# Statistical Summaries of Streamflow by Station

ARKANSAS RIVER BASIN

### 07146500 ARKANSAS RIVER AT ARKANSAS CITY, KANS.

LOCATION. – Lat 37°03′23″, long 97°03′28″, referenced to North American Datum of 1927, in NE ¼ NE ¼ NE ¼ sec. 35, T.34 S., R.3 E., Cowley County, Kans., Hydrologic Unit 11030013, on left bank at downstream side of bridge on U.S. Highway 166, 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 current year. Published as "near Arkansas City" 1903-04. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.–Flow slightly regulated since 1943 by John Martin Reservoir (station 07130000), and since 1964 by Cheney Reservoir (station 07144790). Diversions upstream from station for irrigation.

#### UNREGULATED STREAMFLOW PERIOD

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1903-1942**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 5,470 | 19.6 | 956 | 392 | 5.9 |
| Nov. | 2,686 | 8.27 | 795 | 642 | 4.9 |
| Dec. | 1,640 | 18.2 | 565 | 440 | 3.5 |
| Jan. | 1,594 | 84.1 | 512 | 459 | 3.2 |
| Feb. | 1,845 | 41.6 | 634 | 521 | 3.9 |
| Mar. | 2,326 | 36.9 | 821 | 630 | 5.1 |
| Apr. | 5,279 | 118 | 1,381 | 787 | 8.5 |
| May | 8,272 | 448 | 2,416 | 1,524 | 14.9 |
| Jun. | 16,040 | 279 | 3,781 | 2,469 | 23.3 |
| Jul. | 11,030 | 112 | 2,042 | 1,244 | 12.6 |
| Aug. | 9,126 | 65.4 | 1,333 | 861 | 8.2 |
| Sep. | 3,262 | 153 | 961 | 658 | 5.9 |
| Annual | 3,672 | 366 | 1,351 | 1,202 | – |

**Magnitude and probability of annual instantaneous peak flow based on 25 years of record, 1903-1942**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and ex ceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 14,900 | 31,000 | 44,600 | 65,000 | 82,200 | 101,000 | 152,000 |

Water Resources Council weighted skew = -0.210

**Duration table of daily mean flow for period of record, 1903-1942**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14,000 | 9,680 | 5,260 | 2,890 | 1,980 | 1,490 | 1,060 | 757 | 586 | 462 | 363 | 279 | 180 | 112 | 41.4 | 18.2 |

**Magnitude and probability of annual low flow based on period of record, 1904-1942**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 116 | 47.6 | 28.4 | 18.0 |
| 3 | 125 | 51.7 | 30.7 | 19.4 |
| 7 | 137 | 61.5 | 38.9 | 26.1 |
| 10 | 144 | 67.8 | 44.4 | 30.7 |
| 30 | 193 | 103 | 73.1 | 54.8 |
| 60 | 292 | 150 | 101 | 70.5 |

**Magnitude and probability of annual low flow based on period of record, 1903-1942**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 489 | 202 | 106 | 55.9 |
| 3 | 505 | 210 | 111 | 59.0 |
| 7 | 514 | 229 | 134 | 81.4 |
| 10 | 539 | 256 | 161 | 106 |
| 30 | 717 | 353 | 250 | 190 |
| 60 | 1,380 | 748 | 554 | 437 |

**Magnitude and probability of annual low flow based on period of record, 1903-1941**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 157 | 75.0 | 52.9 | 40.5 |
| 3 | 164 | 79.6 | 56.8 | 43.9 |
| 7 | 174 | 87.8 | 64.6 | 51.4 |
| 10 | 178 | 92.1 | 68.8 | 55.5 |
| 30 | 228 | 128 | 100 | 83.7 |
| 60 | 345 | 182 | 135 | 107 |

**Magnitude and probability of annual low flow based on period of record, 1903-1942**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 245 | 81.3 | 36.1 | 16.2 |
| 3 | 259 | 87.7 | 40.0 | 18.5 |
| 7 | 279 | 94.6 | 43.4 | 20.2 |
| 10 | 294 | 101 | 46.6 | 21.9 |
| 30 | 384 | 143 | 69.3 | 33.8 |
| 60 | 438 | 171 | 87.4 | 45.4 |

ARKANSAS RIVER BASIN

**07146500 ARKANSAS RIVER AT ARKANSAS CITY, KANS.—Continued**

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1943-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of annual runoff |
|---|---|---|---|---|---|
| Oct. | 18,890 | 64.9 | 1,927 | 1,239 | 7.4 |
| Nov. | 11,550 | 129 | 1,605 | 982 | 6.2 |
| Dec. | 3,908 | 146 | 1,109 | 919 | 4.3 |
| Jan. | 3,673 | 127 | 1,039 | 870 | 4.0 |
| Feb. | 9,658 | 231 | 1,472 | 1,112 | 5.7 |
| Mar. | 14,600 | 377 | 2,544 | 1,519 | 9.8 |
| Apr. | 14,780 | 371 | 2,755 | 1,600 | 10.6 |
| May | 16,890 | 334 | 3,324 | 2,249 | 12.8 |
| Jun. | 13,760 | 248 | 3,751 | 3,000 | 14.5 |
| Jul. | 17,190 | 190 | 2,933 | 1,512 | 11.3 |
| Aug. | 13,320 | 66.5 | 1,756 | 1,049 | 6.8 |
| Sep. | 7,870 | 32.4 | 1,726 | 1,017 | 6.6 |
| Annual | 5,830 | 463 | 2,164 | 1,912 | – |

**Magnitude and probability of annual instantaneous peak flow based on 65 years of record, 1943-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 23,800 | 44,500 | 60,300 | 82,200 | 99,500 | 118,000 | 162,000 |

station skew = -0.299

**Duration table of daily mean flow for period of record, 1943-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20,200 | 14,200 | 7,910 | 4,600 | 3,280 | 2,550 | 1,760 | 1,340 | 1,050 | 828 | 635 | 484 | 351 | 265 | 172 | 112 |

**Magnitude and probability of annual low flow based on period of record, 1944-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 315 | 165 | 108 | 73.4 |
| 3 | 336 | 175 | 114 | 76.8 |
| 7 | 364 | 187 | 121 | 80.4 |
| 10 | 378 | 194 | 126 | 84.2 |
| 30 | 459 | 237 | 156 | 106 |
| 60 | 594 | 307 | 201 | 134 |

**Magnitude and probability of annual low flow based on period of record, 1943-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 790 | 461 | 344 | 269 |
| 3 | 809 | 472 | 354 | 277 |
| 7 | 855 | 497 | 373 | 294 |
| 10 | 902 | 519 | 388 | 304 |
| 30 | 1,280 | 679 | 494 | 382 |
| 60 | 2,130 | 1,050 | 733 | 545 |

**Magnitude and probability of annual low flow based on period of record, 1943-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 360 | 174 | 111 | 74.3 |
| 3 | 369 | 178 | 115 | 76.8 |
| 7 | 393 | 189 | 121 | 80.4 |
| 10 | 409 | 197 | 126 | 84.2 |
| 30 | 514 | 241 | 156 | 106 |
| 60 | 733 | 320 | 201 | 134 |

**Magnitude and probability of annual low flow based on period of record, 1943-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 427 | 254 | 190 | 147 |
| 3 | 473 | 287 | 216 | 168 |
| 7 | 536 | 323 | 240 | 184 |
| 10 | 560 | 339 | 252 | 195 |
| 30 | 674 | 404 | 300 | 232 |
| 60 | 761 | 448 | 334 | 259 |

ARKANSAS RIVER BASIN

### 07148140 ARKANSAS RIVER NEAR PONCA CITY, OKLA.

LOCATION. – Lat 36°41′36″, long 96°55′48″, referenced to North American Datum of 1927, in NW ¼ NE ¼ sec. 36, T.26 N., R.3 E., Kay County, Okla., Hydrologic Unit 11060001, 3,000 ft downstream from Kaw Lake, 8.0 mi east of Ponca City, and at mile 653.1.

DRAINAGE AREA. – 46,530 mi², of which 7,607 mi² is probably noncontributing.

PERIOD OF RECORD.– April 1976 to September 1993.

REMARKS.– Flow completely regulated by Kaw Lake.

#### REGULATED STREAMFLOW PERIOD

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1977-1993**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 18,950 | 43.6 | 2,533 | 342 | 6.6 |
| Nov. | 8,092 | 131 | 2,297 | 1,101 | 6.0 |
| Dec. | 5,417 | 205 | 1,538 | 969 | 4.0 |
| Jan. | 6,358 | 400 | 1,941 | 1,565 | 5.1 |
| Feb. | 8,927 | 301 | 1,999 | 1,622 | 5.2 |
| Mar. | 15,310 | 185 | 3,931 | 2,901 | 10.3 |
| Apr. | 16,510 | 157 | 5,060 | 3,742 | 13.3 |
| May | 23,370 | 722 | 4,494 | 3,388 | 11.8 |
| Jun. | 16,180 | 933 | 5,781 | 4,866 | 15.2 |
| Jul. | 14,530 | 425 | 4,221 | 3,004 | 11.1 |
| Aug. | 8,151 | 222 | 2,097 | 1,354 | 5.5 |
| Sep. | 12,340 | 169 | 2,198 | 806 | 5.8 |
| Annual | 8,491 | 648 | 3,176 | 2,751 | – |

**Magnitude and probability of annual instantaneous peak flow based on 17 years of record, 1977-1993**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 17,600 | 28,300 | 36,600 | 48,400 | 58,300 | 69,000 | 97,700 |

station skew = 0.164

**Duration table of daily mean flow for period of record, 1976-1993**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22,100 | 18,500 | 12,700 | 8,490 | 6,180 | 5,020 | 3,310 | 2,200 | 1,420 | 881 | 558 | 333 | 181 | 141 | 122 | 49.9 |

**Magnitude and probability of annual low flow based on period of record, 1978-1993**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 89.7 | 22.9 | 0.00 | 0.00 |
| 3 | 158 | 55.3 | 23.5 | 0.00 |
| 7 | 184 | 66.2 | 28.9 | 0.00 |
| 10 | 188 | 68.0 | 30.3 | 0.00 |
| 30 | 265 | 117 | 74.3 | 50.5 |
| 60 | 432 | 183 | 112 | 72.3 |

**Magnitude and probability of annual low flow based on period of record, 1977-1993 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 392 | 90.2 | 31.6 | 0.00 |
| 3 | 807 | 306 | 177 | 110 |
| 7 | 1,020 | 439 | 272 | 179 |
| 10 | 1,160 | 491 | 299 | 193 |
| 30 | 1,860 | 736 | 415 | 246 |
| 60 | 3,510 | 1,550 | 979 | 658 |

**Magnitude and probability of annual low flow based on period of record, 1977-1992 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 128 | 53.7 | 31.6 | 0.00 |
| 3 | 153 | 71.4 | 46.2 | 0.00 |
| 7 | 202 | 85.3 | 48.4 | 0.00 |
| 10 | 209 | 85.8 | 47.6 | 0.00 |
| 30 | 358 | 150 | 95.1 | 65.5 |
| 60 | 580 | 251 | 171 | 128 |

**Magnitude and probability of annual low flow based on period of record, 1977-1993 winter season, November 1 through March 31**

| Period consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 199 | 84.0 | 47.2 | 27.4 |
| 3 | 253 | 101 | 55.6 | 32.0 |
| 7 | 279 | 102 | 57.4 | 34.8 |
| 10 | 308 | 111 | 61.8 | 37.0 |
| 30 | 441 | 194 | 132 | 97.9 |
| 60 | 683 | 322 | 224 | 169 |

ARKANSAS RIVER BASIN

### 07148350 SALT FORK ARKANSAS RIVER NEAR WINCHESTER, OKLA.

LOCATION. – Lat 36°57′42″, long 98°46′55″, referenced to North American Datum of 1927, in NE ¼ SE ¼ sec. 26, T.29 N., R.15 W., Woods County, Okla., Hydrologic Unit 11060002, near left bank on downstream side of pier of county road bridge, 1.0 mi northeast of Winchester, 2.5 mi upstream from Greenleaf Creek (formerly Greenwood Creek), 4.9 mi downstream from Yellowstone Creek, 5.0 mi downstream from State line, 19.0 mi northwest of Alva, and at mile 156.2.

DRAINAGE AREA. – 856 mi².

PERIOD OF RECORD.– October 1959 to September 1993. Monthly discharge only for some periods, published in WSP 1731.

#### UNREGULATED STREAMFLOW PERIOD

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1960-1993**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 569 | 0.04 | 87.7 | 18.5 | 7.6 |
| Nov. | 165 | 0.06 | 48.1 | 34.2 | 4.2 |
| Dec. | 110 | 0.05 | 42.3 | 40.2 | 3.7 |
| Jan. | 98.7 | 1.50 | 45.7 | 44.0 | 4.0 |
| Feb. | 208 | 11.3 | 61.5 | 48.8 | 5.4 |
| Mar. | 1,171 | 10.2 | 130 | 67.1 | 11.3 |
| Apr. | 818 | 11.5 | 128 | 78.4 | 11.1 |
| May | 588 | 3.91 | 168 | 114 | 14.6 |
| Jun. | 1,026 | 1.71 | 203 | 112 | 17.6 |
| Jul. | 507 | 0.00 | 85.9 | 34.2 | 7.5 |
| Aug. | 560 | 0.05 | 76.2 | 19.9 | 6.6 |
| Sep. | 547 | 0.02 | 74.9 | 19.4 | 6.5 |
| Annual | 244 | 12.9 | 96.0 | 81.5 | – |

**Magnitude and probability of annual instantaneous peak flow based on 37 historic years of record, 1957-1993**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 6,640 | 16,100 | 25,200 | 40,400 | 54,600 | 71,200 | 121,000 |

Oklahoma weighted skew = -0.118

**Duration table of daily mean flow for period of record, 1960-1993**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,140 | 682 | 297 | 170 | 117 | 95.7 | 65.6 | 46.9 | 34.7 | 23.8 | 13.1 | 3.00 | 0.35 | 0.09 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1961-1993**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, andnonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.07 | 0.00 | 0.00 | 0.00 |
| 3 | 0.08 | 0.00 | 0.00 | 0.00 |
| 7 | 0.14 | 0.00 | 0.00 | 0.00 |
| 10 | 0.22 | 0.00 | 0.00 | 0.00 |
| 30 | 1.05 | 0.07 | 0.01 | 0.00 |
| 60 | 3.25 | 0.46 | 0.15 | 0.06 |

**Magnitude and probability of annual low flow based on period of record, 1960-1993**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 15.2 | 2.66 | 0.84 | 0.28 |
| 3 | 16.1 | 3.13 | 1.09 | 0.41 |
| 7 | 20.0 | 4.64 | 1.80 | 0.74 |
| 10 | 23.8 | 6.12 | 2.50 | 1.07 |
| 30 | 48.7 | 15.8 | 8.00 | 4.33 |
| 60 | 108 | 42.2 | 24.2 | 14.7 |

**Magnitude and probability of annual low flow based on period of record, 1960-1992**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.07 | 0.00 | 0.00 | 0.00 |
| 3 | 0.08 | 0.00 | 0.00 | 0.00 |
| 7 | 0.14 | 0.00 | 0.00 | 0.00 |
| 10 | 0.22 | 0.00 | 0.00 | 0.00 |
| 30 | 1.15 | 0.07 | 0.01 | 0.00 |
| 60 | 5.55 | 0.78 | 0.25 | 0.09 |

**Magnitude and probability of annual low flow based on period of record, 1960-1993**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 5.26 | 0.62 | 0.14 | 0.02 |
| 3 | 6.53 | 0.78 | 0.18 | 0.03 |
| 7 | 8.02 | 0.84 | 0.19 | 0.05 |
| 10 | 8.97 | 1.09 | 0.28 | 0.08 |
| 30 | 19.9 | 3.17 | 0.87 | 0.25 |
| 60 | 34.1 | 8.66 | 2.91 | 0.95 |

ARKANSAS RIVER BASIN

### 07148400 SALT FORK ARKANSAS RIVER NEAR ALVA, OKLA.

LOCATION. – Lat 36°48′54″, long 98°38′52″, referenced to North American Datum of 1927, in SW ¼ SW ¼ sec. 18, T.27 N., R.13 W., Woods County, Okla., Hydrologic Unit 11060002, at bridge on U.S. Highway 281, 1.0 mi northeast of Alva, 23.0 mi upstream from Medicine Lodge River, and at mile 141.0.

DRAINAGE AREA. – 1,009 mi².

PERIOD OF RECORD.– October 1937 to September 1951, October 1979 to current year. Monthly discharge only for some periods, published in WSP 1311.

#### UNREGULATED STREAMFLOW PERIOD

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1938-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 1,218 | 0.00 | 122 | 25.0 | 7.2 |
| Nov. | 542 | 0.00 | 80.4 | 40.0 | 4.7 |
| Dec. | 251 | 0.00 | 59.5 | 45.4 | 3.5 |
| Jan. | 269 | 0.00 | 68.4 | 56.2 | 4.0 |
| Feb. | 327 | 0.00 | 89.1 | 63.1 | 5.2 |
| Mar. | 822 | 0.29 | 157 | 78.3 | 9.3 |
| Apr. | 752 | 1.80 | 209 | 145 | 12.3 |
| May | 1,787 | 9.96 | 310 | 198 | 18.3 |
| Jun. | 1,420 | 31.3 | 272 | 191 | 16.1 |
| Jul. | 423 | 4.88 | 129 | 66.2 | 7.6 |
| Aug. | 898 | 2.48 | 109 | 40.1 | 6.4 |
| Sep. | 801 | 0.00 | 89.2 | 24.6 | 5.3 |
| Annual | 433 | 27.6 | 138 | 124 | – |

**Magnitude and probability of annual instantaneous peak flow based on 42 years of record, 1938-2007**

| Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent | | | | | | |
|---|---|---|---|---|---|---|
| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 6,520 | 13,300 | 18,800 | 26,700 | 33,100 | 40,000 | 57,600 |

Oklahoma weighted skew = -0.306

**Duration table of daily mean flow for period of record, 1938-2007**

| Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
| 1,710 | 1,000 | 478 | 277 | 198 | 151 | 102 | 72.6 | 51.2 | 36.5 | 25.2 | 11.9 | 2.58 | 0.70 | 0.02 | 0.01 |

**Magnitude and probability of annual low flow based on period of record, 1939-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.33 | 0.19 | 0.00 | 0.00 |
| 3 | 1.55 | 0.32 | 0.00 | 0.00 |
| 7 | 2.03 | 0.37 | 0.00 | 0.00 |
| 10 | 2.38 | 0.40 | 0.00 | 0.00 |
| 30 | 5.28 | 1.03 | 0.00 | 0.00 |
| 60 | 15.5 | 2.79 | 0.72 | 0.15 |

**Magnitude and probability of annual low flow based on period of record, 1938-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 32.6 | 9.04 | 3.80 | 1.50 |
| 3 | 34.3 | 9.95 | 4.33 | 1.79 |
| 7 | 38.8 | 12.3 | 5.76 | 2.61 |
| 10 | 43.5 | 15.8 | 8.43 | 4.47 |
| 30 | 100 | 35.6 | 18.1 | 9.68 |
| 60 | 179 | 78.0 | 49.4 | 33.6 |

**Magnitude and probability of annual low flow based on period of record, 1938-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, andnonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.33 | 0.19 | 0.00 | 0.00 |
| 3 | 1.55 | 0.32 | 0.00 | 0.00 |
| 7 | 2.14 | 0.37 | 0.00 | 0.00 |
| 10 | 2.49 | 0.40 | 0.00 | 0.00 |
| 30 | 5.41 | 1.11 | 0.29 | 0.00 |
| 60 | 18.6 | 4.41 | 1.72 | 0.64 |

**Magnitude and probability of annual low flow based on period of record, 1938-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 13.2 | 2.78 | 0.11 | 0.00 |
| 3 | 14.8 | 3.08 | 0.11 | 0.00 |
| 7 | 17.3 | 3.61 | 0.14 | 0.00 |
| 10 | 19.4 | 3.63 | 0.66 | 0.00 |
| 30 | 36.5 | 7.52 | 1.75 | 0.01 |
| 60 | 42.6 | 16.3 | 8.13 | 3.75 |

ARKANSAS RIVER BASIN

### 07149000 MEDICINE LODGE RIVER NEAR KIOWA, KANS.

LOCATION. – Lat 37°02′20″, long 98°28′14″, referenced to North American Datum of 1927, in SE 1/4 SW 1/4 sec. 36, T.34 S., R.11 W., Barber County, Kans., Hydrologic Unit 11060003, on right bank at downstream side of bridge on Kansas Highway 14, 200 ft downstream from the Atchison, Topeka and Santa Fe Railway Co. bridge, 1.5 mi northeast of Kiowa, and at mile 22.2.

DRAINAGE AREA. – 903 mi².

PERIOD OF RECORD.–May 1895 to October 1896, October 1937 to September 1950, October 1954 to September 1955, June 1959 to current year. Published as "Medicine River near Kiowa" 1895 to 1896. All figures of discharge above 2,000 ft3/s for June and July 1896, published in Eighteenth Annual Report of the Geological Survey (Part 4), have been found to be unreliable and should not be used.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1938-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 1,083 | 0.00 | 140 | 59.7 | 7.6 |
| Nov. | 627 | 0.00 | 116 | 92.1 | 6.4 |
| Dec. | 334 | 2.45 | 103 | 92.8 | 5.6 |
| Jan. | 322 | 0.00 | 107 | 96.1 | 5.8 |
| Feb. | 913 | 31.0 | 134 | 108 | 7.3 |
| Mar. | 932 | 42.5 | 186 | 124 | 10.1 |
| Apr. | 1,032 | 38.6 | 225 | 143 | 12.2 |
| May | 1,549 | 26.5 | 264 | 182 | 14.4 |
| Jun. | 1,226 | 26.3 | 240 | 186 | 13.1 |
| Jul. | 588 | 0.88 | 113 | 52.6 | 6.2 |
| Aug. | 970 | 0.00 | 103 | 47.5 | 5.6 |
| Sep. | 887 | 0.00 | 104 | 44.5 | 5.6 |
| Annual | 494 | 36.5 | 151 | 130 | – |

**Magnitude and probability of annual instantaneous peak flow based on 70 historic years of record, 1922-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 3,050 | 5,440 | 7,480 | 10,600 | 13,400 | 16,600 | 25,900 |

Oklahoma weighted skew = 0.228

**Duration table of daily mean flow for period of record, 1938-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,570 | 946 | 450 | 277 | 204 | 172 | 126 | 105 | 88.1 | 71.7 | 56.1 | 35.7 | 14.1 | 1.66 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1939-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.91 | 0.00 | 0.00 | 0.00 |
| 3 | 2.32 | 0.00 | 0.00 | 0.00 |
| 7 | 3.20 | 0.00 | 0.00 | 0.00 |
| 10 | 4.13 | 0.00 | 0.00 | 0.00 |
| 30 | 10.1 | 1.17 | 0.08 | 0.00 |
| 60 | 25.1 | 7.63 | 3.54 | 1.27 |

**Magnitude and probability of annual low flow based on period of record, 1938-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 63.2 | 30.6 | 19.6 | 13.1 |
| 3 | 65.2 | 33.0 | 22.0 | 15.3 |
| 7 | 70.0 | 37.5 | 26.3 | 19.4 |
| 10 | 76.3 | 41.6 | 29.6 | 22.1 |
| 30 | 116 | 64.5 | 47.3 | 36.6 |
| 60 | 180 | 96.2 | 69.8 | 53.8 |

**Magnitude and probability of annual low flow based on period of record, 1938-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.91 | 0.00 | 0.00 | 0.00 |
| 3 | 2.32 | 0.00 | 0.00 | 0.00 |
| 7 | 3.20 | 0.00 | 0.00 | 0.00 |
| 10 | 4.13 | 0.00 | 0.00 | 0.00 |
| 30 | 10.3 | 1.19 | 0.09 | 0.00 |
| 60 | 25.2 | 7.63 | 3.54 | 1.37 |

**Magnitude and probability of annual low flow based on period of record, 1938-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 49.8 | 23.2 | 12.7 | 5.56 |
| 3 | 53.4 | 26.6 | 15.9 | 8.08 |
| 7 | 61.7 | 31.9 | 19.3 | 9.83 |
| 10 | 63.6 | 34.2 | 21.7 | 11.9 |
| 30 | 73.8 | 50.4 | 40.4 | 31.4 |
| 60 | 90.0 | 79.5 | 77.0 | 67.0 |

ARKANSAS RIVER BASIN

### 07149500 SALT FORK ARKANSAS RIVER NEAR CHEROKEE, OKLA.

LOCATION. – Lat 36°49′06″, long 98°19′08″, referenced to North American Datum of 1927, in SW ¼ NW ¼ sec. 18, T.27 N., R.10W., Alfalfa County, Okla., Hydrologic Unit 11060004, 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.

#### UNREGULATED STREAMFLOW PERIOD

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1941-1950**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 2,678 | 0.00 | 465 | 117 | 9.8 |
| Nov. | 642 | 6.00 | 187 | 130 | 4.0 |
| Dec. | 247 | 49.9 | 149 | 167 | 3.2 |
| Jan. | 550 | 43.9 | 173 | 133 | 3.7 |
| Feb. | 1,996 | 70.9 | 346 | 147 | 7.3 |
| Mar. | 777 | 99.9 | 304 | 186 | 6.4 |
| Apr. | 1,592 | 118 | 690 | 317 | 14.6 |
| May | 3,904 | 47.1 | 846 | 436 | 17.9 |
| Jun. | 2,770 | 83.0 | 603 | 429 | 12.8 |
| Jul. | 774 | 2.08 | 276 | 178 | 5.8 |
| Aug. | 1,855 | 0.13 | 342 | 120 | 7.2 |
| Sep. | 1,992 | 0.05 | 346 | 94.5 | 7.3 |
| Annual | 1,121 | 155 | 394 | 325 | – |

**Magnitude and probability of annual instantaneous peak flow based on 10 years of record, 1941-1950**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 13,600 | 23,700 | 31,700 | 43,000 | 52,300 | 62,400 | 88,900 |

Oklahoma weighted skew = -0.049

**Duration table of daily mean flow for period of record, 1941-1950**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,910 | 3,450 | 1,600 | 733 | 451 | 322 | 218 | 162 | 126 | 95.0 | 63.9 | 31.7 | 2.37 | 0.03 | 0.01 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1942-1950**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 3.83 | 0.00 | 0.00 | 0.00 |
| 60 | 21.3 | 1.44 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1941-1950 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 78.6 | 35.7 | 20.4 | 11.8 |
| 3 | 81.1 | 38.2 | 22.9 | 14.0 |
| 7 | 85.8 | 46.9 | 32.5 | 23.4 |
| 10 | 106 | 53.3 | 36.2 | 26.0 |
| 30 | 247 | 109 | 68.4 | 45.7 |
| 60 | 507 | 198 | 119 | 77.0 |

**Magnitude and probability of annual low flow based on period of record, 1941-1949 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 3.90 | 0.00 | 0.00 | 0.00 |
| 60 | 21.3 | 1.44 | 0.27 | 0.06 |

**Magnitude and probability of annual low flow based on period of record, 1941-1950 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 38.0 | 16.4 | 0.00 | 0.00 |
| 3 | 41.5 | 16.9 | 0.00 | 0.00 |
| 7 | 50.5 | 20.4 | 0.00 | 0.00 |
| 10 | 53.3 | 21.1 | 0.00 | 0.00 |
| 30 | 76.7 | 29.0 | 15.0 | 7.96 |
| 60 | 103 | 56.9 | 39.8 | 28.8 |

ARKANSAS RIVER BASIN

### 07150500 SALT FORK ARKANSAS RIVER NEAR JET, OKLA.

LOCATION. – Lat 36°45′09″, long 98°07′43″, referenced to North American Datum of 1927, in NE ¼ NE ¼ sec. 11, T.26 N., R.9 W., Alfalfa County, Okla., Hydrologic Unit 11060004, near center of span on downstream side of county road bridge, 0.6 mi downstream from Great Salt Plains Dam, 4.0 mi upstream fromv Wagon Creek, 6.0 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 September 1993.

REMARKS.– Flow regulated since June 1941 by Great Salt Plains Lake (station 07150000).

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1942-1993**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 2,945 | 3.10 | 354 | 51.7 | 7.2 |
| Nov. | 1,465 | 0.41 | 256 | 118 | 5.2 |
| Dec. | 677 | 1.20 | 171 | 136 | 3.5 |
| Jan. | 596 | 0.94 | 178 | 158 | 3.6 |
| Feb. | 2,498 | 0.78 | 271 | 157 | 5.5 |
| Mar. | 2,721 | 0.38 | 427 | 213 | 8.7 |
| Apr. | 4,714 | 1.52 | 594 | 305 | 12.2 |
| May | 5,724 | 5.24 | 864 | 537 | 17.7 |
| Jun. | 4,333 | 3.72 | 806 | 445 | 16.5 |
| Jul. | 4,479 | 5.66 | 468 | 175 | 9.6 |
| Aug. | 2,286 | 5.57 | 242 | 73.2 | 5.0 |
| Sep. | 2,176 | 2.91 | 255 | 122 | 5.2 |
| Annual | 1,429 | 36.8 | 408 | 354 | – |

**Magnitude and probability of annual instantaneous peak flow based on 52 years of record, 1942-1993**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 3,320 | 6,070 | 8,050 | 10,600 | 12,500 | 14,400 | 18,800 |

station skew = -0.474

**Duration table of daily mean flow for period of record, 1942-1993**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,730 | 3,320 | 1,760 | 987 | 662 | 486 | 317 | 218 | 146 | 89.0 | 39.1 | 15.7 | 5.27 | 2.62 | 1.21 | 0.86 |

**Magnitude and probability of annual low flow based on period of record, 1943-1993**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 3.18 | 0.64 | 0.21 | 0.00 |
| 3 | 4.20 | 0.97 | 0.40 | 0.17 |
| 7 | 5.06 | 1.33 | 0.65 | 0.35 |
| 10 | 5.45 | 1.51 | 0.77 | 0.44 |
| 30 | 10.1 | 2.82 | 1.45 | 0.84 |
| 60 | 23.8 | 5.49 | 2.41 | 1.18 |

**Magnitude and probability of annual low flow based on period of record, 1942-1993**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 54.3 | 9.57 | 2.94 | 0.86 |
| 3 | 62.2 | 12.8 | 4.83 | 1.99 |
| 7 | 77.0 | 18.4 | 7.73 | 3.53 |
| 10 | 90.1 | 21.8 | 9.04 | 4.06 |
| 30 | 227 | 58.4 | 24.4 | 10.8 |
| 60 | 456 | 137 | 65.9 | 34.0 |

**Magnitude and probability of annual low flow based on period of record, 1942-1992**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 4.77 | 1.70 | 1.02 | 0.68 |
| 3 | 5.83 | 2.23 | 1.41 | 0.99 |
| 7 | 7.01 | 2.85 | 1.88 | 1.37 |
| 10 | 7.83 | 3.41 | 2.37 | 1.81 |
| 30 | 14.4 | 6.17 | 4.26 | 3.25 |
| 60 | 41.1 | 13.1 | 7.26 | 4.46 |

**Magnitude and probability of annual low flow based on period of record, 1942-1993**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 13.6 | 1.36 | 0.28 | 0.03 |
| 3 | 16.5 | 1.95 | 0.50 | 0.13 |
| 7 | 20.8 | 2.83 | 0.88 | 0.31 |
| 10 | 23.2 | 3.28 | 1.05 | 0.38 |
| 30 | 48.6 | 7.87 | 2.54 | 0.91 |
| 60 | 80.3 | 14.7 | 4.89 | 1.75 |

ARKANSAS RIVER BASIN

### 07151000 SALT FORK ARKANSAS RIVER AT TONKAWA, OKLA.

LOCATION. – Lat 36°40′19″, long 97°18′33″, referenced to North American Datum of 1927, in NW ¼ SE ¼ sec. 4, T.25 N., R.1 W., Kay County, Okla., Hydrologic Unit 11060004, on left bank near end 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.–October 1935 to current year. Monthly discharge only for some periods, published as "Arkansas River (Salt Fork) near Tonkawa" 1903-1904 and as "near Tonkawa" 1905.

