

## MISSOURI-LEWIS AND CLARK RIVER BASIN

06478515 MISSOURI RIVER NEAR GAYVILLE, SD

LOCATION.--Lat 42°51'01", long 97°13'12", in SW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> sec.27, T.93 N., R.54 W., Yankton County, Hydrologic Unit 10170101, 3.8 mi southwest of Gayville, 4.1 mi downstream from James River, and at mile 796.0.

PERIOD OF RECORD.--October 1969 to current year.

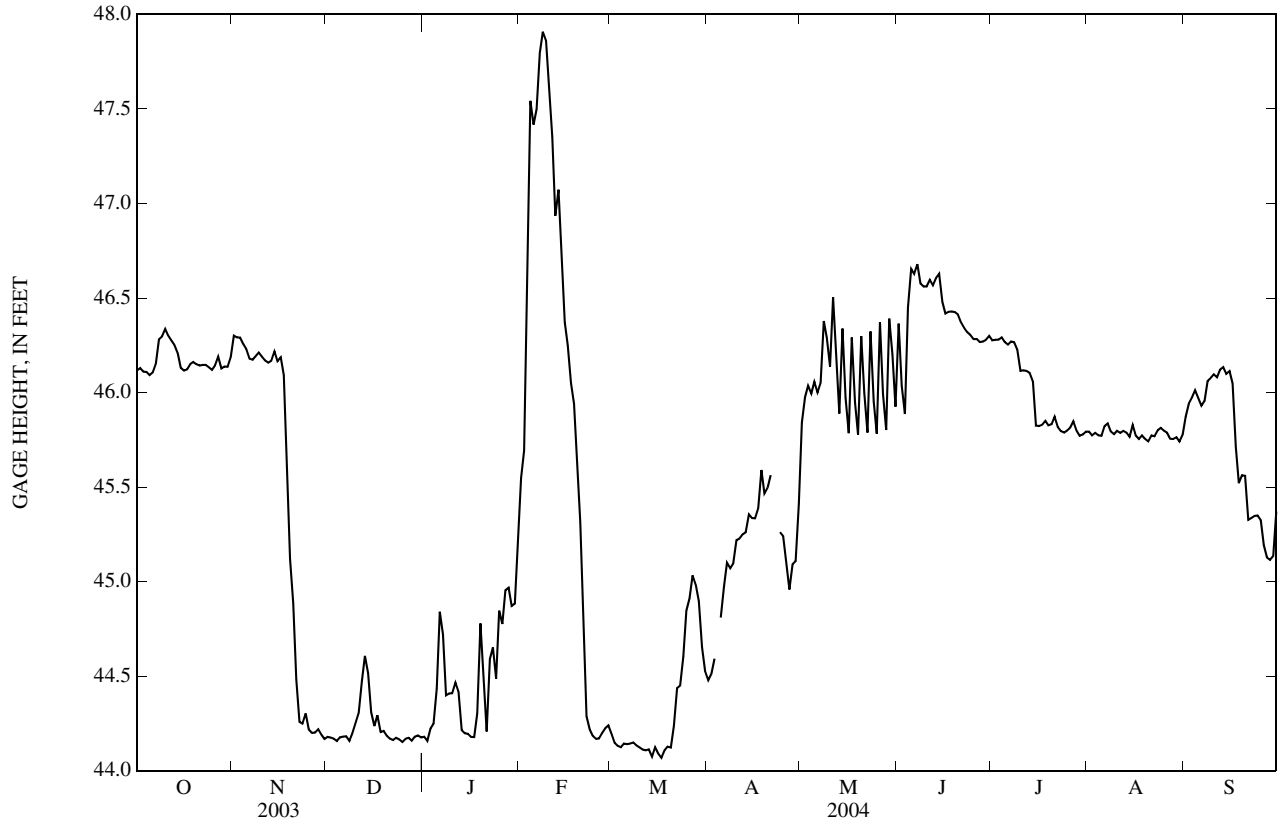
GAGE.--Water-stage recorder. Datum of gage is 1,100.00 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good. Stage regulated by Gavins Point Dam 15.0 mi upstream. U.S. Army Corps of Engineers data-collection platform at station. Gage heights for period of October 1969 to September 1980 in files of U.S. Army Corps of Engineers.

GAGE HEIGHT, FEET  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46.12	46.30	44.18	44.18	45.55	44.20	44.48	45.84	46.36	46.28	45.79	45.87
2	46.13	46.29	44.18	44.16	45.69	44.15	44.51	45.98	46.04	46.28	45.77	45.94
3	46.11	46.29	44.17	44.22	46.32	44.13	44.59	46.04	45.89	46.28	45.79	45.97
4	46.11	46.26	44.16	44.25	47.54	44.12	---	46.00	46.45	46.29	45.77	46.01
5	46.09	46.23	44.18	44.43	47.42	44.14	44.81	46.06	46.65	46.27	45.77	45.97
6	46.11	46.18	44.18	44.84	47.50	44.14	44.97	46.00	46.63	46.25	45.82	45.93
7	46.15	46.17	44.18	44.72	47.80	44.14	45.10	46.05	46.68	46.27	45.84	45.96
8	46.28	46.19	44.16	44.40	47.91	44.15	45.07	46.38	46.58	46.27	45.79	46.06
9	46.30	46.21	44.20	44.41	47.86	44.13	45.10	46.29	46.56	46.23	45.78	46.08
10	46.34	46.19	44.25	44.41	47.62	44.12	45.22	46.14	46.56	46.11	45.80	46.10
11	46.30	46.17	44.30	44.47	47.35	44.11	45.23	46.50	46.60	46.12	45.79	46.08
12	46.27	46.16	44.47	44.42	46.93	44.11	45.25	46.19	46.57	46.11	45.80	46.12
13	46.25	46.17	44.61	44.21	47.07	44.11	45.26	45.89	46.61	46.10	45.79	46.13
14	46.21	46.22	44.51	44.20	46.76	44.07	45.36	46.34	46.63	46.06	45.77	46.10
15	46.13	46.17	44.31	44.19	46.37	44.12	45.34	45.97	46.48	45.83	45.83	46.11
16	46.12	46.19	44.24	44.18	46.25	44.09	45.33	45.78	46.42	45.82	45.77	46.05
17	46.12	46.09	44.29	44.18	46.05	44.07	45.39	46.29	46.43	45.83	45.75	45.71
18	46.15	45.60	44.20	44.30	45.94	44.11	45.59	45.95	46.43	45.85	45.77	45.52
19	46.16	45.12	44.21	44.78	45.62	44.13	45.47	45.78	46.43	45.83	45.75	45.56
20	46.15	44.89	44.18	44.49	45.31	44.12	45.50	46.30	46.41	45.83	45.74	45.56
21	46.14	44.48	44.17	44.21	44.73	44.24	45.56	46.00	46.37	45.87	45.77	45.33
22	46.15	44.26	44.16	44.59	44.29	44.44	---	45.79	46.34	45.82	45.77	45.34
23	46.15	44.25	44.17	44.65	44.22	44.45	---	46.32	46.32	45.80	45.80	45.35
24	46.13	44.30	44.16	44.49	44.18	44.60	45.26	45.95	46.30	45.79	45.81	45.35
25	46.12	44.22	44.15	44.85	44.17	44.85	45.24	45.78	46.28	45.80	45.80	45.33
26	46.14	44.20	44.17	44.78	44.17	44.91	45.09	46.37	46.28	45.81	45.79	45.19
27	46.19	44.20	44.17	44.95	44.20	45.03	44.96	45.99	46.27	45.85	45.76	45.13
28	46.13	44.22	44.16	44.97	44.22	44.98	45.09	45.80	46.27	45.80	45.75	45.11
29	46.14	44.19	44.18	44.87	44.24	44.90	45.11	46.39	46.28	45.77	45.76	45.13
30	46.14	44.17	44.19	44.88	---	44.65	45.41	46.20	46.30	45.78	45.74	45.37
31	46.18	---	44.18	45.25	---	44.53	---	45.93	---	45.79	45.78	---
MEAN	46.17	45.45	44.23	44.51	45.98	44.32	---	46.07	46.41	45.99	45.78	45.72
MAX	46.34	46.30	44.61	45.25	47.91	45.03	---	46.50	46.68	46.29	45.84	46.13
MIN	46.09	44.17	44.15	44.16	44.17	44.07	---	45.78	45.89	45.77	45.74	45.11

06478515 MISSOURI RIVER NEAR GAYVILLE, SD—Continued



## MISSOURI-LEWIS AND CLARK RIVER BASIN

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD  
(Hydrologic bench-mark station)LOCATION.--Lat 43°47'39", long 97°22'02", in SW<sup>1</sup>/<sub>4</sub> sec.19, T.104 N., R.54 W., McCook County, Hydrologic Unit 10170102, on right bank near downstream end of culvert on county road, 2.0 mi upstream from small left-bank tributary, and 5.2 mi northeast of Salem.DRAINAGE AREA.--78.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1966 to current year.

REVISED RECORDS.--WDR SD-84-1, WDR SD-89-1: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete dam. Elevation of gage is 1,510 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	0.00	1.0	0.66	0.05	13	2.4	0.25	0.00
2	0.00	0.00	0.00	0.00	0.00	0.86	0.57	0.04	39	2.1	0.16	0.00
3	0.00	0.00	0.00	0.00	0.00	0.68	0.48	0.03	51	1.8	2.1	0.00
4	0.00	0.00	0.00	0.00	0.00	1.0	0.39	0.02	43	1.7	6.4	0.00
5	0.00	0.00	0.00	0.00	0.00	3.2	0.33	0.01	35	1.5	5.7	0.00
6	0.00	0.00	0.00	0.00	0.00	4.1	0.28	0.00	28	1.8	4.4	0.00
7	0.00	0.00	0.00	0.00	0.00	3.8	0.25	0.00	22	1.7	3.2	0.00
8	0.00	0.00	0.00	0.00	0.00	3.3	0.21	0.00	17	1.5	2.2	0.00
9	0.00	0.00	0.00	0.00	0.00	2.3	0.19	0.00	13	1.3	1.5	0.00
10	0.00	0.00	0.00	0.00	0.00	1.7	0.18	0.00	10	1.2	1.1	0.00
11	0.00	0.00	0.00	0.00	0.00	1.1	0.17	0.00	11	1.0	0.80	0.00
12	0.00	0.00	0.00	0.00	0.00	0.81	0.16	0.00	8.4	1.0	0.64	0.00
13	0.00	0.00	0.00	0.00	0.00	0.69	0.14	0.00	6.8	1.1	0.48	0.00
14	0.00	0.00	0.00	0.00	0.00	0.54	0.13	0.00	7.9	1.1	0.35	0.00
15	0.00	0.00	0.00	0.00	0.00	0.47	0.12	0.00	13	1.2	0.24	0.00
16	0.00	0.00	0.00	0.00	0.00	0.41	0.11	0.00	20	1.2	0.17	0.00
17	0.00	0.00	0.00	0.00	0.00	0.39	0.10	0.03	25	1.2	0.12	0.00
18	0.00	0.00	0.00	0.00	0.00	0.42	0.09	0.04	26	1.1	0.09	0.00
19	0.00	0.00	0.00	0.00	0.00	0.44	0.08	0.05	25	1.0	0.06	0.00
20	0.00	0.00	0.00	0.00	0.00	0.44	0.10	0.05	25	0.93	0.04	0.00
21	0.00	0.00	0.00	0.00	0.00	0.40	0.13	0.09	23	1.0	0.02	0.00
22	0.00	0.00	0.00	0.00	0.00	0.39	0.14	0.66	19	1.0	0.01	0.17
23	0.00	0.00	0.00	0.00	0.00	0.38	0.14	2.9	15	1.0	0.00	2.6
24	0.00	0.00	0.00	0.00	0.00	0.36	0.13	5.2	12	0.97	0.00	2.8
25	0.00	0.00	0.00	0.00	0.00	0.36	0.14	5.7	8.6	0.92	0.00	3.0
26	0.00	0.00	0.00	0.00	0.00	0.36	0.13	5.5	6.0	0.90	0.00	2.7
27	0.00	0.00	0.00	0.00	0.00	0.45	0.11	5.2	4.3	0.85	0.00	2.0
28	0.00	0.00	0.00	0.00	0.10	0.64	0.10	4.4	3.3	0.82	0.00	1.3
29	0.00	0.00	0.00	0.00	0.72	0.70	0.08	4.5	2.6	0.70	0.00	0.95
30	0.00	0.00	0.00	0.00	---	0.72	0.07	7.1	2.4	0.55	0.00	0.64
31	0.00	---	0.00	0.00	---	0.70	---	8.4	---	0.39	0.00	---
TOTAL	0.00	0.00	0.00	0.00	0.82	33.11	5.91	49.97	535.3	36.93	30.03	16.16
MEAN	0.00	0.00	0.00	0.00	0.03	1.07	0.20	1.61	17.8	1.19	0.97	0.54
MAX	0.00	0.00	0.00	0.00	0.72	4.1	0.66	8.4	51	2.4	6.4	3.0
MIN	0.00	0.00	0.00	0.00	0.00	0.36	0.07	0.00	2.4	0.39	0.00	0.00
AC-FT	0.00	0.00	0.00	0.00	1.6	66	12	99	1,060	73	60	32

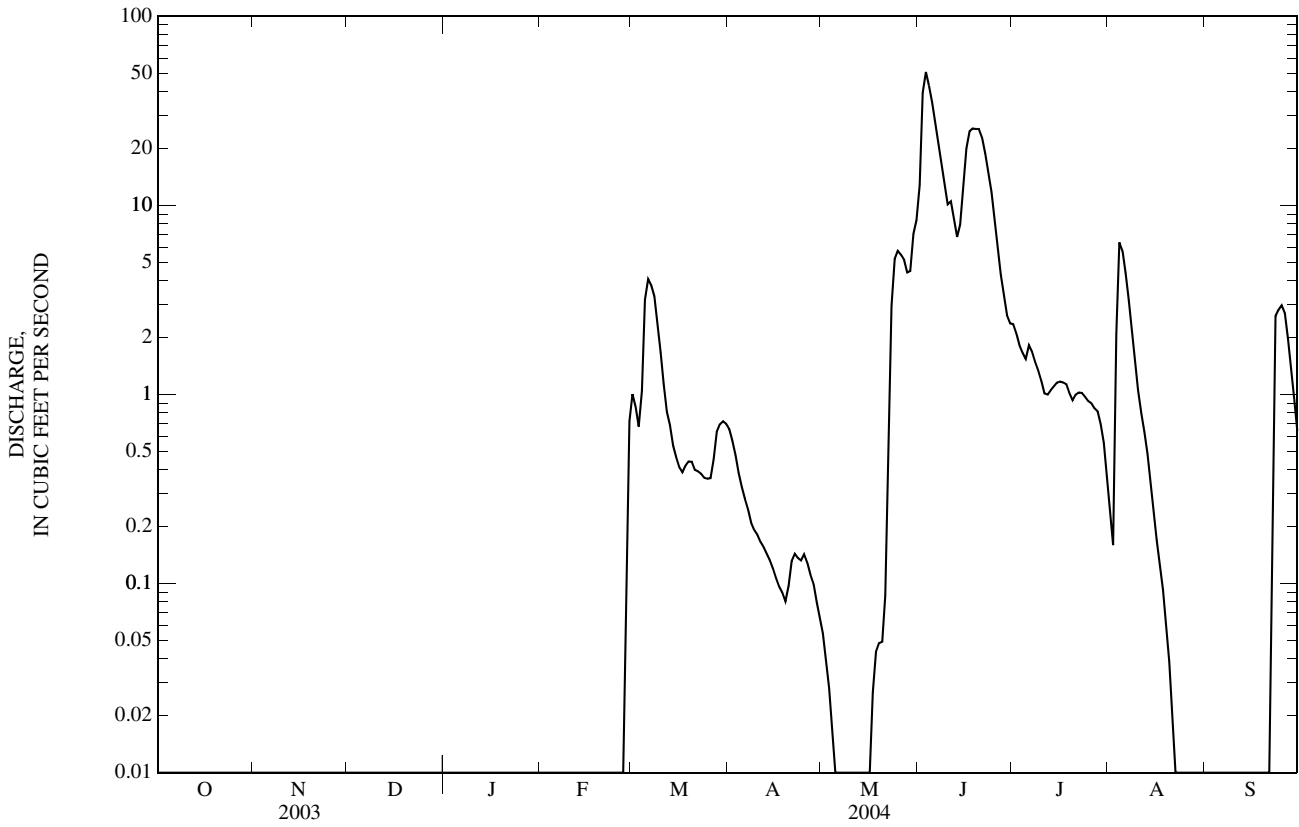
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2004, BY WATER YEAR (WY)

MEAN	2.06	1.43	0.39	0.05	2.22	19.7	21.8	10.0	15.6	13.9	2.85	2.49
MAX	40.0	17.1	4.08	0.91	40.7	158	173	95.7	186	430	50.3	63.0
(WY)	(1996)	(1996)	(1983)	(1983)	(1983)	(1997)	(1997)	(1995)	(1993)	(1993)	(1992)	(1986)
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(WY)	(1967)	(1967)	(1967)	(1967)	(1968)	(1968)	(1967)	(1967)	(1968)	(1968)	(1967)	(1967)

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1967 - 2004	
ANNUAL TOTAL	465.51		708.23			
ANNUAL MEAN	1.28		1.94		<sup>a</sup> 7.72	
HIGHEST ANNUAL MEAN					73.4	1993
LOWEST ANNUAL MEAN					<sup>b</sup> 0.00	1968
HIGHEST DAILY MEAN	31	Jun 25	51	Jun 3	2,500	Jul 4, 1993
LOWEST DAILY MEAN	0.00	Jan 1	0.00	Oct 1	<sup>c</sup> 0.00	Oct 1, 1966
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00	Oct 1	0.00	Oct 1, 1966
MAXIMUM PEAK FLOW			52	Jun 3	<sup>e</sup> 3,300	Jul 4, 1993
MAXIMUM PEAK STAGE			5.87	Jun 3	<sup>d</sup> 11.95	Jul 4, 1993
ANNUAL RUNOFF (AC-FT)	923		1,400		5,600	
10 PERCENT EXCEEDS	3.4		4.4		9.5	
50 PERCENT EXCEEDS	0.00		0.00		0.00	
90 PERCENT EXCEEDS	0.00		0.00		0.00	

- a Median of annual mean discharges, 2.6 ft<sup>3</sup>/s.
- b Also 1975 and 1981 water years.
- c No flow for many days in each year.
- d From floodmark.
- e Estimated.



## 06478600 EAST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°26'43", long 97°06'34", in NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> sec.33, T.100 N., R.53 W., Turner County, Hydrologic Unit 10170102, on left bank at downstream end of county highway bridge, 4.1 mi upstream from the confluence with West Fork Vermillion River, 14.5 mi west of Tea, and 3.5 mi north-northeast of Parker.

DRAINAGE AREA.--973 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1995 to current year.

REVISED RECORDS.--WDR SD-97-1: 1996 (daily discharges, June 2-5, 21), 1996 (M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,320 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	7.3	e7.3	e6.5	e3.0	e250	30	12	249	21	14	12
2	6.8	7.4	e7.1	e6.0	e2.8	e225	27	12	172	21	13	12
3	6.9	7.9	e7.0	e5.5	e2.6	e200	27	12	113	21	15	11
4	6.9	e7.2	e6.9	e5.0	e2.3	e175	26	11	78	22	18	10
5	6.9	e7.0	e6.7	e5.0	e2.3	e150	22	11	71	23	22	11
6	6.9	e6.7	e7.1	e5.5	e2.3	e125	20	11	69	29	21	11
7	7.1	e7.0	e7.3	e6.0	e2.3	76	20	10	54	44	20	11
8	7.1	e6.7	e7.1	e6.0	e2.3	60	22	10	47	43	19	11
9	7.2	e7.1	e6.7	e6.0	e2.4	61	19	11	44	37	19	10
10	7.1	7.9	e6.5	e6.5	e2.5	57	18	10	37	33	18	9.8
11	9.7	8.0	e6.4	e7.0	e2.6	70	18	10	52	28	16	9.7
12	9.4	8.0	e7.0	e7.5	e2.7	50	16	10	52	26	15	9.7
13	7.8	8.0	e7.4	e8.0	e2.8	39	16	10	51	23	13	9.6
14	7.5	7.5	e7.5	e9.0	e2.9	42	15	10	51	22	13	10
15	7.3	7.7	e7.8	e9.0	e3.0	36	14	10	45	21	12	14
16	7.3	7.7	e8.0	e9.0	e3.1	34	14	11	376	22	12	12
17	7.4	7.7	e8.4	e8.0	e3.2	33	14	14	390	22	11	11
18	7.7	7.7	e8.6	e7.0	e3.5	33	15	12	210	21	12	10
19	7.5	7.6	e8.7	e6.5	e5.0	30	15	11	124	20	11	10
20	7.5	7.5	e9.2	e6.5	e10	31	18	22	83	21	11	10
21	7.4	7.4	e9.6	e6.0	e25	35	16	30	66	20	10	15
22	7.3	7.4	e10	e6.0	e40	26	16	29	52	20	10	16
23	7.6	e6.8	e9.5	e5.5	e50	25	16	38	41	20	12	48
24	7.7	e6.8	e9.0	e5.5	e40	25	16	43	37	19	12	158
25	7.1	e7.3	e8.5	e5.5	e30	25	16	49	32	18	11	149
26	7.0	e7.4	e9.0	e5.0	e20	25	18	40	30	17	11	102
27	7.5	e7.2	e10	e5.0	e100	28	17	34	27	16	11	67
28	8.0	e6.7	e10	e4.5	e300	49	14	34	26	15	11	48
29	7.7	e7.3	e9.0	e4.0	e150	45	12	85	24	15	10	35
30	8.0	e7.4	e8.0	e3.5	---	41	13	1,210	22	15	10	28
31	7.5	---	e7.5	e3.0	---	35	---	387	---	14	11	---
TOTAL	231.5	221.3	248.8	189.0	818.6	2,136	540	2,209	2,725	709	424	880.8
MEAN	7.47	7.38	8.03	6.10	28.2	68.9	18.0	71.3	90.8	22.9	13.7	29.4
MAX	9.7	8.0	10	9.0	300	250	30	1,210	390	44	22	158
MIN	6.7	6.7	6.4	3.0	2.3	25	12	10	22	14	10	9.6
AC-FT	459	439	493	375	1,620	4,240	1,070	4,380	5,410	1,410	841	1,750

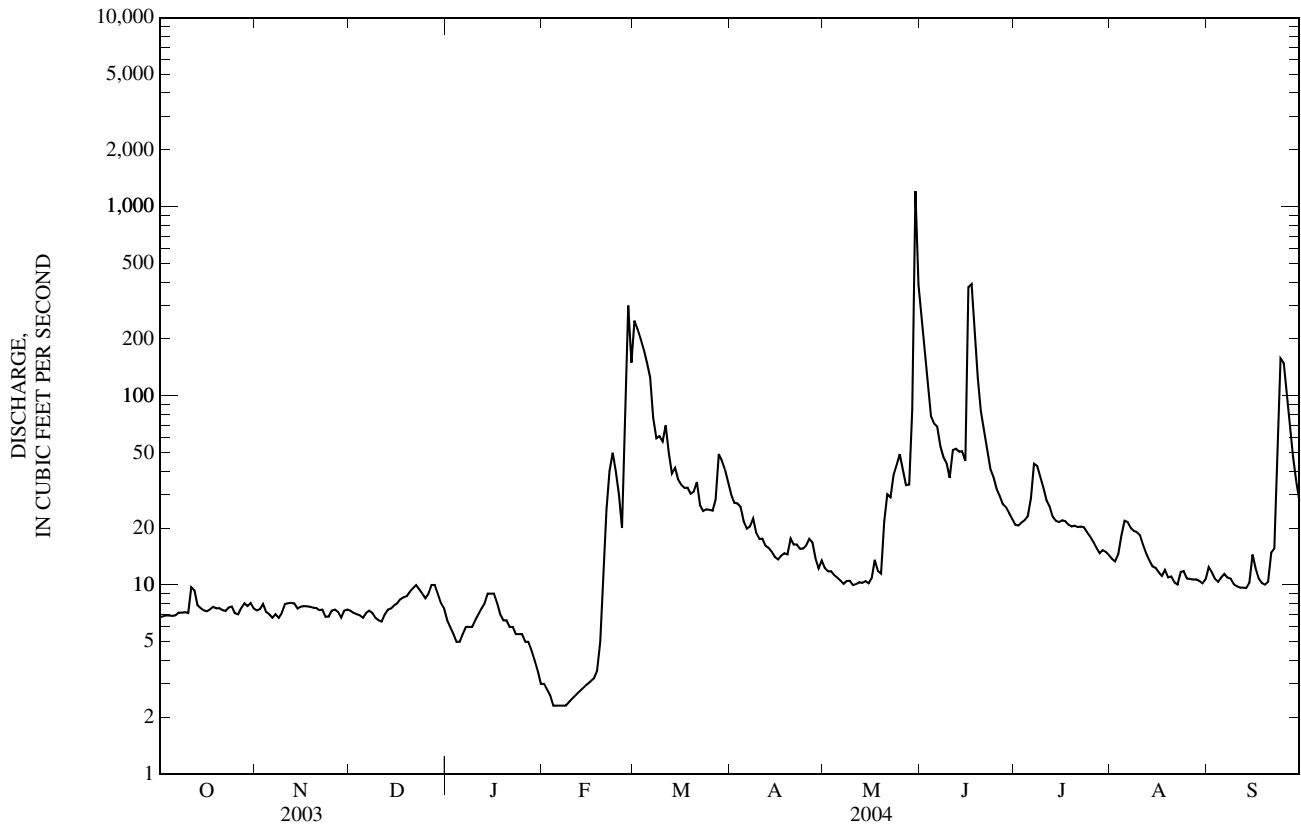
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2004, BY WATER YEAR (WY)

MEAN	83.1	86.8	48.8	29.2	49.7	174	361	234	172	95.2	65.6	53.6
MAX	332	280	151	128	215	732	1,070	832	467	180	156	101
(WY)	(1996)	(1996)	(1996)	(1996)	(1996)	(1997)	(1997)	(1997)	(1996)	(1996)	(1996)	(1999)
MIN	5.35	5.36	2.21	1.80	1.55	37.6	18.0	33.7	36.8	22.9	7.14	5.41
(WY)	(2001)	(2001)	(2001)	(2001)	(2001)	(2003)	(2004)	(2003)	(2000)	(2004)	(2000)	(2000)

06478600 EAST FORK VERMILLION RIVER NEAR PARKER, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1996 - 2004	
ANNUAL TOTAL	14,523.4		11,333.0		121	
ANNUAL MEAN	39.8		31.0		298	
HIGHEST ANNUAL MEAN					31.0 1997	
LOWEST ANNUAL MEAN					0.95 2004	
HIGHEST DAILY MEAN	2,430	Jun 25	1,210	May 30	3,960	Mar 29, 1997
LOWEST DAILY MEAN	6.0	Jan 11	2.3	Feb 4	0.95	Feb 2, 2001
ANNUAL SEVEN-DAY MINIMUM	6.7	Jan 9	2.3	Feb 4	1.1	Jan 30, 2001
MAXIMUM PEAK FLOW			2,520	May 30	<sup>a</sup> 4,210	Mar 29, 1997
MAXIMUM PEAK STAGE			10.85	May 30	<sup>b</sup> 12.75	Mar 22, 1997
ANNUAL RUNOFF (AC-FT)	28,810		22,480		87,730	
10 PERCENT EXCEEDS	50		52		277	
50 PERCENT EXCEEDS	9.7		11		50	
90 PERCENT EXCEEDS	7.0		6.0		7.2	

a Gage height, 12.73 ft.  
 b Backwater from ice.  
 e Estimated.



## 06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE $\frac{1}{4}$  NE $\frac{1}{4}$  sec.10, T.99 N., R.54 W., Turner County, Hydrologic Unit 10170102, on right bank 10 ft downstream from bridge, 3.7 mi northwest of Parker, and 13.9 mi upstream from confluence with East Fork Vermillion River.

DRAINAGE AREA.--377 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1961 to current year.

