

UPPER MISSISSIPPI RIVER MAIN STEM--Continued

05355200 CANNON RIVER AT WELCH, MN

LOCATION.--Lat 44°33'50", long 92°43'55", in NW¹/₄SW¹/₄ 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 mi².

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, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	269	332	545	e300	317	298	536	713	374	1100	667	793
2	297	336	472	e295	e290	273	541	726	359	1040	656	819
3	325	337	481	e300	e270	249	549	708	622	1000	627	835
4	328	328	444	e310	e250	251	511	695	1690	899	2290	786
5	336	320	457	e320	e270	257	467	687	2490	856	1670	699
6	333	305	513	325	e305	258	451	694	2440	810	1380	911
7	312	305	520	325	313	290	441	689	2160	808	1210	925
8	305	309	517	327	311	297	446	695	1760	813	1080	853
9	315	308	543	323	312	715	464	699	1290	776	890	786
10	337	303	566	325	315	662	517	685	1160	734	868	701
11	332	301	529	325	315	700	656	659	1500	754	811	646
12	313	304	530	336	306	763	759	612	2170	744	705	582
13	375	337	520	346	315	1050	844	602	1920	717	640	535
14	417	371	488	343	315	1070	1040	592	1550	696	650	547
15	400	362	461	344	318	989	1040	558	1400	665	639	587
16	365	360	456	340	318	848	992	501	1190	614	618	594
17	326	325	441	336	318	978	987	493	1110	603	670	583
18	329	311	403	e270	330	1290	948	470	1000	611	655	537
19	329	315	411	e270	384	1440	884	430	916	627	622	526
20	338	309	410	276	411	1130	830	406	917	663	603	546
21	354	317	394	300	418	971	795	373	1920	657	1020	610
22	358	321	372	339	422	828	785	341	5530	631	3330	611
23	367	326	400	337	386	750	766	331	3910	580	3100	573
24	364	370	e350	329	365	711	765	326	2660	564	2570	535
25	345	453	e300	309	362	699	738	336	2150	589	2200	496
26	343	501	e275	322	363	688	701	337	2060	641	1900	605
27	331	507	e290	322	334	668	697	336	1840	624	1480	656
28	318	530	e310	322	310	574	701	333	1550	596	948	655
29	329	584	e320	319	---	534	706	336	1380	750	857	655
30	326	582	e315	294	---	538	703	371	1230	672	753	654
31	326	---	e310	304	---	536	---	393	---	668	753	---
TOTAL	10442	10969	13343	9833	9243	21305	21260	16127	52248	22502	36862	19841
MEAN	336.8	365.6	430.4	317.2	330.1	687.3	708.7	520.2	1742	725.9	1189	661.4
MAX	417	584	566	346	422	1440	1040	726	5530	1100	3330	925
MIN	269	301	275	270	250	249	441	326	359	564	603	496
AC-FT	20710	21760	26470	19500	18330	42260	42170	31990	103600	44630	73120	39350
CFSM	0.25	0.27	0.32	0.24	0.25	0.51	0.53	0.39	1.30	0.54	0.89	0.49
IN.	0.29	0.30	0.37	0.27	0.26	0.59	0.59	0.45	1.45	0.62	1.02	0.55

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2002, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	379.7	374.8	293.9	242.7	309.1	979.3	1431	811.5	877.1	609.7	458.3	395.7
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 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1909 - 2002

ANNUAL TOTAL		441164		243975								
ANNUAL MEAN		1209		668.4						619.7		
HIGHEST ANNUAL MEAN										2132		1993
LOWEST ANNUAL MEAN										137		1934
HIGHEST DAILY MEAN			10800		Apr 13		5530		Jun 22	28700		Apr 8 1965
LOWEST DAILY MEAN			150		Feb 25		249		Mar 3	19a		Jan 2 1950
ANNUAL SEVEN-DAY MINIMUM			160		Feb 19		268		Mar 2	42		Aug 12 1936
MAXIMUM PEAK FLOW							6120		Jun 22	36100		Apr 8 1965
MAXIMUM PEAK STAGE							9.21		Jun 22	15.05		Jun 27 1998
INSTANTANEOUS LOW FLOW							221		Feb 4	2.5a		Jan 3 1950
ANNUAL RUNOFF (AC-FT)			875000				483900			448900		
ANNUAL RUNOFF (CFM)			0.90				0.50			0.46		
ANNUAL RUNOFF (INCHES)			12.25				6.77			6.28		
10 PERCENT EXCEEDS			3680				1120			1390		
50 PERCENT EXCEEDS			370				535			306		
90 PERCENT EXCEEDS			262				309			104		

a Result of ice jam upstream.
e Estimated.

