Water-Data Report 2013

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK

Neosho Basin
Lower Neosho Subbasin

LOCATION.--Lat 36°20′05″, long 94°38′29″ referenced to North American Datum of 1983, in NE ¼ NW ¼ sec.4, T.21 N., R.25 E., Delaware County, OK, Hydrologic Unit 11070209, on right bank 1.8 mi upstream from Cherokee Creek, 4.8 mi northeast of Row, 6.5 mi southeast of Sycamore, and at mile 35.0.

DRAINAGE AREA.--132 mi^2, 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 1961 to current year.

REVISED RECORDS.--WDR 2012: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 868.34 ft NAVD of 1988. Prior to Nov. 6, 2001, elevation published as 875 ft above NGVD of 1929, from topographic map.

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

EXTREMES OUTSIDE PERIOD OF RECORD.--According to local residents, a flood of approximately the same magnitude as the July 27, 1975 flood occurred in the early 1880's.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft^3/s and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr 18	Unknown	*9,020	*13.20
May 10	1000	6,880	11.90
Aug 8	1400	4,320	10.04

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	11	17	15	17	89	109	103	175	221	e43	70	57
2	11	18	16	18	107	100	115	153	196	e42	72	55
3	11	18	16	19	93	89	123	147	172	e40	63	54
4	11	18	19	20	81	78	124	147	152	e40	66	52
5	11	17	24	22	73	67	123	147	145	e39	78	50
6	10	17	30	23	66	60	117	143	142	e38	77	48
7	10	16	36	23	60	55	106	136	135	e37	70	47
8	10	15	40	22	55	49	95	126	125	e36	1,700	45
9	10	15	41	21	51	45	85	167	114	e35	854	44
10	9.7	16	39	22	47	64	367	3,780	105	e34	418	41
11	9.9	17	36	22	44	272	893	1,280	99	e34	289	40
12	15	18	32	23	41	277	488	700	94	e33	231	38
13	23	19	29	26	40	224	337	496	87	e32	226	37
14	35	20	26	29	40	177	262	384	81	e30	303	37
15	40	20	25	31	40	142	205	310	76	e28	248	36
16	57	20	23	34	40	117	164	276	76	e29	206	35
17	65	20	22	36	39	99	135	252	74	e30	174	34
18	62	20	22	37	39	88	e4,370	227	74	e32	149	33
19	55	20	21	37	38	77	1,440	200	74	e32	128	33
20	49	19	20	36	38	68	807	178	70	e31	114	34
21	43	18	20	34	57	62	570	169	66	e31	105	34
22	39	17	20	31	88	59	442	187	62	e31	98	37
23	35	18	19	28	134	56	352	203	58	e31	92	37
24	30	18	19	26	133	54	288	186	55	e38	87	37
25	27	17	19	24	117	51	242	168	52	e43	81	36
26	25	16	18	24	107	48	215	153	e50	e40	75	35
27	23	16	17	22	107	46	212	141	e49	e40	71	34
28	22	15	16	22	112	43	221	128	e47	e45	68	34
29	21	15	15	23	---	43	214	118	e46	e44	65	33
30	20	15	16	36	---	45	196	139	e45	e46	62	33
31	18	---	17	48	---	74	---	255	---	e52	59	---
Total	818.6	525	728	836	1,976	2,838	13,411	11,271	2,842	1,136	6,399	1,200
Mean	26.4	17.5	23.5	27.0	70.6	91.5	447	364	94.7	36.6	206	40.0
Max	65	20	41	48	134	277	4,370	3,780	221	52	1,700	57
Min	9.7	15	15	17	38	43	85	118	45	28	59	33
Ac-ft	1,620	1,040	1,440	1,660	3,920	5,630	26,600	22,360	5,640	2,250	12,690	2,380
Cfsm	0.20	0.13	0.18	0.20	0.53	0.69	3.39	2.75	0.72	0.28	1.56	0.30
In.	0.23	0.15	0.21	0.24	0.56	0.80	3.78	3.18	0.80	0.32	1.80	0.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2013, BY WATER YEAR (WY)

