ANNUAL YIELD AND SELECTED HYDROLOGIC DATA FOR THE ARKANSAS RIVER BASIN COMPACT ARKANSAS--OKLAHOMA 1990 WATER YEAR

By T.E. Lamb, and R.L. Blazs

U.S. GEOLOGICAL SURVEY

Open-File Report 91-466

Prepared in cooperation with the
ARKANSAS--OKLAHOMA ARKANSAS RIVER COMPACT COMMISSION

Little Rock, Arkansas
1991

DEPARTMENT OF THE INTERIOR

MANUEL LUJAN JR., Secretary

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information
write to:

District Chief
U.S. Geological Survey
2301 Federal Office Building
700 West Capitol
Little Rock, Arkansas 72201

Copies of this report can
be purchased from:

U.S. Geological Survey
Books and Open-File Reports Section
Federal Center, Building 810
Box 25425
Denver, Colorado 80225

CONTENTS

ILLUSTRATION

TABLES

CONVERSION FACTORS

Multiply	By	To obtain
inch (in.)	25.4	millimeter
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
acre	4047	square meter
	0.004047	square kilometer
square mile (mi^2)	2.590	square kilometer
cubic foot (ft^3)	0.02832	cubic meter
acre-foot (acre-ft)	1233	cubic meter
	1.233×10^{-6}	cubic kilometer
cubic foot per second (ft^3/s)	28.32	liter per second
	0.02832	cubic meter per second
ton per day (ton/d)	0.9072	megagram per day

Temperature in degrees Fahrenheit (°F) as follows:

$$°F = 1.8 \times °C + 32$$

ANNUAL YIELD AND SELECTED HYDROLOGIC DATA

FOR THE ARKANSAS RIVER BASIN COMPACT ARKANSAS-OKLAHOMA 1990 WATER YEAR

By T.E. Lamb and R.L. Blazs

ABSTRACT

The computed annual yield and deficiency of the subbasins as defined in the Arkansas River Compact, Arkansas-Oklahoma, are given in tables. Actual runoff from the subbasins and depletion caused by major reservoirs in the compact area also are given in tabular form. Monthly maximum, minimum, and mean discharges are shown for the 14 streamflow stations used in computing annual yield. Water-quality data are shown for the Arkansas River at James W. Trimble Lock and Dam near Van Buren, Arkansas, and the Neosho River below Fort Gibson Lake near Fort Gibson, Oklahoma.

INTRODUCTION

The computed annual yields, during the 1990 water year, for subbasins in the Arkansas River basin as defined in the Arkansas River Basin Compact, Arkansas-Oklahoma, 1972, are presented in this report. The area included in the Compact is shown in figure 1. Water-quality data for the Arkansas River at James W. Trimble Lock and Dam near Van Buren, Arkansas, and Neosho River below Fort Gibson Lake near Fort Gibson, Oklahoma, also are included in the report.

This report was prepared by the U.S. Geological Survey in cooperation with the Arkansas-Oklahoma Arkansas River Compact Commission. Streamflow data and water-quality data were furnished by the Arkansas and Oklahoma Districts, U.S. Geological Survey. The U.S. Army Corps of Engineers, Tulsa District furnished data from the Webbers Falls, Tenkiller Ferry, Robert S. Kerr, Wister Reservoirs, and Fort Gibson Lake Discharge.

DEFINITION OF TERMS

The following terms used in this report are taken from Article II of the Arkansas River Basin Compact, Arkansas-Oklahoma, 1972.

The term "Arkansas River Basin" means all of the drainage basin of the Arkansas River and its tributaries from a point immediately downstream from the confluence of the Neosho River with the Arkansas River (fig. 1) to a

