

UPPER MISSISSIPPI RIVER MAIN STEM

05267000 MISSISSIPPI RIVER NEAR ROYALTON, MN

LOCATION.--Lat 4551'41", long 9421'33", in lot 2, sec. 20, T. 39 N., R. 32 W., Morrison County, Hydrologic Unit 07010104, at plant of Minnesota Power Co., 4 mi northwest of Royalton, 4.5 mi downstream from Swan River, and at mile 956 upstream from Ohio River.

DRAINAGE AREA.--11,600 mi², approximately.

PERIOD OF RECORD.--March 1924 to current year.

REMARKS.--Records fair. Discharges flow-averaged based on nearby gaging stations, furnished record from Minnesota Power Co., and observed flow. Flow partly regulated by power plants and Winnibigoshish, Leech, Pokegama, Sandy, and Gull Lakes and by Pine River Reservoir (see stations 05201000, 05206000, 05210500, 05218500, 05230500, 05246500).

COOPERATION.--Furnished records collected by Minnesota Power Co. under general supervision of Geological Survey, in connection with a Federal Energy Regulatory Commission project.

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	4340	5600	5800	3570	4030	9100	6650	4830	4770	13100	4800	2110
2	4590	5800	5950	4100	3970	9700	7100	4750	5300	12100	4680	2160
3	4590	5900	5950	4080	3990	9750	7900	4250	5300	11300	4900	2100
4	4530	5850	5800	3830	4030	9350	8400	4020	5450	10600	4050	2020
5	4530	5750	5550	3590	3910	9000	8750	3940	5750	10100	3170	2050
6	4560	5850	5600	3910	3960	8700	8550	3610	5850	9850	3870	2170
7	4410	5950	5600	4030	3990	8300	8900	3600	5800	9750	3870	2040
8	4410	6050	5550	4170	4020	8150	9350	3670	5550	10100	3570	1850
9	4410	6150	5600	4050	3990	7250	9900	3520	5150	9900	3580	1780
10	4290	6150	5750	3880	3920	6450	10700	3490	4930	9600	3400	1870

11	4450	6150	5450	3730	3910	5650	10800	3710	4750	9150	3490	1920
12	4910	6050	5600	3600	3960	5450	10800	3990	6100	8400	3210	1820
13	5600	5750	5550	3480	3920	5550	11200	3890	6550	7950	3130	1840
14	5700	5850	5750	3500	3950	5650	10700	3620	6850	7550	3040	2100
15	6350	5650	5600	3600	4090	5550	10500	4250	7350	7850	2710	2060
16	6800	5200	5600	3650	4140	5100	10100	5350	8000	7500	2600	1880
17	6950	4830	5550	3730	4160	4850	9500	6650	7950	7300	2480	1910
18	7050	4560	5600	3730	4550	4980	9150	7900	8200	7350	2440	2420
19	7100	4910	5650	3830	4680	4740	8800	8100	9650	7150	2150	2500
20	6950	5300	5400	3950	5050	4510	8250	8050	10900	6850	2760	2320
21	7000	5500	5100	4000	5400	4700	7950	7150	11600	6750	2490	2250
22	6800	5150	5050	3980	5550	4920	7650	7000	12000	6550	2370	2030
23	6450	4790	5250	3930	6250	4480	7100	6350	12100	6300	2650	2160
24	6350	4820	4650	3930	7000	4100	6950	6050	12200	6300	2750	1930
25	6300	4670	4560	3930	7550	4050	6500	6050	12200	6100	2760	1980
26	6150	5100	4670	4000	8200	3990	6350	5700	12500	5700	2560	2190
27	6050	5400	4300	4080	8700	4110	5800	4800	13500	5800	2540	2340
28	5850	5850	4340	4150	8950	4300	5500	4610	14000	5400	2600	1900
29	5850	5750	4510	4180	---	4640	5450	4480	14200	4810	2390	1900
30	5950	5750	4330	4150	---	5150	5100	4540	13800	5100	2370	2070
31	5600	---	3910	4100	---	5950	---	4860	---	5050	2230	---
TOTAL	174870	166080	163570	120440	139820	188170	250350	156780	258250	247310	95610	61670
MEAN	5641	5536	5276	3885	4994	6070	8345	5057	8608	7978	3084	2056
MAX	7100	6150	5950	4180	8950	9750	11200	8100	14200	13100	4900	2500
MIN	4290	4560	3910	3480	3910	3990	5100	3490	4750	4810	2150	1780
AC-FT	346900	329400	324400	238900	277300	373200	496600	311000	512200	490500	189600	122300
CFSM	.49	.48	.45	.33	.43	.52	.72	.44	.74	.69	.27	.18
IN.	.56	.53	.52	.39	.45	.60	.80	.50	.83	.79	.31	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	4134	3923	3088	2726	2630	3832	9214	8577	6417	4886	3669	3526
MAX	12930	14640	7297	5713	5480	12290	25430	24600	18160	15250	15230	12940
(WY)	1966	1972	1997	1966	1997	1966	1997	1950	1965	1993	1953	1986
MIN	632	618	627	534	758	968	1924	1663	1071	648	449	535
(WY)	1937	1937	1935	1935	1937	1940	1931	1977	1988	1988	1934	1934

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1924 - 1998		
ANNUAL TOTAL	2953140			2022920			
ANNUAL MEAN	8091			5542		4745	
HIGHEST ANNUAL MEAN						9555	1966
LOWEST ANNUAL MEAN						1213	1934
HIGHEST DAILY MEAN	38200	Apr 8	14200	Jun 29	38200	Apr 8	1997
LOWEST DAILY MEAN	3910	Dec 31	1780	Sep 9	254	Nov 25	1936
ANNUAL SEVEN-DAY MINIMUM	4250	Sep 9	1870	Sep 7	358	Sep 3	1936
ANNUAL RUNOFF (AC-FT)	5858000			4012000		3438000	
ANNUAL RUNOFF (CFSM)	.70			.48		.41	
ANNUAL RUNOFF (INCHES)	9.47			6.49		5.56	
10 PERCENT EXCEEDS	13400			9150		9750	
50 PERCENT EXCEEDS	5600			5150		3440	
90 PERCENT EXCEEDS	4500			2490		1310	

