07196500 ILLINOIS RIVER NEAR TAHLEQUAH, OK

Robert S. Kerr Reservoir Basin
Illinois Subbasin

LOCATION.--Lat 35°55′22″, long 94°55′24″ referenced to North American Datum of 1927, in SE ¼ NE ¼ sec.26, T.17 N., R.22 E., Cherokee County, OK, Hydrologic Unit 11110103, near center of channel on downstream side of pier of bridge, 0.2 mi downstream from U.S. Highway 62, 2.2 mi northeast of Tahlequah, 6.5 mi upstream from Baron Fork, and at mile 55.8.

DRAINAGE AREA.--959 mi^2.

SURFACE-WATER RECORDS

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

REVISED RECORDS.--WSP 1117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 664.14 ft, U.S. Army Corps of Engineers datum. Prior to Feb. 23, 1939, nonrecording gage.

REMARKS.--Records fair except for estimated periods which are poor. U.S. Army Corps of Engineers' satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of January 1916 reached a stage of about 26 ft.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft^3/s and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 10	2000	*33,400	*17.65
Oct 31	1300	12,100	11.20
Jul 14	1900	10,300	10.45

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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	505	4,480	652	594	1,180	970	1,700	645	867	423	389	178
2	468	3,020	645	614	1,180	917	1,560	647	802	407	381	177
3	442	2,370	629	610	1,280	880	1,700	618	820	396	347	297
4	426	1,980	614	594	1,680	838	2,340	582	793	393	329	460
5	411	1,730	600	577	2,220	806	1,930	563	806	389	314	464
6	400	1,550	580	566	3,240	776	1,660	538	714	380	304	352
7	396	1,400	563	550	2,940	740	1,490	523	654	359	296	293
8	480	1,280	559	e540	2,400	722	1,340	496	630	362	292	273
9	9,390	1,190	561	e528	2,110	750	1,220	491	681	395	288	321
10	26,200	1,100	567	511	1,980	773	1,120	477	645	508	280	715
11	14,400	1,040	571	493	1,750	805	1,040	486	598	678	275	1,440
12	4,970	987	556	484	1,580	775	966	657	582	667	266	840
13	3,840	938	544	477	1,480	751	908	620	575	612	261	612
14	3,750	898	533	475	1,400	724	864	645	548	6,690	255	515
15	3,730	875	522	476	1,320	697	828	e1,430	595	2,870	255	518
16	2,850	907	517	481	1,210	670	783	e4,530	620	1,340	242	762
17	2,290	952	509	482	1,130	654	753	3,310	617	5,960	238	650
18	1,950	1,050	498	480	1,060	641	746	2,530	594	3,480	237	533
19	1,720	978	491	480	1,000	628	719	1,770	578	1,560	232	473
20	1,560	920	487	480	962	640	691	3,190	550	1,100	231	424
21	1,410	891	475	538	980	729	673	5,870	532	847	224	389
22	1,420	859	468	873	1,080	1,450	655	3,610	492	691	220	364
23	1,480	840	466	1,450	1,490	2,970	641	2,330	477	594	209	344
24	1,590	809	476	1,220	1,380	4,770	631	1,760	457	525	198	353
25	1,490	779	504	1,350	1,250	4,360	653	1,400	446	473	186	361
26	1,510	759	546	1,420	1,160	6,220	1,030	1,280	443	438	181	500
27	1,990	744	685	1,220	1,090	5,960	863	2,990	439	417	176	440
28	2,880	716	637	1,080	1,030	3,650	736	1,660	426	587	172	388
29	3,150	690	599	1,070	---	2,800	671	1,300	418	594	170	356
30	4,030	671	584	1,180	---	2,270	650	1,090	430	468	170	339
31	9,500	---	581	1,290	---	1,940	---	954	---	417	163	---
Total	110,628	37,403	17,219	23,183	42,562	52,276	31,561	48,992	17,829	35,020	7,781	14,131
Mean	3,569	1,247	555	748	1,520	1,686	1,052	1,580	594	1,130	251	471
Max	26,200	4,480	685	1,450	3,240	6,220	2,340	5,870	867	6,690	389	1,440
Min	396	671	466	475	962	628	631	477	418	359	163	177
Ac-ft	219,400	74,190	34,150	45,980	84,420	103,700	62,600	97,180	35,360	69,460	15,430	28,030
Cfsm	3.72	1.30	0.58	0.78	1.59	1.76	1.10	1.65	0.62	1.18	0.26	0.49
In.	4.29	1.45	0.67	0.90	1.65	2.03	1.22	1.90	0.69	1.36	0.30	0.55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2010, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	556	883	899	893	1,133	1,455	1,607	1,622	1,042	536	355	393
Max	5,222	4,659	4,258	3,969	4,661	6,695	6,864	8,397	5,993	2,491	3,907	2,041
(WY)	(1987)	(1974)	(1993)	(2005)	(1938)	(1945)	(1945)	(1950)	(1974)	(1958)	(1948)	(2008)
Min	7.05	75.3	77.5	74.0	113	147	151	189	80.1	22.9	10.5	3.15
(WY)	(1957)	(1964)	(1956)	(1956)	(1964)	(1940)	(1954)	(1936)	(1936)	(1954)	(1936)	(1954)