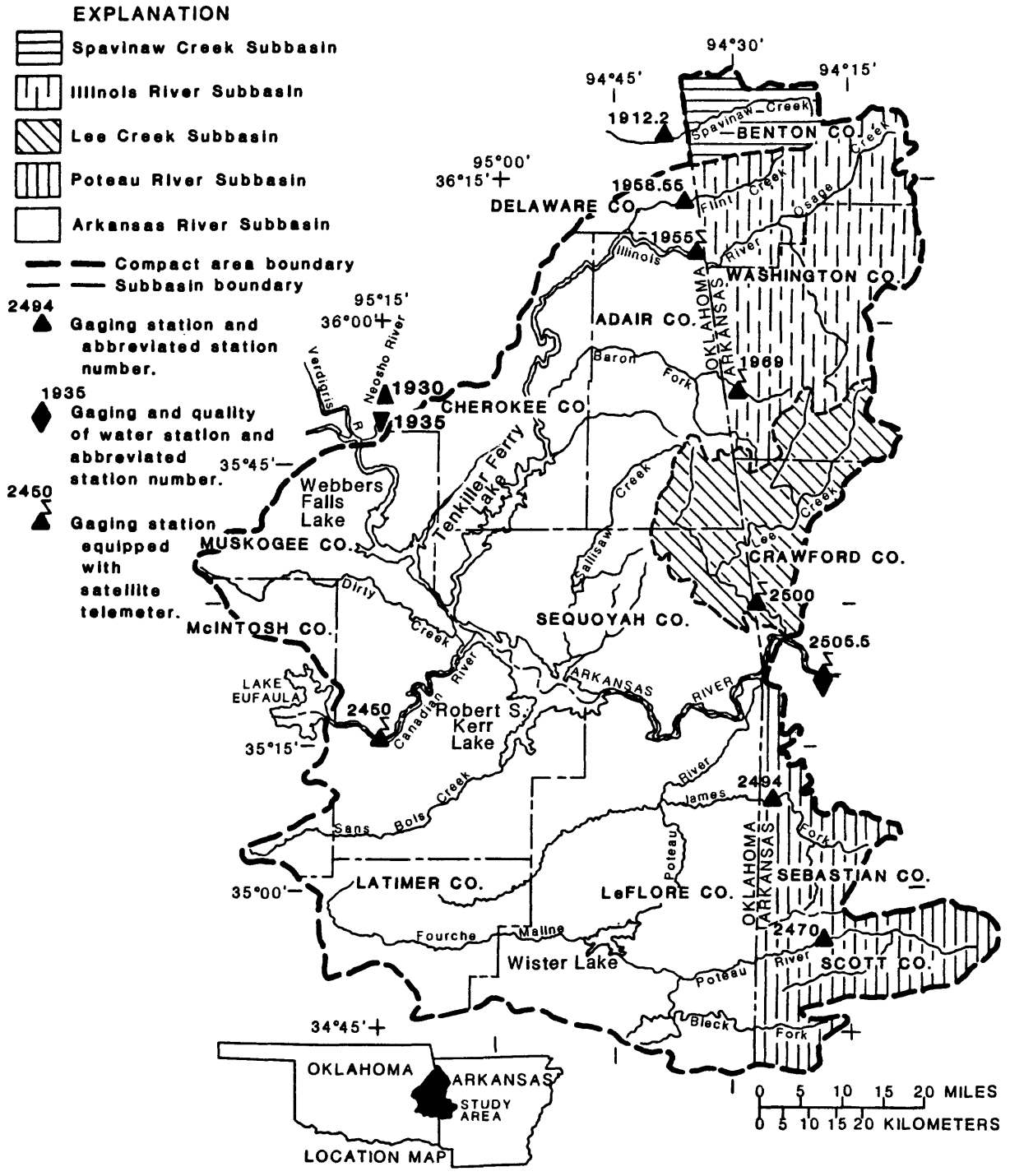

Figure 1.--Arkansas-Oklahoma Arkansas River Basin Compact area and subbasins.

point immedi tely do stream from the confluence of Lee Creek with the Arkansas River, together with the drainage basin of Spavinaw Creek in Arkansas (fig. 1), but excludes that part of the drainage basin of the Canadian River upstream from Lake Eufaula Dam.

The te rm "S avinaw Creek Subbasin" means the drainage area of Spavinaw Creek in the State of Arkansas.

The term "Illinois River Subbasin" means the drainage area of Illinois River in the State of Arkansas.

The term "Lee Creek Subbasin" means the drainage area of Lee Creek in the State of Arkansas and in the State of Oklahoma.

The term "Poteau River Subbasin" means the drainage area of Poteau River in the State of Arkansas.

The term "Arkansas River Subbasin" means all areas of the Arkansas River Basin except the four subbasins described previously.

The term "water year" means a 12-month period beginning on October 1 and ending September 30.

The term "annual yield" means the computed annual gross runoff from any specified subbasin. The runoff would have passed any certain point on a stream and would have originated within any specified area under natural conditions, without any manmade depletion or accretion during the water year.

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below.

Acre-foot is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet.

Bacteria are microscopic unicellular organisms, typically spherical, rod-like, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essentia role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Fecal coliform bacteria are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all the organisms that produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters (mL) of sample.

Fecal streptococcal bacteria also are present in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, coccoid bacteria that are capable of growth in brain-heart infusion

broth. These bacteria also are defined as all the organisms that produce red or pink colonies within 48 hours at 35°C ± 0.5°C on KF-streptococcus agar (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Code numbers have been assigned for agencies collecting and analyzing samples, and are listed in water-quality tables of this report as follows:

1028 Oklahoma District, WRD, U.S. Geological Survey,

80513 Arkansas District, WRD, U.S. Geological Survey, and

80020 National Water Quality Laboratory, WRD, U.S. Geological Survey

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

Cubic foot per second is the rate of discharge representing a volume of 1 cubic foot passing a specified point during 1 second.

Discharge is the volume of water that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge is the arithmetic average of individual daily mean discharges during a specific period.

Dissolved refers to the material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved oxygen content of water in equilibrium with air is a function of atmospheric pressure and temperature and the dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved solids, with small temperature changes having the more significant effect. Photosynthesis and respiration may cause diurnal variations in dissolved-oxygen concentration in water of some streams.

Drainage area of a stream at a specified point on the stream is that area enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream upstream from the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas within the area, unless otherwise noted.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 foot above the bed), expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge by milligrams per liter by 0.0027.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Sodium-absorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. Water varies, in respect to sodium hazard, from that which can be used for irrigation on almost all soils to that which generally is unsatisfactory for irrigation.

Specific conductance is a measure of the ability of water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids concentration of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height and the amount of water flowing past the gage in a channel.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating that the sample consists of a water-suspended-sediment mixture and that the analytical method determines all of the constituent in the sample.)

COMPUTATION OF ANNUAL YIELD

The annual yield and deficiency (table 1) for each subbasin were computed as described in Appendix I to the Arkansas River Basin Compact Arkansas-Oklahoma, 1972, supplement No. 1. Actual runoff for the subbasins (table 2) was computed as described in the Compact except for the stations Arkansas River at Muskogee, which has been discontinued, and Arkansas River at Van Buren, which has been moved 7.9 miles downstream.

Annual depletion caused by major reservoirs (table 3) was computed for the four major reservoirs in the basin as described in Appendix I to the Compact. Depletion caused by small reservoirs and minor diversion for municipal and agricultural use are considered insignificant at this time and data are not included in tables 1 and 3.

A compilation of the areas and capacities of lakes and ponds in Arkansas, updated in 1981, conducted by the Arkansas Soil and Water Conservation Commission was used to evaluate depletions caused by small reservoirs in the Poteau River, Lee Creek, Spavinaw Creek, and Illinois River subbasins. Analysis shows that their impact on the depletions in any subbasin, except Illinois River, is probably insignificant and further consideration is not necessary at this time. Total storage capacity in the Illinois River subbasin is 27,700 acre-feet of which 18,300 acre-feet is in one lake. There is not enough information presently collected to evaluate the magnitude of depletions in the Illinois River subbasin.

