



Water-Data Report 2009

06090300 MISSOURI RIVER NEAR GREAT FALLS, MT

Upper Missouri Basin
Upper Missouri-Deerborn Subbasin

LOCATION.--Lat 47°35'04", long 111°03'35" referenced to North American Datum of 1927, in SW ¼ SE ¼ SW ¼ sec.11, T.21 N., R.5 E., Cascade County, MT, Hydrologic Unit 10030102, on left bank 700 ft downstream from Morony Dam, 12.6 mi northeast of Great Falls, and at river mile 2,105.4.

DRAINAGE AREA.--23,292 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May to July 1953 in Water Supply Paper 1320-B, October 1956 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,807.21 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to July 27, 1977, nonrecording gage at same site at elevation 2.00 ft higher. July 27, 1977 to May 26, 1987, at site 600 ft upstream at elevation 2.00 ft higher. October 1971 to July 27, 1977, discharges were obtained from the Montana Power Company at Rainbow Dam 7.05 mi upstream. Prior to October 1971, Foxboro meters were used for determining discharge through powerplant. Water-stage recorder on Morony Reservoir was used for determining head on taintor gates with elevation of gage at sea level (level by Montana Power Company).

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Flow is regulated by Clark Canyon Reservoir (station number 06015300), Canyon Ferry Lake (station number 06058500), and 18 smaller irrigation reservoirs and powerplants upstream. Diversions for irrigation include about 750,400 acres upstream from the station. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06090300 MISSOURI RIVER NEAR GREAT FALLS, MT—Continued