REVISED RECORDS.--WDR SD-89-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,340 ft above NGVD of 1929, from topographic map. Prior to Oct. 11, 1973, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.26	0.40	0.57	0.83	e0.35	e100	3.3	1.1	264	11	11	2.2
2	0.24	0.41	0.57	0.83	e0.35	e50	3.3	1.0	153	10	10	2.0
3	0.22	e0.38	0.61	0.77	e0.35	e20	2.5	0.94	104	11	9.7	2.6
4	0.19	e0.35	0.61	0.76	e0.35	e25	2.8	0.94	73	12	8.9	2.8
5	0.18	e0.31	0.58	0.63	e0.35	e30	2.7	0.86	55	11	16	2.7
6	0.17	e0.31	0.67	0.53	e0.35	e35	3.0	0.76	42	45	32	2.4
7	0.16	e0.30	0.64	0.48	e0.35	e40	3.9	0.54	32	78	19	2.0
8	0.14	e0.30	0.63	0.60	e0.35	e35	2.9	0.55	22	36	12	1.9
9	0.13	e0.30	0.61	0.61	e0.35	e30	3.6	0.56	17	20	9.1	1.9
10	0.12	e0.35	0.62	0.58	0.36	e25	3.3	0.59	14	15	7.3	1.8
11	0.22	e0.40	0.61	0.64	0.36	e20	3.3	0.44	26	13	6.0	1.6
12	0.17	e0.35	0.61	0.71	0.36	e15	3.1	0.50	34	12	5.2	1.6
13	0.20	0.24	0.61	0.68	0.36	e10	2.7	0.47	22	10	4.4	1.5
14	0.15	e0.40	0.62	0.64	0.36	7.6	3.0	0.44	16	15	4.1	1.9
15	0.12	e0.50	0.61	0.65	0.36	5.5	3.3	0.45	9.8	22	3.8	3.8
16	0.19	e0.65	0.55	0.65	0.34	5.0	3.5	0.64	331	21	3.9	3.4
17	0.20	e0.70	0.56	0.59	0.34	3.8	3.2	1.1	560	17	3.7	2.4
18	0.15	e0.70	0.61	0.57	0.36	3.9	2.7	1.2	243	15	3.6	2.2
19	0.15	e0.70	0.61	0.53	0.35	4.6	2.1	0.89	132	13	3.4	2.1
20	0.07	e0.70	0.60	0.52	0.33	5.5	2.5	0.73	92	58	3.2	2.3
21	0.29	e0.60	0.62	0.52	0.35	4.3	3.0	1.3	78	60	3.0	4.4
22	0.54	e0.50	0.65	0.49	0.38	3.7	2.3	2.6	65	56	2.7	5.4
23	0.57	e0.45	0.69	0.54	0.40	3.4	2.0	13	51	51	2.7	93
24	0.96	e0.40	0.66	0.61	0.46	3.2	2.1	38	41	46	2.9	129
25	0.50	e0.45	0.66	0.54	0.41	3.4	2.5	92	33	41	2.7	72
26	0.27	e0.50	0.69	0.47	0.32	3.1	2.2	50	27	35	2.9	36
27	0.27	0.53	0.83	0.43	0.85	4.5	1.7	34	22	30	2.8	20
28	0.29	0.53	0.89	0.40	e4.0	7.2	1.5	22	18	26	2.6	13
29	0.24	0.53	0.86	0.36	e20	6.6	1.3	65	15	22	2.4	10
30	0.33	0.55	0.82	0.34	---	5.7	1.2	984	13	18	2.1	7.8
31	0.37	---	0.85	e0.35	---	3.7	---	492	---	14	2.4	---
TOTAL	8.06	13.79	20.32	17.85	34.20	519.7	80.5	1,808.60	2,604.8	844	205.5	435.7
MEAN	0.26	0.46	0.66	0.58	1.18	16.8	2.68	58.3	86.8	27.2	6.63	14.5
MAX	0.96	0.70	0.89	0.83	20	100	3.9	984	560	78	32	129
MIN	0.07	0.24	0.55	0.34	0.32	3.1	1.2	0.44	9.8	10	2.1	1.5
AC-FT	16	27	40	35	68	1,030	160	3,590	5,170	1,670	408	864

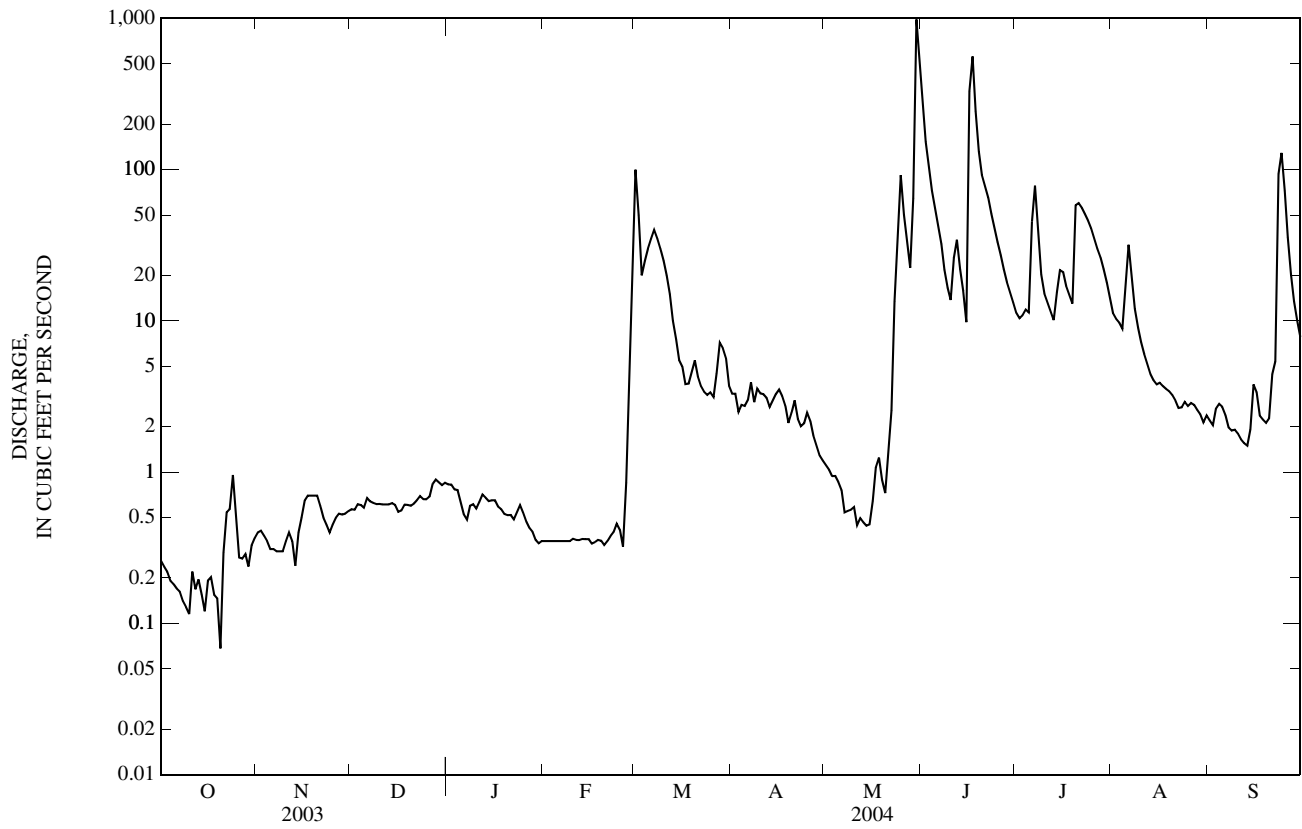
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2004, BY WATER YEAR (WY)

MEAN	6.58	9.44	2.87	1.08	16.5	123	136	62.1	83.4	47.4	9.78	11.3
MAX	106	156	33.4	9.05	267	795	1,112	550	1,345	1,081	144	324
(WY)	(1996)	(1999)	(1999)	(1983)	(1983)	(1997)	(2001)	(1995)	(1984)	(1993)	(1993)	(1986)
MIN	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.00
(WY)	(1975)	(1982)	(1965)	(1965)	(1975)	(1981)	(1990)	(1990)	(1981)	(1989)	(1989)	(1989)

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1962 - 2004	
ANNUAL TOTAL	8,110.06		6,593.02			
ANNUAL MEAN	22.2		18.0		<sup>a</sup> 42.5	
HIGHEST ANNUAL MEAN					249	1993
LOWEST ANNUAL MEAN					0.02	1981
HIGHEST DAILY MEAN	1,550	Jun 26	984	May 30	4,410	Apr 23, 2001
LOWEST DAILY MEAN	0.07	Oct 20	0.07	Oct 20	<sup>b</sup> 0.00	Oct 6, 1961
ANNUAL SEVEN-DAY MINIMUM	0.15	Oct 14	0.15	Oct 14	0.00	Nov 4, 1961
MAXIMUM PEAK FLOW			1,300	May 30	<sup>c</sup> 6,370	Apr 23, 2001
MAXIMUM PEAK STAGE			8.21	May 30	<sup>d</sup> 13.14	May 8, 1993
ANNUAL RUNOFF (AC-FT)	16,090		13,080		30,800	
10 PERCENT EXCEEDS	32		36		62	
50 PERCENT EXCEEDS	1.6		2.0		1.1	
90 PERCENT EXCEEDS	0.30		0.34		0.00	

- a Median of annual mean discharges, 18 ft<sup>3</sup>/s.
- b No flow for many days in most years.
- c Gage height, 12.22 ft.
- d Discharge, 6,300 ft<sup>3</sup>/s.
- e Estimated.





## 06479010 VERMILLION RIVER NEAR VERMILLION, SD

LOCATION.--Lat 42°49'02", long 96°55'26", in SE $\frac{1}{4}$  SE $\frac{1}{4}$  NE $\frac{1}{4}$  sec.1, T.92 N., R.52 W., Clay County, Hydrologic Unit 10170102, on left bank 30 ft downstream from bridge, 2.7 mi north of Vermillion, 2.9 mi upstream from Clay Creek, and 10.8 mi upstream from mouth.

DRAINAGE AREA.--2,302 mi<sup>2</sup>, of which 494 mi<sup>2</sup> usually is noncontributing (area was contributing during 1986-88, 1993-2002).

PERIOD OF RECORD.--October 1983 to current year.

REVISED RECORDS.--WDR SD-89-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,125 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Flow affected by East Vermillion Lake Reservoir, capacity, 550 acres, located about 54 mi upstream. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	57	52	e50	e20	e350	297	96	1,770	204	93	54
2	64	56	54	e55	e19	e750	263	88	1,980	194	91	54
3	64	58	56	e48	e18	1,110	235	85	2,120	182	89	51
4	63	58	57	e40	e18	1,040	212	83	1,940	177	90	50
5	62	58	55	e37	e19	832	196	80	1,230	166	85	51
6	60	57	55	e36	e19	783	182	78	887	161	88	53
7	59	56	57	e36	e19	766	172	74	737	159	89	50
8	58	53	56	e36	e20	759	160	72	609	158	86	50
9	58	52	e55	e35	e21	663	149	73	510	178	93	49
10	57	55	e50	e37	e21	605	143	95	448	205	90	49
11	61	56	e54	e38	e22	512	139	92	415	186	83	48
12	61	60	e53	e39	e21	383	136	82	410	168	79	46
13	63	58	e52	e39	e23	335	131	76	439	154	75	47
14	63	56	e52	e38	e22	342	126	73	445	143	74	59
15	64	56	e52	e36	e21	304	121	71	399	135	70	101
16	65	56	e52	e37	e22	276	115	71	395	127	68	320
17	62	56	e52	e36	e23	259	110	71	382	121	65	467
18	60	56	e50	e30	e23	249	108	72	621	120	65	259
19	58	55	e52	e27	e23	289	103	76	1,020	119	62	166
20	58	55	e52	e25	e23	331	100	76	861	117	60	128
21	58	54	e53	e26	e24	315	103	85	617	120	58	107
22	57	54	e53	e28	e24	285	105	111	498	113	56	96
23	56	e50	54	e31	e24	260	110	366	422	119	64	93
24	56	e53	e45	e30	e25	239	109	463	376	128	65	93
25	56	e53	e50	e26	e28	221	112	831	328	126	62	111
26	56	e53	e51	e24	e30	207	115	943	299	121	63	224
27	57	e52	e50	e22	e34	204	112	737	271	117	60	260
28	58	e50	e50	e20	e40	318	111	561	255	112	60	226
29	58	e50	e50	e19	e100	394	104	439	240	110	56	184
30	58	e52	e49	e18	---	387	98	584	222	104	54	151
31	57	---	e47	e19	---	343	---	1,200	---	98	54	---
TOTAL	1,852	1,645	1,620	1,018	746	14,111	4,277	7,904	21,146	4,442	2,247	3,697
MEAN	59.7	54.8	52.3	32.8	25.7	455	143	255	705	143	72.5	123
MAX	65	60	57	55	100	1,110	297	1,200	2,120	205	93	467
MIN	56	50	45	18	18	204	98	71	222	98	54	46
AC-FT	3,670	3,260	3,210	2,020	1,480	27,990	8,480	15,680	41,940	8,810	4,460	7,330

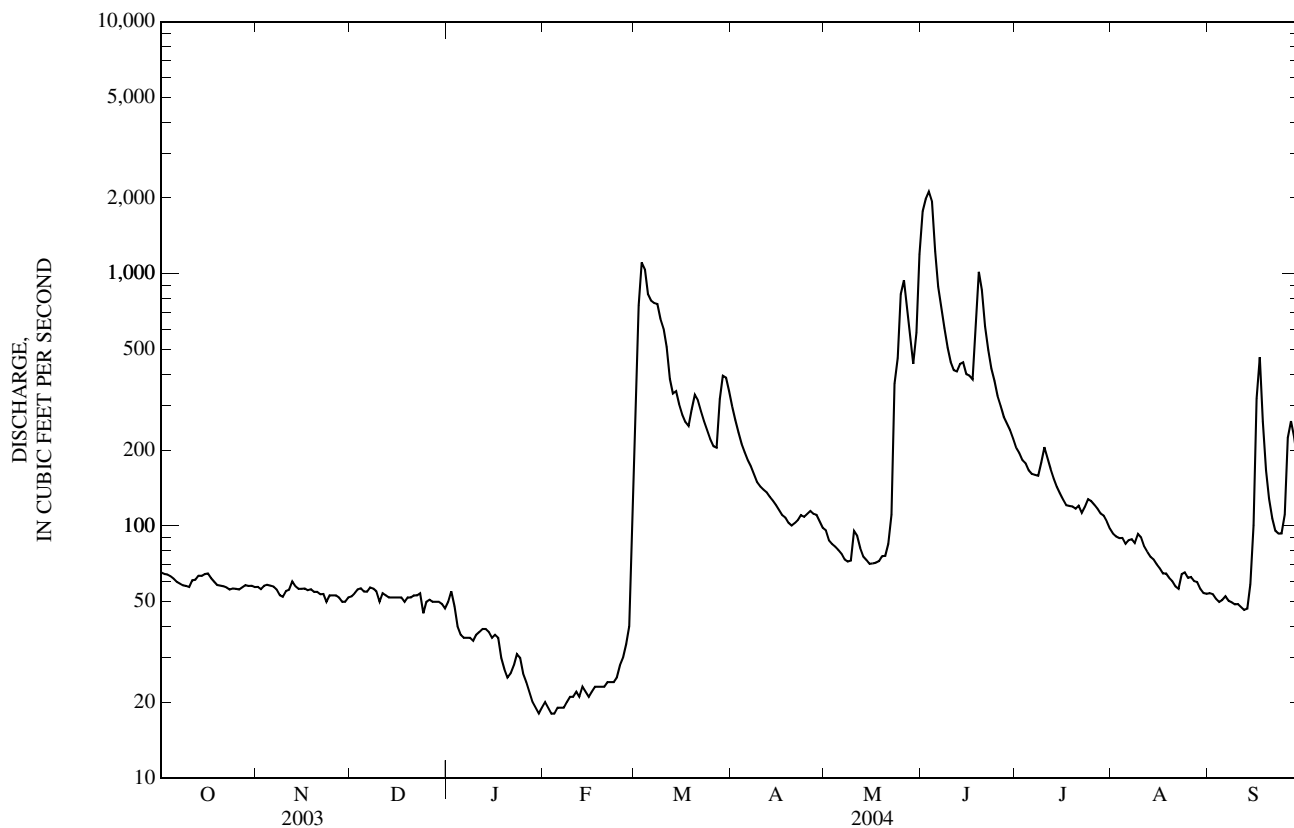
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2004, BY WATER YEAR (WY)

MEAN	148	146	94.0	54.3	96.2	518	1,061	701	810	587	187	154
MAX	643	681	288	204	454	1,693	4,405	2,432	6,062	5,920	1,434	754
(WY)	(1987)	(1999)	(1996)	(1996)	(1994)	(1997)	(1984)	(1995)	(1984)	(1993)	(1993)	(1986)
MIN	5.54	7.99	7.37	6.71	9.00	15.3	13.1	21.8	15.4	14.2	13.2	5.22
(WY)	(1990)	(1990)	(1991)	(1991)	(1989)	(1991)	(1990)	(1991)	(1989)	(1989)	(1990)	(1991)

06479010 VERMILLION RIVER NEAR VERMILLION, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1984 - 2004	
ANNUAL TOTAL	72,328		64,705		<sup>a</sup> 380	
ANNUAL MEAN	198		177		1,416	
HIGHEST ANNUAL MEAN					27.9	
LOWEST ANNUAL MEAN					1993	
HIGHEST DAILY MEAN	2,310	Jul 9	2,120	Jun 3	20,200	Jun 23, 1984
LOWEST DAILY MEAN	15	Feb 4	18	Jan 30	<sup>b</sup> 3.6	Oct 10, 1991
ANNUAL SEVEN-DAY MINIMUM	19	Feb 1	19	Jan 29	4.5	Oct 6, 1991
MAXIMUM PEAK FLOW			2,160		21,400	
MAXIMUM PEAK STAGE			13.76		31.77	
ANNUAL RUNOFF (AC-FT)	143,500		128,300		275,300	
10 PERCENT EXCEEDS	294		427		862	
50 PERCENT EXCEEDS	65		71		102	
90 PERCENT EXCEEDS	28		29		15	

a Median of annual mean discharges, 290 ft<sup>3</sup>/s.  
 b Also Oct. 18, 1991.  
 e Estimated.



## BIG SIOUX RIVER BASIN

06479215 BIG SIOUX RIVER NEAR FLORENCE, SD

LOCATION.--Lat 45°10'51", long 97°11'09", in NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  sec.17, T.120 N., R.52 W., Grant County, Hydrologic Unit 10170202, on right bank near downstream side of county highway bridge, 11.0 mi northeast of Florence, and 2.2 mi upstream from Indian Creek.

DRAINAGE AREA.--638 mi<sup>2</sup>, of which 570 mi<sup>2</sup> usually is noncontributing.

PERIOD OF RECORD.--June 6, 1984, to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,780.57 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.14	0.16	e0.19	0.16	e0.04	e0.04	0.42	0.75	42	6.0	1.1	0.01
2	0.15	0.18	e0.20	0.17	e0.04	e0.04	0.49	0.73	32	4.9	0.85	0.00
3	0.12	0.19	e0.20	0.13	e0.04	e0.04	0.58	0.70	24	3.9	0.71	0.00
4	0.12	0.21	e0.20	0.10	e0.04	e0.04	0.56	0.67	19	3.1	0.60	0.00
5	0.11	0.19	e0.20	0.08	e0.04	e0.04	0.58	0.65	15	2.5	0.47	0.23
6	0.12	0.16	e0.20	e0.07	e0.04	e0.04	0.66	0.64	11	18	0.38	0.02
7	0.15	0.14	e0.20	e0.06	e0.04	e0.05	0.69	0.53	7.5	23	0.34	0.02
8	0.15	0.11	e0.20	e0.06	e0.04	e0.50	0.66	0.48	6.8	26	0.36	0.07
9	0.10	0.12	e0.19	e0.06	e0.04	e0.85	0.66	0.47	7.6	45	0.32	0.57
10	0.09	0.19	e0.18	0.06	e0.04	e0.71	0.63	0.45	7.8	52	0.29	0.72
11	0.15	0.21	e0.17	0.06	e0.04	e0.49	0.60	0.46	12	48	0.31	0.75
12	0.12	0.20	e0.16	0.06	e0.04	e0.40	0.58	1.1	17	44	0.17	0.74
13	0.12	0.17	e0.16	0.06	e0.04	e0.45	0.56	0.98	22	36	0.11	0.55
14	0.10	0.20	e0.16	0.08	e0.04	e0.50	0.55	0.87	25	33	0.08	0.34
15	0.11	0.21	e0.16	0.10	e0.04	e0.49	0.55	0.87	27	30	0.06	0.36
16	0.10	0.22	e0.17	0.09	e0.05	e0.48	0.57	1.0	26	27	0.05	0.23
17	0.10	0.23	e0.17	0.08	e0.05	e0.47	0.60	1.1	26	25	0.04	0.35
18	0.11	0.21	e0.17	0.07	e0.05	e0.49	0.63	1.0	28	23	0.04	0.33
19	0.10	0.21	e0.17	0.06	e0.05	e0.53	0.75	0.96	29	20	0.03	5.3
20	0.13	0.23	e0.17	0.06	e0.05	e0.40	0.94	1.0	29	15	0.04	9.8
21	0.12	0.21	0.16	0.07	e0.05	e0.30	1.1	0.95	27	11	0.02	5.8
22	0.14	0.20	0.16	0.06	e0.05	e0.33	1.0	0.92	25	7.0	0.01	7.1
23	0.13	0.19	0.15	0.06	e0.05	e0.39	1.1	0.88	23	5.5	0.03	12
24	0.11	0.17	0.15	0.06	e0.05	0.40	1.4	1.0	21	5.0	0.01	23
25	0.10	e0.17	0.15	e0.06	e0.05	0.45	1.3	1.1	19	3.7	0.01	42
26	0.10	e0.17	0.16	e0.05	e0.05	0.47	1.1	1.1	16	2.6	0.01	31
27	0.15	e0.17	0.23	e0.05	e0.05	0.65	0.92	1.3	14	1.9	0.01	20
28	0.14	e0.18	0.21	e0.04	e0.05	0.70	0.84	1.4	13	1.4	0.01	14
29	0.17	e0.18	0.19	e0.03	e0.05	0.59	0.78	1.6	9.9	1.0	0.01	11
30	0.18	e0.18	0.17	e0.04	---	0.48	0.73	8.4	7.6	1.5	0.01	8.9
31	0.17	---	0.16	e0.04	---	0.43	---	38	---	1.2	0.01	---
TOTAL	3.90	5.56	5.51	2.23	1.30	12.24	22.53	72.06	589.2	527.2	6.49	195.19
MEAN	0.13	0.19	0.18	0.07	0.04	0.39	0.75	2.32	19.6	17.0	0.21	6.51
MAX	0.18	0.23	0.23	0.17	0.05	0.85	1.4	38	42	52	1.1	42
MIN	0.09	0.11	0.15	0.03	0.04	0.04	0.42	0.45	6.8	1.0	0.01	0.00
AC-FT	7.7	11	11	4.4	2.6	24	45	143	1,170	1,050	13	387

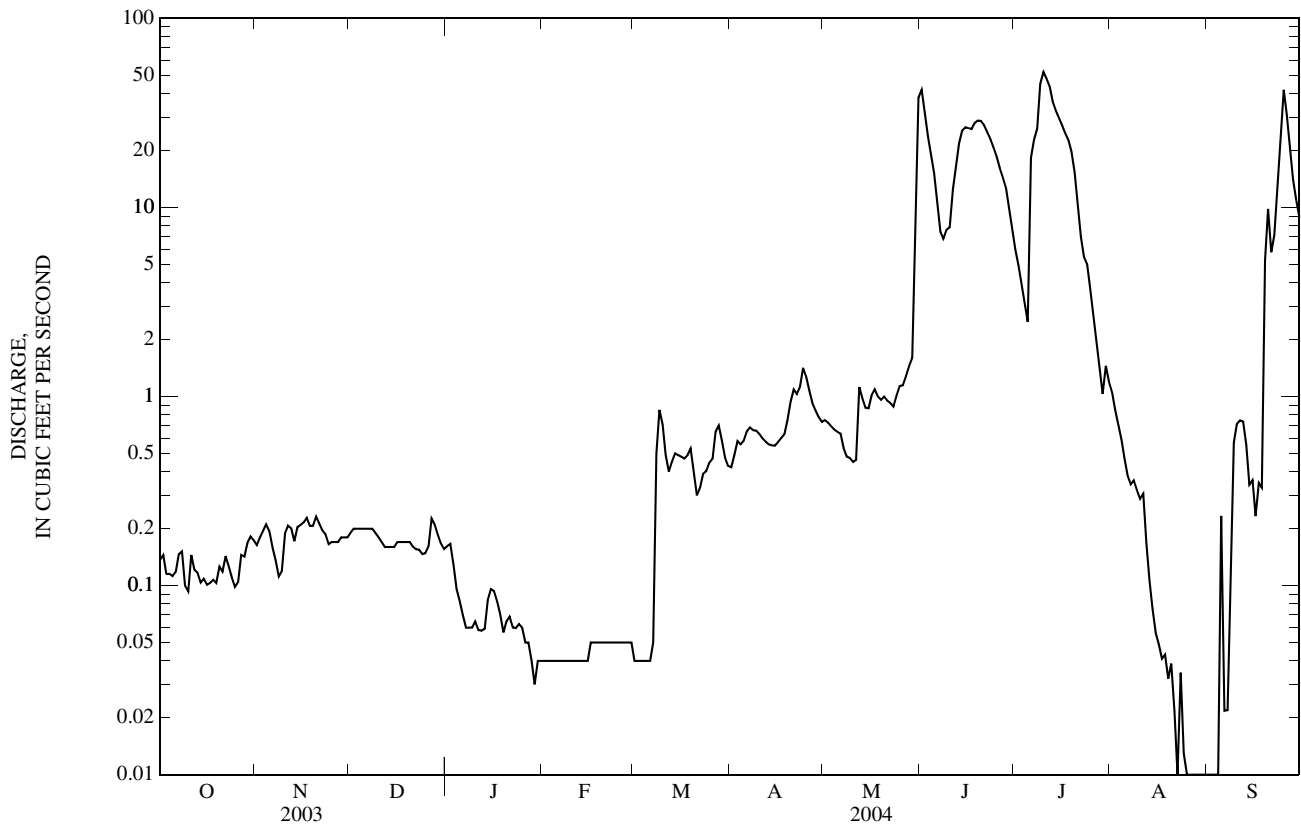
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 2004, BY WATER YEAR (WY)

MEAN	6.27	4.31	2.16	0.84	4.12	37.5	53.5	22.2	15.3	20.9	6.48	4.23
MAX	56.0	25.5	8.19	3.05	45.8	111	297	70.5	61.1	169	50.8	20.6
(WY)	(1996)	(1996)	(1996)	(1996)	(1998)	(1986)	(1997)	(1995)	(1986)	(1993)	(1995)	(1986)
MIN	0.01	0.06	0.03	0.00	0.00	0.25	0.75	1.73	0.28	0.02	0.06	0.03
(WY)	(1989)	(1989)	(1990)	(1990)	(1990)	(2001)	(2004)	(1988)	(1988)	(1988)	(2003)	(1988)

06479215 BIG SIOUX RIVER NEAR FLORENCE, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1985 - 2004	
ANNUAL TOTAL	1,461.04		1,443.41			
ANNUAL MEAN	4.00		3.94		<sup>a</sup> 14.9	
HIGHEST ANNUAL MEAN					39.6	1995
LOWEST ANNUAL MEAN					0.62	1988
HIGHEST DAILY MEAN	85	Mar 17	52	Jul 10	1,600	Apr 5, 1997
LOWEST DAILY MEAN	0.01	Aug 16	0.00	Sep 2	<sup>b</sup> 0.00	Aug 9, 1985
ANNUAL SEVEN-DAY MINIMUM	0.01	Aug 15	0.01	Aug 29	0.00	Dec 16, 1989
MAXIMUM PEAK FLOW			54	Jul 10	<sup>c</sup> 2,000	Apr 4, 1997
MAXIMUM PEAK STAGE			4.78	Jul 10	<sup>d</sup> 9.52	Apr 2, 1997
ANNUAL RUNOFF (AC-FT)	2,900		2,860		10,760	
10 PERCENT EXCEEDS	12		17		32	
50 PERCENT EXCEEDS	0.17		0.22		1.6	
90 PERCENT EXCEEDS	0.06		0.04		0.07	

- a Median of annual mean discharges, 9.4 ft<sup>3</sup>/s.
- b No flow for some days in water years 1985, 1990-91, and 2004.
- c Gage height, 9.32 ft.
- d Backwater from ice.
- e Estimated.