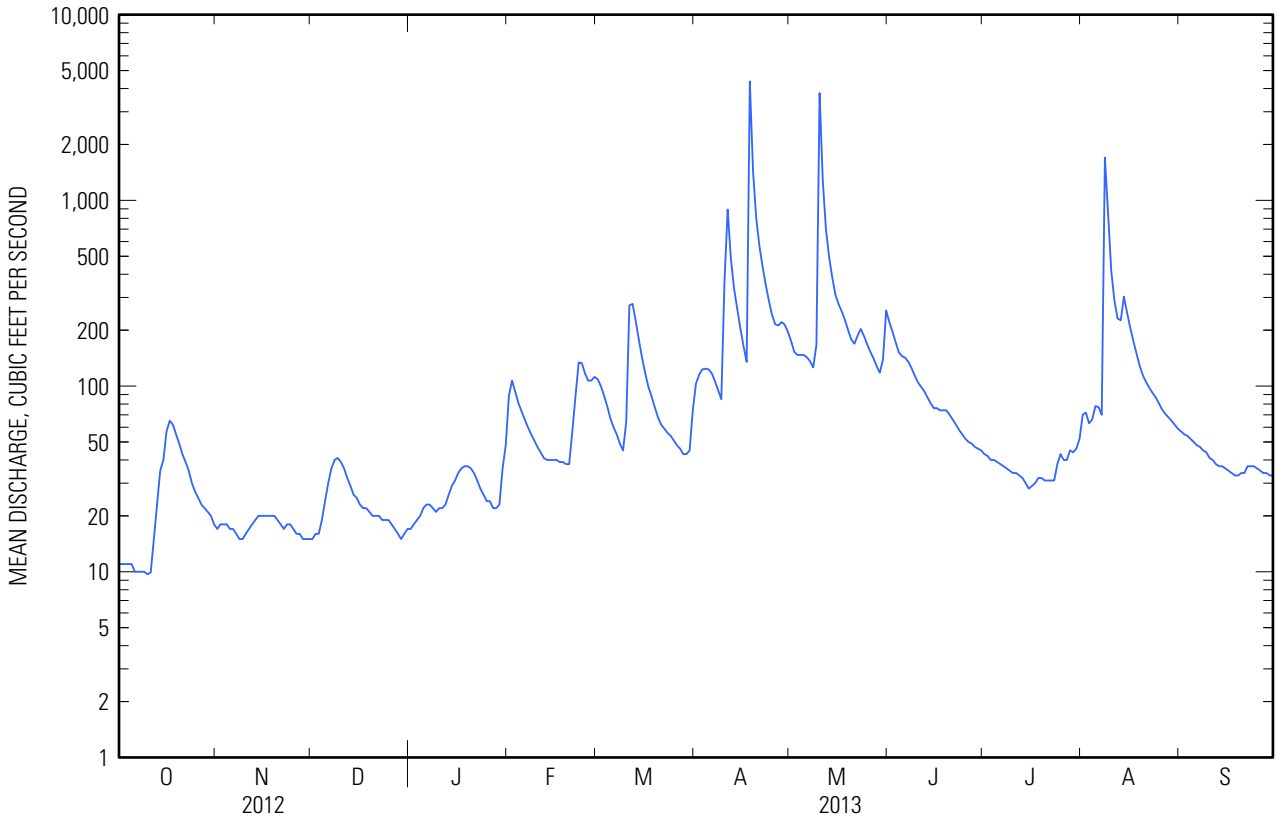
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	58.3	100	113	110	125	185	206	163	142	70.4	35.6	49.8
Max	382	683	585	546	480	660	638	550	880	483	206	248
(WY)	(1987)	(1974)	(1993)	(2005)	(2001)	(2008)	(2011)	(1990)	(1974)	(1975)	(2013)	(1986)
Min	4.84	8.56	10.5	9.34	12.1	12.7	16.0	19.0	14.5	5.28	5.62	5.75
(WY)	(1964)	(1964)	(1967)	(1981)	(2006)	(1967)	(2006)	(1967)	(1972)	(2006)	(2012)	(1963)

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK—Continued

SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1962 - 2013	
Annual total	17,023.2		43,980.6			
Annual mean	46.5		120		113	
Highest annual mean					265	1974
Lowest annual mean					18.0	1967
Highest daily mean	1,100	Mar 22	[a] 4,370	Apr 18	11,700	Jul 27, 1975
Lowest daily mean	4.2	Aug 10	9.7	Oct 10	1.3	Aug 9, 1964
Annual seven-day minimum	4.4	Aug 4	10	Oct 5	1.6	Aug 3, 1964
Maximum peak flow			9,020	Apr 18	39,800	Jul 27, 1975
Maximum peak stage			13.20	Apr 18	22.07	Jul 27, 1975
Annual runoff (ac-ft)	33,770		87,240		81,880	
Annual runoff (cfsm)	0.352		0.913		0.856	
Annual runoff (inches)	4.80		12.39		11.63	
10 percent exceeds	70		217		227	
50 percent exceeds	25		45		54	
90 percent exceeds	6.6		18		14	

[a] Estimated



07191220 SPAVINAW CREEK NEAR SYCAMORE, OK—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1972 to April 1988, December 2001 to current year.

