

## 05331000 MISSISSIPPI RIVER AT ST. PAUL, MN

LOCATION.--LAT 44°56'01", long 93°06'20", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.13, T. 28 N., R. 22 W., Ramsey County, Hydrologic Unit 07010206, on left bank in St. Paul, 100 ft upstream from Smith Ave. Bridge, 4.8 mi downstream from Minnesota River, and at mile 840.5 upstream from Ohio River.

DRAINAGE AREA.--36,800 mi<sup>2</sup> (approximately).

PERIOD OF RECORD.--Water year 1867-69, 1872-92 (annual maximums), March 1892 to current year (prior to 1901, fragmentary during some winters). Records prior to March 1892, published in the 19th Annual Report, Part 4, have been found to be unreliable and should not be used. Monthly discharge only for some periods, published in WSP 1308. Gage-height records (winter records incomplete) collected at same site since 1866 are contained in reports of U.S. Weather Bureau, War Department and Mississippi River Commission.

REVISED RECORDS.--WSP 285: 1892-96. WSP 715: Drainage area. WSP 875: 1938. WSP 895: 1939. WSP 1308: 1867(M). WSP 1508: 1897, 1898(M). 1903(M), 1917-18(M). 1928(M), 1929. WRD MN-74: 1973.

GAGE.--Water-stage recorder. Datum of gage is 683.62 ft above sea level (NGVD of 1929). Prior to Mar. 18, 1925, nonrecording gage at several sites within 300 ft of each other and 1.2 miles downstream of present site at present datum. Mar. 19, 1925 to June 24, 1999, recording gage 1.2 miles downstream of present site at present datum. Since September 1938, auxiliary water-stage recorder 5.6 mi downstream.

REMARKS.--Records good except those for estimated days, which are fair to poor. Flow-routing techniques were used from Oct. 1, 2002 to April 20, 2003, May 5 to 10, June 1 to 26 and July 16 to Sept. 30, 2003. Routed discharges are considered fair to poor. Slight regulation, except during extreme floods, by reservoirs on headquarters and by power plants. Beginning July 20, 1939, effluent from Minneapolis and St. Paul, which formerly entered the river above station, was diverted to a wastewater treatment plant, thence to river about 4 miles below station. Daily-mean discharge figures do not include this diversion.

COOPERATION.--Records of discharge from the Metro Plant wastewater treatment plant were provided by the Metropolitan Council - Environmental Services.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9,570	14,600	8,710	e7,010	e4,750	e4,870	12,000	20,600	20,500	37,800	11,000	3,670
2	9,660	14,400	7,930	e7,160	e4,640	e4,290	12,000	19,000	19,200	37,200	10,500	3,690
3	9,140	14,000	8,710	e6,960	e4,640	e4,060	11,700	18,300	17,900	37,400	10,000	3,370
4	8,770	14,200	7,850	e7,170	e4,440	e3,960	11,200	17,600	17,000	36,500	9,850	3,260
5	9,750	13,500	7,480	e6,980	e4,260	e3,900	11,200	17,000	16,000	36,000	9,410	3,400
6	11,300	13,500	e6,830	e7,530	e4,160	e3,760	10,800	16,100	15,400	34,300	9,260	3,220
7	12,700	13,200	e7,350	e6,990	e4,240	e3,810	9,670	16,100	15,200	31,900	9,100	3,300
8	15,000	13,200	e7,910	e6,770	e4,330	e3,870	9,390	16,500	14,900	30,800	8,920	3,040
9	18,800	13,100	e7,600	e7,050	e4,420	e3,940	9,480	16,500	14,600	29,100	8,620	3,110
10	21,800	12,900	e6,880	e7,110	e4,510	e3,810	9,100	18,600	15,100	27,700	8,380	3,590
11	23,200	12,800	e7,570	e6,510	e4,500	e4,220	8,730	24,500	16,300	26,800	e8,110	3,080
12	22,500	12,700	e8,070	e5,620	e4,510	e4,470	8,750	27,700	17,500	27,200	e7,720	3,220
13	22,700	12,600	e8,460	e5,600	e4,510	e4,030	8,450	30,000	18,800	27,400	e7,490	4,730
14	23,600	12,700	e8,230	e5,600	e4,410	e3,960	8,380	32,500	18,800	27,000	6,800	4,420
15	22,100	12,200	e8,430	e5,580	e4,430	e4,130	8,040	33,300	18,900	27,300	6,800	4,470
16	21,300	12,100	e8,660	e5,600	e4,450	e4,310	8,560	33,700	18,400	26,800	6,710	4,260
17	21,100	11,800	e7,970	e5,470	e4,470	e5,070	9,750	34,000	17,100	25,600	6,280	4,130
18	19,900	11,500	e7,940	e5,500	e4,480	e5,940	12,800	34,100	16,100	23,900	e6,070	4,000
19	19,500	10,900	e8,670	e5,410	e4,600	e7,360	16,300	34,500	15,600	22,500	e5,910	3,820
20	18,600	11,300	e8,730	e5,310	e4,590	e9,600	18,000	34,900	14,500	21,300	e5,410	4,260
21	17,500	11,200	e8,520	e5,300	e4,580	11,600	22,600	34,600	13,200	20,200	e5,340	4,310
22	17,700	11,400	e7,800	e5,200	e4,680	12,700	25,700	34,300	12,300	19,100	e5,010	3,870
23	17,600	11,500	e7,780	e5,000	e4,680	12,200	27,600	34,300	11,400	18,000	e4,890	3,810
24	16,500	11,200	e7,000	e4,790	e4,560	12,300	29,400	33,400	11,400	17,000	4,610	4,140
25	16,100	11,100	e6,950	e4,690	e4,030	13,100	29,800	32,100	14,700	15,900	4,280	3,960
26	15,700	10,200	e7,300	e4,880	e3,840	13,500	29,400	30,300	25,100	14,900	4,130	3,790
27	15,400	9,480	e7,450	e4,980	e3,940	13,300	28,000	28,300	29,600	14,100	4,220	3,730
28	14,800	9,060	e7,310	e4,870	e4,540	13,300	26,300	25,600	32,200	13,600	4,090	3,540
29	14,800	8,810	e7,320	e4,860	---	13,100	24,400	24,300	34,700	12,900	4,040	3,640
30	14,700	8,780	e7,510	e4,850	---	12,600	22,500	22,800	36,900	12,300	3,900	3,520
31	14,900	---	e7,590	e4,750	---	12,300	---	20,900	---	11,200	3,760	---
TOTAL	516,690	359,930	242,510	181,100	124,190	233,360	480,000	816,400	559,300	763,700	210,610	112,350
MEAN	16,670	12,000	7,823	5,842	4,435	7,528	16,000	26,340	18,640	24,640	6,794	3,745
MAX	23,600	14,600	8,730	7,530	4,750	13,500	29,800	34,900	36,900	37,800	11,000	4,730
MIN	8,770	8,780	6,830	4,690	3,840	3,760	8,040	16,100	11,400	11,200	3,760	3,040
AC-FT	1,025,000	713,900	481,000	359,200	246,300	462,900	952,100	1,619,000	1,109,000	1,515,000	417,700	222,800
CFSM	0.45	0.33	0.21	0.16	0.12	0.20	0.43	0.72	0.51	0.67	0.18	0.10
IN.	0.52	0.36	0.25	0.18	0.13	0.24	0.49	0.83	0.57	0.77	0.21	0.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1892 - 2003, BY WATER YEAR (WY)