## 06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD

LOCATION.--Lat 45°00'22", long 97°09'53", in NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  sec.16, T.118 NR., R.52 WR., Codington County, Hydrologic Unit 10170202, on left bank at downstream side of county highway bridge, 4.9 mi downstream from Mahoney Creek, 6.5 mi upstream from inlet-outlet to Lake Kampeska, and 7.5 mi northwest of Watertown.

DRAINAGE AREA.--1,007 mi<sup>2</sup>, of which 779 mi<sup>2</sup> usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi<sup>2</sup> of the usually noncontributing area).

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR SD-78-1: 1973-74(M), 1976-77(M). WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,725.81 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.05	0.82	e0.69	e0.91	e0.06	e0.11	8.2	7.1	51	5.9	2.8	0.76
2	0.11	0.92	e0.66	e0.90	e0.06	e0.12	7.3	5.7	71	5.7	2.5	0.69
3	0.13	1.1	e0.65	e0.76	e0.06	e0.12	7.0	4.9	61	6.1	2.8	0.56
4	0.13	1.2	e0.61	e0.52	e0.06	e0.12	6.6	4.6	49	14	2.8	0.54
5	0.13	1.2	e0.78	e0.35	e0.06	e0.12	6.0	4.3	39	27	2.4	1.1
6	0.14	1.1	e0.83	e0.28	e0.06	e0.13	5.8	3.9	32	21	2.1	1.4
7	0.14	1.0	e0.90	e0.24	e0.06	e0.15	5.5	4.5	25	27	1.9	2.4
8	0.20	1.1	e0.90	e0.23	e0.06	e1.0	5.5	3.6	25	51	1.8	3.2
9	0.18	1.1	e0.76	e0.22	e0.06	e4.0	4.9	3.2	27	46	1.6	2.6
10	0.20	1.3	e0.54	e0.21	e0.06	e6.1	4.5	3.0	29	29	1.6	2.1
11	0.39	1.6	e0.50	e0.20	e0.06	e6.4	4.6	3.1	33	23	1.9	2.1
12	0.26	1.7	e0.48	e0.20	e0.06	e6.2	4.2	4.8	37	25	2.4	2.2
13	0.22	1.4	e0.47	e0.20	e0.06	e7.0	3.9	7.3	35	23	1.2	2.2
14	0.22	1.7	e0.47	e0.20	e0.07	e8.2	3.9	8.5	32	21	0.91	2.3
15	0.22	1.7	e0.41	e0.17	e0.08	e9.0	3.8	8.0	34	17	0.78	3.5
16	0.24	1.7	e0.37	e0.16	e0.08	e10	3.7	8.1	41	14	0.94	4.0
17	0.34	1.8	e0.47	e0.15	e0.08	e12	4.0	9.4	46	11	0.94	3.8
18	0.47	1.7	e0.50	e0.13	e0.08	e15	3.8	9.4	39	9.2	0.73	3.4
19	0.45	1.7	e0.46	e0.11	e0.08	e15	4.5	9.6	31	7.9	0.61	3.3
20	0.41	1.7	e0.50	e0.10	e0.08	e13	7.0	8.7	25	7.0	0.61	3.7
21	0.41	e1.2	e0.58	e0.09	e0.08	e11	12	7.9	21	6.4	0.59	6.1
22	0.43	e1.1	e0.60	e0.09	e0.08	e12	16	6.9	18	5.7	0.53	11
23	0.43	e1.0	e0.60	e0.09	e0.08	e13	13	6.4	15	5.1	0.80	16
24	0.44	e0.82	e0.65	e0.09	e0.09	14	11	6.8	13	4.2	0.99	21
25	0.38	e0.57	e0.66	e0.08	e0.09	15	10	7.3	11	3.4	0.87	23
26	0.40	e0.48	e0.69	e0.07	e0.10	15	9.9	8.3	9.4	3.0	0.71	27
27	0.52	e0.43	e0.90	e0.07	e0.10	13	8.4	8.6	8.7	2.8	0.63	34
28	0.59	e0.40	e1.0	e0.06	e0.10	13	7.4	8.4	7.7	2.7	0.64	28
29	0.74	e0.41	e1.2	e0.05	e0.10	13	6.8	8.1	6.9	2.7	0.68	24
30	1.1	e0.62	e1.1	e0.06	---	10	6.0	11	6.4	2.9	0.67	18
31	0.86	---	e1.0	e0.06	---	9.1	---	24	---	3.0	0.84	---
TOTAL	10.93	34.57	20.93	7.05	2.15	251.87	205.2	225.4	879.1	432.7	41.27	253.95
MEAN	0.35	1.15	0.68	0.23	0.07	8.12	6.84	7.27	29.3	14.0	1.33	8.46
MAX	1.1	1.8	1.2	0.91	0.10	15	16	24	71	51	2.8	34
MIN	0.05	0.40	0.37	0.05	0.06	0.11	3.7	3.0	6.4	2.7	0.53	0.54
AC-FT	22	69	42	14	4.3	500	407	447	1,740	858	82	504

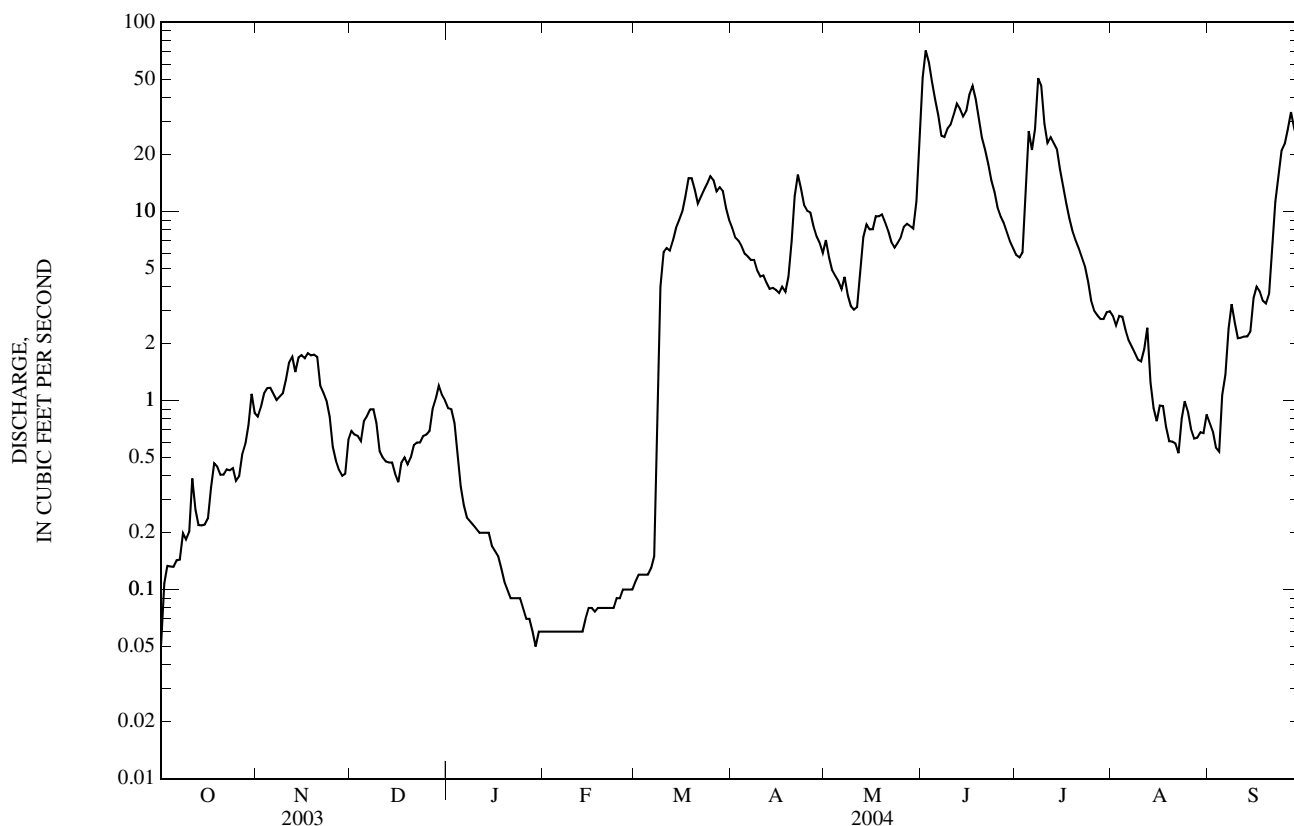
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2004, BY WATER YEAR (WY)

MEAN	16.6	13.9	6.79	3.00	9.64	98.3	164	63.5	50.3	45.1	19.4	11.8
MAX	221	155	55.7	26.5	120	321	1,415	290	184	467	190	125
(WY)	(1996)	(1996)	(1996)	(1996)	(1998)	(1986)	(1997)	(1995)	(1995)	(1993)	(1995)	(1995)
MIN	0.03	0.10	0.01	0.00	0.00	0.26	2.95	0.57	0.03	0.05	0.04	0.03
(WY)	(1989)	(1989)	(1977)	(1977)	(1977)	(1975)	(1990)	(1981)	(1976)	(1976)	(1976)	(1982)

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1973 - 2004	
ANNUAL TOTAL	3,073.33		2,365.12		a41.9	
ANNUAL MEAN	8.42		6.46		155	
HIGHEST ANNUAL MEAN					2.22 1981	
LOWEST ANNUAL MEAN					6,400 Apr 5, 1997	
HIGHEST DAILY MEAN	200	Mar 17	71	Jun 2	0.00	Feb 1, 1974
LOWEST DAILY MEAN	0.05	Oct 1	0.05	Oct 1	0.00	Feb 1, 1974
ANNUAL SEVEN-DAY MINIMUM	0.12	Sep 30	0.06	Jan 28	0.00	Apr 7, 2001
MAXIMUM PEAK FLOW			c75	Jun 2	8,000	Apr 7, 2001
MAXIMUM PEAK STAGE			d4.82	Feb 24	d12.33	Apr 7, 2001
ANNUAL RUNOFF (AC-FT)	6,100		4,690		30,370	
10 PERCENT EXCEEDS	25		21		82	
50 PERCENT EXCEEDS	0.90		1.7		5.2	
90 PERCENT EXCEEDS	0.18		0.09		0.08	

- a Median of annual mean discharges, 23 ft<sup>3</sup>/s.
- b No flow for many days in some years.
- c Gage height, 4.74 ft.
- d Backwater from ice.
- e Estimated.



## 06479449 LAKE KAMPESKA AT WATER TREATMENT PLANT, AT WATERTOWN, SD

LOCATION.--Lat 44°55'04", long 97°11'17", in NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> sec.27, T.117 N., R.53 W., Codington County, Hydrologic Unit 10170202, along east/southeast side of Lake Kampeska at Water Treatment Plant northwest of Watertown about 3 mi.

DRAINAGE AREA.--28.8 mi<sup>2</sup>. Does not include upstream drainage area of the Big Sioux River, which can contribute inflow to the lake.

PERIOD OF RECORD.--October 2001 to current year.

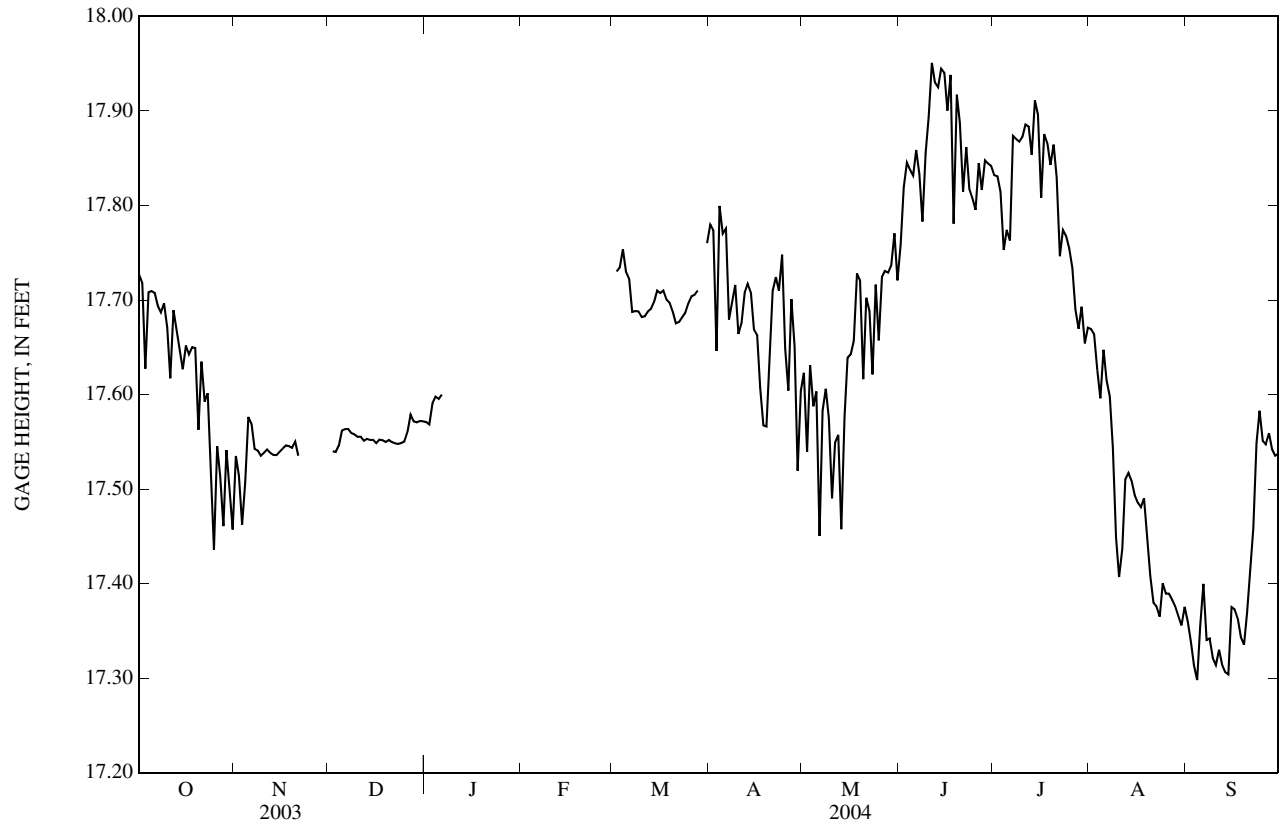
GAGE.--Water-stage recorder. Datum of gage is 1,697.93 ft above NGVD of 1929.

REMARKS.--Published stage records good. Satellite data-collection platform at station. Stage affected by Big Sioux River.

GAGE HEIGHT, FEET  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.73	17.53	---	17.57	---	---	17.78	17.62	17.76	17.83	17.67	17.36
2	17.72	17.51	17.54	17.57	---	17.73	17.77	17.54	17.82	17.83	17.66	17.34
3	17.63	17.46	17.54	17.59	---	17.73	17.65	17.63	17.85	17.81	17.63	17.31
4	17.71	17.51	17.55	17.60	---	17.75	17.80	17.59	17.84	17.75	17.60	17.30
5	17.71	17.58	17.56	17.60	---	17.73	17.77	17.60	17.83	17.77	17.65	17.36
6	17.71	17.57	17.56	17.60	---	17.72	17.78	17.45	17.86	17.76	17.62	17.40
7	17.69	17.54	17.56	---	---	17.69	17.68	17.58	17.83	17.87	17.60	17.34
8	17.69	17.54	17.56	---	---	17.69	17.70	17.61	17.78	17.87	17.54	17.34
9	17.70	17.54	17.56	---	---	17.69	17.72	17.58	17.86	17.87	17.45	17.32
10	17.67	17.54	17.56	---	---	17.68	17.66	17.49	17.89	17.87	17.41	17.31
11	17.62	17.54	17.56	---	---	17.68	17.68	17.55	17.95	17.89	17.44	17.33
12	17.69	17.54	17.55	---	---	17.69	17.71	17.56	17.93	17.88	17.51	17.31
13	17.67	17.54	17.55	---	---	17.69	17.72	17.46	17.93	17.85	17.52	17.31
14	17.65	17.54	17.55	---	---	17.70	17.71	17.58	17.94	17.91	17.51	17.30
15	17.63	17.54	17.55	---	---	17.71	17.67	17.64	17.94	17.90	17.49	17.38
16	17.65	17.54	17.55	---	---	17.71	17.66	17.64	17.90	17.81	17.49	17.37
17	17.64	17.55	17.55	---	---	17.71	17.61	17.66	17.94	17.88	17.48	17.36
18	17.65	17.55	17.55	---	---	17.70	17.57	17.73	17.78	17.87	17.49	17.34
19	17.65	17.54	17.55	---	---	17.70	17.57	17.72	17.92	17.84	17.44	17.34
20	17.56	17.55	17.55	---	---	17.69	17.65	17.62	17.89	17.86	17.41	17.37
21	17.63	17.54	17.55	---	---	17.68	17.71	17.70	17.81	17.83	17.38	17.42
22	17.59	---	17.55	---	---	17.68	17.72	17.69	17.86	17.75	17.38	17.46
23	17.60	---	17.55	---	---	17.68	17.71	17.62	17.82	17.77	17.36	17.55
24	17.53	---	17.55	---	---	17.69	17.75	17.72	17.81	17.77	17.40	17.58
25	17.44	---	17.55	---	---	17.70	17.65	17.66	17.80	17.75	17.39	17.55
26	17.55	---	17.56	---	---	17.70	17.60	17.72	17.84	17.73	17.39	17.55
27	17.51	---	17.58	---	---	17.71	17.70	17.73	17.82	17.69	17.38	17.56
28	17.46	---	17.57	---	---	17.71	17.65	17.73	17.85	17.67	17.38	17.54
29	17.54	---	17.57	---	---	---	17.52	17.74	17.84	17.69	17.37	17.54
30	17.50	---	17.57	---	---	---	17.60	17.77	17.84	17.65	17.36	17.54
31	17.46	---	17.57	---	---	17.76	---	17.72	---	17.67	17.38	---
MEAN	17.62	---	---	---	---	---	17.68	17.63	17.86	17.80	17.48	17.40
MAX	17.73	---	---	---	---	---	17.80	17.77	17.95	17.91	17.67	17.58
MIN	17.44	---	---	---	---	---	17.52	17.45	17.76	17.65	17.36	17.30

06479449 LAKE KAMPESKA AT WATER TREATMENT PLANT, AT WATERTOWN, SD—Continued



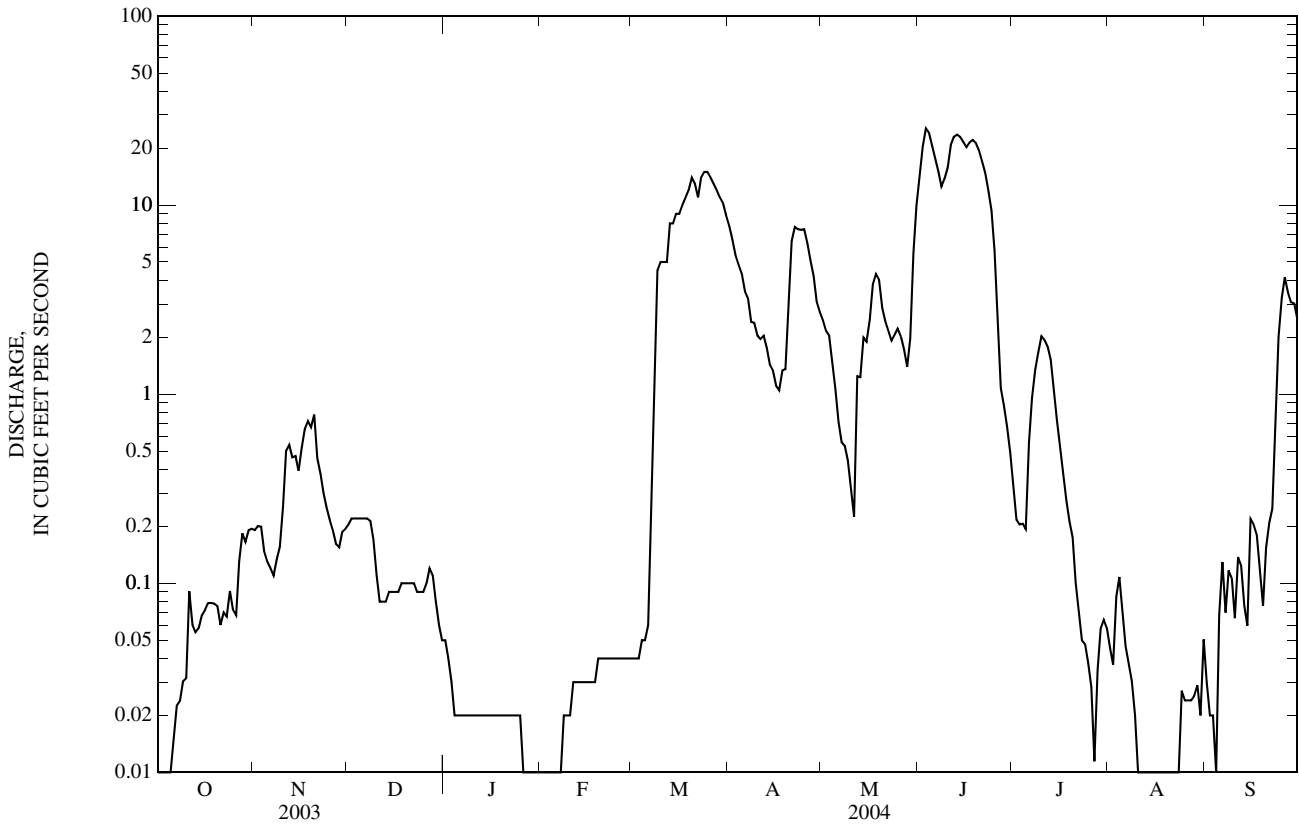




06479500 BIG SIOUX RIVER AT WATERTOWN, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946-1972, 2000-2004	
ANNUAL TOTAL	1,996.11		945.12		32.5	
ANNUAL MEAN	5.47		2.58		0.20	
HIGHEST ANNUAL MEAN					116	2001
LOWEST ANNUAL MEAN					0.20	1959
HIGHEST DAILY MEAN	190	Mar 17	25	Jun 3	2,270	Apr 7, 2001
LOWEST DAILY MEAN	0.00	Feb 24	0.00	Aug 19	<sup>a</sup> 0.00	Dec 9, 1945
ANNUAL SEVEN-DAY MINIMUM	0.00	Feb 24	0.00	Aug 16	0.00	Dec 9, 1945
MAXIMUM PEAK FLOW			26	Jun 3	5,800	Apr 6, 1997
MAXIMUM PEAK STAGE			<sup>b</sup> 4.13	Jun 3	<sup>c</sup> 12.49	Apr 6, 1997
ANNUAL RUNOFF (AC-FT)	3,960		1,870		23,570	
10 PERCENT EXCEEDS	12		10		83	
50 PERCENT EXCEEDS	0.39		0.17		1.9	
90 PERCENT EXCEEDS	0.01		0.02		0.00	

- a No flow at times in most years.
- b Also Mar. 21, backwater from ice.
- c Backwater from ice.
- e Estimated.



## BIG SIOUX RIVER BASIN

06479515 WILLOW CREEK NEAR WATERTOWN, SD

Location.--Lat 44°55'08", long 97°02'43", in NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  sec.27, T.117 N., R.52 W., Codington County, Hydrologic Unit 10170202, on right downstream bank at bridge, about 6.7 river miles upstream from mouth, 3.1 mi east from intersection of U.S. Highways 81 and 212 and then 2.0 mi north.

DRAINAGE AREA.--109 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1971 to September 1986 daily streamflow. October 1996 to September 1997 crest-stage partial record. October 1999 to current year (seasonal mean daily gage heights and yearly instantaneous peak discharge).

REVISED RECORDS.--WDR SD-00-1: 1972(M,P); 1977-80, 1983(M); 1984(M,P, June 15 daily discharge); 1985(M); 1986(M, P, Mar. 27-31 daily discharge).

GAGE.--Water-stage recorder. Datum of gage is 1,731.29 ft above NGVD of 1929, from GPS survey. Prior to October 1999, 2 mi downstream at datum 1,721.24 ft above NGVD of 1929.

REMARKS.--Published record good. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

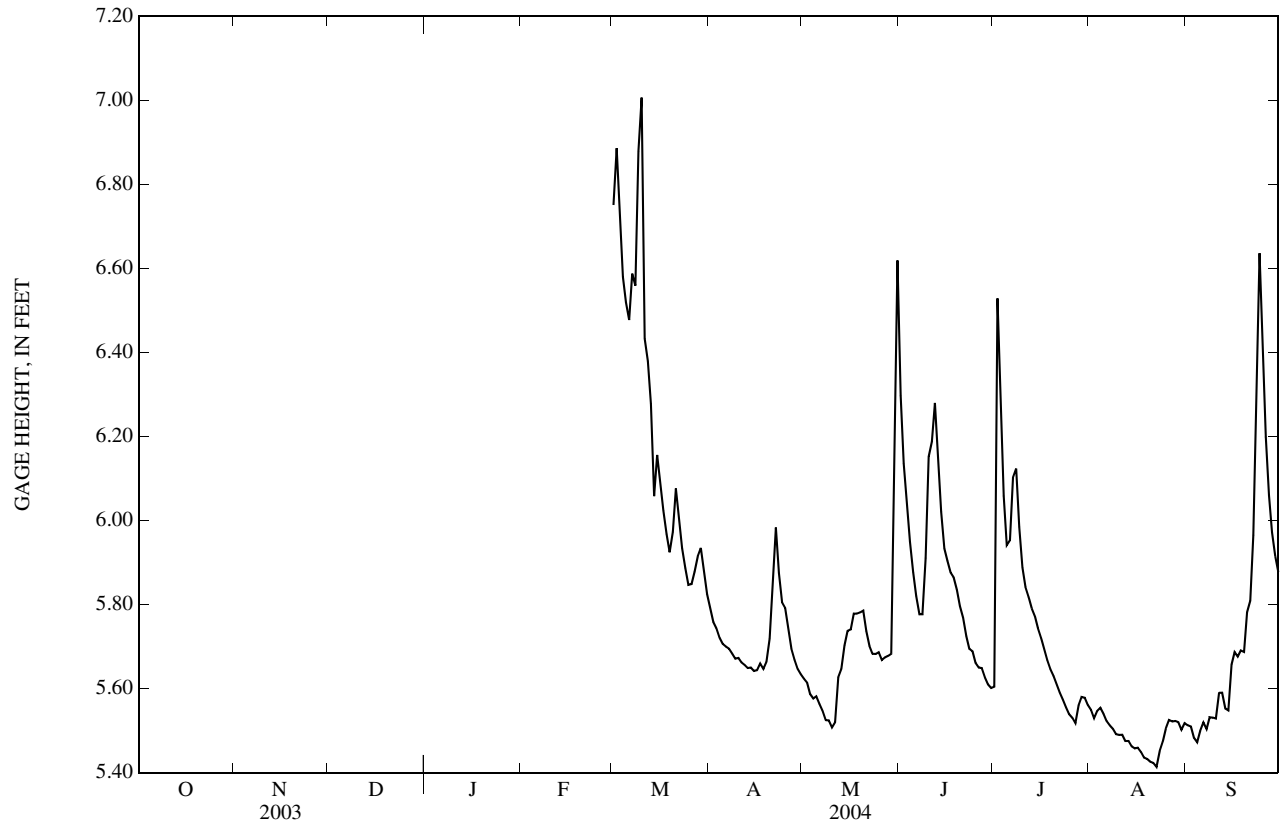
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,650 ft<sup>3</sup>/s, Apr. 5, 1997, gage height, 10.93 ft, from floodmark, at different site and datum; maximum gage height, 12.51 ft, Apr. 7, 2001, backwater from ice.

EXTREMES FOR CURRENT YEAR.--Maximum discharge for water year 2004, 177 ft<sup>3</sup>/s, July 2, gage height, 7.42 ft; maximum gage height, 7.55 ft, Mar. 9, backwater from ice.