REMARKS.–Flow regulated since June 1941 by Great Salt Plains Lake, 69.5 mi upstream (station 07150000).

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1942-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 9,412 | 0.64 | 900 | 235 | 8.0 |
| Nov. | 9,203 | 4.82 | 805 | 256 | 7.2 |
| Dec. | 2,129 | 3.56 | 424 | 256 | 3.8 |
| Jan. | 2,217 | 7.52 | 425 | 240 | 3.8 |
| Feb. | 5,171 | 10.9 | 602 | 279 | 5.4 |
| Mar. | 6,455 | 10.6 | 1,150 | 428 | 10.2 |
| Apr. | 7,916 | 13.6 | 1,354 | 680 | 12.0 |
| May | 12,770 | 8.78 | 1,662 | 993 | 14.8 |
| Jun. | 8,379 | 7.92 | 1,639 | 895 | 14.6 |
| Jul. | 8,821 | 5.69 | 1,000 | 487 | 8.9 |
| Aug. | 6,157 | 5.50 | 667 | 207 | 5.9 |
| Sep. | 3,448 | 0.00 | 610 | 314 | 5.4 |
| Annual | 3,717 | 95.5 | 937 | 810 | – |

**Magnitude and probability of annual instantaneous peak flow based on 66 years of record, 1942-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 13,200 | 25,300 | 35,400 | 50,100 | 62,600 | 76,300 | 113,000 |

station skew = -0.112

**Duration table of daily mean flow for period of record, 1942-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11,600 | 7,810 | 4,290 | 2,210 | 1,420 | 987 | 615 | 404 | 273 | 183 | 116 | 69.1 | 36.7 | 19.8 | 8.96 | 4.54 |

**Magnitude and probability of annual low flow based on period of record, 1943-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 44.1 | 14.4 | 6.62 | 3.01 |
| 3 | 46.1 | 15.3 | 7.14 | 3.30 |
| 7 | 49.4 | 16.8 | 8.06 | 3.85 |
| 10 | 52.7 | 18.0 | 8.65 | 4.15 |
| 30 | 68.6 | 23.9 | 12.1 | 6.18 |
| 60 | 126 | 38.0 | 15.6 | 6.42 |

**Magnitude and probability of annual low flow based on period of record, 1942-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 172 | 52.3 | 24.7 | 12.4 |
| 3 | 180 | 56.3 | 27.4 | 14.2 |
| 7 | 201 | 63.8 | 31.7 | 16.9 |
| 10 | 223 | 71.4 | 35.8 | 19.2 |
| 30 | 440 | 131 | 63.2 | 32.9 |
| 60 | 946 | 291 | 143 | 75.3 |

**Magnitude and probability of annual low flow based on period of record, 1942-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 50.1 | 16.7 | 7.71 | 3.50 |
| 3 | 52.2 | 17.6 | 8.14 | 3.71 |
| 7 | 55.7 | 19.0 | 9.07 | 4.28 |
| 10 | 59.1 | 20.4 | 9.76 | 4.64 |
| 30 | 79.7 | 27.5 | 14.2 | 7.62 |
| 60 | 174 | 47.4 | 19.0 | 7.83 |

**Magnitude and probability of annual low flow based on period of record, 1942-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 86.3 | 27.6 | 14.1 | 7.76 |
| 3 | 91.8 | 29.8 | 15.4 | 8.60 |
| 7 | 101 | 32.6 | 16.7 | 9.23 |
| 10 | 106 | 34.1 | 17.4 | 9.60 |
| 30 | 141 | 44.2 | 21.9 | 11.6 |
| 60 | 178 | 56.8 | 28.8 | 15.8 |

ARKANSAS RIVER BASIN

### 07151500 CHIKASKIA RIVER NEAR CORBIN, KANS.

LOCATION. – Lat 37°07′44″, long 97°36′06″, referenced to North American Datum of 1927, in NW ¼ SW ¼ SW ¼ sec. 36, T.33 S., R.3W., Sumner County, Kans., Hydrologic Unit 11060005, on right bank at downstream side of bridge on Kansas Highway 49, 1.0 mi upstream from Prairie Creek, 3.0 mi west of Corbin, and at mile 67.5.

DRAINAGE AREA. – 794 mi².

PERIOD OF RECORD.–August 1950 to September 1965, October 1975 to current year.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1951-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 1,894 | 0.00 | 233 | 80.6 | 7.4 |
| Nov. | 1,923 | 0.00 | 232 | 111 | 7.4 |
| Dec. | 467 | 13.7 | 133 | 91.6 | 4.2 |
| Jan. | 396 | 15.4 | 128 | 100 | 4.1 |
| Feb. | 752 | 30.3 | 174 | 121 | 5.6 |
| Mar. | 1,907 | 32.0 | 357 | 190 | 11.4 |
| Apr. | 1,184 | 26.9 | 308 | 210 | 9.8 |
| May | 2,690 | 24.0 | 491 | 297 | 15.6 |
| Jun. | 3,279 | 12.9 | 509 | 294 | 16.2 |
| Jul. | 1,496 | 0.80 | 269 | 118 | 8.6 |
| Aug. | 457 | 0.00 | 126 | 79.8 | 4.0 |
| Sep. | 1,172 | 0.00 | 186 | 67.0 | 5.9 |
| Annual | 633 | 40.0 | 262 | 231 | – |

**Magnitude and probability of annual instantaneous peak flow based on 85 historic years of record, 1923-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 9,610 | 18,800 | 26,400 | 37,600 | 46,900 | 57,200 | 84,400 |

Oklahoma weighted skew = -0.160

**Duration table of daily mean flow for period of record, 1950-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3,460 | 1,940 | 816 | 454 | 321 | 243 | 168 | 130 | 103 | 79.9 | 61.0 | 42.4 | 21.2 | 9.63 | 0.77 | 0.03 |

**Magnitude and probability of annual low flow based on period of record, 1952-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 12.4 | 2.20 | 0.00 | 0.00 |
| 3 | 12.6 | 2.78 | 0.00 | 0.00 |
| 7 | 14.0 | 3.84 | 0.66 | 0.00 |
| 10 | 15.4 | 4.43 | 0.83 | 0.00 |
| 30 | 27.8 | 6.37 | 1.94 | 0.09 |
| 60 | 50.9 | 11.9 | 3.61 | 0.82 |

**Magnitude and probability of annual low flow based on period of record, 1951-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 81.2 | 40.1 | 25.7 | 17.1 |
| 3 | 84.3 | 41.7 | 27.0 | 18.2 |
| 7 | 91.8 | 45.7 | 29.8 | 20.2 |
| 10 | 97.6 | 48.6 | 31.8 | 21.7 |
| 30 | 147 | 71.6 | 47.7 | 33.5 |
| 60 | 297 | 143 | 96.2 | 68.7 |

**Magnitude and probability of annual low flow based on period of record, 1951-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 12.5 | 2.21 | 0.00 | 0.00 |
| 3 | 12.8 | 2.78 | 0.00 | 0.00 |
| 7 | 14.0 | 3.84 | 0.67 | 0.00 |
| 10 | 15.4 | 4.43 | 0.85 | 0.00 |
| 30 | 28.1 | 6.37 | 1.94 | 0.09 |
| 60 | 52.6 | 11.9 | 3.61 | 0.91 |

**Magnitude and probability of annual low flow based on period of record, 1951-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 68.5 | 23.0 | 7.40 | 1.40 |
| 3 | 77.0 | 27.0 | 9.30 | 2.05 |
| 7 | 80.5 | 32.0 | 12.0 | 2.90 |
| 10 | 86.0 | 34.5 | 20.5 | 3.60 |
| 30 | 95.4 | 43.4 | 20.6 | 8.28 |
| 60 | 96.0 | 47.7 | 30.0 | 19.4 |

ARKANSAS RIVER BASIN

### 07152000 CHIKASKIA RIVER NEAR BLACKWELL, OKLA.

LOCATION. – Lat 36°48′41″, long 97°16′37″, referenced to North American Datum of 1927, in NE ¼ NW ¼ sec. 23, T.27 N., R.1 W., Kay County, Okla., Hydrologic Unit 11060005, near left bank on downstream side of State Highway 11 bridge at northeast edge of Blackwell, 0.1 mi downstream from Bitter Creek, and at mile 28.3.

DRAINAGE AREA. – 1,859 mi².

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

REMARKS.– Some regulation at low flow by Lake Blackwell, capacity 3,600 acre-ft, 12.6 mi upstream from station. Small diversion made from reservoir for municipal supply of city of Blackwell.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1937-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 5,244 | 0.90 | 564 | 149 | 7.7 |
| Nov. | 5,880 | 1.08 | 510 | 176 | 7.0 |
| Dec. | 1,649 | 1.34 | 276 | 156 | 3.8 |
| Jan. | 1,659 | 4.35 | 270 | 143 | 3.7 |
| Feb. | 3,732 | 10.3 | 398 | 184 | 5.4 |
| Mar. | 5,342 | 30.7 | 776 | 309 | 10.6 |
| Apr. | 4,748 | 29.4 | 845 | 374 | 11.6 |
| May | 8,589 | 27.1 | 1,075 | 576 | 14.7 |
| Jun. | 6,894 | 26.1 | 1,160 | 698 | 15.9 |
| Jul. | 5,129 | 6.17 | 610 | 238 | 8.4 |
| Aug. | 2,467 | 0.63 | 351 | 123 | 4.8 |
| Sep. | 3,395 | 0.64 | 464 | 176 | 6.4 |
| Annual | 1,993 | 71.0 | 608 | 492 | – |

**Magnitude and probability of annual instantaneous peak flow based on 85 historic years of record, 1923-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 19,200 | 38,000 | 54,100 | 78,300 | 99,200 | 122,000 | 187,000 |

Oklahoma weighted skew = 0.083

**Duration table of daily mean flow for period of record, 1936-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9,620 | 5,950 | 2,200 | 958 | 594 | 438 | 285 | 206 | 154 | 116 | 85.7 | 55.5 | 26.0 | 8.31 | 2.23 | 1.08 |

**Magnitude and probability of annual low flow based on period of record, 1938-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 12.1 | 2.73 | 1.06 | 0.38 |
| 3 | 14.0 | 3.09 | 1.17 | 0.41 |
| 7 | 17.5 | 4.04 | 1.60 | 0.66 |
| 10 | 20.1 | 4.91 | 2.09 | 0.97 |
| 30 | 38.2 | 10.5 | 4.71 | 2.26 |
| 60 | 71.0 | 21.1 | 9.35 | 4.31 |

**Magnitude and probability of annual low flow based on period of record, 1937-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 123 | 37.6 | 15.7 | 6.59 |
| 3 | 134 | 42.2 | 17.9 | 7.62 |
| 7 | 144 | 51.2 | 24.7 | 12.2 |
| 10 | 155 | 57.9 | 29.5 | 15.5 |
| 30 | 268 | 105 | 61.5 | 38.7 |
| 60 | 617 | 229 | 130 | 79.8 |

**Magnitude and probability of annual low flow based on period of record, 1937-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 12.5 | 2.89 | 1.15 | 0.42 |
| 3 | 15.0 | 3.50 | 1.38 | 0.50 |
| 7 | 18.7 | 4.43 | 1.77 | 0.73 |
| 10 | 21.4 | 5.28 | 2.26 | 1.05 |
| 30 | 39.8 | 10.6 | 4.73 | 2.27 |
| 60 | 81.6 | 23.5 | 10.7 | 5.17 |

**Magnitude and probability of annual low flow based on period of record, 1937-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 73.5 | 22.8 | 9.90 | 4.37 |
| 3 | 80.9 | 25.8 | 11.3 | 5.04 |
| 7 | 92.1 | 30.0 | 13.2 | 5.92 |
| 10 | 98.2 | 32.4 | 14.4 | 6.41 |
| 30 | 137 | 50.7 | 23.1 | 10.4 |
| 60 | 161 | 58.1 | 27.7 | 13.4 |

ARKANSAS RIVER BASIN

### 07152500 ARKANSAS RIVER AT RALSTON, OKLA.

LOCATION. – Lat 36°30′15″, long 96°43′41″, referenced to North American Datum of 1927, in NE ¼ NE ¼ sec. 2, T.23 N., R.5 E., Osage County, Okla., Hydrologic Unit 11060006, on right upstream abutment 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. Prior to Feb. 10, 1988, gage was near left bank on downstream side of pier of bridge.

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.–Flow regulated since April 1976 by Kaw Lake (station 07148130) 59.7 mi upstream; some regulation by Great Salt Plains Lake (station 07150000) since 1941.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1926-1975**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 43,440 | 36.9 | 4,831 | 2,014 | 8.4 |
| Nov. | 22,530 | 123 | 3,519 | 1,934 | 6.1 |
| Dec. | 12,870 | 146 | 2,338 | 1,632 | 4.0 |
| Jan. | 11,320 | 156 | 2,247 | 1,504 | 3.9 |
| Feb. | 24,950 | 233 | 2,706 | 1,758 | 4.7 |
| Mar. | 39,840 | 357 | 4,298 | 2,169 | 7.4 |
| Apr. | 35,030 | 401 | 6,981 | 3,220 | 12.1 |
| May | 33,340 | 405 | 8,494 | 5,100 | 14.7 |
| Jun. | 39,310 | 426 | 8,830 | 6,095 | 15.3 |
| Jul. | 47,660 | 218 | 5,992 | 3,496 | 10.4 |
| Aug. | 25,710 | 87.9 | 3,633 | 1,974 | 6.3 |
| Sep. | 16,360 | 36.6 | 3,993 | 2,860 | 6.9 |
| Annual | 12,770 | 776 | 4,827 | 3,991 | – |

**Magnitude and probability of annual instantaneous peak flow based on 54 years of record, 1923-1976**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 56,100 | 108,000 | 150,000 | 209,000 | 257,000 | 309,000 | 440,000 |

Water Resources Council weighted skew = -0.246

**Duration table of daily mean flow for period of record, 1926-1975**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52,700 | 35,700 | 19,100 | 10,600 | 7,200 | 5,450 | 3,540 | 2,560 | 1,930 | 1,470 | 1,060 | 741 | 463 | 302 | 178 | 114 |

**Magnitude and probability of annual low flow based on period of record, 1927-1975**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 466 | 188 | 108 | 64.9 |
| 3 | 489 | 198 | 113 | 67.9 |
| 7 | 529 | 212 | 121 | 72.3 |
| 10 | 557 | 222 | 126 | 74.8 |
| 30 | 713 | 282 | 158 | 93.7 |
| 60 | 972 | 394 | 227 | 138 |

**Magnitude and probability of annual low flow based on period of record, 1926-1975**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1,260 | 628 | 428 | 310 |
| 3 | 1,320 | 651 | 442 | 317 |
| 7 | 1,490 | 717 | 476 | 336 |
| 10 | 1,600 | 750 | 496 | 348 |
| 30 | 2,660 | 1,150 | 733 | 504 |
| 60 | 5,010 | 1,980 | 1,190 | 771 |

**Magnitude and probability of annual low flow based on period of record, 1926-1974**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 531 | 202 | 113 | 66.7 |
| 3 | 548 | 210 | 117 | 69.5 |
| 7 | 580 | 222 | 124 | 73.8 |
| 10 | 619 | 235 | 130 | 76.5 |
| 30 | 847 | 308 | 167 | 96.2 |
| 60 | 1,420 | 498 | 265 | 150 |

**Magnitude and probability of annual low flow based on period of record, 1926-1975**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 649 | 310 | 208 | 149 |
| 3 | 702 | 337 | 227 | 162 |
| 7 | 772 | 370 | 248 | 177 |
| 10 | 817 | 389 | 258 | 183 |
| 30 | 1,100 | 515 | 336 | 232 |
| 60 | 1,280 | 604 | 397 | 276 |

ARKANSAS RIVER BASIN

**07152500 ARKANSAS RIVER AT RALSTON, OKLA.—Continued**

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1977-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 41,580 | 161 | 4,719 | 1,414 | 6.1 |
| Nov. | 41,300 | 188 | 5,021 | 2,285 | 6.5 |
| Dec. | 10,120 | 270 | 3,264 | 1,826 | 4.2 |
| Jan. | 12,450 | 412 | 3,640 | 2,393 | 4.7 |
| Feb. | 17,510 | 487 | 4,567 | 3,142 | 5.9 |
| Mar. | 27,120 | 402 | 8,692 | 6,718 | 11.3 |
| Apr. | 25,300 | 305 | 8,911 | 6,367 | 11.6 |
| May | 52,840 | 2,001 | 9,901 | 7,427 | 12.9 |
| Jun. | 41,910 | 1,688 | 11,672 | 9,637 | 15.2 |
| Jul. | 33,210 | 908 | 8,169 | 4,963 | 10.6 |
| Aug. | 21,280 | 390 | 4,729 | 2,824 | 6.2 |
| Sep. | 17,660 | 205 | 3,620 | 2,430 | 4.7 |
| Annual | 16,810 | 1,292 | 6,412 | 5,581 | – |

**Magnitude and probability of annual instantaneous peak flow based on 31 years of record, 1977-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 48,600 | 84,100 | 110,000 | 143,000 | 168,000 | 193,000 | 253,000 |

station skew = -0.352

**Duration table of daily mean flow for period of record, 1977-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45,400 | 34,400 | 24,300 | 16,600 | 12,400 | 9,910 | 6,580 | 4,460 | 3,060 | 2,110 | 1,410 | 868 | 490 | 347 | 232 | 184 |

**Magnitude and probability of annual low flow based on period of record, 1978-2007**

| Period (consecutived ays) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 375 | 176 | 116 | 81.1 |
| 3 | 402 | 196 | 132 | 94.4 |
| 7 | 426 | 218 | 153 | 115 |
| 10 | 455 | 231 | 162 | 121 |
| 30 | 645 | 320 | 223 | 165 |
| 60 | 960 | 486 | 334 | 243 |

**Magnitude and probability of annual low flow based on period of record, 1977-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1,860 | 803 | 485 | 310 |
| 3 | 2,000 | 860 | 519 | 331 |
| 7 | 2,310 | 974 | 584 | 370 |
| 10 | 2,510 | 1,050 | 632 | 402 |
| 30 | 4,460 | 1,850 | 1,080 | 671 |
| 60 | 7,610 | 3,760 | 2,510 | 1,760 |

**Magnitude and probability of annual low flow based on period of record, 1977-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 445 | 198 | 124 | 83.2 |
| 3 | 473 | 215 | 139 | 95.4 |
| 7 | 517 | 244 | 163 | 116 |
| 10 | 550 | 258 | 172 | 123 |
| 30 | 873 | 381 | 248 | 174 |
| 60 | 1,460 | 673 | 449 | 322 |

**Magnitude and probability of annual low flow based on period of record, 1977-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 595 | 283 | 191 | 138 |
| 3 | 692 | 342 | 236 | 174 |
| 7 | 780 | 377 | 257 | 187 |
| 10 | 832 | 402 | 275 | 201 |
| 30 | 1,150 | 532 | 357 | 258 |
| 60 | 1,570 | 696 | 453 | 318 |

ARKANSAS RIVER BASIN

### 07153000 BLACK BEAR CREEK AT PAWNEE, OKLA.

LOCATION. – Lat 36°20′37″, long 96°47′57″, referenced to North American Datum of 1927, in SE ¼ NE ¼ sec. 31, T.22 N., R.5 E., Pawnee County, Okla., 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.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1945-1962**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 2,636 | 0.00 | 277 | 5.19 | 12.0 |
| Nov. | 584 | 0.00 | 67.2 | 21.4 | 2.9 |
| Dec. | 523 | 0.26 | 53.3 | 6.58 | 2.3 |
| Jan. | 174 | 0.37 | 31.2 | 5.54 | 1.4 |
| Feb. | 430 | 2.27 | 59.3 | 6.66 | 2.6 |
| Mar. | 454 | 0.90 | 100 | 42.5 | 4.3 |
| Apr. | 1,291 | 1.14 | 247 | 61.1 | 10.7 |
| May | 2,144 | 2.28 | 501 | 203 | 21.7 |
| Jun. | 2,181 | 7.34 | 406 | 255 | 17.6 |
| Jul. | 932 | 0.30 | 296 | 226 | 12.8 |
| Aug. | 426 | 0.00 | 67.8 | 24.8 | 2.9 |
| Sep. | 1,354 | 0.00 | 206 | 28.6 | 8.9 |
| Annual | 492 | 23.1 | 193 | 179 | – |

**Magnitude and probability of annual instantaneous peak flow based on 55 historic years of record, 1908-1962**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 6,030 | 10,000 | 13,400 | 18,500 | 23,000 | 28,100 | 43,100 |

Oklahoma weighted skew = 0.372

**Duration table of daily mean flow for period of record, 1945-1962**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,080 | 2,750 | 946 | 240 | 112 | 68.6 | 35.0 | 18.6 | 9.73 | 5.49 | 3.55 | 2.19 | 0.79 | 0.17 | 0.02 | 0.01 |

**Magnitude and probability of annual low flow based on period of record, 1946-1962**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.91 | 0.21 | 0.00 | 0.00 |
| 3 | 0.96 | 0.21 | 0.00 | 0.00 |
| 7 | 1.10 | 0.22 | 0.00 | 0.00 |
| 10 | 1.27 | 0.25 | 0.00 | 0.00 |
| 30 | 2.11 | 0.40 | 0.00 | 0.00 |
| 60 | 4.04 | 0.98 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1945-1962 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 3.75 | 1.19 | 0.64 | 0.38 |
| 3 | 4.54 | 1.36 | 0.69 | 0.38 |
| 7 | 5.32 | 1.55 | 0.78 | 0.44 |
| 10 | 6.22 | 1.84 | 0.93 | 0.52 |
| 30 | 38.3 | 7.13 | 2.82 | 1.28 |
| 60 | 237 | 58.1 | 23.3 | 9.90 |

**Magnitude and probability of annual low flow based on period of record, 1945-1961 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.01 | 0.21 | 0.00 | 0.00 |
| 3 | 1.10 | 0.23 | 0.00 | 0.00 |
| 7 | 1.26 | 0.28 | 0.00 | 0.00 |
| 10 | 1.44 | 0.32 | 0.00 | 0.00 |
| 30 | 3.02 | 0.49 | 0.00 | 0.00 |
| 60 | 12.0 | 1.56 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1945-1962 w inter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.94 | 0.29 | 0.00 | 0.00 |
| 3 | 2.30 | 0.31 | 0.00 | 0.00 |
| 7 | 2.57 | 0.35 | 0.00 | 0.00 |
| 10 | 2.76 | 0.39 | 0.00 | 0.00 |
| 30 | 3.98 | 1.09 | 0.00 | 0.00 |
| 60 | 5.79 | 1.71 | 0.91 | 0.55 |

ARKANSAS RIVER BASIN

**07153000 BLACK BEAR CREEK AT PAWNEE, OKLA.—Continued**

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1968-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 4,025 | 0.06 | 201 | 31.1 | 6.9 |
| Nov. | 2,359 | 0.07 | 199 | 37.3 | 6.8 |
| Dec. | 720 | 0.89 | 121 | 23.6 | 4.1 |
| Jan. | 595 | 3.56 | 110 | 26.5 | 3.8 |
| Feb. | 1,013 | 0.73 | 173 | 49.1 | 5.9 |
| Mar. | 1,607 | 4.12 | 420 | 187 | 14.4 |
| Apr. | 1,583 | 6.19 | 353 | 186 | 12.1 |
| May | 2,933 | 14.5 | 525 | 380 | 18.0 |
| Jun. | 2,082 | 6.57 | 375 | 186 | 12.8 |
| Jul. | 1,927 | 0.71 | 157 | 41.7 | 5.4 |
| Aug. | 1,592 | 0.18 | 124 | 20.5 | 4.2 |
| Sep. | 1,076 | 0.00 | 164 | 38.1 | 5.6 |
| Annual | 835 | 29.9 | 244 | 188 | – |

**Magnitude and probability of annual instantaneous peak flow based on 40 years of record, 1968-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 5,450 | 9,140 | 11,900 | 15,600 | 18,500 | 21,600 | 29,200 |

station skew = -0.147

**Duration table of daily mean flow for period of record, 1968-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,060 | 2,740 | 1,290 | 535 | 284 | 172 | 75.6 | 39.4 | 23.2 | 15.3 | 9.24 | 5.11 | 2.01 | 0.64 | 0.03 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1969-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.94 | 0.00 | 0.00 | 0.00 |
| 3 | 0.86 | 0.02 | 0.00 | 0.00 |
| 7 | 1.38 | 0.10 | 0.00 | 0.00 |
| 10 | 1.73 | 0.14 | 0.00 | 0.00 |
| 30 | 4.21 | 0.67 | 0.14 | 0.00 |
| 60 | 9.45 | 1.67 | 0.46 | 0.13 |

**Magnitude and probability of annual low flow based on period of record, 1968-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 13.5 | 4.42 | 2.24 | 1.13 |
| 3 | 22.0 | 5.08 | 1.54 | 0.45 |
| 7 | 21.2 | 5.34 | 2.13 | 0.89 |
| 10 | 24.0 | 6.08 | 2.59 | 1.19 |
| 30 | 87.6 | 28.0 | 15.7 | 9.81 |
| 60 | 292 | 103 | 55.8 | 32.4 |

**Magnitude and probability of annual low flow based on period of record, 1968-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.02 | 0.00 | 0.00 | 0.00 |
| 3 | 1.03 | 0.03 | 0.00 | 0.00 |
| 7 | 1.54 | 0.11 | 0.00 | 0.00 |
| 10 | 1.91 | 0.14 | 0.01 | 0.00 |
| 30 | 4.83 | 0.72 | 0.14 | 0.00 |
| 60 | 15.3 | 2.02 | 0.49 | 0.13 |

**Magnitude and probability of annual low flow based on period of record, 1968-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 4.70 | 1.06 | 0.00 | 0.00 |
| 3 | 6.49 | 0.91 | 0.19 | 0.03 |
| 7 | 7.08 | 1.40 | 0.43 | 0.11 |
| 10 | 7.30 | 1.57 | 0.53 | 0.16 |
| 30 | 11.1 | 2.86 | 1.25 | 0.55 |
| 60 | 18.7 | 4.96 | 2.46 | 1.38 |

ARKANSAS RIVER BASIN

### 07153100 RANCH CREEK AT CLEVLAND DAM NEAR CLEVELAND, OKLA.

LOCATION. – Lat 36°17′00″, long 96°34′35″, referenced to North American Datum of 1927, in SW ¼ NE ¼ sec. 20, T.21 N., R.7 E., Pawnee County, Okla., Hydrologic Unit 11060006, 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, Okla..

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.

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1945-1963**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 206 | 0.00 | 13.9 | 0.00 | 11.4 |
| Nov. | 51.2 | 0.00 | 3.32 | 0.00 | 2.7 |
| Dec. | 23.2 | 0.00 | 2.96 | 0.00 | 2.4 |
| Jan. | 9.06 | 0.00 | 1.50 | 0.00 | 1.2 |
| Feb. | 17.4 | 0.00 | 3.17 | 0.11 | 2.6 |
| Mar. | 54.3 | 0.00 | 9.08 | 0.86 | 7.4 |
| Apr. | 113 | 0.00 | 14.7 | 1.00 | 12.0 |
| May | 215 | 0.00 | 36.5 | 9.77 | 29.9 |
| Jun. | 71.7 | 0.01 | 14.1 | 5.26 | 11.5 |
| Jul. | 54.4 | 0.00 | 10.9 | 1.13 | 8.9 |
| Aug. | 17.4 | 0.00 | 2.26 | 0.00 | 1.8 |
| Sep. | 81.5 | 0.00 | 9.86 | 0.00 | 8.1 |
| Annual | 32.0 | 0.08 | 8.93 | 4.83 | – |

**Magnitude and probability of annual instantaneous peak flow based on 24 historic years of record, 1940-1963**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 1,540 | 4,770 | 8,570 | 15,900 | 23,600 | 33,700 | 68,800 |

station skew = -0.057

**Duration table of daily mean flow for period of record, 1945-1963**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 264 | 129 | 25.7 | 7.12 | 2.56 | 0.87 | 0.05 | 0.04 | 0.04 | 0.03 | 0.02 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1946-1963**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1945-1963**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.52 | 0.00 | 0.00 | 0.00 |
| 60 | 9.38 | 1.77 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1945-1962**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1945-1963**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

ARKANSAS RIVER BASIN

### 07154500 CIMARRON RIVER NEAR KENTON, OKLA.

LOCATION. – Lat 36°55′36″, long 102°57′31″, referenced to North American Datum of 1927, in SW ¼ sec. 4, T.5 N., R.1 E., Cimarron County, Okla., 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.–October 1950 to current year.

REMARKS.–Extensive diversions for irrigation upstream from station. Diversions most likely began to have a significant affect on streamflow in 1967 (Esralew and Smith, 2009, Esralew and Lewis, 2010, Turton and others, 2010).

