

Water-Data Report 2009

06813500 Missouri River at Rulo, NE

Missouri-Nishnabotna Basin
Tarkio-Wolf Subbasin

LOCATION.--Lat 40°03'13", long 95°25'19" referenced to North American Datum of 1927, in NW ¼ NW ¼ sec.17, T.1 N., R.18 E., Richardson County, NE, Hydrologic Unit 10240005, on right bank on downstream side of bridge on U.S. Highway 159 in Rulo, 3.2 mi upstream from Big Nemaha River, and 498.0 mi upstream from mouth.

DRAINAGE AREA.--414,900 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1949 to current year in reports of U.S. Geological Survey. Gage-height record collected at site 80 ft upstream from January 1886 to December 1899, in reports of Missouri River Commission, and from September 1929 to September 1950, in files of Kansas City office of U.S. Army Corps of Engineers.

GAGE.--Water-stage recorder. Datum of gage is 837.23 ft above NGVD of 1929. October 1949 to September 12, 1950, nonrecording gage at site 80 ft upstream at same datum; September 13, 1950 to April 19, 1983, water-stage recorder on downstream end of middle pier at same datum.

REMARKS.--Records are considered good, except for those estimated daily discharges, which are poor. Flow regulated by upstream main-stem reservoirs. Fort Randall Dam was completed in July 1952, with storage beginning in December 1952. Gavins Point Dam was completed in July 1955, with storage beginning in December 1955. U.S. Army Corps of Engineers data collection platform with satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Minimum daily discharge, 4,420 ft³/s, January 13, 1957; minimum gage height, -0.19 ft, December 25, 1990, result of freeze-up.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1881 reached a stage of 22.9 ft, from floodmark, discharge not determined.

EXTREMES FOR PERIOD PRIOR TO REGULATION.--Maximum discharge, 358,000 ft³/s, April 22, 1952, gage height, 25.60 ft.

