17	37	2.1	23.7
DECEMBER	5.9	0.00	0.81	1.8	2.3	1.1
JANUARY	11	0.00	1.4	3.5	2.5	1.9
FEBRUARY	39	0.00	4.5	12	2.7	6.1
MARCH	32	0.00	3.8	10	2.6	5.2
APRIL	9.6	0.00	1.4	3.0	2.2	1.9
MAY	45	0.00	5.6	14	2.5	7.6
JUNE	167	0.01	24	52	2.2	32.4
JULY	72	0.00	7.4	23	3.0	10.1
AUGUST	1.6	0.00	0.51	0.58	1.1	0.7
SEPTEMBER	3.1	0.00	0.75	0.95	1.3	1.0
ANNUAL	22	0.03	6.1	8.0	1.3	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1976-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00
120	0.00	0.00	0.00	0.00
183	0.02	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 10 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
113	348	649	1300	2060	3150
STATION SKEW = 0.284					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1975-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	42	272	725	2070	4100	7580
3	27	214	636	2060	3900	7570
7	19	156	484	1650	3660	7570
15	12	108	346	1220	2810	5980
30	7.5	63	195	668	1500	3120
60	4.3	34	100	320	681	1340
90	3.2	24	68	205	419	795

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1975-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
185	11	3.7	1.8	0.98	0.39	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

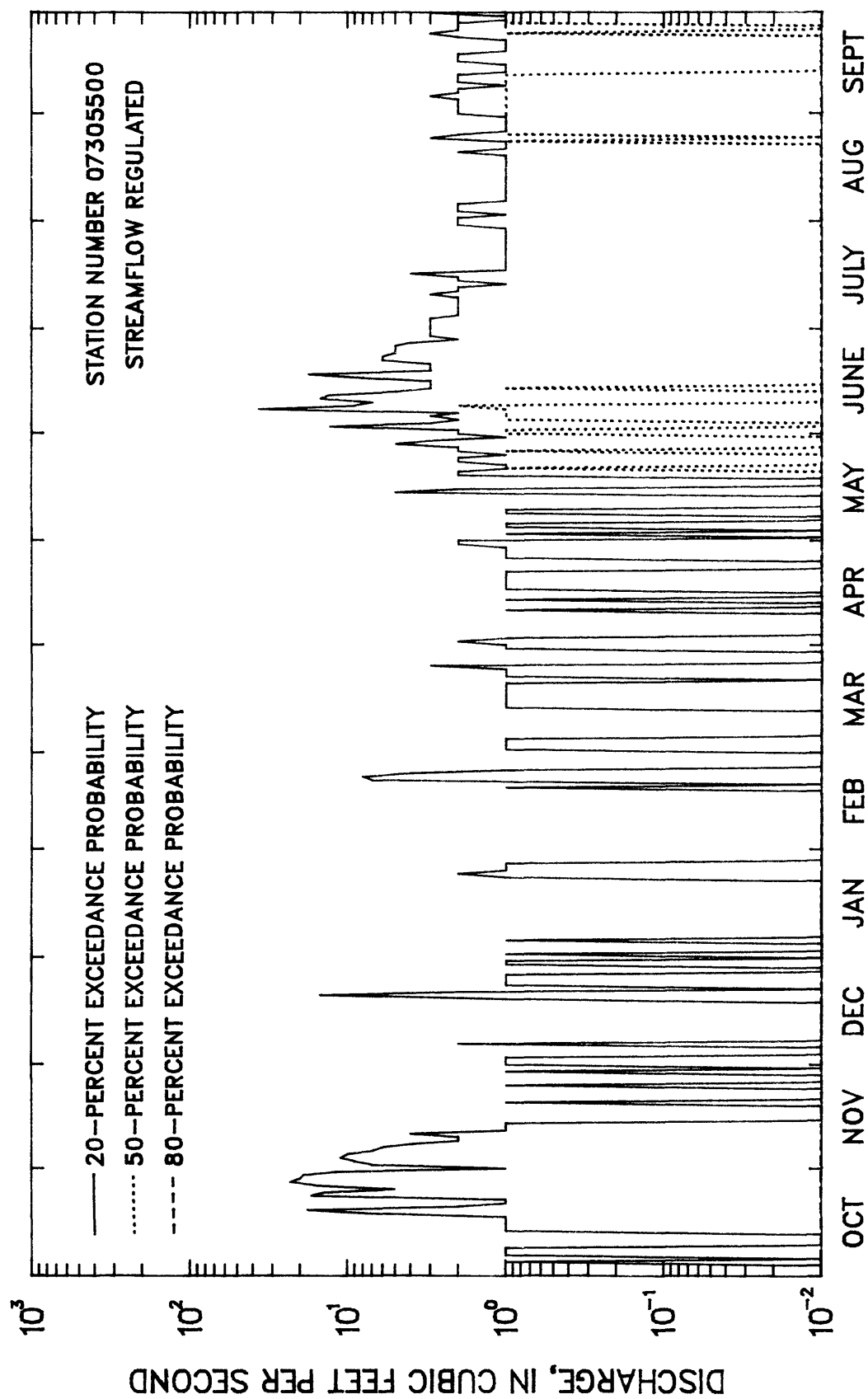


Figure 124.--Duration hydrographs of daily discharge values for West Otter Creek at Snyder Lake near Mountain park, Oklahoma, water years 1976-1984 (streamflow regulated).

RED RIVER BASIN

07308500 RED RIVER NEAR BURKBURNETT, TX

LOCATION.--Lat 34°06'36", long 98°31'53", Cotton County, Okla., Hydrologic Unit 11130102, on left bank at downstream side of bridge on U.S. Highways 277 and 281, 2.5 mi northeast of Burkburnett, and at mile 933.

DRAINAGE AREA.--20,570 mi², of which 5,936 mi² probably is noncontributing.

PERIOD OF RECORD.--July 1924 to August 1925 (monthly discharge only), December 1959 to current year.

REMARKS.--Many small diversions for irrigation upstream from station.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	12000	22	1380	2890	2.1	13.3
NOVEMBER	1570	0.96	487	481	0.99	4.7
DECEMBER	1070	3.0	252	238	0.94	2.4
JANUARY	1090	5.5	252	234	0.93	2.4
FEBRUARY	999	8.4	287	230	0.80	2.8
MARCH	2210	8.0	382	452	1.2	3.7
APRIL	5990	0.15	653	1190	1.8	6.3
MAY	12500	11	1970	2740	1.4	19.0
JUNE	6670	148	2390	1750	0.73	23.1
JULY	5940	0.06	690	1250	1.8	6.7
AUGUST	2110	1.3	538	618	1.2	5.2
SEPTEMBER	4240	32	1070	1230	1.2	10.4
ANNUAL	1740	178	864	454	0.53	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1961-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	19	2.3	0.00	0.00
3	22	2.6	0.00	0.00
7	27	3.1	0.00	0.00
14	32	5.0	0.00	0.00
30	71	5.6	0.44	0.00
60	88	22	8.2	3.2
90	148	57	28	14
120	195	74	36	18
183	305	118	62	34

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
25900	48500	67900	97600	124000	153000

WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.095

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	19900	40500	58100	84500	107000	132000
3	15800	32500	46300	66400	83000	101000
7	10400	20200	27400	36600	43400	50100
15	6740	12800	16900	22000	25600	28900
30	4280	7940	10500	13600	15800	12800
60	2630	4640	6030	7760	9020	10200
90	2020	3450	4380	5490	6250	6960

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
13800	3180	1600	1010	691	417	288	214	156	113	71	32	9.1	0.25	0.01	0.00	0.00	0.00

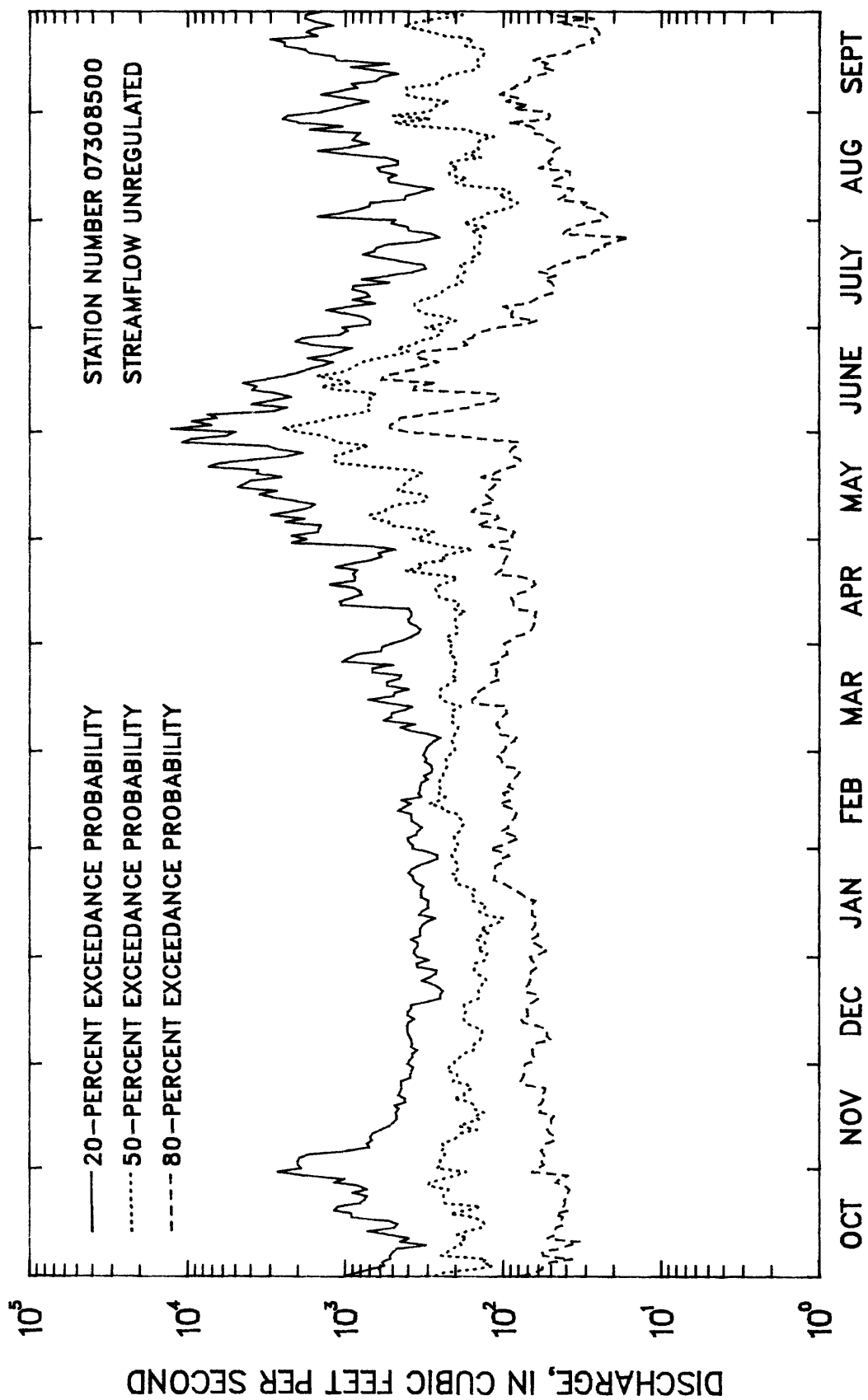


Figure 125.—Duration hydrographs of daily discharge values for Red River near Burkburnett, Texas, water years 1966–1984 (streamflow unregulated).

RED RIVER BASIN

07311000 EAST CACHE CREEK NEAR WALTERS, OK

LOCATION.--Lat 34°21'44", long 98°16'56", on south line of SE 1/4 SE 1/4 sec.19, T.2 S., R.10 W., Cotton County, Hydrologic Unit 11130202, at right bank on downstream side of bridge on State Highway 53, 1.8 mi east of Walters, 12.2 mi upstream from West Cache Creek, and at mile 19.7.

DRAINAGE AREA.--675 mi².

PERIOD OF RECORD.--May 1938 to December 1963; October 1969 to current year. Prior to October 1969, published as Cache Creek near Walters.

REMARKS.--Flow partly regulated by Lake Lawtonka, on Medicine Creek prior to late 1953, and thereafter, by Lake Thomas, on Little Medicine Creek, and since March 1961 by Lake Ellsworth, on East Cache Creek. Low flow sustained by sewage from cities of Lawton and Walters.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-61

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1040	0.00	232	337	1.5	10.7
NOVEMBER	260	0.15	69	82	1.2	3.2
DECEMBER	435	0.15	78	106	1.4	3.6
JANUARY	250	0.63	50	56	1.1	2.3
FEBRUARY	389	2.2	91	111	1.2	4.2
MARCH	1150	2.1	134	267	2.0	6.1
APRIL	1010	7.8	206	276	1.3	9.5
MAY	2580	5.1	680	810	1.2	31.2
JUNE	1590	13	383	413	1.1	17.6
JULY	374	9.3	109	110	1.0	5.0
AUGUST	211	3.8	38	49	1.3	1.7
SEPTEMBER	895	0.00	108	204	1.9	5.0
ANNUAL	394	13	182	110	0.61	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-61

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	7.4	2.0	0.29	0.00
3	7.7	2.9	0.82	0.00
7	8.1	3.2	0.96	0.00
14	8.6	3.6	1.3	0.00
30	13	3.9	1.4	0.01
60	16	4.4	1.7	0.07
90	22	5.9	2.2	0.30
120	30	7.4	2.5	0.84
183	47	12	4.7	2.0

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1939-61MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 23 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7680	13300	17800	24300	29700	35700
OKLAHOMA WEIGHTED SKEW = 0.045					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	7360	12400	14700	16500	17400	18000
3	4970	8670	10300	11600	12200	12600
7	2640	4750	5790	6670	7110	7410
15	1490	2730	3380	3990	4310	4550
30	982	1790	2210	2590	2790	2930
60	606	1120	1410	1690	1850	1970
90	460	807	980	1130	1210	1270

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-61

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
3540	659	251	145	100	61	40	28	21	16	11	6.4	2.5	0.13	0.07	0.04	0.01	0.01

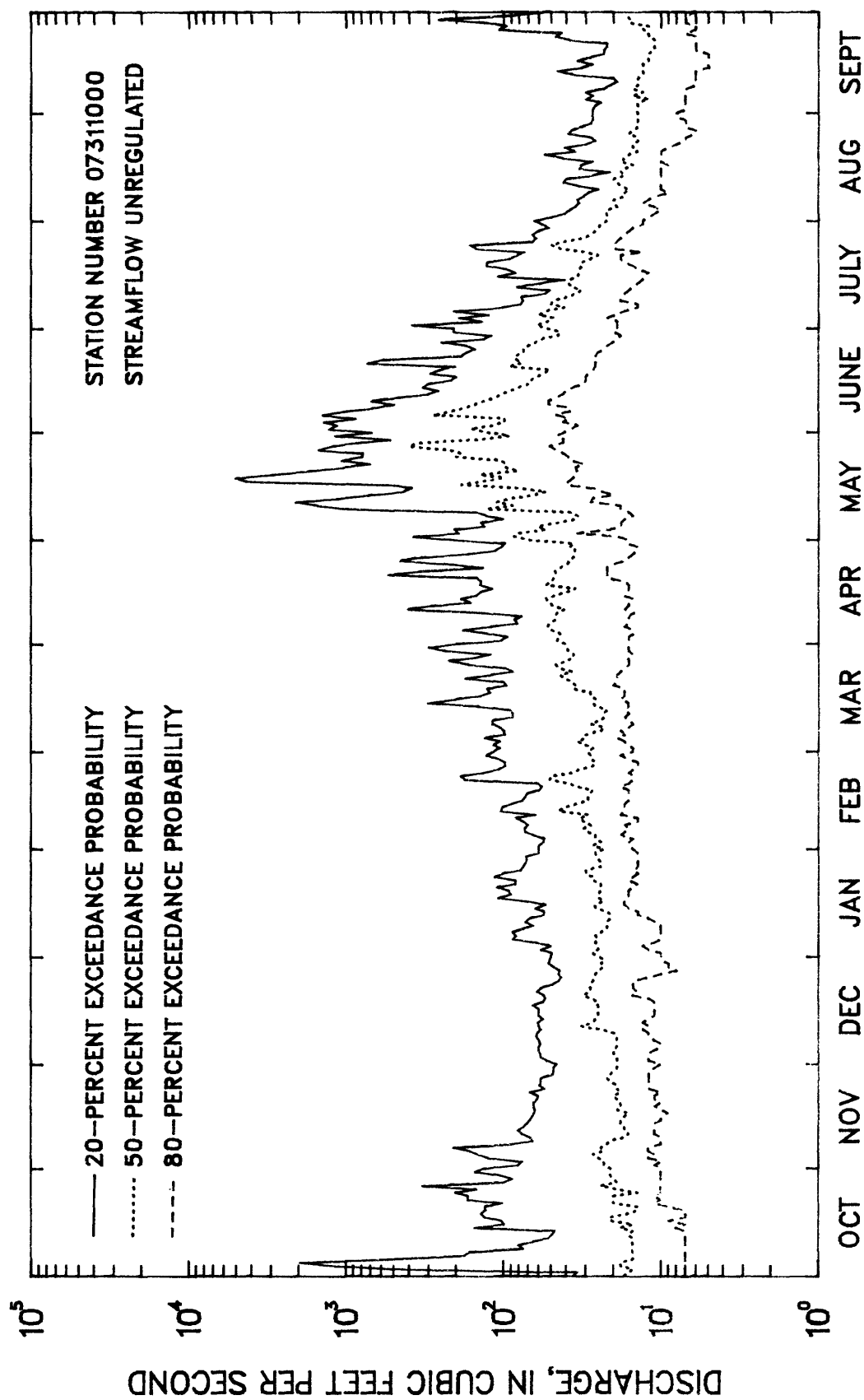


Figure 126.--Duration hydrographs of daily discharge values for East Cache Creek near Walters, Oklahoma, water years 1943-1961 (streamflow unregulated).

RED RIVER BASIN

07311000 EAST CACHE CREEK NEAR WALTERS, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1962-63, 1970-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2740	13	222	652	2.9	13.0
NOVEMBER	478	18	85	119	1.4	5.0
DECEMBER	118	17	46	30	0.65	2.7
JANUARY	311	19	59	70	1.2	3.5
FEBRUARY	297	23	71	81	1.1	4.2
MARCH	558	19	124	148	1.2	7.3
APRIL	346	18	107	94	0.88	6.3
MAY	1820	22	361	504	1.4	21.1
JUNE	2620	19	426	661	1.5	24.9
JULY	483	9.7	81	121	1.5	4.8
AUGUST	285	9.3	71	83	1.2	4.1
SEPTEMBER	205	13	56	54	0.96	3.3
ANNUAL	342	39	143	113	0.79	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1963, 1971-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	7.8	4.6	3.6	2.9
3	8.8	5.5	4.3	3.6
7	10	6.7	5.4	4.5
14	12	7.8	6.3	5.2
30	16	11	9.0	7.7
60	20	14	12	10
90	22	16	13	11
120	26	18	15	13
183	39	25	21	17

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 17 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3580	9030	15800	30800	48900	76000
STATION SKEW = 0.787					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-63, 1970-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3210	7620	12600	22700	33800	49300
3	2300	5600	9290	16500	24200	34800
7	1370	3430	5850	10800	16300	24100
15	850	2170	3700	6760	10200	14900
30	520	1280	2150	3840	5700	8230
60	329	773	1250	2130	3040	4230
90	249	573	913	1530	2170	2990

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-63, 1970-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2350	527	202	102	73	49	39	32	28	23	20	16	13	9.5	7.7	6.5	4.4

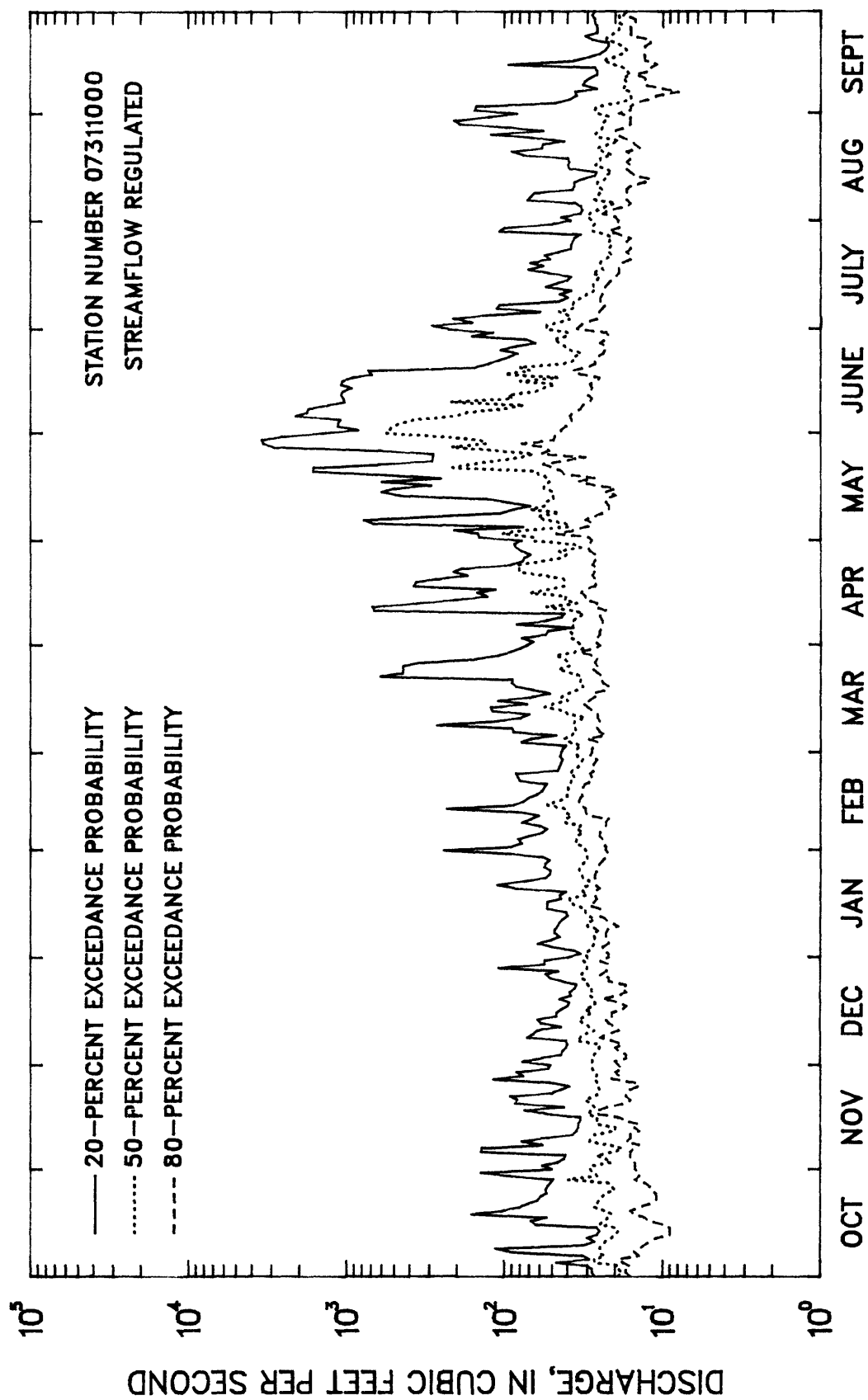


Figure 127.--Duration hydrographs of daily discharge values for East Cache Creek near Walters, Oklahoma, water years 1976-1984 (streamflow regulated).

RED RIVER BASIN

07311200 BLUE BEAVER CREEK NEAR CACHE, OK
(Hydrologic bench-mark station)

LOCATION.--Lat 34°37'24", long 98°33'48", in NE 1/4 NE 1/4 sec.28, T.2 N., R.13 W., Comanche County, Hydrologic Unit 11130203, on downstream side of right bank pier on old U.S. Highway 62, 3,000 ft upstream from St. Louis-San Francisco Railway Co. bridge, 4.0 mi east of Cache, and at mile 12.0.

DRAINAGE AREA.--24.6 mi².

PERIOD OF RECORD.--July 1964 to current year.

REMARKS.--Minor regulation by Lake Jed Johnson.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1965-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	138	0.00	10	31	2.9	8.8
NOVEMBER	49	0.00	5.9	12	2.0	5.0
DECEMBER	15	0.00	2.6	3.8	1.5	2.2
JANUARY	53	0.00	5.8	12	2.1	4.9
FEBRUARY	31	0.00	8.3	11	1.3	7.0
MARCH	89	0.00	15	21	1.5	12.3
APRIL	54	0.02	15	15	1.0	12.5
MAY	176	0.03	34	44	1.3	28.6
JUNE	56	0.01	15	20	1.3	12.8
JULY	13	0.00	1.3	2.9	2.2	1.1
AUGUST	28	0.00	1.5	6.1	4.0	1.3
SEPTEMBER	30	0.00	4.0	8.8	2.2	3.4
ANNUAL	27	0.48	9.9	7.5	0.76	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	0.02	0.00	0.00	0.00
120	0.10	0.00	0.00	0.00
183	0.64	0.00	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1390	3470	5660	9600	13600	18600

OKLAHOMA WEIGHTED SKEW = 0.109

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	367	847	1320	2120	2880	3810
3	224	489	725	1090	1410	1780
7	131	277	394	558	690	826
15	77	166	235	330	403	477
30	49	101	139	184	216	246
60	32	65	85	107	120	131
90	24	48	63	81	92	102

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
166	37	18	11	6.6	3.1	1.5	0.80	0.13	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00

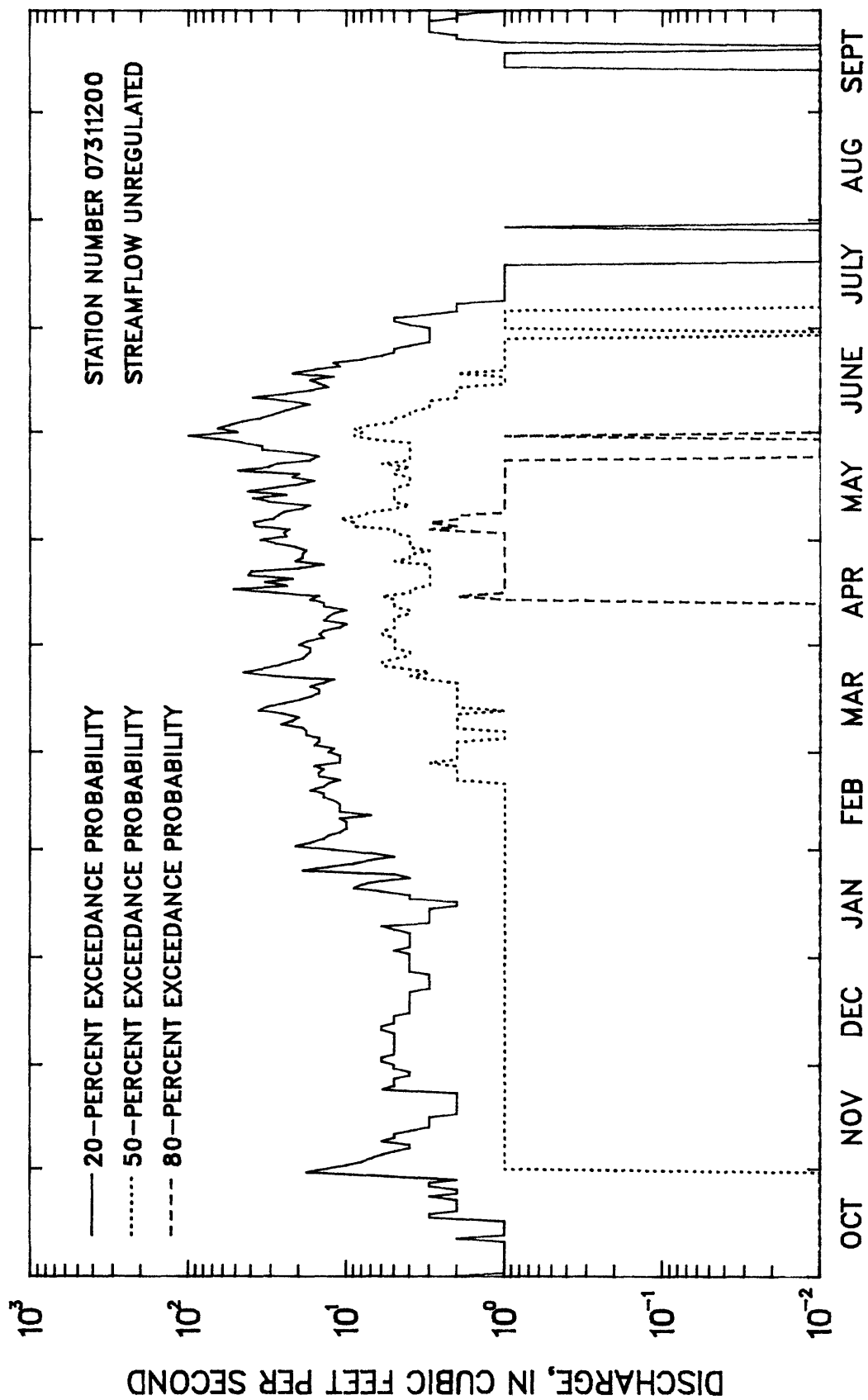


Figure 128.--Duration hydrographs of daily discharge values for Blue Beaver Creek near Cache, Oklahoma, water years 1966-1984 (streamflow unregulated).

RED RIVER BASIN

07311500 DEEP RED RUN NEAR RANDLETT, OK

LOCATION.--Lat 34°13'15", long 98°27'10", in SW 1/4 SW 1/4 sec.10, T.4 S., R.12 W., Cotton County, Hydrologic Unit 11130203, near right bank on downstream side of pier of bridge on U.S. Highway 277, 2.8 mi north of Randlett, and at mile 4.8.

DRAINAGE AREA.--617 mi².

PERIOD OF RECORD.--October 1949 to current year.

REMARKS.--Some regulation by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1950-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	3350	0.00	217	598	2.7	15.6
NOVEMBER	725	0.00	58	138	2.4	4.2
DECEMBER	230	0.00	18	45	2.5	1.3
JANUARY	437	0.00	24	76	3.2	1.7
FEBRUARY	281	0.02	32	59	1.8	2.3
MARCH	506	0.10	43	93	2.2	3.1
APRIL	799	0.00	87	180	2.1	6.2
MAY	2340	0.06	439	575	1.3	31.4
JUNE	1290	0.00	240	290	1.2	17.2
JULY	284	0.00	40	65	1.6	2.9
AUGUST	506	0.00	50	101	2.0	3.6
SEPTEMBER	1450	0.00	147	283	1.9	10.6
ANNUAL	326	16	117	82	0.70	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1951-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.06	0.00	0.00	0.00
60	0.58	0.00	0.00	0.00
90	1.7	0.32	0.00	0.00
120	3.4	0.71	0.14	0.00
183	16	1.9	0.31	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1950-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 33 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6150	14500	22900	37600	52000	69900
OKLAHOMA WEIGHTED SKEW = 0.106					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	5090	10600	15300	22700	29100	36300
3	3970	7990	11100	15300	18500	21800
7	2190	4420	6030	8080	9560	11000
15	1210	2410	3270	4360	5130	5870
30	720	1410	1910	2540	3000	3450
60	421	806	1080	1410	1650	1870
90	304	567	742	947	1090	1210

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1950-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
2780	443	90	35	19	8.6	5.1	3.2	1.8	0.76	0.20	0.01	0.00	0.00	0.00	0.00	0.00	

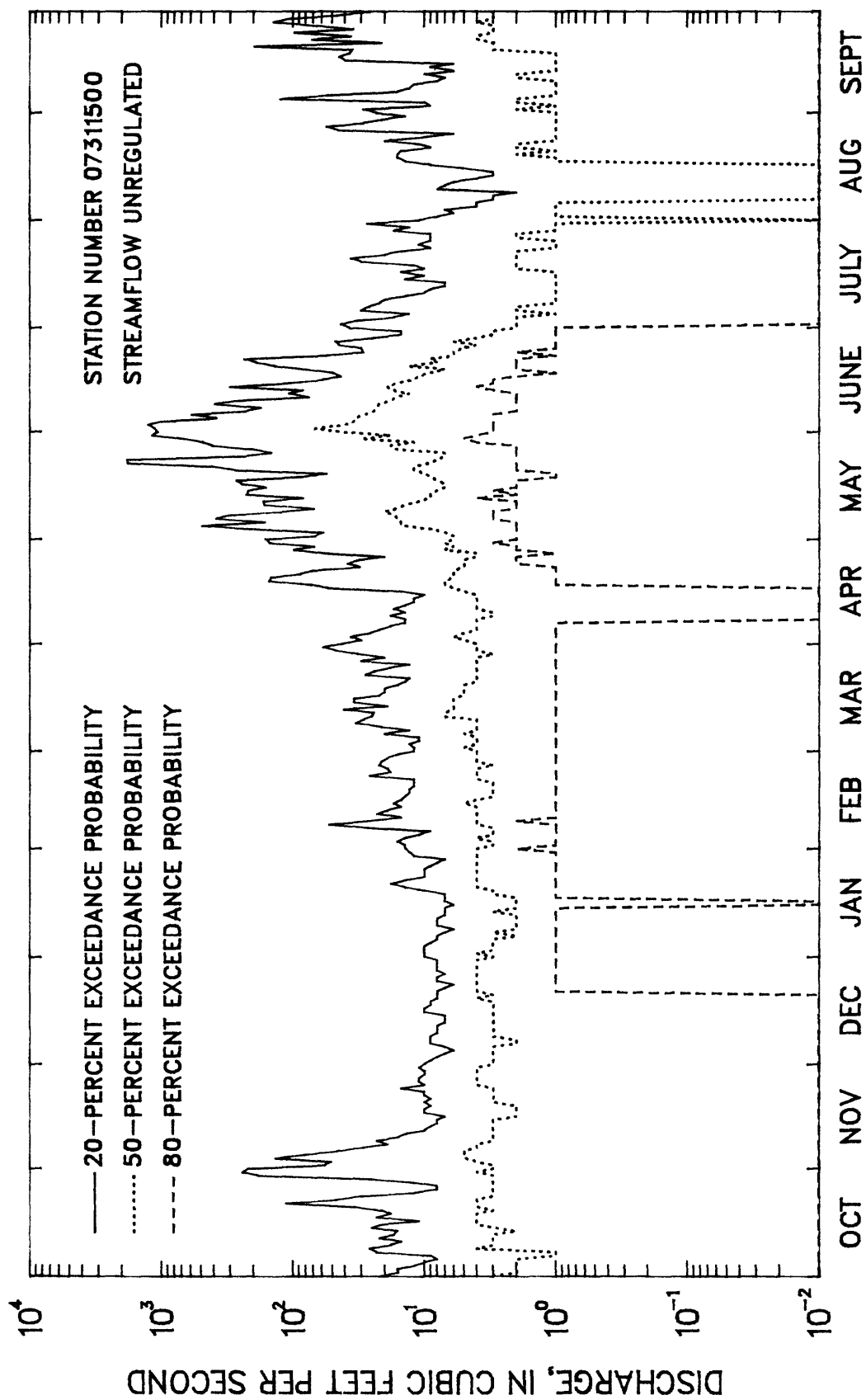


Figure 129.--Duration hydrographs of daily discharge values for Deep Red Run near Randlett, Oklahoma, water years 1956-1984 (streamflow unregulated).

RED RIVER BASIN

07313000 LITTLE BEAVER CREEK NEAR DUNCAN, OK

LOCATION.--Lat 34°29'36", long 98°06'42", in NE 1/4 sec.11, T.1 S., R.9 W., on downstream side of right pier of bridge on county road, 0.8 mi downstream from Stage Stand Creek, 8.2 mi west of Duncan, and at mile 11.9.

DRAINAGE AREA.--158 mi².

PERIOD OF RECORD.--October 1948 to December 1963.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1949-63

MONTH	(CFS)	(CFS)	(CFS)	STAN- DARD DEVI- (CFS)	COEFFI- CIENT OF ATION	PERCENT OF RUNOFF
OCTOBER	388	0.00	57	104	1.8	9.2
NOVEMBER	70	0.00	18	23	1.2	2.9
DECEMBER	79	0.00	16	21	1.3	2.6
JANUARY	39	0.15	12	10	0.86	1.9
FEBRUARY	106	1.4	20	26	1.3	3.3
MARCH	77	2.6	23	21	0.91	3.6
APRIL	155	1.9	29	38	1.3	4.7
MAY	1000	7.7	258	280	1.1	41.3
JUNE	818	6.0	129	211	1.6	20.7
JULY	130	0.68	32	41	1.3	5.2
AUGUST	87	0.00	12	23	1.9	2.0
SEPTEMBER	103	0.00	16	29	1.8	2.6
ANNUAL	118	7.0	52	33	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1950-63

PERIOD SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.14	0.00	0.00	0.00
60	1.6	0.00	0.00	0.00
90	3.1	0.00	0.00	0.00
120	5.6	0.88	0.12	0.00
183	11	2.9	0.90	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
10500	29400	50300	89500	130000	182000
OKLAHOMA WEIGHTED SKEW = 0.012					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1949-63

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3370	7670	11500	17300	22200	27700
3	1500	3280	4780	6980	8790	10700
7	725	1610	2350	3460	4370	5350
15	390	939	1450	2280	3020	3860
30	254	587	880	1320	1700	2120
60	153	344	509	754	959	1180
90	117	247	351	495	607	723

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1949-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
975	108	41	28	22	15	11	7.2	4.5	2.2	0.26	0.06	0.03	0.01	0.01	0.00	0.00	0.00

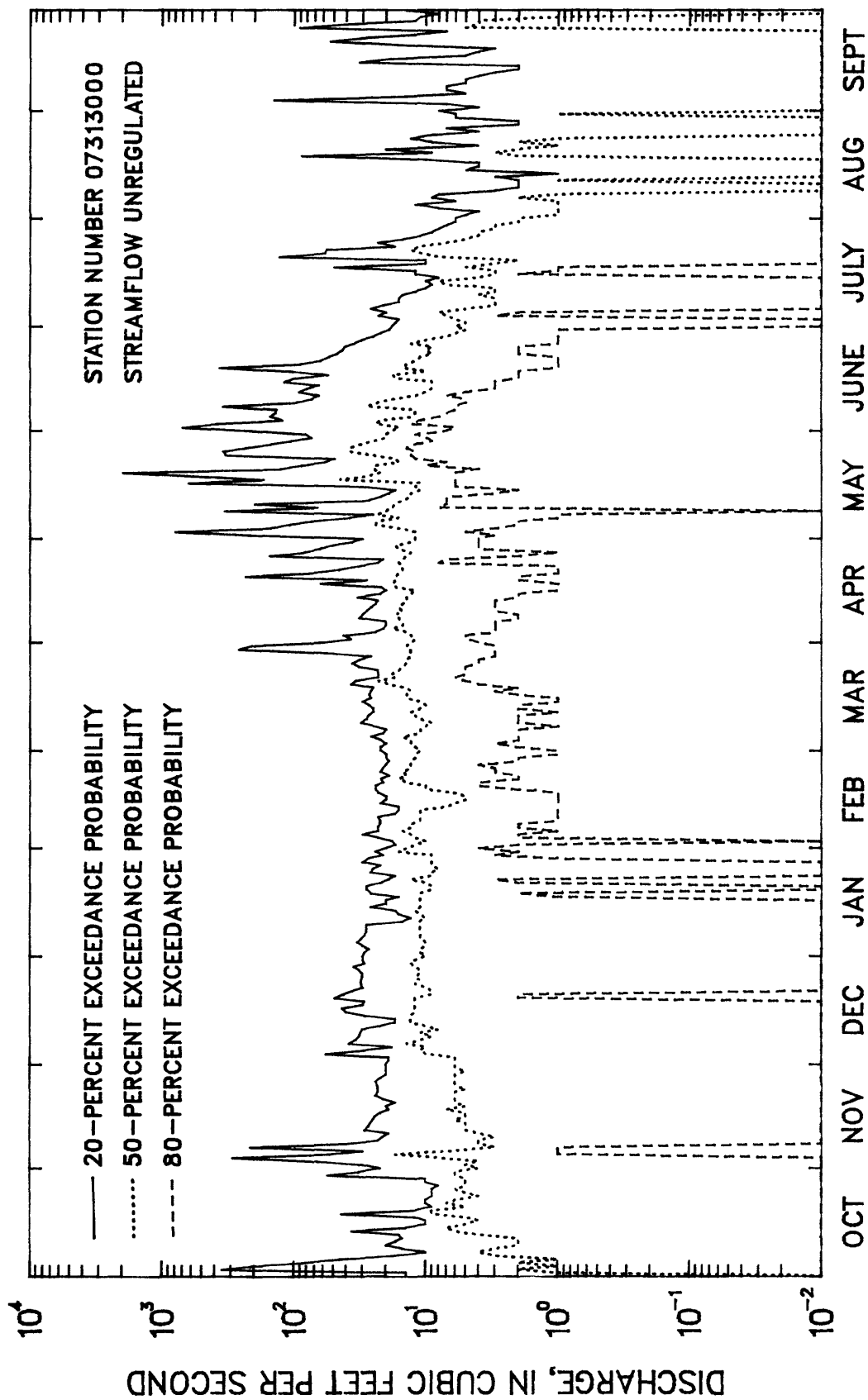


Figure 130.--Duration hydrographs of daily discharge values for Little Beaver Creek near Duncan, Oklahoma, water years 1955-1963 (streamflow unregulated).

RED RIVER BASIN

07313500 BEAVER CREEK NEAR WAURIKA, OK

LOCATION.--Lat 34°13'00", long 98°02'57", on north line of NW 1/4 NW 1/4 sec.16, T.4 S., R.8 W., Jefferson County, Hydrologic Unit 1130208, on left bank on downstream side of bridge on State Highway 5, 4.5 mi northwest of Waurika, 6.2 mi upstream from Cow Creek, and at mile 25.8.

DRAINAGE AREA.--563 mi².

PERIOD OF RECORD.--June 1953 to current year.