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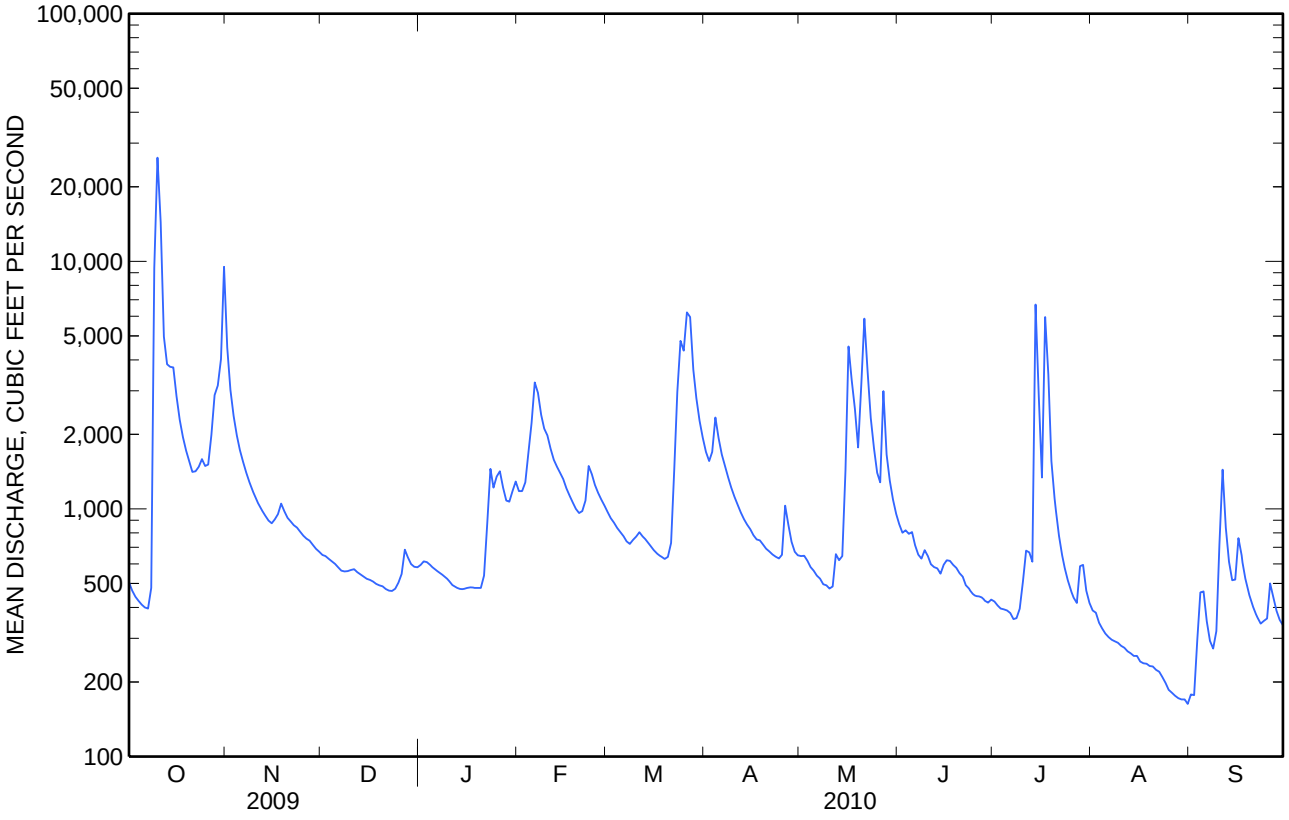
SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1936 - 2010	
Annual total	513,465		438,585			
Annual mean	1,407		1,202		946	
Highest annual mean					1,980	1974
Lowest annual mean					193	1954
Highest daily mean	26,200	Oct 10	26,200	Oct 10	90,400	May 11, 1950
Lowest daily mean	232	Sep 1	163	Aug 31	0.10	Oct 10, 1956
Annual seven-day minimum	277	Aug 26	172	Aug 27	0.14	Oct 8, 1956
Maximum peak flow			33,400	Oct 10	[a]150,000	May 10, 1950
Maximum peak stage			17.65	Oct 10	27.94	May 10, 1950
Annual runoff (ac-ft)	1,018,000		869,900		685,500	
Annual runoff (cfsm)	1.47		1.25		0.987	
Annual runoff (inches)	19.92		17.01		13.41	
10 percent exceeds	3,010		2,350		1,930	
50 percent exceeds	685		667		434	
90 percent exceeds	334		346		126	

