Water-Data Report 2012

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 left downstream abutment of U.S. Highway 62 bridge, 2.2 mi northeast of Tahlequah, 6.7 mi upstream from Baron Fork, and at mile 55.6.

DRAINAGE AREA.--950 mi^2, revised. From automated delineation using 10-meter National Elevation Dataset digital elevation model data dated 10/01/2006 and Watershed Boundary Dataset dated 10/01/2006, using Albers Equal-Area Projection, North American Datum 1983.

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. WDR 2012: 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. Prior to Sep. 8, 2011 at site 0.2 mile downstream at same datum.

REMARKS.--No estimated daily discharge. Records fair. 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)
Nov 10	0100	*13,700	11.75
Mar 21	2000	12,400	*12.05

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 07196500, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/07196500.2012.pdf

07196500 ILLINOIS RIVER NEAR TAHLEQUAH, OK—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	296	270	972	700	1,120	468	1,080	450	278	126	101	242
2	274	254	856	643	965	495	978	526	261	122	92	213
3	253	260	798	593	882	492	903	593	267	118	88	227
4	238	256	768	556	887	476	848	528	384	113	86	226
5	223	274	1,040	534	3,150	458	792	472	387	111	84	203
6	220	293	1,620	513	2,610	447	752	436	436	111	84	184
7	215	310	1,350	488	1,870	433	708	408	409	111	83	172
8	205	896	1,130	477	1,520	431	673	386	344	114	83	170
9	196	7,560	964	458	1,300	431	641	372	296	111	89	162
10	194	7,780	853	443	1,130	437	616	361	262	111	89	234
11	192	3,760	762	433	985	471	597	346	245	120	91	285
12	204	2,530	701	444	906	482	586	336	227	116	103	230
13	227	1,820	674	564	830	570	569	325	210	113	103	195
14	358	1,380	693	553	764	713	554	316	206	110	102	215
15	426	1,140	819	496	740	669	560	304	203	107	105	263
16	351	969	4,280	470	726	627	574	297	204	107	111	285
17	299	851	2,980	437	710	592	812	293	197	108	120	324
18	266	767	2,020	416	703	559	746	284	187	105	130	379
19	246	668	1,600	407	654	543	636	275	176	102	138	341
20	249	582	1,470	395	628	2,330	577	263	168	100	180	297