REMARKS.--Flow regulated since 1977 by Waurika Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1954-76

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	794	0.00	87	172	2.0	6.8
NOVEMBER	451	0.00	90	117	1.3	7.0
DECEMBER	281	0.00	42	64	1.5	3.2
JANUARY	153	0.05	34	42	1.2	2.7
FEBRUARY	276	0.07	44	68	1.5	3.4
MARCH	537	1.9	71	112	1.6	5.5
APRIL	726	1.4	112	164	1.5	8.7
MAY	2630	0.81	434	703	1.6	33.9
JUNE	2130	4.6	229	449	2.0	17.9
JULY	170	0.00	50	58	1.2	3.9
AUGUST	168	0.00	29	42	1.5	2.2
SEPTEMBER	230	0.00	59	64	1.1	4.6
ANNUAL	349	20	107	95	0.89	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1955-76

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.26	0.00	0.00	0.00
60	1.1	0.00	0.00	0.00
90	2.9	0.11	0.00	0.00
120	7.9	1.1	0.27	0.01
183	22	4.4	1.4	0.48

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1954-76MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4320	11400	19400	34900	51500	73800

OKLAHOMA WEIGHTED SKEW = 0.247

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2990	7280	12200	22200	33400	48900
3	2030	4790	7780	13500	19500	27600
7	1050	2510	4180	7510	11200	16400
15	561	1430	2530	4980	7990	12600
30	339	847	1480	2870	4570	7120
60	208	518	897	1710	2680	4100
90	165	398	665	1200	1800	2640

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1954-76

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1950	361	131	78	56	34	22	13	6.6	2.8	0.47	0.01	0.00	0.00	0.00	0.00	0.00

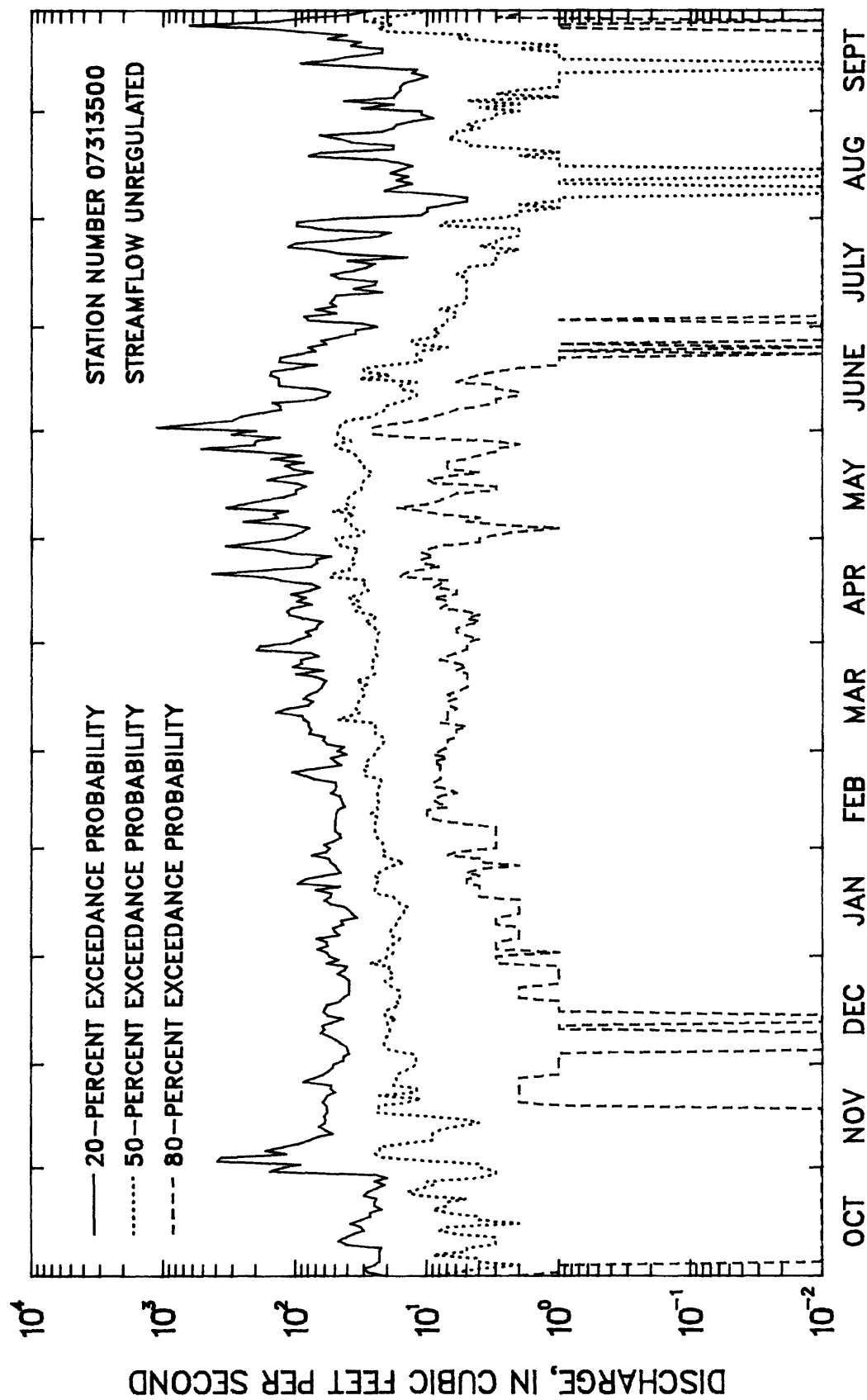


Figure 131.--Duration hydrographs of daily discharge values for Beaver Creek near Waurika, Oklahoma, water years 1958-1976 (streamflow unregulated).

RED RIVER BASIN

07315500 RED RIVER NEAR TERRAL, OK

LOCATION.--Lat 33°52'43", long 97°56'03", Jefferson County, Hydrologic Unit 11130201, on left bank at downstream side of bridge abutment on U.S. Highway 81, 0.5 mi downstream from Chicago, Rock Island, and Railroad Co. bridge, 1.2 mi south of Terral, 3.6 mi downstream from Little Wichita River, and at mile 872.

DRAINAGE AREA.--28,723 mi², of which 5,936 mi² probably is noncontributing.

PERIOD OF RECORD.--January 1938 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Many small diversions for irrigation, oil field, and municipal uses upstream from station.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1939-84

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- OARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	22900	108	2970	5070	1.7	11.7
NOVEMBER	9220	102	1310	1740	1.3	5.1
DECEMBER	3520	91	734	819	1.1	2.9
JANUARY	2600	77	583	500	0.86	2.3
FEBRUARY	3460	136	825	829	1.0	3.2
MARCH	7740	66	1040	1300	1.2	4.1
APRIL	16500	142	2100	3260	1.5	8.3
MAY	43600	134	6410	8500	1.3	25.2
JUNE	37500	517	5120	6040	1.2	20.1
JULY	8080	158	1540	1750	1.1	6.1
AUGUST	9270	155	1120	1510	1.3	4.4
SEPTEMBER	7910	109	1690	1740	1.0	6.6
ANNUAL	7110	523	2130	1460	0.69	100

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	122	78	62	51
3	129	84	67	56
7	140	92	74	62
14	153	100	80	67
30	191	121	97	82
60	253	154	121	99
90	306	184	145	120
120	387	216	162	128
183	672	328	227	168

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1939-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 45 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
41300	71300	95300	130000	160000	192000
WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.072					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	37400	67800	93300	132000	166000	204000
3	30100	54800	75000	105000	131000	160000
7	19600	35900	49300	69400	86500	106000
15	12500	23700	32900	46700	58500	71600
30	8030	16000	23000	34100	44100	55600
60	5160	10200	15000	23300	31300	41300
90	3980	7640	11100	16800	22300	28900

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1939-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME

1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
31800	9000	4290	2600	1770	1010	671	498	388	300	225	155	118	95	83	76	55

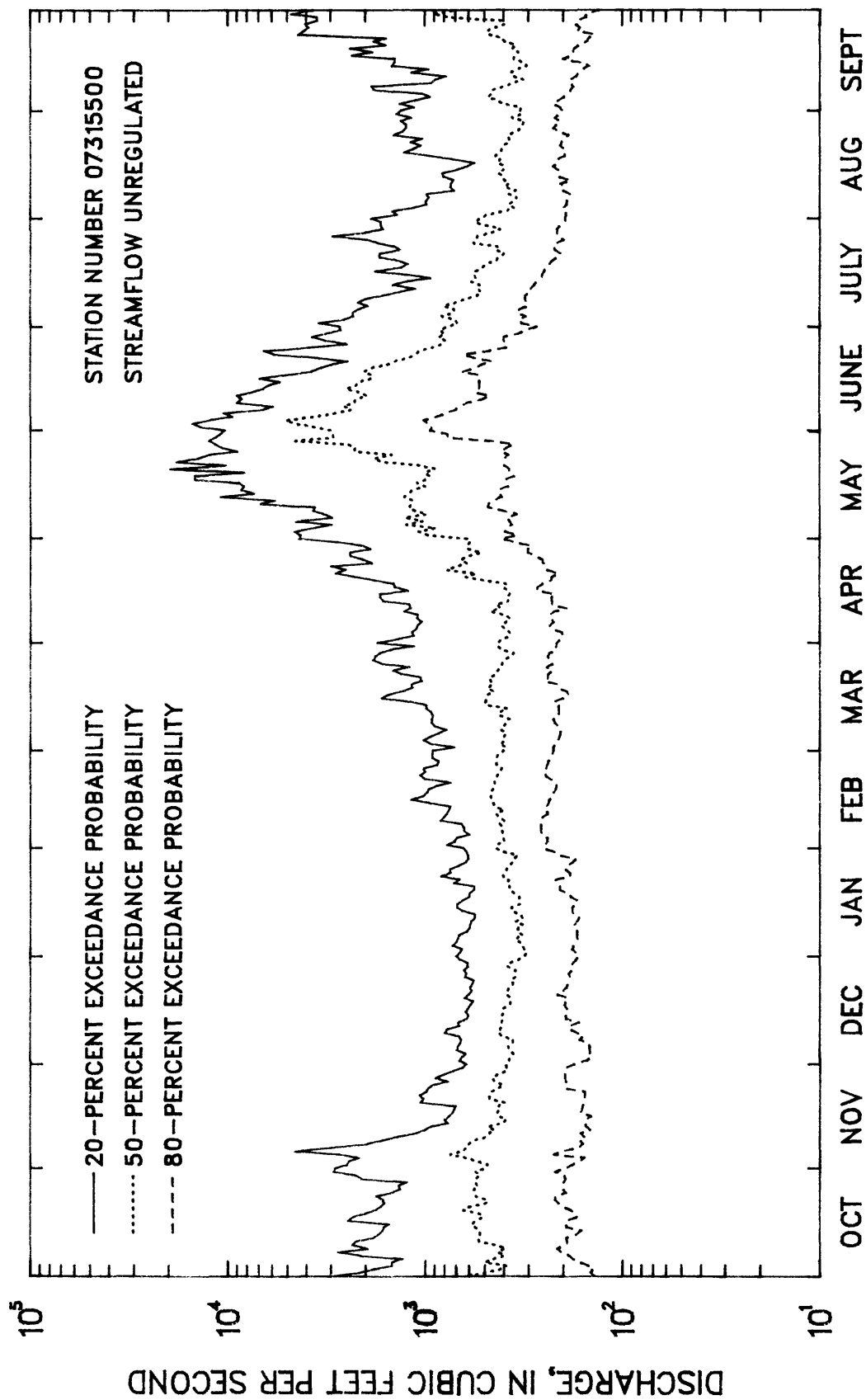


Figure 132.--Duration hydrographs of daily discharge values for Red River near Terral, Oklahoma, water years 1946-1984 (streamflow unregulated).

RED RIVER BASIN

07315700 MUD CREEK NEAR COURTNEY, OK

LOCATION.--Lat 34°00'20", long 97°34'00", in NW 1/4 SE 1/4 sec.25, T.6 S., R.4 W., Jefferson County, Hydrologic Unit, 11130201, on downstream side of bridge on State Highway 89, 4.0 mi downstream from North Mud Creek, 6.0 mi northwest of Courtney, and at mile 11.5.

DRAINAGE AREA.--572 mi².

PERIOD OF RECORD.--October 1960 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1220	0.00	101	248	2.5	6.8
NOVEMBER	854	0.00	97	197	2.0	6.5
DECEMBER	312	0.01	46	79	1.7	3.1
JANUARY	151	0.00	22	41	1.8	1.5
FEBRUARY	411	0.16	55	106	2.0	3.7
MARCH	411	0.00	115	128	1.1	7.7
APRIL	1160	0.16	174	284	1.6	11.7
MAY	3670	3.4	456	779	1.7	30.6
JUNE	1160	0.02	291	353	1.2	19.5
JULY	279	0.00	27	68	2.5	1.8
AUGUST	293	0.00	27	62	2.3	1.8
SEPTEMBER	570	0.00	81	149	1.8	5.4
ANNUAL	518	19	124	120	0.97	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1962-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.03	0.00	0.00	0.00
60	0.47	0.00	0.00	0.00
90	1.2	0.10	0.00	0.00
120	4.1	0.31	0.04	0.00
183	15	2.4	0.75	0.27

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1961-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4510	10600	17000	29100	41600	58000
OKLAHOMA WEIGHTED SKEW = 0.345					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3560	7420	11000	17000	22600	29200
3	2820	5440	7620	10800	13600	16600
7	1640	3190	4530	6610	8450	10600
15	931	1920	2810	4230	5510	6990
30	551	1190	1800	2840	3830	5040
60	325	708	1070	1670	2230	2890
90	238	514	780	1230	1660	2190

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2750	561	137	62	34	14	6.9	3.6	1.6	0.53	0.14	0.01	0.00	0.00	0.00	0.00	0.00

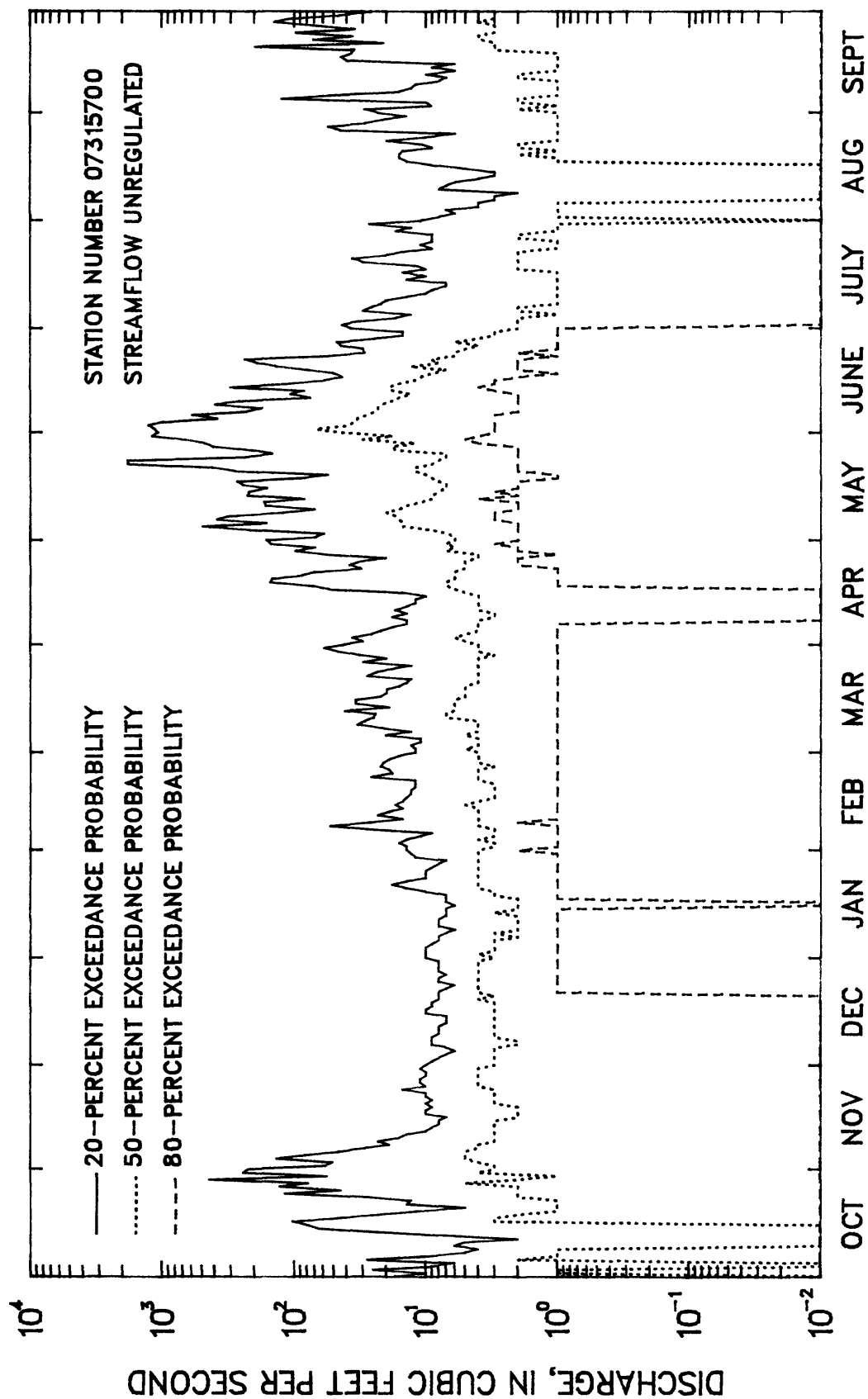


Figure 133.--Duration hydrographs of daily discharge values for Mud Creek near Courtney, Oklahoma, water years 1966-1984 (streamflow unregulated).

RED RIVER BASIN

07316000 RED RIVER NEAR GAINESVILLE, TX

LOCATION.--Lat 33°43'40", long 97°09'35", in SW 1/4 sec.36, T.9 S., R.1 E., Love County, Oklahoma, Hydrologic Unit 11130201, near center of span on downstream side of bridge on U.S. Highway 77, 0.2 mi downstream from Gulf, Colorado and Santa Fe Railway Co. bridge, 5.0 mi downstream from Fish Creek, 4.5 mi southwest of Hackerville, Oklahoma, 7.0 mi north of Gainesville, and at mile 791.5.

DRAINAGE AREA.--30,782 mi² of which 5,936 mi² is probably noncontributing.

PERIOD OF RECORD.--May 1936 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Some regulation since 1922 by Lake Kemp, in Texas; since 1946 by Lake Altus; since 1946 by Lake Kickapoo in Texas; since 1967 by Lake Arrowhead and Moss Lake, also in Texas, and by numerous floodwater-retarding structures; since 1975 by Tom Steed Lake; flow cumulatively regulated since 1977 with the inclusion of Waurika lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1937-76

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	31100	119	3490	5760	1.7	10.6
NOVEMBER	14000	137	1870	2600	1.4	5.7
DECEMBER	5420	125	1070	1240	1.2	3.2
JANUARY	3430	82	843	789	0.94	2.6
FEBRUARY	7960	151	1330	1600	1.2	4.0
MARCH	13700	91	1700	2410	1.4	5.2
APRIL	26400	153	3190	4880	1.5	9.7
MAY	47800	204	7450	9460	1.3	22.6
JUNE	43500	640	6480	7590	1.2	19.7
JULY	9860	166	2020	2100	1.0	6.1
AUGUST	12900	163	1380	2140	1.5	4.2
SEPTEMBER	11600	108	2130	2230	1.0	6.5
ANNUAL	8360	651	2750	1900	0.69	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1938-76

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	162	103	81	67
3	166	105	83	68
7	173	109	86	70
14	186	117	92	76
30	237	143	112	91
60	329	191	143	113
90	416	229	168	130
120	534	269	187	138
183	906	406	265	185

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1937-76

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 41 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
46600	79500	10400	137000	162000	189000
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.202					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	41800	72800	96700	130000	157000	186000
3	33900	61300	83000	114000	139000	167000
7	22400	40700	55600	77300	95500	116000
15	14200	26300	36400	51600	64800	79500
30	9430	18600	26900	40100	52000	66000
60	6330	12600	18400	28100	37400	48600
90	4970	9650	13900	20900	27300	35000

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1937-76

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
39000	11400	5850	3670	2670	1520	990	693	525	398	280	186	144	112	101	87	64	64

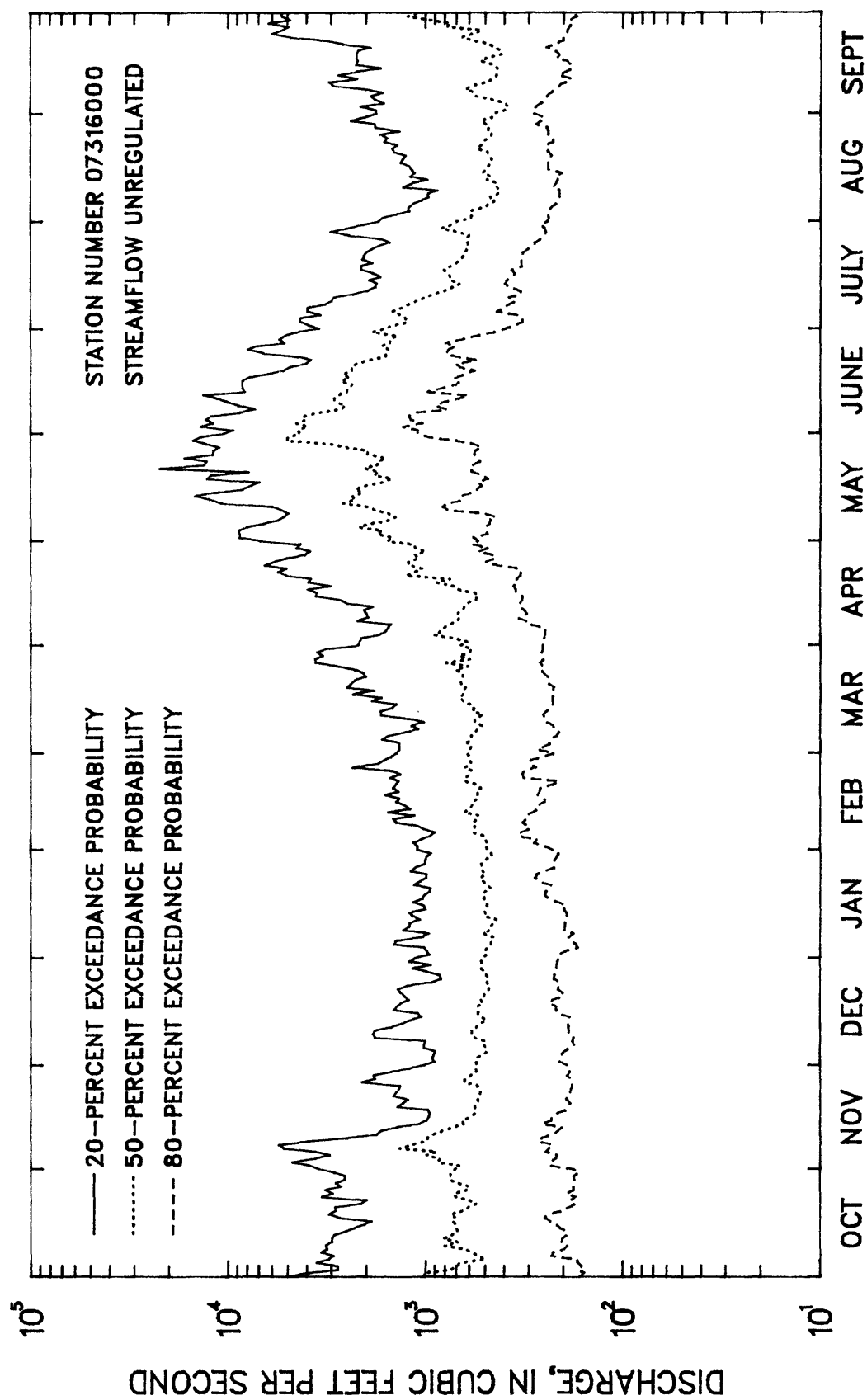


Figure 134.--Duration hydrographs of daily discharge values for Red River near Gainsville, Texas, water years 1948-1976 (streamflow unregulated).

RED RIVER BASIN

07316500 WASHITA RIVER NEAR CHEYENNE, OK

LOCATION.--Lat 35°37'35", long 99°40'05", in SE 1/4 sec.5, T.13 N., R.23 W., Roger Mills County, Hydrologic Unit 11130301, on left bank on downstream side of bridge on U.S. Highway 283, 0.5 mi downstream from Sergeant Major Creek, 1.0 mi north of Cheyenne, 5.2 mi upstream from Dead Indian Creek, and at mile 543.9.

DRAINAGE AREA.--794 mi².

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Flow regulated since 1961 by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-60

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	248	0.00	31	71	2.2	6.3
NOVEMBER	62	0.00	11	17	1.5	2.1
DECEMBER	65	0.00	13	17	1.3	2.6
JANUARY	52	0.00	14	14	1.0	2.7
FEBRUARY	44	0.00	16	14	0.86	3.2
MARCH	91	0.00	21	22	1.0	4.3
APRIL	305	0.24	56	67	1.2	11.3
MAY	724	2.6	162	191	1.2	32.4
JUNE	462	0.22	117	149	1.3	23.5
JULY	130	0.00	27	32	1.2	5.4
AUGUST	110	0.00	20	30	1.5	4.1
SEPTEMBER	88	0.00	9.9	19	1.9	2.0
ANNUAL	122	4.9	42	32	0.77	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-60

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	0.61	0.00	0.00	0.00
120	2.1	0.00	0.00	0.00
183	5.0	0.68	0.00	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1938-60MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 23 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5500	15400	26800	49100	73000	105000

OKLAHOMA WEIGHTED SKEW = 0.138

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1480	3340	4880	7070	8830	10700
3	767	1710	2510	3680	4640	5650
7	417	903	1320	1930	2450	3010
15	246	537	784	1150	1450	1790
30	167	395	619	998	1360	1790
60	113	253	379	576	750	946
90	88	190	279	416	534	666

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-60

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
665	142	67	44	34	20	13	6.4	1.2	0.08	0.06	0.03	0.01	0.01	0.00	0.00	0.00

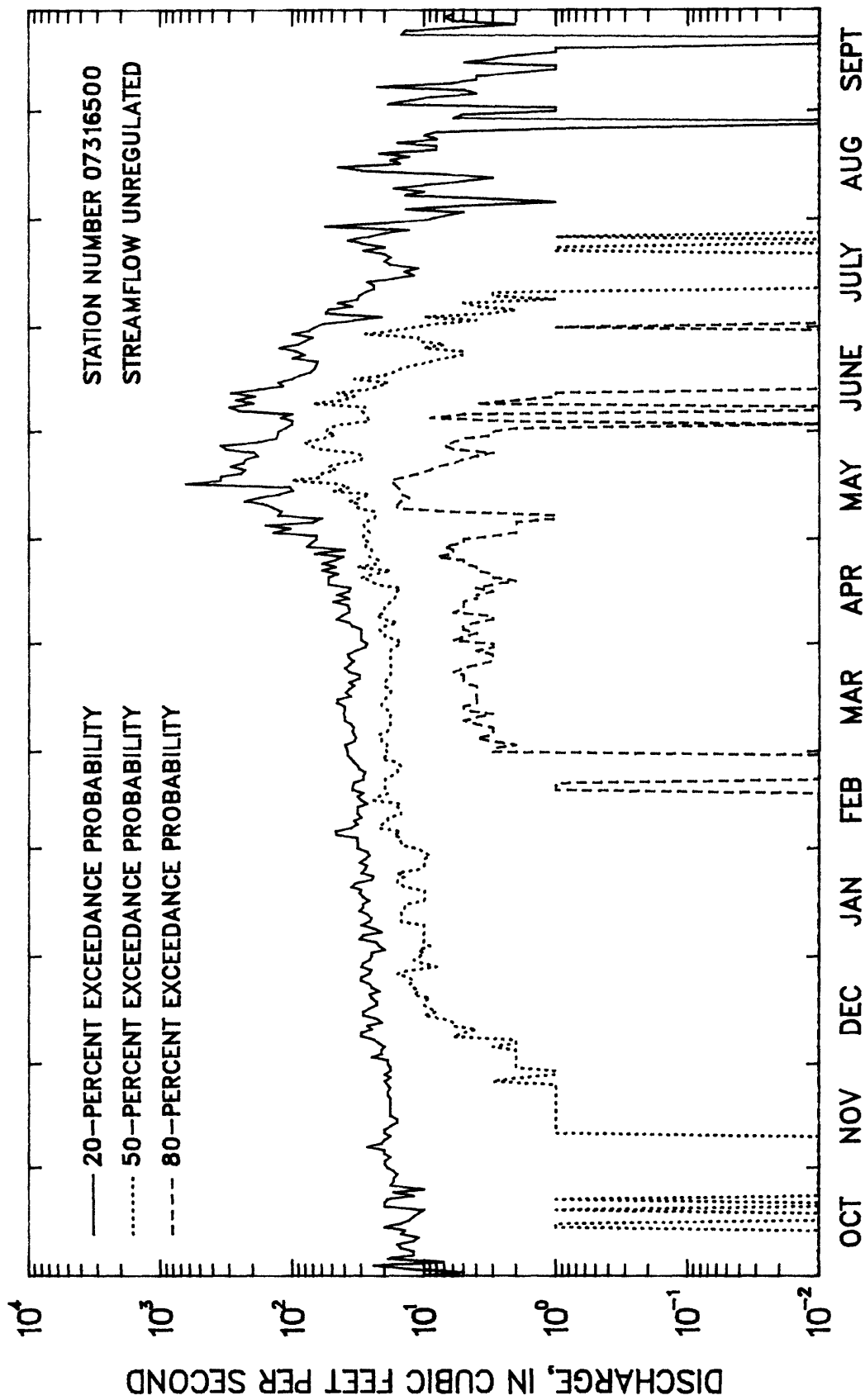


Figure 135.—Duration hydrographs of daily discharge values for Washita River near Cheyenne, Oklahoma, water years 1942-1960 (streamflow unregulated).

RED RIVER BASIN

07316500 WASHITA RIVER NEAR CHEYENNE, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	144	0.00	11	31	2.8	5.7
NOVEMBER	27	0.00	6.1	7.5	1.2	3.1
DECEMBER	39	0.00	8.1	9.6	1.2	4.2
JANUARY	33	0.03	9.2	8.3	0.90	4.7
FEBRUARY	35	1.5	14	10	0.72	7.2
MARCH	63	2.2	18	14	0.77	9.3
APRIL	54	1.1	23	15	0.63	11.9
MAY	348	0.00	51	92	1.8	26.0
JUNE	203	0.01	42	55	1.3	21.4
JULY	62	0.00	6.8	13	1.9	3.5
AUGUST	15	0.00	2.8	4.9	1.7	1.5
SEPTEMBER	35	0.00	3.1	7.7	2.5	1.6
ANNUAL	57	2.6	16	14	0.87	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
90	0.13	0.00	0.00	0.00
120	0.60	0.00	0.00	0.00
183	1.9	0.16	0.00	0.00

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1010	2720	4540	7820	11100	15100
OKLAHOMA WEIGHTED SKEW = -0.048					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	375	810	1140	1560	1880	2180
3	220	465	660	920	1120	1330
7	127	273	407	620	812	1030
15	76	172	275	466	667	931
30	50	114	182	311	447	629
60	35	76	120	203	291	408
90	29	60	91	146	203	276

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
208	52	33	25	20	13	7.4	3.9	2.1	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00

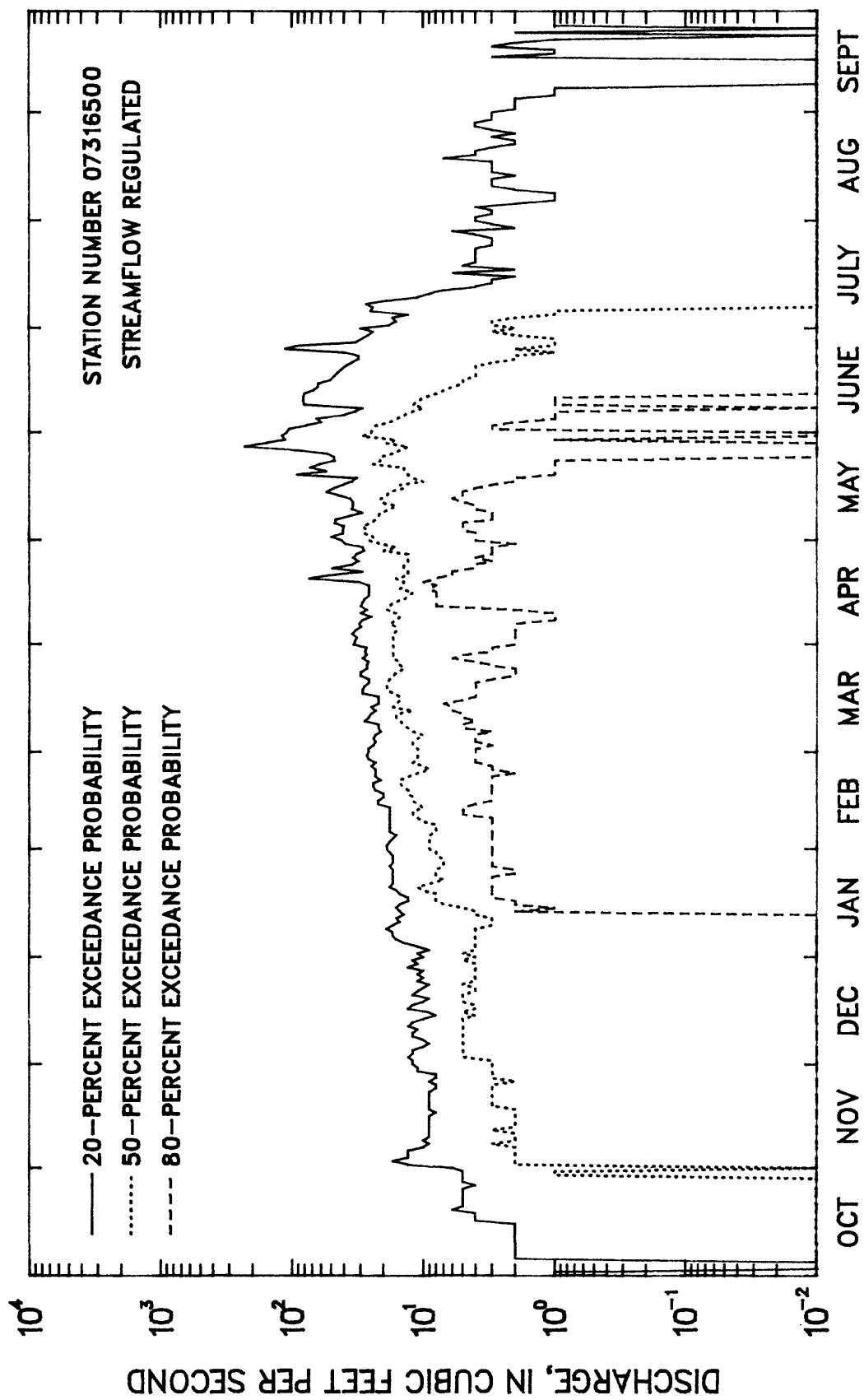


Figure 136.--Duration hydrographs of daily discharge values for Washita River near Cheyenne, Oklahoma, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07319500 SANDSTONE CREEK NEAR BERLIN, OK

LOCATION.--Lat 35°30'26", long 99°33'27", on west line of NW 1/4 NW 1/4 sec.20, T.12 N., R.22 W., Beckham County, on left bank 50 ft downstream from county road bridge, 5.5 mi northeast of Berlin.

DRAINAGE AREA.--44.9 mi² of which 4.0 mi² is noncontributing.

PERIOD OF RECORD.--October 1952 to September 1972.

REMARKS.--Flow regulated since 1951 by numerous floodwater-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1953-72

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	16	0.00	2.8	4.0	1.4	6.4
NOVEMBER	7.1	0.00	2.0	2.0	0.99	4.5
DECEMBER	9.4	0.00	2.3	2.6	1.1	5.2
JANUARY	7.8	0.00	2.2	2.3	1.0	5.1
FEBRUARY	14	0.00	2.7	3.3	1.2	6.2
MARCH	11	0.00	2.4	2.5	1.0	5.5
APRIL	22	0.14	4.5	5.5	1.2	10.2
MAY	70	0.03	12	21	1.8	26.9
JUNE	30	0.32	7.2	7.4	1.0	16.5
JULY	13	0.07	2.8	3.9	1.4	6.3
AUGUST	8.1	0.00	1.4	1.9	1.3	3.3
SEPTEMBER	9.2	0.00	1.8	2.7	1.5	4.1
ANNUAL	8.6	0.19	3.7	2.8	0.75	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1954-72

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.06	0.00	0.00	0.00
3	0.09	0.00	0.00	0.00
7	0.12	0.00	0.00	0.00
14	0.19	0.00	0.00	0.00
30	0.36	0.00	0.00	0.00
60	0.50	0.04	0.00	0.00
90	0.66	0.15	0.06	0.03
120	0.85	0.22	0.10	0.05
183	1.2	0.41	0.22	0.12

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1953-72MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
676	1540	2430	4020	5610	7620
OKLAHOMA WEIGHTED SKEW = 0.247					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	95	208	322	527	733	996
3	53	126	201	335	468	635
7	28	74	128	236	356	521
15	16	42	72	131	196	285
30	11	28	46	81	116	161
60	7.4	18	28	46	63	85
90	6.1	14	21	32	42	54

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1953-72

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
53	9.4	6.0	4.2	3.3	2.3	1.6	1.3	0.95	0.66	0.34	0.01	0.00	0.00	0.00	0.00	0.00

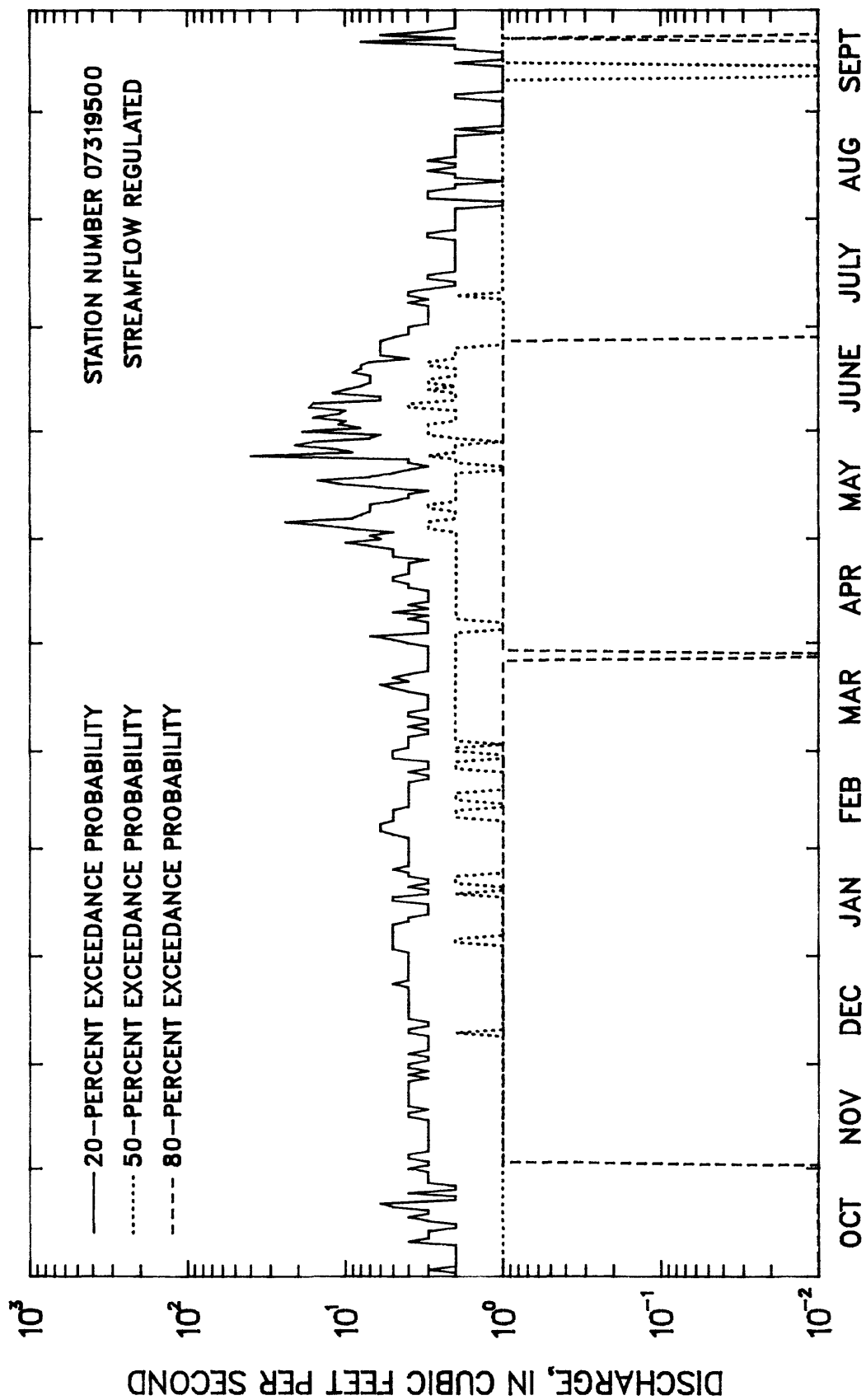


Figure 137.—Duration hydrographs of daily discharge values for Sandstone Creek near Berlin, Oklahoma, water years 1954-1972 (streamflow regulated).

RED RIVER BASIN

07323000 SANDSTONE CREEK NEAR CHEYENNE, OK

LOCATION.--Lat 35°33'10", long 99°31'50", on south line of SE 1/4 SE 1/4 sec.34, T.13 N., R.22 W., Roger Mills County, near left bank on downstream side of pier on county road bridge, 4.5 mi upstream from Wildcat Creek, 9.1 mi southeast of Cheyenne, and at mile 6.0.

DRAINAGE AREA.--87.1 mi², of which 4.0 mi² is probably noncontributing.

PERIOD OF RECORD.--April 1951 to June 1974.

REMARKS.--Some diversions for irrigation above station. Flow regulated since 1951 by numerous floodwater-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1952-73

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	33	0.00	5.5	8.3	1.5	7.3
NOVEMBER	14	0.04	3.3	3.7	1.1	4.4
DECEMBER	23	0.05	4.1	5.4	1.3	5.4
JANUARY	17	0.03	3.5	4.1	1.2	4.6
FEBRUARY	33	0.10	4.5	7.0	1.6	5.9
MARCH	24	0.17	4.1	5.3	1.3	5.4
APRIL	42	0.00	8.2	10	1.2	10.8
MAY	127	0.00	18	32	1.8	23.9
JUNE	63	0.50	12	14	1.1	15.8
JULY	29	0.00	5.3	7.6	1.4	6.9
AUGUST	25	0.00	3.3	6.3	1.9	4.4
SEPTEMBER	16	0.00	4.0	5.4	1.3	5.3
ANNUAL	17	0.69	6.3	5.1	0.81	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1953-74

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.06	0.00	0.00	0.00
3	0.07	0.00	0.00	0.00
7	0.11	0.00	0.00	0.00
14	0.16	0.00	0.00	0.00
30	0.26	0.00	0.00	0.00
60	0.53	0.03	0.00	0.00
90	1.1	0.16	0.00	0.00
120	1.4	0.38	0.10	0.00
183	2.4	0.55	0.20	0.07

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1952-73MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1220	2390	3420	5070	6570	8320

OKLAHOMA WEIGHTED SKEW = 0.152

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	187	410	639	1050	1470	2000
3	94	205	320	533	753	1040
7	49	115	191	340	505	732
15	27	63	104	187	280	410
30	18	42	69	122	179	256
60	12	27	44	74	105	147
90	10	22	33	53	72	97

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1952-73

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
89	20	11	8.1	6.3	3.8	2.7	1.9	1.2	0.68	0.23	0.01	0.00	0.00	0.00	0.00	0.00

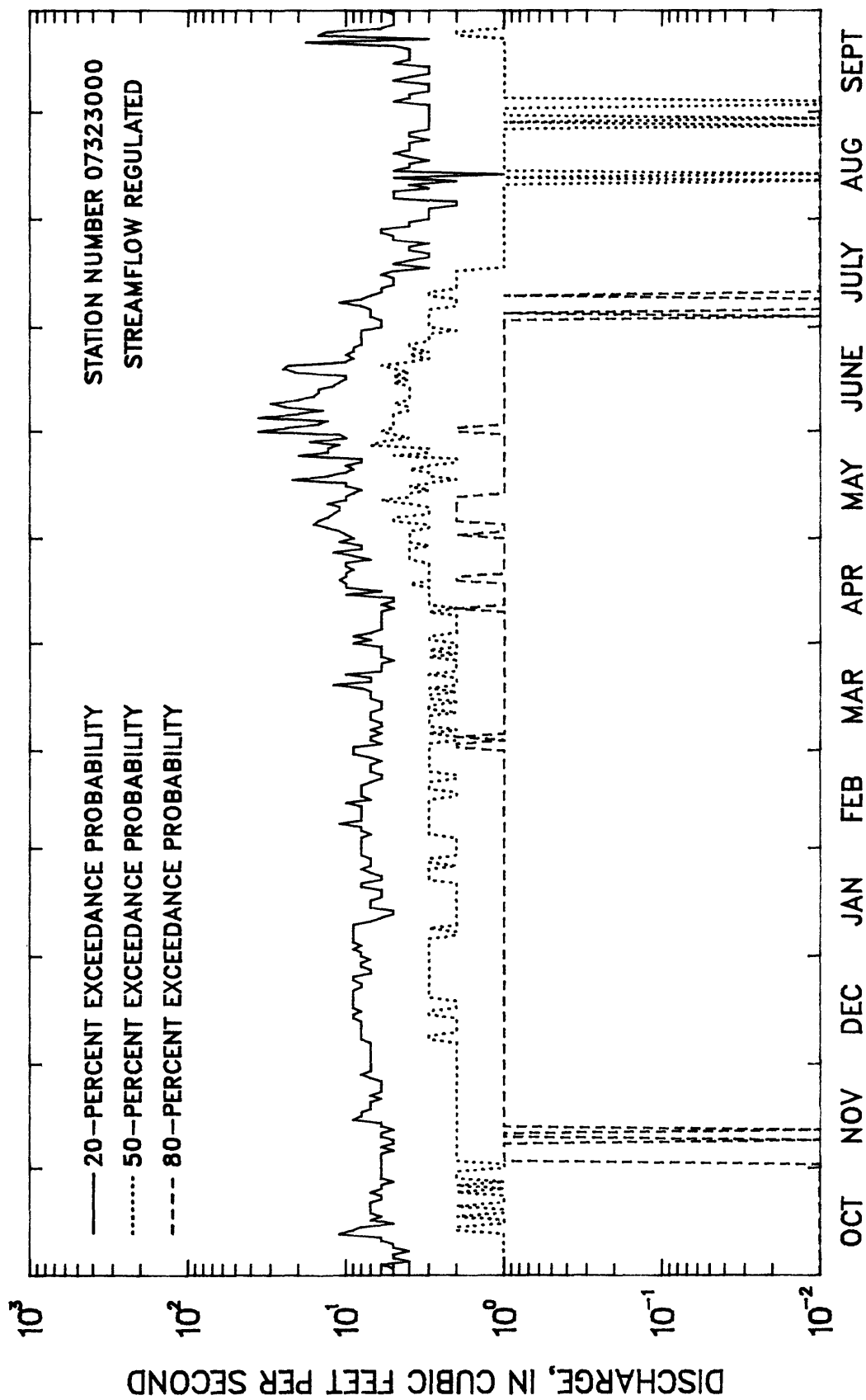


Figure 138.---Duration hydrographs of daily discharge values for Sandstone Creek near Cheyenne, Oklahoma, water years 1955-1973 (streamflow regulated).