[a] From rating curve extended above 77,000 ft³/s on basis of slope-area measurement of peak flow.



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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-61, 1975-79, October 1989 to August 1995, July 1996 to current year.

REMARKS.--Samples collected periodically. Specific conductance, pH, water temperature, dissolved oxygen, and turbidity were determined in the field.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 1 of 4

[%, percent; CaCO3, calcium carbonate; FNU, Formazin nephelometric units; L, milligrams per liter; LED, light-emitting diode; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; >, greater than; E, estimated]

Date	Sample start time	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	Discharge, instantaneous, ft³/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)
10-27-2009	1230	739	12.0	1,980	9.3	94	7.8	239	14.4
12-15-2009	1230	754	--	519	15.0	124	8.7	273	6.8
02-09-2010	1330	748	13.5	2,070	12.4	101	8.1	244	5.8
03-24-2010	1200	739	13.9	4,780	10.1	92	7.7	222	10.1
04-15-2010	1115	750	23.3	831	11.7	126	8.7	241	18.0
04-27-2010	1200	746	13.5	844	10.4	106	8.0	272	15.3
05-17-2010	1240	748	21.3	3,140	7.5	83	7.7	223	19.1
05-21-2010	1300	748	--	6,710	8.2	89	7.6	214	18.5
06-15-2010	1300	749	28.1	604	8.8	110	8.0	272	26.0
07-14-2010	1215	750	32.2	7,440	5.9	73	7.4	172	25.1
08-19-2010	1200	762	32.7	233	9.7	127	8.1	288	29.2

07196500 ILLINOIS RIVER NEAR TAHLEQUAH, OK—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 2 of 4

[%, percent; CaCO3, calcium carbonate; FNU, Formazin nephelometric units; L, milligrams per liter; LED, light-emitting diode; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; >, greater than; E, estimated]

