

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 (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 except those for estimated daily discharges, which are fair to poor. Some regulation at low-flow by wastewater 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 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	83	63	42	42	78	117	106	119	96	102	61
2	81	81	63	43	42	93	111	100	116	97	87	58
3	78	77	62	43	42	84	106	95	109	146	77	55
4	73	74	61	e41	40	80	127	92	102	463	71	54
5	75	72	71	e40	41	73	133	100	99	333	65	59
6	78	70	70	39	41	69	232	102	101	176	58	56
7	76	69	65	e34	42	65	282	99	114	e145	56	54
8	72	72	62	35	44	65	225	98	103	e138	53	88
9	71	74	60	e34	45	62	254	93	93	e142	72	78
10	69	121	59	e34	48	62	333	87	106	e125	109	67
11	67	167	59	35	72	59	369	105	147	e110	84	63
12	69	128	60	34	68	60	518	194	251	e100	72	75
13	67	112	59	e34	65	60	369	446	202	e97	119	92
14	70	107	60	34	59	61	293	506	143	e94	136	76
15	71	99	59	36	66	63	257	329	126	e91	99	68
16	83	93	60	38	87	72	260	268	115	e90	85	61
17	162	87	58	38	77	137	260	265	105	e92	72	62
18	257	85	59	40	70	310	226	307	96	e85	67	61
19	152	94	56	38	65	263	201	263	93	e67	68	61
20	119	84	52	39	61	203	187	225	93	e66	62	60
21	106	78	51	39	58	195	184	296	88	e83	57	58
22	98	81	47	39	57	173	180	338	84	e75	83	57
23	93	79	47	39	54	156	201	283	105	66	122	57
24	90	76	47	39	54	132	179	262	112	63	118	55
25	90	76	45	39	53	120	161	225	94	57	102	53
26	87	73	45	39	54	112	139	193	85	134	90	57
27	86	71	48	40	63	111	131	169	82	274	83	56
28	85	71	49	39	75	142	125	142	83	190	77	51
29	91	68	45	39	---	150	117	130	83	127	70	50
30	92	66	43	39	---	129	111	119	81	117	66	50
31	86	---	44	40	---	124	---	118	---	112	63	---
TOTAL	2876	2588	1729	1182	1585	3563	6388	6155	3330	4051	2545	1853
MEAN	92.8	86.3	55.8	38.1	56.6	115	213	199	111	131	82.1	61.8
MAX	257	167	71	43	87	310	518	506	251	463	136	92
MIN	67	66	43	34	40	59	106	87	81	57	53	50
AC-FT	5700	5130	3430	2340	3140	7070	12670	12210	6610	8040	5050	3680
CFSM	.72	.67	.43	.30	.44	.89	1.65	1.54	.86	1.01	.64	.48
IN.	.83	.75	.50	.34	.46	1.03	1.84	1.77	.96	1.17	.73	.53

e Estimated

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1999, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	56.6	51.3	40.2	31.8	37.1	103	111	93.5	92.2	73.8	59.7	72.2
MAX	160	133	79.5	58.6	89.8	199	281	223	290	258	234	313
(WY)	1995	1993	1993	1998	1998	1983	1998	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 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1942 - 1999
ANNUAL TOTAL	52634	37845	
ANNUAL MEAN	144	104	68.7
HIGHEST ANNUAL MEAN			147
LOWEST ANNUAL MEAN			23.6
HIGHEST DAILY MEAN	1510	518	3000
LOWEST DAILY MEAN	43	34	8.4
ANNUAL SEVEN-DAY MINIMUM	46	34	9.0
INSTANTANEOUS PEAK FLOW		691	6570
INSTANTANEOUS PEAK STAGE		6.55	10.00
INSTANTANEOUS LOW FLOW		22	6.8
ANNUAL RUNOFF (AC-FT)	104400	75070	49780
ANNUAL RUNOFF (CFSM)	1.12	.80	.53
ANNUAL RUNOFF (INCHES)	15.18	10.91	7.24
10 PERCENT EXCEEDS	230	201	133
50 PERCENT EXCEEDS	102	80	44
90 PERCENT EXCEEDS	57	43	20