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1951-1966**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 334 | 0.00 | 28.3 | 1.25 | 8.3 |
| Nov. | 12.1 | 0.00 | 2.62 | 1.82 | 0.8 |
| Dec. | 9.59 | 0.00 | 2.37 | 1.89 | 0.7 |
| Jan. | 6.69 | 0.00 | 2.02 | 1.61 | 0.6 |
| Feb. | 6.76 | 0.26 | 2.14 | 1.77 | 0.6 |
| Mar. | 4.42 | 0.03 | 1.69 | 1.56 | 0.5 |
| Apr. | 9.36 | 0.00 | 2.01 | 0.83 | 0.6 |
| May | 525 | 0.29 | 49.2 | 3.08 | 14.5 |
| Jun. | 514 | 0.00 | 51.1 | 14.7 | 15.0 |
| Jul. | 204 | 0.50 | 55.0 | 34.3 | 16.2 |
| Aug. | 406 | 3.05 | 101 | 57.1 | 29.8 |
| Sep. | 236 | 0.00 | 42.1 | 4.30 | 12.4 |
| Annual | 95.2 | 4.59 | 28.6 | 22.0 | – |

**Magnitude and probability of annual instantaneous peak flow based on 20 years of record, 1951-1970**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 6,860 | 14,300 | 21,600 | 34,400 | 47,000 | 62,800 | 116,000 |

Oklahoma weighted skew = 0.371

**Duration table of daily mean flow for period of record, 1951-1966**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 510 | 202 | 36.6 | 12.6 | 6.26 | 4.37 | 2.83 | 2.10 | 1.59 | 1.16 | 0.70 | 0.20 | 0.03 | 0.02 | 0.01 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1952-1966**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.07 | 0.00 | 0.00 | 0.00 |
| 60 | 0.63 | 0.06 | 0.01 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1951-1966 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.32 | 0.03 | 0.01 | 0.00 |
| 60 | 3.82 | 0.79 | 0.37 | 0.20 |

**Magnitude and probability of annual low flow based on period of record, 1951-1965 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.40 | 0.00 | 0.00 | 0.00 |
| 60 | 2.56 | 0.16 | 0.01 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1951-1966 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.18 | 0.00 | 0.00 | 0.00 |
| 3 | 0.22 | 0.00 | 0.00 | 0.00 |
| 7 | 0.32 | 0.06 | 0.00 | 0.00 |
| 10 | 0.43 | 0.10 | 0.00 | 0.00 |
| 30 | 1.08 | 0.53 | 0.00 | 0.00 |
| 60 | 1.27 | 0.68 | 0.45 | 0.00 |

ARKANSAS RIVER BASIN

**07154500 CIMARRON RIVER NEAR KENTON, OKLA.—Continued**

**UNREGULATED IRRIGATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1971-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 5.82 | 0.00 | 0.97 | 0.22 | 0.8 |
| Nov. | 5.01 | 0.00 | 1.01 | 0.45 | 0.9 |
| Dec. | 5.57 | 0.00 | 1.36 | 0.88 | 1.2 |
| Jan. | 8.07 | 0.00 | 1.50 | 1.01 | 1.3 |
| Feb. | 4.64 | 0.00 | 1.28 | 0.89 | 1.1 |
| Mar. | 4.42 | 0.00 | 1.11 | 0.91 | 0.9 |
| Apr. | 116 | 0.01 | 7.84 | 0.71 | 6.7 |
| May | 471 | 0.00 | 26.8 | 2.01 | 22.8 |
| Jun. | 292 | 0.00 | 20.0 | 5.33 | 17.0 |
| Jul. | 91.4 | 0.00 | 17.5 | 10.1 | 14.9 |
| Aug. | 176 | 0.00 | 24.6 | 6.30 | 21.0 |
| Sep. | 112 | 0.00 | 13.5 | 1.56 | 11.5 |
| Annual | 68.9 | 0.66 | 9.85 | 7.01 | – |

**Magnitude and probability of annual instantaneous peak flow based on 37 years of record, 1971-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 2,610 | 7,330 | 12,500 | 22,000 | 31,600 | 43,800 | 84,100 |

station skew = -0.045

**Duration table of daily mean flow for period of record, 1971-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 184 | 67.7 | 13.4 | 4.64 | 3.09 | 2.26 | 1.19 | 0.66 | 0.27 | 0.09 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1972-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1971-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.01 | 0.00 | 0.00 | 0.00 |
| 7 | 0.03 | 0.00 | 0.00 | 0.00 |
| 10 | 0.05 | 0.00 | 0.00 | 0.00 |
| 30 | 0.21 | 0.04 | 0.02 | 0.00 |
| 60 | 1.78 | 0.21 | 0.07 | 0.02 |

**Magnitude and probability of annual low flow based on period of record, 1971-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 0.33 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1971-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 0.04 | 0.00 | 0.00 | 0.00 |
| 10 | 0.06 | 0.00 | 0.00 | 0.00 |
| 30 | 0.27 | 0.00 | 0.00 | 0.00 |
| 60 | 0.42 | 0.04 | 0.00 | 0.00 |

ARKANSAS RIVER BASIN

### 07155000 CIMARRON RIVER ABOVE UTE CREEK NEAR BOISE CITY, OKLA.

LOCATION. – Lat 36°54′46″, long 102°37′08″, referenced to North American Datum of 1927, in SE ¼ sec. 10, T.5 N., R.4 E., Cimarron County, Okla., Hydrologic Unit 11040002, on right bank 1,000 ft downstream from Kohler's Dam, 1.0 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 the 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.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1943-1954**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 114 | 0.00 | 11.9 | 0.00 | 2.5 |
| Nov. | 54.6 | 0.00 | 8.99 | 3.87 | 1.8 |
| Dec. | 53.9 | 0.00 | 10.7 | 5.55 | 2.2 |
| Jan. | 47.4 | 0.00 | 10.3 | 4.22 | 2.1 |
| Feb. | 37.9 | 0.00 | 8.47 | 5.46 | 1.8 |
| Mar. | 36.7 | 0.00 | 8.66 | 4.17 | 1.8 |
| Apr. | 66.0 | 0.00 | 7.76 | 0.98 | 1.6 |
| May | 268 | 0.00 | 56.3 | 23.3 | 11.6 |
| Jun. | 247 | 0.00 | 71.8 | 24.2 | 14.8 |
| Jul. | 296 | 8.16 | 90.8 | 53.8 | 18.7 |
| Aug. | 423 | 5.42 | 169 | 148 | 34.8 |
| Sep. | 197 | 0.00 | 30.7 | 2.98 | 6.3 |
| Annual | 83.2 | 11.3 | 40.8 | 38.5 | – |

**Magnitude and probability of annual instantaneous peak flow based on 49 historic years of record, 1906-1954**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 9,660 | 21,700 | 33,500 | 53,900 | 73,700 | 98,000 | 177,000 |

Oklahoma weighted skew = 0.152

**Duration table of daily mean flow for period of record, 1943-1954**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 655 | 298 | 110 | 56.7 | 34.6 | 21.2 | 9.50 | 5.03 | 2.02 | 0.11 | 0.04 | 0.03 | 0.01 | 0.01 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1944-1954**

| Period (consecutive days | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1943-1954**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.21 | 0.00 | 0.00 | 0.00 |
| 60 | 9.50 | 0.11 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1943-1954**
**summer season, June 1 through October 31**

| Period (consecutive days | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 1.10 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1943-1954**
**winter season, November 1 through March 31**

| Period (consecutive days | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.96 | 0.00 | 0.00 | 0.00 |
| 60 | 1.48 | 0.00 | 0.00 | 0.00 |

ARKANSAS RIVER BASIN

### 07155590 CIMARRON RIVER NEAR ELKHART, KANS.

LOCATION. – Lat 37°07′19″, long 101°53′51″, referenced to North American Datum of 1927, in NW ¼ SW ¼ NW ¼ sec. 4, T.34 S., R.42 W., Morton County, Kans., Hydrologic Unit 11040002, Cimarron National Grasslands, on left bank at downstream side of bridge on Kansas Highway 27, 8.0 mi north of Elkhart, and at mile 499.4.

DRAINAGE AREA. – 2,899 mi², of which 483 mi² is probably noncontributing.

PERIOD OF RECORD.–April 1971 to current year.

REMARKS.–Extensive irrigation upstream from station. Irrigation most likely began to have a significant affect on streamflow in 1965, and a transition period of change occurred from 1965-1981 (Esralew and Smith, 2009, Esralew and Lewis, 2010, Lewis and Esralew, 2010, Turton and others, 2010).

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1972-1981**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 1.12 | 0.00 | 0.11 | 0.00 | 0.1 |
| Nov. | 0.06 | 0.00 | 0.01 | 0.00 | 0.0 |
| Dec. | 0.14 | 0.00 | 0.01 | 0.00 | 0.0 |
| Jan. | 0.64 | 0.00 | 0.09 | 0.00 | 0.0 |
| Feb. | 1.07 | 0.00 | 0.12 | 0.00 | 0.1 |
| Mar. | 0.96 | 0.00 | 0.18 | 0.00 | 0.1 |
| Apr. | 106 | 0.00 | 16.8 | 0.01 | 6.8 |
| May | 519 | 0.06 | 60.6 | 8.16 | 24.5 |
| Jun. | 368 | 0.06 | 61.7 | 24.1 | 25.0 |
| Jul. | 113 | 0.00 | 35.6 | 6.28 | 14.4 |
| Aug. | 225 | 0.00 | 55.5 | 15.9 | 22.4 |
| Sep. | 102 | 0.00 | 16.5 | 0.01 | 6.7 |
| Annual | 82.6 | 1.42 | 20.7 | 12.3 | – |

**Magnitude and probability of annual instantaneous peak flow based on 10 years of record, 1972-1981**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 3,840 | 7,460 | 10,400 | 14,600 | 18,100 | 21,800 | 31,500 |

Oklahoma weighted skew = -0.210

**Duration table of daily mean flow for period of record, 1971-1981**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 576 | 249 | 24.5 | 4.26 | 1.14 | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1972-1981**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1971-1981**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 6.05 | 0.36 | 0.01 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1971-1980**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1971-1981**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

ARKANSAS RIVER BASIN

**07155590 CIMARRON RIVER NEAR ELKHART, KANS.—Continued**

**UNREGULATED IRRIGATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1983-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 0.29 | 0.00 | 0.02 | 0.00 | 0.1 |
| Nov. | 1.52 | 0.00 | 0.07 | 0.00 | 0.2 |
| Dec. | 6.88 | 0.00 | 0.28 | 0.00 | 0.7 |
| Jan. | 10.3 | 0.00 | 0.42 | 0.00 | 1.0 |
| Feb. | 7.06 | 0.00 | 0.29 | 0.00 | 0.7 |
| Mar. | 16.9 | 0.00 | 0.73 | 0.00 | 1.8 |
| Apr. | 9.28 | 0.00 | 0.80 | 0.02 | 2.0 |
| May | 354 | 0.00 | 17.5 | 0.02 | 42.6 |
| Jun. | 87.1 | 0.00 | 4.83 | 0.01 | 11.8 |
| Jul. | 8.06 | 0.00 | 0.41 | 0.00 | 1.0 |
| Aug. | 239 | 0.00 | 12.9 | 0.00 | 31.4 |
| Sep. | 36.0 | 0.00 | 2.82 | 0.00 | 6.9 |
| Annual | 31.1 | 0.00 | 3.46 | 0.27 | – |

**Magnitude and probability of annual instantaneous peak flow based on 25 years of record, 1983-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 44.5 | 740 | 2,840 | 10,900 | 24,700 | 50,000 | 191,000 |

station skew = -0.386

**Duration table of daily mean flow for period of record, 1983-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35.6 | 12.1 | 2.20 | 0.09 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1984-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1983-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 0.04 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1983-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1983-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

ARKANSAS RIVER BASIN

## 07156900 CIMARRON RIVER NEAR FORGAN, OKLA.

LOCATION. – Lat 37°00′40″, long 100°29′29″, referenced to North American Datum of 1927, in SE ¼ SE ¼ sec. 8, T.35 S., R.29 W., Meade County, Kans., Hydrologic Unit 11040006, on downstream side 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 375.7.

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

PERIOD OF RECORD.–October 1965 to September 1986, October 1987 to current year.

REMARKS.–Exstensive diversions for irrigation above station.

### UNREGULATED STREAMFLOW PERIOD

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1966-1977**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 751 | 50.0 | 126 | 69.1 | 12.2 |
| Nov. | 114 | 53.4 | 75.7 | 71.2 | 7.4 |
| Dec. | 102 | 59.4 | 77.0 | 75.6 | 7.5 |
| Jan. | 110 | 59.7 | 74.9 | 71.1 | 7.3 |
| Feb. | 88.4 | 50.3 | 72.1 | 73.6 | 7.0 |
| Mar. | 111 | 49.2 | 72.4 | 71.4 | 7.0 |
| Apr. | 376 | 57.1 | 107 | 82.9 | 10.4 |
| May | 476 | 54.1 | 117 | 73.2 | 11.4 |
| Jun. | 140 | 41.0 | 76.3 | 66.4 | 7.4 |
| Jul. | 211 | 33.9 | 69.8 | 51.5 | 6.8 |
| Aug. | 208 | 42.9 | 83.9 | 62.0 | 8.1 |
| Sep. | 210 | 37.4 | 78.7 | 55.5 | 7.6 |
| Annual | 145 | 58.2 | 86.0 | 80.8 | – |

**Magnitude and probability of annual instantaneous peak flow based on 12 years of record, 1966-1977**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 2,440 | 6,730 | 11,600 | 21,000 | 30,900 | 43,900 | 90,700 |

Water Resources Council weighted skew = 0.121

**Duration table of daily mean flow for period of record, 1966-1977**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 486 | 262 | 139 | 108 | 94.2 | 88.0 | 78.4 | 71.4 | 65.8 | 60.2 | 54.8 | 48.5 | 40.4 | 34.0 | 28.2 | 25.6 |

**Magnitude and probability of annual low flow based on period of record, 1967-1977**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 26.6 | 21.2 | 18.8 | 17.1 |
| 3 | 28.2 | 22.6 | 20.2 | 18.4 |
| 7 | 30.7 | 25.2 | 22.7 | 20.9 |
| 10 | 32.6 | 26.2 | 23.5 | 21.4 |
| 30 | 42.0 | 35.3 | 32.1 | 29.6 |
| 60 | 48.3 | 40.8 | 37.1 | 34.0 |

**Magnitude and probability of annual low flow based on period of record, 1966-1977**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 44.3 | 34.5 | 29.6 | 25.8 |
| 3 | 47.9 | 37.8 | 32.5 | 28.2 |
| 7 | 52.4 | 41.6 | 35.8 | 31.2 |
| 10 | 55.9 | 45.5 | 39.8 | 35.1 |
| 30 | 69.7 | 57.0 | 53.0 | 50.6 |
| 60 | 81.8 | 60.1 | 54.6 | 51.8 |

**Magnitude and probability of annual low flow based on period of record, 1966-1976**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 30.3 | 23.9 | 20.8 | 18.4 |
| 3 | 31.2 | 25.1 | 22.2 | 19.9 |
| 7 | 33.3 | 27.0 | 24.1 | 21.9 |
| 10 | 35.1 | 28.2 | 24.9 | 22.3 |
| 30 | 42.1 | 35.4 | 32.1 | 29.6 |
| 60 | 50.8 | 41.4 | 37.1 | 34.0 |

**Magnitude and probability of annual low flow based on period of record, 1966-1977**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 32.8 | 25.5 | 22.2 | 19.7 |
| 3 | 38.1 | 28.9 | 24.5 | 21.0 |
| 7 | 43.3 | 33.6 | 28.8 | 25.1 |
| 10 | 46.1 | 36.0 | 31.0 | 27.0 |
| 30 | 59.4 | 51.4 | 47.5 | 44.3 |
| 60 | 65.9 | 58.7 | 54.9 | 51.8 |

ARKANSAS RIVER BASIN

**07156900 CIMARRON RIVER NEAR FORGAN, OKLA.—Continued**

**UNREGULATED IRRIGATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

| Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1983-2007 | | | | | |
|---|---|---|---|---|---|
| **Month** | **Maximum** | **Minimum** | **Mean** | **Median** | **Average % of Annual Runoff** |
| Oct. | 47.2 | 25.8 | 32.4 | 31.9 | 7.3 |
| Nov. | 51.3 | 28.3 | 37.7 | 37.8 | 8.5 |
| Dec. | 48.2 | 27.6 | 39.0 | 38.6 | 8.8 |
| Jan. | 45.3 | 29.4 | 40.1 | 41.4 | 9.1 |
| Feb. | 54.4 | 30.0 | 42.5 | 42.4 | 9.6 |
| Mar. | 58.8 | 32.0 | 45.2 | 45.0 | 10.2 |
| Apr. | 62.0 | 30.0 | 44.6 | 43.8 | 10.1 |
| May | 98.1 | 23.8 | 43.0 | 39.9 | 9.7 |
| Jun. | 71.7 | 20.2 | 35.2 | 31.4 | 8.0 |
| Jul. | 45.7 | 16.8 | 28.3 | 29.0 | 6.4 |
| Aug. | 44.5 | 18.9 | 27.1 | 26.1 | 6.1 |
| Sep. | 34.9 | 20.2 | 27.2 | 27.2 | 6.2 |
| Annual | 47.9 | 26.7 | 36.8 | 36.5 | – |

| Magnitude and probability of annual instantaneous peak flow based on 25 years of record, 1983-2007 | | | | | | |
|---|---|---|---|---|---|---|
| Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent | | | | | | |
| **2** | **5** | **10** | **25** | **50** | **100** | **500** |
| **15%** | **5%** | **10%** | **4%** | **2%** | **1%** | **0.2%** |
| 298 | 975 | 1,920 | 4,110 | 6,900 | 11,200 | 31,200 |

station skew = 0.433

| Duration table of daily mean flow for period of record, 1983-2007 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time | | | | | | | | | | | | | | | |
| **1%** | **2%** | **5%** | **10%** | **15%** | **20%** | **30%** | **40%** | **50%** | **60%** | **70%** | **80%** | **90%** | **95%** | **98%** | **99%** |
| 81.4 | 66.7 | 56.3 | 50.2 | 47.2 | 44.9 | 41.5 | 38.4 | 35.5 | 32.7 | 30.2 | 27.1 | 22.7 | 19.9 | 17.5 | 16.4 |

**Magnitude and probability of annual low flow based on period of record, 1984-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 16.8 | 14.1 | 13.0 | 12.2 |
| 3 | 17.6 | 14.8 | 13.6 | 12.8 |
| 7 | 18.6 | 15.9 | 14.9 | 14.2 |
| 10 | 19.2 | 16.5 | 15.4 | 14.6 |
| 30 | 21.2 | 18.3 | 17.2 | 16.3 |
| 60 | 23.9 | 20.9 | 19.4 | 18.3 |

**Magnitude and probability of annual low flow based on period of record, 1983-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 28.4 | 22.9 | 20.2 | 18.1 |
| 3 | 29.3 | 23.7 | 20.9 | 18.7 |
| 7 | 30.6 | 24.8 | 22.0 | 19.9 |
| 10 | 31.4 | 25.6 | 22.8 | 20.7 |
| 30 | 36.1 | 29.7 | 26.6 | 24.2 |
| 60 | 42.2 | 35.2 | 32.2 | 30.0 |

**Magnitude and probability of annual low flow based on period of record, 1983-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 17.0 | 14.1 | 13.0 | 12.2 |
| 3 | 17.6 | 14.8 | 13.6 | 12.8 |
| 7 | 18.6 | 15.9 | 14.9 | 14.2 |
| 10 | 19.2 | 16.5 | 15.4 | 14.6 |
| 30 | 21.2 | 18.3 | 17.2 | 16.3 |
| 60 | 24.1 | 20.9 | 19.4 | 18.3 |

**Magnitude and probability of annual low flow based on period of record, 1983-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 26.6 | 21.2 | 18.4 | 16.2 |
| 3 | 27.6 | 22.4 | 19.6 | 17.3 |
| 7 | 30.3 | 25.4 | 22.6 | 20.2 |
| 10 | 31.5 | 27.2 | 24.7 | 22.5 |
| 30 | 34.8 | 31.4 | 29.7 | 28.4 |
| 60 | 37.3 | 33.7 | 31.8 | 30.2 |

ARKANSAS RIVER BASIN

### 07157000 CIMARRON RIVER NEAR MOCANE, OKLA.

LOCATION. – Lat 36°58′33″, long 100°18′50″, referenced to North American Datum of 1927, in SW ¼ NW ¼ sec. 24, T.6 S., R.25 E., Beaver County, Okla., Hydrologic Unit 11040006, 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.

REMARKS.–Extensive diversions for irrigation above station.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1943-1965**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 368 | 34.8 | 83.9 | 61.3 | 7.0 |
| Nov. | 170 | 47.9 | 77.7 | 71.4 | 6.4 |
| Dec. | 127 | 41.9 | 74.6 | 75.9 | 6.2 |
| Jan. | 105 | 31.8 | 76.6 | 79.5 | 6.4 |
| Feb. | 147 | 53.7 | 82.8 | 78.7 | 6.9 |
| Mar. | 114 | 53.1 | 76.7 | 74.9 | 6.4 |
| Apr. | 253 | 51.5 | 85.2 | 70.5 | 7.1 |
| May | 1,101 | 39.2 | 187 | 69.9 | 15.5 |
| Jun. | 795 | 26.9 | 156 | 82.8 | 12.9 |
| Jul. | 592 | 14.6 | 107 | 79.8 | 8.9 |
| Aug. | 466 | 21.0 | 123 | 76.1 | 10.2 |
| Sep. | 202 | 15.1 | 75.7 | 56.6 | 6.3 |
| Annual | 202 | 57.0 | 101 | 80.3 | – |

**Magnitude and probability of annual instantaneous peak flow based on 23 years of record, 1943-1965**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 5,210 | 11,800 | 18,600 | 30,900 | 43,300 | 59,200 | 114,000 |

Water Resources Council weighted skew = 0.301

**Duration table of daily mean flow for period of record, 1943-1965**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 871 | 464 | 222 | 137 | 109 | 98.9 | 79.8 | 70.0 | 60.4 | 53.0 | 45.6 | 37.6 | 27.3 | 19.7 | 12.0 | 8.49 |

**Magnitude and probability of annual low flow based on period of record, 1944-1965**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 11.4 | 5.90 | 2.43 | 0.00 |
| 3 | 15.5 | 5.46 | 2.44 | 1.08 |
| 7 | 18.0 | 9.08 | 5.91 | 4.00 |
| 10 | 20.1 | 10.9 | 7.49 | 5.37 |
| 30 | 29.8 | 16.8 | 11.8 | 8.74 |
| 60 | 37.4 | 25.1 | 19.6 | 15.9 |

**Magnitude and probability of annual low flow based on period of record, 1943-1965 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 30.7 | 22.9 | 19.4 | 16.8 |
| 3 | 33.7 | 25.5 | 21.8 | 19.0 |
| 7 | 41.0 | 31.1 | 26.5 | 23.0 |
| 10 | 45.2 | 34.4 | 29.1 | 25.1 |
| 30 | 58.6 | 46.9 | 43.0 | 40.6 |
| 60 | 77.0 | 52.6 | 47.2 | 44.6 |

**Magnitude and probability of annual low flow based on period of record, 1943-1964 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 13.6 | 6.38 | 2.43 | 0.00 |
| 3 | 16.8 | 5.70 | 2.49 | 1.08 |
| 7 | 18.3 | 9.08 | 5.91 | 4.00 |
| 10 | 20.2 | 10.9 | 7.49 | 5.37 |
| 30 | 30.8 | 16.8 | 11.8 | 8.74 |
| 60 | 43.6 | 25.6 | 19.6 | 15.9 |

**Magnitude and probability of annual low flow based on period of record, 1943-1965 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 19.3 | 11.8 | 8.72 | 6.65 |
| 3 | 23.1 | 14.0 | 10.3 | 7.71 |
| 7 | 35.0 | 22.8 | 17.3 | 13.4 |
| 10 | 40.3 | 27.2 | 20.6 | 15.9 |
| 30 | 56.8 | 44.0 | 36.9 | 31.2 |
| 60 | 63.6 | 53.7 | 48.8 | 45.0 |

ARKANSAS RIVER BASIN

### 07157500 CROOKED CREEK NEAR ENGLEWOOD, KANS.

LOCATION. – Lat 37°01′57″, long 100°12′39″, referenced to North American Datum of 1927, in NW ¼ SE ¼ NW ¼ sec. 1, T.35 S., R.27 W., Meade County, Kans., Hydrologic Unit 11040007, on right bank at downstream side of county highway bridge, 11.5 mi west of Englewood, and at mile 14.0.

DRAINAGE AREA. – 1,157 mi², of which 344 mi² is probably noncontributing.

PERIOD OF RECORD.–October 1942 to current year. Published as "near Nye" August 1942 to September 1995. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.–Extensive diversion for irrigation upstream from station. Irrigation most likely began to have a significant affect on streamflow in 1964. Irrigation most likely began to have a significant affect on streamflow in 1965, and a transition period of change occurred from 1965-1981 (Esralew and Smith, 2009, Esralew and Lewis, 2010, Turton and others, 2010).

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1943-1963**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 463 | 0.00 | 48.2 | 11.4 | 7.8 |
| Nov. | 122 | 1.22 | 18.7 | 13.1 | 3.0 |
| Dec. | 29.5 | 7.65 | 16.9 | 15.3 | 2.7 |
| Jan. | 34.1 | 6.29 | 18.5 | 17.6 | 3.0 |
| Feb. | 74.9 | 10.8 | 22.2 | 18.5 | 3.6 |
| Mar. | 50.8 | 9.89 | 23.0 | 20.5 | 3.7 |
| Apr. | 468 | 6.91 | 52.0 | 17.1 | 8.4 |
| May | 1,233 | 3.71 | 163 | 12.7 | 26.4 |
| Jun. | 325 | 0.60 | 74.9 | 18.4 | 12.1 |
| Jul. | 374 | 0.00 | 73.3 | 23.8 | 11.9 |
| Aug. | 454 | 0.00 | 61.2 | 23.4 | 9.9 |
| Sep. | 224 | 0.00 | 45.5 | 5.93 | 7.4 |
| Annual | 176 | 6.74 | 51.7 | 33.5 | – |

**Magnitude and probability of annual instantaneous peak flow based on 21 years of record, 1943-1963**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 3,750 | 7,400 | 10,400 | 14,600 | 18,000 | 21,700 | 31,100 |

Oklahoma weighted skew = -0.266

**Duration table of daily mean flow for period of record, 1943-1963**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 754 | 402 | 163 | 59.8 | 36.1 | 26.9 | 21.1 | 17.5 | 14.5 | 11.9 | 9.09 | 6.00 | 0.21 | 0.03 | 0.01 | 0.01 |

**Magnitude and probability of annual low flow based on period of record, 1944-1963**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 1.50 | 0.00 | 0.00 | 0.00 |
| 60 | 4.54 | 0.80 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1943-1963**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 5.92 | 1.54 | 0.52 | 0.02 |
| 3 | 6.61 | 2.67 | 1.38 | 0.24 |
| 7 | 7.84 | 3.83 | 2.35 | 0.69 |
| 10 | 8.56 | 4.08 | 2.62 | 1.04 |
| 30 | 12.1 | 6.20 | 4.74 | 3.96 |
| 60 | 25.4 | 9.33 | 6.27 | 4.79 |

**Magnitude and probability of annual low flow based on period of record, 1943-1962**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 1.50 | 0.00 | 0.00 | 0.00 |
| 60 | 5.56 | 0.80 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1943-1963**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 4.60 | 3.04 | 2.34 | 1.29 |
| 3 | 5.63 | 4.01 | 3.25 | 2.04 |
| 7 | 7.65 | 5.56 | 4.61 | 3.17 |
| 10 | 8.59 | 6.20 | 5.11 | 3.44 |
| 30 | 13.5 | 8.26 | 5.34 | 3.36 |
| 60 | 13.7 | 10.4 | 8.90 | 7.82 |

ARKANSAS RIVER BASIN

**07157500 CROOKED CREEK NEAR ENGLEWOOD, KANS.—Continued**

**UNREGULATED IRRIGATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1983-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 18.7 | 2.01 | 7.04 | 5.11 | 5.5 |
| Nov. | 38.4 | 3.95 | 9.96 | 7.38 | 7.8 |
| Dec. | 16.5 | 5.13 | 9.18 | 8.31 | 7.2 |
| Jan. | 14.7 | 4.98 | 9.91 | 9.88 | 7.7 |
| Feb. | 16.7 | 4.47 | 10.3 | 9.82 | 8.0 |
| Mar. | 18.5 | 3.48 | 11.3 | 10.9 | 8.8 |
| Apr. | 23.9 | 4.74 | 12.6 | 13.0 | 9.8 |
| May | 93.3 | 4.41 | 16.3 | 11.3 | 12.7 |
| Jun. | 58.7 | 2.37 | 16.4 | 8.80 | 12.8 |
| Jul. | 60.6 | 0.44 | 10.6 | 6.87 | 8.3 |
| Aug. | 47.9 | 0.36 | 8.91 | 5.08 | 6.9 |
| Sep. | 31.9 | 0.73 | 5.73 | 4.13 | 4.5 |
| Annual | 19.8 | 4.48 | 10.7 | 10.2 | – |

**Magnitude and probability of annual instantaneous peak flow based on 25 years of record, 1983-2007**

| Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent | | | | | | |
|---|---|---|---|---|---|---|
| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 155 | 526 | 986 | 1,910 | 2,920 | 4,270 | 9,130 |

station skew = -0.070

**Duration table of daily mean flow for period of record, 1983-2007**

| Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
| 64.8 | 40.4 | 23.0 | 16.9 | 15.4 | 14.0 | 11.4 | 9.73 | 8.35 | 7.15 | 5.89 | 4.57 | 2.95 | 1.62 | 0.69 | 0.33 |

**Magnitude and probability of annual low flow based on period of record, 1984-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.17 | 0.15 | 0.00 | 0.00 |
| 3 | 1.29 | 0.22 | 0.00 | 0.00 |
| 7 | 1.60 | 0.25 | 0.00 | 0.00 |
| 10 | 1.75 | 0.29 | 0.05 | 0.00 |
| 30 | 2.29 | 0.85 | 0.46 | 0.27 |
| 60 | 3.32 | 1.53 | 0.98 | 0.66 |

**Magnitude and probability of annual low flow based on period of record, 1983-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 6.70 | 4.72 | 3.92 | 3.35 |
| 3 | 6.96 | 4.88 | 4.04 | 3.45 |
| 7 | 7.39 | 5.21 | 4.31 | 3.68 |
| 10 | 7.66 | 5.45 | 4.54 | 3.90 |
| 30 | 9.15 | 6.52 | 5.46 | 4.72 |
| 60 | 12.1 | 8.16 | 6.77 | 5.87 |

**Magnitude and probability of annual low flow based on period of record, 1983-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.17 | 0.15 | 0.00 | 0.00 |
| 3 | 1.29 | 0.22 | 0.00 | 0.00 |
| 7 | 1.60 | 0.25 | 0.00 | 0.00 |
| 10 | 1.77 | 0.29 | 0.05 | 0.00 |
| 30 | 2.30 | 0.85 | 0.46 | 0.27 |
| 60 | 3.36 | 1.53 | 0.98 | 0.66 |

**Magnitude and probability of annual low flow based on period of record, 1983-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 5.84 | 4.35 | 3.71 | 3.25 |
| 3 | 6.04 | 4.47 | 3.80 | 3.32 |
| 7 | 6.27 | 4.63 | 3.94 | 3.45 |
| 10 | 6.38 | 4.71 | 4.01 | 3.51 |
| 30 | 7.47 | 5.62 | 4.77 | 4.15 |
| 60 | 8.19 | 6.29 | 5.42 | 4.76 |

ARKANSAS RIVER BASIN

### 07157900 CAVALRY CREEK AT COLDWATER, KANS.

LOCATION. – Lat 37°15′56.46″, long 99°20′46.26″, referenced to North American Datum of 1927, in NE 1/4 NE 1/4 sec. 14, T.32 S., R.19 W., Comanche County, Kans., Hydrologic Unit 11040008, at downstream side of county highway bridge, 1.0 mi (1.6 km) west of Coldwater, and at mile 18.3 (29.4 km).

