

## 05211000 MISSISSIPPI RIVER AT GRAND RAPIDS, MN

LOCATION.--Lat 47°13'56", long 93°31'48", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec. 27, T.55 N., R.25 W., Itasca County, Hydrologic Unit 07010103, on left bank, in utility room of Blandin Paper Mill in Grand Rapids, 400 ft downstream from Blandin Dam, 400 ft upstream from bridge on U.S. Highway 169, 2.5 mi upstream from Prairie River, and at mile 1,182 upstream from Ohio River.

DRAINAGE AREA.--3,370 mi<sup>2</sup> (approximately).

PERIOD OF RECORD.--October 1883 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,242.03 ft above sea level (NGVD of 1929). See WSP 1914 for history of changes prior to Jan. 17, 1951.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Winnibigoshish Lake, Leech Lake, Pokegama Lake, Blandin Paper Mill (up to 16 ft<sup>3</sup>/s diverted for paper production), and occasionally at low flow by power plant at Blandin Dam. Backwater from Prairie River occurs at times in most years.

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	793	1,420	1,340	e1,440	664	529	676	277	514	329	1,080	334
2	862	1,480	e1,340	e1,430	575	571	700	288	504	367	899	334
3	834	1,450	e1,340	1,430	626	538	670	292	359	530	969	339
4	1,110	1,390	e1,340	1,430	615	503	618	278	330	583	989	314
5	991	1,480	e1,350	1,410	e610	510	672	280	375	557	737	288
6	1,120	1,440	e1,360	1,390	609	517	645	314	365	646	831	287
7	1,200	1,430	e1,380	1,370	602	538	609	295	337	608	730	349
8	1,430	1,430	e1,370	1,370	591	546	548	256	360	706	783	335
9	1,380	1,570	e1,360	1,400	605	496	518	287	376	826	739	292
10	1,320	1,530	e1,350	1,340	618	517	597	325	333	917	694	316
11	1,350	1,480	e1,340	e1,310	618	554	537	294	335	1,050	670	343
12	1,340	1,580	e1,330	e1,300	624	521	520	287	301	1,180	e660	351
13	1,330	1,740	1,310	e1,270	616	528	e520	260	304	1,090	647	437
14	1,350	1,570	1,360	e1,120	591	377	525	266	293	1,080	e440	418
15	1,290	1,530	1,300	e1,110	587	397	500	300	295	1,180	e410	e415
16	e1,280	1,420	1,340	e1,090	610	447	476	282	301	1,200	e330	413
17	e1,270	1,410	1,390	1,030	611	419	391	272	305	1,150	e300	415
18	e1,270	1,470	1,510	923	e600	427	419	277	316	1,150	301	355
19	e1,270	1,330	1,570	981	490	430	416	418	407	1,140	367	382
20	e1,270	1,410	1,540	984	500	424	399	425	403	1,170	362	398
21	e1,270	1,710	1,540	948	574	417	379	534	358	1,200	336	362
22	e1,270	1,640	1,550	830	569	435	385	631	370	1,150	337	319
23	e1,270	1,700	1,550	999	517	431	399	575	378	1,110	337	350
24	e1,430	1,710	1,470	1,040	536	440	398	524	387	1,130	355	376
25	1,450	1,570	e1,440	947	543	467	396	579	330	1,170	349	328
26	1,420	1,440	e1,420	925	520	519	389	642	301	1,150	308	370
27	1,480	1,250	e1,420	899	511	579	388	541	234	1,160	298	367
28	1,420	1,300	e1,430	949	530	649	409	480	289	1,140	297	361
29	1,460	1,320	e1,430	889	---	723	346	495	312	1,090	305	354
30	1,460	1,340	e1,430	664	---	654	278	475	336	1,100	322	352
31	1,470	---	e1,440	636	---	677	---	485	---	1,140	327	---
TOTAL	39,460	44,540	43,640	34,854	16,262	15,780	14,723	11,934	10,408	29,999	16,509	10,654
MEAN	1,273	1,485	1,408	1,124	581	509	491	385	347	968	533	355
MAX	1,480	1,740	1,570	1,440	664	723	700	642	514	1,200	1,080	437
MIN	793	1,250	1,300	636	490	377	278	256	234	329	297	287
AC-FT	78,270	88,350	86,560	69,130	32,260	31,300	29,200	23,670	20,640	59,500	32,750	21,130
CFSM	0.38	0.44	0.42	0.33	0.17	0.15	0.15	0.11	0.10	0.29	0.16	0.11
IN.	0.44	0.49	0.48	0.38	0.18	0.17	0.16	0.13	0.11	0.33	0.18	0.12

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1884 - 2003, BY WATER YEAR (WY)

MEAN	1,456	1,358	1,158	1,141	1,125	1,069	1,035	1,156	1,237	1,368	1,345	1,386
MAX	3,544	3,259	2,608	2,410	2,729	2,762	3,622	3,668	3,271	3,363	4,505	4,438
(WY)	(1902)	(1903)	(2000)	(1952)	(1945)	(1945)	(1901)	(1901)	(1962)	(1962)	(1905)	(1905)
MIN	103	122	150	165	155	129	106	32.5	185	125	88.3	89.2
(WY)	(1937)	(1937)	(1937)	(1937)	(1934)	(1937)	(1937)	(1949)	(1936)	(1961)	(1934)	(1934)

05211000 MISSISSIPPI RIVER AT GRAND RAPIDS, MN—Continued

SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1884 - 2003	
ANNUAL TOTAL	449,781		288,763			
ANNUAL MEAN	1,232		791		a1,245	
HIGHEST ANNUAL MEAN					2,429	1906
LOWEST ANNUAL MEAN					193	1934
HIGHEST DAILY MEAN	2,280	Aug 2	1,740	Nov 13	8,900	Sep 29, 1914
LOWEST DAILY MEAN	326	Apr 30	234	Jun 27	b0.00	Oct 2, 1948
ANNUAL SEVEN-DAY MINIMUM	388	Jun 7	278	May 12	24	May 9, 1949
MAXIMUM PEAK FLOW			1,830	Nov 21	c12,500	Sep 3, 1948
MAXIMUM PEAK STAGE			5.91	Nov 21	d15.20	Sep 3, 1948
INSTANTANEOUS LOW FLOW			f32	Jul 2	b0.00	Oct 2, 1948
ANNUAL RUNOFF (AC-FT)	892,100		572,800		902,200	
ANNUAL RUNOFF (CFSM)	0.37		0.23		0.37	
ANNUAL RUNOFF (INCHES)	4.96		3.19		5.02	
10 PERCENT EXCEEDS	1,880		1,430		2,350	
50 PERCENT EXCEEDS	1,340		610		1,160	
90 PERCENT EXCEEDS	457		313		311	

- a Median of annual mean discharges is 1230 ft<sup>3</sup>/s.
- b Many days, several years.
- c From rating curve extended above 4500 ft<sup>3</sup>/s. Result of dam failure.
- d From floodmark; result of dam failure.
- e Estimated.
- f Result of regulation.