GAGE HEIGHT, FEET  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	6.75	5.79	5.62	6.30	5.60	5.55	5.51
2	---	---	---	---	---	6.89	5.76	5.61	6.14	6.53	5.53	5.51
3	---	---	---	---	---	6.76	5.74	5.59	6.04	6.34	5.55	5.48
4	---	---	---	---	---	6.58	5.72	5.58	5.95	6.06	5.55	5.47
5	---	---	---	---	---	6.52	5.71	5.58	5.88	5.94	5.54	5.50
6	---	---	---	---	---	6.48	5.70	5.56	5.82	5.95	5.52	5.52
7	---	---	---	---	---	6.59	5.70	5.55	5.78	6.10	5.51	5.50
8	---	---	---	---	---	6.56	5.68	5.52	5.78	6.12	5.50	5.53
9	---	---	---	---	---	6.88	5.67	5.52	5.91	5.98	5.49	5.53
10	---	---	---	---	---	7.01	5.67	5.51	6.15	5.89	5.49	5.53
11	---	---	---	---	---	6.43	5.66	5.52	6.19	5.84	5.49	5.59
12	---	---	---	---	---	6.38	5.66	5.63	6.28	5.82	5.48	5.59
13	---	---	---	---	---	6.28	5.65	5.65	6.16	5.79	5.48	5.55
14	---	---	---	---	---	6.06	5.65	5.70	6.02	5.77	5.46	5.55
15	---	---	---	---	---	6.16	5.64	5.74	5.93	5.74	5.46	5.66
16	---	---	---	---	---	6.09	5.64	5.74	5.90	5.72	5.46	5.69
17	---	---	---	---	---	6.02	5.66	5.78	5.88	5.69	5.45	5.68
18	---	---	---	---	---	5.97	5.65	5.78	5.86	5.67	5.44	5.69
19	---	---	---	---	---	5.92	5.66	5.78	5.84	5.65	5.43	5.69
20	---	---	---	---	---	5.97	5.72	5.79	5.80	5.63	5.43	5.78
21	---	---	---	---	---	6.08	5.85	5.74	5.77	5.61	5.42	5.81
22	---	---	---	---	---	6.01	5.98	5.70	5.73	5.59	5.41	5.97
23	---	---	---	---	---	5.93	5.88	5.68	5.69	5.57	5.45	6.25
24	---	---	---	---	---	5.89	5.80	5.68	5.69	5.56	5.47	6.64
25	---	---	---	---	---	5.85	5.79	5.69	5.66	5.54	5.51	6.41
26	---	---	---	---	---	5.85	5.74	5.67	5.65	5.53	5.53	6.20
27	---	---	---	---	---	5.88	5.70	5.67	5.65	5.52	5.52	6.06
28	---	---	---	---	---	5.91	5.67	5.68	5.63	5.56	5.52	5.97
29	---	---	---	---	---	5.93	5.65	5.68	5.61	5.58	5.52	5.92
30	---	---	---	---	---	5.88	5.63	6.07	5.60	5.58	5.50	5.88
31	---	---	---	---	---	5.83	---	6.62	---	5.56	5.52	---
MEAN	---	---	---	---	---	6.24	5.71	5.70	5.88	5.78	5.49	5.76
MAX	---	---	---	---	---	7.01	5.98	6.62	6.30	6.53	5.55	6.64
MIN	---	---	---	---	---	5.83	5.63	5.51	5.60	5.52	5.41	5.47

06479515 WILLOW CREEK NEAR WATERTOWN, SD—Continued



## 06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD

LOCATION.--Lat 44°50'52", long 97°02'57", in NE $\frac{1}{4}$  NE $\frac{1}{4}$  NE $\frac{1}{4}$  sec.22, T.116 N., R.52 W., Codington County, Hydrologic Unit 10170202, on left bank near the downstream end of bridge on township gravel road, 3.0 river miles downstream from mouth of Willow Creek, 3.3 river miles upstream from the Codington-Hamlin County line, and 4.1 mi southeast of Watertown.

DRAINAGE AREA.--1,902 mi<sup>2</sup>, of which 1,391 mi<sup>2</sup> usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi<sup>2</sup> of the usually noncontributing area).

PERIOD OF RECORD.--October 1994 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,694.29 ft above NGVD of 1929.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	e6.0	5.3	e5.8	e1.8	e30	14	8.8	71	16	8.0	7.1
2	4.9	e6.0	5.2	e5.6	e1.8	e26	13	8.3	44	44	7.4	7.0
3	5.0	e5.8	5.4	e5.0	e1.8	e26	12	8.1	38	95	9.3	7.0
4	4.6	e5.5	5.1	e3.5	e1.8	e25	11	7.7	29	55	8.9	7.0
5	4.6	e5.7	e4.9	e2.8	e1.8	e23	11	7.6	26	30	6.7	16
6	4.7	e5.5	e4.8	e2.9	e1.9	e24	10	7.2	21	61	6.7	14
7	4.9	e5.8	4.6	e3.0	e1.9	e28	9.9	5.9	20	30	7.0	8.1
8	4.9	e6.0	4.5	e3.5	e2.0	e35	9.7	5.9	21	34	7.0	10
9	5.1	e6.0	e4.2	e3.5	e2.0	e35	9.5	5.6	42	26	6.8	8.5
10	4.8	6.7	e3.8	e3.0	e2.0	e34	9.4	5.2	33	20	6.5	7.8
11	10	7.3	e3.7	e2.6	e2.0	e31	9.1	5.4	79	18	6.3	15
12	6.1	8.8	e3.7	e2.2	e2.0	e29	8.9	38	66	16	5.9	8.6
13	5.6	11	e3.8	e2.0	e2.0	e31	8.8	8.8	66	15	5.9	9.1
14	5.6	7.6	e4.0	e2.0	e2.0	e34	8.3	7.2	57	11	5.9	8.5
15	5.3	6.7	e4.2	e2.0	e2.1	e35	8.2	7.8	37	11	5.8	50
16	5.3	6.8	e4.2	e2.0	e2.2	e35	7.3	18	33	10	6.1	20
17	5.6	7.2	e4.2	e1.9	e2.5	e36	7.2	20	33	9.7	6.0	13
18	5.5	7.2	e4.2	e1.7	e2.9	e34	8.6	10	32	9.2	6.0	11
19	5.4	7.0	e4.0	e1.8	e3.0	e31	10	9.9	32	9.0	5.7	11
20	5.7	7.3	e4.0	e1.8	e3.4	e27	26	10	33	8.9	5.6	60
21	5.3	6.1	e4.0	e1.8	e4.2	e23	25	10	29	9.3	5.7	29
22	5.6	e6.0	e4.0	e1.8	e5.0	e21	15	9.6	26	8.5	5.6	43
23	5.4	e5.4	e4.0	e1.8	e6.0	e19	17	9.4	24	7.3	13	94
24	6.1	e5.5	e4.5	e1.8	e6.0	e17	14	10	25	7.3	16	95
25	5.6	e5.8	e4.8	e1.8	e5.5	e16	13	11	21	7.4	7.3	81
26	5.5	e6.2	e5.7	e1.8	e5.5	e15	12	8.9	19	7.4	7.4	50
27	6.2	e6.2	e6.5	e1.8	e6.0	e17	10	9.5	18	7.4	6.8	32
28	6.7	e5.9	e7.5	e1.7	e10	e20	10	8.5	20	12	6.8	23
29	5.5	e5.8	e7.1	e1.6	e20	e18	9.7	14	19	10	6.7	20
30	6.8	5.8	e6.0	e1.7	---	e16	9.2	77	17	9.1	6.8	19
31	6.4	---	e5.8	e1.7	---	e15	---	89	---	9.1	9.5	---
TOTAL	173.5	194.6	147.7	77.9	111.1	806	346.8	462.3	1,031	623.6	225.1	784.7
MEAN	5.60	6.49	4.76	2.51	3.83	26.0	11.6	14.9	34.4	20.1	7.26	26.2
MAX	10	11	7.5	5.8	20	36	26	89	79	95	16	95
MIN	4.6	5.4	3.7	1.6	1.8	15	7.2	5.2	17	7.3	5.6	7.0
AC-FT	344	386	293	155	220	1,600	688	917	2,040	1,240	446	1,560

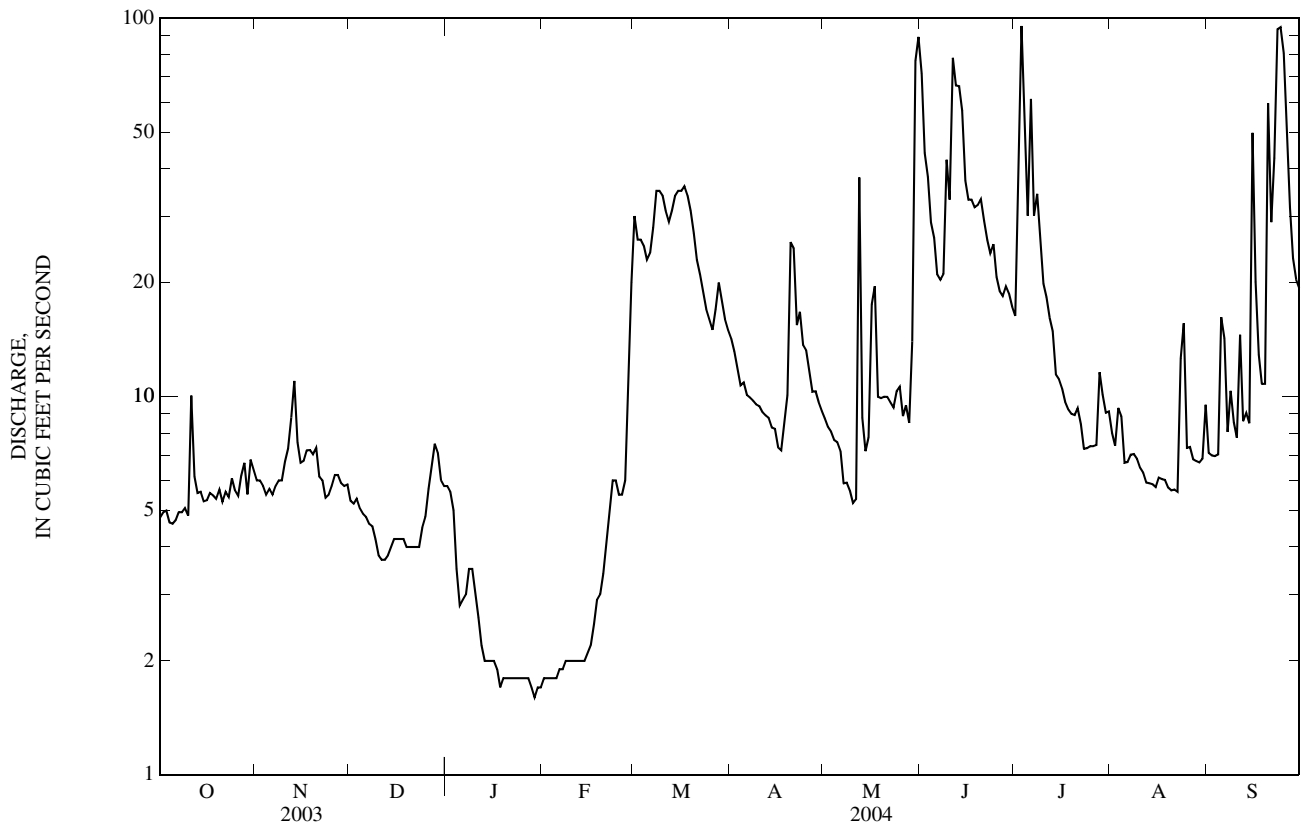
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2004, BY WATER YEAR (WY)

MEAN	62.6	69.8	45.1	25.8	57.5	130	561	318	168	82.7	51.8	38.2
MAX	366	356	183	88.7	210	385	2,309	814	469	321	234	237
(WY)	(1996)	(1996)	(1996)	(1996)	(1998)	(1996)	(1997)	(1997)	(1995)	(1995)	(1995)	(1995)
MIN	5.07	6.49	4.76	2.51	2.12	6.06	11.6	14.9	20.9	11.0	6.47	4.53
(WY)	(2001)	(2004)	(2004)	(2004)	(2001)	(2001)	(2004)	(2004)	(2000)	(2002)	(2003)	(2000)

06479520 BIG SIOUX RIVER BELOW WATERTOWN, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1995 - 2004	
ANNUAL TOTAL	6,855.1		4,984.3		<sup>a</sup> 134	
ANNUAL MEAN	18.8		13.6		311	
HIGHEST ANNUAL MEAN					12.2	
LOWEST ANNUAL MEAN					1997	
HIGHEST DAILY MEAN	400	Mar 16	95	Jul 3	4,350	Apr 11, 1997
LOWEST DAILY MEAN	1.9	Mar 9	1.6	Jan 29	1.0	Feb 10, 2001
ANNUAL SEVEN-DAY MINIMUM	2.1	Feb 12	1.7	Jan 25	1.6	Feb 10, 2001
MAXIMUM PEAK FLOW			<sup>b</sup> 146	Sep 23	<sup>c</sup> 6,700	Apr 11, 1997
MAXIMUM PEAK STAGE			<sup>d</sup> 7.36	Mar 10	<sup>d</sup> 13.13	Apr 2, 1997
ANNUAL RUNOFF (AC-FT)	13,600		9,890		97,000	
10 PERCENT EXCEEDS	35		32		364	
50 PERCENT EXCEEDS	6.5		7.4		30	
90 PERCENT EXCEEDS	2.7		2.4		5.5	

- a Median of annual mean discharges, 114 ft<sup>3</sup>/s.
- b Gage height, 5.71 ft.
- c Gage height, 12.99 ft.
- d Backwater from ice.
- e Estimated.



## 06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'54", long 97°02'39", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.26, T.115 N., R.52 W., Hamlin County, Hydrologic Unit 10170202, on right bank at upstream side of bridge on State Highway 22, 3.2 mi east of intersection of U.S. Highway 81 and State Highway 22, and 1.0 mi northwest of Castlewood.

DRAINAGE AREA.--1,997 mi<sup>2</sup>, of which 1,427 mi<sup>2</sup> usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi<sup>2</sup> of the usually noncontributing area).

PERIOD OF RECORD.--October 1976 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,667.52 ft above NGVD of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	6.9	e5.5	e6.2	e2.2	e33	20	8.0	93	65	10	9.3
2	5.3	5.9	e5.4	e5.8	e2.2	e30	18	7.4	55	61	9.2	6.9
3	5.0	e6.0	e5.6	e5.4	e2.2	e30	17	6.8	41	125	8.9	6.2
4	4.8	e6.0	e5.0	e4.2	e2.2	e29	16	6.9	36	153	11	5.4
5	4.6	e6.0	e5.0	e3.4	e2.2	e30	15	6.2	31	100	9.8	6.3
6	4.8	e6.0	e5.0	e3.2	e2.2	e31	15	6.1	28	88	7.8	17
7	4.9	e6.0	e5.0	e3.4	e2.4	e36	14	5.4	23	113	7.5	10
8	4.9	e6.3	e5.0	e3.8	e2.4	e42	14	5.5	23	73	7.3	8.9
9	4.5	e6.5	e4.8	e4.1	e2.5	e39	13	5.4	34	82	7.0	10
10	5.0	e8.0	e4.4	e3.9	e2.7	e37	12	5.0	48	68	6.0	8.1
11	5.2	e7.5	e4.0	e3.5	e2.7	e36	12	4.9	71	59	5.2	8.4
12	9.6	e7.0	e4.0	e3.1	e2.7	e34	11	22	90	51	5.0	15
13	5.5	e5.5	e4.0	e2.9	e2.4	e35	11	17	93	43	5.0	9.0
14	5.1	e11	e4.1	e2.9	e2.5	e38	11	7.5	94	38	5.2	8.8
15	5.0	e7.5	e4.1	e3.0	e2.5	e39	10	6.7	87	32	5.8	12
16	4.8	e7.5	e4.2	e3.0	e2.6	e39	9.4	8.7	78	28	7.0	49
17	5.1	e7.5	e4.3	e2.9	e2.7	e40	8.7	22	75	21	6.3	18
18	5.2	e7.5	e4.4	e2.8	e3.4	e39	8.7	12	77	20	6.1	14
19	5.2	e7.5	e4.3	e2.6	e3.6	e38	10	9.5	79	17	5.1	12
20	4.8	e7.5	e4.3	e2.6	e4.1	e36	14	9.1	83	14	4.5	18
21	4.9	e6.4	e4.5	e2.4	e5.0	e34	37	8.2	86	13	4.5	65
22	4.8	e6.1	e4.4	e2.4	e5.9	e34	21	8.2	82	13	5.2	34
23	5.1	e5.8	e4.5	e2.3	e6.5	e33	19	7.5	77	11	5.9	72
24	5.4	e5.6	e5.0	e2.2	e6.7	e30	17	7.2	73	9.8	18	105
25	4.9	e6.0	e5.6	e2.2	e5.8	30	15	8.7	73	8.8	11	95
26	5.2	e6.4	e6.5	e2.2	e5.5	25	13	7.2	70	8.3	8.2	66
27	5.9	e6.3	e7.1	e2.2	e6.1	25	12	7.2	68	7.2	7.3	47
28	4.8	e6.1	e8.0	e2.2	e8.7	32	11	6.7	66	7.5	6.9	36
29	5.7	e5.9	e7.8	e2.2	e22	27	9.6	8.0	66	14	6.8	30
30	5.7	e6.0	e7.5	e2.2	---	25	8.6	50	66	13	6.5	28
31	6.4	---	e6.5	e2.2	---	22	---	66	---	11	7.2	---
TOTAL	163.1	200.2	159.8	97.4	124.6	1,028	423.0	367.0	1,966	1,367.6	227.2	830.3
MEAN	5.26	6.67	5.15	3.14	4.30	33.2	14.1	11.8	65.5	44.1	7.33	27.7
MAX	9.6	11	8.0	6.2	22	42	37	66	94	153	18	105
MIN	4.5	5.5	4.0	2.2	2.2	22	8.6	4.9	23	7.2	4.5	5.4
AC-FT	324	397	317	193	247	2,040	839	728	3,900	2,710	451	1,650

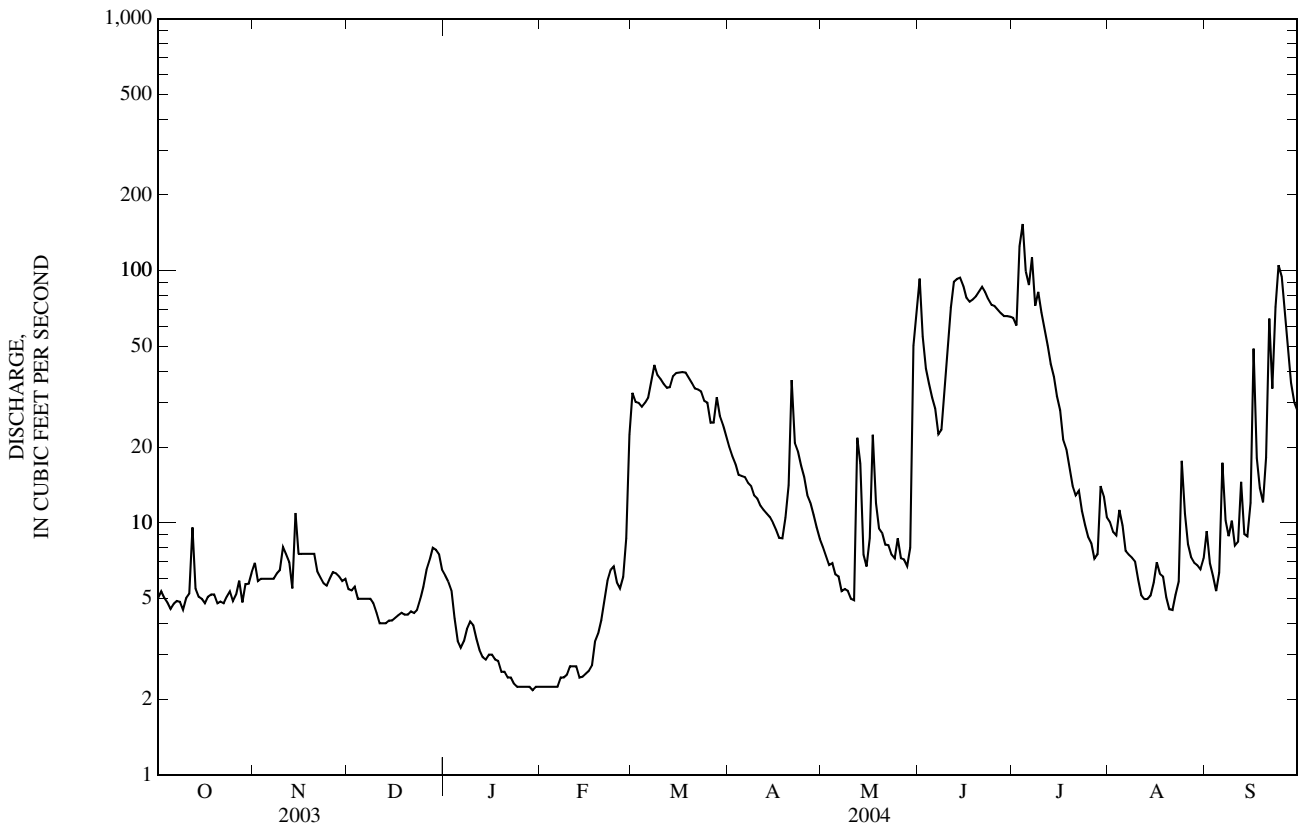
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 2004, BY WATER YEAR (WY)

	43.5	43.1	27.7	15.6	31.9	137	365	195	134	88.6	62.9	42.9
MEAN	424	414	210	96.9	204	562	2,544	834	508	419	375	217
(WY)	(1996)	(1996)	(1996)	(1996)	(1998)	(1994)	(1997)	(1995)	(1995)	(1993)	(1993)	(1995)
MIN	1.06	0.71	0.04	0.00	0.00	0.04	7.60	3.28	3.11	3.17	2.33	2.94
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(2001)	(1990)	(1977)	(1988)	(1988)	(1983)	(1990)

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1977 - 2004	
ANNUAL TOTAL	7,938.8		6,954.2		a99.0	
ANNUAL MEAN	21.8		19.0		333	
HIGHEST ANNUAL MEAN					8.15 1990	
LOWEST ANNUAL MEAN					4,090 Apr 11, 1997	
HIGHEST DAILY MEAN	600	Mar 16	153	Jul 4	b0.00 Dec 30, 1976	
LOWEST DAILY MEAN	2.4	Sep 4	2.2	Jan 24	c0.00 Dec 30, 1976	
ANNUAL SEVEN-DAY MINIMUM	2.6	Feb 13	2.2	Jan 24	d4,300 Apr 11, 1997	
MAXIMUM PEAK FLOW			e199	Jul 3	f13.19 Apr 7, 1997	
MAXIMUM PEAK STAGE			f7.01	Mar 12		
ANNUAL RUNOFF (AC-FT)	15,750		13,790		71,690	
10 PERCENT EXCEEDS	43		62		250	
50 PERCENT EXCEEDS	6.5		7.5		22	
90 PERCENT EXCEEDS	3.2		3.1		2.0	

- a Median of annual mean discharges, 56 ft<sup>3</sup>/s.
- b No flow for many days in some years.
- c Gage height, 6.24 ft.
- d Gage height, 12.87 ft, backwater from ice.
- e Estimated.
- f Backwater from ice.





## 06479770 BIG SIOUX RIVER NEAR BRUCE, SD

LOCATION.--Lat 44°28'04", long 96°53'14", in SE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> sec.36, T.112 N., R.51 W., Brookings County, Hydrologic Unit 10170202, on right bank at downstream end of county highway bridge, 7.4 mi downstream from confluence with Peg Munky Run, 4.9 mi east-northeast of Oakwood Lakes State Park, and 1.8 mi north of Bruce.

DRAINAGE AREA.--To be determined.

PERIOD OF RECORD.--October 2000 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,620 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.8	11	e11	e6.6	e3.8	e30	43	13	82	139	32	9.3
2	6.9	12	e9.6	e6.7	e3.8	e60	42	11	135	151	26	6.5
3	8.8	9.9	e8.3	e7.1	e3.2	e65	41	9.0	107	147	26	5.9
4	8.9	e10	e8.3	e6.9	e3.2	e75	36	8.9	79	139	28	5.6
5	9.7	8.9	e8.3	e6.3	e3.2	e150	36	7.1	69	156	21	6.9
6	10	10	e8.3	e6.0	e3.2	e200	35	7.6	57	236	17	11
7	8.4	10	e8.3	e6.2	e3.8	e175	35	4.7	51	221	17	8.1
8	7.7	9.7	e8.2	e6.6	e3.8	e135	32	5.3	43	202	15	13
9	9.2	9.5	e8.1	e6.2	e4.5	e100	29	4.7	58	198	13	13
10	11	e9.5	e8.0	e6.6	e4.5	e80	27	4.4	143	176	13	9.7
11	13	e12	e7.0	e6.6	e4.5	e50	26	3.3	210	179	12	9.6
12	12	e15	e6.0	e7.0	e4.5	e40	24	4.7	216	164	11	8.4
13	12	e15	e6.0	e7.0	e3.8	e90	23	5.0	231	138	9.4	7.2
14	14	e14	e6.5	e7.0	e3.8	e100	22	14	216	116	8.1	13
15	13	e14	e6.5	e7.0	e3.8	e95	21	8.2	212	102	6.8	18
16	11	e14	e6.5	e6.6	e3.8	e90	21	8.9	208	92	8.3	17
17	11	14	e7.0	e6.0	e3.8	e85	18	12	186	76	7.6	24
18	11	14	e7.0	e6.0	e4.5	e80	17	11	177	71	8.8	37
19	10	13	e6.5	e6.0	e5.1	e75	18	16	168	64	6.8	22
20	9.3	12	e7.0	e5.7	e5.7	e65	22	12	166	60	5.8	22
21	10	12	e7.0	e5.1	e6.4	e60	29	9.2	165	59	8.1	32
22	9.5	e7.5	e6.5	e5.1	e7.7	e50	35	7.9	165	58	7.4	64
23	8.6	e3.0	e5.0	e5.1	e9.6	e50	38	10	164	52	5.5	138
24	9.4	e8.5	e5.5	e5.1	e9.0	e53	29	8.0	165	49	5.1	356
25	11	e10	e6.0	e4.5	e7.0	e55	31	8.3	153	45	6.1	424
26	9.6	e10	e6.5	e4.5	e7.0	53	26	7.1	144	40	34	314
27	9.7	e11	e6.0	e4.5	e7.0	46	20	6.9	136	35	26	230
28	12	e11	e5.5	e4.5	e8.3	52	19	5.4	128	38	17	168
29	11	e11	e5.5	e4.5	e8.5	49	17	5.3	125	34	13	129
30	12	e11	e6.0	e4.5	---	48	14	20	122	28	10	106
31	12	---	e6.5	e4.5	---	44	---	24	---	28	8.4	---
TOTAL	320.5	332.5	218.4	182.0	150.8	2,400	826	282.9	4,281	3,293	433.2	2,228.2
MEAN	10.3	11.1	7.05	5.87	5.20	77.4	27.5	9.13	143	106	14.0	74.3
MAX	14	15	11	7.1	9.6	200	43	24	231	236	34	424
MIN	6.9	3.0	5.0	4.5	3.2	30	14	3.3	43	28	5.1	5.6
AC-FT	636	660	433	361	299	4,760	1,640	561	8,490	6,530	859	4,420

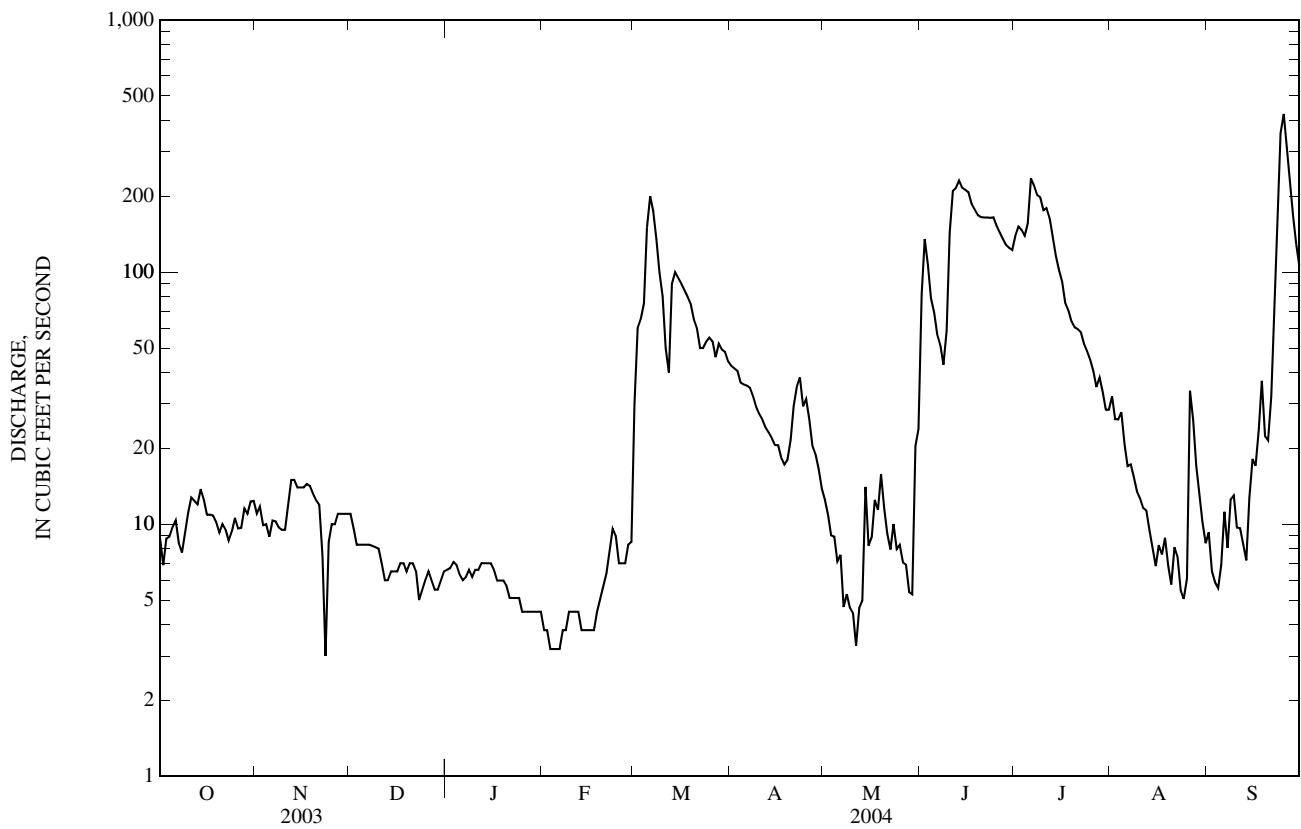
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2004, BY WATER YEAR (WY)

MEAN	53.5	43.0	39.4	19.1	28.8	93.6	587	439	344	217	135	91.2
MAX	160	110	128	59.4	107	151	1,986	1,477	1,112	694	451	256
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)	(2001)	(2001)	(2001)	(2001)	(2001)
MIN	10.3	11.1	3.76	0.39	0.18	4.56	27.5	9.13	32.2	31.3	14.0	9.06
(WY)	(2004)	(2004)	(2001)	(2001)	(2001)	(2001)	(2004)	(2004)	(2003)	(2003)	(2004)	(2003)

06479770 BIG SIOUX RIVER NEAR BRUCE, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 2001 - 2004	
ANNUAL TOTAL	12,271.8		14,948.5		174	
ANNUAL MEAN	33.6		40.8		502	
HIGHEST ANNUAL MEAN					2001	
LOWEST ANNUAL MEAN					2003	
HIGHEST DAILY MEAN	800	Mar 17	424	Sep 25	3,540	Apr 9, 2001
LOWEST DAILY MEAN	2.8	Mar 9	3.0	Nov 23	0.10	Feb 10, 2001
ANNUAL SEVEN-DAY MINIMUM	3.3	Feb 13	3.5	Feb 1	0.14	Feb 8, 2001
MAXIMUM PEAK FLOW			458	Sep 25	3,810	Apr 9, 2001
MAXIMUM PEAK STAGE			4.95	Sep 25	10.60	Apr 9, 2001
ANNUAL RUNOFF (AC-FT)	24,340		29,650		126,300	
10 PERCENT EXCEEDS	68		139		415	
50 PERCENT EXCEEDS	13		12		29	
90 PERCENT EXCEEDS	4.1		5.1		3.9	

e Estimated.