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

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5,760	5,120	5,640	6,060	6,580	5,850	6,490	9,730	19,000	11,400	6,020	5,390
2	5,220	5,200	5,530	6,030	6,410	7,110	6,560	9,580	19,100	11,300	6,050	5,380
3	5,120	5,340	5,460	5,940	6,160	6,390	6,780	10,500	18,300	10,300	6,110	5,430
4	5,420	5,170	5,690	5,590	6,200	5,240	6,470	11,100	15,900	8,910	5,900	5,480
5	5,350	5,440	5,370	5,360	6,450	5,410	6,540	11,900	14,800	9,060	5,840	5,140
6	5,200	5,520	5,840	5,690	6,530	5,430	6,370	13,500	13,400	8,890	5,930	5,590
7	5,330	5,410	5,930	e6,000	6,900	5,490	6,640	14,200	12,200	8,810	6,060	5,600
8	5,260	5,440	5,820	e6,000	7,060	5,360	6,610	14,500	11,900	9,080	6,560	5,520
9	5,130	5,480	5,760	e6,100	6,500	4,840	7,180	14,100	12,300	9,170	7,150	5,280
10	5,270	5,480	5,640	6,300	6,140	4,500	7,770	13,900	11,900	9,240	6,820	5,620
11	5,310	5,490	5,490	6,250	6,250	3,600	8,060	13,600	10,600	9,250	6,830	5,660
12	5,480	5,790	5,530	6,290	6,210	4,670	8,190	13,500	9,040	8,880	6,350	5,550
13	5,600	5,630	5,340	6,360	6,310	5,960	8,300	13,100	8,380	8,940	6,380	5,550
14	5,780	5,690	3,200	6,320	6,310	6,690	8,210	12,500	7,900	8,830	6,010	5,410
15	5,640	5,590	2,790	6,370	6,200	6,940	8,360	12,400	7,640	8,830	6,100	5,370
16	5,570	5,790	4,510	6,420	6,070	6,460	8,560	12,200	8,320	8,580	6,370	5,220
17	5,630	5,680	5,510	6,340	6,240	5,710	8,440	12,200	8,410	8,380	6,110	5,260
18	5,440	5,580	5,640	6,390	6,230	5,730	8,460	12,000	8,340	7,750	6,020	5,150
19	5,350	5,730	5,470	6,310	6,260	5,550	8,340	12,600	8,240	7,910	6,030	5,290
20	5,350	5,690	5,350	6,250	6,130	5,640	8,500	13,900	8,300	7,310	5,700	5,220
21	5,530	5,840	5,050	6,150	6,260	5,620	8,750	14,900	8,620	7,180	5,680	5,190
22	5,300	5,700	4,930	6,210	6,130	5,840	8,910	15,400	8,680	6,820	5,400	5,310
23	5,300	5,700	e5,000	6,340	6,080	5,900	9,060	15,500	9,680	6,290	6,030	5,320
24	5,370	5,750	e5,400	5,400	6,230	6,010	9,560	15,100	11,500	6,060	5,880	5,300
25	5,360	5,720	5,730	3,670	5,940	6,090	9,640	15,200	12,700	6,080	5,310	5,260
26	5,200	5,670	5,910	4,640	5,620	6,150	9,350	16,000	12,600	6,190	5,420	5,070
27	5,170	5,720	5,840	e5,100	4,590	6,050	9,210	16,500	12,100	6,800	5,670	5,170
28	5,210	5,540	e6,200	e5,500	4,320	5,530	9,280	17,100	11,900	6,510	5,290	5,090
29	5,170	5,660	6,060	5,170	---	6,130	9,760	18,000	11,800	6,730	5,250	5,470
30	5,220	5,490	6,070	6,190	---	6,670	9,900	18,500	11,500	6,440	5,540	5,560
31	5,130	---	6,170	6,710	---	6,270	---	18,900	---	6,490	5,390	---
Total	166,170	167,050	167,870	183,450	172,310	178,830	244,250	432,110	345,050	252,410	185,200	160,850
Mean	5,360	5,568	5,415	5,918	6,154	5,769	8,142	13,940	11,500	8,142	5,974	5,362
Max	5,780	5,840	6,200	6,710	7,060	7,110	9,900	18,900	19,100	11,400	7,150	5,660
Min	5,120	5,120	2,790	3,670	4,320	3,600	6,370	9,580	7,640	6,060	5,250	5,070
Ac-ft	329,600	331,300	333,000	363,900	341,800	354,700	484,500	857,100	684,400	500,700	367,300	319,000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	5,685	6,010	5,989	6,148	6,330	6,609	7,294	10,720	13,350	8,409	5,844	5,482
Max	11,940	10,430	11,520	8,232	9,252	10,820	13,200	24,780	30,160	23,560	9,946	9,992
(WY)	(1966)	(1966)	(1960)	(1971)	(1997)	(1968)	(1976)	(1976)	(1964)	(1975)	(1993)	(1984)
Min	3,829	3,950	3,773	3,869	4,030	4,021	3,526	4,454	3,758	3,817	3,719	3,109
(WY)	(1989)	(1993)	(2002)	(2002)	(2002)	(1961)	(1961)	(1961)	(1977)	(1977)	(1988)	(1959)

06090300 MISSOURI RIVER NEAR GREAT FALLS, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1957 - 2009	
Annual total	2,566,840		2,655,550			
Annual mean	7,013		7,275		7,322	
Highest annual mean					11,490	1975
Lowest annual mean					4,349	2001
Highest daily mean	25,400	May 27	19,100	Jun 2	63,400	Jun 10, 1964
Lowest daily mean	2,790	Dec 15	2,790	Dec 15	1,760	Apr 16, 1961
Annual seven-day minimum	3,910	Jan 22	4,620	Dec 11	2,740	Sep 5, 1959
Maximum peak flow			20,800	Jun 2	^a 72,000	Jun 10, 1964
Maximum peak stage			5.98	Jun 2	^b 9.02	May 24, 1981
Instantaneous low flow					^c 1.0	Apr 16, 1962
Annual runoff (ac-ft)	5,091,000		5,267,000		5,305,000	
10 percent exceeds	15,100		12,000		11,500	
50 percent exceeds	5,520		6,080		6,160	
90 percent exceeds	4,250		5,220		4,210	

^aFrom hydrographic comparison with nearby stations.

^bSite and datum then in use.

^cAbout, powerplant shutdown.