Date	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Turbidity, water, unfiltered, monochrome near infra-red LED light, 780-900 nm, detection angle 90 +/- 2.5 degrees, FNU (63680)	Alkalinity, water, filtered, inflection-point, incremental titration method, field, mg/L as CaCO3 (39086)	Bicarbon ate, water, filtered, inflection-point, incremental titration method, field, mg/L (00453)	Carbon dioxide, water, unfiltered, mg/L (00405)	Carbonate, water, filtered, inflection-point incremental titration method, field, mg/L (00452)	Chloride, water, filtered, mg/L (00940)	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, unfiltered, mg/L as N (00625)
10-27-2009	E 4.5	5.0	84	E 102	2.8	< 1	7.81	10.7	.150
12-15-2009	< 2	1.1	103	124	.4	1	12.0	13.2	.162
02-09-2010	E 4.6	5.0	85	E 104	1.4	< 1	10.4	12.6	.190
03-24-2010	49	51	75	91	2.9	< 1	9.99	13.2	.643
04-15-2010	E 2.7	2.4	88	104	.3	2	9.85	11.6	.192
04-27-2010	E 2.6	3.4	105	127	2.3	< 1	11.6	13.0	.204
05-17-2010	31.2	36	--	--	--	--	7.23	10.3	.427
05-21-2010	132	120	--	--	--	--	6.47	9.38	.938
06-15-2010	E 3.8	3.7	--	--	--	--	10.6	12.0	.182
07-14-2010	--	350	--	--	--	--	--	--	2.04
08-19-2010	--	4.3	--	--	--	--	--	--	.186

07196500 ILLINOIS RIVER NEAR TAHLEQUAH, OK—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
Part 3 of 4

[%, percent; CaCO3, calcium carbonate; FNU, Formazin nephelometric units; L, milligrams per liter; LED, light-emitting diode; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; <, less than; >, greater than; E, estimated]

Date	Ammonia, water, filtered, mg/L as NH4 (71846)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Nitrate, water, filtered, mg/L (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)	Orthophosphate, water, filtered, mg/L (00660)	Orthophosphate, water, filtered, mg/L as P (00671)
10-27-2009	< .026	< .02	2.09	< 9.23	< 2.09	< .007	< .002	< .15	.251	.0818
12-15-2009	< .026	< .02	2.29	10.1	2.28	.011	.0033	< .16	.029	.0094
02-09-2010	< .026	< .02	2.47	10.9	2.47	.017	.0053	< .19	.173	.0565
03-24-2010	< .026	< .02	1.81	7.98	1.80	.022	.0068	< .64	.245	.0798
04-15-2010	< .026	< .02	1.44	6.35	1.43	.011	.0033	< .19	.031	.01
04-27-2010	< .026	< .02	2.10	9.25	2.09	.027	.0081	< .20	.112	.0367
05-17-2010	E .015	E .012	1.52	6.72	1.52	.017	.0051	E .42	.264	.0859
05-21-2010	E .018	E .014	1.73	7.62	1.72	.017	.0053	E .92	.322	.105
06-15-2010	E .017	E .013	1.55	6.84	1.55	.020	.0061	E .17	.194	.0631
07-14-2010	.041	.032	1.23	5.41	1.22	.026	.0080	2.0	.510	.166
08-19-2010	E .018	E .014	.850	3.75	.847	.012	.0036	E .17	.218	.0710

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
Part 4 of 4

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Date	Phosphorus, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)	Total nitrogen, water, unfiltered, mg/L (00600)	Enterococci, Defined Substrate Technology, water, MPN/100 mL (99601)	Escherichia coli, Defined Substrate Technology, water, MPN/100 mL (50468)	Total coliform, Defined Substrate Technology, water, MPN/100 mL (50569)	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
10-27-2009	.0787	.0896	2.2	140	170	7,400	--	--	--
12-15-2009	.0129	.0278	2.4	< 2	< 10	260	76	8	11
02-09-2010	.0552	.0697	2.7	4	< 10	800	76	12	67
03-24-2010	.0885	.185	2.5	--	--	--	90	95	1,230
04-15-2010	.0133	.0260	1.6	2	< 10	700	56	8	18
04-27-2010	.0381	.0498	2.3	4	10	790	75	3	6.8
05-17-2010	.0892	.145	2.0	920	340	9,100	95	44	373
05-21-2010	.113	.331	2.7	> 4,800	2,200	82,000	96	229	4,150
06-15-2010	.0642	.0765	1.7	30	31	8,200	84	9	15
07-14-2010	.165	.737	3.3	> 4,800	860	160,000	96	648	13,000
08-19-2010	.0667	.0785	1.0	58	10	7,100	100	5	3.1