## BIG SIOUX RIVER BASIN

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44°10'48", long 96°44'55", in NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> sec.8, T.108 N., R.49 W., Moody County, Hydrologic Unit 10170203, on right bank 3 ft downstream from highway bridge, 2.2 mi downstream from Medary Creek, and 9.5 mi southeast of Brookings.

DRAINAGE AREA.--3,898 mi<sup>2</sup>, of which 1,479 mi<sup>2</sup> usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi<sup>2</sup> of the usually noncontributing area).

PERIOD OF RECORD.--August 1953 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,551.91 ft above NGVD of 1929. Prior to May 30, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	20	e19	e16	e11	e50	103	71	342	97	58	37
2	13	20	e18	e17	e12	e60	97	67	358	97	57	33
3	13	21	e16	e19	e12	e200	92	64	345	95	59	34
4	13	23	e15	e17	e12	e300	85	63	321	105	60	29
5	12	17	e15	e14	e12	e250	84	60	279	96	57	30
6	12	16	e16	e13	e13	e230	82	59	266	108	56	31
7	12	16	e18	e14	e14	e210	79	53	257	121	56	31
8	13	18	e19	e14	e14	e230	76	51	206	123	51	32
9	12	19	e15	e15	e15	e250	73	48	189	115	46	31
10	12	20	e14	e16	e14	159	71	47	203	112	43	31
11	16	21	e12	e17	e14	165	69	43	257	141	42	32
12	15	24	e11	e19	e14	189	68	47	378	152	42	30
13	18	22	e12	e19	e13	133	67	44	430	182	41	30
14	17	22	e13	e20	e13	109	64	43	448	216	40	29
15	17	22	e13	e20	e13	113	62	43	396	202	39	40
16	17	24	e15	e19	e13	118	61	59	351	202	46	50
17	18	26	e16	e19	e14	114	59	127	341	192	39	49
18	17	27	e16	e17	e14	122	58	178	317	162	38	44
19	16	26	e18	e16	e16	125	60	193	294	139	35	44
20	16	25	e17	e14	e17	122	67	184	260	121	34	57
21	15	25	e18	e14	e19	125	99	161	222	115	34	79
22	15	24	e17	e13	e22	103	111	166	191	106	36	95
23	15	e14	e16	e13	e22	98	117	154	165	95	32	168
24	15	e17	e17	e13	e20	95	119	184	153	90	35	310
25	15	e16	e16	e13	e19	95	114	199	145	87	33	390
26	14	e16	e16	e11	e20	96	103	204	129	83	34	497
27	16	e18	e17	e11	e25	100	96	201	120	79	37	490
28	18	e18	e18	e10	e30	110	89	181	112	78	50	400
29	18	e19	e19	e10	e45	112	81	168	105	71	47	318
30	19	e19	e18	e10	---	110	75	200	99	65	42	258
31	20	---	e17	e10	---	109	---	279	---	60	41	---
TOTAL	472	615	497	463	492	4,402	2,481	3,641	7,679	3,707	1,360	3,729
MEAN	15.2	20.5	16.0	14.9	17.0	142	82.7	117	256	120	43.9	124
MAX	20	27	19	20	45	300	119	279	448	216	60	497
MIN	12	14	11	10	11	50	58	43	99	60	32	29
AC-FT	936	1,220	986	918	976	8,730	4,920	7,220	15,230	7,350	2,700	7,400

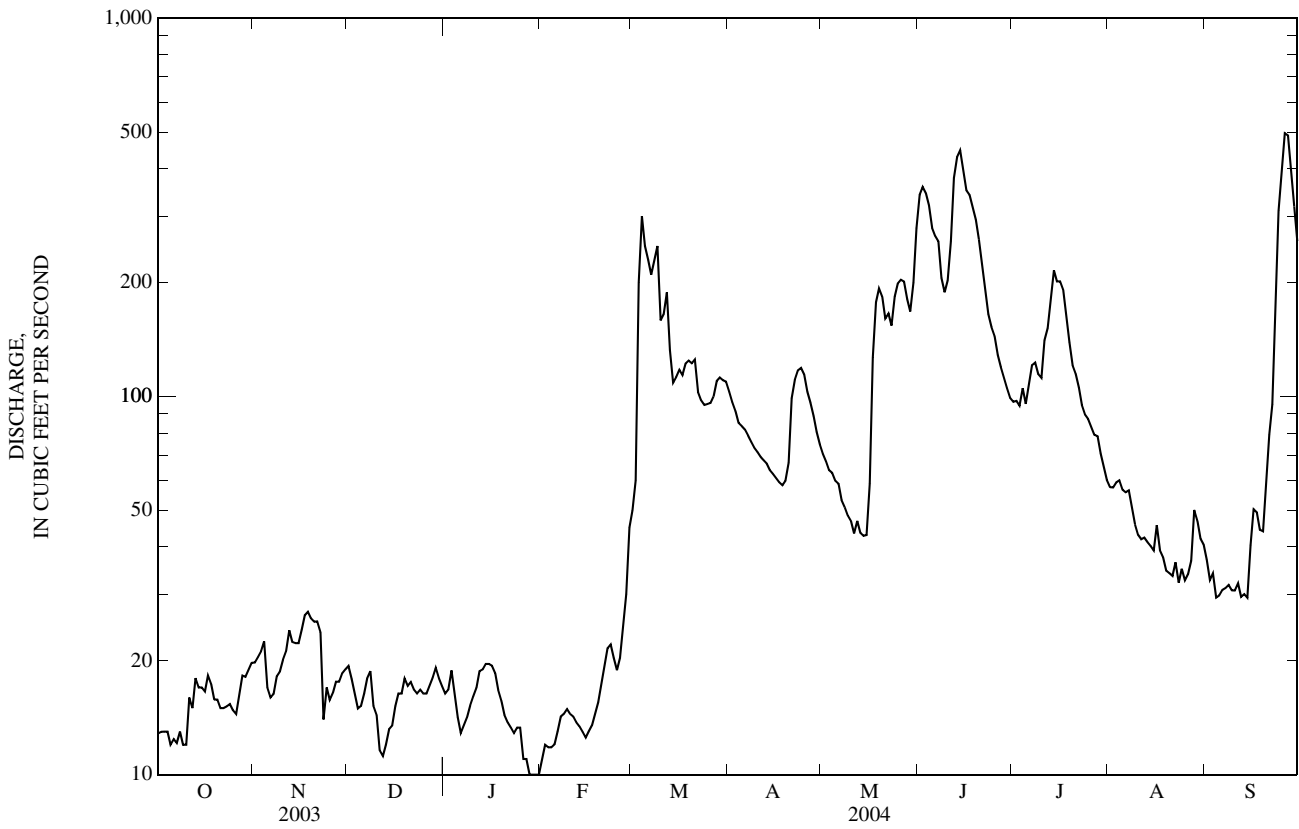
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2004, BY WATER YEAR (WY)

MEAN	141	117	71.4	38.2	70.0	484	938	554	581	336	198	154
MAX	1,424	1,007	563	284	606	2,037	5,717	2,804	3,432	3,269	1,553	1,693
(WY)	(1996)	(1996)	(1996)	(1996)	(1998)	(1985)	(1997)	(1986)	(1984)	(1993)	(1993)	(1986)
MIN	0.04	0.09	0.09	0.00	0.00	1.45	27.3	21.4	13.5	0.94	0.02	0.01
(WY)	(1977)	(1977)	(1977)	(1977)	(1956)	(1975)	(1959)	(1959)	(1976)	(1976)	(1976)	(1976)

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1954 - 2004	
ANNUAL TOTAL	22,677.5		29,538		<sup>a</sup> 307	
ANNUAL MEAN	62.1		80.7		1,174	
HIGHEST ANNUAL MEAN					15.5	
LOWEST ANNUAL MEAN					31,200	
HIGHEST DAILY MEAN	873	Mar 19	497	Sep 26	0.00	Apr 9, 1969
LOWEST DAILY MEAN	7.0	Mar 9	10	Jan 28	0.00	Jan 18, 1956
ANNUAL SEVEN-DAY MINIMUM	7.7	Mar 4	10	Jan 26	0.00	Jan 18, 1956
MAXIMUM PEAK FLOW			<sup>c</sup> 521	Sep 26	33,900	Apr 9, 1969
MAXIMUM PEAK STAGE			<sup>d</sup> 4.66	Mar 4	14.77	Apr 9, 1969
ANNUAL RUNOFF (AC-FT)	44,980		58,590		222,500	
10 PERCENT EXCEEDS	168		202		800	
50 PERCENT EXCEEDS	21		42		68	
90 PERCENT EXCEEDS	8.5		14		5.0	

- a Median of annual mean discharges, 170 ft<sup>3</sup>/s.
- b No flow at times in 1956, 1976, 1977, and 1982.
- c Gage height, 4.44 ft.
- d Backwater from ice.
- e Estimated.



## BIG SIOUX RIVER BASIN

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD

LOCATION.--Lat 43°47'25", long 96°44'42", in NW¼ NW¼ sec.29, T.104 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on left bank at downstream side of highway bridge, 0.2 mi downstream from confluence of divided channels, and 3.0 mi southwest of Dell Rapids.

DRAINAGE AREA.--4,483 mi<sup>2</sup>, of which 1,479 mi<sup>2</sup> usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi<sup>2</sup> of the usually noncontributing area).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1948 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,455.99 ft above NGVD of 1929. Prior to Nov. 11, 1949, nonrecording gage and Nov. 11, 1949, to Sept. 30, 1951, water-stage recorder, at present site at datum 0.04 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	36	e25	e23	e17	e350	178	114	1,030	193	137	58
2	25	36	e24	e25	e16	e700	167	109	835	185	125	52
3	23	37	e23	e25	e16	e900	155	106	677	271	167	48
4	23	39	e22	e25	e16	e700	149	94	582	272	260	47
5	24	39	e21	e21	e16	e550	143	96	518	303	264	47
6	24	38	e23	e18	e17	e475	134	87	467	320	189	49
7	24	36	e24	e18	e18	e425	127	86	420	302	158	47
8	25	34	e26	e19	e18	e400	119	81	381	278	130	47
9	25	34	e25	e20	e19	e400	117	80	363	263	110	47
10	27	36	e24	e21	e19	e350	112	74	363	247	99	47
11	28	34	e21	e22	e18	e300	106	81	439	301	92	43
12	33	34	e17	e23	e18	e280	105	73	529	635	89	43
13	31	38	e18	e24	e17	e260	101	66	638	442	84	43
14	31	45	e20	e24	e17	e255	101	69	679	479	82	43
15	30	43	e20	e24	e17	e250	99	72	640	478	79	54
16	30	43	e21	e24	e17	e245	93	81	612	430	73	56
17	32	46	e22	e23	e17	e240	93	113	914	404	69	60
18	32	39	e23	e22	e18	e235	93	111	986	383	65	64
19	32	39	e24	e21	e20	217	86	153	860	339	62	76
20	30	37	e25	e19	e21	194	96	211	670	298	59	72
21	31	39	e25	e18	e23	191	108	229	534	392	59	69
22	31	37	e24	e18	e25	180	112	224	453	538	56	82
23	31	32	e24	e18	e27	181	131	224	394	382	56	119
24	30	e27	e24	e18	e25	164	155	246	350	289	54	164
25	29	e27	e24	e18	e23	156	161	239	312	237	53	247
26	31	e28	e24	e18	e21	154	157	265	285	206	51	343
27	32	e28	e25	e18	e20	167	154	286	270	185	51	386
28	29	e27	e27	e18	e40	179	146	295	245	173	50	443
29	34	e26	e28	e18	e80	187	131	332	226	170	50	439
30	33	e26	e27	e18	---	187	123	1,550	209	160	50	396
31	35	---	e25	e17	---	186	---	1,620	---	147	56	---
TOTAL	899	1,060	725	638	636	9,658	3,752	7,467	15,881	9,702	2,979	3,731
MEAN	29.0	35.3	23.4	20.6	21.9	312	125	241	529	313	96.1	124
MAX	35	46	28	25	80	900	178	1,620	1,030	635	264	443
MIN	23	26	17	17	16	154	86	66	209	147	50	43
AC-FT	1,780	2,100	1,440	1,270	1,260	19,160	7,440	14,810	31,500	19,240	5,910	7,400

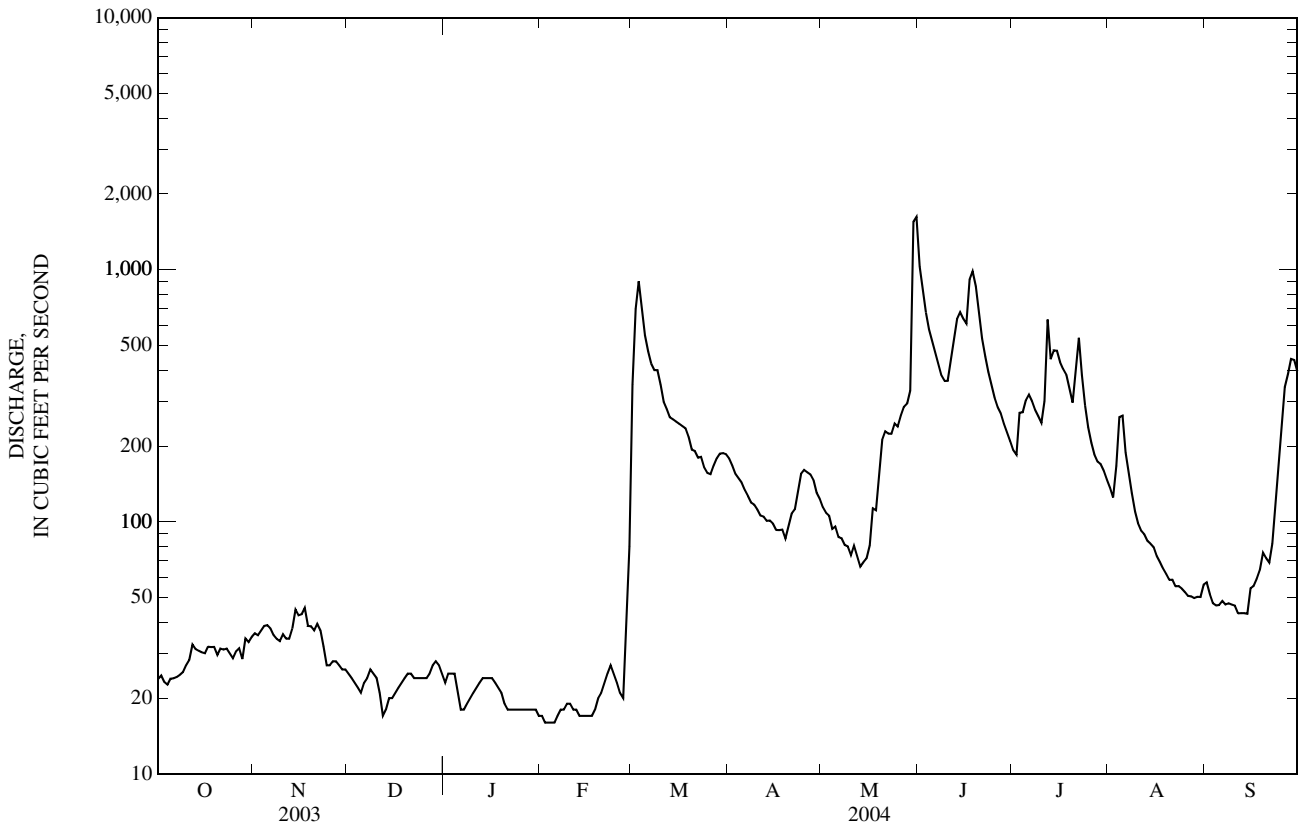
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2004, BY WATER YEAR (WY)

MEAN	177	156	101	49.9	94.2	677	1,434	729	736	470	264	203
MAX	1,736	1,365	665	294	586	2,813	8,439	3,699	5,392	5,362	1,914	2,541
(WY)	(1996)	(1996)	(1996)	(1996)	(1998)	(1985)	(1997)	(1986)	(1984)	(1993)	(1993)	(1986)
MIN	1.60	3.43	2.30	0.71	1.30	10.6	45.3	42.6	19.4	2.77	0.17	0.00
(WY)	(1977)	(1977)	(1977)	(1977)	(1977)	(1975)	(1959)	(1981)	(1976)	(1976)	(1976)	(1976)

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1949 - 2004	
ANNUAL TOTAL	35,504		57,128		<sup>a</sup> 424	
ANNUAL MEAN	97.3		156		1,654	
HIGHEST ANNUAL MEAN					23.1	1993
LOWEST ANNUAL MEAN					35,000	1959
HIGHEST DAILY MEAN	1,000	Mar 20	1,620	May 31	0.00	Apr 10, 1969
LOWEST DAILY MEAN	16	Mar 8	16	Feb 2	<sup>b</sup> 0.00	Aug 25, 1976
ANNUAL SEVEN-DAY MINIMUM	17	Mar 5	16	Jan 31	0.00	Aug 25, 1976
MAXIMUM PEAK FLOW			2,000	May 30	41,300	Apr 9, 1969
MAXIMUM PEAK STAGE			8.52	May 30	16.47	Apr 9, 1969
ANNUAL RUNOFF (AC-FT)	70,420		113,300		307,500	
10 PERCENT EXCEEDS	293		401		1,040	
50 PERCENT EXCEEDS	36		66		102	
90 PERCENT EXCEEDS	20		20		12	

a Median of annual mean discharges, 260 ft<sup>3</sup>/s.  
 b Also Aug. 26 to Oct. 17, 1976.  
 e Estimated.



## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-62, October 1967 to September 1984, and March to September 2004 (seasonal).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1967 to September 1971, October 1974 to September 1975, October 1979 to September 1984, and March to September 2004 (seasonal).

SPECIFIC CONDUCTANCE: October 1967 to September 1970, October 1973 to September 1984, and March to September 2004 (seasonal).

pH: March to September 2004 (seasonal).

DISSOLVED OXYGEN: March to September 2004 (seasonal).

TURBIDITY: March to September 2004 (seasonal).

SUSPENDED SEDIMENT DISCHARGE: October 1967 to September 1976.

REMARKS.--Data published in the tables below are rated as follows: temperature, good; specific conductance, good; pH, good; dissolved oxygen, poor; and turbidity, good except those for Aug. 24 to Sept. 30, which are poor. Daily records are collected at 15-minute intervals using multi-parameter water-quality instrument. Satellite data-collection platform at station. Interruptions in daily records due to probes fouling and/or instrument malfunctions.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum daily, 33.5°C, July 7, 12, 16, 20, 1974; minimum daily, 0.0°C for many days.

SPECIFIC CONDUCTANCE: Maximum daily, 2,100 µS/cm, Jan. 27, 1977; minimum daily, 140 µS/cm, Apr. 9, 1969.

pH: Maximum daily, 9.4 standard units, Mar. 26, 2004; minimum daily, 7.6 standard units, May 30, 31, 2004.

DISSOLVED OXYGEN: Maximum daily, 22.3 mg/L, Aug. 28, 2004; minimum daily, 2.2 mg/L, Aug. 3, 2004.

TURBIDITY: Maximum daily, 800 NT units, May 29, 30, 2004; minimum daily, 11 NT units, Sept. 14, 2004.

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	11.9	8.1	9.6	15.1	10.9	12.7
2	---	---	---	---	---	---	13.1	9.0	10.6	13.9	9.8	11.7
3	---	---	---	---	---	---	13.1	9.5	10.8	14.6	9.3	11.9
4	---	---	---	---	---	---	13.3	8.7	10.5	18.4	11.1	14.2
5	---	---	---	---	---	---	14.6	9.1	11.5	21.1	12.4	16.6
6	---	---	---	---	---	---	17.0	11.2	13.6	20.9	15.4	17.9
7	---	---	---	---	---	---	16.7	12.0	13.7	17.3	14.5	16.0
8	---	---	---	---	---	---	15.1	10.2	12.3	21.8	13.7	17.3
9	---	---	---	---	---	---	11.4	9.0	10.5	24.5	16.9	20.2
10	---	---	---	---	---	---	11.3	7.0	8.9	24.3	18.9	21.2
11	---	---	---	---	---	---	10.1	6.5	8.1	24.0	18.7	21.2
12	---	---	---	---	---	---	11.0	5.5	8.1	21.2	16.1	19.0
13	---	---	---	---	---	---	13.8	6.0	9.4	17.9	13.1	15.2
14	---	---	---	---	---	---	15.9	8.2	11.7	18.4	11.4	14.4
15	---	---	---	---	---	---	16.0	11.0	13.5	14.1	11.8	12.5
16	---	---	---	---	---	---	15.5	11.7	13.5	13.7	11.5	12.5
17	---	---	---	---	---	---	17.4	10.9	14.0	14.9	12.2	13.3
18	---	---	---	---	---	---	21.3	14.2	17.1	20.1	12.2	15.6
19	---	---	---	---	---	---	19.4	14.2	16.4	18.4	15.0	16.7
20	---	---	---	7.2	4.0	5.5	15.8	12.4	13.5	19.9	16.6	17.8
21	---	---	---	5.8	3.7	4.5	14.3	10.7	12.4	20.8	18.1	19.2
22	---	---	---	6.4	3.4	4.5	16.5	9.6	12.6	21.2	18.9	20.0
23	---	---	---	8.1	4.2	---	16.7	11.3	13.3	18.9	14.9	17.0
24	---	---	---	11.2	6.7	---	14.8	11.7	13.3	14.9	12.7	13.8
25	---	---	---	12.4	---	---	15.0	11.3	12.7	13.2	12.0	12.6
26	---	---	---	14.6	10.5	12.2	15.7	11.7	13.2	16.4	12.4	14.3
27	---	---	---	14.3	12.6	13.6	17.1	11.7	13.9	19.0	16.0	17.5
28	---	---	---	13.1	9.5	11.5	20.3	13.8	16.7	19.8	18.0	18.9
29	---	---	---	9.8	7.2	8.7	17.1	13.7	15.5	21.0	18.7	19.9
30	---	---	---	9.2	6.6	7.6	15.7	12.0	13.6	19.0	17.3	17.9
31	---	---	---	10.5	6.9	8.3	---	---	---	17.6	17.0	17.3
MONTH	---	---	---	14.6	3.4	8.5	21.3	5.5	12.5	24.5	9.3	16.3













## BIG SIOUX RIVER BASIN

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD—Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Specific conductance, wat unf 25 degC (00095)	pH, water, unfltrd field, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Turbidity, IR LED light, det ang 90 deg, FNU (63680)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Suspended sediment concentration mg/L (80154)	Suspended sediment, sieve diameter percent <.063mm (70331)
MAR												
19...	1510	221	590	8.3	12.0	4.0	17.5	730	13.2	105	22	96
APR												
14...	1450	103	808	8.9	20.0	14.8	29.3	727	11.7	121	50	95
MAY												
25...	1745	300	867	8.9	16.0	13.2	14.3	722	16.9	170	47	83
JUN												
22...	1405	446	868	8.7	20.5	21.5	--	--	13.4	--	82	98
AUG												
10...	1445	103	865	8.9	--	22.3	54.6	732	9.9	119	98	98
24...	1400	119	851	8.9	28.0	25.0	38.8	720	14.9	192	26	99
SEP												
29...	1200	459	798	8.2	18.5	14.9	667	--	8.4	--	--	100

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## BIG SIOUX RIVER BASIN

06481480 SKUNK CREEK NEAR CHESTER, SD

LOCATION.--Lat 43°50'53", long 96°50'10", in NE<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> sec.4, T.104 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on right bank near downstream of county highway bridge, 5.6 mi southeast of Chester.

