

05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD

LOCATION.--Lat 45°17'30", long 96°29'14", in SE¹/₄NW¹/₄ 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, S.D., and 4.5 mi upstream from Big Stone Lake.

DRAINAGE AREA.--398 mi².

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 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 maximum (*):

| | Time | Discharge (ft ³ /s) | Gage height (ft) | | Time | Discharge (ft ³ /s) | Gage height (ft) |
|--|--------|--------------------------------|------------------|--|------|--------------------------------|------------------|
| | Jun 15 | 0000 | *3,430 | | | | *10.44 |

Minimum discharge, 4.7 ft³/s, Sept. 24, gage height, 0.95 ft.

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 | 17 | 79 | 21 | e12 | e5.1 | e9.8 | 49 | 23 | 34 | 88 | 12 | 6.4 |
| 2 | 29 | 74 | 20 | e11 | e4.1 | e9.3 | 42 | 22 | 30 | 73 | 12 | 5.7 |
| 3 | 30 | 64 | 19 | e11 | e4.5 | e9.4 | 37 | 21 | 27 | 61 | 15 | 6.4 |
| 4 | 32 | 53 | 19 | e11 | e4.1 | e11 | 33 | 20 | 27 | 52 | 16 | 6.5 |
| 5 | 32 | 45 | 19 | e9.6 | e6.1 | e12 | 31 | 19 | 32 | 38 | 15 | 6.2 |
| 6 | 27 | 39 | 18 | e8.7 | e9.1 | e15 | 30 | 18 | 34 | 34 | 13 | 7.2 |
| 7 | 24 | 35 | 20 | e8.1 | e6.3 | e22 | 29 | 19 | 39 | 31 | 11 | 7.2 |
| 8 | 20 | 31 | 20 | e7.7 | e6.0 | e22 | 28 | 20 | 75 | 31 | 10 | 8.0 |
| 9 | 16 | 28 | 19 | e6.7 | e5.7 | e21 | 27 | 24 | 88 | 30 | 9.7 | 7.1 |
| 10 | 14 | 27 | 19 | e6.2 | e5.4 | e19 | 28 | 27 | 217 | 28 | 9.0 | 6.3 |
| 11 | 11 | 26 | 20 | e6.0 | e6.3 | e18 | 38 | 27 | 278 | 26 | 9.9 | 5.4 |
| 12 | 10 | 25 | 16 | e6.4 | e7.5 | e19 | 58 | 33 | 296 | 37 | 10 | 5.9 |
| 13 | 9.5 | 23 | e10 | e6.2 | e8.8 | e19 | 87 | 46 | 312 | 37 | 11 | 15 |
| 14 | 11 | 22 | e15 | e5.5 | e16 | e19 | 98 | 53 | 1,690 | 27 | 9.7 | 16 |
| 15 | 9.8 | 22 | e18 | e3.6 | e20 | e19 | 86 | 62 | 2,350 | 23 | 9.0 | 12 |
| 16 | 9.4 | 21 | e18 | e2.8 | e15 | e19 | 75 | 72 | 976 | 21 | 8.7 | 9.4 |
| 17 | 11 | 21 | e17 | e2.1 | e15 | e19 | 66 | 75 | 594 | 19 | 8.6 | 8.3 |
| 18 | 11 | 21 | e17 | e1.9 | e15 | e18 | 58 | 68 | 415 | 17 | 9.6 | 7.7 |
| 19 | 9.8 | 23 | e14 | e2.1 | e15 | e18 | 51 | 58 | 298 | 17 | 9.8 | 8.1 |
| 20 | 9.5 | 24 | e13 | e2.8 | e14 | e17 | 46 | 50 | 233 | 17 | 11 | 7.2 |
| 21 | 9.8 | 24 | e14 | e3.6 | e14 | e17 | 41 | 46 | 187 | 17 | 15 | 6.8 |
| 22 | 11 | 24 | e11 | e3.4 | e14 | e19 | 37 | 41 | 154 | 18 | 17 | 6.2 |
| 23 | 14 | 23 | e8.9 | e4.0 | e13 | e25 | 35 | 35 | 131 | 17 | 17 | 5.5 |
| 24 | 22 | 23 | e6.8 | e4.9 | e12 | e31 | 32 | 29 | 122 | 17 | 13 | 5.2 |
| 25 | 34 | 23 | e7.2 | e7.2 | e12 | e32 | 29 | 34 | 113 | 18 | 11 | 6.4 |
| 26 | 33 | 20 | e8.1 | e6.9 | e11 | e31 | 29 | 39 | 106 | 16 | 11 | 6.5 |
| 27 | 38 | 23 | e8.1 | e4.9 | e10 | e32 | 27 | 35 | 97 | 16 | 9.1 | 6.6 |
| 28 | 38 | 24 | e8.4 | e5.2 | e9.9 | e35 | 25 | 36 | 95 | 16 | 8.9 | 6.8 |
| 29 | 42 | 22 | e9.7 | e4.6 | --- | 40 | 24 | 38 | 95 | 16 | 8.0 | 6.1 |
| 30 | 49 | 23 | e12 | e4.6 | --- | 49 | 23 | 39 | 92 | 15 | 7.3 | 5.6 |
| 31 | 83 | --- | e11 | e4.9 | --- | 50 | --- | 37 | --- | 14 | 6.8 | --- |
| TOTAL | 716.8 | 932 | 457.2 | 185.6 | 284.9 | 696.5 | 1,299 | 1,166 | 9,237 | 887 | 344.1 | 223.7 |
| MEAN | 23.1 | 31.1 | 14.7 | 5.99 | 10.2 | 22.5 | 43.3 | 37.6 | 308 | 28.6 | 11.1 | 7.46 |
| MAX | 83 | 79 | 21 | 12 | 20 | 50 | 98 | 75 | 2,350 | 88 | 17 | 16 |
| MIN | 9.4 | 20 | 6.8 | 1.9 | 4.1 | 9.3 | 23 | 18 | 27 | 14 | 6.8 | 5.2 |
| AC-FT | 1,420 | 1,850 | 907 | 368 | 565 | 1,380 | 2,580 | 2,310 | 18,320 | 1,760 | 683 | 444 |
| CFSM | 0.06 | 0.08 | 0.04 | 0.02 | 0.03 | 0.06 | 0.11 | 0.09 | 0.77 | 0.07 | 0.03 | 0.02 |
| IN. | 0.07 | 0.09 | 0.04 | 0.02 | 0.03 | 0.07 | 0.12 | 0.11 | 0.86 | 0.08 | 0.03 | 0.02 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 2005, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MEAN | 14.6 | 14.9 | 10.0 | 6.57 | 15.0 | 151 | 217 | 91.2 | 80.9 | 55.8 | 19.1 | 10.3 |
| MAX | 280 | 122 | 56.0 | 36.3 | 168 | 612 | 1,677 | 491 | 478 | 885 | 327 | 77.0 |
| (WY) | (1996) | (1996) | (1999) | (1994) | (1998) | (1978) | (1997) | (1972) | (1984) | (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) |