RED RIVER BASIN

07324200 WASHITA RIVER NEAR HAMMON, OK

LOCATION.--Lat 35°39'23", long 99°18'21", on west line of sec.26, T.14 N., R.20 W., Custer County, Hydrologic Unit 11130301, on right bank near county road bridge, 2.2 mi downstream from Quartermaster Creek, 4.7 mi northeast of Hammon, and at mile 494.5.

DRAINAGE AREA.--1,387 mi².

PERIOD OF RECORD.--October 1969 to current year.

REMARKS.--Flow regulated since 1961 by numerous floodwater retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1970-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	41	0.00	7.2	11	1.5	1.8
NOVEMBER	86	0.00	12	22	1.8	2.9
DECEMBER	34	0.00	9.0	9.9	1.1	2.2
JANUARY	41	0.00	13	13	0.99	3.1
FEBRUARY	72	0.00	18	19	1.0	4.5
MARCH	109	0.00	26	28	1.1	6.5
APRIL	131	0.00	41	35	0.87	10.1
MAY	755	0.01	138	210	1.5	34.1
JUNE	327	0.00	101	105	1.0	24.9
JULY	135	0.03	21	36	1.7	5.3
AUGUST	56	0.00	11	17	1.5	2.7
SEPTEMBER	31	0.00	7.5	9.7	1.3	1.9
ANNUAL	103	0.49	34	28	0.83	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1971-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.30	0.00	0.00	0.00
60	1.3	0.00	0.00	0.00
90	2.3	0.00	0.00	0.00
120	2.5	0.07	0.00	0.00
183	3.6	0.20	0.01	0.00

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1970-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
928	1950	2940	4620	6240	8230

OKLAHOMA WEIGHTED SKEW = 0.256

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	656	1600	2320	3202	3820	4370
3	485	1180	1690	2320	2740	3130
7	310	797	1180	1660	2000	2320
15	198	524	789	1140	1390	1630
30	138	342	488	660	770	866
60	102	233	310	385	426	455
90	79	174	228	281	308	329

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1970-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
508	124	64	43	33	22	14	8.5	3.7	0.75	0.11	0.01	0.00	0.00	0.00	0.00	0.00

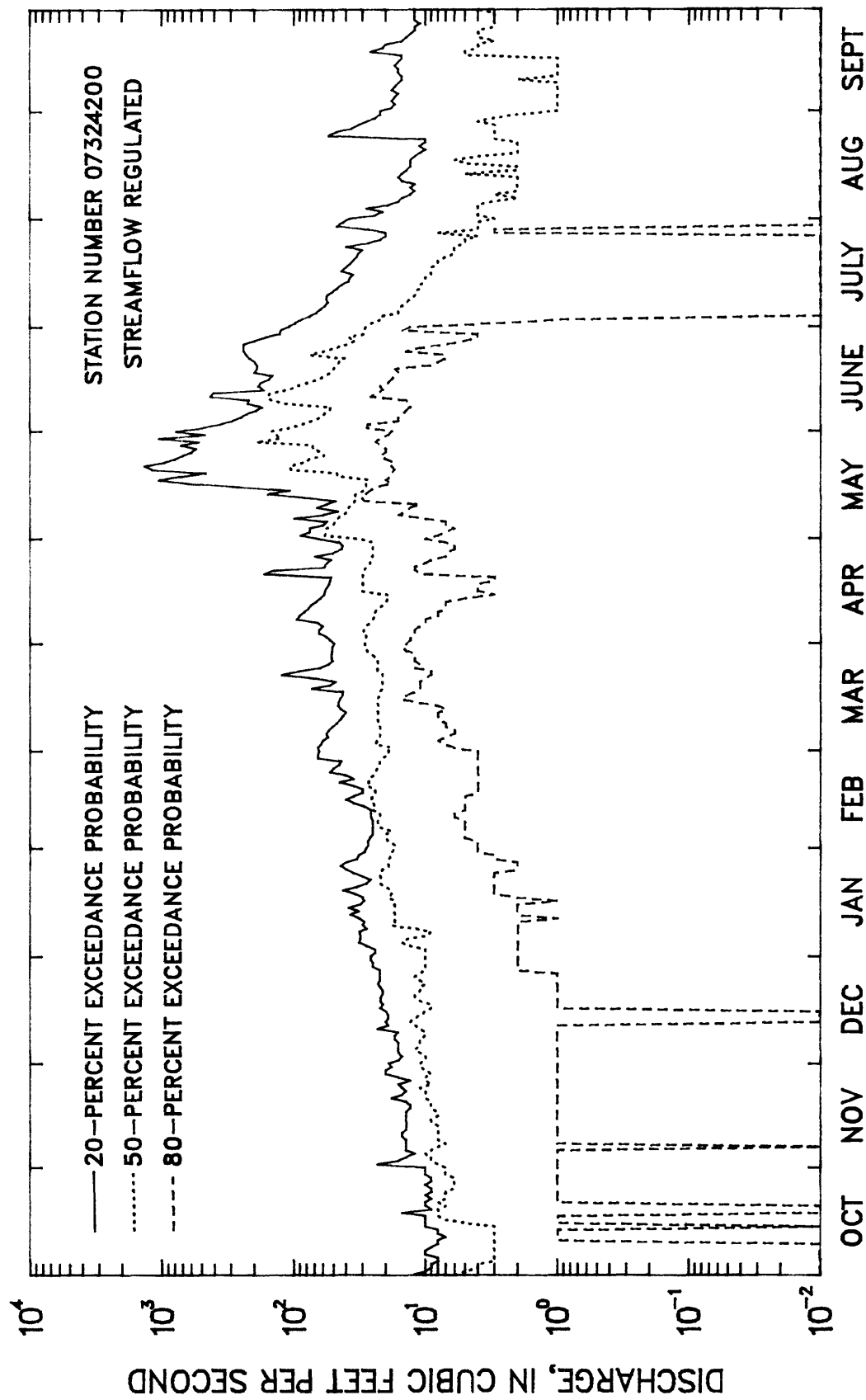


Figure 139.—Duration hydrographs of daily discharge values for Wasita River near Hammon, Oklahoma, water years 1976–1984 (streamflow regulated).

RED RIVER BASIN

07324400 WASHITA RIVER NEAR FOSS, OK

LOCATION.--Lat 35°32'20", long 99°10'10", in SW 1/4 SW 1/4 sec.1, T.12 N., R.19 W., Custer County, Hydrologic Unit 11130302, on left bank on downstream side of pile bent of county road bridge, 0.4 mi downstream from Oak Creek, 0.9 mi downstream from Foss Dam, 2.5 mi west of Stafford, 6.0 mi north of Foss, and at mile 473.5.

DRAINAGE AREA.--1,551 mi².

PERIOD OF RECORD.--March 1956 to April 1957, February to December 1958, July 1961 to current year.

REMARKS.--Flow regulated since 1961 by Foss Reservoir.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1962-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	309	0.15	21	63	3.0	7.1
NOVEMBER	60	0.28	9.7	12	1.3	3.3
DECEMBER	14	0.36	5.8	3.3	0.56	1.9
JANUARY	11	0.56	5.5	2.7	0.50	1.9
FEBRUARY	26	0.60	6.1	5.7	0.93	2.1
MARCH	34	0.57	8.7	9.0	1.0	2.9
APRIL	181	1.6	17	36	2.1	5.9
MAY	447	1.1	52	97	1.9	17.6
JUNE	763	1.3	105	206	2.0	35.4
JULY	260	2.3	37	61	1.7	12.4
AUGUST	76	3.1	20	18	0.89	6.7
SEPTEMBER	32	0.46	8.4	8.2	0.97	2.9
ANNUAL	117	3.9	25	31	1.2	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1963-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.95	0.27	0.13	0.07
3	1.1	0.31	0.16	0.08
7	1.2	0.36	0.18	0.10
14	1.6	0.48	0.24	0.13
30	2.3	0.74	0.36	0.18
60	3.2	1.1	0.56	0.30
90	4.3	1.7	0.91	0.50
120	4.7	1.9	1.1	0.61
183	5.8	2.4	1.4	0.87

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
890	1460	1830	2280	2590	2880

STATION SKEW = -0.579

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1962-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	438	787	1030	1340	1570	1790
3	247	527	765	1120	1420	1750
7	156	390	635	1070	1400	1700
15	96	274	490	932	1350	1600
30	59	181	351	761	1300	1500
60	38	113	219	476	820	1370
90	30	84	160	341	580	961

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
613	72	24	15	11	8.7	7.2	6.1	4.9	3.8	2.6	1.2	0.52	0.26	0.22	0.17	0.09

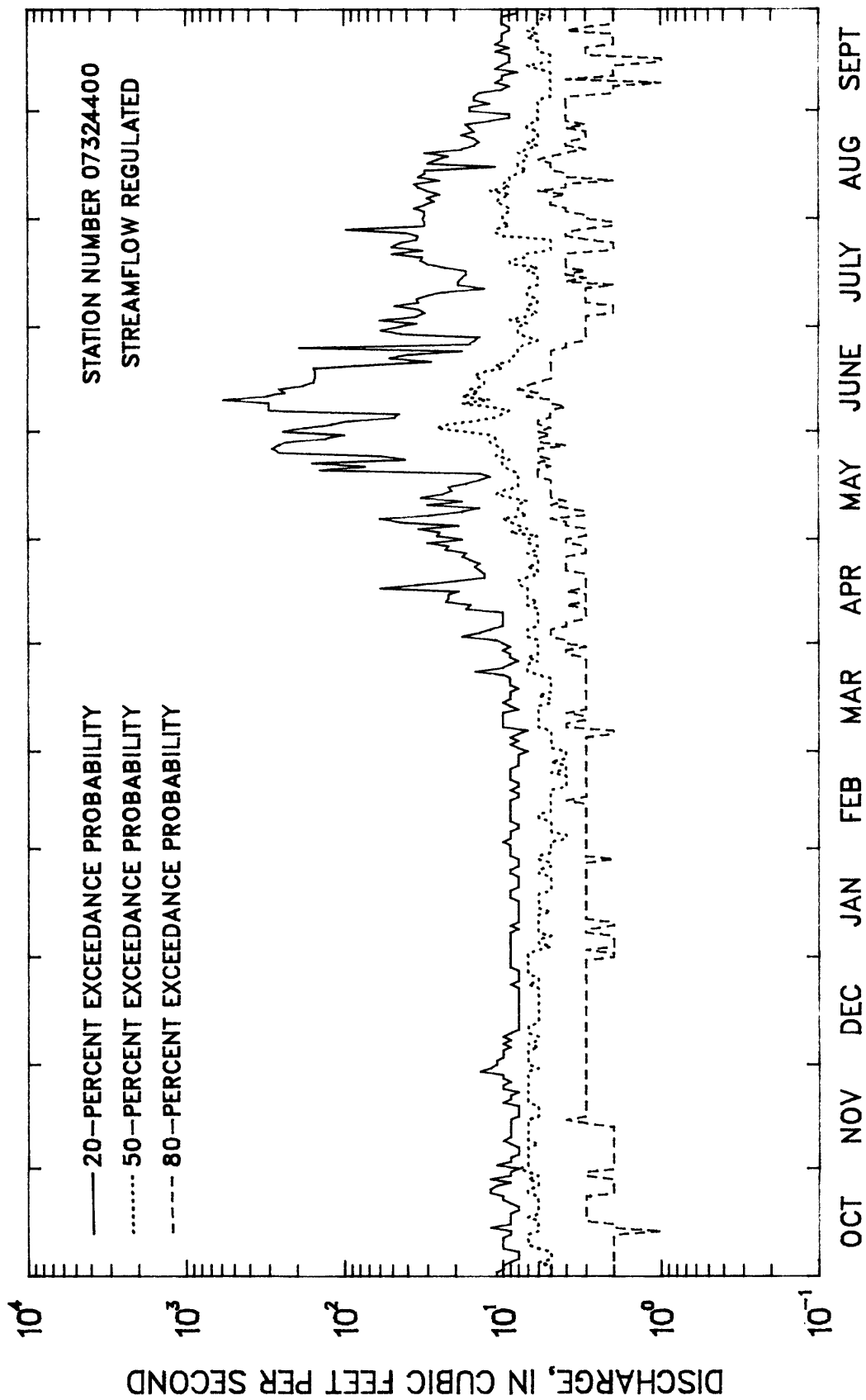


Figure 140.--Duration hydrographs of daily discharge values for Wasita River near Foss, Oklahoma, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07325000 WASHITA RIVER NEAR CLINTON, OK

LOCATION.--Lat 34°31'52", long 98°57'57", in SW 1/4 NE 1/4 sec.11, T.12 N., R.17 W., Custer County, Hydrologic Unit 11130302, on downstream side of pier of bridge on U.S. Highway 183, 0.5 mi north of Clinton, 0.8 mi upstream from Beaver Creek, 4.8 mi downstream from Barnitz Creek, and at mile 447.4.

DRAINAGE AREA.--1,977 mi².

PERIOD OF RECORD.--October 1935 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Flow regulated since February 1961 by Foss Reservoir and by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1936-60

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	906	0.07	122	220	1.8	7.0
NOVEMBER	267	0.21	44	64	1.5	2.5
DECEMBER	250	1.4	36	56	1.6	2.0
JANUARY	164	0.56	36	43	1.2	2.1
FEBRUARY	412	2.1	59	100	1.7	3.4
MARCH	252	1.5	54	63	1.2	3.1
APRIL	882	2.7	208	252	1.2	11.9
MAY	1860	17	543	569	1.0	31.0
JUNE	1230	19	364	336	0.92	20.8
JULY	581	0.37	135	121	0.90	7.7
AUGUST	311	0.00	77	85	1.1	4.4
SEPTEMBER	367	0.00	74	95	1.3	4.2
ANNUAL	341	23	146	93	0.64	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1937-60

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2.9	0.00	0.00	0.00
3	3.6	0.14	0.00	0.00
7	3.4	0.27	0.00	0.00
14	4.0	0.40	0.00	0.00
30	6.8	1.1	0.00	0.00
60	11	2.5	0.53	0.00
90	18	3.0	0.77	0.20
120	20	3.8	1.2	0.37
183	32	7.9	3.2	1.4

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1936-60MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 27 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
7740	18300	29900	52000	75800	108000
OKLAHOMA WEIGHTED SKEW = 0.435					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4640	8690	12100	17200	21700	26700
3	2890	5410	7480	10500	13100	16000
7	1750	3210	4300	5760	6900	8060
15	1000	1850	2500	3380	4070	4790
30	632	1220	1690	2350	3880	4450
60	422	819	1150	1650	2080	2560
90	329	624	861	1200	1480	1780

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1936-60

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
2530	568	245	149	111	62	38	26	16	11	6.0	2.2	0.63	0.09	0.05	0.02	0.00	0.00

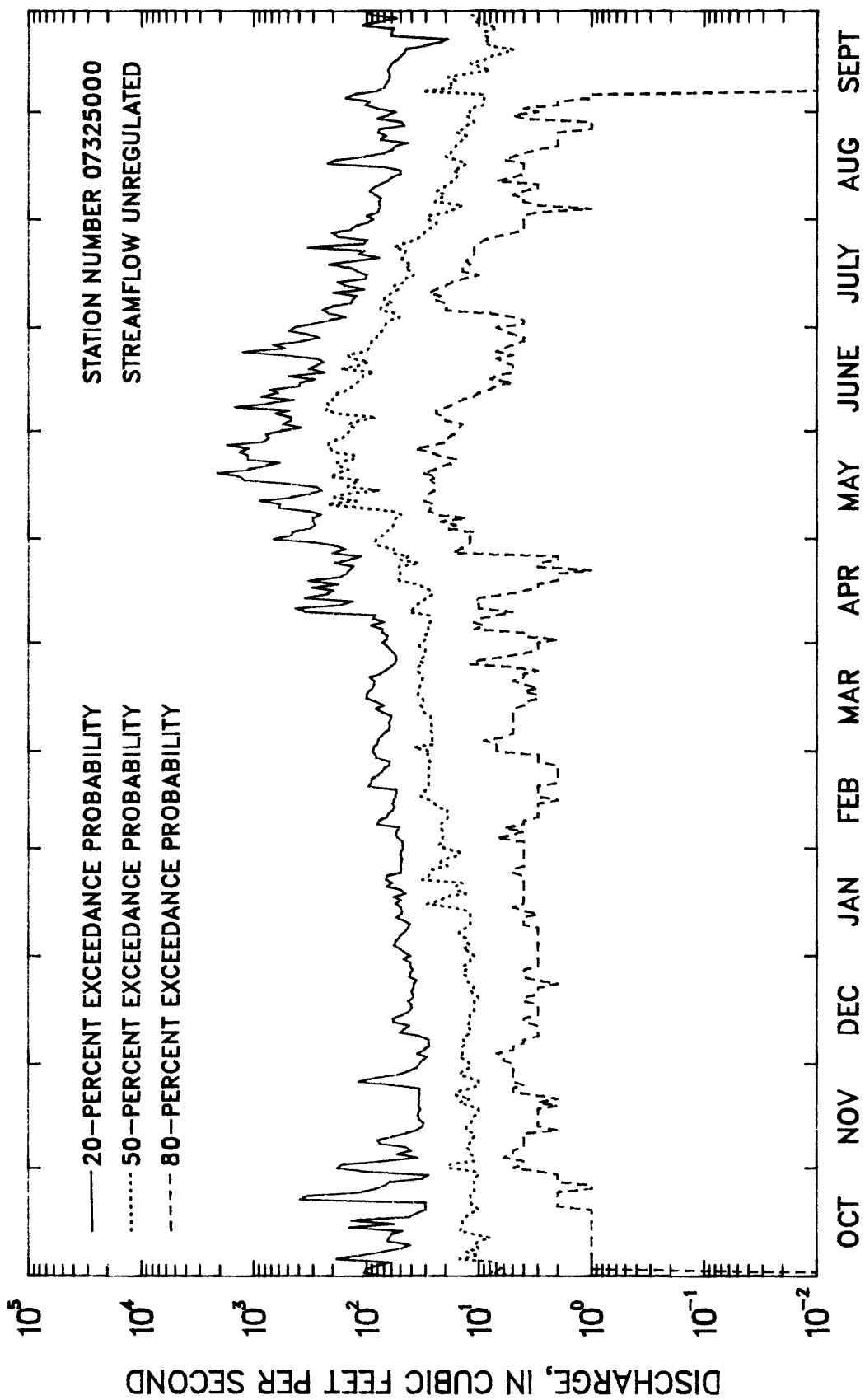


Figure 141.--Duration hydrographs of daily discharge values for Wasita River near Clinton, Oklahoma, water years 1942-1960 (streamflow unregulated).

RED RIVER BASIN

07325000 WASHITA RIVER NEAR CLINTON, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	400	3.3	56	88	1.6	7.4
NOVEMBER	284	4.2	48	65	1.4	6.3
DECEMBER	103	5.7	27	23	0.84	3.5
JANUARY	82	4.8	26	18	0.70	3.4
FEBRUARY	109	7.0	29	22	0.77	3.7
MARCH	126	6.2	39	33	0.84	5.1
APRIL	166	9.6	50	43	0.86	6.5
MAY	1180	4.1	145	241	1.7	19.0
JUNE	951	4.4	176	236	1.3	23.0
JULY	375	6.4	66	96	1.5	8.6
AUGUST	200	6.0	51	56	1.1	6.7
SEPTEMBER	254	5.9	50	65	1.3	6.5
ANNUAL	204	14	64	49	0.77	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	3.9	0.77	0.11	0.00
3	4.6	1.0	0.34	0.04
7	5.5	1.4	0.53	0.22
14	6.2	2.2	1.1	0.60
30	8.1	4.1	2.9	2.1
60	11	6.2	4.6	3.5
90	16	8.6	6.0	4.3
120	18	9.4	6.6	4.9
183	22	11	8.1	6.1

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2000	3490	4730	6630	8310	10200
STATION SKEW = -0.109					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1300	2430	3370	4760	5950	7260
3	784	1500	2140	3170	4100	5190
7	474	972	1420	2150	2820	3610
15	283	624	967	1570	2170	2930
30	186	425	678	1150	1630	2260
60	126	279	438	729	1030	1420
90	99	212	327	532	740	1000

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
882	235	109	69	52	36	29	23	19	14	10	6.0	4.0	2.3	1.7	1.0	0.12

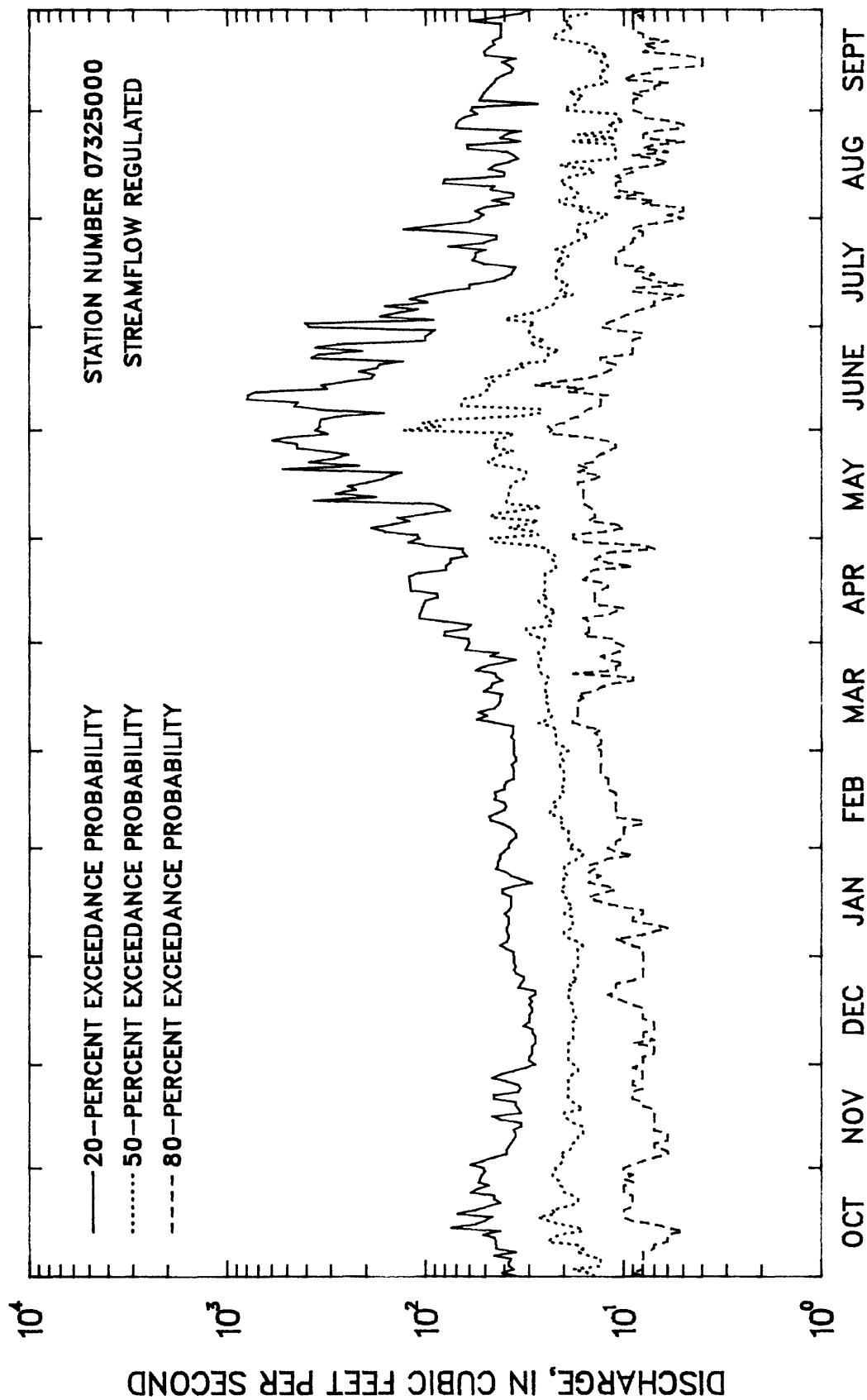


Figure 142.—Duration hydrographs of daily discharge values for Wasita River near Clinton, Oklahoma, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07325500 WASHITA RIVER AT CARNEGIE, OK

LOCATION.--Lat 35°07'02", long 98°33'49", in NW 1/4 NW 1/4 sec.3, T.7 N., R.13 W., Caddo County, Hydrologic Unit 11130302, on downstream side of right pier of bridge on State Highway 9, 1,300 ft upstream from Running Creek, 2.7 mi east of Carnegie, and at mile 353.9. Records include flow of Running Creek.

DRAINAGE AREA.--3,129 mi², includes that of Running Creek.

PERIOD OF RECORD.--October 1937 to current year.

REMARKS.--Some diversion above station for irrigation. October 1942 to May 1949, occasional fluctuation caused by powerplant at Carnegie, 7.5 mi above station. Some regulation by Foss Reservoir since February 1961, and by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-60

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2050	4.1	332	576	1.7	8.8
NOVEMBER	431	11	93	97	1.0	2.5
DECEMBER	636	15	98	134	1.4	2.6
JANUARY	385	15	86	87	1.0	2.3
FEBRUARY	913	13	127	205	1.6	3.4
MARCH	438	16	120	118	0.98	3.2
APRIL	2030	29	455	604	1.3	12.1
MAY	3360	42	1040	1090	1.0	27.8
JUNE	2560	66	753	663	0.88	20.0
JULY	1350	39	349	329	0.94	9.3
AUGUST	868	3.9	170	186	1.1	4.5
SEPTEMBER	584	1.4	127	146	1.2	3.4
ANNUAL	706	88	314	181	0.58	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-60

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	18	6.2	2.3	0.85
3	19	6.6	2.9	1.3
7	21	7.4	3.8	2.0
14	23	8.2	4.2	2.3
30	31	11	5.5	3.0
60	43	14	7.1	3.7
90	48	21	13	9.2
120	55	25	16	11
183	76	32	21	15

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1938-60MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 30 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
9210	17000	23600	33700	42600	52700
WATER RESOURCES COUNCIL WEIGHTED SKEW = 0.115					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	6510	12000	17100	25800	34200	44600
3	5470	9280	12300	16600	20300	24300
7	3660	6180	8010	10400	12300	14200
15	2290	3870	4980	6410	7480	8550
30	1430	2590	3480	4730	5730	6790
60	911	1630	2230	3110	3870	4720
90	729	1280	1710	2320	2820	3350

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-60

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4870	1390	583	357	252	150	91	70	55	44	31	19	14	6.6	3.7	1.4	0.60

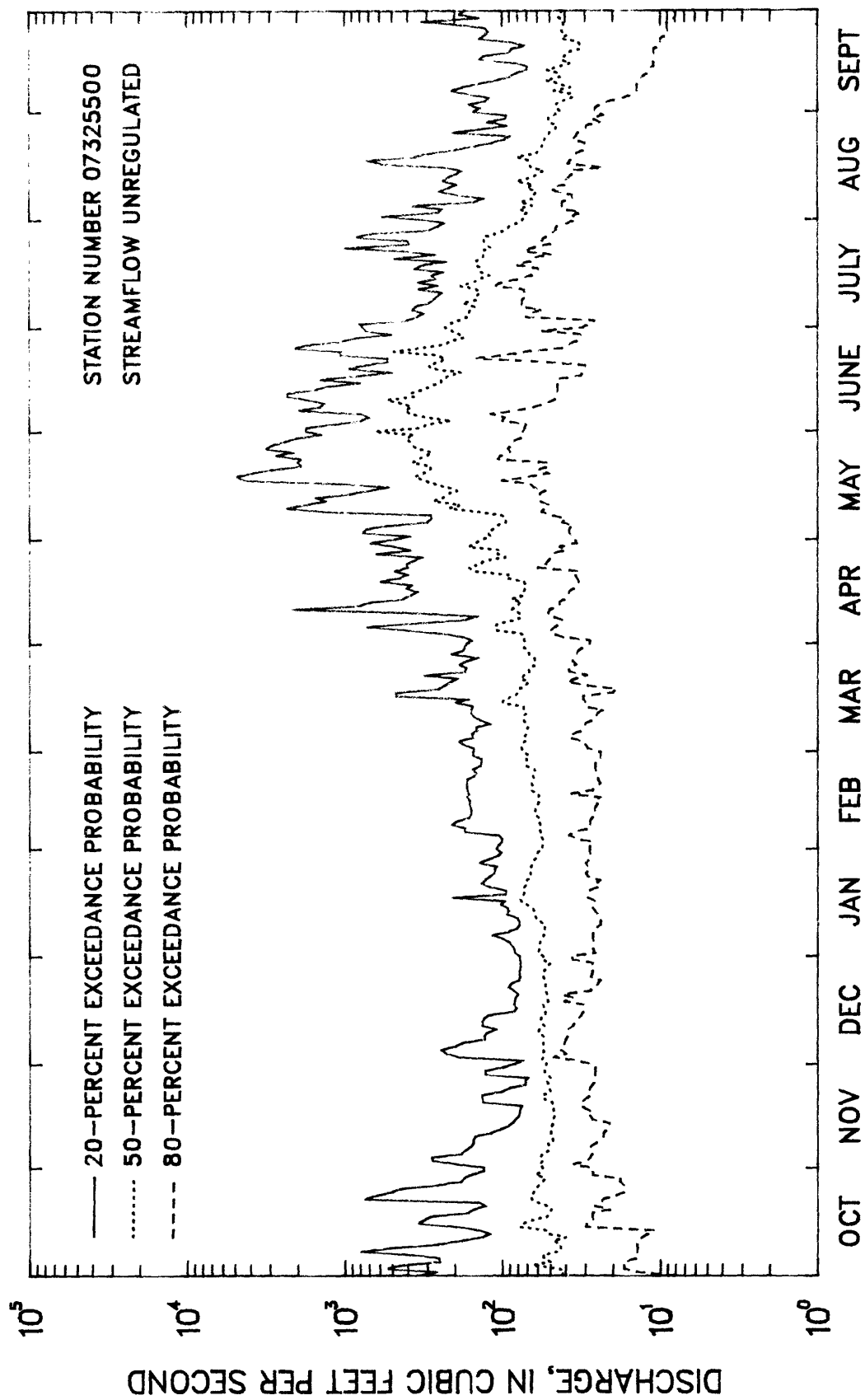


Figure 143.--Duration hydrographs of daily discharge values for Wasita River near Carnegie, Oklahoma, water years 1942-1960 (streamflow unregulated).

RED RIVER BASIN

07325500 WASHITA RIVER AT CARNEGIE, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2150	22	305	480	1.6	10.2
NOVEMBER	1050	27	215	261	1.2	7.2
DECEMBER	278	34	115	70	0.60	3.8
JANUARY	293	36	109	62	0.56	3.6
FEBRUARY	401	37	120	76	0.63	4.0
MARCH	687	34	149	138	0.92	5.0
APRIL	1270	11	206	240	1.2	6.9
MAY	2990	10	610	785	1.3	20.4
JUNE	2090	94	549	498	0.91	18.3
JULY	1150	7.1	204	269	1.3	6.8
AUGUST	557	15	149	143	0.96	5.0
SEPTEMBER	1590	16	262	360	1.4	8.8
ANNUAL	603	73	250	134	0.54	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	19	4.1	1.1	0.08
3	20	4.5	1.4	0.14
7	22	5.7	2.0	0.26
14	26	8.3	3.6	0.77
30	35	16	9.9	6.6
60	53	29	20	14
90	69	43	33	27
120	80	48	36	29
183	102	56	41	32

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4670	9320	14100	22900	32100	44200
STATION SKEW = 0.707					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4070	7580	10800	16000	21000	26900
3	3400	6390	8950	12900	16300	20200
7	2240	4270	5930	8370	10400	12600
15	1430	2850	4060	5860	7410	9130
30	924	1830	2580	3680	4600	5600
60	608	1140	1560	2160	2660	3190
90	479	858	1150	1560	1900	2260

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3320	934	457	288	218	160	123	97	78	61	45	29	20	11	6.3	3.1	0.12

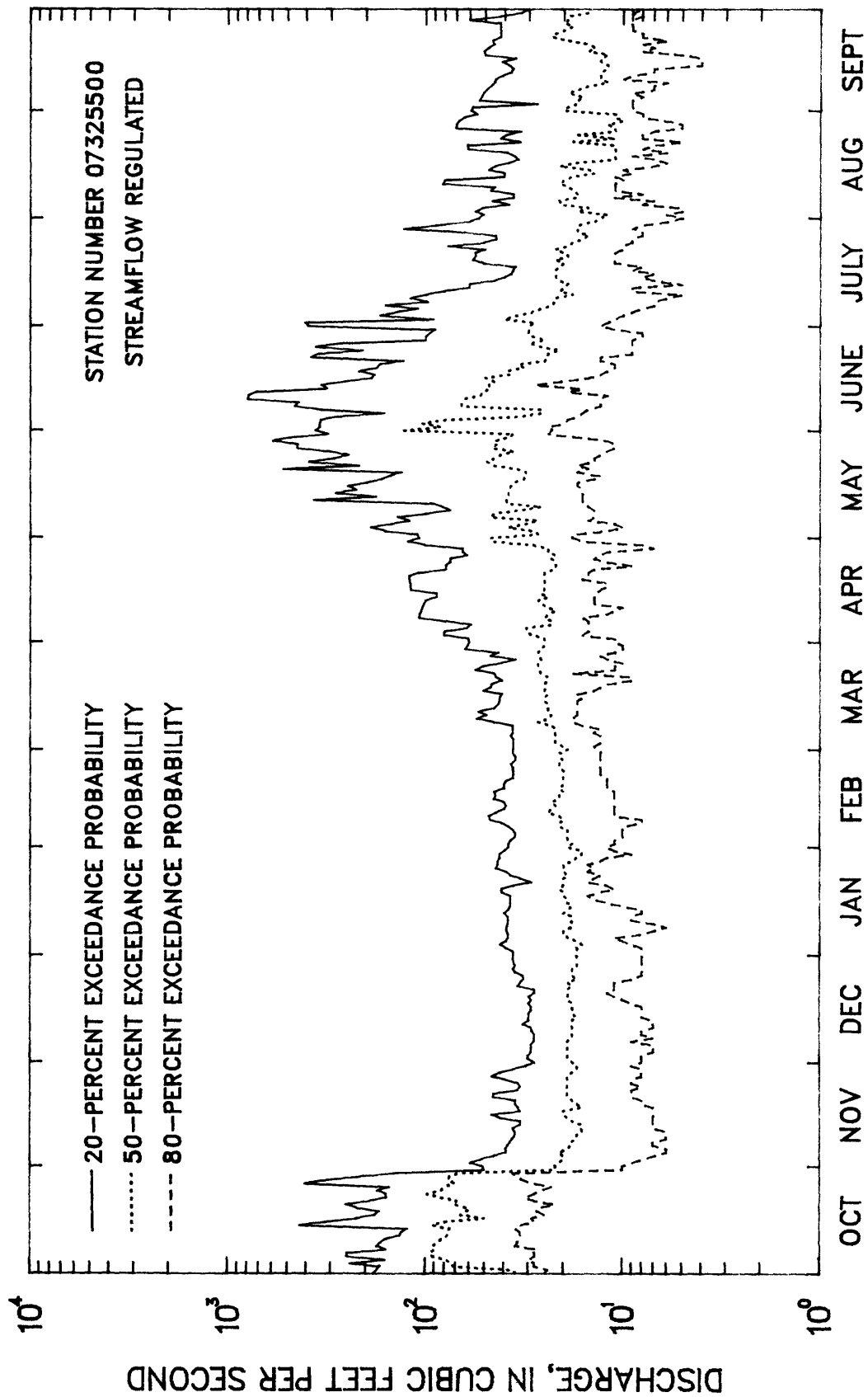


Figure 144.--Duration hydrographs of daily discharge values for Washita River at Carnegie, Oklahoma, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07325800 COBB CREEK NEAR EAKLY, OK

LOCATION.--Lat 35°17'26", long 98°35'38", in NW 1/4 NE 1/4 sec.5, T.9 N., R.13 W., Caddo County, Hydrologic Unit 11130302, near left downstream abutment of bridge, on State Highway 152, 0.5 mi downstream from Fivemile Creek, 2.4 mi southwest of Eakly, 3.0 mi upstream from Fort Cobb Reservoir, and at mile 22.9.

DRAINAGE AREA.--132 mi².

PERIOD OF RECORD.--October 1968 to current year.

REMARKS.--Flow regulated since 1957 by numerous floodwater-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1969-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	87	4.3	18	22	1.2	7.4
NOVEMBER	86	6.1	18	19	1.1	7.1
DECEMBER	37	4.9	15	8.9	0.58	6.2
JANUARY	28	8.8	15	4.7	0.31	6.0
FEBRUARY	37	9.0	15	6.4	0.43	6.0
MARCH	112	8.4	23	25	1.1	9.2
APRIL	84	5.3	20	18	0.91	8.0
MAY	225	2.8	50	56	1.1	20.2
JUNE	111	7.8	34	33	0.98	13.5
JULY	85	1.0	13	20	1.6	5.1
AUGUST	86	0.90	14	22	1.5	5.6
SEPTEMBER	47	2.2	14	14	1.0	5.6
ANNUAL	48	10	21	10	0.49	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1970-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.5	0.35	0.00	0.00
3	1.6	0.36	0.09	0.00
7	1.7	0.45	0.18	0.08
14	2.2	0.87	0.51	0.30
30	3.5	1.7	1.1	0.75
60	4.9	2.9	2.2	1.7
90	6.9	4.1	2.9	2.2
120	8.2	4.9	3.7	3.0
183	11	6.6	5.2	4.3

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1969-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2050	3670	5060	7220	9150	11400

OKLAHOMA WEIGHTED SKEW = 0.253

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	737	1420	1950	2710	3320	3970
3	383	718	964	1290	1530	1780
7	213	369	474	602	693	779
15	112	202	270	363	436	513
30	70	124	166	226	275	328
60	46	77	101	138	170	204
90	37	60	79	109	135	166

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1969-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
279	47	27	20	18	14	12	11	9.1	7.2	5.2	3.4	2.3	0.97	0.52	0.23	0.02

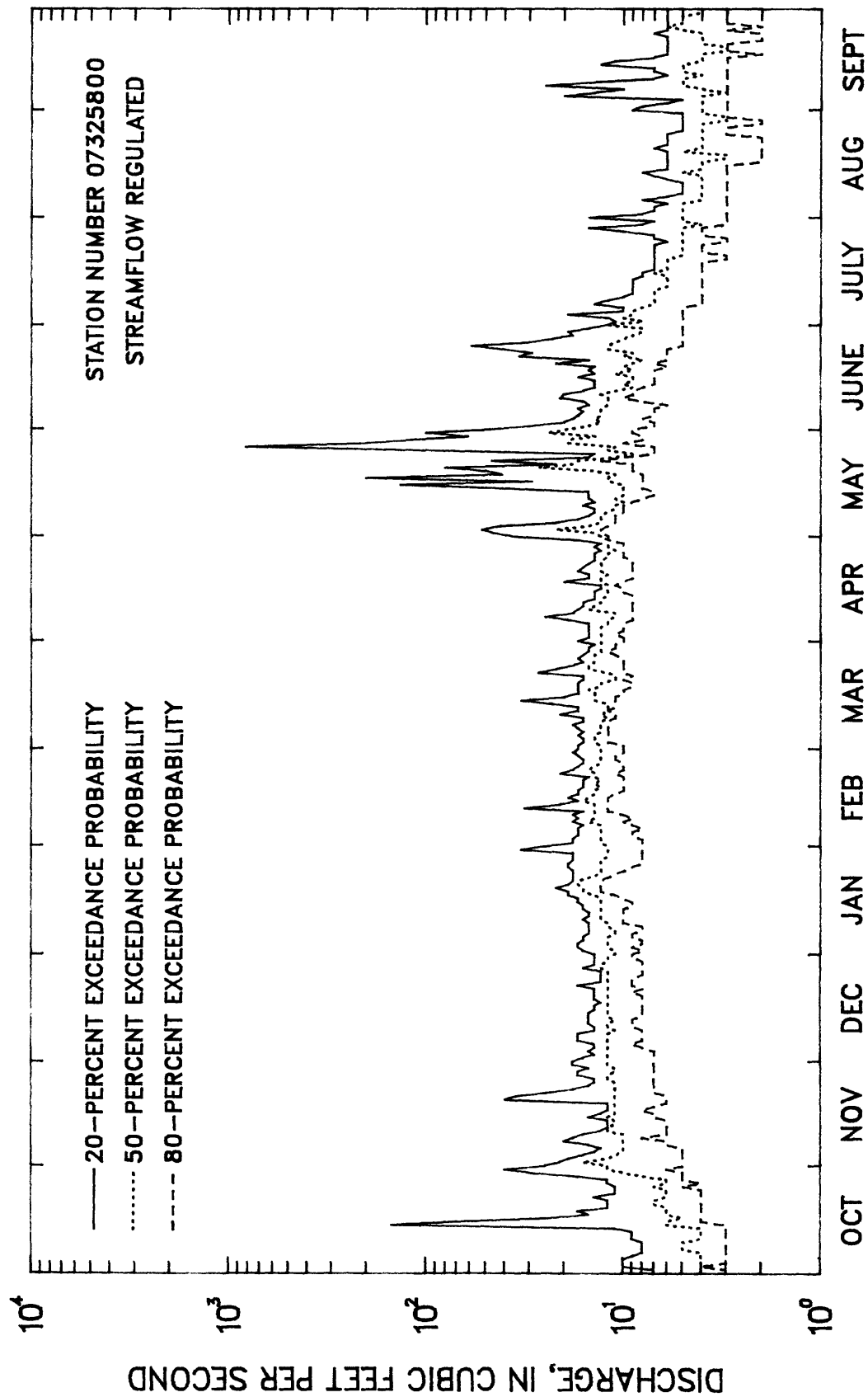


Figure 145.--Duration hydrographs of daily discharge values for Cobb Creek near Eakly, Oklahoma, water years 1976-1984 (streamflow regulated).