Streamflow data used in the computations are given in hydrologic station records (p. 11 to 31). The station description under "Remarks" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the actual discharge, "good" means within 10 percent, and "fair" means within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Table 1.--Annual yield and deficiency for the subbasins as defined in the Arkansas-Oklahoma Arkansas River Basin Compact

[Average annual flow in cubic feet per second for 1990 water year]

Subbasin	Actual runoff from the subbasins	Total depletions(+) or accretions(-)	Annual yield	Percent depletion allowed	Minimum required flow	Deficiency
Spavinaw Creek	171	0	171	50	86	0
Illinois River	1,239	0	1,239	60	496	0
Lee Creek	938	0	938	100	0	0
Poteau River	1,087	0	1,087	60	435	0
Arkansas River	11,200	+ 81	11,280	60	4,510	0

Table 2.--Acutal runoff from the subbasins

[Mean discharge in cubic feet per second for the 1990 water year; D.A. = drainage area]

Month	Spavinaw Creek D.A.=135 square miles[a]	Illinois River D.A.=744 square miles[b]	Lee Creek D.A.=464 square miles[c]	Poteau River D.A.=536 square miles[d]	Arkansas River D.A.=4,553 square miles[e]
October	16	133	5	11	574
November	18	134	5	11	1,020
December	15	131	5	7	-14[f]
January	66	543	413	707	5,290
February	163	1,730	1,920	1,980	15,320
March	500	2,860	2,490	2,090	18,910
April	338	2,970	2,900	2,450	32,980
May	559	4,170	3,190	5,080	40,080
June	235	1,240	320	359	15,410
July	69	369	14	106	2,160
August	38	247	5	153	412
September	38	333	0	99	2,570
1990 water year	171	1,239	938	1,087	11,200
1990 water year (acre-feet)	123,800	897,000	679,100	787,000	8,109,000

[a] Includes 31 square miles ungaged.
[b] Includes 63 square miles ungaged.
[c] Includes 38 square miles ungaged.
[d] Includes 125 square miles ungaged.
[e] Computed by subtracting drainage area at Arkansas River at Muskogee, Canadian River near Whitefield, Illinois River Subbasin, Lee Creek Subbasin, and Poteau River Subbasin from drainage area at Arkansas River at Dam No. 13, near Van Buren, Ark.
[f] Negative discharge caused by storage in reservoirs, seepage into ground water, and evaporation from reservoirs.

Table 3.--Annual depletion caused by major reservoirs

[1990 water year]

Reservoir	Year-end contents (acre-feet)	Change in contents in water year (acre-feet)	Precipitation on reservoir surface (inches)[a]	Evaporation from reservoir (inches)[b]	Diversions (acre-feet)[a]	Depletion (acre-feet)	Depletion (Average annual cubic feet per second)
Webbers Falls-----	166,600	+7,100	50.82	50.11	0	+23,000	+32
Tenkiller Ferry---	640,600	-16,200	59.11	40.61	5,900	-2,400	-3
Robert S. Kerr----	516,200	-24,400	58.01	48.08	0	+28,200	+39
Wister----------	41,590	-50	62.83	40.32	3,600	+7,200	+10

[a] From U.S. Corps of Engineers, Tulsa Disrict.
[b] Adjusted for pan coefficient of 0.70 (from Wisler and Brater, 1949).

SELECTED REFERENCES

Arkansas River Compact Committee, 1972, Arkansas River Basin Compact Arkansas-Oklahoma, 1972, with Supplemental Interpretive Comments, Supplement No. 1: Austin, Texas, 31 p.

Arkansas Soil and Water Conservation Commission, 1981, Arkansas State Water Plan - Lakes of Arkansas, 157 p.

Wisler, C.D., and Brater, E.F., 1949, Hydrology: New York, John Wiley & Sons, Inc., 150 p.

HYDROLOGIC STATION RECORDS

07165570 Arkansas River near Haskell, Oklahoma

LOCATION (REVISED).--Lat 35°49'15", long 95°38'19", in SW¼NW¼ sec.32, T.16 N., R.16 E., Wagoner County, near left downstream abutment of old bridge downstream from State Highway 104, 2.0 mi east of Haskell, 23.5 mi upstream from Verdigris River, and at mile 483.7.

DRAINAGE AREA.--75,473 mi^2, of which 12,541 mi^2 probably is noncontributing.

AVERAGE DISCHARGE.--18 years, 9,887 ft^3/s.

EXTREMES.--June 1972 to current year: Maximum discharge, 259,000 ft^3/s Oct. 6, 1986; minimum daily, 87 ft^3/s Sept. 13, 1988.

REMARKS.--Records fair, except for 858 mi^2 intervening area, flow regulated by Keystone Lake, 55.1 mi upstream. Satellite telemeter at station.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	249,770	15,700	810	8,057	495,400
November	113,870	11,000	100	3,796	225,900
December	57,922	4,450	400	1,868	114,900
January	177,502	13,300	772	5,726	352,100
February	153,380	13,100	734	5,478	304,200
March	790,600	55,200	14,000	25,500	1,568,000
April	832,500	37,000	17,100	27,750	1,651,000
May	488,940	30,400	5,640	15,770	969,800
June	237,120	10,500	3,750	7,904	470,300
July	165,771	9,590	861	5,347	328,800
August	50,723	4,650	400	1,636	100,600
September	51,756	8,610	150	1,725	102,700
Water Year 1990	3,369,854	55,200	100	9,232	6,684,000

07176000 Verdigris River near Claremore, Oklahoma

LOCATION.--Lat 36°18'26", long 95°41'52", in SE¼ SW¼ sec.10, T.21 N., R.15 E., Rogers County, 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 mi^2.

