



Water-Data Report 2009

05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD

Minnesota Basin
Upper Minnesota Subbasin

LOCATION.--Lat 45°17'30", long 96°29'14" referenced to North American Datum of 1927, in SE ¼ NW ¼ sec.18, T.121 N., R.46 W., Grant County, SD, Hydrologic Unit 07020001, on right bank 20 ft downstream from former highway bridge site, 1.5 mi west of Big Stone City, S.D., and 4.5 mi upstream from Big Stone Lake.

DRAINAGE AREA.--398 mi².

SURFACE-WATER RECORDS

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 sea level (NGVD 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 ft³/s, from dam break.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 230 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 18	0100	2,330	9.05
Mar 24	0300	*4,540	*11.63
Apr 5	0600	375	4.06
Aug 20	1300	365	4.01

Minimum discharge, 12 ft³/s, Sept. 7, gage height, 1.28 ft.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	17	38	34	e27	e22	e17	272	134	39	21	16	15
2	16	37	37	e27	e21	e18	254	131	34	20	16	15
3	17	35	34	e27	e20	e19	266	120	33	20	14	15
4	16	34	34	e26	e19	e22	326	108	31	22	14	15
5	17	33	35	e26	e17	e23	363	100	32	21	13	15
6	20	37	33	e26	e19	e24	309	93	31	19	13	14
7	25	56	34	e26	e19	e23	265	89	32	20	26	14
8	25	81	35	e26	e19	e22	254	85	43	25	29	15
9	24	81	36	e26	e19	e22	261	83	45	25	24	16
10	24	75	36	e26	e23	e23	287	80	48	26	26	16
11	28	66	37	e26	e23	e24	279	78	46	26	23	17
12	32	58	37	e25	e22	e31	249	76	43	24	20	18
13	38	55	39	e22	e21	e45	230	77	40	22	18	17
14	42	54	32	e21	e20	e51	219	76	37	26	16	17
15	41	51	e31	e19	e19	e149	206	71	34	33	15	16
16	37	49	e31	e19	e20	e800	195	71	33	30	19	15
17	33	49	e30	e20	e20	e1,300	183	68	32	31	20	15
18	31	48	e30	e21	e20	1,730	177	67	31	28	17	15
19	30	47	e29	e21	e20	e800	172	65	31	25	77	15
20	29	40	e29	e22	e19	586	165	60	29	23	288	14
21	28	e37	e29	e21	e20	497	154	56	29	21	238	18
22	30	e40	e28	e21	e19	490	147	49	36	20	145	26
23	36	41	e28	e21	e20	1,810	136	47	32	19	82	20
24	41	41	e28	e21	e20	3,520	125	44	31	17	53	25
25	45	41	e28	e21	e19	1,350	114	43	31	16	39	36
26	55	40	e30	e21	e18	674	113	49	29	16	30	55
27	55	38	e28	e21	e17	442	117	51	27	15	25	56
28	51	38	e28	e21	e17	367	117	52	27	14	22	56
29	48	38	e29	e21	---	348	123	49	25	14	19	44
30	45	37	e29	e21	---	322	136	45	23	14	18	35
31	41	---	e27	e23	---	308	---	41	---	14	17	---
Total	1,017	1,415	985	712	552	15,857	6,214	2,258	1,014	667	1,392	680
Mean	32.8	47.2	31.8	23.0	19.7	512	207	72.8	33.8	21.5	44.9	22.7
Max	55	81	39	27	23	3,520	363	134	48	33	288	56
Min	16	33	27	19	17	17	113	41	23	14	13	14
Ac-ft	2,020	2,810	1,950	1,410	1,090	31,450	12,330	4,480	2,010	1,320	2,760	1,350
Cfs/m	0.08	0.12	0.08	0.06	0.05	1.29	0.52	0.18	0.08	0.05	0.11	0.06
In.	0.10	0.13	0.09	0.07	0.05	1.48	0.58	0.21	0.09	0.06	0.13	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	15.3	15.4	10.4	7.03	15.0	161	221	94.4	87.4	54.6	19.6	10.9
Max	280	122	56.0	36.3	168	691	1,677	491	597	885	327	77.0
(WY)	(1996)	(1996)	(1999)	(1994)	(1998)	(2007)	(1997)	(1972)	(2008)	(1993)	(1991)	(1995)
Min	0.60	0.40	0.20	0.00	0.00	2.85	3.63	0.77	1.42	0.04	0.00	0.36
(WY)	(1932)	(1935)	(1935)	(1934)	(1934)	(1969)	(1934)	(1934)	(1936)	(1934)	(1934)	(1935)

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SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1910 - 2009	
Annual total	46,388.6		32,763			
Annual mean	127		89.8		^a 60.9	
Highest annual mean					232	1997
Lowest annual mean					1.52	1934
Highest daily mean	5,690	Jun 12	3,520	Mar 24	8,090	Apr 8, 2001
Lowest daily mean	6.0	Feb 24	^b 13	Aug 5	^c 0.00	Sep 13, 1931
Annual seven-day minimum	6.3	Feb 20	14	Jul 31	0.00	Jul 31, 1933
Maximum peak flow			4,540	Mar 24	9,930	Apr 8, 2001
Maximum peak stage			11.63	Mar 24	15.93	Apr 8, 2001
Instantaneous low flow			12	Sep 7	^c 0.00	Sep 13, 1931
Annual runoff (ac-ft)	92,010		64,990		44,150	
Annual runoff (cfsm)	0.318		0.226		0.153	
Annual runoff (inches)	4.34		3.06		2.08	
10 percent exceeds	274		174		113	
50 percent exceeds	38		30		9.7	
90 percent exceeds	13		17		1.5	

^a Median of annual mean discharges is 47 ft³/s.

^b Also occurred August 6th.

^c Many days, several years.

