

Water-Data Report 2010

07077500 CACHE RIVER AT PATTERSON, AR

White Basin
Cache Subbasin

LOCATION.--Lat 35°16'11", long 91°14'11" referenced to North American Datum of 1983, in SE ¼ SE ¼ sec.31, T.8 N., R.2 W., Woodruff County, AR, Hydrologic Unit 08020302, at bridge on U.S. Hwy 64 at Patterson, 10.9 mi upstream from Maple Slough, and at river mile 77.2.

DRAINAGE AREA.--1,040 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--Oct 1927 to Sep 1931, Feb 1937, Aug 1937 to Sep 1960, Oct 1965 to Sep 1977, and Oct 1997 to current year in reports of the U.S. Geological Survey. Monthly discharge only for some periods, published in WSP 1311 and WSP 1731. Jan 1947 to Dec 1963 in reports of Mississippi River Commission. Jan 1964 to current year in reports of U.S. Army Corps of Engineers, Memphis District. Gage height records Jul 11, 1916 to Dec 31, 1931, are contained in reports of National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 182.96 ft above NGVD of 1929. Prior to Oct 1966, nonrecording and recording gages at or within 1,000 ft of old U.S. Hwy 64 crossing, 1.4 mi downstream as follows: Prior to 1931, nonrecording gage at datum 183.17 ft above NGVD of 1929; Jan 1937 to Oct 1949, nonrecording gage; and Oct 1949 to Dec 1950, water-stage recorder at mean Gulf level, or 0.24 ft below sea level; Jan 1950 to Oct 1966, water-stage recorder at present datum.

COOPERATION.--U.S. Army Corps of Engineers.

REMARKS.--Water-discharge records fair except estimated daily discharges, which are poor. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr 19, 1927, reached a stage of 16.1 ft, present datum, from floodmarks, discharge 24,500 ft³/s, because of break in White River levee.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,110 ft³/s, Dec. 26, gage height, 11.94 ft; minimum discharge, 36 ft³/s, Sept. 30, gage height, 3.32 ft.

07077500 CACHE RIVER AT PATTERSON, AR—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2,640	7,360	386	5,540	1,690	792	2,720	3,590	532	504	795	439
2	2,370	7,170	352	5,250	1,400	710	2,470	4,930	468	679	770	435
3	1,890	6,940	480	5,080	1,260	636	2,090	4,080	398	738	734	421
4	1,460	6,600	590	4,970	1,230	570	1,540	3,240	438	683	702	392
5	1,180	6,180	607	4,940	1,400	512	1,130	3,210	490	571	665	365
6	948	5,780	643	4,780	1,680	453	852	3,410	369	463	613	346
7	789	5,430	866	4,810	1,790	402	752	3,430	245	380	543	332
8	657	5,210	1,380	4,860	2,310	362	1,140	3,320	160	339	484	313
9	642	5,060	2,010	4,850	2,960	355	1,660	3,120	123	316	443	288
10	1,010	4,940	2,240	5,120	3,240	357	1,250	3,140	105	297	430	267
11	1,430	4,840	1,760	5,030	3,300	385	991	3,330	100	284	442	262
12	1,760	4,760	1,500	4,800	3,230	387	1,080	2,980	86	346	468	294
13	2,640	4,690	1,900	4,520	3,060	362	1,110	2,270	80	1,110	491	413
14	4,590	4,600	2,330	4,020	2,880	345	921	1,950	74	2,690	508	605
15	5,600	4,500	2,360	3,260	2,450	334	720	2,070	67	3,390	520	850
16	5,700	4,430	2,070	2,500	1,910	345	552	2,340	62	4,310	526	1,110
17	5,510	4,240	1,590	2,070	1,560	386	416	2,300	59	4,940	519	1,120
18	5,180	3,800	1,210	1,830	1,350	407	309	1,860	60	4,770	514	924
19	4,790	3,110	946	1,700	1,190	392	237	1,570	62	4,350	512	737
20	4,390	2,380	786	e1,720	1,050	350	194	1,360	61	3,700	502	581
21	4,040	1,840	674	e1,980	966	311	164	1,360	61	2,840	489	454
22	3,950	1,460	570	2,290	1,090	291	148	1,280	71	2,020	476	352
23	4,600	1,250	557	2,360	1,210	299	131	1,090	78	1,530	479	268
24	4,590	1,060	3,190	2,990	1,120	344	130	1,110	93	1,350	482	201
25	3,680	906	7,590	3,550	1,020	478	124	1,440	87	1,260	481	150
26	2,950	778	7,940	3,480	991	794	132	1,740	81	1,070	482	112
27	3,050	668	7,580	3,230	948	1,290	309	1,400	80	1,070	480	85
28	3,760	568	7,340	3,000	883	1,690	778	1,020	88	1,130	472	66
29	4,250	491	6,980	2,880	---	2,160	1,630	793	128	908	464	52
30	5,940	451	6,500	2,600	---	2,590	1,940	682	290	800	457	40
31	7,290	---	6,000	2,120	---	2,770	---	603	---	790	446	---
Total	103,276	111,492	80,927	112,130	49,168	21,859	27,620	70,018	5,096	49,628	16,389	12,274
Mean	3,331	3,716	2,611	3,617	1,756	705	921	2,259	170	1,601	529	409
Max	7,290	7,360	7,940	5,540	3,300	2,770	2,720	4,930	532	4,940	795	1,120
Min	642	451	352	1,700	883	291	124	603	59	284	430	40
Ac-ft	204,800	221,100	160,500	222,400	97,520	43,360	54,780	138,900	10,110	98,440	32,510	24,350

