

CANNON RIVER BASIN

05355200 CANNON RIVER AT WELCH, MN

LOCATION.--Lat 44° 33'50", long 92° 43'55", in NW¼SW¼ 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.--1,320 mi², approximately.

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.

GAGE.--Water-stage recorder. Datum of gage is 699.16 ft above mean 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.

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

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
JUL	AUG	SEP							
1	275	345	728	e340	e350	409	3590	891	795
636	2300	4300							
2	231	478	783	e360	e350	374	3280	858	747
653	1920	3430							
3	200	393	797	e380	e355	442	2990	916	720
584	1770	2820							
4	224	424	768	e405	e350	446	2610	886	687
562	1610	2590							
5	234	458	745	e410	e350	449	2320	1010	662
537	1500	2310							
6	258	460	736	e380	e355	446	2340	841	636
512	1470	1940							
7	213	386	754	e350	e360	443	2360	820	624
487	1400	1800							

8	237	443	728	e360	e355	443	2220	945	581
545	1290	1700							
9	231	447	721	e370	e335	448	2060	817	577
499	1220	1690							
10	218	414	596	e370	e355	453	1840	815	546
464	1130	1440							
11	219	404	628	e360	e335	487	1720	829	536
472	1090	1350							
12	217	400	616	e350	e335	879	1610	726	491
501	1090	1280							
13	240	360	596	e350	e330	1880	1540	734	531
673	1020	1200							
14	193	397	569	e345	e340	1980	1480	719	497
1100	987	1150							
15	198	433	553	e335	e330	e1620	1310	632	493
1710	1930	1050							
16	257	615	525	e330	e335	e1540	1240	640	471
1510	4640	1560							
17	294	888	475	e330	e355	e1770	1210	601	395
1500	4700	2930							
18	282	982	542	e330	e372	1480	1200	583	428
1700	3350	2410							
19	190	1110	459	e330	e360	1450	1310	559	408
1940	3040	1820							
20	205	1170	376	e335	401	1560	1290	539	406
2240	3660	1620							
21	295	1130	e450	e350	414	1930	1300	527	547
2280	4780	1470							
22	241	1040	e420	e370	437	3150	1210	499	837
2750	4070	1400							
23	303	927	e405	e402	430	4510	1150	507	542
3720	3370	1390							
24	362	855	e385	e370	452	4980	1050	528	561
3060	2900	1350							
25	451	848	e370	e360	483	5080	1020	714	581
4260	2600	1250							
26	334	836	e355	e360	493	4510	913	1020	549
8270	2330	1110							
27	427	618	e340	e355	465	4440	875	993	486
6730	2140	1100							
28	296	589	e335	e350	467	5060	847	889	465
4590	1950	1070							
29	321	717	e335	e355	---	5140	945	863	727
3440	1800	1020							
30	456	730	e335	e355	---	4680	881	829	723
2740	1950	912							
31	286	---	e335	e350	---	4020	---	833	---
2470	4040	---							
TOTAL	8388	19297	16760	11097	10649	66499	49711	23563	17249
63135	73047	52462							

MEAN	271	643	541	358	380	2145	1657	760	575
2037	2356	1749							
MAX	456	1170	797	410	493	5140	3590	1020	837
8270	4780	4300							
MIN	190	345	335	330	330	374	847	499	395
464	987	912							
AC-FT	16640	38280	33240	22010	21120	131900	98600	46740	34210
125200	144900	104100							
CFSM	.20	.49	.41	.27	.29	1.63	1.26	.58	.44
1.54	1.79	1.32							
IN.	.24	.54	.47	.31	.30	1.87	1.40	.66	.49
1.78	2.06	1.48							

o e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 1997, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
JUL	AUG	SEP							
MEAN	370	361	283	233	290	989	1317	728	744
556	437	390							
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 1996 CALENDAR YEAR FOR 1997 WATER YEAR WATER YEARS 1909 - 1997

ANNUAL TOTAL		256315		411857					
ANNUAL MEAN		700		1128					581
HIGHEST ANNUAL MEAN									
2132		1993							
LOWEST ANNUAL MEAN									
137		1934							
HIGHEST DAILY MEAN			4510	Mar 31	8270	Jul 26			28700
Apr 8 1965									
LOWEST DAILY MEAN			190	Oct 19	190	Oct 19			19
Jan 2 1950									
ANNUAL SEVEN-DAY MINIMUM			217	Oct 9	217	Oct 9			42
Aug 12 1936									
INSTANTANEOUS PEAK FLOW					9050	Jul 26			36100
Apr 8 1965									
INSTANTANEOUS PEAK STAGE					10.53	Jul 26			14.01
Apr 8 1965									
INSTANTANEOUS LOW FLOW					175a	Oct 14			2.5
Jan 3 1950									
ANNUAL RUNOFF (AC-FT)			508400		816900				420600
ANNUAL RUNOFF (CFSM)			.53		.85				.44
ANNUAL RUNOFF (INCHES)			7.22		11.61				5.98
10 PERCENT EXCEEDS			1320		2660				1250
50 PERCENT EXCEEDS			491		636				263

90 PERCENT EXCEEDS

245

335

99

a Result of regulation.

(National Water Quality Assessment Station),

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

BICAR- BONATE WATER IT FIELD DATE MG/L AS HCO3 (00453)		DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE (DEG C) WATER (00010)	BARO- METRIC PRES- SURE (MM HG) OF (00025)	OXYGEN, (PER- CENT SOLVED SATUR- ATION) (MG/L) (00300)	ALKA- LILITY WAT DIS TOT IT DIS FIELD MG/L AS CACO3 (00301)	(39086)	
MAR 20...	1550	1790	525	8.0	2.5	742	13.6	102	203	248
MAR 23...	1655	4690	415	7.7	2.0	749	8.1	60	159	194
SED. SUSP. SEDI- DIAM. FINER DATE THAN .062 MM (70331)	AMMONIA SIEVE DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00671)	ORTHO, MENT, SUS- PENDED (MG/L) (80154)	%
MAR 20...	0.390	0.070	1.3	1.8	5.40	0.300	0.200	0.180	29	45
MAR 23...	0.400	0.050	1.1	1.8	4.90	0.400	0.260	0.170	139	52