DRAINAGE AREA. –39 mi².

PERIOD OF RECORD.–Annual maximum, water years 1957-66. October 1966 to September 1981.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1967-1981**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 22.0 | 0.37 | 3.84 | 1.36 | 9.3 |
| Nov. | 8.95 | 0.58 | 2.14 | 1.57 | 5.2 |
| Dec. | 10.3 | 0.59 | 2.21 | 1.51 | 5.3 |
| Jan. | 3.01 | 0.90 | 1.79 | 1.65 | 4.3 |
| Feb. | 3.44 | 0.94 | 1.80 | 1.57 | 4.3 |
| Mar. | 11.3 | 1.03 | 2.46 | 1.66 | 6.0 |
| Apr. | 8.90 | 0.68 | 2.84 | 1.90 | 6.9 |
| May | 72.6 | 0.94 | 7.00 | 1.69 | 16.9 |
| Jun. | 69.7 | 0.64 | 6.53 | 1.72 | 15.8 |
| Jul. | 7.75 | 0.32 | 1.69 | 0.93 | 4.1 |
| Aug. | 22.7 | 0.15 | 3.39 | 1.26 | 8.2 |
| Sep. | 54.6 | 0.40 | 5.70 | 1.34 | 13.8 |
| Annual | 8.38 | 0.83 | 3.45 | 2.24 | – |

**Magnitude and probability of annual instantaneous peak flow based on 28 years of record, 1957-1984**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 470 | 1,270 | 2,120 | 3,640 | 5,130 | 6,970 | 12,900 |

Oklahoma weighted skew = -0.085

**Duration table of daily mean flow for period of record, 1967-1981**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30.5 | 7.59 | 4.05 | 3.13 | 2.68 | 2.40 | 1.94 | 1.73 | 1.53 | 1.32 | 1.11 | 0.89 | 0.63 | 0.49 | 0.31 | 0.22 |

**Magnitude and probability of annual low flow based on period of record, 1968-1981**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.58 | 0.27 | 0.16 | 0.10 |
| 3 | 0.59 | 0.28 | 0.17 | 0.11 |
| 7 | 0.62 | 0.30 | 0.19 | 0.12 |
| 10 | 0.63 | 0.32 | 0.21 | 0.14 |
| 30 | 0.72 | 0.39 | 0.26 | 0.18 |
| 60 | 0.85 | 0.50 | 0.39 | 0.31 |

**Magnitude and probability of annual low flow based on period of record, 1967-1981 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.25 | 0.80 | 0.62 | 0.48 |
| 3 | 1.27 | 0.83 | 0.65 | 0.52 |
| 7 | 1.30 | 0.87 | 0.69 | 0.57 |
| 10 | 1.33 | 0.89 | 0.71 | 0.58 |
| 30 | 1.53 | 1.03 | 0.84 | 0.70 |
| 60 | 2.01 | 1.21 | 1.04 | 0.96 |

**Magnitude and probability of annual low flow based on period of record, 1967-1980 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.58 | 0.27 | 0.16 | 0.10 |
| 3 | 0.59 | 0.28 | 0.17 | 0.11 |
| 7 | 0.62 | 0.30 | 0.19 | 0.12 |
| 10 | 0.63 | 0.32 | 0.21 | 0.14 |
| 30 | 0.73 | 0.39 | 0.26 | 0.18 |
| 60 | 0.85 | 0.50 | 0.39 | 0.32 |

**Magnitude and probability of annual low flow based on period of record, 1967-1981 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.18 | 0.71 | 0.52 | 0.39 |
| 3 | 1.25 | 0.78 | 0.59 | 0.46 |
| 7 | 1.27 | 0.82 | 0.63 | 0.50 |
| 10 | 1.29 | 0.84 | 0.64 | 0.51 |
| 30 | 1.38 | 0.92 | 0.72 | 0.58 |
| 60 | 1.47 | 1.02 | 0.83 | 0.69 |

ARKANSAS RIVER BASIN

### 07157950 CIMARRON RIVER NEAR BUFFALO, OKLA.

LOCATION. – Lat 36°51′07″, long 99°18′54″, referenced to North American Datum of 1927, in SE ¼ NE ¼ sec. 2, T.27 N., R.20 W., Woods County, Okla., 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 September 1994, October 2001 to current year.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1961-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 788 | 0.00 | 80.3 | 18.1 | 5.6 |
| Nov. | 482 | 0.47 | 73.3 | 58.0 | 5.2 |
| Dec. | 270 | 8.61 | 78.0 | 73.7 | 5.5 |
| Jan. | 155 | 31.2 | 88.2 | 80.6 | 6.2 |
| Feb. | 226 | 40.2 | 114 | 104 | 8.0 |
| Mar. | 1,848 | 26.1 | 170 | 115 | 11.9 |
| Apr. | 1,304 | 8.69 | 144 | 72.2 | 10.1 |
| May | 851 | 4.45 | 194 | 117 | 13.7 |
| Jun. | 1,227 | 1.62 | 211 | 112 | 14.8 |
| Jul. | 461 | 0.21 | 84.7 | 24.4 | 6.0 |
| Aug. | 476 | 0.00 | 73.4 | 20.1 | 5.2 |
| Sep. | 1,100 | 0.00 | 111 | 7.12 | 7.8 |
| Annual | 430 | 18.8 | 118 | 100 | – |

**Magnitude and probability of annual instantaneous peak flow based on 41 years of record, 1960-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 2,770 | 7,360 | 11,900 | 19,400 | 26,400 | 34,500 | 57,800 |

Water Resources Council weighted skew = -0.266

**Duration table of daily mean flow for period of record, 1960-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,480 | 826 | 384 | 231 | 173 | 143 | 101 | 73.3 | 51.4 | 32.3 | 16.8 | 3.83 | 0.08 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1961-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.67 | 0.00 | 0.00 | 0.00 |
| 60 | 4.42 | 0.42 | 0.07 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1960-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 10.6 | 0.86 | 0.00 | 0.00 |
| 3 | 12.1 | 1.21 | 0.11 | 0.00 |
| 7 | 14.5 | 3.41 | 1.01 | 0.00 |
| 10 | 19.6 | 3.97 | 1.39 | 0.52 |
| 30 | 39.8 | 13.5 | 7.59 | 4.70 |
| 60 | 101 | 38.5 | 22.7 | 14.5 |

**Magnitude and probability of annual low flow based on period of record, 1960-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.76 | 0.01 | 0.00 | 0.00 |
| 60 | 5.28 | 0.43 | 0.07 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1960-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 8.37 | 0.76 | 0.06 | 0.00 |
| 3 | 11.1 | 1.42 | 0.17 | 0.00 |
| 7 | 14.0 | 2.26 | 0.60 | 0.14 |
| 10 | 16.0 | 2.66 | 0.71 | 0.16 |
| 30 | 36.7 | 8.88 | 3.35 | 1.31 |
| 60 | 54.0 | 23.8 | 14.0 | 8.65 |

ARKANSAS RIVER BASIN

### 07157960 BUFFALO CREEK NEAR LOVEDALE, OKLA.

LOCATION. – Lat 36°46′14″, long 99°22′00″, referenced to North American Datum of 1927, in SW ¼ SW ¼ sec. 33, T.27 N., R.20 W., Harper County, Okla., 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 September 1993.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1967-1993**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 122 | 0.00 | 12.2 | 0.36 | 7.8 |
| Nov. | 20.9 | 0.00 | 5.87 | 1.62 | 3.8 |
| Dec. | 35.4 | 0.00 | 5.47 | 1.88 | 3.5 |
| Jan. | 20.1 | 0.00 | 5.33 | 2.32 | 3.4 |
| Feb. | 21.2 | 0.87 | 6.20 | 4.06 | 4.0 |
| Mar. | 118 | 0.40 | 15.2 | 6.75 | 9.8 |
| Apr. | 64.2 | 0.24 | 16.3 | 7.20 | 10.5 |
| May | 148 | 0.00 | 34.0 | 17.1 | 21.8 |
| Jun. | 124 | 0.00 | 19.8 | 10.4 | 12.7 |
| Jul. | 89.6 | 0.00 | 9.87 | 2.30 | 6.3 |
| Aug. | 144 | 0.00 | 15.4 | 1.54 | 9.9 |
| Sep. | 138 | 0.00 | 9.94 | 0.46 | 6.4 |
| Annual | 43.1 | 0.78 | 13.0 | 10.7 | – |

**Magnitude and probability of annual instantaneous peak flow based on 28 years of record, 1966-1993**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 1,090 | 4,120 | 7,750 | 14,500 | 21,100 | 29,200 | 53,600 |

Oklahoma weighted skew = -0.428

**Duration table of daily mean flow for period of record, 1967-1993**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 166 | 73.8 | 35.3 | 22.3 | 16.1 | 12.6 | 7.49 | 4.06 | 2.18 | 1.23 | 0.59 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1968-1993**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1967-1993 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 2.07 | 0.02 | 0.00 | 0.00 |
| 3 | 2.10 | 0.08 | 0.00 | 0.00 |
| 7 | 2.30 | 0.14 | 0.00 | 0.00 |
| 10 | 2.35 | 0.16 | 0.00 | 0.00 |
| 30 | 4.72 | 0.69 | 0.17 | 0.02 |
| 60 | 16.4 | 4.14 | 1.70 | 0.74 |

**Magnitude and probability of annual low flow based on period of record, 1967-1992 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 0.30 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1967-1993 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.46 | 0.00 | 0.00 | 0.00 |
| 3 | 0.66 | 0.00 | 0.00 | 0.00 |
| 7 | 0.75 | 0.00 | 0.00 | 0.00 |
| 10 | 0.90 | 0.00 | 0.00 | 0.00 |
| 30 | 1.24 | 0.13 | 0.00 | 0.00 |
| 60 | 1.76 | 0.48 | 0.22 | 0.08 |

ARKANSAS RIVER BASIN

### 07158000 CIMARRON RIVER NEAR WAYNOKA, OKLA.

LOCATION. – Lat 36°31′02″, long 98°52′45″, referenced to North American Datum of 1927, in SW ¼ NW ¼ NE ¼ sec. 35, T.24 N., R.16 W., Woods County, Okla., Hydrologic Unit 11050001, near left bank on downstream side of bridge on U.S. Highway 281, 4.0 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.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1938-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 2,644 | 0.00 | 205 | 49.6 | 5.9 |
| Nov. | 651 | 0.00 | 128 | 78.4 | 3.7 |
| Dec. | 493 | 1.98 | 118 | 98.6 | 3.4 |
| Jan. | 466 | 2.65 | 136 | 116 | 3.9 |
| Feb. | 1,011 | 30.1 | 185 | 155 | 5.3 |
| Mar. | 2,196 | 12.6 | 253 | 167 | 7.3 |
| Apr. | 2,944 | 6.00 | 358 | 189 | 10.3 |
| May | 5,673 | 10.6 | 731 | 351 | 21.0 |
| Jun. | 3,674 | 0.60 | 597 | 293 | 17.2 |
| Jul. | 3,826 | 0.01 | 323 | 153 | 9.3 |
| Aug. | 2,507 | 0.00 | 211 | 104 | 6.0 |
| Sep. | 1,475 | 0.00 | 237 | 52.9 | 6.8 |
| Annual | 1,081 | 43.2 | 291 | 231 | – |

**Magnitude and probability of annual instantaneous peak flow based on 70 years of record, 1938-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 14,000 | 30,000 | 42,600 | 59,800 | 73,200 | 86,800 | 118,000 |

Water Resources Council weighted skew = -0.532

**Duration table of daily mean flow for period of record, 1938-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,130 | 2,340 | 961 | 483 | 349 | 271 | 180 | 127 | 90.1 | 58.9 | 33.5 | 11.7 | 0.77 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1939-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.06 | 0.00 | 0.00 | 0.00 |
| 30 | 2.87 | 0.00 | 0.00 | 0.00 |
| 60 | 14.1 | 0.95 | 0.06 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1938-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 20.8 | 2.30 | 0.17 | 0.00 |
| 3 | 23.0 | 3.31 | 0.39 | 0.00 |
| 7 | 32.1 | 4.57 | 1.26 | 0.38 |
| 10 | 38.4 | 7.78 | 2.93 | 1.21 |
| 30 | 101 | 32.8 | 17.9 | 10.7 |
| 60 | 279 | 91.3 | 49.5 | 29.4 |

**Magnitude and probability of annual low flow based on period of record, 1938-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.06 | 0.00 | 0.00 | 0.00 |
| 30 | 3.20 | 0.00 | 0.00 | 0.00 |
| 60 | 21.3 | 1.40 | 0.15 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1938-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 17.0 | 0.71 | 0.00 | 0.00 |
| 3 | 20.0 | 1.78 | 0.00 | 0.00 |
| 7 | 24.1 | 2.34 | 0.11 | 0.00 |
| 10 | 27.0 | 2.38 | 0.19 | 0.00 |
| 30 | 50.7 | 10.8 | 3.59 | 1.16 |
| 60 | 79.6 | 26.2 | 12.3 | 5.93 |

ARKANSAS RIVER BASIN

### 07158400 SALT CREEK NEAR OKEENE, OKLA.

LOCATION. – Lat 36°06′11″, long 98°11′36″, referenced to North American Datum of 1927, in SW ¼ sec. 20, T.19 N., R.9W., Kingfisher County, Okla., Hydrologic Unit 11050002, 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.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1962-1979**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 84.7 | 2.11 | 23.8 | 7.94 | 4.8 |
| Nov. | 374 | 2.03 | 84.0 | 7.96 | 17.0 |
| Dec. | 33.7 | 3.04 | 14.5 | 10.7 | 2.9 |
| Jan. | 41.3 | 4.75 | 13.3 | 8.67 | 2.7 |
| Feb. | 120 | 2.95 | 21.7 | 9.97 | 4.4 |
| Mar. | 168 | 2.58 | 41.8 | 11.0 | 8.5 |
| Apr. | 75.2 | 5.62 | 28.8 | 21.9 | 5.8 |
| May | 478 | 3.33 | 110 | 91.7 | 22.2 |
| Jun. | 333 | 9.29 | 76.7 | 28.9 | 15.5 |
| Jul. | 89.2 | 1.22 | 18.4 | 14.1 | 3.7 |
| Aug. | 40.1 | 4.14 | 15.9 | 12.6 | 3.2 |
| Sep. | 257 | 3.02 | 44.9 | 20.1 | 9.1 |
| Annual | 134 | 10.0 | 38.8 | 30.3 | – |

**Magnitude and probability of annual instantaneous peak flow based on 12 years of record, 1961-1979**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 4,770 | 7,690 | 9,980 | 13,300 | 16,100 | 19,100 | 27,400 |

Oklahoma weighted skew = 0.214

**Duration table of daily mean flow for period of record, 1961-1979**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 817 | 337 | 108 | 42.5 | 27.8 | 20.8 | 13.7 | 10.4 | 8.29 | 6.92 | 5.64 | 4.46 | 2.83 | 1.93 | 1.18 | 0.79 |

**Magnitude and probability of annual low flow based on period of record, 1963-1979**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.91 | 0.59 | 0.27 | 0.13 |
| 3 | 2.05 | 0.64 | 0.30 | 0.14 |
| 7 | 2.31 | 0.75 | 0.36 | 0.18 |
| 10 | 2.54 | 0.86 | 0.42 | 0.21 |
| 30 | 3.62 | 1.96 | 1.35 | 0.96 |
| 60 | 5.17 | 3.40 | 2.61 | 2.04 |

**Magnitude and probability of annual low flow based on period of record, 1962-1979**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 5.66 | 2.60 | 1.66 | 1.11 |
| 3 | 5.81 | 2.70 | 1.75 | 1.20 |
| 7 | 6.30 | 2.90 | 1.91 | 1.34 |
| 10 | 6.64 | 3.18 | 2.15 | 1.55 |
| 30 | 17.1 | 7.08 | 4.39 | 2.93 |
| 60 | 50.1 | 19.6 | 11.2 | 6.88 |

**Magnitude and probability of annual low flow based on period of record, 1962-1978**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.98 | 0.59 | 0.27 | 0.13 |
| 3 | 2.09 | 0.64 | 0.30 | 0.14 |
| 7 | 2.31 | 0.76 | 0.36 | 0.18 |
| 10 | 2.54 | 0.86 | 0.42 | 0.21 |
| 30 | 3.62 | 1.97 | 1.35 | 0.96 |
| 60 | 6.50 | 3.58 | 2.76 | 2.27 |

**Magnitude and probability of annual low flow based on period of record, 1962-1979**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 3.70 | 2.12 | 1.68 | 1.43 |
| 3 | 4.76 | 2.65 | 2.02 | 1.63 |
| 7 | 5.30 | 3.06 | 2.37 | 1.94 |
| 10 | 5.60 | 3.28 | 2.54 | 2.09 |
| 30 | 6.70 | 3.85 | 2.94 | 2.38 |
| 60 | 7.62 | 4.57 | 3.59 | 2.98 |

ARKANSAS RIVER BASIN

### 07159000 TURKEY CREEK NEAR DRUMMOND, OKLA.

LOCATION. – Lat 36°19′05″, long 98°00′03″, referenced to North American Datum of 1927, in NE ¼ NE ¼ sec. 12, T.21 N., R.8 W., Garfield County, Okla., Hydrologic Unit 11050002, 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, of which 245.52 mi² is probably noncontributing.

PERIOD OF RECORD.–October 1947 to September 1970.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1948-1970**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 475 | 0.00 | 41.6 | 2.79 | 7.1 |
| Nov. | 362 | 0.03 | 36.8 | 1.67 | 6.3 |
| Dec. | 32.4 | 0.10 | 6.36 | 2.69 | 1.1 |
| Jan. | 113 | 0.14 | 10.8 | 2.02 | 1.8 |
| Feb. | 319 | 0.36 | 21.9 | 2.28 | 3.8 |
| Mar. | 136 | 0.03 | 14.1 | 3.73 | 2.4 |
| Apr. | 252 | 0.09 | 40.6 | 9.30 | 6.9 |
| May | 1,030 | 0.30 | 150 | 33.2 | 25.6 |
| Jun. | 803 | 1.61 | 133 | 35.5 | 22.7 |
| Jul. | 415 | 0.00 | 56.6 | 7.00 | 9.7 |
| Aug. | 401 | 0.00 | 44.3 | 5.21 | 7.6 |
| Sep. | 188 | 0.00 | 29.6 | 4.86 | 5.0 |
| Annual | 179 | 3.94 | 48.9 | 20.5 | – |

**Magnitude and probability of annual instantaneous peak flow based on 43 historic years of record, 1932-1974**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 2,630 | 7,190 | 12,200 | 21,600 | 31,200 | 43,400 | 85,400 |

Oklahoma weighted skew = 0.035

**Duration table of daily mean flow for period of record, 1948-1970**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,390 | 716 | 147 | 32.8 | 18.3 | 12.1 | 6.12 | 3.54 | 2.08 | 1.21 | 0.50 | 0.22 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1949-1970**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.20 | 0.00 | 0.00 | 0.00 |
| 60 | 0.58 | 0.10 | 0.01 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1948-1970 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.45 | 0.00 | 0.00 | 0.00 |
| 3 | 0.52 | 0.04 | 0.00 | 0.00 |
| 7 | 0.67 | 0.07 | 0.00 | 0.00 |
| 10 | 0.83 | 0.13 | 0.04 | 0.00 |
| 30 | 3.91 | 0.72 | 0.30 | 0.14 |
| 60 | 31.5 | 5.86 | 2.25 | 0.98 |

**Magnitude and probability of annual low flow based on period of record, 1948-1969 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.02 | 0.00 | 0.00 | 0.00 |
| 30 | 0.26 | 0.00 | 0.00 | 0.00 |
| 60 | 1.01 | 0.12 | 0.01 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1948-1970 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.46 | 0.00 | 0.00 | 0.00 |
| 3 | 0.62 | 0.00 | 0.00 | 0.00 |
| 7 | 0.84 | 0.06 | 0.00 | 0.00 |
| 10 | 0.97 | 0.08 | 0.00 | 0.00 |
| 30 | 1.12 | 0.23 | 0.09 | 0.04 |
| 60 | 1.74 | 0.45 | 0.21 | 0.11 |

ARKANSAS RIVER BASIN

### 07159100 CIMARRON RIVER NEAR DOVER, OKLA.

LOCATION. – Lat 35°57′06″, long 97°54′51″, referenced to North American Datum of 1927, in SW ¼ NE ¼ sec. 14, T.17 N., R.7 W., Kingfisher County, Okla., 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.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1974-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 9,071 | 15.3 | 789 | 259 | 7.4 |
| Nov. | 5,171 | 28.9 | 818 | 267 | 7.7 |
| Dec. | 1,864 | 70.2 | 461 | 295 | 4.3 |
| Jan. | 1,549 | 61.8 | 420 | 262 | 3.9 |
| Feb. | 2,410 | 75.6 | 578 | 310 | 5.4 |
| Mar. | 4,840 | 77.4 | 1,214 | 724 | 11.4 |
| Apr. | 6,442 | 60.7 | 1,095 | 682 | 10.3 |
| May | 11,750 | 115 | 1,964 | 1,394 | 18.4 |
| Jun. | 6,969 | 207 | 1,636 | 1,021 | 15.4 |
| Jul. | 3,684 | 45.3 | 636 | 365 | 6.0 |
| Aug. | 2,622 | 29.5 | 498 | 264 | 4.7 |
| Sep. | 2,311 | 13.8 | 547 | 277 | 5.1 |
| Annual | 2,804 | 199 | 889 | 770 | – |

**Magnitude and probability of annual instantaneous peak flow based on 34 years of record, 1974-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 23,200 | 44,600 | 63,000 | 91,300 | 116,000 | 144,000 | 225,000 |

Water Resources Council weighted skew = 0.039

**Duration table of daily mean flow for period of record, 1974-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11,000 | 7,240 | 3,420 | 1,850 | 1,210 | 908 | 566 | 393 | 286 | 213 | 154 | 102 | 59.0 | 40.8 | 26.2 | 18.7 |

**Magnitude and probability of annual low flow based on period of record, 1975-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 36.2 | 16.5 | 10.8 | 7.62 |
| 3 | 37.7 | 17.6 | 11.8 | 8.47 |
| 7 | 41.7 | 20.0 | 13.7 | 10.1 |
| 10 | 45.1 | 21.9 | 14.9 | 10.9 |
| 30 | 63.3 | 31.4 | 21.7 | 16.0 |
| 60 | 108 | 52.4 | 35.0 | 24.8 |

**Magnitude and probability of annual low flow based on period of record, 1974-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 178 | 85.6 | 57.8 | 41.6 |
| 3 | 186 | 89.8 | 60.8 | 43.8 |
| 7 | 207 | 100 | 67.6 | 48.5 |
| 10 | 226 | 109 | 73.0 | 52.0 |
| 30 | 440 | 197 | 127 | 87.2 |
| 60 | 1,080 | 448 | 273 | 178 |

**Magnitude and probability of annual low flow based on period of record, 1974-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 36.4 | 16.5 | 10.8 | 7.62 |
| 3 | 37.8 | 17.6 | 11.8 | 8.47 |
| 7 | 41.8 | 20.0 | 13.7 | 10.1 |
| 10 | 45.2 | 21.7 | 14.9 | 10.9 |
| 30 | 66.4 | 31.6 | 21.7 | 16.0 |
| 60 | 136 | 57.7 | 36.6 | 25.0 |

**Magnitude and probability of annual low flow based on period of record, 1974-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 113 | 52.4 | 34.8 | 24.8 |
| 3 | 121 | 56.5 | 37.6 | 26.6 |
| 7 | 127 | 62.0 | 42.7 | 31.4 |
| 10 | 134 | 65.7 | 45.3 | 33.3 |
| 30 | 189 | 89.9 | 59.4 | 41.6 |
| 60 | 228 | 115 | 80.6 | 60.0 |

ARKANSAS RIVER BASIN

### 07159750 COTTONWOOD CREEK NEAR SEWARD, OKLA.

LOCATION. – Lat 35°48′49″, long 97°28′40″, referenced to North American Datum of 1927, in SW ¼ sec. 36, T.16 N., R.3W., Logan County, Okla., Hydrologic Unit 11050002, on downstream left bank, 1.2 mi north of Seward on Broadway Road, 6.5 mi southwest of Guthrie, and at mile 16.2.

DRAINAGE AREA. – 320 mi².

PERIOD OF RECORD.–March 1973 to September 1982, November 1989 to September 2002.

REMARKS.–Flow regulated by numerous floodwater-retarding structures. Low flow sustained by part of sewage effluent from Oklahoma City.

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1973-2002**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 268 | 12.0 | 92.1 | 63.7 | 4.3 |
| Nov. | 1,218 | 15.2 | 183 | 57.3 | 8.5 |
| Dec. | 570 | 17.6 | 116 | 74.0 | 5.3 |
| Jan. | 265 | 17.6 | 96.3 | 68.2 | 4.4 |
| Feb. | 336 | 22.8 | 122 | 81.5 | 5.6 |
| Mar. | 1,591 | 19.8 | 232 | 103 | 10.7 |
| Apr. | 803 | 22.1 | 212 | 151 | 9.8 |
| May | 2,267 | 42.5 | 446 | 278 | 20.6 |
| Jun. | 2,909 | 24.9 | 378 | 189 | 17.5 |
| Jul. | 467 | 18.2 | 98.0 | 67.1 | 4.5 |
| Aug. | 246 | 8.58 | 70.5 | 38.5 | 3.3 |
| Sep. | 546 | 17.4 | 119 | 59.5 | 5.5 |
| Annual | 438 | 42.9 | 174 | 154 | – |

**Magnitude and probability of annual instantaneous peak flow based on 23 years of record, 1973-2002**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 7,540 | 17,700 | 27,300 | 42,600 | 56,400 | 72,300 | 118,000 |

station skew = -0.176

**Duration table of daily mean flow for period of record, 1973-2002**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,350 | 1,370 | 619 | 319 | 205 | 153 | 103 | 75.4 | 59.6 | 48.4 | 38.8 | 28.6 | 20.1 | 16.5 | 13.1 | 11.6 |

**Magnitude and probability of annual low flow based on period of record, 1975-2002**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 15.8 | 10.8 | 8.85 | 7.48 |
| 3 | 16.8 | 11.4 | 9.29 | 7.79 |
| 7 | 18.5 | 12.6 | 10.2 | 8.55 |
| 10 | 19.4 | 13.2 | 10.7 | 8.90 |
| 30 | 25.4 | 16.7 | 13.1 | 10.7 |
| 60 | 33.5 | 21.4 | 16.3 | 12.8 |

**Magnitude and probability of annual low flow based on period of record, 1974-2002**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 39.5 | 22.7 | 17.8 | 14.8 |
| 3 | 41.6 | 24.0 | 18.8 | 15.7 |
| 7 | 47.5 | 27.2 | 21.2 | 17.5 |
| 10 | 52.0 | 29.6 | 22.7 | 18.5 |
| 30 | 109 | 50.6 | 34.4 | 25.2 |
| 60 | 244 | 116 | 77.8 | 55.5 |

**Magnitude and probability of annual low flow based on period of record, 1974-2001**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 16.7 | 11.3 | 9.05 | 7.50 |
| 3 | 17.6 | 11.8 | 9.47 | 7.80 |
| 7 | 19.3 | 13.1 | 10.5 | 8.61 |
| 10 | 20.2 | 13.7 | 10.9 | 9.00 |
| 30 | 26.4 | 17.3 | 13.5 | 10.9 |
| 60 | 38.6 | 21.8 | 16.3 | 12.8 |

**Magnitude and probability of annual low flow based on period of record, 1974-2002**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 31.4 | 18.3 | 13.5 | 10.4 |
| 3 | 32.3 | 19.0 | 14.0 | 10.8 |
| 7 | 34.0 | 20.1 | 15.0 | 11.6 |
| 10 | 36.0 | 21.4 | 15.9 | 12.2 |
| 30 | 42.3 | 23.9 | 18.0 | 14.3 |
| 60 | 50.6 | 27.8 | 20.7 | 16.3 |

ARKANSAS RIVER BASIN

### 07160000 CIMARRON RIVER NEAR GUTHRIE, OKLA.

LOCATION. – Lat 35°55′14″, long 97°25′32″, referenced to North American Datum of 1927, in NE ¼ SE ¼ sec. 29, T.17 N., R.2 W., Logan County, Okla., Hydrologic Unit 11050002, on downstream side 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 121.4.