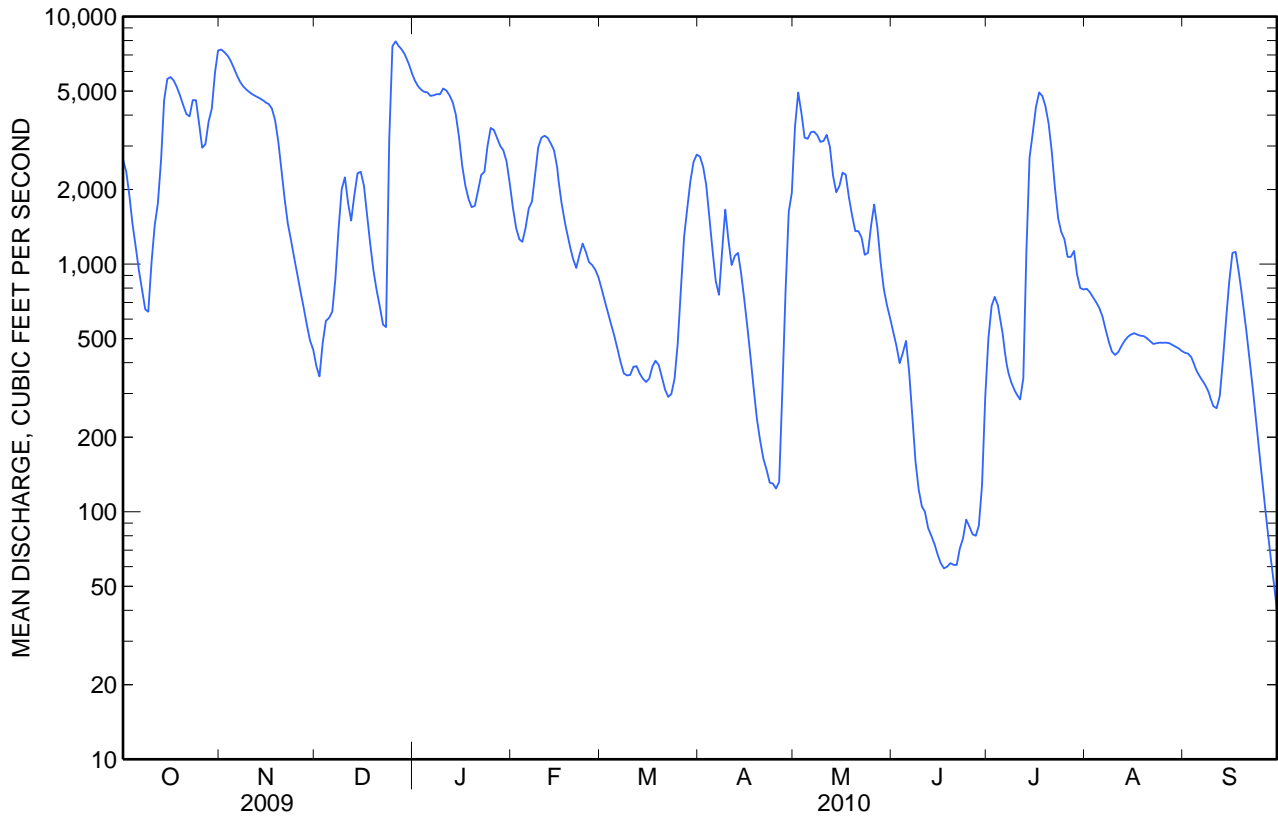
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2010, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	465	788	1,557	1,948	2,109	2,148	1,944	1,612	846	532	487	485
Max	3,331	5,297	6,168	8,809	8,817	5,770	7,586	6,075	5,890	2,093	3,009	2,465
(WY)	(2010)	(1958)	(1958)	(1950)	(1950)	(1945)	(1979)	(1973)	(1928)	(1945)	(1998)	(2009)
Min	8.32	11.3	25.5	37.8	68.6	168	121	150	67.7	57.6	47.1	45.5
(WY)	(1988)	(2006)	(2006)	(1964)	(1963)	(1941)	(2006)	(1941)	(1941)	(1954)	(1944)	(1943)