RED RIVER BASIN

07326000 COBB CREEK NEAR FORT COBB, OK

LOCATION.--Lat 35°08'37", long 98°26'33", in NE 1/4 NE 1/4 sec.27, T.8 N., R.12 W., Caddo County, Hydrologic Unit 11130302, on left bank 10 ft upstream from county road bridge, 0.3 mi upstream from Punjo Creek, 1.2 mi downstream from Fort Cobb Dam, 3.0 mi north of Fort Cobb, and at mile 5.8.

DRAINAGE AREA.--313 mi². Area at site used prior to Oct. 1, 1969, 319 mi².

PERIOD OF RECORD.--October 1939 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1960, published as Pond Creek near Fort Cobb.

REMARKS.--Flow regulated since March 1959 by Fort Cobb Reservoir.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-58

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	193	5.4	35	49	1.4	5.8
NOVEMBER	54	9.2	26	13	0.49	4.3
DECEMBER	57	12	32	14	0.44	5.3
JANUARY	56	14	34	12	0.35	5.7
FEBRUARY	112	18	41	21	0.50	6.8
MARCH	99	19	42	18	0.44	6.9
APRIL	240	26	75	61	0.82	12.5
MAY	676	15	121	151	1.2	20.1
JUNE	306	8.0	101	84	0.84	16.7
JULY	172	5.6	52	56	1.1	8.6
AUGUST	95	1.2	22	24	1.1	3.6
SEPTEMBER	90	0.52	22	25	1.2	3.6
ANNUAL	99	26	50	21	0.43	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-58

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	7.7	3.1	1.5	0.72
3	7.9	3.2	1.6	0.74
7	8.4	3.4	1.7	0.81
14	8.9	3.7	2.0	1.0
30	10	4.5	2.4	1.3
60	13	5.5	3.0	1.7
90	15	7.1	4.5	2.9
120	17	8.9	5.9	4.1
183	23	13	8.9	6.6

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1940-58MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 19 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
4330	10500	17500	31200	46200	66600

OKLAHOMA WEIGHTED SKEW = 0.457

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1690	3140	4640	7420	10300	14200
3	957	1630	2300	3530	4810	6500
7	505	836	1160	1710	2270	2990
15	284	461	631	924	1220	1590
30	176	284	384	554	717	920
60	120	191	250	337	413	500
90	98	151	193	255	306	364

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-58

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
640	110	60	49	43	36	31	26	22	18	13	8.5	5.7	2.8	1.8	0.69	0.28

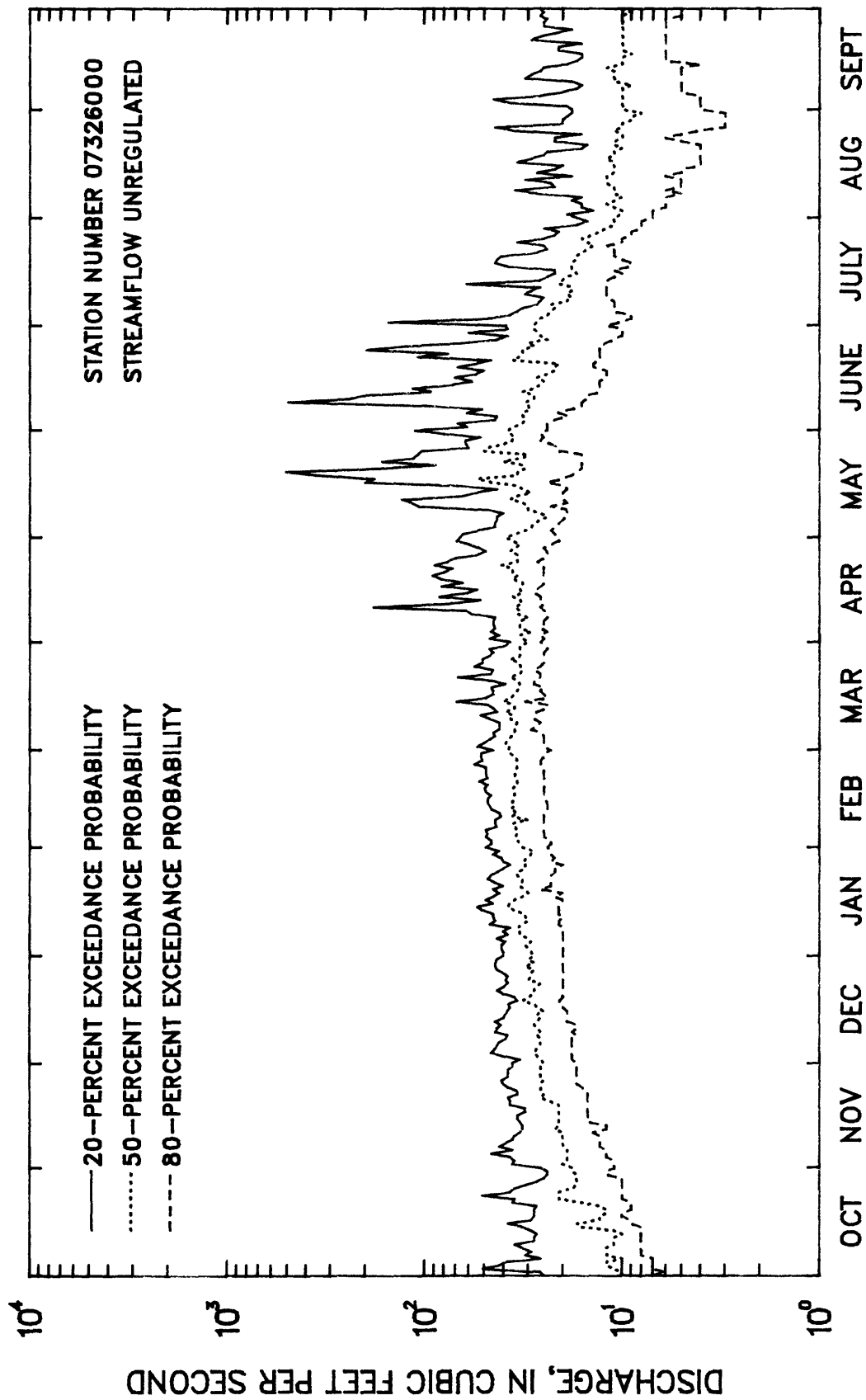


Figure 146.--Duration hydrographs of daily discharge values for Cobb Creek near Fort Cobb, Oklahoma, water years 1940-1958 (streamflow unregulated).

RED RIVER BASIN

07326000 COBB CREEK NEAR FORT COBB, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1959-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	308	2.0	18	61	3.5	8.2
NOVEMBER	164	1.6	14	36	2.5	6.7
DECEMBER	63	1.6	7.2	14	2.0	3.4
JANUARY	139	2.0	10	27	2.6	4.8
FEBRUARY	131	2.1	13	27	2.0	6.2
MARCH	56	2.1	11	15	1.4	5.0
APRIL	87	2.0	10	21	2.1	4.8
MAY	143	2.0	17	31	1.8	8.1
JUNE	528	1.5	66	122	1.8	30.9
JULY	197	0.91	18	45	2.4	8.5
AUGUST	211	1.5	15	41	2.7	7.1
SEPTEMBER	157	1.1	14	37	2.7	6.4
ANNUAL	85	2.3	18	20	1.1	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1960-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.3	0.77	0.53	0.37
3	1.4	0.87	0.60	0.42
7	1.6	0.97	0.66	0.45
14	1.7	1.2	0.99	0.81
30	1.9	1.5	1.3	1.1
60	2.2	1.8	1.6	1.4
90	2.3	1.8	1.7	1.6
120	2.5	1.9	1.7	1.6
183	2.9	2.4	1.9	1.8

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1959-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 25 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
376	868	1270	1810	2240	2660

STATION SKEW = -0.614

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	245	717	1200	2010	2750	3610
3	194	679	1100	1900	2600	3400
7	139	507	911	1590	2200	2890
15	86	309	555	981	1370	1830
30	55	188	337	601	853	1150
60	33	105	185	329	470	642
90	25	75	131	233	334	461

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1959-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
466	58	14	4.9	4.4	3.6	3.3	2.9	2.6	2.4	2.1	1.8	1.5	1.2	0.99	0.71	0.25

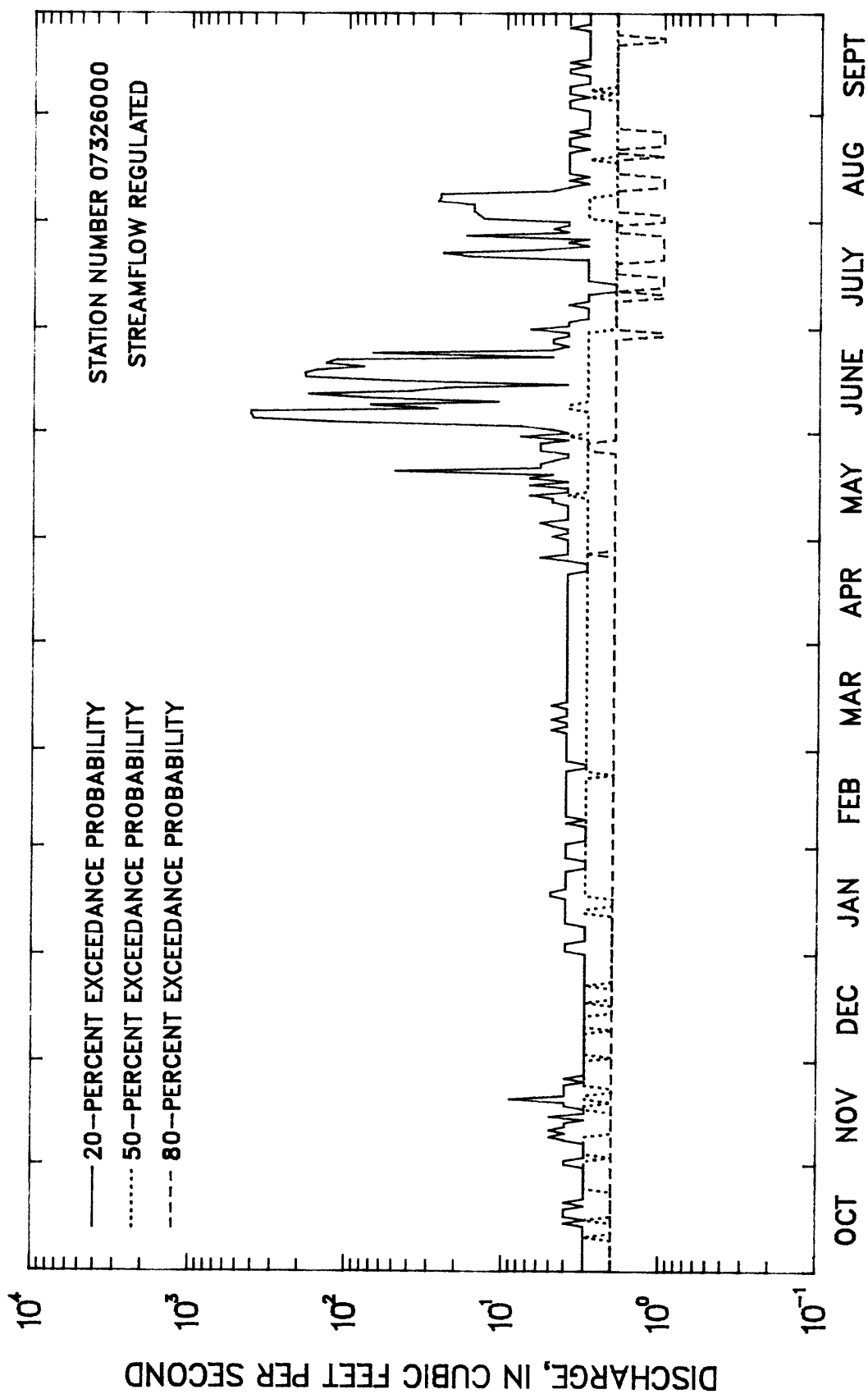


Figure 147.---Duration hydrographs of daily discharge values for Cobb Creek near Fort Cobb, Oklahoma, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07326500 WASHITA RIVER AT ANADARKO, OK

LOCATION.--Lat 35°05'06", long 98°14'35", in NW 1/4 sec.15, T.7 N., R.10 W., Caddo County, Hydrologic Unit 11130302 at left bank 100 ft upstream from bridge on U.S. Highway 281 at north edge of Anadarko, 8.1 mi upstream from Sugar Creek, and at mile 305.2.

DRAINAGE AREA.--3,656 mi².

PERIOD OF RECORD.--October 1902 to September 1908; June 1924 to June 1925, published as "near Anadarko", October 1935 to February 1938; October 1963 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Flow regulated since March 1959, by Fort Cobb Reservoir, Foss Reservoir, and by numerous floodwater-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1964-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2870	21	324	652	2.0	9.4
NOVEMBER	1060	37	244	300	1.2	7.1
DECEMBER	377	42	136	86	0.63	4.0
JANUARY	310	52	138	72	0.52	4.0
FEBRUARY	509	55	151	104	0.69	4.4
MARCH	612	51	186	140	0.75	5.4
APRIL	1470	17	258	298	1.2	7.5
MAY	2590	9.6	666	754	1.1	19.3
JUNE	3180	86	679	724	1.1	19.7
JULY	1160	13	256	337	1.3	7.4
AUGUST	961	20	176	207	1.2	5.1
SEPTEMBER	1450	32	233	329	1.4	6.8
ANNUAL	713	73	287	169	0.59	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1965-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	25	4.3	1.0	0.00
3	25	5.7	2.2	0.92
7	27	7.4	3.3	1.6
14	33	11	5.3	2.8
30	43	21	14	9.8
60	64	36	26	19
90	84	52	40	32
120	97	58	44	35
183	117	67	52	42

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 21 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3450	7110	11500	21000	32500	49700
STATION SKEW = 1.318					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1964-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3300	6830	10800	18900	28200	41300
3	3140	6090	8750	13000	17000	21600
7	2290	4490	6320	9050	11400	13900
15	1510	3140	4560	6730	8620	10700
30	1020	2130	3090	4550	5810	7220
60	685	1370	1950	2820	3570	4400
90	545	1050	1460	2070	2570	3125

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
3620	1130	517	349	267	190	146	119	95	75	56	41	29	15	8.1	4.9	0.95

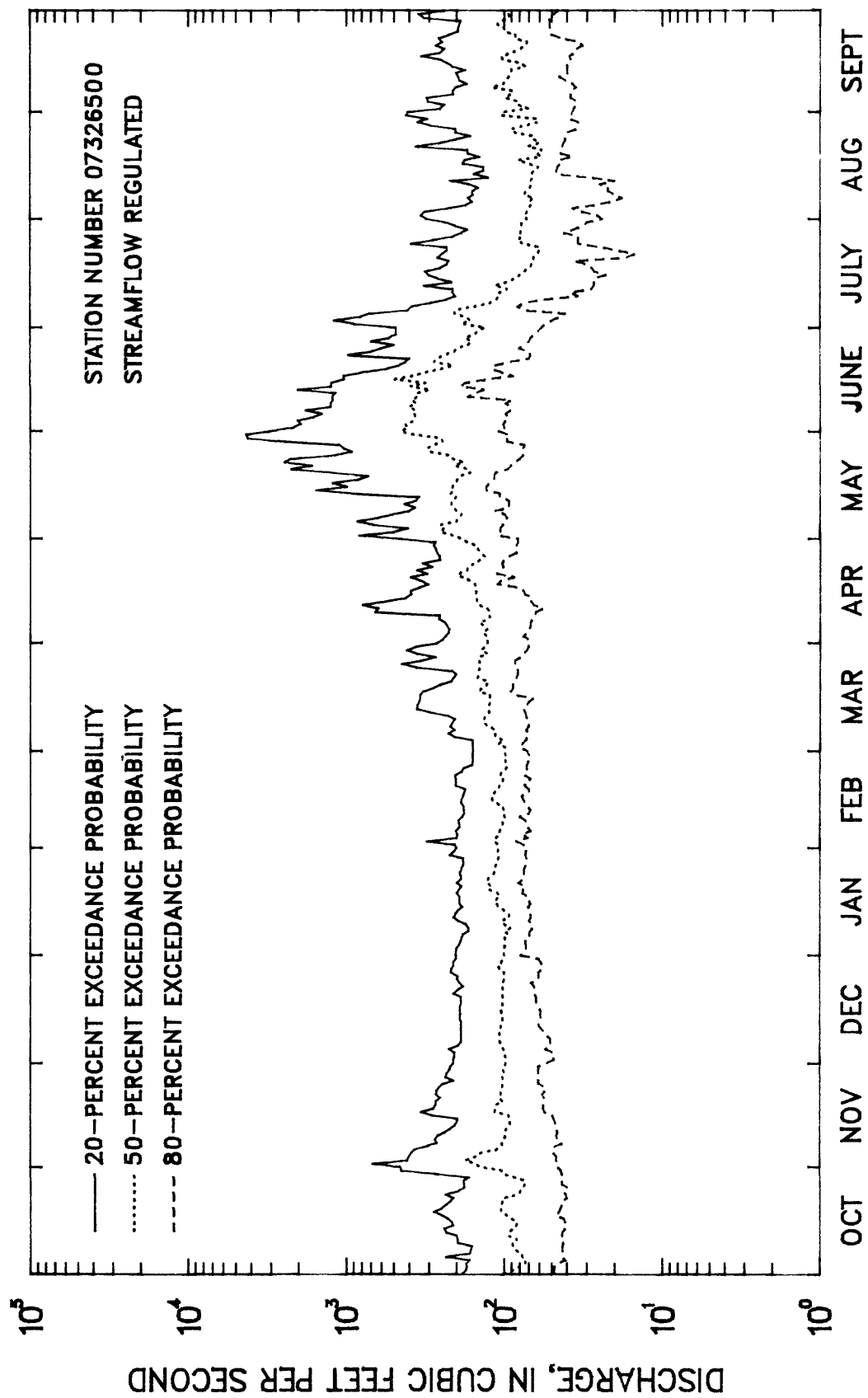


Figure 148.--Duration hydrographs of daily discharge values for Washita River at Anadarko, Oklahoma, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07327000 SUGAR CREEK NEAR GRACEMONT, OK

LOCATION.--Lat 35°10'30", long 98°15'20", in NW 1/4 NE 1/4 sec.16, T.8 N., R.10 W., Caddo County, on downstream side of county road bridge, 1.0 mi south of Gracemont, 2.1 mi downstream from Yellow Creek, 1.1 mi upstream from bridge on U.S. Highway 281, and at mile 9.9.

DRAINAGE AREA.--208 mi².

PERIOD OF RECORD.--October 1955 to September 1974.

REMARKS.--Flow regulated since 1963 by numerous floodwater-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1963-74

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	24	0.00	6.2	7.8	1.3	3.6
NOVEMBER	33	1.2	7.0	8.6	1.2	4.1
DECEMBER	24	1.7	9.3	6.3	0.68	5.4
JANUARY	18	3.4	8.1	4.0	0.49	4.7
FEBRUARY	30	5.0	12	8.0	0.64	7.2
MARCH	71	1.3	18	20	1.1	10.4
APRIL	60	1.7	21	20	0.92	12.3
MAY	177	1.7	33	48	1.5	19.1
JUNE	49	0.29	21	16	0.76	12.3
JULY	14	0.00	2.8	4.4	1.6	1.6
AUGUST	16	0.00	4.6	6.4	1.4	2.7
SEPTEMBER	235	0.00	29	66	2.3	16.7
ANNUAL	34	3.5	14	9.5	0.66	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1964-74

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.10	0.00	0.00	0.00
60	0.50	0.05	0.00	0.00
90	1.9	0.31	0.10	0.03
120	3.0	0.46	0.13	0.04
183	4.2	1.4	0.72	0.41

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1963-74MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 12 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1520	3590	5720	9550	13400	18300
OKLAHOMA WEIGHTED SKEW = 0.192					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	413	1120	1900	3380	4910	6890
3	232	595	996	1750	2550	3600
7	129	314	523	930	1380	1980
15	75	171	276	475	688	972
30	47	101	157	256	358	487
60	31	63	93	145	194	255
90	26	49	69	103	133	169

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1963-74

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
172	43	26	18	14	9.9	7.1	5.1	3.2	1.7	0.55	0.09	0.04	0.02	0.01	0.00	0.00

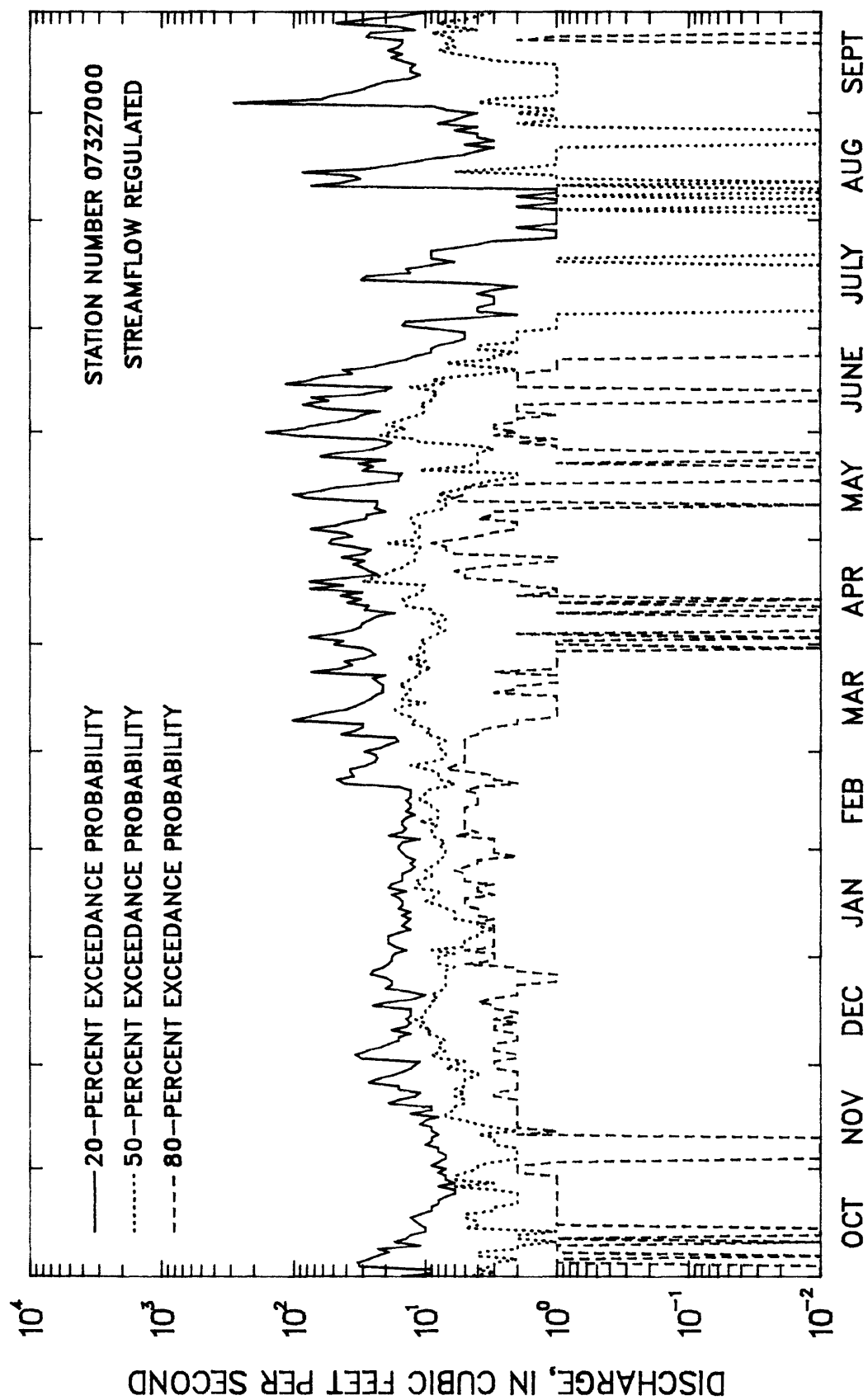


Figure 149.—Duration hydrographs of daily discharge values for Sugar Creek near Gracemont, Oklahoma, water years 1966-1974 (streamflow regulated).

RED RIVER BASIN

07327490 LITTLE WASHITA RIVER NEAR NINNEKAH, OK

LOCATION.--Lat 34°56'41", long 97°57'08", in SE 1/4 SE 1/4 sec.32, T.6 N., R.7 W., Grady County, Hydrologic Unit 11130302, at left bank on downstream side of bridge on U.S. Highway 81, 1.0 mi upstream from Rock Creek, 1.5 mi west of Ninneka, 5.5 mi south of Chickasha, and at mile 8.4.

DRAINAGE AREA.--208 mi².

PERIOD OF RECORD.--October 1963 to current year.

REMARKS.--Small diversions above station for irrigation. Flow regulated since 1974 by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1964-73

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	78	1.2	19	26	1.4	7.1
NOVEMBER	74	4.8	17	21	1.2	6.6
DECEMBER	21	6.2	11	4.7	0.42	4.3
JANUARY	30	7.8	14	7.1	0.51	5.3
FEBRUARY	24	7.9	15	5.0	0.33	5.8
MARCH	70	7.9	22	18	0.83	8.4
APRIL	54	4.6	30	15	0.52	11.4
MAY	130	6.6	44	45	1.0	16.7
JUNE	163	4.6	37	49	1.3	14.2
JULY	188	0.44	22	58	2.6	8.5
AUGUST	39	0.00	11	14	1.3	4.2
SEPTEMBER	80	0.39	20	22	1.1	7.7
ANNUAL	64	9.9	22	16	0.75	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1965-73

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.44	0.00	0.00	0.00
60	2.0	0.48	0.19	0.08
90	3.7	1.0	0.45	0.20
120	6.1	2.7	1.6	0.96
183	8.8	6.3	5.2	4.4

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1964-73MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 23 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3130	6510	9800	15500	21000	27900

OKLAHOMA WEIGHTED SKEW = 0.328

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	786	1600	2310	3440	4440	5600
3	429	820	1110	1490	1780	2070
7	212	398	543	750	917	1090
15	111	209	290	412	516	631
30	68	122	165	230	285	346
60	43	81	118	182	245	324
90	35	63	89	135	180	237

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1964-73

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
286	54	33	25	20	15	12	9.5	7.5	5.5	3.2	0.32	0.06	0.02	0.01	0.01	0.01	0.00

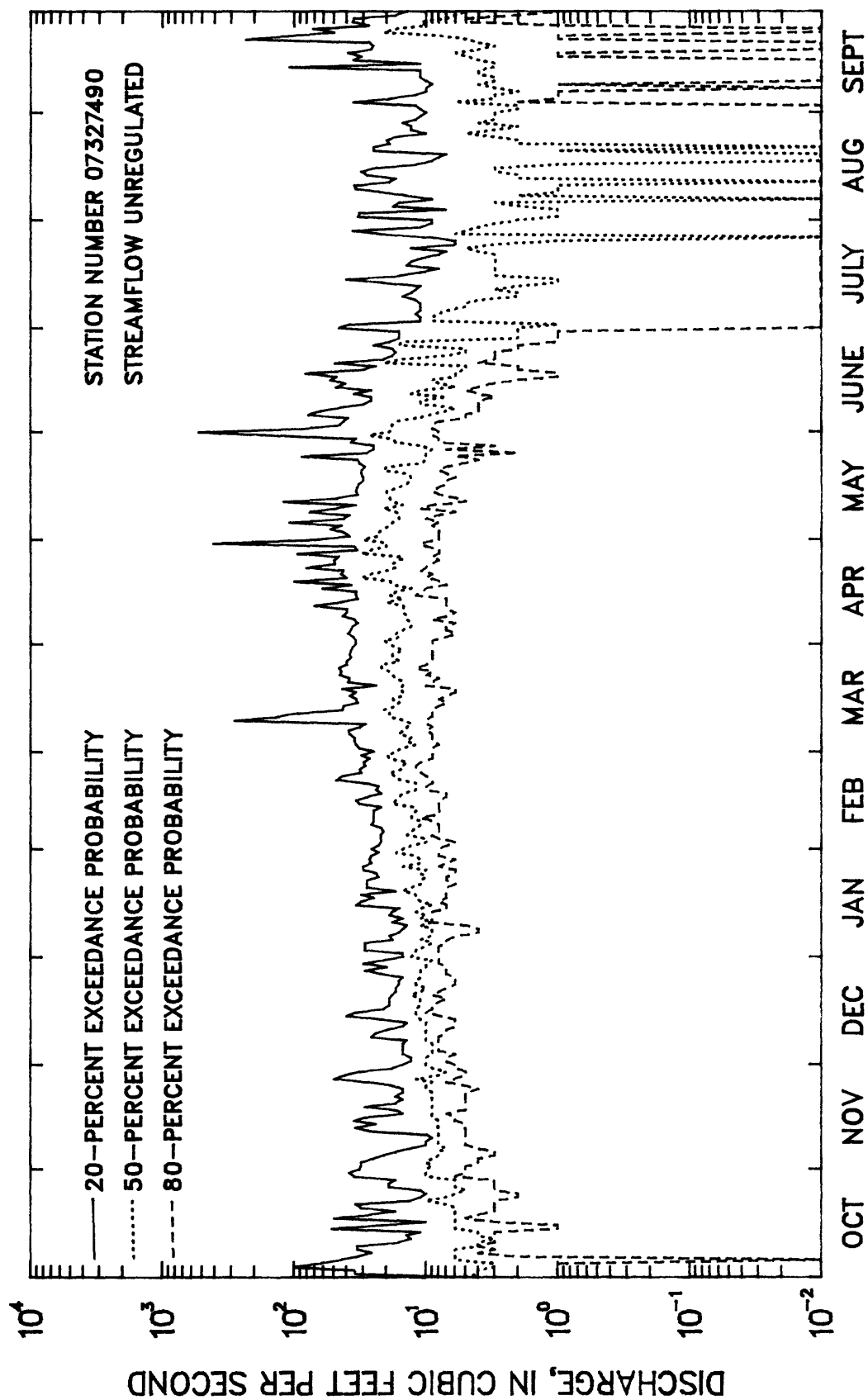


Figure 150.--Duration hydrographs of daily discharge values for Little Washita River near Ninnekah Oklahoma, water years 1965-1973 (streamflow unregulated).

RED RIVER BASIN

07327490 LITTLE WASHITA RIVER NEAR NINNEKAH, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1974-82, 1984

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	515	3.4	75	157	2.1	15.1
NOVEMBER	50	6.8	26	16	0.61	5.2
DECEMBER	41	9.5	22	10	0.45	4.5
JANUARY	38	9.6	24	10	0.43	4.7
FEBRUARY	54	11	29	13	0.43	5.9
MARCH	69	16	35	18	0.53	7.0
APRIL	63	16	35	17	0.50	7.0
MAY	233	22	121	73	0.60	24.2
JUNE	128	21	69	41	0.59	13.9
JULY	172	4.7	29	51	1.8	5.8
AUGUST	48	1.2	16	14	0.87	3.2
SEPTEMBER	44	1.4	17	15	0.87	3.4
ANNUAL	69	17	42	18	0.42	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1975-82

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.5	0.24	0.00	0.00
3	1.8	0.44	0.19	0.10
7	2.6	0.89	0.50	0.31
14	3.1	1.3	0.88	0.64
30	5.3	2.2	1.4	0.90
60	8.3	3.5	2.0	1.2
90	10	5.1	3.4	2.3
120	11	5.9	4.0	2.9
183	15	8.7	6.3	4.7

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 11 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
2770	4690	6270	8660	10700	13100

OKLAHOMA WEIGHTED SKEW = 0.264

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1974-82, 1984

PERIOD (CON- SEC- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1260	2620	4080	6830	9760	13680
3	648	1370	2120	3490	4930	6800
7	368	789	1210	1960	2700	3640
15	255	505	714	1030	1290	1580
30	163	295	396	540	650	770
60	112	180	229	295	347	401
90	91	140	175	220	255	291

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1974-82, 1984

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
509	99	55	44	39	31	25	20	16	12	8.6	5.0	3.2	1.3	0.76	0.49	0.22

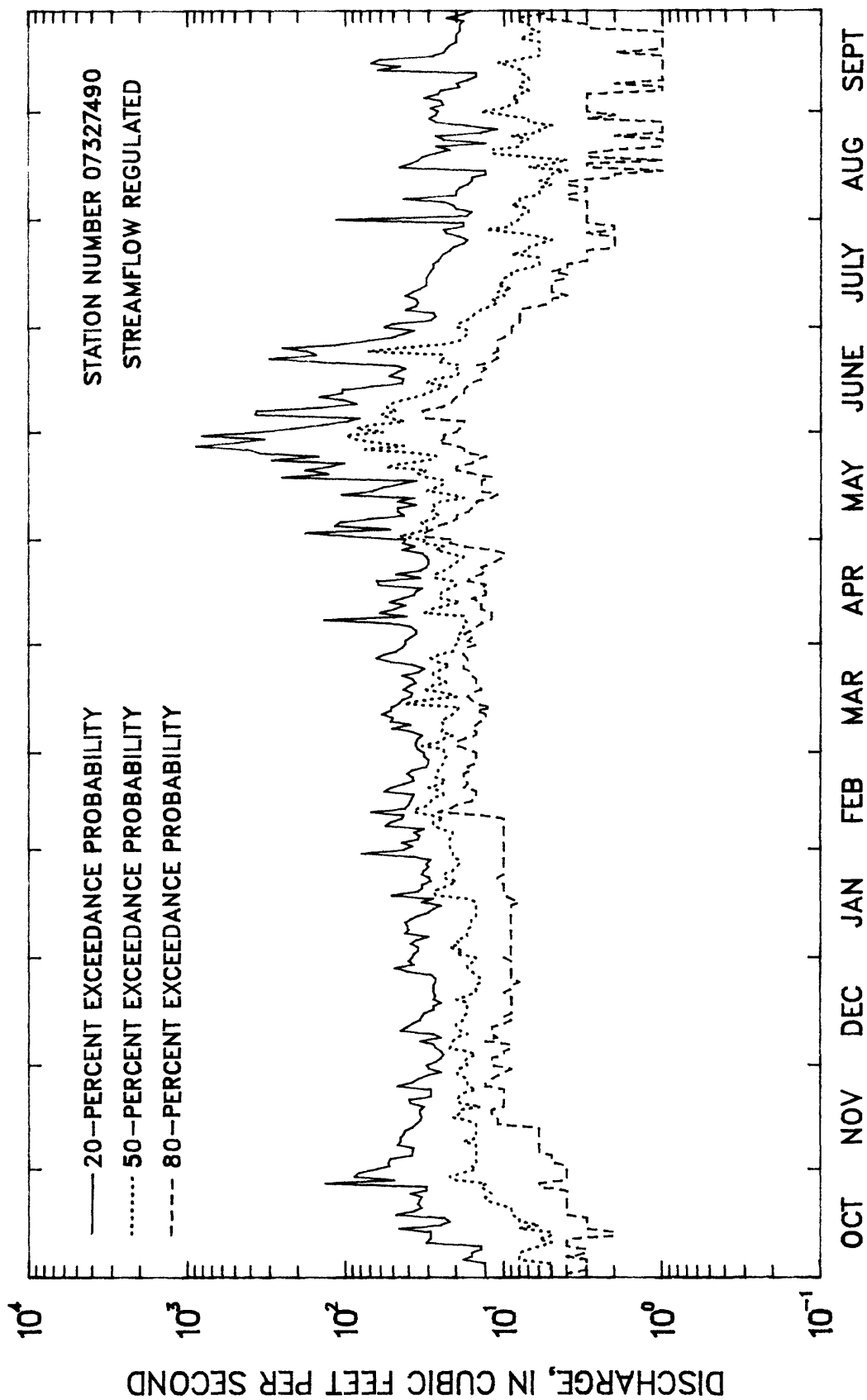


Figure 151.—Duration hydrographs of daily discharge values for Little Washita River near Ninnekah, Oklahoma, water years 1975-1982, 1984 (streamflow regulated).

RED RIVER BASIN

07328070 WINTER CREEK NEAR ALEX, OK

LOCATION.--Lat 34°59'35", long 97°45'40", in NE 1/4 sec.18, T.6 N., R.5 W., Grady County, Hydrologic Unit 11130303, at left bank 1,000 ft downstream from county road bridge, 0.7 mi downstream from East Winter Creek, 3.2 mi upstream from mouth, and 5.5 mi north of Alex.

DRAINAGE AREA.--33 mi².

PERIOD OF RECORD.--October 1964 to current year.

REMARKS.--Flow regulated since 1966 by numerous floodwater-retarding structures. Minor diversions for irrigation above station.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1967-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	177	0.58	16	41	2.6	13.7
NOVEMBER	28	1.2	7.9	8.0	1.0	6.8
DECEMBER	19	1.4	5.8	4.5	0.77	5.1
JANUARY	11	1.8	5.4	3.0	0.56	4.7
FEBRUARY	12	1.8	6.1	3.4	0.57	5.3
MARCH	25	2.1	6.9	5.4	0.79	6.0
APRIL	22	1.9	8.5	5.5	0.64	7.4
MAY	72	1.8	24	21	0.90	20.6
JUNE	103	1.5	20	27	1.3	17.8
JULY	28	0.34	6.1	7.2	1.2	5.3
AUGUST	15	0.07	2.8	3.5	1.2	2.4
SEPTEMBER	40	0.20	5.7	9.3	1.6	4.9
ANNUAL	22	2.4	9.6	5.8	0.60	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1968-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.27	0.00	0.00	0.00
3	0.29	0.02	0.00	0.00
7	0.34	0.04	0.00	0.00
14	0.47	0.09	0.00	0.00
30	0.73	0.17	0.06	0.00
60	1.2	0.37	0.18	0.09
90	1.5	0.61	0.36	0.24
120	2.1	1.1	0.73	0.54
183	3.5	1.8	1.3	0.99

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 18 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1220	3330	5610	9750	13900	19100
OKLAHOMA WEIGHTED SKEW = -0.032					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1967-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	224	547	948	1820	2890	4490
3	143	325	536	963	1450	2140
7	86	190	305	532	782	1130
15	55	121	190	315	445	612
30	35	73	110	174	238	317
60	23	45	65	97	127	163
90	18	34	48	69	88	111

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
109	29	16	12	9.4	6.9	5.1	3.7	2.8	2.1	1.5	0.73	0.33	0.07	0.02	0.01	0.00	0.00

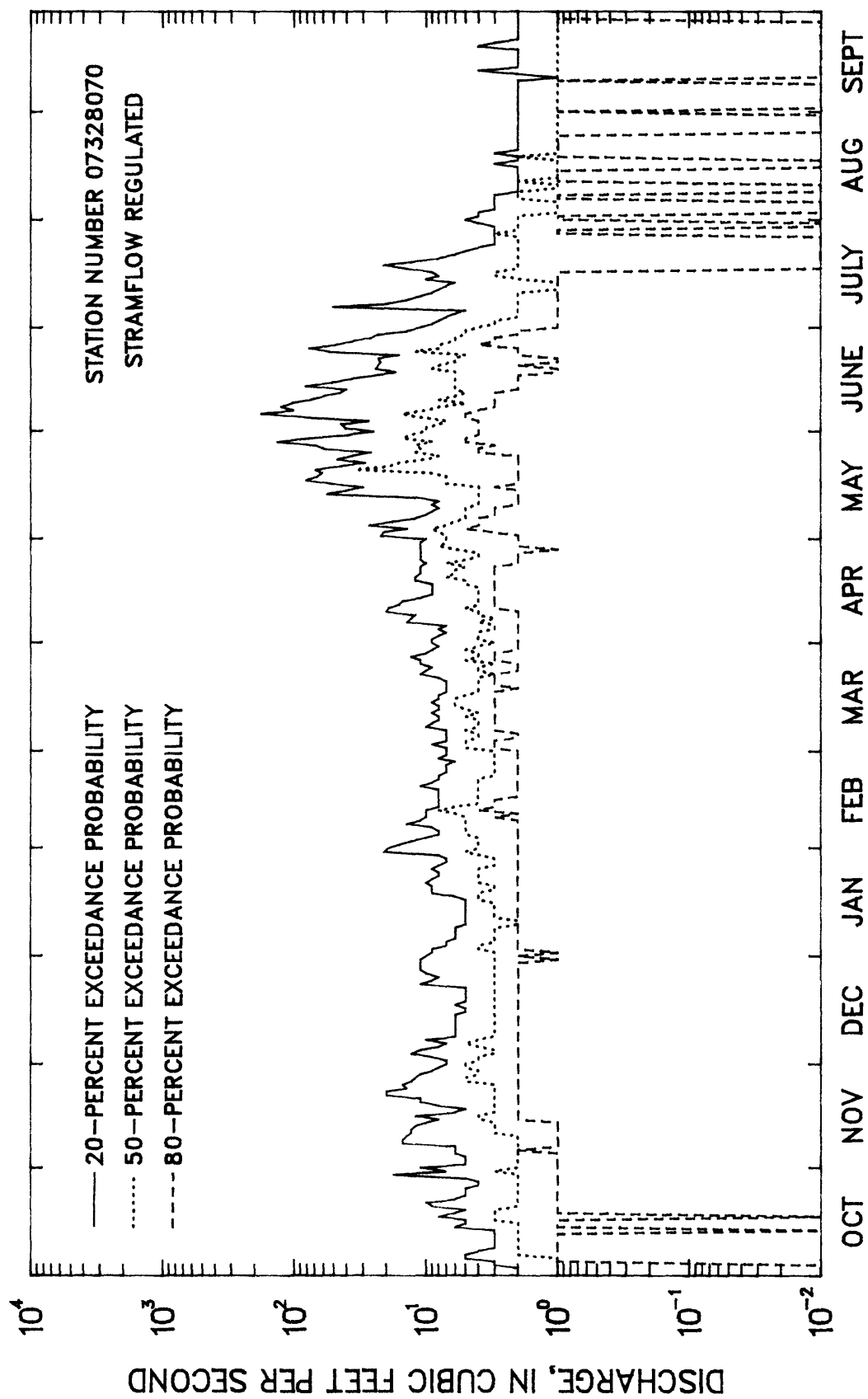


Figure 152.--Duration hydrographs of daily discharge values for Winter Creek near Alex, Oklahoma, water years 1976-1984 (streamflow regulated).

RED RIVER BASIN

07328100 WASHITA RIVER AT ALEX, OK

LOCATION.--Lat 34°55'35", long 97°46'30", in NW 1/4 sec.7, T.5 N., R.5 W., Grady County, Hydrologic Unit 11130303, near left bank on downstream side of county road bridge, 1.0 mi north of Alex, 3.8 mi downstream from Winter Creek, and at mile 226.5.

