07147800 WALNUT RIVER AT WINFIELD, KS

Middle Arkansas Basin
Lower Walnut River Subbasin

LOCATION.--Lat 37°13′26″, long 96°59′45″ referenced to North American Datum of 1927, in SW ¼ SW ¼ NE ¼ sec.33, T.32 S., R.4 E., Cowley County, KS, Hydrologic Unit 11030018, on left bank at upstream side of bridge on U.S. Highway 77, 1.0 mi south of Winfield, 1.0 mi upstream from Black Crook Creek, and at mile 25.4.

DRAINAGE AREA.--1,880 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1921 to current year. October to November 1921 monthly discharge only, published in WSP 1311.

REVISED RECORDS.--WSP 607: 1923(M). WDR KS-82-1: Drainage area. WSP 1241: 1922(M), 1923, 1926-27, 1928-29(M), 1934, 1940-41.

GAGE.--Water-stage recorder. Datum of gage is 1,082.86 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 1, 1934, nonrecording gage on upstream side of former bridge just upstream from present gage at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some regulation at low flow by City Water Works Dam and Timber Creek Reservoir upstream from station. Flow moderately regulated since 1981 by El Dorado Lake (station 07146622). Satellite telemeter at station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,600 ft^3/s and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 31	0700	13,000	14.67
Apr 20	0300	11,400	13.36
Apr 29	0100	*39,700	*31.94
May 9	2300	18,300	18.65
May 13	1400	11,900	13.76
Sep 10	1000	17,400	17.97

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	611	633	420	1,010	294	282	9,500	10,600	1,250	644	770	367
2	507	608	412	947	294	278	4,590	11,000	1,250	621	710	339
3	483	584	403	876	290	277	2,900	7,910	1,440	541	653	319
4	467	560	389	819	284	276	e2,230	8,960	1,410	490	592	306
5	450	546	380	769	280	279	e1,880	6,610	1,350	431	558	736
6	441	543	369	719	276	280	e1,610	5,540	1,350	412	537	479
7	645	542	367	688	281	278	1,440	4,890	998	398	521	590
8	609	569	367	677	283	278	e1,320	6,970	898	387	505	1,800
9	506	540	374	659	288	289	e1,220	16,100	919	444	409	13,500
10	450	544	371	630	297	892	e1,180	17,400	894	2,460	310	16,400
11	421	676	368	519	327	1,840	e1,190	10,400	873	1,290	292	6,530
12	404	1,310	364	412	405	1,410	e1,160	7,250	612	862	285	3,760
13	427	1,480	364	383	599	984	e2,840	10,900	424	602	286	4,010
14	2,730	1,130	367	374	654	752	e4,510	8,090	390	496	277	3,580
15	8,270	895	356	358	603	630	3,220	5,440	378	444	273	3,050
16	8,520	759	350	313	528	541	2,250	5,860	572	421	270	1,680
17	5,230	677	344	337	482	483	1,800	4,810	2,490	395	327	788
18	2,400	624	340	356	458	443	1,580	3,210	2,020	378	523	535
19	1,750	579	353	339	436	409	6,160	2,590	1,340	361	631	456
20	1,400	547	357	336	417	377	9,070	2,250	1,170	353	1,450	406
21	1,200	600	342	331	379	352	3,650	2,020	2,580	1,110	942	378
22	1,470	639	306	328	322	343	2,370	1,860	5,370	2,880	633	350
23	1,900	627	344	326	313	374	1,930	1,750	2,860	2,690	486	331
24	1,760	620	357	319	303	461	1,810	1,650	1,730	1,890	412	314
25	1,330	611	339	312	299	363	2,190	1,580	1,410	1,470	370	300
26	1,060	603	342	301	299	1,080	3,230	1,510	1,230	1,270	344	299
27	901	538	745	266	297	e813	7,540	1,450	931	1,180	479	321
28	791	450	2,740	277	290	e3,260	25,800	1,410	918	1,290	1,600	307
29	724	436	3,430	304	---	e4,310	35,400	1,380	724	1,320	698	286
30	688	429	1,680	301	---	10,600	19,300	1,340	676	1,130	500	265
31	659	---	1,140	294	---	12,600	---	1,290	---	1,040	417	---
Mean	1,587	663	619	480	367	1,479	5,496	5,614	1,349	958	550	2,093
Max	8,520	1,480	3,430	1,010	654	12,600	35,400	17,400	5,370	2,880	1,600	16,400
Min	404	429	306	266	276	276	1,160	1,290	378	353	270	265
Ac-ft	97,600	39,470	38,040	29,510	20,390	90,910	327,000	345,200	80,250	58,910	33,840	124,500

