

## 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 to poor. Flow affected at lower stages by regulation from hydropower plant upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227	331	343	e317	272	e327	774	2970	1940	981	548	500
2	230	378	340	e320	e262	324	1260	2910	1900	939	741	408
3	246	394	337	e315	e250	317	2100	3410	1840	954	605	337
4	278	398	311	e317	e235	314	3070	3580	1720	974	352	253
5	309	401	299	e323	223	309	4520	3820	1650	931	336	227
6	308	408	e298	e330	207	297	6620	3840	1690	838	335	203
7	296	440	293	e340	e215	298	9090	3920	1750	742	349	261
8	287	508	305	e350	e225	302	10400	4260	1710	639	346	296
9	289	550	394	e347	234	314	9600	3840	1490	577	343	306
10	309	601	335	e335	235	317	8220	3360	1460	594	343	306
11	319	616	e330	321	e223	312	7690	3030	1470	611	318	308
12	321	587	e330	320	213	314	10700	2700	1420	591	291	309
13	320	549	e328	307	203	311	10800	2470	1800	552	282	279
14	307	507	e328	317	188	328	9770	2310	3950	518	271	241
15	285	475	e325	317	e180	392	8560	2150	6330	500	271	220
16	268	480	e318	314	176	426	7350	2000	7730	478	279	225
17	271	516	e322	319	e172	426	6450	1870	7530	457	288	225
18	285	462	e337	e308	e165	402	5660	1710	6470	472	313	227
19	281	424	e327	290	e160	395	5060	1590	5130	465	337	251
20	280	402	e320	e288	e167	410	4660	1540	4180	450	353	305
21	281	381	e303	e283	e160	427	4290	1650	3680	387	335	311
22	280	e365	e310	e275	e160	453	4160	1820	3260	410	323	320
23	281	344	e310	e288	e163	482	5170	2010	2800	440	301	327
24	293	330	e310	e283	e158	494	6040	1850	2420	586	291	414
25	304	377	e309	e285	e150	481	5400	1690	2200	655	280	598
26	328	438	e306	e281	e200	458	4710	1720	1930	573	279	694
27	361	433	e304	e275	e340	477	4120	2030	1600	511	276	597
28	367	402	e312	e272	e330	513	3690	2360	1230	482	273	373
29	347	379	e317	e267	---	513	3380	2290	1210	451	275	256
30	334	359	e321	264	---	524	3120	2170	1110	413	293	251
31	319	---	e311	272	---	619	---	1950	---	378	370	---
TOTAL	9211	13235	9933	9440	5866	12276	176434	78820	84600	18549	10597	9828
MEAN	297	441	320	305	210	396	5881	2543	2820	598	342	328
MAX	367	616	394	350	340	619	10800	4260	7730	981	741	694
MIN	227	330	293	264	150	297	774	1540	1110	378	271	203
AC-FT	18270	26250	19700	18720	11640	24350	350000	156300	167800	36790	21020	19490
CFSM	.22	.33	.24	.23	.16	.30	4.39	1.90	2.10	.45	.26	.24
IN.	.26	.37	.28	.26	.16	.34	4.90	2.19	2.35	.51	.29	.27

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	380	375	291	241	309	985	1444	817	862	608	445	391
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 2000 CALENDAR YEAR	FOR 2001 WATER YEAR	WATER YEARS 1909 - 2001
ANNUAL TOTAL	288365	438789	
ANNUAL MEAN	788	1202	619
HIGHEST ANNUAL MEAN			2132
LOWEST ANNUAL MEAN			137
HIGHEST DAILY MEAN	5570	10800	28700
LOWEST DAILY MEAN	220	150	19a
ANNUAL SEVEN-DAY MINIMUM	243	160	42
MAXIMUM PEAK FLOW		11900	36100
MAXIMUM PEAK STAGE		11.43	15.05
INSTANTANEOUS LOW FLOW		150b	2.5a
ANNUAL RUNOFF (AC-FT)	572000	870300	448200
ANNUAL RUNOFF (CFSM)	.59	.90	.46
ANNUAL RUNOFF (INCHES)	8.01	12.18	6.27
10 PERCENT EXCEEDS	1840	3680	1340
50 PERCENT EXCEEDS	386	350	286
90 PERCENT EXCEEDS	284	252	100

a Result of ice jam upstream.  
 b Estimated daily discharge.  
 e Estimated.