DRAINAGE AREA.--4,787 mi².

PERIOD OF RECORD.--October 1964 to current year.

REMARKS.--Some regulation since 1959 by Fort Cobb Reservoir; flow regulated since 1961 by Foss Reservoir, and by numerous floodwater-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1965-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	4440	61	505	988	2.0	10.0
NOVEMBER	1260	53	349	354	1.0	6.9
DECEMBER	435	65	203	112	0.55	4.0
JANUARY	439	77	211	108	0.51	4.2
FEBRUARY	716	86	238	151	0.63	4.7
MARCH	902	74	292	215	0.74	5.8
APRIL	1760	24	404	373	0.92	8.0
MAY	3410	23	940	936	1.0	18.6
JUNE	3810	97	1030	912	0.89	20.3
JULY	1680	14	360	445	1.2	7.1
AUGUST	1470	3.9	236	314	1.3	4.7
SEPTEMBER	1180	40	293	296	1.0	5.8
ANNUAL	945	120	422	231	0.55	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	32	2.3	0.00	0.00
3	35	2.8	0.00	0.00
7	38	3.3	0.59	0.11
14	40	7.6	2.4	0.82
30	63	21	9.8	4.9
60	95	44	28	19
90	125	63	41	28
120	146	77	53	39
183	172	99	75	60

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6010	9710	12400	16100	19100	22100

STATION SKEW = -0.064

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4870	8200	10900	14900	18400	22200
3	3930	6830	9260	12900	16200	19850
7	3090	5670	7870	11300	14300	17700
15	2160	4140	5850	8530	10900	13700
30	1490	2840	3960	5640	7080	8670
60	1030	1880	2560	3540	4350	5220
90	834	1490	1990	2690	3250	3840

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4750	1610	864	595	450	310	242	189	146	117	86	57	37	14	3.2	1.0	0.08

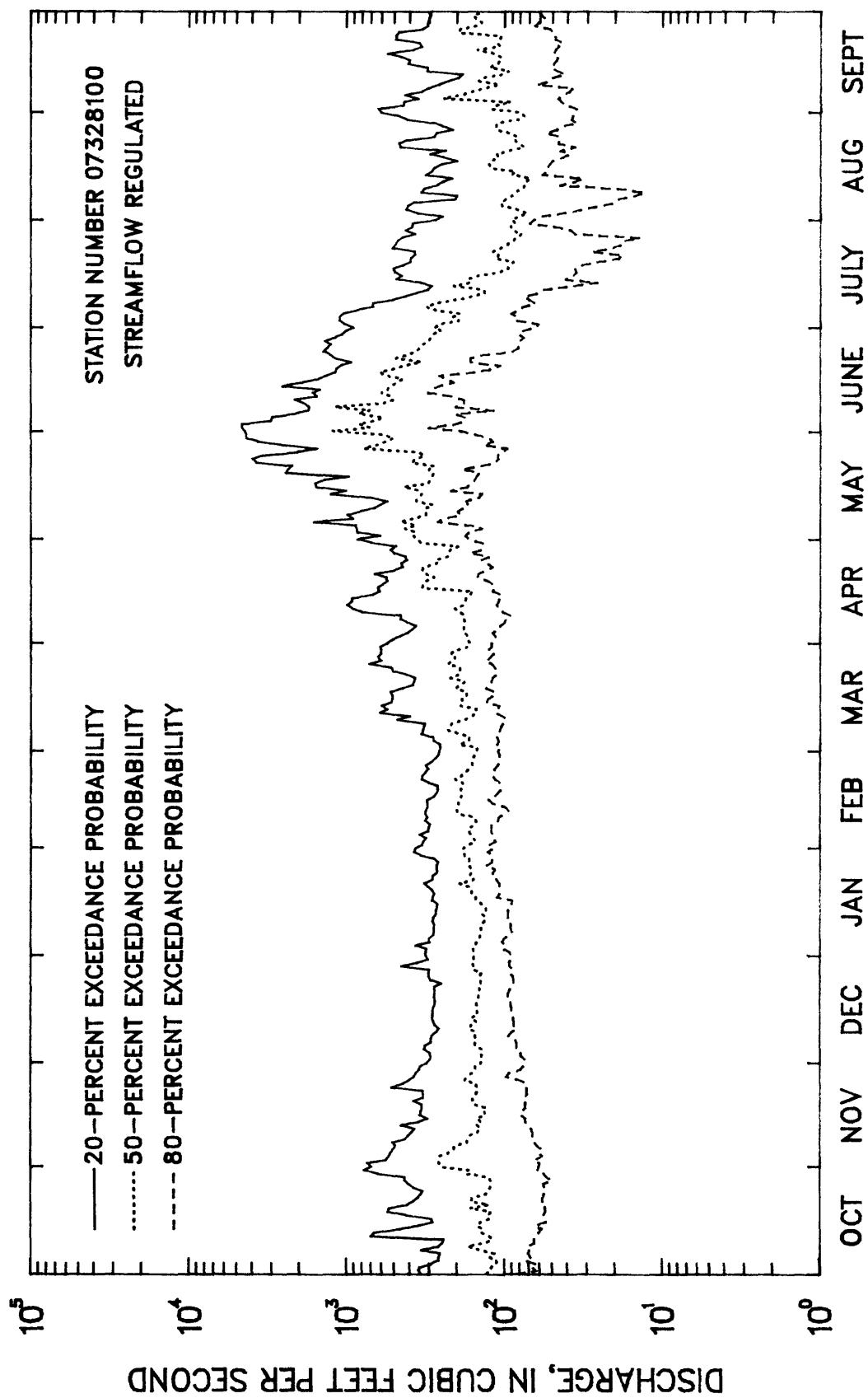


Figure 153.---Duration hydrographs of daily discharge values for Washita River at Alex, Oklahoma, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07328500 WASHITA RIVER NEAR PAULS VALLEY, OK

LOCATION.--Lat 34°45'17", long 97°15'04", in SE 1/4 sec.1, T.3 N., R.1 W., Garvin County, Hydrologic Unit 11130303, on downstream side of left pier of bridge on U.S. Highway 77, 2 mi northwest of Pauls Valley, 6 mi downstream from Owl Creek, 7 mi upstream from Washington Creek, and at mile 146.5.

DRAINAGE AREA.--5,330 mi².

PERIOD OF RECORD.--May to December 1899 (gage heights only), October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311. Published as "at Pauls Valley, Indian Territory" in 1899.

REMARKS.--Some diversion for irrigation above station. Some regulation since March 1959, by Fort Cobb Reservoir; flow regulated since February 1961, by Foss Reservoir, and by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-60

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	3280	10	741	1040	1.4	7.5
NOVEMBER	2690	28	395	546	1.4	4.0
DECEMBER	1200	56	339	305	0.90	3.4
JANUARY	969	57	306	223	0.73	3.1
FEBRUARY	2100	81	477	523	1.1	4.8
MARCH	1930	74	483	460	0.95	4.9
APRIL	3810	146	963	1060	1.1	9.7
MAY	9530	219	2520	2240	0.89	25.4
JUNE	6490	257	1970	1610	0.82	19.9
JULY	2840	101	865	673	0.78	8.7
AUGUST	1620	12	405	359	0.89	4.1
SEPTEMBER	1780	0.00	447	515	1.2	4.5
ANNUAL	1630	258	828	425	0.51	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-60

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	75	15	3.3	0.09
3	78	20	5.5	0.22
7	86	25	9.4	1.0
14	91	30	13	2.1
30	118	40	18	3.3
60	140	46	31	5.0
90	182	74	43	26
120	201	88	56	37
183	257	115	76	53

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1938-60MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 23 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
14000	21400	26200	31900	35900	39700

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.458

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	12700	19600	23900	29100	32600	36000
3	9780	15100	18500	22700	25700	28600
7	6990	10700	13200	16500	18900	21400
15	4660	7530	9710	12700	15200	17900
30	3100	5380	7240	10000	12400	15000
60	2120	3670	4920	6740	8290	10000
90	1740	2950	3880	5180	6240	7370

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-60

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
9310	3680	1850	1170	863	549	402	302	232	177	128	77	47	19	8.1	0.18	0.04	

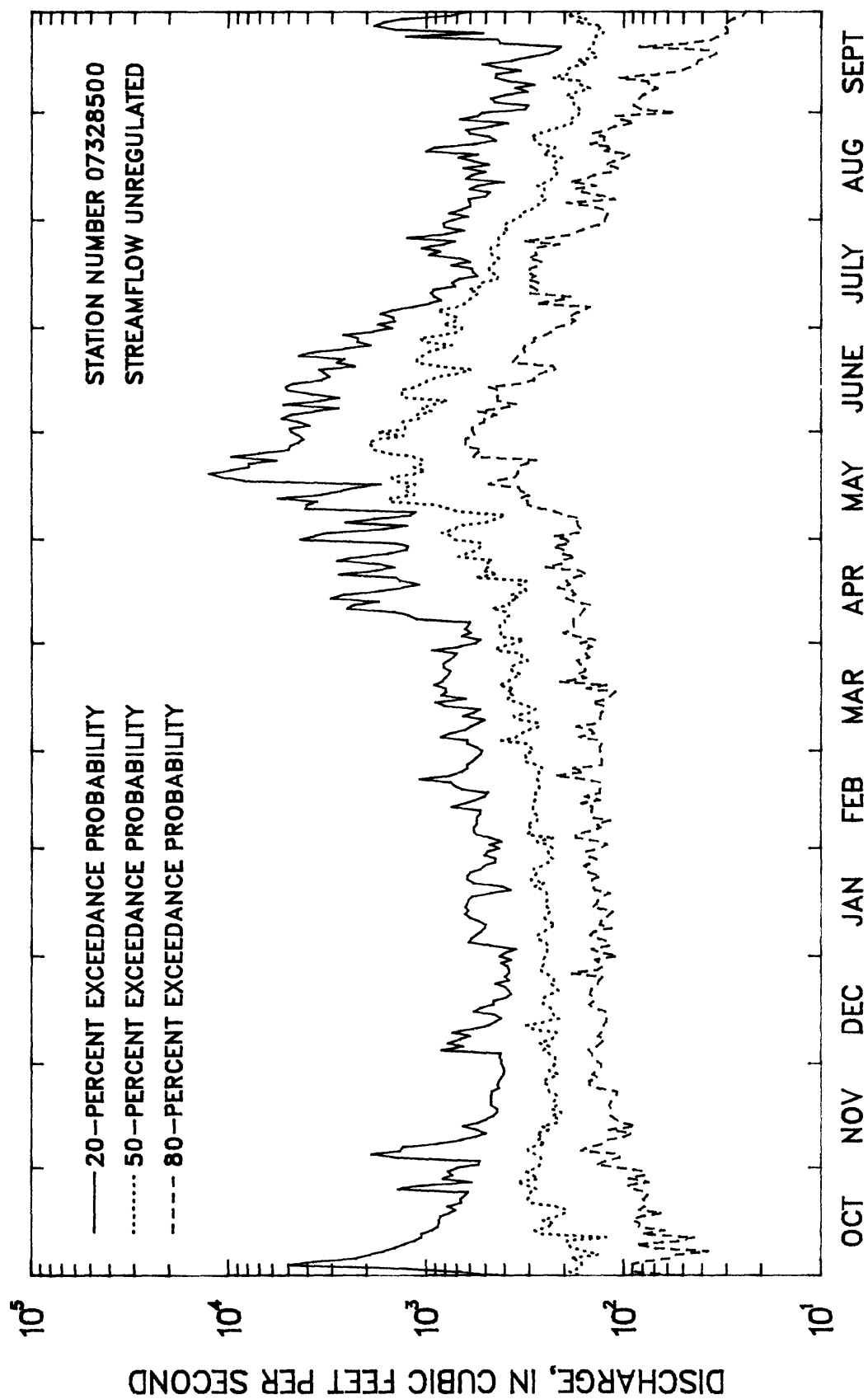


Figure 154.—Duration hydrographs of daily discharge values for Washita River at Pauls Valley, Oklahoma, water years 1942–1960 (streamflow unregulated).

RED RIVER BASIN

07328500 WASHITA RIVER NEAR PAULS VALLEY, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	6070	35	666	1220	1.8	10.0
NOVEMBER	1640	62	509	504	0.99	7.6
DECEMBER	715	70	290	178	0.61	4.4
JANUARY	624	91	280	145	0.52	4.2
FEBRUARY	745	88	315	176	0.56	4.7
MARCH	1330	79	390	293	0.75	5.8
APRIL	2300	59	497	445	0.90	7.4
MAY	4310	38	1200	1200	0.99	18.0
JUNE	4290	151	1360	1170	0.86	20.4
JULY	2470	16	466	580	1.2	7.0
AUGUST	1920	0.28	273	376	1.4	4.1
SEPTEMBER	1540	24	423	420	0.99	6.3
ANNUAL	1290	181	557	301	0.54	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	37	0.00	0.00	0.00
3	34	0.52	0.00	0.00
7	37	1.9	0.02	0.00
14	40	3.9	0.76	0.16
30	73	14	4.4	1.4
60	119	49	29	17
90	162	70	40	24
120	189	96	65	46
183	237	128	92	70

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
9620	14300	16900	19800	21700	23300

STATION SKEW = -0.747

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	7440	11700	14700	18400	21200	24000
3	5650	9470	12500	16800	20500	23000
7	4070	7270	10000	14200	18000	22300
15	2760	5260	7480	11000	14200	17900
30	1890	3590	5030	7230	9140	11300
60	1270	2350	3230	4510	5580	6750
90	1030	1870	2540	3500	4300	5170

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
6370	2130	1090	758	612	434	333	258	199	152	109	64	38	9.8	1.2	0.04	0.01

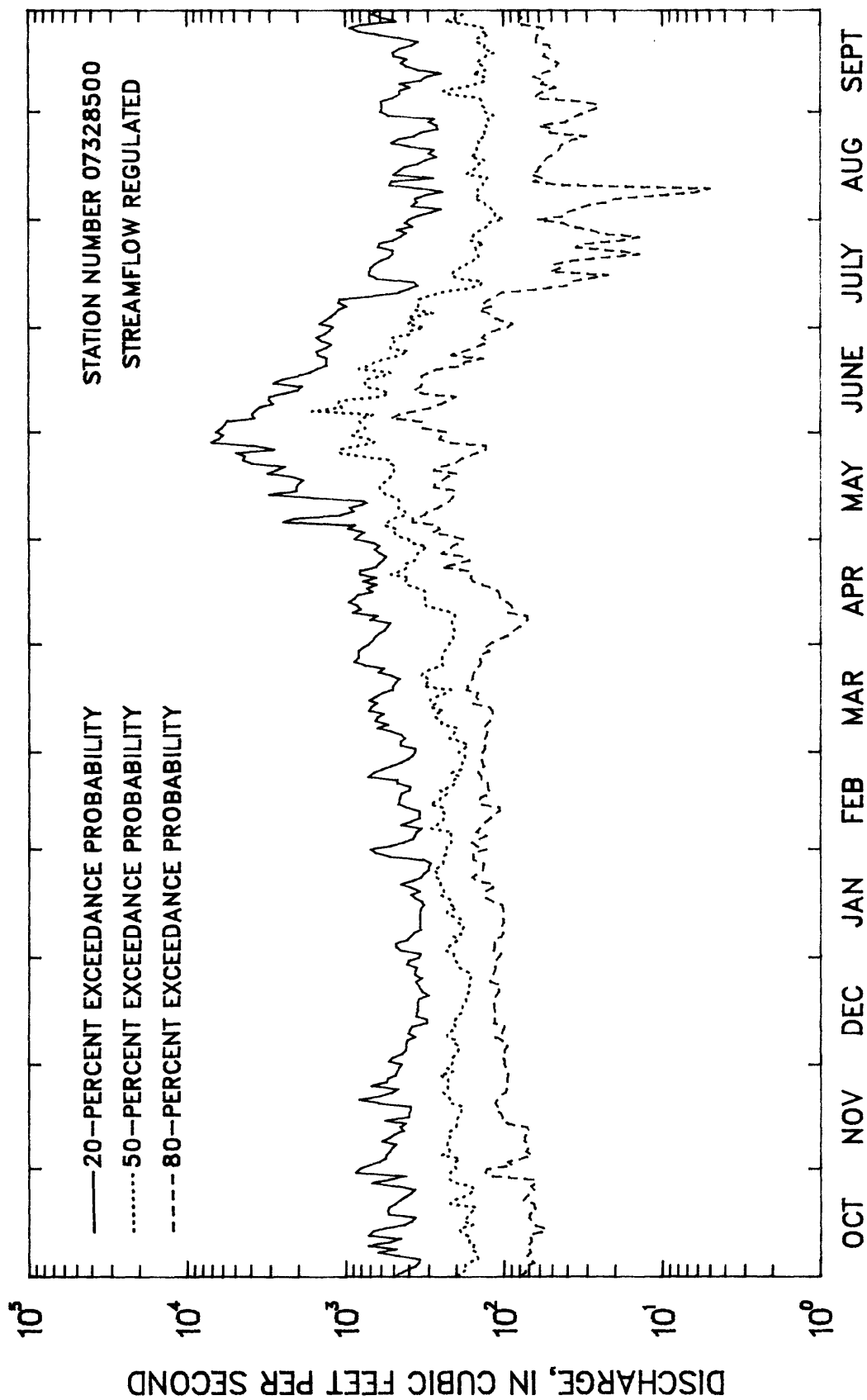


Figure 155. --Duration hydrographs of daily discharge values for Washita River at Pauls Valley, Oklahoma, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07329000 RUSH CREEK AT PURDY, OK

LOCATION.--Lat 34°41'42", long 97°35'54", in SE 1/4 SE 1/4 sec.27, T.3 N., R.4 W., on left downstream bank near end of bridge on State Highway 76, 0.8 mi south of Purdy, 8.5 mi south of Lindsay, and at mile 27.3.

DRAINAGE AREA.--145 mi².

PERIOD OF RECORD.--October 1939 to December 1953, February 1982 to current year. Prior to May 1940 monthly discharges only, published in WSP 1311.

REMARKS.--Flow regulated since 1960 by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1940-53

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	373	0.24	47	96	2.1	5.4
NOVEMBER	78	0.00	26	22	0.84	3.1
DECEMBER	73	0.00	25	21	0.84	2.9
JANUARY	84	0.00	21	20	0.95	2.4
FEBRUARY	77	0.60	31	20	0.67	3.5
MARCH	220	0.00	44	54	1.2	5.1
APRIL	448	0.60	86	116	1.3	10.0
MAY	1020	28	240	288	1.2	27.8
JUNE	747	14	166	197	1.2	19.3
JULY	183	6.7	57	51	0.90	6.6
AUGUST	331	1.7	39	85	2.2	4.5
SEPTEMBER	480	0.27	81	170	2.1	9.5
ANNUAL	176	15	72	47	0.66	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1941-53

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2.7	0.77	0.21	0.00
3	2.9	0.82	0.21	0.00
7	3.7	0.95	0.20	0.00
14	4.5	1.2	0.29	0.00
30	6.6	2.1	0.57	0.00
60	9.3	2.3	0.88	0.35
90	12	3.3	1.4	0.65
120	14	4.5	2.2	1.2
183	19	9.4	6.6	4.9

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1940-53MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 15 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
10000	16100	21000	28400	34700	41800
OKLAHOMA WEIGHTED SKEW = 0.365					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	3320	6310	8740	12300	15300	18500
3	1640	3280	4660	6730	8510	10500
7	860	1690	2370	3380	4220	5150
15	493	968	1350	1900	2360	2840
30	301	603	864	1270	1620	2020
60	193	358	491	684	844	1020
90	150	268	360	489	594	706

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1940-53

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1510	150	64	45	35	25	20	16	12	8.4	5.4	1.9	0.13	0.04	0.02	0.01	0.00

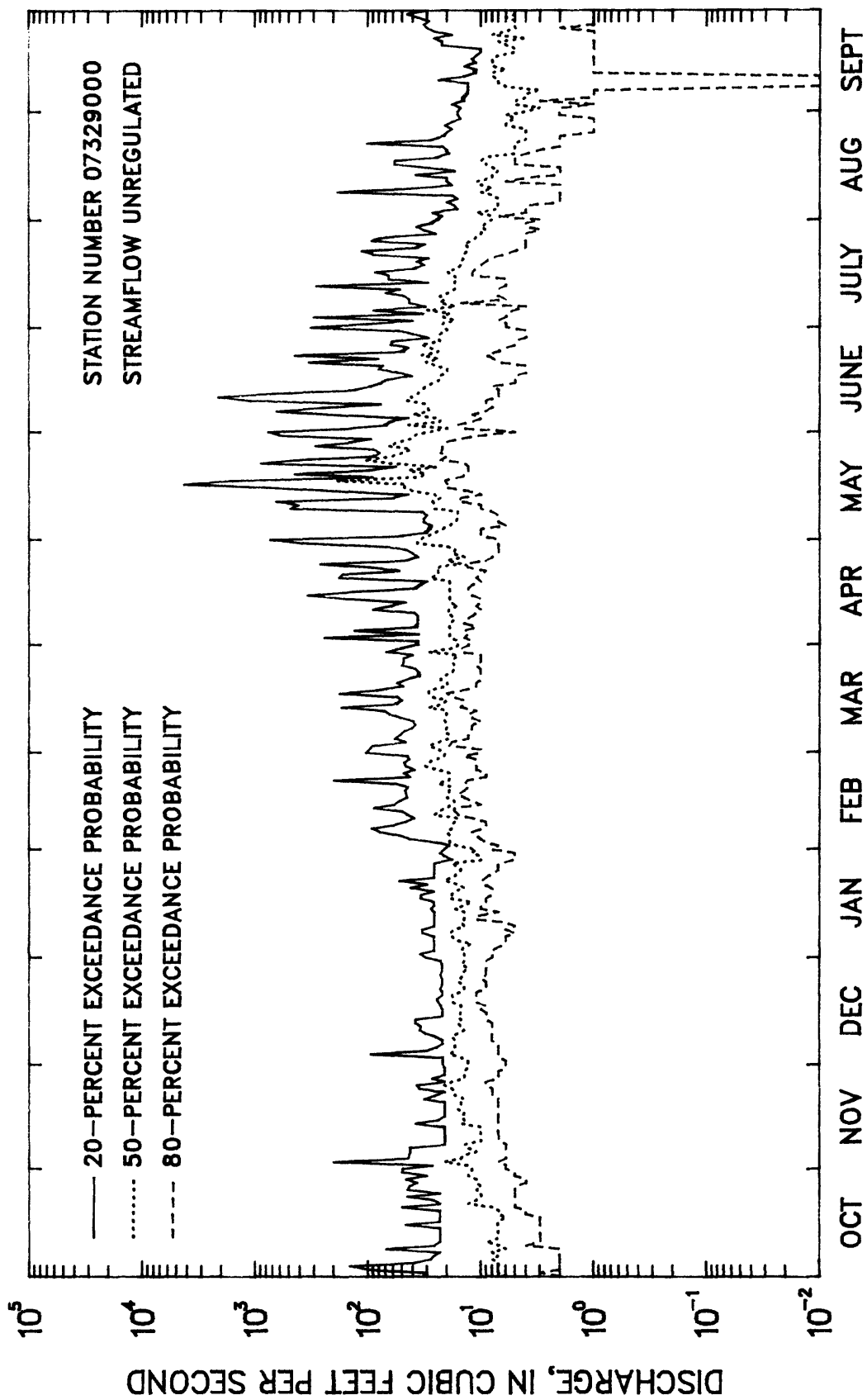


Figure 156.--Duration hydrographs of daily discharge values for Rush Creek at Purdy, Oklahoma, water years 1945-1953 (streamflow unregulated).

RED RIVER BASIN

07329500 RUSH CREEK NEAR MAYSVILLE, OK

LOCATION.--Lat 34°44'36", long 97°24'18", in SW 1/4 SW 1/4 sec.10, T.3 N., R.2 W., Garvin County, near right bank on downstream side of pier of bridge on State Highway 74, 2.8 mi downstream from Panther Creek, 5.3 mi south of Maysville, and at mile 14.2.

DRAINAGE AREA.--206 mi².

PERIOD OF RECORD.--December 1953 to current year.

REMARKS.--Flow regulated since 1965 by numerous floodwater-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1967-76

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	113	1.3	50	43	0.85	8.9
NOVEMBER	224	0.38	49	70	1.4	8.7
DECEMBER	42	1.0	18	15	0.84	3.3
JANUARY	54	1.2	24	17	0.70	4.2
FEBRUARY	92	0.75	29	29	1.0	5.1
MARCH	227	1.3	46	67	1.4	8.3
APRIL	268	8.8	59	76	1.3	10.4
MAY	357	3.5	106	110	1.0	18.8
JUNE	244	4.7	82	97	1.2	14.7
JULY	176	0.00	27	53	2.0	4.8
AUGUST	45	0.00	11	15	1.3	1.9
SEPTEMBER	257	0.99	61	83	1.3	10.9
ANNUAL	105	7.7	47	34	0.72	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1968-76

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.35	0.00	0.00	0.00
60	2.5	0.29	0.08	0.02
90	5.5	1.5	0.76	0.41
120	11	5.1	3.3	2.3
183	20	8.2	4.9	3.1

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1967-76MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 13 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
5040	10200	14900	22600	29500	37700
OKLAHOMA WEIGHTED SKEW = 0.119					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	1680	3570	5030	6960	8420	9860
3	893	1770	2410	3230	3830	4410
7	473	959	1330	1820	2200	2570
15	261	516	707	961	1150	1340
30	164	334	472	668	827	994
60	106	208	291	413	515	625
90	82	164	235	343	436	540

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1967-76

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
766	147	78	53	41	28	20	14	9.1	5.8	2.5	0.02	0.01	0.00	0.00	0.00	0.00

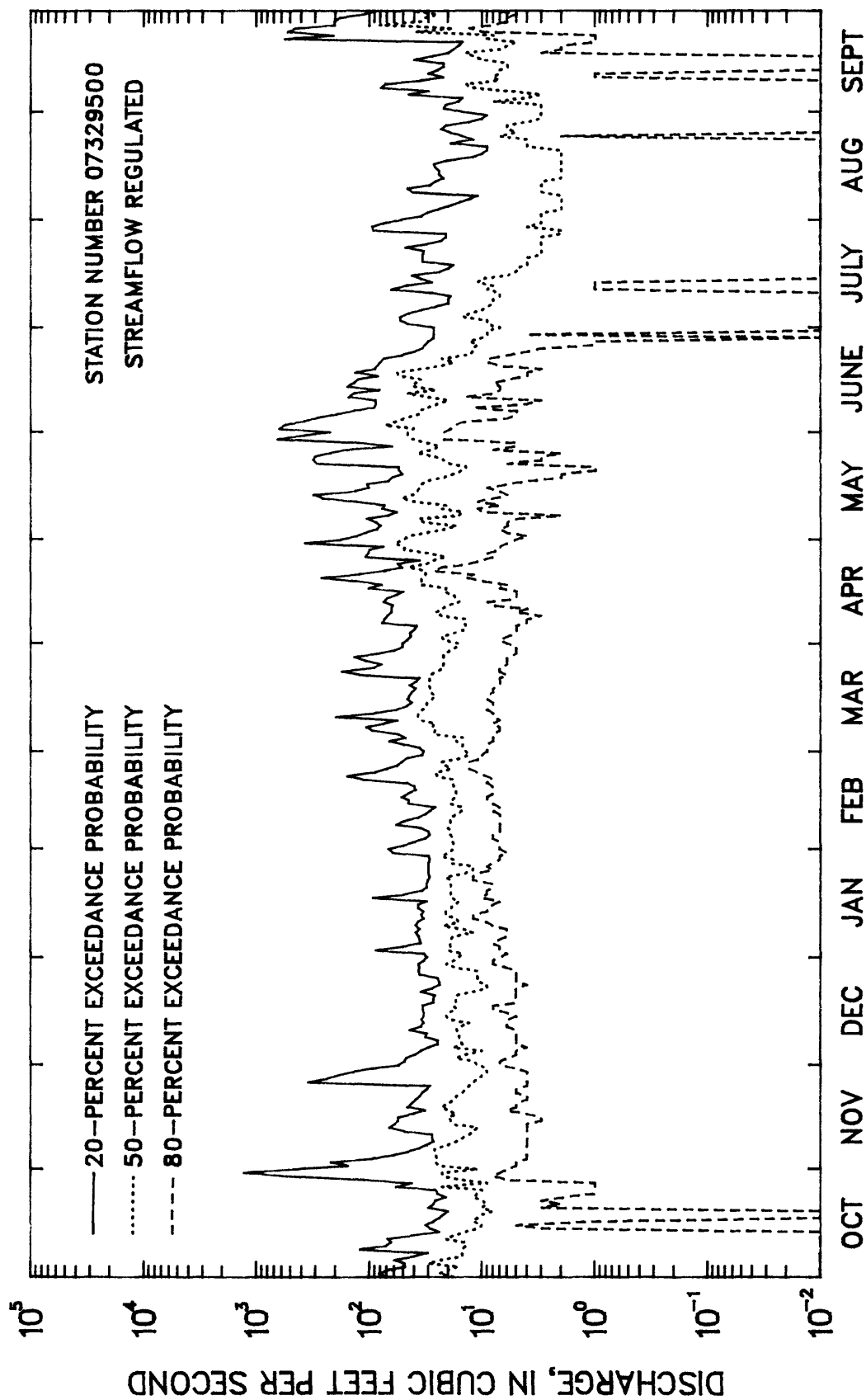


Figure 157.--Duration hydrographs of daily discharge values for Rush Creek near Maysville, Oklahoma, water years 1968-1976 (streamflow regulated).

RED RIVER BASIN

07329700 WILDHORSE CREEK NEAR HOOVER, OK

LOCATION.--Lat 34°32'29", long 97°14'49", on west line of SW 1/4 sec.19, T.1 N., R.1 E., Garvin County, Hydrologic Unit 11130303, on downstream left bank at bridge on State Highway 19A, 1.5 mi north of Hoover, 1.8 mi downstream from Sandy Creek, and at mile 7.9.

DRAINAGE AREA.--604 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1944, 1951-69. October 1969 to current year.

REMARKS.--Some regulation by Duncan, Clear Creek, Humphries and Fuqua Lakes; flow regulated since 1963 by numerous flood-retarding structures.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1970-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	575	1.1	187	235	1.3	8.7
NOVEMBER	920	3.3	151	266	1.8	7.1
DECEMBER	301	2.0	58	79	1.4	2.7
JANUARY	176	4.9	53	55	1.0	2.5
FEBRUARY	574	8.8	85	142	1.7	4.0
MARCH	688	8.5	162	197	1.2	7.6
APRIL	1120	6.7	214	292	1.4	10.0
MAY	2940	36	614	776	1.3	28.8
JUNE	1390	17	383	422	1.1	17.9
JULY	640	0.92	89	185	2.1	4.2
AUGUST	249	0.16	37	65	1.7	1.7
SEPTEMBER	632	0.33	103	184	1.8	4.8
ANNUAL	578	35	178	160	0.90	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1971-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.1	0.00	0.00	0.00
3	1.1	0.00	0.00	0.00
7	1.1	0.03	0.00	0.00
14	1.5	0.13	0.02	0.00
30	2.9	0.63	0.27	0.13
60	5.9	1.6	0.81	0.46
90	8.9	2.9	1.6	0.99
120	14	5.6	3.7	2.7
183	36	12	6.8	4.3

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1970-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 13 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
9520	14900	18900	24500	29000	33800

OKLAHOMA WEIGHTED SKEW = 0.103

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	5970	9760	12300	15300	17500	19500
3	3490	5650	7150	9060	10500	11900
7	2070	3420	4350	5530	6400	7250
15	1250	2220	2920	3850	4560	5270
30	784	1480	2030	2820	3460	4150
60	475	929	1300	1850	2310	2810
90	348	696	994	1450	1840	2280

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1970-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
2860	791	343	204	133	69	42	28	18	11	5.7	2.3	0.96	0.22	0.08	0.02	0.00

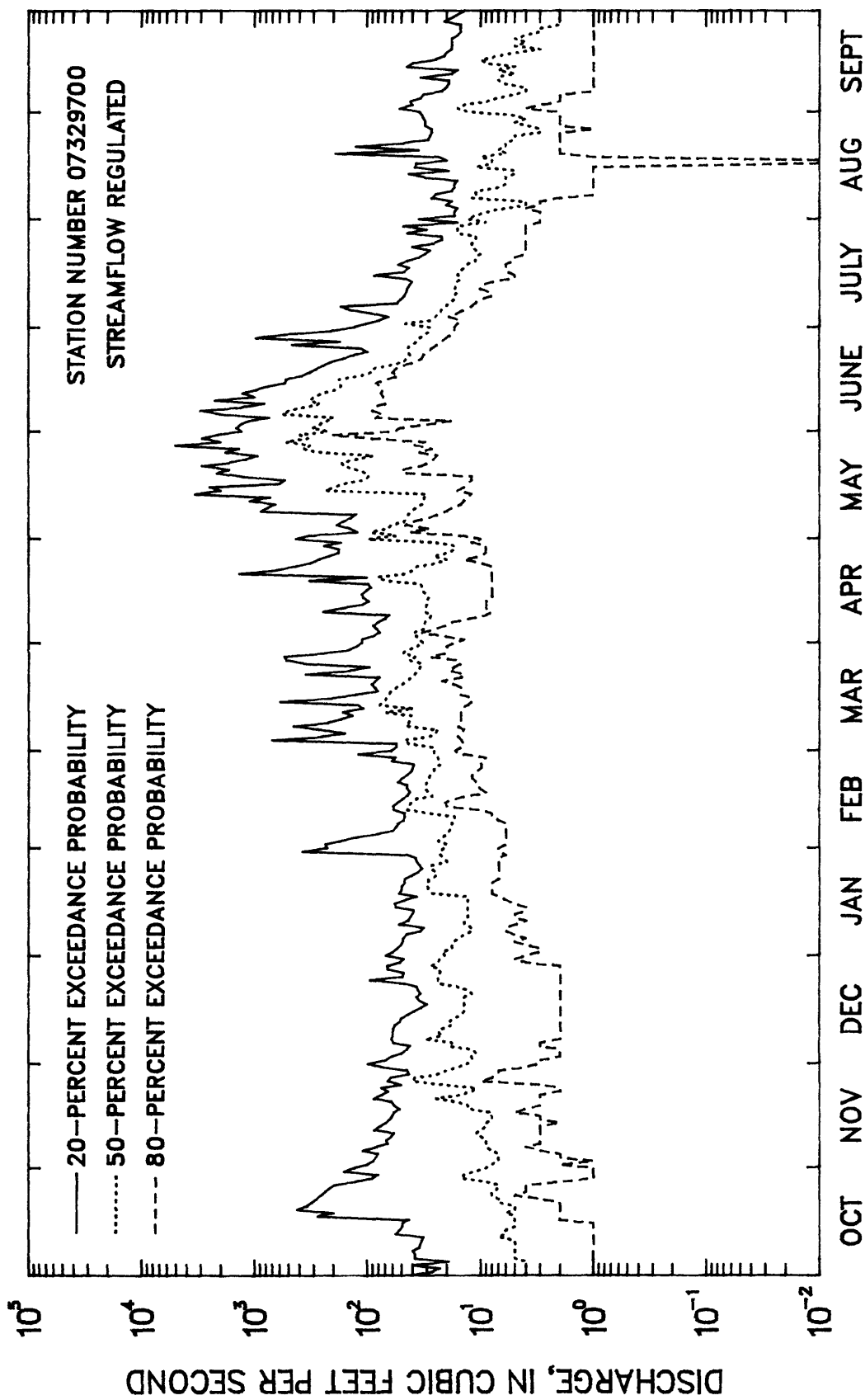


Figure 158.--Duration hydrographs of daily discharge values for Wildhorse Creek near Hoover, Oklahoma, water years 1975-1984 (streamflow regulated).

RED RIVER BASIN

07330500 CADD0 CREEK NEAR ARDMORE, OK

LOCATION.--Lat 34°14'33", long 98°06'23", on west line NW 1/4 sec.4, T.4 S., R.2 E., at county highway bridge, 0.5 mi north of Ardmore and 10 mi upstream from mouth.

DRAINAGE AREA.--298 mi².

PERIOD OF RECORD.--October 1936 to September 1950.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1937-50

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1740	0.00	187	464	2.5	10.1
NOVEMBER	338	0.00	63	101	1.6	3.4
DECEMBER	816	0.00	84	213	2.5	4.6
JANUARY	567	0.24	73	145	2.0	4.0
FEBRUARY	1070	1.9	195	284	1.5	10.5
MARCH	1670	1.4	221	427	1.9	12.0
APRIL	1350	14	306	371	1.2	16.5
MAY	919	3.9	282	289	1.0	15.2
JUNE	512	8.8	192	180	0.94	10.4
JULY	583	2.4	80	151	1.9	4.3
AUGUST	289	0.12	80	119	1.5	4.4
SEPTEMBER	778	0.00	85	205	2.4	4.6
ANNUAL	419	9.4	154	116	0.76	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1938-50

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.22	0.00	0.00	0.00
60	1.3	0.11	0.00	0.00
90	3.6	0.32	0.00	0.00
120	12	0.60	0.02	0.00
183	25	2.9	0.74	0.21

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1937-50MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 14 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
8320	15600	21600	30700	38600	47300
OKLAHOMA WEIGHTED SKEW = 0.009					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	5470	11200	14900	18800	21200	23300
3	2900	6530	9440	13400	16600	19700
7	1640	3560	4970	6750	8010	9190
15	918	1880	2500	3210	3660	4050
30	590	1190	1600	2080	2410	2700
60	416	822	1060	1320	1460	1580
90	330	618	780	930	1020	1090

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1937-50

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
2890	575	233	128	83	45	27	16	8.4	3.6	1.2	0.09	0.04	0.02	0.01	0.00	0.00	0.00

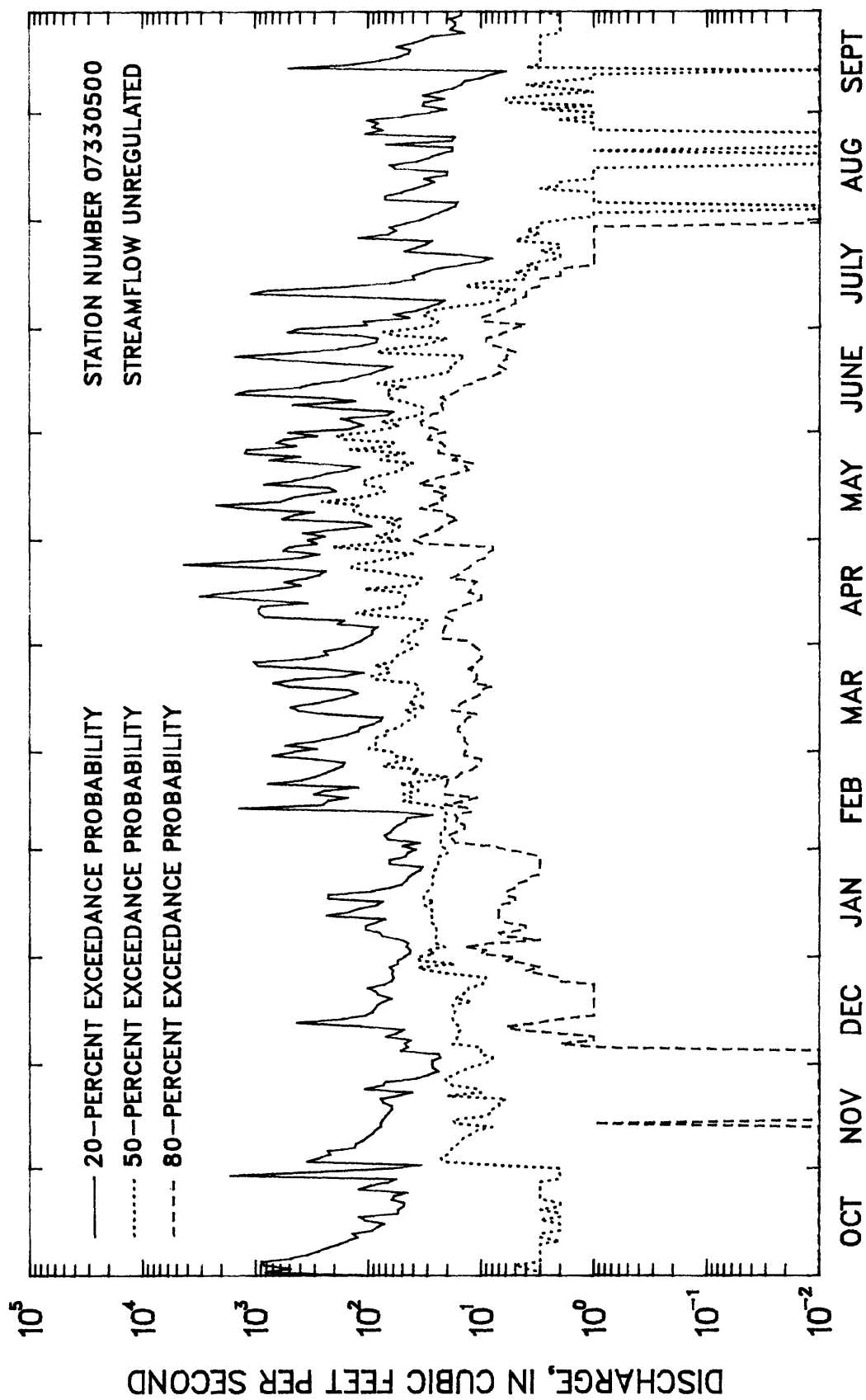


Figure 159.--Duration hydrographs of daily discharge values for Caddo Creek near Ardmore, Oklahoma, water years 1942-1950 (streamflow unregulated).

RED RIVER BASIN

07331000 WASHITA RIVER NEAR DICKSON, OK

LOCATION.--Lat 34°13'59", long 96°58'38", in SE 1/4 SW 1/4 sec.3, T.4 S., R.3 E., Carter County, Hydrologic Unit 11130303, on right bank 500 ft upstream from bridge on U.S. Highway 177, 1.2 mi downstream from Caddo Creek, 3.2 mi north of Dickson, 12.0 mi northeast of Ardmore, and at mile 63.5.

DRAINAGE AREA.--7,202 mi².

PERIOD OF RECORD.--August 1928 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to Oct. 1, 1979, published as Washita River near Durwood.

