

# UPPER MISSISSIPPI RIVER MAIN STEM

## 05247500 CROW WING RIVER NEAR PILLAGER, MN

LOCATION.--Lat 4618'18", long 9422'38", in SW 1 / 4 NE 1 / 4 sec. 30, T. 133 N., R. 29 W., Cass County, Hydrologic Unit 07010106, at Sylvan dam power plant of Minnesota Power Co., 3.6 mi above mouth and 4.9 mi southeast of Pillager.

DRAINAGE AREA.--3,520 mi<sup>2</sup>, approximately,

PERIOD OF RECORD.--October 1968 to September 1986, October 1987 to current year. Records for August 1924 to September 1968 available in files of the Minnesota District Office.

GAGE.--Water stage recorder. Datum of gage is 1,151.00 ft, adjustment of 1912. Prior to January 16, 1991, staff gage attached to retaining wall approximately 20 ft below the turbine outlet bays.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Discharge computed on the basis of power plant records prior to January 16, 1991.

Records for Oct. 1, 1968 to Sept. 30, 1975, were adjusted for storage change in the Sylvan dam reservoir. Flow partly regulated by power plants and Gull Lake reservoir.

COOPERATION.--Records collected by Minnesota Power Company prior to February 1991, in connection with a Federal Energy Regulatory Commission project.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum daily discharge since 1924, 18,300 ft<sup>3</sup>/s, Apr. 14, 1965.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

### DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	1230	1370	974	e940	2930	2690	1350	1990	3060	1830	665
2	994	1500	1250	969	e960	3110	2770	1300	1950	2940	1700	665
3	997	1440	1310	1020	e960	3060	2980	1150	e2400	2780	1370	682
4	983	1120	1340	1010	e960	2860	3070	1150	e2500	2800	1390	720
5	974	1240	1240	965	e960	2990	2910	1240	1860	2640	1440	681
6	986	1380	1190	965	e990	2900	2910	1080	1750	2740	1400	669
7	947	1410	1220	1010	e970	2410	2930	1050	1690	2890	1180	655

8	918	1380	1280	1010	e920	2230	3070	1190	1470	2970	1150	661
9	1000	1380	1350	1010	e920	1650	3260	1140	1430	3100	1130	548
10	1020	1370	1220	e990	e920	1340	3140	1350	1260	3140	1050	585
11	1040	1380	1170	e960	e920	1250	3100	1380	1610	2900	1040	605
12	1470	1120	1250	e940	e920	1490	3110	1380	2400	2810	898	619
13	1680	1090	1160	e890	e990	1780	2920	1440	2410	2590	905	681
14	1800	1040	1160	e850	e1020	1800	2900	1550	2580	2580	895	881
15	2100	1140	1170	e800	e1030	1560	2710	2040	2620	2580	892	802
16	2180	1080	1210	e880	e1040	1380	2700	2610	2350	2490	803	869
17	2010	963	1220	e880	1060	1550	2530	3720	2550	2470	711	861
18	1930	1080	1220	e870	1180	1470	2330	3920	2410	2370	706	818
19	1850	1370	1230	e980	1310	1410	2190	4050	2860	2420	768	712
20	1810	1320	1150	e1020	1330	1470	2160	3580	3510	2450	1080	729
21	1890	1430	1050	e1020	1410	1710	2020	3260	3480	2400	843	863
22	1710	1290	1030	e1000	1520	1550	1860	2880	3410	2260	861	790
23	1420	1090	1000	e880	1880	1440	1800	2570	3230	2350	969	680
24	1580	1140	1080	e870	2130	1410	1700	2350	2910	2320	992	601
25	1660	1020	1080	e870	2550	1320	1670	2280	2820	2210	1030	636
26	1510	1220	1080	e880	2730	1390	1640	1770	2960	2170	895	969
27	1300	1380	1090	e970	2740	1450	1490	1510	3230	2160	843	721
28	1310	1520	1080	e1010	2820	1460	1430	1510	3240	2000	809	795
29	1430	1400	1040	e980	---	1650	1400	1500	3350	1720	779	834
30	1290	1370	1020	e960	---	2270	1370	1350	3440	1930	651	835
31	1140	---	1030	e940	---	2410	---	1630	---	1960	637	---
TOTAL	43949	37893	36290	29373	38080	58700	72760	60280	75670	78200	31647	21832
MEAN	1418	1263	1171	948	1360	1894	2425	1945	2522	2523	1021	728
MAX	2180	1520	1370	1020	2820	3110	3260	4050	3510	3140	1830	969
MIN	918	963	1000	800	920	1250	1370	1050	1260	1720	637	548
AC-FT	87170	75160	71980	58260	75530	116400	144300	119600	150100	155100	62770	43300
CFSM	.43	.38	.35	.29	.41	.57	.73	.59	.76	.76	.31	.22

IN.	.50	.43	.41	.33	.43	.66	.82	.68	.85	.88	.36	.25
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e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	1224	1191	833	689	709	1366	3353	2330	1638	1413	980	908
MAX	3771	3674	1544	1188	1360	2996	7980	5671	3625	3295	3520	3309
(WY)	1974	1972	1972	1986	1998	1972	1997	1986	1993	1972	1972	1986
MIN	215	215	199	218	255	548	882	545	447	206	120	161
(WY)	1977	1977	1977	1977	1977	1981	1981	1977	1988	1988	1976	1976

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1969 - 1998		
ANNUAL TOTAL	734883		584674				
ANNUAL MEAN	2013		1602			1387	
HIGHEST ANNUAL MEAN						2564	1972
LOWEST ANNUAL MEAN						446	1977
HIGHEST DAILY MEAN	16100	Apr 7	4050	May 19	16600	Apr 12	1969
LOWEST DAILY MEAN	806	Jun 14	548	Sep 9	60	Aug 10	1976
ANNUAL SEVEN-DAY MINIMUM	846	Jan 2	620	Sep 6	68	Aug 9	1976
INSTANTANEOUS PEAK FLOW			4240	May 19			
INSTANTANEOUS PEAK STAGE			5.85	Jun 30			
INSTANTANEOUS LOW FLOW			249	Sep 20			
ANNUAL RUNOFF (AC-FT)	1458000		1160000			1005000	
ANNUAL RUNOFF	.61		.49			.42	

(CFSM)							
ANNUAL RUNOFF (INCHES)	8.28		6.59		5.71		
10 PERCENT EXCEEDS	2950		2900		2860		
50 PERCENT EXCEEDS	1260		1370		941		
90 PERCENT EXCEEDS	999		847		430		