DRAINAGE AREA.--53.2 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1984 to September 1987, October 2001 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,557.23 ft above NGVD of 1929.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.37	0.46	0.38	0.39	e0.05	e60	8.8	0.69	23	0.39	3.2	0.22
2	0.38	0.50	0.39	0.53	e0.05	e40	7.9	0.58	26	1.2	2.6	0.22
3	0.38	e0.45	0.41	e0.35	e0.04	e40	7.2	1.0	29	4.9	6.5	0.24
4	0.35	e0.43	0.39	0.25	e0.04	e20	6.3	1.2	30	11	15	0.23
5	0.36	e0.38	0.39	0.17	e0.03	e15	5.3	0.44	29	7.1	15	0.26
6	0.38	e0.42	0.41	0.14	e0.03	10	5.2	0.42	27	16	16	0.25
7	0.40	e0.42	0.41	0.19	e0.03	13	4.8	0.36	22	24	15	0.23
8	0.42	0.39	0.39	0.13	e0.03	15	3.0	0.40	16	22	13	0.21
9	0.43	0.41	0.34	0.12	e0.03	16	3.0	0.33	12	18	10	0.20
10	0.44	0.45	0.36	0.25	e0.04	20	2.1	0.30	9.1	15	7.5	0.20
11	0.66	0.44	0.29	0.39	e0.04	19	1.3	0.27	14	68	5.9	0.21
12	0.37	0.41	0.28	0.30	e0.04	29	0.90	0.48	16	83	4.0	0.21
13	0.38	0.39	0.30	0.23	e0.03	21	0.70	0.28	24	73	2.5	0.22
14	0.38	0.43	e0.29	0.23	e0.03	19	0.58	0.24	28	61	1.5	0.23
15	0.40	0.42	e0.30	0.21	e0.03	13	0.57	0.26	30	52	0.93	0.47
16	0.41	0.40	e0.30	0.22	e0.03	9.5	0.56	0.56	36	46	0.67	0.28
17	0.43	0.43	0.27	0.25	e0.03	8.7	0.45	0.67	35	41	0.49	0.37
18	0.46	0.41	0.31	0.22	e0.03	8.1	0.46	1.5	30	36	0.44	0.32
19	0.44	0.39	0.34	0.19	e0.03	7.5	0.43	2.2	26	31	0.34	0.30
20	0.43	0.42	0.35	0.19	e0.03	8.7	0.62	1.9	23	26	0.35	0.54
21	0.41	0.37	0.37	0.20	e0.03	7.3	0.81	1.4	21	29	1.2	1.1
22	0.44	e0.34	0.38	0.18	e0.03	5.9	1.5	1.4	18	26	0.61	6.4
23	0.43	e0.33	0.39	0.21	e0.02	4.8	1.7	2.0	16	23	0.38	19
24	0.45	e0.34	0.37	0.21	e0.02	4.3	1.8	3.2	13	21	0.32	31
25	0.44	0.38	0.35	0.17	e0.01	3.5	1.6	4.6	10	18	0.39	37
26	0.42	0.38	0.38	0.14	e0.02	4.1	1.1	4.7	7.2	14	0.37	37
27	0.51	0.39	0.61	e0.12	e0.02	5.8	0.86	5.0	4.3	11	0.30	34
28	0.47	0.32	0.61	e0.10	e0.02	11	0.93	4.1	2.8	10	0.27	31
29	0.45	0.32	0.47	e0.09	e1.0	14	0.93	7.6	1.4	7.7	0.25	29
30	0.48	0.44	0.43	e0.08	---	12	0.73	e35	0.57	5.5	0.23	28
31	0.46	---	0.36	e0.07	---	10	---	e21	---	3.8	0.26	---
TOTAL	13.23	12.06	11.62	6.52	1.86	475.2	72.13	104.08	579.37	805.59	125.50	258.91
MEAN	0.43	0.40	0.37	0.21	0.06	15.3	2.40	3.36	19.3	26.0	4.05	8.63
MAX	0.66	0.50	0.61	0.53	1.0	60	8.8	35	36	83	16	37
MIN	0.35	0.32	0.27	0.07	0.01	3.5	0.43	0.24	0.57	0.39	0.23	0.20
AC-FT	26	24	23	13	3.7	943	143	206	1,150	1,600	249	514

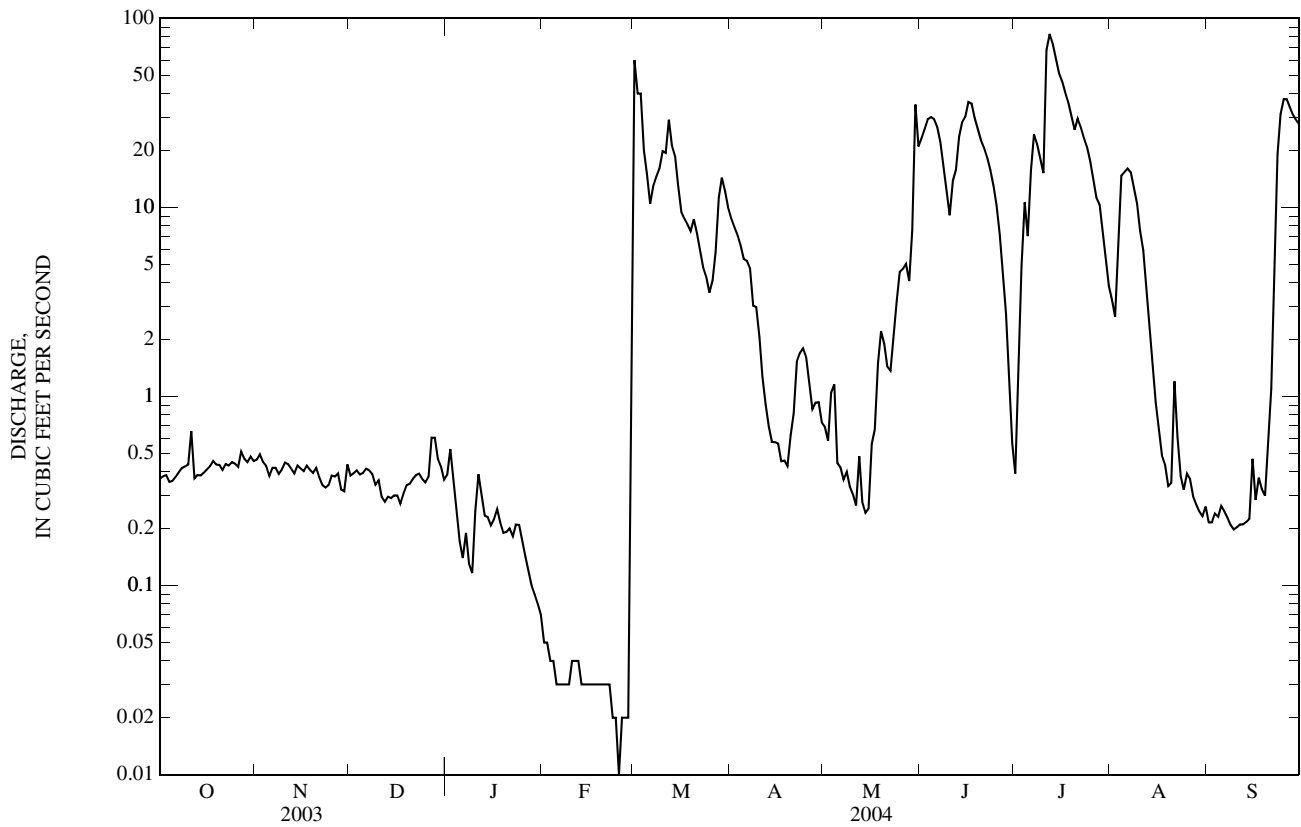
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1987, 2002 - 2004, BY WATER YEAR (WY)

MEAN	40.3	15.7	8.99	4.77	5.95	85.6	115	70.3	43.2	43.1	8.76	45.0
MAX	210	71.2	37.5	22.2	22.9	270	284	304	191	154	38.5	256
(WY)	(1987)	(1987)	(1987)	(1987)	(1987)	(1985)	(1986)	(1986)	(1986)	(1986)	(1986)	(1986)
MIN	0.43	0.40	0.37	0.21	0.06	4.31	2.40	3.36	1.09	0.49	0.48	0.42
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2003)	(2004)	(2004)	(2002)	(2002)	(2003)	(2003)

06481480 SKUNK CREEK NEAR CHESTER, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1985-1987, 2002-2004	
ANNUAL TOTAL	1,966.93		2,466.07			
ANNUAL MEAN	5.39		6.74		40.7	
HIGHEST ANNUAL MEAN					110	1986
LOWEST ANNUAL MEAN					5.57	2003
HIGHEST DAILY MEAN	114	Jun 29	83	Jul 12	813	Sep 22, 1986
LOWEST DAILY MEAN	0.07	Mar 6	0.01	Feb 25	0.01	Feb 25, 2004
ANNUAL SEVEN-DAY MINIMUM	0.08	Mar 4	0.02	Feb 22	0.02	Feb 22, 2004
MAXIMUM PEAK FLOW			119	Jul 11	1,060	Sep 21, 1986
MAXIMUM PEAK STAGE			<sup>a</sup> 4.18	Jul 11	6.95	Sep 21, 1986
ANNUAL RUNOFF (AC-FT)	3,900		4,890		29,470	
10 PERCENT EXCEEDS	16		24		133	
50 PERCENT EXCEEDS	0.50		0.46		3.0	
90 PERCENT EXCEEDS	0.34		0.14		0.40	

a Backwater from downstream tributary.  
 e Estimated.





## 06481500 SKUNK CREEK AT SIOUX FALLS, SD

LOCATION.--Lat 43°32'01", long 96°47'26", in NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> sec.24, T.101 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 5 ft downstream from bridge on Marion Road, 1.3 mi upstream from mouth, 1.8 mi downstream from small right-bank tributary, and 4.0 mi southwest of Sioux Falls.

DRAINAGE AREA.--622 mi<sup>2</sup>, of which 8.51 mi<sup>2</sup> is probably noncontributing.

PERIOD OF RECORD.--May 1948 to current year. October 2001 to September 2003, daily gage height. May 1948 to September 1971 published as "near Sioux Falls".

REVISED RECORDS.--WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,400.10 ft above NGVD of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Oct. 24, 1949, nonrecording gage, and Oct. 24, 1949, to Apr. 28, 1972, water-stage recorder, both at site 1.9 mi upstream at datum 15.19 ft higher. Apr. 28, 1972, to Sept. 30, 2002, near downstream end of bridge, at same site, at datum 5.00 ft higher (gage moved from right to left bank May 18, 1987).

REMARKS.--Records good except those for estimated daily discharges, which are poor. Gage at temporary site 500 ft upstream due to bridge construction, from Oct. 1 to Nov. 6, at same datum. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6.0	e9.0	6.3	e7.0	e1.2	e550	69	16	793	50	32	33
2	e6.0	e8.0	6.7	e6.5	e1.2	449	60	16	420	47	30	27
3	e6.0	e7.0	7.0	e6.0	e1.1	276	54	15	286	54	66	21
4	e6.0	e9.0	7.1	e6.0	e1.6	146	49	14	220	118	101	20
5	e5.0	e10	7.0	e6.0	e1.6	110	47	14	195	158	167	23
6	e6.0	7.7	e6.5	e6.0	e1.5	92	45	13	177	213	147	26
7	e6.0	7.7	e6.5	e3.0	e1.5	112	39	12	158	253	104	23
8	e6.0	6.9	e6.5	e2.0	e1.5	146	32	11	143	217	76	22
9	e6.0	6.9	e6.0	e2.2	e1.5	143	30	11	128	163	60	19
10	e6.0	7.7	e6.0	e2.3	e1.5	136	29	10	116	121	50	17
11	e12	8.1	e6.0	e2.5	e1.6	68	27	9.0	216	97	49	16
12	e9.0	8.8	e5.5	e2.5	e1.6	82	27	14	244	85	39	16
13	e6.0	8.1	e5.5	e2.5	e1.5	92	25	9.5	188	111	35	34
14	e7.0	7.9	e5.8	e2.5	e1.5	88	24	8.6	175	137	31	35
15	e8.0	7.5	e6.0	e2.5	e1.5	75	24	8.6	164	132	31	74
16	e7.0	7.7	e6.0	e2.5	e1.6	68	23	14	966	112	27	40
17	e7.0	7.8	6.6	e2.5	e1.8	62	22	17	643	97	25	26
18	e7.0	7.8	7.3	e2.0	e1.9	63	21	26	388	88	24	24
19	e8.0	9.2	7.1	e1.5	e2.0	65	19	33	263	77	21	24
20	e7.0	9.4	6.8	e1.5	e2.5	65	28	28	197	68	21	28
21	e6.0	9.0	7.2	e1.5	e3.0	59	29	36	165	63	21	36
22	e7.0	9.3	7.7	e1.8	e4.0	55	31	26	141	63	19	52
23	e7.0	6.9	7.8	e1.5	e3.5	53	28	58	118	71	28	114
24	e7.0	e6.5	7.1	e1.5	e3.0	49	30	65	105	62	28	152
25	e6.0	e6.2	6.8	e1.5	e3.0	49	30	76	92	55	24	176
26	e5.0	e6.0	7.0	e1.5	e4.5	50	27	82	84	49	27	148
27	e8.0	e5.8	11	e1.5	e8.0	69	24	76	73	42	27	127
28	e13	e5.5	12	e1.5	e15	102	22	66	66	41	26	110
29	e10	6.1	10	e1.5	e150	110	19	162	60	38	26	95
30	e8.0	6.4	9.0	e1.5	---	97	18	3,430	54	35	25	87
31	e8.0	---	7.5	e1.4	---	81	---	1,730	---	35	53	---
TOTAL	222.0	229.9	221.3	86.2	225.7	3,662	952	6,106.7	7,038	2,952	1,440	1,645
MEAN	7.16	7.66	7.14	2.78	7.78	118	31.7	197	235	95.2	46.5	54.8
MAX	13	10	12	7.0	150	550	69	3,430	966	253	167	176
MIN	5.0	5.5	5.5	1.4	1.1	49	18	8.6	54	35	19	16
AC-FT	440	456	439	171	448	7,260	1,890	12,110	13,960	5,860	2,860	3,260

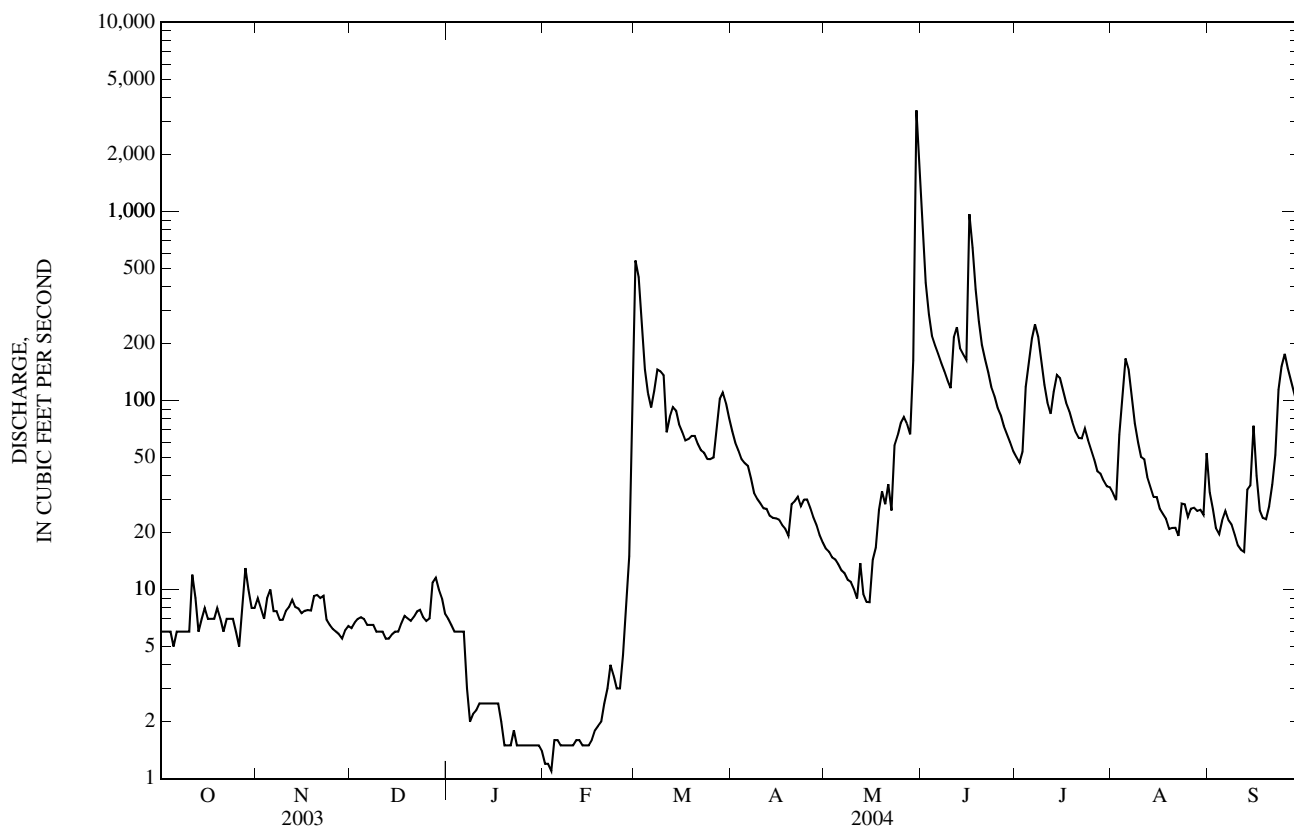
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2001, 2004, BY WATER YEAR (WY)

MEAN	56.1	56.7	40.6	26.9	42.8	199	282	184	180	146	67.4	38.6
MAX	1,369	1,362	1,315	1,055	489	869	1,530	1,698	1,903	2,915	1,260	798
(WY)	(2003)	(2003)	(2003)	(2003)	(2003)	(1983)	(1984)	(2003)	(1984)	(1993)	(2003)	(1986)
MIN	0.14	0.29	0.10	0.05	0.04	1.20	1.35	0.82	0.50	0.16	0.11	0.07
(WY)	(1959)	(1965)	(1965)	(1977)	(1977)	(1968)	(1959)	(1981)	(1977)	(1977)	(1976)	(1958)

06481500 SKUNK CREEK AT SIOUX FALLS, SD—Continued

SUMMARY STATISTICS	FOR 2004 WATER YEAR		WATER YEARS 1949 - 2001, 2004	
ANNUAL TOTAL	24,780.8			
ANNUAL MEAN	67.7		<sup>a</sup> 93.2	
HIGHEST ANNUAL MEAN			625	1993
LOWEST ANNUAL MEAN			1.55	1981
HIGHEST DAILY MEAN	3,430	May 30	11,500	Jun 17, 1957
LOWEST DAILY MEAN	1.1	Feb 3	<sup>b</sup> 0.00	Jan 26, 1951
ANNUAL SEVEN-DAY MINIMUM	1.3	Jan 28	0.00	Jan 26, 1951
MAXIMUM PEAK FLOW	5,450	May 30	<sup>c</sup> 29,400	Jun 17, 1957
MAXIMUM PEAK STAGE	<sup>d</sup> 13.10	May 30	17.78	Jun 17, 1957
ANNUAL RUNOFF (AC-FT)	49,150		67,550	
10 PERCENT EXCEEDS	146		204	
50 PERCENT EXCEEDS	22		10	
90 PERCENT EXCEEDS	2.4		0.60	

- a Median of annual mean discharges, 48 ft<sup>3</sup>/s.
- b No flow at times in some years.
- c Site and datum then in use, from rating curve extended above 8,100 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.
- d From floodmark.
- e Estimated.



## 06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD

LOCATION.--Lat 43°34'01", long 96°42'39", in SW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> sec.10, T.101 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 20 ft downstream from bridge on North Cliff Avenue and 4.1 mi upstream from Slip Up Creek.

DRAINAGE AREA.--5,216 mi<sup>2</sup>, of which 1,487 mi<sup>2</sup> usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi<sup>2</sup> of the usually noncontributing area).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1962 to September 1971 (gage heights and discharge measurements only in files of U.S. Army Corps of Engineers). October 1971 to current year.

REVISED RECORDS.--WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,294.18 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers). Prior to Dec. 15, 1971, nonrecording gage 20 ft upstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow is regulated by a flood-control diversion channel, which starts 16.1 river miles upstream from gage, just north of Foss Air Field, and rejoins the river 0.4 mi upstream from gage since July 1961. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 10, 1969, reached a stage of 27.45 ft, discharge, 40,700 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	41	26	e33	19	690	259	150	2,140	252	186	119
2	23	36	28	e31	20	919	237	147	1,360	248	166	102
3	24	39	30	31	21	819	218	139	1,020	286	630	94
4	22	49	29	31	21	760	199	138	854	383	386	91
5	21	44	28	29	22	616	189	130	767	553	386	165
6	23	44	31	28	21	447	187	127	690	622	364	151
7	23	42	32	20	19	390	179	118	576	579	288	102
8	23	31	37	21	19	440	168	127	518	537	232	95
9	23	31	30	22	20	455	156	115	491	464	195	93
10	24	44	26	23	21	477	157	111	455	398	177	91
11	58	43	29	23	21	313	152	97	804	363	159	91
12	41	42	27	24	20	283	149	154	725	497	169	85
13	29	40	27	25	19	416	146	114	773	608	144	132
14	31	48	27	27	20	371	140	105	857	529	126	267
15	33	40	28	26	19	354	141	101	803	614	129	431
16	28	38	35	27	20	339	137	127	3,430	571	128	150
17	28	47	38	27	21	314	134	203	1,700	510	127	124
18	31	41	39	23	23	319	137	141	1,380	474	121	120
19	37	37	38	23	24	240	136	147	1,160	427	110	118
20	36	43	37	23	25	277	177	187	965	376	107	135
21	27	44	38	22	25	255	170	283	804	354	102	165
22	34	43	38	20	36	261	159	248	682	517	101	160
23	36	34	32	21	40	241	154	399	593	499	153	304
24	35	27	32	22	41	230	193	367	530	373	118	251
25	29	35	30	20	37	199	219	345	460	300	108	308
26	25	30	32	21	37	196	186	293	393	262	105	358
27	32	29	41	20	52	285	181	275	380	230	106	405
28	50	24	47	20	79	335	168	308	346	218	101	426
29	44	26	39	20	168	321	164	998	311	198	101	448
30	35	27	38	19	---	303	154	5,470	320	183	96	443
31	33	---	35	20	---	284	---	4,870	---	189	216	---
TOTAL	961	1,139	1,024	742	930	12,149	5,146	16,534	26,287	12,614	5,637	6,024
MEAN	31.0	38.0	33.0	23.9	32.1	392	172	533	876	407	182	201
MAX	58	49	47	33	168	919	259	5,470	3,430	622	630	448
MIN	21	24	26	19	19	196	134	97	311	183	96	85
AC-FT	1,910	2,260	2,030	1,470	1,840	24,100	10,210	32,800	52,140	25,020	11,180	11,950

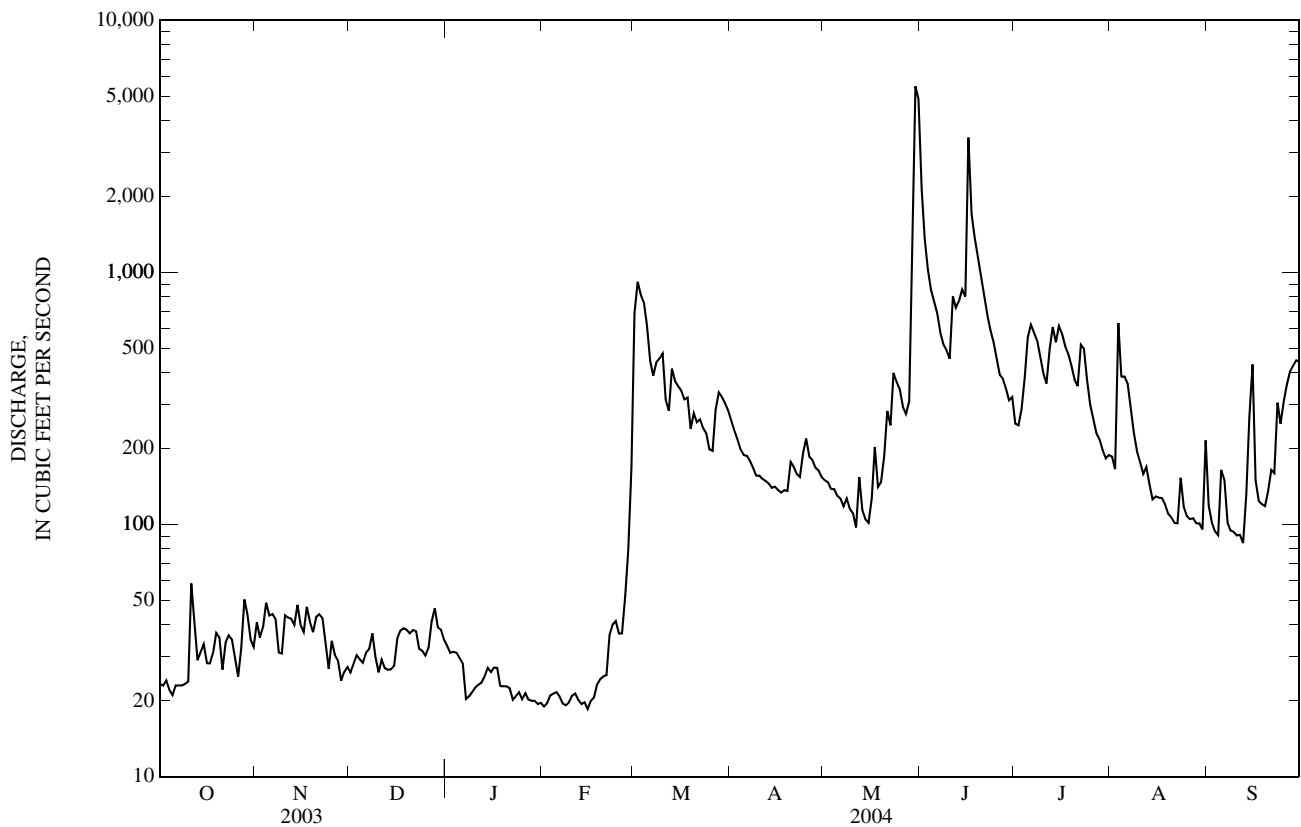
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 2004, BY WATER YEAR (WY)

MEAN	316	295	194	102	178	1,068	1,965	1,221	1,158	837	436	367
MAX	1,869	1,528	793	437	798	3,479	9,974	4,516	6,880	8,612	2,528	3,468
(WY)	(1996)	(1996)	(1999)	(1996)	(1983)	(1985)	(1997)	(1986)	(1984)	(1993)	(1993)	(1986)
MIN	15.9	17.4	15.0	6.26	10.2	31.7	40.8	54.4	31.6	19.4	20.3	16.7
(WY)	(1989)	(1977)	(1990)	(1982)	(1989)	(1975)	(1990)	(1977)	(1976)	(1976)	(1976)	(1976)

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1972 - 2004	
ANNUAL TOTAL	51,998		89,187			
ANNUAL MEAN	142		244		<sup>a</sup> 679	
HIGHEST ANNUAL MEAN					2,312	1993
LOWEST ANNUAL MEAN					50.4	1981
HIGHEST DAILY MEAN	1,190	Jun 26	5,470	May 30	20,700	Jun 22, 1984
LOWEST DAILY MEAN	16	Sep 7	19	Jan 30	0.81	Feb 13, 1982
ANNUAL SEVEN-DAY MINIMUM	18	Sep 2	20	Jan 27	1.3	Feb 8, 1982
MAXIMUM PEAK FLOW			7,140	May 30	21,600	Jun 22, 1984
MAXIMUM PEAK STAGE			16.52	May 30	25.40	Jun 22, 1984
ANNUAL RUNOFF (AC-FT)	103,100		176,900		491,900	
10 PERCENT EXCEEDS	406		532		1,780	
50 PERCENT EXCEEDS	46		125		202	
90 PERCENT EXCEEDS	26		23		25	

a Median of annual mean discharges, 540 ft<sup>3</sup>/s.  
 e Estimated.



06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD—Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Chemical analyses: October 1972 to September 1981, October 2001 to current year. Sediment records: Periodic samples taken October 2001 to current year.

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 2001 to current year.  
 SPECIFIC CONDUCTANCE: October 2001 to current year.  
 pH: October 2001 to current year.  
 DISSOLVED OXYGEN: October 2001 to current year.  
 TURBIDITY: October 2001 to current year.

REMARKS.--Data published in the tables below are rated as follows: temperature, good; specific conductance, good; pH, good; dissolved oxygen, poor; and turbidity, good except those for Aug. 25 to Sept. 30, which are poor. Daily records are collected at 15-minute intervals using multi-parameter water-quality instrument. Satellite data-collection platform at station. Interruptions in daily records due to probes fouling and/or instrument malfunctions.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum daily, 32.7°C, Aug. 16, 17, 2003; minimum daily, 0.0°C, many days.  
 SPECIFIC CONDUCTANCE: Maximum daily, 5,260 µS/cm, Feb. 24, 2002; minimum daily, 94 µS/cm, Aug. 21, 2002.  
 pH: Maximum daily, 9.2 standard units, Apr. 5, 11, 2003, and Mar. 26 and June 22, 2004; minimum daily, 7.4 standard units, Sept. 5, 2003.  
 DISSOLVED OXYGEN: Maximum daily, 20.6 mg/L, Dec. 24, 2002; minimum daily, 0.1 mg/L, Apr. 13, 2003.  
 TURBIDITY: Maximum daily, 1,060 NT units, Aug. 21, 2002; minimum daily, 1.8 NT units, Feb. 26, 2002.