AVERAGE DISCHARGE.--27 years (water years 1936-62), 3,723 ft^3/s; 26 years (water years 1965-90), 4,479 ft^3/s.

EXTREMES.--October 1935 to current year: Maximum discharge, 182,000 ft^3/s May 21, 1943; no flow at times in 1936, 1939-40, 1956.

REMARKS.--Records good. Flow regulated since May 1963 by Oologah Lake 14.3 mi upstream; some regulation by dams in Kansas since 1949 and by Hulah Lake since 1950. Satellite telemeter at station.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	94,899	7,930	60	3,061	188,200
November	101,438	10,400	187	3,381	201,200
December	7,195	411	179	232	14,270
January	67,873	7,070	171	2,189	134,600
February	99,211	9,780	956	3,543	196,800
March	516,530	26,400	8,220	16,660	1,025,000
April	412,530	27,900	4,640	13,750	818,300
May	336,280	20,800	1,350	10,850	667,000
June	405,450	22,100	3,290	13,510	804,200
July	35,836	3,340	171	1,156	71,080
August	8,031	1,600	162	259	15,930
September	4,907	492	53	164	9,730
Water Year 1990	2,090,230	27,900	53	5,727	4,146,000

07177500 Bird Creek near Sperry, Oklahoma

LOCATION.--Lat 36°16'42", long 95°57'14", in NW¼ NW¼ sec.29, T.21 N., R.13 E., Tulsa County, on downstream side 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 mi^2.

AVERAGE DISCHARGE.--Prior to regulation by Skiatook Lake, 46 years (1939-84), 484 ft^3/s.

EXTREMES.--October 1938 to current year: Maximum discharge, 90,000 ft^3/s Oct. 3, 1959; no flow at times in 1939, 1954-57, 1964-66, 1970.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	7,766	2,050	76	251	15,400
November	5,263	588	69	175	10,440
December	1,919	81	45	61.9	3,810
January	6,086	1,940	46	196	12,070
February	22,712	4,700	60	811	45,050
March	153,420	18,300	1,930	4,949	304,300
April	66,350	7,720	460	2,212	131,600
May	69,184	7,160	300	2,232	137,200
June	15,356	3,700	141	512	30,460
July	4,810	174	145	155	9,540
August	4,829	171	140	156	9,580
September	6,442	1,140	146	215	12,780
Water Year 1990	364,137	18,300	45	998	722,300

07191220 Spavinaw Creek near Sycamore, Oklahoma

LOCATION.--Lat 36°20'07", long 94°38'24", in NE¼ NW¼, sec.4, T.21 N., R.25 E., Delaware County, 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 mi^2

AVERAGE DISCHARGE.--29 years, 111 ft^3/s.

EXTREMES.--October 1961 to current year: Maximum discharge, 39,800 ft^3/s July 27, 1975; minimum, 1.2 ft^3/s Aug. 9, 1964.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	494	18	15	15.9	980
November	534	21	16	17.8	1,060
December	466	16	14	15	924
January	2,038	388	14	65.7	4,040
February	4,501	449	55	161	8,930
March	15,253	2,740	156	492	30,250
April	10,000	633	105	333	19,830
May	17,062	4,490	202	550	33,840
June	6,918	640	104	231	13,720
July	2,086	97	52	67.3	4,140
August	1,143	51	28	36.9	2,270
September	1,138	99	24	37.9	2,260
Water Year 1990	61,633	4,490	14	169	122,200

07193000 Fort Gibson Lake Discharge near Fort Gibson, Oklahoma

LOCATION.--Lat 35°51'15", long 95°13'45", in sec.19, T.16 N., R.19 E., Cherokee County, at Fort Gibson Dam, 5 mi north of Fort Gibson, and at mile 7.7.

DRAINAGE AREA.--12,492 mi^2 .

REMARKS.--Flow furnished by U.S. Army Corps of Engineers, Tulsa District.

Monthly and yearly discharge

Month	Total (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	49,927	1,610	99,000
November	38,517	1,283	76,340
December	42,517	1,371	84,300
January	75,400	2,432	149,500
February	265,909	9,496	527,400
March	997,222	32,170	1,978,000
April	735,756	24,520	1,459,000
May	1,178,753	38,020	2,338,000
June	1,067,519	35,580	2,117,000
July	165,857	5,350	329,000
August	93,158	3,005	184,800
September	39,183	1,306	77,710
Water Year 1990	4,749,718	13,013	9,421,000

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

WATER QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1952 to current year

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1951 to September 1963, October 1973 to January 1982.
WATER TEMPERATURE: October 1951 to September 1963, October 1973 to January 1982.

REMARKS: Samples were collected on a 6 week schedule and specific conductance, pH, water temperature, dissolved oxygen and alkalinity were determined in the field.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 496 microsiemens September 7, 1975; minimum daily 188 microsiemens October 18, 1974.