REMARKS.--Some diversions above station for irrigation. Some regulation since March 1959 by Fort Cobb Reservoir; flow regulated since February 1961 by Foss Reservoir, and by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1929-60

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	10300	13	1290	2180	1.7	7.0
NOVEMBER	6690	47	834	1240	1.5	4.5
DECEMBER	4150	76	745	793	1.1	4.0
JANUARY	4270	70	748	912	1.2	4.0
FEBRUARY	6330	146	1080	1220	1.1	5.9
MARCH	9380	91	1260	1630	1.3	6.8
APRIL	11500	194	1960	2500	1.3	10.6
MAY	20900	488	4580	4310	0.94	24.8
JUNE	9430	502	3110	2540	0.82	16.8
JULY	4720	98	1230	1110	0.90	6.7
AUGUST	3300	16	691	745	1.1	3.7
SEPTEMBER	4270	0.11	977	1030	1.0	5.3
ANNUAL	3890	391	1540	908	0.59	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1930-60

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	108	38	18	6.6
3	125	46	21	7.6
7	140	52	24	8.5
14	152	57	27	9.9
30	250	72	32	15
60	300	95	38	24
90	317	129	73	43
120	370	165	101	66
183	511	233	151	105

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1929-60MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 32 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
24700	46800	65200	92700	116000	142000
WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.039					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	21500	41100	58000	84300	108000	134000
3	16900	32100	45000	64500	81600	101000
7	11500	21100	28900	40100	49400	59600
15	7730	13800	18600	25300	30900	36800
30	5190	9480	13000	18100	22500	27300
60	3580	6530	8970	12600	15700	19200
90	2860	5070	6890	9570	11900	14400

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1929-60

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
19300	6530	3540	2200	1580	968	689	524	403	304	219	136	85	40	15	3.6	0.05

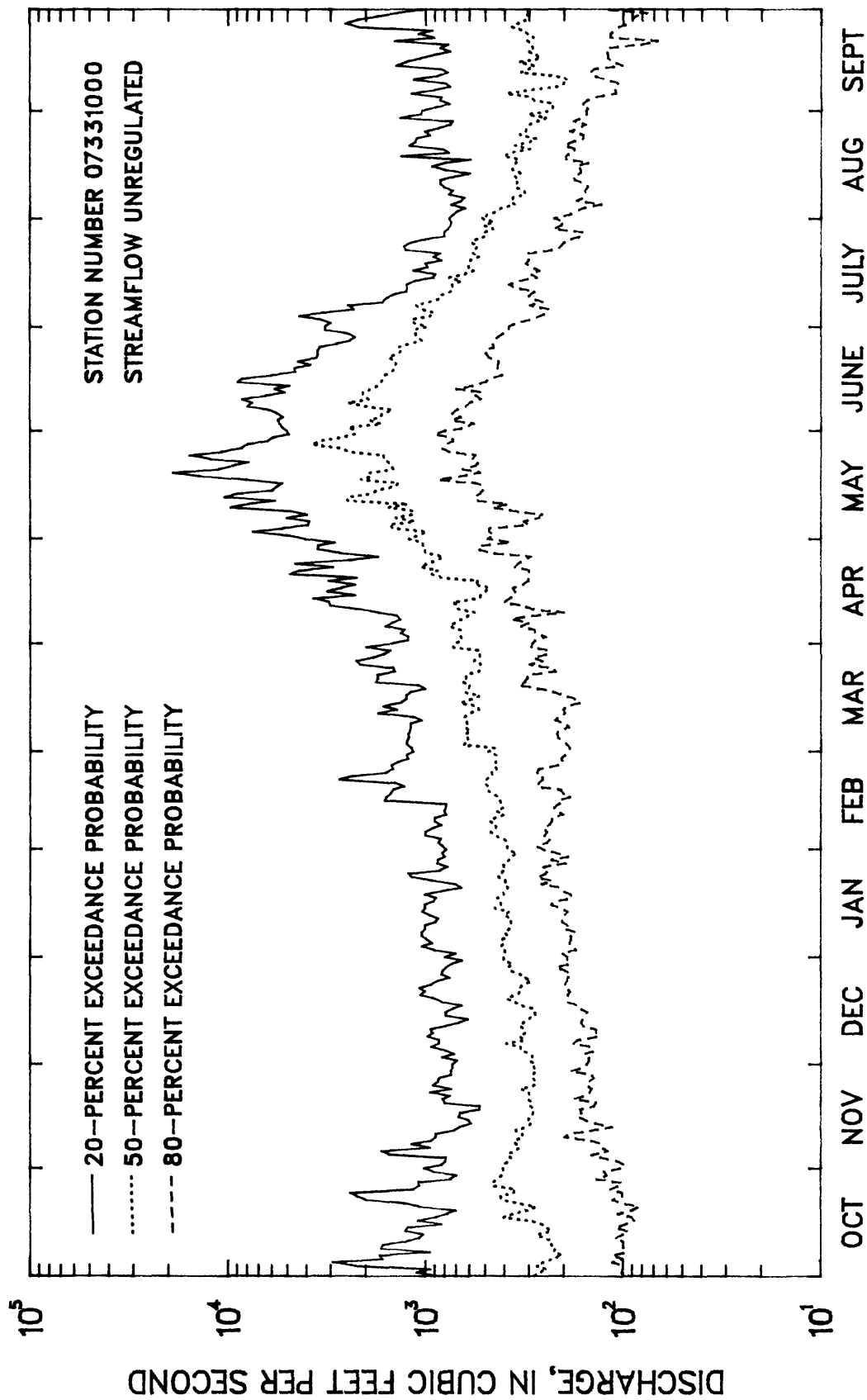


Figure 160.--Duration hydrographs of daily discharge values for Washita River near Dickson, Oklahoma, water years 1932-1960 (streamflow unregulated).

RED RIVER BASIN

07331000 WASHITA RIVER NR DICKSON, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-84

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	5870	30	1340	1720	1.3	9.7
NOVEMBER	5260	74	1210	1520	1.3	8.8
DECEMBER	1820	103	617	522	0.85	4.5
JANUARY	1450	103	514	330	0.64	3.7
FEBRUARY	3150	94	730	718	0.98	5.3
MARCH	4450	78	1070	998	0.94	7.7
APRIL	7110	210	1310	1420	1.1	9.5
MAY	13000	249	2760	2930	1.1	20.1
JUNE	7690	158	2480	2230	0.90	18.0
JULY	3150	31	630	773	1.2	4.6
AUGUST	2610	13	387	521	1.3	2.8
SEPTEMBER	2970	42	718	821	1.1	5.2
ANNUAL	3050	340	1150	730	0.64	100

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	64	12	3.8	1.2
3	69	14	4.1	1.2
7	73	17	6.1	2.3
14	83	21	8.5	3.5
30	103	31	15	7.3
60	171	77	48	32
90	227	104	66	44
120	287	142	96	69
183	425	201	136	98

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
26200	37000	42100	46500	48900	50600
STATION SKEW = -1.253					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	22400	33400	39000	44500	47700	50200
3	16200	24500	29100	33900	36800	39300
7	10700	16900	20700	25200	28200	30900
15	6860	11400	14500	18300	21000	23700
30	4380	7510	9820	12900	15400	17900
60	2830	4830	6350	8460	10200	12000
90	2170	3670	4840	6510	7890	9390

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
14300	4770	2420	1640	1230	783	565	427	322	238	173	96	58	21	13	9.0	0.22

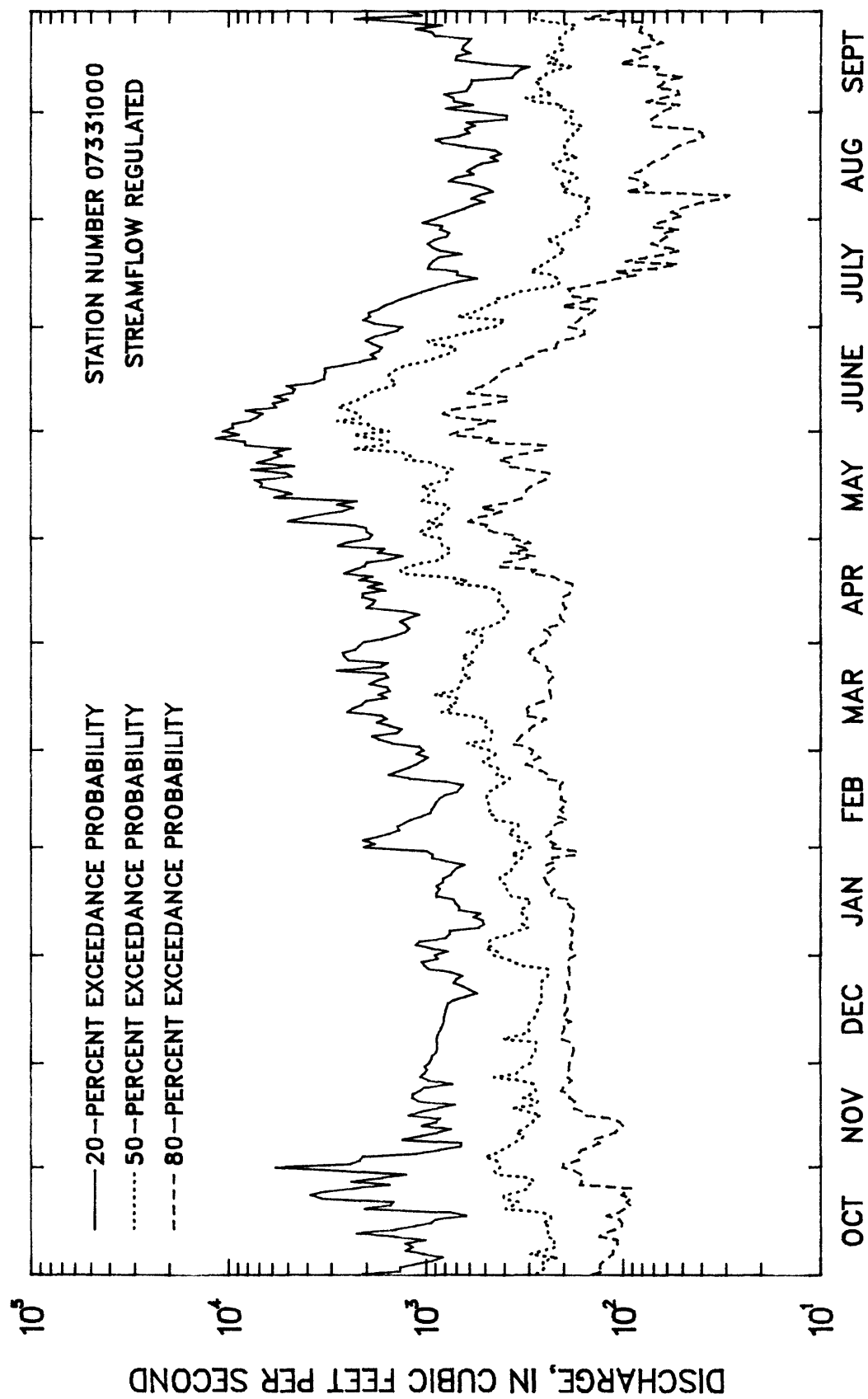


Figure 161.--Duration hydrographs of daily discharge values for Washita River near Dickson, Oklahoma, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07331600 RED RIVER AT DENISON DAM NEAR DENISON, TX

LOCATION.--Lat 33°49'08", long 96°33'47", Grayson County, Hydrologic Unit 11140101, on right bank 1,800 ft downstream from Denison Dam powerhouse, 0.4 mi upstream from Shawnee Creek (spillway flow return), 4.5 mi north of Denison, and at mile 725.5.

DRAINAGE AREA.--39,720 mi² of which 5,936 mi² is probably not contributing. At site used prior to October 1961, drainage area 39,777 mi², of which 5,936 mi² was probably noncontributing.

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1311. Prior to October 1934, published as "near Denison, Texas", and October 1934 to September 1961, published as "near Colbert, Oklahoma". Gage-height records collected at various sites in this vicinity 1892-93, 1906-28, 1931-49 are contained in reports of National Weather Service.

Remarks.--Flow regulated since October 1943 by Lake Texoma.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	15500	569	3990	4020	1.0	8.6
NOVEMBER	18900	630	3890	4860	1.2	8.4
DECEMBER	10400	569	2810	2160	0.77	6.0
JANUARY	4960	907	2550	1190	0.47	5.5
FEBRUARY	7670	859	2440	1900	0.78	5.2
MARCH	9670	614	2660	2650	1.0	5.7
APRIL	16400	789	3550	3530	0.99	7.6
MAY	19000	1230	5930	5400	0.91	12.7
JUNE	37400	1540	9320	8800	0.94	20.0
JULY	21800	1750	3990	4020	1.0	8.6
AUGUST	10400	953	3020	1740	0.58	6.5
SEPTEMBER	4420	325	2430	1070	0.44	5.2
ANNUAL	10500	1510	3880	2290	0.59	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	63	47	40	35
3	73	56	52	50
7	150	85	66	56
14	465	269	198	153
30	828	556	452	381
60	1190	857	717	617
90	1520	1040	834	686
120	1730	1120	879	717
183	1990	1290	1040	877

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 23 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
23600	39700	51500	67400	80000	92900
STATION SKEW = -0.173					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	21700	40300	53600	71000	83900	96700
3	21100	39600	53000	70100	82800	95200
7	18700	35600	47800	63300	74700	85800
15	14900	27600	37000	49500	59000	68500
30	10900	19900	26700	36200	43800	51600
60	7650	13500	18400	25700	32100	39300
90	6390	10900	14600	20200	25000	30400

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1961-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
34700	10900	7940	5770	4960	3970	3170	2560	1890	1170	490	129	90	71	62	55	43

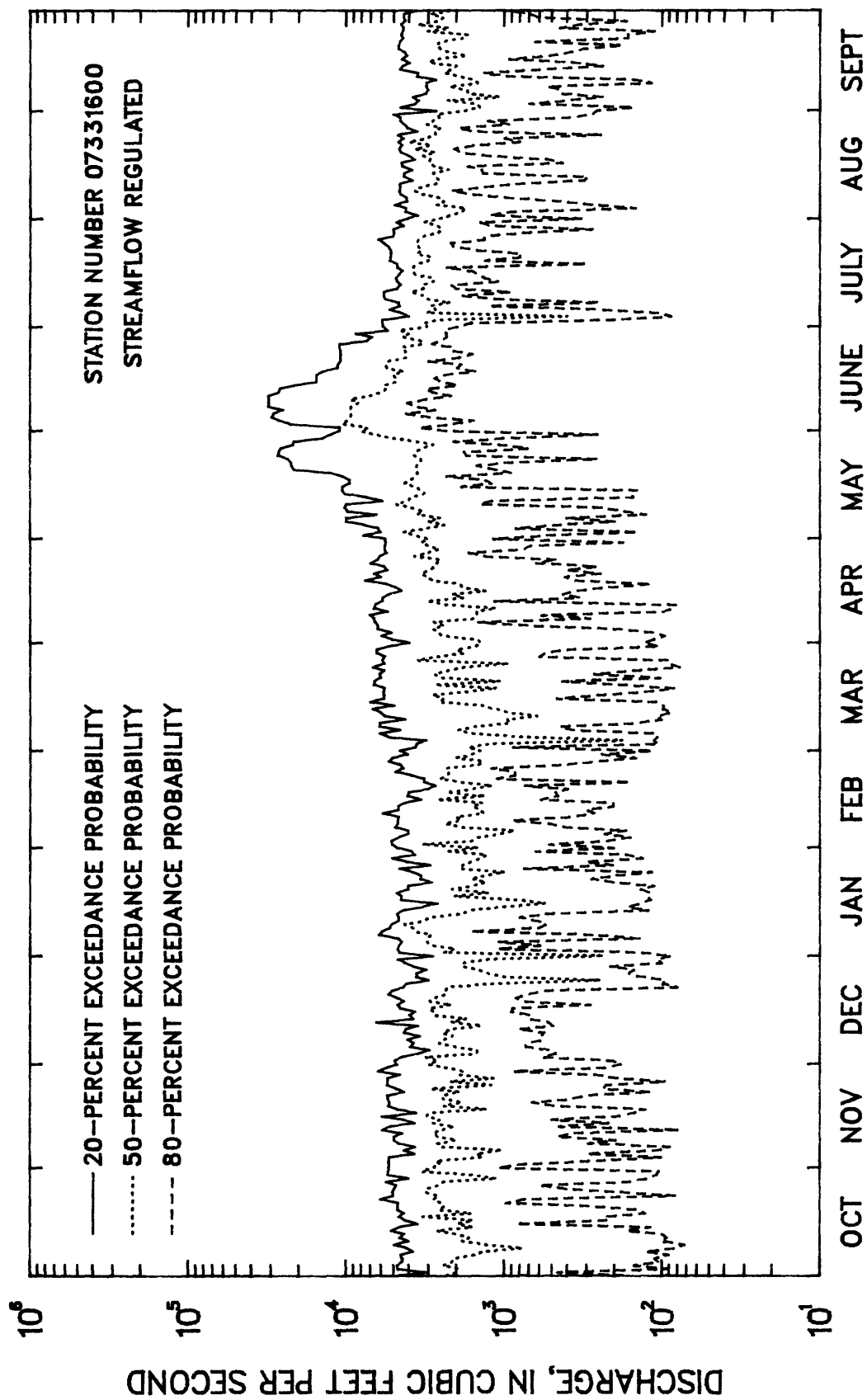


Figure 162--Duration hydrographs of daily discharge values for Red River at Denison Dam near Denison, Texas, water years 1966-1984 (streamflow regulated).

RED RIVER BASIN

07332000 RED RIVER NEAR COLBERT, OK

LOCATION.--Lat 33°49'06", long 96°31'23", in NE 1/4 sec.36, T.8 S., R.7 E., near center of span on downstream side of pier of highway bridge, 1.1 mi downstream from Sand Creek, 2.5 mi south of Colbert, 2.9 mi downstream from Denison Dam, and at mile 723.0.

DRAINAGE AREA.--39,777 mi², of which 5,936 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1923 to Sept. 1960. Statistical summaries for this station are divided into unregulated and regulated periods.

REMARKS.--Flow regulated since October 31, 1943 by Lake Texoma.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1924-43

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	41000	378	7980	11900	1.5	11.7
NOVEMBER	25500	402	4070	6050	1.5	6.0
DECEMBER	9880	240	3150	2670	0.85	4.6
JANUARY	13600	182	2610	2770	1.1	3.8
FEBRUARY	19800	494	3700	4730	1.3	5.4
MARCH	10400	249	3360	2370	0.70	4.9
APRIL	43500	658	7830	10000	1.3	11.5
MAY	43800	1470	13600	11400	0.84	19.9
JUNE	52000	1220	10600	11400	1.1	15.5
JULY	12700	454	4140	3400	0.82	6.1
AUGUST	9030	210	2650	2110	0.80	3.9
SEPTEMBER	16900	349	4550	4860	1.1	6.7
ANNUAL	13500	1480	5680	2970	0.52	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1925-43

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	365	172	108	70
3	407	220	152	109
7	458	239	164	118
14	493	263	188	141
30	565	307	227	179
60	843	472	352	277
90	1190	670	484	365
120	1680	943	654	467
183	2310	1150	781	562

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1924-43MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
87000	140000	177000	226000	262000	299000

WATER RESOURCES COUNCIL WEIGHTED SKEW = -0.255

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	75400	126000	162000	209000	244000	280000
3	62400	104000	134000	173000	202000	231000
7	44100	74300	95700	124000	145000	166000
15	30600	50500	64000	80800	93100	105000
30	20200	34600	45000	58500	68800	79200
60	13800	23600	30900	40700	48400	56500
90	10700	18000	23500	31000	36900	43100

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1924-43

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
62200	23500	12800	8420	6350	4020	2840	2100	1560	1180	823	553	393	237	191	170	106

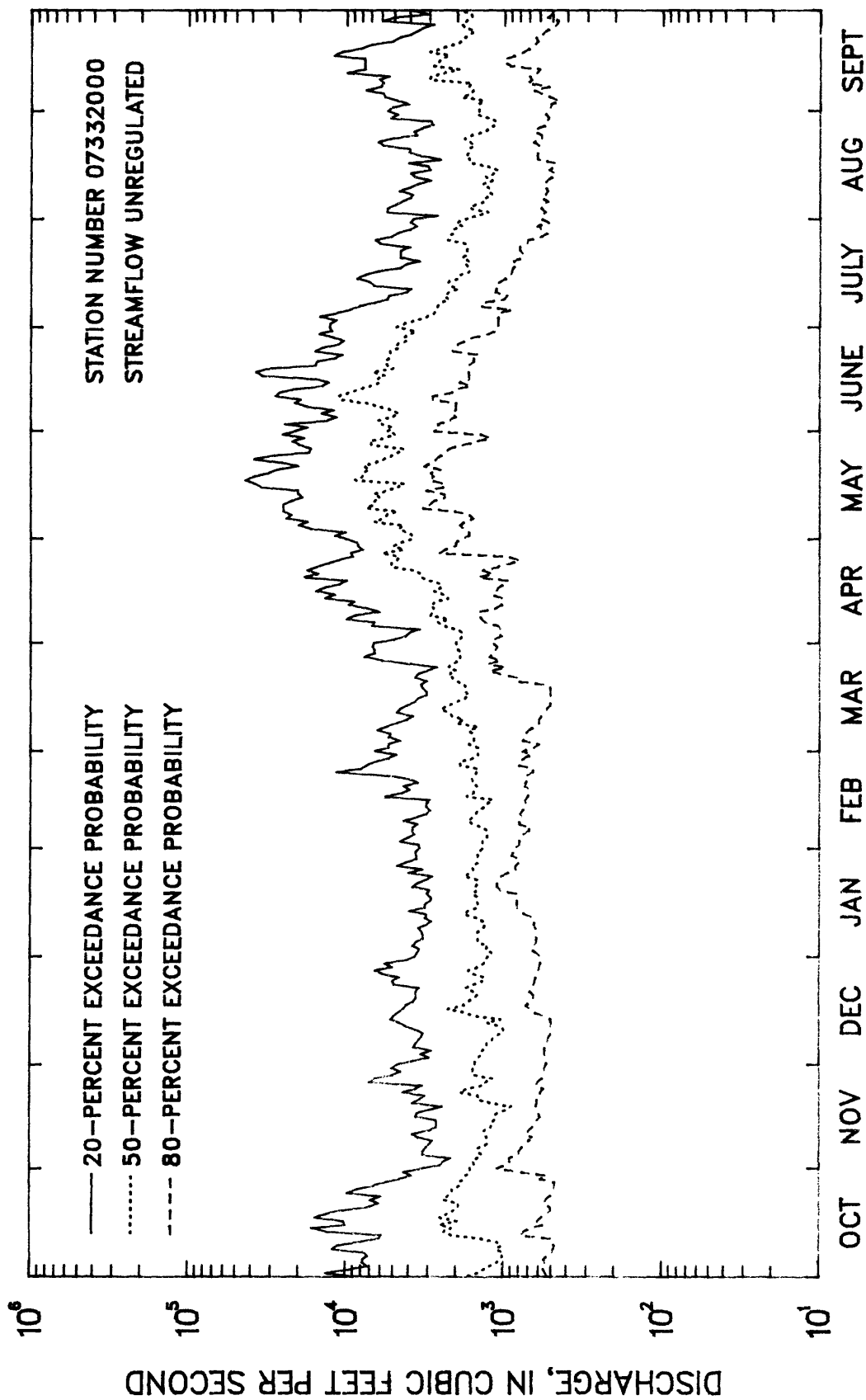


Figure 163.—Duration hydrographs of daily discharge values for Red River near Colbert, Oklahoma, water years 1925-1943 (streamflow unregulated).

RED RIVER BASIN

07332000 RED RIVER NEAR COLBERT, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1944-59

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	27400	67	4760	7050	1.5	8.5
NOVEMBER	9240	80	2460	2270	0.92	4.4
DECEMBER	11500	447	2670	2670	1.0	4.8
JANUARY	5120	271	2280	1350	0.59	4.1
FEBRUARY	9460	237	2700	2230	0.83	4.8
MARCH	8620	202	2450	1950	0.80	4.4
APRIL	20400	253	3730	4660	1.2	6.6
MAY	34700	138	9700	9770	1.0	17.3
JUNE	67000	389	12300	16600	1.3	21.9
JULY	19800	165	6120	5440	0.89	10.9
AUGUST	23600	681	4220	5790	1.4	7.5
SEPTEMBER	10300	111	2820	2230	0.79	5.0
ANNUAL	10900	345	4690	2770	0.59	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1945-59

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	96	60	46	29
3	214	75	64	35
7	313	96	82	44
14	559	164	108	54
30	975	349	171	87
60	1580	579	271	127
90	1790	763	408	221
120	2080	982	570	334
183	2390	1150	717	465

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 28 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
25600	47500	64500	88000	107000	127000

STATION SKEW = -0.261

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1944-59

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	29600	58900	77300	97700	110000	121000
3	27900	57300	75700	95500	108000	118000
7	24900	53300	70900	89500	100000	109000
15	20200	43400	58000	73700	83100	90800
30	16000	34100	45800	58600	66400	73000
60	11200	23400	31500	40700	46600	51700
90	9090	17900	23400	29300	33000	36100

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1944-59

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	
46600	21300	8240	5690	4900	3800	3100	2570	2110	1410	650	259	123	63	53	48	29	

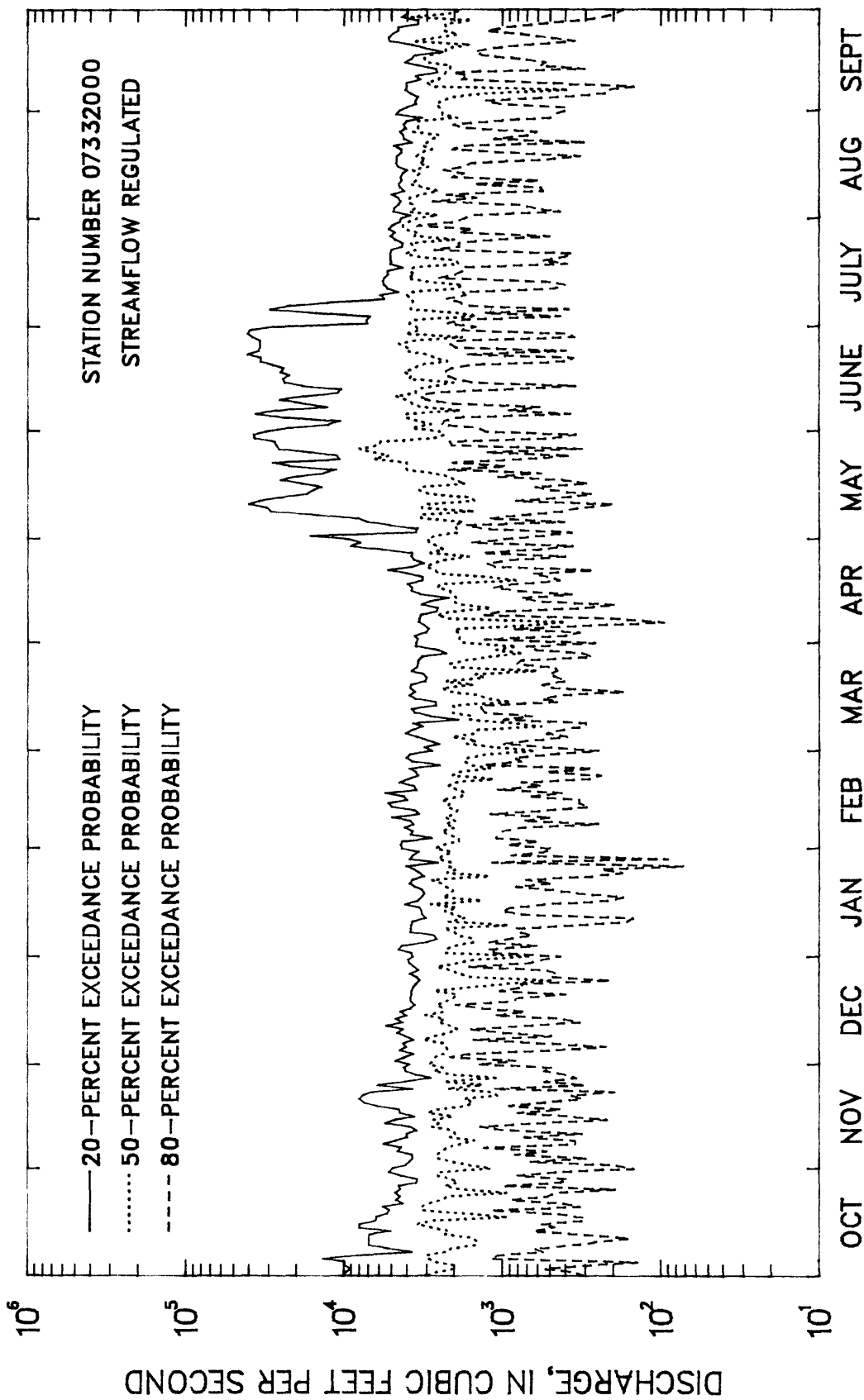


Figure 164.—Duration hydrographs of daily discharge values for Red River near Colbert, Oklahoma, water years 1951-1959 (streamflow regulated).

RED RIVER BASIN

07332400 BLUE RIVER AT MILBURN, OK

LOCATION.--Lat 34°15'04", long 96°33'05", in SW 1/4 SW 1/4 sec.35, T.3 S., R.7 E., Johnston County, Hydrologic Unit 11140102, on downstream side of left pier of bridge on State Highway 48A, 0.5 mi north of Milburn, and at mile 84.9.

DRAINAGE AREA.--203 mi².

PERIOD OF RECORD.--October 1965 to current year. Occasional low-flow measurements made in water years 1956-61. Prior to October 1975 published as Blue Creek near Milburn.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1966-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1330	31	202	344	1.7	12.4
NOVEMBER	967	28	132	216	1.6	8.1
DECEMBER	309	26	89	73	0.82	5.5
JANUARY	237	25	86	57	0.66	5.2
FEBRUARY	326	24	116	83	0.71	7.1
MARCH	615	23	183	159	0.87	11.2
APRIL	787	29	203	182	0.90	12.5
MAY	699	48	251	215	0.86	15.4
JUNE	592	37	172	145	0.84	10.5
JULY	174	20	75	43	0.58	4.6
AUGUST	115	17	52	24	0.46	3.2
SEPTEMBER	230	24	70	57	0.81	4.3
ANNUAL	310	46	136	76	0.56	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	32	24	21	18
3	33	25	21	18
7	33	25	22	19
14	36	28	23	20
30	37	28	24	21
60	40	29	24	21
90	42	30	25	22
120	48	33	28	25
183	57	37	31	27

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 19 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
9810	19800	28600	42100	54000	67500
OKLAHOMA WEIGHTED SKEW = -0.032					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4690	9070	12500	17300	21200	25200
3	2360	4470	6090	8310	10100	11900
7	1220	2350	3270	4620	5740	6970
15	716	1300	1760	2430	2990	3590
30	445	778	1040	1420	1730	2070
60	303	508	659	865	1030	1200
90	256	412	523	669	780	890

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
1370	336	205	157	132	97	76	61	50	44	37	31	28	23	20	18	16

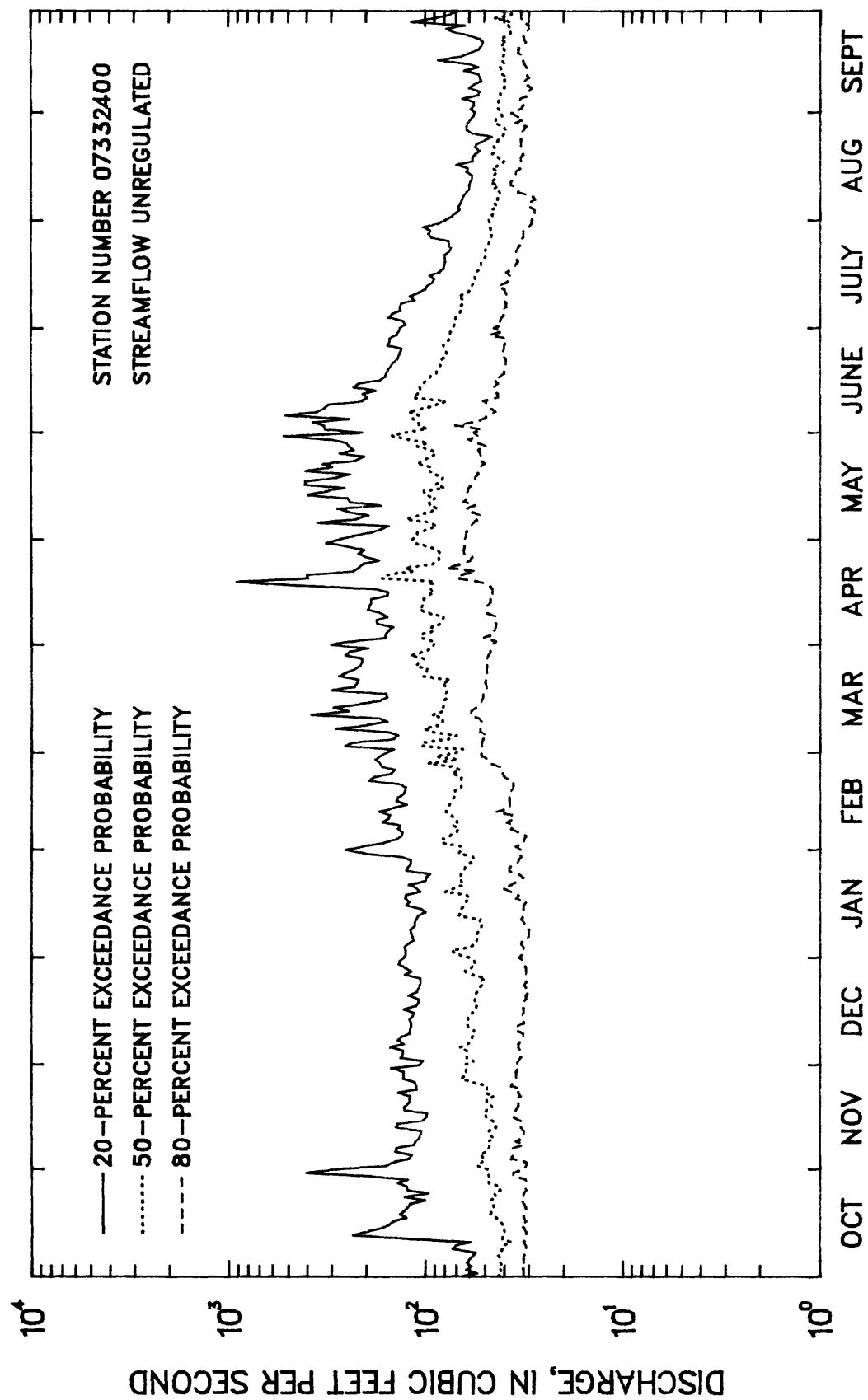


Figure 165.--Duration hydrographs of daily discharge values for Blue River at Milburn, Oklahoma, water years 1966-1984 (streamflow unregulated).

RED RIVER BASIN

07332500 BLUE RIVER NEAR BLUE, OK

LOCATION.--Lat 33°59'49", long 96°14'27", on line between sec.27 and 34, T.6 S., R.10 E., Bryan County, Hydrologic Unit 11140102, near left bank on downstream side of pier of bridge on U.S. Highway 70, 1.0 mi west of Blue, 7.0 mi east of Durant, 7.7 mi upstream from Caddo Creek, and at mile 38.8.

DRAINAGE AREA.--476 mi².

PERIOD OF RECORD.--June 1936 to current year. Monthly discharge only for some periods, published in WSP 1311, 1731.

REMARKS.--Some regulation at low flow by a State fish hatchery, 16.0 mi above station. Small diversion above station for municipal water supply for city of Durant.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1937-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	3610	4.4	263	553	2.1	7.4
NOVEMBER	1370	11	249	360	1.4	7.0
DECEMBER	1380	18	198	265	1.3	5.6
JANUARY	849	18	193	186	0.96	5.4
FEBRUARY	2160	27	357	423	1.2	10.0
MARCH	3090	23	394	520	1.3	11.1
APRIL	2920	52	531	622	1.2	14.9
MAY	2200	33	583	541	0.93	16.4
JUNE	2510	24	396	455	1.2	11.1
JULY	780	5.2	153	198	1.3	4.3
AUGUST	755	0.94	78	112	1.4	2.2
SEPTEMBER	1500	0.42	160	261	1.6	4.5
ANNUAL	972	31	295	200	0.68	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1938-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	26	7.6	2.5	0.67
3	29	9.1	3.1	0.86
7	31	11	4.0	1.2
14	33	14	5.8	2.1
30	38	17	8.5	3.6
60	49	21	11	5.1
90	58	24	12	6.2
120	68	30	18	11
183	88	39	25	17

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 48 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
8900	16800	24100	36100	47400	61000

OKLAHOMA WEIGHTED SKEW = 0.371

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1937-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	7390	13600	18300	24700	29700	34900
3	5120	9260	12100	15600	18100	20500
7	2690	4930	6500	8500	9960	11400
15	1700	2990	3800	4710	5300	5820
30	1060	1900	2460	3130	3590	4020
60	705	1270	1670	2180	2550	2920
90	585	1020	1310	1670	1920	2150

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1937-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
4550	1160	498	312	230	148	107	80	60	46	36	26	20	9.8	2.9	0.97	0.06

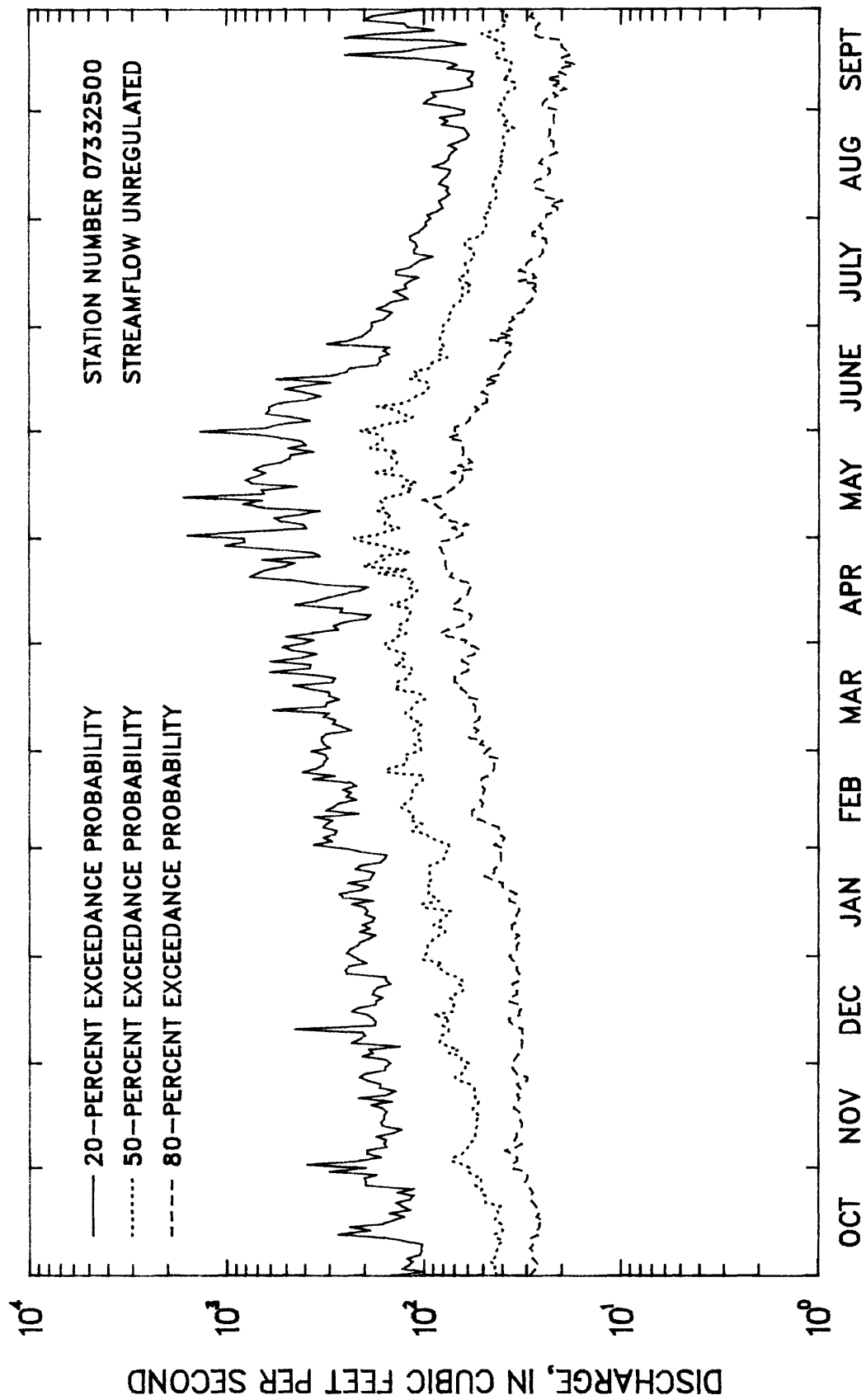


Figure 166.—Duration hydrographs of daily discharge values for Blue River near Blue, Oklahoma, water years 1946–1984 (streamflow unregulated).

RED RIVER BASIN

07334000 MUDDY BOGGY CREEK NEAR FARRIS, OK

LOCATION.--Lat 34°16'17", long 95°54'43", in NE 1/4 NW 1/4 sec.26, T.3 S., R.13 E., Atoka County, Hydrologic Unit 11140103, on downstream side of left bank pier of main span of bridge on State Highway 3, 1.3 mi downstream from McGee Creek, 2.8 mi northwest of Farris, and at mile 57.7.

DRAINAGE AREA.--1,087 mi².