MEAN	8,602	7,948	5,779	4,667	4,613	11,110	26,500	21,420	18,520	14,720	9,003	8,069
MAX	38,210	27,660	16,080	11,500	14,700	43,240	96,590	70,430	57,170	73,590	42,550	34,380
(WY)	(1987)	(1972)	(1983)	(1983)	(1966)	(1983)	(2001)	(1993)	(1993)	(1993)	(1993)	(1986)
MIN	1,289	1,348	1,277	1,097	1,300	1,757	3,421	3,085	1,980	1,272	864	1,143
(WY)	(1937)	(1937)	(1935)	(1935)	(1895)	(1940)	(1895)	(1934)	(1934)	(1934)	(1934)	(1934)
+	367	379	356	360	347	401	436	458	419	442	424	445
±MEAN	17,000	12,400	8,180	6,200	4,780	7,930	16,400	26,800	19,100	25,100	7,220	4,190
±CFSM	0.46	0.34	0.22	0.17	0.13	0.22	0.45	0.73	0.53	0.68	0.20	0.11
±IN	0.53	0.37	0.26	0.19	0.14	0.25	0.50	0.84	0.59	0.78	0.22	0.12

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SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1892 - 2003	
ANNUAL TOTAL	5,638,430		4,600,140		11,830	
ANNUAL MEAN	15,450		12,600		1,935	
HIGHEST ANNUAL MEAN					29,580	1986
LOWEST ANNUAL MEAN					1,935	1934
HIGHEST DAILY MEAN	43,000	Jun 30	37,800	Jul 1	171,000	Apr 16, 1965
LOWEST DAILY MEAN	5,490	Feb 15	3,040	Sep 8	632	Aug 26, 1934
ANNUAL SEVEN-DAY MINIMUM	5,500	Feb 12	3,220	Sep 6	741	Aug 26, 1934
MAXIMUM PEAK FLOW			38,600	Jul 3	171,000	Apr 16, 1965
MAXIMUM PEAK STAGE			8.63	Jul 3	26.01	Apr 16, 1965
ANNUAL RUNOFF (AC-FT)	11,180,000		9,124,000		8,568,000	
ANNUAL RUNOFF (CFSM)	0.42		0.34		0.32	
ANNUAL RUNOFF (INCHES)	5.70		4.65		4.37	
10 PERCENT EXCEEDS	27,100		27,300		27,400	
50 PERCENT EXCEEDS	14,700		9,600		7,170	
90 PERCENT EXCEEDS	6,180		4,040		2,700	

+ Diversion, in cubic feet per second, from wastewater treatment plant.  
 † Adjusted for discharges from wastewater treatment plant.  
 e Estimated.