WATER TEMPERATURE: Maximum daily, 31.5°C July 31, August 1, 1955; minimum daily, 0.0°C January 23-25, 1962.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

[Five-digit numbers in parentheses are STORET parameter codes used for computer storage of data; MM = millimeter; ft^3/s = cubic feet per second; FTU = nephelometric units; US/CM = microsiemens per centimeter at 25 degrees Celsius; MG/L = micrograms per liter; WM WAT TOT FLD = whole water total field; UG/L = micrograms per liter; UM-MF = micrometer membrane filter; MG/L = milligrams per liter; K = plate count outside ideal range; IT-FLD = incremental titration-field; UG/L = micrograms per liter; T/DAY = tons per day]

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

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	GAGE HEIGHT (FEET) (00065)	DISCHARGE, INST. (FT^3/S) (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH (STANDARD UNITS) (00400)	TEMPERATURE AIR (DEG C) (00020)	TEMPERATURE WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	BAROMETRIC PRESSURE (MM OF HG) (00025)
OCT 1990											
25...	0830	1028	80020	5.89	*36	318	7.6	21.5	17.0	3.3	760
NOV 1990											
28...	1430	1028	80020	16.02	32,800	281	8.2	4.5	10.5	4.0	750
MAR 1990											
07...	1100	1028	80020	11.62	15,500	240	8.4	13.5	9.5	1.2	760
APR 1990											
04...	1000	1028	80020	22.31	34,800	259	8.1	23.0	12.5	10	749
JUN 1990											
27...	1045	1028	80020	11.33	20,000	211	8.2	29.0	27.0	17	752
AUG 1990											
07...	1545	1028	80020	7.95	*7,410	**230	7.9	31.0	27.5	5.5	760

DATE	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	HARDNESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
OCT										
25...	7.3	76	K29	79	120	28	40	5.4	8.8	13
NOV										
28...	10.5	96	K12	K6	120	33	40	5.6	10	15
MAR										
07...	11.6	102	K22	1800	110	26	36	5.4	8.1	13
APR										
04...	10.6	101	K8	K2	120	30	38	5.2	7.8	12
JUN										
27...	7.9	101	K7	K6	93	18	30	4.3	6.0	12
AUG										
07...	9.6	122	K9	K10	100	18	33	4.3	5.7	11

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OKLAHOMA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 1990											
25...	0.3	3.2	115	0	94	35	8.9	0.20	3.9	164	162
NOV 1990											
28...	.4	3.7	110	0	91	36	9.4	.10	1.9	175	161
MAR 1990											
07...	.3	3.7	105	0	86	30	10	.10	3.8	162	151
APR 1990											
04...	.3	3.5	105	0	86	31	8.4	.20	7.0	169	157
JUN 1990											
27...	.3	3.2	91	0	75	20	3.6	.10	7.7	132	122
AUG 1990											
07...	.2	3.2	100	0	82	24	5.6	.20	2.1	131	127

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS NO3) (71851)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS NO2) (71856)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)
OCT 1990										
25...	0.22	15.9	--	--	0.010	0.03	<0.100	0.040	0.030	0.05
NOV 1990										
28...	.24	15,500	--	--	< .010	--	< .100	.030	.020	.04
MAR 1990										
07...	.22	6,780	0.310	1.4	.070	.23	.380	.050	.050	.06
APR 1990										
04...	.23	15,900	.760	3.4	.040	.13	.800	.100	.090	.13
JUN 1990										
27...	.18	7,130	--	--	< .010	--	.500	.050	.020	.06
AUG 1990										
07...	.18	2,620	--	--	< .010	--	< .100	.010	< .010	.01

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4) (71846)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)
OCT 1990										
25...	0.04	0.56	0.60	0.040	0.020	0.020	0.06	<10	1	75
NOV 1990										
28...	.03	.57	.60	.120	.100	.070	.21	--	--	--
MAR 1990										
07...	.06	.65	.70	.060	.020	.010	.03	90	<1	60
APR 1990										
04...	.12	.50	.60	.070	.050	.040	.12	110	<1	53
JUN 1990										
27...	.03	.45	.50	.080	.050	.040	.12	90	<1	77
AUG 1990										
07...	--	.59	.60	.050	.020	< .010	--	<10	1	48

07193500 NEOSHO RIVER BELOW FORT GIBSON LAKE NEAR FORT GIBSON, OKLAHOMA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)
OCT 1990										
25...	<0.5	<1.0	<1	<3	1	8	1	4	4	0.1
NOV 1990										
28...	--	--	--	--	--	--	--	--	--	--
MAR 1990										
07...	< .5	<1.0	<5	<3	<10	40	<10	<4	3	< .1
APR 1990										
04...	< .5	<1.0	<5	<3	<10	130	<10	<4	18	< .1
JUN 1990										
27...	< .5	<1.0	<1	<3	3	100	1	5	7	< .1
AUG 1990										
07...	< .5	<1.0	<1	<3	2	4	<1	5	2	< .1

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN 0.062 MM (70331)
OCT 1990										
25...	<10	2	<1	<1.0	160	<6	13	--	--	--
NOV 1990										
28...	--	--	--	--	--	--	--	--	--	--
MAR 1990										
07...	<10	<10	<1	<1.0	160	<6	5	--	--	--
APR 1990										
04...	<10	<10	<1	<1.0	150	<6	16	--	--	--
JUN 1990										
27...	<10	2	<1	<1.0	130	<6	18	--	--	--
AUG 1990										
07...	<10	2	<1	<1.0	140	<6	5	110	2,200	58

*MEAN DAILY DISCHARGE
**SPECIFIC CONDUCTANCE, LAB (US/CM)

07194500 Arkansas River near Muskogee, Oklahoma

LOCATION.--Lat 35°46'10", long 95°17'55", in NW¼ sec.21, T.15 N., R.19 E., Muskogee County, at bridge on U.S. Highway 62, 1.7 mi downstream from Neosho River, 3.5 mi northeast of Muskogee.

DRAINAGE AREA.--96,674 mi^2 of which 12,541 mi^2 probably is noncontributing.

REMARKS.--Gaging station discontinued Sept. 30, 1970, due to backwater conditions. Streamflow computed by combining flow at station 07165570 Arkansas River near Haskell, station 07176000 Verdigris River near Claremore, station 07193000 Fort Gibson Lake Discharge near Fort Gibson, and estimating the flow for the ungaged intervening drainage area.

