

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 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 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 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	902	730	582	e330	e214	433	4,170	928	916	1,020	275	247
2	952	786	563	e313	e212	399	3,850	886	821	950	246	248
3	968	788	559	e305	e227	398	3,260	862	824	772	241	240
4	1,010	777	559	e294	e265	395	2,650	836	831	764	251	304
5	904	734	541	e275	e324	427	2,320	812	848	742	233	729
6	814	682	528	e265	e536	877	2,090	792	930	653	219	798
7	764	564	539	e256	e409	1,700	1,910	825	985	527	214	726
8	675	524	535	e250	e359	1,410	1,770	880	3,120	526	226	782
9	687	550	545	e245	e332	1,130	1,530	895	4,260	524	251	721
10	749	571	591	e240	e298	960	1,370	974	3,070	491	237	533
11	862	562	618	e235	e288	831	1,290	988	2,480	412	349	431
12	877	522	630	e230	e282	770	1,350	905	2,170	394	442	431
13	907	534	618	e226	e395	754	1,540	1,130	1,940	398	264	521
14	882	530	595	e180	1,120	712	1,710	2,420	1,540	398	219	567
15	831	508	496	e162	1,750	630	1,660	2,480	1,420	383	219	654
16	794	503	459	e165	1,450	551	1,560	1,960	1,260	358	224	695
17	774	503	e486	e165	1,150	476	1,740	1,700	1,200	334	226	488
18	745	507	e495	e165	1,010	509	2,150	1,630	1,080	350	234	417
19	703	537	e435	e165	883	503	2,200	2,010	1,040	366	405	428
20	606	648	e465	e198	792	473	2,150	2,410	968	396	526	439
21	550	679	e460	e195	748	476	2,010	2,270	1,040	440	429	410
22	576	674	e429	e193	726	485	1,940	2,330	1,040	337	303	601
23	614	694	e340	e196	629	587	1,780	2,040	1,020	325	278	625
24	625	645	e317	e200	537	799	1,630	1,710	990	378	251	456
25	620	643	e318	e205	531	1,020	1,500	1,700	876	417	223	1,110
26	598	648	e325	e206	510	1,490	1,380	1,620	811	398	290	3,250
27	556	659	e321	e201	478	2,020	1,290	1,540	816	414	390	3,110
28	559	643	e315	e203	468	2,450	1,210	1,460	955	360	441	2,790
29	672	633	e322	e207	---	2,830	1,080	1,360	1,010	375	350	2,550
30	727	623	e346	e210	---	2,990	966	1,250	974	320	283	2,270
31	725	---	e365	e210	---	3,900	---	1,130	---	296	249	---
TOTAL	23,228	18,601	14,697	6,890	16,923	33,385	57,056	44,733	41,235	14,818	8,988	27,571
MEAN	749	620	474	222	604	1,077	1,902	1,443	1,374	478	290	919
MAX	1,010	788	630	330	1,750	3,900	4,170	2,480	4,260	1,020	526	3,250
MIN	550	503	315	162	212	395	966	792	811	296	214	240
AC-FT	46,070	36,900	29,150	13,670	33,570	66,220	113,200	88,730	81,790	29,390	17,830	54,690
CFSM	0.56	0.46	0.35	0.17	0.45	0.80	1.42	1.08	1.03	0.36	0.22	0.69
IN.	0.64	0.52	0.41	0.19	0.47	0.93	1.58	1.24	1.14	0.41	0.25	0.77

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2005, BY WATER YEAR (WY)

MEAN	402	382	299	244	313	971	1,412	843	925	621	457	419
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 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1909 - 2005	
ANNUAL TOTAL	355,992		308,125		630	
ANNUAL MEAN	973		844		137	
HIGHEST ANNUAL MEAN					2,132	1993
LOWEST ANNUAL MEAN					137	1934
HIGHEST DAILY MEAN	9,940	Jun 12	4,260	Jun 9	28,700	Apr 8, 1965
LOWEST DAILY MEAN	182	Jan 21	162	Jan 15	a19	Jan 2, 1950
ANNUAL SEVEN-DAY MINIMUM	189	Jan 17	171	Jan 14	42	Aug 12, 1936
MAXIMUM PEAK FLOW			5,160	Jun 9	36,100	Apr 8, 1965
MAXIMUM PEAK STAGE			8.04	Jun 9	15.05	Jun 27, 1998
INSTANTANEOUS LOW FLOW			b162	Jan 15	a2.5	Jan 3, 1950
ANNUAL RUNOFF (AC-FT)	706,100		611,200		456,200	
ANNUAL RUNOFF (CFSM)	0.726		0.630		0.470	
ANNUAL RUNOFF (INCHES)	9.88		8.55		6.38	
10 PERCENT EXCEEDS	2,010		1,830		1,410	
50 PERCENT EXCEEDS	646		618		314	
90 PERCENT EXCEEDS	207		240		107	

- a Result of ice jam upstream.
- b Estimated minimum-daily, result of freezeup.
- e Estimated.