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

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	30,400	31,500	25,100	26,100	23,000	27,900	35,800	41,900	37,900	51,700	41,900	40,400
2	30,600	29,900	25,000	25,400	23,200	22,700	36,000	41,200	39,900	50,300	42,500	40,200
3	30,500	28,600	24,700	25,000	23,600	19,200	35,800	40,600	40,600	49,600	42,600	39,600
4	30,300	28,400	24,000	24,800	23,800	20,300	35,800	40,200	38,700	50,200	43,000	41,600
5	30,100	27,600	23,000	25,000	24,000	24,100	36,800	39,600	37,000	56,000	44,000	44,000
6	29,600	27,600	22,600	24,800	24,500	28,800	36,000	39,700	39,400	53,500	43,700	42,800
7	30,100	27,300	22,800	23,900	24,700	34,300	36,300	40,500	45,200	49,900	42,200	41,100
8	32,400	26,700	23,000	23,500	24,900	37,400	36,900	41,500	54,000	49,300	44,100	39,900
9	31,800	26,400	23,400	24,200	28,500	36,500	37,200	41,800	56,200	53,300	42,800	39,300
10	32,400	26,200	23,400	24,800	36,000	32,900	37,100	41,900	52,300	55,200	44,100	39,000
11	33,800	26,400	23,100	23,900	48,000	30,400	36,800	42,000	47,700	56,400	42,200	38,700
12	32,800	26,900	23,800	23,300	62,500	29,800	36,700	42,100	45,700	59,900	41,900	38,700
13	32,400	28,800	23,400	23,300	52,100	27,000	37,700	42,800	44,400	58,900	41,400	39,700
14	34,100	28,700	24,500	23,400	48,100	22,400	38,000	43,500	43,300	62,900	40,900	40,800
15	35,700	28,900	26,500	23,800	44,000	20,100	38,100	45,700	48,100	58,500	40,400	40,500
16	39,800	28,400	24,900	23,700	40,200	24,200	38,400	55,700	46,900	55,000	42,200	39,600
17	37,200	28,000	20,900	23,300	37,800	30,800	38,200	45,600	51,200	54,000	44,200	39,400
18	36,000	27,800	16,600	23,800	36,400	30,200	37,700	42,300	58,800	52,700	43,700	39,600
19	34,300	27,400	14,100	25,200	34,900	27,700	37,900	40,600	57,500	51,500	42,800	39,800
20	33,600	27,400	14,700	26,300	33,900	26,900	37,900	39,500	62,800	50,300	46,500	39,700
21	32,700	27,000	19,800	26,500	31,800	27,200	38,200	38,600	69,500	49,400	45,000	39,800
22	34,200	26,700	22,900	25,900	29,400	28,000	38,300	39,100	70,000	49,300	42,400	40,500
23	51,500	26,300	23,400	25,100	28,700	30,100	38,200	40,900	67,100	49,900	40,900	40,700
24	62,700	25,900	23,000	24,700	26,400	32,900	38,400	40,900	62,300	48,100	39,800	41,200
25	60,700	26,000	22,500	24,700	25,600	35,300	38,600	40,600	64,300	46,200	39,400	41,000
26	54,900	25,900	22,700	24,500	26,800	36,700	39,000	39,400	59,000	45,200	39,100	41,300
27	46,400	25,700	26,300	24,100	28,200	37,900	53,400	38,600	56,000	44,500	41,400	41,500
28	42,100	25,100	29,600	23,800	28,400	36,800	53,800	38,500	53,800	44,000	44,600	41,700
29	39,000	25,300	31,800	24,000	---	36,400	45,000	37,900	53,100	43,500	43,800	41,600
30	36,600	25,100	29,800	24,300	---	35,600	42,500	37,400	53,100	42,700	41,800	41,400
31	34,000	---	27,400	23,700	---	35,500	---	38,800	---	41,900	41,000	---
Total	1,152,700	817,900	728,700	758,800	919,400	926,000	1,166,500	1,279,400	1,555,800	1,583,800	1,316,300	1,215,100
Mean	37,180	27,260	23,510	24,480	32,840	29,870	38,880	41,270	51,860	51,090	42,460	40,500
Max	62,700	31,500	31,800	26,500	62,500	37,900	53,800	55,700	70,000	62,900	46,500	44,000
Min	29,600	25,100	14,100	23,300	23,000	19,200	35,800	37,400	37,000	41,900	39,100	38,700
Ac-ft	2,286,000	1,622,000	1,445,000	1,505,000	1,824,000	1,837,000	2,314,000	2,538,000	3,086,000	3,141,000	2,611,000	2,410,000
Cfsm	0.09	0.07	0.06	0.06	0.08	0.07	0.09	0.10	0.12	0.12	0.10	0.10
In.	0.10	0.07	0.07	0.07	0.08	0.08	0.10	0.11	0.14	0.14	0.12	0.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	43,290	39,140	26,680	22,750	28,170	39,930	49,910	51,620	56,490	49,400	43,760	43,750
Max	80,050	83,880	57,380	42,280	53,140	79,590	106,100	97,280	130,600	164,800	78,730	76,410
(WY)	(1998)	(1998)	(1998)	(1973)	(1997)	(1979)	(1997)	(1997)	(1984)	(1993)	(1996)	(1997)
Min	24,520	17,000	9,953	10,800	13,220	15,380	21,820	33,790	33,710	29,650	29,320	30,350
(WY)	(2007)	(1962)	(1956)	(1957)	(1957)	(1957)	(1957)	(1956)	(1956)	(2002)	(2003)	(2008)

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SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1953 - 2009 ^a	
Annual total	14,534,800		13,420,400			
Annual mean	39,710		36,770		41,270	
Highest annual mean					71,880	1997
Lowest annual mean					26,340	1957
Highest daily mean	160,000	Jun 14	70,000	Jun 22	289,000	Jul 24, 1993
Lowest daily mean	14,100	Dec 19	14,100	Dec 19	4,420	Jan 13, 1957
Annual seven-day minimum	18,900	Dec 17	18,900	Dec 17	5,560	Nov 30, 1955
Maximum peak flow			71,700	Jun 21	307,000	Jul 24, 1993
Maximum peak stage			14.77	Jun 21	25.37	Jul 24, 1993
Instantaneous low flow			13,500	Dec 19 ^b		
Annual runoff (ac-ft)	28,830,000		26,620,000		29,900,000	
Annual runoff (cfsm)	0.096		0.089		0.099	
Annual runoff (inches)	1.30		1.20		1.35	
10 percent exceeds	60,200		51,900		65,500	
50 percent exceeds	33,100		37,800		37,900	
90 percent exceeds	23,200		23,800		19,400	

^a Post regulation.

^b Also Dec 20.