Monthly and yearly discharge

Month	Mean (ft^3/s)	Runoff in acre-feet
October	13,335	819,900
November	8,876	528,200
December	3,622	222,700
January	10,822	665,400
February	20,471	1,137,000
March	86,226	5,302,000
April	71,331	4,245,000
May	70,009	4,305,000
June	58,230	3,465,000
July	12,224	751,600
August	5,272	324,200
September	3,715	221,100
Water Year 1990	30,366	21,984,000

07195500 Illinois River near Watts, Oklahoma

LOCATION.--Lat 36°07'48", long 94°34'12", in NW¼ NE¼ sec.18, T.19 N., R.26 E., Adair County, near right bank on downstream side 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 mi^2.

AVERAGE DISCHARGE.--35 years, 603 ft^3/s.

EXTREMES.--August 1955 to current year: Maximum discharge, 68,000 ft^3/s July 25, 1960; minimum, 8.6 ft^3/s Oct. 26, 1955, Sept. 19, Oct. 14, 1956.

REMARKS.--Records good. Some regulation at low flow by Lake Frances Dam, 0.8 mi above station. Since July 2, 1957, small diversion above station for municipal water supply for city of Siloam Springs, Arkansas.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	3,855	137	121	124	7,650
November	3,719	136	118	124	7,380
December	3,655	124	115	118	7,250
January	14,593	4,490	111	471	28,950
February	38,603	6,300	511	1,379	76,570
March	73,174	14,000	783	2,360	145,100
April	65,859	7,380	604	2,195	130,600
May	104,851	31,800	954	3,382	208,000
June	35,220	5,120	552	1,174	69,860
July	11,205	570	267	361	22,230
August	7,600	369	171	245	15,070
September	9,551	1,960	135	318	18,940
Water Year 1990	371,885	31,800	111	1,019	737,600

07195855 Flint Creek near West Siloam Springs, Oklahoma

LOCATION.--Lat 36°12'58", long 94°36'15", in NE¼, NE¼, sec.14, T.20 N., R.25 E., Delaware County, on left bank 180 ft downstream from county bridge, 2.5 mi from Arkansas-Oklahoma State line, northwest of Siloam Springs, Okla.

DRAINAGE AREA.--59.8 mi^2.

AVERAGE DISCHARGE.--11 years, 46.2 ft^3/s.

EXTREMES.--June 1979 to current year: Maximum discharge, 5,590 ft^3/s Dec. 21, 1984; minimum daily, 0.40 ft^3/s Aug. 7, 1980.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	517.1	20	8.5	16.7	1,030
November	409.5	19	9.8	13.6	812
December	408.8	16	9.8	13.2	811
January	1,045	169	14	33.7	2,070
February	1,704	140	31	60.9	3,380
March	5,131	1,100	53	166	10,180
April	2,620	226	47	87.3	5,200
May	7,767	2,370	97	251	15,410
June	2,843	216	55	94.8	5,640
July	1,042	53	21	33.6	2,070
August	511	23	9.4	16.5	1,010
September	432	61	9.3	14.4	857
Water Year 1990	24,430.4	2,370	8.5	66.9	48,460

07196900 Baron Fork at Dutch Mills, Arkansas

LOCATION.--Lat 35°52'48", long 94°29'11", on line between secs.21 and 22, T.14 N., R.33 W., Washington County, near right bank on downstream side of bridge on State Highway 59 at Dutch Mills, 2.2 mi downstream from Fly Creek, and 2.9 mi upstream from Arkansas-Oklahoma State line.

DRAINAGE AREA.--40.6 mi^2 .

AVERAGE DISCHARGE.--32 years, 42.5 ft^3/s.

EXTREMES.--April 1958 to current year: Maximum discharge, 20,900 ft^3/s Nov. 18, 1985; no flow at times.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	41.35	3.7	0.48	1.33	82
November	75.6	6.8	.5	2.52	150
December	110.4	5.7	2	3.56	219
January	939.03	437	.78	30.3	1,860
February	4,168	1,350	37	149	8,270
March	6,147	1,710	47	198	12,190
April	9,306	2,640	29	310	18,460
May	9,511	3,360	49	307	18,870
June	1,035.1	108	9.1	34.5	2,050
July	130.2	8.3	1.9	4.2	258
August	87	13	1.7	2.81	173
September	342.1	190	1.6	11.4	679
Water Year 1990	31,892.78	3,360	0.48	87.4	63,260

07245000 Canadian River near Whitefield, Oklahoma

LOCATION.--Lat 35°15'45", long 95°14'19", in SE¼ SE¼ sec.12, T.9 N., R.19 E., Haskell County, near right bank on downstream side 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 mi^2, of which 9,700 mi^2 is probably noncontributing.

AVERAGE DISCHARGE.--25 years (water years 1939-63), 6,005 ft^3/s; 23 years (water years 1968-90), 6,283 ft^3/s.

EXTREMES.--July 1938 to current year: Maximum discharge, 281,000 ft^3/s May 10, 1943; minimum daily, 0.4 ft^3/s Oct. 8, 1956.

REMARKS.--Records good. Prior to February 1964, occasional slight regulation by Conchas Lake in New Mexico and except for 54 mi^2 of intervening area, completely regulated thereafter by Eufaula Lake.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	110,598	13,600	74	3,568	219,400
November	31,280	3,430	60	1,043	62,040
December	13,433	1,680	65	433	26,640
January	160,432	12,800	73	5,175	318,200
February	253,010	13,000	3,600	9,036	501,800
March	803,610	42,400	450	25,920	1,594,000
April	1,139,300	84,100	14,500	37,980	2,260,000
May	2,014,100	226,000	14,200	64,970	3,995,000
June	335,770	29,100	1,910	11,190	666,000
July	91,305	5,990	90	2,945	181,100
August	112,391	6,020	971	3,626	222,900
September	88,008	8,500	120	2,934	174,600
Water Year 1990	5,153,237	226,000	60	14,120	10,220,000

07247000 Poteau River at Cauthron, Arkansas

LOCATION.--Lat 34°55'08", long 94°17'55", in NW¼ SW¼ sec.16, T.3 N., R.31 W., Scott County, on right bank at downstream side of highway bridge at Cauthron, 2.9 mi downstream from Cross Creek, 7.8 mi downstream from Jones Creek, and at mile 109.0.