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

PERIOD OF RECORD.–October 1937 to September 1976, October 1983 to current year. Monthly discharge only for some periods, published in WSP's 1311 and 1731.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1938-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 13,800 | 0.79 | 1,077 | 385 | 7.7 |
| Nov. | 8,748 | 0.70 | 867 | 372 | 6.2 |
| Dec. | 2,874 | 1.39 | 551 | 340 | 4.0 |
| Jan. | 2,266 | 6.38 | 512 | 323 | 3.7 |
| Feb. | 4,063 | 21.7 | 700 | 344 | 5.0 |
| Mar. | 6,603 | 24.7 | 1,296 | 584 | 9.3 |
| Apr. | 9,372 | 66.5 | 1,554 | 864 | 11.1 |
| May | 20,630 | 63.0 | 2,463 | 1,336 | 17.7 |
| Jun. | 14,860 | 58.6 | 2,338 | 1,344 | 16.8 |
| Jul. | 9,542 | 9.58 | 1,012 | 525 | 7.3 |
| Aug. | 4,182 | 26.1 | 700 | 298 | 5.0 |
| Sep. | 3,988 | 8.03 | 879 | 620 | 6.3 |
| Annual | 3,901 | 192 | 1,160 | 940 | – |

**Magnitude and probability of annual instantaneous peak flow based on 73 historic years of record, 1935-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 29,700 | 56,300 | 76,100 | 103,000 | 123,000 | 143,000 | 192,000 |

Water Resources Council weighted skew = -0.437

**Duration table of daily mean flow for period of record, 1938-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18,500 | 11,900 | 5,940 | 3,160 | 2,170 | 1,620 | 1,050 | 762 | 579 | 440 | 336 | 246 | 153 | 98.7 | 68.6 | 51.9 |

**Magnitude and probability of annual low flow based on period of record, 1939-2007**

| Period (consecutive days | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 52.5 | 11.0 | 3.87 | 1.44 |
| 3 | 56.3 | 11.8 | 4.12 | 1.52 |
| 7 | 62.8 | 13.3 | 4.68 | 1.73 |
| 10 | 67.6 | 14.7 | 5.26 | 1.97 |
| 30 | 115 | 27.8 | 10.1 | 3.77 |
| 60 | 195 | 52.9 | 19.3 | 6.98 |

**Magnitude and probability of annual low flow based on period of record, 1938-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 192 | 72.4 | 41.4 | 25.5 |
| 3 | 203 | 77.0 | 44.0 | 27.0 |
| 7 | 230 | 88.8 | 51.4 | 31.9 |
| 10 | 259 | 101 | 58.4 | 36.3 |
| 30 | 519 | 199 | 118 | 76.0 |
| 60 | 1,230 | 444 | 250 | 153 |

**Magnitude and probability of annual low flow based on period of record, 1938-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 57.7 | 12.1 | 4.28 | 1.61 |
| 3 | 61.2 | 12.9 | 4.54 | 1.69 |
| 7 | 68.1 | 14.6 | 5.20 | 1.95 |
| 10 | 73.5 | 16.4 | 5.96 | 2.28 |
| 30 | 125 | 31.7 | 12.5 | 5.14 |
| 60 | 247 | 73.6 | 33.5 | 16.1 |

**Magnitude and probability of annual low flow based on period of record, 1938-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 140 | 30.0 | 9.87 | 3.32 |
| 3 | 151 | 33.9 | 11.4 | 3.93 |
| 7 | 176 | 40.3 | 13.5 | 4.58 |
| 10 | 183 | 43.1 | 14.8 | 5.19 |
| 30 | 250 | 66.0 | 24.9 | 9.55 |
| 60 | 318 | 92.5 | 37.6 | 15.6 |

ARKANSAS RIVER BASIN

### 07160350 SKELETON CREEK AT ENID, OKLA.

LOCATION. – Lat 36°22′34″, long 97°48′00″, referenced to North American Datum of 1927, in NW ¼ NW ¼ NW ¼ sec. 24, T.22 N., R.6 W., Garfield County, Okla., Hydrologic Unit 11050002, on left bank, 600 ft below confluence of Boggy Creek, at mile 47.5.

DRAINAGE AREA. – 70.3 mi².

PERIOD OF RECORD.–February 1996 to current year.

REMARKS.–Low flows regulated by releases of effluent from the City of Enid water treatment plant, 1 mile upstream.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1996-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 145 | 3.33 | 39.7 | 31.9 | 8.8 |
| Nov. | 147 | 5.61 | 30.8 | 16.0 | 6.8 |
| Dec. | 66.2 | 6.15 | 25.5 | 14.4 | 5.6 |
| Jan. | 60.2 | 7.25 | 23.1 | 14.1 | 5.1 |
| Feb. | 101 | 6.49 | 30.1 | 19.6 | 6.6 |
| Mar. | 200 | 7.28 | 56.8 | 25.4 | 12.5 |
| Apr. | 205 | 8.27 | 52.3 | 26.6 | 11.5 |
| May | 71.3 | 9.25 | 39.6 | 48.5 | 8.7 |
| Jun. | 282 | 14.4 | 67.7 | 28.9 | 14.9 |
| Jul. | 120 | 5.93 | 36.1 | 22.2 | 8.0 |
| Aug. | 88.4 | 5.34 | 23.7 | 17.2 | 5.2 |
| Sep. | 71.4 | 3.34 | 27.7 | 20.0 | 6.1 |
| Annual | 98.4 | 16.5 | 38.8 | 29.9 | – |

**Magnitude and probability of annual instantaneous peak flow based on 11 years of record, 1997-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 3,160 | 4,890 | 6,180 | 7,950 | 9,370 | 10,900 | 14,800 |

Oklahoma weighted skew = 0.086

**Duration table of daily mean flow for period of record, 1996-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 590 | 304 | 109 | 50.0 | 33.6 | 24.4 | 18.0 | 14.7 | 12.7 | 10.5 | 8.34 | 6.73 | 5.14 | 4.04 | 3.18 | 2.82 |

**Magnitude and probability of annual low flow based on period of record, 1997-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 3.89 | 2.62 | 2.14 | 1.82 |
| 3 | 4.27 | 2.89 | 2.36 | 2.00 |
| 7 | 4.88 | 3.33 | 2.71 | 2.28 |
| 10 | 5.10 | 3.48 | 2.83 | 2.38 |
| 30 | 6.53 | 4.21 | 3.30 | 2.65 |
| 60 | 8.05 | 5.20 | 4.06 | 3.06 |

**Magnitude and probability of annual low flow based on period of record, 1996-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 7.90 | 5.13 | 4.09 | 3.39 |
| 3 | 8.83 | 5.77 | 4.60 | 3.80 |
| 7 | 10.7 | 6.46 | 5.08 | 4.20 |
| 10 | 11.5 | 6.93 | 5.43 | 4.49 |
| 30 | 18.7 | 10.4 | 7.92 | 6.44 |
| 60 | 35.6 | 19.0 | 13.7 | 10.5 |

**Magnitude and probability of annual low flow based on period of record, 1996-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 4.09 | 2.74 | 2.21 | 1.85 |
| 3 | 4.49 | 3.03 | 2.44 | 2.04 |
| 7 | 4.93 | 3.35 | 2.72 | 2.28 |
| 10 | 5.14 | 3.50 | 2.84 | 2.38 |
| 30 | 6.90 | 4.36 | 3.35 | 2.65 |
| 60 | 10.5 | 5.67 | 4.06 | 3.06 |

**Magnitude and probability of annual low flow based on period of record, 1996-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 7.30 | 4.21 | 3.00 | 2.21 |
| 3 | 7.82 | 4.67 | 3.42 | 2.58 |
| 7 | 8.49 | 5.31 | 3.98 | 3.06 |
| 10 | 8.72 | 5.52 | 4.17 | 3.23 |
| 30 | 10.0 | 6.51 | 5.01 | 3.96 |
| 60 | 11.9 | 7.58 | 6.16 | 5.25 |

ARKANSAS RIVER BASIN

### 07160500 SKELETON CREEK NEAR LOVELL, OKLA.

LOCATION. – Lat 36°03′36″, long 97°35′05″, referenced to North American Datum of 1927, in NW ¼ SW ¼ sec. 1, T.18 N., R.4 W., Logan County, Okla., Hydrologic Unit 11050002, on right bank downstream bridge abutment 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 September 1993, October 2001 to current year.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1950-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 2,450 | 0.40 | 169 | 21.4 | 10.0 |
| Nov. | 1,285 | 1.34 | 99.5 | 19.1 | 5.9 |
| Dec. | 369 | 2.13 | 50.3 | 21.5 | 3.0 |
| Jan. | 357 | 3.23 | 52.9 | 15.9 | 3.1 |
| Feb. | 667 | 3.81 | 69.5 | 21.8 | 4.1 |
| Mar. | 1,320 | 2.55 | 155 | 29.9 | 9.2 |
| Apr. | 847 | 2.80 | 134 | 50.2 | 7.9 |
| May | 2,850 | 4.72 | 373 | 109 | 22.0 |
| Jun. | 1,967 | 8.41 | 259 | 146 | 15.2 |
| Jul. | 992 | 0.34 | 117 | 37.1 | 6.9 |
| Aug. | 966 | 3.45 | 83.1 | 25.6 | 4.9 |
| Sep. | 1,046 | 0.40 | 134 | 56.0 | 7.9 |
| Annual | 501 | 16.9 | 142 | 94.0 | – |

**Magnitude and probability of annual instantaneous peak flow based on 50 years of record, 1950-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 5,720 | 15,200 | 25,800 | 46,100 | 67,500 | 95,600 | 196,000 |

Oklahoma weighted skew = 0.165

**Duration table of daily mean flow for period of record, 1950-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,740 | 1,480 | 471 | 186 | 108 | 70.7 | 37.5 | 24.6 | 17.2 | 12.4 | 9.10 | 6.49 | 4.02 | 2.83 | 1.41 | 0.62 |

**Magnitude and probability of annual low flow based on period of record, 1951-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 2.63 | 0.67 | 0.20 | 0.00 |
| 3 | 3.24 | 1.04 | 0.40 | 0.00 |
| 7 | 3.96 | 1.46 | 0.62 | 0.00 |
| 10 | 4.42 | 1.61 | 0.68 | 0.00 |
| 30 | 7.94 | 2.38 | 0.95 | 0.38 |
| 60 | 10.4 | 4.62 | 2.94 | 2.00 |

**Magnitude and probability of annual low flow based on period of record, 1950-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 9.22 | 4.15 | 2.81 | 2.06 |
| 3 | 10.0 | 4.60 | 3.14 | 2.33 |
| 7 | 11.4 | 5.24 | 3.58 | 2.64 |
| 10 | 12.7 | 5.72 | 3.89 | 2.87 |
| 30 | 33.7 | 11.7 | 6.94 | 4.58 |
| 60 | 114 | 38.1 | 21.7 | 13.7 |

**Magnitude and probability of annual low flow based on period of record, 1950-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 2.70 | 0.67 | 0.20 | 0.00 |
| 3 | 3.37 | 1.06 | 0.40 | 0.00 |
| 7 | 4.11 | 1.48 | 0.63 | 0.00 |
| 10 | 4.56 | 1.64 | 0.69 | 0.00 |
| 30 | 8.82 | 2.47 | 0.97 | 0.38 |
| 60 | 15.3 | 5.71 | 3.34 | 2.12 |

**Magnitude and probability of annual low flow based on period of record, 1950-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 6.11 | 2.55 | 1.62 | 1.12 |
| 3 | 6.84 | 2.93 | 1.90 | 1.34 |
| 7 | 7.59 | 3.41 | 2.30 | 1.69 |
| 10 | 8.09 | 3.72 | 2.54 | 1.88 |
| 30 | 11.3 | 5.28 | 3.72 | 2.84 |
| 60 | 14.4 | 6.44 | 4.47 | 3.40 |

ARKANSAS RIVER BASIN

### 07161000 CIMARRON RIVER AT PERKINS, OKLA.

LOCATION. – Lat 35°57′27″, long 97°01′54″, referenced to North American Datum of 1927, in SW ¼ SW ¼ sec. 7, T.17 N., R.3 E., Payne County, Okla., Hydrologic Unit 11050003, on right bank at downstream side of bridge on U.S. Highway 177, 1.0 mi south of Perkins, 1.5 mi upstream from Dogout Creek, 4.0 mi downstream from Wildhorse Creek, and at mile 87.3.

DRAINAGE AREA. – 17,852 mi², of which 4,926 mi² is probably noncontributing.

PERIOD OF RECORD.–October 1939 to September 1989. Monthly discharges 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.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1940-1989**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 21,390 | 4.09 | 1,576 | 359 | 10.0 |
| Nov. | 11,170 | 2.15 | 896 | 370 | 5.7 |
| Dec. | 2,326 | 3.50 | 481 | 309 | 3.1 |
| Jan. | 2,855 | 7.90 | 490 | 297 | 3.1 |
| Feb. | 4,634 | 26.3 | 721 | 327 | 4.6 |
| Mar. | 6,993 | 28.5 | 1,166 | 420 | 7.4 |
| Apr. | 11,190 | 81.9 | 1,653 | 676 | 10.5 |
| May | 17,800 | 90.6 | 3,270 | 1,778 | 20.8 |
| Jun. | 14,190 | 162 | 2,556 | 1,822 | 16.3 |
| Jul. | 5,251 | 21.6 | 1,088 | 714 | 6.9 |
| Aug. | 5,314 | 18.7 | 655 | 363 | 4.2 |
| Sep. | 4,370 | 23.3 | 1,130 | 698 | 7.2 |
| Annual | 5,281 | 235 | 1,309 | 1,083 | – |

**Magnitude and probability of annual instantaneous peak flow based on 65 years of record, 1927-1991**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 31,100 | 62,700 | 88,300 | 125,000 | 155,000 | 187,000 | 267,000 |

Water Resources Council weighted skew = -0.305

**Duration table of daily mean flow for period of record, 1940-1989**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18,300 | 11,000 | 4,970 | 2,490 | 1,640 | 1,140 | 695 | 477 | 346 | 258 | 186 | 129 | 67.5 | 30.8 | 10.3 | 3.95 |

**Magnitude and probability of annual low flow based on period of record, 1941-1989**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 56.5 | 17.5 | 8.30 | 4.16 |
| 3 | 59.8 | 18.8 | 8.96 | 4.52 |
| 7 | 67.3 | 21.6 | 10.4 | 5.22 |
| 10 | 73.2 | 23.5 | 11.2 | 5.61 |
| 30 | 120 | 38.7 | 18.0 | 8.78 |
| 60 | 200 | 66.8 | 30.9 | 14.6 |

**Magnitude and probability of annual low flow based on period of record, 1940-1989**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 195 | 82.2 | 49.2 | 31.3 |
| 3 | 208 | 87.3 | 52.5 | 33.5 |
| 7 | 228 | 98.0 | 60.6 | 39.9 |
| 10 | 258 | 112 | 70.0 | 46.7 |
| 30 | 511 | 207 | 129 | 86.9 |
| 60 | 1,570 | 568 | 318 | 192 |

**Magnitude and probability of annual low flow based on period of record, 1940-1988**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 62.5 | 19.4 | 9.06 | 4.43 |
| 3 | 65.7 | 20.8 | 9.84 | 4.88 |
| 7 | 73.8 | 24.4 | 11.8 | 6.01 |
| 10 | 80.4 | 26.4 | 12.8 | 6.50 |
| 30 | 134 | 44.0 | 21.1 | 10.6 |
| 60 | 269 | 98.5 | 53.0 | 30.1 |

**Magnitude and probability of annual low flow based on period of record, 1940-1989**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 129 | 32.4 | 12.8 | 5.27 |
| 3 | 137 | 34.6 | 13.6 | 5.63 |
| 7 | 155 | 40.0 | 15.8 | 6.50 |
| 10 | 162 | 42.6 | 17.1 | 7.19 |
| 30 | 218 | 63.8 | 27.6 | 12.4 |
| 60 | 283 | 89.4 | 40.5 | 19.0 |

ARKANSAS RIVER BASIN

### 07161450 CIMARRON RIVER NEAR RIPLEY, OKLA.

LOCATION. – Lat 35°59′09″, long 96°54′43″, referenced to North American Datum of 1927, in SE ¼ SE ¼ sec. 31, T.18 N., R.4 E., Payne County, Okla., Hydrologic Unit 11050003, on right bank at downstream side of bridge on State Highway 33, 2.2 mi upstream from Stillwater Creek, 2.5 mi south of Ripley, 2.8 mi downstream from Sand Creek, 7.0 mi east of Perkins, and at mile 79.2.

DRAINAGE AREA. – 17,979 mi², of which 4,926 mi² is probably noncontributing.

PERIOD OF RECORD.–October 1987 to current year.

REMARKS.–Statistical analysis includes streamflow record from nearby station Cimarron River at Perkins, Okla. (07161000), October 1939 to September 1987.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1940-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 21,390 | 4.09 | 683 | 355 | 10.2 |
| Nov. | 11,490 | 2.15 | 929 | 473 | 7.0 |
| Dec. | 4,585 | 3.50 | 1,702 | 696 | 4.0 |
| Jan. | 3,541 | 7.90 | 2,062 | 949 | 3.0 |
| Feb. | 4,723 | 26.3 | 3,511 | 2,009 | 6.0 |
| Mar. | 9,824 | 28.5 | 3,083 | 1,839 | 9.8 |
| Apr. | 12,610 | 81.9 | 1,336 | 734 | 12.5 |
| May | 26,790 | 90.6 | 873 | 414 | 18.9 |
| Jun. | 18,300 | 162 | 1,139 | 797 | 12.4 |
| Jul. | 13,630 | 21.6 | 1,466 | 492 | 5.4 |
| Aug. | 5,520 | 18.7 | 1,154 | 550 | 4.0 |
| Sep. | 4,554 | 23.3 | 759 | 365 | 6.8 |
| Annual | 5,533 | 235 | 1,560 | 1,347 | – |

**Magnitude and probability of annual instantaneous peak flow based on 68 years of record, 1940-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 36,100 | 69,100 | 93,900 | 127,000 | 152,000 | 178,000 | 238,000 |

Water Resources Council weighted skew = -0.448

**Duration table of daily mean flow for period of record, 1940-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20,900 | 12,900 | 6,240 | 3,180 | 2,120 | 1,540 | 925 | 627 | 451 | 336 | 241 | 164 | 90.8 | 45.7 | 15.1 | 5.63 |

**Magnitude and probability of annual low flow based on period of record, 1941-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 79.7 | 24.3 | 11.4 | 5.70 |
| 3 | 84.0 | 25.9 | 12.3 | 6.18 |
| 7 | 93.2 | 29.5 | 14.1 | 7.12 |
| 10 | 101 | 32.0 | 15.3 | 7.67 |
| 30 | 158 | 52.5 | 24.9 | 12.2 |
| 60 | 248 | 88.3 | 42.1 | 20.4 |

**Magnitude and probability of annual low flow based on period of record, 1940-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 257 | 101 | 59.8 | 38.0 |
| 3 | 272 | 108 | 63.8 | 40.7 |
| 7 | 300 | 120 | 73.1 | 47.7 |
| 10 | 339 | 137 | 84.3 | 55.8 |
| 30 | 670 | 256 | 155 | 102 |
| 60 | 1,750 | 645 | 368 | 226 |

**Magnitude and probability of annual low flow based on period of record, 1940-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 86.4 | 26.3 | 12.3 | 6.08 |
| 3 | 90.5 | 28.0 | 13.3 | 6.65 |
| 7 | 100 | 32.4 | 15.8 | 8.12 |
| 10 | 108 | 35.3 | 17.2 | 8.79 |
| 30 | 174 | 57.7 | 28.2 | 14.4 |
| 60 | 319 | 119 | 65.7 | 38.3 |

**Magnitude and probability of annual low flow based on period of record, 1940-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 182 | 47.0 | 18.7 | 7.80 |
| 3 | 193 | 50.1 | 20.0 | 8.34 |
| 7 | 216 | 57.7 | 23.2 | 9.65 |
| 10 | 225 | 61.2 | 25.0 | 10.6 |
| 30 | 294 | 86.4 | 38.0 | 17.4 |
| 60 | 368 | 114 | 53.2 | 26.0 |

ARKANSAS RIVER BASIN

### 07163000 COUNCIL CREEK NEAR STILLWATER, OKLA.

LOCATION. – Lat 36°06′58″, long 96°52′03″, referenced to North American Datum of 1927, in NE ¼ NW ¼ sec. 22, T.19 N., R.4 E., Payne County, Okla., Hydrologic Unit 11050003, on right bank at downstream side of bridge on State Highway 51, 10.0 mi east of Stillwater, and at mile 10.0.

DRAINAGE AREA. – 31 mi².

PERIOD OF RECORD.–March 1934 to September 1993.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1934-1993**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 429 | 0.00 | 15.7 | 1.40 | 10.2 |
| Nov. | 186 | 0.00 | 10.8 | 0.96 | 7.0 |
| Dec. | 73.4 | 0.00 | 6.15 | 0.76 | 4.0 |
| Jan. | 42.1 | 0.00 | 4.65 | 1.21 | 3.0 |
| Feb. | 122 | 0.00 | 9.23 | 1.73 | 6.0 |
| Mar. | 133 | 0.00 | 15.0 | 6.37 | 9.8 |
| Apr. | 158 | 0.00 | 19.0 | 6.46 | 12.4 |
| May | 218 | 0.00 | 28.8 | 12.0 | 18.8 |
| Jun. | 95.8 | 0.04 | 18.9 | 8.55 | 12.3 |
| Jul. | 110 | 0.00 | 8.24 | 1.08 | 5.4 |
| Aug. | 129 | 0.00 | 6.13 | 0.57 | 4.0 |
| Sep. | 113 | 0.00 | 10.7 | 1.94 | 7.0 |
| Annual | 54.2 | 0.68 | 12.9 | 9.82 | – |

**Magnitude and probability of annual instantaneous peak flow based on 82 historic years of record, 1912-1993**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 2,200 | 4,610 | 7,000 | 11,200 | 15,300 | 20,600 | 38,200 |

Oklahoma weighted skew = 0.368

**Duration table of daily mean flow for period of record, 1934-1993**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 296 | 135 | 30.1 | 9.43 | 5.28 | 3.56 | 1.89 | 1.07 | 0.50 | 0.24 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1936-1993**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 0.04 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1935-1993**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.51 | 0.00 | 0.00 | 0.00 |
| 3 | 0.58 | 0.00 | 0.00 | 0.00 |
| 7 | 0.67 | 0.08 | 0.00 | 0.00 |
| 10 | 0.88 | 0.10 | 0.00 | 0.00 |
| 30 | 3.04 | 0.77 | 0.32 | 0.00 |
| 60 | 14.6 | 4.09 | 1.84 | 0.89 |

**Magnitude and probability of annual low flow based on period of record, 1935-1992**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1935-1993**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.04 | 0.00 | 0.00 | 0.00 |
| 3 | 0.06 | 0.00 | 0.00 | 0.00 |
| 7 | 0.10 | 0.00 | 0.00 | 0.00 |
| 10 | 0.12 | 0.00 | 0.00 | 0.00 |
| 30 | 0.29 | 0.00 | 0.00 | 0.00 |
| 60 | 0.49 | 0.04 | 0.00 | 0.00 |

ARKANSAS RIVER BASIN

### 07163500 CIMARRON RIVER AT OILTON, OKLA.

LOCATION. – Lat 36°05′38″, long 96°34′52″, referenced to North American Datum of 1927, in SW ¼ sec. 28, T.19 N., R.7 E., Creek County, Okla., Hydrologic Unit 11050003, 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, of which 4,926 mi² is probably noncontributing.

PERIOD OF RECORD.–October 1934 to September 1945.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1935-1945**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 9,512 | 21.1 | 1,427 | 658 | 12.5 |
| Nov. | 2,148 | 13.3 | 560 | 493 | 4.4 |
| Dec. | 1,447 | 17.1 | 429 | 294 | 3.1 |
| Jan. | 566 | 16.3 | 241 | 193 | 2.4 |
| Feb. | 814 | 77.4 | 289 | 199 | 4.1 |
| Mar. | 1,694 | 77.7 | 650 | 350 | 4.3 |
| Apr. | 12,920 | 96.9 | 2,682 | 1,058 | 13.6 |
| May | 9,152 | 136 | 2,931 | 2,168 | 16.9 |
| Jun. | 6,150 | 707 | 2,911 | 3,043 | 15.4 |
| Jul. | 3,097 | 106 | 976 | 823 | 9.4 |
| Aug. | 2,671 | 10.2 | 683 | 441 | 6.5 |
| Sep. | 3,394 | 25.3 | 1,141 | 893 | 7.4 |
| Annual | 3,346 | 367 | 1,245 | 1,275 | – |

**Magnitude and probability of annual instantaneous peak flow based on 11 years of record, 1935-1945**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 39,300 | 85,100 | 64,300 | 76,300 | 85,100 | 93,700 | 113,000 |

Water Resources Council weighted skew = -0.157

**Duration table of daily mean flow for period of record, 1935-1945**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17,000 | 10,800 | 5,130 | 2,690 | 1,760 | 1,240 | 707 | 471 | 325 | 225 | 156 | 103 | 58.5 | 29.5 | 13.0 | 9.10 |

**Magnitude and probability of annual low flow based on period of record, 1936-1945**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 37.7 | 12.0 | 0.00 | 0.00 |
| 3 | 41.6 | 13.0 | 0.00 | 0.00 |
| 7 | 54.8 | 10.3 | 3.11 | 0.97 |
| 10 | 59.2 | 11.4 | 3.50 | 1.11 |
| 30 | 81.7 | 21.5 | 9.15 | 4.15 |
| 60 | 99.7 | 36.0 | 20.3 | 12.4 |

**Magnitude and probability of annual low flow based on period of record, 1935-1945 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 155 | 59.2 | 33.5 | 20.3 |
| 3 | 164 | 63.2 | 36.3 | 22.3 |
| 7 | 194 | 78.8 | 47.6 | 30.9 |
| 10 | 222 | 85.1 | 52.0 | 34.9 |
| 30 | 564 | 214 | 128 | 83.3 |
| 60 | 1,980 | 621 | 307 | 163 |

**Magnitude and probability of annual low flow based on period of record, 1935-1944 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 48.5 | 13.1 | 0.00 | 0.00 |
| 3 | 52.5 | 14.4 | 0.00 | 0.00 |
| 7 | 65.9 | 11.6 | 3.32 | 0.98 |
| 10 | 72.6 | 12.9 | 3.75 | 1.12 |
| 30 | 105 | 25.2 | 9.96 | 4.20 |
| 60 | 259 | 64.5 | 28.1 | 13.4 |

**Magnitude and probability of annual low flow based on period of record, 1935-1945 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 71.4 | 31.3 | 18.3 | 11.2 |
| 3 | 76.5 | 33.5 | 19.8 | 12.2 |
| 7 | 87.7 | 37.0 | 22.0 | 13.8 |
| 10 | 91.2 | 38.5 | 23.1 | 14.6 |
| 30 | 139 | 55.8 | 31.9 | 19.2 |
| 60 | 173 | 68.4 | 38.1 | 22.2 |

ARKANSAS RIVER BASIN

### 07164000 CIMARRON RIVER AT MANNFORD, OKLA.

LOCATION. – Lat 36°09′32″, long 96°23′54″, referenced to North American Datum of 1927, in SW ¼ NW ¼ sec. 5, T.19 N., R.9 E., Creek County, Okla., Hydrologic Unit 11050003, 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. Monthly discharge only for some periods, published in WSP 1311.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1939-1963**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 16,900 | 18.8 | 2,599 | 987 | 3.6 |
| Nov. | 4,103 | 16.7 | 920 | 657 | 5.0 |
| Dec. | 1,561 | 18.1 | 637 | 408 | 9.1 |
| Jan. | 1,179 | 18.8 | 501 | 361 | 11.0 |
| Feb. | 3,962 | 117 | 845 | 426 | 18.8 |
| Mar. | 1,934 | 89.2 | 899 | 881 | 16.5 |
| Apr. | 13,730 | 334 | 2,842 | 1,121 | 7.1 |
| May | 13,290 | 484 | 3,525 | 2,204 | 4.7 |
| Jun. | 5,873 | 669 | 3,202 | 3,119 | 6.1 |
| Jul. | 6,082 | 457 | 1,954 | 1,202 | 7.8 |
| Aug. | 5,851 | 96.8 | 1,350 | 764 | 6.2 |
| Sep. | 5,609 | 29.4 | 1,544 | 1,218 | 4.0 |
| Annual | 3,816 | 432 | 1,784 | 1,707 | – |

**Magnitude and probability of annual instantaneous peak flow based on 28 historic years of record, 1936-1963**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 41,400 | 76,000 | 102,000 | 135,000 | 161,000 | 186,000 | 247,000 |

Water Resources Council weighted skew = -0.422

**Duration table of daily mean flow for period of record, 1939-1963**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23,300 | 14,100 | 6,380 | 3,540 | 2,420 | 1,840 | 1,120 | 744 | 534 | 410 | 307 | 206 | 109 | 63.8 | 23.0 | 15.5 |

**Magnitude and probability of annual low flow based on period of record, 1940-1963**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 83.7 | 30.9 | 16.2 | 8.94 |
| 3 | 89.6 | 34.7 | 19.1 | 11.1 |
| 7 | 106 | 40.8 | 22.3 | 12.8 |
| 10 | 112 | 43.7 | 23.9 | 13.7 |
| 30 | 166 | 63.2 | 35.4 | 21.1 |
| 60 | 249 | 96.0 | 52.4 | 30.0 |

**Magnitude and probability of annual low flow based on period of record, 1939-1963 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 272 | 125 | 73.8 | 44.5 |
| 3 | 286 | 131 | 77.8 | 47.4 |
| 7 | 306 | 147 | 96.6 | 67.1 |
| 10 | 338 | 163 | 112 | 83.3 |
| 30 | 836 | 376 | 251 | 182 |
| 60 | 2,100 | 912 | 591 | 414 |

**Magnitude and probability of annual low flow based on period of record, 1939-1962 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 94.3 | 33.7 | 17.4 | 9.45 |
| 3 | 99.0 | 37.8 | 20.7 | 11.9 |
| 7 | 113 | 43.6 | 23.6 | 13.4 |
| 10 | 124 | 47.7 | 25.7 | 14.5 |
| 30 | 197 | 70.6 | 38.0 | 21.7 |
| 60 | 429 | 136 | 67.8 | 36.3 |

**Magnitude and probability of annual low flow based on period of record, 1939-1963 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 148 | 57.4 | 31.5 | 18.1 |
| 3 | 161 | 62.2 | 34.0 | 19.5 |
| 7 | 183 | 68.6 | 36.6 | 20.4 |
| 10 | 193 | 72.1 | 38.2 | 21.2 |
| 30 | 270 | 109 | 58.6 | 32.4 |
| 60 | 378 | 156 | 83.2 | 45.1 |

ARKANSAS RIVER BASIN

### 07164500 ARKANSAS RIVER AT TULSA, OKLA.

LOCATION. – Lat 36°08′26″, long 96°00′22″, referenced to North American Datum of 1927, in NE ¼ SW ¼ sec. 11, T.19 N., R.12 E., Tulsa County, Okla., Hydrologic Unit 11110101, at right abutment on downstream side of 11th Street bridge 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.–Except for 109 mi² intervening area, flow completely regulated by Keystone Lake (station 07164200) since September 1964. Prior to September 1964, minor regulation by John Martin Lake in Colorado and by Great Salt Plains Lake (station 07150000).