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Some regulation since June 1959 by Atoka Reservoir. Pipeline diversions to Oklahoma City since November 1963, normal capacity, 60 Mgal/d.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1938-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	6400	0.00	612	1230	2.0	5.9
NOVEMBER	5720	0.00	664	1160	1.8	6.4
DECEMBER	4250	0.23	551	855	1.5	5.3
JANUARY	2650	0.49	473	577	1.2	4.5
FEBRUARY	7990	11	1140	1480	1.3	11.0
MARCH	7380	20	1280	1450	1.1	12.3
APRIL	9630	40	1780	2000	1.1	17.1
MAY	6620	89	1880	1520	0.81	18.0
JUNE	7520	3.8	1060	1500	1.4	10.2
JULY	3370	0.15	378	721	1.9	3.6
AUGUST	2500	0.00	180	490	2.7	1.7
SEPTEMBER	3760	0.00	442	852	1.9	4.2
ANNUAL	2760	142	867	565	0.65	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1939-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.40	0.00	0.00	0.00
3	0.44	0.00	0.00	0.00
7	0.60	0.00	0.00	0.00
14	1.0	0.06	0.00	0.00
30	2.7	0.27	0.00	0.00
60	13	1.0	0.04	0.00
90	26	3.4	0.88	0.21
120	59	8.7	2.5	0.80
183	142	33	14	6.2

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1938-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 47 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
19800	29900	37400	47900	56400	65500

OKLAHOMA WEIGHTED SKEW = 0.198

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	17000	25800	31800	39300	44800	50400
3	14100	22200	27700	34600	39800	44800
7	9350	15500	19600	24900	28800	32500
15	5520	8960	11300	14300	16500	18600
30	3540	5750	7250	9140	10500	11900
60	2290	3770	4830	6260	7370	8500
90	1840	3040	3870	4940	5740	6540

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1938-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																	
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%	99.9%
14400	5190	2070	999	585	252	132	69	39	21	8.8	2.0	0.44	0.01	0.00	0.00	0.00	0.00

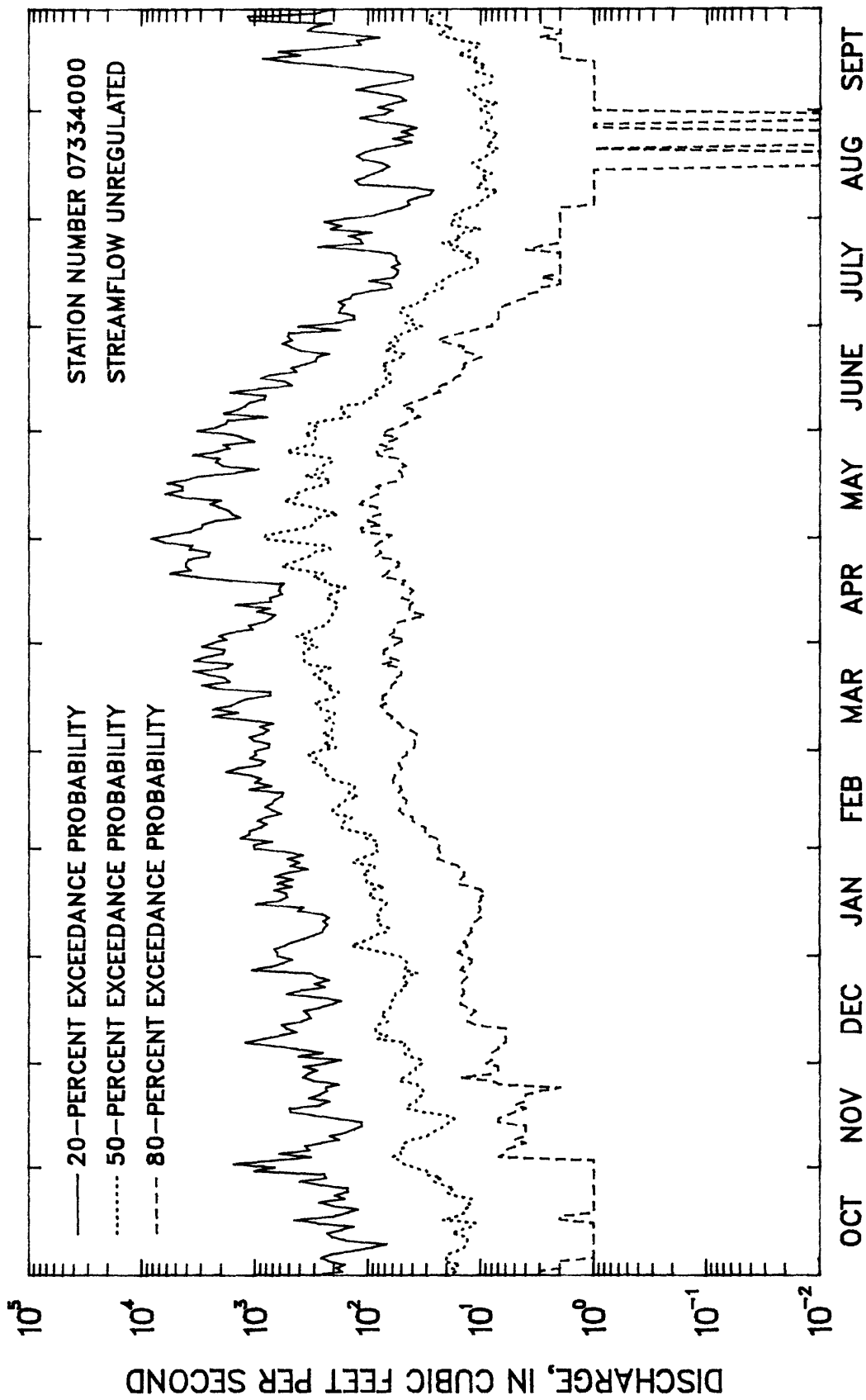


Figure 167.--Duration hydrographs of daily discharge values for Muddy Boggy Creek near Farris, Oklahoma, water years 1946-1984 (streamflow unregulated).

RED RIVER BASIN

07335000 CLEAR BOGGY CREEK NEAR CANEY, OK

LOCATION.--Lat 34°15'09", long 96°12'19", in NW 1/4 SE 1/4 sec.36, T.3 S., R.10 E., Atoka County, Hydrologic Unit 11140104, on downstream side of left pier of bridge on old U.S. Highways 69 and 75, 0.5 mi downstream from Caney Creek, 1.5 mi north of Caney, and at mile 24.1.

DRAINAGE AREA.--720 mi².

PERIOD OF RECORD.--October 1942 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Flow regulated since 1964 by numerous floodwater-retarding structures.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1943-63

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1410	0.00	242	354	1.5	4.2
NOVEMBER	1350	7.4	263	409	1.5	4.5
DECEMBER	3070	11	344	661	1.9	5.9
JANUARY	899	11	242	304	1.3	4.1
FEBRUARY	2330	15	508	644	1.3	8.7
MARCH	5680	23	703	1180	1.7	12.0
APRIL	4390	34	909	1180	1.3	15.6
MAY	3760	84	1240	1060	0.85	21.2
JUNE	4090	40	702	1020	1.5	12.0
JULY	1670	0.05	273	447	1.6	4.7
AUGUST	1140	0.00	127	288	2.3	2.2
SEPTEMBER	2490	0.00	288	607	2.1	4.9
ANNUAL	1670	54	486	370	0.76	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1944-63

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	9.6	2.1	0.00	0.00
3	9.8	2.2	0.00	0.00
7	11	2.5	0.00	0.00
14	12	3.2	0.00	0.00
30	21	4.4	0.25	0.00
60	25	7.2	2.7	0.00
90	38	10	4.8	0.00
120	51	15	6.7	0.00
183	96	25	10	4.7

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1943-63MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 22 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
13400	26900	39300	59700	78800	102000
OKLAHOMA WEIGHTED SKEW = 0.208					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	9500	16800	22900	31900	39700	48500
3	8240	13800	17300	21700	24700	27500
7	5200	8570	10500	12600	13900	15100
15	2910	4970	6330	7980	9140	10200
30	1920	3290	4170	5190	5870	6500
60	1210	2260	3050	4140	4990	5860
90	988	1780	2330	3030	3540	4040

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1943-63

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
7960	2670	927	465	309	169	106	72	50	29	18	11	4.7	0.09	0.04	0.02	0.00

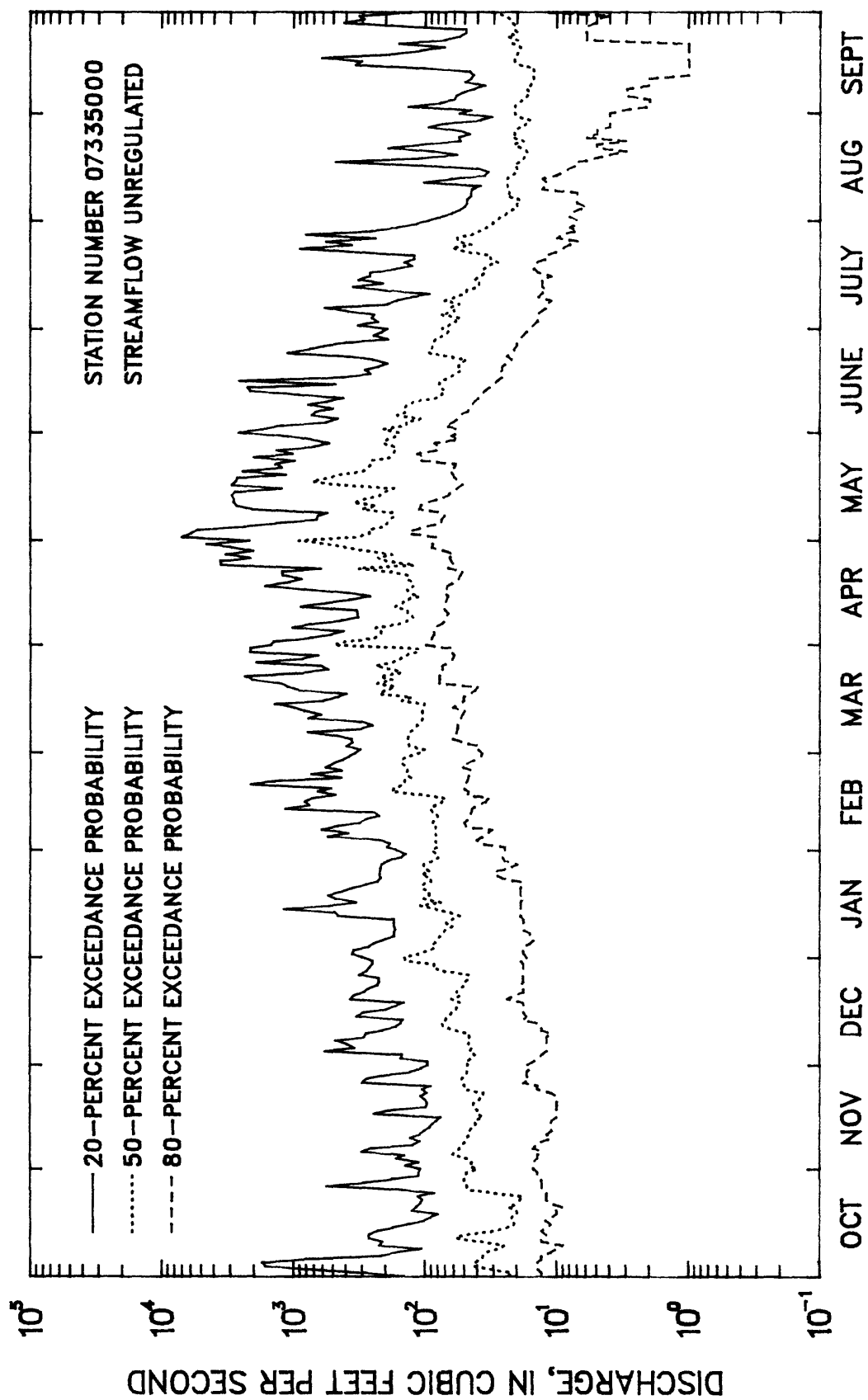


Figure 168.--Duration hydrographs of daily discharge values for Clear Boggy Creek near Caney, Oklahoma, water years 1945-1963 (streamflow unregulated).

RED RIVER BASIN

07335000 CLEAR BOGGY CREEK NEAR CANEY, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1965-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	6360	3.6	713	1500	2.1	12.2
NOVEMBER	2530	7.7	479	736	1.5	8.2
DECEMBER	2150	8.2	316	502	1.6	5.4
JANUARY	1360	7.9	239	331	1.4	4.1
FEBRUARY	1650	7.8	506	522	1.0	8.6
MARCH	3160	6.5	834	877	1.0	14.3
APRIL	3060	20	796	743	0.93	13.6
MAY	2940	152	989	858	0.87	16.9
JUNE	2210	12	605	583	0.96	10.3
JULY	446	2.8	107	123	1.2	1.8
AUGUST	216	0.00	56	65	1.1	1.0
SEPTEMBER	1160	6.1	209	358	1.7	3.6
ANNUAL	1290	106	487	330	0.68	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1966-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	6.8	2.0	0.78	0.00
3	7.3	2.2	0.89	0.00
7	7.7	2.9	1.5	0.00
14	9.8	3.8	2.0	0.00
30	12	5.4	2.7	0.00
60	19	6.5	3.4	0.38
90	31	9.6	5.1	3.0
120	52	18	11	6.8
183	99	31	17	10

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1965-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 20 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
11900	19600	25800	34700	42200	50400

OKLAHOMA WEIGHTED SKEW = 0.150

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	9720	15800	20600	27700	33700	40300
3	8400	13500	16900	21200	24300	27300
7	5240	8710	11200	14400	16900	19400
15	3300	5450	6960	8900	10400	11800
30	2040	3380	4350	5640	6640	7670
60	1250	2100	2760	3670	4410	5200
90	1070	1740	2190	2770	3190	3610

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1965-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
7780	2540	1130	670	440	218	133	87	53	31	19	9.6	5.8	2.3	0.24	0.01	0.00

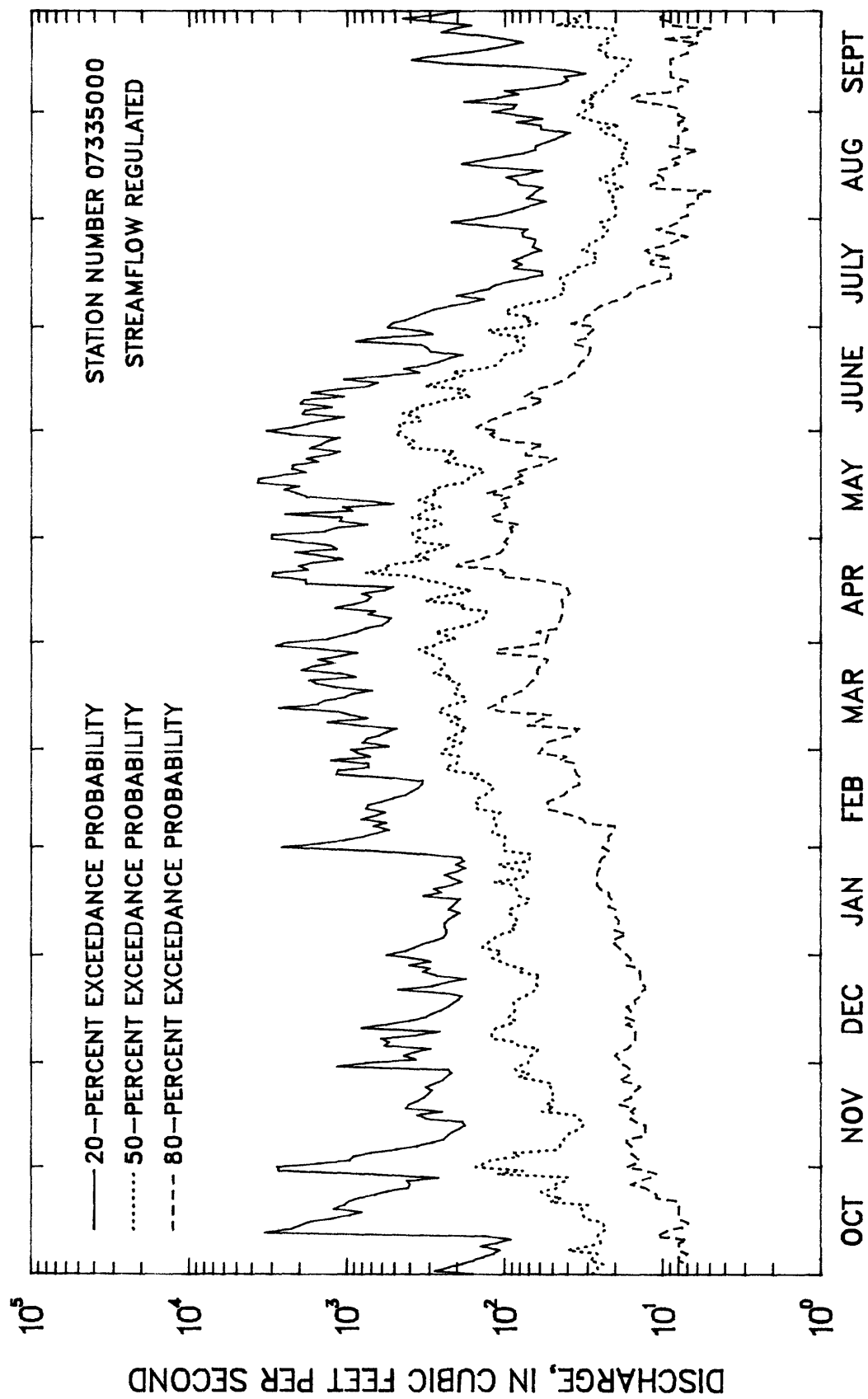


Figure 169.—Duration hydrographs of daily discharge values for Clear Boggy Creek near Caney, Oklahoma, water years 1966–1984 (streamflow regulated).

RED RIVER BASIN

07335500 RED RIVER AT ARTHUR CITY, TX

LOCATION.--Lat 33°52'32", long 95°30'08", in NW 1/4 sec.11, T.8 S., R.17 E., Choctaw County, OK, Hydrologic Unit 11140101, on right downstream bank of bridge on U.S. Highway 271 at Arthur City, 10.6 mi downstream from Muddy Boggy River, 26.0 mi upstream from Kiamichi River, and at mile 633.1.

DRAINAGE AREA.--44,531 mi², of which 5,936 mi² probably is noncontributing.

PERIOD OF RECORD.--January to September 1905 (gage heights and discharge measurements only), October 1905 to December 1911, July 1936 to current year. Monthly discharge only for some periods, published in WSP 1311. Gage-height records collected at same site since 1891 are contained in reports of the National Weather Service.

REMARKS.--Flow regulated since October 1943 by Lake Texoma, 92.8 mi above station.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1944-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	40200	263	6900	8590	1.2	7.5
NOVEMBER	37200	242	6360	8220	1.3	6.9
DECEMBER	26500	816	5560	5730	1.0	6.0
JANUARY	13600	1130	4760	2910	0.61	5.2
FEBRUARY	24200	1140	7040	5420	0.77	7.6
MARCH	37900	1120	7540	7020	0.93	8.2
APRIL	38500	1340	9230	8060	0.87	10.0
MAY	63200	2840	14500	12700	0.87	15.8
JUNE	83800	2070	15000	16200	1.1	16.3
JULY	27500	475	6620	6340	0.96	7.2
AUGUST	34800	735	4330	5310	1.2	4.7
SEPTEMBER	19000	345	4280	3690	0.86	4.6
ANNUAL	19300	2750	7670	4340	0.57	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1945-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	549	310	222	165
3	654	352	246	179
7	861	455	312	224
14	1200	663	454	320
30	1850	1070	708	471
60	2410	1460	981	657
90	2660	1570	1100	792
120	2990	1760	1270	956
183	3540	2080	1560	1220

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 41 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
58700	86300	107000	136000	159000	184000

STATION SKEW = 0.299

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1944-84

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	55300	80000	98100	123000	143000	165000
3	47700	67700	81800	101000	115000	131000
7	39800	57400	69400	84800	96500	108000
15	30400	46700	58200	73400	85100	97100
30	21800	35500	46000	60800	72900	85900
60	15100	25400	34100	47700	59800	73800
90	12500	20800	28100	39500	49900	62200

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1944-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
60100	32100	18900	12700	9360	6080	4610	3680	2990	2400	1800	1130	761	467	310	211	148

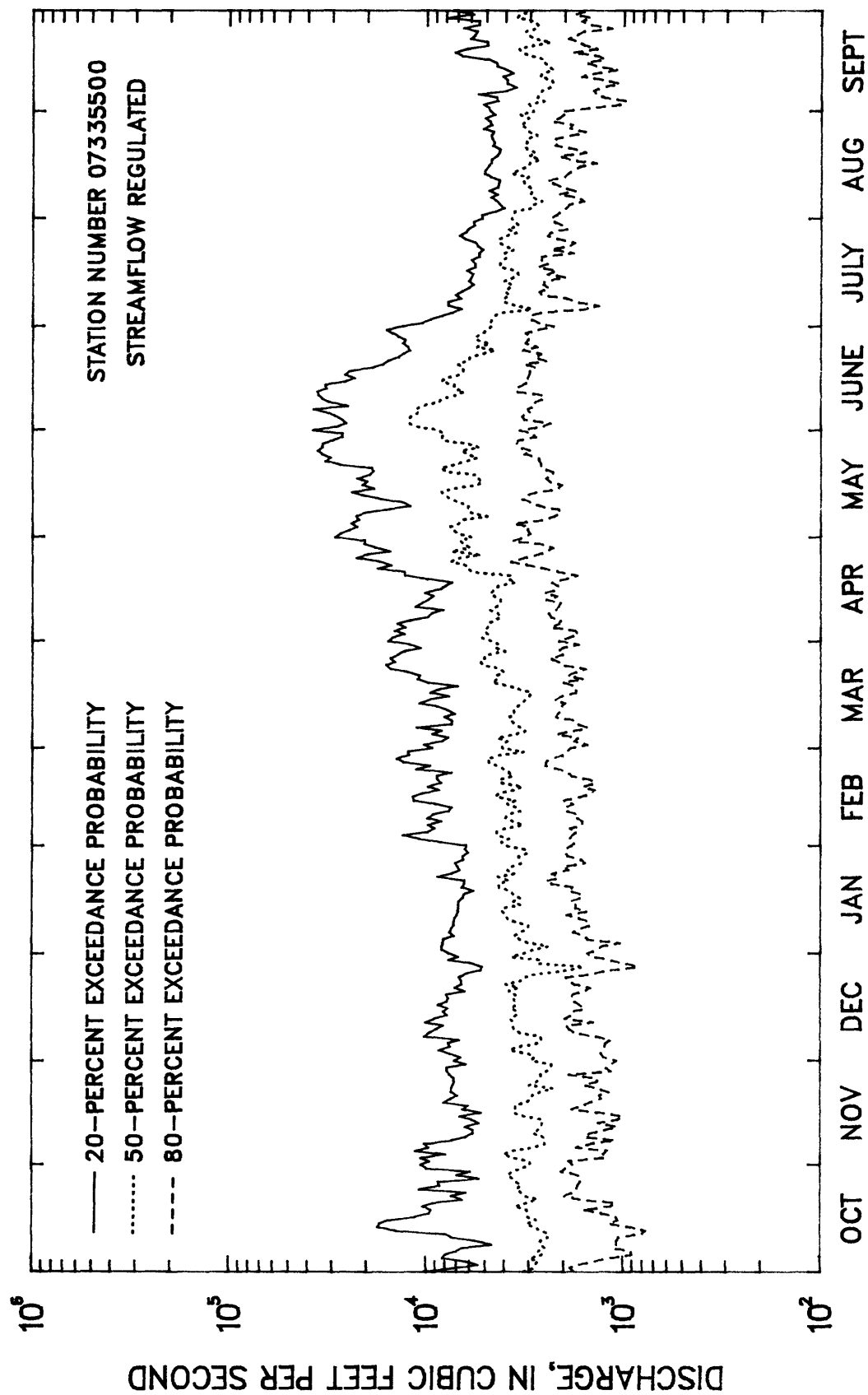


Figure 170.--Duration hydrographs of daily discharge values for Red River near Arthur City, Texas, water years 1946-1984 (streamflow regulated).

RED RIVER BASIN

07335700 KIAMICHI RIVER NEAR BIG CEDAR, OK
(Hydrologic bench-mark station)

LOCATION.--Lat 34°38'18", long 94°36'45", in SW 1/4 SE 1/4 sec.18, T.2 N., R.26 E., LeFlore County, Hydrologic Unit 11140105, in Ouachita National Forest, on downstream side of right bank pier of bridge on State Highway 63, 0.2 mi upstream from Rattlesnake Creek, 1.1 mi upstream from Big Branch, 2.1 mi east of Big Cedar, and at mile 157.6.

DRAINAGE AREA.--40.1 mi².

PERIOD OF RECORD.--October 1965 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1966-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	225	0.00	42	57	1.4	4.7
NOVEMBER	212	0.00	64	65	1.0	7.1
DECEMBER	445	0.92	114	111	0.97	12.6
JANUARY	209	2.5	72	56	0.79	7.9
FEBRUARY	207	6.1	93	53	0.57	10.3
MARCH	362	29	160	109	0.68	17.6
APRIL	325	35	120	73	0.60	13.3
MAY	323	7.0	137	95	0.69	15.1
JUNE	178	0.97	61	63	1.0	6.7
JULY	119	0.12	19	31	1.7	2.1
AUGUST	47	0.00	6.5	13	1.9	0.7
SEPTEMBER	150	0.00	17	36	2.1	1.9
ANNUAL	143	34	75	30	0.39	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1967-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
30	0.19	0.00	0.00	0.00
60	0.32	0.00	0.00	0.00
90	1.4	0.07	0.00	0.00
120	4.1	0.41	0.07	0.00
183	19	6.2	3.1	1.6

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1966-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 19 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
8000	13000	16800	21900	26000	30300
OKLAHOMA WEIGHTED SKEW = -0.043					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	2170	3490	4490	5920	7090	8360
3	1160	1800	2280	2960	3520	4120
7	622	921	1130	1420	1640	1880
15	393	556	663	797	895	993
30	271	373	439	520	580	639
60	191	253	294	345	384	422
90	160	214	250	297	333	369

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1966-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
944	282	166	118	88	55	36	23	13	4.5	1.4	0.10	0.01	0.00	0.00	0.00	0.00

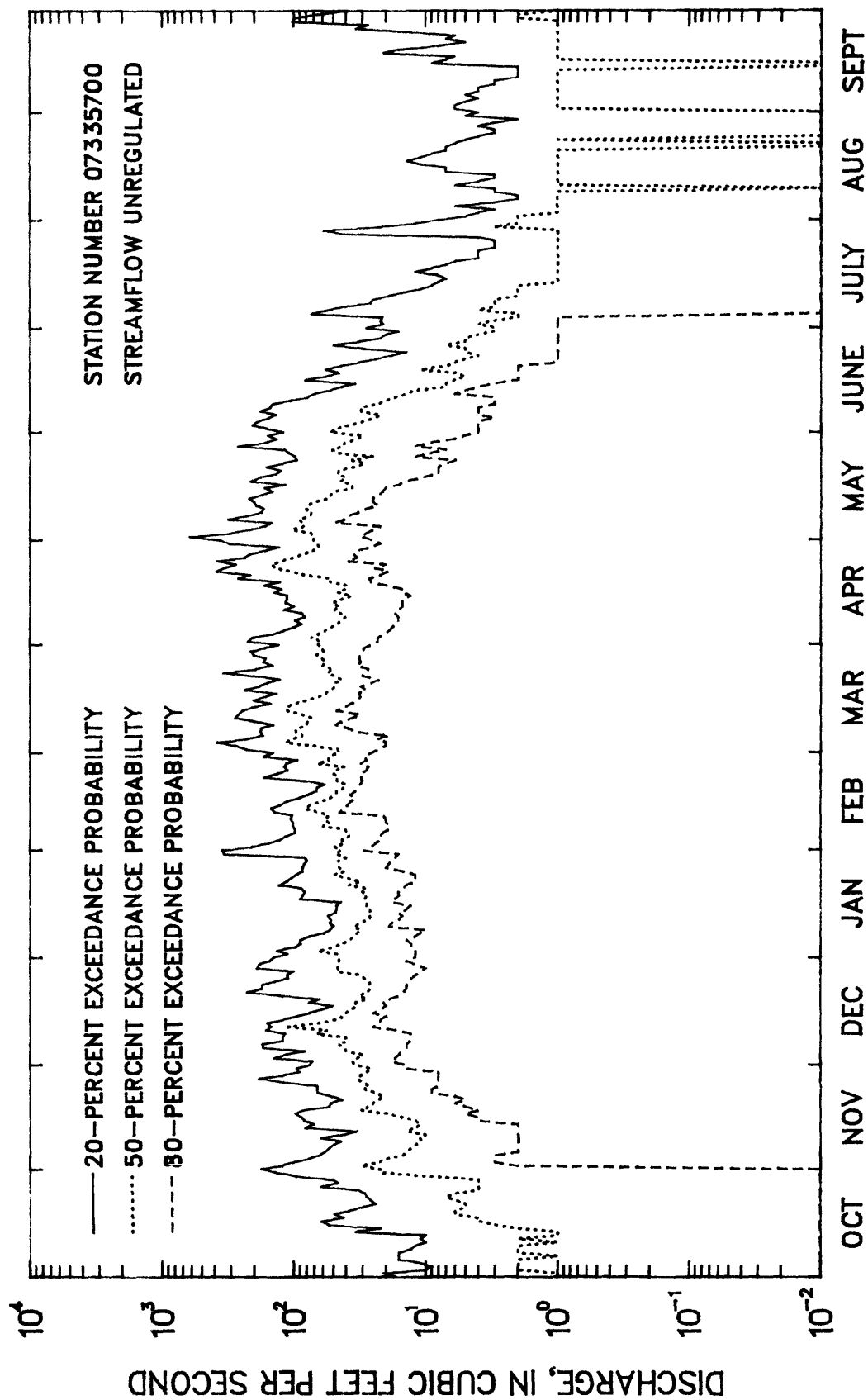


Figure 171.--Duration hydrographs of daily discharge values for Kiamichi River near Big Cedar, Oklahoma, water years 1966-1984 (streamflow unregulated).

RED RIVER BASIN

07336200 KIAMICHI RIVER NEAR ANTLERS, OK

LOCATION.--Lat 34°14'55", long 95°36'18", in SW 1/4 sec.35, T.3 S., R.16 E., Pushmataha County, Hydrologic Unit 11140105, on right bank, 50 ft downstream from bridge on U.S. Highway 271 and State Highway 2, 2.0 mi northeast of Antlers, 7.7 mi downstream from Tenmile Creek, 5.4 mi upstream from Cedar Creek and at mile 59.6.

DRAINAGE AREA.--1,138 mi².

PERIOD OF RECORD.--October 1972 to current year.

REMARKS.--Flow regulated since January 1983 by Sardis Lake, about 42.0 mi above station. Small diversion above station for municipal water supply for city of Antlers.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1973-82

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	3630	9.2	824	1160	1.4	4.6
NOVEMBER	5860	100	1920	2360	1.2	10.7
DECEMBER	2830	83	973	865	0.89	5.4
JANUARY	2120	109	987	742	0.75	5.5
FEBRUARY	4040	216	1890	1370	0.73	10.6
MARCH	6250	253	3090	1940	0.63	17.3
APRIL	6190	331	2200	1910	0.87	12.3
MAY	6820	169	2820	1920	0.68	15.8
JUNE	5880	48	2080	1890	0.91	11.6
JULY	367	22	150	121	0.80	0.8
AUGUST	490	0.11	132	148	1.1	0.7
SEPTEMBER	5910	1.7	830	1830	2.2	4.6
ANNUAL	2670	606	1480	795	0.54	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1974-82

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	3.5	0.00	0.00	0.00
3	3.6	0.00	0.00	0.00
7	4.1	0.00	0.00	0.00
14	5.7	0.00	0.00	0.00
30	9.9	0.00	0.00	0.00
60	28	2.9	0.65	0.16
90	69	21	11	6.6
120	139	40	21	12
183	276	101	63	44

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 10 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
29700	40700	47500	55400	60900	66200

OKLAHOMA WEIGHTED SKEW = -0.332

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1973-82

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	29700	39900	44800	49300	51800	53800
3	24700	34300	38800	42900	45000	46600
7	14100	19800	22800	25800	27600	29000
15	8560	12000	13700	15500	16500	17300
30	5630	7570	8670	9880	10700	11400
60	3670	5080	5990	7130	7970	8800
90	2870	4160	5100	6390	7420	8510

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1973-82

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
20400	6990	3480	2240	1630	897	543	330	194	107	46	14	1.9	0.03	0.01	0.01	0.00

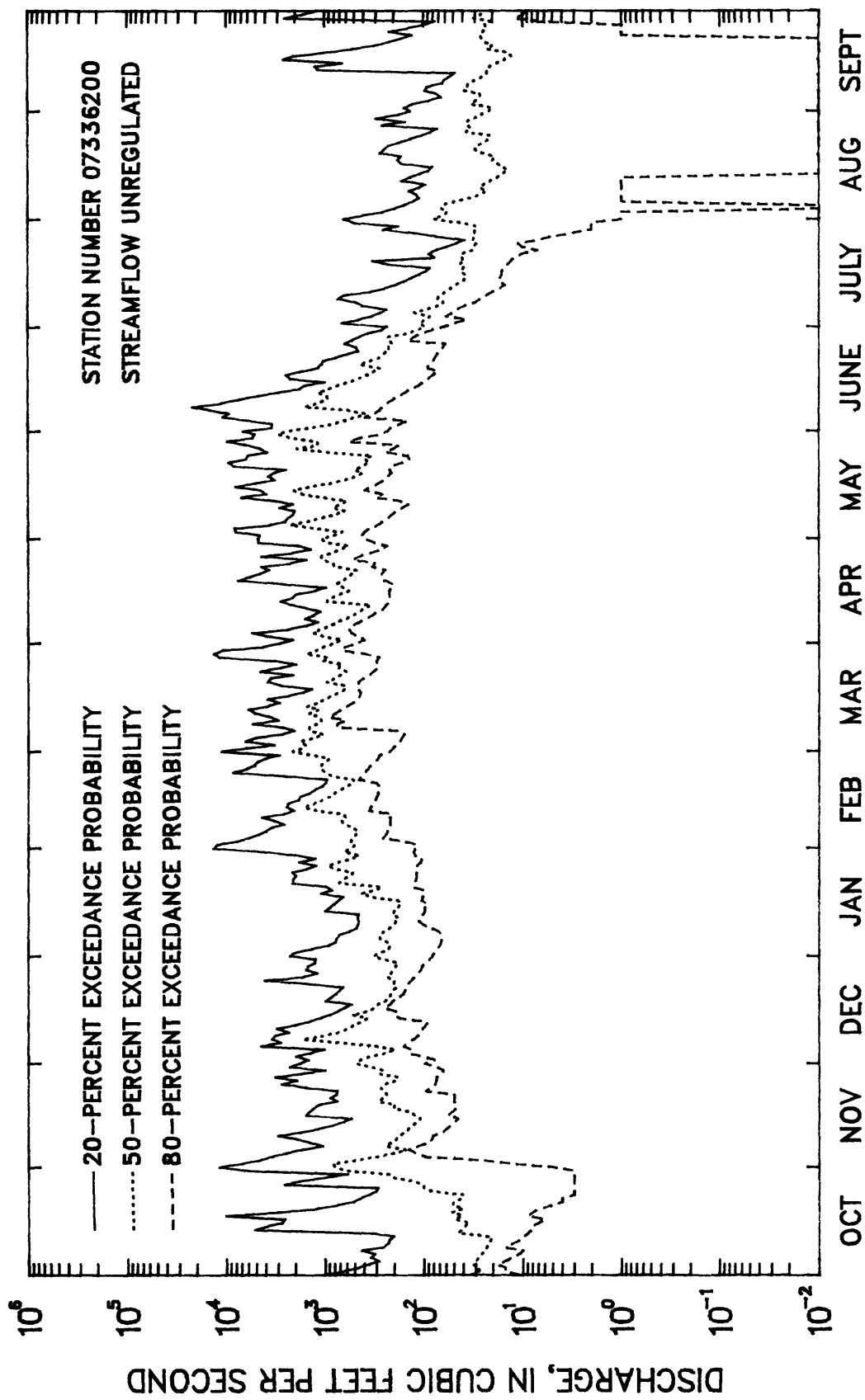


Figure 172.--Duration hydrographs of daily discharge values for Kiamichi River near Antlers, Oklahoma, water years 1974-1982 (streamflow unregulated).

RED RIVER BASIN

07336500 KIAMICHI RIVER NEAR BELZONI, OK

LOCATION.--Lat 34°12'02", long 95°29'03", in SE 1/4 sec.14, T. 14 S., R.17 E., Pushmataha County, near left bank on downstream side of pier of bridge on State Highway 7, 1.8 mi northwest of Belzoni, 6.5 mi downstream from Cedar Creek, 10 mi upstream from Possum Creek, and at mile 47.7.

DRAINAGE AREA.--1,423 mi².

PERIOD OF RECORD.--October 1925 to September 1971.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1926-71

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	3430	0.00	617	803	1.3	3.0
NOVEMBER	8290	0.64	1070	1600	1.5	5.2
DECEMBER	5760	8.8	1550	1480	0.95	7.6
JANUARY	9710	6.8	2070	2270	1.1	10.1
FEBRUARY	9780	78	2630	2470	0.94	12.8
MARCH	10800	176	2370	2020	0.85	11.5
APRIL	12900	148	3590	3030	0.84	17.5
MAY	10900	295	3470	2650	0.76	16.9
JUNE	12300	24	1520	2510	1.7	7.4
JULY	6950	0.95	679	1330	2.0	3.3
AUGUST	3210	0.00	239	515	2.2	1.2
SEPTEMBER	5800	0.00	706	1310	1.8	3.4
ANNUAL	4210	514	1700	789	0.46	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1927-71

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.6	0.00	0.00	0.00
3	1.9	0.00	0.00	0.00
7	2.4	0.00	0.00	0.00
14	3.4	0.00	0.00	0.00
30	7.6	0.30	0.00	0.00
60	26	2.2	0.29	0.00
90	59	9.1	2.4	0.60
120	114	26	11	5.1
183	431	137	63	29

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1926-71MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 47 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
34500	49400	59400	72000	81300	90600
OKLAHOMA WEIGHTED SKEW = -0.122					

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	30700	43700	52100	62500	70100	77500
3	25800	37700	45500	55100	62200	69100
7	16400	24300	29900	37100	42700	48400
15	10000	14500	17500	21100	23800	26400
30	6600	9680	11800	14400	16300	18300
60	4450	6680	8290	10500	12200	14000
90	3640	5430	6720	8450	9810	11230

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1926-71

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
25300	8470	3770	2340	1630	954	579	345	200	98	40	9.6	1.7	0.07	0.03	0.02	0.00

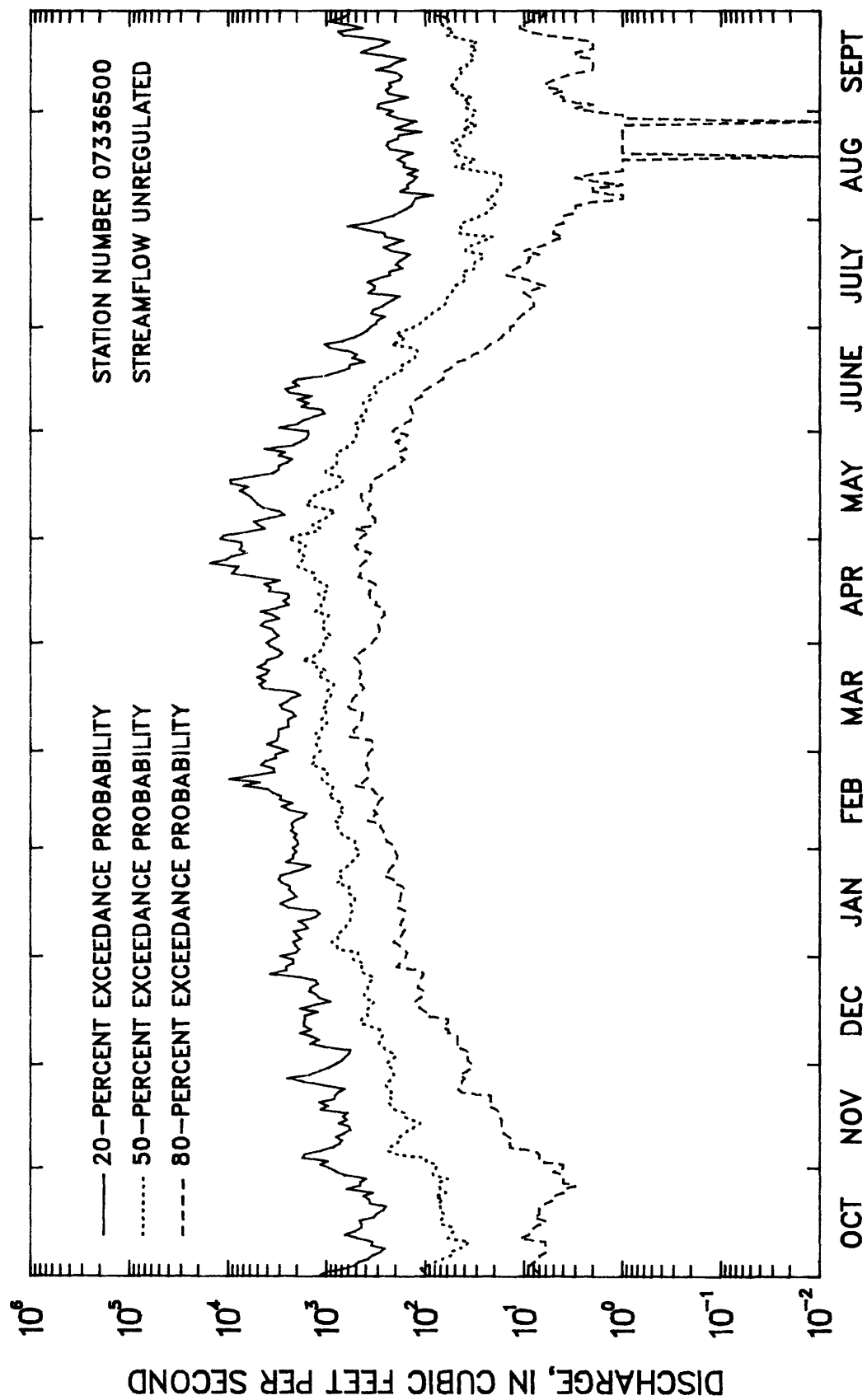


Figure 173.—Duration hydrographs of daily discharge values for Kiamichi River near Belzoni, Oklahoma, water years 1933-1971 (streamflow unregulated).

RED RIVER BASIN

07336820 RED RIVER NEAR DE KALB, TX

LOCATION.--Lat 33°41'15", long 94°41'39", Bowie County, Tex.-McCurtain County, Okla. State line, Hydrologic Unit 11140106, near left bank at downstream side of bridge on U.S. Highway 259, 4.8 mi upstream from North Mill Creek, 13 mi north of De Kalb, and at mile 556.9.

DRAINAGE AREA.--47,348 mi², of which 5,936 mi² probably is noncontributing.

PERIOD OF RECORD.--December 1967 to current year.

REMARKS.--Flow regulated since October, 1943 by Lake Texoma.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1969-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	40000	1780	9860	10900	1.1	7.0
NOVEMBER	53200	2110	13300	15300	1.2	9.5
DECEMBER	45400	1610	12500	12700	1.0	9.0
JANUARY	11300	1700	6800	3010	0.44	4.9
FEBRUARY	31000	2880	11800	9350	0.79	8.4
MARCH	41200	2490	14900	10200	0.69	10.6
APRIL	48900	3010	14200	11700	0.83	10.1
MAY	60800	4710	20300	14800	0.73	14.5
JUNE	61600	3350	20500	16700	0.81	14.6
JULY	35000	2600	6780	7970	1.2	4.8
AUGUST	13900	1420	4200	2930	0.70	3.0
SEPTEMBER	24000	1390	4840	5860	1.2	3.5
ANNUAL	23400	4690	11600	6090	0.52	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1969-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	720	442	348	288
3	883	560	447	373
7	1160	773	638	550
14	1530	1010	816	688
30	2010	1450	1250	1110
60	2540	1890	1650	1490
90	2950	2210	1960	1800
120	3630	2490	2120	1900
183	4820	3090	2530	2190

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1969-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 16 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
72400	117000	152000	202000	243000	288000

STATION SKEW = 0.119

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	72800	110000	137000	174000	203000	232000
3	66300	96800	118000	147000	169000	192000
7	58600	83100	99500	120000	136000	151000
15	47800	67800	80700	96700	108000	120000
30	35000	51800	63400	78500	90100	102000
60	24200	36500	45800	58800	69600	81200
90	21000	31300	38700	48400	56000	63900

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1969-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
77400	47900	30900	21400	16200	9960	7150	5390	4300	3440	2660	1830	1400	974	738	637	455

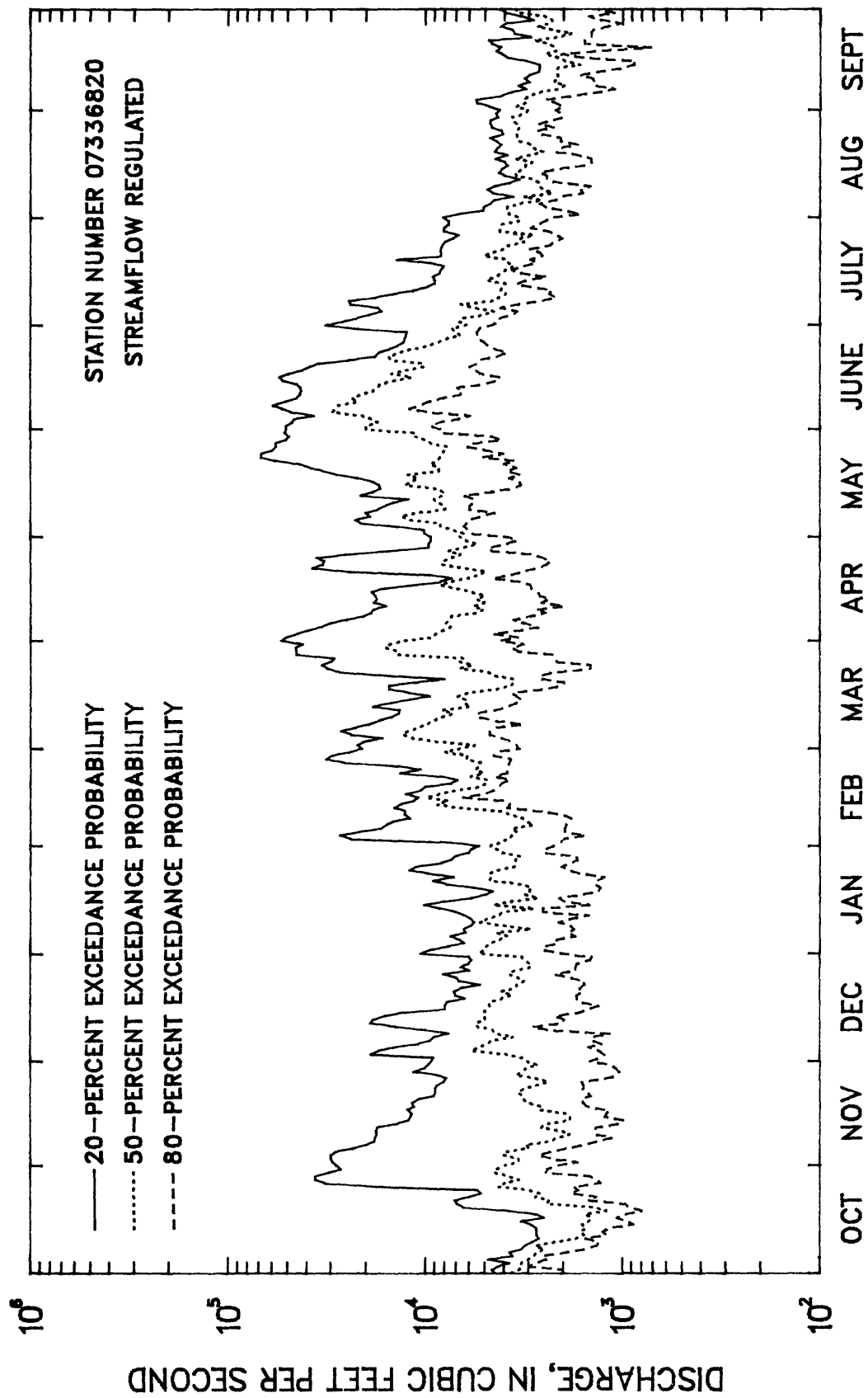


Figure 174.--Duration hydrographs of daily discharge values for Red River near De Kalb, Texas, water years 1976-1984 (streamflow regulated).