21	264	571	2,190	380	604	9,240	543	257	187	97	164	262
22	255	990	2,360	376	579	10,200	518	248	180	95	148	236
23	290	4,340	1,860	362	591	7,540	488	239	174	93	137	219
24	285	3,660	1,560	349	572	4,570	464	230	171	91	130	202
25	278	2,540	1,330	495	552	3,200	449	228	165	87	124	195
26	275	1,970	1,170	2,340	528	2,430	437	225	158	84	133	178
27	291	1,610	1,040	4,030	491	1,970	419	224	151	88	142	171
28	285	1,430	964	2,710	467	1,670	407	219	142	89	148	172
29	278	1,300	900	2,000	471	1,450	398	215	137	91	377	187
30	302	1,110	815	1,570	---	1,290	417	205	130	112	393	178
31	291	---	751	1,310	---	1,180	---	244	---	110	295	---
Total	8,226	52,141	41,290	25,942	27,935	56,864	18,742	10,105	6,942	3,273	4,253	6,847
Mean	265	1,738	1,332	837	963	1,834	625	326	231	106	137	228
Max	426	7,780	4,280	4,030	3,150	10,200	1,080	593	436	126	393	379
Min	192	254	674	349	467	431	398	205	130	84	83	162
Ac-ft	16,320	103,400	81,900	51,460	55,410	112,800	37,170	20,040	13,770	6,490	8,440	13,580
Cfsm	0.28	1.83	1.40	0.88	1.01	1.93	0.66	0.34	0.24	0.11	0.14	0.24
In.	0.32	2.04	1.62	1.02	1.09	2.23	0.73	0.40	0.27	0.13	0.17	0.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	548	886	897	885	1,123	1,450	1,661	1,651	1,030	528	352	391
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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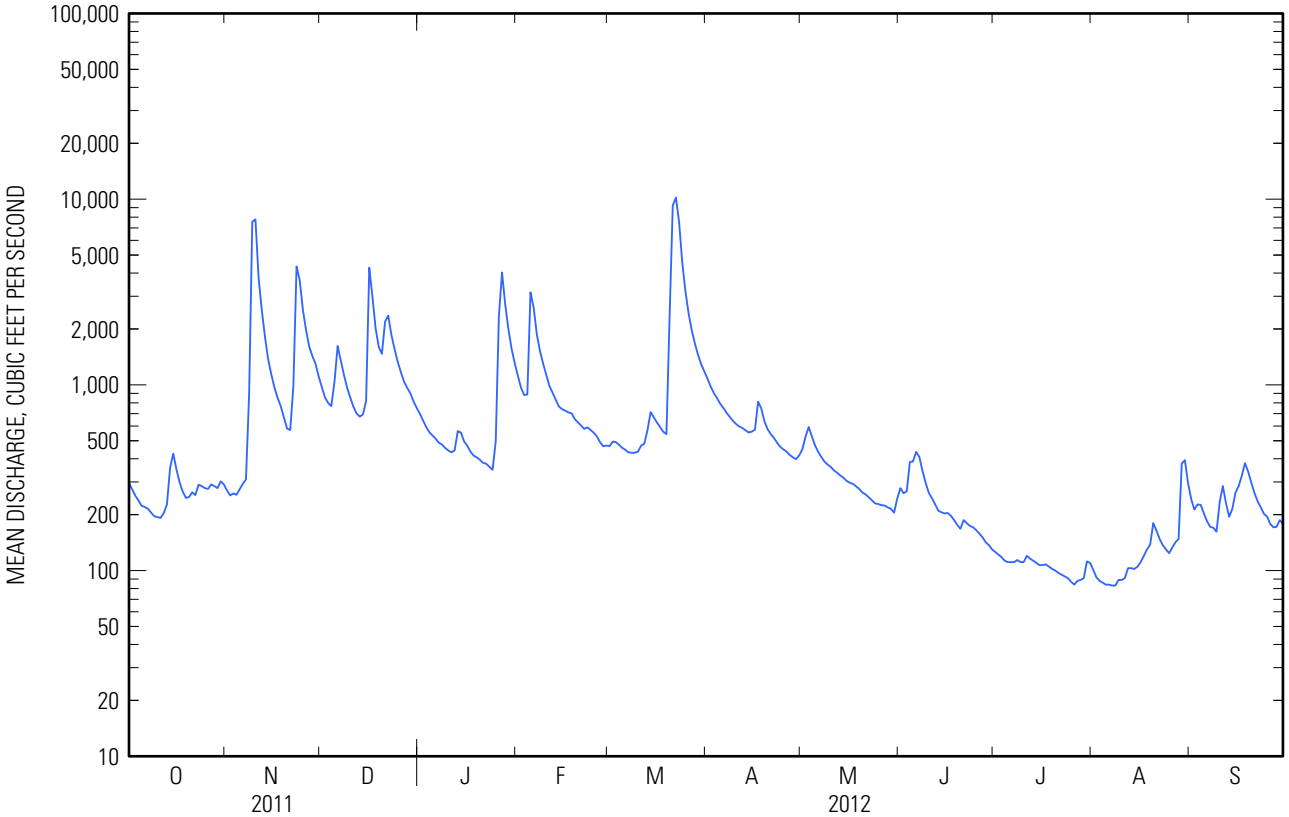
SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1936 - 2012	
Annual total	562,380		262,560			
Annual mean	1,541		717		948	
Highest annual mean					1,980	1974
Lowest annual mean					193	1954
Highest daily mean	77,900	Apr 26	10,200	Mar 22	90,400	May 11, 1950
Lowest daily mean	159	Sep 15	[a]83	Aug 7	0.10	Oct 10, 1956
Annual seven-day minimum	167	Sep 9	85	Aug 3	0.14	Oct 8, 1956
Maximum peak flow			13,700	Nov 10	[b]150,000	May 10, 1950
Maximum peak stage			12.05	Mar 21	27.94	May 10, 1950
Annual runoff (ac-ft)	1,115,000		520,800		687,000	
Annual runoff (cfsm)	1.62		0.755		0.998	
Annual runoff (inches)	22.02		10.28		13.56	
10 percent exceeds	2,170		1,530		1,920	
50 percent exceeds	457		386		431	
90 percent exceeds	225		111		127	

[a] Also Aug. 8.