 TEMPERATURE, WATER, DEGREES CELSIUS  
 WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	16.6	11.8	13.8	6.8	5.0	5.7	5.0	1.4	3.2	3.9	2.0	---
2	16.0	11.5	13.4	8.2	4.5	6.4	4.3	2.9	3.7	4.7	1.4	2.7
3	16.7	13.4	14.6	6.5	3.7	4.9	4.8	2.8	3.8	5.2	1.6	2.9
4	18.2	13.8	15.5	5.3	3.5	4.5	4.6	1.6	3.5	4.0	1.0	2.1
5	19.4	13.0	15.9	5.0	2.9	3.8	4.6	2.2	3.7	1.8	0.4	1.1
6	20.9	14.2	17.0	5.7	2.2	3.5	4.4	2.4	3.3	3.1	0.6	2.1
7	21.7	16.2	18.1	5.7	1.8	3.2	4.2	1.9	3.0	6.2	3.0	4.5
8	22.9	17.9	19.6	5.3	2.7	3.8	3.5	1.9	2.8	5.6	4.2	4.9
9	23.4	19.1	20.9	6.1	2.1	3.9	4.0	1.7	2.9	6.3	3.7	4.9
10	21.6	18.3	20.0	5.3	3.4	4.3	4.0	1.9	3.1	5.7	4.5	5.2
11	19.4	14.4	16.9	7.5	3.6	5.3	4.5	1.6	3.2	5.2	2.3	4.1
12	16.8	13.3	14.8	---	---	---	4.6	3.1	3.9	4.8	2.2	3.3
13	15.3	13.5	14.4	---	---	---	5.0	3.2	4.2	5.6	3.3	---
14	16.5	12.7	14.1	---	---	---	4.7	2.6	3.7	5.3	3.0	---
15	15.3	11.5	13.2	6.5	4.3	5.4	3.1	2.2	2.6	6.5	3.5	5.0
16	13.4	11.7	12.4	8.3	5.6	6.6	3.3	2.0	2.6	6.6	4.2	5.3
17	15.0	10.1	12.6	9.5	5.6	7.3	4.0	2.7	3.6	5.5	2.6	---
18	16.7	11.1	14.0	9.2	6.3	7.8	4.2	2.7	3.4	4.5	1.5	2.7
19	17.4	11.8	14.5	10.3	6.8	8.2	4.3	1.9	3.2	4.2	1.7	3.1
20	17.3	13.0	15.2	8.5	6.5	7.8	4.0	2.4	3.1	5.2	3.0	4.0
21	18.2	14.6	16.0	6.7	4.5	5.7	4.2	2.1	2.7	4.9	0.0	3.0
22	18.3	14.2	16.0	4.6	2.5	3.4	3.8	1.6	---	4.4	0.3	2.5
23	16.8	12.3	14.9	2.7	0.4	1.5	4.6	1.8	3.1	5.5	2.4	3.9
24	15.5	13.1	14.0	5.0	0.7	2.3	4.7	1.8	3.2	3.2	1.4	2.3
25	13.6	9.4	11.3	4.1	1.0	2.6	4.8	1.9	3.4	2.2	0.8	1.7
26	9.7	7.5	8.9	5.2	2.5	3.5	3.5	1.3	2.8	2.9	0.0	1.7
27	8.7	7.3	8.0	4.8	1.4	3.2	4.6	2.2	3.2	5.2	1.6	3.1
28	8.2	6.3	6.9	3.4	0.9	2.0	2.6	1.6	2.2	4.9	2.2	3.2
29	8.1	5.8	7.0	5.7	---	---	2.8	1.4	2.1	5.2	2.2	3.4
30	9.1	6.5	7.8	5.6	2.0	3.8	3.8	1.4	2.7	4.5	2.2	3.0
31	8.3	6.6	7.7	---	---	---	4.6	1.9	3.0	3.8	1.9	2.8
MONTH	23.4	5.8	13.9	10.3	0.4	4.6	5.0	1.3	3.2	6.6	0.0	3.3



06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	1,810	1,630	1,730	1,460	1,210	1,350	1,870	1,650	1,750	1,630	1,380	1,440
2	1,780	1,590	1,730	1,300	1,140	1,240	2,030	1,560	1,720	1,490	1,380	1,430
3	1,820	1,580	1,710	2,140	1,260	1,520	2,110	1,780	1,930	1,870	1,490	1,630
4	1,820	1,490	1,670	1,840	1,570	1,720	2,670	1,990	2,190	1,860	1,480	1,610
5	1,560	1,410	1,510	1,820	1,560	1,680	2,710	2,070	2,470	1,680	1,490	1,590
6	1,680	1,440	1,560	1,620	1,320	1,480	2,690	2,340	2,440	1,950	1,570	1,690
7	1,790	1,560	1,700	1,430	1,320	1,370	2,360	1,720	2,030	2,070	1,950	2,030
8	1,850	1,660	1,790	1,530	1,300	1,400	1,840	1,680	1,760	2,130	1,860	2,070
9	1,870	1,460	1,740	1,550	1,270	1,390	2,050	1,680	1,860	2,090	1,930	2,050
10	1,860	1,520	1,770	1,480	1,290	1,380	2,160	1,900	2,030	2,070	1,770	1,980
11	1,780	875	1,240	1,430	1,180	1,320	1,950	1,840	1,910	1,960	1,670	1,800
12	1,120	966	1,030	---	---	---	2,030	1,900	1,960	1,740	1,520	1,680
13	1,320	1,080	1,220	---	---	---	2,000	1,890	1,940	---	---	---
14	1,430	1,240	1,360	---	---	---	1,950	1,730	1,810	1,780	---	---
15	1,520	1,370	1,420	1,390	1,130	1,310	1,740	1,610	1,700	1,820	1,640	1,760
16	1,610	1,480	1,560	1,390	1,180	1,310	1,800	1,580	1,680	1,800	1,620	1,740
17	1,570	1,390	1,520	1,380	1,250	1,310	2,040	1,540	1,710	1,770	---	---
18	1,640	1,340	1,470	1,410	1,220	1,310	2,100	1,840	1,960	1,860	1,550	1,700
19	1,450	1,340	1,400	1,440	1,280	1,390	2,080	1,880	1,980	1,780	1,600	1,700
20	1,470	1,320	1,380	1,470	1,240	1,380	2,050	1,720	1,890	1,900	1,690	1,800
21	1,710	1,390	1,590	1,390	1,210	1,340	1,720	1,600	1,650	2,040	1,690	1,870
22	1,600	1,500	1,550	1,440	1,200	1,310	1,660	1,540	1,600	2,010	1,770	1,960
23	1,620	1,420	1,560	1,560	1,260	1,400	1,760	1,600	1,720	2,010	1,790	1,890
24	1,580	1,340	1,500	2,060	1,400	1,660	1,730	1,610	1,700	1,940	1,730	1,880
25	1,760	1,500	1,600	2,440	1,400	1,680	1,740	1,590	1,680	1,980	1,790	1,890
26	1,650	1,510	1,600	1,960	1,640	1,770	1,650	1,450	1,540	1,990	1,600	1,850
27	1,660	1,480	1,580	1,850	1,670	1,780	1,660	1,390	1,510	2,100	1,960	2,040
28	1,480	1,240	1,390	---	1,730	---	1,460	1,330	1,420	2,100	1,960	2,050
29	1,430	1,230	1,370	1,980	1,680	1,880	1,510	1,370	1,420	2,060	1,910	1,990
30	1,470	1,230	1,420	1,930	1,650	1,790	1,520	1,400	1,480	1,980	1,830	1,920
31	1,520	1,360	1,470	---	---	---	1,630	1,450	1,540	1,970	1,760	1,870
MONTH	1,870	875	1,520	2,440	1,130	1,480	2,710	1,330	1,810	2,130	1,380	1,820
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	2,000	1,650	1,800	---	533	---	804	737	772	976	906	957
2	2,080	1,710	1,820	633	460	557	778	740	758	1,000	928	970
3	---	1,720	---	528	420	463	778	734	758	1,040	975	1,020
4	2,170	1,900	1,990	491	384	443	824	758	798	1,060	971	1,030
5	2,150	1,940	2,020	495	365	405	862	810	832	1,140	1,060	1,090
6	2,060	1,820	1,970	399	361	368	850	811	835	1,150	1,070	1,110
7	1,960	1,730	1,870	447	364	376	894	811	854	1,200	1,140	1,180
8	1,730	1,590	1,690	411	379	389	902	871	886	1,190	1,030	1,110
9	1,880	1,560	1,720	448	397	426	919	896	907	1,180	1,040	1,110
10	1,900	1,700	1,850	436	414	427	913	884	897	1,210	1,130	1,180
11	1,920	1,780	1,860	488	411	440	923	907	916	1,350	1,200	1,290
12	1,950	1,560	1,830	472	447	461	943	918	931	1,310	846	994
13	1,780	1,550	1,710	474	454	462	956	936	950	1,030	900	964
14	1,870	1,660	1,780	492	436	472	998	956	977	1,180	952	1,080
15	1,790	1,630	1,720	693	491	560	1,030	964	998	1,190	1,060	1,130
16	1,950	1,690	1,810	601	498	540	1,030	973	1,000	1,180	902	1,080
17	1,990	1,870	1,930	879	545	567	1,030	971	1,020	913	674	782
18	2,100	1,880	1,980	611	558	574	1,060	880	1,010	957	895	926
19	2,410	1,940	2,240	945	572	688	1,040	935	994	1,020	921	980
20	2,430	2,090	2,280	848	634	701	1,310	770	952	988	909	939
21	2,440	2,110	2,270	717	681	700	1,100	773	851	945	746	835
22	2,450	1,900	2,090	750	677	710	949	890	923	892	828	851
23	2,550	2,050	2,390	722	684	701	975	925	961	892	626	730
24	2,560	2,390	2,480	741	701	725	995	783	897	762	659	705
25	2,470	2,250	2,370	776	724	749	825	744	786	843	686	780
26	2,370	2,000	2,210	773	692	743	903	824	856	---	---	---
27	2,030	1,550	1,860	1,150	628	732	923	876	900	---	---	---
28	1,580	1,300	1,460	800	659	722	934	873	917	933	849	890
29	1,300	770	1,040	771	713	748	940	873	915	903	246	743
30	---	---	---	777	734	750	963	892	937	506	246	396
31	---	---	---	786	740	764	---	---	---	526	381	459
MONTH	2,560	770	1,930	1,150	361	579	1,310	734	900	1,350	246	942







06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD—Continued

DISSOLVED OXYGEN, WATER, UNFILTERED, MILLIGRAMS PER LITER  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
				MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	14.0	11.3	12.4	16.8	13.4	14.6	16.0	13.0	14.4			
2	---	---	---	14.8	11.2	12.7	16.0	12.9	13.9	15.6	13.3	14.1			
3	---	---	---	13.7	11.2	12.3	15.0	12.9	13.7	15.9	12.8	14.0			
4	---	---	---	14.2	12.0	12.8	15.2	12.7	13.5	16.1	12.8	14.2			
5	---	---	---	15.0	12.3	13.4	15.4	12.6	13.8	16.0	13.8	14.6			
6	18.2	---	---	15.4	12.7	13.9	15.7	12.4	13.6	15.5	13.2	14.4			
7	---	10.6	---	15.9	13.0	14.2	15.8	12.8	14.0	15.1	12.2	13.4			
8	---	9.1	---	15.7	12.8	14.0	15.7	13.4	14.1	14.9	11.8	13.0			
9	17.2	8.3	11.9	15.5	12.4	13.8	15.6	13.1	14.1	15.1	12.2	13.3			
10	14.5	8.1	10.8	14.9	12.3	13.4	16.5	12.6	14.2	14.8	12.1	13.1			
11	12.5	8.3	10.4	15.6	11.8	13.5	16.6	13.6	14.7	14.6	12.1	13.3			
12	13.0	9.4	11.0	---	---	---	16.1	13.1	14.2	16.1	13.0	14.1			
13	13.2	9.4	11.2	---	---	---	16.2	13.1	14.1	16.5	12.8	14.1			
14	11.8	7.6	10.0	---	12.1	---	16.0	12.8	14.0	15.9	12.5	13.9			
15	---	---	---	15.0	11.8	13.0	15.7	13.4	14.1	15.8	12.5	13.8			
16	---	---	---	16.4	11.5	13.2	15.3	13.3	14.1	15.5	12.3	13.4			
17	---	---	---	15.3	11.1	12.8	14.8	13.0	13.6	15.6	12.4	13.6			
18	---	---	---	15.4	11.1	12.7	15.8	13.1	14.0	16.4	12.8	14.1			
19	---	---	---	16.3	11.1	13.0	16.2	13.3	14.4	15.9	12.7	14.0			
20	---	---	---	15.0	11.0	12.4	16.0	12.8	14.0	14.7	12.6	13.3			
21	---	---	---	16.8	11.7	13.6	16.6	13.2	14.3	15.3	12.6	13.9			
22	---	---	---	15.7	12.6	13.9	15.7	13.1	---	16.1	12.9	14.2			
23	---	---	---	16.7	13.5	14.9	15.8	12.9	13.9	15.4	12.3	13.7			
24	---	---	---	17.0	13.0	14.6	15.7	13.0	13.9	16.1	12.9	14.2			
25	---	---	---	15.9	13.1	14.3	15.5	12.8	13.8	15.2	13.2	13.9			
26	---	---	---	16.6	12.7	14.1	15.4	12.8	13.7	15.3	12.9	13.8			
27	---	---	---	15.9	12.6	14.1	15.2	12.6	13.4	14.7	12.8	13.5			
28	---	---	---	16.5	13.6	---	14.9	13.0	13.6	14.5	12.8	---			
29	12.7	10.5	11.3	15.9	13.0	---	15.7	13.1	14.0	14.2	12.6	---			
30	13.1	10.4	11.4	15.8	12.5	13.9	15.7	13.0	13.9	14.6	12.7	13.5			
31	13.6	10.7	11.9	---	---	---	16.1	13.1	14.1	14.8	12.8	13.6			
MONTH	18.2	7.6	11.1	17.0	11.0	13.5	16.8	12.4	14.0	16.5	11.8	13.8			
DAY	FEBRUARY			MARCH			APRIL			MAY					
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN			
1	14.7	13.1	13.8	14.9	14.2	---	13.6	12.1	12.8	11.0	8.9	9.8			
2	14.7	13.1	13.8	15.0	14.8	14.9	---	---	---	11.7	8.9	10.2			
3	14.5	12.7	---	14.9	14.8	14.8	---	---	---	12.1	8.5	10.3			
4	14.2	12.7	13.2	14.9	14.6	14.8	---	---	---	12.2	7.2	9.8			
5	13.9	12.3	13.0	14.6	14.5	14.6	---	---	---	13.6	6.8	9.8			
6	14.1	12.3	13.0	14.7	14.3	14.5	---	---	---	14.8	8.2	11.3			
7	14.8	12.5	13.3	14.8	14.5	14.7	---	---	---	14.2	8.9	11.2			
8	14.9	12.8	13.6	14.8	14.5	14.6	---	---	---	14.4	9.6	12.0			
9	14.8	13.0	13.7	14.8	14.6	14.7	---	---	---	14.2	8.6	11.3			
10	14.8	11.3	12.8	14.7	14.5	14.6	---	---	---	15.8	8.0	11.5			
11	13.3	11.3	12.1	14.9	13.4	14.4	---	---	---	15.0	8.0	11.2			
12	13.6	11.4	12.4	14.9	13.9	---	---	---	---	11.3	8.1	9.9			
13	13.8	11.6	12.5	15.1	13.7	14.4	---	---	---	15.0	9.4	12.3			
14	14.2	11.6	12.5	15.2	14.6	14.9	---	---	---	---	---	---			
15	14.1	12.0	12.8	15.2	14.7	14.9	---	---	---	---	---	---			
16	13.9	11.7	12.6	15.1	14.8	14.9	11.4	8.5	9.7	---	---	---			
17	13.6	11.3	12.1	14.9	13.8	14.6	11.6	8.1	9.7	---	---	---			
18	13.1	11.1	11.9	14.2	13.6	13.8	10.6	7.1	8.8	---	---	---			
19	12.8	10.8	11.5	14.0	12.2	13.3	11.0	7.1	8.4	---	---	---			
20	13.3	10.9	11.9	13.4	12.0	12.8	9.3	7.7	8.7	---	---	---			
21	14.4	11.3	12.6	14.8	12.9	13.9	10.3	8.8	9.4	---	---	---			
22	13.3	11.9	12.4	14.6	12.8	13.7	11.3	8.9	9.9	---	---	---			
23	13.9	12.3	13.0	14.1	11.7	12.8	11.5	8.5	9.8	---	---	---			
24	14.2	12.7	13.2	13.6	11.3	12.2	10.3	8.7	9.4	---	---	---			
25	14.2	12.5	13.1	12.4	10.6	11.4	10.5	9.2	9.8	---	---	---			
26	14.2	12.1	13.0	14.5	10.4	12.1	10.6	8.9	9.7	---	---	---			
27	14.1	12.2	13.0	10.4	9.7	10.1	10.9	8.3	9.6	---	---	---			
28	14.2	13.1	13.7	12.4	10.0	11.3	10.5	7.1	8.9	12.5	6.9	9.1			
29	14.5	13.7	14.1	13.0	11.3	12.2	10.3	6.7	8.5	12.0	10.3	11.2			
30	---	---	---	13.8	12.0	12.9	11.2	8.6	9.6	10.7	6.0	9.2			
31	---	---	---	13.8	12.4	13.0	---	---	---	---	---	---			
MONTH	14.9	10.8	12.9	15.2	9.7	13.6	13.6	6.7	9.5	15.8	6.0	10.6			



06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD—Continued

TURBIDITY, WATER, UNFILTERED, NEPHELOMETRIC TURBIDITY UNITS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	18	4.8	6.5	8.3	5.0	5.6	9.8	4.8	6.1
2	---	---	---	46	4.8	9.6	99	5.3	12	15	4.8	6.4
3	---	---	---	32	7.3	12	29	7.1	11	20	5.0	7.1
4	---	---	---	16	8.7	11	43	7.1	12	13	5.1	7.0
5	---	---	---	15	9.2	11	18	7.7	10	12	5.0	6.8
6	---	23	---	16	8.7	11	82	9.0	15	14	6.5	8.3
7	38	20	26	18	9.0	11	33	9.1	14	21	6.7	9.2
8	55	22	30	55	8.7	14	180	12	28	22	5.9	9.7
9	49	23	33	26	9.5	15	28	12	19	20	8.0	13
10	56	23	33	88	6.4	17	48	10	18	21	5.7	11
11	160	24	48	17	6.6	9.9	32	12	16	30	7.5	12
12	45	22	29	---	---	---	22	11	16	33	7.3	15
13	47	18	29	---	---	---	43	9.1	14	36	5.5	14
14	---	20	---	31	---	---	19	9.1	13	23	8.0	12
15	---	---	---	11	7.9	9.6	18	9.1	12	41	8.8	16
16	---	---	---	12	7.4	8.9	---	---	---	31	6.5	13
17	---	---	---	17	7.9	11	---	---	---	34	5.6	11
18	---	---	---	16	12	13	---	---	---	31	6.8	11
19	---	---	---	20	9.9	12	---	---	---	38	5.8	9.9
20	---	---	---	29	9.8	12	---	---	---	26	7.9	13
21	---	---	---	38	8.1	11	---	---	---	60	8.6	22
22	---	---	---	13	7.7	8.5	---	8.4	---	70	7.7	17
23	---	---	---	23	8.1	12	47	6.2	10	32	8.1	14
24	---	---	---	27	8.6	12	11	5.0	7.1	41	5.7	10
25	---	---	---	25	7.7	11	15	4.9	7.3	45	8.1	18
26	---	---	---	18	7.4	9.4	20	4.7	7.8	70	8.3	24
27	---	---	---	9.7	6.1	7.4	16	8.5	10	65	7.6	18
28	---	19	---	16	5.1	6.8	14	7.8	9.3	17	6.8	10
29	200	11	36	12	4.7	6.0	15	5.7	8.1	24	8.5	13
30	71	11	24	13	5.1	6.6	11	5.1	7.0	21	7.0	13
31	15	7.4	9.7	---	---	---	11	5.0	6.7	19	5.5	10
MONTH	200	7.4	30	88	4.7	11	180	4.7	12	70	4.8	12
	FEBRUARY			MARCH			APRIL			MAY		
1	18	6.7	11	160	---	---	36	28	30	30	17	19
2	19	6.2	12	120	44	65	34	28	32	21	13	15
3	26	7.3	13	60	38	46	43	34	37	23	14	16
4	29	6.6	16	48	32	37	44	34	39	27	15	17
5	21	5.8	11	42	20	28	55	41	47	38	13	16
6	29	5.9	10	20	13	16	64	50	56	19	12	13
7	16	6.2	9.1	16	12	14	70	60	65	20	13	14
8	61	4.2	7.5	20	11	14	---	---	---	86	13	24
9	59	5.5	10	20	14	16	---	---	---	22	11	15
10	28	3.2	9.3	25	20	22	---	---	---	35	11	16
11	18	4.1	6.9	26	12	17	---	---	---	24	14	17
12	20	3.2	5.5	28	11	15	---	---	---	140	17	35
13	8.1	3.0	4.4	34	18	22	---	---	---	37	19	23
14	30	3.6	6.2	21	15	18	---	---	---	35	14	19
15	39	4.1	7.0	21	14	17	---	---	---	81	16	28
16	32	4.7	7.5	22	16	18	20	16	18	110	15	31
17	18	4.9	9.3	79	15	20	25	19	22	84	21	41
18	53	6.8	16	49	16	21	39	20	26	43	17	22
19	23	12	15	26	17	20	38	25	30	34	20	23
20	27	7.1	16	25	19	21	71	28	38	33	23	26
21	24	4.4	11	20	14	16	46	22	29	81	24	35
22	52	17	33	18	13	15	30	20	24	41	21	23
23	36	15	22	19	14	15	39	18	21	64	23	33
24	17	8.9	11	17	14	15	54	22	26	86	22	34
25	12	6.7	8.8	20	16	18	30	20	23	38	24	27
26	22	7.4	12	80	20	27	26	20	22	---	---	---
27	41	14	24	94	30	56	29	19	22	---	---	---
28	34	24	27	60	31	38	24	17	20	37	23	27
29	180	26	52	33	28	30	25	19	22	870	26	140
30	---	---	---	32	25	28	26	18	20	---	---	---
31	---	---	---	31	26	28	---	---	---	---	---	---
MONTH	180	3.0	14	160	11	24	71	16	30	870	11	28

## BIG SIOUX RIVER BASIN

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD—Continued

TURBIDITY, WATER, UNFILTERED, NEPHELOMETRIC TURBIDITY UNITS—CONTINUED  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	JUNE			JULY			AUGUST			SEPTEMBER		
				MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	25	19	21	42	30	35	31	17	23			
2	---	---	---	48	18	22	48	27	34	30	16	20			
3	---	---	---	35	20	25	160	30	62	28	17	21			
4	---	---	---	40	22	26	65	40	49	44	20	23			
5	---	---	---	35	23	28	51	39	45	130	20	46			
6	97	19	43	52	32	37	59	46	54	48	25	34			
7	44	25	33	42	32	37	55	36	45	29	18	23			
8	42	24	30	49	38	42	41	30	37	29	18	22			
9	68	29	34	62	36	39	45	30	39	37	10	17			
10	42	32	34	54	35	38	43	33	37	17	12	14			
11	160	36	76	47	28	33	35	26	30	24	9.7	12			
12	56	34	44	47	28	35	31	27	28	29	12	14			
13	54	30	38	47	37	43	34	20	25	140	12	24			
14	86	35	52	38	32	35	29	20	25	63	24	35			
15	110	31	48	47	29	39	31	23	27	72	26	40			
16	---	---	---	42	32	37	32	20	26	27	15	19			
17	---	---	---	42	32	38	29	21	24	39	15	17			
18	---	---	---	54	35	40	29	21	24	18	11	14			
19	---	---	---	51	34	44	30	20	25	18	9.7	13			
20	---	---	---	42	34	38	29	18	24	23	11	17			
21	---	---	---	40	31	36	27	18	20	24	16	19			
22	---	---	---	68	31	42	31	17	21	36	17	21			
23	---	---	---	55	40	44	93	18	38	48	26	34			
24	---	---	---	41	35	38	43	15	23	36	19	25			
25	---	---	---	42	31	37	---	---	---	33	23	27			
26	36	19	23	44	30	35	---	---	---	39	33	36			
27	27	19	23	83	34	40	28	18	22	42	36	39			
28	28	19	23	41	30	35	65	17	23	41	30	37			
29	---	18	---	39	25	32	29	19	22	34	27	30			
30	27	19	23	36	30	33	30	16	22	31	26	28			
31	---	---	---	43	30	34	190	18	55	---	---	---			
MONTH	160	18	37	83	18	36	190	15	32	140	9.7	25			
YEAR	870	3.0	23												

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Specific conductance, wat unfiltered, 25 degC (00095)	pH, water, unfiltered, std units (00400)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Turbidity, IR LED light, det ang 90 deg, FNU (63680)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Suspended sediment concentration, mg/L (80154)	Suspended sediment, sieve diameter percent <.063mm (70331)
OCT 06...	1320	23	1,660	8.4	27.2	18.4	37.4	--	15.4	--	44	97
DEC 22...	1450	37	1,600	8.4	3.3	3.8	9.00	742	1,550	116	14	84
MAR 23...	1440	233	713	8.9	14.0	8.2	14.0	733	13.0	115	20	98
APR 15...	1220	135	1,030	8.5	22.0	15.3	19.0	727	11.2	118	84	--
MAY 05...	1400	135	1,140	8.5	31.0	18.8	15.0	725	13.1	149	22	68
MAY 26...	1610	229	872	8.7	31.0	15.8	22.4	721	11.4	122	42	94
JUN 02...	1345	1,550	606	7.9	19.0	16.8	105	735	9.2	55	195	91
JUN 16...	1340	4,810	324	8.3	16.0	18.8	508	--	8.9	--	472	90

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## 06482610 SPLIT ROCK CREEK AT CORSON, SD

LOCATION.--Lat 43°36'59", long 96°33'54", in NE $\frac{1}{4}$  NW $\frac{1}{4}$  sec.26, T.102 N., R.48 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 6 ft downstream from highway bridge, 0.3 mi east of Corson, and 3.4 mi upstream from mouth.

DRAINAGE AREA.--464 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1965 to September 1997 and October 2001 to current year. February 1951 to September 1965 gage heights and discharge measurements only in files of U.S. Army Corps of Engineers. October 1989 to September 1997 operated as crest-stage partial-record gage.