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1926-1964**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 56,740 | 125 | 6,673 | 2,716 | 8.5 |
| Nov. | 25,160 | 240 | 3,706 | 2,559 | 4.7 |
| Dec. | 15,520 | 210 | 2,782 | 2,115 | 3.5 |
| Jan. | 12,630 | 211 | 2,561 | 1,723 | 3.3 |
| Feb. | 29,690 | 311 | 3,275 | 2,372 | 4.2 |
| Mar. | 14,320 | 407 | 4,223 | 2,525 | 5.4 |
| Apr. | 40,540 | 531 | 9,268 | 4,256 | 11.8 |
| May | 58,090 | 720 | 13,422 | 7,646 | 17.1 |
| Jun. | 61,100 | 881 | 12,756 | 9,149 | 16.2 |
| Jul. | 56,650 | 305 | 8,988 | 5,563 | 11.4 |
| Aug. | 32,880 | 196 | 5,408 | 2,810 | 6.9 |
| Sep. | 24,760 | 89.5 | 5,453 | 4,444 | 7.0 |
| Annual | 15,620 | 1,280 | 6,554 | 5,540 | – |

**Magnitude and probability of annual instantaneous peak flow based on 42 historic years of record, 1923-1964**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 81,300 | 144,000 | 190,000 | 250,000 | 295,000 | 341,000 | 449,000 |

Water Resources Council weighted skew = -0.378

**Duration table of daily mean flow for period of record, 1926-1964**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 72,400 | 49,300 | 25,800 | 14,700 | 10,100 | 7,490 | 4,900 | 3,430 | 2,560 | 1,960 | 1,400 | 981 | 610 | 380 | 215 | 143 |

**Magnitude and probability of annual low flow based on period of record, 1927-1964**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 611 | 245 | 140 | 85.0 |
| 3 | 642 | 252 | 144 | 87.6 |
| 7 | 696 | 272 | 155 | 94.1 |
| 10 | 728 | 286 | 165 | 101 |
| 30 | 911 | 364 | 213 | 132 |
| 60 | 1,230 | 521 | 317 | 206 |

**Magnitude and probability of annual low flow based on period of record, 1926-1964 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1,580 | 824 | 582 | 436 |
| 3 | 1,700 | 874 | 610 | 451 |
| 7 | 1,900 | 965 | 670 | 493 |
| 10 | 2,090 | 1,010 | 688 | 500 |
| 30 | 3,600 | 1,530 | 978 | 678 |
| 60 | 7,420 | 3,010 | 1,840 | 1,210 |

**Magnitude and probability of annual low flow based on period of record, 1926-1963 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 764 | 278 | 151 | 87.7 |
| 3 | 782 | 286 | 157 | 91.2 |
| 7 | 821 | 302 | 166 | 97.6 |
| 10 | 858 | 318 | 176 | 104 |
| 30 | 1,160 | 416 | 229 | 136 |
| 60 | 1,970 | 684 | 372 | 218 |

**Magnitude and probability of annual low flow based on period of record, 1926-1964 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 841 | 393 | 253 | 172 |
| 3 | 872 | 412 | 269 | 186 |
| 7 | 961 | 458 | 301 | 209 |
| 10 | 1,010 | 481 | 315 | 218 |
| 30 | 1,350 | 637 | 410 | 278 |
| 60 | 1,580 | 759 | 497 | 343 |

ARKANSAS RIVER BASIN

**07164500 ARKANSAS RIVER AT TULSA, OKLA.—Continued**

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1965-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 72,720 | 305 | 7,197 | 2,771 | 6.9 |
| Nov. | 54,540 | 58.8 | 7,225 | 3,112 | 6.9 |
| Dec. | 16,830 | 84.8 | 4,749 | 3,013 | 4.5 |
| Jan. | 19,850 | 163 | 5,044 | 3,336 | 4.8 |
| Feb. | 22,500 | 494 | 5,719 | 3,807 | 5.4 |
| Mar. | 42,890 | 490 | 11,408 | 7,302 | 10.9 |
| Apr. | 44,460 | 557 | 12,115 | 9,540 | 11.5 |
| May | 81,400 | 881 | 14,031 | 11,520 | 13.4 |
| Jun. | 69,820 | 1,633 | 15,476 | 10,990 | 14.8 |
| Jul. | 52,540 | 1,314 | 10,553 | 7,345 | 10.1 |
| Aug. | 32,970 | 783 | 6,126 | 4,073 | 5.8 |
| Sep. | 23,280 | 893 | 5,307 | 4,026 | 5.1 |
| Annual | 22,930 | 1,813 | 8,755 | 7,893 | – |

**Magnitude and probability of annual instantaneous peak flow based on 43 years of record, 1965-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 44,600 | 80,200 | 111,000 | 158,000 | 199,000 | 247,000 | 388,000 |

station skew = 0.227

**Duration table of daily mean flow for period of record, 1965-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58,500 | 47,300 | 32,300 | 23,000 | 17,100 | 13,200 | 8,990 | 6,240 | 4,310 | 2,990 | 2,030 | 1,270 | 638 | 313 | 163 | 87.6 |

**Magnitude and probability of annual low flow based on period of record, 1966-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 150 | 72.8 | 50.3 | 37.2 |
| 3 | 412 | 201 | 127 | 84.0 |
| 7 | 794 | 402 | 249 | 157 |
| 10 | 890 | 451 | 276 | 170 |
| 30 | 1,320 | 624 | 366 | 218 |
| 60 | 1,800 | 841 | 501 | 306 |

**Magnitude and probability of annual low flow based on period of record, 1965-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 614 | 200 | 115 | 74.8 |
| 3 | 1,540 | 565 | 331 | 212 |
| 7 | 2,790 | 1,130 | 690 | 451 |
| 10 | 3,150 | 1,260 | 765 | 500 |
| 30 | 5,750 | 2,240 | 1,290 | 793 |
| 60 | 9,940 | 4,180 | 2,500 | 1,590 |

**Magnitude and probability of annual low flow based on period of record, 1965-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 224 | 91.3 | 57.4 | 39.3 |
| 3 | 588 | 267 | 166 | 108 |
| 7 | 1,030 | 480 | 288 | 178 |
| 10 | 1,150 | 534 | 317 | 192 |
| 30 | 1,690 | 896 | 642 | 488 |
| 60 | 2,570 | 1,420 | 1,050 | 814 |

**Magnitude and probability of annual low flow based on period of record, 1965-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 214 | 90.5 | 60.6 | 44.5 |
| 3 | 483 | 212 | 139 | 98.9 |
| 7 | 1,030 | 445 | 271 | 174 |
| 10 | 1,210 | 512 | 301 | 186 |
| 30 | 1,860 | 755 | 437 | 267 |
| 60 | 2,520 | 1,010 | 574 | 343 |

ARKANSAS RIVER BASIN

### 07164600 JOE CREEK AT 61ST STREET AT TULSA, OKLA.

LOCATION. – Lat 36°04′32″, long 95°57′37″, referenced to North American Datum of 1927, in SE ¼ SE ¼ sec. 31, T.19 N., R.13 E., Tulsa County, Okla., Hydrologic Unit 11110101, at right upstream abutment of 61st Street bridge, .2 mi west of Lewis Avenue, 4 mi north of Jenks and at mile 2.1.

DRAINAGE AREA. – 12.2 mi².

PERIOD OF RECORD.–March 1988 to current year.

REMARKS.–Urban watershed in the city of Tulsa, Okla..

**UNREGULATED URBAN STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1988-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 53.4 | 3.29 | 17.2 | 11.4 | 6.8 |
| Nov. | 54.1 | 1.36 | 17.6 | 11.5 | 6.9 |
| Dec. | 45.3 | 1.75 | 16.5 | 10.7 | 6.5 |
| Jan. | 28.1 | 1.66 | 12.5 | 12.4 | 5.0 |
| Feb. | 37.2 | 0.96 | 13.7 | 12.8 | 5.4 |
| Mar. | 65.6 | 4.04 | 22.1 | 16.2 | 8.7 |
| Apr. | 71.3 | 2.85 | 29.2 | 25.1 | 11.5 |
| May | 107 | 12.2 | 41.4 | 36.7 | 16.4 |
| Jun. | 92.7 | 1.87 | 31.5 | 21.9 | 12.5 |
| Jul. | 56.8 | 2.39 | 17.3 | 13.1 | 6.8 |
| Aug. | 57.7 | 1.19 | 15.3 | 9.05 | 6.0 |
| Sep. | 43.5 | 3.59 | 18.6 | 15.1 | 7.4 |
| Annual | 35.2 | 9.49 | 21.4 | 19.8 | – |

**Magnitude and probability of annual instantaneous peak flow based on 18 years of record, 1990-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 6,080 | 8,220 | 9,640 | 11,500 | 12,800 | 14,200 | 17,600 |

station skew = 0.088

**Duration table of daily mean flow for period of record, 1988-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 367 | 251 | 118 | 40.8 | 18.0 | 10.3 | 5.39 | 3.83 | 2.88 | 2.24 | 1.75 | 1.40 | 1.03 | 0.83 | 0.66 | 0.57 |

**Magnitude and probability of annual low flow based on period of record, 1990-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.59 | 0.45 | 0.37 | 0.31 |
| 3 | 0.67 | 0.48 | 0.39 | 0.32 |
| 7 | 0.82 | 0.60 | 0.50 | 0.42 |
| 10 | 0.91 | 0.66 | 0.54 | 0.46 |
| 30 | 1.77 | 1.28 | 1.10 | 0.98 |
| 60 | 3.72 | 2.52 | 2.03 | 1.69 |

**Magnitude and probability of annual low flow based on period of record, 1989-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.46 | 0.98 | 0.78 | 0.64 |
| 3 | 1.73 | 1.16 | 0.93 | 0.76 |
| 7 | 2.06 | 1.49 | 1.24 | 1.06 |
| 10 | 2.79 | 1.82 | 1.51 | 1.32 |
| 30 | 16.1 | 7.32 | 4.73 | 3.26 |
| 60 | 33.9 | 20.6 | 15.4 | 11.9 |

**Magnitude and probability of annual low flow based on period of record, 1989-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.64 | 0.45 | 0.37 | 0.31 |
| 3 | 0.74 | 0.49 | 0.39 | 0.32 |
| 7 | 0.90 | 0.63 | 0.51 | 0.42 |
| 10 | 1.02 | 0.70 | 0.56 | 0.47 |
| 30 | 2.29 | 1.50 | 1.25 | 1.10 |
| 60 | 5.59 | 3.44 | 2.69 | 2.21 |

**Magnitude and probability of annual low flow based on period of record, 1989-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.93 | 0.66 | 0.56 | 0.49 |
| 3 | 1.05 | 0.77 | 0.66 | 0.58 |
| 7 | 1.18 | 0.84 | 0.71 | 0.62 |
| 10 | 1.23 | 0.87 | 0.75 | 0.67 |
| 30 | 3.35 | 1.88 | 1.36 | 1.04 |
| 60 | 6.13 | 3.38 | 2.39 | 1.75 |

ARKANSAS RIVER BASIN

### 07165500 POLECAT CREEK BELOW HEYBURN RESERVOIR NEAR HEYBURN, OKLA.

LOCATION. – Lat 35°56′42″, long 96°17′39″, referenced to North American Datum of 1927, in NW ¼ NW ¼ sec. 19, T.17 N., R.10 E., Creek County, Okla., 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. Prior of October 1956, published as "Polecat Creek at Heyburn" and October 1956 to September 1970 as "Polecat Creek below Heyburn Reservoir near Heyburn".

REMARKS.–Flow completely regulated by Heyburn Lake (station 07165000) since September 1950.

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1951-1979**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 373 | 0.00 | 28.5 | 1.28 | 4.9 |
| Nov. | 677 | 0.00 | 41.3 | 1.01 | 7.1 |
| Dec. | 267 | 0.00 | 19.8 | 1.23 | 3.4 |
| Jan. | 88.4 | 0.00 | 13.1 | 2.18 | 2.2 |
| Feb. | 238 | 0.00 | 26.6 | 7.81 | 4.6 |
| Mar. | 423 | 0.00 | 54.8 | 14.1 | 9.4 |
| Apr. | 601 | 0.20 | 91.4 | 49.6 | 15.7 |
| May | 678 | 0.08 | 109 | 69.4 | 18.7 |
| Jun. | 580 | 1.27 | 106 | 27.4 | 18.2 |
| Jul. | 277 | 0.00 | 39.9 | 3.17 | 6.8 |
| Aug. | 146 | 0.00 | 14.0 | 1.52 | 2.4 |
| Sep. | 419 | 0.00 | 38.0 | 5.13 | 6.5 |
| Annual | 143 | 1.78 | 48.4 | 35.3 | – |

**Magnitude and probability of annual instantaneous peak flow based on 29 years of record, 1951-1979**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 1,390 | 1,890 | 2,160 | 2,450 | 2,630 | 2,790 | 3,080 |

station skew = -0.749

**Duration table of daily mean flow for period of record, 1951-1979**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,040 | 589 | 237 | 93.3 | 49.8 | 31.0 | 14.2 | 6.05 | 1.92 | 0.47 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1952-1979**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 0.11 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1951-1979**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.36 | 0.00 | 0.00 | 0.00 |
| 3 | 0.50 | 0.00 | 0.00 | 0.00 |
| 7 | 1.14 | 0.00 | 0.00 | 0.00 |
| 10 | 1.50 | 0.00 | 0.00 | 0.00 |
| 30 | 27.9 | 3.70 | 0.86 | 0.21 |
| 60 | 89.5 | 19.9 | 5.96 | 1.73 |

**Magnitude and probability of annual low flow based on period of record, 1951-1978**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.04 | 0.00 | 0.00 | 0.00 |
| 60 | 0.62 | 0.01 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1951-1979**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.02 | 0.00 | 0.00 | 0.00 |
| 30 | 0.29 | 0.00 | 0.00 | 0.00 |
| 60 | 0.86 | 0.03 | 0.00 | 0.00 |

ARKANSAS RIVER BASIN

### 07165562 HAIKEY CREEK AT 101ST STREET SOUTH AT TULSA, OKLA.

LOCATION. – Lat 36°01′01″, long 95°50′55″, referenced to North American Datum of 1927, in NW ¼ NW ¼ sec. 29, T.18 N., R.14 E., Tulsa County, Okla.,Hydrologic Unit 11110101, near right upstream abutment of 101st Street South bridge, 1.0 mi downstream from unnamed tributary, 2.0 mi upstream from Little Haikey Creek, and at mile 6.4.

DRAINAGE AREA. – 17.8 mi².

PERIOD OF RECORD.–January 1988 to current year.

REMARKS.–Urban watershed in the city of Tulsa, Okla..

**UNREGULATED URBAN STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1988-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 75.9 | 0.74 | 17.0 | 9.08 | 6.4 |
| Nov. | 68.2 | 0.39 | 20.2 | 11.8 | 7.6 |
| Dec. | 62.3 | 0.55 | 18.8 | 10.4 | 7.1 |
| Jan. | 41.9 | 1.59 | 13.9 | 13.3 | 5.3 |
| Feb. | 41.5 | 0.65 | 15.2 | 13.9 | 5.8 |
| Mar. | 120 | 6.22 | 31.1 | 18.4 | 11.8 |
| Apr. | 82.3 | 5.07 | 28.8 | 20.4 | 10.9 |
| May | 125 | 6.22 | 38.1 | 29.7 | 14.4 |
| Jun. | 97.9 | 1.73 | 32.4 | 21.3 | 12.2 |
| Jul. | 72.3 | 0.48 | 18.4 | 9.62 | 7.0 |
| Aug. | 49.6 | 0.36 | 13.8 | 5.3 | 5.2 |
| Sep. | 54.3 | 1.33 | 17.0 | 14.8 | 6.4 |
| Annual | 33.8 | 11.0 | 22.3 | 22.8 | – |

**Magnitude and probability of annual instantaneous peak flow based on 20 years of record, 1988-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 2,940 | 5,000 | 6,500 | 8,490 | 10,000 | 11,600 | 15,400 |

station skew = -0.260

**Duration table of daily mean flow for period of record, 1988-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 426 | 271 | 111 | 36.6 | 16.8 | 10.3 | 5.17 | 3.35 | 2.24 | 1.32 | 0.76 | 0.37 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1990-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.47 | 0.09 | 0.03 | 0.01 |
| 60 | 1.78 | 0.73 | 0.44 | 0.28 |

**Magnitude and probability of annual low flow based on period of record, 1989-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.60 | 0.05 | 0.00 | 0.00 |
| 3 | 0.78 | 0.33 | 0.00 | 0.00 |
| 7 | 1.30 | 0.63 | 0.00 | 0.00 |
| 10 | 2.03 | 0.59 | 0.21 | 0.00 |
| 30 | 13.3 | 6.03 | 4.00 | 2.86 |
| 60 | 29.2 | 15.9 | 11.4 | 8.52 |

**Magnitude and probability of annual low flow based on period of record, 1989-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.47 | 0.15 | 0.09 | 0.05 |
| 60 | 3.11 | 1.30 | 0.81 | 0.55 |

**Magnitude and probability of annual low flow based on period of record, 1989-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.28 | 0.00 | 0.00 | 0.00 |
| 3 | 0.35 | 0.00 | 0.00 | 0.00 |
| 7 | 0.47 | 0.09 | 0.00 | 0.00 |
| 10 | 0.60 | 0.15 | 0.05 | 0.00 |
| 30 | 2.08 | 0.78 | 0.46 | 0.29 |
| 60 | 4.87 | 2.01 | 1.17 | 0.72 |

ARKANSAS RIVER BASIN

### 07165565 LITTLE HAIKEY CREEK AT 101ST STREET SOUTH AT TULSA, OKLA.

LOCATION. – Lat 36°01′03″, long 95°51′38″, referenced to North American Datum of 1927, in SE ¼ SW ¼ sec. 19, T.18 N., R.14 E., Tulsa County, Okla., Hydrologic Unit 11110101, near right upstream abutment of 101st Street South bridge, and at mile 2.0.

DRAINAGE AREA. – 5.45 mi².

PERIOD OF RECORD.–October 1987 to current year.

REMARKS.–Urban watershed in the city of Tulsa, Okla..

**UNREGULATED URBAN STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1988-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 24.0 | 0.12 | 5.39 | 3.19 | 6.2 |
| Nov. | 32.9 | 0.15 | 7.30 | 4.92 | 8.4 |
| Dec. | 19.9 | 0.35 | 6.35 | 3.86 | 7.3 |
| Jan. | 13.1 | 0.26 | 4.28 | 3.75 | 4.9 |
| Feb. | 16.0 | 0.12 | 4.92 | 3.85 | 5.6 |
| Mar. | 28.3 | 1.54 | 9.54 | 7.82 | 10.9 |
| Apr. | 23.1 | 1.44 | 8.83 | 7.19 | 10.1 |
| May | 45.2 | 2.09 | 14.1 | 9.17 | 16.1 |
| Jun. | 42.1 | 0.15 | 10.5 | 7.55 | 12.0 |
| Jul. | 18.5 | 0.04 | 5.61 | 4.29 | 6.4 |
| Aug. | 23.5 | 0.14 | 5.12 | 1.55 | 5.9 |
| Sep. | 15.2 | 0.78 | 5.49 | 5.00 | 6.3 |
| Annual | 15.7 | 2.73 | 7.29 | 6.99 | – |

**Magnitude and probability of annual instantaneous peak flow based on 20 years of record, 1988-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 1,170 | 1,880 | 2,470 | 3,390 | 4,210 | 5,160 | 7,990 |

station skew = 0.554

**Duration table of daily mean flow for period of record, 1988-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 133 | 85.4 | 35.0 | 14.7 | 7.64 | 4.61 | 2.31 | 1.29 | 0.88 | 0.54 | 0.30 | 0.13 | 0.01 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1989-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.17 | 0.05 | 0.02 | 0.01 |
| 60 | 0.64 | 0.28 | 0.18 | 0.13 |

**Magnitude and probability of annual low flow based on period of record, 1988-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.25 | 0.00 | 0.00 | 0.00 |
| 3 | 0.34 | 0.00 | 0.00 | 0.00 |
| 7 | 0.52 | 0.11 | 0.00 | 0.00 |
| 10 | 0.83 | 0.16 | 0.04 | 0.00 |
| 30 | 4.34 | 1.77 | 1.07 | 0.69 |
| 60 | 9.48 | 4.82 | 3.27 | 2.33 |

**Magnitude and probability of annual low flow based on period of record, 1988-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.26 | 0.09 | 0.05 | 0.03 |
| 60 | 1.33 | 0.55 | 0.33 | 0.21 |

**Magnitude and probability of annual low flow based on period of record, 1988-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.08 | 0.00 | 0.00 | 0.00 |
| 3 | 0.13 | 0.00 | 0.00 | 0.00 |
| 7 | 0.20 | 0.03 | 0.00 | 0.00 |
| 10 | 0.29 | 0.06 | 0.02 | 0.00 |
| 30 | 0.81 | 0.24 | 0.12 | 0.06 |
| 60 | 1.60 | 0.57 | 0.31 | 0.18 |

ARKANSAS RIVER BASIN

### 07165570 ARKANSAS RIVER NEAR HASKELL, OKLA.

LOCATION. – Lat 35°49′15″, long 95°38′19″, referenced to North American Datum of 1927, in SW ¼ NW ¼ sec. 32, T.16 N., R.16 E., Muskogee County, Okla., Hydrologic Unit 11110101, 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 mi², of which 12,541 mi² is probably noncontributing.

PERIOD OF RECORD.–June 1972 to current year.

REMARKS.–Except for 858 mi² intervening area, flow regulated by Keystone Lake (station 07164200) 55.1 mi upstream.

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1973-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 75,500 | 564 | 8,738 | 2,616 | 6.8 |
| Nov. | 58,300 | 220 | 8,597 | 4,372 | 6.7 |
| Dec. | 19,930 | 771 | 5,856 | 3,460 | 4.6 |
| Jan. | 23,470 | 567 | 6,270 | 3,948 | 4.9 |
| Feb. | 25,540 | 549 | 7,451 | 5,036 | 5.8 |
| Mar. | 50,990 | 722 | 14,785 | 9,828 | 11.5 |
| Apr. | 46,910 | 638 | 14,842 | 12,250 | 11.6 |
| May | 85,550 | 2,472 | 17,423 | 14,090 | 13.6 |
| Jun. | 78,480 | 2,407 | 18,871 | 14,260 | 14.7 |
| Jul. | 56,630 | 1,671 | 12,489 | 8,930 | 9.7 |
| Aug. | 32,540 | 1,171 | 7,282 | 4,966 | 5.7 |
| Sep. | 23,690 | 870 | 5,671 | 3,929 | 4.4 |
| Annual | 25,680 | 2,097 | 10,700 | 9,323 | – |

**Magnitude and probability of annual instantaneous peak flow based on 35 years of record, 1973-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 54,900 | 92,600 | 123,000 | 168,000 | 206,000 | 248,000 | 366,000 |

station skew = 0.179

**Duration table of daily mean flow for period of record, 1972-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 66,700 | 53,300 | 38,000 | 27,200 | 21,100 | 16,900 | 11,500 | 8,020 | 5,670 | 3,850 | 2,590 | 1,640 | 890 | 615 | 432 | 318 |

**Magnitude and probability of annual low flow based on period of record, 1974-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 413 | 218 | 153 | 114 |
| 3 | 664 | 389 | 287 | 221 |
| 7 | 918 | 522 | 376 | 281 |
| 10 | 986 | 553 | 396 | 296 |
| 30 | 1,370 | 739 | 517 | 377 |
| 60 | 1,910 | 1,010 | 693 | 496 |

**Magnitude and probability of annual low flow based on period of record, 1973-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1,870 | 753 | 466 | 313 |
| 3 | 2,780 | 1,220 | 789 | 547 |
| 7 | 4,300 | 1,860 | 1,150 | 755 |
| 10 | 4,840 | 2,060 | 1,260 | 819 |
| 30 | 8,240 | 3,360 | 1,940 | 1,180 |
| 60 | 13,300 | 6,370 | 4,120 | 2,790 |

**Magnitude and probability of annual low flow based on period of record, 1973-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 539 | 274 | 190 | 140 |
| 3 | 803 | 437 | 318 | 244 |
| 7 | 1,130 | 590 | 419 | 316 |
| 10 | 1,200 | 620 | 436 | 325 |
| 30 | 1,860 | 983 | 715 | 554 |
| 60 | 2,860 | 1,530 | 1,110 | 854 |

**Magnitude and probability of annual low flow based on period of record, 1973-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 636 | 309 | 209 | 150 |
| 3 | 948 | 480 | 341 | 258 |
| 7 | 1,350 | 653 | 446 | 326 |
| 10 | 1,500 | 715 | 481 | 345 |
| 30 | 2,290 | 1,050 | 680 | 470 |
| 60 | 3,090 | 1,420 | 923 | 637 |

ARKANSAS RIVER BASIN

## 07170500 VERDIGRIS RIVER AT INDEPENDENCE, KANS.

LOCATION. – Lat 37°13′25″, long 95°40′39″, referenced to North American Datum of 1927, in SW ¼ SE ¼ SE ¼ sec. 32, T.32 S., R.16 E., Montgomery County, Kans., Hydrologic Unit 11070103, on left bank at downstream side of bridge on U.S. Highway 160, 1.0 mi east of Independence, 3.7 mi downstream from Elk River, and at mile 194.2.

DRAINAGE AREA. – 2,892 mi².

PERIOD OF RECORD.–August 1895 to September 1904, October 1921 to current year.

REMARKS.–Flow regulated since 1949 by Fall River Lake (station 07168000), since 1960 by Toronto Lake (station 07165900), and since 1966 by Elk City Lake (station 07170050).

### UNREGULATED STREAMFLOW PERIOD

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1896-1959**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 8,547 | 0.00 | 1,079 | 80.3 | 5.9 |
| Nov. | 6,721 | 0.00 | 900 | 210 | 5.0 |
| Dec. | 4,224 | 0.00 | 615 | 203 | 3.4 |
| Jan. | 3,736 | 0.00 | 590 | 279 | 3.2 |
| Feb. | 7,074 | 0.00 | 697 | 354 | 3.8 |
| Mar. | 8,473 | 8.26 | 1,432 | 833 | 7.9 |
| Apr. | 19,180 | 9.23 | 3,058 | 1,308 | 16.8 |
| May | 17,240 | 58.7 | 3,187 | 1,818 | 17.5 |
| Jun. | 13,800 | 32.6 | 3,145 | 2,108 | 17.3 |
| Jul. | 24,070 | 11.8 | 1,993 | 515 | 11.0 |
| Aug. | 4,770 | 0.36 | 501 | 120 | 2.8 |
| Sep. | 6,572 | 0.20 | 1,009 | 214 | 5.5 |
| Annual | 4,105 | 65.6 | 1,518 | 1,238 | – |

**Magnitude and probability of annual instantaneous peak flow based on 75 historic years of record, 1885-1959**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 24,700 | 42,900 | 58,000 | 80,500 | 100,000 | 122,000 | 184,000 |

Water Resources Council weighted skew = 0.177

**Duration table of daily mean flow for period of record, 1895-1959**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25,100 | 17,200 | 8,040 | 3,000 | 1,700 | 1,130 | 652 | 402 | 238 | 121 | 56.6 | 28.2 | 10.4 | 3.80 | 0.29 | 0.03 |

**Magnitude and probability of annual low flow based on period of record, 1897-1959**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 5.04 | 0.33 | 0.00 | 0.00 |
| 3 | 5.65 | 0.38 | 0.00 | 0.00 |
| 7 | 7.00 | 0.58 | 0.02 | 0.00 |
| 10 | 7.88 | 0.73 | 0.04 | 0.00 |
| 30 | 18.3 | 2.82 | 0.83 | 0.24 |
| 60 | 43.0 | 8.98 | 3.36 | 1.25 |

**Magnitude and probability of annual low flow based on period of record, 1896-1959**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 155 | 38.0 | 14.3 | 5.55 |
| 3 | 179 | 45.6 | 17.2 | 6.63 |
| 7 | 223 | 61.0 | 25.3 | 10.9 |
| 10 | 255 | 69.7 | 29.7 | 13.3 |
| 30 | 829 | 252 | 115 | 54.7 |
| 60 | 2,430 | 876 | 452 | 245 |

**Magnitude and probability of annual low flow based on period of record, 1896-1958**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 6.03 | 0.64 | 0.00 | 0.00 |
| 3 | 6.87 | 0.79 | 0.00 | 0.00 |
| 7 | 8.71 | 0.98 | 0.15 | 0.00 |
| 10 | 10.2 | 1.36 | 0.27 | 0.00 |
| 30 | 25.2 | 3.99 | 1.17 | 0.32 |
| 60 | 82.8 | 12.7 | 3.94 | 1.35 |

**Magnitude and probability of annual low flow based on period of record, 1896-1959**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 24.0 | 2.99 | 0.28 | 0.00 |
| 3 | 26.3 | 2.42 | 0.40 | 0.01 |
| 7 | 30.4 | 3.16 | 0.59 | 0.02 |
| 10 | 33.8 | 3.72 | 0.73 | 0.03 |
| 30 | 72.8 | 14.6 | 5.27 | 1.88 |
| 60 | 124 | 27.4 | 10.6 | 4.11 |

ARKANSAS RIVER BASIN

**07170500 VERDIGRIS RIVER AT INDEPENDENCE, KANS.—Continued**

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

| Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1967-2007 | | | | | |
|---|---|---|---|---|---|
| **Month** | **Maximum** | **Minimum** | **Mean** | **Median** | **Average % of Annual Runoff** |
| Oct. | 21,880 | 18.3 | 1,625 | 264 | 6.3 |
| Nov. | 13,130 | 23.1 | 2,046 | 246 | 7.9 |
| Dec. | 7,961 | 28.0 | 1,440 | 706 | 5.6 |
| Jan. | 6,799 | 16.8 | 1,320 | 529 | 5.1 |
| Feb. | 6,186 | 16.7 | 1,655 | 1,129 | 6.4 |
| Mar. | 13,500 | 18.5 | 3,188 | 2,680 | 12.4 |
| Apr. | 12,520 | 13.6 | 3,112 | 1,785 | 12.1 |
| May | 9,018 | 74.3 | 3,401 | 3,120 | 13.2 |
| Jun. | 11,820 | 67.1 | 4,069 | 2,858 | 15.8 |
| Jul. | 20,210 | 26.6 | 2,295 | 788 | 8.9 |
| Aug. | 4,967 | 20.9 | 789 | 296 | 3.1 |
| Sep. | 4,888 | 13.2 | 860 | 235 | 3.3 |
| Annual | 4,753 | 199 | 2,149 | 1,915 | – |

| Magnitude and probability of annual instantaneous peak flow based on 41 years of record, 1967-2007 | | | | | | |
|---|---|---|---|---|---|---|
| Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent | | | | | | |
| **2** | **5** | **10** | **25** | **50** | **100** | **500** |
| **15%** | **5%** | **10%** | **4%** | **2%** | **1%** | **0.2%** |
| 21,500 | 37,000 | 50,700 | 72,500 | 92,600 | 116,000 | 190,000 |

station skew = 0.506

| Duration table of daily mean flow for period of record, 1967-2007 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time | | | | | | | | | | | | | | | |
| **1%** | **2%** | **5%** | **10%** | **15%** | **20%** | **30%** | **40%** | **50%** | **60%** | **70%** | **80%** | **90%** | **95%** | **98%** | **99%** |
| 17,400 | 14,600 | 10,300 | 7,090 | 5,010 | 3,490 | 1,670 | 815 | 421 | 200 | 107 | 57.4 | 33.1 | 23.5 | 17.4 | 14.2 |

**Magnitude and probability of annual low flow based on period of record, 1968-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 22.6 | 11.2 | 7.07 | 4.58 |
| 3 | 24.0 | 12.2 | 7.88 | 5.25 |
| 7 | 26.0 | 14.8 | 10.8 | 8.05 |
| 10 | 28.6 | 16.6 | 12.3 | 9.22 |
| 30 | 45.1 | 24.9 | 18.1 | 13.8 |
| 60 | 84.1 | 39.4 | 27.5 | 20.8 |

**Magnitude and probability of annual low flow based on period of record, 1967-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 165 | 51.6 | 26.5 | 14.8 |
| 3 | 183 | 56.1 | 28.6 | 15.9 |
| 7 | 236 | 67.7 | 33.4 | 18.1 |
| 10 | 279 | 77.1 | 37.6 | 20.3 |
| 30 | 954 | 261 | 120 | 60.6 |
| 60 | 2,730 | 1,020 | 526 | 283 |

**Magnitude and probability of annual low flow based on period of record, 1967-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 24.2 | 11.6 | 7.31 | 4.79 |
| 3 | 25.5 | 12.4 | 8.13 | 5.56 |
| 7 | 26.3 | 14.8 | 11.3 | 9.21 |
| 10 | 28.6 | 16.6 | 13.2 | 11.2 |
| 30 | 53.1 | 27.2 | 20.2 | 16.3 |
| 60 | 120 | 48.0 | 31.8 | 23.3 |

**Magnitude and probability of annual low flow based on period of record, 1967-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 54.4 | 21.7 | 14.3 | 10.4 |
| 3 | 58.2 | 22.8 | 15.0 | 10.9 |
| 7 | 62.9 | 24.2 | 15.9 | 11.7 |
| 10 | 69.0 | 26.3 | 17.2 | 12.6 |
| 30 | 146 | 44.9 | 25.4 | 16.3 |
| 60 | 312 | 81.5 | 39.3 | 21.2 |

ARKANSAS RIVER BASIN

### 07170700 BIG HILL CREEK NEAR CHERRYVALE, KANS.

LOCATION. – Lat 37°16′00″, long 95°28′08″, referenced to North American Datum of 1927, in NE ¼ NE ¼ sec. 7, T.32 S., R.18 E., Labette County, Kans., Hydrologic Unit 11070103, on right bank upstream side of county highway bridge, 4.3 mi east of Cherryvale, and at mile 32.5.