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	718	695	418	372	549	1,046	1,424	1,694	2,042	1,068	503	673
Max	6,877	11,710	3,313	2,633	3,631	8,777	10,080	10,320	11,710	9,335	4,492	6,823
(WY)	(1987)	(1999)	(1945)	(1949)	(1949)	(1973)	(1944)	(1993)	(1995)	(1951)	(1950)	(2008)
Min	0.00	0.84	4.12	4.33	7.10	8.73	8.87	4.50	23.9	3.90	0.00	0.00
(WY)	(1957)	(1957)	(1957)	(1957)	(1957)	(1957)	(1955)	(1956)	(1933)	(1936)	(1936)	(1954)

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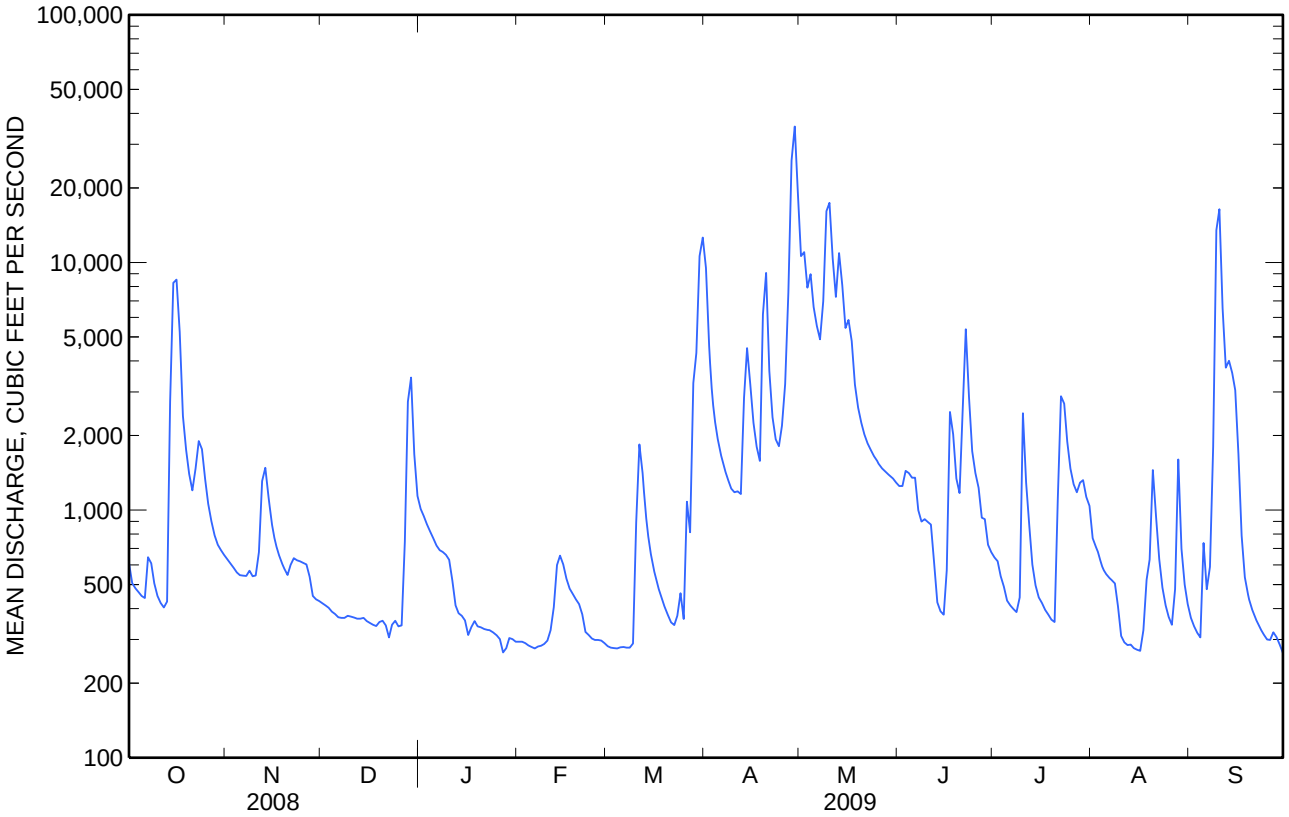
SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1922 - 2009	
Annual mean	2,858		1,776		934	
Highest annual mean					2,948	1999
Lowest annual mean					26.2	1954
Highest daily mean	39,000	Sep 14	35,400	Apr 29	85,200	Nov 2, 1998
Lowest daily mean	215	Sep 2	265	Sep 30	0.00	Nov 11, 1928
Annual seven-day minimum	224	Aug 30	278	Mar 2	0.00	Jul 27, 1936
Maximum peak flow			39,700	Apr 29	105,000	Apr 23, 1944
Maximum peak stage			31.94	Apr 29	38.30	Apr 23, 1944
Instantaneous low flow			230	Jan 27	0.00	at times
Annual runoff (ac-ft)	2,075,000		1,286,000		676,700	
10 percent exceeds	8,140		4,130		1,860	
50 percent exceeds	938		611		179	
90 percent exceeds	305		301		25