

## 05355200 CANNON RIVER AT WELCH, MN

LOCATION.--Lat 44°33'50", long 92°43'55", in NW $\frac{1}{4}$ SW $\frac{1}{4}$  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 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 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 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	661	803	560	413	e310	e297	810	789	737	733	294	187
2	696	800	508	407	e322	e298	764	766	732	683	279	188
3	748	795	484	408	e320	e294	755	750	723	661	276	203
4	1,040	789	485	399	e310	e290	738	726	674	665	273	214
5	2,050	752	468	417	e300	e285	677	737	641	653	274	204
6	2,620	720	472	433	e298	e272	593	855	638	633	274	188
7	3,400	700	472	434	e295	e267	514	1,140	709	596	286	181
8	3,490	700	490	427	e294	e260	526	1,340	771	547	275	180
9	2,980	693	504	424	e293	e257	529	1,460	1,140	570	267	180
10	2,620	688	481	420	e290	e250	524	1,850	1,640	570	257	179
11	2,420	686	473	392	e290	e265	523	2,540	1,650	564	251	172
12	2,160	683	475	373	e290	e290	540	4,810	1,450	556	248	202
13	1,910	681	496	383	e290	306	530	5,230	1,240	565	253	290
14	1,710	681	506	e380	e290	383	523	4,660	1,110	562	254	274
15	1,540	677	505	e370	e290	815	543	3,920	1,070	589	249	245
16	1,390	676	479	e360	e290	954	624	3,280	989	594	243	203
17	1,300	676	447	e350	e292	902	790	2,920	831	664	228	175
18	1,240	668	472	e340	e294	822	823	2,650	727	614	217	178
19	1,180	651	503	e335	e298	766	942	2,370	692	491	213	186
20	1,110	615	515	e325	321	740	1,040	2,110	670	435	215	196
21	1,080	595	516	e315	420	730	1,090	1,870	669	407	216	224
22	1,050	589	482	e310	487	711	1,120	1,690	641	381	224	231
23	995	581	440	e300	392	612	1,160	1,460	605	398	263	224
24	909	576	388	e293	e335	525	1,130	1,150	598	385	274	197
25	927	562	383	e290	e320	508	1,070	1,160	621	363	259	184
26	939	559	383	e290	e305	511	1,010	1,120	741	369	240	176
27	870	538	404	e292	e300	524	940	1,040	753	375	213	196
28	826	518	443	e292	e297	633	883	892	752	324	209	189
29	822	529	479	e294	---	759	836	802	761	302	198	194
30	817	562	484	e297	---	811	806	794	748	298	195	210
31	812	---	466	e300	---	870	---	762	---	300	190	---
TOTAL	46,312	19,743	14,663	11,063	8,833	16,207	23,353	57,643	25,723	15,847	7,607	6,050
MEAN	1,494	658	473	357	315	523	778	1,859	857	511	245	202
MAX	3,490	803	560	434	487	954	1,160	5,230	1,650	733	294	290
MIN	661	518	383	290	290	250	514	726	598	298	190	172
AC-FT	91,860	39,160	29,080	21,940	17,520	32,150	46,320	114,300	51,020	31,430	15,090	12,000
CFSM	1.11	0.49	0.35	0.27	0.24	0.39	0.58	1.39	0.64	0.38	0.18	0.15
IN.	1.29	0.55	0.41	0.31	0.25	0.45	0.65	1.60	0.71	0.44	0.21	0.17

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2003, BY WATER YEAR (WY)

MEAN	399	380	297	245	309	971	1,419	830	877	608	455	392
MAX	1,806	1,708	1,105	662	1,141	2,627	8,240	2,966	4,144	3,343	2,951	1,823
(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)

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SUMMARY STATISTICS	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1909 - 2003	
ANNUAL TOTAL	289,939		253,044		621	
ANNUAL MEAN	794		693		137	
HIGHEST ANNUAL MEAN					2,132	1993
LOWEST ANNUAL MEAN					137	1934
HIGHEST DAILY MEAN	5,530	Jun 22	5,230	May 13	28,700	Apr 8, 1965
LOWEST DAILY MEAN	249	Mar 3	172	Sep 11	a19	Jan 2, 1950
ANNUAL SEVEN-DAY MINIMUM	268	Mar 2	183	Sep 6	42	Aug 12, 1936
MAXIMUM PEAK FLOW			5,410	May 13	36,100	Apr 8, 1965
MAXIMUM PEAK STAGE			8.04	May 13	15.05	Jun 27, 1998
INSTANTANEOUS LOW FLOW			164	Sep 18	a2.5	Jan 3, 1950
ANNUAL RUNOFF (AC-FT)	575,100		501,900		449,900	
ANNUAL RUNOFF (CFSM)	0.59		0.52		0.46	
ANNUAL RUNOFF (INCHES)	8.05		7.02		6.30	
10 PERCENT EXCEEDS	1,460		1,160		1,380	
50 PERCENT EXCEEDS	655		523		309	
90 PERCENT EXCEEDS	318		226		105	

a Result of ice jam upstream.  
 e Estimated.

