

UPPER MISSISSIPPI RIVER MAIN STEM

05345000 VERMILLION RIVER NEAR EMPIRE, MN

LOCATION.--Lat 4440'00", long 9303'17", in SW 1 / 4 NW 1 / 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 (revised).

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 mean 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 sewage 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.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft³/s and maximum (*):

Date	Time	Discharge		Date	Time	Discharge	
		(ft ³ /s)	Gage height (ft)			(ft ³ /s)	Gage height (ft)
Oct. 14 (daily)	e250	--	--	June 27	1715	*3490	*9.17
Apr. 01	1230	1260	7.67	July 04	0700	870	7.16
May 09	0815	209	5.25	July 16	0945	243	5.50
May 16	1630	789	6.99	Aug. 24	1015	438	6.28
June 20	0400	359	5.89				

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	107	108	77	e68	68	e141	1050	137	132	546	109	108
2	105	109	74	e68	63	e140	866	134	126	439	107	104

TOTAL	3625	2498	2128	1817	2514	4857	8440	5246	8080	7333	4504	2650
MEAN	117	83.3	68.6	58.6	89.8	157	281	169	269	237	145	88.3
MAX	250	109	90	68	156	695	1050	483	1510	727	400	108
MIN	93	72	64	54	55	82	143	121	95	113	99	78
AC-FT	7190	4950	4220	3600	4990	9630	16740	10410	16030	14550	8930	5260
CFSM	.91	.65	.53	.45	.70	1.21	2.18	1.31	2.09	1.83	1.13	.68
IN.	1.05	.72	.61	.52	.72	1.40	2.43	1.51	2.33	2.11	1.30	.76

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	55.4	50.0	39.7	31.6	36.4	102	107	89.8	91.5	71.7	58.8	72.6
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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1942 - 1998		
ANNUAL TOTAL	44491		53692				
ANNUAL MEAN	122		147			67.4	
HIGHEST ANNUAL MEAN						147	1998
LOWEST ANNUAL MEAN						23.6	1977
HIGHEST DAILY MEAN	997		Jul 27	1510	Jun 28	3000	Sep 16 1992
LOWEST DAILY MEAN	46		Feb 15	54	Jan 16	8.4	Jan 15 1975
ANNUAL SEVEN-DAY MINIMUM	47		Feb 11	54	Jan 16	9.0	Jan 13 1975
INSTANTANEOUS PEAK FLOW			3490		Jun 27	6570	Sep 16 1992
INSTANTANEOUS			9.17		Jun 27	10.00	Sep 1992

PEAK STAGE						16	
INSTANTANEOUS LOW FLOW			50	Feb 6	6.8	Aug 15	1992
ANNUAL RUNOFF (AC-FT)	88250		106500		48810		
ANNUAL RUNOFF (CFSM)	.94		1.14		.52		
ANNUAL RUNOFF (INCHES)	12.83		15.48		7.10		
10 PERCENT EXCEEDS	219		230		131		
50 PERCENT EXCEEDS	84		105		43		
90 PERCENT EXCEEDS	51		61		20		