DRAINAGE AREA. – 37 mi².

PERIOD OF RECORD.–October 1957 to current year.

REMARKS.–Flow completely regulated since 1981 by Big Hill Lake (station 07170695), 1,200 ft upstream.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1958-1980**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 94.0 | 0.00 | 19.2 | 4.83 | 6.1 |
| Nov. | 135 | 0.00 | 30.5 | 2.33 | 9.6 |
| Dec. | 116 | 0.00 | 16.3 | 2.94 | 5.2 |
| Jan. | 145 | 0.00 | 19.5 | 6.64 | 6.2 |
| Feb. | 57.8 | 0.00 | 14.4 | 5.89 | 4.6 |
| Mar. | 228 | 0.00 | 43.2 | 13.7 | 13.6 |
| Apr. | 155 | 0.75 | 35.0 | 15.7 | 11.0 |
| May | 269 | 1.52 | 36.8 | 19.8 | 11.6 |
| Jun. | 219 | 0.03 | 46.9 | 27.9 | 14.8 |
| Jul. | 403 | 0.00 | 33.7 | 0.79 | 10.6 |
| Aug. | 18.2 | 0.00 | 2.49 | 0.34 | 0.8 |
| Sep. | 117 | 0.00 | 19.2 | 0.93 | 6.1 |
| Annual | 65.6 | 4.54 | 26.4 | 24.8 | – |

**Magnitude and probability of annual instantaneous peak flow based on 30 historic years of record, 1951-1980**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 3,590 | 6,600 | 9,090 | 12,800 | 16,000 | 19,500 | 29,200 |

Oklahoma weighted skew = 0.020

**Duration table of daily mean flow for period of record, 1958-1980**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 561 | 262 | 91.0 | 32.5 | 17.5 | 11.6 | 5.88 | 3.19 | 1.64 | 0.73 | 0.29 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1959-1980**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 0.09 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1958-1980**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.70 | 0.16 | 0.06 | 0.01 |
| 3 | 0.80 | 0.18 | 0.07 | 0.01 |
| 7 | 1.10 | 0.28 | 0.12 | 0.03 |
| 10 | 1.44 | 0.30 | 0.12 | 0.05 |
| 30 | 7.43 | 2.21 | 1.14 | 0.65 |
| 60 | 21.2 | 9.13 | 5.96 | 4.22 |

**Magnitude and probability of annual low flow based on period of record, 1958-1979**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 0.16 | 0.02 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1958-1980**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.18 | 0.00 | 0.00 | 0.00 |
| 3 | 0.28 | 0.00 | 0.00 | 0.00 |
| 7 | 0.36 | 0.00 | 0.00 | 0.00 |
| 10 | 0.39 | 0.00 | 0.00 | 0.00 |
| 30 | 0.89 | 0.06 | 0.00 | 0.00 |
| 60 | 1.78 | 0.16 | 0.03 | 0.00 |

ARKANSAS RIVER BASIN

**07170700 BIG HILL CREEK NEAR CHERRYVALE, KANS.—Continued**

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1982-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 384 | 0.00 | 24.1 | 0.11 | 7.5 |
| Nov. | 151 | 0.00 | 21.9 | 1.55 | 6.8 |
| Dec. | 143 | 0.00 | 16.7 | 3.86 | 5.2 |
| Jan. | 122 | 0.00 | 17.6 | 2.20 | 5.5 |
| Feb. | 164 | 0.00 | 23.2 | 7.54 | 7.2 |
| Mar. | 203 | 0.00 | 36.0 | 14.2 | 11.2 |
| Apr. | 219 | 0.00 | 36.9 | 14.8 | 11.4 |
| May | 203 | 0.00 | 58.6 | 39.5 | 18.2 |
| Jun. | 209 | 0.00 | 48.6 | 25.0 | 15.0 |
| Jul. | 198 | 0.00 | 20.3 | 0.71 | 6.3 |
| Aug. | 97.4 | 0.00 | 9.04 | 0.07 | 2.8 |
| Sep. | 123 | 0.00 | 9.70 | 0.12 | 3.0 |
| Annual | 70.0 | 0.07 | 26.9 | 24.7 | – |

**Magnitude and probability of annual instantaneous peak flow based on 26 years of record, 1982-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 808 | 1,330 | 1,520 | 1,630 | 1,670 | 1,690 | 1,710 |

station skew = -1.679

**Duration table of daily mean flow for period of record, 1982-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 464 | 277 | 128 | 63.5 | 37.7 | 24.0 | 9.78 | 3.01 | 0.52 | 0.10 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1983-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1982-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.19 | 0.00 | 0.00 | 0.00 |
| 3 | 0.24 | 0.00 | 0.00 | 0.00 |
| 7 | 0.39 | 0.01 | 0.00 | 0.00 |
| 10 | 0.51 | 0.02 | 0.00 | 0.00 |
| 30 | 4.64 | 0.33 | 0.04 | 0.00 |
| 60 | 32.4 | 8.44 | 3.18 | 0.73 |

**Magnitude and probability of annual low flow based on period of record, 1982-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.01 | 0.00 | 0.00 | 0.00 |
| 60 | 0.04 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1982-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | 0.01 | 0.00 | 0.00 | 0.00 |
| 10 | 0.02 | 0.00 | 0.00 | 0.00 |
| 30 | 0.12 | 0.00 | 0.00 | 0.00 |
| 60 | 0.63 | 0.02 | 0.00 | 0.00 |

ARKANSAS RIVER BASIN

### 07171000 VERDIGRIS RIVER NEAR LENAPAH, OKLA.

LOCATION. – Lat 36°51′04″, long 95°35′09″, referenced to North American Datum of 1927, in NE ¼ SW ¼ sec. 3, T.27 N., R.16 E., Nowata County, Okla., Hydrologic Unit 11070103, on right bank on downstream side of county road bridge, 2.8 mi east of Lenapah, 5.5(revised) 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 City Lake in Kansas.

#### UNREGULATED STREAMFLOW PERIOD

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1939-1959**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 13,540 | 0.94 | 1,645 | 251 | 6.6 |
| Nov. | 5,858 | 0.00 | 776 | 175 | 3.1 |
| Dec. | 4,610 | 0.00 | 594 | 172 | 2.4 |
| Jan. | 5,624 | 0.00 | 905 | 281 | 3.6 |
| Feb. | 8,356 | 4.41 | 1,024 | 470 | 4.1 |
| Mar. | 10,210 | 2.26 | 2,204 | 636 | 8.8 |
| Apr. | 19,110 | 9.93 | 4,310 | 1,732 | 17.2 |
| May | 26,290 | 59.9 | 4,002 | 2,577 | 16.0 |
| Jun. | 15,560 | 83.5 | 3,737 | 1,172 | 15.0 |
| Jul. | 25,170 | 16.9 | 3,554 | 641 | 14.2 |
| Aug. | 3,832 | 2.72 | 644 | 167 | 2.6 |
| Sep. | 6,906 | 0.43 | 1,586 | 255 | 6.4 |
| Annual | 4,356 | 120 | 2,084 | 2,423 | – |

**Magnitude and probability of annual instantaneous peak flow based on 21 years of record, 1939-1959**

| Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent | | | | | | |
|---|---|---|---|---|---|---|
| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 33,800 | 58,000 | 77,700 | 107,000 | 132,000 | 161,000 | 240,000 |

Water Resources Council weighted skew = 0.185

**Duration table of daily mean flow for period of record, 1939-1959**

| Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
| 32,200 | 23,600 | 11,800 | 4,960 | 2,610 | 1,620 | 795 | 475 | 249 | 126 | 59.4 | 22.5 | 8.11 | 3.59 | 0.05 | 0.02 |

**Magnitude and probability of annual low flow based on period of record, 1940-1959**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 9.59 | 1.08 | 0.00 | 0.00 |
| 3 | 10.6 | 1.35 | 0.00 | 0.00 |
| 7 | 12.5 | 1.71 | 0.00 | 0.00 |
| 10 | 14.1 | 2.00 | 0.00 | 0.00 |
| 30 | 23.8 | 3.42 | 0.00 | 0.00 |
| 60 | 58.2 | 7.91 | 1.93 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1939-1959 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 141 | 26.3 | 8.78 | 3.15 |
| 3 | 164 | 32.1 | 10.9 | 3.94 |
| 7 | 203 | 40.8 | 14.5 | 5.52 |
| 10 | 237 | 51.4 | 19.4 | 7.92 |
| 30 | 1,040 | 271 | 109 | 45.7 |
| 60 | 3,220 | 929 | 396 | 175 |

**Magnitude and probability of annual low flow based on period of record, 1939-1958 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 11.3 | 1.30 | 0.00 | 0.00 |
| 3 | 12.3 | 1.59 | 0.00 | 0.00 |
| 7 | 13.8 | 1.84 | 0.00 | 0.00 |
| 10 | 15.0 | 2.00 | 0.00 | 0.00 |
| 30 | 31.8 | 3.42 | 0.71 | 0.00 |
| 60 | 89.6 | 11.6 | 3.58 | 1.28 |

**Magnitude and probability of annual low flow based on period of record, 1939-1959 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 30.7 | 6.06 | 2.22 | 0.25 |
| 3 | 31.8 | 6.35 | 2.34 | 0.26 |
| 7 | 33.7 | 6.82 | 2.54 | 0.29 |
| 10 | 35.8 | 7.21 | 2.67 | 0.30 |
| 30 | 61.8 | 11.8 | 4.09 | 0.36 |
| 60 | 102 | 20.3 | 7.20 | 0.67 |

ARKANSAS RIVER BASIN

**07171000 VERDIGRIS RIVER NEAR LENAPAH, OKLA.—Continued**

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

| Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1967-2007 | | | | | |
|---|---|---|---|---|---|
| **Month** | **Maximum** | **Minimum** | **Mean** | **Median** | **Average % of Annual Runoff** |
| Oct. | 27,970 | 15.5 | 2,053 | 524 | 6.2 |
| Nov. | 15,440 | 20.0 | 2,660 | 443 | 8.0 |
| Dec. | 11,000 | 29.2 | 1,882 | 884 | 5.7 |
| Jan. | 7,998 | 17.6 | 1,696 | 671 | 5.1 |
| Feb. | 8,983 | 20.0 | 2,142 | 1,319 | 6.4 |
| Mar. | 17,130 | 19.7 | 4,266 | 3,146 | 12.8 |
| Apr. | 16,300 | 30.2 | 3,924 | 2,307 | 11.8 |
| May | 12,540 | 366 | 4,593 | 4,205 | 13.8 |
| Jun. | 19,160 | 84.3 | 5,175 | 4,023 | 15.6 |
| Jul. | 25,480 | 17.9 | 2,847 | 1,118 | 8.6 |
| Aug. | 5,364 | 16.1 | 937 | 336 | 2.8 |
| Sep. | 5,614 | 9.99 | 1,073 | 323 | 3.2 |
| Annual | 6,227 | 300 | 2,770 | 2,529 | – |

| Magnitude and probability of annual instantaneous peak flow based on 41 years of record, 1967-2007 | | | | | | |
|---|---|---|---|---|---|---|
| Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent | | | | | | |
| **2** | **5** | **10** | **25** | **50** | **100** | **500** |
| **15%** | **5%** | **10%** | **4%** | **2%** | **1%** | **0.2%** |
| 31,300 | 51,400 | 67,200 | 90,200 | 110,000 | 131,000 | 189,000 |

station skew = 0.187

| Duration table of daily mean flow for period of record, 1967-2007 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time | | | | | | | | | | | | | | | |
| **1%** | **2%** | **5%** | **10%** | **15%** | **20%** | **30%** | **40%** | **50%** | **60%** | **70%** | **80%** | **90%** | **95%** | **98%** | **99%** |
| 24,700 | 19,700 | 12,800 | 8,680 | 6,050 | 4,230 | 2,090 | 1,110 | 601 | 296 | 152 | 74.2 | 38.9 | 24.4 | 16.3 | 11.8 |

**Magnitude and probability of annual low flow based on period of record, 1968-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 21.9 | 11.2 | 7.60 | 5.45 |
| 3 | 23.3 | 11.9 | 8.11 | 5.81 |
| 7 | 27.1 | 14.3 | 9.97 | 7.27 |
| 10 | 30.1 | 16.1 | 11.5 | 8.36 |
| 30 | 54.1 | 26.3 | 17.7 | 12.7 |
| 60 | 111 | 45.1 | 28.3 | 19.3 |

**Magnitude and probability of annual low flow based on period of record, 1967-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 248 | 74.5 | 36.2 | 18.9 |
| 3 | 281 | 81.5 | 38.8 | 19.9 |
| 7 | 355 | 97.6 | 45.6 | 23.3 |
| 10 | 421 | 113 | 52.5 | 26.8 |
| 30 | 1,330 | 416 | 211 | 116 |
| 60 | 3,380 | 1,420 | 838 | 519 |

**Magnitude and probability of annual low flow based on period of record, 1967-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 22.2 | 11.2 | 7.97 | 6.04 |
| 3 | 23.7 | 12.0 | 8.54 | 6.45 |
| 7 | 27.1 | 14.3 | 10.4 | 8.16 |
| 10 | 30.1 | 16.1 | 12.0 | 9.63 |
| 30 | 65.6 | 29.3 | 19.7 | 14.4 |
| 60 | 166 | 58.1 | 34.4 | 22.5 |

**Magnitude and probability of annual low flow based on period of record, 1967-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 73.2 | 25.4 | 15.0 | 9.81 |
| 3 | 77.9 | 26.4 | 15.6 | 10.2 |
| 7 | 88.0 | 29.4 | 17.4 | 11.5 |
| 10 | 94.5 | 31.8 | 19.0 | 12.7 |
| 30 | 216 | 61.5 | 32.3 | 19.0 |
| 60 | 421 | 107 | 49.8 | 26.0 |

ARKANSAS RIVER BASIN

### 07171400 VERDIGRIS RIVER NEAR OOLOGAH, OKLA.

LOCATION. – Lat 36°25′14″, long 95°41′03″, referenced to North American Datum of 1927, in NW ¼, NW¼, sec. 2, Rogers County, Okla., 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 September 1992.

REMARKS.–Some regulation by several dams in Kansas prior to May 1963, and completely regulated thereafter by Oologah Lake (station 07171300).

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1964-1992**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 27,500 | 5.44 | 2,189 | 167 | 6.4 |
| Nov. | 14,870 | 1.87 | 2,860 | 453 | 8.4 |
| Dec. | 10,020 | 1.14 | 2,085 | 930 | 6.1 |
| Jan. | 11,120 | 0.76 | 2,249 | 850 | 6.6 |
| Feb. | 6,863 | 0.71 | 1,940 | 1,343 | 5.7 |
| Mar. | 19,100 | 0.88 | 4,162 | 2,713 | 12.2 |
| Apr. | 17,990 | 28.0 | 5,233 | 3,926 | 15.4 |
| May | 19,430 | 25.5 | 3,616 | 2,398 | 10.6 |
| Jun. | 12,830 | 51.7 | 4,923 | 3,132 | 14.4 |
| Jul. | 16,630 | 13.7 | 2,968 | 1,778 | 8.7 |
| Aug. | 7,030 | 12.0 | 910 | 221 | 2.7 |
| Sep. | 4,095 | 2.63 | 966 | 140 | 2.8 |
| Annual | 6,679 | 218 | 2,841 | 2,665 | – |

**Magnitude and probability of annual instantaneous peak flow based on 29 years of record, 1964-1992**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 20,500 | 27,900 | 32,600 | 38,300 | 42,300 | 46,200 | 55,000 |

station skew = -0.206

**Duration table of daily mean flow for period of record, 1964-1992**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27,100 | 20,800 | 13,800 | 9,270 | 6,680 | 4,910 | 2,760 | 1,250 | 510 | 129 | 71.2 | 28.9 | 9.71 | 2.71 | 1.02 | 0.57 |

**Magnitude and probability of annual low flow based on period of record, 1965-1992**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 2.60 | 0.07 | 0.00 | 0.00 |
| 3 | 3.87 | 0.29 | 0.00 | 0.00 |
| 7 | 7.64 | 1.15 | 0.00 | 0.00 |
| 10 | 9.44 | 1.24 | 0.28 | 0.04 |
| 30 | 17.5 | 3.79 | 1.67 | 0.84 |
| 60 | 41.1 | 7.68 | 3.19 | 1.54 |

**Magnitude and probability of annual low flow based on period of record, 1964-1992 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 112 | 18.3 | 6.65 | 2.78 |
| 3 | 153 | 23.1 | 7.84 | 3.06 |
| 7 | 278 | 44.1 | 15.1 | 5.92 |
| 10 | 352 | 54.7 | 18.5 | 7.09 |
| 30 | 972 | 184 | 69.4 | 29.2 |
| 60 | 3,160 | 645 | 214 | 74.1 |

**Magnitude and probability of annual low flow based on period of record, 1964-1991 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 5.52 | 0.49 | 0.00 | 0.00 |
| 3 | 7.47 | 0.64 | 0.06 | 0.00 |
| 7 | 13.8 | 2.47 | 0.65 | 0.00 |
| 10 | 15.4 | 2.68 | 0.76 | 0.25 |
| 30 | 35.0 | 9.06 | 4.72 | 2.84 |
| 60 | 105 | 26.2 | 13.4 | 7.86 |

**Magnitude and probability of annual low flow based on period of record, 1964-1992 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 14.0 | 0.74 | 0.05 | 0.00 |
| 3 | 18.3 | 1.60 | 0.22 | 0.00 |
| 7 | 23.5 | 2.14 | 0.37 | 0.00 |
| 10 | 30.8 | 2.66 | 0.59 | 0.10 |
| 30 | 83.8 | 7.34 | 1.92 | 0.61 |
| 60 | 230 | 19.0 | 4.28 | 1.14 |

ARKANSAS RIVER BASIN

### 07172000 CANEY RIVER NEAR ELGIN, KANS.

LOCATION. – Lat 37°00′14″, long 96°18′59″, referenced to North American Datum of 1927, in NW ¼ NW ¼ SE ¼ sec. 16, T.35 S., R.10 E., Chautauqua County, Kans., Hydrologic Unit 11070106, on right bank at upstream side of county highway bridge, 2 mi west of Elgin, and at mile 117.8.

DRAINAGE AREA. – 445 mi².

PERIOD OF RECORD.–October 1939 to current year. Monthly discharge only for some periods, published in WSP 1311.

REMARKS.–Flow regulated since 1965 by numerous floodwater-retarding structures.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1940-1964**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 1,787 | 0.00 | 221 | 18.9 | 7.9 |
| Nov. | 1,511 | 0.00 | 129 | 27.1 | 4.6 |
| Dec. | 752 | 0.00 | 89.0 | 17.8 | 3.2 |
| Jan. | 693 | 0.00 | 96.5 | 21.0 | 3.4 |
| Feb. | 1,214 | 0.00 | 124 | 41.1 | 4.4 |
| Mar. | 1,113 | 0.00 | 229 | 89.0 | 8.2 |
| Apr. | 2,511 | 0.47 | 496 | 212 | 17.7 |
| May | 3,041 | 7.37 | 526 | 260 | 18.8 |
| Jun. | 2,242 | 9.35 | 308 | 94.2 | 11.0 |
| Jul. | 1,611 | 0.00 | 255 | 34.3 | 9.1 |
| Aug. | 1,039 | 0.00 | 76.7 | 12.3 | 2.7 |
| Sep. | 2,058 | 0.00 | 257 | 21.7 | 9.1 |
| Annual | 566 | 10.2 | 234 | 242 | – |

**Magnitude and probability of annual instantaneous peak flow based on 26 years of record, 1939-1964**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 14,300 | 30,500 | 43,200 | 60,200 | 73,200 | 86,100 | 116,000 |

Oklahoma weighted skew = -0.581

**Duration table of daily mean flow for period of record, 1940-1964**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,410 | 2,160 | 811 | 407 | 247 | 166 | 91.5 | 50.5 | 26.2 | 12.7 | 4.31 | 0.81 | 0.03 | 0.01 | 0.01 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1941-1964**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.48 | 0.00 | 0.00 | 0.00 |
| 3 | 0.84 | 0.00 | 0.00 | 0.00 |
| 7 | 1.08 | 0.00 | 0.00 | 0.00 |
| 10 | 1.20 | 0.00 | 0.00 | 0.00 |
| 30 | 2.05 | 0.00 | 0.00 | 0.00 |
| 60 | 7.24 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1940-1964**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 21.0 | 0.00 | 0.00 | 0.00 |
| 3 | 27.3 | 1.89 | 0.00 | 0.00 |
| 7 | 37.6 | 2.60 | 0.00 | 0.00 |
| 10 | 39.4 | 3.24 | 0.16 | 0.00 |
| 30 | 97.6 | 18.5 | 6.40 | 2.41 |
| 60 | 303 | 75.3 | 31.8 | 14.5 |

**Magnitude and probability of annual low flow based on period of record, 1940-1963**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.63 | 0.00 | 0.00 | 0.00 |
| 3 | 0.84 | 0.00 | 0.00 | 0.00 |
| 7 | 1.09 | 0.00 | 0.00 | 0.00 |
| 10 | 1.20 | 0.00 | 0.00 | 0.00 |
| 30 | 1.66 | 0.00 | 0.00 | 0.00 |
| 60 | 8.52 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1940-1964**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 4.57 | 0.00 | 0.00 | 0.00 |
| 3 | 5.64 | 0.00 | 0.00 | 0.00 |
| 7 | 6.10 | 0.00 | 0.00 | 0.00 |
| 10 | 6.46 | 0.00 | 0.00 | 0.00 |
| 30 | 10.8 | 0.00 | 0.00 | 0.00 |
| 60 | 13.3 | 0.51 | 0.00 | 0.00 |

ARKANSAS RIVER BASIN

**07172000 CANEY RIVER NEAR ELGIN, KANS.—Continued**

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1965-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 5,482 | 0.00 | 245 | 15.8 | 6.6 |
| Nov. | 1,929 | 0.00 | 282 | 59.4 | 7.6 |
| Dec. | 800 | 0.00 | 188 | 83.8 | 5.0 |
| Jan. | 1,130 | 0.04 | 185 | 63.6 | 5.0 |
| Feb. | 1,279 | 0.12 | 254 | 97.7 | 6.8 |
| Mar. | 2,502 | 0.18 | 532 | 359 | 14.2 |
| Apr. | 1,856 | 0.08 | 502 | 370 | 13.4 |
| May | 2,431 | 14.5 | 573 | 450 | 15.3 |
| Jun. | 5,567 | 6.85 | 639 | 298 | 17.1 |
| Jul. | 2,012 | 0.53 | 201 | 45.0 | 5.4 |
| Aug. | 617 | 0.00 | 52.2 | 15.6 | 1.4 |
| Sep. | 893 | 0.00 | 86.4 | 15.2 | 2.3 |
| Annual | 891 | 8.61 | 311 | 277 | – |

**Magnitude and probability of annual instantaneous peak flow based on 43 years of record, 1965-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 16,600 | 29,700 | 39,300 | 52,000 | 61,800 | 71,600 | 95,000 |

station skew = -0.362

Duration table of daily mean flow for period of record, 1965-2007

Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,200 | 2,680 | 1,360 | 654 | 410 | 286 | 163 | 91.8 | 51.2 | 28.3 | 11.4 | 4.20 | 0.55 | 0.04 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1966-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.06 | 0.00 | 0.00 | 0.00 |
| 3 | 0.13 | 0.00 | 0.00 | 0.00 |
| 7 | 0.25 | 0.00 | 0.00 | 0.00 |
| 10 | 0.32 | 0.00 | 0.00 | 0.00 |
| 30 | 1.26 | 0.04 | 0.00 | 0.00 |
| 60 | 4.51 | 0.34 | 0.02 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1965-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 56.1 | 7.71 | 1.42 | 0.19 |
| 3 | 61.3 | 8.38 | 1.52 | 0.20 |
| 7 | 68.1 | 11.3 | 2.60 | 0.47 |
| 10 | 81.6 | 12.8 | 3.00 | 0.69 |
| 30 | 246 | 62.9 | 19.4 | 5.60 |
| 60 | 447 | 154 | 74.7 | 37.6 |

**Magnitude and probability of annual low flow based on period of record, 1965-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.06 | 0.00 | 0.00 | 0.00 |
| 3 | 0.14 | 0.00 | 0.00 | 0.00 |
| 7 | 0.27 | 0.00 | 0.00 | 0.00 |
| 10 | 0.37 | 0.00 | 0.00 | 0.00 |
| 30 | 1.32 | 0.05 | 0.00 | 0.00 |
| 60 | 5.81 | 0.90 | 0.26 | 0.07 |

**Magnitude and probability of annual low flow based on period of record, 1965-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 9.43 | 0.28 | 0.00 | 0.00 |
| 3 | 10.3 | 0.34 | 0.00 | 0.00 |
| 7 | 11.3 | 0.47 | 0.00 | 0.00 |
| 10 | 11.7 | 0.61 | 0.00 | 0.00 |
| 30 | 23.2 | 1.99 | 0.20 | 0.00 |
| 60 | 38.5 | 4.86 | 1.19 | 0.27 |

ARKANSAS RIVER BASIN

### 07173000 CANEY RIVER NEAR HULAH, OKLA.

LOCATION. – Lat 36°55′37″, long 96°05′06″, referenced to North American Datum of 1927, in SW ¼ SE ¼ sec. 2, T.28 N, R.11 E, Osage County, Okla.,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 September 1993.