DRAINAGE AREA.--203 mi^2.

AVERAGE DISCHARGE.--51 years, 224 ft^3/s.

EXTREMES.--February 1939 to current year: Maximum discharge, 32,200 ft^3/s May 20, 1960; no flow at times in most years.

REMARKS.--Records good. As of September 1974, flow from 92.2 mi^2 above this station is controlled by 16 floodwater-detention reservoirs with a total combined capacity of 39,082 acre-ft below the flood spillway crests, of which 33,524 acre-ft is flood-detention capacity, 2,100 acre-ft is water-supply storage, and 3,458 acre-ft is sediment-storage capacity.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	123.4	12	1	3.98	245
November	129.5	9.1	1.1	4.32	257
December	62.76	6.2	0.66	2.02	124
January	9,154.2	3,290	2.7	295	18,160
February	21,266	4,270	107	759	42,180
March	23,761	4,260	144	766	47,130
April	26,826	4,790	179	894	53,210
May	64,486	16,900	326	2,080	127,900
June	4,712.6	1,050	4.0	157	9,350
July	1,760.74	110	.61	56.8	3,490
August	2,577	130	67	83.1	5,110
September	1,051.27	310	.61	35	2,090
Water Year 1990	155,910.47	16,900	0.61	427	309,200

07249400 James Fork near Hackett, Arkansas

LOCATION.--Lat 35°9'45", long 94°4'25", in NW¼ NW¼ sec.34, T.6 N., R.32 W., Sebastian County, near left bank on 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 mi^2

AVERAGE DISCHARGE.--32 years, 140 ft^3/s.

EXTREMES.--April 1958 to current year: Maximum discharge, 30,000 ft^3/s May 14, 1968; no flow at times.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	92.30	8.4	0.75	2.98	183
November	71.10	3.4	.75	2.37	141
December	92.6	3.9	1.7	2.99	184
January	4,948.9	2,320	1.9	160	9,820
February	14,957	3,370	89	534	29,670
March	18,858	3,460	118	608	37,400
April	21,411	4,600	114	714	42,470
May	37,303	12,200	107	1,203	73,990
June	2,174	284	14	72.5	4,310
July	224.4	13	2.7	7.24	445
August	289.7	33	3.4	9.35	575
September	906.3	262	3.2	30.2	1,800
Water Year 1990	101,328.30	12,200	0.75	278	201,000

07250000 Lee Creek near Van Buren, Arkansas

LOCATION.--Lat 35°29'40", long 94°26'58", in SE¼ sec.21, T.12 N., R.27 E., Indian Meridian, Sequoyah County, Okla., on right bank 300 ft west of Arkansas-Oklahoma State line, 3.2 mi downstream from Webbers Creek, 6.8 mi northwest of Van Buren, and at mile 7.8.

DRAINAGE AREA.--426 mi^2.

AVERAGE DISCHARGE.--46 years (1930-36, 1950-90), 522 ft^3/s.

EXTREMES.--September 1930 to June 1937, October 1950 to current year: Maximum discharge, 80,600 ft^3/s May 6, 1960; no flow at times.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	96.0	7.3	1.2	3.1	190
November	90.6	5.4	1.1	3.02	180
December	115.9	5.0	3.2	3.74	230
January	11,773.1	3,940	3.5	380	23,350
February	49,259	11,300	522	1,759	97,710
March	70,843	12,200	655	2,285	140,500
April	79,759	15,800	430	2,659	158,200
May	90,885	31,000	466	2,932	180,300
June	8,857	1,390	46	295	17,570
July	363	39	3.2	11.7	720
August	156.6	14	1.1	5.05	311
September	18.5	1.2	0.4	.62	37
Water Year 1990	312,216.7	31,000	0.4	855	619,300

07250550 Arkansas River at James W. Trimble Lock and Dam near Van Buren, Arkansas

LOCATION.--Lat 35°20'56", long 94°17'54", in sec.28, T.8 N., R.31 W., Sebastian County, in Dam No. 13 control house on right bank, and at mile 308.9.

DRAINAGE AREA.--150,547 mi^2, of which 22,241 mi^2 is probably noncontributing.

AVERAGE DISCHARGE.--63 years, 32,820 ft^3/s.

EXTREMES.--October 1927 to current year: Maximum discharge, 850,000 ft^3/s May 12, 1943; no flow Nov. 2, 1975, Feb. 1, 1981, Oct. 17, 1987

REMARKS.--Records good. Prior to October 1969, published as 07250500 Arkansas River at Van Buren. Beginning Apr. 26, 1970, daily discharge computed from relation between discharge, head, and gate openings. Flow regulated by many locks, dams, and reservoirs upstream.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	546,436	38,200	46	17,630	1,084,000
November	332,792	30,000	93	11,090	660,100
December	129,718	12,100	0	4,184	257,300
January	711,310	78,000	1,540	22,950	1,411,000
February	1,412,900	87,800	30,500	50,460	2,802,000
March	4,294,200	198,000	75,800	138,500	8,518,000
April	4,518,900	191,000	98,700	150,600	8,963,000
May	5,813,000	397,000	128,000	187,500	11,530,000
June	2,602,500	144,000	39,800	86,750	5,162,000
July	552,083	40,600	653	17,810	1,095,000
August	301,156	21,000	300	9,715	597,300
September	289,586	36,900	282	9,653	574,400
Water Year 1990	21,504,581	397,000	0	58,920	42,650,000

07250550 ARKANSAS RIVER AT JAMES W. TRIMBLE LOCK AND DAM NEAR VAN BUREN, ARKANSAS
(National tritium station)
(National stream-quality accounting network station)

WATER QUALITY RECORDS

PERIOD OF RECORD.--Oct. 1969 to current water year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Oct. 1969 to Sept. 1981.
WATER TEMPERATURES: Oct. 1969 to Sept. 1972, Mar. 1974 to Sept. 1981.
SUSPENDED SEDIMENT DISCHARGE: Oct. 1970 to Sept. 1981.

