

## UPPER MISSISSIPPI RIVER MAIN STEM--Continued

05355200 CANNON RIVER AT WELCH, MN

LOCATION.--Lat 44°33'50", long 92°43'55", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 27, T. 113 N., R. 16 W., Goodhue County, on right bank 0.3 mile downstream from highway bridge at Welch and 1.8 miles upstream from Belle Creek.

DRAINAGE AREA.--1,340 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1909 to January 1914 (no winter records 1909-11), November 1930 to September 1971, October 1972 to September 1987 (annual maximum only), October 1991 to current year.

REVISED RECORDS.--WSP 1308: 1912(M). WSP 1508: 1933. WSP 1914: 1960. WRD MN-98: 1986 (M), 1997.

GAGE.--Water-stage recorder. Datum of gage is 699.16 ft above sea level (NGVD of 1929). Prior to Nov. 11, 1930, nonrecording gage on highway bridge at site 0.3 mile upstream at datum 3.00 ft lower. Nov. 11, 1930 to Oct. 11, 1938, water-stage recorder at site 0.3 mile upstream at present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 17.1 ft, present datum, in April 1888, from floodmark at mill about 2,400 ft upstream.

REMARKS.--Records good to fair except those for estimated daily discharges, which are fair. Flow affected at lower stages by regulation from hydropower plant upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	384	377	279	304	e290	1480	527	392	1740	1260	588	350
2	381	403	277	315	e290	1310	522	357	4500	1260	482	340
3	403	375	275	314	e290	1200	519	358	5570	1230	391	344
4	444	376	274	311	e290	1120	491	361	4980	1240	356	334
5	448	373	275	327	e285	1050	487	346	5340	1270	348	329
6	437	369	283	318	e285	1000	470	335	5270	1330	346	325
7	408	339	346	334	289	1030	451	336	4840	1510	343	314
8	387	322	459	380	290	942	446	380	4290	1400	446	309
9	402	294	445	329	289	965	446	349	3450	1700	676	302
10	406	328	415	329	287	1050	405	346	2750	3360	517	298
11	418	410	410	321	280	1070	443	354	2210	3660	466	363
12	414	415	388	329	307	1000	396	455	1950	3890	474	379
13	392	396	360	349	293	989	350	428	2050	4260	474	257
14	371	357	343	327	284	925	352	387	2410	4800	445	230
15	358	334	330	303	284	879	360	355	3050	3960	403	220
16	343	307	318	299	280	837	385	318	2820	2950	381	240
17	341	279	e310	e300	284	815	361	305	2630	2290	582	274
18	341	276	e280	e305	284	800	376	478	2390	1930	677	280
19	339	272	e265	e280	284	800	416	1240	2230	1590	527	262
20	338	266	e255	e275	284	782	467	2140	2250	1400	421	248
21	336	252	e240	e270	284	730	509	2610	2090	1240	400	240
22	345	233	e235	e275	286	630	524	2480	1620	1210	409	246
23	364	255	e250	e280	318	626	504	1990	1170	1180	418	278
24	348	288	e260	e285	602	652	464	1730	1080	1130	418	321
25	334	288	e265	e290	1790	663	447	1430	1660	1080	411	325
26	325	286	e275	e295	2750	669	424	1120	1800	963	406	311
27	323	285	e280	e300	2470	651	419	942	1450	970	403	277
28	321	281	e285	e300	2050	623	398	1040	1550	906	391	253
29	323	281	e295	e300	1700	594	383	1000	1490	845	369	238
30	335	281	e300	e300	---	571	385	1020	1340	799	359	228
31	338	---	302	e295	---	556	---	1200	---	734	356	---
TOTAL	11447	9598	9574	9539	17999	27009	13127	26582	81970	57347	13683	8715
MEAN	369	320	309	308	621	871	438	857	2732	1850	441	290
MAX	448	415	459	380	2750	1480	527	2610	5570	4800	677	379
MIN	321	233	235	270	280	556	350	305	1080	734	343	220
AC-FT	22710	19040	18990	18920	35700	53570	26040	52730	162600	113700	27140	17290
CFSM	.28	.24	.23	.23	.46	.65	.33	.64	2.04	1.38	.33	.22
IN.	.32	.27	.27	.26	.50	.75	.36	.74	2.28	1.59	.38	.24

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	382	374	291	240	311	996	1362	785	826	608	447	392
MAX	1806	1708	1105	662	1141	2627	8240	2966	4144	3343	2951	1823
(WY)	1969	1971	1992	1992	1966	1992	1965	1944	1993	1993	1993	1993
MIN	65.5	78.8	75.0	76.9	110	149	145	84.9	80.0	71.2	78.1	72.8
(WY)	1934	1934	1938	1938	1913	1911	1911	1934	1934	1934	1936	1933

SUMMARY STATISTICS FOR 1999 CALENDAR YEAR FOR 2000 WATER YEAR WATER YEARS 1909 - 2000

ANNUAL TOTAL		386499		286590								
ANNUAL MEAN		1059		783						607		
HIGHEST ANNUAL MEAN										2132		1993
LOWEST ANNUAL MEAN										137		1934
HIGHEST DAILY MEAN				6500	May 23		5570	Jun 3	28700		Apr 8	1965
LOWEST DAILY MEAN				233	Nov 22		220	Sep 15	19 <sup>a</sup>		Jan 2	1950
ANNUAL SEVEN-DAY MINIMUM				253	Dec 19		251	Sep 14	42		Aug 12	1936
INSTANTANEOUS PEAK FLOW							5970	Jun 2	36100		Apr 8	1965
INSTANTANEOUS PEAK STAGE							8.61	Jun 2	15.05		Jun 27	1998
INSTANTANEOUS LOW FLOW							195 <sup>b</sup>	Dec 21	2.5 <sup>a</sup>		Jan 3	1950
ANNUAL RUNOFF (AC-FT)			766600				568500		440000			
ANNUAL RUNOFF (CFM)			.79				.58		.45			
ANNUAL RUNOFF (INCHES)			10.73				7.96		6.16			
10 PERCENT EXCEEDS			2370				1840		1310			
50 PERCENT EXCEEDS			702				384		281			
90 PERCENT EXCEEDS			309				279		100			

<sup>a</sup> Result of ice jam upstream.  
<sup>b</sup> Result of freezeup.  
<sup>e</sup> Estimated.