07077500 CACHE RIVER AT PATTERSON, AR—Continued

SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1928 - 2010	
Annual total	830,394.0		659,877			
Annual mean	2,275		1,808		1,245	
Highest annual mean					2,984	1950
Lowest annual mean					308	1931
Highest daily mean	7,940	Dec 26	7,940	Dec 26	12,100	Jun 27, 1928
Lowest daily mean	6.0	Jan 24	40	Sep 30	0.00	Oct 27, 1956
Annual seven-day minimum	25	Jan 21	62	Jun 15	0.00	Oct 24, 1978
Maximum peak flow			8,110	Dec 26	13,200	Jan 24, 1937
Maximum peak stage			11.94	Dec 26	^a 13.21	Jan 24, 1937
Instantaneous low flow			36	Sep 30	0.00	Oct 27, 1956
Annual runoff (ac-ft)	1,647,000		1,309,000		901,800	
10 percent exceeds	5,330		4,800		3,620	
50 percent exceeds	1,690		1,070		469	
90 percent exceeds	345		223		66	

^a At present datum

07077500 CACHE RIVER AT PATTERSON, AR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Oct 1952 to May 1955 and Oct 1975 to current year.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 1 of 5

[% , percent; CaCO₃, calcium carbonate; MF, membrane filter; N, nitrogen; P, phosphorus; col/100 mL, colonies per 100 milliliters; ft, feet; ft/s, feet per second; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sample start time	Barometric pressure, mm Hg (00025)	Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)	Specific conductance, water, unfiltered, μS/cm at 25 °C (00095)	Temperature, water, °C (00010)	Stream width, ft (00004)	Velocity at point in stream, ft/s (81904)
10-28-2009	1500	770	3,820	7.10	68.8	6.74	109	14.41	710	2
01-13-2010	1200	780	4,510	12.02	80.5	7.06	86	.10	700	2
03-23-2010	1145	766	299	7.31	69.8	7.04	129	13.50	100	< 1.5
04-27-2010	1215	749	300	5.39	59.4	6.83	133	19.2	60	< 1.5

