

UPPER MISSISSIPPI RIVER MAIN STEM--Continued

05345000 VERMILLION RIVER NEAR EMPIRE, MN

LOCATION.--Lat 44°40'00", long 93°03'17", in SW¹/₄NW¹/₄ sec. 24, T.114 N., R.19 W., Dakota County, Hydrologic Unit 07040001, on right bank and just downstream from County Road 79, 2 mi west of Empire and 4 mi northeast of Farmington.

DRAINAGE AREA.--129 mi².

PERIOD OF RECORD.--May 1942 to June 1945 (no record during July, August, and September 1944), September 1969 to September 1973 (discharge measurements only), October 1973 to current year. Prior to October 1975 published as "near Empire City".

GAGE.--Water-stage recorder. Datum of gage is 851.99 ft above sea level (NGVD of 1929, levels by U.S. Army Corps of Engineers). April 12, 1942 to June 30, 1944, and October 1, 1944 to July 7, 1945, nonrecording gage at same site and present datum.

REMARKS.--Records good. Some regulation at lower flows by wastewater treatment plant upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1965, reached a stage of 7.5 ft, from information by local resident; discharge 6,200 ft³/s, from rating extended above 2,100 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	48	52	40	37	42	61	95	55	119	79	104
2	40	47	51	40	37	42	59	89	55	105	70	141
3	39	46	51	39	37	42	56	83	327	97	71	129
4	39	45	51	39	37	41	54	78	602	91	257	105
5	39	45	57	39	37	41	55	75	385	84	511	99
6	39	45	60	39	37	41	58	82	275	79	365	266
7	40	45	54	39	37	41	64	78	202	75	217	629
8	40	45	52	38	37	42	67	83	162	74	172	481
9	40	45	51	39	38	49	64	91	137	70	146	261
10	42	45	50	39	38	46	79	84	116	77	128	209
11	43	45	48	39	39	46	128	81	128	127	113	173
12	42	46	48	39	38	48	192	90	112	112	104	147
13	46	48	48	39	38	66	159	91	124	95	97	131
14	50	47	47	40	39	64	141	91	109	84	90	131
15	47	44	47	38	39	52	129	84	90	77	83	139
16	46	42	47	38	40	51	115	78	79	70	77	125
17	46	42	46	38	40	52	111	73	75	65	131	114
18	47	42	45	38	41	54	106	71	72	63	167	106
19	47	43	45	38	43	57	104	68	78	63	125	105
20	48	42	44	38	46	59	90	67	80	76	101	103
21	46	42	43	38	45	62	88	67	142	96	224	96
22	46	43	45	37	44	56	91	67	421	74	489	91
23	50	42	45	37	44	54	92	69	517	64	575	89
24	50	63	43	36	45	52	89	67	377	61	358	85
25	50	83	42	36	45	52	85	64	291	69	247	95
26	49	61	42	36	43	57	83	65	253	78	192	160
27	47	59	42	37	43	57	87	70	249	68	159	196
28	48	60	42	37	43	87	111	68	190	65	140	163
29	49	56	41	36	---	85	112	68	158	120	128	146
30	47	54	41	36	---	73	102	64	136	110	121	135
31	48	---	40	37	---	66	---	61	---	87	110	---
TOTAL	1392	1460	1460	1179	1127	1677	2832	2362	5997	2595	5847	4954
MEAN	44.9	48.7	47.1	38.0	40.2	54.1	94.4	76.2	200	83.7	189	165
MAX	50	83	60	40	46	87	192	95	602	127	575	629
MIN	39	42	40	36	37	41	54	61	55	61	70	85
AC-FT	2760	2900	2900	2340	2240	3330	5620	4690	11900	5150	11600	9830
CFSM	0.35	0.38	0.37	0.29	0.31	0.42	0.73	0.59	1.55	0.65	1.46	1.28
IN.	0.40	0.42	0.42	0.34	0.32	0.48	0.82	0.68	1.73	0.75	1.69	1.43

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	55.6	51.4	40.6	32.5	38.5	98.4	116	94.0	97.1	75.8	63.2	73.4
MAX	160	133	79.5	58.6	89.8	199	337	223	290	258	234	313
(WY)	1995	1993	1993	1998	1998	1983	2001	1986	1993	1997	1997	1992
MIN	14.9	15.6	12.4	11.0	13.1	25.4	35.2	29.3	23.0	16.0	14.3	14.6
(WY)	1977	1977	1977	1977	1977	1975	1977	1977	1988	1988	1976	1976

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1942 - 2002

ANNUAL TOTAL	30288	32882	
ANNUAL MEAN	83.0	90.1	70.0
HIGHEST ANNUAL MEAN			147 1998
LOWEST ANNUAL MEAN			23.6 1977
HIGHEST DAILY MEAN	637 Apr 8	629 Sep 7	3000 Sep 16 1992
LOWEST DAILY MEAN	30 Feb 23	36 Jan 24	8.4 Jan 15 1975
ANNUAL SEVEN-DAY MINIMUM	31 Feb 17	36 Jan 24	9.0 Jan 13 1975
MAXIMUM PEAK FLOW		795 Sep 7	6570 Sep 16 1992
MAXIMUM PEAK STAGE		7.09 Sep 7	10.00 Sep 16 1992
INSTANTANEOUS LOW FLOW		31a Feb 4	6.8a Aug 15 1992
ANNUAL RUNOFF (AC-FT)	60080	65220	50680
ANNUAL RUNOFF (CFM)	0.64	0.70	0.54
ANNUAL RUNOFF (INCHES)	8.73	9.48	7.37
10 PERCENT EXCEEDS	179	159	133
50 PERCENT EXCEEDS	45	61	46
90 PERCENT EXCEEDS	33	39	21

a Result of regulation.