05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD—Continued

| SUMMARY STATISTICS | FOR 2004 CALENDAR YEAR | | FOR 2005 WATER YEAR | | WATER YEARS 1910 - 2005 | |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|--------------|
| ANNUAL TOTAL | 5,493.7 | | 16,429.8 | | | |
| ANNUAL MEAN | 15.0 | | 45.0 | | a58.8 | |
| HIGHEST ANNUAL MEAN | | | | | 232 | 1997 |
| LOWEST ANNUAL MEAN | | | | | 1.52 | 1934 |
| HIGHEST DAILY MEAN | 83 | Oct 31 | 2,350 | Jun 15 | 8,090 | Apr 8, 2001 |
| LOWEST DAILY MEAN | 1.7 | Feb 17 | 1.9 | Jan 18 | b0.00 | Sep 13, 1931 |
| ANNUAL SEVEN-DAY MINIMUM | 1.8 | Feb 11 | 2.7 | Jan 16 | 0.00 | Jul 31, 1933 |
| MAXIMUM PEAK FLOW | | | 3,430 | Jun 15 | 9,930 | Apr 8, 2001 |
| MAXIMUM PEAK STAGE | | | 10.44 | Jun 15 | 15.93 | Apr 8, 2001 |
| INSTANTANEOUS LOW FLOW | | | c1.9 | Jan 18 | b0.00 | Sep 13, 1931 |
| ANNUAL RUNOFF (AC-FT) | 10,900 | | 32,590 | | 42,590 | |
| ANNUAL RUNOFF (CFSM) | 0.038 | | 0.113 | | 0.148 | |
| ANNUAL RUNOFF (INCHES) | 0.51 | | 1.54 | | 2.01 | |
| 10 PERCENT EXCEEDS | 30 | | 65 | | 108 | |
| 50 PERCENT EXCEEDS | 12 | | 19 | | 9.0 | |
| 90 PERCENT EXCEEDS | 2.6 | | 6.3 | | 1.5 | |

- a Median of annual mean discharges is 44 ft³/s.
- b Many days, several years.
- c Minimum daily, backwater from ice.
- e Estimated.