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 2 of 5

[% , percent; CaCO₃, calcium carbonate; MF, membrane filter; N, nitrogen; P, phosphorus; col/100 mL, colonies per 100 milliliters; ft, feet; ft/s, feet per second; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; °C, degrees Celsius; μS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sampler type (84164)	Sampling method (82398)	Dissolved solids dried at 180 °C, water, filtered, mg/L (70300)	Dissolved solids, water, filtered, tons per acre-foot (70303)	Dissolved solids, water, tons per day (70302)	Hardness, water, mg/L as CaCO ₃ (00900)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)
10-28-2009	US DH-95 plastic	EWI	86.88	.118	896.1	38.35	9.8630	3.3320	5.7060
01-13-2010	US DH-95 plastic	EWI	67.17	.091	817.9	21.07	5.1610	1.9860	3.6600
03-23-2010	Grab sample	Grab sample(dip)	74.98	.102	60.53	42.95	11.3700	3.5360	3.3110
04-27-2010	Grab sample	Grab sample(dip)	92.96	.126	75.30	47.70	12.8300	3.8020	3.4360

07077500 CACHE RIVER AT PATTERSON, AR—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 3 of 5

[%, percent; CaCO₃, calcium carbonate; MF, membrane filter; N, nitrogen; P, phosphorus; col/100 mL, colonies per 100 milliliters; ft, feet; ft/s, feet per second; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Sodium adsorption ratio, water, number (00931)	Sodium fraction of cations, water, percent in equivalent s of major cations (00932)	Sodium, water, filtered, mg/L (00930)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, unfiltered, mg/L as N (00625)	Ammonia, water, filtered, milligrams per liter as NH ₄ (71846)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)
10-28-2009	.313	17.5	4.4470	5.677	E .075	5.796	.801	< .0258	< .02	< .04
01-13-2010	.340	23.3	3.5840	3.460	E .057	3.878	.770	.0364	.02826	.066
03-23-2010	.422	22.7	6.3560	5.850	.104	7.120	1.136	.0886	.0688	.362
04-27-2010	.346	18.7	5.4890	4.466	.140	8.639	1.652	.1154	.08958	.310

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 4 of 5

[%, percent; CaCO₃, calcium carbonate; MF, membrane filter; N, nitrogen; P, phosphorus; col/100 mL, colonies per 100 milliliters; ft, feet; ft/s, feet per second; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Nitrate, water, filtered, milligrams per liter (71851)	Nitrate, water, filtered, mg/L as N (00618)	Nitrite, water, filtered, milligrams per liter (71856)	Nitrite, water, filtered, mg/L as N (00613)	Organic nitrogen, water, unfiltered, mg/L (00605)	Orthophos phate, water, filtered, mg/L (00660)	Orthophos phate, water, filtered, mg/L as P (00671)	Phosphoru s, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)
10-28-2009	< .1691	< .0382	E .0059	E .00179	< .801	.2447	.07981	.107	.186
01-13-2010	E .2868	E .0648	E .0040	E .00121	.742	.0674	.02199	E .032	.211
03-23-2010	1.570	.3548	.0238	.00724	1.07	.1147	.0374	.046	.269
04-27-2010	1.337	.3021	.0261	.00794	1.56	.1570	.0512	.072	.351

07077500 CACHE RIVER AT PATTERSON, AR—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 5 of 5

[%, percent; CaCO₃, calcium carbonate; MF, membrane filter; N, nitrogen; P, phosphorus; col/100 mL, colonies per 100 milliliters; ft, feet; ft/s, feet per second; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; E, estimated]

Date	Total nitrogen, water, unfiltered, mg/L (00600)	Esche richia coli, modified m-TEC MF method, water, col/100 mL (90902)	Fecal coliform, M-FC MF (0.7 micron) method, water, col/100 mL (31625)	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)	Suspended sediment concen tration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
10-28-2009	< .841	370	300	71	54	557.0
01-13-2010	.836	160	69	98	77	937.6
03-23-2010	1.50	160	140	98	102	82.3
04-27-2010	1.96	--	E 190	99	152	123.1