

# MINNESOTA RIVER BASIN

## 05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD

LOCATION.--Lat 4517'32", long 9629'14", in SE 1 / 4 NW 1 / 4 sec. 18, T.121 N., R.46 W., Grant County, Hydrologic Unit 07020001, on right bank 20 ft downstream from former highway bridge site, 1.5 mi west of Big Stone City, and 4.5 mi upstream from Big Stone Lake.

DRAINAGE AREA.--398 mi<sup>2</sup> (revised).

PERIOD OF RECORD.--March 1910 to November 1912 (no winter records), and March 1931 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 895: Drainage area. WSP 1308: 1932(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 996.96 ft in mean sea level, adjustment of 1912. Mar. 8, 1910 to Nov. 30, 1912, nonrecording gage 2 mi downstream at different datum. Mar. 18, 1931 to May 3, 1939, nonrecording gage, at site 20 ft upstream at present datum. May 4, 1939 to Nov. 8, 1952, water-stage recorder at site 80 ft down-stream at present datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair to poor.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 26 ft in June 1919, present site and datum, from information by local resident, discharge 29,000 ft<sup>3</sup>/s, from dam break.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

Discharge			Discharge		
Date	Time	Gage height (ft)	Date	Time	Gage height (ft)
(ft <sup>3</sup> /s)			(ft <sup>3</sup> /s)		
Feb 27	0800 1010	6.51	May 13	2300 617	5.03
Mar 27	2200 *1230	*7.09	May 17	1300 810	5.79
Apr 08	2200 1080	6.72	June 29	0100 201	2.99
Apr 28	0200 316	3.59			

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

### DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	22	31	36	e17	305	343	144	67	77	14	11
2	15	23	31	33	e17	211	261	130	62	61	13	11
3	15	25	29	21	e17	139	274	121	57	53	15	11
4	14	22	29	e20	e17	114	439	114	54	48	16	11
5	14	21	29	e19	e17	122	691	107	50	49	17	9.8
6	15	22	e28	e19	e17	111	822	101	48	64	17	9.7
7	15	22	27	e18	e17	97	866	98	46	76	17	9.0
8	16	22	27	e18	e17	81	1000	96	44	74	15	10
9	18	24	27	e18	e17	66	943	96	44	63	14	9.3
10	17	e26	27	e18	e18	e65	608	103	45	52	13	8.7
11	19	e27	27	e17	e18	e61	433	121	49	45	12	8.7
12	20	e27	28	e17	e18	e58	352	142	51	40	12	8.3
13	31	24	28	e16	e19	e55	306	378	56	37	12	8.2
14	34	25	27	e15	e19	e54	260	541	62	34	11	9.1
15	29	e26	28	e14	e20	e54	219	373	68	51	10	13
16	29	e26	30	e13	e22	e54	190	314	71	42	9.8	8.6
17	28	25	31	e13	e24	e54	170	692	76	34	9.3	8.5
18	26	24	31	e14	e28	e55	157	476	74	31	8.9	8.4
19	23	24	32	e14	e33	56	145	296	64	29	10	8.0
20	22	24	33	e14	e50	59	138	216	54	27	13	7.8
21	22	e24	33	e14	e90	62	130	175	46	24	11	7.5
22	20	e25	31	e15	e180	81	123	145	40	22	14	7.5
23	19	25	e27	e15	e300	84	119	126	36	19	20	8.0
24	19	e26	e26	e15	646	93	111	119	34	18	22	8.5
25	20	26	e25	e15	852	104	108	118	37	17	20	8.5
26	20	26	e25	e15	769	156	131	113	38	15	17	8.4
27	19	28	e25	e16	923	668	234	101	66	15	15	8.0
28	20	29	e25	e16	535	863	295	94	128	15	16	8.0
29	21	31	e25	e16	---	530	206	82	180	14	15	8.0

30	21	32	e26	e16	---	487	165	74	112	14	14	8.5
31	22	---	30	e16	---	519	---	73	---	14	13	---
TOTAL	638	753	878	549	4717	5518	10239	5879	1859	1174	436.0	270.0
MEAN	20.6	25.1	28.3	17.7	168	178	341	190	62.0	37.9	14.1	9.00
MAX	34	32	33	36	923	863	1000	692	180	77	22	13
MIN	14	21	25	15	17	54	108	73	34	14	8.9	7.5
AC-FT	1270	1490	1740	1090	9360	10940	20310	11660	3690	2330	865	536
CFSM	.05	.06	.07	.05	.43	.46	.88	.49	.16	.10	.04	.02

e Estimated

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	14.4	13.7	9.11	6.27	14.6	161	214	92.7	77.3	59.4	20.0	10.5
MAX	280	122	43.3	36.3	168	612	1677	491	478	885	327	77.0
(WY)	1996	1996	1972	1994	1998	1978	1997	1972	1984	1993	1991	1995
MIN	.60	.40	.20	.000	.000	2.85	3.63	.77	1.42	.035	.000	.36
(WY)	1932	1935	1935	1934	1934	1969	1934	1934	1936	1934	1934	1935

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1910 - 1998		
ANNUAL TOTAL	83631		32897.0				
ANNUAL MEAN	229		90.1		59.6a		
HIGHEST ANNUAL MEAN					232		1997
LOWEST ANNUAL MEAN					1.52		1934
HIGHEST DAILY MEAN	6600		Apr 6	1000	Apr 8	6600	Apr 6 1997
LOWEST DAILY MEAN	14		Oct 4	7.5	Sep 21	.00b	Sep 13 1931
ANNUAL SEVEN-DAY MINIMUM	15		Oct 1	8.0	Sep 17	.00	Jul 31 1933

INSTANTANEOUS PEAK FLOW			1230	Mar 27	7930	Apr 6	1997
INSTANTANEOUS PEAK STAGE			7.09	Mar 27	14.32c	Apr 8	1969
INSTANTANEOUS LOW FLOW			7.5	Sep 20	.00	Sep 13	1931
ANNUAL RUNOFF (AC-FT)	165900		65250		43140		
ANNUAL RUNOFF (CFSM)	.59		.23		.15		
ANNUAL RUNOFF (INCHES)	8.00		3.15		2.08		
10 PERCENT EXCEEDS	353		217		108		
50 PERCENT EXCEEDS	30		27		8.1		
90 PERCENT EXCEEDS	21		12		1.4		

a Median of annual mean discharges is 46 ft <sup>3</sup>/s.

b Many days, several years.

c Backwater from ice.