INSTRUMENTATION.--Water-quality monitor Dec. 1969 to Sept. 1981.

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

[Five-digit numbers in parentheses are STORET parameter codes used for computer storage of data; ft^3/s = cubic feet per second; US/CM = microsiemens per centimeter at 25 degrees Celsius; FTU = nephelometric units; MG/L = milligrams per liter; MM = millimeters; UM-MF = micrometer membrane filter; AC-FT = acre-feet, UG/L = micrograms per liter; T/DAY = tons per day]

DATE	TIME	AGENCY COLLECTING SAMPLE (CODE NUMBER) (00027)	AGENCY ANALYZING SAMPLE (CODE NUMBER) (00028)	DISCHARGE, INST. (FT^3/S) (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	SPECIFIC CONDUCTANCE LAB (US/CM) (90095)	PH (STANDARD UNITS) (00400)	PH LAB (STANDARD UNITS) (00403)	TEMPERATURE WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT 1989												
31...	1230	80513	80020	28,400	822	794	8.2	8.0	17.0	7.9	9.4	98
JAN 1990												
17...	0850	80513	80020	21,900	870	833	8.4	8.0	6.0	3.2	13.0	106
MAR 1990												
27...	0830	80513	80020	154,000	480	443	8.0	7.9	10.0	36	12.8	114
JUN 1990												
06...	0745	80513	80020	136,000	290	290	7.5	7.9	23.0	50	9.1	108
AUG 1990												
13...	1200	80513	80020	10,500	575	586	7.8	8.0	27.5	5.5	7.2	92
SEP 1990												
05...	0845	80513	80020	8,570	775	750	8.1	8.0	30.0	4.0	7.9	106

DATE	BAROMETRIC PRESSURE (MM OF HG) (00025)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY WAT DIS TOT FET FIELD MG/L AS CACO3 (00418)
OCT 1989											
31...	757	500	460	160	45	11	94	56	3	4.3	109
JAN 1990											
17...	752	60	800	160	47	11	98	56	3	3.4	114
MAR 1990											
27...	762	100	150	130	38	9.0	39	38	1	3.6	92
JUN 1990											
06...	749	K28	K580	100	32	5.8	16	25	0.7	2.5	86
AUG 1990											
13...	757	150	190	130	39	9.1	58	48	2	3.0	107
SEP 1990											
05...	757	4	28	150	43	11	83	53	3	3.8	115

07250550 ARKANSAS RIVER AT DAM NO. 13, NEAR VAN BUREN, ARKANSAS--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	CARBONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICARBONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKALINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	ALKALINITY LAB (MG/L AS CACO3) (90410)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)
OCT 1989											
31...	0	134	110	109	150	58	0.20	5.4	425	436	0.58
JAN 1990											
17...	2	134	114	116	140	62	.30	3.6	460	433	.63
MAR 1990											
27...	0	112	92	98	56	42	.20	6.0	273	252	.37
JUN 1990											
06...	0	107	88	82	20	27	< .10	7.1	169	166	.23
AUG 1990											
13...	0	132	108	104	90	45	.50	4.1	302	314	.41
SEP 1990											
05...	0	146	120	119	130	57	.10	3.3	401	404	.55

DATE	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NITRITE DISSOLVED (MG/L AS N) (00613)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)
OCT 1989											
31...	32,600	<0.010	0.320	0.090	0.080	0.41	0.50	0.110	0.080	0.080	<10
JAN 1990											
17...	27,200	< .010	< .100	.040	.040	.66	.70	.080	.020	.020	--
MAR 1990											
27...	114,000	.020	.500	.150	.060	.95	1.1	.110	.040	.040	50
JUN 1990											
06...	62,100	< .010	.600	.080	< .010	.72	.80	.100	.040	.040	60
AUG 1990											
13...	8,560	< .010	< .100	.070	.090	.63	.70	.070	.050	.040	--
SEP 1990											
05...	9,280	< .010	< .100	.060	.060	.54	.60	.090	.070	.050	20

DATE	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
OCT 1989											
31...	2	93	<0.5	<1.0	<1	<3	1	11	<1	7	2
JAN 1990											
17...	--	--	--	--	--	--	--	--	--	--	--
MAR 1990											
27...	1	76	< .5	<1.0	<5	<3	10	46	<10	4	4
JUN 1990											
06...	1	58	< .5	1.0	<1	<3	9	72	1	<4	3
AUG 1990											
13...	--	--	--	--	--	--	--	--	--	--	--
SEP 1990											
05...	2	90	< .5	<1.0	2	<3	3	6	<1	8	1

07250550 ARKANSAS RIVER AT DAM NO. 13, NEAR VAN BUREN, ARKANSAS--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN 0.062 MM (70331)
OCT 1989											
31...	0.1	<10	1	<1	<1.0	370	<6	6	16	1,230	62
JAN 1990											
17...	--	--	--	--	--	--	--	--	8	473	96
MAR 1990											
27...	< .1	<10	<10	<1	<1.0	280	<6	18	86	35,800	64
JUN 1990											
06...	< .1	<10	1	<1	<1.0	180	<6	9	70	25,700	76
AUG 1990											
13...	--	--	--	--	--	--	--	--	16	454	74
SEP 1990											
05...	< .1	<10	1	<1	<1.0	360	<6	4	9	208	65