REMARKS.--Samples collected periodically by the U.S. Geological Survey. All water-quality samples were analyzed at the City of Tulsa Quality Assurance Laboratory in Tulsa, Oklahoma. Suspended sediment samples were analyzed by U.S. Geological Survey. Specific conductance, pH, water temperature, air temperature, turbidity, and dissolved oxygen were determined in the field.

COOPERATION.--All analytical records were furnished by City of Tulsa Quality Assurance Laboratory, Tulsa, Oklahoma.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 1 of 4

[%, percent; ANC, acid neutralizing capacity; $CaCO_3$, calcium carbonate; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; P, phosphorus; ft^3/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]

Date	Sample start time	Barometric pressure, mm Hg (00025)	Temperature, air, °C (00020)	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)
01-30-2013	**1100**	745	4.5	36	10.4	98	7.7	344	11.9
03-12-2013	**1645**	737	21.8	268	11.0	106	7.8	306	12.2
04-11-2013	**0630**	--	--	1,020	9.6	--	7.5	188	10.2
04-18-2013	**1600**	732	--	5,560	9.1	91	7.5	167	13.8
05-10-2013	**1300**	742	19.8	5,050	9.0	92	7.4	170	15.3
08-08-2013	**1430**	754	26.8	4,060	7.6	88	6.9	170	21.8

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 2 of 4

[%, percent; ANC, acid neutralizing capacity; $CaCO_3$, calcium carbonate; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; P, phosphorus; ft^3/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]

Date	Sample start time	Turbidity, water, unfiltered, monochrome near infrared LED light, 780-900 nm, detection angle 90 +/- 2.5 degrees, FNU (63680)	ANC, water, unfiltered, fixed endpoint (pH 4.5) titration, laboratory, mg/L as $CaCO_3$ (90410)	Carbon dioxide, water, unfiltered, mg/L (00405)	Ammonia plus organic nitrogen, water, unfiltered, mg/L as N (00625)	Ammonia, water, unfiltered, milligrams per liter as NH4 (71845)	Ammonia, water, unfiltered, mg/L as N (00610)	Nitrate plus nitrite, water, unfiltered, mg/L as N (00630)	Nitrate, water, unfiltered, mg/L as N (00620)
01-30-2013	**1100**	4.2	140	5.2	< .12	< .052	< .040	4.20	4.20
03-12-2013	**1645**	3.2	120	4.1	< .12	< .052	< .040	5.90	5.90
04-11-2013	**0630**	30	92	5.9	< .64	< .039	< .030	5.50	5.50
04-18-2013	**1600**	290	57	3.7	3.7	.167	.130	3.40	3.40
05-10-2013	**1300**	260	65	5.3	2.2	.052	.040	2.80	2.70
08-08-2013	**1430**	370	58	13	3.1	.052	.040	2.70	2.60

07191220 SPAVINAW CREEK NEAR SYCAMORE, OK—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
Part 3 of 4
[%, percent; ANC, acid neutralizing capacity; $CaCO_3$, calcium carbonate; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; P, phosphorus; ft^3/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]

Date	Sample start time	Nitrite, water, unfiltered, mg/L as N (00615)	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)	Total nitrogen, water, unfiltered, milligrams per liter as nitrate (71887)
01-30-2013	**1100**	< .100	< .12	0.212	0.069	0.082	0.087	< 4.3	< 19
03-12-2013	**1645**	< .100	< .12	.169	.055	< .057	< .062	< 6.0	< 27
04-11-2013	**0630**	< .070	< .64	.273	.089	.085	.120	< 6.1	< 27
04-18-2013	**1600**	< .070	3.6	.552	.180	.180	1.20	7.1	31
05-10-2013	**1300**	< .100	2.2	.552	.180	--	.770	5.0	22
08-08-2013	**1430**	< .100	3.1	.675	.220	.230	1.40	5.8	26

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
Part 4 of 4
[%, percent; ANC, acid neutralizing capacity; $CaCO_3$, calcium carbonate; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; P, phosphorus; ft^3/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]

Date	Sample start time	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
01-30-2013	**1100**	91	3	0.29
03-12-2013	**1645**	67	3	2.2
04-11-2013	**0630**	89	40	110
04-18-2013	**1600**	87	855	12,800
05-10-2013	**1300**	88	580	7,910
08-08-2013	**1430**	90	835	9,150