RED RIVER BASIN

07337500 LITTLE RIVER NEAR WRIGHT CITY, OK

LOCATION.--Lat 34°04'10", long 95°02'47", in NE 1/4 NW 1/4 sec.6, T.6 S., R.22 E., McCurtain County, Hydrologic Unit 11140107, on left bank on downstream side of bridge on State Highway 98, 1.8 mi upstream from White Oak Creek, 2.0 mi west of Wright City, 4.7 mi downstream from Pine Creek Lake, and at mile 140.6.

DRAINAGE AREA.--645 mi².

PERIOD OF RECORD.--October 1929 to September 1931, October 1944 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Except for 10 mi² intervening area, flow completely regulated since June 1969 by Pine Creek Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1930-31, 1945-68

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2120	0.00	305	486	1.6	2.8
NOVEMBER	3610	1.0	582	861	1.5	5.3
DECEMBER	3040	4.9	818	806	0.99	7.5
JANUARY	5350	3.5	1090	1220	1.1	9.9
FEBRUARY	4400	98	1530	1210	0.79	14.0
MARCH	7040	104	1410	1360	0.96	12.9
APRIL	5430	216	1590	1380	0.87	14.6
MAY	6870	247	2080	1620	0.78	19.0
JUNE	4140	13	557	1030	1.8	5.1
JULY	2280	2.7	409	679	1.7	3.7
AUGUST	1690	0.00	152	335	2.2	1.4
SEPTEMBER	3490	0.00	414	744	1.8	3.8
ANNUAL	1980	363	907	439	0.48	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1931, 1946-68

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	1.2	0.09	0.00	0.00
3	1.4	0.10	0.00	0.00
7	1.6	0.12	0.00	0.00
14	2.0	0.15	0.00	0.00
30	4.0	0.28	0.02	0.00
60	10	0.99	0.19	0.01
90	24	3.5	0.95	0.12
120	59	11	3.8	1.5
183	217	65	30	14

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 26 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
30500	49700	64100	83800	99600	116000
OKLAHOMA WEIGHTED SKEW = -0.046					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1930-31, 1945-68

PERIOD (CON- SECUTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	20700	34100	44500	59300	71600	84900
3	12800	20300	26000	34000	40600	47700
7	7810	11800	14500	18000	20800	23500
15	4830	7390	9210	11600	13500	15500
30	3340	4940	6020	7400	8440	9470
60	2310	3520	4390	5570	6500	7470
90	1880	2860	3590	4600	5420	6280

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1930-31, 1945-68

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
12700	4170	2070	1320	928	549	340	200	113	55	22	3.7	0.89	0.09	0.04	0.02	0.00

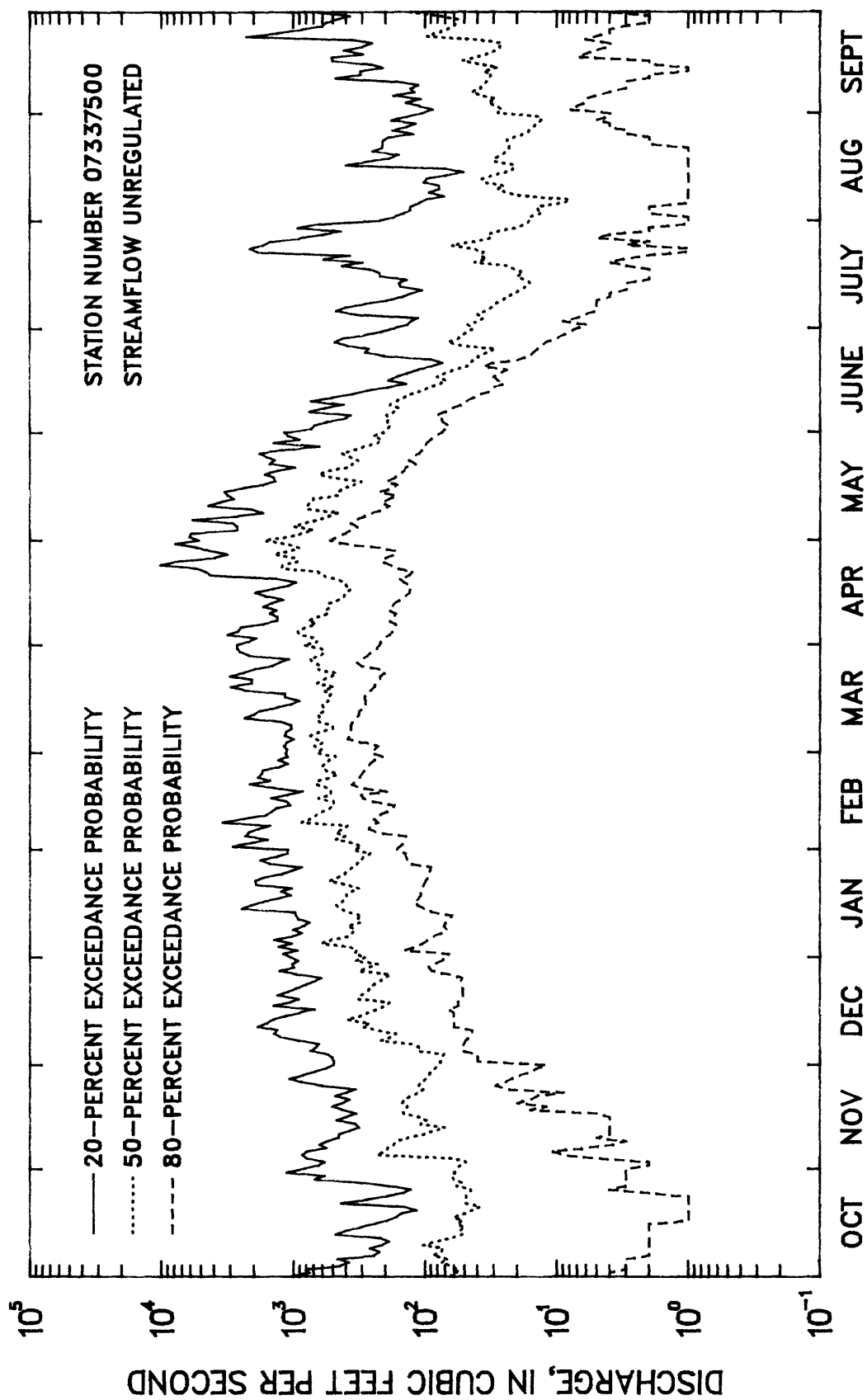


Figure 175.--Duration hydrographs of daily discharge values for Little River near Wright City, Oklahoma, water years 1950-1968 (streamflow unregulated).

RED RIVER BASIN

07337500 LITTLE RIVER NEAR WRIGHT CITY, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1969-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2080	13	507	696	1.4	4.9
NOVEMBER	4490	14	859	1410	1.6	8.3
DECEMBER	4130	39	1130	1210	1.1	11.0
JANUARY	2330	25	745	608	0.82	7.2
FEBRUARY	3090	102	1130	860	0.76	10.9
MARCH	3670	98	1470	1000	0.68	14.3
APRIL	2950	64	1270	917	0.72	12.3
MAY	4110	294	1570	967	0.62	15.2
JUNE	3690	19	1120	1260	1.1	10.8
JULY	494	9.4	130	147	1.1	1.3
AUGUST	402	9.5	85	115	1.4	0.8
SEPTEMBER	3270	13	304	808	2.7	2.9
ANNUAL	1860	332	858	434	0.51	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1970-84

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	7.9	2.2	0.82	0.31
3	8.2	2.7	1.4	0.81
7	8.4	3.8	2.4	1.7
14	11	5.5	3.8	2.8
30	15	10	8.6	7.7
60	26	14	11	9.0
90	36	16	11	9.0
120	52	20	13	9.1
183	152	54	32	21

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1969-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 16 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
6630	8150	9100	10300	11100	11900
STATION SKEW = 0.136					

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	6250	7120	7540	7950	8200	8400
3	6040	6910	7320	7710	7940	8130
7	5680	6770	7240	7660	7880	8050
15	4410	5710	6410	7160	7640	8060
30	3130	4280	5040	6010	6740	7800
60	2190	2960	3480	4160	4680	5210
90	1770	2450	2940	3610	4140	4690

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1969-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5	99.9%
7110	5090	3060	1860	1170	555	293	154	69	37	25	15	10	6.1	3.7	2.4	1.6

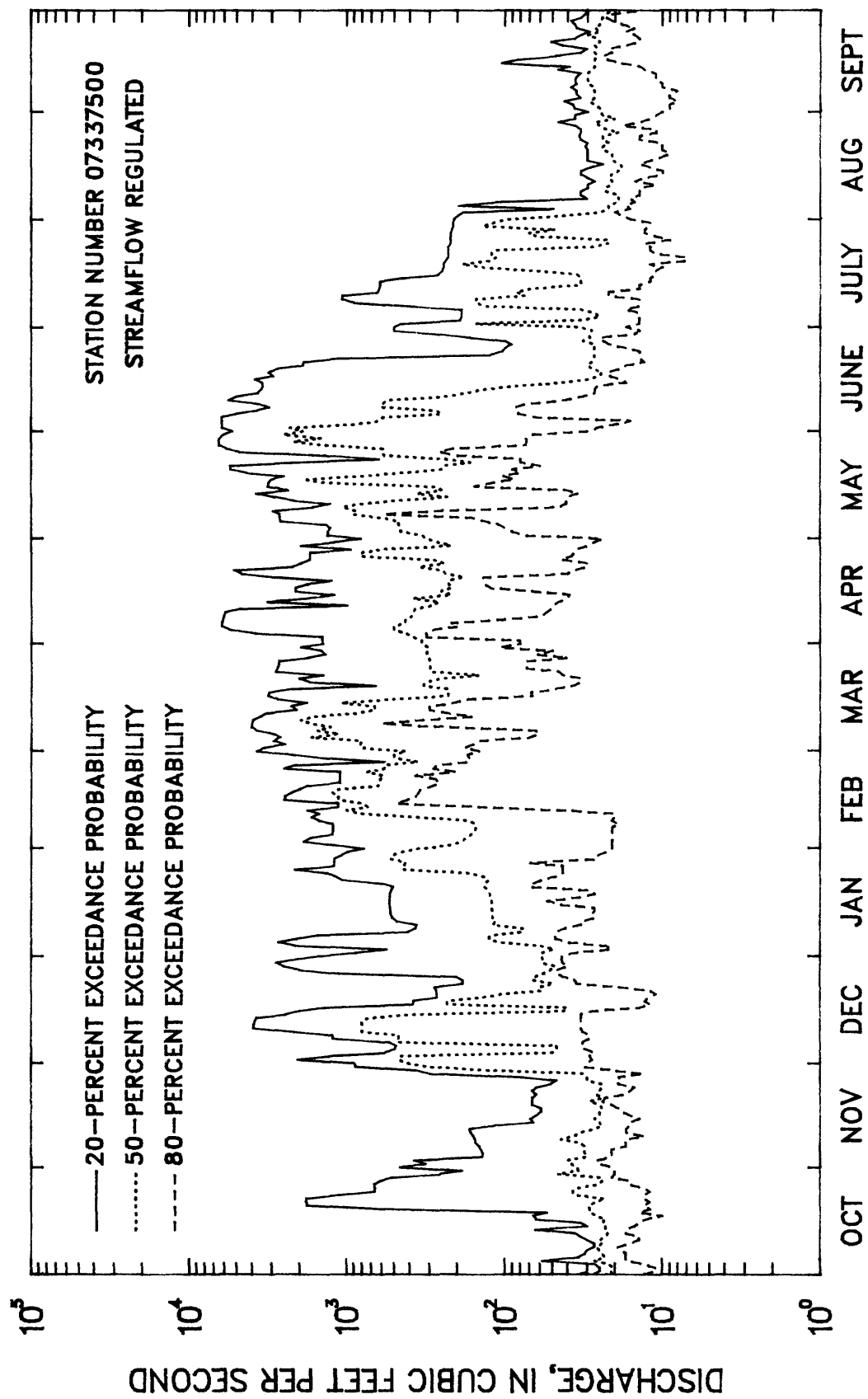


Figure 176.—Duration hydrographs of daily discharge values for Little River near Wright City, Oklahoma, water years 1976–1984 (streamflow regulated).

RED RIVER BASIN

07337900 GLOVER CREEK NEAR GLOVER, OK

LOCATION.--Lat 34°05'51", long 94°54'07", in NW 1/4 NE 1/4 sec.28, T.5 S., R.23 E., McCurtain County, Hydrologic Unit 11140107, near right bank on downstream side of pier of bridge on State Highways 3 and 7, 2.0 mi north of Glover, 11.0 mi northwest of Broken Bow, and at mile 9.2.

DRAINAGE AREA.--315 mi².

PERIOD OF RECORD.--October 1961 to current year.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1962-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1270	0.00	259	354	1.4	4.8
NOVEMBER	2150	0.33	434	522	1.2	8.1
DECEMBER	3380	2.8	628	733	1.2	11.7
JANUARY	1200	2.0	413	330	0.80	7.7
FEBRUARY	1530	53	591	420	0.71	11.0
MARCH	2510	97	872	620	0.71	16.2
APRIL	1940	232	696	471	0.68	12.9
MAY	2540	103	832	679	0.82	15.5
JUNE	1510	4.6	341	406	1.2	6.3
JULY	213	1.1	47	58	1.2	0.9
AUGUST	288	0.00	49	82	1.7	0.9
SEPTEMBER	2690	0.00	218	569	2.6	4.1
ANNUAL	979	169	447	214	0.48	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW BASED ON PERIOD OF RECORD 1963-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	0.28	0.00	0.00	0.00
3	0.37	0.00	0.00	0.00
7	0.52	0.00	0.00	0.00
14	0.86	0.13	0.00	0.00
30	1.9	0.43	0.07	0.00
60	4.9	0.93	0.14	0.00
90	12	2.1	0.72	0.26
120	32	6.4	2.2	0.81
183	98	34	18	9.7

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW BASED ON PERIOD OF RECORD 1962-84

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW BASED ON 24 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
27500	47000	62700	85700	105000	127000
OKLAHOMA WEIGHTED SKEW = 0.131					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	12800	20700	27200	37200	46000	56200
3	6870	10600	13900	19100	23900	29500
7	3860	5790	7330	9600	11600	13700
15	2320	3590	4560	5910	7010	8210
30	1720	2460	2920	3480	3880	4270
60	1160	1640	1970	2410	2740	3070
90	943	1350	1630	2000	2280	2580

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1962-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
6280	1870	977	614	459	267	168	100	55	27	9.9	2.2	0.57	0.05	0.02	0.01	0.00

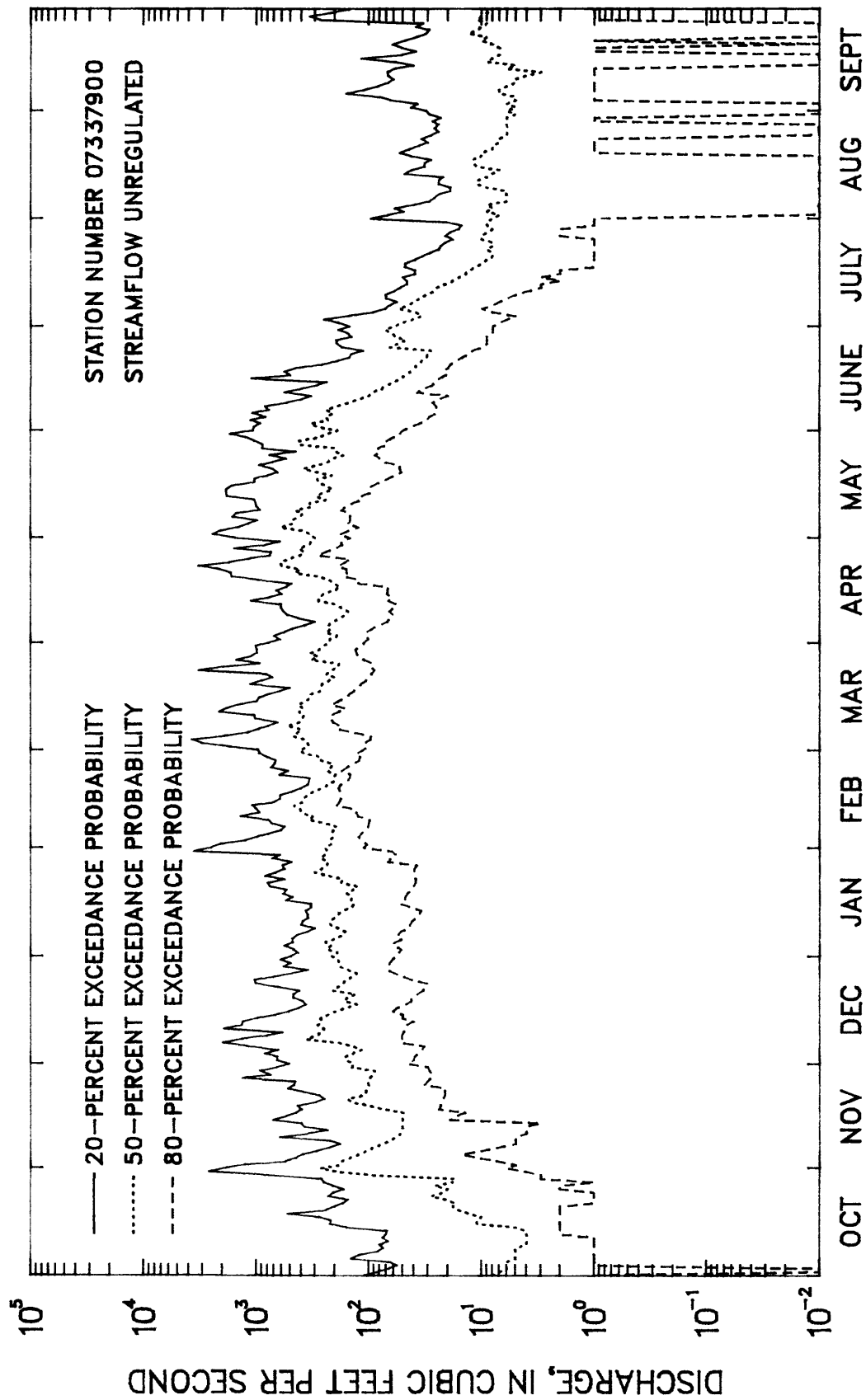


Figure 177.--Duration hydrographs of daily discharge values for Glover Creek near Glover, Oklahoma, water years 1966-1984 (streamflow unregulated).

RED RIVER BASIN

07338500 LITTLE RIVER BELOW LUKFATA CREEK NEAR IDABEL, OK

LOCATION.--Lat 33°56'28", long 94°45'30", in SE 1/4 SE 1/4 sec.14, T.7 S., R.24 E., McCurtain County, Hydrologic Unit 11140107, on left bank at downstream side of bridge on U.S. Highway 70 just downstream from Lukfata Creek, 5.0 mi northeast of Idabel, and at mile 103.4.

DRAINAGE AREA.--1,226 mi².

PERIOD OF RECORD.--October 1946 to current year.

REMARKS.--Flow regulated since June 1969 by Pine Creek Lake, 41.9 mi upstream.

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1969-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2640	26	815	973	1.2	4.1
NOVEMBER	7890	46	1720	2470	1.4	8.6
DECEMBER	10300	146	2440	2670	1.1	12.2
JANUARY	3170	157	1460	974	0.66	7.3
FEBRUARY	6550	176	2320	1660	0.71	11.6
MARCH	7730	304	3080	1940	0.63	15.4
APRIL	6190	521	2240	1560	0.70	11.2
MAY	5800	673	2910	1560	0.54	14.6
JUNE	6040	47	1910	1980	1.0	9.5
JULY	1170	31	283	314	1.1	1.4
AUGUST	676	19	162	183	1.1	0.8
SEPTEMBER	6990	25	648	1720	2.7	3.2
ANNUAL	3420	676	1660	760	0.46	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1970-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	21	13	9.8	7.5
3	24	16	12	9.8
7	26	17	14	11
14	29	19	15	12
30	35	23	19	16
60	57	30	22	17
90	85	40	29	23
120	144	57	36	24
183	372	164	109	79

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1969-84MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 16 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
11800	19100	29800	56300	93200	156000
STATION SKEW = 2.90					

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	12000	18500	26400	42600	61600	89400
3	11000	16400	22400	33900	46400	63700
7	8260	11700	14900	20300	25600	32100
15	7150	9700	11500	13900	15700	17700
30	5690	7780	9160	10900	12200	13500
60	4120	5600	6550	7730	8590	9440
90	3390	4660	5490	6540	7310	8080

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1969-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
11300	7620	5640	3930	2760	1430	791	449	263	142	72	38	27	20	16	14	10

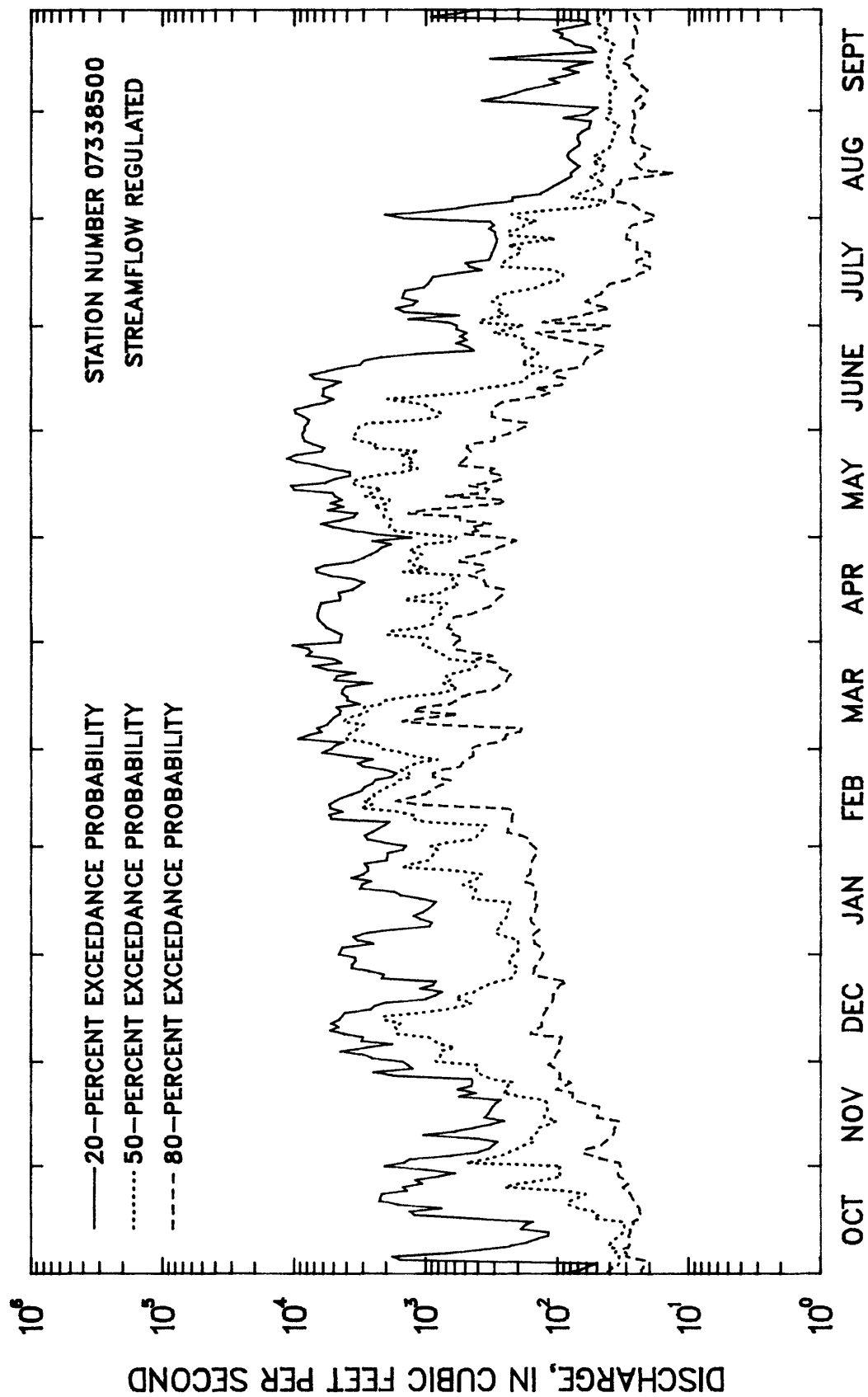


Figure 178.--Duration hydrographs of daily discharge values for Little River below Lukfata Creek near Idabel, Oklahoma, water years 1976-1984 (streamflow regulated).

RED RIVER BASIN

07339000 MOUNTAIN FORK NEAR EAGLETOWN, OK

LOCATION.--Lat 34°02'30", long 94°37'15", in SE 1/4 SE 1/4 sec.7, T.6 S., R.26 E., McCurtain County, Hydrologic Unit 11140108, near center of span on downstream side of pier of bridge on U.S. Highway 70, 2.0 mi west of Eagletown, 10.7 mi downstream from Broken Bow Dam, and at mile 8.9.

DRAINAGE AREA.--787 mi².

PERIOD OF RECORD.--March 1924 to December 1925, October 1929 to current year. Published as Mountain Fork River near Broken Bow 1924-25 and as Mountain Fork River near Eagletown 1929-60. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.--Except for 33 mi² intervening area, flow completely regulated since October 1968 by Broken Bow Lake.

STREAMFLOW UNREGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1925, 1930-69

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	2790	0.00	425	622	1.5	2.8
NOVEMBER	3390	0.00	836	837	1.0	5.5
DECEMBER	3910	15	1340	1070	0.80	8.8
JANUARY	8000	16	1920	1990	1.0	12.6
FEBRUARY	6740	192	2160	1710	0.79	14.1
MARCH	10700	254	2100	1730	0.82	13.7
APRIL	8200	167	2230	1830	0.82	14.6
MAY	6790	288	2370	1940	0.82	15.5
JUNE	4890	25	807	1050	1.3	5.3
JULY	2460	0.97	483	751	1.5	3.2
AUGUST	2110	0.00	271	460	1.7	1.8
SEPTEMBER	3260	0.00	336	628	1.9	2.2
ANNUAL	2610	359	1270	566	0.45	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1925, 1931-69

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	2.1	0.00	0.00	0.00
3	2.4	0.00	0.00	0.00
7	3.1	0.00	0.00	0.00
14	4.5	0.00	0.00	0.00
30	8.9	0.12	0.00	0.00
60	24	1.7	0.09	0.00
90	47	8.1	2.6	0.93
120	94	23	10	5.0
183	293	109	60	34

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 40 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
36800	62100	80300	104000	122000	141000
OKLAHOMA WEIGHTED SKEW = -0.297					

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1925, 1930-69

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	26600	42200	51900	63100	70600	77500
3	17600	26400	31200	36100	39200	41700
7	11200	14900	16300	17300	17700	17900
15	7170	9930	11100	12000	12500	12800
30	4900	6970	7990	8940	9470	9880
60	3360	5000	5990	7120	7880	8570
90	2750	4160	5060	6150	6930	7660

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1925, 1930-69

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
15500	5800	3090	2010	1440	846	549	343	201	103	42	12	2.0	0.07	0.03	0.02	0.00

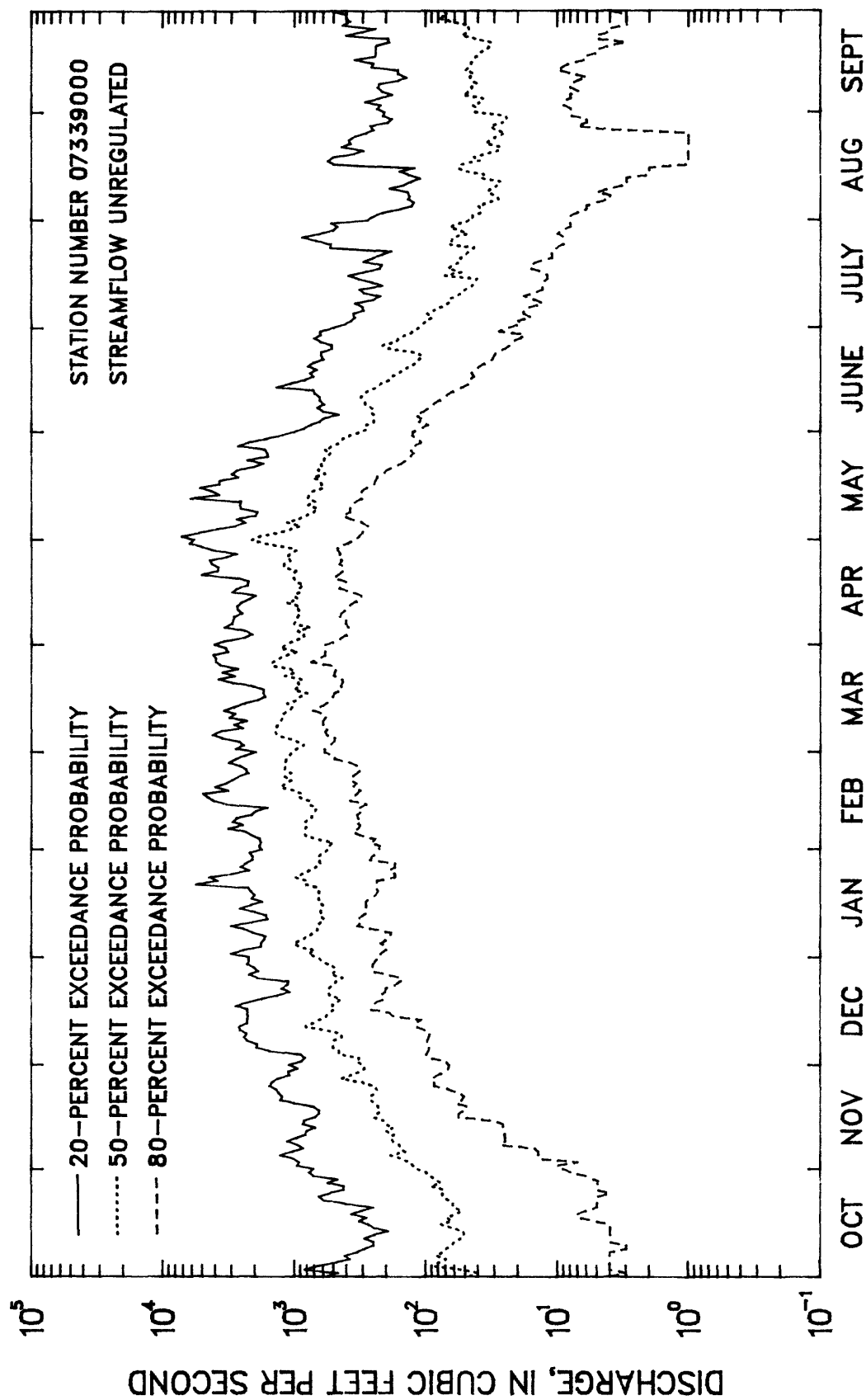


Figure 179.--Duration hydrographs of daily discharge values for Mountain Fork near Eagletown, Oklahoma, water years 1951-1969 (streamflow unregulated).

RED RIVER BASIN
07339000 MOUNTAIN FORK NEAR EAGLETOWN, OK--Continued

STREAMFLOW REGULATED

MONTHLY AND ANNUAL MEAN DISCHARGES 1969-84

MONTH	MAXIMUM (CFS)	MINIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- TION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	1970	18	507	464	0.92	3.2
NOVEMBER	4800	75	924	1270	1.4	5.8
DECEMBER	3810	164	1510	1240	0.82	9.5
JANUARY	3360	199	1290	841	0.65	8.1
FEBRUARY	2980	292	1520	948	0.63	9.6
MARCH	4120	524	1910	999	0.52	12.0
APRIL	4980	306	2110	1640	0.78	13.3
MAY	5610	314	1990	1450	0.73	12.6
JUNE	4280	288	1720	1350	0.79	10.9
JULY	2650	217	980	606	0.62	6.2
AUGUST	1520	325	798	352	0.44	5.0
SEPTEMBER	1930	278	594	420	0.71	3.7
ANNUAL	2470	359	1320	548	0.41	100

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1970-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND NON-EXCEEDANCE PROBABILITY, IN PERCENT			
	2 50%	5 20%	10 10%	20 5%
1	96	50	30	18
3	135	86	56	35
7	193	127	87	58
14	201	156	138	125
30	241	193	178	168
60	298	238	222	212
90	401	300	267	246
120	458	328	285	257
183	595	402	333	288

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON 16 YEARS OF RECORD

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
9450	12100	14100	17100	19500	22200

STATION SKEW = 1.051

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1969-84

PERIOD (CON- SEC- UTIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	6950	8250	8790	9240	9470	9640
3	6530	8050	8650	9100	9350	9550
7	5700	7740	8500	9050	9280	9420
15	4760	6700	7420	7920	8130	8250
30	3760	5490	6250	6880	7180	7390
60	3030	4190	4650	5010	5170	5270
90	2570	3560	4000	4380	4570	4700

DURATION TABLE OF DAILY MEAN FLOW FOR PERIOD OF RECORD 1969-84

DISCHARGE, IN CFS, WHICH WAS EQUALED OR EXCEEDED FOR INDICATED PERCENT OF TIME																
1%	5%	10%	15%	20%	30%	40%	50%	60%	70%	80%	90%	95%	98%	99%	99.5%	99.9%
7630	5330	3560	2710	2160	1420	946	646	445	298	210	152	123	78	25	12	1.1

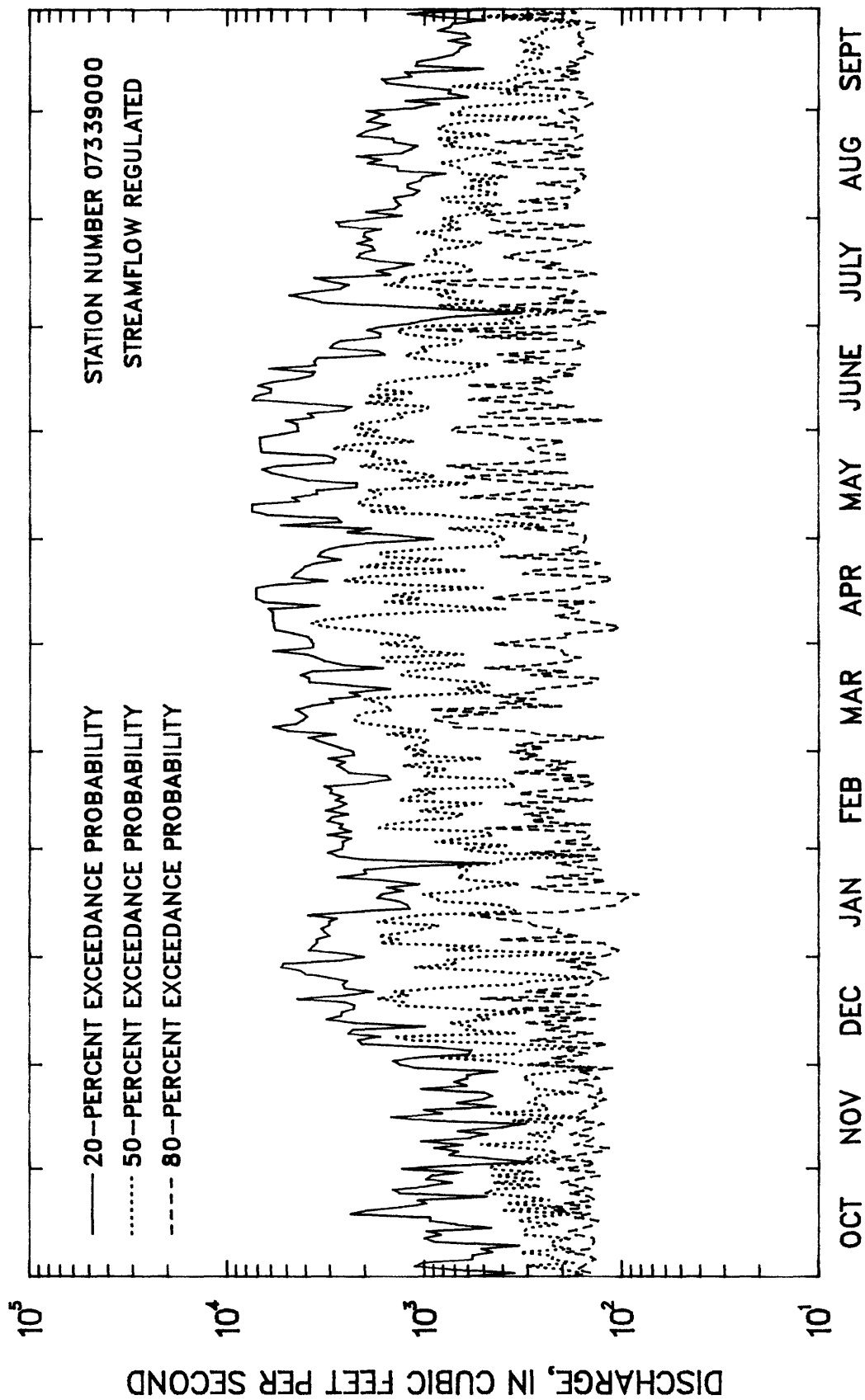


Figure 180.--Duration hydrographs of daily discharge values for Mountain Fork near Eagletown, Oklahoma, water years 1976-1984 (streamflow regulated).

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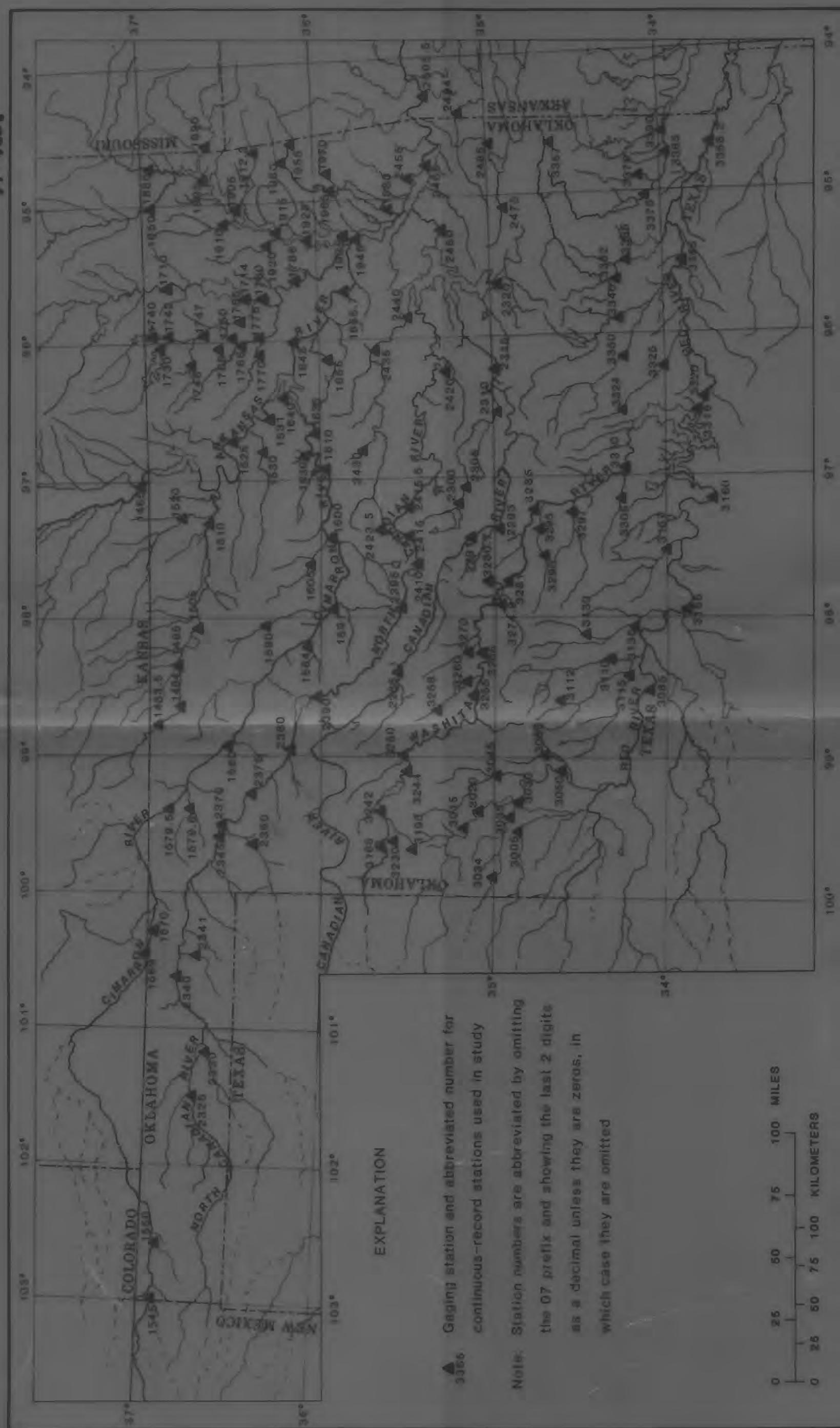


Figure 1.—Location of streamflow gaging stations.