REMARKS.–Flow completely regulated since February 1950 by Hulah Lake (07172500). About 5 to 9 ft3/s is diverted from gaging pool for municipal water supply by the city of Bartlesville.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1938-1949**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 1,784 | 0.00 | 343 | 4.66 | 7.2 |
| Nov. | 720 | 0.00 | 95.4 | 37.5 | 2.0 |
| Dec. | 1,083 | 0.00 | 168 | 27.4 | 3.5 |
| Jan. | 1,014 | 0.00 | 182 | 79.8 | 3.8 |
| Feb. | 1,748 | 0.41 | 272 | 94.3 | 5.7 |
| Mar. | 1,731 | 0.81 | 398 | 279 | 8.3 |
| Apr. | 3,977 | 101 | 1,176 | 427 | 24.5 |
| May | 3,976 | 44.7 | 896 | 532 | 18.7 |
| Jun. | 1,250 | 22.7 | 520 | 383 | 10.8 |
| Jul. | 1,791 | 8.94 | 239 | 52.1 | 5.0 |
| Aug. | 722 | 0.61 | 87.5 | 21.6 | 1.8 |
| Sep. | 2,484 | 0.00 | 413 | 35.2 | 8.6 |
| Annual | 824 | 39.3 | 398 | 366 | – |

**Magnitude and probability of annual instantaneous peak flow based on 12 years of record, 1938-1949**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 15,400 | 28,400 | 37,900 | 50,500 | 60,200 | 69,900 | 92,600 |

Oklahoma weighted skew = -0.413

**Duration table of daily mean flow for period of record, 1938-1949**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6,780 | 4,350 | 1,620 | 668 | 419 | 275 | 147 | 86.1 | 45.6 | 20.2 | 8.53 | 3.90 | 1.35 | 0.04 | 0.02 | 0.01 |

**Magnitude and probability of annual low flow based on period of record, 1939-1949**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.37 | 0.00 | 0.00 | 0.00 |
| 3 | 1.40 | 0.00 | 0.00 | 0.00 |
| 7 | 1.52 | 0.02 | 0.00 | 0.00 |
| 10 | 1.48 | 0.06 | 0.00 | 0.00 |
| 30 | 2.61 | 0.33 | 0.00 | 0.00 |
| 60 | 6.30 | 0.82 | 0.05 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1938-1949**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 44.0 | 13.6 | 3.41 | 0.00 |
| 3 | 48.9 | 14.2 | 3.55 | 0.00 |
| 7 | 64.2 | 14.9 | 4.01 | 1.26 |
| 10 | 72.8 | 15.0 | 4.84 | 1.61 |
| 30 | 245 | 92.1 | 51.9 | 31.2 |
| 60 | 788 | 278 | 147 | 82.7 |

**Magnitude and probability of annual low flow based on period of record, 1938-1948**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.37 | 0.00 | 0.00 | 0.00 |
| 3 | 1.40 | 0.00 | 0.00 | 0.00 |
| 7 | 1.52 | 0.02 | 0.00 | 0.00 |
| 10 | 1.48 | 0.06 | 0.00 | 0.00 |
| 30 | 2.68 | 0.34 | 0.00 | 0.00 |
| 60 | 11.3 | 4.22 | 1.54 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1938-1949**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 4.84 | 0.48 | 0.00 | 0.00 |
| 3 | 6.32 | 0.63 | 0.00 | 0.00 |
| 7 | 7.10 | 0.73 | 0.00 | 0.00 |
| 10 | 7.26 | 0.75 | 0.00 | 0.00 |
| 30 | 14.9 | 2.83 | 0.56 | 0.00 |
| 60 | 22.3 | 4.11 | 0.82 | 0.00 |

ARKANSAS RIVER BASIN

**07173000 CANEY RIVER NEAR HULAH, OKLA.—Continued**

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1952-1993**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 7,673 | 2.94 | 414 | 21.6 | 8.6 |
| Nov. | 2,476 | 5.36 | 375 | 23.8 | 7.8 |
| Dec. | 1,416 | 1.40 | 300 | 66.7 | 6.2 |
| Jan. | 2,111 | 0.77 | 265 | 31.1 | 5.5 |
| Feb. | 1,643 | 5.14 | 227 | 85.5 | 4.7 |
| Mar. | 3,031 | 0.47 | 589 | 217 | 12.2 |
| Apr. | 2,740 | 1.92 | 649 | 490 | 13.5 |
| May | 2,869 | 3.31 | 664 | 465 | 13.8 |
| Jun. | 3,240 | 1.06 | 724 | 364 | 15.0 |
| Jul. | 2,922 | 2.83 | 356 | 26.6 | 7.4 |
| Aug. | 1,384 | 2.64 | 96.0 | 21.2 | 2.0 |
| Sep. | 2,055 | 5.29 | 150 | 24.5 | 3.1 |
| Annual | 1,512 | 5.10 | 401 | 367 | – |

**Magnitude and probability of annual instantaneous peak flow based on 43 years of record, 1951-1993**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 3,620 | 6,970 | 10,300 | 16,200 | 22,200 | 30,000 | 57,300 |

station skew = 0.678

**Duration table of daily mean flow for period of record, 1952-1993**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,840 | 3,770 | 2,420 | 1,270 | 764 | 445 | 155 | 49.8 | 26.0 | 18.0 | 13.5 | 10.9 | 7.45 | 4.05 | 1.15 | 0.35 |

**Magnitude and probability of annual low flow based on period of record, 1953-1993**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.96 | 0.37 | 0.09 | 0.00 |
| 3 | 3.00 | 0.53 | 0.17 | 0.06 |
| 7 | 3.63 | 0.92 | 0.38 | 0.17 |
| 10 | 4.10 | 1.10 | 0.48 | 0.22 |
| 30 | 9.43 | 3.55 | 1.73 | 0.86 |
| 60 | 12.4 | 5.34 | 3.42 | 2.37 |

**Magnitude and probability of annual low flow based on period of record, 1952-1993 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 10.5 | 2.02 | 0.73 | 0.29 |
| 3 | 13.7 | 2.48 | 0.87 | 0.34 |
| 7 | 22.7 | 3.85 | 1.33 | 0.52 |
| 10 | 30.1 | 4.64 | 1.53 | 0.57 |
| 30 | 133 | 22.9 | 7.71 | 2.86 |
| 60 | 410 | 87.0 | 31.7 | 12.3 |

**Magnitude and probability of annual low flow based on period of record, 1952-1992 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 4.80 | 1.35 | 0.56 | 0.22 |
| 3 | 6.13 | 1.75 | 0.74 | 0.33 |
| 7 | 7.69 | 2.70 | 1.30 | 0.64 |
| 10 | 9.28 | 3.71 | 1.86 | 0.93 |
| 30 | 12.8 | 6.12 | 3.63 | 2.19 |
| 60 | 16.3 | 8.17 | 6.21 | 5.16 |

**Magnitude and probability of annual low flow based on period of record, 1952-1993 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 5.83 | 1.62 | 0.66 | 0.07 |
| 3 | 7.50 | 2.12 | 0.82 | 0.18 |
| 7 | 10.2 | 2.62 | 1.21 | 0.62 |
| 10 | 11.7 | 3.14 | 1.54 | 0.84 |
| 30 | 29.4 | 7.38 | 3.60 | 1.99 |
| 60 | 39.8 | 10.4 | 5.38 | 3.20 |

ARKANSAS RIVER BASIN

### 07174200 LITTLE CANEY RIVER BELOW COTTON CREEK NEAR COPAN, OKLA.

LOCATION. – Lat 36°53′42″, long 95°58′09″, referenced to North American Datum of 1927, in west 1/2 sec. 19, T.28 N, R.13 E, Washington County, Okla., 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 1943 to September 1958.

REMARKS.–Flow regulated since 1969 by numerous floodwater-retarding structures. Station used to be 07174000 (Little Caney River near Copan), but was moved in 1958 prior to anticipated damn construction for Copan Lake, which was completed in 1983. Statistical analysis includes streamflow record at the previous station from 1944-1958 water years.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1944-1964**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 1,722 | 0.00 | 103 | 14.6 | 3.6 |
| Nov. | 1,617 | 0.00 | 98.7 | 20.4 | 3.5 |
| Dec. | 554 | 0.00 | 235 | 101 | 8.3 |
| Jan. | 806 | 0.01 | 421 | 130 | 14.8 |
| Feb. | 1,035 | 0.10 | 578 | 246 | 20.4 |
| Mar. | 1,145 | 0.19 | 357 | 61.3 | 12.6 |
| Apr. | 2,499 | 0.18 | 354 | 14.0 | 12.4 |
| May | 4,045 | 0.50 | 89.7 | 3.76 | 3.2 |
| Jun. | 2,358 | 0.52 | 206 | 21.6 | 7.2 |
| Jul. | 1,838 | 0.01 | 204 | 20.5 | 7.2 |
| Aug. | 806 | 0.00 | 122 | 17.4 | 4.3 |
| Sep. | 1,475 | 0.00 | 70.8 | 10.6 | 2.5 |
| Annual | 605 | 14.4 | 237 | 229 | – |

**Magnitude and probability of annual instantaneous peak flow based on 21 years of record, 1944-1964**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 10,800 | 21,900 | 30,500 | 42,400 | 51,800 | 61,400 | 84,600 |

Oklahoma weighted skew = -0.428

**Duration table of daily mean flow for period of record, 1944-1964**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,040 | 3,120 | 1,040 | 327 | 171 | 108 | 48.3 | 22.5 | 10.9 | 4.97 | 1.72 | 0.31 | 0.11 | 0.03 | 0.01 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1945-1964**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.12 | 0.00 | 0.00 | 0.00 |
| 3 | 0.13 | 0.00 | 0.00 | 0.00 |
| 7 | 0.15 | 0.00 | 0.00 | 0.00 |
| 10 | 0.19 | 0.00 | 0.00 | 0.00 |
| 30 | 0.42 | 0.00 | 0.00 | 0.00 |
| 60 | 1.33 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1944-1964**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 7.58 | 1.14 | 0.05 | 0.00 |
| 3 | 8.49 | 1.32 | 0.18 | 0.00 |
| 7 | 11.9 | 1.60 | 0.43 | 0.13 |
| 10 | 13.9 | 1.83 | 0.50 | 0.15 |
| 30 | 80.1 | 12.5 | 3.85 | 1.30 |
| 60 | 324 | 53.1 | 14.5 | 4.06 |

**Magnitude and probability of annual low flow based on period of record, 1944-1963**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.13 | 0.00 | 0.00 | 0.00 |
| 3 | 0.14 | 0.00 | 0.00 | 0.00 |
| 7 | 0.16 | 0.00 | 0.00 | 0.00 |
| 10 | 0.20 | 0.00 | 0.00 | 0.00 |
| 30 | 0.50 | 0.00 | 0.00 | 0.00 |
| 60 | 3.14 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1944-1964**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.46 | 0.00 | 0.00 | 0.00 |
| 3 | 1.53 | 0.00 | 0.00 | 0.00 |
| 7 | 1.53 | 0.01 | 0.00 | 0.00 |
| 10 | 1.61 | 0.01 | 0.00 | 0.00 |
| 30 | 2.37 | 0.19 | 0.04 | 0.00 |
| 60 | 4.06 | 0.39 | 0.08 | 0.00 |

ARKANSAS RIVER BASIN

### 07174200 LITTLE CANEY RIVER BELOW COTTON CR, NEAR COPAN, OKLA.—Continued

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges and average percent of annual runoff, based on period of record, 1969-1980**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 667 | 0.03 | 168 | 94.8 | 4.3 |
| Nov. | 2,299 | 0.87 | 517 | 271 | 13.1 |
| Dec. | 721 | 1.74 | 202 | 53.2 | 5.1 |
| Jan. | 1,260 | 5.63 | 230 | 97.2 | 5.8 |
| Feb. | 1,287 | 5.59 | 282 | 203 | 7.2 |
| Mar. | 2,489 | 18.5 | 684 | 362 | 17.3 |
| Apr. | 1,580 | 9.50 | 513 | 318 | 13.0 |
| May | 1,608 | 17.7 | 462 | 329 | 11.7 |
| Jun. | 1,626 | 2.21 | 553 | 377 | 14.0 |
| Jul. | 1,399 | 1.56 | 174 | 43.2 | 4.4 |
| Aug. | 204 | 1.01 | 40.1 | 5.34 | 1.0 |
| Sep. | 419 | 0.22 | 121 | 35.2 | 3.1 |
| Annual | 658 | 62.9 | 328 | 261 | – |

**Magnitude and probability of annual instantaneous peak flow based on 12 years of record, 1969-1980**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 15% | 5% | 10% | 4% | 2% | 1% | 0.2% |
| 6,740 | 12,500 | 18,100 | 27,800 | 37,300 | 49,400 | 90,600 |

station skew = 0.661

**Duration table of daily mean flow for period of record, 1969-1980**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,830 | 3,610 | 1,690 | 816 | 469 | 296 | 141 | 71.2 | 33.3 | 19.1 | 11.1 | 4.76 | 1.76 | 0.55 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1970-1980**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.20 | 0.00 | 0.00 | 0.00 |
| 3 | 0.25 | 0.00 | 0.00 | 0.00 |
| 7 | 0.35 | 0.03 | 0.00 | 0.00 |
| 10 | 0.43 | 0.04 | 0.00 | 0.00 |
| 30 | 1.65 | 0.48 | 0.15 | 0.00 |
| 60 | 6.63 | 1.93 | 0.89 | 0.44 |

**Magnitude and probability of annual low flow based on period of record, 1969-1980 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 22.2 | 8.68 | 5.20 | 3.36 |
| 3 | 23.8 | 9.26 | 5.55 | 3.61 |
| 7 | 29.2 | 10.9 | 6.40 | 4.08 |
| 10 | 33.6 | 12.4 | 7.13 | 4.47 |
| 30 | 132 | 46.3 | 24.3 | 13.6 |
| 60 | 406 | 127 | 57.0 | 26.4 |

**Magnitude and probability of annual low flow based on period of record, 1969-1979 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 0.24 | 0.00 | 0.00 | 0.00 |
| 3 | 0.27 | 0.00 | 0.00 | 0.00 |
| 7 | 0.35 | 0.03 | 0.00 | 0.00 |
| 10 | 0.44 | 0.04 | 0.00 | 0.00 |
| 30 | 2.21 | 0.48 | 0.15 | 0.05 |
| 60 | 7.84 | 2.38 | 1.28 | 0.76 |

**Magnitude and probability of annual low flow based on period of record, 1969-1980 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 6.21 | 0.59 | 0.04 | 0.00 |
| 3 | 6.98 | 0.85 | 0.09 | 0.00 |
| 7 | 7.68 | 1.14 | 0.36 | 0.13 |
| 10 | 8.43 | 1.68 | 0.69 | 0.32 |
| 30 | 19.6 | 3.38 | 1.34 | 0.63 |
| 60 | 29.2 | 6.76 | 3.37 | 1.96 |

ARKANSAS RIVER BASIN

### 07174400 CANEY RIVER ABOVE COON CREEK AT BARTLESVILLE, OKLA.

LOCATION. – Lat 36°45′20″, long 95°58′19″, referenced to North American Datum of 1927, in NE ¼ NE ¼ sec. 12, T.26 N., R.12 E., Washington County, Okla., Hydrologic Unit 11070106, at right bank in city of Bartlesville water intake tower, 0.2 mi upstream from State Highway 123 bridge and low-water dam, 0.5 mi downstream from Atchison, Topeka, and Santa Fe railroad bridge, 1.0 mi upstream from confluence with Coon Creek, 2.7 mi downstream from confluence with Butler Creek, 5.0 mi upstream from confluence with Sand Creek, and at mile 68.7.

DRAINAGE AREA. – 1,392 mi².

PERIOD OF RECORD.–October 1985 to current year.

REMARKS.–Flow regulated by Hulah Lake (station 01172500) 27.0 mi upstream, and by Copan Lake (station 07174300) 12.0 mi upstream. Diversion at gage for municipal water supply by the city of Bartlesville.

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1986-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 14,800 | 11.5 | 1,098 | 43.0 | 7.7 |
| Nov. | 3,512 | 9.74 | 855 | 187 | 6.0 |
| Dec. | 2,663 | 2.76 | 737 | 498 | 5.2 |
| Jan. | 4,075 | 4.16 | 814 | 184 | 5.7 |
| Feb. | 2,721 | 2.87 | 733 | 371 | 5.2 |
| Mar. | 4,606 | 5.06 | 1,872 | 1,654 | 13.2 |
| Apr. | 5,185 | 11.5 | 1,576 | 1,346 | 11.1 |
| May | 5,054 | 31.1 | 2,165 | 2,141 | 15.2 |
| Jun. | 5,315 | 27.5 | 2,287 | 2,139 | 16.1 |
| Jul. | 9,349 | 25.1 | 1,515 | 587 | 10.7 |
| Aug. | 2,107 | 17.0 | 254 | 68.0 | 1.8 |
| Sep. | 2,635 | 12.8 | 291 | 44.0 | 2.0 |
| Annual | 2,888 | 43.7 | 1,186 | 1,166 | – |

**Magnitude and probability of annual instantaneous peak flow based on 22 years of record, 1986-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 8,910 | 19,100 | 29,700 | 49,100 | 69,200 | 95,300 | 189,000 |

station skew = 0.498

**Duration table of daily mean flow for period of record, 1986-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7,070 | 6,620 | 5,740 | 4,360 | 3,170 | 2,220 | 957 | 348 | 105 | 50.1 | 35.6 | 28.1 | 18.3 | 10.4 | 5.29 | 2.79 |

**Magnitude and probability of annual low flow based on period of record, 1987-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 12.2 | 4.55 | 1.98 | 0.15 |
| 3 | 13.2 | 5.22 | 2.38 | 0.21 |
| 7 | 13.9 | 6.82 | 4.04 | 0.99 |
| 10 | 15.0 | 7.30 | 4.28 | 1.01 |
| 30 | 29.7 | 10.7 | 4.18 | 1.51 |
| 60 | 30.7 | 12.0 | 7.31 | 4.86 |

**Magnitude and probability of annual low flow based on period of record, 1986-2007 spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 64.5 | 18.0 | 7.80 | 3.55 |
| 3 | 70.9 | 19.4 | 8.67 | 4.17 |
| 7 | 115 | 28.5 | 13.2 | 6.79 |
| 10 | 148 | 33.9 | 14.9 | 7.34 |
| 30 | 531 | 121 | 50.5 | 23.2 |
| 60 | 1,750 | 624 | 297 | 144 |

**Magnitude and probability of annual low flow based on period of record, 1986-2006 summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 17.9 | 11.1 | 8.26 | 6.30 |
| 3 | 18.8 | 11.7 | 8.80 | 6.76 |
| 7 | 20.6 | 13.1 | 9.89 | 7.68 |
| 10 | 21.9 | 14.2 | 10.8 | 8.41 |
| 30 | 25.5 | 17.3 | 15.3 | 14.4 |
| 60 | 35.2 | 20.8 | 18.1 | 16.8 |

**Magnitude and probability of annual low flow based on period of record, 1986-2007 winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 12.7 | 6.78 | 5.37 | 4.44 |
| 3 | 13.2 | 7.76 | 6.67 | 6.14 |
| 7 | 14.6 | 9.17 | 7.00 | 6.50 |
| 10 | 17.3 | 9.33 | 8.00 | 6.69 |
| 30 | 81.3 | 13.5 | 9.00 | 8.49 |
| 60 | 133 | 26.3 | 10.5 | 9.71 |

ARKANSAS RIVER BASIN

### 07174600 SAND CREEK AT OKESA, OKLA.

LOCATION. – Lat 36°43′10″, long 96°07′56″, referenced to North American Datum of 1927, in SW ¼ NW ¼ sec. 21, T.26 N, R.11 E, Osage County, Okla., 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 September 1993.

**UNREGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1960-1993**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 566 | 0.00 | 62.5 | 8.04 | 6.0 |
| Nov. | 467 | 0.00 | 91.3 | 21.1 | 8.8 |
| Dec. | 277 | 0.00 | 61.7 | 18.6 | 6.0 |
| Jan. | 256 | 0.00 | 49.7 | 25.1 | 4.8 |
| Feb. | 518 | 0.00 | 82.8 | 29.3 | 8.0 |
| Mar. | 858 | 0.03 | 163 | 87.5 | 15.8 |
| Apr. | 512 | 0.70 | 136 | 106 | 13.1 |
| May | 1,010 | 1.85 | 171 | 92.6 | 16.5 |
| Jun. | 833 | 0.63 | 105 | 37.0 | 10.2 |
| Jul. | 286 | 0.00 | 26.8 | 4.71 | 2.6 |
| Aug. | 228 | 0.00 | 17.5 | 1.74 | 1.7 |
| Sep. | 570 | 0.00 | 67.4 | 5.32 | 6.5 |
| Annual | 220 | 5.52 | 86.2 | 77.0 | – |

**Magnitude and probability of annual instantaneous peak flow based on 34 years of record, 1960-1993**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 8,140 | 13,300 | 16,800 | 21,100 | 24,300 | 27,400 | 34,200 |

Oklahoma weighted skew = -0.433

**Duration table of daily mean flow for period of record, 1960-1993**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,710 | 870 | 296 | 135 | 77.1 | 50.9 | 28.6 | 16.8 | 9.07 | 4.67 | 2.16 | 0.44 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1961-1993**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 60 | 0.42 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1960-1993**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 5.49 | 0.98 | 0.24 | 0.00 |
| 3 | 6.11 | 1.10 | 0.28 | 0.00 |
| 7 | 7.79 | 1.83 | 0.63 | 0.22 |
| 10 | 10.1 | 1.91 | 0.70 | 0.24 |
| 30 | 35.4 | 9.55 | 4.24 | 2.03 |
| 60 | 120 | 36.8 | 16.5 | 7.69 |

**Magnitude and probability of annual low flow based on period of record, 1960-1992**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.01 | 0.00 | 0.00 | 0.00 |
| 60 | 0.58 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1960-1993**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 1.35 | 0.00 | 0.00 | 0.00 |
| 3 | 1.77 | 0.00 | 0.00 | 0.00 |
| 7 | 2.13 | 0.00 | 0.00 | 0.00 |
| 10 | 2.28 | 0.00 | 0.00 | 0.00 |
| 30 | 6.28 | 0.43 | 0.00 | 0.00 |
| 60 | 12.8 | 1.08 | 0.03 | 0.00 |

ARKANSAS RIVER BASIN

### 07174700 CANEY RIVER NEAR OCHELATA, OKLA.

LOCATION. – Lat 36°38′26″, long 95°56′02″, referenced to North American Datum of 1927, in SW ¼ SW ¼ sec. 16, T.25 N, R.13 E, Washington County, Okla., Hydrologic Unit 11070106, 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.

REMARKS.–Flow regulated since 1951 by Hulah Lake.

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1957-1976**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 6,335 | 2.17 | 773 | 244 | 6.6 |
| Nov. | 6,715 | 11.9 | 1,079 | 108 | 9.1 |
| Dec. | 2,752 | 9.46 | 679 | 203 | 5.8 |
| Jan. | 4,062 | 5.53 | 598 | 276 | 5.1 |
| Feb. | 4,131 | 9.06 | 570 | 125 | 4.8 |
| Mar. | 7,017 | 18.9 | 1,454 | 506 | 12.3 |
| Apr. | 5,007 | 34.5 | 1,533 | 1,264 | 13.0 |
| May | 8,474 | 50.4 | 1,796 | 947 | 15.2 |
| Jun. | 9,885 | 29.7 | 1,597 | 642 | 13.5 |
| Jul. | 5,428 | 17.7 | 942 | 240 | 8.0 |
| Aug. | 1,684 | 21.6 | 250 | 52.1 | 2.1 |
| Sep. | 4,985 | 13.2 | 536 | 202 | 4.5 |
| Annual | 2,237 | 159 | 985 | 868 | – |

**Magnitude and probability of annual instantaneous peak flow based on 20 years of record, 1957-1976**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 14,100 | 22,500 | 27,700 | 33,800 | 37,900 | 41,600 | 49,400 |

station skew = -0.635

**Duration table of daily mean flow for period of record, 1956-1976**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11,000 | 7,890 | 5,170 | 3,310 | 1,950 | 1,150 | 438 | 201 | 103 | 57.9 | 36.8 | 24.7 | 16.0 | 11.3 | 6.87 | 4.28 |

**Magnitude and probability of annual low flow based on period of record, 1958-1976**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 14.2 | 10.1 | 8.46 | 7.26 |
| 3 | 15.0 | 10.8 | 9.03 | 7.74 |
| 7 | 16.2 | 11.6 | 9.72 | 8.42 |
| 10 | 16.8 | 11.9 | 10.0 | 8.67 |
| 30 | 19.3 | 15.0 | 14.3 | 11.1 |
| 60 | 39.7 | 19.4 | 14.7 | 12.2 |

**Magnitude and probability of annual low flow based on period of record, 1957-1976**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 60.4 | 22.7 | 14.5 | 10.4 |
| 3 | 65.4 | 24.1 | 15.2 | 10.7 |
| 7 | 82.6 | 28.2 | 17.2 | 11.8 |
| 10 | 96.5 | 31.8 | 18.9 | 12.7 |
| 30 | 498 | 152 | 77.2 | 42.8 |
| 60 | 1,020 | 291 | 137 | 70.1 |

**Magnitude and probability of annual low flow based on period of record, 1957-1975**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 14.2 | 10.1 | 8.46 | 7.26 |
| 3 | 15.1 | 10.8 | 9.03 | 7.76 |
| 7 | 16.3 | 11.6 | 9.72 | 8.42 |
| 10 | 16.9 | 11.9 | 10.0 | 8.67 |
| 30 | 19.7 | 15.4 | 14.7 | 14.5 |
| 60 | 55.8 | 26.9 | 19.8 | 16.0 |

**Magnitude and probability of annual low flow based on period of record, 1957-1976**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 31.4 | 12.4 | 7.71 | 5.22 |
| 3 | 33.7 | 13.3 | 8.44 | 5.88 |
| 7 | 39.7 | 14.7 | 9.18 | 6.35 |
| 10 | 41.6 | 15.0 | 9.28 | 6.42 |
| 30 | 70.7 | 19.7 | 10.7 | 6.70 |
| 60 | 101 | 25.4 | 13.0 | 7.69 |

ARKANSAS RIVER BASIN

### 07175000 DOUBLE CREEK SUBWATERSHED NO. 5 NEAR RAMONA, OKLA.

LOCATION. – Lat 36°30′50″, long 95°56′25″, referenced to North American Datum of 1927, in SE ¼ SE ¼ sec. 32, T.24 N., R.13 E., Washington County, Okla., Hydrologic Unit 11070106, near center of upstream side of dam on Nellie Bly Creek, 1.8 mi southwest of Ramona.

DRAINAGE AREA. – 2.39 mi².

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

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

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1956-1969**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 22.1 | 0.00 | 1.84 | 0.00 | 10.8 |
| Nov. | 4.28 | 0.00 | 0.74 | 0.00 | 4.4 |
| Dec. | 3.54 | 0.00 | 0.76 | 0.00 | 4.5 |
| Jan. | 2.06 | 0.00 | 0.76 | 0.05 | 4.4 |
| Feb. | 2.10 | 0.00 | 0.56 | 0.30 | 3.3 |
| Mar. | 7.00 | 0.00 | 1.92 | 1.03 | 11.3 |
| Apr. | 9.13 | 0.00 | 2.56 | 1.96 | 15.1 |
| May | 11.7 | 0.00 | 2.21 | 0.46 | 13.0 |
| Jun. | 15.7 | 0.00 | 2.19 | 0.17 | 12.9 |
| Jul. | 8.63 | 0.00 | 1.24 | 0.00 | 7.3 |
| Aug. | 10.2 | 0.00 | 0.80 | 0.00 | 4.7 |
| Sep. | 11.6 | 0.00 | 1.39 | 0.01 | 8.2 |
| Annual | 3.53 | 0.00 | 1.42 | 1.09 | – |

**Magnitude and probability of annual instantaneous peak flow based on 14 years of record, 1956-1969**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 1,240 | 2,600 | 3,430 | 4,300 | 4,810 | 5,220 | 5,880 |

station skew = -1.182

**Duration table of daily mean flow for period of record, 1956-1969**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20.3 | 16.7 | 11.3 | 3.14 | 1.50 | 1.05 | 0.45 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1957-1969**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1956-1969**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 30 | 0.36 | 0.00 | 0.00 | 0.00 |
| 60 | 1.60 | 0.48 | 0.17 | 0.00 |

**Magnitude and probability of annual low flow based on period of record, 1956-1968**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

**Magnitude and probability of annual low flow based on period of record, 1956-1969**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 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 |
| 10 | 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 |

ARKANSAS RIVER BASIN

### 07175500 CANEY RIVER NEAR RAMONA, OKLA.

LOCATION. – Lat 36°30′32″, long 95°50′30″, referenced to North American Datum of 1927, in NE ¼ NW ¼ sec. 5, T.23 N., R.14 E., Washington County, Okla., 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 October 1935 to February 1939; this record has been separated from Ramona.

REMARKS.–Flow regulated since February 1950 by Hulah Lake (station 07172500), and since April 1983 by Copan Lake (station 07174300)

**REGULATED STREAMFLOW PERIOD**

[ft³/s, cubic feet per second; %, percent; monthly values may not add to 100]

**Monthly and annual mean, median, maximum and minimum discharges, and average percent of annual runoff, based on period of record, 1984-2007**

| Month | Maximum | Minimum | Mean | Median | Average % of Annual Runoff |
|---|---|---|---|---|---|
| Oct. | 19,540 | 16.3 | 1,388 | 152 | 7.0 |
| Nov. | 4,390 | 13.8 | 1,198 | 351 | 6.0 |
| Dec. | 3,596 | 17.9 | 1,080 | 898 | 5.4 |
| Jan. | 5,204 | 19.5 | 1,100 | 314 | 5.5 |
| Feb. | 4,208 | 18.7 | 1,159 | 504 | 5.8 |
| Mar. | 7,228 | 33.9 | 2,833 | 2,572 | 14.2 |
| Apr. | 6,989 | 114 | 2,525 | 2,265 | 12.7 |
| May | 8,547 | 62.7 | 3,017 | 2,824 | 15.2 |
| Jun. | 9,766 | 42.5 | 2,985 | 2,818 | 15.0 |
| Jul. | 11,820 | 30.2 | 1,781 | 947 | 9.0 |
| Aug. | 2,577 | 26.1 | 346 | 137 | 1.7 |
| Sep. | 3,178 | 19.1 | 474 | 107 | 2.4 |
| Annual | 3,887 | 107 | 1,660 | 1,561 | – |

**Magnitude and probability of annual instantaneous peak flow based on 24 years of record, 1984-2007**

**Discharge, in ft³/s, for indicated recurrence interval, in years, and exceedence probability, in percent**

| 2 | 5 | 10 | 25 | 50 | 100 | 500 |
|---|---|---|---|---|---|---|
| 50% | 20% | 10% | 4% | 2% | 1% | 0.2% |
| 16,800 | 29,200 | 40,700 | 59,800 | 78,100 | 101,000 | 174,000 |

station skew = 0.692

**Duration table of daily mean flow for period of record, 1984-2007**

**Discharge, in ft³/s, which was equaled or exceeded for indicated percent of time**

| 1% | 2% | 5% | 10% | 15% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 95% | 98% | 99% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12,300 | 9,530 | 7,320 | 5,420 | 4,170 | 3,060 | 1,530 | 613 | 266 | 125 | 74.0 | 52.2 | 36.5 | 26.0 | 17.8 | 14.5 |

**Magnitude and probability of annual low flow based on period of record, 1985-2007**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 27.8 | 17.8 | 13.5 | 10.4 |
| 3 | 28.9 | 18.6 | 14.1 | 11.0 |
| 7 | 30.2 | 19.2 | 14.6 | 11.4 |
| 10 | 31.2 | 19.7 | 14.9 | 11.6 |
| 30 | 40.3 | 23.9 | 17.9 | 14.0 |
| 60 | 54.7 | 28.8 | 22.1 | 18.3 |

**Magnitude and probability of annual low flow based on period of record, 1984-2007**
**spring season, April 1 through May 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 146 | 57.4 | 34.4 | 22.2 |
| 3 | 184 | 65.6 | 37.2 | 22.9 |
| 7 | 252 | 79.2 | 42.2 | 24.8 |
| 10 | 300 | 93.6 | 50.1 | 29.6 |
| 30 | 1,100 | 360 | 186 | 104 |
| 60 | 2,590 | 1,020 | 532 | 282 |

**Magnitude and probability of annual low flow based on period of record, 1984-2006**
**summer season, June 1 through October 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 32.0 | 22.0 | 17.5 | 14.2 |
| 3 | 32.7 | 22.9 | 18.5 | 15.3 |
| 7 | 34.2 | 23.7 | 19.2 | 15.9 |
| 10 | 35.3 | 24.5 | 19.8 | 16.5 |
| 30 | 42.9 | 28.5 | 24.6 | 22.4 |
| 60 | 68.6 | 38.2 | 31.2 | 27.6 |

**Magnitude and probability of annual low flow based on period of record, 1984-2007**
**winter season, November 1 through March 31**

| Period (consecutive days) | Discharge, in ft³/s, for indicated recurrence interval, in years, and nonexceedance probability, in percent | | | |
|---|---|---|---|---|
| | 2 | 5 | 10 | 20 |
| | 50% | 20% | 10% | 5% |
| 1 | 36.3 | 20.0 | 16.1 | 14.1 |
| 3 | 37.8 | 20.8 | 16.8 | 14.7 |
| 7 | 40.9 | 21.8 | 17.2 | 14.9 |
| 10 | 45.1 | 22.6 | 17.3 | 15.0 |
| 30 | 135 | 42.4 | 23.3 | 16.5 |
| 60 | 238 | 63.6 | 31.5 | 17.5 |