

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. 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.

REVISIONS.-- The maximum discharge for the water year 1986 has been revised to 18,900 ft³/s, Sept. 22, 1986; gage height, 13.80 ft. Discharges above a stage of 5.00 ft have been revised from May 23, 1997 to Sept. 30, 1997. The maximum discharge for the 1997 water year has been revised to 8670 ft³/s, and the maximum stage has been revised to 10.33 ft, both occurring on July 26, 1997.

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

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	386	716	588	e355	e355	666	1070	1590	1800	942	807	776
2	356	718	574	e370	e370	710	1050	1490	1520	936	766	894
3	363	663	562	e365	e365	720	1020	1400	1490	1100	761	794
4	346	666	557	e355	e360	732	1060	1340	1590	1780	731	764
5	386	664	584	e340	e365	702	1070	1310	1100	1540	628	750
6	425	631	551	e325	e370	670	1340	1300	1420	1300	610	707
7	393	645	549	e320	e375	629	2010	1260	1540	1130	596	672
8	383	602	538	e320	e380	614	2430	1210	1680	1220	566	747
9	382	597	539	e320	e385	570	2890	1150	1660	1290	602	917
10	373	812	523	e325	e390	516	3790	1100	1570	1180	883	1000
11	360	829	502	e335	e435	637	4270	1080	2070	1040	795	973
12	368	840	502	e340	631	708	5010	1300	2480	998	745	883
13	351	1020	502	e345	671	608	4740	2700	2700	867	695	774
14	340	908	502	e350	697	594	4440	4680	2620	777	599	698
15	390	868	502	e355	717	604	4020	5090	2300	777	551	659
16	434	838	498	e365	819	792	3610	4700	2020	819	579	646
17	652	826	484	e375	819	1260	3270	4400	1750	810	536	644
18	924	790	485	e380	840	1370	2920	4250	1580	802	517	624
19	827	829	487	e385	834	1430	2670	4160	1510	950	625	578
20	897	755	406	e390	798	1390	2460	4210	1440	1430	712	576
21	778	710	375	e390	767	1330	2280	5070	1370	1860	738	568
22	699	729	e360	e385	748	1250	2200	5940	1310	1820	805	530
23	686	716	e355	e370	721	1190	2490	6500	1260	2060	2190	455
24	646	671	e370	e360	714	1140	2840	5610	1230	2030	1860	411
25	630	691	e400	e350	712	1090	2860	4330	1210	1530	1520	410
26	608	664	e420	e365	683	1040	2640	3550	1110	1520	1170	415
27	622	666	e405	e380	594	998	2360	2560	1030	1240	925	416
28	606	622	e390	e370	660	1020	2120	2390	1010	1100	863	417
29	659	645	e370	e365	---	1080	1920	2030	1030	1150	723	409
30	817	637	e355	e350	---	1090	1730	1910	956	1020	594	400
31	680	---	e350	e350	---	1100	---	1640	---	905	697	---
TOTAL	16767	21968	14585	11050	16575	28250	78580	91250	47356	37923	25389	19507
MEAN	541	732	470	356	592	911	2619	2944	1579	1223	819	650
MAX	924	1020	588	390	840	1430	5010	6500	2700	2060	2190	1000
MIN	340	597	350	320	355	516	1020	1080	956	777	517	400
AC-FT	33260	43570	28930	21920	32880	56030	155900	181000	93930	75220	50360	38690
CFSM	.40	.55	.35	.27	.44	.68	1.95	2.20	1.18	.91	.61	.49
IN.	.47	.61	.40	.31	.46	.78	2.18	2.53	1.31	1.05	.70	.54

e Estimated

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 1999, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	382	375	290	239	304	998	1379	784	791	585	447	394
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 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	FOR 1999 WATER YEAR	WATER YEARS 1909 - 1999
ANNUAL TOTAL	431783	409200		
ANNUAL MEAN	1183	1121		604
HIGHEST ANNUAL MEAN				2132
LOWEST ANNUAL MEAN				137
HIGHEST DAILY MEAN	15100	Jun 27	6500	May 23
LOWEST DAILY MEAN	233	Jan 10	320	Jan 7-9
ANNUAL SEVEN-DAY MINIMUM	333	Sep 13	326	Jan 5
INSTANTANEOUS PEAK FLOW			6920	May 23
INSTANTANEOUS PEAK STAGE			9.22	May 23
INSTANTANEOUS LOW FLOW			272 ^a	Dec 22
ANNUAL RUNOFF (AC-FT)	856400		811600	437400
ANNUAL RUNOFF (CFSM)	.88		.84	.45
ANNUAL RUNOFF (INCHES)	11.99		11.36	6.12
10 PERCENT EXCEEDS	2340		2370	1300
50 PERCENT EXCEEDS	763		748	277
90 PERCENT EXCEEDS	370		369	100

a Result of freezeup.