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



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 2011 TO SEPTEMBER 2012

Part 1 of 4

[%, percent; FNU, Formazin nephelometric units; LED, light-emitting diode; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; 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; --, no data; <, less than; >, greater than]

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)
10-05-2011	**1115**	766	26.5	222	10.3	112	8.1	290	19.4
11-08-2011	**1500**	743	16.1	1,060	9.3	98	7.9	270	16.4
11-09-2011	**1215**	757	8.1	8,510	9.0	89	7.9	245	14.5
12-13-2011	**0945**	757	9.5	672	12.2	103	8.1	278	8.1
02-01-2012	**1030**	754	14.4	1,150	10.9	99	8.0	262	10.3
03-22-2012	**1000**	740	12.4	9,560	9.3	92	7.2	180	13.2
04-18-2012	**1045**	746	19.6	748	10.6	111	8.1	282	16.6
05-23-2012	**1245**	736	30.7	239	12.4	140	8.3	283	19.6
06-21-2012	**1400**	--	--	198	9.7	--	8.1	271	27.5
08-23-2012	**1345**	753	32.5	136	9.4	118	8.1	322	26.7

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 2 of 4

[%, percent; FNU, Formazin nephelometric units; LED, light-emitting diode; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; 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; --, no data; <, less than; >, greater than]

Date	Sample start time	Turbidity, water, unfiltered, monochrome near infrared LED light, 780-900 nm, detection angle 90 +/- 2.5 degrees, FNU (63680)	Ammonia plus organic nitrogen, water, unfiltered, mg/L as N (00625)	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, mg/L (71856)
10-05-2011	**1115**	2.8	.175	< .013	< .01	1.23	5.45	1.23	.010
11-08-2011	**1500**	4.2	.225	.013	.0101	1.37	6.05	1.37	.011
11-09-2011	**1215**	220	1.52	.016	.0125	2.60	11.5	2.60	.019
12-13-2011	**0945**	1.5	.113	< .013	< .010	3.02	13.4	3.02	.004
02-01-2012	**1030**	3.4	.152	.016	.0126	2.94	13.0	2.94	.018
03-22-2012	**1000**	--	.876	.027	.0209	1.98	8.76	1.98	.014
04-18-2012	**1045**	3.4	.185	< .013	< .010	2.38	10.5	2.37	.020
05-23-2012	**1245**	4.1	.148	.019	.0146	1.25	5.52	1.25	.023
06-21-2012	**1400**	6.1	.249	.029	.0226	.685	3.01	.680	.016
08-23-2012	**1345**	4.7	.151	< .013	< .010	.039	.171	.039	< .003

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 3 of 4

[%, percent; FNU, Formazin nephelometric units; LED, light-emitting diode; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; 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; --, no data; <, less than; >, greater than]

Date	Sample start time	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)	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)
10-05-2011	**1115**	.00294	< .18	.148	.0481	.0456	.0567	1.4	8
11-08-2011	**1500**	.00328	.21	.147	.0480	.0498	.0749	1.6	2,100
11-09-2011	**1215**	.00589	1.5	.365	.119	.129	.491	4.1	> 4,800
12-13-2011	**0945**	.00133	< .11	.099	.0321	.0373	.0439	3.1	32
02-01-2012	**1030**	.0056	.14	.134	.0437	.0453	.0500	3.1	6
03-22-2012	**1000**	.00418	.86	.279	.0909	.101	.294	2.9	--
04-18-2012	**1045**	.00603	< .18	.108	.0352	.0382	.0527	2.6	35
05-23-2012	**1245**	.00709	.13	.102	.0332	.0385	.0494	1.4	2
06-21-2012	**1400**	.00492	.23	.142	.0463	.0509	.0666	.93	47
08-23-2012	**1345**	< .0010	< .15	.124	.0404	.0416	.0514	.19	2

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 4 of 4

[%, percent; FNU, Formazin nephelometric units; LED, light-emitting diode; MPN/100 mL, most probable number per 100 milliliters; N, nitrogen; 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; --, no data; <, less than; >, greater than]

Date	Sample start time	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)
10-05-2011	**1115**	< 10	3,100	92	3	1.8
11-08-2011	**1500**	410	13,000	84	14	40
11-09-2011	**1215**	14,000	> 240,000	92	497	11,400
12-13-2011	**0945**	< 10	1,100	89	2	3.6
02-01-2012	**1030**	< 10	710	--	--	--
03-22-2012	**1000**	--	--	85	255	6,580
04-18-2012	**1045**	20	2,500	77	8	16
05-23-2012	**1245**	< 10	7,500	73	9	5.8
06-21-2012	**1400**	52	17,000	88	11	5.9
08-23-2012	**1345**	< 10	9,300	84	10	3.7