REVISED RECORDS.--WDR SD-84-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,304.22 ft above NGVD of 1929 (levels by U.S. Army Corps of Engineers). February 1951 to Aug. 15, 1964, nonrecording gage at datum 0.15 ft higher. Aug. 15, 1964, to Sept. 3, 1970, nonrecording gage at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 17, 1957, reached a stage of 15.41 ft, discharge, 19,300 ft<sup>3</sup>/s.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	22	25	e32	e17	e700	135	52	934	114	108	25
2	22	23	25	39	e17	e600	118	52	855	104	85	24
3	22	22	26	33	e18	e425	108	50	738	118	178	23
4	22	e21	e24	e28	e19	e390	96	48	509	116	304	22
5	21	e18	e23	e25	e20	e370	90	47	371	111	191	23
6	20	e17	e22	e23	e21	e350	83	45	293	136	184	30
7	20	e16	e22	e22	e23	344	79	40	243	126	145	27
8	21	e18	e23	e24	e24	347	75	38	205	115	112	27
9	21	e22	e22	e28	e25	348	71	38	187	107	90	24
10	20	29	e21	e30	e26	308	69	36	173	102	74	22
11	22	36	e19	e31	e27	e200	66	31	243	102	62	20
12	23	40	e18	e32	e28	e198	64	44	260	113	56	21
13	25	34	e20	e32	e27	e195	61	52	231	164	51	22
14	24	32	e23	e33	e23	e165	58	45	235	167	45	70
15	23	31	e25	36	e18	e140	54	39	243	200	43	128
16	22	30	e27	36	e17	112	51	42	440	195	40	211
17	23	30	e27	34	e16	109	49	59	611	157	38	175
18	22	29	e28	26	e20	110	50	84	523	128	36	176
19	21	28	e29	e21	e25	108	52	82	687	115	32	155
20	22	27	e30	e19	e24	107	57	98	857	100	32	114
21	21	26	e30	e21	e22	98	71	104	591	86	31	94
22	20	26	e28	e22	e21	86	75	112	416	81	29	90
23	20	e23	e27	e21	e18	82	73	117	305	117	31	94
24	20	e22	e26	e23	e19	82	69	158	243	172	30	96
25	19	e25	e27	e25	e20	81	75	172	205	143	29	88
26	19	e26	e32	e22	e22	83	73	182	179	106	29	82
27	20	27	e34	e18	e26	96	65	176	161	85	29	74
28	21	25	e32	e17	e30	164	62	163	147	74	28	66
29	21	25	e28	e16	e100	172	57	186	136	68	26	61
30	23	25	e28	e16	---	169	52	2,060	124	62	26	56
31	21	---	e27	e16	---	153	---	1,530	---	109	25	---
TOTAL	664	775	798	801	713	6,892	2,158	5,982	11,345	3,693	2,219	2,140
MEAN	21.4	25.8	25.7	25.8	24.6	222	71.9	193	378	119	71.6	71.3
MAX	25	40	34	39	100	700	135	2,060	934	200	304	211
MIN	19	16	18	16	16	81	49	31	124	62	25	20
AC-FT	1,320	1,540	1,580	1,590	1,410	13,670	4,280	11,870	22,500	7,330	4,400	4,240

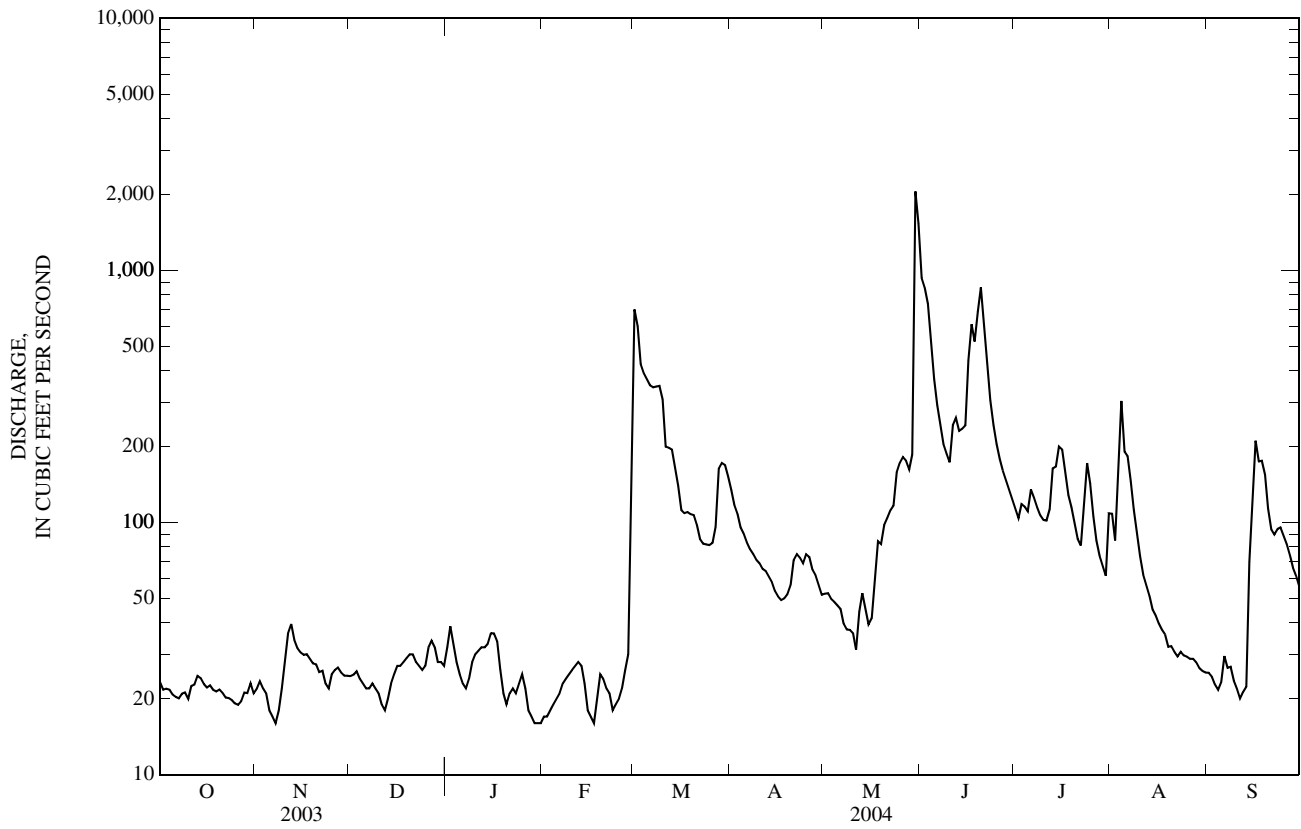
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1989, 2002 - 2004, BY WATER YEAR (WY)

MEAN	45.8	50.1	26.6	17.7	44.5	256	291	124	158	64.4	40.3	69.2
MAX	231	372	86.8	75.3	299	859	2,019	526	1,595	403	364	1,212
(WY)	(1987)	(1983)	(2002)	(1973)	(1983)	(1983)	(1969)	(1984)	(1984)	(1983)	(1979)	(1986)
MIN	2.72	3.07	2.28	0.42	0.20	11.1	17.2	7.86	3.57	2.43	0.82	1.82
(WY)	(1968)	(1968)	(1977)	(1977)	(1977)	(1975)	(1968)	(1981)	(1976)	(1976)	(1976)	(1976)

06482610 SPLIT ROCK CREEK AT CORSON, SD—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1966-1989, 2002-2004	
ANNUAL TOTAL	28,121		38,180		<sup>a</sup> 98.9	
ANNUAL MEAN	77.0		104		348	
HIGHEST ANNUAL MEAN					11.3	
LOWEST ANNUAL MEAN					16,400	
HIGHEST DAILY MEAN	993	Apr 20	2,060	May 30	11.3	1968
LOWEST DAILY MEAN	13	Sep 6	16	Nov 7	<sup>b</sup> 0.00	Apr 8, 1969
ANNUAL SEVEN-DAY MINIMUM	14	Sep 3	17	Jan 27	0.00	Jul 20, 1966
MAXIMUM PEAK FLOW			3,400	May 30	<sup>c</sup> 18,900	Jan 28, 1977
MAXIMUM PEAK STAGE			9.21	May 30	<sup>d</sup> 17.58	May 8, 1993
ANNUAL RUNOFF (AC-FT)	55,780		75,730		71,670	
10 PERCENT EXCEEDS	222		205		182	
50 PERCENT EXCEEDS	29		40		25	
90 PERCENT EXCEEDS	20		21		4.4	

- a Median of annual mean discharges, 68 ft<sup>3</sup>/s.
- b No flow at times in some years.
- c Includes water years 1990-97 during crest-stge gage partial-record year.
- d From floodmark.
- e Estimated.





## 06483500 ROCK RIVER NEAR ROCK VALLEY, IA

LOCATION.--Lat 43°12'52", long 96°17'39", in SW<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> sec.16, T.97 N., R.46 W., Sioux County, Hydrologic Unit 10170204, on left bank 15 ft upstream from bridge on county highway K30, 0.3 mi north of Rock Valley, and at mile 19.1.

DRAINAGE AREA.--1,592 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1948 to current year.

REVISED RECORDS.--WSP 1439: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,222.54 ft above NGVD of 1929. Prior to Aug. 13, 1952, nonrecording gage with supplementary water-stage recorder operating above 6.2 ft gage height. June 4, 1949, to Aug. 12, 1952 and Aug. 13, 1952, to May 4, 1976, water-stage recorder, at site 3.2 mi downstream at datum 10.73 ft lower.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers rain gage and data collection platform with satellite telemetry at station. Precipitation records are available online at the U.S. Army Corps of Engineers website: [www2.mvr.usace.army.mil/WaterControl/datamining2.cfm](http://www2.mvr.usace.army.mil/WaterControl/datamining2.cfm).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1897 reached a stage of 17.0 ft, former site and datum, discharge not determined, from information by State Highway Commission.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	72	e63	e82	e55	e2,010	759	409	3,020	479	378	139
2	74	71	e66	e81	e50	6,820	680	388	2,390	448	410	131
3	74	74	e65	e75	e41	3,890	613	371	1,830	526	452	123
4	73	76	e63	e64	e42	2,630	556	363	1,510	628	525	117
5	71	76	e57	e51	e36	2,670	515	354	1,300	955	928	119
6	69	74	e55	e50	e44	2,870	481	343	1,160	1,830	1,070	146
7	69	72	e62	e56	e40	2,150	451	321	1,040	2,730	800	134
8	68	e71	e63	e63	e34	1,750	419	312	929	2,740	647	125
9	67	e76	e54	e54	e44	1,830	393	309	847	2,110	548	124
10	66	e83	e28	e53	e46	1,700	374	328	810	1,660	473	115
11	71	e81	e40	e63	e60	1,390	355	345	925	1,380	417	110
12	75	78	e37	e57	e44	835	341	351	1,020	1,190	376	108
13	74	76	e49	e57	e44	905	328	330	1,100	1,340	346	104
14	73	76	e65	e53	e34	864	318	314	1,070	1,690	317	138
15	73	76	e68	e50	e28	745	305	273	960	1,450	293	627
16	72	77	e63	e59	e40	670	296	242	1,010	1,160	274	1,420
17	72	77	e57	e55	e36	601	287	244	1,200	1,010	258	1,860
18	72	77	e72	e46	e40	567	318	298	2,770	907	243	1,780
19	70	77	e68	e39	e44	535	357	324	2,920	803	223	1,490
20	69	76	e70	e49	e42	516	368	366	1,760	704	211	1,200
21	69	75	e89	e60	e40	493	429	423	1,360	651	195	982
22	70	74	e87	e43	e46	478	486	540	1,130	573	183	971
23	71	e62	e81	e70	e74	455	520	1,340	974	557	188	1,190
24	70	e53	e79	e60	e46	437	492	1,590	864	526	184	1,310
25	70	e63	e88	e60	e41	422	519	1,670	772	465	176	1,210
26	69	e60	e103	e53	e32	413	523	1,570	699	425	172	1,050
27	71	e62	e113	e48	e122	442	545	1,450	647	390	159	913
28	75	e58	e102	e46	e198	606	531	1,470	602	356	153	808
29	74	e60	e90	e45	e314	811	488	1,410	558	319	146	727
30	73	e66	e81	e46	---	923	444	1,670	519	321	140	666
31	72	---	e77	e50	---	851	---	2,470	---	402	138	---
TOTAL	2,212	2,149	2,155	1,738	1,757	42,279	13,491	22,188	37,696	30,725	11,023	19,937
MEAN	71.4	71.6	69.5	56.1	60.6	1,364	450	716	1,257	991	356	665
MAX	76	83	113	82	314	6,820	759	2,470	3,020	2,740	1,070	1,860
MIN	66	53	28	39	28	413	287	242	519	319	138	104
AC-FT	4,390	4,260	4,270	3,450	3,490	83,860	26,760	44,010	74,770	60,940	21,860	39,550
CFSM	0.04	0.04	0.04	0.04	0.04	0.86	0.28	0.45	0.79	0.62	0.22	0.42
IN.	0.05	0.05	0.05	0.04	0.04	0.99	0.32	0.52	0.88	0.72	0.26	0.47

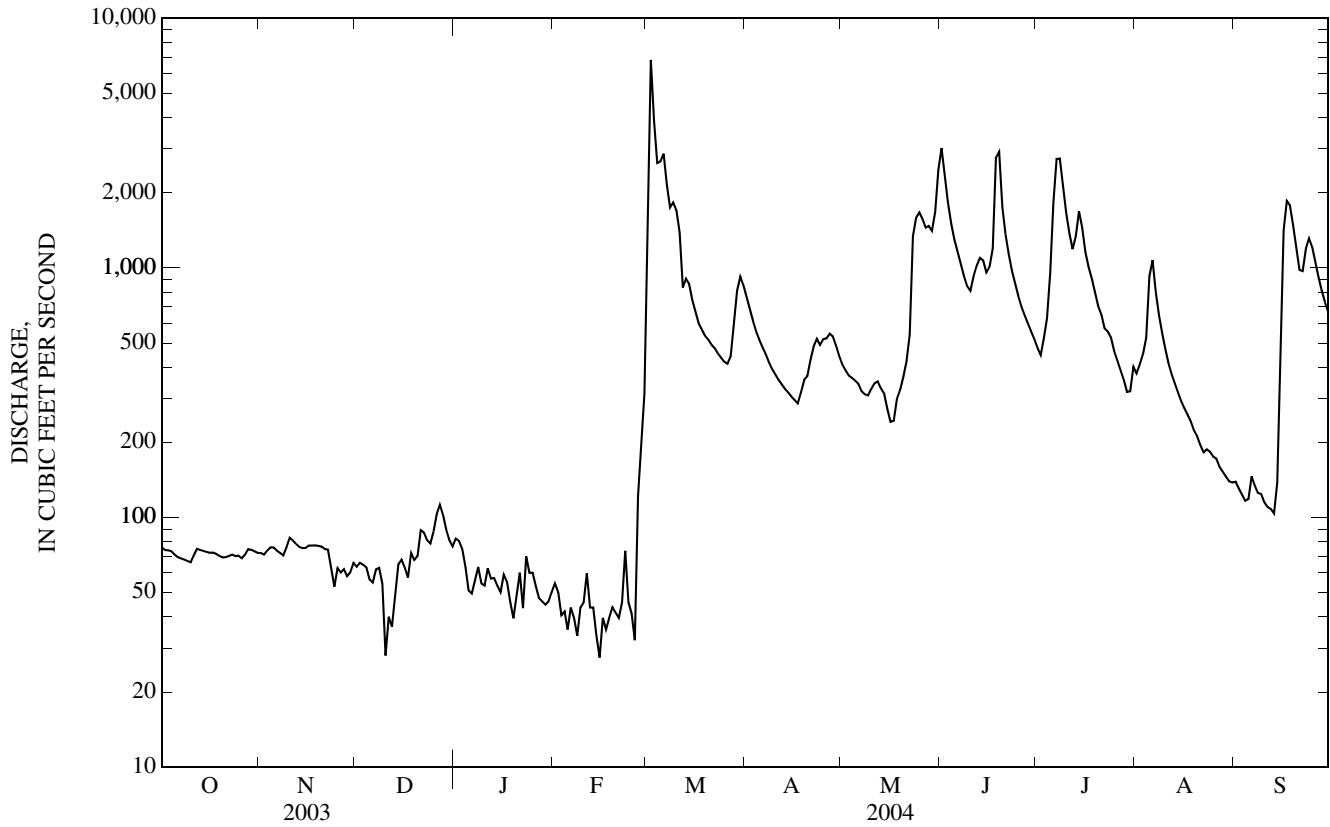
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 2004, BY WATER YEAR (WY)

MEAN	228	255	147	81.3	215	1,000	1,304	714	965	607	269	238
MAX	1,232	2,039	676	434	1,059	4,646	6,507	3,728	6,495	9,088	2,251	2,135
(WY)	(1993)	(1980)	(1983)	(1996)	(1966)	(1997)	(1969)	(1993)	(1993)	(1993)	(1993)	(1986)
MIN	2.39	9.70	3.22	0.04	0.30	35.1	35.9	44.4	46.3	21.9	6.79	3.26
(WY)	(1959)	(1959)	(1959)	(1977)	(1959)	(1959)	(1959)	(1968)	(1964)	(1976)	(1976)	(1955)

06483500 ROCK RIVER NEAR ROCK VALLEY, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1949 - 2004	
ANNUAL TOTAL	78,192		187,350			
ANNUAL MEAN	214		512		502	
HIGHEST ANNUAL MEAN					2,656	1993
LOWEST ANNUAL MEAN					31.0	1968
HIGHEST DAILY MEAN	1,200	May 13	6,820	Mar 2	35,400	Apr 7, 1969
LOWEST DAILY MEAN	26	Jan 26	<sup>a</sup> 28	Dec 10	<sup>b</sup> 0.00	Feb 20, 1959
ANNUAL SEVEN-DAY MINIMUM	34	Jan 23	38	Feb 14	0.00	Feb 27, 1959
MAXIMUM PEAK FLOW			8,380	Mar 2	40,400	Apr 7, 1969
MAXIMUM PEAK STAGE			12.24	Mar 2	<sup>c</sup> 17.32	Apr 7, 1969
ANNUAL RUNOFF (AC-FT)	155,100		371,600		363,600	
ANNUAL RUNOFF (CFSM)	0.135		0.322		0.315	
ANNUAL RUNOFF (INCHES)	1.83		4.38		4.28	
10 PERCENT EXCEEDS	558		1,400		1,140	
50 PERCENT EXCEEDS	83		274		137	
90 PERCENT EXCEEDS	48		50		17	

a Also Feb. 15.  
 b Many days during winter periods in 1959 and 1977.  
 c At location and datum then in use.  
 e Estimated.



## 06485500 BIG SIOUX RIVER AT AKRON, IA

LOCATION.--Lat 42°50'14", long 96°33'41", in SW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> sec.30, T.93 N., R.48 W., Plymouth County, Hydrologic Unit 10170203, on left bank 15 ft downstream from Iowa Highway 403 bridge, 0.5 mi northwest of Akron, and 2.9 mi upstream from Union Creek.

DRAINAGE AREA.--8,424 mi<sup>2</sup>, of which 1,487 mi<sup>2</sup> usually is noncontributing (documented runoff occurred during 1994-2002 water years for 213 mi<sup>2</sup> of the usually noncontributing area).

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M), 1931-33(M), 1936(M), 1938(M), 1940(M). WSP 1389: Drainage area. WDR SD-84-1: Drainage area. WDR SD-94-1 only: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,118.90 ft above NGVD of 1929. Prior to Dec. 3, 1934, nonrecording gage at bridge 0.5 mi downstream at same datum. From Dec. 3, 1934, to Oct. 31, 1985, water-stage recorder at site 0.6 mi downstream at same datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. U.S. Army Corps of Engineers satellite data-collection platform at station. Water temperature and specific conductance measured during the year are compiled in the Miscellaneous Temperature Measurements and Field Determinations section.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	272	279	e250	e245	e170	e2,000	1,960	895	7,890	1,620	945	448
2	268	275	e245	e250	e169	e5,000	1,780	840	10,200	1,530	928	456
3	265	283	e240	e245	e168	8,920	1,630	793	8,570	1,550	954	521
4	262	285	e200	e240	e167	7,220	1,490	764	5,360	1,630	1,030	444
5	259	291	e240	e220	e165	5,410	1,350	730	4,390	1,690	1,250	422
6	257	284	e235	e210	e162	5,350	1,240	700	3,790	2,370	2,000	447
7	253	283	e230	e220	e160	4,980	1,170	664	3,380	3,100	2,030	428
8	249	268	e230	e230	e162	4,160	1,110	633	3,030	3,700	1,760	485
9	244	255	e225	e230	e162	3,450	1,050	615	2,710	3,640	1,510	467
10	240	293	e200	e225	e162	3,370	1,000	614	2,480	3,150	1,180	419
11	251	324	e220	e215	e162	3,230	955	600	2,420	2,730	1,050	398
12	261	314	e230	e220	e160	2,820	920	585	2,620	2,410	948	381
13	266	300	e240	e215	e159	2,130	885	573	3,080	2,210	875	365
14	288	302	e250	e205	e157	2,140	848	586	3,050	2,360	808	469
15	295	301	e245	e200	e155	2,150	822	615	2,940	2,750	777	854
16	275	299	e245	e205	e153	1,970	794	588	2,920	2,670	713	1,770
17	268	302	e245	e210	e150	1,800	756	584	4,050	2,430	669	2,440
18	269	300	e245	e200	e150	1,680	734	593	6,170	2,260	656	2,630
19	264	290	e245	e190	e150	1,610	839	679	5,810	2,080	625	2,440
20	259	298	e245	e190	e155	1,590	847	729	5,350	1,920	593	2,130
21	255	297	e250	e185	e165	1,490	853	819	4,480	1,770	562	1,880
22	255	296	e250	e180	e175	1,410	906	1,060	3,930	1,650	539	1,680
23	254	297	e250	e180	e185	1,360	973	1,780	3,360	1,470	563	1,660
24	248	e285	e250	e185	e195	1,290	996	2,850	2,930	1,490	540	1,790
25	244	e280	e250	e185	e200	1,240	1,020	3,160	2,600	1,540	555	1,960
26	246	e275	e250	e185	e205	1,180	1,050	3,130	2,340	1,410	553	1,950
27	255	e270	e250	e180	e215	1,180	1,100	2,880	2,140	1,250	513	1,810
28	262	e265	e245	e175	e260	1,350	1,090	2,590	2,000	1,110	494	1,720
29	262	e260	e245	e175	e700	1,630	1,040	3,280	1,860	1,020	482	1,660
30	265	e255	e245	e170	---	2,000	969	4,000	1,720	964	467	1,610
31	272	---	e245	e175	---	2,070	---	5,170	---	914	457	---
TOTAL	8,083	8,606	7,435	6,340	5,498	87,180	32,177	44,099	117,570	62,388	27,026	36,134
MEAN	261	287	240	205	190	2,812	1,073	1,423	3,919	2,013	872	1,204
MAX	295	324	250	250	700	8,920	1,960	5,170	10,200	3,700	2,030	2,630
MIN	240	255	200	170	150	1,180	734	573	1,720	914	457	365
AC-FT	16,030	17,070	14,750	12,580	10,910	172,900	63,820	87,470	233,200	123,700	53,610	71,670

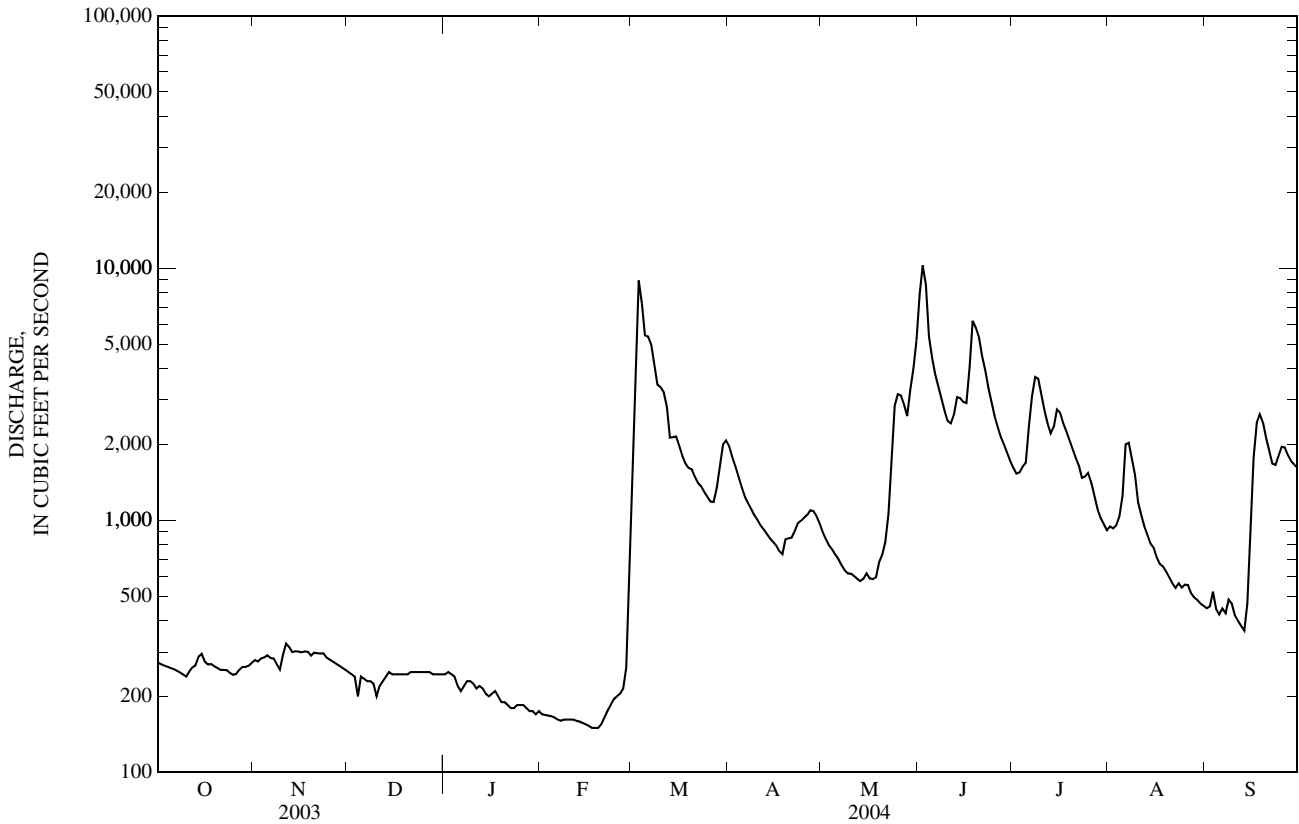
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	529	526	364	219	506	2,349	3,346	1,874	2,207	1,497	766	673
MAX	4,039	3,022	1,987	920	2,399	8,866	20,690	9,499	15,820	21,740	6,200	7,313
(WY)	(1987)	(1980)	(1999)	(1996)	(1966)	(1983)	(1969)	(1993)	(1984)	(1993)	(1993)	(1986)
MIN	32.9	47.9	32.1	6.68	12.1	124	139	73.3	100	50.7	45.2	36.4
(WY)	(1959)	(1959)	(1977)	(1977)	(1936)	(1931)	(1931)	(1934)	(1933)	(1931)	(1976)	(1976)

06485500 BIG SIOUX RIVER AT AKRON, IA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	250,797		442,536		<sup>a</sup> 1,239	
ANNUAL MEAN	687		1,209		6,271	
HIGHEST ANNUAL MEAN					120	
LOWEST ANNUAL MEAN					1931	
HIGHEST DAILY MEAN	2,900	Jun 28	10,200	Jun 2	77,500	Apr 9, 1969
LOWEST DAILY MEAN	145	Sep 8	150	Feb 17	4.0	Jan 17, 1977
ANNUAL SEVEN-DAY MINIMUM	153	Sep 3	153	Feb 14	4.4	Jan 15, 1977
MAXIMUM PEAK FLOW			11,000	Jun 2	<sup>b</sup> 80,800	Apr 9, 1969
MAXIMUM PEAK STAGE			17.87	Jun 2	<sup>c</sup> 23.38	Apr 26, 2001
ANNUAL RUNOFF (AC-FT)	497,500		877,800		897,300	
10 PERCENT EXCEEDS	1,720		2,970		2,910	
50 PERCENT EXCEEDS	315		596		410	
90 PERCENT EXCEEDS	200		194		73	

- a Median of annual mean discharges, 860 ft<sup>3</sup>/s.
- b Gage height, 22.99 ft.
- c Discharge, 40,400 ft<sup>3</sup>/s.
- e Estimated.



## WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1966 to September 1994 and October 2001 to May 2004.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1974 to September 1981 and October 2001 to September 2002.

SPECIFIC CONDUCTANCE: October 1974 to September 1981 and October 2001 to September 2002.

pH: October 2001 to September 2002.

DISSOLVED OXYGEN: October 2001 to September 2002.

TURBIDITY: October 2001 to September 2002.

REMARKS.--Total Maximum Daily Load (TMDL) samples were collected in the 2004 water year, and the analyses are on file with the South Dakota Department of Environment and Natural Resources. Field parameters for these samples are published below.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	Gage height, feet (00065)	Temperature, water, deg C (00010)	Temperature, air, deg C (00020)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfiltered, uS/cm 25 degC (00095)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	Barometric pressure, mm Hg (00025)
DEC 04...	1100	182	4.72	.1	2.0	8.2	1,250	16.4	117	738
MAY 26...	1500	3,110	10.52	14.7	23.0	8.0	795	8.3	86	726

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